Oracle® Communications EAGLE Database Administration - IP7 User's Guide





Oracle Communications EAGLE Database Administration - IP7 User's Guide, Release 46.9

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- For Non-technical issues such as registration or assistance with My Oracle Support, select 2.
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What's New in This Guide

Release 46.9 - May 2022

This section introduces the documentation updates for Release 46.9 in Oracle Communications EAGLE.

• Removed slan and stplan instances from the guide due to the discontinued support of the stplan application in EAGLE.



1

Introduction

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

Overview

The *Database Administration – IP7 User's Guide* describes the procedures used to configure the EAGLE and it's the database to implement the IP7 Secure Gateway functionality.

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

- E5-ENET the original E5-ENET or the E5-ENET-B card
- E5-E1T1 the original E5-E1T1 or the E5-E1T1-B card
- E5-ATM the original E5-ATM or the E5-ATM-B card
- E5-IPSM the original E5-IPSM or the E5-ENET-B card that is running the IPSHC GPL
- E5-SM4G the original E5-SM4G or the E5-SM8G-B card (not an EPM-B card)
- MCPM the original MCPM or the E5-MCPM-B card

Scope and Audience

This guide is intended for database administration personnel or translations personnel responsible for configuring the EAGLE and its database to implement the IP⁷ Secure Gateway functionality.

Documentation Admonishments

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

Table 1-1 Admonishments

Icon	Description
	Danger:
	(This icon and text indicate the possibility of personal injury.)
DANGER	
^ •	Warning:
WARNING	(This icon and text indicate the possibility of equipment damage.)

Table 1-1 (Cont.) Admonishments

Icon	Description
	Caution:
CAUTION	(This icon and text indicate the possibility of service interruption.)
\wedge	Topple:
TOPPLE	(This icon and text indicate the possibility of personal injury and equipment damage.)

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.

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

IP7 Secure Gateway Overview describes the basics of the IP7 Secure Gateway functionality.

IETF M2PA Configuration Procedures describes the procedures necessary to configure the EAGLE to provide connectivity between SS7 and IP networks, enabling messages to pass between the SS7 network domain and the IP network domain, using M2PA associations and IPLIMx signaling links.

IETF M3UA and SUA Configuration Procedures describes the procedures necessary to configure the EAGLE to provide connectivity between SS7 and IP networks, enabling messages to pass between the SS7 network domain and the IP network domain, using either M3UA or SUA associations and IPGWx signaling links.

End Office Support describes the procedures necessary to allow the EAGLE to share its true point code (TPC) with an IP-based node without the need for a separate point code for the IP node.

IPSG M2PA and M3UA Configuration Procedures describes the procedures necessary to provision the IP7 Secure Gateway feature.

Reference Information contains the following information that is used by more than one procedure in this manual:

- Requirements for EAGLEs Containing more than 1200 Signaling Links
- Determining the Number of High-Speed and Low-Speed Signaling Links
- Enabling the Large System # Links Controlled Feature.



Related Publications

For information about additional publications related to this document, refer to the Oracle Help Center site. See Locate Product Documentation on the Oracle Help Center Site for more information on related product publications.

Locate Product Documentation on the Oracle Help Center Site

Oracle Communications customer documentation is available on the web at the Oracle Help Center (OHC) site, http://docs.oracle.com. You do not have to register to access these documents. Viewing these files requires Adobe Acrobat Reader, which can be downloaded at http://www.adobe.com.

- 1. Access the Oracle Help Center site at http://docs.oracle.com.
- 2. Click Industries.
- Under the Oracle Communications subheading, click the Oracle Communications documentation link.

The Communications Documentation page appears. Most products covered by these documentation sets will appear under the headings "Network Session Delivery and Control Infrastructure" or "Platforms."

- Click on your Product and then the Release Number.
 - A list of the entire documentation set for the selected product and release appears.
- 5. To download a file to your location, right-click the PDF link, select Save target as (or similar command based on your browser), and save to a local folder.

Maintenance and Administration Subsystem

The Maintenance and Administration Subsystem (MAS) is the central management point for the EAGLE. The MAS provides user interface, maintenance communication, peripheral services, alarm processing, system disk interface, and measurements. Management and redundancy are provided by use of two separate subsystem processors.

The MAS resides on two separate sets of Maintenance and Administration Subsystem Processor (MASP) cards and a Maintenance Disk and Alarm card (collectively referred to as control cards). The control cards are located in slots 1113 through 1118 of the EAGLE control shelf. The control cards must be E5-based cards.

E5-based Control Cards

The E5-based set of EAGLE control cards consists of the following cards:

- Two Maintenance and Administration Subsystem Processor cards (E5-MASP) cards.
 Each dual-slot E5-MASP card is made up of the following two modules:
 - Maintenance Communication Application Processor (E5-MCAP) card
 - Terminal Disk Module (E5-TDM) card
- One Maintenance Disk and Alarm card (E5-MDAL card)

Maintenance Communication Application Processor (E5-MCAP) Card



The E5-MCAP card contains the Communications Processor and Applications Processor and provides connections to the IMT bus. The card controls the maintenance and database administration activity and performs both application and communication processing. E5-MCAP cards are located in slots 1113 and 1115 of the control shelf.

Each E5-MCAP card contains two USB ports. One latched USB port is used with removable flash media ("thumb drives"), and one flush-mounted USB port is used with a plug-in flash drive. The removable media drive in the latched USB port is used to install and back up customer data. The flush-mounted USB port is used for upgrade and could be used for disaster recovery.

Terminal Disk Module (E5-TDM) Card

The E5-TDM card provides the Terminal Processor for the 16 I/O ports, and interfaces to the Maintenance Disk and Alarm (E5-MDAL) card and fixed disk storage. The E5-TDM card also distributes Composite Clocks and High Speed Source clocks throughout the EAGLE, and distributes Shelf ID to the EAGLE. Each E5-TDM card contains one fixed SATA drive that is used to store primary and backup system databases, measurements, and Generic Program Loads (GPLs). E5-TDM cards are located in slots 1114 and 1116 of the control shelf.

Maintenance Disk and Alarm (E5-MDAL) Card

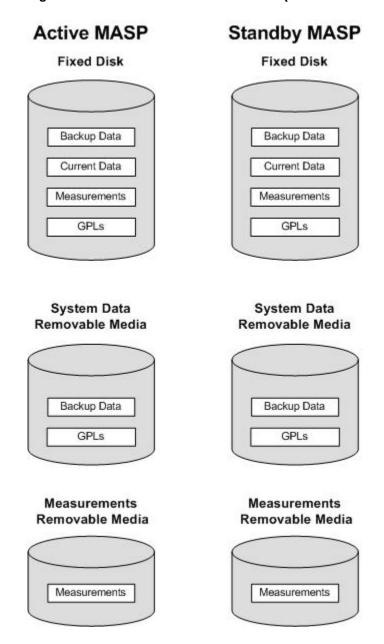
The E5-MDAL card processes alarm requests and provides fan control. There is only one E5-MDAL card in a control card set. Critical, major, and minor system alarms are provided for up to 6 individual frames. In addition to the 3 system alarms, the E5-MDAL card provides the system audible alarm. The E5-MDAL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

EAGLE Database Partitions

The data that the EAGLE uses to perform its functions are stored in two separate areas: the fixed disk drives, and the removable media. The following sections describe these areas and data that is stored on them. These areas and their partitions are shown in Figure 1-1.



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



Fixed Disk Drive

There are two fixed disk drives on the EAGLE. The fixed disk drives contain the "primary" set of data and programs for the EAGLE. The two fixed disk drives are located on the terminal disk modules (E5-TDMs). Both disks have the same files. The data stored on the fixed disks is partially replicated on the various cards in the EAGLE. Changes made during database administration sessions are sent to the appropriate cards.

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

- Current partition
- Backup partition
- Measurements partition



Generic program loads (GPLs) partition

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

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

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

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

Removable Media

The removable media is used with the E5-MCAP card portion of the E5-MASP in card locations 1113 and 1115.

The removable media is used for two purposes.

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

Because of the size of the data stored on the fixed disk drives on the E5-TDMs, a single removable media cannot store all of the data in the database, GPL and measurements partitions.

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

Additional and preformatted removable media are available from the My Oracle Support (MOS).



IP7 Secure Gateway Overview

Chapter 2, IP7 Secure Gateway Overview, describes the basics of the IP7 Secure Gateway functionality.

Introduction

The ${\bf IP}^7$ Secure Gateway functionality in the **EAGLE** provides connectivity between **SS7** and ${\bf IP}$ networks, enabling messages to pass between the **SS7** network domain and the ${\bf IP}$ network domain, as follows:

When an EAGLE receives an SS7 formatted message over an SS7 link, the IP⁷ Secure
Gateway functionality dynamically converts this message into IP format and routes the
re-formatted message over an associated IP link to a destination residing within an IP
network.

The ${\bf IP}^7$ Secure Gateway functionality use associations to access the ${\bf IP}$ domain. Associations identify ${\bf IP}$ sessions.

Conversely, when the EAGLE receives an IP formatted message over an IP link, the IP⁷
Secure Gateway functionality dynamically converts this message into SS7 format and
routes the re-formatted message over an associated SS7 link to a destination residing
within the SS7 signaling network.

Address resolution is not performed in the **IP** to **SS7** direction. It is the responsibility of the sending application to ensure that the appropriate **SS7** point code information resides in the **IP** message to allow a valid **SS7** message to be constructed for routing to the **SS7** network.

Hardware, Applications, and Functions

The IP7 Secure Gateway functionality is provided by applications that run on IP cards or E5-ENET cards. IP cards provide interfaces between the IMT bus and two 10/100 Base-T IEEE 802.3/DIX Ethernet interfaces. The IP cards, similar to any other Link Interface Module (LIM), use the Interprocessor Message Transport (IMT) bus to communicate with the other cards in the EAGLE. Like other LIMs, the primary job of an IP card is to send and receive SS7 data on a network (in this case, an IP network), and to route that data to other cards in the EAGLE as appropriate.

The **IP** card can run on the following applications:

iplim or iplimi - Both applications support STP connectivity via MTP-over-IP functionality point-to-point connectivity (for more information, see Point-to-Point Connectivity (IPLIM or IPLIMI Application)).

The iplim and iplimi applications support these types of connections:

- M2PA/SCTP/IP (A, B, C, D, and E links)
- SCP
- SEP

SCP/SEP

This type of connection is essentially the same as that of a traditional **SS7** point-to-point link, except that the traditional **MTP2** and 56Kb/s technology is replaced by **IP** and Ethernet technology.

The iplim application supports point-to-point connectivity for ANSI networks. The iplimi application supports point-to-point connectivity for ITU networks. With the optional ANSI/ITU MTP Gateway feature and proper configuration, the EAGLE could convert between any of the ANSI, ITU-N, and ITU-I networks, switch traffic between these networks, and perform network management for each of these networks (for more information, see Mixed Networks Using the ANSI/ITUMTP Gateway Feature).

The **EAGLE** can support up to 100 cards running the iplim and iplimi applications.

- ss7ipgw and ipgwi These applications support the following types of point-to-multipoint connectivity for networks:
 - SCP connectivity via SCCP/TCAP-over-IP functionality (for more information, see Connecting to SCPs with SCCP/TCAP Messages Sent Over the IP Network)
 - SEP connectivity via ISUP, Q.BICC, and TUP-over-IP functionality (for more information, see Connecting SEPs Using ISUP, Q.BICC, and TUP Messages Over the IP Network)
 - SCP/SEP connectivity via non-ISUP, non-SCCP, non-Q.BICC, and non-TUP-over-IP functionality (for more information, see Connecting SCPs and SEPs Using Non-ISUP, Non-SCCP, Non-Q.BICC, and Non-TUP Messages Over the IP Network)

The ss7ipgw application supports point-to-multipoint connectivity for **ANSI** networks. The ipgwi application supports point-to-multipoint connectivity for **ITU** networks.

The **EAGLE** can support a maximum of 125 cards running the ss7ipgw and ipgwi applications.

In addition to running an iplim, iplimi, ss7ipgw, or ipgwi application, each IP card supports the following functions:

- A Simple Network Management Protocol (SNMP) agent. For more information, see SNMP Agent Implementation.
- Message Transfer Part (MTP) status. This function is available only on IP cards
 that support the ss7ipgw or ipgwi application. For more information, see
 Support for MTP Status Functions.

IP Connections

IP connections involve the following assignments:

- Transport protocol The SCTP transport protocol is specified by the ent-assoc and chg-assoc commands.
- Adapter protocol The M3UA, M2PA, or SUA adapter protocol is specified by the adapter parameter of the ent-assoc and chg-assoc commands.



- One or two near-end (local) hosts The local host is specified by the lhost parameter of the ent-assoc and chg-assoc commands. A second local host can be specified for an association using the alhost parameter of the ent-assoc and chg-assoc commands, allowing the near-end host of the association to be multi-homed. Specifying only one local host for an association allows the association to be uni-homed.
- Far-end (remote) host The remote host is specified by the rhost parameter of the ent-assoc and chg-assoc commands.
- Near-end (local) transport protocol port The local transport protocol port is specified by the lport parameter of the ent-assoc and chg-assoc commands.
- Far-end (remote) transport protocol port The remote transport protocol port is specified by the rport parameter of the ent-assoc and chg-assoc commands.
- SS7 signaling link specified by the loc and link parameters of the ent-slk command.

The local host is mapped to a particular Ethernet interface on the IP card by linking the local host name of the IP connection to an IP address with the ent-ip-host command. The IP address is also assigned to an IP card and to an Ethernet interface on that IP card using the chg-ip-lnk command. A signaling link on that card is assigned to the IP connection using the link parameter of the ent-assoc and chg-assoc commands and referencing the signaling link on the IP card.

An SCTP association can establish a connection between one local host and one remote host (a uni-homed association) or between multiple local hosts and a remote host (a multi-homed association). It is possible that the remote host may be multi-homed, but the **EAGLE** allows only one remote host to be specified for a multi-homed association. If an IP node has multiple IP address associated with it, then an SCTP association originating from this node may take advantage of this added connectivity by establishing an SCTP multi-homed association.

For more information on multi-homed associations, see the Multi-Homed SCTP Associations section and the Routing section.

Figure 2-1 shows the components of an SCTP association and how these components interact with each other.



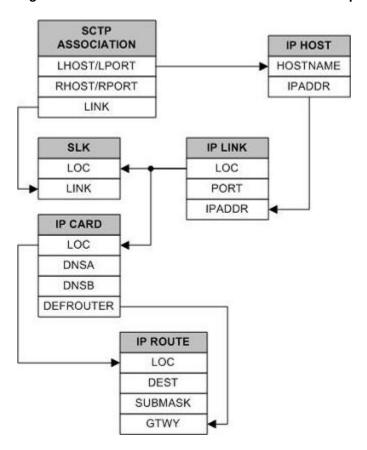


Figure 2-1 SCTP Association Database Relationships

There is no direct correlation between signaling link ports and Ethernet interfaces. A card can be using Ethernet interface A and signaling link B to transmit data to the remote host. Another scenario could have the card using Ethernet interface B and signaling link A to transmit data to the remote host.

The numbers of signaling link ports and Ethernet interfaces on **IP** cards varies depending on the card type and application running on the card, as shown in Table 2-1. The sections that follow Table 2-1 describe the **IP** connections supported by each **IP** card type. The **IP** connections described in these sections are uni-homed **SCTP** associations.

Table 2-1 Ethernet Interface and Signaling Link Combinations

Card	Application	Ethernet Interface	Signaling Link
E5-ENET	IPLIMx	A and B	A - A7, B - B7
	IPGWx	A and B	Α

IP Connection on an E5-ENET Card Running the IPGWx Application



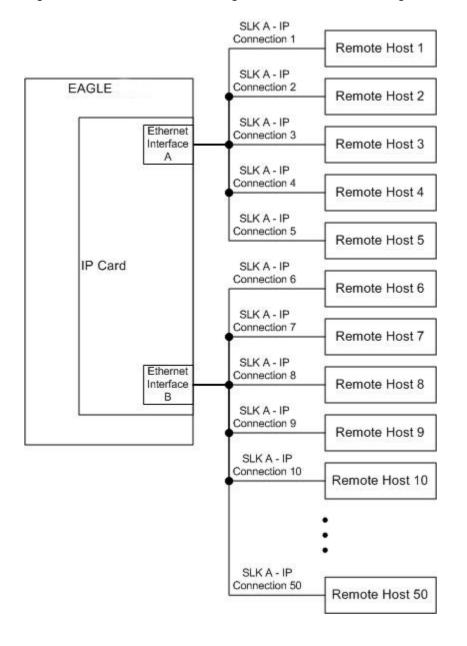


Figure 2-2 IP Connections using an E5-ENET Card running the IPGWx Applications

The assignment of the transport protocol port number is made through the local host port (lport) and remote host port (rport) parameters of the ent-assoc or chg-assoc commands (for an SCTP association).

Figure 2-3 shows typical IP connection data for a uni-homed SCTP association and how these components interact with each other.

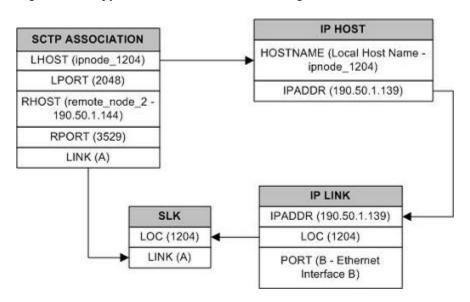


Figure 2-3 Typical SCTP Association Configuration

The IP connection defined by the SCTP association is from local host ipnode-1204 (190.50.1.139), SCTP port 2048, to remote host remote-node-2 (190.50.1.144), SCTP port 3529, using Ethernet interface B on IP card 1204, and signaling link A on IP card 1204.

IP Connection on an E5-ENET Card Running the IPLIMx Application

E5-ENET cards running the IPLIMx applications can have 16 signaling links (A, B, A1, B1, A2, B2, A3, B3, A4, B4, A5, B5, A6, B6, A7 or B7) and 2 Ethernet interfaces (A or B) resulting in a maximum of 16 IP connections, one for each signaling link. Each link can use either Ethernet interface A or B. The local host and alternate host assigned to a signaling link must use different Ethernet interfaces; they cannot be assigned to the same Ethernet interface. Figure 2-4 shows some ways the 16 signaling links and the 2 Ethernet interfaces can be used to establish IP connections.



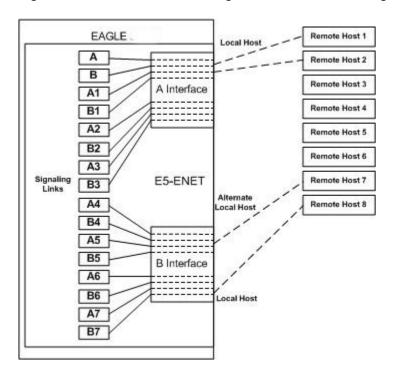


Figure 2-4 IP Connections using E5-ENET Cards running the IPLIMx Applications

Multi-Homed SCTP Associations

If the IP cards are **EDCMs** or E5-ENET cards, SCTP associations can have two local hosts, and are referred to as multi-homed associations. A multi-homed association uses both Ethernet interfaces on the IP card. Each Ethernet interface is assigned to a local host. Each local host is assigned to a different local network. One of the local hosts is configured with the lhost parameter of the ent-assoc or chg-assoc commands. The second local host, or alternate local host, is configured with the alhost parameter of the ent-assoc or chg-assoc commands. One of the local hosts references one of the Ethernet interfaces on the IP card and the other local host references the other Ethernet interface on the IP card. The multi-homed SCTP association allows the E5-ENET card to communicate with another node over two networks. Traffic is passed to and from the remote node on either local interface on the card.

An SCTP association can be uni-homed also. A uni-homed association uses only one Ethernet interface (A or B), which is assigned to only one local host. This local host is configured with the lhost parameter of the ent-assoc or chg-assoc commands. For a uni-homed association, the alhost parameter is not be specified with the ent-assoc or chg-assoc commands. A uni-homed association allows the IP card to communicate to another node on one network only. Traffic is passed to and from the remote node on the local interface on the card defined by the lhost parameter.

The remote node can be either uni-homed or multi-homed, and is not dependent on whether or not the local node (containing the local hosts) is uni-homed or multi-homed. For example, Node A can be uni-homed and can be connected to a multi-homed Node B, or a multi-homed Node A can be connected to a uni-homed Node B. Table 2-2 illustrates the possible combinations.



Table 2-2 Uni-Homed and Multi-Homed Node Combinations

	Node A	Node B
Uni-homed		Uni-homed
Uni-homed		Multi-homed
Multi-homed		Uni-homed
Multi-homed		Multi-homed

Multi-Homed Associations on EDCMs or E5-ENET Cards Running the IPLIMx Application

A multi-homed association on an IPLIMx card uses both Ethernet interfaces to reach the remote host, but only one signaling link. An association, either uni-homed or multi-homed, can be assigned to only one signaling link. That signaling link can be either signaling link A or B. The local and alternate local hosts are assigned to each Ethernet interface on the IP card. The IPLIMx cards are limited to one IP connection per signaling link. Since the IPLIMx cards can have eight signaling links on the card, eight multi-homed associations can be assigned to an IPLIMx card.

Figure 2-5 shows the ways a multi-homed **IP** connection can be established on an IPLIMx card. The remote hosts can be multi-homed, but only one remote host can be specified for each multi-homed association in the **EAGLE**, so only one remote host is shown in Figure 2-5.



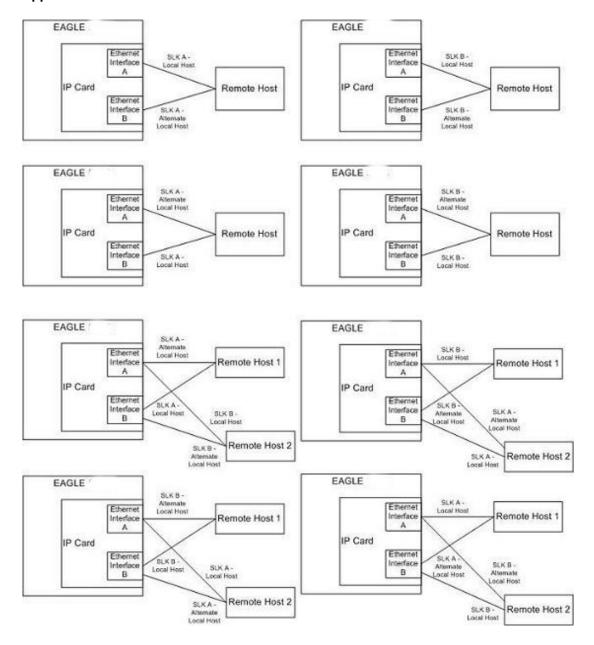


Figure 2-5 Multi-Homed Associations on E5-ENET Cards running the IPLIMx Applications

Multi-Homed Associations on E5-ENET Cards Running the IPGWx Applications

A multi-homed association on an IPGWx card uses both Ethernet interfaces to reach the remote host, but only one signaling link, signaling link A on the IPGWx card. The local and alternate local hosts are assigned to each Ethernet interface on the IP card. The IPGWx cards can have up to 50 connections for each IPGWx card. The IPGWx card can contain both uni-homed and multi-homed IP connections, as long as the total number of connections does not exceed 50.

Figure 2-6 shows the way a multi-homed IP connection can be established on an IPGWx card. The remote hosts can be multi-homed, but only one remote host can be specified for each multi-homed association in the **EAGLE**, so only one remote host is shown in Figure 2-6.

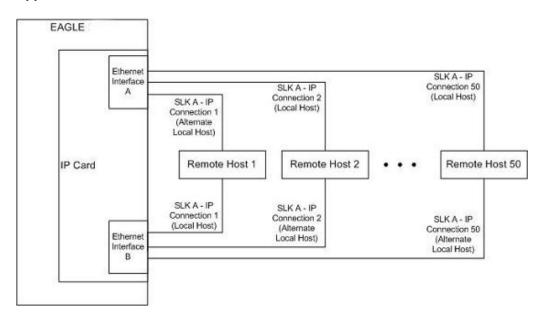


Figure 2-6 Multi-Homed Associations on E5-ENET Cards running the IPGWx Applications

Figure 2-7 shows the components of the multi-homed SCTP association and how these components interact with each other.

IP HOST SCTP ASSOCIATION HOSTNAME (Local Host Name -LHOST (local_host_1) local_host_1) ALHOST (local_host_2) IPADDR (190.1.5.56) LPORT (3425) RHOST (remote host 2) IP HOST **RPORT (4195)** HOSTNAME (Alternate Local Host Name -LINK (A) local_host_2) IPADDR (189.20.30.137) IP LINK IP LINK IPADDR (189.20.30.137) IPADDR (190.1.5.56) LOC (1201) LOC (1201) PORT (B - Ethernet PORT (A - Ethernet Interface B) Interface A) SLK LOC (1201) LINK (A)

Figure 2-7 Multi-Homed Association Database Relationships

Using the data shown in Figure 2-7, the IP connection is defined as a multi-homed association, connecting to a remote host using local hosts 190.1.5.56 and 189.20.30.137 over SCTP port 3425, using signaling link B on card 1201.

Routing

The IP7 Secure Gateway functionality in the EAGLE support two transport protocols –TCP and SCTP. Although both transport protocols are connection oriented, they differ greatly with respect to operation in a multi-homed host environment. The TCP protocol provides for a point-to-point transport connection. The SCTP protocol implements connections with either point to point, point to multi-point, or multi-point to multi-point connectivity capabilities.

An SCTP IETF connection (association) is defined as a four-tuple as follows:

- local host list one or more of the local host's IP interface addresses
- local SCTP port
- remote host list one or more of the remote host's IP interface addresses
- remote SCTP port

Based on this definition for an SCTP IETF connection, and the fact that the IPGWx and IPLIMx applications may utilize both Ethernet interfaces (a multi-homed host), an SCTP IETF association can take advantage of multi-homing and be a multi-homed SCTP endpoint. As a multi-homed endpoint, an SCTP IETF connection remains active and usable as long as at least one of the Ethernet interfaces can be reached by the remote host. Multiple paths through multiple interfaces to the remote host provides a more reliable connection. The SCTP IETF protocol is designed to make such a network outage transparent to the application.

In previous releases, an SCTP IETF endpoint could only operate as a uni-homed host using only the Ethernet A interface. In this mode, any SCTP transmission received on or transmitted out of the Ethernet B interface are silently discarded. By using the Ethernet B interface, the SCTP protocol running on the IP card can provide SCTP multi-homing endpoint support – that is, when an SCTP IETF association is formed, it may list both the Ethernet A and B IP addresses for the respective interfaces. As a multi-homed association endpoint, SCTP data would be allowed to flow on either of the Ethernet interfaces and thus provide more robust network connectivity.

In order to provide more flexible network connectivity, an association can be configured as follows with respect to the Ethernet interfaces:

- Ethernet A interface only (uni-homed)
- Ethernet B interface only (uni-homed)
- Ethernet A and B interface (multi-homed)

The interface mode is specified by the lhost and alhost parameters of the ent-assoc or chg-assoc commands.

In previous releases, the <code>lhost</code> parameter of the <code>ent-assoc</code> or <code>chg-assoc</code> commands is used to define the local IP address of the SCTP IETF association endpoint. The IP address would have to be an IP address associated with an Ethernet A interface. With this release, the IP address may be associated with either the Ethernet A or B interfaces. If it is an Ethernet A interface IP address, and the <code>alhost</code> parameter is not specified, then the association operates as a uni-homed SCTP endpoint on Ethernet interface A. If it is an Ethernet B interface IP address, and the <code>alhost</code> parameter is not specified, then the association operates as a uni-homed SCTP endpoint on Ethernet interface B. An association is configured as an SCTP multi-homed endpoint by specifying both the <code>lhost</code> and <code>alhost</code> parameter values with values corresponding to the Ethernet interface IP address for the IP



card. The lhost and alhost parameter values represent the IP addresses specified by the chg-ip-lnk command for the specific IP card. Traffic cannot be passed between the Ethernet interfaces on the IP card containing a multi-homed SCTP association. The IP card cannot act as an IP router between the networks defined by the local host and alternate local hosts of a multi-homed association.

A host that is not on the local network, the network identified by the local host's IP address, can be reached only through a gateway router. A gateway router is a device with more than one physical network connection, and can be connected to multiple networks. Unlike a multi-homed host, a gateway router is permitted to route IP messages between the physical Ethernet interfaces on the IP card. The network portion of the gateway router's IP address must be the same as the network portion of the IP address of one of the IP addresses of the Ethernet interfaces on the IP card. The gateway router is configured using the defrouter of the chg-ip-card command, or using the ent-ip-rte command.

Static entries are added to the IP Routing table using the <code>ent-ip-rte</code> command. Static routes are usually assigned to give control over which routers are used, allowing different routers to be selected based upon the destination IP address. There are two types of static routes:

- host static IP routes
- network or subnetwork static IP routes

The default route entry is a special static route. If there is not a specific host or network address in the IP Routing table that matches the destination IP address of an outbound datagram, then the datagram is sent to the default router (gateway) specified by the default route.

An IP route is configured using the <code>ent-ip-rte</code> command with the location of the IP card, the IP address of the gateway router (the <code>gtwy</code> parameter), and the IP address and subnet mask of the destination (that is, host or network). The IP address of the gateway router must be a locally attached IP address (that is, the gateway IP address must share the network portion of one of the two Ethernet interfaces).

When an IP packet is to be transmitted the IP routing table must be interrogated to determine where to send the IP datagram. If the destination IP address is local to the node (that is, directly reachable by an Ethernet interface), then the IP datagram is transmitted directly to the node with that associated IP address. If the destination IP address is determined to not be local to the node, then it must be routed (that is, sent to a gateway to reach its destination).

IP routing requires accessing the IP routing table to select a route. The destination IP address of the outbound datagram is used to search the IP routing table for the most specific route match. The order for selection is:

- Host route
- 2. Subnetwork route
- Network route
- 4. Aggregated route
- 5. Default route

Based on this selection order if an IP route is found then the outbound IP datagram will be transmitted to the gateway specified by the route. If no IP route is found (where no



default route is specified), then the transmission of the datagram fails due to destination unreachable.

The capability to enter static IP routes provides for flexibility and control with respect to controlling network traffic. An IP card can contain up to 64 IP routes. The EAGLE can contain up to 1024 IP routes.

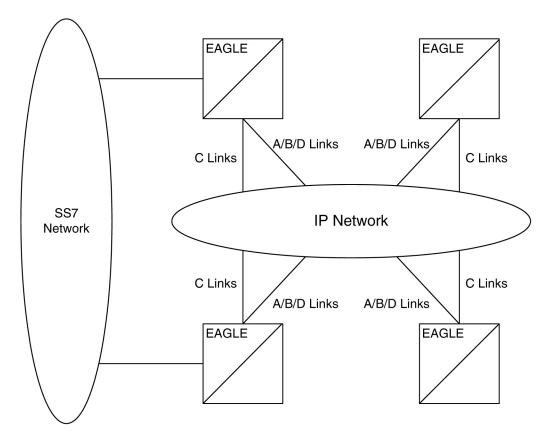
Point-to-Point Connectivity (IPLIM or IPLIMI Application)

The following sections describe the types of point-to-point connectivity provided, and how routing is accomplished, by the iplim or iplimi application:

Connecting STPs Over the IP Network

This functionality allows the use of an **IP** network in place of point-to-point **SS7** links to carry **SS7MSUs**. Figure 2-8 shows a diagram of this type of network. For example, the C links between the mated pair of **STPs** or A/B/D links between **STPs** can be replaced by an **IP** network. The **IP**⁷ Secure Gateway functionality is deployed on both ends of the link (point-to-point connection). The **EAGLE** converts the **SS7MSUs** to **IP** packets on one end of the link, and **IP** packets to **SS7MSUs** on the other end of the link. The **IPLIMx** applications support **M2PA/SCTP/IP** associations over A, B, C, D, and E links.

Figure 2-8 EAGLE Network (STP Connectivity via MTP-over-IP)





Point-to-Multipoint Connectivity (SS7IPGW and IPGWI)

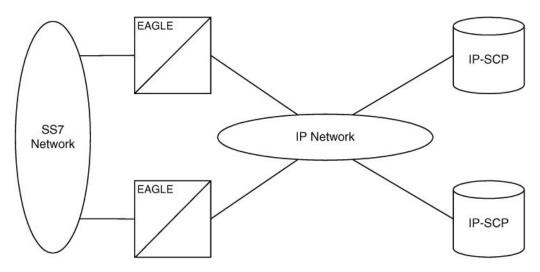
The following sections describe the types of point-to-multipoint connectivity, how routing is accomplished, and the MTP status functions provided by the ss7ipgw and ipgwi applications:

- Connecting to SCPs with SCCP/TCAP Messages Sent Over the IP Network
- Connecting SEPs Using ISUP, Q.BICC, and TUP Messages Over the IP Network
- Connecting SCPs and SEPs Using Non-ISUP, Non-SCCP, Non-Q.BICC, and Non-TUP Messages Over the IP Network
- Understanding Routing for SS7IPGW and IPGWI Applications
- Support for MTP Status Functions

Connecting to SCPs with SCCP/TCAP Messages Sent Over the IP Network

This functionality allows **SS7** nodes to exchange **SCCP/TCAP** queries and responses with an **SCP** residing on an **IP** network. Figure 2-9 shows a diagram of this type of network.

Figure 2-9 IP Network (SCP Connectivity via TCAP-over-IP)



The **EAGLE** manages the virtual point codes and subsystem numbers for the **IP-SCP**. From the **SS7** network perspective, the **TCAP** queries are routed using these virtual point codes/**SSNs**. The **EAGLE** maps the virtual point code/**SSN** to one or more **TCP** sessions (point-to-multipoint connection), converts the **SS7MSUs** to **IP** packets by embedding the **SCCP/TCAP** data inside **IP** packets, and routes them over an **IP** network. The **EAGLE** also manages application subsystem status from an **IP** network's perspective and an **SS7** network's perspective.

The following sequence of events illustrates this functionality:

- Traditional SS7 devices route MSUs (such as TCAP Queries) to the EAGLE.
- The EAGLE performs a global title translation and forwards the translated MSU to the correct IP device based on Point Code and SCCP Subsystem information in the MSU.

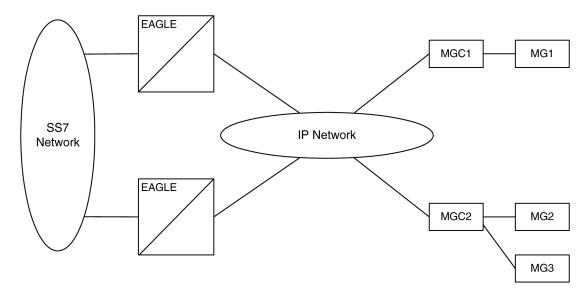


- The TCAP query is processed at the IP-SCP, and the IP-SCP sends a TCAP reply back to the EAGLE.
- 4. The **EAGLE** forwards the **TCAP** reply back to the sender of the original query.

Connecting SEPs Using ISUP, Q.BICC, and TUP Messages Over the IP Network

This point-to-multipoint functionality allows **SS7** nodes to exchange **ISUP**, Q.**BICC**, and **TUP** protocol messages with one or more signaling end points (class 4 switches, class 5 switches, VoIP gateways, Media Gateway Controllers, or Remote Access Servers) residing on an **IP** network. Figure 2-10 shows an example of this type of network.

Figure 2-10 IP Network (SEP connectivity via ISUP, Q.BICC, and TUP-over-IP)



The **EAGLE** maps the originating point code, destination point code, and circuit identification code to an **IP** connection. The **SEP** is provided the originating and destination point codes in the **MTP** level 3 routing label as part of the passed protocol.

Connecting SCPs and SEPs Using Non-ISUP, Non-SCCP, Non-Q.BICC, and Non-TUP Messages Over the IP Network

This point-to-multipoint functionality allows SS7 nodes to exchange non-ISUP, non-SCCP, non-Q.BICC, and non-TUP protocol messages with one or more IP-based devices residing on an IP network. The network example is similar to the SCP connectivity via SCCP/TCAP-over-IP functionality example shown in Figure 2-9. The EAGLE maps the destination point code, and service indicator (non-ISUP, non-SCCP, non-Q.BICC, non-TUP) to an IP connection.

Understanding Routing for SS7IPGW and IPGWI Applications

The ss7ipgw and ipgwi applications can use a single point code, called a virtual point code. This code is assigned to a set of **IP** devices that it connects to. The **EAGLE** distinguishes between the devices within the set by using application routing keys and application servers.

Application routing associates **SS7** routing keys with application servers. **SS7** routing keys define a filter based on **SS7** message data. Application servers define the connection between the **IP** local host/local transport protocol port and **IP** remote host/remote transport protocol port.



An application server is a logical entity serving a specific routing key. The application server contains a set of one or more unique application server processes, of which one or more is normally actively processing traffic. An application server process is a process instance of an application server and contains an **SCTP** association. For more information on application servers, application server processes, and **SCTP** associations, see the IETF Adapter Layer Support section.

If the routing key filter matches the **SS7** message presented for routing to the **IP** network, the **SS7** message is sent to the associated application server.

Only one application server can be associated with each SS7 routing key. One application server can have up to 16 associations. SS7 messages delivered to the IP network using a routing key are distributed over the available application server based on the SLS (signaling link selector) value in the SS7 message.

Routing keys can be fully or partially specified, or specified by default.

Full Routing Keys

For this routing application, all applicable fields in the **Message Signaling Unit (MSU)** must match the contents of the full routing key. Table 2-3 defines which **SS7** message parameters are used to search for a match for full routing keys for each of the functions supported by the ss7ipgw and ipgwi applications (**IPGWx** functionality).

Table 2-3 SS7 Full Routing Keys per IPGWx Functionality

IPGWx Functionality (ANSI and ITU)	SS7 Routing Keys
	Destination Point Code
SCP connectivity via TCAP-over-IP	Service Indicator (=3)
	Subsystem Number
	Destination Point Code
	Service Indicator (=5)
SEP connectivity via ISUP-over-IP	Originating Point Code
	CIC Range Start
	CIC Range End
	Destination Point Code
	Service Indicator (=13)
SEP connectivity via Q.BICC-over-IP	Originating Point Code
	CIC Range Start
	CIC Range End
	Destination Point Code
	Service Indicator (=4)
SEP connectivity via TUP-over-IP (ITU only)	Originating Point Code
	CIC Range Start
	CIC Range End
SCP/SEP connectivity via non-ISUP, non-SCCP, non-Q.BICC, non-TUP-over-IP	Destination Point Code Service Indicator (any value other than 3, 4*, 5, and 13)
* The service indicator value of 4 can be used	in this instance if the DPC is an ANSI point

^{*} The service indicator value of 4 can be used in this instance if the **DPC** is an **ANSI** point code.



Partial Routing Keys

Partially specified routing keys are explicitly, but not completely defined. These routing keys ignore some of the contents of the **MSU**. The parts of the **MSU** that are ignored are specific. For example, for the 'ignore cic' partial-key type, the destination point code (dpc), service indicator (si), and originating point code (opc) must be configured, but the circuit identification code (cic) field does not have to be configured. The other types of **SS7** partial routing keys are as follows:

- dpc, si, and opc specified (ignore cic for CIC-based messages)
- dpc and si specified (ignore ssn for sccp messages)
- dpc and si specified (ignore opc and cic for CIC-based messages)
- dpc specified (ignore all but the dpc field)
- si specified (ignore all but the si field)

Default Routing Keys

Default routing keys do not need any part of the **MSU** specified. This routing key can be used to carry any **SS7MSU**, regardless of the type of **MSU** or the fields that make up the **MSU**.

Routing Key Tables

Each **IP** card has a **Routing Key** table that maps **SS7** routing keys to **IP** connections, as illustrated by the example in **Table 2-4**. **MSUs** that match the parameters in a given row are sent over one of the **IP** connections shown for that row (up to 16 **IP** connections can be defined for a single routing key). Multiple **IP** connections for a given row allow load sharing. In addition, multiple routing keys can be used to send traffic to a single **IP** connection.

Each IP card's Routing Key table can contain up to 2500 entries. Entries in the Routing Key table are defined by the ent-appl-rtkey command entered through the OAM, saved on disk, and reloaded to each IP card upon reset. The routing key entries can be full, partial, or default routing keys. The entries in one IP card's Routing Key table are identical to the entries in the other IP card's table. The entries can be changed by the chg-appl-rtkey command or removed by the dlt-appl-rtkey command.

Table 2-4 shows a sample **Routing Key** table that has one entry for an **SSCP/TCAP**-over-**IP** connection; one entry each for an **ISUP**, Q.**BICC**, and **TUP**-over-**IP** connection; and a non-**SCCP**/non-**ISUP**/ non-O.**BICC**/non-**TUP** connection.

Table 2-4 Example SS7 Routing Key Table

SS7 DPC Routing Key Parameter	SS7 SI Routing Key Parameter	SS7 SSN Routing Key Parameter	SS7 OPC Routing Key Parameter	CIC START Routing Key Parameter	CIC END Routing Key Parameter	Name of IP Connection s that carry traffic for that Routing Key
DPC-SI-SSN	routing key for	SSCP/TCAP-o	ver-IP connecti	vity		
5-5-5	03	6	-	-	-	kchlr11201 kchlr21201 kchlr11203 kchlr21203
ISUP-CIC rou	uting key for ISU	IP-over-IP conr	nectivity			



Table 2-4 (Cont.) Example SS7 Routing Key Table

SS7 DPC Routing Key Parameter	SS7 SI Routing Key Parameter	SS7 SSN Routing Key Parameter	SS7 OPC Routing Key Parameter	CIC START Routing Key Parameter	CIC END Routing Key Parameter	Name of IP Connection s that carry traffic for that Routing Key		
						dnmsc11201		
5-5-6	05	_	4-4-4	1	100	dnmsc21201		
	00		777	•	100	dnmsc11203		
						dnmsc21203		
Q.BICC-CIC	Q.BICC-CIC routing key for Q.BICC-over-IP connectivity							
						lpmsg11204		
4363	13	-	5834	48486	48486	lpmsg21204		
						lpmsg31204		
TUP-CIC rout	ting key for TUF	-over- IP conne	ectivity					
						lpmsg11205		
1-44-2	04	-	2-5-1	3948	3948	lpmsg21205		
						lpmsg31205		
DPC-SI routin	DPC-SI routing key for non-SCCP/non-ISUP/non-Q.BICC/non-TUP connectivity							
5-5-7	02					sfhlr11204		

Routing Key Lookup Hierarchy

To facilitate the delivery of Message Signaling Units (MSUs) that do not match full routing key entries in the Routing Key table, each MSU is processed and delivered according to a specific routing key lookup hierarchy. The hierarchy guarantees that the MSU is delivered to the best possible location based on the MSU's closest match in the Routing Key table, and also prevents MSUs without full routing key matches from being discarded. Table 2-5 defines the routing key lookup hierarchy.

Table 2-5 Routing Key Lookup Hierarchy

1	dpc + si+ opc+cic	Full
2	dpc + si + opc (ignore cic)	Partial
3	dpc + si (ignore opc & cic)	Partial
4	dpc (ignore si, opc & cic)	Partial
5	si (ignore dpc, opc & cic)	Partial
6	None	Default
1	dpc+si+ssn	Full
2	dpc + si (ignore ssn)	Partial
3	dpc (ignore si & ssn)	Partial
	3 4 5 6 1	<pre>dpc + si (ignore opc & cic) dpc (ignore si, opc & cic) si (ignore dpc, opc & cic) None dpc + si + ssn dpc + si (ignore ssn)</pre>



Table 2-5 (Cont.) Routing Key Lookup Hierarchy

Type of MSU	Lookup Order per MSU Type	Segment of MSU that Must Match Routing Key	Routing Key Type
	4	si (ignore dpc & ssn)	Partial
	5	None	Default
	1	dpc+si	Full
OtherSI	2	dpc (ignore si)	Partial
Othersi	2	si (ignore dpc)	Partial
	3	None	Default

When an MSU has an si value of 5, 13, or 4 (ITU only), it is a CIC message. Messages with an si value of 3 are SCCP messages. All other MSUs are considered OtherSI messages. The EAGLE first tries to match each MSU with a full routing key and second with one of the partial keys as numbered in ascending order in the table. Third, if no segment of the routing key matches either full or partial routing keys, the EAGLE assigns the MSU a default routing key.

Support for MTP Status Functions

This feature, available only on **IP** cards that support the ss7ipgw and ipgwi applications, allows the **Message Transfer Part (MTP)** status of point codes in the **SS7** networks to be made available to **IP**-connected media gateway controllers (**MGCs**) and **IP-SCPs**. This feature is similar to the **MTP3** network management procedures used in an **SS7** network.

This feature enables an IP device to:

- Divert traffic from a secure gateway that is not able to access a point code that the mated secure gateway can access
- Audit point code status
- Build up routing tables before sending traffic
- Be warned about network congestion
- Abate congestion (ss7ipgw application only)
- Obtain SS7 User Part Unavailability status

SNMP Agent Implementation

This feature implements a **Simple Network Management Protocol** (**SNMP**) agent on each **IP** card that runs the ss7ipgw, ipgwi, iplim, or iplimi applications. **SNMP** is an industry-wide standard protocol used for network management. **SNMP** agents interact with network management applications called Network Management Systems (**NMSs**).

Supported Managed Object Groups

The **SNMP** agent maintains data variables that represent aspects of the **IP** card. These variables are called managed objects and are stored in a management information base (**MIB**). The **SNMP** protocol arranges managed objects into groups. Table 2-6 shows the groups that are supported.



Table 2-6 SNMP Object Groups

Group Name	Description	Contents
system	Text description of agent in printable ASCII characters	System description, object identifier, length of time since reinitialization of agent, other administrative details
interfaces	Information about hardware interfaces on the IP card	Table that contains for each interface, speed, physical address, current operational status, and packet statistics
ip	Information about host and router use of the IP	Scalar objects that provide IP -related datagram statistics, and 3 tables: address table, IP -to-physical address translation table, and IP -forwarding table
icmp	Intranetwork control messages, representing various ICMP operations within the IP card	26 scalar objects that maintain statistics for various Internet Control Message Protocol (ICMP) messages
tcp	Information about TCP operation and connections	14 scalar objects that record TCP parameters and statistics, such as the number of TCP connections supported and the total number of TCP segments transmitted, and a table that contains information about individual TCP connections
udp	Information about UDP operation	4 scalar objects that maintain UDP -related datagram statistics, and a table that contains address and port information
snmp	Details about SNMP objects	30 scalar objects, including SNMP message statistics, number of MIB objects retrieved, and number of SNMP traps sent

Supported SNMP Messages

The **SNMP** agent interacts with up to two **NMSs** by:

- Responding to Get and GetNext commands sent from an NMS for monitoring the IP card.
- Responding to Set commands sent from an NMS for maintaining the IP card and changing managed objects as specified.
- Sending *Trap* messages to asynchronously notify an NMS of conditions such as a link going up or down. *Traps* provide a way to alert the NMS in a more timely fashion than waiting for a *Get* or *GetNext* from the NMS. Two hostnames, DCMSNMPTRAPHOST1 and DCMSNMPTRAPHOST2, are utilized to specify the SNMPNMS to which traps are sent. In this release, only the following traps are supported:
 - coldStart, sent one time only when the IP stack initialization occurs on the IP card as part of boot processing
 - linkUp, sent when one of the ports on the IP card initially comes up or recovers from a previous failure
 - linkDown, sent when one of the ports on the IP card fails



When a trap occurs at the **IP** card agent, the agent sends the trap to each of the **SNMP** specific host names that can be resolved to an **IP** address. Resolution is based on configuration data in the <code>chg-ip-card</code> command (or default data) which specifies **DNS** search order and **DNS** information.

Deviations from SNMP Protocol

Table 2-7 shows how the **EAGLE** deviates from the standard **SNMP** protocol definition.

Table 2-7 Deviations from SNMP Protocols

Group	Variable Name	Usage	Deviation
system	sysContact	Text identification of contact information for agent	Cannot be set by Set command; may be set only by chg-sg-opts command.
	sysLocation	Physical location of agent	Cannot be set by <i>Set</i> command; internally set using configuration data already available; set to < CLLI >- <slot <b="" of="">IP card></slot>
	sysName	Administratively assigned name for agent	Cannot be set by <i>Set</i> command; internally set using configuration data already available; set to
			<clli>-<slot card="" ip="" of=""></slot></clli>
interface	ifAdminStatus	Desired state of the interface	Cannot be set by <i>Set</i> command (to ensure that an NMS does not disrupt SS7 traffic by placing an II interface in a nonoperable state)
	ipForwarding	IP route-specific values	Cannot be set by Set command
	ipDefaultTTL		
	ipRoute Dest		
	ipRouteIfIndex		
	ipRouteMetric1-5		
	ipRouteNextHop		
	ipRouteType		
	iprouteAge		
	ipRouteMask		
	ipNetToMedialfIndex	IP-address specific	Can be set by Set command, but
	ipNetToMediaPhysAdress	information	not saved across IP card reloads
	ipNetToMediaNetAddress		
	ipNetToMediaType		
tcp	tcpConnState	State of a TCP connection	Cannot be set by Set command
snmp	snmpEnableAuthenTraps	Indicate whether agent is permitted to generate authentication failure traps	Cannot be set by Set command



Mixed Networks Using the ANSI/ITUMTP Gateway Feature

The optional **ANSI/ITUMTP** Gateway feature, now also available for **IP** networks, and the addition of the iplimi and ipgwi applications enables the **EAGLE** to act as an interface between nodes that support **ANSI**, **ITU-I**, and **ITU-N** protocols. For more information on the **ANSI/ITUMTP** Gateway feature, contact your Oracle Sales Representative.

Figure 2-11 shows an example of a complex network that includes all these types of nodes. Table 2-8 provides more detail about the nodes, network types, and point codes used in this example.

The following **SS7** protocol constraints determine how the network must be configured:

- A linkset is a group of links that terminate into the same adjacent point code. All
 links in the linkset can transport compatible MSU formats. The network type of the
 linkset is the same as the network type of the adjacent point code assigned to the
 linkset.
- When nodes in different networks need to communicate, each node must have either a true point code or an alias point code for each of the network types. For example, if Node 1 (in an ANSI network) needs to communicate to Node 7 (in an ITU-N network), Node 1 must have an ANSI true point code and an ITU-N alias point code, while Node 7 must have an ITU-N true point code and an ANSI alias point code.
- The systems are usually deployed as mated pairs. The links connecting the
 EAGLE to its mate are C links. Each EAGLE must have a C linkset for each
 network type that the EAGLE connects to. Therefore, in Figure 2-11, Nodes 5 and
 6 are connected with three linksets, one each for ANSI traffic, ITU-I traffic, and
 ITU-N traffic.
- To perform routing, the EAGLE must convert the routing labels in MSUs. To perform this conversion, every destination point code (DPC), originating point code (OPC), and concerned point code must be defined in the Routing table. Even if the EAGLE does not route MSUs to these nodes, they must be provisioned in the Routing table to provision the alias point codes required in the conversion process.



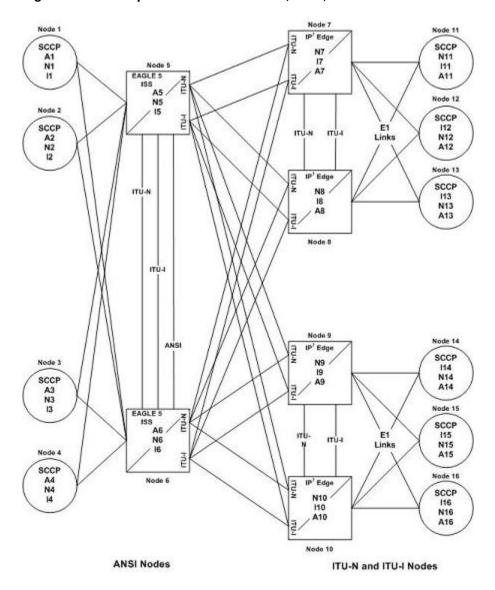


Figure 2-11 Complex Network with ANSI, ITU-I, and ITU-N Nodes

Table 2-8 Nodes and Point Codes in Complex Network Example

Node	Node Type	Network Types Supported	True Point Codes ¹	Alias Point Codes ²
1	SSP	ANSI	A1	N1, I1
2	SSP	ANSI	A2	12
3	SSP	ANSI	А3	N3, I3
4	SSP	ANSI	A4	N4
5	STP (with IP ⁷ Secure Gateway functionality)	ANSI, ITU-N, ITU-I	A5, N5, I5	
6	STP (with IP ⁷ Secure Gateway functionality)	ANSI, ITU-N, ITU-I	A6, N6, I6	



115

116

N15, A15

N16, A16

Node	Node Type	Network Types Supported	True Point Codes ¹	Alias Point Codes ²
7	STP (with IP ⁷ Secure Gateway functionality)	ITU-N, ITU-I	N7, I7	A7
8	STP (with IP ⁷ Secure Gateway functionality)	ITU-N, ITU-I	N8, I8	A8
9	STP (with IP ⁷ Secure Gateway functionality)	ITU-N, ITU-I	N9, I9	А9
10	STP (with IP ⁷ Secure Gateway functionality)	ITU-N, ITU-I	N10, I10	A10
11	SSP	ITU-N	N11	I11, A11
12	SSP	ITU-I	l12	N12, A12
13	SSP	ITU-l	I13	N13, A13
14	SSP	ITU-N	N14	I14, A14

Table 2-8 (Cont.) Nodes and Point Codes in Complex Network Example

Notes: 1. A true point code (**TPC**) defines a destination in the EAGLE's destination point code table. A **TPC** is a unique identifier of a node in a network. An STP (with IP7 Secure Gateway functionality) must have a TPC for each network type that the EAGLE connects to. An SSP connects to only one type of network, so it has only one TPC.

2. An alias point code is used to allow nodes in other networks to send traffic to and from a EAGLE when that EAGLE does not have a TPC for the same network type.

ITU-I

ITU-I

The configured links and point codes in the complex network shown in Figure 2-11 allows most nodes to communicate with other nodes. However, note that Node 2 cannot communicate with Node 13 or Node 16, or with any node in the ITU-N network because Node 2 does not have an ITU-N alias point code.

Routing and Conversion Within a Single Network Type

SSP

SSP

15

The following steps demonstrate how an **EAGLE** routes and converts when an **ITU**-N node sends an **MSU** to another **ITU**-N node. For example, assume that Node 11 in Figure 2-11 sends an **MSU** to Node 14. The **MSU** is routed from Node 11 to Node 7 to Node 5 to Node 9 to Node 14. The following steps describe the actions performed at Node 5 (an **STP** with **IP**⁷ Secure Gateway functionality):

- 1. An **ITU-**N formatted **MSU** (which has a network identifier=01b and a 14-bit destination point code/originating point code) is received on an iplimi card (for this example at location 1103).
- **2. MSU** discrimination is performed with the following substeps:
 - a. Compare the received network identifier (NI) to the list of valid NIs. (Each configured linkset for a receiving link has a defined list of valid NIs.) If the comparison fails, the MSU is discarded and an STP measurement is logged. In this example, the received NI (01b) is valid for an iplimi card.
 - b. Extract the NI and destination point code (DPC) from the received MSU.
 - c. Determine whether the destination of the received MSU is this STP. If not (as is the case in this example), the MSU is passed to the STP's routing function.



- 3. The routing function selects which outgoing link to use by searching a routing table for an entry for the **DPC** (N14 in this example). The routing table identifies another <code>iplimi</code> card (for this example at location 1107) to be used for the outgoing link.
- 4. Determine whether **MSU** conversion is required (required when the source network type is not the same as the destination network type). In this example, both Node 11 and Node 14 are **ITU-**N nodes, so conversion is not required.
- **5.** Forward the **MSU** across the Interprocessor Message Transport (**IMT**) bus from location 1103 to location 1107, where the **MSU** is transmitted out the link towards Node 14.

Routing and Conversion Between Different Network Types

The routing and conversion steps performed by a **EAGLE** when an **ITU**-N node sends an **MSU** to an **ITU**-I node are the same as the steps shown in the Routing and Conversion Within a Single Network Type section, except for the conversion step.

For example, assume that Node 11 in Figure 2-11 sends an **MSU** to Node 16. The **MSU** is routed from Node 11 to Node 7 to Node 5 to Node 9 to Node 16. The following steps describe the actions performed at Node 5 (an **EAGLE** with **IP**⁷ Secure Gateway functionality):

- 1. Perform step 1 through step 3 as shown in the Routing and Conversion Within a Single Network Type section. In this example, assume that the routing function determines that the outgoing link is configured on the **IP** card at location 1203.
- 2. Determine whether MSU conversion is required (required when the source network type is not the same as the destination network type). In this example, Node 11 is an ITU-N node and Node 16 is an ITU-I node, so conversion is required. Conversion consists of two phases: Message Transfer Part (MTP) conversion and user part conversion.
- 3. Perform MTP conversion (also known as routing label conversion). The following parts of the MSU can be affected by MTP conversion:
 - Length indicator for ITU-N to ITU-I conversion, the length of the MSU does not change
 - **Service Information Octet (SIO)**, Priority for conversion to **ITU**, the priority is set to 0. For conversion to **ANSI**, the priority is set to a default of 0, which can later be changed based on user part conversion.
 - Service Information Octet (SIO), Network Indicator the NI bits are set to the NI value for the destination node. In this example, NI is set to 00b.
 - Routing Label, Destination Point Code (DPC) the DPC is replaced with the destination's true point code. In this example, N16 is replaced by I16.
 - Routing Label, Originating Point Code (OPC) the OPC is replaced with the appropriate network type's alias point code for the originating node. In this example, N11 is replaced with I11.
 - Routing Label, Signaling Link Selector (SLS) no SLS conversion is required between ITU-I and ITU-N nodes. However, if one of the nodes were an ANSI node, conversion would be required between a 5-bit or 8-bit SLS for ANSI nodes and a 4bit SLS for ITU nodes.
- 4. Perform user part conversion, if necessary. Currently, only **SCCP** traffic and only network management messages have the **Message Transfer Part (MTP)** converted. All other user parts have their data passed through unchanged.
- **5.** Forward the **MSU** across the Interprocessor Message Transport (**IMT**) bus from location 1103 to location 1203, where the **MSU** is transmitted out the link towards Node 16.



IETF Adapter Layer Support

Overview

The current implementation of the **IETF** adapter layers in the **EAGLE** uses three adapter layers: **SUA**, **M3UA**, and **M2PA**. These adapter layers are assigned to **SCTP** associations which define the connection to the far end. An **SCTP** association is defined in the **EAGLE** by the local host name, the local **SCTP** port, the remote host name, and the remote **SCTP** port.

The three adapter layers used in the **EAGLE** are supported depending on the type of **IP** card being used for the **IP** connection. The **SUA** and **M3UA** adapter layers can be used only on **IPGWx** cards (cards running either the **SS7IPGW** or **IPGWI** applications). The **M2PA** adapter layer can be used only on **IPLIMx** cards (cards running either the **IPLIM** or **IPLIMI** applications).

SCTP associations on IPGWx cards use routing keys to distinguish between the IP devices being connected to. SCTP associations cannot be assigned directly to routing keys. To get an SCTP association ultimately assigned to a routing key, the IETF adapter layers use the concept of the application server (AS). The SCTP association is assigned to an application server. One or more associations are normally actively processing traffic. A group of associations (up to 16) can be assigned to an application server. An application server, a logical entity serving a specific routing key, is assigned to a routing key. This results in assigning the SCTP association, up to a maximum of 16, to a routing key.

The **IETFSUA** and **M3UA** adapter layers are supported on **IPGWx** cards. These adapter layers support the full implementation of the **AS** and routing key for the **EAGLE**. **SCTP** associations assigned to **IPGWx** cards can be assigned to application servers and routing keys.

The **IETFM2PA** adapter layer is supported on **IPLIMx** cards. The **M2PA** adapter layer does not support application servers, therefore **SCTP** associations assigned to **M2PA** links on **IPLIMx** cards cannot be assigned to application servers.

Figure 2-12 shows a typical configuration with four connections (SCTP associations) out of the EAGLE using IPGWx cards. Each association is connected to a process on the far end.



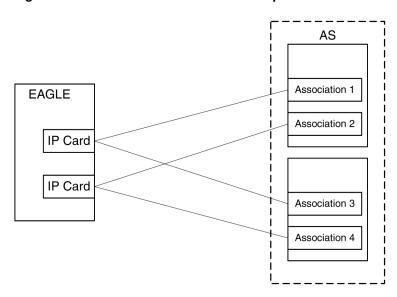


Figure 2-12 AS/Association Relationship

Feature Components

The **EAGLE** with **IP**⁷ Secure Gateway functionality is used as a signaling gateway between the **PSTN** and **IP** networks as shown in Figure 2-13. This figure shows that signaling gateways interface with media gateway controllers (**MGCs**) and **MGCs** interface with media gateways (**MGs**).

PSTN

Signaling Gateway (SG)

Media Gateway Controller (MGC)

Media Gateway Controller (MGC)

Media Gateway (MG)

Signaling Gateway

(SG)

Figure 2-13 SG/MGC/MG Network Diagram

To provide a signaling gateway solution that will be able to communicate with a larger number of IP devices, the EAGLE needs to be able to communicate with multiple MGCs which are using SCTP as the transport layer and M3UA, M2PA, or SUA as an adapter layer. On an IPLIMx card, the M2PA adapter layer can be used with SCTP as shown in Figure 2-14. On an IPGWx card, the M3UA and SUA adapter layers can be used with SCTP as shown in Figure 2-15.

Media Gateway

(MG)



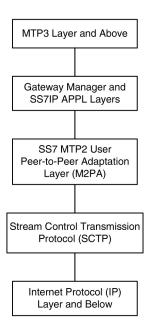
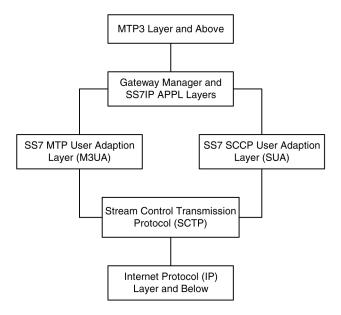


Figure 2-14 IPLIMx Protocol Stack with SCTP as the Transport Layer

Figure 2-15 IPGWx Protocol Stack with SCTP as the Transport Layer



SUA Layer

The SUA layer, only supported on IP cards running either the SS7IPGW or IPGWI applications (IPGWx cards), was designed to fit the need for the delivery of SCCP-user messages (MAP & CAP over TCAP, RANAP, etc.) and new third generation network protocol messages over IP between two signaling endpoints. Consideration is given for the transport from an SS7 signaling gateway to an IP signaling node (such as an IP-resident database). This protocol can also support transport of SCCP-user messages between two endpoints wholly contained within an IP network. The layer is expected to meet the following criteria:



- Support for transfer of SS7SCCP-User Part messages (for example, TCAP, RANAP, etc.)
- Support for SCCP connectionless service.
- Support for the seamless operation of SCCP-User protocol peers
- Support for the management of **SCTP** transport associations between a signaling gateway and one or more **IP**-based signaling nodes).
- Support for distributed IP-based signaling nodes.
- Support for the asynchronous reporting of status changes to management

Depending upon the **SCCP**-users supported, the **SUA** layer supports the four possible **SCCP** protocol classes transparently. The **SCCP** protocol classes are defined as follows:

- Protocol class 0 provides unordered transfer of SCCP-user messages in a connectionless manner.
- Protocol class 1 allows the SCCP-user to select the in-sequence delivery of SCCP-user messages in a connectionless manner.
- Protocol class 2 allows the bi-directional transfer of SCCP-user messages by setting up a temporary or permanent signaling connection.
- Protocol class 3 allows the features of protocol class 2 with the inclusion of flow control.
 Detection of message loss or mis-sequencing is included.

Protocol classes 0 and 1 make up the **SCCP** connectionless service. Protocol classes 2 and 3 make up the **SCCP** connection-oriented service.

The **SUA** layer supports the following **SCCP** network management functions:

- Coord Request
- Coord Indication
- Coord Response
- Coord Confirm
- State Request
- State Indication
- Postate Indication

The **SUA** layer provides interworking with **SCCP** management functions at the signaling gateway for seamless inter-operation between the **SCN** network and the **IP** network. This means:

- An indication to the SCCP-user at an application server process that a remote SS7 endpoint/peer is unreachable.
- An indication to the SCCP-user at an application server process that a remote SS7 endpoint/peer is reachable.
- Congestion indication to SCCP-user at an application server process.
- The initiation of an audit of remote SS7 endpoints at the signaling gateway.

M3UA Layer

The M3UA layer, supported on only IPGWx cards, was designed to fit the need for signaling protocol delivery from an SS7 signaling gateway to a media gateway controller (MGC) or IPresident database. The layer is expected to meet the following criteria:



- Support for the transfer of all SS7MTP3-User Part messages (for example, ISUP, SCCP, TUP, etc.)
- Support for the seamless operation of MTP3-User protocol peers
- Support for the management of SCTP transport associations and traffic between a signaling gateway and one or more MGCs or IP-resident databases
- Support for MGC or IP-resident database process fail-over and load-sharing
- Support for the asynchronous reporting of status changes to management

The M3UA layer at an application server provides a set of primitives at its upper layer to the MTP3-Users that is the equivalent of those provided by the MTP Level 3 to its local users at an SS7 SEP. In this way, the ISUP or SCCP layer at an application server process is unaware that the expected MTP3 services are offered remotely from an MTP3 Layer at a signaling gateway, and not by a local MTP3 layer. The MTP3 layer at a signaling gateway may also be unaware that its local users are actually remote user parts over the M3UA layer. The M3UA layer extends access to the MTP3 layer services to a remote IP-based application. The M3UA layer does not provide the MTP3 services.

The M3UA layer provides the transport of MTP-TRANSFER primitives across an established SCTP association between a signaling gateway and an application server process and between IPSPs. The MTP-TRANSFER primitives are encoded as MTP3-User messages with attached MTP3 Routing Labels as described in the message format sections of the SCCP and ISUP recommendations. In this way, the SCCP and ISUP messages received from the SS7 network are not re-encoded into a different format for transport to or from the server processes. All the required MTP3 Routing Label information (OPC, DPC, and SIO) is available at the application server process and the IPSP as is expected by the MTP3-User protocol layer.

At the signaling gateway, the M3UA layer also provides inter-working with MTP3 management functions to support seamless operation of the signaling applications in the SS7 and IP domains. This includes:

- Providing an indication to MTP3-Users at an application server process that a remote destination in the SS7 network is not reachable.
- Providing an indication to MTP3-Users at an application server process that a remote destination in the SS7 network is now reachable.
- Providing an indication to MTP3-Users at an application server process that messages to a remote MTP3-User peer in the SS7 network are experiencing SS7 congestion
- Providing an indication to MTP3-Users at an application server process that a remote MTP3-User peer is unavailable.

The M3UA layer at the signaling gateway maintains the availability of all configured remote application server processes, in order to manage the SCTP Associations and the traffic between the signaling gateway and application server processes. As well, the Active/Inactive state of remote application server processes is also maintained - Active application server processes are those currently receiving traffic from the signaling gateway.

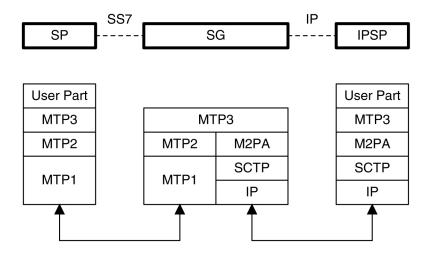
M2PA Layer

The **M2PA** layer, supported only on **IPLIMx** cards, is a peer-to-peer protocol and provides mappings for all **SS7** messages. In a peer-to-peer mode, either side of the **IP** connection may initiate the connection.



The **M2PA** layer lies below **MTP3** in the protocol stack. Figure 2-16 shows the protocol layers in three interconnected nodes involving the **M2PA** layer.

Figure 2-16 M2PA in the IP⁷ Signaling Gateway



SP - SS7 Signaling Point SG - IP Signaling Gateway IPSP - IP Signaling Point

The M2PA layer receives the primitives sent from MTP3 to its lower layer. The M2PA layer processes these primitives or maps them to appropriate primitives at the M2PA/SCTP interface. Likewise, the M2PA layer sends primitives to MTP3 like those used in the MTP3/MTP2 interface.

The M2PA layer provides MTP2 functionality that is not provided by SCTP. This includes:

- Reporting of link status changes to MTP3
- Processor outage procedure
- Link alignment procedure

The **M2PA** layer allows **MTP3** to perform all of its Message Handling and Network Management functions with **IPSPs** as with other **SS7** nodes.

The M2PA layer also supports full retrieval because it assigns sequence numbers to all protocol messages and provides for acknowledgements from the M2PA peer. This means that an M2PA signaling link is able to execute the Change-Over and Change-Back procedures. The M2PA layer makes use of the SS7 Extended Changeover (XCO) and SS7 Extended Changeover Acknowledgement (XCA) messages in order to communicate 24-bit sequence numbers with the peer.

SCTP

SCTP is a protocol designed to operate on top of a non-reliable protocol such as **IP**, while providing a reliable data delivery to the **SCTP** user. The **SCTP** protocol is designed to be a discrete protocol.

Although **SCTP** is similar in some respects to the Transport Control Protocol (**TCP**), it differs in several key areas. The two protocols are similar in that they both provide reliable data

delivery over a non-reliable network protocol (IP). The SCTP protocol is a more robust and higher performance protocol than TCP.

Broader Definition of Connection Four-Tuple

The **TCP** protocol defines a connection via a four-tuple – a specific local **IP** address, local transport protocol port, a specific remote host **IP** address and remote transport protocol port. The **TCP** connection is point-to-point and once the session is established the four-tuple can not change. **SCTP** uses a similar four-tuple concept, but provides for the local and remote **IP** address values to be a list of **IP** addresses. **SCTP** allows a multi-homed host, with multiple network interfaces and more than one way to reach the far-end host, the capability to make use of this additional network connectivity to support the transport of data via the **SCTP** protocol. Redundancy through the support of multi-homing session end-points is a major **SCTP** advantage.

Multiple Streams

TCP is a point-to-point byte stream oriented transport protocol. In such a protocol if a single byte is corrupted or lost, then all data that follows must be queued and delayed from delivery to the application until the missing data is retransmitted and received to make the stream valid. With the **TCP** protocol, all data being transmitted is affected because there is only one path from end-to-end. The **SCTP** protocol addresses this limitation by providing the capability to specify more than one transport path between the two end-points. In **SCTP**, the four-tuple – with the multi-homing feature – defines what the **SCTP** protocol calls an *association*.

The association is composed of one or more uni-directional transport paths called *streams*. The number of inbound and outbound streams is independent of one another and is determined at session initiation time (for example, an association may be composed of three outbound and one inbound stream). In this scheme, a data retransmission only affects a single stream. If an association is defined with multiple streams and a packet is lost on a specific stream, data transmission on the other streams, which form this association, is not blocked. However, this feature is only beneficial if the upper layer application uses it.

In the **EAGLE**, a maximum of 2 inbound and 2 outbound streams can be defined for an association. Stream 0 in each direction is designated for **Link** Status messages. Stream 1 is designated for User Data messages. Separating the **Link** Status and User Data messages onto separate streams allows the adapter layer to prioritize the messages in a manner similar to **MTP2**. If the peer chooses to configure the association to have only one stream, then the signaling gateway will be able to use only stream 0 for both **Link** Status messages and User Data messages.

Datagram Stream

While **TCP** is implemented as a byte-oriented stream protocol, **SCTP** is based on a datagram-oriented protocol stream. By choosing the datagram as the smallest unit of transport, the **SCTP** protocol removes the need for the upper layer application to encode the length of a message as part of the message. An **SCTP** send results in the data being sent as a unit – a datagram – and received at the receiving node as a datagram.

Selective Acknowledgements

TCP acknowledgements are specified as the last consecutive byte in the byte stream that has been received. If a byte is dropped, the **TCP** protocol on the receiving side cannot pass inbound data to the user until the sender retransmits the lost byte; the



stream is blocked. **SCTP** uses a feature known as *selective acknowledgement* in which each data chunk is identified by a chunk number – the Transmission Sequence Number (**TSN**) in **SCTP** terminology – and is explicitly acknowledged at a data chunk granularity. This means that if a data chunk is dropped, only that one data chunk needs to be retransmitted. In **SCTP**, a dropped data chunk only effects one stream, since ordered transmission of data is only enforced at the stream and not the association level.

Un-order Delivery Capability

The **SCTP** protocol provides a mechanism for un-ordered datagram delivery. This feature means that a datagram can be transmitted and received independent of datagram sequencing and thus not delayed while awaiting a retransmission. **TCP** does not provide an equivalent feature of this type.

Enhanced Security

The **TCP** protocol has a known and easily exploitable vulnerability to denial of service attacks (for example, **SYN** attacks). This weakness is due to the three-way handshake used by the **TCP** session-establishment protocol. The **TCP** session establishment method causes **EAGLE** resources to be committed prior to actually establishing the session. **SCTP** uses a four-way handshake where resources are not committed by the host being contacted until the contacting host confirms that it is actually making a contact request to prevent such attacks.

SCTP Connectivity Concepts

The basic connectivity provided by the **SCTP** protocol is illustrated by Figure 2-17:

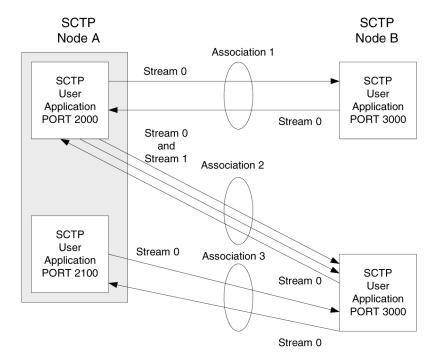


Figure 2-17 SCTP Connectivity

Key elements of the **SCTP** connection include:

SCTP Instance



- SCTP Endpoint
- SCTPAssociation
- SCTP Stream

An SCTP instance is defined by the local SCTP port number. Each local SCTP port number requires its own SCTP instance. An SCTP instance as an entity defines the various SCTP characteristics that will apply to "all" SCTP associations that are created as part of the SCTP instance. These include timeout values, maximum receive windows, and so forth.

In Figure 2-17 there are three hosts: **SCTP** node A, node B and node C. Node A has two **SCTP** instances: local **SCTP** port 2000 and 2100. Both node B and node C have a single **SCTP** instance, local **SCTP** port 3000 and 3000 respectively. The fact that both node B and C are using port 3000 does not tie them together in any way.

An SCTP endpoint is defined as the logical sender/receiver of SCTP packets. On a multi-homed host, an SCTP endpoint is represented to its peers as a combination of a set of eligible destination transport addresses to which SCTP packets can be sent and a set of eligible source transport addresses from which SCTP packets can be received. All transport addresses used by an SCTP endpoint must use the same port number, but can use multiple IP addresses. A transport address used by an SCTP endpoint must not be used by another SCTP endpoint. In other words, a transport address is unique to an SCTP endpoint.

The concept of **SCTP** instance clarifies this definition. In Figure 2-17, **IP** addresses are not shown, but to illustrate this definition, assume the following:

- Node A is multi-homed having two network interface cards with IP addresses 192.168.110.10 and 192.168.55.10
- Node B has a single network interface card with IP address of 192.168.110.20
- Node C is multi-homed having two network interface cards with IP addresses 192.168.110.30 and 192.168.55.30

Based on these **IP** addresses from above and the defined port numbers for Figure 2-17, there are four **SCTP** endpoints (Table 2-9).

Table 2-9 Sample SCTP Endpoints

Node	Local IP Address	Local SCTP Port
Node-1	192.168.110.10	2000
	192.168.55.10	2000
Node-1	192.168.110.10	2100
Node-1	192.168.55.10	2100
Node-2	192.168.110.20	3000
N. I. O	192.168.110.30	0000
Node-3	192.168.55.30	3000

An SCTP association is defined as a protocol relationship between SCTP endpoints, composed of the two SCTP endpoints and protocol state information including verification tags and the currently active set of Transmission Sequence Numbers (TSNs), etc. An association can be uniquely identified by the transport addresses used by the endpoints in the association. Two SCTP endpoints must not have more than one SCTP association between them at any given time.



Based on this definition, given the endpoints listed above and Figure 2-17, there are three defined **SCTP** associations.

Table 2-10 Sample SCTP Associations

Association Local IP Address		Local SCTP Port	Remote IP Address	Remote SCTP Port	
Association-1	192.168.110.10 192.168.55.10	2000	192.168.110.20	3000	
Association-2	192.168.110.10 192.168.55.10	2000	192.168.110.30 192.168.55.30	3000	
Association-3	192.168.110.10 192.168.55.10	2100	192.168.110.30 192.168.55.30	3000	

An **SCTP** stream is defined as a uni-directional logical channel established from one to another associated **SCTP** endpoint, within which all user messages are delivered in sequence except for those submitted to the unordered delivery service.



The relationship between stream numbers in opposite directions is strictly a matter of how the applications use them. It is the responsibility of the **SCTP** user to create and manage these correlations if they are so desired.

Based on this definition and Figure 2-17, there are a total of seven streams for the three associations.

Table 2-11 Sample SCTP Associations

Association Stream Number		Local IP Address	Local SCTP Port	Remote IP Address	Remote SCTP Port
Association-1	Stream 0 Out	192.168.110.10 192.168.55.10	2000	192.168.110.20	3000
Association-1	Stream 0 In	192.168.110.10 192.168.55.10	2000	192.168.110.20	3000
Association-2	Stream 0 Out	192.168.110.10 192.168.55.10	2000	192.168.110.30 192.168.55.30	3000
Association-2	Stream 1 Out	192.168.110.10 192.168.55.10	2000	192.168.110.30 192.168.55.30	3000
Association-2	Stream 0 In	192.168.110.10 192.168.55.10	2000	192.168.110.30 192.168.55.30	3000
Association-3	Stream 0 Out	192.168.110.10 192.168.55.10	2100	192.168.110.30 192.168.55.30	3000
Association-3	Stream 0 In	192.168.110.10 192.168.55.10	2100	192.168.110.30 192.168.55.30	3000



IP Signaling Gateway (IPSG)

The IP Signaling Gateway (IPSG) feature provides a signaling gateway (**SG**) application as an alternative to the IPLIM and IPGW applications. However, the IPLIM and IPGW applications continue to be supported.

The IPSG feature can run the M2PA and M3UA protocols simultaneously on the same card. They can also have GTT-enabled capabilities support with SLIC running the 64-bit IPSG GPL. The feature also supports ANSI, ITU-N or ITUN-24, and ITU-I simultaneously on one card and one association.

The IPSG feature runs on the E5-ENET-B and SLIC cards with the IPSG application. An E5-ENET-B or SLIC card running the IPSG application is referred to as an IPSG card.

For the M3UA protocol, the IPSG feature equates a linkset with an application server (**AS**) and equates a signaling link with an application-server/application server process instance (**AS-ASP**).

Note:

The following M3UA application server (AS) procedures are not currently supported by the IP Signaling Gateway (IPSG):

- AS Pending procedure with non-zero T(recovery) timer
- AS Override traffic mode

The connection to the remote host is provided by IPSG M3UA and IPSG M2PA signaling links. An IPSG M3UA signaling link is a signaling link that is assigned to an IPSG linkset whose ADAPTER value is m3ua. An IPSG M2PA signaling link is a signaling link that is assigned to an IPSG linkset whose ADAPTER value is m2pa. A maximum of 128 IPSG M2PA or IPSG M3UA signaling links are supported per IPSG card running on SLIC hardware.

The IPSG M2PA signaling link can run the ANSI or ITU protocol, but not both simultaneously. ANSI and ITU can run on the same IPSG card on separate IPSG M2PA signaling links. ANSI and ITU can run on the same IPSG M3UA signaling link.

A series of three IS-NR link count thresholds are used to control the transition of the IPSG-M3UA links between Allowed, Restricted, and Prohibited states.

M2PA links on IPLIMx and IPSG cards can exist in the same linkset. M3UA links on IPSG and IPGWx cards cannot exist in the same linkset. M2PA and M3UA links cannot exist within the same linkset.

Each IPSG card running on SLIC hardware can host up to 128 SCTP associations. A maximum of 16 M3UA links or 1 M2PA link can be assigned to an association. M3UA and M2PA cannot be mixed on the same association.

The SCTP ADLER-32 or CRC-32 checksum algorithm can be selected for an individual IPLIM, IPGW, or IPSG card.

The adjacent point code (APC) of the IPSG-M3UA linkset is the point code assigned to an AS.



Provisioning for the IP Signaling Gateway feature uses the card, linkset, signaling link, IP card, IP link, IP host, and association database entities. The relationship between these entities is shown in Figure 2-18. The provisioning for the IP Signaling Gateway feature is shown in IPSG M2PA and M3UA Configuration Procedures.

CARD IP CARD LOC LOC APPL DNSA TYPE DNSB DOMAIN ROUTER SEARCH ORDER IP LNK ASSOC LOC ANAME ETHERNET PORT OPEN SUBNET MASK IP HOST ADAPTER IP ADDRESS IP ADDRESS LHOST DUPLEX LOCAL HOST NAME ALHOST AUTO REMOTE HOST NAME RHOST MACTYPE LPORT UAPS (M3UA) **RPORT** SET UAPS (M3UA) TIMER ALW PARM M2PATSET (M2PA) VER (M2PA) **M2PA TIMERS** TSET TIMERS VER SLK SRCTSET LINKSET ANAME APC LOC LSN LSN LST LINK SLC IPTPS/SLKTPS ADAPTER ASNOTIFY (M3UA) RCONTEXT (M3UA) **IPSG**

Figure 2-18 IP Signaling Gateway Database Relationships



IETF M2PA Configuration Procedures

Chapter 3, IETF M2PA Configuration Procedures, describes the procedures necessary to configure the components necessary to establish IP connections using M2PA associations on IPLIMx signaling links.

Adding IETF IPLIMx Components

This section describes how to configure the components necessary to establish IP connections using M2PA associations on IPLIMx signaling links. IPLIMx signaling links are signaling links assigned to cards running either the IPLIM or IPLIMI applications. The IPLIMI application supports point-to-point connectivity for ANSI networks. The IPLIMI application supports point-to-point connectivity for ITU networks.

The configuration of these IP connections consists of these items.

- 1. Configure the IPLIMx card with the Adding an IPLIMx Card procedure.
- 2. Configure the required destination point codes see Chapter 2, "Configuring Destination Tables," in *Database Administration SS7 User's Guide*.
- 3. Configure the required **IPLIMx** linksets see Chapter 3, "**SS7** Configuration," in *Database Administration SS7 User's Guide*.
- 4. Configure the IPLIMx signaling links with the Adding an IPLIMx Signaling Link procedure. The ipliml2=m2pa parameter of the ent-slk command must be specified for these signaling links. If the addition of these signaling links will exceed the current number of signaling links the EAGLE is allowed to have, the Enabling the Large System # Links Controlled Feature procedure will have to be performed to increase the quantity of signaling links.
- 5. Configure the required routes see Chapter 3, "SS7 Configuration," in the *Database Administration SS7 User's Guide*.
- 6. IP addresses must be assigned to the IPLIMx card configured in step 1 by performing the Configuring an IP Link procedure. There are other IP link parameters that are assigned to the IPLIMx card when the IPLIMx card is configured. Default values are assigned to these parameters when the IPLIMx card is configured. These values can be displayed by the rtrv-ip-lnk command. These values can be changed by performing the Configuring an IP Link procedure.
- 7. Local IP hosts, assigned to the IP addresses assigned to step 6, must be configured in the database by performing the Adding an IP Host procedure. Verify the hosts with the rtrv-ip-host command. This establishes a relationship between the IP card related information and the connection related information.
- 8. When the **IP** cards are added to the database in step 1, there are **IP** parameters that control the **IP** stack that are assigned default values. These parameter values can be displayed by the rtrv-ip-card command. These values can be changed by performing the Configuring an IP Card procedure.



- 9. Static **IP** routes provide more flexibility in selecting the path to the remote destination and reduces the dependence on default routers. Static **IP** routes are provisioned by performing the Adding an **IP** Route procedure.
- 10. Associations specify a connection between a local host/TCP port and a remote host/TCP port. Three types of associations can be provisioned: M2PA, M3UA, and SUA. Associations that are assigned to IPLIMx signaling links must be M2PA associations. The iplim12=m2pa parameter must be assigned to the signaling link that is assigned to an M2PA association. The M2PA association is configured by performing the Adding an M2PA Association procedure. M3UA and SUA associations are provisioned with the Adding an M3UA or SUA Association procedure. Associations can be assigned to IPSG signaling links also. These associations are configured by performing the Adding an IPSG M2PA Association or Adding an IPSG M3UA Association procedures. A number of fields in the association cannot be configured with the Adding an M2PA Association procedure and are set to default values. The values of these fields can be displayed using the rtrv-assoc command after the Adding an M2PA Association procedure is performed. These values can be changed by performing the Adding an M2PA Association procedure. An **IPLIMx** card can have one association for each signaling link assigned to the card.
- 11. There are two versions of M2PA associations, RFC and Draft 6, that can be configured in the database. When an M2PA association is added to the database with Adding an M2PA Association procedure, the association is configured as an RFC M2PA association. The RFC version of M2PA timer set 1 is also assigned to the association when the M2PA association is added to the database.

There are two different versions, **RFC** and Draft 6, of **M2PA** timer sets that can be assigned to **M2PA** associations. Each version of the **M2PA** timer sets contains 20 timer sets. The values of these timer sets can be changed with the Changing a M2PA Timer Set procedure.

The version of the M2PA association and the M2PA timer set assigned to the association can be changed with Adding an M2PA Association procedure. The M2PA version of the association determines the version of the M2PA timer set that is assigned to the association. For example, if M2PA timer set 3 is assigned to the M2PA association, and the association is an RFC M2PA association, the RFC version of M2PA timer set 3 is used with the association. If M2PA timer set 7 is assigned to the M2PA association, and the association is a Draft 6 M2PA association, the Draft 6 version of M2PA timer set 7 is used with the association.

12. The EAGLE processes messages with a service information field (SIF) that is 272 bytes or smaller. The Large MSU Support for IP Signaling feature allows the EAGLE to process messages with a service indicator value of 6 to 15 and with a SIF that is larger than 272 bytes. Perform the Activating the Large MSU Support for IP Signaling Feature procedure to enable and turn on the Large MSU Support for IP Signaling feature.

Adding an IPLIMx Card

This procedure is used to add an **IPLIMx** card to the database using the <code>ent-card</code> command. An **IPLIMx** card runs either the **IPLIM** or **IPLIMI** applications. A maximum of 100 **IPLIMx** cards can be provisioned in the database. Table 3-1 shows the cards that can be provisioned in this procedure.



Table 3-1 IPLIMx Card Types

Card Type	Part Number
E5-ENET	870-2212-xx
E5-ENET-B	870-2971-xx

The EAGLE can support a combination of E5-ENET and E5-ENET-B cards.

The ent-card command uses these parameters.

- :loc The location of the card being added to the database.
- : type The type of card being added to the database. For this procedure, the value of this parameter is dcm.
- : appl The application software that is assigned to the card. For this procedure, the value of this parameter is iplim for **ANSI IP** network connections or iplimi for **ITU IP** network connections.
- : force If the global title translation feature is on, the force=yes parameter allows the **LIM** to be added to the database even if the current **SCCP** transactions-per-second threshold is unable to support the additional **SCCP** transaction-per-second capacity created by adding the **IP** card. This parameter is obsolete and is no longer used.

Card Slot Selection

The **E5-ENET** card can be inserted into any card slot, except for card slots that must remain empty to accommodate dual-slot cards, slots 09 and 10 in each shelf, and slots 1113 through 1118.

To provision a E5-ENET card, the shelf containing the E5-ENET card must have HIPR2 cards installed in slots 9 and 10 in that shelf. If HIPR2 cards are not installed in the shelf that the E5-ENET card will occupy, the E5-ENET card will be auto-inhibited when the E5-ENET card is inserted into the shelf. Enter the rept-stat-gpl:gpl=hipr2 command to verify whether or not **HIPR2** cards are installed in the same shelf as the E5-ENET card being provisioned in this procedure.

Before adding an IPLIMx card, the Eagle STP must have a fan unit, and the fan feature must be turned on. Also, the MFC STP option must be on.

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

This is an example of the possible output. Cards should be distributed throughout the EAGLE for proper power distribution. Refer to *Installation Guide* for the shelf power distribution.

rlghnc	xa03w 09-0	5-05 08:12	:53 GMT 41.0	0.0					
CARD	TYPE	APPL	LSET NAME	LINK	SLC	LSET	NAME	LINK	SLC
1101	DSM	VSCCP							
1102	TSM	GLS							
1113	GSPM	EOAM							
1114	TDM-A								
1115	GSPM	EOAM							
1116	TDM-B								
1117	MDAL								
1201	LIMDS0	SS7ANSI	sp2	A	0	sp1		В	0



SS7ANSI SS7ANSI	sp6 sp7	А	1	sp7
SS7ANSI	sp7			
		А	1	sp5
IPLIM	ipnode1	А	0	ipnode3
IPLIM IPSG IPSG IPSG IPSG IPLIM IPLIM IPLIM SS7IPGW SS7IPGW IPGWI IPGWI SS7IPGW IPGWI IPGWI IPGWI IPGWI IPGWI IPGWI IPGWI	ipnode4	A	0	
	IPLIM IPSG IPSG IPSG IPSG IPLIM IPLIM IPLIM IPLIM SS7IPGW SS7IPGW IPGWI IPGWI SS7IPGW IPGWI IPGWI IPGWI IPGWI IPGWI IPGWI	IPLIM ipnode1 IPLIM ipnode4 IPSG IPSG IPSG IPSG IPSG IPLIM IPLIM IPLIM SS7IPGW SS7IPGW IPGWI SS7IPGW IPGWI	IPLIM ipnode1 A IPLIM ipnode4 A IPSG IPSG IPSG IPSG IPSG IPLIM IPLIM IPLIM IPLIM IPLIM SS7IPGW SS7IPGW IPGWI	IPLIM ipnode1 A 0 IPLIM ipnode4 A 0 IPSG IPSG IPSG IPSG IPSG IPLIM IPLIM IPLIM IPLIM IPLIM SS7IPGW SS7IPGW IPGWI

Continue the procedure by performing one of these steps.

- If the required unprovisioned card slots (see the section Card Slot Selection) are shown in the rtrv-card output, continue the procedure with 4.
- If the required unprovisioned card slots are not shown in the rtrv-card output, 2 must be performed.
- 2. Display the shelves in the database by entering the rtrv-shlf command. This is an example of the possible output.

```
rlghncxa03w 08-03-05 08:12:53 GMT 38.0.0
SHELF DISPLAY
FRAME SHELF
                 TYPE
 1
      1
              CONTROL
 1
      2
              EXTENSION
 1
      3
              EXTENSION
 2
      1
              EXTENSION
 2
       2
              EXTENSION
 2
       3
              EXTENSION
```

If all the shelves are provisioned in the database, then the remainder of this procedure cannot be performed. There are no available card slots for the new **IPLIMx** card.

If all the shelves have not been provisioned in the database, continue the procedure with 3.

3. Add the required shelf using the ent-shlf command with the location of the shelf and the type=ext parameter. The shelf location values are 1200, 1300, 2100, 2200, 2300, 3100, 3200, 3300, 4100, 4200, 4300, 5100, 5200, 5300, and 6100. For this example, enter this command.

```
ent-shlf:loc=3100:type=ext
```

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

```
rlghncxa03w 07-05-01 09:12:36 GMT EAGLE5 37.0.0
ENT-SHLF: MASP A - COMPLTD
```

4. Verify that the card to be entered has been physically installed into the proper location (see the section Card Slot Selection).



Caution:

If the versions of the flash GPLs on the IPSG card do not match the flash GPL versions in the database when the **IPSG** card is inserted into the card slot. **UAM** 0002 is generated indicating that these **GPL** versions do not match. If **UAM** 0002 has been generated, perform the alarm clearing procedure for **UAM** 0002 in Maintenance Guide before proceeding with this procedure.



Note:

If the card being added in this procedure is not an **E5-ENET** card, continue the procedure with 10.

5. Verify that HIPR2 cards are installed in card locations 9 and 10 in the shelf containing the **E5-ENET** card being added in this procedure. Enter this command.

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

This is an example of the possible output.

rlghncxa03	w 09-07-05	08:12:53 GMT	41.1.0	
GPL	CARD	RUNNING	APPROVED	TRIAL
HIPR2	1109	132-002-000	132-002-000	132-003-000
HIPR2	1110	132-002-000	132-002-000	132-003-000
HIPR2	1209	132-002-000	132-002-000	132-003-000
HIPR2	1210	132-002-000	132-002-000	132-003-000
HIPR2	1309	132-002-000	132-002-000	132-003-000
HIPR2	1310	132-002-000	132-002-000	132-003-000
HIPR2	2109	132-002-000	132-002-000	132-003-000
HIPR2	2110	132-002-000	132-002-000	132-003-000
HIPR2	2209	132-002-000	132-002-000	132-003-000
HIPR2	2210	132-002-000	132-002-000	132-003-000
HIPR2	2309	132-002-000	132-002-000	132-003-000
HIPR2	2310	132-002-000	132-002-000	132-003-000
Command Co	mpleted			



If **HIPR2** cards are installed in the shelf containing the **E5-ENET** card, continue the procedure with 10.

If HIPR or HIPR2 cards are not installed on the shelf containing the E5-ENET card, go to *Installation Guide* and install the HIPR2 cards. Once the HIPR2 cards have been installed, continue the procedure with 10.

 $\textbf{6.} \quad \text{Enter the $\tt rtrv-stpopts} \ \textbf{command to verify whether or not the MFC option is on}.$

This is an example of the possible output.

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

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

If the **MFC** option is off, perform the Configuring the MFC Option procedure in *Database Administration - System Management User's Guide* to turn on the MFC option.

If the MFC option is on or the MFC Option procedure in *Database Administration* - *System Management User's Guide* was performed in this step, continue the procedure with 7.

The Fan feature must be purchased before you turn this feature on with the chgfeat command. If you are not sure if you have purchased the Fan feature, contact your Sales Representative or Account Representative.

7. Enter the rtrv-feat command to verify that the Fan feature is on.

If the Fan feature is on, shown in either the rtrv-feat output in this step or in 7, continue this procedure with 9.

If 7 was not performed, the FAN field should be set to on.

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

If the Fan feature is off, continue the procedure with 8.

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

```
chq-feat:fan=on
```



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



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

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

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

If the fans are installed, continue the procedure with 10.

If the fans are not installed on the shelf containing the E5-ENET-B card, go to *Installation Guide* and install the fans. After the fans have been installed and tested, continue the procedure with 10.

10. Add the card using the ent-card command. For this example, enter these commands.

```
ent-card:loc=1311:type=dcm:appl=iplim
ent-card:loc=1313:type=dcm:appl=iplimi
```

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

```
rlghncxa03w 06-10-12 09:12:36 GMT EAGLE5 36.0.0 ENT-CARD: MASP A - COMPLTD
```

11. Verify the changes using the rtrv-card command with the card location specified in 10. For this example, enter these commands.

```
rtrv-card:loc=1311
```

This is an example of the possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0

CARD TYPE APPL LSET NAME LINK SLC LSET NAME LINK SLC

1311 DCM IPLIM
```

rtrv-card:loc=1313

This is an example of the possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0

CARD TYPE APPL LSET NAME LINK SLC LSET NAME LINK SLC
1313 DCM IPLIMI
```

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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

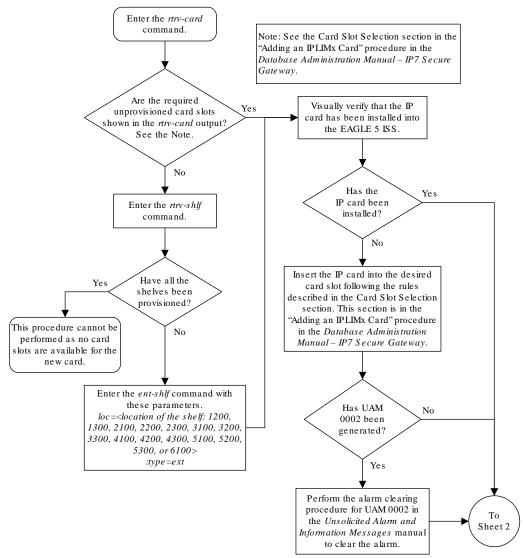
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
```



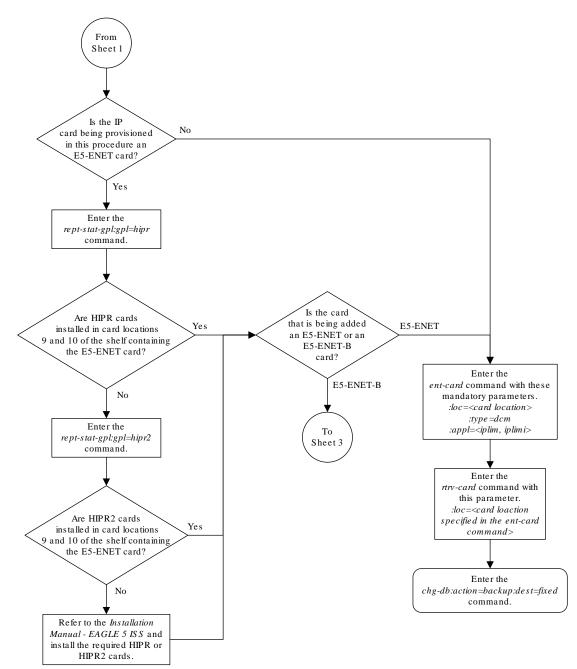
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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

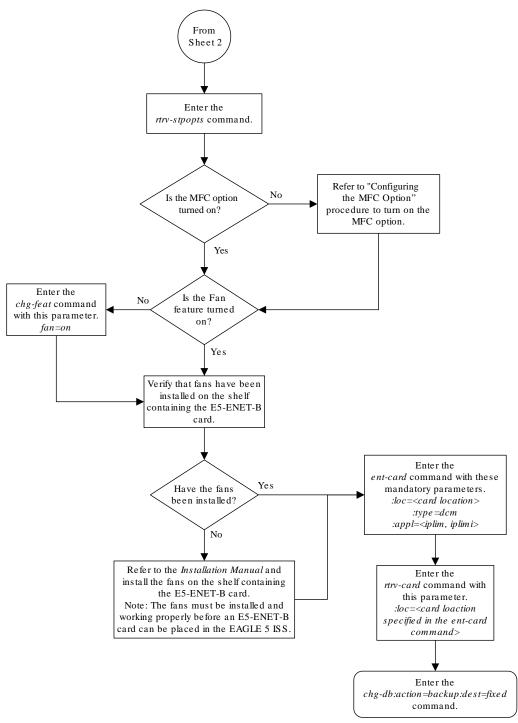
Figure 3-1 Adding an IPLIMx Card



Sheet 1 of 3



Sheet 2 of 3



Sheet 3 of 3

Adding an IPLIMx Signaling Link

This procedure is used to add an **IPLIMx** signaling link to the database using the ent-slk command. The ent-slk command uses these parameters.

- : loc The card location of the **IP** card that the **IP** signaling link will be assigned to. The cards specified by this parameter are **IP** cards running the **IPLIM** or **IPLIMI** applications.
- :link The signaling link on the card specified in the loc parameter.
- :lsn The name of the linkset that will contain the signaling link.
- : slc The signaling link code. The **SLC** must be unique within the linkset. It must be the same at both the **EAGLE** location and the distant node.
- :iplim12 The L2 protocol stack to be assigned to the IP signaling link, M2PA (the default value).

The ent-slk command contains other optional parameters that are not used to configure an IPGWx signaling link. These parameters are discussed in more detail in *Commands User's Guide* or in these sections.

- These procedures in this manual:
 - Adding an IPGWx Signaling Link
 - Adding an IPSG M3UA Signaling Link
 - Adding an IPSG M2PA Signaling Link
- These procedures in Database Administration SS7 User's Guide
 - Adding an SS7 Signaling Link
 - Adding an E1 Signaling Link
 - Adding a T1 Signaling Link
 - Adding an ATM High-Speed Signaling Link

These items must be configured in the database before an **IP** signaling link can be added:

- Shelf perform the "Adding a Shelf" procedure in *Database Administration System Management User's Guide*
- Card perform the Adding an IPLIMx Card procedure
- Destination Point Code perform the "Adding a Destination Point Code" procedure in Database Administration - SS7 User's Guide.
- Linkset An IPLIMx signaling link can be assigned to any linkset that does not contain IPGWx signaling links. Perform one of these procedures to add the linkset.
 - "Adding an SS7 Linkset" in Database Administration SS7 User's Guide
 - Adding an IPSG M2PA Linkset
 - Adding an IPSG M3UA Linkset

Adding the IPLIMx signaling link to an IPLIMx card that does not contain any IPLIMx signaling links cannot exceed the maximum total provisioned system TPS shown in the rtrv-tps output. An IPLIMx card that contains IPLIMx signaling links uses 4000 TPS. If the IPLIMx signaling link is being added to an IPLIMx card that contains other signaling links, no additional TPS is used and the maximum total provisioned system TPS shown in the rtrv-tps output will not be exceeded.

If adding the IPLIMx signaling link will exceed the maximum total provisioned system TPS, and the maximum total provisioned system TPS is 500,000, perform the "Activating the HIPR2 High Rate Mode" feature in *Database Administration - System Management User's Guide* to enable and turn on the HIPR2 High Rate Mode feature. When the HIPR2 High Rate



Mode feature is enabled and turned on, the maximum total provisioned system TPS is increased to 1,000,000 (1M). If the maximum total provisioned system TPS is 1M, or the maximum total provisioned system TPS is 500,000 and will not be increased, and adding the IPLIMx signaling link will exceed the maximum total provisioned system TPS, the IPLIMx signaling link cannot be added unless the amount of available TPS is reduced enough to allow the IPLIMx signaling link to be added. The available TPS can be reduced by performing one or more of these actions.

- The IP TPS values of some IPGWx linksets have to be changed.
- The MAXSLKTPS values of some IPSG linksets (and the RSVDSLKTPS values if necessary) have to be changed.
- Some ATM high-speed signaling links have to be removed.
- An IPLIMx card that contains signaling links has to be removed.

Verify that the link has been physically installed (all cable connections have been made).

To configure the EAGLE to perform circular routing detection test on the signaling links, "Configuring Circular Route Detection" procedure in the *Database Administration* - *SS7 User's Guide*.



Circular route detection is not supported in **ITU** networks.

To provision a EAGLE with more than 1200 signaling links, the EAGLE must have certain levels of hardware installed. See the Requirements for EAGLEs Containing more than 1200 Signaling Links section for more information on these hardware requirements.

The EAGLE can contain a mixture of low-speed, E1, T1, ATM high-speed, and IP signaling links. The Determining the Number of High-Speed and Low-Speed Signaling Links section describes how to determine the quantities of the different types of signaling links the EAGLE can have.

Canceling the REPT-STAT-SLK, RTRV-LS, and RTRV-SLK Commands

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

- Press the F9 function key on the keyboard at the terminal where the rept-statslk, rtrv-ls, or rtrv-slk commands were entered.
- Enter the canc-cmd without the trm parameter at the terminal where the reptstat-slk, rtrv-ls, or rtrv-slk commands were entered.
- Enter the canc-cmd:trm=<xx>, where <xx> is the terminal where the rept-stat-slk, rtrv-ls, or rtrv-slk commands were entered, from another terminal other that the terminal where the rept-stat-slk, rtrv-ls, or rtrv-slk commands was entered. To enter the canc-cmd:trm=<xx> command, the terminal must allow Security Administration commands to be entered from it and



the user must be allowed to enter Security Administration commands. The terminal's permissions can be verified with the rtrv-secu-trm command. The user's permissions can be verified with the rtrv-user or rtrv-secu-user commands.

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

 Display the maximum number of signaling links the EAGLE can have and the number of signaling links that are currently provisioned by entering the rtrv-tbl-capacity command.

This is an example of the possible output.

```
rlghncxa03w 09-07-19 21:16:37 GMT EAGLE5 41.1.0

SLK table is ( 4 of 1200) 1% full
```

Note:

Thertry-tbl-capacity command output contains other fields that are not used by this procedure. If you wish to see all the fields displayed by thertry-tbl-capacity command, refer to thertry-tbl-capacitycommand description in Commands User's Guide.

If the addition of the new signaling link will not exceed the maximum number of signaling links the EAGLE can have, continue the procedure with 2.

If the addition of the new signaling link will exceed the maximum number of signaling links the EAGLE can have, and the maximum number of signaling links is less than 2800, perform the Enabling the Large System # Links Controlled Feature procedure to enable the desired quantity of signaling links. After the new quantity of signaling links has been enabled, continue the procedure with 2.

If the addition of the new signaling link will exceed the maximum number of signaling links the EAGLE can have (in this example, the maximum number of signaling links is 1200), and the maximum number of signaling links is 2800, this procedure cannot be performed. The EAGLE cannot contain more than 2800 signaling links.

2. Display the total provisioned system TPS by entering the rtrv-tps command. This is an example of the possible output.

rlghncxa03w	10-07-10	16:20:46	GMT	EAGLE	42.0.0

CARD	NUM	NUM	RSVD	MAX
TYPE	CARDS	LINKS	TPS	TPS
IPGW	17	16	48000	80000
IPSG	3	7	4200	8000
IPLIM	2	4	8000	8000
ATM	2	2	3668	3668

Total provisioned System TPS (99668 of 500000) 20%



Command Completed.

3. Display the cards in the database using the rtrv-card command.

This is an example of the possible output.

rlghncx	ka03w 13-06	5-28 09:12	2:36 GMT EAGI	LE5 45	5.0.0)			
CARD	TYPE	APPL	LSET NAME	LINK		LSET NA	AME	LINK	SLC
1101	DCM	SS7IPGW	ipgwx1	A	0				
1102	DCM	SS7IPGW	ipgwx1	A	1				
1103	DCM	SS7IPGW	ipgwx1	A	2				
1104	DCM	SS7IPGW	ipgwx1	A	3				
1105	DCM	SS7IPGW	ipgwx1	A	4				
1106	DCM	SS7IPGW	ipgwx1	A	5				
1107	DCM	SS7IPGW	ipgwx1	A	6				
1108	DCM	SS7IPGW	ipgwx1	A	7				
1111	DCM	SS7IPGW	ipgwx2	A	0				
1112	DCM	SS7IPGW	ipgwx2	A	1				
1113	E5MCAP	OAMHC							
1114	E5TDM-A								
1115	E5MCAP	OAMHC							
1116	E5TDM-B								
1117	E5MDAL								
1201	DCM	SS7IPGW	ipgwx2	A	2				
1202	DCM	SS7IPGW	ipgwx2	A	3				
1203	DCM	SS7IPGW	ipgwx2	A	4				
1204	DCM	SS7IPGW	ipgwx2	A	5				
1205	DCM	SS7IPGW	ipgwx2	A	6				
1206	DCM	SS7IPGW	ipgwx2	A	7				
1207	DSM	VSCCP							
1208	TSM	GLS							
1301	DCM	IPLIM	lsniplim	A	0	lsnipl	im	A1	1
			lsniplim	В1	2				
1302	LIMATM	ATMANSI							
1303	ENET	IPSG	ipsglsn	A	0	ipsgls	n	A1	1
			ipsglsn	В1	2	ipsgls	n	A2	3
			ipsglsn	A3	4	ipsgls	n2	В3	0
1304	LIMATM	ATMANSI							
1305	LIMATM	ATMANSI	lsnds0	A	1				
1306	LIME1ATM	ATMITU	lsnituatm	A	0				
1307	ENET	IPSG	ipsglsn	A	5				
1311	DCM	IPLIM							
1312	LIMDS0	SS7ANSI	lsnds0	A	0				
1317	DCM	IPLIMI	lsniplimi	A	0				
1318	LIMATM	ATMANSI							

If the required card is not in the database, perform the Adding an IPLIMx Card procedure and add the IPLIMx card to the database.



Note:

If the linkset that the signaling link will be added to contains the multgc=yes parameter, the application assigned to the card must be IPLIMI.

An IPLIMx card that contains signaling links uses 4000 TPS. If the card that the new IPLIMx signaling link will be assigned to has other signaling links assigned to it (shown in the LSET NAME, LINK, and SLC columns in the rtrv-card output), continue the procedure with 8.

If the Adding an IPLIMx Card procedure was performed in this step, or if the new signaling link will be assigned to an existing IPLIMx card that contains no signaling links, continue the procedure by performing one of these actions.

- If adding the new IPLIMx signaling link will not exceed the maximum total provisioned system TPS, shown in 2, continue the procedure with 8.
- If adding the new IPLIMx signaling link will exceed the maximum total provisioned system TPS, and the maximum total provisioned system TPS is 500,000 shown, perform the "Activating the HIPR2 High Rate Mode Feature" procedure in *Database Administration System Management User's Guide* to enable and turn on the HIPR2 High Rate Mode feature. When the HIPR2 High Rate Mode feature is enabled and turned on, the maximum total provisioned system TPS is increased to 1M. After the HIPR2 High Rate Mode feature has been enabled and turned on, continue the procedure with 8.
- If the maximum total provisioned system TPS is 1M, or the maximum total
 provisioned system TPS is 500,000 and will not be increased, and adding the IPLIMx
 signaling link will exceed the maximum total provisioned system TPS, the IPLIMx
 signaling link cannot be added unless the amount of available TPS is reduced
 enough to allow the IPLIMx signaling link to be added. The available TPS can be
 increased by performing one or more of these actions.
 - The IP TPS values of some IPGWx linksets have to be changed. To perform this
 action, continue the procedure with 6.
 - The MAXSLKTPS values of some IPSG linksets (and the RSVDSLKTPS values if necessary) have to be changed. To perform this action, continue the procedure with 6.
 - Some ATM high-speed signaling links have to be removed. To perform this action, continue the procedure with 4.
 - An IPLIMx card that contains signaling links has to be removed. To perform this
 action, continue the procedure with 5.
- 4. Display the ATM high-speed signaling links by entering this command.

```
rtrv-slk:type=saal
```

This is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0

					LP		ATM			
LOC	LINK	LSN	SLC	TYPE	SET	BPS	TSEL	VCI	VPI	LL
1303	A	lsnds0	1	LIMATM	1	1.544M	LINE	5	0	0



```
E1ATM

LOC LINK LSN SLC TYPE SET BPS TSEL VCI VPI CRC4 SI SN

1306 A lsnituatm 0 LIME1ATM 21 2.048M LINE 5 0 ON 3 0

SLK table is (30 of 1200) 2% full.
```

If ATM high-speed signaling links are shown in the rtrv-slk output, perform the "Removing an SS7 Signaling Link" procedure in *Database Administration - SS7 User's Guide* to remove some of the ATM high-speed signaling links.

If ATM high-speed signaling links are not displayed in the rtrv-slk output, perform one or more of these actions to increase the available TPS.



If one or more of these actions are not performed to increase the available TPS and the available TPS will not allow the IPLIMX signaling link to be added, the IPLIMx signaling link cannot be added and the remainder of this procedure cannot be performed.

- The IP TPS values of some IPGWx linksets have to be changed. To perform this action, continue the procedure with 6.
- The MAXSLKTPS values of some IPSG linksets (and the RSVDSLKTPS values if necessary) have to be changed. To perform this action, continue the procedure with 6.
- An IPLIMx card that contains signaling links has to be removed. To perform this action, continue the procedure with 5.

If you do not wish to perform other actions to increase the available TPS and the available TPS will allow the IPLIMx signaling link to be added, continue the procedure with 8.

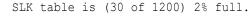
5. Display the signaling links that are assigned to IPLIMx cards by entering this command.

```
rtrv-slk:type=iplim
```

This is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0

LOC	LINK	LSN	SLC	TYPE	ANAME	SLKTPS
1301	A	lsniplim	0	IPLIM	M2PA	
1301	A1	lsniplim	1	IPLIM	M2PA	
1301	B1	lsniplim	2	IPLIM	M2PA	
1317	A	lsniplimi	0	IPLIMI	M2PA	





If IPLIMx cards containing signaling links are shown in the rtrv-slk output, perform the Removing an IPLIMx Card procedure to remove an IPLIMx card and its associated signaling links.

If IPLIMx cards containing signaling links are not displayed in the rtrv-slk output, perform one or more of these actions to increase the available TPS.



If one or more of these actions are not performed to increase the available TPS and the available TPS will not allow the IPLIMx signaling link to be added, the IPLIMx signaling link cannot be added and the remainder of this procedure cannot be performed.

- The IP TPS values of some IPGWx linksets have to be changed. To perform this action, continue the procedure with 6.
- The MAXSLKTPS values of some IPSG linksets (and the RSVDSLKTPS values if necessary) have to be changed. To perform this action, continue the procedure with 6.
- Some ATM high-speed signaling links have to be removed. To perform this action, continue the procedure with 4.

If you do not wish to perform other actions to increase the available TPS and the available TPS will allow the IPLIMx signaling link to be added, continue the procedure with 8.

6. Display the IPGWx and IPSG linksets by entering this command.

rept-stat-iptps

This is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0 IP TPS USAGE REPORT

	THRESH	CONFIG/ RSVD	CONFIG/ MAX		TPS	PEAK	PEAKTIMESTAMP
LSN							
ipgwx1	100%		32000	TX:	3700	4000	10-07-19 09:49:19
				RCV:	3650	4000	10-07-19 09:49:19
ipgwx2	100%		16000	TX:	4800	5000	10-07-19 09:49:09
				RCV:	4850	5000	10-07-19 09:49:09
ipgwx3	100%		32000	TX:	427	550	10-07-19 09:49:19
				RCV:	312	450	10-07-19 09:49:19
ipsglsn	100%	600	24000	TX:	4800	5000	10-07-19 09:49:19
				RCV:	4800	5000	10-07-19
09:49:19							
ipsglsn2	100%	600	4000	TX:	427	550	10-07-19 09:49:19
				RCV:	312	450	10-07-19
09:49:19							



Command Completed.

If linksets are displayed in the rept-stat-iptps output, continue the procedure with 7.

If linksets are not displayed in the rept-stat-iptps output, perform one or more of these actions to increase the available TPS.

Note:

If one or more of these actions are not performed to increase the available TPS and the available TPS will not allow the IPLIMx signaling link to be added, the IPLIMx signaling link cannot be added and the remainder of this procedure cannot be performed.

- An IPLIMx card that contains signaling links has to be removed. To perform this action, continue the procedure with 5.
- Some ATM high-speed signaling links have to be removed. To perform this action, continue the procedure with 4.

If you do not wish to perform other actions to increase the available TPS and the available TPS will allow the IPLIMx signaling link to be added, continue the procedure with 8.

7. Display the attributes of the linksets shown in 6 by entering the rtrv-ls command with the name of the linkset shown in 6.

For this example enter these commands.

```
rtrv-ls:lsn=ipgwx1
```

This is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0

LSN SLSCI NIS	APCA	(SS7)	SCRN	L3T SET		BEI	LST	LNKS		GWS MES	
ipgwx1 no off	001-001	-002	none	1	1	no	A	8	off	off	off
	SPCA		CLLI			TFAT	ГСАВІ	MLQ M'	TPRSI	E ASI no	.8
	RANDSLS off										
	IPSG IPGWA		TTMODI dpa	Ξ		(CGGTN no	4OD			
	MATELSN	LSU 100	JSEAI)%		SLKUS 80%	SEALN	1				



```
    LOC
    LINK
    SLC
    TYPE

    1101
    A
    0
    SS7IPGW

    1102
    A
    1
    SS7IPGW

    1103
    A
    2
    SS7IPGW

    1104
    A
    3
    SS7IPGW

    1105
    A
    4
    SS7IPGW

    1106
    A
    5
    SS7IPGW

    1107
    A
    6
    SS7IPGW

    1108
    A
    7
    SS7IPGW
```

Link set table is (8 of 1024) 1% full.

rtrv-ls:lsn=ipgwx2

This is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0

				L3T	SLT				GWS	GWS	GWS	
LSN	APCA	(SS7)	SCRN	SET	SET	BEI	LST	LNKS	ACT	MES	DIS	SLSCI
NIS												
ipgwx2 off	001-00	1-003	none	1	1	no	A	8	off	off	off	no
OLI												

SPCA CLLI TFATCABMLQ MTPRSE ASL8

RANDSLS

off

IPSG IPGWAPC GTTMODE CGGTMOD no yes CdPA no

MATELSN IPTPS LSUSEALM SLKUSEALM ----- 16000 100% 80%

LOC LINK SLC TYPE
1111 A 0 SS7IPGW
1112 A 1 SS7IPGW
1201 A 2 SS7IPGW
1202 A 3 SS7IPGW
1203 A 4 SS7IPGW
1204 A 5 SS7IPGW
1205 A 6 SS7IPGW
1206 A 7 SS7IPGW

Link set table is (8 of 1024) 1% full.

rtrv-ls:lsn=ipgwx3



This is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0

LSN APCA (SS7) SCRN SET SET BEI LST LNKS ACT MES DIS

SLSCI NIS

ipgwx3 001-001-004 none 1 1 no A 0 off off

no off

SPCA CLLI TFATCABMLQ MTPRSE ASL8

RANDSLS

off

IPSG IPGWAPC GTTMODE CGGTMOD no yes CdPA no

MATELSN IPTPS LSUSEALM SLKUSEALM ----- 32000 100% 80%

Link set table is (8 of 1024) 1% full.

rtrv-ls:lsn=ipsglsn

This is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0

LST SLT GWS GWS GWS LSN APCA (SS7) SCRN SET SET BEI LST LNKS ACT MES DIS

SLSCI NIS

ipsglsn 003-003-003 none 1 1 no A 6 off off

no off

SPCA CLLI TFATCABMLQ MTPRSE ASL8

RANDSLS

off

IPSG IPGWAPC GTTMODE CGGTMOD yes no CdPA no

ADAPTER RSVDSLKTPS MAXSLKTPS

m2pa 600 4000

TPSALM LSUSEALM SLKUSEALM rsvdslktps 100% 100%

LOC LINK SLC TYPE ANAME



```
      1303 A
      0
      IPSG
      ipsgm2pa1

      1303 A1
      1
      IPSG
      ipsgm2pa2

      1303 B1
      2
      IPSG
      ipsgm2pa3

      1303 A2
      3
      IPSG
      ipsgm2pa4

      1303 A3
      4
      IPSG
      ipsgm2pa5

      1307 A
      5
      IPSG
      m2pa2
```

Link set table is (8 of 1024) 1% full.

rtrv-ls:lsn=ipsglsn2

This is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0

L3T SLT GWS GWS GWS LSN APCA (SS7) SCRN SET SET BEI LST LNKS ACT MES DIS S NIS ipsglsn2 005-005-005 none 1 1 no A 1 off off off n off													
LSN APCA (SS7) SCRN SET SET BEI LST LNKS ACT MES DIS S	1 3	005-005	5-005	none	1	1	no	A	1	off	off	off	no
TOMOTH CMC CMC CMC	-	APCA	(SS7)					LST	LNKS	-	-	-	SLSCI

SPCA CLLI TFATCABMLQ MTPRSE ASL8

RANDSLS off

IPSG IPGWAPC GTTMODE CGGTMOD yes no CdPA no

ADAPTER RSVDSLKTPS MAXSLKTPS m2pa 600 4000

TPSALM LSUSEALM SLKUSEALM rsvdslktps 100% 100%

LOC LINK SLC TYPE ANAME
1303 B3 0 IPSG ipsgm2pa6

Link set table is (8 of 1024) 1% full.

Perform one or both of these actions as necessary.

- Perform the Configuring an IPGWx Linkset procedure to change the IPTPS value for any linksets shown in the rtrv-ls output whose IPGWAPC value is yes.
- Perform the Changing an IPSG M2PA Linkset procedure (for linkset whose IPSG value is yes and ADAPTER value is M2PA) or the Changing an IPSG M3UA Linkset procedure (for linkset whose IPSG value is yes and ADAPTER value is M3UA) to change the MAXSLKTPS value (and RSVDSLKTPS value if necessary) for any linksets shown in the rtrv-ls output.



Perform one or both of these actions to increase the available TPS if needed.

- An IPLIMx card that contains signaling links has to be removed. To perform this action, continue the procedure with 5.
- Some ATM high-speed signaling links have to be removed. To perform this action, continue the procedure with 4.

If you do not wish to perform other actions to increase the available TPS and the available TPS will allow the IPLIMx signaling link to be added, continue the procedure with 8.

8. Display the current signaling link configuration using the rtrv-slk command.

This is an example of the possible output.

rlghncxa03w 10-07-19	21:16:3	37 GMT EA L2		0.0	PCR	PCR	
LOC LINK LSN	SLC TY	PE SE		ECM	N1	N2	
1312 A lsnds0	0 LIN	MDS0 1	56000	BASIC	C		
		LP		ATM			
LOC LINK LSN	SLC TY		T BPS	TSEL	VCI		LL
1305 A lsnds0	1 LIN	MATM 1	1.544M	LINE	5	0	0
		LP		ATM			
E1ATM	01 0 mil		m	man.			
LOC LINK LSN CRC4 SI SN	SLC TY	PE SE	T BPS	TSEL	VC1	I VPI	
1306 A lsnituatm	0 LIN	ME1ATM 21	2.048M	LINE	5	0	
ON 3 0							
TOO TIME TON	OT O MY	תות דו	7 1 1 1 7		סמשע דנ		
LOC LINK LSN 1303 A ipsglsn	SLC TYI		AME sgm2pa1		SLKTPS 500		
1303 Al ipsglsn	1 IPS	-	sgm2pa1		500		
1303 Bl ipsglsn	2 IPS	_	sgm2pa2		500		
1303 A2 ipsglsn	3 IPS	_	sgm2pa3		500		
1303 A3 ipsglsn	4 IPS		sgm2pa5		500		
1303 B3 ipsglsn2	0 IPS	_	sgm2pa6		1000		
1307 A ipsglsn	5 IPS	_	pa2		500		
1007 11 12091011	0 11.	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	P 42	·			
LOC LINK LSN	SLC TY	PE IP	LIML2				
1301 A lsniplim	0 IPI	LIM M2	PA				
1301 A1 lsniplim		LIM M2	PA				
1301 B1 lsniplim			PA				
1317 A lsniplimi	0 IPI	LIMI M2	PA				
LOC LINK LSN	SLC TY	PE					
1201 A ipgwx2	2 SS	7IPGW					
1202 A ipgwx2	3 SS	7IPGW					
1203 A ipgwx2		7IPGW					
1204 A ipgwx2	5 SS	7IPGW					
1205 A ipgwx2	6 SS	7IPGW					
1206 A ipgwx2	7 SS	7IPGW					
1101 A ipgwx1	0 SS	7IPGW					
1102 A ipgwx1	1 SS	7IPGW					



1103	A	ipgwx1	2	SS7IPGW
1104	A	ipgwx1	3	SS7IPGW
1105	A	ipgwx1	4	SS7IPGW
1106	A	ipgwx1	5	SS7IPGW
1107	A	ipgwx1	6	SS7IPGW
1108	A	ipgwx1	7	SS7IPGW
1111	A	ipgwx2	0	SS7IPGW
1112	A	ipgwx2	1	SS7IPGW

SLK table is (30 of 1200) 2% full.

9. Display the current linkset configuration using the rtrv-ls command.

This is an example of the possible output.

rlghncxa03w 10-07-10 11:43:04 GMT EAGLE5 42.0.0

				L3T						GWS		
LSN NIS	APCA	(SS7)	SCRN	SET	SET	BEI	LST	LNKS	ACT	MES	DIS	SLSCI
ipgwx1 off	001-001	-002	none	1	1	no	A	8	off	off	off	no
ipgwx2	001-001	-003	none	1	1	no	A	8	off	off	off	no
off ipgwx3	001-001	-004	none	1	1	no	А	0	off	off	off	no
off	000 000	000		1	1		7)	3				
lsniplim off	002-002	2-002	none	Ι	Ι	no	A	3	OII	off	OII	no
ipsglsn off	003-003	3-003	none	1	1	no	A	6	off	off	off	no
ipsglsn2 off	005-005	5-005	none	1	1	no	A	1	off	off	off	no
lsnds0 off	009-009	9-009	none	1	1	no	A	2	off	off	off	no
				- 0 -								
LSN NIS	APCI	(SS7)	SCRN	L3T SET		BEI	LST	LNKS		GWS MES		SLSCI
lsnituatm off	1-002-3	3	none	1	2	no	A	1	off	off	off	no
atmitu1 off	3-111-3	3	none	1	1	no	А	0	off	off	off	no
				L3T	ςт.π				CWS	GWS	CWS	
LSN NIS	APCN	(SS7)	SCRN	_		BEI	LST	LNKS				SLSCI
lsipgw off	2968		none	1	2	no	А	1	off	off	off	no

Link set table is (10 of 1024) 1% full.

If the desired linkset is not in the database, perform one of these procedures to add the linkset to the database.

- "Adding an SS7 Linkset" in Database Administration SS7 User's Guide
- Adding an IPSG M2PA Linkset
- Adding an IPSG M3UA Linkset

After the new linkset has been added, continue the procedure with 11.

If the signaling link will be assigned to the linkset shown in this step, continue the procedure with 10.

10. Display the linkset that the signaling link is being assigned to using the rtrv-ls command, specifying the name of the linkset that the signaling link is being assigned to.

```
For this example, enter this command.
```

```
rtrv-ls:lsn=lsipgw
```

This is an example of the possible output.

```
rlghncxa03w 10-07-17 11:43:04 GMT EAGLE5 42.0.0
```

LSN	APCN	(SS7)	SCRN					LNKS			
SLSCI NIS lsipgw no off	2968		none	1	2	no	A	1	off	off	off
	SPCN		CLLI				TCABI	MLQ M'	TPRSI	E ASI	L8 -
	SLSOCBIT none		_	_							
	IPSG IPG					(CGGTI no	MOD			
	LOC LINK 1317 A					2					
	SAPCI 1-10-1										
	SAPCN 1234-aa 1235-bb 1200-zz										

Link set table is (10 of 1024) 1% full.

The signaling link cannot be assigned to a linkset whose <code>IPGWAPC</code> value is <code>yes</code>. If the <code>IPGWAPC</code> value for the linkset is <code>yes</code>, repeat the procedure from 9 and choose another linkset.

If the IPGWAPC value for the linkset is no, continue the procedure with 11.

11. Add the signaling link to the database using the ent-slk command.



Table 3-2 shows the parameters and values that can be specified with the ent-slk command.

Table 3-2 M2PA IPLIMx Signaling Link Parameter Combinations

M2PA IPLIMx Signaling Link

Mandatory Parameters

:loc = location of the IP card with one of these applications: IPLIM or IPLIMI; and the DCM card type. (See Note 1)

:link = <see Note 2>

:Isn = linkset name (See Note 3)

:slc = 0 - 15 (See Note 4)

Optional Parameter

:ipliml2 = m2pa, default value = m2pa

Notes:

- 1. If the multgc=yes parameter is assigned to the linkset, the card's application must be **IPLIMI**.
- 2. The range of link parameter values is dependent on the type of **IPLIMx** card that is being provisioned.

```
Single-Slot EDCM - Link Parameter Values A - A3, B - B3
E5-ENET - Link Parameter Values A - A7, B - B7
```

- 3. If the card's application is **IPLIMI**, the linkset adjacent point code must be **ITU**. If the card's application is **IPLIM**, the linkset adjacent point code must be **ANSI**. The domain of the linkset adjacent point code must be **SS7**.
- 4. Signaling links provisioned in this procedure can be in a linkset that contains non-**IPLIMx** signaling links.

For this example, enter these commands.

```
ent-slk:loc=2204:link=b:lsn=lsnlp2:slc=0:ipliml2=m2pa
ent-slk:loc=2205:link=a:lsn=lsnlp1:slc=1:ipliml2=m2pa
ent-slk:loc=2213:link=a:lsn=lsnlp5:slc=1:ipliml2=m2pa
```

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

```
rlghncxa03w 06-10-07 08:29:03 GMT EAGLE5 36.0.0 ENT-SLK: MASP A - COMPLTD
```

Note:

If adding the new signaling link will result in more than 700 signaling links in the database and the OAMHCMEAS value in thertry-measopts output ison, the scheduled UI measurement reports will be disabled.

12. Verify the changes using the rtrv-slk command with the card location and link parameter values specified in **11**. For this example, enter these commands.

```
rtrv-slk:loc=2204:link=b
```



This is an example of the possible output.

```
rlghncxa03w 06-10-19 21:16:37 GMT EAGLE5 36.0.0 LOC LINK LSN SLC TYPE IPLIML2 2204 B lsnlp2 0 IPLIM M2PA
```

```
rtrv-slk:loc=2205:link=a
```

This is an example of the possible output.

```
rlghncxa03w 06-10-19 21:16:37 GMT EAGLE5 36.0.0

LOC LINK LSN SLC TYPE IPLIML2

2205 A lsnlp1 1 IPLIM M2PA
```

```
rtrv-slk:loc=2213:link=a
```

This is an example of the possible output.

```
rlghncxa03w 06-10-19 21:16:37 GMT EAGLE5 36.0.0 LOC LINK LSN SLC TYPE IPLIML2 2213 A lsnlp5 0 IPLIM M2PA
```

Continue the procedure by performing one of these steps.

- If a new signaling link is the first signaling link on the IPLIMx card, continue the procedure with 13.
- If all the signaling links that were added in this procedure were added to IPLIMx cards that contained other signaling links, continue the procedure with14.
- 13. Place the IPLIMx card containing the first signaling link on that card into service with the rst-card command, specifying the location of the card. For this example, enter these commands.

```
rst-card:loc=2204
rst-card:loc=2205
rst-card:loc=2213
```

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

```
rlghncxa03w 06-10-23 13:05:05 GMT EAGLE5 36.0.0 Card has been allowed.
```

14. Activate all signaling links on the cards using the act-slk command, specifying the card location and link parameter value of each signaling link. For this example, enter these commands.

```
act-slk:loc=2204:link=b
act-slk:loc=2205:link=a
```



```
act-slk:loc=2213:link=a
```

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

```
rlghncxa03w 06-10-07 08:31:24 GMT EAGLE5 36.0.0 Activate Link message sent to card
```

15. Check the status of the signaling links added in 11 using the rept-stat-slk command with the card location and link parameter values specified in 11. The state of each signaling link should be in service normal (IS-NR) after the link has completed alignment (shown in the PST field). For this example, enter these commands.

```
rept-stat-slk:loc=2204:link=b
```

This is an example of the possible output.

```
rlghncxa03w 07-05-23 13:06:25 GMT EAGLE5 37.0.0

SLK LSN CLLI PST SST AST
2204,B lsnlp2 ------ IS-NR Avail ----

ALARM STATUS =

UNAVAIL REASON =
```

rept-stat-slk:loc=2205:link=a

This is an example of the possible output.

```
rlghncxa03w 07-05-23 13:06:25 GMT EAGLE5 37.0.0

SLK LSN CLLI PST SST AST
2205,A lsnlp1 ------- IS-NR Avail ----
ALARM STATUS =
UNAVAIL REASON =
```

rept-stat-slk:loc=2213:link=a

This is an example of the possible output.

```
rlghncxa03w 07-05-23 13:06:25 GMT EAGLE5 37.0.0

SLK LSN CLLI PST SST AST

2213,A lsnlp5 ------ IS-NR Avail ----

ALARM STATUS =

UNAVAIL REASON =
```

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

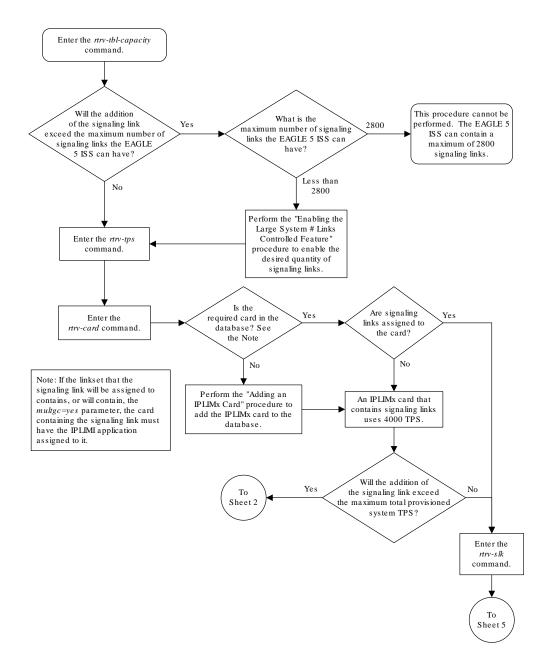
```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

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

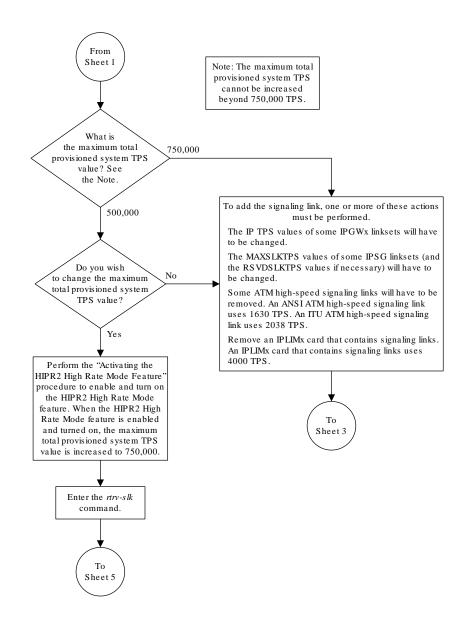
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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

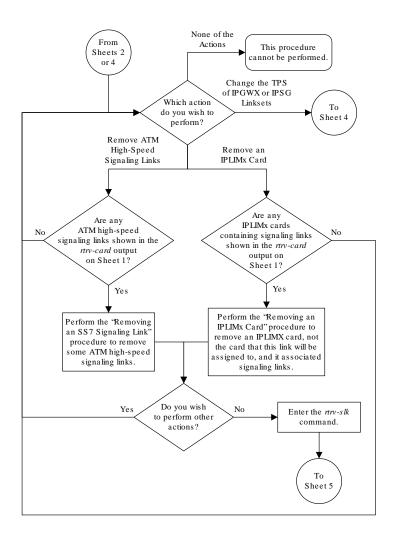
Figure 3-2 Adding an IPLIMx Signaling Link



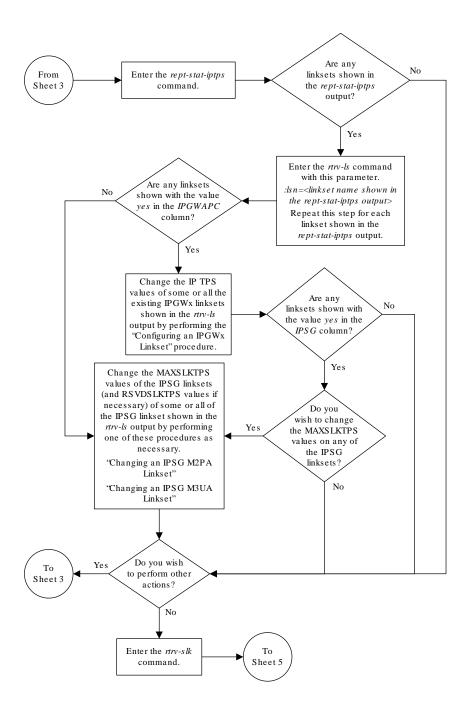
Sheet 1 of 5



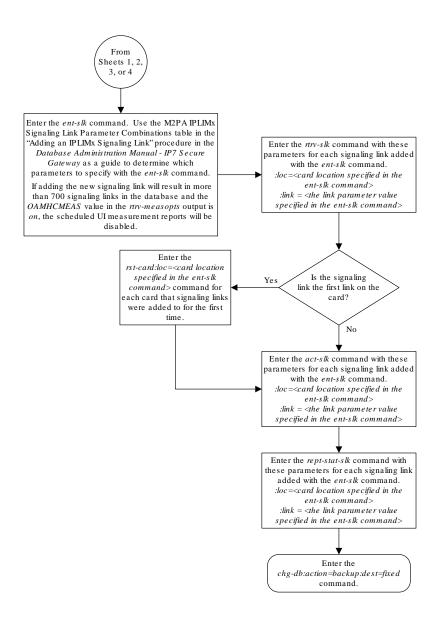
Sheet 2 of 5



Sheet 3 of 5



Sheet 4 of 5



Sheet 5 of 5

Configuring an IP Link

This procedure is used to configure the link parameters for IP cards using the chg-ip-lnk command. These link parameters are used to configure the Ethernet hardware.

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

:loc - The card location of the IP card.

:port - The Ethernet interface on the IP card, A or B.

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

: submask – The subnet mask of the **IP** interface. A subnet mask is an **IP** address with a restricted range of values. The bits in the mask must be a string of one's followed by a string of zero's. There must be at least two one's in the mask, and the mask cannot be all one's. See Table 3-3 to assign the correct parameter values.

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

: duplex - This is the mode of operation of the interface.

: speed – This is the bandwidth in megabits per second of the interface.

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

:mcast – The multicast control flag. This parameter enables or disables multicast support for the interface.

The EAGLE can contain a maximum of 2048 IP links.

A zero ipaddr parameter value (0.0.0.0) indicates the IP card Ethernet interface to IP link association is disabled. The host to the original IP address must be removed before the ipaddr=0.0.0.0 can be specified.

If the defrouter parameter of the chg-ip-card command contains an **IP** address for the card specified in this procedure, the network portion of one of the **IP** addresses assigned to the card in this procedure must match the network portion of the **IP** address specified by the defrouter parameter of the chg-ip-card command.

The network portion of the **IP** address is based on the class of the **IP** address (shown in Table 3-3). If the **IP** address is a Class A **IP** address, the first field is the network portion of the **IP** address. If the **IP** address is a Class B **IP** address, the first two fields are the network portion of the **IP** address. If the **IP** address is a Class C **IP** address, the first three fields are the network portion of the **IP** address. For example, if the **IP** address is 193.5.207.150, a Class C **IP** address, the network portion of the **IP** address is 193.5.207.

If the auto=yes parameter is specified, then the duplex and speed parameters are not allowed.

The loc parameter value must be shown in the rtrv-ip-card output.

The **IP** card must be placed out of service.

If either the ipaddr or submask parameters are specified, then both parameters must be specified. If the ipaddr parameter value is zero (0.0.0.0), the submask parameter is not required.

The **IP** address and subnet mask values cannot be changed to an address representing a different network if:

- If the network interface specified by the loc and port parameters has a default router, dnsa, or dsnb parameter values assigned to it, as shown in the rtrv-ip-card output.
- Any IP routes, shown in the rtrv-ip-rte output, reference the IP address for the network interface specified by the loc and port parameters.



The **IP** link cannot be changed if open associations reference the **IP** link being changed.

The network portion of the **IP** addresses assigned to the **IP** links on an **IP** card must be unique. For example, if **IP** links are assigned to **IP** card 1103, the network portion of the **IP** address for Ethernet interface A (port=a) must be different from the **IP** address for Ethernet interface B (port=b).

The submask parameter value is based upon the ipadddr setting. See Table 3-3 for the valid input values for the submask and ipaddr parameter combinations.

Table 3-3 Valid Subnet, Mask Parameter Values

Network Class	IP Network Address Range	Valid Subnet Mask Values
		255.0.0.0 (the default value for a class A IP address)
		255.192.0.0
		255.224.0.0
Α	1.0.0.0 to 127.0.0.0	255.240.0.0
		255.248.0.0
		255.252.0.0
		255.254.0.0
		255.255.128.1
		255.255.0.0 (the default value for a class B IP address)
		255.255.192.0
		255.255.224.0
A+B	128.0.0.0 to 191.255.0.0	255.255.240.0
		255.255.248.0
		255.255.252.0
		255.255.254.0
		255.255.255.128
		255.255.255.0 (the default value for a class C IP address)
		255.255.255.192
A+B+C	192.0.0.0 to 223.255.255.0	255.255.255.224
		255.255.255.240
		255.255.255.248
		255.255.255.252

If a Class B IP address is specified for the <code>ipaddr</code> parameter of the <code>chg-ip-lnk</code> command, the subnet address that results from the <code>ipaddr</code> and <code>submask</code> parameter values cannot be the same as the subnet address that results from the <code>pvn</code> and <code>pvnmask</code>, <code>fcna</code> and <code>fcnamask</code>, or <code>fcnb</code> and <code>fcnbmask</code> parameter values of the <code>chg-netopts</code> command. The <code>pvn</code> and <code>pvnmask</code>, <code>fcna</code> and <code>fcnamask</code>, or <code>fcnb</code> and <code>fcnbmask</code> parameter values can be verified by entering the <code>rtrv-netopts</code> command. Choose <code>ipaddr</code> and <code>submask</code> parameter values for the IP link whose resulting subnet address is not be the same as the subnet address resulting from the <code>pvn</code> and <code>pvnmask</code>, <code>fcna</code> and <code>fcnamask</code>, or <code>fcnb</code> and <code>fcnbmask</code> parameter values of the <code>chg-netopts</code> command.



The IP address for the IP link cannot be shown as the IPADDR value in the rtrv-ip-lnk, rtrv-ftp-serv, or rtrv-seas-config outputs, or the BPIPADDR value in the rtrv-ip-card output.

Canceling the RTRV-ASSOC Command

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

- Press the F9 function key on the keyboard at the terminal where the rtrv-assoc commandwas were entered.
- Enter the canc-cmd without the trm parameter at the terminal where the rtrv-assoc commandwas entered.
- Enter the canc-cmd:trm=<xx>, where <xx> is the terminal where the rtrv-assoc commandwas entered, from another terminal other that the terminal where the rtrv-assoc commandwas 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 rtry-secu-user commands.

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

1. Display the current link parameters associated with the **IP** card in the database by entering the rtrv-ip-lnk command.

The following is an example of the possible output.

rlghncxa03w 08-12-28 21:14:37 GMT EAGLE5 40.0.0										
LOC	PORT	IPADDR	SUBMASK	DUPLEX	SPEED	MACTYPE	AUTO			
MCAST										
1201	A	192.1.1.10	255.255.255.128	HALF	10	802.3	NO	NO		
1201	В			HALF	10	DIX	NO	NO		
1203	A	192.1.1.12	255.255.255.0			DIX	YES	NO		
1203	В			HALF	10	DIX	NO	NO		
1205	A	192.1.1.14	255.255.255.0	FULL	100	DIX	NO	NO		
1205	В			HALF	10	DIX	NO	NO		
2101	A	192.1.1.20	255.255.255.0	FULL	100	DIX	NO	NO		
2101	В			HALF	10	DIX	NO	NO		
2103	A	192.1.1.22	255.255.255.0	FULL	100	DIX	NO	NO		
2103	В			HALF	10	DIX	NO	NO		
2105	A	192.1.1.24	255.255.255.0	FULL	100	DIX	NO	NO		
2105	В				10	DIX	NO	NO		
2205	A	192.1.1.30	255.255.255.0	FULL	100	DIX	NO	NO		
2205	В			HALF	10	DIX	NO	NO		
2207	A	192.1.1.32	255.255.255.0	FULL	100	DIX	NO	NO		
2207	В			HALF	10	DIX	NO	NO		
2213	A	192.1.1.50	255.255.255.0	FULL	100	DIX	NO	NO		
2213	В			HALF	10	DIX	NO	NO		
2301	A	192.1.1.52	255.255.255.0	FULL	100	DIX	NO	NO		
2301	В				10	DIX	NO	NO		

IP-LNK table is (20 of 2048) full.





If the ipaddr=0.0.0.0 is not being specified in this procedure, continue the procedure with 3.

2. If **IP** address information is being added or changed (not deleted) in the link parameters, verify that the **IP** address is present in the **IP** host table by using the rtrv-ip-host:display=all command.

The following is an example of the possible output.

```
rlghncxa03w 13-06-28 21:15:37 GMT EAGLE5 45.0.0
```

```
LOCAL IPADDR LOCAL HOST
192.1.1.10
              IPNODE1-1201
             IPNODE1-1203
192.1.1.12
192.1.1.14
             IPNODE1-1205
192.1.1.20
             IPNODE2-1201
            IPNODE2-1203
IPNODE2-1205
KC-HLR1
192.1.1.22
192.1.1.24
192.1.1.30
192.1.1.32
             KC-HLR2
192.1.1.50
             DN-MSC1
192.1.1.52
              DN-MSC2
REMOTE IPADDR REMOTE HOST
150.1.1.5 NCDEPTECONOMIC DEVELOPMENT.
SOUTHEASTERN COORIDOR ASHVL. GOV
IP Host table is (11 of 4096) 0.26% full
```

If the current IP address of the IP link is shown in the rtrv-ip-host output, remove the host assigned to the IP address by performing the Removing an IP Host Assigned to an IPLIMx Card procedure.

3. To change **IP** link parameters, the signaling link to the **IP** card and the **IP** card have to be inhibited.

Display the signaling link associated with the card shown in 1 using the rtrv-slk command specifying the card location.

For this example, enter this command.

```
rtrv-slk:loc=1201
```

This is an example of the possible output.

```
rlghncxa03w 06-10-19 21:17:04 GMT EAGLE5 36.0.0 LOC LINK LSN SLC TYPE IPLIML2 1201 A nc001 0 IPLIM M2PA
```

4. Retrieve the status of the signaling link assigned to the **IP** card to be changed using the rept-stat-slk command.



For example, enter this command.

```
rept-stat-slk:loc=1201:link=a
```

The output lists the signaling link assigned to this card:

```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0
   LSN CLLI PST SST
SLK
                                        AST
1201,A nc001
              ----- IS-NR
Command Completed.
```

If the signaling link is in service-normal (IS-NR), continue the procedure with 5 to deactivate the signaling link. If the signaling link is out-of-service-maintenance disabled (**OOS-MT-DSBLD**), continue the procedure with 7 to verify the **IP** card status.

5. Deactivate the signaling link assigned to the IP card using the dact-slk command.

For example, enter this command.

```
dact-slk:loc=1201:link=a
```



Caution:

This command impacts network performance and should only be used during periods of low traffic.

After this command has successfully completed, this message appears.

```
rlghncxa03w 06-10-12 09:12:36 GMT EAGLE5 36.0.0
Deactivate Link message sent to card.
```

6. Verify the new link status using the rept-stat-slk command.

For example, enter this command.

```
rept-stat-slk:loc=1201:link=a
```

The output displays the link status as **OOS-MT-DSBLD** and gives off a minor alarm:

```
rlghncxa03w 06-10-27 17:00:36 GMT EAGLE5 36.0.0
SLK LSN CLLI PST SST
1201,A nc001 ----- OOS-MT-DSBLD AVAIL
                                                          AST
ALARM STATUS = * 0236 REPT-LKS:not aligned
UNAVAIL REASON = NA
Command Completed.
```

7. Verify the status of the IP card to be inhibited using the rept-stat-card command.

For example, enter this command.

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



This is an example of the possible output.

```
rlghncxa03w 06-10-27 17:00:36 GMT EAGLE5 36.0.0
CARD VERSION TYPE GPL PST
                                         SST
                                                 AST
1201 114-000-000 DCM
                             IS-NR
                                       Active
                    IPLIM
 ALARM STATUS = No Alarms.
              = 002-102-000
 BPDCM GPL
 IMT BUS A = Conn
IMT BUS B = Conn
 SIGNALING LINK STATUS
    SLK
        PST
                         LS
                                   CLLI
         IS-NR nc001
    A
```

Command Completed.

If the **IP** card to be inhibited is in service-normal (**IS-NR**), continue the procedure with 8 to inhibit the card. If the **IP** card is out-of-service-maintenance disabled (**OOS-MT-DSBLD**), continue the procedure with 10 to change the **IP** link parameters.

8. Inhibit the IP card using the inh-card command.

For example, enter this command.

```
inh-card:loc=1201
```

This message should appear.

```
rlghncxa03w 06-10-28 21:18:37 GMT EAGLE5 36.0.0 Card has been inhibited.
```

Display the status of the IP card to verify that it is out-of-service maintenancedisabled (OOS-MT-DSBLD).

Enter this command.

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

This is an example of the possible output.

```
rlghncxa03w 06-10-27 17:00:36 GMT EAGLE5 36.0.0
CARD VERSION TYPE GPL PST
                                      SST
                                              AST
1201 114-000-000 DCM
                   IPLIM IS-NR Active
 ALARM STATUS = No Alarms.
 BPDCM GPL
              = 002-102-000
 IMT BUS A
IMT BUS B
              = Conn
              = Conn
 SIGNALING LINK STATUS
                      LS
nc001
    SLK PST
                                  CLLI
    A
        IS-NR
```

Command Completed.



10. Display the attributes of the **IP** card assigned to the **IP** link being changed by entering the rtrv-ip-card command and specifying the card location of the **IP** link.



If the ipaddr or submask parameter values are not being changed, continue the procedure with 13.

For this example, enter this command.

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

This is an example of the possible output.

```
rlghncxa03w 08-08-28 21:17:37 GMT EAGLE5 39.0.0

LOC 1201

SRCHORDR LOCAL

DNSA 150.1.1.1

DNSB ------

DEFROUTER -----

DOMAIN ------

SCTPCSUM crc32c

BPIPADDR ------

BPSUBMASK ------
```

If the rtrv-ip-card output shows an IP address for the default router (DEFROUTER) whose network portion matches the network portion of the IP address being changed, go to the Configuring an IP Card procedure and change the IP address of the default router to 0.0.0.0.

11. Display any **IP** routes referencing the **IP** link being changed by entering the rtrv-ip-rte command and specifying the card location of the **IP** link.

For this example, enter this command.

```
rtrv-ip-rte:loc=1201
```

This is an example of the possible output.

```
rlghncxa03w 06-10-28 21:17:37 GMT EAGLE5 36.0.0

LOC DEST SUBMASK GTWY

1201 128.252.10.5 255.255.255 140.188.13.33

1201 128.252.0.0 255.255.0.0 140.188.13.34

1201 150.10.1.1 255.255.255 140.190.15.3

IP Route table is (5 of 2048) 0.24% full
```

If the rtrv-ip-rte output shows that the card has **IP** routes assigned to it, go to the Removing an IP Route procedure and remove the **IP** routes from the database.

12. The subnet address that results from the ipaddr and submask parameter values of the chg-ip-lnk command cannot be the same as the subnet address that results from the

pvn and pvnmask, fcna and fcnamask, or fcnb and fcnbmask parameter values of the chg-netopts command.



If a Class A or CIP address (see Table 3-3) will be specified for theipaddr parameter in 14, continue the procedure with 13.

Display the pvn, pvnmask, fcna, fcnamask, fcnb, and fcnbmask parameter values of the chg-netopts command by entering the rtrv-netopts command.

If error message E3967 Cmd Rej: E5IS must be on is displayed after the rtrv-netopts command is executed, the pvn, pvnmask, fcna, fcnamask, fcnb, and fcnbmask parameters are not configured. Continue the procedure with 13.

This is an example of the possible output if the **E5IS** feature is on.

```
rlghncxa03w 09-02-28 21:17:37 GMT EAGLE5 40.1.0

NETWORK OPTIONS
------

PVN = 128.20.30.40

PVNMASK = 255.255.192.0

FCNA = 170.120.50.0

FCNAMASK = 255.255.240.0

FCNB = 170.121.50.0

FCNBMASK = 255.255.254.0
```

Choose ipaddr and submask parameter values for the IP link whose resulting subnet address is not be the same as the subnet address resulting from the pvn and pvnmask, fcna and fcnamask, or fcnb and fcnbmask parameter values of the chg-netopts command. Continue the procedure with 13.

13. Display the associations referencing the local host name that is associated with the **IP** link being changed by entering the rtrv-assoc command and specifying the local host name shown in the rtrv-ip-host output in 2.

For this example, enter this command.

```
rtrv-assoc:lhost="ipnode-1201"
```

This is an example of the possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0

CARD IPLNK

ANAME LOC PORT LINK ADAPTER LPORT RPORT OPEN ALW swbel32 1201 A A M2PA 1030 2345 YES YES

IP Appl Sock/Assoc table is (3 of 4000) 1% full
Assoc Buffer Space Used (16 KB of 3200 KB) on LOC = 1201
```

If no associations are displayed in this step, continue the procedure with 14.



If the rtrv-assoc output shows that the open parameter for any associations is yes, perform one of these procedures to change the value of the open parameter the associations to no.

- Changing the Attributes of an M2PA Association
- Changing the Attributes of a M3UA or SUA Association
- **14.** Change the link parameters associated with the **IP** card in the database using the chg-ip-lnk command.

For this example, enter this command.

```
chg-ip-
lnk:loc=1201:port=a:ipaddr=192.1.1.10:submask=255.255.255.0 :auto
=yes:mactype=dix
```

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

```
rlghncxa03w 06-10-28 21:18:37 GMT EAGLE5 36.0.0 CHG-IP-LNK: MASP A - COMPLTD
```

15. Verify the new link parameters associated with the **IP** card that was changed in 14 by entering the rtrv-ip-lnk command with the card location specified in 14.

For this example, enter this command.

The following is an example of the possible output.

```
rlghncxa03w 07-05-28 21:14:37 GMT EAGLE5 37.0.0
                           DUPLEX SPEED MACTYPE AUTO
LOC
    PORT IPADDR
                    SUBMASK
MCAST
1201 A
        192.1.1.10 255.255.255.128 HALF
                                       10
                                           DIX
                                                 YES NO
1201 B
        ----- HALF
                                       10
                                           DIX
                                                     NO
```

16. Allow the IP card that was inhibited in 8 by using by using the alw-card command.



If8was not performed, continue the procedure with18.

For example, enter this command.

```
alw-card:loc=1201
```

This message should appear.

```
rlghncxa03w 06-10-28 21:20:37 GMT EAGLE5 36.0.0 Card has been allowed.
```

17. Verify the in-service normal (IS-NR) status of the IP card using the rept-stat-card command.

For example, enter this command.



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

This is an example of the possible output.

```
rlghncxa03w 06-10-27 17:00:36 GMT EAGLE5 36.0.0

CARD VERSION TYPE GPL PST SST AST
1201 114-000-000 DCM IPLIM IS-NR Active -----

ALARM STATUS = No Alarms.

BPDCM GPL = 002-102-000

IMT BUS A = Conn

IMT BUS B = Conn

SIGNALING LINK STATUS

SLK PST LS CLLI

A IS-NR nc001 -------
```

Command Completed.

18. Activate the signaling link from 5 using the act-slk command.



If5was not performed, continue the procedure with20.

For example, enter this command.

```
act-slk:loc=1201:link=a
```

The link changes its state from **OOS-MT-DSBLD** (out-of-service maintenance-disabled) to **IS-NR** (in-service normal).

The output confirms the activation.

```
rlghncxa03w 06-10-07 11:11:28 GMT EAGLE5 36.0.0 Activate Link message sent to card
```

19. Verify the in-service normal (IS-NR) status of the signaling link using the rept-stat-slk command.

For example, enter this command.

```
rept-stat-slk:loc=1201:link=a
```

This message should appear.

```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0

SLK LSN CLLI PST SST AST
1201,A nc001 ------ IS-NR

Command Completed.
```

20. Perform the Configuring an IP Card procedure and change the IP address of the default router to a non-zero value, where the network portion of the default router IP address matches the network portion of the IP link's new IP address.



If theipaddr orsubmask values were not changed, continue the procedure with 22.

Note:

If the $\!I\!P$ address of the default router was not changed to 0.0.0.0 in 10 , continue the procedure with $\!21$.

21. Perform the Adding an IP Route procedure and add the IP routes back into the database.



If **IP** routes were not removed in 11, continue the procedure with 22.

22. Perform one of these procedures as necessary and change the value of the open parameter of the association to yes.

Note:

If theopen parameter value for an association was not changed in13, continue the procedure with23.

- Changing the Attributes of an M2PA Association
- Changing the Attributes of a M3UA or SUA Association
- 23. Back up the new changes using the chg-db:action=backup:dest=fixed command.

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

```
BACKUP (FIXED): MASP A - Backup starts on active MASP.

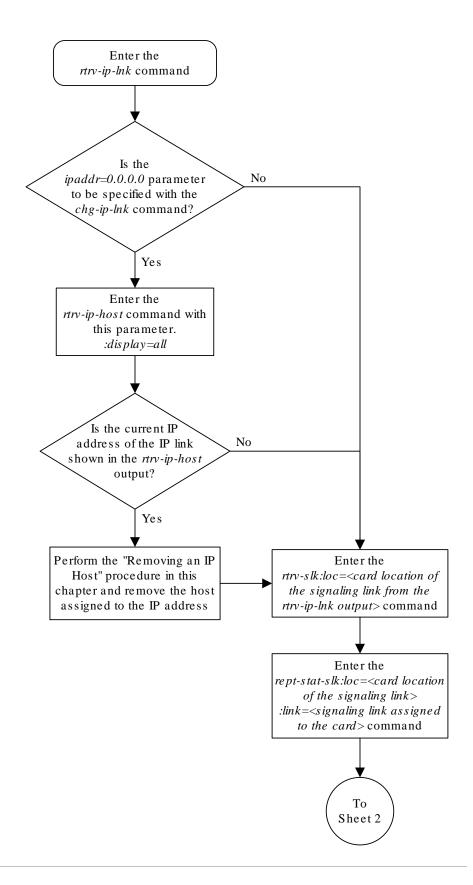
BACKUP (FIXED): MASP A - Backup on active MASP to fixed disk complete.

BACKUP (FIXED): MASP A - Backup starts on standby MASP.

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

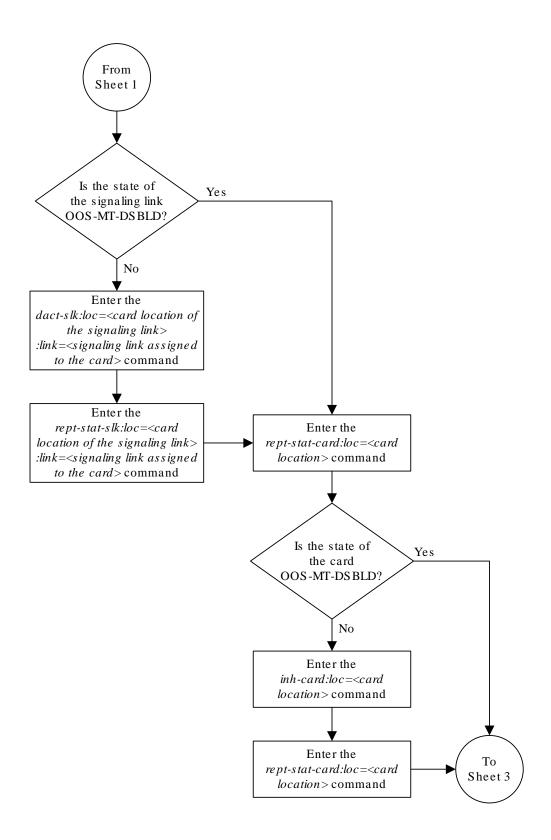


Figure 3-3 Configuring an IP Link



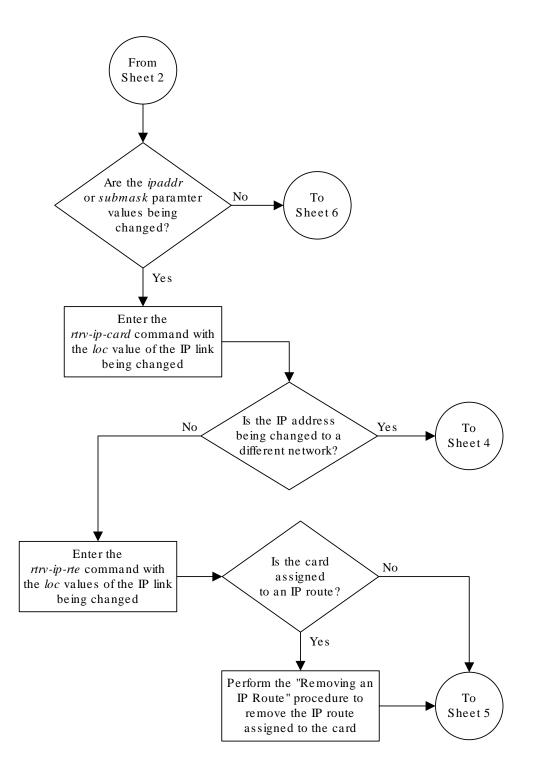
Sheet 1 of 9





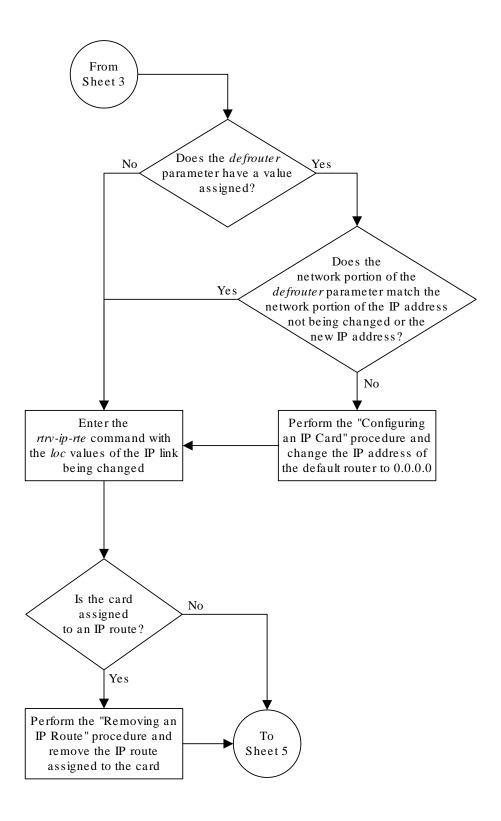
Sheet 2 of 9





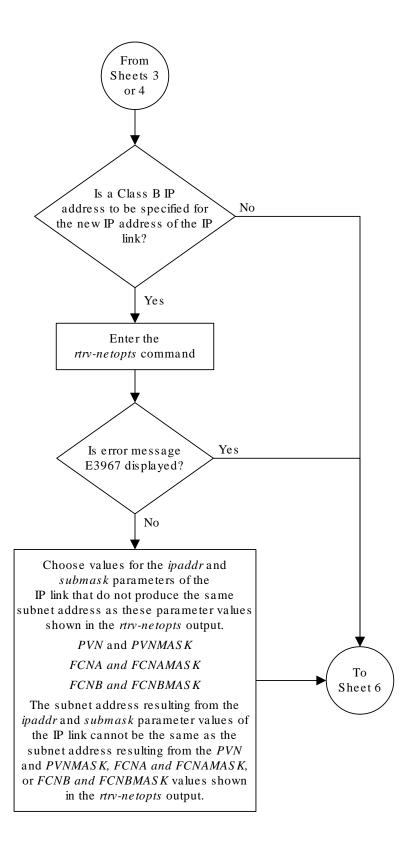
Sheet 3 of 9





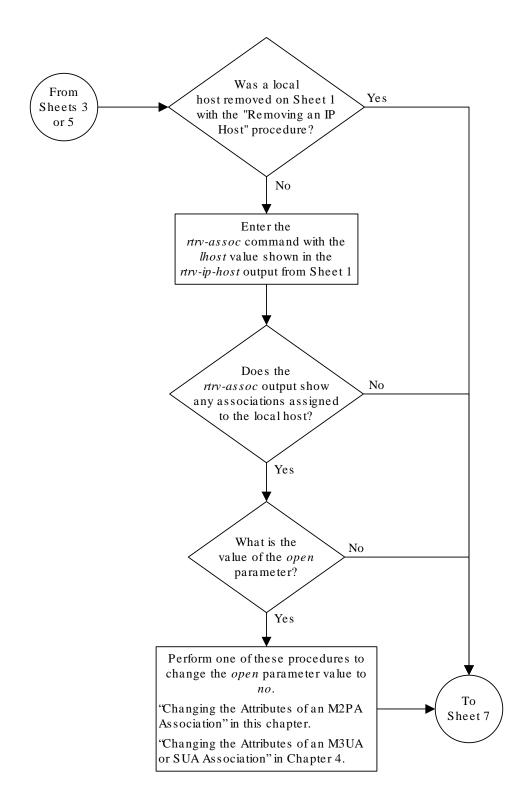
Sheet 4 of 9





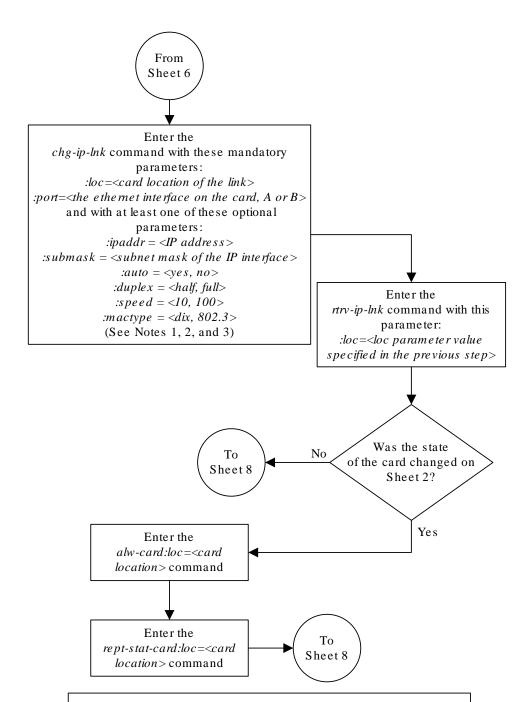
Sheet 5 of 9





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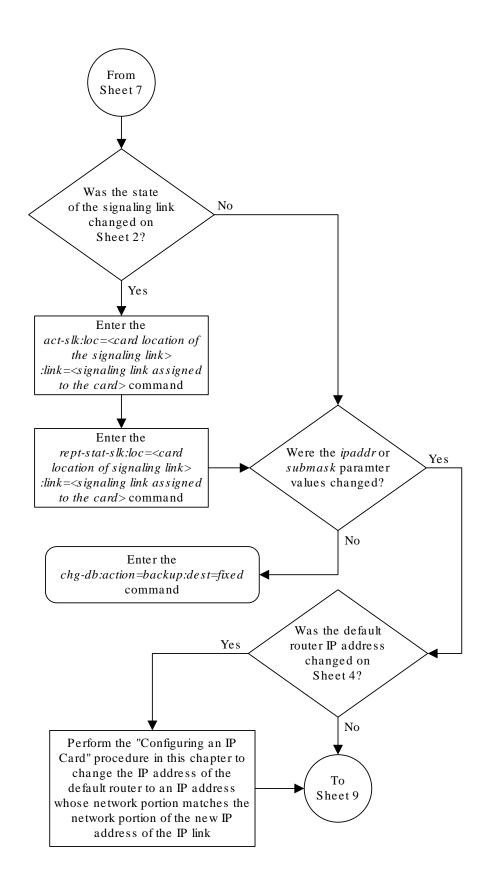


Notes:

- 1. If either the *ipaddr* or *submask* parameters are specified, then both parameters must be specified, unless the *ipaddr*=0.0.0.0 parameter is specified, then the *submask* parameter is not required.
- 2. The *ipaddr*=0.0.0.0 parameter disables the IP link.
- 3. If the *auto*=yes parameter is specified, then the *duplex* and *speed* parameters cannot be specified.

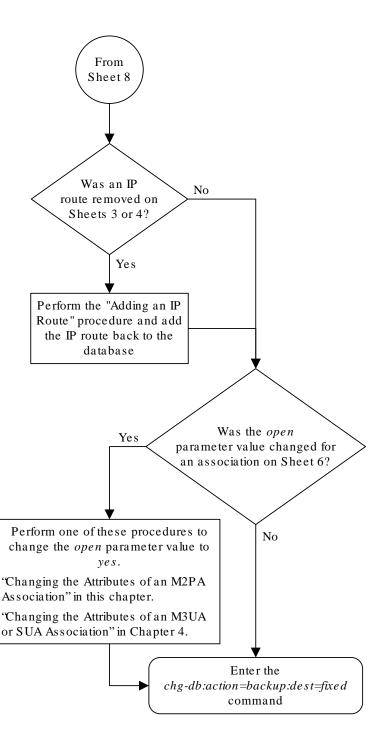
Sheet 7 of 9





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Sheet 9 of 9

Adding an IP Host

This procedure associates hostnames with IP addresses using the ent-ip-host command.

The ent-ip-host command uses the following parameters.

:host- The host name to be associated with the **IP** address. This parameter identifies the logical name assigned to the device with the **IP** address indicated. The host name can contain up to 60 characters (using only these characters: a-z, A-Z, 0-9, -, .) and is not case sensitive. The host name must begin with a letter. Host names containing a dash (-) must be enclosed in double quotes.

:ipaddr – The **IP** address to be associated with the hostname. The node's **IP** address. This is an **IP** address expressed in standard "dot notation." **IP** addresses consist of the system's network number and the machine's unique host number.

: type – Specifies if the host resides on the IP card on the EAGLE 5 (type=local, the default value), or if the host resides on equipment that is not in the EAGLE 5 (type=remote). This parameter is optional.

The EAGLE 5 can contain a maximum of 4096 IP hosts.

The IP address for a local host must be shown in the rtrv-ip-lnk output.

The **IP** address for a remote host must not be shown in the rtrv-ip-lnk output.

 Display the current IP host information in the database by entering the rtrv-iphost:display=all command.

The following is an example of the possible output.

```
rlghncxa03w 13-06-28 21:17:37 GMT EAGLE5 45.0.0
LOCAL IPADDR LOCAL HOST
            IPNODE1-1201
192.1.1.10
192.1.1.12
             IPNODE1-1203
192.1.1.14
             IPNODE1-1205
192.1.1.20
             IPNODE2-1201
192.1.1.22
             IPNODE2-1203
192.1.1.24
             IPNODE2-1205
192.1.1.32
              KC-HLR2
192.1.1.50
              DN-MSC1
192.1.1.52
              DN-MSC2
REMOTE IPADDR REMOTE HOST
150.1.1.5
              NCDEPTECONOMIC DEVELOPMENT. SOUTHEASTERN COORIDOR ASHVL.
GOV
IP Host table is (10 of 4096) .24% full
```

2. Verify that the IP address assigned to the IP links by entering the rtrv-ip-lnk command.



The following is an example of the possible output.

rlghncxa03	w 08-12-28 21:14	:37 GMT EAGLE5 4	0.0.0		
LOC PORT	IPADDR	SUBMASK	DUPLEX	SPEED	MACTYPE
AUTO MCAST					
1201 A	192.1.1.10	255.255.255.128	HALF	10	802.3
NO NO					
1201 В			HALF	10	DIX
NO NO					
1203 A	192.1.1.12	255.255.255.0			DIX
YES NO					
1203 В			HALF	10	DIX
NO NO					
1205 A	192.1.1.14	255.255.255.0	FULL	100	DIX
NO NO					
1205 В			HALF	10	DIX
NO NO					
2101 A	192.1.1.20	255.255.255.0	FULL	100	DIX
NO NO					
2101 В			HALF	10	DIX
NO NO					
2103 A	192.1.1.22	255.255.255.0	FULL	100	DIX
NO NO					
2103 В			HALF	10	DIX
NO NO					
2105 A	192.1.1.24	255.255.255.0	FULL	100	DIX
NO NO					
2105 B			HALF	10	DIX
NO NO					
	192.1.1.32	255.255.255.0	FULL	100	DIX
NO NO					
2207 B			HALF	10	DIX
NO NO	100 1 1 50	055 055 055 0		400	
2213 A	192.1.1.50	255.255.255.0	FULL	100	DIX
NO NO				1.0	
2213 B			HALF'	10	DIX
NO NO	100 1 1 50	055 055 055 0		100	
2301 A	192.1.1.52	255.255.255.0	₽.∩TT	TOO	DIX
NO NO			113 T T	1.0	DTV
			HALF	ΤU	DTX
NO NO					
TD T1111	-1-1	040) 10 5-11			

IP-LNK table is (20 of 2048) 1% full.

If a local host is being configured in this procedure, the **IP** address assigned to the local host must be shown in the rtrv-ip-lnk output. If the **IP** address is not shown in the rtrv-ip-lnk output, add the **IP** address by performing the Configuring an IP Link procedure.

If a remote host is being configured in this procedure, the IP address assigned to the remote host cannot be shown in the rtrv-ip-lnk output.

3. Add IP host information to the database by entering the ent-ip-host command.



If a local host is being configured, enter the <code>ent-ip-host</code> command with the **IP** address from 2, and the <code>type=local</code> parameter or without the <code>type</code> parameter. If the <code>type</code> parameter is not specified with the <code>ent-ip-host</code> command, the <code>type</code> parameter value defaults to <code>local</code>.

If a remote host is being configured, enter the <code>ent-ip-host</code> command with the **IP** address that is not shown in 2, and the <code>type=remote</code> parameter.

For example, enter this command.

```
ent-ip-host:host="kc-hlr1":ipaddr=192.1.1.30
```

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

```
rlghncxa03w 06-10-28 21:18:37 GMT EAGLE5 36.0.0 ENT-IP-HOST: MASP A - COMPLTD
```

4. Verify the new **IP** host information in the database by entering the rtrv-ip-host command with the host parameter value specified in 3.

For this example, enter this command.

```
rtrv-ip-host:host="kc-hlr1"
```

The following is an example of the possible output.

```
rlghncxa03w 13-06-28 21:19:37 GMT EAGLE5 45.0.0 LOCAL IPADDR LOCAL HOST 192.1.1.30 KC-HLR1

IP Host table is (11 of 4096) .26% full
```

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

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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

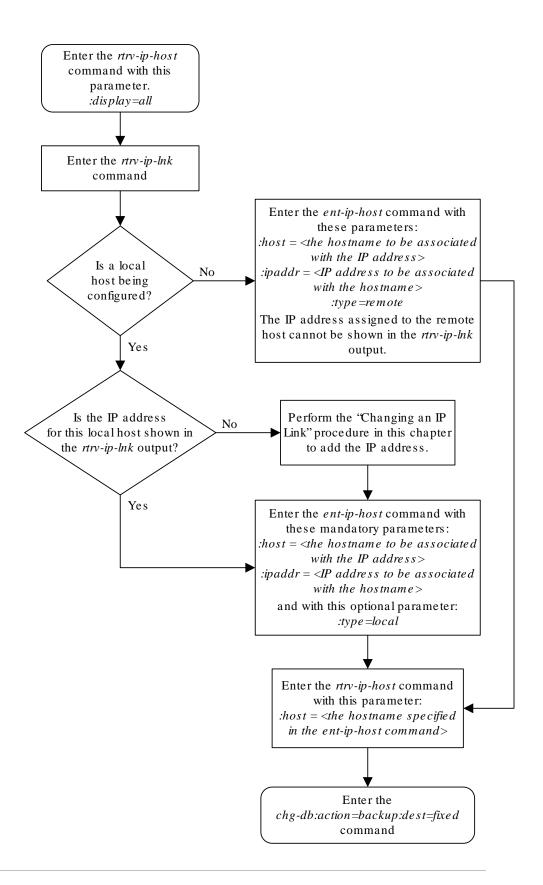
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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



Figure 3-4 Adding an IP Host



Configuring an IP Card

This procedure is used to change the **IP** stack parameters associated with an **IP** card in the database using the chg-ip-card command.

The chg-ip-card command uses the following parameters.

:loc - The card location of the IP card

: srchordr - Host Table Search Order

: dnsa – **Domain** name server A's **IP** address. This is an **IP** address expressed in standard "dot notation." **IP** addresses consist of the system's network number and the machine's unique host number.

: dnsb – **Domain** name server B's **IP** address. This is an **IP** address expressed in standard "dot notation." **IP** addresses consist of the system's network number and the machine's unique host number.

:domain - The domain name is used to construct a fully-qualified DNS name consisting of 120 characters or less. For example, a domain name can be tekelec.com, the hostname is john.doe. The fully-qualified DNS name would be john.doe@tekelec.com.

: defrouter – Default router IP address. This is an IP address expressed in standard "dot notation." IP addresses consist of the system's network number and the machine's unique host number.

:rstdomain - Reset **Domain** name. The parameter is used to reset the domain to a **NULL** value.

:sctpcsum - The SCTP checksum algorithm that will be applied to the traffic on the IP card, either adler32 or crc32c. The sctpcsum parameter can be specified only if the SCTPCSUM value in the rtrv-sg-opts output is percard.

The chg-ip-card command contains other parameters that cannot be used in this procedure. Refer to *Commands User's Guide* for more information about these parameters.

The **IP** card must be placed out of service.

The rstdomain parameter cannot be specified if the domain parameter is specified.

There is only one default router (defrouter parameter) for each IP card. The default router is used as the primary route unless a static IP routes is defined for the destination IP address. Static IP routes are assigned using the ent-ip-rte command in the Adding an IP Route procedure.

The network portion of the **IP** address of the default router must match the network portion of one of the **IP** addresses assigned to the card.

The network portion of the **IP** address is based on the class of the **IP** address (shown in Table 3-3). If the **IP** address is a Class A **IP** address, the first field is the network portion of the **IP** address. If the **IP** address is a Class B **IP** address, the first two fields are the network portion of the **IP** address. If the **IP** address is a Class C **IP** address, the first three fields are the network portion of the **IP** address. For example, if the **IP** address is 193.5.207.150, a Class C **IP** address, the network portion of the **IP** address is 193.5.207.



The default router can be associated with only one **IP** address assigned to the card if the defrouter parameter is specified. For example, the <code>dnsa</code> value for card 1101 is 150.1.1.10. The <code>dnsb</code> value for card 1101 is 160.25.37.1. A default router is provisioned with the **IP** address 150.1.1.4. The default router is associated with the Ethernet A **IP** address (the <code>dnsa</code> parameter value), but not the Ethernet B **IP** address (the <code>dnsb</code> parameter value).

If the default router is associated with one of the IP card's IP addresses, a second gateway router can be assigned to the other IP address on the IP card by provisioning a static IP route for the IP card using the ent-ip-rte command in the Adding an IP Route procedure. Static IP routes can provide gateway routers associated with the other IP address on the IP card. To provision the gateway router (the gtwy parameter of the ent-ip-rte command) for the other IP address assigned to the IP card, the network portion of the gateway router's IP address must match the network portion of the other IP address assigned to the IP card.

Specifying the **IP** address 0.0.0.0 for the dnsa or dnsb parameters, removes the **IP** address for Ethernet A (dnsa) or Ethernet B (dnsb).

When an **IP** card is entered into the database with the ent-card command, the **IP** stack parameters associated with this card are initially set with these default values:

- :srchordr SRVR
- dnsa No DNSA IP address is specified
- : dnsb No DNSB IP address is specified
- : domain No domain name is specified
- :defrouter No default router IP address is specified
- :rstdomain No
- :sctpcsum CRC32C

The value of any optional parameter not specified with the chg-ip-card command is not changed.

1. Display the current **IP** parameters associated with card in the database by entering the rtrv-ip-card command.

The following is an example of the possible output.

```
rlghncxa03w 08-06-28 21:17:37 GMT EAGLE5 39.0.0
  LOC 1201
   SRCHORDR SRVR
   DNSA
          150.1.1.1
   DNSB
   DEFROUTER -----
   DOMAIN -----
   SCTPCSUM crc32c
   BPIPADDR -----
   BPSUBMASK -----
  LOC 1203
   SRCHORDR LOCAL
        192.1.1.40
   DNSA
    DNSB
           _____
```



```
DEFROUTER ------
DOMAIN NC. TEKELEC. COM
SCTPCSUM crc32c
BPIPADDR -----
BPSUBMASK -----
LOC 1205
SRCHORDR SRVRONLY
DNSA 192.1.1.40
DNSB ------
DEFROUTER -----
DOMAIN NC. TEKELEC. COM
SCTPCSUM crc32c
BPIPADDR ------
BPSUBMASK -----
```

To change the parameters of an **IP** card, the signaling link to the card and the card have to be inhibited.

2. Display the signaling link associated with the card shown in 1 using the rtrv-slk command specifying the card location.

For this example, enter this command.

```
rtrv-slk:loc=1201
```

This is an example of the possible output.

```
rlghncxa03w 06-10-28 21:17:37 GMT EAGLE5 36.0.0 LOC LINK LSN SLC TYPE IPLIML2 1201 A nc001 0 IPLIM M2PA
```

3. Retrieve the status of the signaling link shown in 2 using the rept-stat-slk command specifying the card location and signaling link.

For example, enter this command.

```
rept-stat-slk:loc=1201:link=a
```

The output lists the signaling link assigned to this card:

If the signaling link is in service-normal (**IS-NR**), continue the procedure with 4 to deactivate the signaling link. If the signaling link is out-of-service-maintenance disabled (**OOS-MT-DSBLD**), continue the procedure with 6 to verify the card status.

4. Deactivate the signaling link assigned to the IP card using the rept-stat-slk command.

For example, enter this command.

```
dact-slk:loc=1201:link=a
```



Caution:

This command impacts network performance and should only be used during periods of low traffic.

After this command has successfully completed, this message appears.

```
rlghncxa03w 06-10-12 09:12:36 GMT EAGLE5 36.0.0
Deactivate Link message sent to card.
```

5. Verify the new link status using the rept-stat-slk command.

For example, enter this command.

```
rept-stat-slk:loc=1201:link=a
```

The output displays the link status as **OOS-MT-DSBLD** and gives off a minor alarm:

```
rlghncxa03w 06-10-27 17:00:36 GMT EAGLE5 36.0.0
SLK LSN CLLI PST SST
                                            AST
1201,A nc001
                ----- OOS-MT-DSBLD AVAIL
ALARM STATUS = * 0236 REPT-LKS:not aligned
UNAVAIL REASON = NA
Command Completed.
```

6. Verify the status of the IP card to be inhibited using the rept-stat-card command.

For example, enter this command.

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

This is an example of the possible output.

```
rlghncxa03w 06-10-27 17:00:36 GMT EAGLE5 36.0.0
                                         SST
CARD VERSION TYPE GPL PST
                                                  AST
1201 114-000-000 DCM
                      IPLIM
                             IS-NR
                                       Active
 ALARM STATUS = No Alarms.
 BPDCM GPL
               = 002-102-000
 IMT BUS A
               = Conn
 IMT BUS B
                = Conn
 SIGNALING LINK STATUS
    SLK PST
                         LS
                                     CT<sub>1</sub>T<sub>1</sub>T
         IS-NR nc001
```

Command Completed.

If the IP card to be inhibited is in service-normal (IS-NR), continue the procedure with 7 to inhibit the card. If the IP card is out-of-service-maintenance disabled (OOS-MT-DSBLD), continue the procedure with 9.

7. Inhibit the IP card using the inh-card command.



For example, enter this command.

```
inh-card:loc=1201
```

This message should appear.

```
rlghncxa03w 06-10-28 21:18:37 GMT EAGLE5 36.0.0 Card has been inhibited.
```

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

Enter this command.

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

This is an example of the possible output.

```
rlghncxa03w 06-10-27 17:00:36 GMT EAGLE5 36.0.0
                                    SST
CARD VERSION TYPE GPL PST
                                           AST
1201 114-000-000 DCM IPLIM IS-NR Active
                                            ----
 ALARM STATUS = No Alarms.
 BPDCM GPL
              = 002-102-000
 IMT BUS A
             = Conn
 IMT BUS B
             = Conn
 SIGNALING LINK STATUS
                     LS
nc001
                                CLLI
    SLK PST
    A IS-NR
                                 _____
```

Command Completed.

If the defrouter parameter will be specified in 11, continue the procedure with 11.

If the defrouter parameter will not be specified in 11, continue the procedure by performing one of these steps.

- If the sctpcsum parameter value for the card will not be changed, continue the procedure with 11.
- If the sctpcsum parameter value for the card will be changed, continue the procedure with 10.
- 9. Verify that the **IP** address of either Ethernet A or B (the address whose network portion matches the network portion of the defrouter parameter value to be used in 11) is in the **IP** link table by entering the rtrv-ip-lnk command with the card location specified in this procedure.

For this example, enter this command.

```
rtrv-ip-lnk:loc=1201
```

The following is an example of the possible output.

```
rlghncxa03w 06-10-28 21:17:37 GMT EAGLE5 36.0.0
LOC PORT IPADDR SUBMASK DUPLEX SPEED MACTYPE AUTO
MCAST
```



1201	A	192.1.1.10	255.255.255.0	 	DIX
YES	NO				
1201	В			 	DIX
YES	NO				

If the network portion of the **IP** address specified by the defrouter value does not match the network portions of either **IP** address displayed in this step, perform one of these actions:

- Choose another value for the defrouter parameter, making sure that the network portion of the new IP address matches the network portion of one of the IP addresses displayed in this step.
- Perform the Configuring an IP Link procedure and change one of the IP
 addresses shown in this step so that the network portion of the new IP
 address changed in the Configuring an IP Link procedure matches the network
 portion of the IP address value for the defrouter parameter.

After this step has been completed, continue the procedure by performing one of these steps.

- If the sctpcsum parameter value for the card will not be changed, continue the procedure with 11.
- If the sctpcsum parameter value for the card will be changed, continue the procedure with 10.
- 10. To change the sctpcsum parameter value for the IP card, the sctpcsum parameter value in the rtrv-sg-opts output must be percard. Verify the sctpcsum parameter value by entering the rtrv-sg-opts command.

The following is an example of the possible output.

```
rlghncxa03w 08-04-13 09:19:43 GMT EAGLE5 38.0.0
             1500
SRKO:
SNMPCONT:
              tekelec
             public
GETCOMM:
SETCOMM:
             private
TRAPCOMM:
             public
             adler32
SCTPCSUM:
IPGWABATE:
              NO
UAMEASUSEDFTAS: NO
```

If the sctpcsum parameter value in the rtrv-sg-opts output is percard, continue the procedure with 11.

If the sctpcsum parameter value in the rtrv-sg-opts output is adler 32 or crc32c, perform the Changing the SCTP Checksum Algorithm Option for M2PA Associations procedure to change the sctpcsum parameter value to percard. After the Changing the SCTP Checksum Algorithm Option for M2PA Associations procedure has been performed, continue the procedure with 11.

11. Change the IP stack parameters associated with an IP card in the database using the chg-ip-card command.

For this example, enter this command.



```
chg-ip-
card:loc=1201:srchordr=local:dnsa=192.1.1.40:domain=nc.tekelec.co
m :sctpcsum=adler32
```

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

```
rlghncxa03w 06-10-28 21:20:37 GMT EAGLE5 36.0.0 CHG-IP-CARD: MASP A - COMPLTD
```

12. Verify the new **IP** parameters associated with the **IP** card that was changed in 11 by entering the rtrv-ip-card command with the card location specified in 11.

For this example, enter this command.

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

The following is an example of the possible output.



If7was not performed, continue the procedure with15.

13. Allow the IP card that was inhibited in 7 by using the alw-card command.

For example, enter this command.

```
alw-card:loc=1201
```

This message should appear.

```
rlghncxa03w 06-10-28 21:22:37 GMT EAGLE5 36.0.0 Card has been allowed.
```

14. Verify the in-service normal (IS-NR) status of the IP card using the rept-stat-card command.

For example, enter this command.

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



This is an example of the possible output.

```
rlghncxa03w 06-10-27 17:00:36 GMT EAGLE5 36.0.0
CARD VERSION TYPE GPL PST
                                      SST
                                             AST
1201 114-000-000 DCM
                          IS-NR
                                    Active
                   IPLIM
 ALARM STATUS = No Alarms.
             = 002-102-000
 BPDCM GPL
 IMT BUS A
              = Conn
 IMT BUS B = Conn
 SIGNALING LINK STATUS
    SLK
       PST
                      LS
                                 CLLI
        IS-NR nc001
    A
```

Command Completed.

15. Activate the signaling link from 4 using the act-slk command.



If4was not performed, continue the procedure with17.

For example, enter this command.

```
act-slk:loc=1201:link=a
```

The link changes its state from **OOS-MT-DSBLD** (out-of-service maintenance-disabled) to **IS-NR** (in-service normal).

The output confirms the activation.

```
rlghncxa03w 06-10-07 11:11:28 GMT EAGLE5 36.0.0 Activate Link message sent to card
```

16. Verify the in-service normal (**IS-NR**) status of the signaling link using the rept-stat-slk command.

For example, enter this command.

```
rept-stat-slk:loc=1201:link=a
```

This message should appear.

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

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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

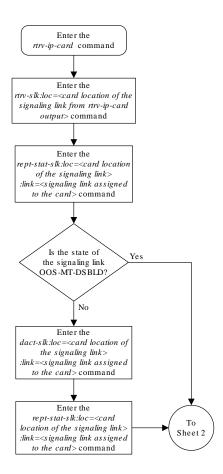
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

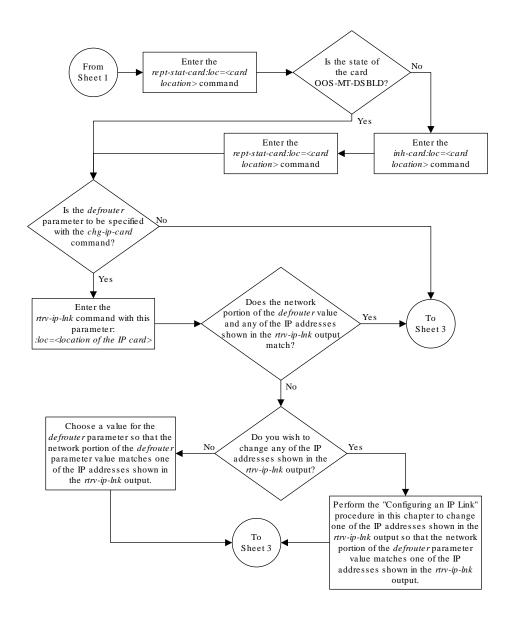
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```



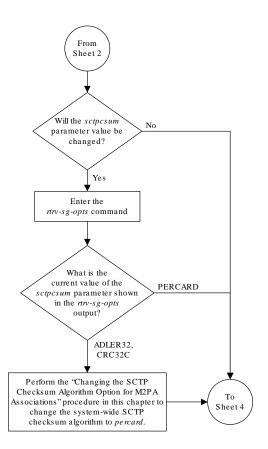
Figure 3-5 Configuring an IP Card



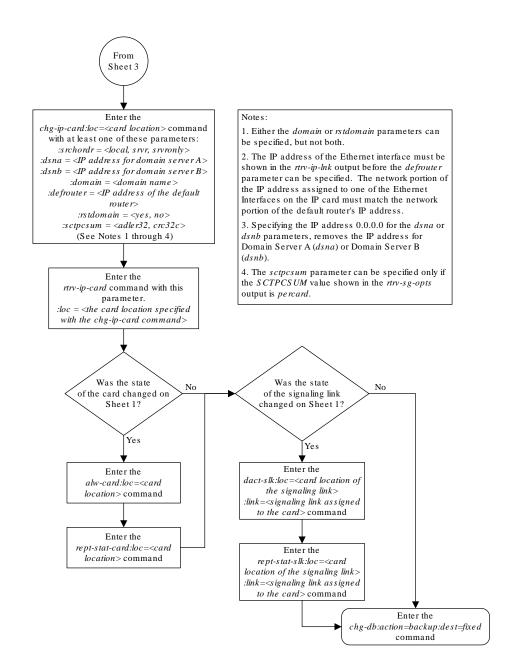
Sheet 1 of 4



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Sheet 3 of 4



Sheet 4 of 4

Adding an IP Route

This procedure is used to add an **IP** route to the database using the <code>ent-ip-rte</code> command.

The ent-ip-rte command uses these parameters.

:loc - The location of the IP card that the IP route will be assigned to.

: dest - The IP address of the remote host or network.

: submask - The subnet mask of the destination IP address.

: gtwy – The **IP** address of the gateway or router that will send the **IP** data to its final destination.

There can be a maximum of 64 **IP** routes assigned to an **IP** card.

The **EAGLE** can contain a maximum of 1024 **IP** routes.

Ethernet Interfaces A and B on the $\bf IP$ card specified by the loc parameter can be used.

The network portion of the **IP** address value of the gtwy parameter must be the same as the network portion of the **IP** addresses shown for either the A or B interfaces in the rtv-ip-card output.

The value of the dest and gtwy parameters cannot be 127.x.x.x (the loopback address), 0.0.0.0, or the **IP** addresses of the A or B interfaces on the **IP** card, and cannot be assigned to another **IP** card.

If the <code>dest</code> parameter value represents a host **IP** address, the value for the <code>submask</code> parameter must be 255.255.255.255. Otherwise, the <code>submask</code> parameter value is identifies the network/host **ID** portions that must be entered when the dest parameter value represents a network address.

The submask is applied to the **IP** address which is being routed to see if it yields a route match. For example, if **IP** address 192.1.1.2 is being routed and the **IP** routing table contains these entries.

Table 3-4 Sample IP Routing Table

IP address	Submask	Gateway
191.1.0.0	255.255.0.0	192.168.110.250
192.0.0.0	255.0.0.0	192.168.110.251

IP routing occurs as follows:

- 1. The subnet mask of route 1 (255.255.0.0) is applied to the **IP** address being routed (192.1.1.2) with the resulting **IP** address of 192.1.0.0. **IP** address 192.1.0.0 does not match **IP** address 191.1.0.0 in the **IP** routing table, so the next route is chosen.
- 2. The subnet mask of route 2 (255.0.0.0) is applied to the **IP** address being routed (192.1.1.2) with the resulting **IP** address of 192.0.0.0 which matches the second route in the **IP** routing table, so this route is selected for routing this datagram.

See Table 3-5 for the valid input values for the submask and dest parameter combinations.



Table 3-5 Valid Subnet Mask Parameter Values

Network Class	IP Network Address Range	Valid Subnet Mask Values
		255.0.0.0 (the default value for a class A IP address)
		255.192.0.0
		255.224.0.0
Α	1.0.0.0 to 127.0.0.0	255.240.0.0
		255.248.0.0
		255.252.0.0
		255.254.0.0
		255.255.128.1
	128.1.0.0 to 191.255.0.0	255.255.0.0 (the default value for a class B IP address)
		255.255.192.0
		255.255.224.0
A+B		255.255.240.0
		255.255.248.0
		255.255.252.0
		255.255.254.0
		255.255.255.128
		255.255.255.0 (the default value for a class C IP address)
		255.255.255.192
A+B+C	192.0.0.0 to 223.255.255.0	255.255.255.224
		255.255.255.240
		255.255.255.248
		255.255.255.252

If a Class B IP address is specified for the dest parameter of the ent-ip-rte command, the subnet address that results from the dest and submask parameter values cannot be the same as the subnet address that results from the pvn and pvnmask, fcna and fcnamask, or fcnb and fcnbmask parameter values of the chg-netopts command. The pvn and pvnmask, fcna and fcnamask, or fcnb and fcnbmask parameter values can be verified by entering the rtrv-netopts command. Choose dest and submask parameter values for the IP route whose resulting subnet address is not be the same as the subnet address resulting from the pvn and pvnmask, fcna and fcnamask, or fcnb and fcnbmask parameter values of the chg-netopts command.

Display the IP routes in the database with the rtrv-ip-rte command.
 This is an example of the possible output.

rlghn	cxa03w 06-10-28	09:12:36 GMT EAGLE	5 36.0.0
LOC	DEST	SUBMASK	GTWY
1301	128.252.10.5	255.255.255.255	140.188.13.33
1301	128.252.0.0	255.255.0.0	140.188.13.34
1301	150.10.1.1	255.255.255.255	140.190.15.3
1303	192.168.10.1	255.255.255.255	150.190.15.23



```
1303 192.168.0.0 255.255.255.0 150.190.15.24

IP Route table is (5 of 2048) 0.24% full
```

2. Display the IP cards in the database with the rtrv-ip-card command.

This is an example of the possible output.

```
rlghncxa03w 08-08-28 21:17:37 GMT EAGLE5 39.0.0
  LOC 1212
   SRCHORDR LOCAL
    DNSA 150.1.1.1
         _____
    DNSB
    DEFROUTER 150.1.1.100
    DOMAIN NC. TEKELEC. COM
   SCTPCSUM crc32c
   BPIPADDR -----
   BPSUBMASK -----
  LOC 1301
   SRCHORDR SRVRONLY
    DNSA 140.188.13.10
   DNSB 140.190.15.28
    DEFROUTER -----
    DOMAIN NC. TEKELEC. COM
    SCTPCSUM crc32c
   BPIPADDR -----
   BPSUBMASK -----
  LOC 1303
    SRCHORDR LOCAL
    DNSA 150.190.15.1
           _____
    DNSB
    DEFROUTER 150.190.15.25
    DOMAIN NC. TEKELEC. COM
    SCTPCSUM crc32c
    BPIPADDR -----
    BPSUBMASK -----
```

If the required **IP** card is not shown in the rtrv-ip-card output, perform the Adding an IPLIMx Card procedure to add the card to the database.

Perform the Configuring an IP Card procedure and make sure that the network portion of the IP addresses assigned for the A or B interfaces of the IP card is the same as the network portion of the IP address that will be assigned to the gtwy parameter of the IP route

Note:

If a Class A or CIP address (see Table 3-5) will be specified for the dest parameter in 4, continue the procedure with 4.

3. The subnet address that results from the dest and submask parameter values of the ent-ip-rte command cannot be the same as the subnet address that

results from the pvn and pvnmask, fcna and fcnamask, or fcnb and fcnbmask parameter values of the chg-netopts command.

Display the pvn, pvnmask, fcna, fcnamask, fcnb, and fcnbmask parameter values of the chg-netopts command by entering the rtrv-netoptscommand.

If error message E3967 Cmd Rej: E5IS must be on is displayed after the rtrv-netopts command is executed, the pvn, pvnmask, fcna, fcnamask, fcnb, and fcnbmask parameters are not configured. Continue the procedure with 4.

This is an example of the possible output if the **E5IS** feature is on.

```
rlghncxa03w 09-02-28 21:17:37 GMT EAGLE5 40.1.0

NETWORK OPTIONS
-----

PVN = 128.20.30.40

PVNMASK = 255.255.192.0

FCNA = 170.120.50.0

FCNAMASK = 255.255.240.0

FCNB = 170.121.50.0

FCNBMASK = 255.255.254.0
```

Choose dest and submask parameter values for the IP route whose resulting subnet address is not be the same as the subnet address resulting from the pvn and pvnmask, fcna and fcnamask, or fcnb and fcnbmask parameter values of the chg-netopts command. Continue the procedure with 4.

4. Add the **IP** route to the database using the ent-ip-rte command.

For this example, enter this command.

```
ent-ip-
rte:loc=1212:dest=132.10.175.20:submask=255.255.255.255 :gtwy=150
.1.1.50
```

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

```
rlghncxa03w 06-10-12 09:12:36 GMT EAGLE5 36.0.0 ENT-IP-RTE: MASP A - COMPLTD
```

5. Verify the changes using the rtrv-ip-rte command with the card location specified with the ent-ip-rte command in 4.

For this example, enter these commands.

```
rtrv-ip-rte:loc=1212
```

This is an example of the possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0

LOC DEST SUBMASK GTWY

1212 132.10.175.20 255.255.255 150.1.1.50

IP Route table is (6 of 2048) 0.29% full
```



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

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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

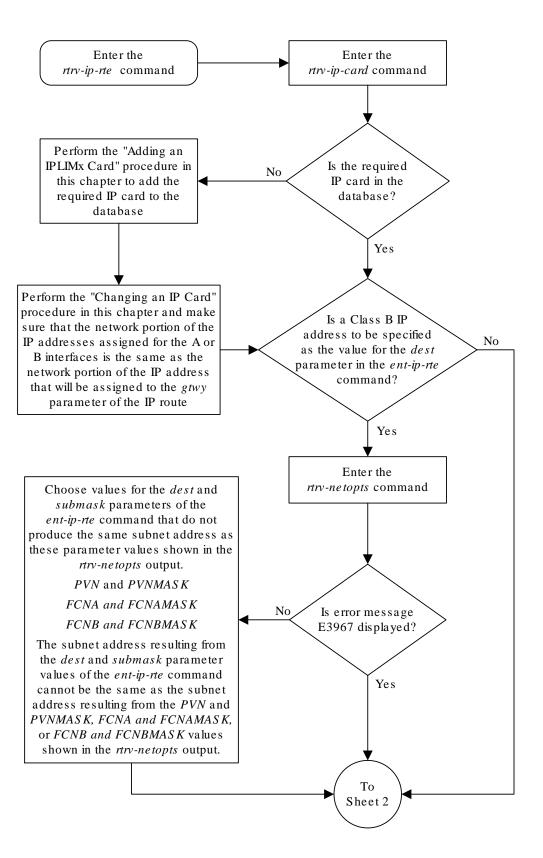
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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

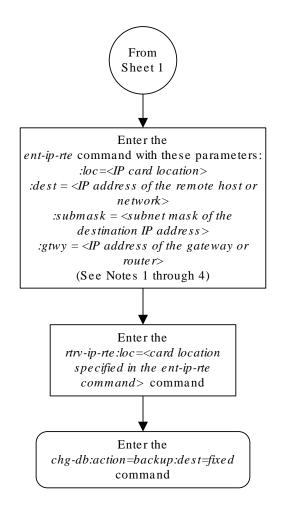


Figure 3-6 Adding an IP Route



Sheet 1 of 2





Notes:

- 1. The network portion of the IP address value of the *gtwy* parameter must be the same as the network portion of the IP addresses shown for either the A or B interfaces in the *rtrv-ip-card* output.
- 2. The value of the *dest* and *gtwy* parameters cannot the 127.x.x.x (the loopback address), 0.0.0.0, or the IP addresses of the A or B interfaces on the IP card, and cannot be assigned to another IP card.
- 3. There can be a maximum of 64 IP routes assigned to an IP card.
- 4. The EAGLE 5 ISS can contain a maximum of 1024 IP routes.



Sheet 2 of 2

Adding an M2PA Association

This procedure is used to configure M2PA associations using the ent-assoc command. The combination of a local host, local SCTP port, remote host and remote SCTP port defines an association. M2PA associations are assigned to cards running either the IPLIM or IPLIMI applications (IPLIMx cards).

The ent-assoc command uses these parameters:

: aname – The name assigned to the association. Valid association names can contain up to 15 alphanumeric characters where the first character is a letter and the remaining characters are alphanumeric characters. The aname parameter value is not case-sensitive.

: lhost - Local Hostname. The logical name assigned to the local host device.

:lport - The SCTP port number for the local host.

: rhost – Remote Hostname. The logical name assigned to the remote host device.

:rport - The SCTP port number for the remote host.

: link – The signaling link on the **IP** card. If a signaling link is not specified for a association when it is entered, the association defaults to signaling link A. If the card is an **E5-ENET** or E5-ENET-B card, the values for the link parameter can be a, a1, a2, a3, a4, a5, a6, a7, b, b1, b2, b3, b4, b5, b6, **or** b7.

Note:

The port parameter can be used in place of the link parameter to specify the signaling link on the card.

:adapter – The adapter layer for this association, m2pa. The adapter parameter is optional. The default value for the adapter parameter is m2pa.

:alhost - The alternate local host name.

:m2patset — The M2PA timer set assigned to the association. The m2patset parameter can be specified only with the adapter=m2pa parameter. If the adapter=m2pa parameter is specified, and the m2patset parameter is not specified with the ent-assoc command, the default value for the m2patset parameter (1 - M2PA timer set 1) is assigned to the association.

Associations contain fields whose values are not assigned using the <code>ent-assoc</code> command. When an association is added to the database, these fields receive their default values. If a different value is desired, the <code>chg-assoc</code> command must be used. To change these values perform the Changing the Attributes of an M2PA Association procedure.

These fields and their default values are shown in Table 3-6.



Table 3-6 M2PA Association Fields and Default Values

open=no	rmax=800	cwmin=3000	alw=no	uaps=10
istrms=2	rmode=lin	rtimes=10	ostrms=2	rmin=120
ver=rfc	bufsize=200	rtxthr=0	<pre>rhostval=rela xed</pre>	

An M2PA association that is assigned to an IPLIMx signaling link can contain a UA parameter set value (the uaps parameter). The uaps parameter cannot be specified with the entassoc command. The default value for the uaps parameter is 10. While the uaps parameter value can be changed with the chg-assoc command, the uaps parameter value has no impact on the traffic carried by an M2PA association that is assigned to an IPLIMx signaling link. The uaps parameter value impacts M3UA or SUA associations that are assigned to IPGWx signaling links and M2PA and M3UA associations that are assigned to IPSG cards. The uaps parameter value is shown in the UAPS field in the rtrv-assoc output for an M2PA associations that is assigned to an IPLIMx signaling link.

An M2PA association can contain an alternate remote host. The alternate remote host is provisioned with the rhost and rhostype=alternate parameters of the chg-assoc command. A primary remote host can be provisioned in this procedure by specifying the rhost parameter with the ent-assoc command. To provision an alternate remote host for an M2PA association, perform Changing the Attributes of an M2PA Association.

The size of the buffers on the on the E5-ENET and E5-ENET-B cards are shown in the following list.

E5-ENET Card and E5-ENET-B - 3200 KB

The size of the buffers assigned to each association that is assigned to the **IP** card cannot exceed the maximum buffer size for the **IP** card. When a new association is added, the default buffer size for the association is assigned to the association. If adding the new association causes the total buffer size for all the associations on the **IP** card to exceed the maximum buffer size for that **IP** card, the ent-assoc command will be rejected. If the you wish to add the association and the maximum buffer size for the **IP** card will be exceeded, the buffer size of the other associations assigned to the **IP** card must be decreased by performing the Changing the Buffer Size of a M2PA Association procedure. The available size of the buffers on the **IP** card can be verified by entering this command.

rtrv-assoc:lhost=<local host name assigned to the association being
changed>

The alhost parameter can also be used with the rtrv-assoc command to display the available size of the buffers on the IP card.

The aname parameter can be used with the rtrv-assoc command to display the available size of the buffers on the IP card and the size of the buffer assigned to the association.

The value of the <code>lhost</code>, <code>rhost</code>, or <code>alhost</code> parameters is a text string of up to 60 characters, with the first character being a letter. The command line on the terminal can contain up to 150 characters. If the host names are too long to fit on the <code>ent-assoc</code> command line, perform the <code>chg-assoc</code> command with the parameters and values necessary to complete the entry of the M2PA association.

The **EAGLE** can contain a maximum of 4000 connections (association to application server assignments).



IPLIMx cards can contain one association for each signaling link on the card. The **E5-ENET** card can contain a maximum of 16 signaling links, resulting in a maximum of 16 associations for this card.

The B Ethernet interface of the IP card can be used on the E5-ENET card.

If the association is to be activated in this procedure, with the <code>chg-assoc</code> command, the association must contain values for the <code>lhost</code>, <code>lport</code>, <code>rhost</code>, <code>rport</code> parameters.

The iplim12 parameter value of the signaling link assigned to the association must be m2pa. The adapter parameter value of the association must be m2pa.

The signaling link being assigned to the association must be out of service. This state is shown in the rept-stat-slk output with the entries cos-MT in the pst field and unavail in the sst field.

If the association is being opened in this procedure with the <code>chg-assoc</code> command and the <code>open=yes</code> parameter, the signaling link assigned to the association must be in the database and the <code>iplim12</code> parameter value of the signaling link assigned to the association must be <code>m2pa</code>.

Uni-homed endpoints are associations configured with the <code>lhost</code> parameter only. The <code>lhost</code> parameter value represents an <code>IP</code> address that corresponds to either the A or B network interface of the <code>IP</code> card. Multi-homed endpoints are associations configured with both the <code>lhost</code> and <code>alhost</code> parameters. The <code>lhost</code> parameter value represents an <code>IP</code> address corresponding to one of the network interfaces (A or B) of the <code>IP</code> card while the <code>alhost</code> parameter value represents an <code>IP</code> address corresponding to the other network interface of the same <code>IP</code> card.

An alternate remote host can be configured for multi-homed associations using the rhost and rhosttype parameters of the chg-assoc command. The rhost parameter value with the rhostype=primary parameter represents an IP address that corresponds to one of the network interfaces at the remote end while the rhost parameter value with the rhostype=alternate parameter represents an IP address that corresponds to the other network interface at the remote end.

Canceling the RTRV-ASSOC Command

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

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



command. The user's permissions can be verified with the rtrv-user or rtrv-secu-user commands.

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

1. Display the associations in the database using the rtrv-assoc command. This is an example of possible output.

```
rlghncxa03w 08-04-28 09:12:36 GMT EAGLE5 38.0.0
             CARD IPLNK
ANAME
             LOC PORT LINK ADAPTER LPORT RPORT OPEN ALW
swbel32
             1201 A
                      A M3UA
                                1030 2345 YES YES
                      A
                          SUA
             1305 A
                                 1030 2345 YES
                                               YES
             1307 A A SUA 1030 2346 YES YES
a3
assoc3
             1203 A A1 M2PA 2048 1030 NO
                                               NO
```

Perform one of these actions.

- If the desired IP link (shown by the entries in the CARD LOC and IPLINK PORT columns for an association whose ADAPTER value is M2PA) is shown in the rtrv-assoc output, continue the procedure with 2.
- If the desired IP link is not shown in the rtrv-assoc output, continue the procedure with 3.
- Display the signaling links assigned to the card that the new M2PA association will be assigned to by entering the rtrv-slk command with the card location displayed in 1.
 For this example, enter this command.

```
rtrv-slk:loc=1203
```

The following is an example of the possible output.

```
LOC LINK LSN SLC TYPE IPLIML2
1203 A e5e6a 0 IPLIM M2PA
1203 A1 m2pa1 0 IPLIM M2PA
```

rlghncxa03w 08-04-06 10:07:25 GMT EAGLE5 38.0.0

If the value in the TYPE column is either IPLIM or IPLIMI, continue the procedure with 6.

If the value in the TYPE column is IPSG, the links and host assigned to this card cannot be used in this procedure. If you wish to use this card to configure an M2PA association, perform the Adding an IPSG M2PA Association procedure.

If you do not wish to use this card to configure an M2PA association, perform one of these actions.

- Choose another card from the rtrv-assoc output in 1 and repeat this step.
- Continue the procedure with 3 to choose another IPLIMx card and IP link for the new M2PA association.
- 3. Display the **IP** links in the database by entering the rtrv-ip-lnk command. The following is an example of the possible output.

```
rlghncxa03w 08-12-28 21:14:37 GMT EAGLE5 40.0.0
```



LOC F		IPADDR	SUBMASK	DUPLEX	SPEED	MACTYPE
1201 A	A	192.1.1.10	255.255.255.128	HALF	10	802.3
1201 B	3			HALF	10	DIX
1203 A	A	192.1.1.12	255.255.255.0			DIX
1203 B	3			HALF	10	DIX
1205 A	A	192.1.1.14	255.255.255.0	FULL	100	DIX
1205 B	3			HALF	10	DIX
2101 A	A	192.1.1.20	255.255.255.0	FULL	100	DIX
2101 B	3			HALF	10	DIX
2103 A	A	192.1.1.22	255.255.255.0	FULL	100	DIX
2103 B	3			HALF	10	DIX
2105 A		192.1.1.24	255.255.255.0	FULL	100	DIX
2105 B	3			HALF	10	DIX
2205 A	A	192.1.1.30	255.255.255.0	FULL	100	DIX
2205 B	3			HALF	10	DIX
2207 A	A	192.1.1.32	255.255.255.0	FULL	100	DIX
2207 B	3			HALF	10	DIX
2213 A	A	192.1.1.50	255.255.255.0	FULL	100	DIX
2213 B	3			HALF	10	DIX
2301 A	A	192.1.1.52	255.255.255.0	FULL	100	DIX
2301 E	3			HALF	10	DIX
INO INC	,					

IP-LNK table is (20 of 2048) 1% full.

If the required **IP** link is not in the database, add the **IP** link using the Configuring an IP Link procedure.

4. Verify that the local host name to be assigned to the association is in the database by using the rtrv-ip-host:display=all command. The following is an example of the possible output.

rlghncxa03w 13-06-28 21:15:37 GMT EAGLE5 45.0.0



```
LOCAL IPADDR LOCAL HOST
192.1.1.10
             IPNODE1-1201
192.1.1.12
             IPNODE1-1203
192.1.1.14
             IPNODE1-1205
192.1.1.20
             IPNODE2-1201
192.1.1.22
             IPNODE2-1203
192.1.1.24
             IPNODE2-1205
192.1.1.30
             KC-HLR1
192.1.1.32
             KC-HLR2
192.1.1.50
              DN-MSC1
192.1.1.52
             DN-MSC2
REMOTE IPADDR REMOTE HOST
150.1.1.5
              NCDEPTECONOMIC DEVELOPMENT. SOUTHEASTERN COORIDOR ASHVL.
GOV
IP Host table is (11 of 4096) .26% full
```

The **IP** address of the **IP** link should be assigned to the local host name that will be assigned to the association.

The iplim12 parameter value of the signaling link must be m2pa.

The values of the lhost and alhost parameters must be in the LOCAL HOST column in the rtrv-ip-host output.

If the required hostname is not in the database, add the **IP** host name using the Adding an **IP** Host procedure.

5. Display the signaling links assigned to the card that the new M2PA association will be assigned to by entering the rtrv-slk command with the card location displayed in 3 or the card location of the IP link that was configured by performing the Configuring an IP Link procedure in 3. For this example, enter this command.

```
rtrv-slk:loc=1203
```

The following is an example of the possible output.

rlghncxa03w 08-04-06 10:07:25 GMT EAGLE5 38.0.0

LOC	LINK	LSN	SLC	TYPE	IPLIML2
1203	A	e5e6a	0	IPLIM	M2PA
1203	A1	m2pa1	0	IPLIM	M2PA

If the signaling link that you wish to assign to the association is shown in the rtrv-slk output, continue the procedure with 6.

If the signaling link that you wish to assign to the association is not shown in the rtrv-slk output, add the signaling link to the database with the iplim12=m2pa parameter, and without activating the signaling link, by performing the Adding an IPLIMx Signaling Link procedure. After the signaling link has been added, continue the procedure with 9.

6. Display the status of the signaling link shown in 5 using the rept-stat-slk command specifying the card location and signaling link. For example, enter this command.

```
rept-stat-slk:loc=1203:link=a
```



This is an example of the possible output.

```
rlghncxa03w 08-04-28 21:16:37 GMT EAGLE5 38.0.0

SLK LSN CLLI PST SST AST
1203,A e5e6a ------ IS-NR Avail ----
Command Completed.
```

If the primary state (**PST**) of the signaling link is OOS-MT and the secondary state (**SST**) is Unavail, continue the procedure with 9.

If the primary state (**PST**) of the signaling link not is OOS-MT and the secondary state (**SST**) is not Unavail, continue the procedure with 7.

7. Deactivate the signaling link from 6 using the dact-slk command. For example, enter this command.

```
dact-slk:loc=1203:link=a
```

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

```
rlghncxa03w 08-04-07 11:11:28 GMT EAGLE5 38.0.0 Deactivate Link message sent to card
```

8. Verify the status of the signaling link using the rept-stat-slk command. For example, enter this command.

```
rept-stat-slk:loc=1203:link=a
```

This is an example of the possible output.

```
rlghncxa03w 08-04-28 21:16:37 GMT EAGLE5 38.0.0

SLK LSN CLLI PST SST AST
1203,A e5e6a ------ OOS-MT Unavail ----
Command Completed.
```

9. Verify the values of the M2PA timer set you wish to assign to the association by entering the rtrv-m2pa-tset command with the ver=rfc parameter.

When an **M2PA** association is provisioned in this procedure, the **RFC M2PA** version is assigned to the **M2PA** association by default.

The M2PA version of the association determines the version of the M2PA timer set that is assigned to the association. For example, if M2PA timer set 3 is assigned to the M2PA association, and the association is an RFCM2PA association, the RFC version of M2PA timer set 3 is used with the association. If M2PA timer set 7 is assigned to the M2PA association, and the association is a Draft 6 M2PA association, the Draft 6 version of M2PA timer set 7 is used with the association.

If you wish to assign the Draft 6 M2PA version to this association and use the Draft 6 M2PA timer sets, perform the Changing the Attributes of an M2PA Association procedure after this procedure is completed to change the M2PA version of this association.





If them2patset parameter will not be specified with theent-assoc command, theM2PA timer set 1 will be assigned to the association.

To display the M2PA Draft 6 timer values, enter this command.

```
rtrv-m2pa-tset:ver=d6
```

This is an example of the possible output.

```
rlghncxa03w 08-04-28 21:16:37 GMT EAGLE5 38.0.0
```

```
M2PA Draft 6 Timers (in msec, T16 in microsec)
TSET T1
            Т2
                   Т3
                         T4N
                               T4E
                                    T5
                                          Τ6
                                                Т7
                                                      T16
                                                             T17
                                                                  T18
                                          4000 1000
     6000
            ---- 5000
                         20000 500
                                    5000
                                                     100000 150
                                                                  500
1
2
     7500
            ---- 1500
                         2000
                               500
                                     9000
                                          1250 300
                                                      150000 175
                                                                  600
3
     100000 ----- 2000
                         3000
                               500
                                     4000
                                          1500 500
                                                      170000 200
                                                                  800
4
     200000 ----- 20000 4000
                               500
                                     6000
                                          2000 700
                                                      480000 225
                                                                  900
5
     250000 ----- 30000 30000 500
                                    100
                                           2250 400
                                                                  8000
                                                      400000 400
     50000
           ---- 50000 60000 500
                                     500
                                           4500 800
6
                                                      300000 300
                                                                  7000
     10000
7
           ----- 10000 10000 500
                                    1000
                                          3000 1200
                                                      200000 250
                                                                  1000
8
     80000
            ----- 1500 15000 500
                                    8000
                                          2750 1100
                                                      350000 350
                                                                  5000
9
     27500
            ---- 3850
                                    5700
                         4859 450
                                          3750 1150
                                                      250
                                                             375
                                                                  8750
                                          5000 1750
                                                      440000 450
10
     90000
            ---- 2500
                         50000 500
                                    7500
                                                                  3000
                                     6500
11
     20000
            ----- 4500
                         5500
                               500
                                          5500 1600
                                                      250000 475
                                                                  4500
12
     30000
            ---- 7500 7000
                               500
                                    750
                                           4250 1800
                                                      275000 275
                                                                  3500
13
     40000
            ---- 35000 9000
                               500
                                    1250
                                          3500 1900
                                                      500
                                                             325
                                                                  9000
14
     70000
            ----- 45000 11000 500
                                    1500
                                          1750 900
                                                      1000
                                                             125
                                                                  6000
15
     9000
            ---- 25000 40000 500
                                     2500
                                          3250 600
                                                      5000
                                                             425
                                                                  5500
    75000
           ----- 15000 25000 500
                                    4500
                                                      6000
16
                                          1600 1400
                                                             240
                                                                  9500
17
     350000 ----- 60000 70000 600
                                    10000 6000 2000
                                                      500000 500
                                                                  10000
18
    150000 ----- 55000 35000 500
                                     3500
                                          5750 1500
                                                      125000 440
                                                                  750
19
     175000 ----- 12500 45000 500
                                    1100
                                          2600 1300
                                                      7000
                                                             340
                                                                  850
20
    1000
            ----- 1000 1000 400
                                    80
                                           1000 200
                                                      100
                                                             100
                                                                  100
```

To display the **M2PARFC** values, enter this command.

```
rtrv-m2pa-tset:ver=rfc
```

This is an example of the possible output.

```
rlghncxa03w 08-04-28 21:16:37 GMT EAGLE5 38.0.0
```

M2PA RFC Timers (in msec, T16 in microsec)

```
TSET T1
            Т2
                    Т3
                          T4N
                                T4E
                                     Т5
                                            Τ6
                                                 Т7
                                                        T16
                                                               T17
                                                                    T18
1
     6000
            75000 5000
                          20000 500
                                      5000
                                            4000 1000
                                                       100000 150
                                                                    500
2
     7500
            8000
                                      9000
                                            1250 300
                    1500
                          2000
                                500
                                                        150000 175
                                                                    600
3
     100000 10000
                   2000
                          3000
                                500
                                      4000
                                            1500 500
                                                        170000 200
                                                                    800
     200000 6000
                    20000 4000
                                500
                                      6000
                                            2000 700
                                                        480000 225
                                                                    900
4
     250000 140000 30000 30000 500
                                      100
                                            2250 400
                                                        400000 400
                                                                    8000
```



6 7000	50000	100000	50000	60000	500	500	4500	800	300000	300	
7000 7 1000	300000	20000	2000	10000	500	1000	3000	1200	200000	250	
8 5000	80000	130000	1500	15000	500	8000	2750	1100	350000	350	
9 8750	27500	120000	3850	4859	450	5700	3750	1150	250	375	
10	90000	9000	2500	50000	500	7500	5000	1750	440000	450	
11 4500	20000	60000	4500	5500	500	6500	5500	1600	250000	475	
12 3500	30000	50000	7500	7000	500	750	4250	1800	275000	275	
13 9000	40000	90000	35000	9000	500	1250	3500	1900	500	325	
14 6000	70000	45000	45000	11000	500	1500	1750	900	1000	125	
15 5500	9000	30000	25000	40000	500	2500	3250	600	5000	425	
16 9500	75000	15000	15000	25000	500	4500	1600	1400	6000	240	
17 10000	350000 0	150000	60000	70000	600	10000	6000	2000	500000	500	
18	150000	20000	55000	35000	500	3500	5750	1500	125000	440	750
19	175000	12500	12500	45000	500	1100	2600	1300	7000	340	850
20	1000	5000	1000	1000	400	80	1000	200	100	100	100

If the ver parameter is not specified when entering the rtrv-m2pa-tset command, both the Draft 6 and **RFC** values are displayed. This is an example of the possible output.

rlghncxa03w 08-04-28 21:16:37 GMT EAGLE5 38.0.0

M2PA	Draft 6	Timers	s (in n	nsec, I	[16 ir	n micro	sec)				
TSET	T1	T2	T3	T4N	T4E	T5	Т6	Т7	T16	T17	T18
1	6000		5000	20000	500	5000	4000	1000	100000	150	500
2	7500		1500	2000	500	9000	1250	300	150000	175	600
3	100000		2000	3000	500	4000	1500	500	170000	200	800
4	200000		20000	4000	500	6000	2000	700	480000	225	900
5	250000		30000	30000	500	100	2250	400	400000	400	
8000											
6	50000		50000	60000	500	500	4500	800	300000	300	
7000											
7	10000		10000	10000	500	1000	3000	1200	200000	250	
1000											
8	80000		1500	15000	500	8000	2750	1100	350000	350	
5000											
9	27500		3850	4859	450	5700	3750	1150	250	375	
8750											
10	90000		2500	50000	500	7500	5000	1750	440000	450	
3000											
11	20000		4500	5500	500	6500	5500	1600	250000	475	



```
4500
12
     30000
            ---- 7500
                         7000
                                500
                                     750
                                            4250 1800
                                                       275000 275
                                                                    3500
13
     40000
            ---- 35000 9000
                                500
                                     1250
                                            3500 1900
                                                       500
                                                               325
                                                                    9000
            ---- 45000 11000 500
14
     70000
                                     1500
                                            1750 900
                                                        1000
                                                               125
                                                                    6000
15
     9000
            ----- 25000 40000 500
                                     2500
                                            3250 600
                                                        5000
                                                               425
                                                                    5500
16
     75000
            ---- 15000 25000 500
                                     4500
                                            1600 1400
                                                        6000
                                                               240
                                                                    9500
17
     350000 ----- 60000 70000 600
                                     10000 6000 2000
                                                        500000 500
                                                                    10000
18
     150000 ----- 55000 35000 500
                                            5750 1500
                                                       125000 440
                                                                    750
                                     3500
19
     175000 ----- 12500 45000 500
                                     1100
                                            2600 1300
                                                       7000
                                                               340
                                                                    850
20
     1000
            ---- 1000
                          1000
                                400
                                     80
                                            1000 200
                                                        100
                                                               100
                                                                    100
M2PA RFC Timers (in msec, T16 in microsec)
TSET T1
            Т2
                    Т3
                          T4N
                                T4E
                                     T5
                                            Τ6
                                                 Т7
                                                        T16
                                                               T17
                                                                    T18
1
     6000
            75000
                   5000
                          20000 500
                                      5000
                                            4000 1000
                                                       100000 150
                                                                    500
2
     7500
            8000
                   1500
                          2000
                                500
                                      9000
                                            1250 300
                                                       150000 175
                                                                    600
     100000 10000
                   2000
                          3000
3
                                500
                                     4000
                                            1500 500
                                                       170000 200
                                                                    800
     200000 6000
                                            2000 700
4
                    20000 4000
                                500
                                      6000
                                                        480000 225
                                                                    900
     250000 140000 30000 30000 500
                                     100
                                            2250 400
                                                        400000 400
                                                                    8000
5
6
     50000 100000 50000 60000 500
                                     500
                                            4500 800
                                                        300000 300
                                                                    7000
7
     300000 20000
                   2000
                                                       200000 250
                          10000 500
                                     1000
                                            3000 1200
                                                                    1000
8
     80000
            130000 1500
                          15000 500
                                     8000
                                            2750 1100
                                                       350000 350
                                                                    5000
9
     27500
           120000 3850
                          4859
                                450
                                      5700
                                            3750 1150
                                                        250
                                                               375
                                                                    8750
     90000 9000
                                            5000 1750
                    2500
                          50000 500
                                     7500
                                                        440000 450
                                                                    3000
10
11
     20000 60000
                   4500
                          5500
                                500
                                     6500
                                            5500 1600
                                                       250000 475
                                                                    4500
12
     30000 50000
                   7500
                         7000
                                500
                                     750
                                            4250 1800
                                                       275000 275
                                                                    3500
     40000
            90000
                                     1250
                                            3500 1900
                                                       500
13
                   35000 9000
                                500
                                                               325
                                                                    9000
     70000
            45000
14
                   45000 11000 500
                                     1500
                                            1750 900
                                                        1000
                                                               125
                                                                    6000
            30000
                                                        5000
15
     9000
                   25000 40000 500
                                     2500
                                            3250 600
                                                               425
                                                                    5500
16
     75000 15000 15000 25000 500
                                     4500
                                           1600 1400
                                                       6000
                                                               240
                                                                    9500
17
     350000 150000 60000 70000 600
                                     10000 6000 2000
                                                       500000 500
                                                                    10000
     150000 20000 55000 35000 500
18
                                     3500
                                            5750 1500
                                                       125000 440
                                                                    750
19
     175000 12500
                   12500 45000 500
                                     1100
                                            2600 1300
                                                       7000
                                                               340
                                                                    850
20
     1000
            5000
                    1000 1000
                                400
                                     80
                                            1000 200
                                                        100
                                                               100
                                                                    100
```

If the M2PA timer set you wish to assign to the association does not contain the desired values, go to the Changing a M2PA Timer Set procedure and changed the desired timer values.



Caution:

Changing an **M2PA** timer set may affect the performance of any associations using the timer set being changed.

10. Verify the available buffer size for the IP card that will contain the association being added in this procedure by entering the rtrv-assoc command with the local host name assigned to the association being added. For this example, enter this command.

```
rtrv-assoc:lhost="IPNODE2-1203"
```

This is an example of the possible output.

rlghncxa03w 08-04-28 09:12:36 GMT EAGLE5 38.0.0

	CARD IPLN	K					
ANAME	LOC PORT	LINK	ADAPTER	LPORT	RPORT	OPEN	ALW
assoc2	1203 A	A1	M2PA	2048	1030	NO	NO
IP Appl Sock/As: Assoc Buffer Spa			= 120:	3			

If adding the new association causes the total buffer size for all the associations on the **IP** card to exceed the maximum buffer size for that **IP** card, the ent-assoc command will be rejected.

The default buffer value for an IPLIMx association is 200.

If the you wish to add the association and the maximum buffer size for the **IP** card will be exceeded, the buffer size of the other associations assigned to the **IP** card must be decreased by performing the Changing the Buffer Size of a M2PA Association procedure.

11. Add the associations using the ent-assoc command. For this example, enter this command.

```
ent-
assoc:aname=assoc2:lhost=gw107.nc.tekelec.com:lport=2000:
rhost=gw100.nc.tekelec.com:rport=1030:adapter=m2pa:link=a
```

These are the rules that apply to adding M2PA associations that are assigned to IPLIMx signaling links.

- The B Ethernet interface can be used with E5-ENET cards.
- The EAGLE can contain a maximum of 4000 connections (association application server assignments plus sockets).
- The adapter parameter value for the association must be m2pa. The value of the iplim12 parameter of the signaling link being assigned to this association must be m2pa. The default value for the adapter parameter is m2pa.
- IPLIMx cards can have only one connection for each signaling link assigned to the card. If the card is an E5-ENET card, the card may contain a maximum of 16 connections.
- The value of the <code>lhost</code>, <code>rhost</code>, or <code>alhost</code> parameters is a text string of up to 60 characters, with the first character being a letter. The command line on the terminal can contain up to 150 characters. If the host names are too long to fit on the <code>ent-assoc</code> command line, perform the <code>chg-assoc</code> command with the parameters and values necessary to complete the entry of the M2PA association.
- If the new association is to be activated in this procedure with the <code>chg-assoc</code> command, the association must contain values for the <code>lhost, rhost, lport, and rport parameters.</code>
- If the lhost and alhost parameters are specified, the lhost parameter
 value represents the IP address corresponding to one of the network
 interfaces (A or B) on the IP card while the alhost parameter value
 represents the IP address corresponding to the other network interface of the
 same IP card.
- The m2patset parameter can be specified only with the adapter=m2pa parameter.



- The m2patset parameter value defaults to M2PA timer set 1 (m2patset=1) if the m2patset parameter is not specified.
- The port parameter can be used in place of the link parameter to specify the signaling link assigned to the association.
- When the adapter=m2pa parameter is specified, the RFC M2PA version is assigned to the M2PA association by default. If you wish to assign the Draft 6 M2PA version to this association, perform the Changing the Attributes of an M2PA Associationprocedure after this procedure is completed to change the M2PA version of this association.

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

```
rlghncxa03w 08-04-28 09:12:36 GMT EAGLE5 38.0.0 ENT-ASSOC: MASP A - COMPLTD
```



If the association added in this step is not being activated in this procedure, continue the procedure with 13.

12. Activate the association added in 11 by entering the <code>chg-assoc</code> command with the association name specified in 11 and the <code>open=yes</code> and <code>alw=yes</code> parameters. For example, enter this command.

```
chg-assoc:aname=assoc2:open=yes:alw=yes
```

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

```
rlghncxa03w 08-04-28 21:15:37 GMT EAGLE5 38.0.0 CHG-ASSOC: MASP A - COMPLTD
```

13. Verify the changes using the rtrv-assoc command specifying the association name specified in 11 and 12. For this example, enter this command.

```
rtrv-assoc:aname=assoc2
```

This is an example of possible output.

```
rlghncxa03w 10-07-28 09:12:36 GMT EAGLE5 42.0.0
ANAME assoc2
    LOC 1203
                        IPLNK PORT A
                                             LINK A
     ADAPTER M2PA
                        VER
                                  M2PA RFC
     LHOST gw105.nc.tekelec.com
     ALHOST
     RHOST gw100.nc.tekelec.com
     ARHOST ---
     LPORT
            1030
                         RPORT
                                   1030
     ISTRMS 2
                                   2
                                             BUFSIZE 200
                        OSTRMS
     RMODE LIN
                        RMIN
                                   120
                                             RMAX
                                                     800
     RTIMES 10
                         CWMIN
                                   3000
                                             UAPS
                                                     10
```



```
OPEN NO ALW NO RTXTHR 0 RHOSTVAL RELAXED M2PATSET 1
```

```
IP Appl Sock table is (5 of 4000) 1% full Assoc Buffer Space Used (400 KB of 1600 KB) on LOC = 1203
```

 Activate the signaling link assigned to the association using the act-slk command.

For example, enter this command.

```
act-slk:loc=1203:link=a
```

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

```
rlghncxa03w 08-04-07 11:11:28 GMT EAGLE5 38.0.0 Activate Link message sent to card
```

15. Verify the status of the signaling link using the rept-stat-slk command. For example, enter this command.

```
rept-stat-slk:loc=1203:link=a
```

This is an example of the possible output.

```
rlghncxa03w 08-04-28 21:16:37 GMT EAGLE5 38.0.0

SLK LSN CLLI PST SST AST
1203,A e5e6a ------ IS-NR Avail ----
Command Completed.
```

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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

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

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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



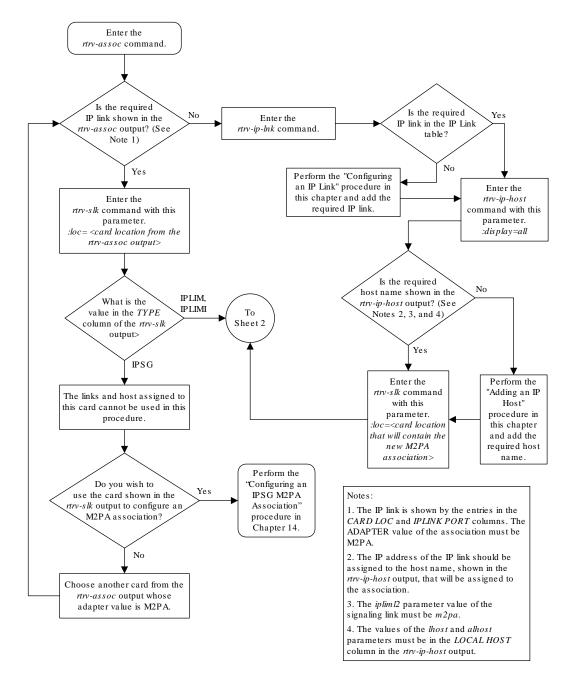
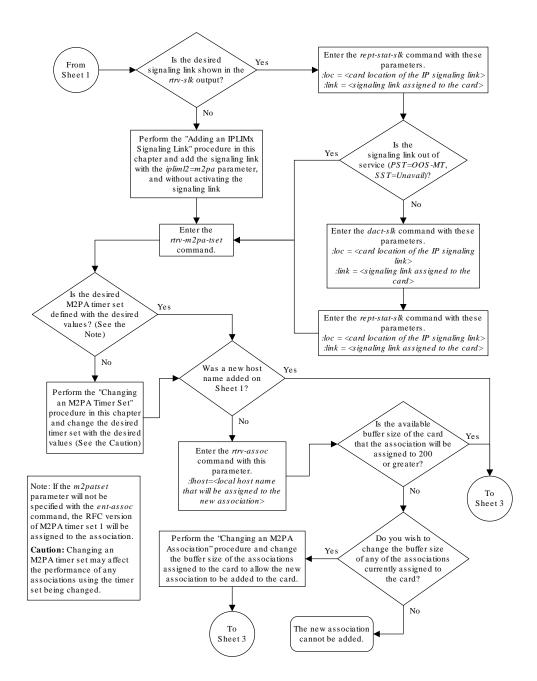
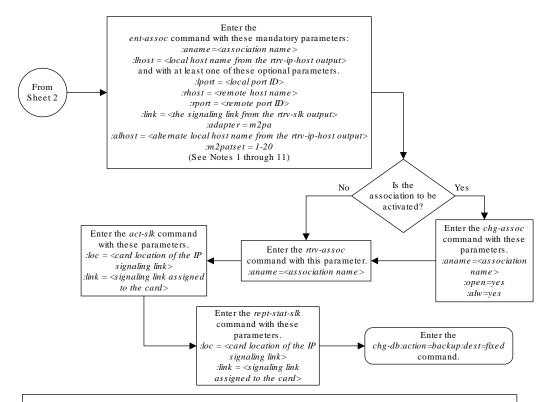


Figure 3-7 Adding an M2PA Association

Sheet 1 of 3



Sheet 2 of 3



Note s:

- 1. The B Ethernet interface can be used with single-slot EDCMs or E5-ENET cards.
- 2. The EAGLE 5 ISS can contain a maximum of 4000 connections (association application server assignments plus sockets).
- 3. The adapter parameter value for the association must be m2pa. The value of the iplim12 parameter of the signaling link being assigned to this association must be m2pa. The default value for the adapter parameter is m2pa.
- 4. IPLIMx cards can have only one connection for each signaling link assigned to the card. If the card is a single-slot EDCM, the card may contain a maximum of eight connections. If the card is an E5-ENET card, the card may contain a maximum of 16 connections.
- 5. The value of the *lhost*, *rhost*, or *alhost* parameters is a text string of up to 60 characters, with the first character being a letter. The command line on the terminal can contain up to 150 characters. If the host names are too long to fit on the *ent-assoc* command line, perform the *chg-assoc* command with the parameters and values necessary to complete the entry of the M2PA association.
- 6. If the new association is to be activated in this procedure with the chg-assoc command, the association must contain values for the lhost, rhost, lport, and rport parameters.
- 7. If the *lhost* and *alhost* are specified, the *lhost* parameter value represents the IP address corresponding to one of the network interfaces (A or B) on the IP card while the *alhost* parameter value represents the IP address corresponding to the other network interface of the same IP card.
- 8. The m2patset parameter can be specified only with the adapter=m2pa parameter.
- 9. The m2patset parameter value defaults to M2PA timer set 1 (m2patset=1) if the m2patset parameter is not specified.
- 10. The port parameter can be used in place of the link parameter to specify the signaling link assigned to the association.
- 11. When the adapter=m2pa parameter is specified, the RFC M2PA version is assigned to the M2PA association by default. If you wish to assign the Draft 6 M2PA version to this association, perform the "Changing the Attributes of an M2PA Association" procedure in this chapter after this procedure is completed to change the M2PA version of this association.

Sheet 3 of 3

Activating the Large MSU Support for IP Signaling Feature

This procedure is used to enable and turn on the Large MSU Support for IP Signaling feature using the feature's part number and a feature access key.

The feature access key for the Large MSU Support for IP Signaling feature is based on the feature's part number and the serial number of the EAGLE, making the feature access key site-specific.

The <code>enable-ctrl-feat</code> command enables the controlled feature by inputting the controlled feature's access key and the controlled feature's part number with these parameters:



As of Release 46.3, the fak parameter is no longer required. This parameter is only used for backward compatibility.

: fak – The feature access key provided by Oracle. The feature access key contains 13 alphanumeric characters and is not case sensitive.

:partnum - The Oracle-issued part number of the Large MSU Support for IP Signaling feature, 893018401.

The <code>enable-ctrl-feat</code> 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 <code>rtrv-serial-num</code> command. The EAGLE is shipped with a serial number in the database, but the serial number is not locked. The serial number can be changed, if necessary, and locked once the EAGLE is on-site, by using the <code>ent-serial-num</code> command. The <code>ent-serial-num</code> command uses these parameters.

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

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

Note:

To enter and lock the EAGLE's serial number, the <code>ent-serial-num</code> command must be entered twice, once to add the correct serial number to the database with the <code>serial</code> parameter, then again with the <code>serial</code> and the <code>lock=yes</code> parameters to lock the serial number. You should verify that the serial number in the database is correct before locking the serial number. The serial number can be found on a label affixed to the control shelf (shelf 1100).

This feature cannot be temporarily enabled (with the temporary feature access key).

Once this feature has been enabled, the feature must be turned on with the chg-ctrl-feat command. The chg-ctrl-feat command uses these parameters:

:partnum - The Oracle-issued part number of the Large MSU Support for IP Signaling feature, 893018401.

: status=on - used to turn the Large MSU Support for IP Signaling feature on.



Once the Large MSU Support for IP Signaling feature has been turned on, it be can be turned off. For more information about turning the Large MSU Support for IP Signaling feature off, go to the Turning Off the Large MSU Support for IP Signaling Feature procedure.

The status of the features in the EAGLE is shown with the rtrv-ctrl-feat command.

The Large MSU Support for IP Signaling feature allows the EAGLE to process messages with a service indicator value of 6 to 15 and with a service information field (SIF) that is larger than 272 bytes. The large messages are processed only on E5-ENET cards. There are certain software components that if enabled or provisioned, that will not process large messages even if the Large MSU Support for IP Signaling feature is enabled and turned on. UIMs are displayed when most of these circumstances occur. These UIMs are:

- UIM 1333 Displayed when a large message is received on an M3UA association and the Large MSU Support for IP Signaling feature is not enabled or is enabled and turned off. The large message is discarded.
- UIM 1350 Displayed when a M2PA IP connection receives message with an SIF greater than 272 bytes and the Large MSU Support for IP Signaling feature is not enabled or is enabled and turned off. The large message is discarded.
- UIM 1352 Displayed when a message with an SIF greater than 272 bytes is received; the Large MSU Support for IP Signaling feature is enabled and turned on; there are routes available for the destination point code; but the selected outbound card does not support large messages.
- UIM 1353 Displayed when a large message passes a gateway screening screenset that redirects messages for the Database Transport Access (DTA) feature. Large messages are not redirected for the DTA feature.

For more information on these UIMs, refer to the *Unsolicited Alarm and Information Messages Reference*.



For STC style monitoring, large messages are not monitored by the EAGLE 5 Integrated Monitoring Support feature and are not sent to the IMF. A UIM is not generated. If Fast Copy is allowed, however, Fast Copy can copy large MSUs to IMF.

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 08-04-28 21:15:37 GMT EAGLE5 38.0.0 The following features have been permanently enabled:

Feature Name	Partnum	Status	Quantity
Command Class Management	893005801	on	
LNP Short Message Service	893006601	on	
Intermed GTT Load Sharing	893006901	on	
XGTT Table Expansion	893006101	on	400000
XMAP Table Expansion	893007710	off	
Large System # Links	893005910	on	2000
Routesets	893006401	on	6000



HC-MIM SLK Capacity 893012707 on 64

The following features have been temporarily enabled:

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

The following features have expired temporary keys:

Feature Name Partnum Zero entries found.

If the Large MSU Support for IP Signaling feature is enabled and turned on, no further action is necessary. This procedure does not need to be performed.

If the Large MSU Support for IP Signaling feature is enabled and but not turned on, continue this procedure with 7.

If the Large MSU Support for IP Signaling feature is not enabled, continue this procedure with 2.

Note:

If the rtrv-ctrl-feat output in 1shows any controlled features, continue this procedure with 6. If thertrv-ctrl-feat output shows only the HC-MIM SLK Capacity feature with a quantity of 64, 2 through 5 must be performed.

2. Display the serial number in the database with the ${\tt rtrv-serial-num}$ command.

This is an example of the possible output.

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
System serial number = nt00001231
System serial number is not locked.
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
Command Completed
```

Note:

If the serial number is correct and locked, continue the procedure with 6. If the serial number is correct but not locked, continue the procedure with 5. If the serial number is not correct, but is locked, this feature cannot be enabled and the remainder of this procedure cannot be performed. Contact the Customer Care Center to get an incorrect and locked serial number changed. Refer to My Oracle Support (MOS) for the contact information. The serial number can be found on a label affixed to the control shelf (shelf 1100).



3. Enter the correct serial number into the database using the ent-serial-num command with the serial parameter.

For this example, enter this command.

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

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

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0 ENT-SERIAL-NUM: MASP A - COMPLTD
```

 Verify that the serial number entered into 3 was entered correctly using the rtrvserial-num command.

This is an example of the possible output.

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
System serial number = nt00001231
System serial number is not locked.
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
Command Completed
```

If the serial number was not entered correctly, repeat 3 and 4 and re-enter the correct serial number.

5. Lock the serial number in the database by entering the <code>ent-serial-num</code> command with the serial number shown in 2, if the serial number shown in 2 is correct, or with the serial number shown in 4, if the serial number was changed in 3, and with the <code>lock=yes</code> parameter.

For this example, enter this command.

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

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

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0 ENT-SERIAL-NUM: MASP A - COMPLTD
```

6. Enable the Large MSU Support for IP Signaling feature with the enable-ctrl-feat command specifying the part number for the Large MSU Support for IP Signaling feature and the feature access key. Enter this command.

```
enable-ctrl-feat:partnum=893018401:fak=<Large MSU Support for IP Signaling feature access key> \,
```



A temporary feature access key cannot be specified to enable this feature.



Note:

The values for the feature access key (the fak parameter) are provided by Oracle. If you do not have the feature access key for the feature you wish to enable, contact your Sales Representative or Account Representative.

When the <code>enable-crtl-feat</code> command has successfully completed, this message should appear.

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0 ENABLE-CTRL-FEAT: MASP B - COMPLTD
```

7. Turn the Large MSU Support for IP Signaling feature on with the <code>chg-ctrl-feat</code> command specifying the part number for the Large MSU Support for IP Signaling feature and the <code>status=on</code> parameter. Enter this command.

```
chg-ctrl-feat:partnum=893018401:status=on
```

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

```
rlghncxa03w 07-05-28 21:15:37 GMT EAGLE5 37.0.0 CHG-CTRL-FEAT: MASP B - COMPLTD
```

8. Verify the changes by entering the rtrv-ctrl-featcommand with the Large MSU Support for IP Signaling feature part number. Enter this command.

```
rtrv-ctrl-feat:partnum=893018401
```

The following is an example of the possible output.

```
rlghncxa03w 10-04-28 21:15:37 GMT EAGLE5 42.0.0 The following features have been permanently enabled:
```

```
Feature Name Partnum Status Quantity Large MSU for IP Sig 893018401 on ----
```

The following features have been temporarily enabled:

Feature Name Partnum Status Quantity Trial

Period Left

Zero entries found.

The following features have expired temporary keys:

Feature Name Partnum

Zero entries found.



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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

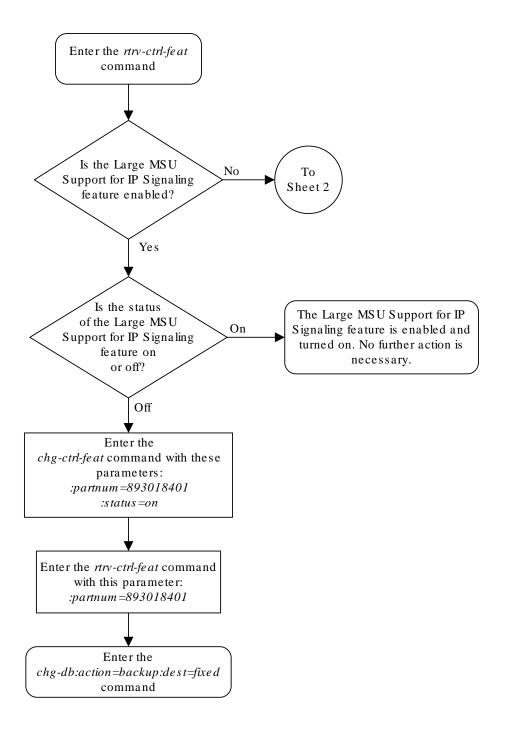
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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



Figure 3-8 Activate the Large MSU Support for IP Signaling Feature - Sheet 1 of 4



Are any controlled From features shown in the Yes Sheet 1 rtrv-ctrl-fe at output? (See Note 1) No Enter the rtrv-serial-num command Is the EAGLE 5 ISS's serial number in Yes the database correct and is To the serial number locked? Sheet 4 (See Notes 2, 3, and 4) To Sheet 3

Figure 3-9 Activate the Large MSU Support for IP Signaling Feature - Sheet 2 of 4

Notes:

- 1. If the *rtrv-ctrl-feat* output shows only the HC-MIM SLK Capacity feature with a quantity of 64, the answer to this question is no and the Eagle 5 ISS's serial number must be verified. This is the default entry for the *rtrv-ctrl-feat* output. This entry is shown whether or not the Eagle 5 ISS's serial number is in the database.
- 2. If the serial number is locked, it cannot be changed.
- 3. If the serial number is not locked, the controlled feature cannot be enabled.
- 4. The serial number can be found on a label affixed to the control shelf (shelf 1100).



Figure 3-10 Activate the Large MSU Support for IP Signaling Feature - Sheet 3 of 4

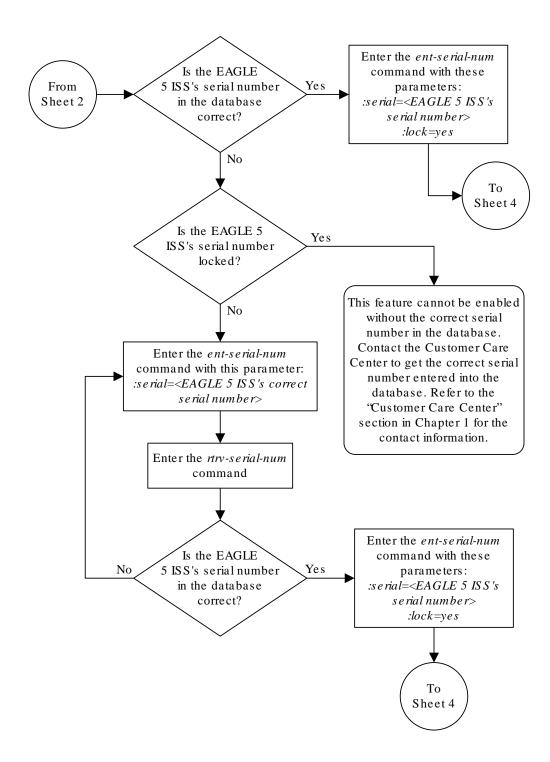
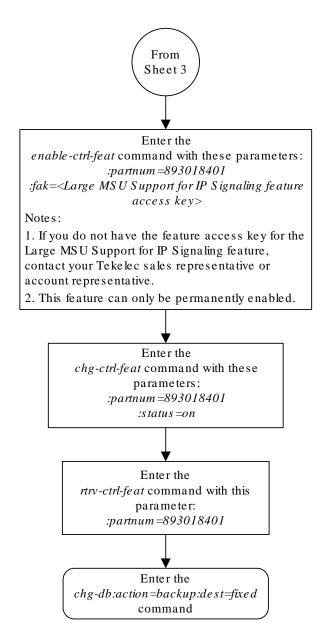




Figure 3-11 Activate the Large MSU Support for IP Signaling Feature - Sheet 4 of 4





Removing IETF M2PA Components

This section describes how to remove the following components from the database.

- An IPLIMx Card Perform the Removing an IPLIMx Card procedure
- An IPLIMx Signaling Link Perform the Removing an IPLIMx Signaling Link procedure
- An IP Host Perform the Removing an IP Host Assigned to an IPLIMx Card procedure
- An IP Route Perform the Removing an IP Route procedure
- An M2PA Association Perform the Removing an M2PA Association procedure

Removing an IPLIMx Card

Use this procedure to remove an **IPLIMx** card, a card running the iplim or iplimi applications from the database using the dlt-card command.

The card cannot be removed if it does not exist in the database. Prior to removing the card from the database, the signaling links assigned to the card must be removed.



Caution:

If the **IPGWx** card is the last **IP** card in service, removing this card from the database will cause traffic to be lost.

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

This is an example of the possible output.

rlghncxa03w 13-06-15 16:34:56 GMT EAGLE5					45.0	. 0	
CARD		TYPE	APPL	LSET NAME	LINK	SLC	LSET NAME
LINK	S	LC					
1101		DSM	VSCCP				
1102		TSM	GLS				
1113		E5MCAP	OAMHC				
1114		E5TDM-A					
1115		E5MCAP	OAMHC				
1116		E5TDM-B					
1117		E5MDAL					
1201		LIMDS0	SS7ANSI	lsn1	A	0	lsn2
В	1						
1203		LIMDS0	SS7ANSI	lsn2	A	0	lsn1
В	1						
1204		LIMATM	ATMANSI	atmgwy	A	0	
1205		DCM	IPLIM	ipnode1	A	0	ipnode3
В	1						
1207		DCM	IPLIM	ipnode2	A	0	
1303		DCM	IPLIM	ipnode1	A	0	ipnode3



```
B 1
1305 DCM IPLIM ipnode4 A 0
```

Select a card whose application is either IPLIM or IPLIMI.

Perform the Removing an IPLIMx Signaling Link procedure in this chapter to remove all the signaling links assigned to the card, shown in the LINK column of the rtrv-card output.

The card location is shown in the CARD field of the rtrv-card command output. No entries in the LSET NAME, LINK, and SLC columns mean that no signaling link is assigned to the card.

2. 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 these commands.

```
dlt-card:loc=1205
dlt-card:loc=1207
```

When these commands have successfully completed, this message appears.

```
rlghncxa03w 06-10-12 09:12:36 GMT EAGLE5 36.0.0 DLT-CARD: MASP A - COMPLTD
```

3. Verify the changes using the rtrv-card command and specifying the card that was removed in 2.

For this example, enter these commands.

```
rtrv-card:loc=1205
rtrv-card:loc=1207
```

When these commands have successfully completed, this message appears.

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

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

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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

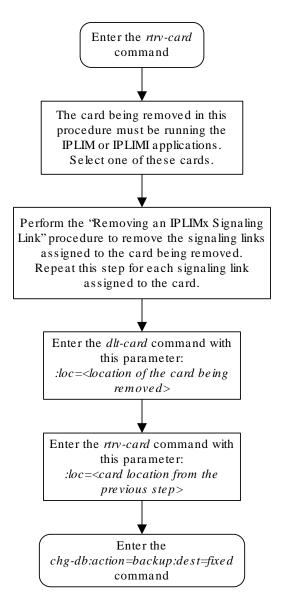
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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



Figure 3-12 Removing an IPLIMx Card



Removing an IPLIMx Signaling Link

This procedure is used to remove an **IPLIMx** signaling link from the database using the dlt-slk command. The dlt-slk command uses these parameters.

:loc - The card location of the **IPLIMx** card that the **IP** signaling link is assigned to.

:link - The signaling link on the card specified in the loc parameter.

: force – This parameter must be used to remove the last link in a linkset without having to remove all of the routes that referenced the linkset.

The tfatcabmlq parameter (**TFA/TCA** Broadcast Minimum **Link** Quantity), assigned to linksets, shows the minimum number of links in the given linkset (or in the combined link set in which it resides) that must be available for traffic. When the number of signaling links in the specified linkset is equal to or greater than the value of the tfatcabmlq parameter, the status of the routes that use the specified linkset is set to allowed and can carry traffic. Otherwise, these routes are restricted. The value of the tfatcabmlq parameter cannot exceed the total number of signaling links contained in the linkset.

If the linkset type of the linkset that contains the signaling link that is being removed is either A, B, D, E, or PRX, the signaling link can be removed regardless of the tfatcabmlq parameter value of the linkset and regardless of the tsrestarted option value. When a signaling link in one of these types of linksets is removed, the tfatcabmlq parameter value of the linkset is decreased automatically.

If the linkset type of the linkset that contains the signaling link that is being removed is C, the signaling link can be removed only:

- If the LSRESTRICT option is off. The LSRESTRICT option value is shown in the rtrv-ss7opts output.
- If the LSRESTRICT option is on and the number of signaling links assigned to the linkset will be equal to or greater than the value of the tfatcabmlq parameter value of the linkset after the signaling link is removed.

The tfatcabmlq parameter value of the linkset is shown in the TFATCABMLQ column of the rtrv-ls:lsn=<linkset name> output. The tfatcabmlq parameter value can be a fixed value (1 to 16) or 0. If the tfatcabmlq parameter value of the linkset is a fixed value, the number of signaling links that are in the linkset after the signaling link is removed must be equal to or greater than the tfatcabmlq parameter value of the linkset.

If the tfatcabmlq parameter value is 0, the signaling link can be removed. When the tfatcabmlq parameter value is 0, the value displayed in the TFATCABMLQ column of the rtrv-ls output is 1/2 of the number of signaling links contained in the linkset. If the number of signaling links in the linkset is an odd number, the tfatcabmlq parameter value is rounded up to the next whole number. As the signaling links are removed, the tfatcabmlq parameter value of the linkset is decreased automatically.

Canceling the RTRV-SLK Command

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



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

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

Display the current link configuration using the rtrv-slk command.
 This is an example of the possible output.

rlghn	cxa03v	v 09-07-19	21:16:	37 GMT I	EAGLE	5 41.1.	0		
					L2T			PCR	PCR
LOC	LINK	LSN	SLC	TYPE	SET	BPS	ECM	N1	N2
1201	A	ls01	0	LIMDS0	1	56000	BASIC		
1201	В	lsa1	0	LIMDS0	1	56000	BASIC		
1203	A	ls03	0	LIMDS0	3	56000	BASIC		
1203	В	lsa2	0	LIMDS0	1	56000	BASIC		
1204	В	ls01	1	LIMDS0	1	56000	BASIC		
1207	A	lsn1207a	0	LIMDS0	1	56000	BASIC		
1207	В	lsn1207b	0	LIMDS0	1	56000	BASIC		
1208	В	ls03	1	LIMDS0	3	56000	BASIC		
1213	В	ls05	0	LIMDS0	5	56000	BASIC		
1215	A	ls05	1	LIMDS0	5	56000	BASIC		
1311	A	ls01	2	LIMDS0	1	56000	BASIC		
1311	A1	ls05	2	LIMDS0	5	56000	BASIC		
1311	В	ls03	2	LIMDS0	3	56000	BASIC		
1311	В1	ls07	1	LIMDS0	7	56000	BASIC		
1313	A	ls07	0	LIMDS0	7	56000	BASIC		
					LP		ATM		
LOC	LINK	LSN	SLC	TYPE	SET	BPS	TSE:	L	VCI
VPI	$_{ m LL}$								
1302	A	atmansi0	0	LIMATM	3	154400	00 EXT	ERNAL	35
15	0								
1305	A	atmansi1	0	LIMATM	4	154400	00 INT	ERNAL	100
20	2								
1318	A	atmansi0	1	LIMATM	9	154400	00 LIN	Ξ	150
25	4								
					LP				
ATM			E1AT						
	LINK I	LSN	SLC T	YPE	SET	BPS	TSEL	VC]	I VPI
CRC4									
2101	A á	atmitu1	0 L	IME1ATM	5	2.048M	LINE	150) 2



```
ON
  1 20
2105 A
                 1 LIME1ATM 5
                               2.048M LINE
       atmitu1
                                             35
                                                 15
                                                     ON 2
LOC LINK LSN
                 SLC TYPE
                            IPLIML2
2202 A lsnlp1
                 0 IPLIM
                            M2PA
2205 A lsnip1
                  0 IPLIM
                            M2PA
2204 B lsnlp2
                  0 IPLIM M2PA
                  O IPLIMI M2PA
2213 A lsnip5
2215 A
       lsnlp2
                  1 IPLIM
                          M2PA
                 SLC TYPE
LOC LINK LSN
                0 SS7IPGW
2207 A
      lsnlp3
2211 A
        lsnlp4
                 0 IPGWI
SLK table is (27 of 1200) 2% full
```

2. Display the linkset that contains the signaling link that is being removed by entering the rtrv-ls command with the name of the linkset shown in the LSN column of the rtrv-slk output.

For this example, enter these commands.

```
rtrv-ls:lsn=lsnip1
```

rtrv-ls:lsn=lsnlp2

This is an example of the possible output.

rlghncxa03w 10-07-17 11:43:04 GMT EAGLE5 42.0.0

```
L3T SLT
                                              GWS GWS GWS
LSN
           APCA
                  (SS7) SCRN SET SET BEI LST LNKS ACT MES DIS SLSCI
NIS
lsnip1
           002-009-003 scr2 1 1
                                 no a 1
                                              on off on no
off
                                  TFATCABMLO MTPRSE ASL8
           SPCA
                       CLLI
         ----- 1
                                       no
                                                 no
         RANDSLS
         off
         ISLSRSB RSLS8
               no
         IPSG IPGWAPC GTTMODE
                                     CGGTMOD
                      CdPA
              no
                                      no
         LOC LINK SLC TYPE
                            IPLIML2
         2205 A
               0 IPLIM
                            M2PA
Link set table is (20 of 1024) 2% full
```



This is an example of the possible output.

rlghncxa03w 10-07-17 11:43:04 GMT EAGLE5 42.0.0 GWS GWS GWS L3T SLT LSN APCA (SS7) SCRN SET SET BEI LST LNKS ACT MES DIS SLSCI NIS lsnlp2 002-009-003 scr2 1 1 no a 2 on off on no off SPCA CLLI TFATCABMLQ MTPRSE ASL8 no RANDSLS off ISLSRSB RSLS8 no IPSG IPGWAPC GTTMODE CGGTMOD no CdPA no LOC LINK SLC TYPE IPLIML2 2204 B 0 IPLIM M2PA 2215 A 1 IPLIM M2PA Link set table is (20 of 1024) 2% full

If the linkset type of the linkset is A, B, D, E, or PRX, continue the procedure with 5.

If the linkset type of the linkset is C, continue the procedure with 3.

3. Display the LSRESTRICT option value by entering the rtrv-ss7opts command. This is an example of the possible output.

```
rlghncxa03w 10-07-30 15:09:00 GMT 42.0.0

SS7 OPTIONS

LSRESTRICT on
```

Note:

Thertry-feat command output contains other fields that are not used by this procedure. If you wish to see all the fields displayed by thertry-feat command, refer to the rtry-feat command description in Commands User's Guide.



The signaling link cannot be removed, if the LSRESTRICT option is on and the number of signaling links assigned to the linkset will be less than the value of the tfatcabmlq parameter value of the linkset if the signaling link is removed.

If the LSRESTRICT option is on and the number of signaling links assigned to the linkset will be equal to or greater than the value of the tfatcabmlq parameter value of the linkset if the signaling link is removed, continue the procedure with 5.

If the LSRESTRICT option is on and the number of signaling links assigned to the linkset will be less than the value of the tfatcabmlq parameter value of the linkset if the signaling link is removed, the signaling link cannot be removed unless the tfatcabmlq parameter value of the linkset is changed to 0. Continue the procedure with 4.

If the LSRESTRICT value is off, continue the procedure with 5.

4. Change the tfatcabmlq parameter value of the linkset to 0 by entering the chg-ls command with the name of the linkset that contains the signaling link that is being removed and the tfatcabmlq parameters. For this example, enter this command.

```
chg-ls:lsn=ls17:tfatcabmlg=0
```

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

```
rlghncxa03w 10-07-07 08:41:12 GMT EAGLE5 42.0.0

Link set table is (20 of 1024) 2% full.

CHG-LS: MASP A - COMPLTD
```

5. Display the **IP** link associated with the card that the signaling link being removed the database is assigned to.

Enter the rtrv-ip-lnk command with the card location of the signaling link being removed shown in 1. For this example, enter these commands. rtrv-ip-lnk:loc=2205

The following is an example of the possible output.

```
rtrv-ip-lnk:loc=2204
```

The following is an example of the possible output.



6. Display the **IP** host information associated with the **IP** link by entering the rtrv-ip-host command with the **IP** address shown in 5.

For this example, enter these commands.

```
rtrv-ip-host:ipaddr=192.001.001.010
```

The following is an example of the possible output.

```
rlghncxa03w 08-12-28 21:17:37 GMT EAGLE5 40.0.0
```

```
LOCAL IPADDR LOCAL HOST 192.1.1.10 IPNODE1 2204
```

IP Host table is (11 of 4096) .26% full

```
rtrv-ip-host:ipaddr=192.003.001.010
```

The following is an example of the possible output.

```
rlghncxa03w 08-12-28 21:17:37 GMT EAGLE5 40.0.0
```

```
LOCAL IPADDR LOCAL HOST 192.3.1.10 IPNODE1_2205
```

IP Host table is (11 of 4096) .26% full

7. Display the association associated with the local host name shown in 6 by entering the rtrv-assoc command.

For this example, enter this command.

```
rtrv-assoc:lhost=ipnode1 2204
```

This is an example of possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
```

CARD IPLNK

ANAME LOC PORT LINK ADAPTER LPORT RPORT OPEN ALW assoc1 2204 A A M2PA 1030 1030 YES YES

```
IP Appl Sock/Assoc table is (4 of 4000) 1% full Assoc Buffer Space Used (16 KB of 3200 KB) on LOC = 2204
```

```
rtrv-assoc:lhost=ipnode1_2205
```

This is an example of possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
```

IP Appl Sock/Assoc table is (4 of 4000) 1% full





If there are no associations assigned to the specified local host name, thertry-assoc output shows no association information as shown above.

8. Change the value of the open and alw parameters to no by specifying the chg-assoc command with the open=no and alw=no parameters, as necessary.



If there is no association shown in 7, or the open and alw parameter values of the association shown in 7 are no, continue the procedure with 9.

For this example, enter this command.

```
chg-assoc:aname=assoc1:open=no:alw=no
```

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

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 CHG-ASSOC: MASP A - COMPLTD;
```

 Deactivate the link to be removed using the dact-slk command, using the output from 1 to obtain the card location and link parameter value of the signaling link to be removed.

For this example, enter these commands.

```
dact-slk:loc=2205:link=a
dact-slk:loc=2204:link=a
```

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

```
rlghncxa03w 06-10-07 08:41:12 GMT EAGLE5 36.0.0 Deactivate Link message sent to card
```

10. Verify that the link is out of service - maintenance disabled (OOS-MT-DSBLD) using the rept-stat-slk command with the card location and link parameter values specified in 9.

For this example, enter these commands.

```
rept-stat-slk:loc=2205:link=a
```

This is an example of the possible output.

```
rlghncxa03w 06-10-23 13:06:25 GMT EAGLE5 36.0.0

SLK LSN CLLI PST SST AST

2205,A 1s05 1s05clli OOS-MT_DSBLD Unavail ----

ALARM STATUS = * 0235 REPT-LNK-MGTINH: local inhibited

UNAVAIL REASON = LI
```



```
rept-stat-slk:loc=2204:link=a
```

This is an example of the possible output.

```
rlghncxa03w 06-10-23 13:06:25 GMT EAGLE5 36.0.0

SLK LSN CLLI PST SST AST
2204,A 1s04 1s04clli OOS-MT Unavail ----
ALARM STATUS = * 0235 REPT-LNK-MGTINH: local inhibited
UNAVAIL REASON = LI
```

11. If the signaling link to be removed is the last signaling link on a card, the card must be inhibited before the signaling link is removed.



If the signaling link being removed is not the last signaling link on the card, continue the procedure with 13.

Before entering the dlt-slk command, enter the rmv-card command and specify the location of the card to be inhibited. The card location is shown in the output of rept-stat-slk command executed in 10.

In the example used for this procedure, the signaling link is the last signaling link on the card and must be inhibited. Enter these commands.

```
rmv-card:loc=2205
rmv-card:loc=2204
```

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

```
rlghncxa03w 06-10-07 08:41:12 GMT EAGLE5 36.0.0 Card has been inhibited.
```

12. Verify that the card has been inhibited by entering the rept-stat-card command with the card location specified in 11. For this example, enter these commands.

```
rept-stat-card:loc=2205
```

This is an example of the possible output.

```
rlghncxa03w 07-05-27 16:43:42 GMT EAGLE5 37.0.0
CARD VERSION
                 TYPE
                          GPL
                                   PST
                                                  SST
AST
2205
      114-001-000 DCM
                          IPLIM
                                    OOS-MT-DSBLD Isolated
                   = ** 0013 Card is isolated from the system
 ALARM STATUS
                   = 002-102-000
 BPDCM GPL
 IMT BUS A
                   = Disc
 IMT BUS B
                   = Disc
 SIGNALING LINK STATUS
                                                      E5IS
     SLK PST
                            LS
                                         CLLI
```



A OOS-MT lsnlp1 ----- INACTIVE

Command Completed.

rept-stat-card:loc=2204

This is an example of the possible output.

```
rlghncxa03w 07-05-27 16:43:42 GMT EAGLE5 37.0.0
CARD VERSION TYPE GPL PST
                                          SST
                                                   AST
2204 114-001-000 DCM
                     IPLIM OOS-MT-DSBLD Isolated
 ALARM STATUS = ** 0013 Card is isolated from the system
 BPDCM GPL
                = 002-102-000
 IMT BUS A
               = Disc
 IMT BUS B
               = Disc
 SIGNALING LINK STATUS
    SLK PST
                       LS
                                 CLLI
                                              E5IS
    A OOS-MT
                      lsnlp2
                                              INACTIVE
```

Command Completed.

13. Remove the signaling link from the **EAGLE** using the dlt-slk command.

If there is only one signaling link in the linkset, the force=yes parameter must be specified to remove the signaling link.

In the example used in this procedure, the signaling link is the last signaling link in the linkset. Enter these commands.

```
dlt-slk:loc=2205:link=a:force=yes
dlt-slk:loc=2204:link=a:force=yes
```

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

```
rlghncxa03w 06-10-07 08:41:17 GMT EAGLE5 36.0.0 DLT-SLK: MASP A - COMPLTD
```

Note:

If removing the signaling link will result in 700 or less signaling links in the database and the <code>OAMHCMEAS</code> value in the <code>rtrv-measopts</code> output is on, the scheduled UI measurement reports will be enabled.

14. Verify the changes using the rtrv-slk command with the card location and link values specified in 13. For this example, enter these commands.

```
rtrv-slk:loc=2205:link=a
rtrv-slk:loc=2204:link=a
```



When the rtrv-slk command has completed, the specified signaling link is not shown in the rtrv-slk output, as shown in this example.

```
rlghncxa03w 09-09-18 13:43:31 GMT EAGLE5 41.1.0 E2373 Cmd Rej: Link is unequipped in the database
```

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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

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

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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



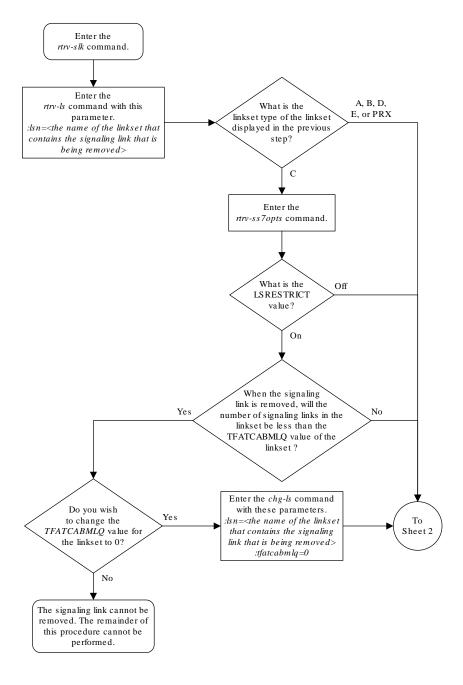
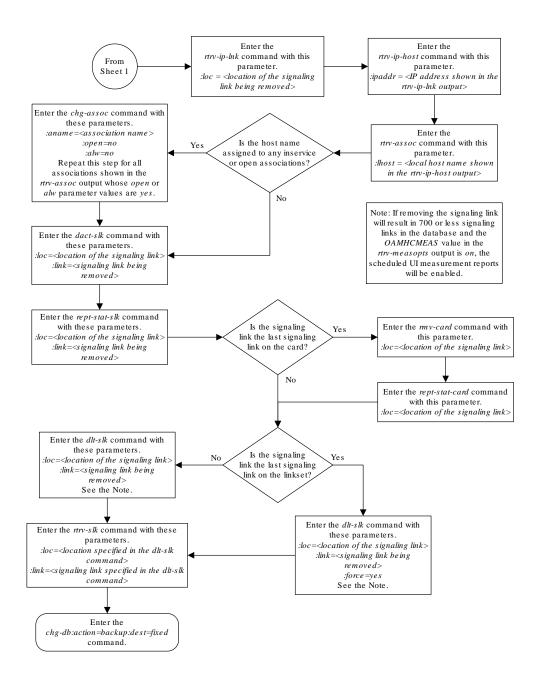


Figure 3-13 Removing an IPLIMx Signaling Link

Sheet 1 of 2





Sheet 2 of 2

Removing an IP Host Assigned to an IPLIMx Card

This procedure removes an IP host that is assigned to an IPLIMx card using the ${\tt dlt-ip-host}$ command.

The dlt-ip-host command uses the following parameter.

: host- Hostname. The hostname to be removed. This parameter identifies the logical name assigned to a device with an **IP** address.

No associations can reference the host name being removed in this procedure.

The associations referencing the host name can be removed by performing the Removing an M2PA Association procedure or the host name in these associations can be changed by performing the Changing the Host Values of a M2PA Association procedure. The host name assigned to associations is displayed in the rtrv-assoc outputs.

1. Display the current **IP** host information in the database by entering the rtrv-ip-host:display=all command.

The following is an example of the possible output.

```
rlghncxa03w 08-12-28 21:17:37 GMT EAGLE5 40.0.0
LOCAL IPADDR LOCAL HOST
192.1.1.10
             IPNODE1-1201
192.1.1.12
             IPNODE1-1203
192.1.1.14
             IPNODE1-1205
             IPNODE2-1201
192.1.1.20
192.1.1.22
            IPNODE2-1203
192.1.1.24
             IPNODE2-1205
192.1.1.30
             KC-HLR1
192.1.1.32
             KC-HLR2
192.1.1.50
             DN-MSC1
192.1.1.52
             DN-MSC2
192.3.3.33
            GW100. NC. TEKELEC. COM
REMOTE IPADDR REMOTE HOST
150.1.1.5 NCDEPTECONOMIC DEVELOPMENT. SOUTHEASTERN COORIDOR ASHVL.
GOV
IP Host table is (12 of 4096) .29% full
```

If the IP host that is being removed is a remote host, continue the procedure with 5.

If the IP host that is being removed is a local host, continue the procedure with 2.

2. Display the current link parameters associated with the **IP** card in the database by entering the rtrv-ip-lnk command. The following is an example of the possible output.

```
rlghncxa03w 08-12-28 21:14:37 GMT EAGLE5 40.0.0
   PORT IPADDR
LOC
             SUBMASK DUPLEX SPEED MACTYPE AUTO
MCAST
       192.1.1.10 255.255.255.128 HALF
1303 A
                                    10
                                        802.3
                                              NO
                                                 NO
1303 В
       ----- HALF
                                    10
                                        DIX
                                              NO
                                                 NO
                 255.255.255.0 ----
       192.1.1.12
1305 A
                                        DIX
                                              YES
                                                 NO
       ----- HALF
1305 B
                                    10
                                        DIX
                                              NO
                                                 NO
1313 A
       192.1.1.14 255.255.255.0 FULL
                                    100
                                        DIX
                                              NO
                                                 NO
       ----- HALF
1313 B
                                    10
                                        DIX
                                              NO
                                                 NO
2101 A
       192.1.1.20 255.255.255.0 FULL
                                    100
                                        DIX
                                              NO
                                                 NO
2101 B
       ----- HALF
                                    10
                                        DIX
                                              NO
                                                 NO
       192.1.1.22
                  255.255.255.0 FULL
2103 A
                                    100
                                        DIX
                                              NO
                                                 NO
2103 B
       ----- HALF
                                    10
                                        DIX
                                              NO
                                                 NO
```



NO NO	DIX
NO NO 2205 A 192.1.1.30 255.255.255.0 FULL 100	DIX
NO NO 2205 B HALF 10	DIX
NO NO 2207 A 192.1.1.32 255.255.255.0 FULL 100	DIX
NO NO	DIX
NO NO	
NO NO	DIX
2213 B HALF 10 NO NO	DIX
2301 A 192.1.1.52 255.255.255.0 FULL 100 NO NO	DIX
2301 B HALF 10	DIX
	DIX
2305 B HALF 10	DIX
NO NO	

IP-LNK table is (22 of 2048) 1% full.

3. Display the cards in the database using the rtrv-card command. This is an example of the possible output.

rlghncxa03w 09-05-28 09:12:36 GMT EAGLE5 41.0.0							
CARD	TYPE	APPL	LSET NAME	LINK	SLC	LSET NAME	
LINK S	LC						
1101	DSM	VSCCP					
1102	TSM	GLS					
1113	E5MCAP	EOAM					
1114	E5TDM-A						
1115	E5MCAP	EOAM					
1116	E5TDM-B						
1117	E5MDAL						
1201	LIMDS0	SS7ANSI	sp2	A	0	sp1	
В 0							
1203	LIMDS0	SS7ANSI	sp3	A	0		
1204	LIMDS0	SS7ANSI	sp3	A	1		
1206	LIMDS0	SS7ANSI	nsp3	A	1	nsp4	
В 1							
1301	LIMDS0	SS7ANSI	sp6	A	1	sp7	
В 0							
1302	LIMDS0	SS7ANSI	sp7	A	1	sp5	
В 1							
1303	DCM	IPLIM	ipnode1	A	0	ipnode3	
В 1							
1305	DCM	IPLIM	ipnode4	A	0		
1313	DCM	SS7IPGW	ipgtwy1	A	0		
2101	DCM	SS7IPGW	ipgtwy2	A	0		

2103	DCM	SS7IPGW	ipgtwy3	A	0			
2105	DCM	IPLIM	ipnode1	A1	1	ipnode5	В	2
2205	DCM	IPLIM	ipnode3	A2	0	ipnode6	В1	2
2207	DCM	IPLIM	ipnode5	A	0	ipnode4	В3	1
2213	DCM	IPLIM	ipnode5	A3	1	ipnode3	В2	2
2301	DCM	IPLIM	ipnode6	A	0	ipnode1	В	2
2305	DCM	IPLIM	ipnode6	A1	1	ipnode1	В1	3

Select an **IP** host whose **IP address** is assigned to a card running the **IPLIM** or **IPLIMI** application.

4. Display the associations referencing the host name being removed in this procedure by entering the rtrv-assoc command with the local host name.

For this example, enter this command.

```
rtrv-assoc:lhost=gw100.nc.tekelec.com
```

The following is an example of the possible output.

```
rlghncxa03w 06-10-28 21:14:37 GMT EAGLE5 36.0.0

CARD IPLNK

ANAME LOC PORT LINK ADAPTER LPORT RPORT OPEN ALW
a2 2305 A A M2PA 7205 7001 NO NO

IP Appl Sock/Assoc table is (4 of 4000) 1% full
Assoc Buffer Space Used (200 KB of 1600 KB) on LOC = 2305
```

If no associations referencing the host name being removed in this procedure are shown in this step, continue the procedure with 5.

Any associations referencing the host name must either be removed or the host name assigned to the association must be changed.

To remove the associations, perform the Removing an M2PA Association procedure.

Continue the procedure with 5 after the associations have been removed.

To change the host name assigned to the associations, perform the Changing the Host Values of a M2PA Association procedure.

Continue the procedure with 5 after the host name assigned to the associations have been changed.

5. Delete IP host information from the database by entering the dlt-ip-host command.

For example, enter this command.

```
dlt-ip-host:host=gw100.nc.tekelec.com
```

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

```
rlghncxa03w 06-10-28 21:19:37 GMT EAGLE5 36.0.0 DLT-IP-HOST: MASP A - COMPLTD
```

6. Verify the changes by entering the rtrv-ip-host command with the host name specified in 5.



For this example, enter this command.

```
rtrv-ip-host:host=gw100.nc.tekelec.com
```

The following is an example of the possible output.

```
rlghncxa03w 09-07-28 21:20:37 GMT EAGLE5 41.1.0

No matching entries found.

IP Host table is (10 of 4096) .24% full
```

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

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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

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

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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



Remote Host Enter the rtrv-ip-host Is the host Name command with this name shown a local host name or a remote parameter. :display=all host name? Local Host Name Enter the rtrv-ip-lnk command Enter the rtrv-assoc command with this parameter: :lhost=<host name being Enter the rtrv-card removed in this procedure> command Select an IP host that is assigned to an IPLIMx Is the host name No card. shown in the rtrv-assoc output? Yes Remove all the associations referencing Do you wish to the host name by Yes remove the performing the "Removing associations? an M2PA Association" procedure in this chapter. No Change the local host name for the associations referencing the host name being removed by performing the 'Changing the Host Values of an M2PA Association" procedure in this chapter. Enter the dlt-ip-host command with this parameter: $:host = < hostname\ being$ removed> Enter the rtrv-ip-host Enter the command with this parameter: chg-db:action=backup:dest=fixed :host = < hostname specifiedcommand in the dlt-ip-host command>

Figure 3-14 Removing an IP Host Assigned to an IPLIMx Card



Removing an IP Route

This procedure is used to remove an **IP** route from the database using the dlt-ip-rte command.

The dlt-ip-rte command uses these parameters.

:loc - The location of the IP card containing the IP route being removed.

: dest – The **IP** address of the remote host or network assigned to the **IP** route being removed.

: force — To remove the IP route, the IP card that the route is assigned to must be out of service, or the force=yes parameter must be specified with the dlt-ip-rte command. The force=yes parameter allows the IP route to be removed if the IP card is in service.



Caution:

Removing an **IP** route while the **IP** card is still in service can result in losing the ability to route outbound **IP** traffic on the **IP** card. This can cause both **TCP** and **SCTP** sessions on the **IP** card to be lost.

1. Display the IP routes in the database with the rtrv-ip-rte command.

This is an example of the possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
LOC
    DEST
                             GTWY
              SUBMASK
1212 132.10.175.20
                     255.255.0.0
                                   150.1.1.50
1301 128.252.10.5
1301 128.252.0.0
                     255.255.255.255 140.188.13.33
                     255.255.0.0 140.188.13.34
1301 150.10.1.1
                     255.255.255.255 140.190.15.3
1303 192.168.10.1
                     255.255.255.255 150.190.15.23
1303 192.168.0.0
                     255.255.255.0 150.190.15.24
```

IP Route table is (6 of 2048) 0.29% full

2. Verify the state of the IP card containing the IP route being removed by entering the rept-stat-card command and specifying the card location of the IP card.

The IP card should be in the out-of-service maintenance-disabled (OOS-MT-DSBLD) in order to remove the IP route. If the IP card's state is out-of-service maintenance-disabled, the entry OOS-MT-DSBLD is shown in the PST column of the rept-stat-card output. For this example, enter this command. rept-stat-card: loc=1301

This is an example of the possible output.

```
rlghncxa03w 06-10-27 17:00:36 GMT EAGLE5 36.0.0
CARD VERSION TYPE GPL PST SST AST
```



```
1301 114-000-000 DCM
                    IPLIM
                            IS-NR
                                        Active
 ALARM STATUS = No Alarms.
 BPDCM GPL
               = 002-102-000
 IMT BUS A
               = Conn
 IMT BUS B
              = Conn
 SIGNALING LINK STATUS
        PST
    SLK
                         LS
                                    CLLI
                       nc001
         IS-NR
    A
                                    -----
```

Command Completed.



If the output of 2 shows that the IP card's state is not OOS-MT-DSBLD, and you do not wish to change the state of the **IP** card, continue the procedure with

3. Change the IP card's state to OOS-MT-DSBLD using the inh-card command and specifying the card location of the IP card.

For this example, enter these commands.

inh-card:loc=1301

When this command has successfully completed, this message appears.

```
rlghncxa03w 06-10-12 09:12:36 GMT EAGLE5 36.0.0
Card has been inhibited.
```

4. Remove the IP route from the database using the dlt-ip-rte command.

If the state of the IP card is not OOS-MT-DSBLD, the force=yes parameter must be specified with the dlt-ip-rte command. For this example, enter this command. dlt-ip-rte:loc=1301:dest=128.252.0.0



Caution:

Removing an IP route while the IP card is still in service can result in losing the ability to route outbound IP traffic on the IP card. This can cause both TCP and **SCTP** sessions on the **IP** card to be lost.

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

```
rlghncxa03w 06-10-12 09:12:36 GMT EAGLE5 36.0.0
DLT-IP-RTE: MASP A - COMPLTD
```

5. Verify the changes using the rtrv-ip-rte command.

This is an example of the possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0

LOC DEST SUBMASK GTWY

1212 132.10.175.20 255.255.0.0 150.1.1.50

1301 128.252.10.5 255.255.255 140.188.13.33

1301 150.10.1.1 255.255.255.255 140.190.15.3

1303 192.168.10.1 255.255.255.255 150.190.15.23

1303 192.168.0.0 255.255.0.0 150.190.15.24

IP Route table is (5 of 2048) 0.24% full
```

6. Place the IP card back into service by using the alw-card command.



If the **IP** card containing the **IP** route that was removed from the database does not contain other **IP** routes, continue the procedure with 7.

For example, enter this command.

```
alw-card:loc=1301
```

This message should appear.

```
rlghncxa03w 06-10-28 21:22:37 GMT EAGLE5 36.0.0 Card has been allowed.
```

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

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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

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

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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



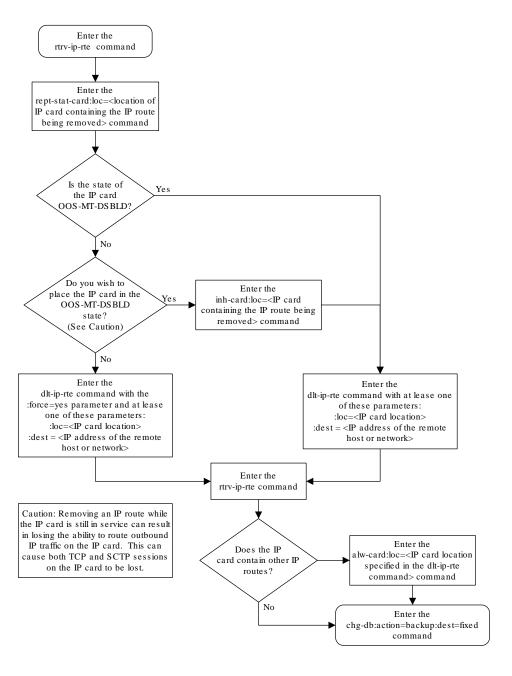


Figure 3-15 Removing an IP Route

Removing an M2PA Association

This procedure is used to remove an association from the database using the <code>dlt-assoc</code> command.

The dlt-assoc command uses one parameter, aname, the name of the association being removed from the database. The association being removed must be in the database.

The open parameter must be set to no before the association can be removed. Use the chg-assoc command to change the value of the open parameter.

The adapter value assigned to the association being removed in this procedure must be m2pa. The application assigned to the card that is hosting the M2PA association must be either IPLIM or IPLIMI. Perform the Removing an IPSG Association procedure to remove an M2PA association assigned to an IPSG card.

Canceling the RTRV-ASSOC Command

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

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

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

Display the associations in the database using the rtrv-assoc command.
 This is an example of possible output.

rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0

	CARD	IPLNK						
ANAME	LOC	PORT	LINK	ADAPTER	LPORT	RPORT	OPEN	ALW
swbel32	1201	A	A	M3UA	1030	2345	YES	YES
a2	1305	A	A	SUA	1030	2345	YES	YES
a3	1307	A	A	SUA	1030	2346	YES	YES
assoc1	1203	A	A1	M2PA	2048	1030	NO	NO

2. Enter the rtrv-card command with the location of the card that is hosting the M2PA association that will be removed in this procedure. For this example, enter this command.

rtrv-card:loc=1203



This is an example of possible output.

```
rlghncxa03w 08-03-06 15:17:20 EST EAGLE5 38.0.0
CARD TYPE APPL LSET NAME LINK SLC LSET NAME LINK SLC 1203 DCM IPLIM lsn1 A1 0
```

If the application assigned to the card is IPLIM or IPLIMI, shown in the \mathtt{APPL} column, continue the procedure with 3.

If the application assigned to the card is IPSG, perform the Removing an IPSG Association procedure.

3. Change the value of the open parameter to no by specifying the chg-assoc command with the open=no parameter.



If the value of theopen parameter for the association being removed from the database (shown in1) isno, continue this procedure with4.

For this example, enter this command.

```
chg-assoc:aname=assoc1:open=no
```

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

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 CHG-ASSOC: MASP A - COMPLTD;
```

4. Remove the association from the database using the dlt-assoc command.

For this example, enter this command.

```
dlt-assoc:aname=assoc1
```

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

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 DLT-ASSOC: MASP A - COMPLTD
```

5. Verify the changes using the rtrv-assoc command with the name of the association specified in 4.

For this example, enter this command.

```
rtrv-assoc:aname=assoc1
```

This is an example of possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
No matching entries found
```



```
IP Appl Sock table is (3 of 4000) 1% full
```

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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

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

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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



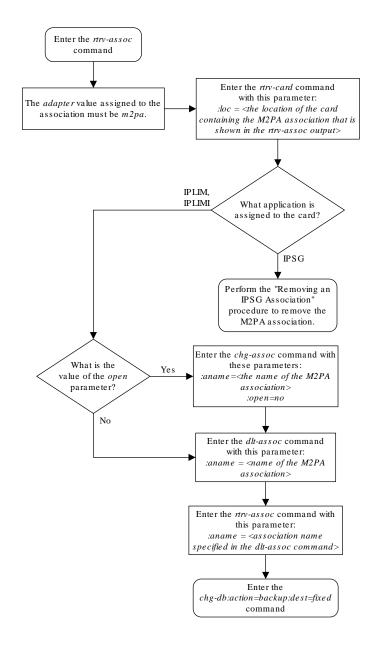


Figure 3-16 Removing an M2PA Association

Changing IETF M2PA Components

This section describes how to change the attributes of the following components in the database.

An M2PA Association – Perform these procedures.

- Changing the Attributes of an M2PA Association
- Changing the Buffer Size of a M2PA Association
- Changing the Host Values of a M2PA Association
- Changing the Link Value of a M2PA Association to another Link Value on the Same IPLIMx Card
- The SCTP retransmission parameters Perform the Changing the SCTP Checksum Algorithm Option for M2PA Associations procedure.
- A M2PA timer set Perform the Changing a M2PA Timer Set procedure.
- The **SCTP** Checksum Algorithm Perform the Changing the SCTP Checksum Algorithm Option for M2PA Associations procedure.
- Turn off the Large MSU Support for IP Signaling feature Perform the Turning Off the Large MSU Support for IP Signaling Feature procedure.

Changing the Attributes of an M2PA Association

This procedure is used to change the values of the attributes of an M2PA association, assigned to cards that are running the IPLIM or IPLIMI applications, using the chg-assoc command and the following parameters.

Table 3-7 Change M2PA Association Parameters

aname	lport	rhost	rport	open	alw
rmode	rmin	rmax	rtimes	cwmin	istrms
ostrms	m2patset	ver	rtxthr	rhosttype	rhostval

An M2PA association that is assigned to an IPLIMx signaling link can contain a UA parameter set value (the uaps parameter). While the uaps parameter value can be changed with the chg-assoc command, the uaps parameter value has no impact on the traffic carried by an M2PA association that is assigned to an IPLIMx signaling link. The uaps parameter value impacts M3UA or SUA associations that are assigned to IPGWx signaling links and M2PA and M3UA associations that are assigned to IPSG cards. The uaps parameter value is shown in the UAPS field in the rtrv-assoc output for an M2PA associations that is assigned to an IPLIMx signaling link.

If you wish to change the attributes of M2PA associations assigned to cards that are running the IPSG application, perform Changing the Attributes of an IPSG Association.

The chg-assoc command contains other parameters that are not used in this procedure. To change these parameters, perform these procedures.

- lhost and alhost Changing the Host Values of a M2PA Association
- link Changing the Link Value of a M2PA Association to another Link Value on the Same IPLIMx Card
- bufsize Changing the Buffer Size of a M2PA Association

: aname - The name assigned to the association, shown in the rtrv-assoc output.

:lport - The SCTP port number for the local host.



:rhost – The host name for the remote host, rhost can be any string of characters starting with a letter and comprising these characters ['a'..'z', 'A'..'Z', '0'..'9', '-', '.']. Hostnames are not case-sensitive and can contain up to 60 characters. The default value of this optional parameter is empty (null string).

:rport - The SCTP port number for the remote host.

:open – The connection state for this association. Valid values are yes or no. When the open=yes parameter is specified, the connection manager opens the association if the association is operational. When the open=no parameter is specified, the connection manager will not open the association.

: alw – The connection state for this association. Valid values are yes or no. When the alw=yes parameter is specified, the connection manager allows the association to carry **SS7** traffic. When the alw=no parameter is specified, the connection manager prohibits the association from carrying **SS7** traffic.

 $\verb|:rmode-The| retransmission policy used when packet loss is detected. The values are <math>\verb|rfc|$ or $\verb|lin|$.

- rfc Standard **RFC** 2960 algorithm in the retransmission delay doubles after each retransmission. The **RFC** 2960 standard for congestion control is also used.
- lin Oracle's linear retransmission policy where each retransmission timeout value is
 the same as the initial transmission timeout and only the slow start algorithm is used for
 congestion control.

: rmin - The minimum value of the calculated retransmission timeout in milliseconds, from 10 - 1000.

: rmax - The maximum value of the calculated retransmission timeout in milliseconds, from 10 - 1000.

:rtimes – The number of times a data retransmission will occur before closing the association from 3 - 12.

: cwmin – The minimum size in bytes of the association's congestion window and the initial size in bytes of the congestion window, from 1500 - 409600. The cwmin parameter value must be less than or equal to the size of the buffer used by the association, shown by the bufsize parameter value. If the buffer size for the association needs to be changed, perform Changing the Buffer Size of a M2PA Association.

The rmode, rmin, rmax, rtimes, and cwmin parameters are used to configure the SCTP retransmission controls for an association, in addition to other commands. Perform Configuring SCTP Retransmission Control for a M2PA Association to configure the SCTP retransmission controls for an association.

:istrms – The number of inbound streams (1 or 2) advertised by the **SCTP** layer for the association.

:ostrms – The number of outbound streams (1 or 2) advertised by the **SCTP** layer for the association.

:m2patset — The M2PA timer set assigned to the association. The m2patset parameter can be specified only with the adapter=m2pa parameter, or if the association already has the adapter=m2pa parameter assigned and the adapter parameter value is not being changed. If the adapter parameter value is being changed to m2pa, and the m2patset parameter is not specified, the default value for the m2patset parameter (1 - M2PA timer set



1) is assigned to the association. If the adapter parameter value for the association is m2pa, is not being changed, and the m2patset parameter is not specified with the chg-assoc command, the m2patset parameter value is not changed.

:ver – The M2PA version assigned to the M2PA association, either the RFC version (ver=rfc), or the Draft 6 version (ver=d6). The ver parameter can be specified only if, when this procedure is completed, the adapter parameter value is m2pa. If the adapter parameter value is being changed to m2pa, and the ver parameter is not specified, the default M2PA version of RFC is assigned to the association. To change the ver parameter value, the open parameter value for the association must be no.

:rtxthr -The retransmission threshold for the association. The RTXTHR parameter value indicates the number of packet re-transmissions that can occur on the association (per monitoring time period of 2 seconds). Alarm "IP Connection Excess Retransmits" (UAM 536) will be raised if the number of packets re-transmitted is greater than the configured RTXTHR parameter value, during 5 such consecutive monitoring periods. Once alarm is raised, it may require up to 12 consecutive monitoring periods with the number of re-transmissions < RTXTHR to clear the alarm. The design allows the alarm to come on at low error rates, and not come for occasional errors.

The value of this parameter is 0 to 65,535. The value of this parameter is shown in the RTXTHR field of the rtrv-assoc:aname=<association name> output. The rtxthr parameter value can be changed if the open parameter value is either "yes" or "no". It is possible to configure the RTXTHR so that UAM 536 alarms if the error rate on association is above the recommended maximum packet loss of 0.025%. If the error rate is more than 0.025%, investigate to determine if this can be improved in the network.

:rhosttype — The type of remote host assigned to the association, primary or alternate. The primary remote host is shown in the RHOST field of the rtrv-assoc:aname=<association name> output. The alternate remote host is shown in the ARHOST field of the rtrv-assoc:aname=<association name> output.

An alternate remote host can be configured for multi-homed associations using the rhost and rhosttype parameters of the chg-assoc command. The rhost parameter value with the rhostype=primary parameter represents an IP address that corresponds to one of the network interfaces at the remote end while the rhost parameter value with the rhostype=alternate parameter represents an IP address that corresponds to the other network interface at the remote end.

:rhostval - The validation mode used for the association when an SCTP INIT/INIT-ACK message is received. The value of this parameter is shown in the RHOSTVAL field of the rtrv-assoc:aname=<association name> output. This parameter has two values.

- relaxed accept the message if the IP address for the primary or alternate remote host matches the IP address, source IP address, or the host name in the message.
- match accept the message if the message contains the primary remote host value and the alternate remote host value (if the alternate remote host is provisioned). If the alternate remote host is not provisioned, then accept the message if the message contains the primary remote host value. Reject the message if it contains any IP address other than that of the primary or alternate remote host.



Refer to the chg-assoc command description in *Commands User's Guide* for more information about this parameter.

If the value of the open parameter is yes, only the value of the alw, and rtxthr parameters can be changed. To change the values of other parameters, the value of the open parameter must be no.

To set the open parameter value to yes, the association specified by the aname parameter must contain values for the lhost, lport, rhost, and rport parameters. The lhost parameter value must have a signaling link assigned to it.

At least one optional parameter is required.

The command input is limited to 150 characters, including the hostnames.

The value of the rmin parameter must be less than or equal to the rmax parameter value.

The ipliml2 parameter value of the signaling link assigned to the association must be m2pa. The adapter parameter value of the association must match the ipliml2 parameter value.

The signaling link being assigned to the association must be out of service. This state is shown in the rept-stat-slk output with the entries cos-MT in the PST field and Unavail in the SST field.

If the association is being opened in this procedure with the chg-assoc command and the open=yes parameter, the signaling link assigned to the association must be in the database and the iplim12 parameter value of the signaling link assigned to the association must be m2pa.

Canceling the RTRV-ASSOC Command

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

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

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

Display the associations in the database using the rtrv-assoc command.
 This is an example of possible output.

rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0



	CARD	IPLNK						
ANAME	LOC	PORT	LINK	ADAPTER	LPORT	RPORT	OPEN	ALW
swbel32	1201	A	A	M3UA	1030	2345	YES	YES
a2	1305	A	A	SUA	1030	2345	YES	YES
a3	1307	A	A	SUA	1030	2346	YES	YES
assoc1	1201	A	A	M3UA	2000	1030	YES	YES
assoc2	1205	A	A	M2PA	2048	2048	YES	YES
assoc3	1205	A	В2	M2PA	3000	3000	YES	YES
assoc5	1205	A	A3	M2PA	1500	3000	YES	YES

2. Enter the rtrv-card command with the location of the card that is hosting the M2PA association that will be changed in this procedure. For this example, enter this command.

```
rtrv-card:loc=1205
```

This is an example of possible output.

```
rlghncxa03w 08-04-06 15:17:20 EST EAGLE5 38.0.0

CARD TYPE APPL LSET NAME LINK SLC LSET NAME LINK SLC 1205 DCM IPLIM e5e6a A 0 e5e6a B2 1 e5e6a A3 2
```

If the application assigned to the card is IPLIM or IPLIMI, shown in the APPL column, and the values of any of these parameters are being changed: lport, rhost, rport, rmode, rmin, rmax, rtimes, cwmin, istrms, ostrms, ver, Or m2patset, continue the procedure by performing one of these steps.

- If the open parameter value for the association is yes, continue the procedure with 3.
- If the open parameter value for the association is no, continue the procedure with 4

If the application assigned to the card is IPLIM or IPLIMI, shown in the APPL column, and only the values of the alw, open, rtxthr parameters are being changed, continue the procedure by performing one of these steps.

- If only the values of the alw parameter is being changed, or the open parameter value is being changed to no, continue the procedure with 9.
- If the value of the rtxthr parameter is being changed, continue the procedure with 4.
- If the value of the open parameter value is being changed to yes, a signaling link must be assigned to the card shown in this step. If a signaling links is assigned to the card, entries are shown in the LSET NAME and LINK columns of the rtrv-card output. If a signaling link is assigned to the card, perform one of these actions.
 - If only the alw parameter is being specified with the open=yes parameter, continue the procedure with 9.
 - If the value of the rtxthr parameter is being changed, continue the procedure with 4.
- If the value of the open parameter value is being changed to yes and a signaling link is not assigned to the card, performAdding an IPLIMx Signaling



Link to assign an IPLIMx signaling link to the card. After the signaling link has been added, perform one of these actions.

- If only the alw parameter is being specified with the open=yes parameter, continue the procedure with 9.
- If the value of the rtxthr parameter is being changed, continue the procedure with 4.

If the application assigned to the card is IPSG, perform Changing the Attributes of an IPSG Association.

3. Change the value of the open parameter to no by specifying the chg-assoc command with the open=no parameter.

For this example, enter this command.

```
chg-assoc:aname=assoc2:open=no
```

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

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 CHG-ASSOC: MASP A - COMPLTD;
```

4. Display the association being changed by entering the rtrv-assoc command with the aname parameter specified in 3 or selected in 1.

For this example, enter this command.

```
rtrv-assoc:aname=assoc2
```

This is an example of the possible output.

```
rlghncxa03w 10-07-28 21:14:37 GMT EAGLE5 42.0.0
ANAME assoc2
     LOC
           1205
                        IPLNK PORT A
                                           LINK A
     ADAPTER M2PA
                        VER M2PA RFC
     LHOST IPNODE2-1205
     ALHOST ---
     RHOST remotehost1
     ARHOST ---
     LPORT 2048
                    RPORT
                                  2048
     ISTRMS 2
                       OSTRMS
                                  2
                                            BUFSIZE 400
     RMODE
            LIN
                        RMIN
                                  120
                                            RMAX
                                                   800
     RTIMES 10
                                  3000
                        CWMIN
                                            UAPS
                                                   10
     OPEN
           NO
                        ALW
                                  YES
                                            RTXTHR
                                                   2000
     RHOSTVAL RELAXED
                        M2PATSET
                                  1
```

```
IP Appl Sock/Assoc table is (8 of 4000) 1% full Assoc Buffer Space Used (1600 KB of 1600 KB) on LOC = 1205
```

Continue the procedure by performing one of these actions.

- If the cwmin and m2patset parameters will not be specified in this procedure, continue the procedure with 7.
- If the cwmin parameter will be be specified in this procedure, continue the procedure with 5.



- If the m2patset parameter will be be specified in this procedure, but the cwmin parameter will not be specified in this procedure, continue the procedure with 6.
- 5. To change the cwmin value, the new cwmin parameter value must be less than or equal to the bufsize parameter value.

The cwmin parameter is the number if bytes specified for the association's congestion window. The bufsize is the number of kilobytes specified for the size of the association's buffer. To determine whether or not the cwmin value is less than or equal to the bufsize value, perform one of these actions.

- Multiply the bufsize value by 1024.
- Divide the cwmin value by 1024.

Continue the procedure by performing one of these actions.

- If the new cwmin value is less than or equal to the bufsize value, and the m2patset parameter will be specified in this procedure, continue the procedure with 6.
- If the new cwmin value is less than or equal to the bufsize value, and the m2patset parameter will not be specified in this procedure, continue the procedure with 7.
- If the new cwmin value is not less than or equal to the bufsize value, either choose another value for the cwmin parameter that is less than or equal to the bufsize value, or perform to change the bufsize value so that the bufsize value is greater than or equal to the cwmin value. After the new cwmin value has been chosen or the bufsize value has been changed, continue the procedure by performing one of these actions.
 - If the m2patset parameter will be specified in this procedure, continue the procedure with 6.
 - If the m2patset parameter will not be specified in this procedure, continue the procedure with 7.
- 6. Verify the values of the M2PA timer set you wish to assign to the association by entering the rtrv-m2pa-tset command with the M2PA version (either ver=rfc to display the RFCM2PA timer values or ver=d6 to display the Draft 6 M2PA timer values) of the timer set you wish to assign to the association.

If the ver parameter is not specified with the rtrv-m2pa-tset command, both the RFC and Draft 6 timer values are displayed.

To display the **M2PA** Draft 6 timer values, enter this command.

```
rtrv-m2pa-tset:ver=d6
```

This is an example of the possible output.



```
3
     100000 ----- 2000 3000
                               500
                                     4000
                                           1500 500
                                                      170000 200
                                                                   800
     200000 ----- 20000 4000
                               500
                                     6000
                                           2000 700
                                                      480000 225
                                                                   900
4
5
     250000 ----- 30000 30000 500
                                     100
                                           2250 400
                                                      400000 400
                                                                   8000
     50000
           ---- 50000 60000 500
                                     500
                                                                   7000
6
                                           4500 800
                                                      300000 300
7
     10000
            ----- 10000 10000 500
                                     1000
                                           3000 1200
                                                      200000 250
8
     80000
            ---- 1500
                        15000 500
                                     8000
                                           2750 1100
                                                      350000 350
                                                                   5000
9
     27500
            ---- 3850
                         4859
                               450
                                     5700
                                           3750 1150
                                                      250
                                                              375
                                                                   8750
     90000
            ---- 2500
                         50000 500
                                           5000 1750
                                                                   3000
10
                                     7500
                                                      440000 450
     20000
           ---- 4500
                         5500
                               500
                                     6500
                                           5500 1600
                                                      250000 475
                                                                   4500
11
12
     30000
            ---- 7500
                         7000
                               500
                                     750
                                           4250 1800
                                                      275000 275
                                                                   3500
13
     40000
           ---- 35000 9000
                               500
                                     1250
                                           3500 1900
                                                      500
                                                              325
                                                                   9000
14
     70000
           ----- 45000 11000 500
                                     1500
                                           1750 900
                                                      1000
                                                              125
                                                                   6000
15
     9000
            ----- 25000 40000 500
                                     2500
                                           3250 600
                                                      5000
                                                              425
                                                                   5500
16
     75000
           ---- 15000 25000 500
                                     4500
                                          1600 1400
                                                      6000
                                                              240
                                                                   9500
17
     350000 ----- 60000 70000 600
                                     10000 6000 2000
                                                      500000 500
                                                                   10000
                                     3500
                                           5750 1500
18
     150000 ----- 55000 35000 500
                                                      125000 440
                                                                   750
19
     175000 ----- 12500 45000 500
                                     1100
                                           2600 1300
                                                      7000
                                                                   850
                                                              340
20
     1000
            ----- 1000 1000
                               400
                                     80
                                           1000 200
                                                      100
                                                              100
                                                                   100
```

To display the M2PARFC values, enter this command.

rtrv-m2pa-tset:ver=rfc

This is an example of the possible output.

```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0
```

M2PA RFC Timers (in msec, T16 in microsec)

```
TSET T1
            Т2
                    Т3
                          T4N
                                T4E
                                     Т5
                                            Τ6
                                                 Т7
                                                        T16
                                                               T17
                                                                    T18
     6000
            75000
                    5000
                          20000 500
                                      5000
                                            4000 1000
                                                       100000 150
                                                                     500
1
2
     7500
            8000
                    1500
                          2000
                                500
                                      9000
                                            1250 300
                                                        150000 175
                                                                     600
     100000 10000 2000
                          3000
                                            1500 500
3
                                500
                                      4000
                                                        170000 200
                                                                    800
4
     200000 6000
                    20000 4000
                                500
                                      6000
                                            2000 700
                                                        480000 225
                                                                    900
5
     250000 140000 30000 30000 500
                                      100
                                            2250 400
                                                        400000 400
                                                                    8000
6
     50000 100000 50000 60000 500
                                      500
                                            4500 800
                                                        300000 300
7
     300000 20000 2000
                                            3000 1200
                          10000 500
                                      1000
                                                       200000 250
                                                                    1000
     80000
           130000 1500
                          15000 500
                                      8000
                                            2750 1100
                                                                    5000
8
                                                        350000 350
     27500
           120000 3850
                                                                    8750
9
                          4859
                                450
                                      5700
                                            3750 1150
                                                        250
                                                               375
10
     90000
            9000
                    2500
                          50000 500
                                      7500
                                            5000 1750
                                                        440000 450
                                                                    3000
11
     20000
            60000 4500
                          5500
                                500
                                      6500
                                            5500 1600
                                                        250000 475
                                                                    4500
12
     30000
            50000
                   7500
                          7000
                                500
                                      750
                                            4250 1800
                                                        275000 275
                                                                    3500
            90000
13
     40000
                    35000 9000
                                500
                                      1250
                                            3500 1900
                                                        500
                                                               325
                                                                    9000
     70000
            45000
                   45000 11000 500
                                      1500
                                            1750 900
14
                                                        1000
                                                               125
                                                                    6000
15
     9000
            30000
                    25000 40000 500
                                      2500
                                            3250 600
                                                        5000
                                                               425
                                                                    5500
16
     75000 15000 15000 25000 500
                                      4500 1600 1400
                                                        6000
                                                               240
                                                                    9500
17
     350000 150000 60000 70000 600
                                      10000 6000 2000
                                                        500000 500
                                                                    10000
     150000 20000
                    55000 35000 500
                                      3500
                                            5750 1500
                                                                    750
18
                                                        125000 440
                   12500 45000 500
     175000 12500
                                            2600 1300
                                                        7000
19
                                      1100
                                                               340
                                                                    850
20
     1000
            5000
                    1000 1000
                                400
                                      80
                                            1000 200
                                                        100
                                                               100
                                                                    100
```

If the ver parameter is not specified when entering the rtrv-m2pa-tset command, both the Draft 6 and **RFC** values are displayed. This is an example of the possible output.

rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0

M2PA Draft 6 Timers (in msec, T16 in microsec)

MZPA	Drait (Timers	s (ln n	nsec,	LTO II	n micro	osec)				
TSET 1 2 3 4 5 8000	6000 7500 100000 200000	T2 	1500 2000 20000		500 500 500	T5 5000 9000 4000 6000 100	T6 4000 1250 1500 2000 2250	500 700	T16 100000 150000 170000 480000 400000	175 200 225	T18 500 600 800 900
6 7000	50000		50000	60000	500	500	4500	800	300000	300	
7	10000		10000	10000	500	1000	3000	1200	200000	250	
8 5000	80000		1500	15000	500	8000	2750	1100	350000	350	
9 8750	27500		3850	4859	450	5700	3750	1150	250	375	
10 3000	90000		2500	50000	500	7500	5000	1750	440000	450	
11 4500	20000		4500	5500	500	6500	5500	1600	250000	475	
12 3500	30000		7500	7000	500	750	4250	1800	275000	275	
13 9000	40000		35000	9000	500	1250	3500	1900	500	325	
14 6000	70000		45000	11000	500	1500	1750	900	1000	125	
15 5500	9000		25000	40000	500	2500	3250	600	5000	425	
16 9500	75000		15000	25000	500	4500	1600	1400	6000	240	
17 10000			60000	70000	600	10000	6000	2000	500000	500	
18	150000		55000	35000	500	3500	5750	1500	125000	440	750
19	175000		12500	45000	500	1100	2600	1300	7000	340	850
20	1000		1000	1000	400	80	1000	200	100	100	100
M2PA	RFC Tir	mers (ir	n msec,	T16	in mid	crosec)				
TSET	Т1	Т2	Т3	T4N	T4E	Т5	Т6	Т7	T16	T17	T18
1	6000	75000	5000	20000	500	5000		1000	100000	150	500
2	7500	8000	1500	2000	500	9000	1250		150000		600
3		10000	2000	3000	500	4000	1500		170000		800
4	200000		20000		500	6000	2000		480000		900
5		140000				100	2250		400000		200
8000	230000	T40000	30000	50000	500	IUU	2230	400	400000	4 U U	
6 7000	50000	100000	50000	60000	500	500	4500	800	300000	300	

```
7
    300000 20000 2000 10000 500 1000
                                     3000 1200 200000 250
                                                          1000
    80000 130000 1500 15000 500 8000 2750 1100 350000 350 5000
8
9
    27500 120000 3850 4859 450
                                5700 3750 1150 250
                                                      375
                                                          8750
10
    90000 9000
                2500 50000 500 7500 5000 1750 440000 450 3000
11
    20000 60000 4500 5500 500 6500 5500 1600 250000 475 4500
12
    30000 50000 7500 7000 500 750
                                     4250 1800 275000 275
                                                          3500
    40000 90000 35000 9000 500 1250 3500 1900 500
13
                                                      325
                                                          9000
14
    70000 45000 45000 11000 500 1500 1750 900
                                               1000
                                                     125 6000
15
    9000
          30000 25000 40000 500 2500 3250 600
                                               5000
                                                      425 5500
    75000 15000 15000 25000 500 4500 1600 1400 6000
16
                                                      240 9500
17
    350000 150000 60000 70000 600 10000 6000 2000 500000 500 10000
18
   150000 20000 55000 35000 500 3500 5750 1500 125000 440 750
    175000 12500 12500 45000 500 1100 2600 1300 7000
19
                                                      340 850
20
    1000
          5000 1000 1000 400 80
                                     1000 200
                                               100
                                                      100 100
```

If the M2PA timer set you wish to assign to the association does not contain the desired values, performChanging a M2PA Timer Set to change the desired timer values.



Caution:

Changing an M2PA timer set may affect the performance of any associations using the timer set being changed.

7. The remote hosts assigned to the association can be changed by specifying the rhost and rhosttype parameters with the chg-assoc command.

If the primary and alternate remote hosts are not being changed in this procedure, or if only the primary remote host is being changed, continue the procedure with 9.

To change the alternate remote host value for the association, the association must have a primary remote host assigned to it. If the association has a primary remote host, continue the procedure with 9. If the association does not have a primary remote host, continue the procedure with 8.

8. Assign a primary remote host to the association by entering the chg-assoc command with the name of the association and the primary remote host name.

For this example, enter this command.

```
chg-assoc:aname=assoc2:rhost="gw200.nc-Oracle.com"
```

The rhosttype=primary parameter can be specified with the chg-assoc command, but is not necessary.

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

```
rlghncxa03w 09-05-28 09:12:36 GMT EAGLE5 41.0.0
CHG-ASSOC: MASP A - COMPLTD;
```

9. Change the association using the chg-assoc command.

For this example, enter this command.

```
chg-assoc:aname=assoc2:rhost="gw200.nc-
Oracle.com":rport=3000 :rtxthr=10000:rhostval=match
```



If an alternate remote host is being specified for the association, for this example enter this command.

```
chg-assoc:aname=assoc2:rhost="gw210.nc-
Oracle.com":rhosttype=alternate:rport=3000 :rtxthr=10000:rho
stval=match
```

If only the alw, open, or rtxthr parameter values are being changed in this step, for this example, enter this command.

```
chg-assoc:aname=assoc2:alw=no:open=yes:rtxthr=10000
```

These are the rules that apply to changing the attributes of M2PA associations that are assigned to IPLIMx signaling links.

- If any optional parameters are not specified with the chg-assoc command, those values are not changed.
- The value of the rhost parameter is a text string of up to 60 characters, with the first character being a letter. The command input is limited to 150 characters, including the hostname.
- If the value of the open parameter is yes, only the values of the alw and rtxthr parameters can be changed. To change the values of the other parameters, the value of the open parameter must be no.
- The value of the rmin parameter must be less than or equal to the rmax parameter value.
- The M2PA version of the association determines the version of the M2PA timer set that is assigned to the association. For example, if M2PA timer set 3 is assigned to the M2PA association, and the association is an RFC M2PA association, the RFC version of M2PA timer set 3 is used with the association. If M2PA timer set 7 is assigned to the M2PA association, and the association is a Draft 6 M2PA association, the Draft 6 version of M2PA timer set 7 is used with the association.

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

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 CHG-ASSOC: MASP A - COMPLTD;
```

If the value of the open parameter was not changed in 3, continue the procedure with Oracle.

10. Change the value of the open parameter to yes by specifying the chg-assoc command with the open=yes parameter.

For this example, enter this command.

```
chg-assoc:aname=assoc2:open=yes
```

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

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 CHG-ASSOC: MASP A - COMPLTD;
```



11. Verify the changes using the rtrv-assoc command specifying the association name specified in 9 and 10.

For this example, enter this command.

```
rtrv-assoc:aname=assoc2
```

This is an example of possible output.

```
rlghncxa03w 10-07-28 21:14:37 GMT EAGLE5 42.0.0
ANAME assoc2
                                            LINK A
     LOC
             1205
                         IPLNK PORT A
      ADAPTER M2PA
                         VER M2PA RFC
     LHOST IPNODE2-1205
     ALHOST ---
      RHOST gw200.nc-Oracle.com
      ARHOST gw210.nc-Oracle.com
     LPORT 2048
                                    3000
                        RPORT
     ISTRMS 2
                         OSTRMS
                                    2
                                              BUFSIZE 400
     RMODE LIN
                        RMIN
                                   120
                                              RMAX
                                                      800
                                    3000
      RTIMES 10
                         CWMIN
                                              UAPS
                                                      10
            YES
                         ALW
                                    NO
                                              RTXTHR
                                                      10000
      OPEN
     RHOSTVAL MATCH
                         M2PATSET
                                    1
IP Appl Sock/Assoc table is (8 of 4000) 1% full
```

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

Assoc Buffer Space Used (1600 KB of 1600 KB) on LOC = 1205

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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

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

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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

If you wish to change the lhost, alhost, bufsize, or link values of the M2PA association, perform one of these procedures.

- lhost and alhost Changing the Host Values of a M2PA Association
- bufsize Changing the Buffer Size of a M2PA Association
- link Changing the Link Value of a M2PA Association to another Link Value on the Same IPLIMx Card

If you do not wish to change the <code>lhost</code>, <code>alhost</code>, <code>bufsize</code>, or <code>link</code> values of the M2PA association, this procedure is finished.



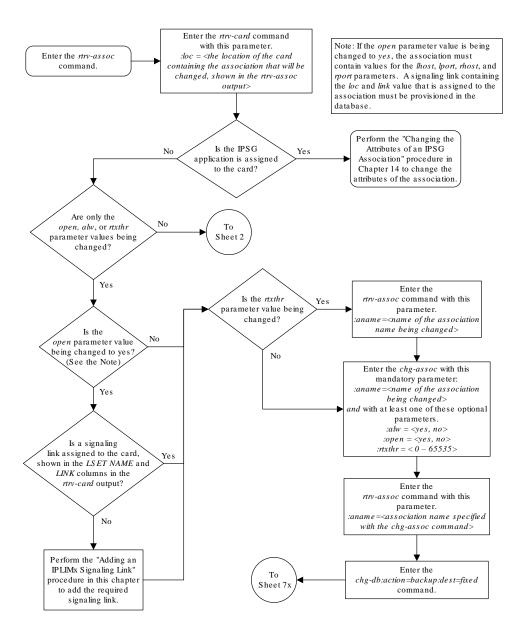
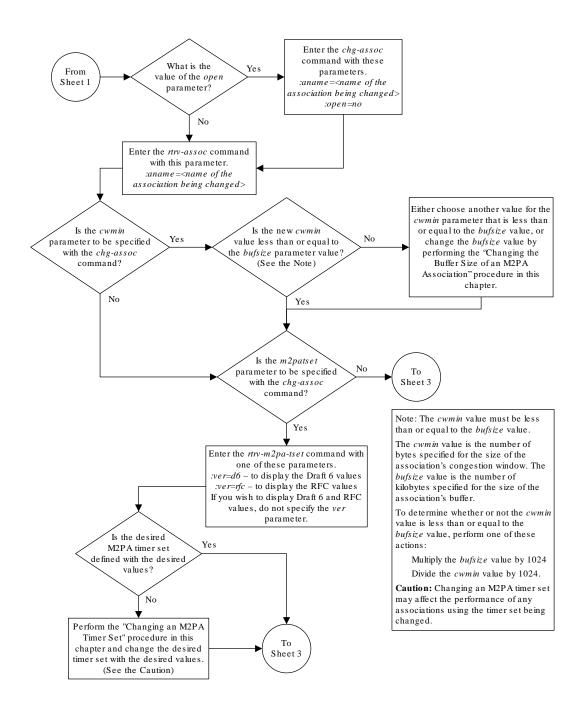
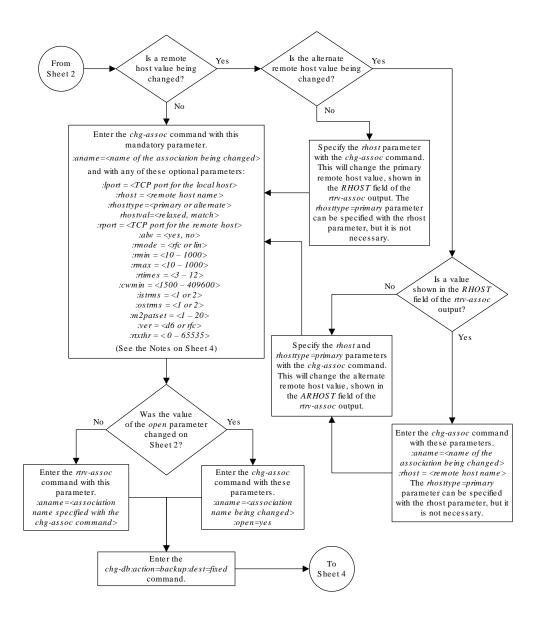


Figure 3-17 Changing the Attributes of an M2PA Association

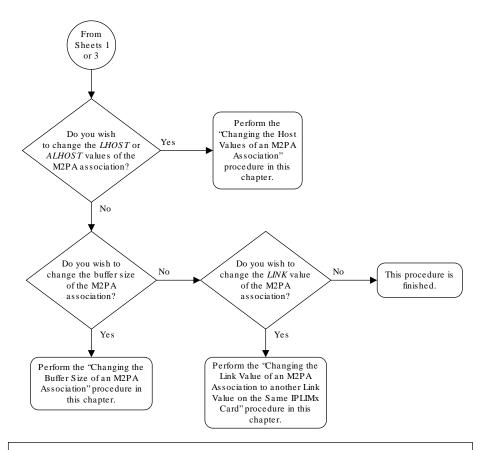
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Note s:

- 1. If any optional parameters are not specified with the chg-assoc command, those values are not changed.
- 2. The value of the *rhost* parameter is a text string of up to 60 characters, with the first character being a letter. The command input is limited to 150 characters, including the hostname.
- 3. If the value of the *open* parameter is *yes*, only the values of the *alw* and *nxthr* parameters can be changed. To change the values of the other parameters, the value of the *open* parameter must be *no*.
- 4. The value of the min parameter must be less than or equal to the max parameter value.
- 5. The M2PA version of the association determines the version of the M2PA timer set that is assigned to the association. For example, if M2PA timer set 3 is assigned to the M2PA association, and the association is an RFC M2PA association, the RFC version of M2PA timer set 3 is used with the association. If M2PA timer set 7 is assigned to the M2PA association, and the association is a Draft 6 M2PA association, the Draft 6 version of M2PA timer set 7 is used with the association.

Sheet 4 of 4

Changing the Buffer Size of a M2PA Association

This procedure is used to change the buffer size of a M2PA association, assigned to cards that are running the IPLIM or IPLIMI applications, using the <code>chg-assoc</code> command. If you wish to change the buffer size of M2PA associations assigned to cards that are running the IPSG application, perform the Changing the Buffer Size of an IPSG Association procedure.

These parameters of the chg-assoc command are used in this procedure:

: aname - The name assigned to the association, shown in the rtrv-assoc output.

: open – The connection state for this association. Valid values are yes or no. When the open=yes parameter is specified, the connection manager opens the association if the association is operational. When the open=no parameter is specified, the connection manager will not open the association.

:bufsize – The size, in kilobytes, of the buffer used by the association. The values for this parameter are 8 kilobytes to 400 kilobytes. The maximum size of the buffers on the E5-ENET cards are shown in the following list.

E5-ENET Card - 3200 KB

The size of the buffers assigned to each association that is assigned to the **IP** card cannot exceed the maximum buffer size for that card. If the bufsize parameter value causes the total buffer size for all the associations on the **IP** card to exceed the maximum buffer size for that **IP** card, the chg-assoc command will be rejected. The available size of the buffers on the **IP** card can be verified by entering this command.

rtrv-assoc:lhost=<local host name assigned to the association
being changed>

The alhost parameter can also be used with the rtrv-assoc command to display the available size of the buffers on the **IP** card.

The aname parameter can be used with the rtrv-assoc command to display the available size of the buffers on the **IP** card and the size of the buffer assigned to the association.

If you wish to increase the buffer size for this association to a value that is greater than available buffer size for the card, the buffer size of the other associations assigned to the card must be decreased.

The chg-assoc command contains other parameters that are not used this procedure. To change these parameters, perform these procedures.

- lhost and alhost Changing the Host Values of a M2PA Association
- link Changing the Link Value of a M2PA Association to another Link Value on the Same IPLIMx Card
- Other attributes of the M2PA Association Changing the Attributes of an M2PA Association

Canceling the RTRV-ASSOC Command

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

- Press the F9 function key on the keyboard at the terminal where the rtrv-assoc command was entered.
- Enter the canc-cmd without the trm parameter at the terminal where the rtrv-assoc command was entered.
- Enter the canc-cmd: trm=<xx>, where <xx> is the terminal where the rtrv-assoc command was entered, from another terminal other that the terminal where



the rtrv-assoc command was entered. To enter the canc-cmd:trm=<xx> command, the terminal must allow Security Administration commands to be entered from it and the user must be allowed to enter Security Administration commands. The terminal's permissions can be verified with the rtrv-secu-trm command. The user's permissions can be verified with the rtrv-user or rtrv-secu-user commands.

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

1. Display the associations in the database using the rtrv-assoc command.

This is an example of possible output.

rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0

	CARD	IPLNK						
ANAME	LOC	PORT	LINK	ADAPTER	LPORT	RPORT	OPEN	ALW
swbel32	1201	A	A	M3UA	1030	2345	YES	YES
a2	1305	A	A	SUA	1030	2345	YES	YES
a3	1307	A	A	SUA	1030	2346	YES	YES
assoc1	1201	A	A	M3UA	2000	1030	YES	YES
assoc2	1205	A	A	M2PA	2048	2048	YES	YES
assoc3	1205	A	В2	M2PA	3000	3000	YES	YES
assoc5	1205	A	A3	M2PA	1500	3000	YES	YES

2. Enter the rtrv-card command with the location of the card that is hosting the M2PA association that will be changed in this procedure. For this example, enter this command.

```
rtrv-card:loc=1205
```

This is an example of possible output.

```
rlghncxa03w 08-04-06 15:17:20 EST EAGLE5 38.0.0

CARD TYPE APPL LSET NAME LINK SLC LSET NAME LINK SLC 1205 DCM IPLIM e5e6a A 0 e5e6a B2 1 e5e6a A3 2
```

If the application assigned to the card is IPLIM or IPLIMI, shown in the APPL column, continue the procedure by performing one of these steps.

- If the open parameter value for the association being changed is yes, continue the procedure with 3.
- If the open parameter value for the association being changed is no, continue the procedure with 4.

If the application assigned to the card is IPSG, perform the Changing the Buffer Size of an IPSG Association procedure.

3. Change the value of the open parameter to no by specifying the chg-assoc command with the open=no parameter.

For this example, enter this command.

chg-assoc:aname=assoc2:open=no



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

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 CHG-ASSOC: MASP A - COMPLTD;
```

4. Display the association being changed by entering the rtrv-assoc command with the aname parameter specified in 3 or the name of the association assigned to the card displayed in 1.

For this example, enter this command.

```
rtrv-assoc:aname=assoc2
```

This is an example of the possible output.

```
rlghncxa03w 10-07-28 21:14:37 GMT EAGLE5 42.0.0
ANAME assoc2
     LOC
           1205
                       IPLNK PORT A
                                         LINK A
                  VER M2PA RFC
     ADAPTER M2PA
     LHOST IPNODE2-1205
     ALHOST ---
     RHOST remotehost1
     ARHOST ---
     LPORT 2048
                       RPORT
                                 2048
     ISTRMS 2
                       OSTRMS
                                 2
                                           BUFSIZE 400
                                                  800
     RMODE LIN
                      RMIN
                                 120
                                           RMAX
                       CWMIN
     RTIMES 10
                                 3000
                                           UAPS
                                                  10
            NO
                                           RTXTHR
     OPEN
                       ALW
                                 YES
                                                  2000
     RHOSTVAL RELAXED
                       M2PATSET
IP Appl Sock/Assoc table is (8 of 4000) 1% full
```

Assoc Buffer Space Used (1600 KB of 1600 KB) on LOC = 1205

5. If the bufsize parameter value causes the total buffer size for all the associations on the IP card to exceed the maximum buffer size for that IP card, the chg-assoc command will be rejected.

If you wish to increase the buffer size for this association to a value that is greater than available buffer size for the card, the buffer size of the other associations assigned to the card must be decreased. Perform this step and 6, 7, and 8.

If the buffers on the other associations assigned to the card do not need to be changed, continue the procedure with 9.

Display the associations assigned to the **IP** card (and its corresponding local host) by entering the rtrv-assoc command with the local host name assigned to the association being changed. For this example, enter this command.

```
rtrv-assoc:lhost=IPNODE2-1205
```

This is an example of the possible output.

```
rlghncxa03w 06-10-28 21:14:37 GMT EAGLE5 36.0.0

CARD IPLNK

ANAME LOC PORT LINK ADAPTER LPORT RPORT OPEN ALW
```



assoc2	1205 A	A	M2PA	2048	2048	YES	YES
assoc3	1205 A	В2	M2PA	3000	3000	YES	YES
assoc5	1205 A	A3	M2PA	1500	3000	YES	YES

IP Appl Sock/Assoc table is (8 of 4000) 1% full Assoc Buffer Space Used (1600 KB of 1600 KB) on LOC = 1205

6. Display each association shown in 5 by entering the rtrv-assoc command with the name of each association shown in 5.

For this example, enter these commands.

rtrv-assoc:aname=assoc2

This is an example of the possible output.

```
rlghncxa03w 10-07-28 21:14:37 GMT EAGLE5 42.0.0
ANAME assoc2
      LOC
               1205
                             IPLNK PORT A
                                                   LINK A
      ADAPTER M2PA
                             VER
                                        M2PA RFC
               IPNODE2-1205
      LHOST
      ALHOST
      RHOST
               remotehost1
      ARHOST
      LPORT
               2048
                             RPORT
                                         2048
               2
                                                    BUFSIZE 400
      ISTRMS
                             OSTRMS
                                         2
                                         120
                                                             800
      RMODE
               LIN
                             RMIN
                                                    RMAX
                                         3000
                                                             10
              10
                                                    UAPS
      RTIMES
                             CWMIN
      OPEN
               NO
                             ALW
                                         YES
                                                    RTXTHR
                                                             2000
                                         1
      RHOSTVAL RELAXED
                             M2PATSET
```

IP Appl Sock/Assoc table is (8 of 4000) 1% full Assoc Buffer Space Used (1600 KB of 1600 KB) on LOC = 1205

rtrv-assoc:aname=assoc3

This is an example of the possible output.

rlghncxa03w 10-07-28 21:14:37 GMT EAGLE5 42.0.0 ANAME assoc2 LOC 1205 IPLNK PORT A LINK B2 ADAPTER M2PA VER M2PA RFC LHOST IPNODE2-1205 ALHOST ---RHOST remotehost3 ARHOST ---LPORT 3000 RPORT 3000 ISTRMS 2 OSTRMS BUFSIZE 400 2 RMODE 120 RMAX 800 LIN RMIN RTIMES 10 CWMIN 3000 UAPS 10 YES RTXTHR OPEN ALW YES 2000 RHOSTVAL RELAXED M2PATSET 1

```
IP Appl Sock/Assoc table is (8 of 4000) 1% full Assoc Buffer Space Used (1600 KB of 1600 KB) on LOC = 1205
```

rtrv-assoc:aname=assoc5

This is an example of the possible output.

```
rlghncxa03w 10-07-28 21:14:37 GMT EAGLE5 42.0.0
ANAME assoc2
      LOC
             1205
                            IPLNK PORT A
                                                  LINK A3
      ADAPTER M2PA
                            VER
                                       M2PA RFC
      LHOST IPNODE2-1205
      ALHOST ---
      RHOST
              remotehost3
      ARHOST
                                       3000
              1500
      LPORT
                            RPORT
                                                   BUFSIZE 400
      ISTRMS 2
                            OSTRMS
                                       2
                                                           800
      RMODE
              LIN
                            RMIN
                                       120
                                                   RMAX
      RTIMES
              10
                            CWMIN
                                       3000
                                                   UAPS
                                                           10
                                                           2000
              YES
                                       YES
      OPEN
                            ALW
                                                   RTXTHR
      RHOSTVAL RELAXED
                            M2PATSET
                                       1
IP Appl Sock/Assoc table is (8 of 4000) 1% full
```

Assoc Buffer Space Used (1600 KB of 1600 KB) on LOC = 1205

7. To change the bufsize value for the associations shown in 6, the new bufsize parameter value must be greater than or equal to the cwmin parameter value.

The <code>cwmin</code> parameter is the number if bytes specified for the association's congestion window. The <code>bufsize</code> is the number of kilobytes specified for the size of the association's buffer. To determine whether or not the <code>cwmin</code> value is less than or equal to the <code>bufsize</code> value, perform one of these actions.

- Multiply the bufsize value by 1024.
- Divide the cwmin value by 1024.

Continue the procedure by performing one of these actions.

- If the new bufsize value is greater than or equal to the cwmin value, continue the procedure with 8.
- If the new bufsize value is not greater than or equal to the cwmin value, either choose another value for the bufsize parameter that is greater than or equal to the cwmin value, or perform the Changing the Attributes of an M2PA Association procedure to change the bufsize value so that the bufsize value is greater than or equal to the cwmin value. After the new bufsize value has been chosen or the cwmin value has been changed, continue the procedure with 8.
- 8. Change the size of the buffers for one or more of the associations displayed in 6 to allow the buffer of the association displayed in 4 to be changed.

Enter the chg-assoc command with the bufsize parameter. For this example, enter this command.

chg-assoc:aname=assoc3:bufsize=400



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

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 CHG-ASSOC: MASP A - COMPLTD;
```

9. To change the bufsize value for the association shown in 4, the new bufsize parameter value must be greater than or equal to the cwmin parameter value.

The <code>cwmin</code> parameter is the number if bytes specified for the association's congestion window. The <code>bufsize</code> is the number of kilobytes specified for the size of the association's buffer. To determine whether or not the <code>cwmin</code> value is less than or equal to the <code>bufsize</code> value, perform one of these actions.

- Multiply the bufsize value by 1024.
- Divide the cwmin value by 1024.

Continue the procedure by performing one of these actions.

- If the new bufsize value is greater than or equal to the cwmin value, continue the procedure with 10.
- If the new bufsize value is not greater than or equal to the cwmin value, either choose another value for the bufsize parameter that is greater than or equal to the cwmin value, or perform the Changing the Attributes of an M2PA Association procedure to change the bufsize value so that the bufsize value is greater than or equal to the cwmin value. After the new bufsize value has been chosen or the cwmin value has been changed, continue the procedure with 10.
- **10.** Change the association using the chg-assoc command.

For this example, enter this command.

```
chg-assoc:aname=assoc2:bufsize=500
```

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

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 CHG-ASSOC: MASP A - COMPLTD;
```

If the value of the open parameter was not changed in 3, continue the procedure with 12.

If the value of the open parameter was changed in 3, continue the procedure with 11.

11. Change the value of the open parameter to yes by specifying the chg-assoc command with the open=yes parameter.

For this example, enter this command.

```
chg-assoc:aname=assoc2:open=yes
```

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

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 CHG-ASSOC: MASP A - COMPLTD;
```



12. Verify the changes using the rtrv-assoc command specifying the association name specified in 10 and 11.

For this example, enter this command.

```
rtrv-assoc:aname=assoc2
```

This is an example of possible output.

```
rlghncxa03w 10-07-28 21:14:37 GMT EAGLE5 42.0.0
ANAME assoc2
     LOC
            1205
                        IPLNK PORT A
                                          LINK A
     ADAPTER M2PA
                       VER M2PA RFC
     LHOST IPNODE2-1205
     ALHOST ---
     RHOST
            remotehost1
     ARHOST ---
     LPORT 2048
                                  2048
                       RPORT
     ISTRMS 2
                                            BUFSIZE 500
                       OSTRMS
                                  2
                       RMIN
     RMODE LIN
                                  120
                                            RMAX
                                                   800
     RTIMES 10
                       CWMIN
                                  3000
                                            UAPS
                                                   10
           YES
                                  YES
                                            RTXTHR
                                                   2000
     OPEN
                        ALW
     RHOSTVAL RELAXED
                        M2PATSET
                                  1
IP Appl Sock/Assoc table is (8 of 4000) 1% full
```

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

Assoc Buffer Space Used (1600 KB of 1600 KB) on LOC = 1205

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

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

If you wish to change the other attributes of the M2PA association, perform one of these procedures.

- lhost and alhost Changing the Host Values of a M2PA Association
- link Changing the Link Value of a M2PA Association to another Link Value on the Same IPLIMx Card
- Other attributes of the M2PA Association Changing the Attributes of an M2PA Association

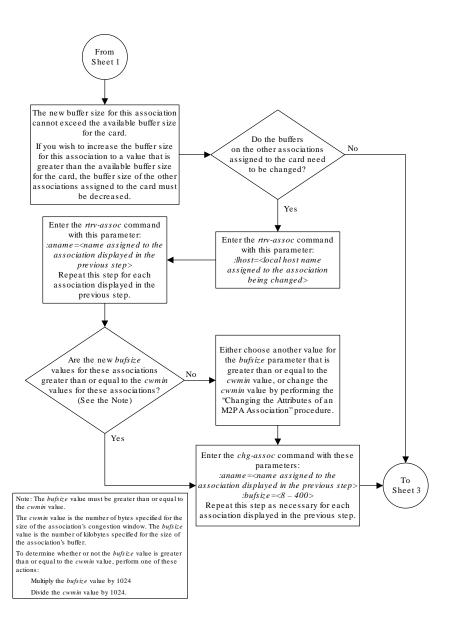
If you do not wish to change the other attributes of the M2PA association, this procedure is finished.



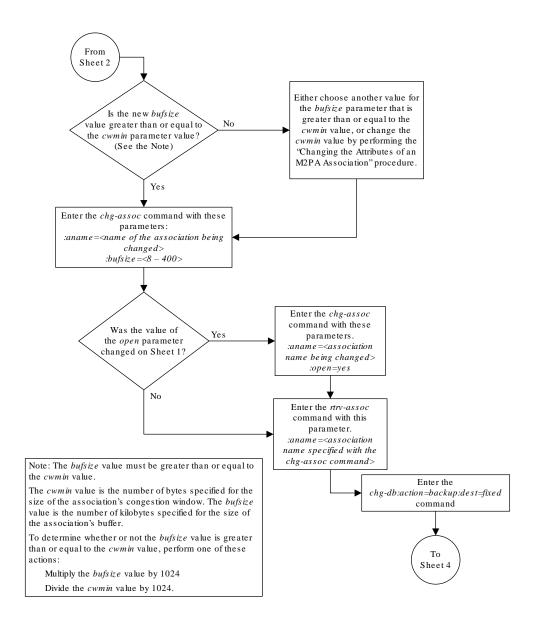
Enter the rtrv-assoc command Enter the rtrv-card command with this parameter: $:loc = < the\ location\ of\ the\ card$ containing the association that will be changed, shown in the rtrv-assoc output> Perform the "Changing the Buffer Size of an IPSG Is the IPSG Yes Association" procedure in Chapter 14 to change the application is assigned to the card? attributes of the association. No What is the value of the open No parameter? Yes Enter the chg-assoc command Enter the rtrv-assoc command with these parameters. with this parameter: :aname = < name of the $: aname = < name\ of\ the$ association being changed> association being changed> :open=no To Sheet 2

Figure 3-18 Changing the Buffer Size of a M2PA Association

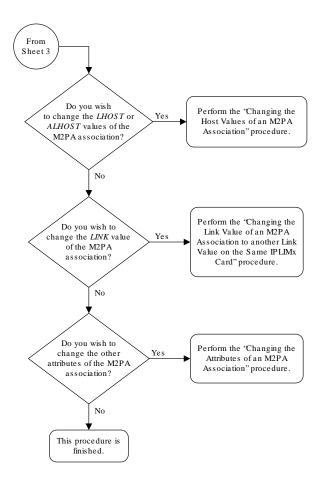




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Sheet 4 of 4

Changing the Host Values of a M2PA Association

This procedure is used to change the host values of a M2PA association, assigned to cards that are running the IPLIM or IPLIMI applications, using the <code>chg-assoc</code> command. If you wish to change the attributes of M2PA associations assigned to cards that are running the IPSG application, perform the Changing the Host Values of an IPSG Association procedure.

These parameters of the chg-assoc command are used in this procedure:

- : aname The name assigned to the association, shown in the rtrv-assoc output.
- : lhost The host name for the local host, shown in the rtrv-ip-host output.
- :lport The SCTP port number for the local host.
- :rhost The host name for the remote host, rhost can be any string of characters starting with a letter and comprising these characters ['a'..'z', 'A'..'Z', '0'..'9', '-', '.']. Hostnames are not case-sensitive and can contain up to 60 characters. The default value of this optional parameter is empty (null string).
- :rport The SCTP port number for the remote host.
- :alhost The alternate local host name, shown in the rtrv-ip-host output.
- :link The signaling link on the IPLIMx card. If the card is a E5-ENET card, the values for the link parameter can be a, a1, a2, a3, a4, a5, a6, a7, b, b1, b2, b3, b4, b5, b6, or b7.



The port parameter can be used in place of the link parameter to specify the signaling link on the card.

- :adapter The adapter layer for this association, m2pa.
- :open The connection state for this association. Valid values are yes or no. When the open=yes parameter is specified, the connection manager opens the association if the association is operational. When the open=no parameter is specified, the connection manager will not open the association.
- :m2patset The M2PA timer set assigned to the association. The m2patset parameter can be specified only with the adapter=m2pa parameter, or if the association already has the adapter=m2pa parameter assigned and the adapter parameter value is not being changed. If the adapter parameter value is being changed to m2pa, and the m2patset parameter is not specified, the default value for the m2patset parameter (1 M2PA timer set 1) is assigned to the association. If the adapter parameter value for the association is m2pa, is not being changed, and the m2patset parameter is not specified with the chg-assoc command, the m2patset parameter value is not changed.
- :ver The M2PA version assigned to the M2PA association, either the RFC version (ver=rfc), or the Draft 6 version (ver=d6). The ver parameter can be specified only if, when this procedure is completed, the adapter parameter value is m2pa. If the adapter parameter value is being changed to m2pa, and the ver parameter is not specified, the default M2PA version of RFC is assigned to the association. To change the ver parameter value, the open parameter value for the association must be no.

The chg-assoc command contains other parameters that are not used this procedure. To change these parameters, perform these procedures.

- bufsize Changing the Buffer Size of a M2PA Association
- Other attributes of the M2PA Association Changing the Attributes of an M2PA Association

At least one optional parameter is required.



The command input is limited to 150 characters, including the hostnames.

The **EAGLE** can contain a maximum of 4000 connections (association to application server assignments).

IPLIMx cards can have one association for each signaling link on the card. The **E5-ENET** card can contain a maximum of 16 signaling links, resulting in a maximum of 16 associations for this card.

The B Ethernet interface of the **IP** card can be used on **E5-ENET** cards.

The ipliml2 parameter value of the signaling link assigned to the association must be m2pa. The adapter parameter value of the association must match the ipliml2 parameter value.

The signaling link being assigned to the association must be out of service. This state is shown in the rept-stat-slk output with the entries OOS-MT in the PST field and Unavail in the SST field.

Uni-homed endpoints are associations configured with the <code>lhost</code> parameter only. The <code>lhost</code> parameter value represents an <code>IP</code> address that corresponds to either the A or B network interface of the <code>IP</code> card. Multi-homed endpoints are associations configured with both the <code>lhost</code> and <code>alhost</code> parameters. The <code>lhost</code> parameter value represents an <code>IP</code> address corresponding to one of the network interfaces (A or B) of the <code>IP</code> card while the <code>alhost</code> parameter value represents an <code>IP</code> address corresponding to the other network interface of the same <code>IP</code> card.

The alhost=none parameter removes the alternate local host from the specified association, which also removes the multi-homed endpoint capability.

Canceling the RTRV-ASSOC and RTRV-AS Commands

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

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

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

1. Display the associations in the database using the rtrv-assoc command.



This is an example of possible output.

rlghncxa03w 08-04-28 09:12:36 GMT EAGLE5 38.0.0

	CARD	IPLNK						
ANAME	LOC	PORT	LINK	ADAPTER	LPORT	RPORT	OPEN	ALW
swbel32	1201	A	A	M3UA	1030	2345	YES	YES
a2	1305	A	A	SUA	1030	2345	YES	YES
a3	1307	A	A	SUA	1030	2346	YES	YES
assoc1	1201	A	A	M3UA	2000	1030	YES	YES
assoc2	2105	A	A	M2PA	2048	2048	YES	YES
assoc3	2105	A	В2	M2PA	3000	3000	YES	YES
assoc5	2105	A	A3	M2PA	1500	3000	YES	YES

2. Enter the rtrv-card command with the location of the card that is hosting the M2PA association that will be changed in this procedure. For this example, enter this command.

```
rtrv-card:loc=2105
```

This is an example of possible output.

```
rlghncxa03w 08-04-06 15:17:20 EST EAGLE5 38.0.0

CARD TYPE APPL LSET NAME LINK SLC LSET NAME LINK SLC 2105 DCM IPLIM e5e6a A 0 e5e6a B2 1 e5e6a A3 2
```

If the application assigned to the card is IPLIM or IPLIMI, shown in the APPL column, continue the procedure by performing one of these steps.

- If the open parameter value for the association being changed is yes, continue the procedure with 3.
- If the open parameter value for the association being changed is no, continue the procedure with 4.

If the application assigned to the card is IPSG, perform the Changing the Host Values of an IPSG Association procedure.

3. Change the value of the open parameter to no by specifying the chg-assoc command with the open=no parameter.

For this example, enter this command.

```
chg-assoc:aname=assoc2:open=no
```

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

```
rlghncxa03w 08-04-28 09:12:36 GMT EAGLE5 38.0.0 CHG-ASSOC: MASP A - COMPLTD;
```

4. Display the association being changed by entering the rtrv-assoc command with the aname parameter specified in 3.

For this example, enter this command.

```
rtrv-assoc:aname=assoc2
```



This is an example of the possible output.

```
rlghncxa03w 10-07-28 21:14:37 GMT EAGLE5 42.0.0
 ANAME assoc2
      LOC
               2105
                            IPLNK PORT A, B
                                                  LINK A
      ADAPTER M2PA
                            VER
                                       M2PA RFC
              IPNODE2-1205
      LHOST
      ALHOST M2PA1
      RHOST remotehost1
      ARHOST ---
               2048
      LPORT
                            RPORT
                                        2048
                                        2
                                                   BUFSIZE 400
      ISTRMS 2
                            OSTRMS
      RMODE
               LIN
                            RMIN
                                        120
                                                   RMAX
                                                            800
             10
                                        3000
                                                            10
      RTIMES
                            CWMIN
                                                   UAPS
      OPEN
               NO
                                        YES
                                                   RTXTHR
                                                            2000
                            ALW
      RHOSTVAL RELAXED
                            M2PATSET
```

```
IP Appl Sock/Assoc table is (8 of 4000) 1\% full Assoc Buffer Space Used (1600 KB of 1600 KB) on LOC = 2105
```

If the association shown in this step is not an M2PA association, continue the procedure with 5.

If the association shown in this step is an M2PA association, perform one of these actions.

- If the association does not have an ALHOST value, continue the procedure with 5.
- If the association does have an ALHOST value, and the ALHOST value will be removed along with changing the LHOST value of the association, continue the procedure with 5.
- If the association does have an ALHOST value, and the only action that will be
 performed in this procedure is to remove the ALHOST value from the
 association, continue the procedure with Oracle.
- 5. Verify that the local host name to be assigned to the association is in the database by entering the rtrv-ip-host:display=all command.

The following is an example of the possible output.

rlghncxa03w 08-12-28 21:15:37 GMT EAGLE5 40.0.0

```
LOCAL IPADDR
               LOCAL HOST
192.1.1.10
               IPNODE1-1201
192.1.1.12
               GW105. NC. Oracle. COM
192.1.1.14
               IPNODE1-1205
               IPNODE2-1201
192.1.1.20
192.1.1.22
               IPNODE2-1203
               IPNODE2-1205
192.1.1.24
192.1.1.30
               KC-HLR1
192.1.1.32
               KC-HLR2
192.1.1.50
               DN-MSC1
192.1.1.52
               DN-MSC2
```



```
192.1.1.54 M2PA1

REMOTE IPADDR REMOTE HOST
150.1.1.5 NCDEPTECONOMIC_DEVELOPMENT. SOUTHEASTERN_COORIDOR_ASHVL.

GOV

IP Host table is (12 of 4096) .29% full
```

6. Display the **IP** links in the database by entering the rtrv-ip-lnk command.

The following is an example of the possible output.

rlghno	cxa03v	v 08-12-28 21:14:	37 GMT EAGLE5 40	0.0.0				
LOC	PORT	IPADDR	SUBMASK	DUPLEX	SPEED	${\tt MACTYPE}$	AUTO	
MCAST								
1303	A	192.1.1.10			10	802.3	NO	NO
1303	В				10	DIX	NO	NO
1305	A	192.1.1.12	255.255.255.0			DIX	YES	NO
1305	В			HALF	10	DIX	NO	NO
1313	A	192.1.1.14			100	DIX	NO	NO
1313	В			HALF	10	DIX	NO	NO
2101	A	192.1.1.20			100	DIX	NO	NO
2101	В			HALF	10	DIX	NO	NO
2103	A	192.1.1.22			100	DIX	NO	NO
2103	В			HALF	10	DIX	NO	NO
2105	A	192.1.1.24	255.255.255.0	FULL	100	DIX	NO	NO
2105	В	192.1.1.54			100	DIX	NO	NO
2205	A	192.1.1.30			100	DIX	NO	NO
2205	В				10	DIX	NO	NO
2207	A	192.1.1.32			100	DIX	NO	NO
2207	В				10	DIX	NO	NO
2213	A	192.1.1.50			100	DIX	NO	NO
2213	В				10	DIX	NO	NO
2301	A	192.1.1.52			100	DIX	NO	NO
2301	В			HALF	10	DIX	NO	NO

IP-LNK table is (20 of 2048) 1% full.

If the required **IP** link, one that contains the desired **IP** address, is not shown in the rtrv-ip-lnk output, add the **IP** link using the Configuring an IP Link procedure. After the **IP** link has been added, assign the **IP** address of the **IP** link to the **IP** host name using the Adding an IP Host procedure. Then continue the procedure with 11.

If the required **IP** link is shown in the rtrv-ip-lnk output, but the IP host is not shown in the rtrv-ip-host output in 5, assign the **IP** address of the **IP** link to the **IP** host name using the Adding an IP Host procedure. Then continue the procedure with 11.

If the required **IP** host was shown in 5, the required **IP** link is shown in the rtrv-ip-lnk output in this step. Perform 7 to verify the application running on the card whose **IP** address is assigned to the **IP** host.



Note:

Thertrv-ip-host output must contain a host name for the association'slhost parameter and a host name for the association'salhost parameter, if thealhost parameter will be specified for the association. The IP address of the IP link should be assigned to the host name, shown in thertrv-ip-host output, that will be used as the association'slhost parameter value. If thealhost parameter will be specified for the association, the IP address of the IP link must be assigned to the host name that will be used as thealhost parameter value. The IP links associated with the association'slhost andalhost values must be assigned to the same card.

7. Display the application running on the **IP** card shown in 6 whose **IP** address is assigned to the **IP** host using the rept-stat-card command specifying the location of the IP card.

For this example, enter this command.

```
rept-stat-card:loc=1205
```

This is an example of the possible output.

```
rlghncxa03w 08-04-27 17:00:36 GMT EAGLE5 38.0.0
CARD VERSION TYPE
                               PST
                                           SST
                      GPT.
                                                    AST
1205 114-000-000 DCM
                       IPLIM
                               IS-NR
                                           Active
 ALARM STATUS = No Alarms.
 BPDCM GPL
                = 002-102-000
 IMT BUS A
                = Conn
 IMT BUS B
                = Conn
 SIGNALING LINK STATUS
     SLK
         PST
                           LS
                                       CLLI
     A
         IS-NR
                           e5e6a
                                       _____
    A3
          IS-NR
                           e5e6a
     B2
           IS-NR
                           e5e6a
```

Command Completed.

8. Display the signaling link associated with the association being changed using the rtrv-slk command and specifying the card location shown in 7, and the new link parameter value of the association for the link parameter value. The card location should reference the local host assigned to the association. The rtrv-ip-lnk output shows the card location associated with the IP address that is associated with the local host in 7. If the rtrv-ip-lnk command was not executed in 6, execute it now to get the card location and the IP address. To display the signaling link for this example, enter this command.

Note:

If the link parameter value is not being changed, continue the procedure with 9.

```
rtrv-slk:loc=1205:link=a
```

The following is an example of the possible output.

```
rlghncxa03w 08-04-19 21:17:04 GMT EAGLE5 38.0.0 LOC LINK LSN SLC TYPE IPLIML2 1205 A e5e6a 0 IPLIM M2PA
```

If the required signaling link is not in the database, add the signaling link using the Adding an IPLIMx Signaling Link procedure without activating the signaling link. If the application of the card containing the signaling link is IPLIM or IPLIMI, the iplim12=m2pa parameter must be specified for the signaling link and the adapter=m2pa parameter value must be specified for the association.

9. Display the application servers referencing the association being changed using the rtrv-as command with the name of the association being changed in this procedure.



If theadapter parameter value is not being changed from M3UA or SUA to M2PA, continue the procedure with 10.

For this example, enter this command.

```
rtrv-as:aname=assoc2
```

This is an example of possible output.

```
rlghncxa03w 08-04-28 21:14:37 GMT EAGLE5 38.0.0

AS Name Mode Tr ms Association Names as1 LOADSHARE 2000 assoc2

as4 LOADSHARE 2000 assoc2

AS Table is (6 of 250) 1% full
```

If the association is not assigned to any application servers, continue the procedure with 10

If the association is assigned to any application servers, go to the Removing an Association from an Application Server procedure and remove the association from the application servers. After the association has been removed from the application servers, continue the procedure with 10

10. Display the application running on the IP card shown in 6 using the rept-stat-card command specifying the location of the IP card.





If therept-stat-card command was performed in7, continue the procedure with11.

For this example, enter this command.

```
rept-stat-card:loc=2105
```

This is an example of the possible output.

```
rlghncxa03w 08-04-27 17:00:36 GMT EAGLE5 38.0.0
CARD VERSION TYPE GPL
                            PST
                                       SST
                                               AST
2105 114-000-000 DCM
                    IPLIM
                            IS-NR
                                      Active
 ALARM STATUS = No Alarms.
 BPDCM GPL
              = 002-102-000
 IMT BUS A
              = Conn
 IMT BUS B = Conn
 SIGNALING LINK STATUS
    SLK PST
                       LS
                                 CLLI
    A
        IS-NR
                       e5e6a
    A3
         IS-NR
                        e5e6a
    В2
         IS-NR
                        e5e6a
```

Command Completed.

11. Display the signaling link that will be assigned to the association by entering the rtrv-slk command and specifying the card location and signaling link.



If a new signaling link was added in8, continue the procedure with Oracle.

For this example, enter this command.

```
rtrv-slk:loc=1203:link=a
```

This is an example of the possible output.

```
rlghncxa03w 08-04-19 21:17:04 GMT EAGLE5 38.0.0

LOC LINK LSN SLC TYPE IPLIML2

1203 A e5e6a 1 IPLIM M2PA
```

When the **IP** card's application is either **IPLIM** or **IPLIMI**, the iplim12 parameter value for the signaling link assigned to the association must be m2pa. If the iplim12 parameter is not m2pa, remove the signaling link using the Removing an IPLIMx Signaling Link procedure. Add the signaling link back into the database with the iplim12=m2pa parameter, and without activating the signaling link, using the Adding an IPLIMx Signaling Link procedure.



12. Display the status of the signaling link shown in 11 using the rept-stat-slk command specifying the card location and signaling link.



If the Adding an IPLIMx Signaling Linkprocedure was not performed in 11, continue the procedure with Oracle.

For example, enter this command.

```
rept-stat-slk:loc=1203:link=a
```

This is an example of the possible output.

```
rlghncxa03w 08-04-28 21:16:37 GMT EAGLE5 38.0.0

SLK LSN CLLI PST SST AST
1203,A e5e6a ------ IS-NR Avail ----
Command Completed.
```



If the primary state (PST) of the signaling link is OOS-MT and the secondary state (SST) is Unavail, continue the procedure with Oracle.

13. Deactivate the signaling link from 12 using the dact-slk command.

For example, enter this command.

```
dact-slk:loc=1203:link=a
```

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

```
rlghncxa03w 08-04-07 11:11:28 GMT EAGLE5 38.0.0 Deactivate Link message sent to card
```

14. Verify the status of the signaling link using the rept-stat-slk command.

For example, enter this command.

```
rept-stat-slk:loc=1203:link=a
```

This is an example of the possible output.

```
rlghncxa03w 08-04-28 21:16:37 GMT EAGLE5 38.0.0

SLK LSN CLLI PST SST AST
1203,A e5e6a ------ OOS-MT Unavail ----
Command Completed.
```

15. Change the association using the chg-assoc command.

For this example, enter this command.



chgassoc:aname=assoc2:lhost=m2pa2:alhost=m2pa3:rhost="gw200.ncOracle.com"

These are the rules that apply to changing the host value of M2PA associations that are assigned to IPLIMx signaling links.

- If any optional parameters are not specified with the chg-assoc command, those values are not changed.
- The B Ethernet interface can be used with E5-ENET cards.
- The EAGLE can contain a maximum of 4000 connections.
- IPLIMx cards can have only one connection for each signaling link assigned to the card. If the card is an E5-ENET card, the card may contain a maximum of 16 connections.
- The value of the lhost and rhost parameters is a text string of up to 60 characters, with the first character being a letter. The command input is limited to 150 characters, including the hostnames.
- The adapter parameter value for the association must be m2pa and the iplim12=m2pa parameter must be assigned to the signaling link on the iplim or iplimi card.
- Specifying the lhost parameter only creates a uni-homed endpoint. The
 network portion of the endpoint's IP address must be the same as the network
 portion of the IP address assigned to either the A or B network interface of the
 IP card.
- Specifying the lhost and alhost parameters creates a multi-homed endpoint. The network portion of the IP address associated with the lhost parameter must be the same as the network portion of the IP address assigned to one of the network interfaces (A or B) of the IP card, and the network portion of the IP address associated with the alhost parameter must be the same as the network portion of the IP address assigned to the other network interface on the IP card.
- The alhost=none parameter removes the alternate local host from the specified association, which also removes the multi-homed endpoint capability.
- If the mp2atset parameter is not specified with the chg-assoc command, and the adapter parameter value is being changed to m2pa, the m2patset parameter value defaults to M2PA timer set 1 (m2patset=1).
- The port parameter can be used in place of the link parameter to specify the signaling link assigned to the association.
- The M2PA version of the association determines the version of the M2PA timer set that is assigned to the association. For example, if M2PA timer set 3 is assigned to the M2PA association, and the association is an RFC M2PA association, the RFC version of M2PA timer set 3 is used with the association. If M2PA timer set 7 is assigned to the M2PA association, and the association is a Draft 6 M2PA association, the Draft 6 version of M2PA timer set 7 is used with the association.
- If the adapter parameter value of the association is changed to m2pa in this procedure and the ver parameter is not specified, the version of the association will be RFC. To make this association a M2PA Draft 6 association, the ver=d6 parameter must be specified for this association.



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

```
rlghncxa03w 08-04-28 09:12:36 GMT EAGLE5 38.0.0 CHG-ASSOC: MASP A - COMPLTD;
```



If the value of theopen parameter was not changed in3, continue the procedure withOracle.

16. Change the value of the open parameter to yes by specifying the chg-assoc command with the open=yes parameter.

For this example, enter this command.

```
chg-assoc:aname=assoc2:open=yes
```

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

```
rlghncxa03w 08-04-28 09:12:36 GMT EAGLE5 38.0.0 CHG-ASSOC: MASP A - COMPLTD;
```

17. Verify the changes using the rtrv-assoc command specifying the association name specified in Oracle and 16.

For this example, enter this command.

```
rtrv-assoc:aname=assoc2
```

This is an example of possible output.

rlghnc	xa03w 10-	07-28 21:14:37	GMT EAGLE5	42.0.0		
ANAME	assoc2					
	LOC	1203	IPLNK PORT	A , B	LINK A	
	ADAPTER	M2PA	VER	M2PA RFC		
	LHOST	M2PA2				
	ALHOST	M2PA3				
	RHOST	gw200.nc-teke	lec.com			
	ARHOST					
	LPORT	2048	RPORT	3000		
	ISTRMS	2	OSTRMS	2	BUFSIZE	500
	RMODE	LIN	RMIN	120	RMAX	800
	RTIMES	10	CWMIN	3000	UAPS	10
	OPEN	YES	ALW	YES	RTXTHR	10000
	RHOSTVAL	RELAXED	M2PATSET	1		
IP App	l Sock/As	soc table is (8 of 4000) 1	% full		

18. Activate the signaling link assigned to the association using the act-slk command. For example, enter this command.

Assoc Buffer Space Used (1300 KB of 1600 KB) on LOC = 1203



```
act-slk:loc=1203:link=a
```

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

```
rlghncxa03w 08-04-07 11:11:28 GMT EAGLE5 38.0.0 Activate Link message sent to card
```

19. Verify the status of the signaling link using the rept-stat-slk command.

For example, enter this command.

```
rept-stat-slk:loc=1203:link=a
```

This is an example of the possible output.

```
rlghncxa03w 08-04-28 21:16:37 GMT EAGLE5 38.0.0

SLK LSN CLLI PST SST AST
1203,A e5e6a ------ IS-NR Avail ----
Command Completed.
```

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

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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

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

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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

If you wish to change the other attributes of the M2PA association, perform one of these procedures.

- bufsize Changing the Buffer Size of a M2PA Association
- Other attributes of the M2PA Association Changing the Attributes of an M2PA Association

If you do not wish to change the other attributes of the M2PA association, this procedure is finished.



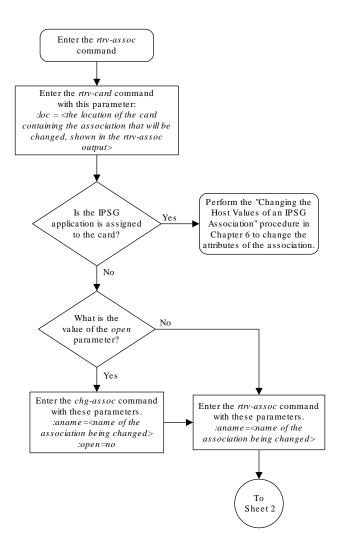
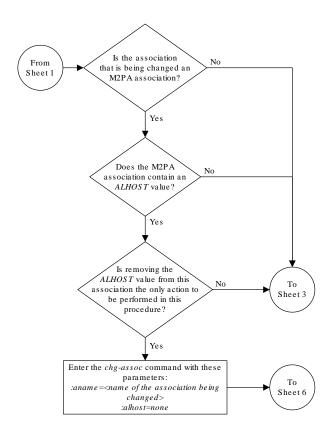
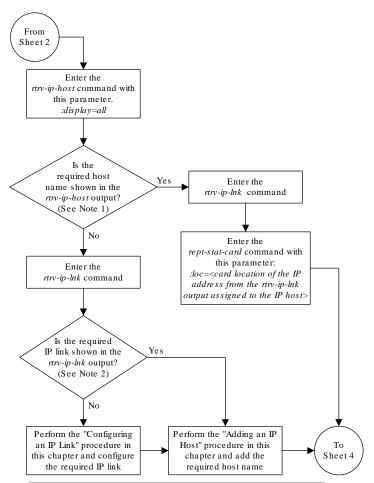


Figure 3-19 Changing the Host Values of a M2PA Association





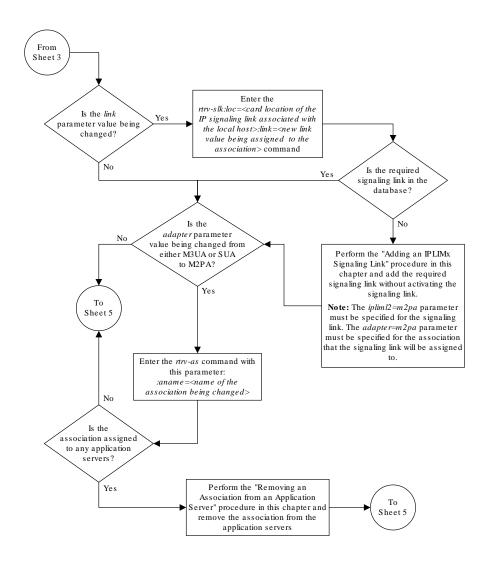
Sheet 2 of 7



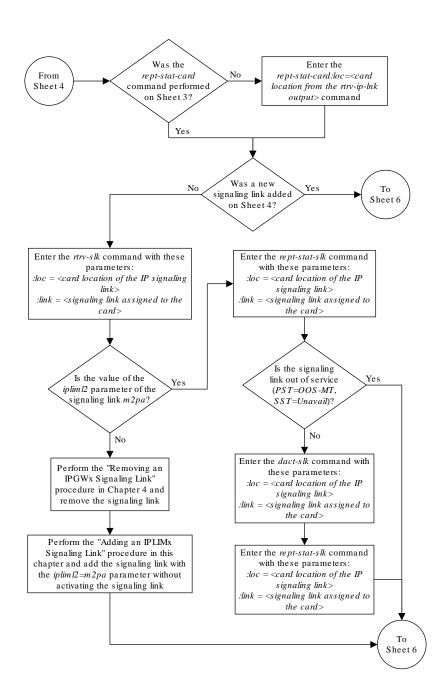
Notes:

- 1. The *rtrv-ip-host* output must contain a host name for the association's *lhost* parameter and a host name for the association's *alhost* parameter, if the *alhost* parameter will be specified for the association.
- 2. The IP address of the IP link should be assigned to the host name, shown in the nrv-ip-host output, that will be used as the association's lhost parameter value. If the alhost parameter will be specified for the association, the IP address of the IP link must be assigned to the host name that will be used as the alhost parameter value. The IP links associated with the association's lhost and alhost values must be assigned to the same card.

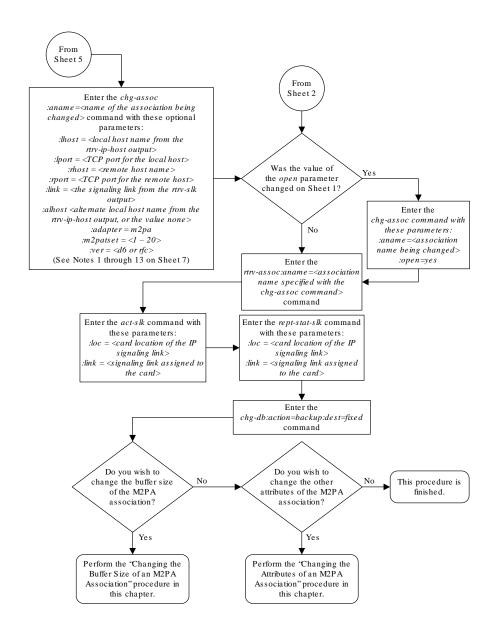
Sheet 3 of 7



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Sheet 5 of 7



Sheet 6 of 7

Notes:

- 1. If any optional parameters are not specified with the *chg-assoc* command, those values are not changed.
- 2. The B Ethernet interface can be used with single-slot EDCMs or E5-ENET cards.
- 3. The EAGLE 5 ISS can contain a maximum of 4000 connections.
- 4. IPLIMx cards can have only one connection for each signaling link assigned to the card. If the card is a single-slot EDCM, the card may contain a maximum of eight connections. If the card is an E5-ENET card, the card may contain a maximum of 16 connections.
- 5. The value of the *lhost* and *rhost* parameters is a text string of up to 60 characters, with the first character being a letter. The command input is limited to 150 characters, including the hostnames
- 6. The adapter parameter value for the association must be m2pa and the iplim12=m2pa parameter must be assigned to the signaling link on the iplim or iplimi card.
- 7. Specifying the *lhost* parameter only creates a uni-homed endpoint. The network portion of the endpoint's IP address must be the same as the network portion of the IP address assigned to either the A or B network interface of the IP card.
- 8. Specifying the *lhost* and *alhost* parameters creates a multi-homed endpoint. The network portion of the IP address associated with the *lhost* parameter must be the same as the network portion of the IP address assigned to one of the network interfaces (A or B) of the IP card, and the network portion of the IP address associated with the *alhost* parameter must be the same as the network portion of the IP address assigned to the other network interface on the IP card.
- 9. The *alhost=none* parameter removes the alternate local host from the specified association, which also removes the multi-homed endpoint capability.
- 10. If the mp2atset parameter is not specified with the chg-assoc command, and the adapter parameter value is being changed to m2pa, the m2patset parameter value defaults to M2PA timer set 1 (m2patset=1)
- 11. The port parameter can be used in place of the link parameter to specify the signaling link assigned to the association.
- 12. The M2PA version of the association determines the version of the M2PA timer set that is assigned to the association. For example, if M2PA timer set 3 is assigned to the M2PA association, and the association is an RFC M2PA association, the RFC version of M2PA timer set 3 is used with the association. If M2PA timer set 7 is assigned to the M2PA association, and the association is a Draft 6 M2PA association, the Draft 6 version of M2PA timer set 7 is used with the association.
- 13. If the adapter parameter value of the association is changed to m2pa in this procedure and the ver parameter is not specified, the version of the association will be RFC. To make this association a M2PA Draft 6 association, the ver=d6 parameter must be specified for this association.

Sheet 7 of 7

Changing the Link Value of a M2PA Association to another Link Value on the Same IPLIMx Card

This procedure is used to change the link value of an M2PA association, assigned to cards that are running the IPLIM or IPLIMI applications (IPLIMx cards), to another link value that

is assigned to the same IPLIMx card that is hosting the M2PA association. The <code>chg-assoc</code> command is used to change the <code>link</code> value for the association. If you wish to change the attributes of M2PA associations assigned to cards that are running the IPSG application, perform the Changing the Attributes of an IPSG Association procedure.

These parameters of the chg-assoc command are used in this procedure:

: aname - The name assigned to the association, shown in the rtrv-assoc output.

:link – The signaling link on the IPLIMx card. If the card is a single-slot EDCM, the values for the link parameter can be a, a1, a2, a3, b, b1, b2, or b3.

If the card is a E5-ENET card, the values for the link parameter can be a, a1, a2, a3, a4, a5, a6, a7, b, b1, b2, b3, b4, b5, b6, or b7.



The port parameter can be used in place of the link parameter to specify the signaling link on the card.

: open – The connection state for this association. Valid values are yes or no. When the open=yes parameter is specified, the connection manager opens the association if the association is operational. When the open=no parameter is specified, the connection manager will not open the association.

IPLIMx cards can have one association for each signaling link on the card. The single-slot **EDCM** can contain a maximum of eight signaling links, resulting in a maximum of eight associations for this card. The **E5-ENET** card can contain a maximum of 16 signaling links, resulting in a maximum of 16 associations for this card.

The signaling link being assigned to the association must be out of service. This state is shown in the rept-stat-slk output with the entries OOS-MT in the PST field and Unavail in the SST field.

If you wish to change the lhost, alhost, bufsize, or link values of the M2PA association, perform one of these procedures.

- lhost and alhost Changing the Host Values of a M2PA Association
- bufsize Changing the Buffer Size of a M2PA Association
- Other attributes of the M2PA Association Changing the Attributes of an M2PA Association

If you do not wish to change the <code>lhost</code>, <code>alhost</code>, <code>bufsize</code>, or <code>link</code> values of the M2PA association, this procedure is finished.

Canceling the RTRV-ASSOC Command

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

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



- Enter the canc-cmd without the trm parameter at the terminal where the rtrv-assoc command was entered.
- Enter the canc-cmd:trm=<xx>, where <xx> is the terminal where the rtrv-assoc command was entered, from another terminal other that the terminal where the rtrv-assoc command was entered. To enter the canc-cmd:trm=<xx> command, the terminal must allow Security Administration commands to be entered from it and the user must be allowed to enter Security Administration commands. The terminal's permissions can be verified with the rtrv-secu-trm command. The user's permissions can be verified with the rtrv-user or rtrv-secu-user commands.

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

Display the associations in the database using the rtrv-assoc command.
 This is an example of possible output.

rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0

	CARD	IPLNK						
ANAME	LOC	PORT	LINK	ADAPTER	LPORT	RPORT	OPEN	ALW
swbel32	1201	A	A	M3UA	1030	2345	YES	YES
a2	1305	A	A	SUA	1030	2345	YES	YES
a3	1307	A	A	SUA	1030	2346	YES	YES
assoc1	1201	A	A	M3UA	2000	1030	YES	YES
assoc2	1205	A	A	M2PA	2048	2048	YES	YES
assoc3	1205	A	В2	M2PA	3000	3000	YES	YES

2. Enter the rtrv-card command with the location of the card that is hosting the M2PA association that will be changed in this procedure. For this example, enter this command.

```
rtrv-card:loc=1205
```

This is an example of possible output.

```
rlghncxa03w 08-04-06 15:17:20 EST EAGLE5 38.0.0

CARD TYPE APPL LSET NAME LINK SLC LSET NAME LINK SLC

1205 DCM IPLIM e5e6a A 0 e5e6a B2 1

e5e6a A3 2
```

If the application assigned to the card is IPLIM or IPLIMI, shown in the APPL column, continue the procedure by performing one of these steps.

- If the open parameter value for the association being changed is yes, continue the procedure with 3.
- If the open parameter value for the association being changed is no, continue the procedure with 4.

If the application assigned to the card is IPSG, perform the Changing the Attributes of an IPSG Association procedure.

3. Change the value of the open parameter to no by specifying the chg-assoc command with the open=no parameter.

For this example, enter this command.



```
chg-assoc:aname=assoc2:open=no
```

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

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 CHG-ASSOC: MASP A - COMPLTD;
```

- 4. Perform one of these actions.
 - If the new link value is not shown in the rtrv-card output in 2, perform the Adding an IPLIMx Signaling Link procedure to provision the signaling link with the card location specified in 2 and the new link value. After the new signaling link has been provisioned, continue the procedure with 8.
 - If the new link value is shown in the rtrv-card output in 2 and in the rtrv-assoc output in 1, this link value cannot be used. Perform the Adding an IPLIMx Signaling Link procedure to provision the signaling link with the card location specified in 2 and the new link value. After the new signaling link has been provisioned, continue the procedure with 8.
 - If the new link value is shown in the rtrv-card output in 2 but not in the rtrv-assoc output in 1, continue the procedure with 5.
- 5. Display the status of the signaling link that will be the new link value for the association shown in 2 (using the values in the LOC and LINK columns in the rtrv-card output) by entering the rept-stat-slk command specifying the card location and signaling link.

For example, enter this command.

```
rept-stat-slk:loc=1205:link=a3
```

This is an example of the possible output.

```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0

SLK LSN CLLI PST SST AST
1205,A3 e5e6a ------ IS-NR Avail ----
Command Completed.
```

If the primary state (PST) of the signaling link not is OOS-MT and the secondary state (SST) is Unavail, continue the procedure with 6.

If the primary state (**PST**) of the signaling link is OOS-MT and the secondary state (**SST**) is Unavail, continue the procedure with 8.

6. Deactivate the signaling link shown in 5 using the dact-slk command.

For example, enter this command.

```
dact-slk:loc=1205:link=a3
```

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

```
rlghncxa03w 06-10-07 11:11:28 GMT EAGLE5 36.0.0 Deactivate Link message sent to card
```



7. Verify the status of the signaling link using the rept-stat-slk command.

For example, enter this command.

```
rept-stat-slk:loc=1205:link=a3
```

This is an example of the possible output.

```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0

SLK LSN CLLI PST SST AST
1205,A3 e5e6a ------ OOS-MT Unavail ----
Command Completed.
```

8. Change the association using the chg-assoc command.

For this example, enter this command.

```
chg-assoc:aname=assoc2:link=a3
```

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

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 CHG-ASSOC: MASP A - COMPLTD;
```

If the value of the open parameter was not changed in 3, continue the procedure with 10.

If the value of the open parameter was changed in 3, continue the procedure with 9.

9. Change the value of the open parameter to yes by specifying the chg-assoc command with the open=yes parameter.

For this example, enter this command.

```
chg-assoc:aname=assoc2:open=yes
```

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

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 CHG-ASSOC: MASP A - COMPLTD;
```

10. Verify the changes using the rtrv-assoc command specifying the association name specified in 8 and 9.

For this example, enter this command.

```
rtrv-assoc:aname=assoc2
```

This is an example of possible output.

```
rlghncxa03w 10-07-28 21:14:37 GMT EAGLE5 42.0.0

ANAME assoc2

LOC 1205 IPLNK PORT A LINK A
ADAPTER M2PA VER M2PA RFC
LHOST IPNODE2-1205
ALHOST ---
RHOST gw200.nc-tekelec.com
```



ARHOST					
LPORT	2048	RPORT	3000		
ISTRMS	2	OSTRMS	2	BUFSIZE	500
RMODE	LIN	RMIN	120	RMAX	800
RTIMES	10	CWMIN	3000	UAPS	10
OPEN	YES	ALW	NO	RTXTHR	10000
RHOSTVAL	MATCH	M2PATSET	1		

```
IP Appl Sock/Assoc table is (8 of 4000) 1\% full Assoc Buffer Space Used (1300 KB of 1600 KB) on LOC = 1205
```

If the state of the signaling link was changed in 6, continue the procedure with 11. If the state of the signaling link was not changed in 6, continue the procedure with 13.

11. Activate the signaling link assigned to the association using the act-slk command.

For example, enter this command.

```
act-slk:loc=1205:link=a3
```

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

```
rlghncxa03w 06-10-07 11:11:28 GMT EAGLE5 36.0.0 Activate Link message sent to card
```

12. Verify the status of the signaling link using the rept-stat-slk command.

For example, enter this command.

```
rept-stat-slk:loc=1205:link=a3
```

This is an example of the possible output.

```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0

SLK LSN CLLI PST SST AST
1205,A3 e5e6a ------ IS-NR Avail ----
Command Completed.
```

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

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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

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

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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



If you wish to change the other attributes of the M2PA association, perform one of these procedures.

- lhost and alhost Changing the Host Values of a M2PA Association
- bufsize Changing the Buffer Size of a M2PA Association
- Other attributes of the M2PA Association Changing the Attributes of an M2PA Association

If you do not wish to change the other attributes of the M2PA association, this procedure is finished.



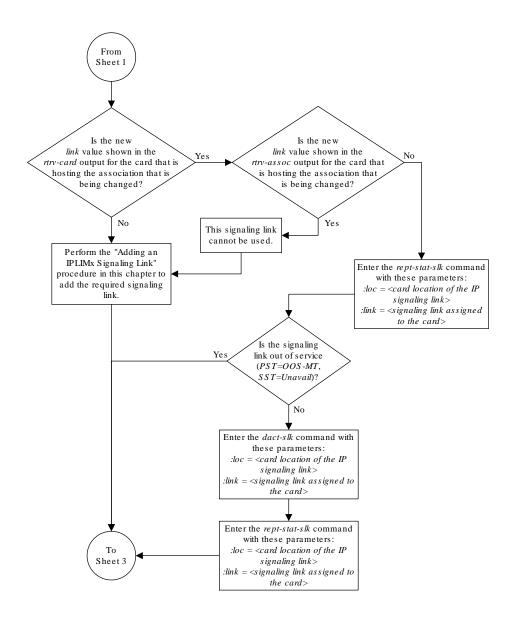
Enter the rtrv-assoc command Enter the rtrv-card command with this parameter: $:loc = < the \ location \ of \ the \ card$ containing the association that will be changed, shown in the rtrv-assoc output> Perform the "Changing the Attributes of an IPSG Association" procedure in Chapter 6 to change the attributes of the association. Is the $\operatorname{IPS} G$ application is assigned to the card? No What is the No value of the open parameter? Yes Enter the chg-assoc command with these parameters. То :aname = <name of the Sheet 2 association being changed>

:open=no

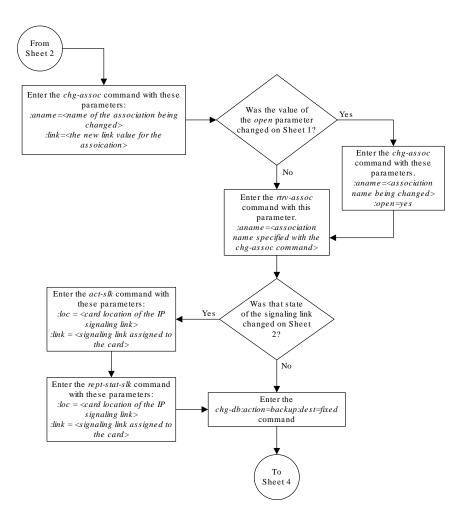
Figure 3-20 Changing the Link Value of a M2PA Association to another Link Value on the Same IPLIMx Card



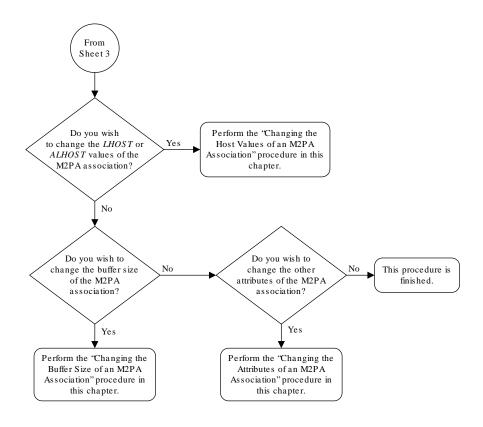




Sheet 2 of 4



Sheet 3 of 4



Sheet 4 of 4

Configuring SCTP Retransmission Control for a M2PA Association

This procedure is used to gather the information required to configure the retransmission parameters for M2PA associations assigned to cards running either the IPLIM or IPLIMI

applications. Perform the Configuring an IPSG Association for SCTP Retransmission Control procedure to configure the retransmission parameters for M2PA associations assigned to IPSG cards. If any assistance is needed to configure the retransmission parameters for associations, contact My Oracle Support (MOS).

The retransmission parameters are configured using the rmode, rmin, rmax, rtimes, and cwmin parameters of the chg-assoc command.

:rmode - The retransmission mode used when packet loss is detected. The values are rfc or lin.

- rfc Standard RFC 2960 algorithm in the retransmission delay doubles after each retransmission. The RFC 2960 standard for congestion control is also used.
- lin Oracle's linear retransmission mode where each retransmission timeout value is the same as the initial transmission timeout and only the slow start algorithm is used for congestion control.
- : rmin The minimum value of the calculated retransmission timeout in milliseconds.
- : rmax The maximum value of the calculated retransmission timeout in milliseconds.



The rmin and rmax parameter values form a range of retransmission values. The value of the rmin parameter must be less than or equal to the rmax parameter value.

:rtimes – The number of times a data retransmission occurs before closing the association.

: cwmin - The minimum size in bytes of the association's congestion window and the initial size in bytes of the congestion window.

The Changing the Attributes of an M2PA Association procedure is used to change the values of these parameters. In addition to using the Changing the Attributes of an M2PA Association procedure, these pass commands are also used in this procedure.

- ping tests for the presence of hosts on the network.
- assocrtt displays the SCTP round trip times for a specified association.
 Minimum, maximum, and average times are kept for each open association. The Retransmission Mode (RFC or LIN) and the configured Minimum and Maximum Retransmission Timeout limits are also displayed.
- sctp provides a summary list of all SCTP instances.
- sctp -a <association name> displays the measurements and information for a specific association.

Note:

The values for the minimum and maximum retransmission times in the output from this command are shown in microseconds.



For more information on the pass commands, see Commands User's Guide.

The chg-assoc command contains other optional parameters that can be used to configure an association. These parameters are not shown here because they are not necessary for configuring the SCTP retransmission parameters. These parameters are explained in more detail in the Changing the Attributes of an M2PA Association procedure, or in the and chg-assoc command description in Commands User's Guide.

Canceling the RTRV-ASSOC Command

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

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

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

Display the associations in the database using the rtrv-assoc command.
 This is an example of possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
```

	CARD	IPLNK						
ANAME	LOC	PORT	LINK	ADAPTER	LPORT	RPORT	OPEN	ALW
swbel32	1201	A	A	M3UA	1030	2345	YES	YES
a2	1305	A	A	SUA	1030	2345	YES	YES
a3	1307	A	A	SUA	1030	2346	YES	YES
assoc1	1201	A	A	M2PA	2000	1030	YES	YES

2. Enter the rtrv-card command with the location of the card that is hosting the M2PA association that will be changed in this procedure. For this example, enter this command.

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

This is an example of possible output.

```
rlghncxa03w 08-03-06 15:17:20 EST EAGLE5 38.0.0

CARD TYPE APPL LSET NAME LINK SLC LSET NAME LINK SLC 1201 DCM IPLIM lsn1 A 0
```

If the application assigned to the card is IPLIM or IPLIMI, shown in the APPL column, continue the procedure with 3.



If the application assigned to the card is IPSG, perform the Configuring an IPSG Association for SCTP Retransmission Control procedure.

3. Display the association that will be changed by entering the rtrv-assoc command with the name of the association. For this example, enter this command.

```
rtrv-assoc:aname=assoc1
```

This is an example of the possible output.

```
rlghncxa03w 10-07-28 21:14:37 GMT EAGLE5 42.0.0
ANAME assoc1
     LOC
            1201
                        IPLNK PORT A
                                            LINK A
     ADAPTER M2PA
                        VER M2PA RFC
     LHOST IPNODE2-1205
     ALHOST
     RHOST gw100.nc-tekelec.com
     ARHOST ---
     LPORT 2000
                        RPORT
                                  1030
     ISTRMS 2
                        OSTRMS
                                   2
                                             BUFSIZE 400
                                                    800
                        RMIN
                                  120
     RMODE LIN
                                             RMAX
     RTIMES 10
                        CWMIN
                                  3000
                                            UAPS
                                                    10
                                             RTXTHR
                                                    2000
     OPEN
            YES
                        ALW
                                  NO
     RHOSTVAL MATCH
                        M2PATSET
                                  1
IP Appl Sock/Assoc table is (8 of 4000) 1% full
```

4. Enter the ping pass command specifying the card location of the local host, shown in 3, and the name of the remote host assigned to the association being changed, shown in 3.

Assoc Buffer Space Used (1600 KB of 1600 KB) on LOC = 1201

This command is entered several times to obtain the average round trip time. For this example, enter this command.

```
pass:loc=1201:cmd="ping gw100.nc.tekelec.com"
```

The following is an example of the possible output

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0

PASS: Command sent to card

rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0

PING command in progress

rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0

PING GW100. NC. TEKELEC. COM (192.1.1.30): 56 data bytes
64 bytes from tekral.nc.tekelec.com (192.1.1.30): icmp_seq=0.time=5. ms
64 bytes from tekral.nc.tekelec.com (192.1.1.30): icmp_seq=1.time=9. ms
64 bytes from tekral.nc.tekelec.com (192.1.1.30): icmp_seq=1.time=14. ms
----tekral PING Statistics----
3 packets transmitted, 3 packets received, 0% packet loss round-trip (ms) min/avg/max = 5/9/14
```



```
PING command complete
```

If the **SCTP** retransmission parameters do not need to be changed, do not perform 5 through 8. This procedure is finished.

- Perform the Changing the Attributes of an M2PA Association procedure to change the retransmission parameters of the association based on the results of pinging the remote host.
- 6. Enter the assocrtt pass command to display the round trip time data collected after an association is established when an SCTP INIT message is sent and an acknowledgment is received.

The assocrtt command is entered with the card location from 4 (the card location assigned to the association being changed), and the name of the association being changed. This association must contain the host name used in 4. For this example, enter this command.

```
pass:loc=1201:cmd="assocrtt assoc1"
```

The following is an example of the possible output

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
PASS: Command sent to card
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
ASSOCRTT: Association round-trip time report (in milliseconds)
Retransmission Configuration
   Retransmission Mode
                                   : LIN
   Minimum RTO: 120
   Maximum RTO: 800
Traffic Round-Trip Times
   Minimum round-trip time
   Maximum round-trip time
                                   : 120
   Weighted Average round-trip time: 10
   Last recorded round-trip time
Measured Congested Traffic Round-Trip Times
   Minimum round-trip time
                                    : 0
                                    : 0
   Maximum round-trip time
   Weighted Average round-trip time : 0
   Last recorded round-trip time
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
ASSOCRTT command complete
```

7. Enter the sctp -a <association name> pass command to determine if retransmissions have occurred.

The association name is the association name specified in 6. Specify the card location used in 6. For this example, enter this command.

```
pass:loc=1201:cmd="sctp -a assoc1"
```

The following is an example of the possible output

rlghncxa03w 10-12-28 21:15:37 GMT EAGLE5 43.0.0

Aname	Local	Local	Remote	Remote
	IP Address	Port	Address	Port
Assoc1	192.168.110.12	2222	192.168.112.4	5555
	192.168.112.12			

```
Configuration
                                                   State
        Retransmission Mode = LIN
                                         State = OPEN
Min. Retransmission Timeout = 10000
                                         ULP association id = 18
Max. Retransmission Timeout = 800000
                                         Number of nets = 2
    Max. Number of Retries = 10
                                         Inbound Streams = 1
   Min. Congestion Window = 3000
                                         Outbound Streams = 2
           Inbound Streams = 2
          Outbound Streams = 2
        Checksum Algorithm = crc32c
       Send/Rcv Buffer Size = 204800
```

Nets Data

192.168.112.4	State	Reachable
7777	Primary	YES
1500	cwnd	16384
16384	RTO	120
192.168.113.5	State	Reachable
7777	Primary	NO
1500	cwnd	16384
16384	RTO	120
	7777 1500 16384 192.168.113.5 7777 1500	7777 Primary 1500 cwnd 16384 RTO 192.168.113.5 State 7777 Primary 1500 cwnd

```
Last Net Sent To = 192.168.112.4

Last Net Rcvd From = 192.168.112.4

Over All Eror Count = 0

Peers Rwnd = 13880

My Rwnd = 16384

Max Window = 16384

Initial Seq Number = 24130

Next Sending Seq Number = 124686

Last Acked Seq Number = 124669

Maximum Outbound Char Count = 16384

Current Outbound Char Count = 2112

Number Unsent Char Count = 0

Outbound Data Chunk Count = 16

Number Unsent = 0
```

 $ip \ datagrams \ rcvd = 155402 \\ ip \ datagrams \ with \ data \ chunks \ rcvd = 120844 \\$

Number To Retransmit = 0

```
data chunks rcvd = 367908
                   data chunks read = 367900
                      dup tsns rcvd = 8
                        sacks rcvd = 38734
                gap ack blocks rcvd = 3
           heartbeat requests rcvd = 135
               heartbeat acks rcvd = 52
           heartbeat requests sent = 52
                 ip datagrams sent = 129254
 ip datagrams with data chunks sent = 73084
                  data chunks sent = 396330
        retransmit data chunks sent = 135
                        sacks sent = 64872
                        send failed = 0
             retransmit timer count = 0
    consecutive retransmit timeouts = 0
RTT between RMIN and RMAX inclusive = 6
             RTT greater than RMAX = 0
              fast retransmit count = 135
                  recv timer count = 0
             heartbeat timer count = 244
                  none left tosend = 0
               none left rwnd gate = 5
               none left cwnd gate = 8
    rlghncxa03w 10-12-28 21:15:37 GMT EAGLE5 43.0.0
    SCTP command complete
    rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
   Aname
                    Local
                                    Local Remote
                                                           Remote
                    IP Address
                                   Port Address
                                                           Port
                    192.168.110.12 2222 192.168.112.4
   Assoc1
                    192.168.112.12
            Configuration
                                                  State
                                       State = OPEN
       Retransmission Mode = LIN
Min. Retransmission Timeout = 10
                                        ULP association id = 18
Max. Retransmission Timeout = 800
                                        Number of nets = 2
                                       Inbound Streams = 1
    Max. Number of Retries = 10
   Min. Congestion Window = 3000
                                       Outbound Streams = 2
           Inbound Streams = 2
          Outbound Streams = 2
                             Nets Data
         IP Address
                    192.168.112.4
                                         State
                                                  Reachable
               Port
                      7777
                                         Primary
                                                    YES
               MTU
                      1500
                                                    16384
                                           cwnd
           ssthresh
                      16384
                                            RTO
                                                    120
```

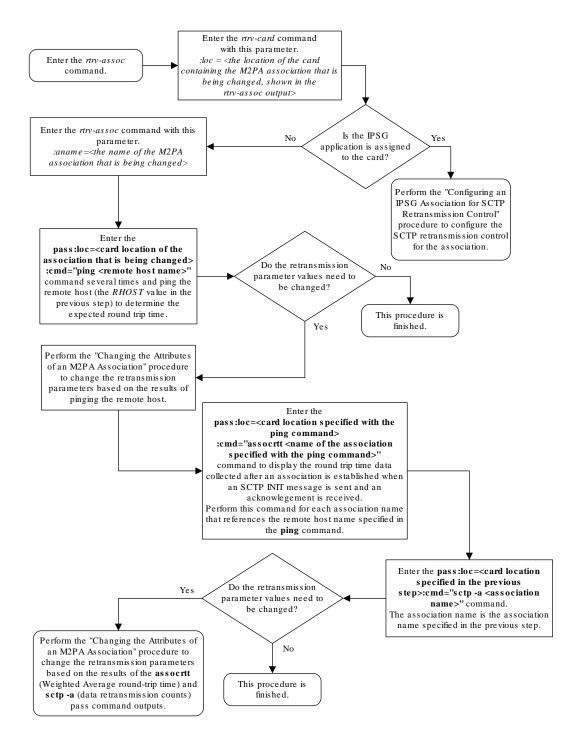


```
IP Address
                       192.168.113.5
                                          State
                                                     Reachable
                                       Primary
              Port
                       7777
                      1500
               MTU
                                                    16384
                                            cwnd
           ssthresh
                      16384
                                             RTO
                                                     120
                   Last Net Sent To = 192.168.112.4
                 Last Net Rcvd From = 192.168.112.4
                 Over All Eror Count = 0
                          Peers Rwnd = 13880
                             My Rwnd = 16384
                          Max Window = 16384
                 Initial Seq Number = 24130
            Next Sending Seg Number = 124686
              Last Acked Seq Number = 124669
        Maximum Outbound Char Count = 16384
        Current Outbound Char Count = 2112
           Number Unsent Char Count = 0
          Outbound Data Chunk Count = 16
                      Number Unsent = 0
               Number To Retransmit = 0
                 ip datagrams rcvd = 155402
 ip datagrams with data chunks rcvd = 120844
                   data chunks rcvd = 367908
                   data chunks read = 367900
                      dup tsns rcvd = 8
                         sacks rcvd = 38734
               gap ack blocks rcvd = 3
           heartbeat requests rcvd = 135
               heartbeat acks rcvd = 52
            heartbeat requests sent = 52
                  ip datagrams sent = 129254
 ip datagrams with data chunks sent = 73084
                   data chunks sent = 396330
        retransmit data chunks sent = 135
                         sacks sent = 64872
                        send failed = 0
             retransmit timer count = 0
    consecutive retransmit timeouts = 0
RTT between RMIN and RMAX inclusive = 6
             RTT greater than RMAX = 0
             fast retransmit count = 135
                   recv timer count = 0
             heartbeat timer count = 244
                  none left tosend = 0
               none left rwnd gate = 5
               none left cwnd gate = 8
    SCTP command complete
```

8. Perform the Changing the Attributes of an M2PA Association procedure to change the retransmission parameters of the association based on the results of the outputs of 6 and 7.

The Weighted Average round-trip time shown in the assocrtt pass command output in 6, and the data retransmission counts shown in the sctp -a pass command output in 7 are used as a guide to determine the appropriate values for the rmode, rmin, rmax, and rtimes parameters. If the retransmission parameters do not have to be adjusted, do not perform this step. This procedure is finished.

Figure 3-21 Configuring the SCTP Retransmission Control for a M2PA Association





Changing a M2PA Timer Set

This procedure is used to change the values of the M2PA timers in a M2PA timer set using the chg-m2pa-tset command. The M2PA timers are used to control the behavior of the signaling link assigned to an M2PA association (an association containing the M2PA adapter layer - adapter=m2pa) during signaling link alignment and proving, and during times of transmit congestion.

The **EAGLE** contains 20 **M2PA** timer sets. One of these timer sets is assigned to an **M2PA** association using the m2patset parameter of either the ent-assoc or chg-assoc command. If the m2patset parameter is not specified with the ent-assoc command, or with the chg-assoc command if the adapter layer for that association is being changed to **M2PA**, timer set 1 is automatically assigned to the association.



Caution:

Changing an M2PA timer set may affect the performance of any associations using the timer set being changed.

The chg-m2pa-tset command uses these parameters.

:tset - The M2PA timer set being changed, 1 - 20.

:srctset — The timer values in an existing M2PA timer set can be copied to another M2PA timer set, specified by the tset parameter. The srctset parameter specifies the timer set that is to be copied. If the srctset parameter is specified, no other timer values can be specified, The srctset parameter value cannot be the timer set specified by the tset parameter.

:ver - The M2PA version, either Draft 6 (ver=d6) or RFC (ver=rfc).



The definitions of timers **T1** and T3 for the Draft 6 version are different from the **RFC** version. The T2 timer applies only to the **RFC** version. The definitions of timers T4N, T4E, T5, T6, T7, T16, T17 and T18 for are the same for the Draft 6 version and the **RFC** version.

The timer parameter descriptions and values are shown in Table 3-8.



Table 3-8 M2PA Timers

Timer	Draft 6 Timer Name	RFC Timer Name	Definition	Value (in msecs)	DRAFT 6 System Default Value (in msecs)	RFC System Default Value (in msecs)
:t1	N/A Ready Timer		The amount of time after proving the M2PA adapter layer waits to receive a Link Status Ready message from the peer.	1000 - 350000	N/A	300000
:t1	Alignment Timer	N/A	The amount of time the M2PA adapter layer waits to receive a Link Status Alignment message from the peer.	1000 - 350000	10000	N/A
:t2*	N/A	Not Aligned Timer	The the amount of time the M2PA adapter layer waits to receive a Link Status Alignment/Link Status Proving message after sending a Link Status Alignment message. Timer T2 is not used in M2PA Draft 6 timer sets.	5000 - 150000	N/A	20000
	N/A	Alignment Timer	The amount of time the M2PA layer waits to receive a Link Status Alignment message from the peer.	1000 - 60000	N/A	2000
:t3	Ready Timer	N/A	The amount of time after proving the M2PA adapter layer waits to receive a Link Status Ready message from the peer.	1000 - 60000	10000	N/A
:t4n	Proving (Nor		The amount of time the M2PA adapter layer generates Link Status Proving messages during normal proving.	1000 - 70000	10000	30000
:t4e	Proving (Emer	g Timer gency)	The amount of time the M2PA adapter layer generates Link Status Proving messages during emergency proving.	400 - 5000	500	500
:t5	Busy Ra	te Timer	The amount of time between sending Link Status Busy messages while the link is inservice.	80 - 10000	1000	100
:t6	Remote C Tin	ongestion ner	The amount of time that a congested link will remain in service.	1000 - 6000	3000	3000



Table 3-8 (Cont.) M2PA Timers

Timer	Draft 6 Timer Name	RFC Timer Name	Definition	Value (in msecs)	DRAFT 6 System Default Value (in msecs)	RFC System Default Value (in msecs)
:t7	Acknowle	Delay in edgement ner	The maximum amount of time that may pass between when a user data message is transmitted and an acknowledgement for that message is received from the peer. If this timer expires, the link is taken out of service.	200 - 2000	1200	1200
:t16	Proving R	ate Timer	The amount of time between sending Link Status Proving messages while the T4N or T4E timer is running.	100 - 500000 **	200000 **	200000 **
:t17	Ready Ra	ate Timer	The amount of time between sending Link Status Ready messages while the T3 timer is running.	100 - 500	250	250
:t18		or Outage Timer	The amount of time between sending Link Status Processor Outage messages while the link is in-service.	100 - 10000	1000	1000
msecs -	millisecond	ds				
* The T	2 Timor can	he enecific	ad only for the M2PA REC version	`		

^{*} The T2 Timer can be specified only for the M2PA RFC version.

The value of any timer parameter not specified with the chg-m2pa-tset command is not changed.

 Display the M2PA timer sets in the database by entering the rtrv-m2pa-tset command with the version of the M2PA timer sets you wish to change with the ver parameter.

To display the **M2PA** Draft 6 timer values, enter this command.

rtrv-m2pa-tset:ver=d6

rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0

M2PA Draft 6 Timers (in msec, T16 in microsec)

TSET 1		T2	T3 5000			T5 5000		T7 1000	T16 200000		T18
	10000		10000	10000	500	1000	3000	1200	200000	250	
1000 3 1000	10000		10000	10000	500	1000	3000	1200	200000	250	
4	10000		10000	10000	500	1000	3000	1200	200000	250	



^{**} The value of the T16 Timer is in microseconds.

```
1000
    10000 ----- 10000 10000 500 1000 3000 1200 200000 250
5
                                                            1000
6
    10000 ----- 10000 10000 500
                                 1000
                                       3000 1200
                                                 200000 250
                                                            1000
7
    10000 ----- 10000 10000 500
                                1000
                                      3000 1200 200000 250 1000
8
    10000 ----- 10000 10000 500
                                1000
                                      3000 1200 200000 250
9
    27500 ----- 3850 4859 450
                                 5700
                                       3750 1150 250
                                                        375
                                                            8750
    10000 ----- 10000 10000 500 1000 3000 1200 200000 250 1000
10
    10000 ----- 10000 10000 500
11
                                1000
                                       3000 1200 200000 250
                                                            1000
                                       3000 1200 200000 250 1000
12
    10000 ----- 10000 10000 500
                                1000
13
    10000 ----- 10000 10000 500
                                 1000
                                       3000 1200 200000 250
                                                            1000
14
    10000 ----- 10000 10000 500
                                 1000
                                       3000 1200 200000 250 1000
15
    10000 ----- 10000 10000 500
                                 1000
                                       3000 1200 200000 250 1000
    10000 ----- 10000 10000 500
                                       3000 1200 200000 250 1000
16
                                 1000
17
    10000 ----- 10000 10000 500
                                 1000
                                       3000 1200 200000 250
                                                            1000
18
    10000 ----- 10000 10000 500
                                 1000
                                       3000 1200 200000 250
                                                            1000
19
    10000 ----- 10000 10000 500
                                 1000
                                       3000 1200 200000 250 1000
20
    10000 ----- 10000 10000 500
                                 1000
                                       3000 1200 200000 250 1000
```

To display the **M2PARFC** timer values, enter this command.

rtrv-m2pa-tset:ver=rfc

rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0

M2PA RFC Timers (in msec, T16 in microsec)

TSET	T1	Т2	Т3	T4N	T4E	T5	Т6	Т7	T16	T17	T18
1	6000	20000	5000	20000	500	5000	3000	1000	200000	250	1000
1	300000	20000	2000	30000	500	100	3000	1200	200000	250	1000
2	300000	20000	2000	30000	500	100	3000	1200	200000	250	1000
3	300000	20000	2000	30000	500	100	3000	1200	200000	250	1000
4	300000	20000	2000	30000	500	100	3000	1200	200000	250	1000
5	300000	20000	2000	30000	500	100	3000	1200	200000	250	1000
6	300000	20000	2000	30000	500	100	3000	1200	200000	250	1000
7	300000	20000	2000	30000	500	100	3000	1200	200000	250	1000
8	300000	20000	2000	30000	500	100	3000	1200	200000	250	1000
9	27500	10000	3850	4859	450	5700	3750	1150	250	375	8750
10	300000	20000	2000	30000	500	100	3000	1200	200000	250	1000
11	300000	20000	2000	30000	500	100	3000	1200	200000	250	1000
12	300000	20000	2000	30000	500	100	3000	1200	200000	250	1000
13	300000	20000	2000	30000	500	100	3000	1200	200000	250	1000
14	300000	20000	2000	30000	500	100	3000	1200	200000	250	1000
15	300000	20000	2000	30000	500	100	3000	1200	200000	250	1000
16	300000	20000	2000	30000	500	100	3000	1200	200000	250	1000
17	300000	20000	2000	30000	500	100	3000	1200	200000	250	1000
18	300000	20000	2000	30000	500	100	3000	1200	200000	250	1000
19	300000	20000	2000	30000	500	100	3000	1200	200000	250	1000
20	300000	20000	2000	30000	500	100	3000	1200	200000	250	1000



If the ver parameter is not specified when entering the rtrv-m2pa-tset command, both the Draft 6 and **RFC** values are displayed. This is an example of the possible output.

rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0

M2PA Draft 6 Timers (in msec, T16 in microsec)

TSET	т 1	Т2	Т3	T4N	T4E	Т5	Т6	Т7	T16	Т17	T18
1 1000	6000		5000	20000	500	5000	3000	1000	200000		110
2	10000		10000	10000	500	1000	3000	1200	200000	250	
3	10000		10000	10000	500	1000	3000	1200	200000	250	
1000	10000		10000	10000	500	1000	3000	1200	200000	250	
5	10000		10000	10000	500	1000	3000	1200	200000	250	
6	10000		10000	10000	500	1000	3000	1200	200000	250	
1000	10000		10000	10000	500	1000	3000	1200	200000	250	
1000	10000		10000	10000	500	1000	3000	1200	200000	250	
1000	27500		3850	4859	450	5700	3750	1150	250	375	
8750 10	10000		10000	10000	500	1000	3000	1200	200000	250	
1000	10000		10000	10000	500	1000	3000	1200	200000	250	
1000	10000		10000	10000	500	1000	3000	1200	200000	250	
1000	10000		10000	10000	500	1000	3000	1200	200000	250	
1000	10000		10000	10000	500	1000	3000	1200	200000	250	
1000	10000		10000	10000	500	1000	3000	1200	200000	250	
1000	10000		10000	10000	500	1000	3000	1200	200000	250	
1000	10000		10000	10000	500	1000	3000	1200	200000	250	
1000	10000		10000	10000	500	1000	3000	1200	200000	250	
1000 19	10000		10000	10000	500	1000	3000	1200	200000	250	
1000	10000		10000	10000	500	1000	3000	1200	200000	250	
1000											
M2PA	RFC Tir	mers (i	n msec	, T16 :	in mi	crosec)				
TSET	T1	T2	Т3	T4N	T4E	T5	T6	T7	T16	T17	T18

20000 5000 20000 500 5000 3000 1000 200000 250

1

6000

```
1000
                                      3000 1200 200000 250 1000
2
    300000 20000 2000 30000 500 100
3
    300000 20000 2000 30000 500 100
                                      3000 1200 200000 250
                                                          1000
    300000 20000 2000 30000 500 100
                                      3000 1200 200000 250 1000
4
5
    300000 20000 2000 30000 500 100
                                      3000 1200 200000 250 1000
    300000 20000 2000 30000 500 100
                                      3000 1200 200000 250 1000
6
    300000 20000 2000 30000 500 100
                                      3000 1200 200000 250 1000
7
8
    300000 20000 2000 30000 500 100
                                      3000 1200 200000 250 1000
9
    27500 10000 3850 4859 450 5700 3750 1150 250
                                                      375 8750
10
    300000 20000 2000 30000 500 100
                                      3000 1200 200000 250 1000
11
    300000 20000 2000 30000 500 100
                                      3000 1200 200000 250 1000
12
    300000 20000 2000 30000 500 100
                                      3000 1200 200000 250 1000
    300000 20000 2000 30000 500 100
                                      3000 1200 200000 250 1000
13
14
    300000 20000 2000 30000 500 100
                                      3000 1200 200000 250 1000
    300000 20000 2000 30000 500 100
1.5
                                      3000 1200 200000 250 1000
    300000 20000 2000 30000 500 100
                                      3000 1200 200000 250 1000
16
    300000 20000 2000 30000 500 100
                                      3000 1200 200000 250 1000
17
    300000 20000 2000 30000 500 100
                                      3000 1200 200000 250 1000
18
19
    300000 20000 2000 30000 500 100
                                      3000 1200 200000 250 1000
20
    300000 20000 2000 30000 500 100
                                      3000 1200 200000 250 1000
```

2. Change the desired timer set with the <code>chg-m2pa-tset</code> command. To change a specific timer set, enter the <code>chg-m2pa-tset</code> command with the <code>tset</code> and <code>ver</code> parameters and the timer parameters you wish to change. For this example, to change the values of the <code>RFC</code> version of timer set 1, enter this command.

```
chg-m2pa-
tset:tset=1:t1=27500:t2=10000:t3=3850:t4e=450:t4n=45000:t5=5700 :
t6=3750:t7=1150:t16=250000:t17=375:t18=8750:ver=rfc
```

To change the values of the Draft 6 version of timer set 1, enter this command.

```
chg-m2pa-
tset:tset=1:t1=27500:t3=3850:t4e=450:t4n=45000:t5=5700 :t6=3750:t
7=1150:t16=250000:t17=375:t18=8750:ver=d6
```



The values for the M2PA timers are shown in Table 3-8.

To copy an M2PA timer set to another timer set, enter the <code>chg-m2pa-tset</code> command with the <code>tset</code>, <code>ver</code>, and <code>srctset</code> parameters. For this example, to copy the RFC version of timer set 9 to timer set 1, enter this command.

```
chg-m2pa-tset:tset=1:srctset=9:ver=rfc
```

To copy the Draft 6 version of timer set 9 to timer set 1, enter this command.

```
chg-m2pa-tset:tset=1:srctset=9:ver=d6
```

Note:

Thever parameter is optional and does not have to be specified to change the M2PARFC timer values. The default value for thever parameter isrfc. If you wish to change the M2PA Draft 6 timer values, thever=d6 parameter must be specified with the chg-m2pa-tset command.

When the chg-m2pa-tset command has successfully completed, the following message should appear.

```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0 CHG-M2PA-TSET: MASP A - COMPLTD
```

3. Verify the changes by entering the rtrv-m2pa-tset command specifying the timer set and version parameter values specified in 2. For this example, enter one of these commands.

```
rtrv-m2pa-tset:tset=1:ver=rfc
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0
M2PA RFC Timers (in msec, T16 in microsec)
TSET T1
                  Т3
           Т2
                       T4N
                             T4E T5
                                        Τ6
                                            Т7
                                                  T16
                                                          T17
T18
    27500 10000 3850 45000 450 5700 3750 1150 250000 375
8750
rtrv-m2pa-tset:tset=1:ver=d6
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0
M2PA Draft 6 Timers (in msec, T16 in microsec)
TSET T1
           T2
                 Т3
                       T4N
                             T4E T5
                                        T6 T7
                                                  T16
                                                          T17
T18
1
    27500 ---- 3850 45000 450 5700 3750 1150 250000 375
8750
rtrv-m2pa-tset:tset=9:ver=rfc
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0
M2PA RFC Timers (in msec, T16 in microsec)
TSET T1
           T2
                 Т3
                       T4N
                            T4E T5
                                       T6 T7
                                                  T16
                                                          T17
T18
```



```
9 27500 10000 3850 45000 450 5700 3750 1150 250000 375 8750 rtrv-m2pa-tset:tset=9:ver=d6 rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0 M2PA Draft 6 Timers (in msec, T16 in microsec) TSET T1 T2 T3 T4N T4E T5 T6 T7 T16 T17 T18 9 27500 ----- 3850 45000 450 5700 3750 1150 250000 375 8750
```

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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

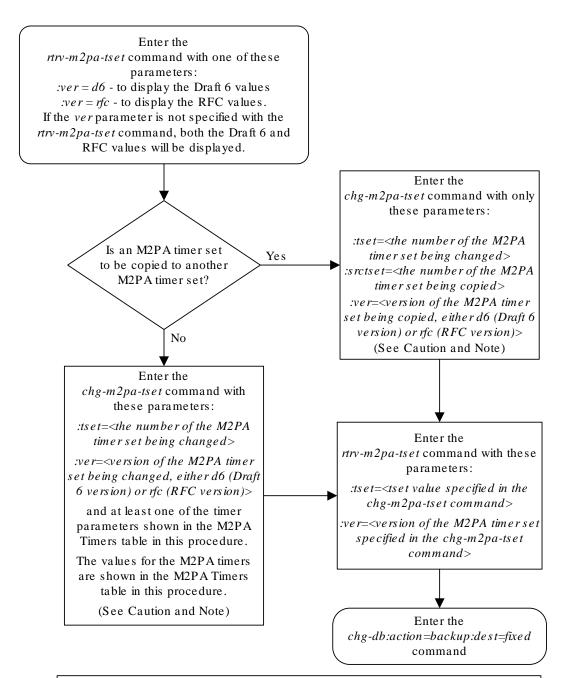
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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



Figure 3-22 Changing an M2PA Timer Set



Notes:

- 1. Either the timer parameters or the *srctset* parameter must be specified with the *chg-m2pa-tset* command. Both the timer parameters and the *srctset* parameter cannot be specified with the *chg-m2pa-tset* command.
- 2. If the *ver* parameter is not specified with the *chg-m2pa-tset* command, the RFC values will be changed. To change the Draft 6 values, the *ver=d6* parameter must be specified with the *chg-m2pa-tset* command.

Caution: Changing an M2PA timer set may affect the performance of any associations using the timer set being changed.

Changing the SCTP Checksum Algorithm Option for M2PA Associations

Use this procedure to change the SCTP checksum algorithm, either Adler-32 or CRC-32c, applied to traffic on SCTP associations. The sctpcsum parameter of the chg-sg-opts command is used to change this option. The Adler-32 and CRC-32c checksum algorithms specified in this procedure applies to all the associations that are assigned to all the IP cards running the IPLIM or IPLIMI applications. This option is a system-wide option. To apply this option to associations assigned to cards running the SS7IPGW, IPGWI, or IPSG applications, perform these procedures.

- Changing the SCTP Checksum Algorithm Option for IPSG M2PA Associations
- Changing the SCTP Checksum Algorithm Option for IPSG M3UA Associations
- Changing the SCTP Checksum Algorithm Option for M3UA and SUA Associations

The sctpcsum parameter contains another value, percard, that allows either the Adler-32 or CRC-32c SCTP checksum algorithm to be specified for the all the associations assigned to a specific card. With this option specified, the Adler-32 checksum algorithm can be specified for the associations on one card and the CRC-32c checksum algorithm can be specified for the associations on another card. Setting the sctpcsum parameter to percard changes the SCTP checksum algorithm for the associations assigned to a card to the SCTP checksum algorithm value for that card. The checksum algorithm for individual cards is provisioned by performing the Configuring an IP Card procedure.

Once the **SCTP** checksum option has been changed, the associations on each **IP** card need to be reset by changing the open parameter value for each association to no, then back to yes. This ensures that the associations on the **IP** card are using the new **SCTP** checksum algorithm.

Canceling the RTRV-ASSOC Command

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

- Press the F9 function key on the keyboard at the terminal where the rtrv-assoc command was entered.
- Enter the canc-cmd without the trm parameter at the terminal where the rtrv-assoc command was entered.
- Enter the canc-cmd:trm=<xx>, where <xx> is the terminal where the rtrv-assoc command was entered, from another terminal other that the terminal where the rtrv-assoc 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 rtry-user or rtry-secu-user commands.

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



1. Display the current **IP** options in the database by entering the rtrv-sg-opts command. The following is an example of the possible output.

```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0 SCTPCSUM: adler32
```

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

2. Display the cards in the **EAGLE** by entering the rtrv-card command. This is an example of the possible output.

rlg	jhn	CZ	ka03w 13-0	5-28 09:12	:36 GMT EAGLE5	45.0	. 0	
CAR			TYPE	APPL	LSET NAME	LINK	SLC	LSET NAME
LIN		S]						
110			DSM	VSCCP				
110			TSM	GLS				
111			E5MCAP	EOAM				
111			E5TDM-A					
111			E5MCAP	EOAM				
111			E5TDM-B					
111			E5MDAL					
120	1		LIMDS0	SS7ANSI	sp2	A	0	sp1
В		0						
120	3		LIMDS0	SS7ANSI	sp3	A	0	
120			LIMDS0	SS7ANSI	sp3	A	1	
120	6		LIMDS0	SS7ANSI	nsp3	A	1	nsp4
В		1						
130	1		LIMDS0	SS7ANSI	sp6	A	1	sp7
В		0						
130	2		LIMDS0	SS7ANSI	sp7	A	1	sp5
В		1						
130	3		DCM	IPLIM	ipnode1	A	0	ipnode3
В		1						
130)5		DCM	IPLIM	ipnode4	A	0	
131	.3		DCM	SS7IPGW	ipgtwy1	A	0	
210	1		DCM	SS7IPGW	ipgtwy2	A	0	
210	3		DCM	SS7IPGW	ipgtwy3	A	0	
210)5		DCM	IPLIM	ipnode1	A1	1	ipnode5
В		2						
220)5		DCM	IPLIM	ipnode3	A2	0	ipnode6
В1		2						
220	7		DCM	IPLIM	ipnode5	A	0	ipnode4
вЗ		1						
221	.3		DCM	IPLIM	ipnode5	A3	1	ipnode3
В2		2			-			-
230	1		DCM	IPLIM	ipnode6	A	0	ipnode1
В		2			=			=
230)5		DCM	IPLIM	ipnode6	A1	1	ipnode1
В1		3						=



Record the card location, shown in the LOC column, and signaling link, shown in the LINK column, information for all cards running the **IPLIM** or **IPLIMI** applications.

3. Change the SCTP checksum option in the database using the chg-sg-opts command. For this example, enter this command.

```
chg-sg-opts:sctpcsum=crc32c
```

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

```
rlghncxa03w 06-10-28 21:19:37 GMT EAGLE5 36.0.0 CHG-SG-OPTS: MASP A - COMPLTD
```

Continue the procedure by performing one of these actions.

- If the sctpcsum parameter value was changed to either adler32 or crc32c, continue the procedure with 4.
- If the sctpcsum parameter value was changed to percard, perform the Configuring an IP Card procedure to assign an sctpcsum parameter value to all the cards running the IPLIM or IPLIMI applications. After the Configuring an IP Card procedure has been performed, continue the procedure with 5.
- 4. Verify that the SCTP checksum algorithm was changed using the rtrv-sg-opts command. The SCTP checksum algorithm option value is shown in the SCTPCSUM parameter. The following is an example of the possible output.

```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0 SCTPCSUM: crc32c
```

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

5. Select one of the IP cards shown in the rtrv-card output in 2 running the IPLIM or IPLIMI applications. Place the signaling links on this card out of service using the dact-slk command. For this example, enter these commands.

```
dact-slk:loc=1308:link=a1
dact-slk:loc=1308:link=b
dact-slk:loc=1308:link=b2
```

When these commands have successfully completed, this message appears.

```
rlghncxa03w 06-10-12 09:12:36 GMT EAGLE5 36.0.0 Deactivate Link message sent to card
```

6. Display the **IP** addresses of the **IP** links in the database by entering the rtrv-ip-lnk command. The following is an example of the possible output.

```
rlghncxa03w 08-12-28 21:17:37 GMT EAGLE5 40.0.0
LOC PORT IPADDR SUBMASK DUPLEX SPEED MACTYPE AUTO
MCAST
```



1202 A	192.1.1.10	255.255.255.0	HALF	10	DIX
NO NO 1202 B			- HALF	10	DIX
NO NO 1205 A	192.1.1.12	255.255.255.0	HALF	10	DIX
1205 B			- HALF	10	DIX
NO NO 1207 A	192.1.1.14	255.255.255.0	HALF	10	DIX
1207 B			- HALF	10	DIX
1303 A NO NO	192.1.1.20	255.255.255.0	HALF	10	DIX
1303 B			- HALF	10	DIX
1305 A	192.1.1.22	255.255.255.0	HALF	10	DIX
1305 B			- HALF	10	DIX
1308 A	192.1.1.24	255.255.255.0	HALF	10	DIX
NO NO 1308 B			- HALF	10	DIX
NO NO 1315 A	192.1.1.50	255.255.255.0	HALF	10	DIX
1315 B			- HALF	10	DIX
1317 A NO NO	192.1.1.52	255.255.255.0	HALF	10	DIX
1317 B			- HALF	10	DIX
TO TAU	+-hl- i- /1C -4	5 2040) 10 513			

IP-LNK table is (16 of 2048) 1% full.

7. Display the current IP host information in the database by entering the rtrv-ip-host:display=all command. The following is an example of the possible output.

rlghncxa03w 08-12-28 21:17:37 GMT EAGLE5 40.0.0

LOCAL IPADDR 192.1.1.10 192.1.1.12 192.1.1.14 192.1.1.20 192.1.1.22 192.1.1.24 192.1.1.32 192.1.1.50	LOCAL HOST IPNODE1-1201 IPNODE1-1203 IPNODE1-1205 IPNODE2-1201 IPNODE2-1203 IPNODE2-1205 KC-HLR2 DN-MSC1
192.1.1.52	DN-MSC2
REMOTE IPADDR 150.1.1.5	REMOTE HOST NCDEPTECONOMIC DEVELOPMENT.



```
SOUTHEASTERN_COORIDOR_ASHVL. GOV

IP Host table is (10 of 4096) .24% full
```

8. Display the associations assigned to the **IP** card specified in 5, using the rtrv-assoc command with the local host name of the associations assigned to the **IP** card. To find the local host name of the association, the card location of the **IP** card is assigned to an **IP** address in the **IP** link table (rtrv-ip-lnk output). The **IP** address is assigned to a hostname in the **IP** host table (rtrv-ip-host output).

For this example, the local host name of associations assigned to the **IP** card 1308 (the card specified in 5) is **IPNODE2-**1205. Enter this command.

```
rtrv-assoc:lhost=ipnode2-1205
```

The following is an example of the possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0

CARD IPLNK

ANAME LOC PORT LINK ADAPTER LPORT RPORT OPEN ALW
assoc2 1308 A A1 M2PA 2187 1025 YES YES
assoc4 1308 A B M2PA 3290 1025 YES YES
assoc5 1308 A B2 M2PA 1057 1025 YES YES

IP Appl Sock/Assoc table is (9 of 4000) 1% full
Assoc Buffer Space Used (600 KB of 3200 KB) on LOC = 1308
```

9. Change the value of the open parameter of the associations shown in 8 to no by specifying the chg-assoc command with the open-no parameter. For this example, enter this command.

```
chg-assoc:aname=assoc2:open=no
chg-assoc:aname=assoc4:open=no
chg-assoc:aname=assoc5:open=no
```

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

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 CHG-ASSOC: MASP A - COMPLTD;
```

10. Change the value of the open parameter of the associations changed in 9 to yes by specifying the chg-assoc command with the open=yes parameter. For this example, enter this command.

```
chg-assoc:aname=assoc2:open=yes
chg-assoc:aname=assoc4:open=yes
chg-assoc:aname=assoc5:open=yes
```

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

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 CHG-ASSOC: MASP A - COMPLTD;
```



11. Verify the checksum algorithm that is assigned to the associations shown in 10 by entering the sctp -a pass command with the card location of the IP card specified in 5 and the name of the associations specified in 10. For this example, enter this command.

```
pass:loc=1308:cmd="sctp -a assoc2 "
```

The following is an example of the possible output.

```
rlghncxa03w 10-12-28 21:16:37 GMT EAGLE5 43.0.0
    Aname
                     Local
                                        Local
                                                 Primary
Remote
                     IP Address
                                        Port
                                                Address
                                                                Port
                     192.1.1.24
                                        2187
                                                192.168.112.4 1025
    assoc2
                     192.1.1.24
               Configuration
                                                         State
        Retransmission Mode = LIN
                                           State = OPEN
Min. Retransmission Timeout = 10000
                                           ULP association id = 18
Max. Retransmission Timeout = 800000
                                           Number of nets = 2
     Max. Number of Retries = 10
                                           Inbound Streams = 1
   Min. Congestion Window = 3000
                                           Outbound Streams = 2
            Inbound Streams = 2
           Outbound Streams = 2
         Checksum Algorithm = crc32c
       Send/Rcv Buffer Size = 204800
```

Nets Data

```
IP Address
                192.168.112.4
                                    State
                                               Reachable
                1025
      Port
                                  Primary
                                               YES
       MTU
               1500
                                     cwnd
                                               16384
                                               120
  ssthresh
               16384
                                      RTO
IP Address
               192.168.112.5
                                               Reachable
                                    State
                7777
                                               NO
      Port
                                  Primary
       MTU
                1500
                                               16384
                                     cwnd
                16384
  ssthresh
                                      RTO
                                               120
```

Last Net Sent To = 192.168.112.4 Last Net Rcvd From = 192.168.112.4

Over All Eror Count = 0

Peers Rwnd = 13880

My Rwnd = 16384

Max Window = 16384

Initial Seq Number = 24130

Next Sending Seg Number = 124686

Last Acked Seg Number = 124669

Maximum Outbound Char Count = 16384

Current Outbound Char Count = 2112

Number Unsent Char Count = 0
Outbound Data Chunk Count = 16

Number Unsent = 0

Number To Retransmit = 0



```
ip datagrams rcvd = 155402
 ip datagrams with data chunks rcvd = 120844
                   data chunks rcvd = 367908
                   data chunks read = 367900
                      dup tsns rcvd = 8
                         sacks rcvd = 38734
                gap ack blocks rcvd = 3
            heartbeat requests rcvd = 135
                heartbeat acks rcvd = 52
            heartbeat requests sent = 52
                  ip datagrams sent = 129254
 ip datagrams with data chunks sent = 73084
                   data chunks sent = 396330
        retransmit data chunks sent = 135
                         sacks sent = 64872
                         send failed = 0
             retransmit timer count = 0
    consecutive retransmit timeouts = 0
RTT between RMIN and RMAX inclusive = 6
              RTT greater than RMAX = 0
              fast retransmit count = 135
                   recv timer count = 0
              heartbeat timer count = 244
                   none left tosend = 0
                none left rwnd gate = 5
                none left cwnd gate = 8
;
    rlghncxa03w 10-12-28 21:16:37 GMT EAGLE5 43.0.0
   SCTP command complete
    rlghncxa03w 08-04-28 21:16:37 GMT EAGLE5 38.0.0
   Aname
                    Local
                             Local Primary
                    IP Address
                                      Port
                                               Address
   assoc2
                    192.1.1.24
                                       2187
                                               192.168.112.4 1025
                    192.1.1.24
              Configuration
                                                       State
       Retransmission Mode = LIN
                                       State = OPEN
Min. Retransmission Timeout = 10
                                         ULP association id = 18
Max. Retransmission Timeout = 800
                                        Number of nets = 2
                                          Inbound Streams = 1
    Max. Number of Retries = 10
   Min. Congestion Window = 3000
                                        Outbound Streams = 2
           Inbound Streams = 2
          Outbound Streams = 2
 Checksum Algorithm = crc32c
```

Nets Data

```
IP Address
                     192.168.112.4
                                       State
                                                   Reachable
                     1025
                                                   YES
              Port
                                      Primary
                   1500
              MTU
                                         cwnd
                                                   16384
                                                   120
          ssthresh 16384
                                           RTO
                   192.168.112.5
       IP Address
                                       State
                                                   Reachable
                     7777
             Port
                                       Primary
              MTU
                   1500
                                          cwnd
                                                  16384
                    16384
         ssthresh
                                           RTO
                                                  120
                  Last Net Sent To = 192.168.112.4
                Last Net Rcvd From = 192.168.112.4
               Over All Eror Count = 0
                        Peers Rwnd = 13880
                           My Rwnd = 16384
                        Max Window = 16384
                Initial Seq Number = 24130
           Next Sending Seq Number = 124686
             Last Acked Seg Number = 124669
       Maximum Outbound Char Count = 16384
       Current Outbound Char Count = 2112
          Number Unsent Char Count = 0
         Outbound Data Chunk Count = 16
                     Number Unsent = 0
              Number To Retransmit = 0
                 ip datagrams rcvd = 155402
ip datagrams with data chunks rcvd = 120844
                  data chunks rcvd = 367908
                  data chunks read = 367900
                     dup tsns rcvd = 8
                        sacks rcvd = 38734
               gap ack blocks rcvd = 3
           heartbeat requests rcvd = 135
               heartbeat acks rcvd = 52
           heartbeat requests sent = 52
                 ip datagrams sent = 129254
ip datagrams with data chunks sent = 73084
                  data chunks sent = 396330
       retransmit data chunks sent = 135
                        sacks sent = 64872
                       send failed = 0
            retransmit timer count = 0
    consecutive retransmit timeouts = 0
RTT between RMIN and RMAX inclusive = 6
             RTT greater than RMAX = 0
              fast retransmit count = 135
                  recv timer count = 0
             heartbeat timer count = 244
                  none left tosend = 0
               none left rwnd gate = 5
               none left cwnd gate = 8
```

```
rlghncxa03w 08-04-28 21:16:37 GMT EAGLE5 38.0.0
SCTP command complete
pass:loc=1308:cmd="sctp -a assoc4"
```

The following is an example of the possible output.

rlghncxa03w	10-12-28 21:16:37 GM	T EAGLE5 43	3.0.0	
Aname	Local	Local	Primary	Remote
	IP Address	Port	Address	Port
assoc4	192.1.1.24	3290	192.168.112.4	1025
	192.1.1.24			
(Configuration		State	

Retransmission Mode = LIN State = OPEN

Min. Retransmission Timeout = 10000 ULP association id = 18

Max. Retransmission Timeout = 800000 Number of nets = 2

Max. Number of Retries = 10 Inbound Streams = 1

Min. Congestion Window = 3000 Outbound Streams = 2

Inbound Streams = 2

Outbound Streams = 2

Outbound Streams = 2 Checksum Algorithm = crc32c Send/Rcv Buffer Size = 204800

Nets Data

IP Address	192.168.112.4	State	Reachable
Port	1025	Primary	YES
MTU	1500	cwnd	16384
ssthresh	16384	RTO	120
IP Address	192.168.112.5	State	Reachable
Port	7777	Primary	NO
MTU	1500	cwnd	16384
ssthresh	16384	RTO	120

Last Net Sent To = 192.168.112.4 Last Net Rovd From = 192.168.112.4

Over All Eror Count = 0

Peers Rwnd = 13880

My Rwnd = 16384 Max Window = 16384

Initial Seq Number = 24130

Next Sending Seq Number = 124686

Last Acked Seq Number = 124669

Maximum Outbound Char Count = 16384 Current Outbound Char Count = 2112

Number Unsent Char Count = 0

Outbound Data Chunk Count = 16

Number Unsent = 0

Number To Retransmit = 0



```
ip datagrams rcvd = 155402
  ip datagrams with data chunks rcvd = 120844
                   data chunks rcvd = 367908
                    data chunks read = 367900
                       dup tsns rcvd = 8
                          sacks rcvd = 38734
                 gap ack blocks rcvd = 3
            heartbeat requests rcvd = 135
                 heartbeat acks rcvd = 52
            heartbeat requests sent = 52
                   ip datagrams sent = 129254
  ip datagrams with data chunks sent = 73084
                    data chunks sent = 396330
         retransmit data chunks sent = 135
                          sacks sent = 64872
                         send failed = 0
              retransmit timer count = 0
     consecutive retransmit timeouts = 0
 RTT between RMIN and RMAX inclusive = 6
              RTT greater than RMAX = 0
               fast retransmit count = 135
                    recv timer count = 0
              heartbeat timer count = 244
                   none left tosend = 0
                none left rwnd gate = 5
                 none left cwnd gate = 8
    rlghncxa03w 10-12-28 21:16:37 GMT EAGLE5 43.0.0
    SCTP command complete
    rlghncxa03w 08-04-28 21:16:37 GMT EAGLE5 38.0.0
   Aname
                                                Primary
                    Local
                                        Local
Remote
                     IP Address
                                                Address
                                       Port
                                                               Port
                                        3290
   assoc4
                     192.1.1.24
                                               192.168.112.4 1025
                     192.1.1.24
               Configuration
                                                        State
       Retransmission Mode = LIN
                                          State = OPEN
Min. Retransmission Timeout = 10
                                          ULP association id = 18
Max. Retransmission Timeout = 800
                                          Number of nets = 2
    Max. Number of Retries = 10
                                          Inbound Streams = 1
   Min. Congestion Window = 3000
                                         Outbound Streams = 2
            Inbound Streams = 2
          Outbound Streams = 2
 Checksum Algorithm = crc32c
```



Nets Data

```
IP Address 192.168.112.4
                                        State
                                                 Reachable
             Port 1025
                                       Primary
                                                   YES
              MTU 1500
                                          cwnd
                                                   16384
          ssthresh 16384
                                          RTO
                                                   120
       IP Address 192.168.112.5
                                       State
                                               Reachable
             Port 7777
MTU 1500
                                      Primary
                                          cwnd
                                                   16384
         ssthresh
                     16384
                                           RTO
                                                   120
                  Last Net Sent To = 192.168.112.4
                Last Net Rcvd From = 192.168.112.4
               Over All Eror Count = 0
                        Peers Rwnd = 13880
                           My Rwnd = 16384
                        Max Window = 16384
                Initial Seq Number = 24130
           Next Sending Seq Number = 124686
             Last Acked Seg Number = 124669
       Maximum Outbound Char Count = 16384
        Current Outbound Char Count = 2112
          Number Unsent Char Count = 0
         Outbound Data Chunk Count = 16
                     Number Unsent = 0
              Number To Retransmit = 0
                 ip datagrams rcvd = 155402
ip datagrams with data chunks rcvd = 120844
                  data chunks rcvd = 367908
                  data chunks read = 367900
                     dup tsns rcvd = 8
                        sacks rcvd = 38734
               gap ack blocks rcvd = 3
           heartbeat requests rcvd = 135
               heartbeat acks rcvd = 52
            heartbeat requests sent = 52
                 ip datagrams sent = 129254
 ip datagrams with data chunks sent = 73084
                  data chunks sent = 396330
        retransmit data chunks sent = 135
                        sacks sent = 64872
                       send failed = 0
            retransmit timer count = 0
    consecutive retransmit timeouts = 0
RTT between RMIN and RMAX inclusive = 6
             RTT greater than RMAX = 0
             fast retransmit count = 135
                  recv timer count = 0
             heartbeat timer count = 244
                  none left tosend = 0
               none left rwnd gate = 5
               none left cwnd gate = 8
```



```
;
    rlghncxa03w 08-04-28 21:16:37 GMT EAGLE5 38.0.0
    SCTP command complete
pass:loc=1308:cmd="sctp -a assoc5 "
The following is an example of the possible output.
    rlghncxa03w 10-12-28 21:16:37 GMT EAGLE5 43.0.0
   Aname
                     Local
                                        Local
                                                 Primary
Remote
                     IP Address
                                         Port
                                                 Address
                     192.1.1.24
                                        1057
                                                 192.168.112.4 1025
    assoc5
                     192.1.1.24
               Configuration
                                                         State
        Retransmission Mode = LIN
                                            State = OPEN
Min. Retransmission Timeout = 10000
                                           ULP association id = 18
Max. Retransmission Timeout = 800000
                                           Number of nets = 2
    Max. Number of Retries = 10
                                           Inbound Streams = 1
   Min. Congestion Window = 3000
                                           Outbound Streams = 2
            Inbound Streams = 2
           Outbound Streams = 2
         Checksum Algorithm = crc32c
       Send/Rcv Buffer Size = 204800
                                 Nets Data
         IP Address
                        192.168.112.4
                                                      Reachable
                                            State
               Port.
                        1025
                                          Primary
                                                      YES
                MTU
                        1500
                                             cwnd
                                                      16384
           ssthresh
                       16384
                                              RTO
                                                      120
         IP Address
                        192.168.112.5
                                                      Reachable
                                            State
               Port
                        7777
                                          Primary
                                                      NO
                MTU
                        1500
                                                      16384
                                             cwnd
           ssthresh
                        16384
                                              RTO
                                                      120
                    Last Net Sent To = 192.168.112.4
                  Last Net Rcvd From = 192.168.112.4
                 Over All Eror Count = 0
                          Peers Rwnd = 13880
                             My Rwnd = 16384
                          Max Window = 16384
                  Initial Seq Number = 24130
             Next Sending Seq Number = 124686
               Last Acked Seq Number = 124669
         Maximum Outbound Char Count = 16384
```

Current Outbound Char Count = 2112
Number Unsent Char Count = 0

```
Outbound Data Chunk Count = 16
                      Number Unsent = 0
                Number To Retransmit = 0
                   ip datagrams rcvd = 155402
  ip datagrams with data chunks rcvd = 120844
                   data chunks rcvd = 367908
                    data chunks read = 367900
                       dup tsns rcvd = 8
                          sacks rcvd = 38734
                 gap ack blocks rcvd = 3
            heartbeat requests rcvd = 135
                 heartbeat acks rcvd = 52
            heartbeat requests sent = 52
                  ip datagrams sent = 129254
  ip datagrams with data chunks sent = 73084
                   data chunks sent = 396330
         retransmit data chunks sent = 135
                          sacks sent = 64872
                         send failed = 0
              retransmit timer count = 0
     consecutive retransmit timeouts = 0
RTT between RMIN and RMAX inclusive = 6
              RTT greater than RMAX = 0
               fast retransmit count = 135
                   recv timer count = 0
              heartbeat timer count = 244
                   none left tosend = 0
                none left rwnd gate = 5
                none left cwnd gate = 8
;
    rlghncxa03w 10-12-28 21:16:37 GMT EAGLE5 43.0.0
    SCTP command complete
   rlghncxa03w 08-04-28 21:16:37 GMT EAGLE5 38.0.0
   Aname
                    Local
                                       Local Primary
                                                              Remote
                    IP Address
                                       Port
                                                Address
                                                               Port
                                       1057
   assoc5
                    192.1.1.24
                                               192.168.112.4 1025
                    192.1.1.24
               Configuration
                                                        State
        Retransmission Mode = LIN
                                          State = OPEN
Min. Retransmission Timeout = 10
                                          ULP association id = 18
Max. Retransmission Timeout = 800
                                          Number of nets = 2
                                          Inbound Streams = 1
    Max. Number of Retries = 10
                                         Outbound Streams = 2
   Min. Congestion Window = 3000
           Inbound Streams = 2
          Outbound Streams = 2
 Checksum Algorithm = crc32c
```

Nets Data

```
IP Address
                     192.168.112.4
                                        State
                                                   Reachable
              Port
                     1025
                                        Primary
                                                   YES
              MTU
                     1500
                                          cwnd
                                                    16384
                   16384
                                                   120
          ssthresh
                                           RTO
                   192.168.112.5
7777
        IP Address
                                         State
                                                   Reachable
              Port
                                       Primary
                                                    NO
              MTU
                     1500
                                           cwnd
                                                    16384
          ssthresh
                     16384
                                            RTO
                                                    120
                  Last Net Sent To = 192.168.112.4
                Last Net Rcvd From = 192.168.112.4
                Over All Eror Count = 0
                         Peers Rwnd = 13880
                           My Rwnd = 16384
                        Max Window = 16384
                 Initial Seq Number = 24130
           Next Sending Seq Number = 124686
              Last Acked Seq Number = 124669
        Maximum Outbound Char Count = 16384
        Current Outbound Char Count = 2112
           Number Unsent Char Count = 0
          Outbound Data Chunk Count = 16
                     Number Unsent = 0
               Number To Retransmit = 0
                  ip datagrams rcvd = 155402
 ip datagrams with data chunks rcvd = 120844
                   data chunks rcvd = 367908
                   data chunks read = 367900
                      dup tsns rcvd = 8
                         sacks rcvd = 38734
                gap ack blocks rcvd = 3
            heartbeat requests rcvd = 135
                heartbeat acks rcvd = 52
            heartbeat requests sent = 52
                  ip datagrams sent = 129254
 ip datagrams with data chunks sent = 73084
                   data chunks sent = 396330
        retransmit data chunks sent = 135
                         sacks sent = 64872
                        send failed = 0
             retransmit timer count = 0
    consecutive retransmit timeouts = 0
RTT between RMIN and RMAX inclusive = 6
              RTT greater than RMAX = 0
              fast retransmit count = 135
                  recv timer count = 0
              heartbeat timer count = 244
                   none left tosend = 0
```



```
none left rwnd gate = 5
none left cwnd gate = 8

;
rlghncxa03w 08-04-28 21:16:37 GMT EAGLE5 38.0.0
SCTP command complete
```

If the checksum algorithm shown in any of the associations displayed in this step do not match the checksum algorithm specified in 3, contact the Customer Care Center. Refer to My Oracle Support (MOS) for the contact information.

If the checksum algorithm shown in all of the associations displayed in this step match the checksum algorithm specified in 3, continue the procedure with 12.

12. Put the signaling links that were placed out of service in 5 back into service using the act-slk command. For example, enter this command.

```
act-slk:loc=1308:link=a1
act-slk:loc=1308:link=b
act-slk:loc=1308:link=b2
```

When these commands have successfully completed, this message appears.

```
rlghncxa03w 06-10-07 11:11:28 GMT EAGLE5 36.0.0 Activate Link message sent to card
```

13. Verify the in-service normal (**IS-NR**) status of the signaling link by using the rept-stat-slk command and specifying the card location and link values specified in **12**.

For example, enter these commands.

```
rept-stat-slk:loc=1308:link=a1
```

This message should appear.

```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0

SLK LSN CLLI PST SST AST 1308,A1 ipnode1 ----- IS-NR Avail ----
```

```
rept-stat-slk:loc=1308:link=b
```

This message should appear.

```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0
SLK LSN CLLI PST SST AST 1308,B ipnode3 ------ IS-NR Avail ----
Command Completed.
```

```
rept-stat-slk:loc=1308:link=b2
```



This message should appear.

```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0

SLK LSN CLLI PST SST AST
1308,B2 ipnode4 ------ IS-NR Avail ----
```

14. Enter the netstat -p sctp pass command with the card location of the **IP** card to determine if any errors have occurred. For this example, enter this command.

```
pass:loc=1308:cmd="netstat -p sctp"
```

The following is an example of the possible output.

```
rlghncxa03w 08-04-28 21:16:37 GMT EAGLE5 38.0.0
ip packets sent with data chunk...... 306354
   control chunks (excluding retransmissions)..... 1172759
   ordered data chunks (excluding retransmissions).. 1534350
   unordered data chunks (excluding retransmissions) 0
   user messages fragmented due to MTU..... 0
   retransmit data chunks sent...... 4
   send failed...... 0
 ip packets received...... 1816035
   ip packets received with data chunk..... 989957
   control chunks (excluding duplicates)...... 833141
   ordered data chunks (excluding duplicates)..... 989968
   unordered data chunks (excluding duplicates).... 0
   user messages reassembled...... 0
   data chunks read..... 988601
   out of the blue......4
   by upper layer..... 0
   connections terminated..... 4
   gracefully......0
 associations dropped due to retransmits...... 0
 consecutive retransmit timeouts...... 4
 associations supported...... 50
 milliseconds cookie life at 4-way start-up handshake. 5000
 retransmission attempts allowed at start-up phase.... 8
```



;

```
rlghncxa03w 08-04-28 21:16:37 GMT EAGLE5 38.0.0
NETSTAT command complete
```

If errors are shown in the pass command output, contact the Customer Care Center. Refer to My Oracle Support (MOS) for the contact information.

- 15. Repeat 5 through 14 to update the other IP cards in the EAGLE running the IPLIM and IPLIMI applications with the new SCTP checksum algorithm.
 - If the rtrv-card output in 2 shows cards running the **SS7IPGW**, **IPGWI**, or IPSG applications, continue the procedure with 17.
- 16. Back up the database by entering 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.
```

17. If the rtrv-card output in 2 shows cards running the SS7IPGW or IPGWI applications, perform the Changing the SCTP Checksum Algorithm Option for M3UA and SUA Associations procedure.

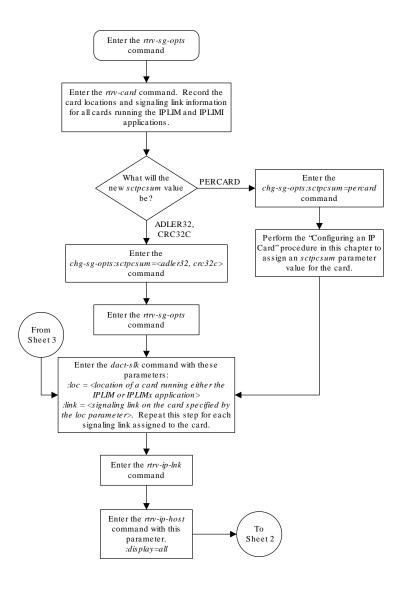
If the rtrv-card output in 2 shows cards running the **IPSG** application, perform these procedures.

- Changing the SCTP Checksum Algorithm Option for IPSG M3UA Associations
- Changing the SCTP Checksum Algorithm Option for IPSG M2PA Associations

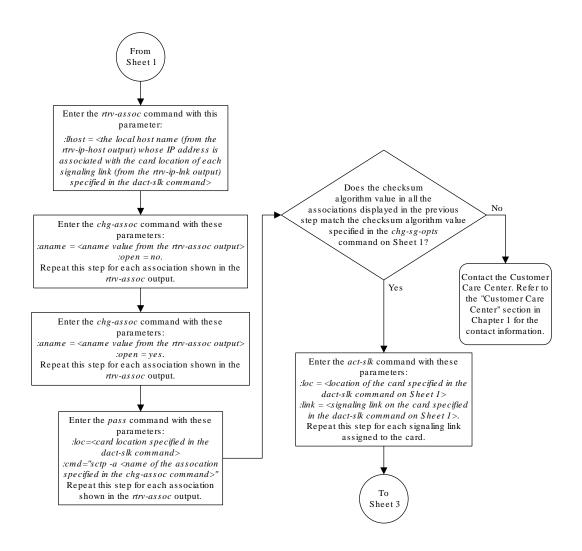
If the rtrv-card output in 2 shows that there are no cards running the SS7IPGW, IPGWI, or IPSG applications, this procedure is finished.



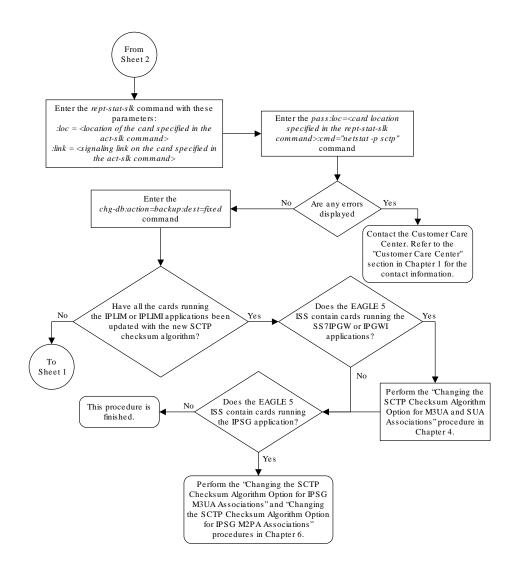
Figure 3-23 Changing the SCTP Checksum Algorithm Option for M2PA Associations



Sheet 1 of 3



Sheet 2 of 3



Sheet 3 of 3

Turning Off the Large MSU Support for IP Signaling Feature

This procedure is used to turn off the Large MSU Support for IP Signaling feature, using the <code>chg-ctrl-feat</code> command.

The chg-ctrl-feat command uses these parameters:

:partnum - The part number of the Large MSU Support for IP Signaling feature, 893018401.

: status=off - used to turn off the Large MSU Support for IP Signaling feature.

The status of the Large MSU Support for IP Signaling feature must be on and is shown with the rtrv-ctrl-feat command.



Caution:

If the Large MSU Support for IP Signaling feature is turned off, the EAGLE will not process messages with a signaling information field (**SIF**) that is larger than 272 bytes.

1. Display the status of the Large MSU Support for IP Signaling feature by entering the rtrv-ctrl-feat:partnum=893018401 command. The following is an example of the possible output.

```
rlghncxa03w 10-04-28 21:15:37 GMT EAGLE5 42.0.0 The following features have been permanently enabled:
```

```
Feature Name Partnum Status Quantity Large MSU for IP Sig 893018401 on ----
```

The following features have been temporarily enabled:

Feature Name Partnum Status Quantity Trial Period Left

Zero entries found.

The following features have expired temporary keys:

Feature Name Partnum Zero entries found.

If the status of the Large MSU Support for IP Signaling feature is off, or if the Large MSU Support for IP Signaling feature is not enabled, this procedure cannot be performed.

2. Turn off the Large MSU Support for IP Signaling feature by entering the chg-ctrl-feat command with the status=off parameter. For example, enter this command.

```
chg-ctrl-feat:partnum=893018401:status=off
```

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

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0 CHG-CTRL-FEAT: MASP B - COMPLTD
```

3. Verify that the Large MSU Support for IP Signaling feature has been turned off by using the rtrv-ctrl-feat:partnum=893018401 command. The following is an example of the possible output.

```
rlghncxa03w 10-04-28 21:15:37 GMT EAGLE5 42.0.0 The following features have been permanently enabled:
```



Feature Name Partnum Status Quantity Large MSU for IP Sig 893018401 off ----

The following features have been temporarily enabled:

Feature Name Partnum Status Quantity Trial

Period Left

Zero entries found.

The following features have expired temporary keys:

Feature Name Partnum

Zero entries found.

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

BACKUP (FIXED) : MASP A - Backup starts on active MASP.

BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk

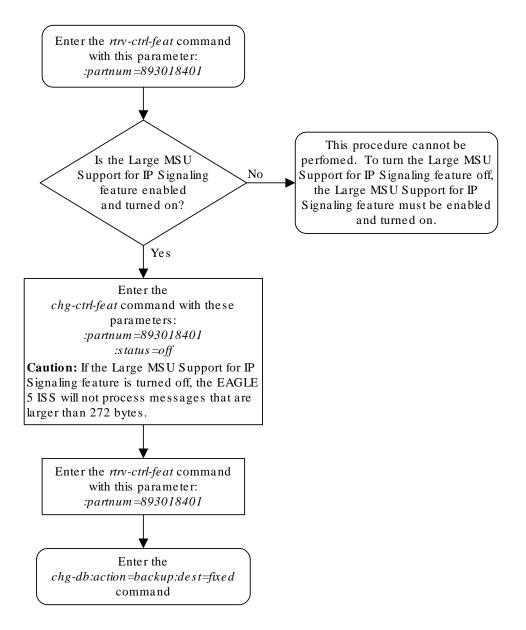
complete.

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk

complete.

Figure 3-24 Turning Off the Large MSU Support for IP Signaling Feature





4

IETF M3UA and SUA Configuration Procedures

Chapter 4, IETF M3UA and SUA Configuration Procedures, describes the procedures necessary to configure the components necessary to establish IP connections using M3UA or SUA associations on IPGWx signaling links.

Adding IETF M3UA and SUA Components

This section describes how to configure the components necessary to establish **IP** connections using **M3UA** or **SUA** associations on **IPGWx** signaling links. **IPGWx** signaling links are signaling links assigned to cards running either the **SS7IPGW** or **IPGWI** applications. The **SS7IPGW** application supports point-to-multipoint connectivity for **ANSI** networks. The **IPGWI** application supports point-to-multipoint connectivity for **ITU** networks.

The configuration of these IP connections consists of these items.

 Configure the IPGWx card with the Adding an IPGWx Card procedure. Turn the ISUPover-IP (ipisup) feature with the chg-feat command.

Note:

Before turning on the **ISUP**-over-**IP** feature (ipisup) feature, make sure you have purchased these features. If you are not sure whether you have purchased the **ISUP**-over-**IP** feature, contact your Oracle Sales Representative or Account Representative. Once a feature has been turned on with the chgfeat command, the feature cannot be turned off.

- 2. Configure the required destination point codes see Chapter 2, "Configuring Destination Tables," in *Database Administration SS7 User's Guide*.
- Configure the required IPGWx linksets with the Configuring an IPGWx Linkset procedure.
 If you wish to add a mate IPGWx linkset to another IPGWx linkset, perform the Adding a Mate IPGWx Linkset to another IPGWx Linkset procedure.
- 4. Configure the IPGWx signaling links with the Adding an IPGWx Signaling Link procedure. If the addition of these signaling links will exceed the current number of signaling links the EAGLE is allowed to have, the Enabling the Large System # Links Controlled Feature procedure will have to be performed to increase the quantity of signaling links.
- **5.** Configure the required routes see Chapter 3, "SS7 Configuration," in *Database Administration SS7 User's Guide*.
- 6. IP addresses must be assigned to the IPGWx card configured in step 1 by performing theConfiguring an IP Link procedure. There are other IP link parameters that are assigned to the IPGWx card when the IPGWx card is configured. Default values are assigned to these parameters when the IPGWx card is configured. These values can be displayed by the rtrv-ip-lnk command. These values can be changed by performing theConfiguring an IP Link procedure.

- 7. Local **IP** hosts, assigned to the **IP** addresses assigned to step 6, must be configured in the database by performing the Adding an **IP** Host procedure. Verify the hosts with the rtrv-ip-host command. This establishes a relationship between the **IP** card related information and the connection related information.
- 8. When the **IP** cards are added to the database in step 1, there are **IP** parameters that control the **IP** stack that are assigned default values. These parameter values can be displayed by the rtrv-ip-card command. These values can be changed by performing the Configuring an **IP** Card procedure.
- 9. Static **IP** routes provide more flexibility in selecting the path to the remote destination and reduces the dependence on default routers. Static **IP** routes are provisioned by performing the Adding an IP Route procedure.
- 10. Associations specify a connection between a local host/TCP port and a remote host/TCP port. Three types of associations can be provisioned: M2PA, M3UA, and SUA. Associations that are assigned to IPGWx signaling links must be either M3UA or SUA associations. The M3UA and SUA associations are configured by performing the Adding an M3UA or SUA Association procedure. M2PA associations that are assigned to IPLIMx signaling links are provisioned with the Adding an M2PA Association procedure in IETF M2PA Configuration Procedures. Associations can be assigned to IPSG signaling links also. These associations are configured by performing the Adding an IPSG M2PA Association or Adding an IPSG M3UA Association procedures. A number of fields in the association cannot be configured with the Adding an M3UA or SUA Association procedure and are set to default values. The values of these fields can be displayed using the rtrvassoc command after the Adding an M3UA or SUA Association procedure is performed. These values can be changed by performing these procedures: Changing the Attributes of a M3UA or SUA Association, Changing the Buffer Size of a M3UA or SUA Association. Only one signaling link can be assigned to an IPGWx card. A maximum of 50 IP connections can be assigned to an IPGWx card.
- 11. When an M3UA or SUA association is added to the database, UA parameter set 10 is assigned to the association. There are 10 UA parameter sets that can be assigned to an association, but the UA parameter set assignment can be changed, using the Changing the Attributes of a M3UA or SUA Association procedure. The values assigned to each UA parameter set can be changed, except for UA parameter set 10, using the Changing a UA Parameter Set procedure.
- **12.** The application server contains a set of one to 16 associations, of which one or more is normally actively processing traffic. Application servers are configured by performing on of these procedures:
 - Adding a New Association to a New Application Server
 - Adding an Existing Association to a New Application Server
 - Adding a New Association to an Existing Application Server
 - Adding an Existing Association to an Existing Application Server

If the associations assigned to application server are **M3UA** associations, and the open parameter value for these associations is yes, then the same **UA** parameter set must be assigned to all of the associations in the application server.

13. Routing keys specify **MSU** filters for the **IP** connection. Configure the routing keys with theAdding a Routing Key Containing an Application Server procedure.



- **14.** An internal point code can be provisioned to provide routing to an **IP** end office node. Configure the internal point codes by performing the Adding an End Node Internal Point Codeprocedure.
- 15. The network appearance field identifies the SS7 network context for the message, for the purpose of logically separating the signaling traffic between the SGP (signaling gateway process) and the application server over a common SCTP (stream control transmission protocol) association. This field is contained in the DATA, DUNA, DAVA, DRST, DAUD, SCON, and DUPU messages. Network appearances are configured by performing the Adding a Network Appearance procedure.
- 16. The EAGLE processes messages with a service information field (SIF) that is 272 bytes or smaller. The Large MSU Support for IP Signaling feature allows the EAGLE to process messages with a service indicator value of 6 to 15 and with a SIF that is larger than 272 bytes. Perform the Activating the Large MSU Support for IP Signaling Feature procedure to enable and turn on the Large MSU Support for IP Signaling feature.

Adding an IPGWx Card

This procedure is used to add an IPGWx card to the database using the ent-card command. An IPGWx card is a card that is running either the SS7IPGW or IPGWI applications. Table 4-1shows the cards that can be provisioned in this procedure.

Table 4-1 IPGWx Card Types

Card Type	Part Number
E5-ENET	870-2212-xx
E5-ENET-B	870-2971-xx

The EAGLE can support a combination of E5-ENET and E5-ENET-B cards.

The ent-card command uses these parameters.

- :loc The location of the card being added to the database.
- : type The type of card being added to the database. For this procedure, the value of this parameter is dem.
- : appl The application software that is assigned to the card. For this procedure, the value of this parameter is ss7ipgw for ANSI IP network connections or ipgwi for ITU IP network connections.
- :force If the global title translation feature is on, the force=yes parameter allows the LIM to be added to the database even if the current SCCP transactions-per-second threshold is unable to support the additional SCCP transaction-per-second capacity created by adding the IP card. This parameter is obsolete and is no longer used.

If you have purchased the ISUP-over-IP (ipisup) feature, verify that the ISUP-over-IP feature is turned on (ipisup=on) using the rtrv-feat command. If the appropriate feature is off, turn it on with the chg-feat command. For more information on the ISUP-over-IP feature, refer to section Point-to-Multipoint Connectivity (SS7IPGW and IPGWI).



Before turning on the ISUP-over-IP feature (ipisup), make sure you have purchased this feature. If you are not sure whether you have purchased the ISUP-over-IP feature, contact your Oracle Sales Representative or Account Representative. Once a feature has been turned on with the chg-feat command, the feature cannot be turned off.

Card Slot Selection

The E5-ENET card can be inserted into any card slot, except for card slots that must remain empty to accommodate dual-slot cards, slots 09 and 10 in each shelf, and slots 1113 through 1118.

To provision a E5-ENET card, the shelf containing the E5-ENET card must have HIPR2 cards installed in slots 9 and 10 in that shelf. If HIPR2 cards are not installed in the shelf that the E5-ENET card will occupy, the E5-ENET card will be auto-inhibited when the E5-ENET card is inserted into the shelf. Enter the rept-stat-gpl=hipr2 command to verify whether or not HIPR2 cards are installed in the same shelf as the E5-ENET card being provisioned in this procedure.

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

This is an example of the possible output. Cards should be distributed throughout the EAGLE for proper power distribution. Refer to *Installation Guide* for the shelf power distribution.

rlghncxa03w	09-03-05 08:1	.2:53 GMT 41	.0.0		
CARD TYPE	APPL	LSET NAME	LINK	SLC	LSET NAME
LINK SLC					
1101 DSM	VSCCP				
1102 TSM	GLS				
1113 GSPM	EOAM				
1114 TDM-A					
1115 GSPM	EOAM				
1116 TDM-B					
1117 MDAL					
1201 LIMDS	0 SS7ANSI	sp2	A	0	sp1
В 0					
1203 LIMDS	0 SS7ANSI	sp3	A	0	
1204 LIMDS	0 SS7ANSI	sp3	A	1	
1206 LIMDS	0 SS7ANSI	nsp3	A	1	nsp4
В 1					
1301 LIMDS	0 SS7ANSI	sp6	A	1	sp7
В 0					
1302 LIMDS	0 SS7ANSI	sp7	A	1	sp5
В 1					
1303 DCM	IPLIM	ipnode1	A	0	ipnode3
В 1					
1305 DCM	IPLIM	ipnode4	A	0	
2101 ENET	IPSG				
2103 ENET	IPSG				
2105 ENET	IPSG				
2107 ENET	IPSG				



2201	DCM	IPLIM
2203	DCM	IPLIM
2207	DCM	IPLIM
2211	DCM	SS7IPGW
2213	DCM	SS7IPGW
2215	DCM	IPGWI
2217	DCM	IPGWI
2301	DCM	SS7IPGW
2303	DCM	SS7IPGW
2305	DCM	IPGWI
2307	DCM	IPGWI
2311	DCM	IPLIMI
2313	DCM	IPLIMI

If the required unprovisioned card slots (see the Card Slot Selection section) are shown in the rtrv-card output, continue the procedure with 4.

If the required unprovisioned card slots are not shown in the rtrv-card output, 2 must be performed.

2. Display the shelves in the database by entering the rtrv-shlf command. This is an example of the possible output.

```
rlghncxa03w 08-03-05 08:12:53 GMT 38.0.0
SHELF DISPLAY
FRAME SHELF
                 TYPE
 1
      1
             CONTROL
 1
      2
             EXTENSION
 1
      3
              EXTENSION
       1
              EXTENSION
 2
       2
              EXTENSION
       3
              EXTENSION
```

If all the shelves are provisioned in the database, this procedure cannot be performed. There are no available card slots for the new IPGWx card.

If all the shelves have not been provisioned in the database, continue the procedure with 3.

3. Add the required shelf using the ent-shlf command with the location of the shelf and the type=ext parameter. The shelf location values are 1200, 1300, 2100, 2200, 2300, 3100, 3200, 3300, 4100, 4200, 4300, 5100, 5200, 5300, and 6100. For this example, enter this command.

```
ent-shlf:loc=3100:type=ext
```

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

```
rlghncxa03w 07-05-01 09:12:36 GMT EAGLE5 37.0.0 ENT-SHLF: MASP A - COMPLTD
```

4. Verify that the card to be entered has been physically installed into the proper location (see the Card Slot Selection section). If the card has not been installed, insert the card into the desired card location following the rules described in the Card Slot Selection section.



Caution:

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

If the ISUP-over-IP feature will be used, continue the procedure with 5.

If the ISUP-over-IP feature will not be used, continue the procedure with one of these actions.

- If the card being added in this procedure is not an E5-ENET card, continue the procedure with 12.
- If the card being added in this procedure is an E5-ENET card, continue the procedure with 7.
- 5. Verify the ISUP-over-IP feature is on by entering the rtrv-feat command. If the ISUP-over-IP feature is on, the ipisup field is set to on.



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 rtrvfeat command, see the rtrv-feat command description in the Commands User's Guide.

If the ISUP-over-IP feature is on, continue the procedure with one of these actions.

- If the card being added in this procedure is not an E5-ENET card, continue the procedure with 12.
- If the card being added in this procedure is an E5-ENET card, continue the procedure with 7.

If the ISUP-over-IP feature is not on, continue the procedure with 6.

6. Turn the ISUP-over-IP feature on by entering this command.

To enable the ISUP-over-IP feature, enter this command.

chg-feat:ipisup=on



Once the ISUP-over-IP feature is turned on with the chg-feat command, it cannot be turned off.





The ISUP-over-IP feature must be purchased before turning them on. If you are not sure whether you have purchased the ISUP-over-IP feature, contact your Sales Representative or Account Representative.

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

```
rlghncxa03w 06-10-12 09:12:36 GMT EAGLE5 36.0.0 CHG-FEAT: MASP A - COMPLTD
```

After the ISUP-over-IP feature is turned on, continue the procedure with one of these actions.

- If the card being added in this procedure is not an E5-ENET card, continue the procedure with 12.
- If the card being added in this procedure is an E5-ENET card, continue the procedure with 7.
- 7. Verify that HIPR2 cards are installed in card locations 9 and 10 in the shelf containing the E5-ENET card being added in this procedure. Enter this command.

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

This is an example of the possible output.

rlghncxa03	w 09-07-05	08:12:53 GMT	41.1.0	
GPL	CARD	RUNNING	APPROVED	TRIAL
HIPR2	1109	132-002-000	132-002-000	132-003-000
HIPR2	1110	132-002-000	132-002-000	132-003-000
HIPR2	1209	132-002-000	132-002-000	132-003-000
HIPR2	1210	132-002-000	132-002-000	132-003-000
HIPR2	1309	132-002-000	132-002-000	132-003-000
HIPR2	1310	132-002-000	132-002-000	132-003-000
HIPR2	2109	132-002-000	132-002-000	132-003-000
HIPR2	2110	132-002-000	132-002-000	132-003-000
HIPR2	2209	132-002-000	132-002-000	132-003-000
HIPR2	2210	132-002-000	132-002-000	132-003-000
HIPR2	2309	132-002-000	132-002-000	132-003-000
HIPR2	2310	132-002-000	132-002-000	132-003-000
Command Co	mpleted			

If HIPR2 cards are installed in the shelf containing the E5-ENET card, continue the procedure with 12.

If HIPR2 cards are not installed on the shelf containing the E5-ENET card, go to *Installation Guide* and install the HIPR2 cards. Once the HIPR2 cards have been installed, continue the procedure with 12.

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

This is an example of the possible output.

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



```
MFC off
```

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

If the MFC option is off, perform the Configuring the MFC Option procedure in *Database Administration - System Management User's Guide* to turn on the MFC option.

If the MFC option is on or the Configuring the MFC Option procedure in *Database Administration - System Management User's Guide* was performed in this step, continue the procedure with 9.

9. The Fan feature must be turned on. If the rtrv-feat command in 5 was not performed, enter the rtrv-feat command to verify that the Fan feature is on.

If the Fan feature is on, shown in either the rtrv-feat output in this step or in 6 If 13 was performed, the FAN field should be set to on.

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

If the Fan feature is on, continue the procedure with 11.

If the Fan feature is off, continue the procedure with 10.

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

```
chq-feat:fan=on
```



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

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

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

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

If the fans are installed, continue the procedure with 12.

If the fans are not installed on the shelf containing the E5-ENET-B card, go to *Installation User's Guide* and install the fans. After the fans have been installed and tested, continue the procedure with 12.

12. Add the card using the ent-card command.

For this example, enter these commands.

```
ent-card:loc=1315:type=dcm:appl=ss7ipgw
ent-card:loc=1317:type=dcm:appl=ipgwi
```



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

```
rlghncxa03w 06-10-12 09:12:36 GMT EAGLE5 36.0.0 ENT-CARD: MASP A - COMPLTD
```

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

For this example, enter these commands.

```
rtrv-card:loc=1315
```

This is an example of the possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
CARD TYPE APPL LSET NAME LINK SLC LSET NAME LINK SLC
1315 DCM SS7IPGW
```

```
rtrv-card:loc=1317
```

This is an example of the possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0

CARD TYPE APPL LSET NAME LINK SLC LSET NAME LINK SLC
1317 DCM IPGWI
```

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

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

```
BACKUP (FIXED): MASP A - Backup starts on active MASP.

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

BACKUP (FIXED): MASP A - Backup starts on standby MASP.

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

15. If you wish to change the quantity of static routing keys in the database, perform the Changing IP Options procedure.

Otherwise, this procedure is finished.

Enter the rtrv-card command. Note: See the Card Slot Selection section in the "Adding an IPGWx Card" procedure in the Database Administration Manual - IP7 Secure Are the required Yes unprovisioned card slots Enter the rtrv-shlf command. shown in the rtrv-card output? See the Note. Enter the ent-shlf command with these parameters. loc=<location of the shelf: Visually verify that Have all the No 1200, 1300, 2100, 2200, the IP card has been shelves been 2300, 3100, 3200, 3300, installed into the provisioned? 4100, 4200, 4300, 5100, EAGLE $5\ IS\ S$. 5200, 5300, or 6100> :type=extThis procedure cannot be performed Has the No Yes IP card been as no card slots are installed? available for the new Insert the IP card into the desired card location following the rules described in the Card Slot Selection section. This Has UAM Nο section is in the "Adding an 0002 been IPGWx Card" procedure in the generated? Database Administration Manual - IP7 Secure Gateway. Yes Perform the alarm clearing procedure for UAM 0002 in Tο the Unsolicited Alarm Sheet 2 and Information Messages manual to clear the alarm.

Figure 4-1 Add an IPGWx Card - Sheet 1 of 3

Before executing this procedure, make sure you have purchased the ISUP-over-IP feature. If you are not sure whether you have purchased the ISUP-over-IP feature, contact your Sales Representative or Account Representative.

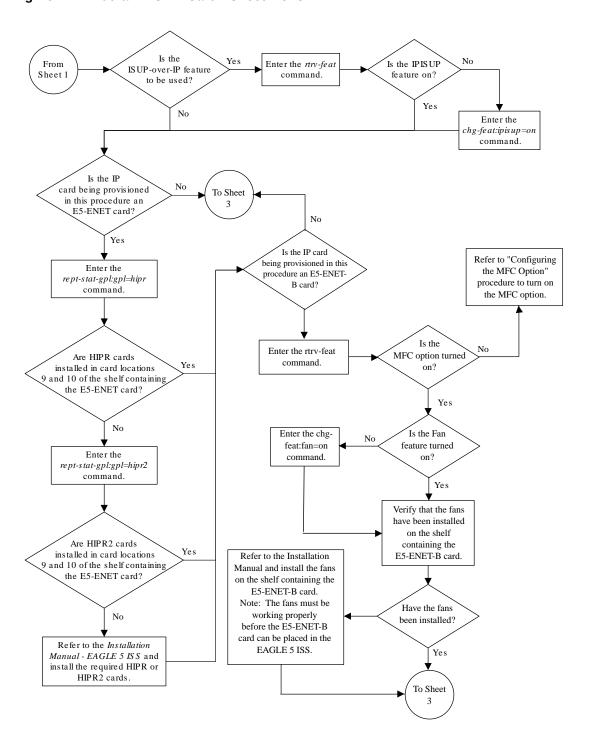
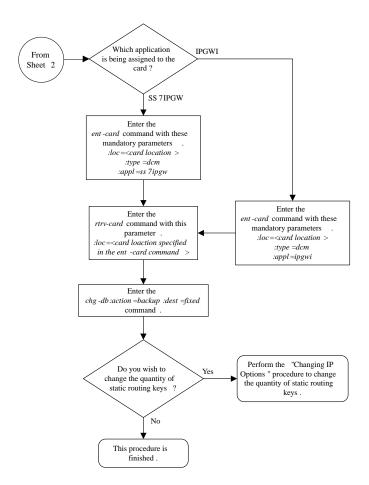


Figure 4-2 Add an IPGWx Card - Sheet 2 of 3



Figure 4-3 Add an IPGWx Card - Sheet 3 of 3



Configuring an IPGWx Linkset

This procedure is used to configure IPGWx linksets in the EAGLE using the <code>ent-ls</code> or <code>chg-ls</code> commands with these parameters. An IPGWx linkset is a linkset that contains signaling links running either the SS7IPGW or IPGWI applications.

This procedure is not used to configure a mate **IPGWx** linkset, with the matelsn and action parameters. To configure a mate **IPGWx** linkset, perform procedure.

:lsn – The name of the linkset. The linkset name can contain up to 10 characters, with the first character being a letter. However, the **SEAS** interface supports only eight characters. If this linkset is displayed on the **SEAS** interface and the linkset name contains more than eight characters, only the first eight characters in the linkset name are shown. If this linkset name contains more than eight characters, and is specified with the linkset commands on the **SEAS** interface, only the first eight characters can be specified.

: apc/apca/apci/apcn/apcn24 – Adjacent point code – the point code identifying the node that is next to the **EAGLE**. The adjacent point code can be one of the following types of point codes:

:apc/apca - ANSI point code, ANSI private point code

apci-ITU-I point code, ITU-I spare point code, ITU-I private point code, ITU-I private spare point code.

:apcn — 14-bit ITU-N point code, 14-bit ITU-N spare point code, 14-bit ITU-N private point code, 14-bit ITU-N private spare point code.

:apcn24 – 24-bit ITU-N point code, 24-bit ITU-N private point code.

Note:

See the "**Point Code** Formats" section in *Database Administration -* **SS7** *User's Guide* for a definition of the point code types that are used on the **EAGLE** and for a definition of the different formats that can be used for **ITU** national point codes.

Note:

The apc/apca/apci/apcn/apcn24 parameter must be specified with the entls command. Specifying this parameter with the chg-ls command is required only if the adjacent point code of the linkset is being changed.

:1st – The linkset type of the specified linkset - The 1st parameter must be specified with the ent-1s command. Specifying this parameter with the chg-1s command is required only if the linkset type of the linkset is being changed.

:ipgwapc – **IP** Gateway **Adjacent Point Code** indicator. Specify the ipgwapc=yes parameter to provide **SS7** linkset definition compatibility for gateway connections to **IP-SCPs**. This parameter can be specified only for, and must be specified for, linksets containing signaling links assigned to either the **SS7IPGW** or **IPGWI** applications. The default is ipgwapc=no.



The ipgwapc parameter can be specified only with the ent-ls command.

To provision **ISUP-CIC** routing keys, the <code>ipgwapc=yes</code> parameter and the **IP** Gateway **ISUP** routing feature must be turned on. Verify this with the <code>rtrv-feat</code> command. If the **IP** Gateway **ISUP** routing feature is turned on, the <code>ipisup</code> field should be set to on. If the **IP** Gateway **ISUP** routing feature is not turned on, enter the <code>chg-feat:ipisup=on</code> command.

Note:

Once the **IP** Gateway **ISUP** routing feature is turned on with the chg-feat command, it cannot be turned off.

Note:

The **IP** Gateway **ISUP** routing 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 **IP** Gateway **ISUP** routing feature, contact your Oracle Sales Representative or Account Representative.

- :iptps The quantity of IP TPS (transactions per second) that is assigned to the **IPGWx** linkset, from 100 to 32,000. The total amount of the IP TPS for all **IPGWx** linksets cannot exceed the total provisioned system TPS value in the rtrv-tps output..
- :lsusealm The linkset's IPTPS alarm threshold, from 10 to 100 percent of the linkset's IPTPS. When this threshold is reached, a major alarm (**UAM** 0115) is generated. When the linkset's IPTPS falls below this threshold, **UAM** 0115 is automatically cleared and **UAM** 0118 is generated.
- :slkusealm The signaling link IPTPS alarm threshold, from 10 to 100 percent of the signaling link's fair share of the linkset's IPTPS or from 10 to 100 percent of the IPGWx card's capacity (4000 TPS). This threshold is reached when the signaling link's actual usage exceeds the percentage of the signaling link's fair share of the linkset's IPTPS or the percentage of the IPGWx card's capacity.

A signaling link's fair share of linkset's IPTPS is the linkset's IPTPS divided by the number of in-service links in the linkset. For example, if the linkset IPTPS is 4000 and there are 4 signaling links in the linkset, all in-service, then the signaling link's fair-share would be 1000 IPTPS (4000/4=1000). Table 4-2 shows this calculation for a linkset with 1, 2, 3 and 4 in-service signaling links.



Table 4-2 Signaling Link Fair Share Example

Number of In-Service Signaling Links	Linkset IPTPS	Signaling Link Fair Share of the Linkset IPTPS
4	4000	1000
3	4000	1333
2	4000	2000
1	4000	4000

When this threshold is exceeded, a minor alarm (**UAM** 0116) is generated. When the amount of traffic on the signaling link falls below this threshold, **UAM** 0116 is automatically cleared and **UAM** 0119 is generated.

The signaling link IPTPS alarm shows that the linkset IPTPS is set too low for the linkset or that the **IPGWx** card's capacity has been exceeded. Setting the signaling link IPTPS alarm threshold lower than the linkset IPTPS alarm threshold can give the user an earlier indication that the linkset IPTPS is inadequate or that traffic is not balanced across the links in the linkset.

:multgc – specifies whether multiple group codes (for 14-bit ITU-N point codes) are supported for the linkset. When this parameter value is yes, secondary adjacent point codes whose group codes are different from the adjacent point code of the linkset can be assigned to the linkset. If the parameter value is no, the group code of the secondary adjacent point code must be the same as the group code of the linkset's adjacent point code. For more information on secondary adjacent point codes, go to the "Configuring an ITU Linkset with a Secondary Adjacent Point Code (SAPC)" procedure in the Database Administration - SS7 User's Guide.

This parameter only applies to linksets whose adjacent point codes are either **ITU** international point codes or **ITU** national point codes. All the signaling links in this linkset must be assigned to cards running the **IPGWI** application. For more information on assigning signaling links to cards running the **IPGWI** application, go to the Adding an IPGWx Signaling Link procedure.

The **ITU** duplicate point code feature must be on before this parameter can be specified. Verify this with the rtrv-feat command. If the **ITU** duplicate point code feature is turned on, the ituduppe field should be set to on. If the **ITU** duplicate point code feature is not turned on, enter the chg-feat:ituduppe=on command.

Note:

Once the **ITU** duplicate point code feature is turned on with the chg-feat command, it cannot be turned off.

The **ITU** duplicate point code 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 **ITU** duplicate point code feature, contact your Oracle Sales Representative or Account Representative.

Adding the IPGWx linkset cannot exceed the maximum total provisioned system TPS shown in the rtrv-tps output. An IPGWx linkset uses 4000 TPS.

If adding the IPGWx linkset will exceed the maximum total provisioned system TPS, and the maximum total provisioned system TPS is 500,000, perform the "Activating the HIPR2 High Rate Mode" feature in *Database Administration - System Management User's Guide* to enable and turn on the HIPR2 High Rate Mode feature. When the HIPR2 High Rate Mode feature is enabled and turned on, the maximum total provisioned system TPS is increased to 1,000,000 (1M). If the maximum total provisioned system TPS is 1M, or the maximum total provisioned system TPS is 500,000 and will not be increased, and adding the IPGWx linkset will exceed the maximum total provisioned system TPS, the IPGWx linkset cannot be added unless the amount of available TPS is reduced enough to allow the IPGWx linkset to be added. The available TPS can be reduced by performing one or more of these actions.

- The IP TPS values of some IPGWx linksets have to be changed.
- The MAXSLKTPS values of some IPSG linksets (and the RSVDSLKTPS values if necessary) have to be changed.
- Some ATM high-speed signaling links have to be removed.
- An IPLIMx card that contains signaling links has to be removed.

The adjacent point code (**APC**) for the linkset must be defined in the database, must be in the SS7 domain and cannot match the point code or capability point code of the EAGLE. The domain of the point code is shown in the DMN field in the output of the rtrv-dstn command. The point code of the EAGLE is shown in the PCA, PCN, PCN24, or PCI fields and the capability point code of the **EAGLE** are shown in the CPCA, CPCN, CPCN24, or CPCI fields in the output of the rtrv-sid command. An **ANSI** adjacent point code must be a full point code and cannot be a cluster point code or a network routing point code. The adjacent point code of the linkset cannot be a proxy point code, cannot have a proxy point code assigned to it, and cannot be assigned to another linkset.

If the APC is not in the destination point code table, go to the "Adding a **Destination Point Code**" procedure in *Database Administration* - **SS7** *User's Guide* and add the APC to the destination point code table.

For IPGWx linksets, more than one device may be attached to the LAN and have IP connections to the IP card running either the SS7IPGW or IPGWI application. Thus each IPGWx linkset is adjacent to all devices on the LAN (or adjacent to no device on the LAN, depending on your point of view). To provide a scheme allowing this point-to-multipoint connection and maintain consistent SS7 linkset definition rules, a virtual APC is required. This virtual APC is a real SS7 point code that is not used anywhere else in the SS7 network. Virtual APCs assigned to SS7IPGW linksets are ANSI point codes. Virtual APCs assigned to IPGWI linksets are either ITU-I or ITU-N point codes (either 14-bit or 24-bit ITU-N point codes). Virtual point codes can be reused on more than one switch. For example, a mated set of switches, each with two related links, could share two virtual point codes instead of requiring four. DPCs and linksets related to the virtual APC must be defined with the ipgwapc parameter set to yes.

For provisioning of ISUP-CIC routing keys, the <code>ipgwapc=yes</code> parameter and the IP Gateway ISUP routing feature must be turned on. Verify this with the <code>rtrv-feat</code> command. If the IP Gateway ISUP routing feature is turned on, the <code>ipisup</code> field should be set to <code>on</code>. If the IP Gateway ISUP routing feature is not turned on, enter the <code>chg-feat:ipisup=on</code> command.



Once the **IP** Gateway **ISUP** routing feature is turned on with the chg-feat command, it cannot be turned off.

The **IP** Gateway **ISUP** routing feature must be purchased before you turn the feature on with the <code>chg-feat</code> command. If you are not sure if you have purchased the **IP** Gateway **ISUP** routing feature, contact your Oracle Sales Representative or Account Representative.

Other Optional Parameters

There are other optional parameters that can be used to configure an IPGWx linkset. These parameters are not required for configuring an IPGWx linkset. These parameters are discussed in more detail in *Commands User's Guide* or in these sections.

- These procedures in this manual:
 - Adding a Mate IPGWx Linkset to another IPGWx Linkset
 - Removing a Mate IPGWx Linkset from another IPGWx Linkset
 - Adding an IPSG M2PA Linkset
 - Adding an IPSG M3UA Linkset
 - Changing an IPSG M2PA Linkset
 - Changing an IPSG M3UA Linkset
- These procedures in Database Administration SS7 User's Guide
 - Adding an SS7 Linkset
 - Changing an SS7 Linkset
 - Configuring an ITU Linkset with a Secondary Adjacent Point Code (SAPC)
- The "Configuring a Linkset for the GSM MAP Screening Feature" procedure in *Database Administration Features User's Guide*.

Note:

The mtprse, spc/spca/spci/spcn/spcn24, and ppc/ppca/ppci/ppcn/ppcn24 parameters cannot be specified for an **IPGWx** linkset.

Canceling the RTRV-LS and RTRV-DSTN Commands

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

- Press the F9 function key on the keyboard at the terminal where the rtrv-ls or rtrv-dstn commands were entered.
- Enter the canc-cmd without the trm parameter at the terminal where the rtrv-ls or rtrv-dstn commands were entered.



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

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

Display the total provisioned system TPS by entering the rtrv-tps command.
 This is an example of the possible output.

1141111CX aU 3 W 1 U - U / - 1 U 1 U . 2 U . 4 U GMI EAGLE 4 2 .	ghncxa03w 10-07-10 16:20:46 GMT EAGLE 42	2.0.	.0
------------------------------------------------------------------	------------------------------------------	------	----

CARD TYPE	NUM CARDS	NUM LINKS	RSVD TPS	MAX TPS
IPGW	17	16	48000	80000
IPSG	3	7	4200	8000
IPLIM	2	4	8000	8000
ATM	2	2	3668	3668

Total provisioned System TPS (99668 of 500000) 20%

Command Completed.

An IPGWx linkset uses 4000 TPS. If configuring the linkset will not exceed the maximum total provisioned system TPS, continue the procedure with 7.

If configuring the IPGWx linkset will exceed the maximum total provisioned system TPS, continue the procedure by performing one of these actions.

- If the maximum total provisioned system TPS is 500,000 and you wish to change and the maximum total provisioned system TPS to 1M, perform the "Activating the HIPR2 High Rate Mode" feature in *Database Administration System Management User's Guide* to enable and turn on the HIPR2 High Rate Mode feature. When the HIPR2 High Rate Mode feature is enabled and turned on, the maximum total provisioned system TPS is increased to 1M. After the HIPR2 High Rate Mode feature has been enabled and turned on, continue the procedure with 7.
- If the maximum total provisioned system TPS is 1M, or the maximum total
 provisioned system TPS is 500,000 and will not be increased, and adding the
 IPGWx linkset will exceed the maximum total provisioned system TPS, the
 IPGWx linkset cannot be added unless the amount of available TPS is
 reduced enough to allow the IPGWx linkset to be added. The available TPS
 can be increased by performing one or more of these actions.
 - The IP TPS values of some IPGWx linksets have to be changed. To perform this action, continue the procedure with 4.
 - The MAXSLKTPS values of some IPSG linksets (and the RSVDSLKTPS values if necessary) have to be changed. To perform this action, continue the procedure with 4.



- Some ATM high-speed signaling links have to be removed. To perform this action, continue the procedure with 2.
- An IPLIMx card that contains signaling links has to be removed. To perform this action, continue the procedure with 3.
- 2. Display the ATM high-speed signaling links by entering this command.

```
rtrv-slk:type=saal
```

This is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0

					LP		ATM					
LOC	LINK	LSN	SLC	TYPE	SET	BPS	TSEL	VCI	VPI	LL		
1303	A	lsnds0	1	LIMATM	1	1.544M	LINE	5	0	0		
					LP		ATM			E1	.ATN	1
LOC	LINK	LSN	SLC	TYPE	SET	BPS	TSEL	VCI	VPI	CRC4	SI	
SN												
1306	A	lsnituatm	0	LIME1ATM	21	2.048M	LINE	5	0	ON	3	0
SLK t	table	is (30 of 3	L200)	2% full.								
O LITT	CUDIC	10 (00 01 1	,	20 1411	•							

If ATM high-speed signaling links are shown in the rtrv-slk output, perform the "Removing an SS7 Signaling Link" procedure in *Database Administration - SS7 User's Guide* to remove some of the ATM high-speed signaling links.

If ATM high-speed signaling links are not displayed in the rtrv-slk output, perform one or more of these actions to increase the available TPS.



If one or more of these actions are not performed to increase the available TPS and the available TPS will not allow the IPGWx linkset to be added, the IPGWx linkset cannot be added and the remainder of this procedure cannot be performed.

- The IP TPS values of some IPGWx linksets have to be changed. To perform this action, continue the procedure with 4.
- The MAXSLKTPS values of some IPSG linksets (and the RSVDSLKTPS values if necessary) have to be changed. To perform this action, continue the procedure with 4.
- An IPLIMx card that contains signaling links has to be removed. To perform this action, continue the procedure with 3.

If you do not wish to perform other actions to increase the available TPS and the available TPS will allow the IPGWx linkset to be added, continue the procedure with 7.

3. Display the signaling links that are assigned to IPLIMx cards by entering this command.

```
rtrv-slk:type=iplim
```



This is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0

LOC	LINK	LSN	SLC	TYPE	ANAME	SLKTPS
1301	A	lsniplim	0	IPLIM	M2PA	
1301	A1	lsniplim	1	IPLIM	M2PA	
1301	В1	lsniplim	2	IPLIM	M2PA	
1317	A	lsniplimi	0	IPLIMI	M2PA	

SLK table is (30 of 1200) 2% full.

If IPLIMx cards containing signaling links are shown in the rtrv-slk output, perform the Removing an IPLIMx Card procedure to remove an IPLIMx card and its associated signaling links.

If IPLIMx cards containing signaling links are not displayed in the rtrv-slk output, perform one or more of these actions to increase the available TPS.



If one or more of these actions are not performed to increase the available TPS and the available TPS will not allow the IPGWx linkset to be added, the IPGWx linkset cannot be added and the remainder of this procedure cannot be performed.

- The IP TPS values of some IPGWx linksets have to be changed. To perform this action, continue the procedure with 4.
- The MAXSLKTPS values of some IPSG linksets (and the RSVDSLKTPS values if necessary) have to be changed. To perform this action, continue the procedure with 4.
- Some ATM high-speed signaling links have to be removed. To perform this action, continue the procedure with 2.

If you do not wish to perform other actions to increase the available TPS and the available TPS will allow the IPGWx linkset to be added, continue the procedure with 7.

4. Display the IPGWx and IPSG linksets by entering this command.

```
rept-stat-iptps
```

This is an example of the possible output.

```
rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0

IP TPS USAGE REPORT

THRESH CONFIG/ CONFIG/ TPS PEAK
PEAKTIMESTAMP

RSVD MAX
```



LSN								
ipgwx1105	70%		10000	TX:	3700	4000	10-07-19	09:49:19
				RCV:	3650	4000	10-07-19	09:49:19
ipgwx1	100%		32000	TX:	3700	4000	10-07-19	09:49:19
				RCV:	3650	4000	10-07-19	09:49:19
ipgwx2	100%		16000	TX:	4800	5000	10-07-19	09:49:09
				RCV:	4850	5000	10-07-19	09:49:09
ipgwx3	100%		32000	TX:	427	550	10-07-19	09:49:19
				RCV:	312	450	10-07-19	09:49:19
ipsglsn	100%	600	24000	TX:	4800	5000	10-07-19	09:49:19
				RCV:	4800	5000	10-07-19	
09:49:19								
ipsglsn2	100%	600	4000	TX:	427	550	10-07-19	09:49:19
				RCV:	312	450	10-07-19	
09:49:19								

Command Completed.

If linksets are displayed in the rept-stat-iptps output, continue the procedure with 5.

If linksets are not displayed in the rept-stat-iptps output, perform one or more of these actions to increase the available TPS.

Note:

If one or more of these actions are not performed to increase the available TPS and the available TPS will not allow the IPGWx linkset to be added, the IPGWx linkset cannot be added and the remainder of this procedure cannot be performed.

- An IPLIMx card that contains signaling links has to be removed. To perform this action, continue the procedure with 3.
- Some ATM high-speed signaling links have to be removed. To perform this action, continue the procedure with 2.

If you do not wish to perform other actions to increase the available TPS and the available TPS will allow the IPGWx linkset to be added, continue the procedure with 7.

5. Display the attributes of the linksets shown in 4 by entering the rtrv-ls command with the name of the linkset shown in 4. If an existing IPGWx linkset is being changed in 20, that linkset does not need to be displayed in this step.

For this example enter these commands.

```
rtrv-ls:lsn=ipgwx1
```

This is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0

LST SLT GWS GWS GWS
LSN APCA (SS7) SCRN SET SET BEI LST LNKS ACT MES DIS SLSCI
NIS



ipgwx1 001-001-002 none 1 1 no A 8 off off off

no off

SPCA CLLI TFATCABMLQ MTPRSE ASL8

RANDSLS off

IPSG IPGWAPC GTTMODE CGGTMOD no yes CdPA no

MATELSN IPTPS LSUSEALM SLKUSEALM ----- 32000 100% 80%

LOC LINK SLC TYPE
1101 A 0 SS71PGW
1102 A 1 SS71PGW
1103 A 2 SS71PGW
1104 A 3 SS71PGW
1105 A 4 SS71PGW
1106 A 5 SS71PGW
1107 A 6 SS71PGW
1108 A 7 SS71PGW

Link set table is (11 of 1024) 1% full.

rtrv-ls:lsn=ipgwx2

This is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0

LSN APCA (SS7) SCRN SET SET BEI LST LNKS ACT MES DIS SLSCI NIS ipgwx2 001-001-003 none 1 1 no A 8 off off off no off

SPCA CLLI TFATCABMLQ MTPRSE ASL8

RANDSLS off

IPSG IPGWAPC GTTMODE CGGTMOD no yes CdPA no

MATELSN IPTPS LSUSEALM SLKUSEALM ----- 16000 100% 80%

LOC LINK SLC TYPE 1111 A 0 SS71PGW

1112 A 1 SS7IPGW 1201 A 2 SS7IPGW 1202 A 3 SS7IPGW 1203 A 4 SS7IPGW 1204 A 5 SS7IPGW 1205 A 6 SS7IPGW 1206 A 7 SS7IPGW

Link set table is (11 of 1024) 1% full.

rtrv-ls:lsn=ipgwx3

This is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0

L3T SLT GWS GWS GWS
LSN APCA (SS7) SCRN SET SET BEI LST LNKS ACT MES DIS SLSCI
NIS
ipgwx3 001-001-004 none 1 1 no A 0 off off no
off

SPCA CLLI TFATCABMLQ MTPRSE ASL8

RANDSLS off

IPSG IPGWAPC GTTMODE CGGTMOD no yes CdPA no

MATELSN IPTPS LSUSEALM SLKUSEALM ----- 32000 100% 80%

Link set table is (11 of 1024) 1% full.

rtrv-ls:lsn=ipsglsn

This is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0

LSN APCA (SS7) SCRN SET SET BEI LST LNKS ACT MES DIS SLSCI NIS ipsglsn 003-003-003 none 1 1 no A 6 off off no off

SPCA CLLI TFATCABMLQ MTPRSE ASL8

RANDSLS

off

IPSG IPGWAPC GTTMODE CGGTMOD yes no CdPA no

ADAPTER RSVDSLKTPS MAXSLKTPS m2pa 600 4000

TPSALM LSUSEALM SLKUSEALM rsvdslktps 100% 100%

LOC LINK SLC TYPE ANAME

1303 A 0 IPSG ipsgm2pa1

1303 A1 1 IPSG ipsgm2pa2

1303 B1 2 IPSG ipsgm2pa3

1303 A2 3 IPSG ipsgm2pa4

1303 A3 4 IPSG ipsgm2pa5

1307 A 5 IPSG m2pa2

Link set table is (11 of 1024) 1% full.

rtrv-ls:lsn=ipsglsn2

This is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0

LSN APCA (SS7) SCRN SET SET BEI LST LNKS ACT MES DIS

SLSCI NIS

ipsglsn2 005-005-005 none 1 1 no A 1 off off

no off

SPCA CLLI TFATCABMLQ MTPRSE ASL8

RANDSLS

off

IPSG IPGWAPC GTTMODE CGGTMOD yes no CdPA no

ADAPTER RSVDSLKTPS MAXSLKTPS m2pa 600 4000

TPSALM LSUSEALM SLKUSEALM rsvdslktps 100% 100%

LOC LINK SLC TYPE ANAME
1303 B3 0 IPSG ipsgm2pa6



```
Link set table is (11 of 1024) 1% full.
```

Perform one or both of these actions as necessary.

- To change the IPTPS value for any linksets shown in the rtrv-ls output whose IPGWAPC value is yes, continue the procedure with 6.
- To change the MAXSLKTPS value (and RSVDSLKTPS value if necessary) for any linksets shown in the rtrv-ls output, perform the Changing an IPSG M2PA Linkset procedure (for linkset whose IPSG value is yes and ADAPTER value is M2PA) or the Changing an IPSG M3UA Linkset procedure (for linkset whose IPSG value is yes and ADAPTER value is M3UA).

Perform one or both of these actions to increase the available TPS if needed.

- An IPLIMx card that contains signaling links has to be removed. To perform this action, continue the procedure with 3.
- Some ATM high-speed signaling links have to be removed. To perform this action, continue the procedure with 2.

If you do not wish to perform other actions to increase the available TPS and the available TPS will allow the IPGWx linkset to be added, continue the procedure with 7.

6. Reduce the IPTPS values of some or all the **IPGWx** linksets by entering the chg-ls command with the name of each linkset being changed, shown in 5, and the new IPTPS value. For this example, enter these commands.

```
chg-ls:lsn=ipgwx1:iptps=28000
chg-ls:lsn=ipgwx3:iptps=28000
```

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

```
rlghncxa03w 10-07-17 16:23:21 GMT EAGLE5 42.0.0 Link set table is ( 11 of 1024) 1% full CHG-LS: MASP A - COMPLTD
```

If no IPSG linksets are shown in 5, continue the procedure with 7.

If IPSG linksets are shown in 5, continue the procedure with one of these steps.

- To change the MAXSLKTPS value (and RSVDSLKTPS value if necessary) for any linksets shown in the rtrv-ls output, perform the Changing an IPSG M2PA Linkset procedure (for linkset whose IPSG value is yes and ADAPTER value is M2PA) or the Changing an IPSG M3UA Linkset procedure (for linkset whose IPSG value is yes and ADAPTER value is M3UA).
- If you do not wish to change any IPSG linksets, continue the procedure by performing these actions as required.
 - To remove some IPLIMx cards that contains signaling links, continue the procedure with 3.
 - To remove some ATM high-speed signaling links, continue the procedure with 2.
 - If you do not wish to perform other actions to increase the available TPS and the available TPS will allow the IPGWx linkset to be added, continue the procedure with 7.



7. Display the current linksets in the database using the rtrv-ls command.

This is an example of the possible output.

rlghncxa03w 10-07-10 11:43:04 GMT EAGLE5 42.0.0

LSN	APCA	(SS7)	SCRN	_	SLT SET	BEI	LST	LNKS		GWS MES	
SLSCI NIS ipgwx1 no off	001-00	1-002	none	1	1	no	A	8	off	off	off
no off ipgwx2 no off	001-00	1-003	none	1	1	no	A	8	off	off	off
ipgwx3 no off	001-00	1-004	none	1	1	no	A	0	off	off	off
lsniplim no off	002-00	2-002	none	1	1	no	A	3	off	off	off
ipsglsn no off	003-00	3-003	none	1	1	no	A	6	off	off	off
ipsglsn2	005-00	5-005	none	1	1	no	A	1	off	off	off
lsgw1105	009-00	2-003	none	1	1	no	A	1	off	off	off
no off lsnds0 no off	009-00	9-009	none	1	1	no	A	2	off	off	off
				L3T	SLT				GWS	GWS	GWS
LSN SLSCI NIS	APCI	(SS7)	SCRN	SET	SET	BEI	LST	LNKS	ACT	MES	DIS
lsnituatm no off	1-002-	3	none	1	2	no	A	1	off	off	off
atmitul no off	3-111-	3	none	1	1	no	A	0	off	off	off
				L3T	SLT				GWS	GWS	GWS
LSN SLSCI NIS	APCN	(SS7)	SCRN	SET	SET	BEI	LST	LNKS	ACT	MES	DIS
lsipgw no off	2968		none	1	2	no	A	1	off	off	off

Link set table is (11 of 1024) 1% full.

Continue the procedure by performing one of these steps.

- If the multgc=yes parameter is not being specified for the linkset, continue the procedure by performing one of these steps.
 - If a new linkset is being added, continue the procedure with 12.
 - If an existing linkset is being changed and the APC of the linkset is being changed, continue the procedure with 12.
 - If an existing linkset is being changed and the APC of the linkset is not being changed, continue the procedure with 20.



- If the multgc=yes parameter will be specified for the linkset and a new linkset is being added, continue the procedure by performing one of these steps. The multgc=yes parameter can be specified only for IPGWx linksets that contain signaling links that are assigned to cards that are running the IPGWI application.
 - If linksets containing ITU-N adjacent point codes with group codes are shown in the rtrv-ls output, continue the procedure with 12.
 - If linksets containing ITU-N adjacent point codes with group codes are not shown in the rtrv-ls output, continue the procedure with 8.
- If the multgc parameter value for an existing linkset will be changed, continue the procedure by performing one of these steps.
 - If the multgc parameter value is being changed to no, continue the procedure with 10.
 - If the multgc parameter value is being changed to yes, continue the procedure with 8. The multgc=yes parameter can be specified only for IPGWx linksets that contain signaling links that are assigned to cards that are running the IPGWI application.
- 8. To specify the multgc=yes parameter with the ent-ls or chg-ls commands, the ITU Duplicate Point Code feature must be on. For the ITU Duplicate Point Code feature to be on, the Multiple Point Code feature must be on. Enter the rtrv-feat command to verify that either of these features are on.

The entry MPC = on in the rtrv-feat command output shows that the **Multiple Point**Code feature is on. The entry ITUDUPPC = on in the rtrv-feat command output shows that the **ITU** Duplicate **Point Code** feature is on.

Note:

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

Continue the procedure by performing one of these steps.

- If the ITU Duplicate Point Code feature is on (ITUDUPPC = on), continue the procedure with 10.
- If the ITU Duplicate Point Code feature is off (ITUDUPPC = off), continue the procedure with Oracle.
- Turn the ITU Duplicate Point Code feature on, and the Multiple Point Code feature if necessary, by entering one of these commands.

To turn the ITU Duplicate Point Code feature on only.

```
chg-feat:ituduppc=on
```

To turn both the ITU Duplicate Point Code and Multiple Point Code features on.

chg-feat:mpc=on:ituduppc=on



Once the ITU Duplicate Point Code and Multiple Point Code features are turned on with the chg-feat command, they cannot be turned off. The ITU Duplicate Point Code and Multiple Point Code features must be purchased before you turn either of these features on with the chg-feat command. If you are not sure if you have purchased these features, contact your Oracle Sales Representative or Account Representative.

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

```
rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 37.5.0 CHG-FEAT: MASP A - COMPLTD
```

Continue the procedure by performing one of these steps.

- If a new linkset is being added, continue the procedure with 12.
- If an existing linkset is being changed and the APC of the linkset is being changed, continue the procedure with 12.
- If an existing linkset is being changed and the APC of the linkset is not being changed, continue the procedure with 20.
- 10. If the multgc parameter value is changed to no, the linkset can contain only one secondary adjacent point code. An ITU international linkset can contain only one 14-bit ITU national secondary adjacent point code. If the ITU international linkset contains more than one 14-bit ITU national secondary adjacent point code, all but one of these 14-bit ITU national secondary adjacent point codes must be removed from the linkset. An ITU national linkset can contain only one ITU international secondary adjacent point codes must be removed from the linkset. All routes to these secondary adjacent point codes must be removed from the database before the secondary adjacent point codes can be removed.

Display the routes using the secondary adjacent point code being removed from the linkset with the rtrv-rte command, specifying the secondary adjacent point code being removed as the value of the dpc parameter.

For this example, enter these commands.

```
rtrv-rte:dpcn=11213-de
```

This is an example of the possible output.

rtrv-rte:dpcn=12114-fr



This is an example of the possible output.

```
rlghncxa03w 06-10-07 11:43:04 GMT EAGLE5 37.5.0

DPCN ALIASA ALIASI LSN RC APC

12114-fr ------- 1sn3 10 12114-fr

RTX:No CLLI=------
```

```
rtrv-rte:dpcn=12115-uk
```

This is an example of the possible output.

If the secondary adjacent point code is assigned to a route, that route must be removed from the database. Perform the "Removing a **Route**" procedure in the *Database*Administration - **SS7** User's Guide to remove the route from the database.

11. Remove the secondary adjacent point codes specified in 10 from the linkset with the chg-ls command with the sapcn and the action=delete parameters. For this example, enter these commands.

```
chg-ls:lsn=lsn3:sapcn=11213-de:action=delete
chg-ls:lsn=lsn3:sapcn=12114-fr:action=delete
chg-ls:lsn=lsn3:sapcn=12115-uk:action=delete
```

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

```
rlghncxa03w 06-10-17 16:23:21 GMT EAGLE5 37.5.0 Link set table is ( 13 of 255) 5% full CHG-LS: MASP A - COMPLTD
```

Continue the procedure by performing one of these steps.

- If a new linkset is being added, continue the procedure with 12.
- If an existing linkset is being changed and the APC of the linkset is being changed, continue the procedure with 12.
- If an existing linkset is being changed and the APC of the linkset is not being changed, continue the procedure with 20.
- 12. Display the point code and capability point code of the **EAGLE** by using the rtrv-sid command.

This is an example of the possible output.

```
rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 37.5.0

PCA PCI PCN CLLI PCTYPE

001-001-001 1-200-6 13482 rlghncxa03w OTHER
```



CPCA 002-002-002 002-002-006 004-002-001	002-002-003 002-002-007 004-003-003	002-002-004 002-002-008 144-212-003	002-002-005 002-002-009
CPCA (LNP) 005-005-002	005-005-004	005-005-005	
CPCI 1-001-1	1-001-2	1-001-3	1-001-4
CPCN 02091 02191	02092 02192	02094 11177	02097

13. Display the destination point codes in the database by entering the rtrv-dstn command. This is an example of the possible output.

rlghncxa03w 10-12-10 11:43:04 GMT EAGLE5 43.0.0 Extended Processing Time may be Required

DPCA ALIASN/N24 DMI	CLLI	BEI	ELEI	ALIASI
001-207-000	SS7	no		
001-001-001	SS7	no		
001-001-002	SS7	no		
001-005-000	SS7	no		
001-007-000	SS7	no		
008-012-003	ss7	no		
003-002-004	SS7	no		
009-002-003	SS7	no		
010-020-005	SS7	no		
DPCI ALIASN/N24 DM	CLLI	BEI	ELEI	ALIASA
1-207-0	SS7	no		
0-015-0	SS7	no		
0-017-0	SS7	no		
1-011-1	SS7	no		
1-011-2		no		



```
----- SS7
```

```
Destination table is (14 of 2000) 1% full Alias table is (0 of 12000) 0% full
```

If the new adjacent point code is not shown in the rtrv-dstn output, perform the "Adding a Destination Point Code" procedure in *Database Administration - SS7 User's Guide* to add the required point code. This point code cannot be a proxy point code (the prx=yes value assigned to the point code) and a proxy point code (a point code value is shown in the PPC column) cannot be assigned to the point code. After the point code has been added, continue the procedure by performing one of these steps.

- If a new linkset is being added, continue the procedure by performing one of these steps.
 - If you do not wish to use the IP Gateway ISUP routing feature, continue the procedure with 19.
 - If you wish to use the IP Gateway ISUP routing feature, continue the procedure with 17.
- If an existing linkset is being changed, continue the procedure with 20.

If the new adjacent point code is shown in the rtrv-dstn output, continue the procedure with 14.

14. Display the adjacent point code of the new linkset in the destination point code table by using the rtrv-dstn command and specifying the point code. For this example, enter this command.

```
rtrv-dstn:dpca=010-020-005
```

This is an example of the possible output.

rlghncxa03w 10-12-10 11:43:04 GMT EAGLE5 43.0.0

DPCA	CLLI	BEI EL	EI A	LIASI	Ā	ALIASN	/N24	DMN
010-020-005		no						SS7
SPCA	NCAI	RCAUSE	NPRST	SPLITIAM	HMSMSC	HMSCP	SCCPMS	GCNV
		none	off	none	no	no	none	

```
Destination table is (14 of 2000) 1% full Alias table is (0 of 12000) 0% full
```

This point code cannot be a proxy point code (the prx=yes value assigned to the point code) and a proxy point code (a point code value is shown in the PPC column) cannot be assigned to the point code. If a proxy point code is shown in this step, or if the point code is a proxy point code, choose another point code and repeat this procedure from 12.

15. The APC of the linkset cannot be the DPC of any exception route. Verify that the adjacent point code of the linkset is not the DPC of any exception route by entering the rtrv-rtx command with the dpc/dpca/dpci/dpcn/dpcn24 parameter. The dpc/dpca/dpci/dpcn/dpcn24 parameter value is the adjacent point code value that will be specified for the linkset.



For this example, enter this command.

```
rtrv-rtx:dpca=010-020-005
```

This is an example of the possible output.

```
rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 37.5.0
   DPCA
              RTX-CRITERIA
                                     LSN
                                               RC
                                                     APC
   010-020-005 OPCA
               007-008-009
                             ls1305
                                                20
001-005-000
               008-008-008
                                     ls1307
                                                40
001-007-000
DESTINATION ENTRIES ALLOCATED: 2000
                              13
    FULL DPC(s):
    EXCEPTION DPC(s):
                               5
                               0
    NETWORK DPC(s):
    CLUSTER DPC(s):
                               1
                              19
    TOTAL DPC(s):
    CAPACITY (% FULL):
                               1%
ALIASES ALLOCATED:
                            12000
    ALIASES USED:
                               0
    CAPACITY (% FULL):
                                0%
X-LIST ENTRIES ALLOCATED:
                              500
```

If the adjacent point code of the linkset is not the **DPC** of a route exception table entry, no entries are displayed in the rtrv-rtx output, but a summary of the point code quantities is displayed, as shown in the following output example.

```
rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 37.5.0
```

```
DESTINATION ENTRIES ALLOCATED: 2000
   FULL DPC(s):
                              15
   EXCEPTION DPC(s):
                               5
   NETWORK DPC(s):
   CLUSTER DPC(s):
                               1
                              21
   TOTAL DPC(s):
   CAPACITY (% FULL):
                               1 %
ALIASES ALLOCATED:
                            12000
   ALIASES USED:
                               0
   CAPACITY (% FULL):
                                0%
X-LIST ENTRIES ALLOCATED:
                              500
```

If the point code specified in this step is shown in the DPCA/DPCI/DPCN/ DPCN24 columns in this step, the point code value cannot be used as an adjacent point code unless one of two actions are taken:

- Choose another adjacent point code value and repeat 12 through 15.
- Remove all the entries displayed in this step by performing the "Removing a Route Exception Entry" procedure in Database Administration - SS7 User's Guide.



16. Display any entires in the route table whose **DPC** value is also the adjacent point code of the new linkset being added in this procedure, or the new adjacent point code of the existing linkset being changed in this procedure. Enter the rtrv-rte command with the dpc/dpca/dpci/dpcn/dpcn24 parameter. The dpc/dpca/dpci/dpcn/dpcn24 parameter value is the adjacent point code value that will be specified for the linkset. For this example, enter this command.

```
rtrv-rte:dpca=010-020-005
```

This is an example of the possible output.

rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 37.5.0

If the adjacent point code of the linkset is not the **DPC** of a route, the point code entry is displayed in the rtrv-rte output, but the **LSN**, **RC**, and **APC** columns contain dashes, as shown in the following output example.

rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 37.5.0

If the point code specified in this step is shown in the DPCA/DPCI/DPCN/ DPCN24 columns in this step, the point code value cannot be used as an adjacent point code unless one of two actions are taken:

- Choose another adjacent point code value and repeat 12 through 16.
- Remove all the entries displayed in this step by performing the "Removing a Route" procedure in Database Administration - SS7 User's Guide.

After this step has been performed, continue the procedure by performing one of these steps.

- If a new linkset is being added, continue the procedure by performing one of these steps.
 - If you do not wish to use the IP Gateway ISUP routing feature, continue the procedure with 19.
 - If you wish to use the IP Gateway ISUP routing feature, continue the procedure with 17.
- If an existing linkset is being changed, continue the procedure with 20.
- 17. Verify that the IP Gateway ISUP routing feature is on by entering the rtrv-feat command. The entry IPISUP = on in the rtrv-feat command output shows that the IP Gateway ISUP routing feature is on.



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

- If the IP Gateway ISUP routing feature is on, continue the procedure with 19.
- If the IP Gateway ISUP routing feature, continue the procedure with 18.
- **18.** Turn the **IP** Gateway **ISUP** routing feature on by entering this command.

Note:

If the IP Gateway ISUP routing feature is on (IPISUP = on), continue the procedure with 19.

chg-feat:ipisup=on

Note:

Once the IP Gateway ISUP routing feature is turned on with the chg-feat command, it cannot be turned off.

The **IP** Gateway **ISUP** routing feature must be purchased before you turn the feature on with the <code>chg-feat</code> command. If you are not sure if you have purchased the **IP** Gateway **ISUP** routing feature, contact your Oracle Sales Representative or Account Representative.

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

```
rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 37.5.0 CHG-FEAT: MASP A - COMPLTD
```

19. Add the new linkset to the database using the ent-ls command. The new linkset must meet these conditions.

The name of this linkset, the lsn parameter value, cannot be used by another linkset – the linkset configuration is shown in the output of 7.

The **APC** of the new linkset must be in the destination point code table, but cannot be either the **EAGLE**'s point code or the **EAGLE**'s capability point code – shown in the outputs of 12, 13, and 14. The adjacent point code can be one of the following types of point codes:

:apc/apca - ANSI point code, ANSI private point code

apci-ITU-I point code, ITU-I spare point code, ITU-I private point code, ITU-I private spare point code.



apcn - 14-bit ITU-N point code, 14-bit ITU-N spare point code, 14-bit ITU-N private point code, 14-bit ITU-N private spare point code.

:apcn24 – 24-bit ITU-N point code, 24-bit ITU-N private point code.

These parameters and values must also be specified for the IPGWx linkset:

- ipgwapc=yes
- lst=<a,b,c,d,e>
- iptps=<100-32000>

Note:

The iptps parameter value must be divisible by 10. The sum of all the linkset IP TPS values, including the value for this linkset, cannot exceed the maximum total provisioned system TPS value shown in thertrv-tps output in 1, or the increased value if the "Activating the HIPR2 High Rate Mode Feature" procedure was performed.

- The optional parameters <code>lsusealm</code> (the linkset's **IP** TPS alarm threshold) and <code>slkusealm</code> (the signaling link **IP** TPS alarm threshold) can be specified with the <code>ent-ls</code> command. The default value for the <code>lsusealm</code> parameter is 100%, and the default value for the <code>slkusealm</code> parameters is 80%.
- The multgc=yes parameter can be specified only for IPGWx linksets that will
 contain signaling links that are assigned to cards that are running the IPGWI
 application.

Note:

There are other optional parameters that can be specified with the <code>ent-ls</code> command, but are not required for an IPGWx linkset.See the Other Optional Parameters section for the procedures that discuss these parameters and their usage.

For this example, enter this command.

```
ent-
ls:lsn=lsgw1107:apca=010-020-005:lst=a:ipgwapc=yes:iptps=4000 :ls
usealm=70:slkusealm=70
```

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

```
rlghncxa03w 06-10-17 16:23:21 GMT EAGLE5 37.5.0 Link set table is ( 14 of 1024) 1% full ENT-LS: MASP A - COMPLTD
```

Continue the procedure with 21.

20. Change the existing linkset by entering the chg-ls command.



The name of the linkset that is being changed, specified with the lsn parameter, must be specified. The name of the linkset is shown in the rept-stat-iptps output in 4.

One of these optional parameters must be specified.

- The new adjacent point code of the linkset, specified with the apc/apca/apci/apcn/apcn24, if the current adjacent point code of the linkset is being changed.
- iptps=<100-32000>

Note:

The iptps parameter value must be divisible by 10. The sum of all the linkset IP TPS values, including the value for this linkset, cannot exceed the maximum total provisioned system TPS value shown in thertry-tps output in 1, or the increased value if the "Activating the HIPR2 High Rate Mode Feature" procedure was performed.

- The optional parameters lsusealm (the linkset's IP TPS alarm threshold) and slkusealm (the signaling link IPTPS alarm threshold) can be specified with the chg-ls command.
- The multgc=yes parameter can be specified only for IPGWx linksets that
 contain signaling links that are assigned to cards that are running the IPGWI
 application.

Note:

There are other optional parameters that can be specified with the entls command, but are not required for an IPGWx linkset. See the Other Optional Parameters section for the procedures that discuss these parameters and their usage.

For this example, enter this command.

```
chg-ls:lsn=lsgw1105:iptps=14000:lsusealm=70:slkusealm=70
```

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

```
rlghncxa03w 06-10-17 16:23:21 GMT EAGLE5 37.5.0 Link set table is ( 14 of 1024) 1% full CHG-LS: MASP A - COMPLTD
```

21. Verify the changes using the rtrv-ls command specifying the linkset name specified in either 19 or 20 with the lsn parameter. For this example, enter these commands.

```
rtrv-ls:lsn=lsgw1105
```



This is an example of the possible output.

```
rlghncxa03w 08-04-17 11:43:04 GMT EAGLE5 38.0.0
                             L3T SLT
                                                GWS GWS GWS
LSN
           APCA
                  (SS7) SCRN SET SET BEI LST LNKS ACT MES DIS SLSCI
NIS
lsqw1105
           009-002-003
                       none 1 1 no A 1 off off off no
off
         CLLI
                    TFATCABMLQ MTPRSE ASL8
                               no
         IPGWAPC MATELSN IPTPS LSUSEALM SLKUSEALM GTTMODE
                 ----- 14000 70
                                     % 70 % CdPA
         LOC LINK SLC TYPE
         1105 A
                0 SS7IPGW
Link set table is ( 14 of 1024) 1% full
rtrv-ls:lsn=lsqw1107
```

This is an example of the possible output.

```
rlghncxa03w 08-04-17 11:43:04 GMT EAGLE5 38.0.0
                             L3T SLT
                                               GWS GWS GWS
LSN
                  (SS7) SCRN SET SET BEI LST LNKS ACT MES DIS SLSCI
           APCA
NIS
          010-020-005
lsqw1107
                      none 1 1 no A 0 off off off no
off
         CLLI
                    TFATCABMLQ MTPRSE ASL8
          ----- 1
                              no
                                     no
         IPGWAPC MATELSN IPTPS LSUSEALM SLKUSEALM GTTMODE
                ----- 4000 70
         yes
                                   % 70 % CdPA
Link set table is ( 14 of 1024) 1% full
```

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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

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

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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

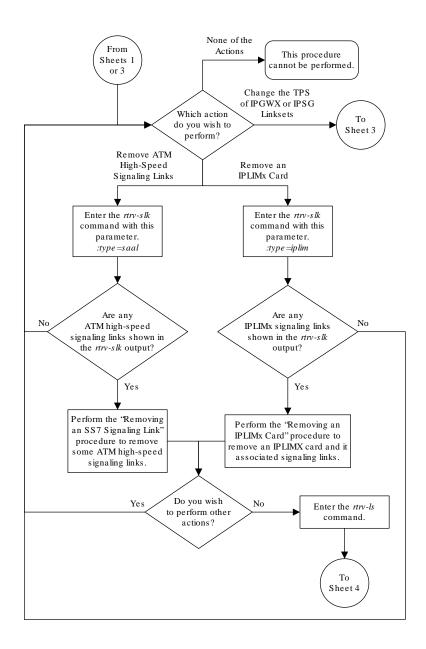


Note: The maximum total provisioned system TPS cannot be increased beyond 750,000 TPS. Enter the rtrv-tps command. Will What is configuring the IPGWx the maximum total 750,000 Yes linkset exceed the maximum provisioned system TPS total provisioned system

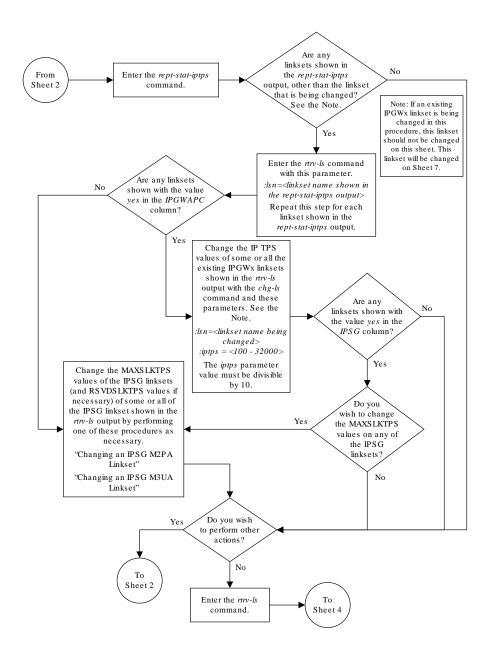
TPS value? value? See the Note. To add the linkset, one or more of these actions must be performed. 500,000 No The IP TPS values of some IPGWx linksets will have to be changed. The MAXSLKTPS values of some IPSG linksets (and the RSVDSLKTPS values if necessary) will have to be changed. Do you wish No to change the maximum Some ATM high-speed signaling total provisioned system links will have to be removed. An TPS value? ANSI ATM high-speed signaling link uses 1630 TPS. An ITU ATM highspeed signaling link uses 2038 TPS. Yes Remove an IPLIMx card that Perform the "Activating the contains signaling links. An IPLIMx HIPR2 High Rate Mode Feature card that contains signaling links uses 4000 TPS. procedure to enable and turn on the HIPR2 High Rate Mode Enter the rtrv-ls feature. When the HIPR2 High Rate Mode feature is enabled and turned on, the maximum total provisioned system TPS value is increased to 750,000. To Sheet 4 Sheet 2

Figure 4-4 Configuring an IPGWx Linkset

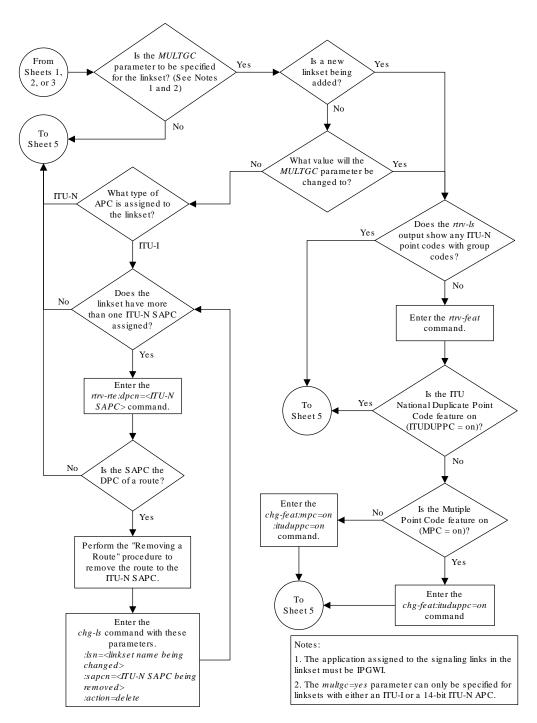
Sheet 1 of 7



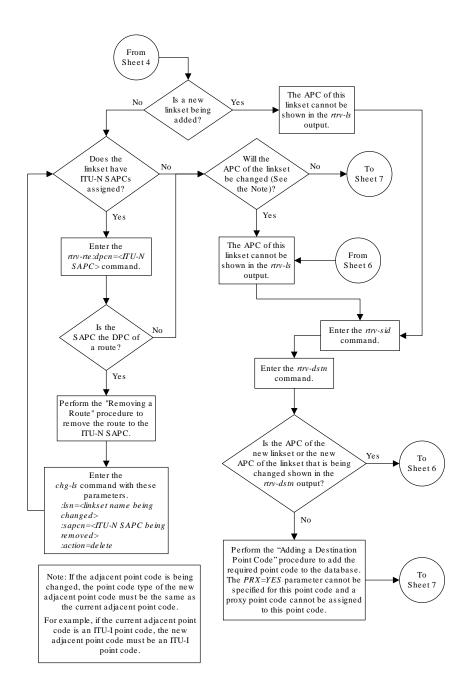
Sheet 2 of 7



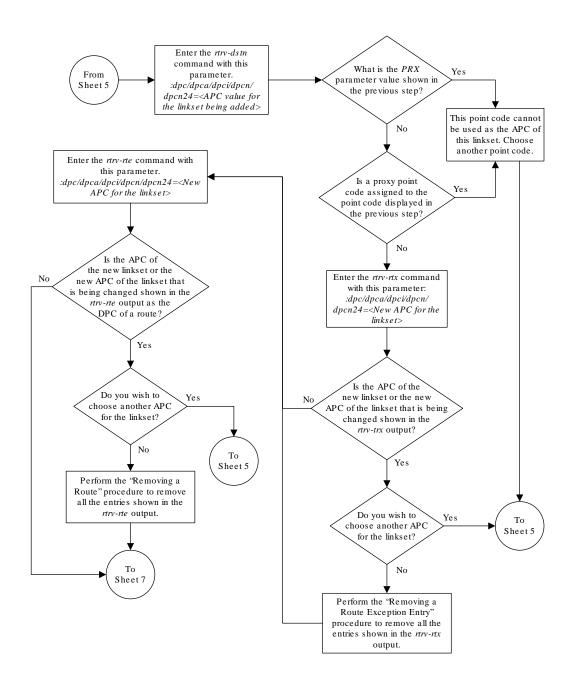
Sheet 3 of 7



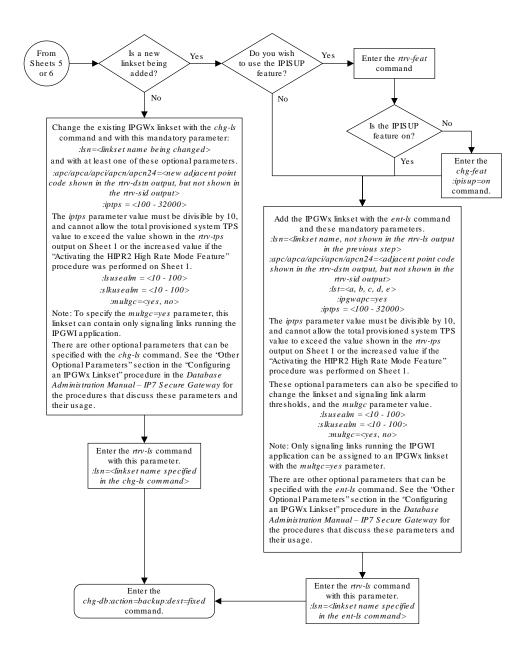
Sheet 4 of 7



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Sheet 7 of 7

Adding a Mate IPGWx Linkset to another IPGWx Linkset

This procedure is used to add a mate IPGWx linkset to an existing IPGWx linkset chg-ls command with these parameters.

:lsn - The name of the IPGWx linkset that will contain the mate IPGWx linkset that is being added shown in the rept-stat-iptps or rtrv-ls command outputs. is being added.

:matelsn - The name of the mate IPGWx linkset that is being added.

: action=add-adds the mate IPGWx linkset to the IPGWx linkset specified by the lsn parameter.

An IPGWx linkset is a linkset that contains signaling links assigned to IPGWx cards. **IPGWx** cards are cards running either the **SS7IPGW** or **IPGWI** applications.

The **EAGLE** allows an **IPGWx** linkset to contain up to 8 **IPGWx** signaling links, and as a result, 8 **IPGWx** cards. This increases the amount of traffic that can be delivered to a single **IP** node compared to the two-card combined **IPGWx** linkset deployments used in previous releases. An **IPGWx** linkset containing up to 8 **IPGWx** signaling links is the preferred method of configuring **IPGWx** linksets (see the **Configuring an IPGWx** Linkset procedure). This method is required if more than two **IPGWx** signaling links are to be used in the linkset.

To provide backward compatibility with pre-existing two-card combined IPGWx linkset deployments, the EAGLE also provides for a mate IPGWx linkset. A mate IPGWx linkset consists of one IPGWx linkset assigned to another IPGWx linkset using the matelsn parameter of the chg-ls command. To assign a mate IPGWx linkset to another IPGWx linkset, both linksets can contain no more than one signaling link. While mate IPGWx linksets can be configured using this procedure, the preferred method of configuring two-card IPGWx deployments is to configure a two-link non-mated linkset using the Configuring an IPGWx Linkset procedure.

Each linkset in the mated pair must either contain no mate linksets, or can reference the other linkset in the mated pair. For example, to assign linkset LSN2 to **IPGWx** linkset LSN1 as a mate linkset, linkset LSN1 cannot contain any mate linksets. Linkset LSN2 can have linkset LSN1 as a mate, otherwise linkset LSN2 cannot have any mate linksets assigned to it.

The mate linkset name is displayed in the rtrv-ls:lsn=<linkset name> command output. If either linkset contains more than one signaling link, all but one of the signaling links must be removed from these linksets or other linksets must be chosen. Perform the Removing an IPGWx Signaling Linkprocedure to remove any signaling links from the linkset. If new linksets must be configured for this procedure, perform the Configuring an IPGWx Linkset procedure.

Before a mate **IPGWx** linkset can be added to an **IPGWx** linkset, the card containing the **IPGWx** signaling link assigned to the linkset being changed, and the signaling link assigned to that card must be placed out of service.

The network type of the adjacent point code of the mate **IPGWx** linkset must be the same type as the linkset the mate is assigned to. For example, if a mate **IPGWx** linkset is assigned to an **IPGWx** linkset with an **ITU-**I adjacent point code, the mate **IPGWx** linkset must have an **ITU-**I adjacent point code.

Other Optional Parameters

There are other optional parameters that can be used to configure a linkset. These parameters are not required for configuring an IPGWx linkset. These parameters are discussed in more detail in *Commands User's Guide* or in these sections.

- These procedures in this manual:
 - Configuring an IPGWx Linkset
 - Removing a Mate IPGWx Linkset from another IPGWx Linkset
 - Adding an IPSG M3UA Linkset
 - Adding an IPSG M2PA Linkset
 - Changing an IPSG M3UA Linkset



- Changing an IPSG M2PA Linkset
- These procedures in Database Administration SS7 User's Guide
 - Adding an SS7 Linkset
 - Changing an SS7 Linkset
 - Configuring an ITU Linkset with a Secondary Adjacent Point Code (SAPC)
- The "Configuring a Linkset for the GSM MAP Screening Feature" procedure in Database Administration - Features User's Guide.
- Display the system-wide IP TPS usage report, and the IPGWx linksets, by entering the rept-stat-iptps command. This is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0 IP TPS USAGE REPORT

	THRESH	CONFIG/	CONFIG/		TPS	PEAK	
PEAKTIMEST.	AMP	RSVD	MAX				
LSN							
lsgw1101	80%		6000	TX:	5100	5500	05-02-10
11:40:04							
11.40.04				RCV:	5100	5500	05-02-10
11:40:04 lsgw1103	80%		6000	TX:	5200	5500	05-02-10
11:40:04	00%		0000	14.	3200	3300	03-02-10
11.10.01				RCV:	5200	5500	05-02-10
11:40:04							
lsgw1105	80%		14000	TX:	7300	7450	05-02-10
11:40:04							
44 40 04				RCV:	7300	7450	05-02-10
11:40:04	700		4000	ш.т.	2200	2500	05 00 10
lsgw1107 11:40:04	70%		4000	TX:	3200	3500	05-02-10
11.40:04				RCV:	3200	3500	05-02-10
11:40:04				100.	5200	3300	00 02 10

Command Completed.

If linksets are displayed in this step, continue the procedure 2.

If no linksets are displayed in this step, perform the Configuring an IPGWx Linkset to create two IPGWx linksets. After the IPGWx linksets have been created, continue the procedure with 14.

2. Display the linkset that is being changed by entering the rtrv-ls command with a linkset name shown in the rept-stat-iptps output in 1. For this example, enter this command.



```
rtrv-ls:lsn=lsgw1103
```

This is an example of the possible output.

```
rlghncxa03w 08-04-17 11:43:04 GMT EAGLE5 38.0.0
                               L3T SLT
                                                   GWS GWS GWS
LSN
            APCA
                   (SS7) SCRN SET SET BEI LST LNKS ACT MES DIS SLSCI
NIS
lsgw1103
            003-002-004
                         none 1
                                  1
                                      no A 1
                                                   off off off no
off
          CLLI
                      TFATCABMLQ MTPRSE ASL8
                                no
                                       no
          IPGWAPC MATELSN IPTPS LSUSEALM SLKUSEALM GTTMODE
                 ----- 10000 70
                                     % 70
          LOC LINK SLC TYPE
          1103 A
                 0 SS7IPGW
Link set table is (14 of 1024) 1% full
```

To assign a mate IPGWx linkset to this linkset, this linkset cannot contain more than one signaling link.

If this linkset does not contain more than one signaling link, and the linkset that will be the mate IPGWx linkset is shown in the rept-stat-iptps output in 1, continue the procedure with 3.

If this linkset does not contain more than one signaling link, and the linkset that will be the mate IPGWx linkset is not shown in the rept-stat-iptps output in 1, continue the procedure with 5.

If this linkset contains more than one signaling link, and you wish to add the mate IPGWx linkset to this linkset, perform the Removing an IPGWx Signaling Link procedure to remove all but one of the signaling links in the linkset. After the signaling links have been removed, perform one of these actions.

- If the linkset that will be the mate IPGWx linkset is shown in the rept-stat-iptps output in 1, continue the procedure with 3.
- If the linkset that will be the mate IPGWx linkset is not shown in the rept-statiptps output in 1, perform the Configuring an IPGWx Linkset procedure to add the linkset that will be the mate IPGWx linkset. After the linkset has been added, continue the procedure with 5.

If this linkset contains more than one signaling link, and you do not wish to add the mate IPGWx linkset to this linkset, perform one of these actions.

- If wish to use another linkset shown in the rept-stat-iptps output in 1, repeat this step with a linkset shown in the rept-stat-iptps output in 1.
- Perform the Configuring an IPGWx Linkset procedure to add the new IPGWx linkset
 that the mate IPGWx linkset will be assigned to. After the linkset has been added, if
 the linkset that will be the mate IPGWx linkset is shown in the rept-stat-iptps
 output in 1, continue the procedure with 3. If the linkset that will be the mate IPGWx



linkset is not shown in the rept-stat-iptps output in 1, perform the Configuring an IPGWx Linkset procedure to add the new IPGWx linkset that will be the mate IPGWx linkset. After the mate IPGWx linkset has been added, continue the procedure with 14

3. Display the mate linkset from the IPGWx linksets shown in the rept-statiptps output in 1.

For this example, enter this command.

```
rtrv-ls:lsn=lsgw1107
```

This is an example of the possible output.

Link set table is (14 of 1024) 1% full

```
rlghncxa03w 08-04-17 11:43:04 GMT EAGLE5 38.0.0
                            L3T SLT
                                               GWS GWS GWS
           APCA
LSN
                 (SS7) SCRN SET SET BEI LST LNKS ACT MES DIS
SLSCI NIS
lsgw1107
           003-002-004
                                               off off off
                       none 1 1
                                   no A 1
     off
                    TFATCABMLO MTPRSE ASL8
         CLLI
          ----- 1
                             no
         IPGWAPC MATELSN IPTPS LSUSEALM SLKUSEALM GTTMODE
                ----- 10000 70 % 70 % CdPA
         LOC LINK SLC TYPE
         1107 A 0 SS7IPGW
```

4. To use the linkset shown in 3 as a mate, the network type of the adjacent point code of the linkset shown in 3 must be the same as the network type of the linkset shown in 2. The linkset shown in 3 must not have more than one signaling link assigned to it.

If the linkset contains more than one signaling link, all but one of these signaling links must be removed from the linkset. Perform the Removing an IPGWx Signaling Link procedure to remove these signaling links.

If you do not wish to change this linkset, or if the network type of the adjacent point codes of both linksets are not the same, either choose another linkset from the rept-stat-iptps output in 1, and repeat 3, and 4 if necessary, or perform the Configuring an IPGWx Linkset procedure and add a new linkset. Continue the procedure with 5.

If the network types of the adjacent point codes of both linksets are the same, and the mate linkset contains no more than one signaling link, do not perform the actions in this step. Continue the procedure with 5.

5. Display the status of the card containing the signaling link assigned to the linkset being changed by entering the rept-stat-card command with the card location shown in the LOC field in the rtrv-ls output in 2. For this example, enter this command.





If the linkset that the mate linkset is being added to has no signaling links (see thertrv-ls output in2), continue the procedure with14.

```
rept-stat-card:loc=1103
```

This is an example of the possible output.

```
rlghncxa03w 08-04-27 17:00:36 GMT EAGLE5 38.0.0
CARD VERSION TYPE GPL PST
                                               SST
                                                         AST
1103 114-000-000 DCM SS7IPGW IS-NR
AJARM STATUS - NG 73-
                                               Active
 ALARM STATUS = No Alarms. BPDCM GPL = 002-102-000
 BPDCM GPL
 IMT BUS A = Conn
IMT BUS B = Conn
  SIGNALING LINK STATUS
   SLK PST
                           LS
                                        CLLI
                           lsgw1103
   Α
          IS-NR
Command Completed.
```

6. Display the status of the signaling link assigned to the card shown in 5 by entering the rept-stat-slk command with the card location used in 5 and the link=a parameter. For this example, enter this command.



If the status of the card shown in PST field in the rept-stat-card output in 5 is OOS-MT-DSBLD, continue the procedure with 14.

```
rept-stat-slk:loc=1103:link=a
```

This is an example of the possible output.

```
rlghncxa03w 08-04-27 17:00:36 GMT EAGLE5 38.0.0

SLK LSN CLLI PST SST AST

1103,A lsgw1103 ------ IS-NR Avail -----

ALARM STATUS = No Alarms.

UNAVAIL REASON = NA

Command Completed.
```

If the status of the signaling link is out-of-service maintenance disabled (OOS-MT-DSBLD), continue the procedure with 14.

If the status of the signaling link is not out-of-service maintenance disabled (OOS-MT-DSBLD), any in-service IP connections on the signaling link must be placed out of service. Continue the procedure by performing one of these steps.

• The recommended method is to have the far end node place these **IP**connections out of service. Have the far-end node for the signaling link shown in this step place the

M3UA or **SUA** associations in either the **ASP-INACTIVE** or **ASP-DOWN** state. After the IP connections have been placed out of service, continue the procedure with 12.

- If you do not wish to have the far end node place these **IP** connections out of service, continue the procedure with 7.
- 7. Display the **IP** link associated with the card that the signaling link shown in 6 is assigned to by entering the rtrv-ip-lnk command with the card location shown in 6. For this example, enter this command.

```
rtrv-ip-lnk:loc=1103
```

The following is an example of the possible output.

8. Display the **IP** host information associated with the **IP** link by entering the rtrv-ip-host command with the **IP** address shown in 7. For this example, enter this command.

```
rtrv-ip-host:ipaddr=192.001.001.010
```

The following is an example of the possible output.

```
rlghncxa03w 08-12-28 21:17:37 GMT EAGLE5 40.0.0

LOCAL IPADDR LOCAL HOST
192.1.1.10 IPNODE1_1103

IP Host table is (11 of 4096) .26% full
```

9. Display the association associated with the local host name shown in 8 by entering the rtrv-assocommand.

For this example, enter this command.

```
rtrv-assoc:lhost=ipnode1_1103
```

The following is an example of the possible output.

```
rlghncxa03w 08-04-28 09:12:36 GMT EAGLE5 38.0.0

CARD IPLNK

ANAME LOC PORT LINK ADAPTER LPORT RPORT OPEN ALW assoc2 1103 A A M3UA 1030 1030 YES YES

IP Appl Sock/Assoc table is (4 of 4000) 1% full
Assoc Buffer Space Used (16 KB of 3200 KB) on LOC = 1103
```

10. Change the alw parameter values in the association shown in 9 using the chgassoc command with the alw=no parameters, as necessary.





If the open and alw parameter values of the association shown in 9 are no, continue the procedure with 11.

chg-assoc:aname=assoc2:alw=no



Caution:

This command impacts network performance and should only be used during periods of low traffic.

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

```
rlghncxa03w 08-04-28 09:12:36 GMT EAGLE5 38.0.0
CHG-ASSOC: MASP A - COMPLTD
```

Repeat this step for all associations shown in 9.

11. Change the open parameter values in the association shown in 9 using the chg-assoc command with the open=no parameters, as necessary.

```
chg-assoc:aname=assoc2:open=no
```

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

```
rlghncxa03w 08-04-28 09:12:36 GMT EAGLE5 38.0.0
CHG-ASSOC: MASP A - COMPLTD
```

Repeat this step for all associations shown in 9.

12. Deactivate the signaling link assigned to the IP card using the dact-slk command. For example, enter this command.

```
dact-slk:loc=1103:link=a
```



Caution:

This command impacts network performance and should only be used during periods of low traffic.

After this command has successfully completed, this message appears.

```
rlghncxa03w 08-04-12 09:12:36 GMT EAGLE5 38.0.0
Deactivate Link message sent to card.
```

13. Inhibit the IP card using the inh-card command. For example, enter this command.



```
inh-card:loc=1103
```

This message should appear.

```
rlghncxa03w 08-04-28 21:18:37 GMT EAGLE5 38.0.0 Card has been inhibited.
```

14. Change the linkset shown in 2 by entering the chg-ls command with the matelsn and action=add parameters.

For this example, enter this command.

```
chg-ls:lsn=lsgw1103:matelsn=lsgw1107:action=add
```

When the ${\tt chg-ls}$ command has successfully completed, this message should appear.

```
rlghncxa03w 08-04-17 16:23:21 GMT EAGLE5 38.0.0 Link set table is ( 14 of 1024) 1% full CHG-LS: MASP A - COMPLTD
```

15. Verify the changes using the rtrv-ls command specifying the linkset name specified in **14** with the lsn parameter. For this example, enter this command.

```
rtrv-ls:lsn=lsgw1103
```

CLLI

This is an example of the possible output.

```
rlghncxa03w 08-04-17 11:43:04 GMT EAGLE5 38.0.0
```

```
LSN APCA (SS7) SCRN SET SET BEI LST LNKS ACT MES DIS SLSCI NIS lsgw1103 003-002-004 none 1 1 no A 1 off off off no off
```

```
IPGWAPCMATELSNIPTPSLSUSEALMSLKUSEALMGTTMODEyes1sgw11071000070%70%CdPA
```

TFATCABMLQ MTPRSE ASL8

no

```
LOC LINK SLC TYPE 1103 A 0 SS71PGW
```

```
Link set table is ( 14 of 1024) 1% full
```

----- 1

If the linkset shown in this step does not have a signaling link assigned to it, or if the dact-slk command in 12 was not performed, continue the procedure with 20.

16. Allow the **IP** card that was inhibited in **13** using the alw-card command. For example, enter this command.

```
alw-card:loc=1103
```



This message should appear.

```
rlghncxa03w 08-04-28 21:21:37 GMT EAGLE5 38.0.0 Card has been allowed.
```

17. Activate the signaling link from 12 using the act-slk command. For example, enter this command.

```
act-slk:loc=1103:link=a
```

The output confirms the activation.

```
rlghncxa03w 08-04-07 11:11:28 GMT EAGLE5 38.0.0 Activate Link message sent to card
```

If 10 and 11 were not performed, continue the procedure with 19.

18. Change the open and alw parameter values for all the associations changed in 10 or 11 using the chg-assoc command with the open=yes and alw=yes parameters.

```
chg-assoc:aname=assoc1:open=yes:alw=yes
```

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

```
rlghncxa03w 08-04-28 09:12:36 GMT EAGLE5 38.0.0 CHG-ASSOC: MASP A - COMPLTD
```

- 19. Have the far-end node for the signaling link shown in 15 place the IP connections on the signaling link into service by placing the M3UAor **SUA** associations in the ASP-ACTIVE state.
- 20. Back up the new changes using the chg-db:action=backup:dest=fixed command. These messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

.

```
BACKUP (FIXED): MASP A - Backup starts on active MASP.

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

BACKUP (FIXED): MASP A - Backup starts on standby MASP.

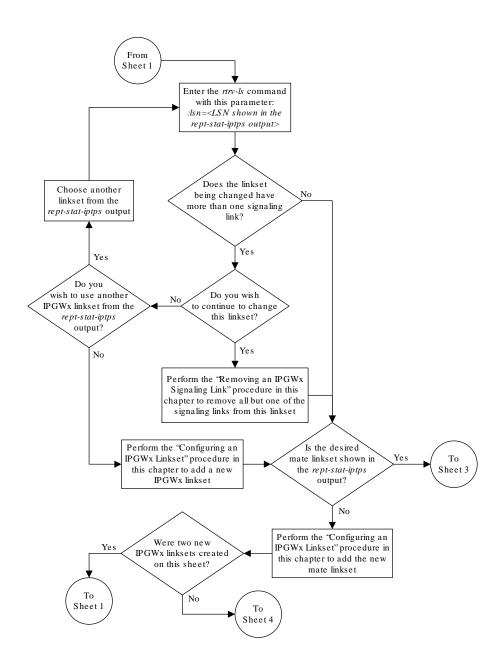
BACKUP (FIXED): MASP A - Backup on standby MASP to fixed disk complete.
```



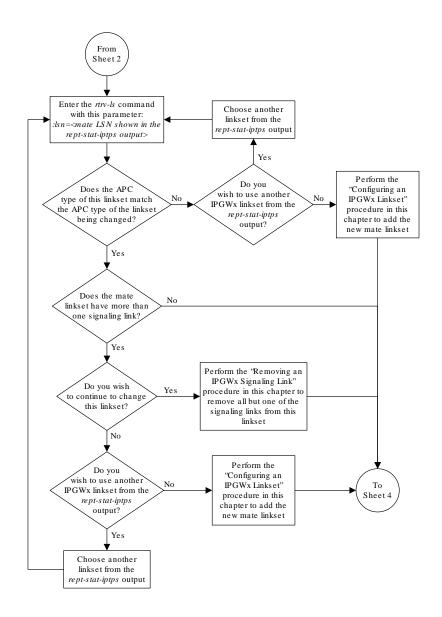
Enter the rept-stat-iptps command To Are any entries displayed? Sheet 2 No Perform the "Configuring an IPGWx Linkset" procedure in this chapter to create two IPGWx links ets. Enter the chg-ls command with these mandatory parameters: :lsn=<the name of the linkset, created in the previous step, that the mate IPGWX linkset will be assigned Fromto> Sheet 2 :matelsn=<the name of the linksets, created in the previous step, that will be the mate IPGWx linkset> :action=add Enter the rtrv-ls command with this parameter: :lsn=<the linkset name that $was\ changed >$ Enter the chg-db:action=backup:dest=fixedcommand

Figure 4-5 Adding a Mate IPGWx Linkset to another IPGWx Linkset

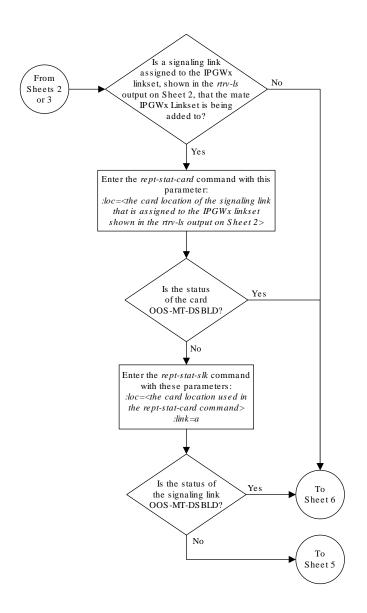
Sheet 1 of 6



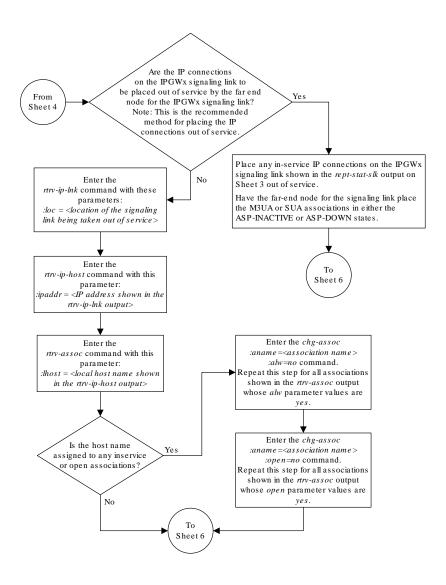
Sheet 2 of 6



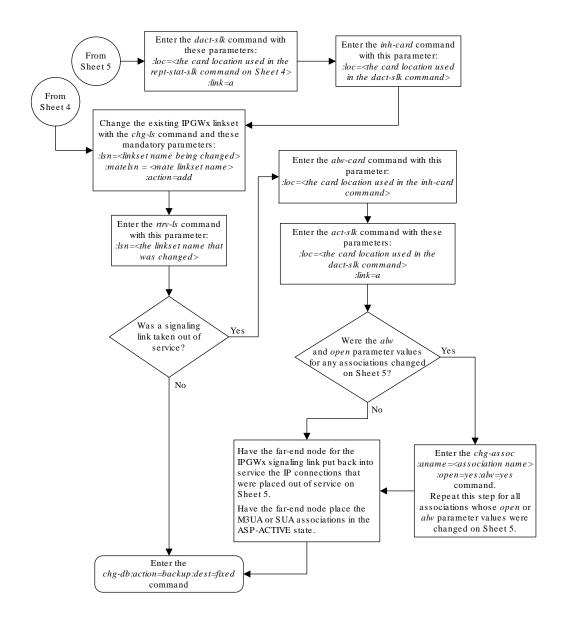
Sheet 3 of 6



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Sheet 5 of 6



Sheet 6 of 6

Adding an IPGWx Signaling Link

This procedure is used to add an IPGWx signaling link to the database using the ent-slk command with these parameters:

: loc – The card location of the **IP** card that the **IP** signaling link will be assigned to. The cards specified by this parameter are **IP** cards running the **SS7IPGW** or **IPGWI** applications.

- : link The signaling link on the card specified in the loc parameter.
- :1sn The name of the linkset that will contain the signaling link.
- : slc The signaling link code. The **SLC** must be unique within the linkset. It must be the same at both the **EAGLE** location and the distant node.

The ent-slk command contains other optional parameters that are not used to configure an IPGWx signaling link. These parameters are discussed in more detail in *Commands User's Guide* or in these sections.

- These procedures in this manual:
 - Adding an IPLIMx Signaling Link
 - Adding an IPSG M3UA Signaling Link
 - Adding an IPSG M2PA Linkset
- These procedures in Database Administration SS7 User's Guide
 - Adding an SS7 Signaling Link
 - Adding an E1 Signaling Link
 - Adding a T1 Signaling Link
 - Adding an ATM High-Speed Signaling Link

These items must be configured in the database before an **IP** signaling link can be added:

- Shelf see "Adding a Shelf" in the *Database Administration System Management User's Guide*.
- Card see Adding an IPGWx Card
- Destination **Point Code** see "Adding a **Destination Point Code**" in the *Database Administration -* **SS7** *User's Guide*.
- Linkset see Configuring an IPGWx Linkset.

Verify that the link has been physically installed (all cable connections have been made).

To configure the **EAGLE** to perform circular routing detection test on the signaling links, "Configuring Circular **Route** Detection" procedure in *Database Administration* - **SS7** *User's Guide*.



Circular route detection is not supported in **ITU** networks.

To provision a **EAGLE** with more than 1200 signaling links, the **EAGLE** must have certain levels of hardware installed. See the Requirements for EAGLEs Containing more than 1200 Signaling Links section for more information on these hardware requirements.



The **EAGLE** can contain a mixture of low-speed, **E1**, **T1**, **ATM** high-speed, and **IP** signaling links. The Determining the Number of High-Speed and Low-Speed Signaling Links section describes how to determine the quantities of the different types of signaling links the **EAGLE** can have.

Canceling the REPT-STAT-SLK, RTRV-LS, and RTRV-SLK Commands

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

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

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

 Display the maximum number of signaling links the EAGLE can have and the number of signaling links that are currently provisioned by entering the rtrv-tbl-capacity command.

This is an example of the possible output.

```
rlghncxa03w 09-07-19 21:16:37 GMT EAGLE5 41.1.0

SLK table is ( 7 of 1200) 1% full
```

Note:

Thertrv-tbl-capacity command output contains other fields that are not used by this procedure. If you wish to see all the fields displayed by thertrv-tbl-capacity command, refer to thertrv-tbl-capacitycommand description in Commands User's Guide.

If the addition of the new signaling link will not exceed the maximum number of signaling links the EAGLE can have, continue the procedure with 2.

If the addition of the new signaling link will exceed the maximum number of signaling links the EAGLE can have, and the maximum number of signaling links is less than 2800, perform the Enabling the Large System # Links Controlled Feature procedure to enable the desired quantity of signaling links. After the new quantity of signaling links has been enabled, continue the procedure with 2.



If the addition of the new signaling link will exceed the maximum number of signaling links the EAGLE can have (in this example, the maximum number of signaling links is 1200), and the maximum number of signaling links is 2800, this procedure cannot be performed. The EAGLE cannot contain more than 2800 signaling links.

2. Display the current signaling link configuration using the rtrv-slk command.

rlghncxa03w 09-07-19 21:16:37 GMT EAGLE5 41.1.0									
		L2T	PCR	PCR					
LOC LINK LSN	SLC TYPE	SET BPS	ECM N1	N2					
1201 B lsa1	0 LIMDS0	1 56000	BASIC						
1203 B lsa2	0 LIMDS0	1 56000	BASIC						
1207 A lsn1207a	0 LIMDS0	1 56000	BASIC						
1207 B lsn1207b	0 LIMDS0	1 56000	BASIC						
SLK table is (4 of 12	200) 1% full.								

3. Display the current linkset configuration using the ${\tt rtrv-ls}$ command.

This is an example of the possible output.

rlghncxa03w 08-04-10 11:43:04 GMT EAGLE5 38.0.0

LSN	APCA	(SS7)	SCRN	_	SLT SET	BEI	LST	LNKS		GWS MES	
SLSCI NIS e1e2 no off	001-20	7-000	none	1	1	no	В	6	off	off	off
ls1305	000-00	5-000	none	1	1	no	A	1	off	off	off
ls1307	000-00	7-000	none	1	1	no	A	1	off	off	off
elmlsl	001-00	1-001	none	1	1	no	A	7	off	off	off
elmls2 no off	001-00	1-002	none	1	1	no	А	7	off	off	off
LSN	APCI	(SS7)	SCRN	_	SLT SET	BEI	LST	LNKS		GWS MES	
SLSCI NIS e1e2i	APCI 1-207-	, ,	SCRN	_	_	BEI no	LST B	LNKS	ACT		DIS
SLSCI NIS e1e2i on ls1315		0		SET	SET				ACT	MES	DIS
SLSCI NIS e1e2i on ls1315 off ls1317	1-207-	0	none	SET	SET	no	В	4	ACT off off	MES off	DIS off off
SLSCI NIS e1e2i on ls1315 off	1-207- 0-015-	0	none	SET 1	SET 1	no no	В	4	ACT off off	MES off off	DIS off off

Link set table is (10 of 1024) 1% full.

If the required linkset is not in the database, perform the Configuring an IPGWx Linkset to add the linkset to the database.

If you plan to use a linkset shown in this step, continue the procedure with 4.

If a new linkset is being added in this step, continue the procedure with 5.

4. Display the linkset that the signaling link is being assigned to using the rtrv-ls command, specifying the name of the linkset that the signaling link is being assigned to.

For this example, enter this command.

```
rtrv-ls:lsn=lsnipgw
```

This is an example of the possible output.

```
rlghncxa03w 08-04-17 11:43:04 GMT EAGLE5 38.0.0
                                L3T SLT
                                                    GWS GWS GWS
LSN
            APCI
                   (SS7) SCRN SET SET BEI LST LNKS ACT MES DIS SLSCI
NIS
            2968
                                               1
                                                    off off off ---
lsipgw
                          none 1
                                    1
                                        no A
off
                       TFATCABMLO MTPRSE ASL8 SLSRSB MULTGC ITUTFR
          CLLI
                                                                off
                       1
                                   no
                                                1
                                                        yes
          IPGWAPC MATELSN
                             IPTPS LSUSEALM SLKUSEALM GTTMODE
                  ----- 10000 70
                                       % 70
          yes
          LOC LINK SLC TYPE
          1317 A
                    0 IPGWI
          SAPCI
          1-10-1
          SAPCN
          1234-aa
          1235-bb
          1200-zz
```

Linksets containing IPGWx signaling links can contain only IPGWx signaling links.

5. Display the cards in the database using the rtrv-card command.

This is an example of the possible output.

Link set table is (13 of 1024) 1% full.

```
rlghncxa03w 09-10-28 09:12:36 GMT EAGLE5 41.0.0
CARD
      TYPE
               APPL
                        LSET NAME
                                   LINK SLC LSET NAME
                                                           LINK SLC
1102
      TSM
               GLS
1113
      GSPM
               EOAM
1114 TDM-A
1115
      GSPM
               EOAM
1116
      TDM-B
```



1117		MDAL					
1201		LIMDS0	SS7ANSI	lsa1]	в 0	
1202		LIMDS0	SS7ANSI				
1203		LIMDS0	SS7ANSI	lsa2]	в 0	
1204		LIMDS0	SS7ANSI				
1205		LIMDS0	SS7ANSI	lsa3	Ž	0 A	
1206		LIMDS0	SS7ANSI				
1207		LIMDS0	SS7ANSI	lsn1207a	7	A 0	lsn1207b
В	0						
1208		LIMDS0	SS7ANSI				
1212		LIMDS0	SS7ANSI				
1213		LIMDS0	SS7ANSI				
1214		LIMDS0	SS7ANSI	lsn1214a	Ž	A 0	lsa3
В	1						
1215		LIMDS0	SS7ANSI				
1301		LIMDS0	ATMANSI				
1302		LIMATM	ATMANSI				
1304		LIMDS0	SS7ANSI				
1305		LIMATM	ATMANSI				
1308		LIMDS0	SS7ANSI				
1311		LIMDS0	SS7ANSI				
1313		LIMDS0	SS7ANSI				
1318		LIMATM	ATMANSI				

If the required card is not in the database, perform the Adding an IPGWx Card procedure and add the IP card to the database.



If the linkset that the signaling link will be added to contains themultgc=yes parameter, the application assigned to the card must be**IPGWI**.

Note:

If the $\mbox{\bf IPGWx}$ linkset contains any $\mbox{\bf IPGWx}$ signaling links, continue the procedure with 7.

- 6. If you wish to assign an **IPGWx** signaling link to a linkset contains no signaling links, but the IPGWAPC value is no, perform the "Removing a Linkset Containing **SS7** Signaling Links" procedure in the *Database Administration* **SS7** *User's Guide* and remove the linkset, then perform the Configuring an IPGWx Linkset procedure and re-enter the new linkset with the ipgwapc=yes parameter. Continue the procedure with 10.
- 7. If the desired linkset, shown in the rtrv-ls output in 4, has a mate **IPGWx** linkset assigned, or is the mate to another **IPGWx** linkset, the desired linkset can contain only one signaling link.

If the desired linkset does not have a mate **IPGWx** linkset assigned, or is not the mate of another **IPGWx** linkset, the desired linkset can contain up to 8 **IPGWx** signaling links. No other signaling link types can be in an **IPGWx** linkset.

If you wish to assign more than one **IPGWx** signaling link to an **IPGWx** linkset that has a mate linkset assigned, the mate to this linkset must be removed. Perform the Removing a Mate IPGWx Linkset from another IPGWx Linkset procedure and remove the mate linkset from the linkset you wish to assign the **IPGWx** signaling link to. If you do not wish to use this linkset, perform the Configuring an IPGWx Linkset procedure and add a new **IPGWx** linkset.

If the desired **IPGWx** linkset does not have a mate assigned, continue the procedure with 9.

If the desired linkset has a mate linkset assigned, and contains an **IPGWx** signaling link, perform the Configuring an IPGWx Linkset procedure and add a new **IPGWx** linkset. Continue the procedure with 10.

8. If you wish to assign more than one **IPGWx** signaling link to an **IPGWx** linkset that is a mate to another **IPGWx** linkset, this linkset must be removed from the other linkset as a mate.

To verify if the linkset you wish to use is the mate of another **IPGWx** linkset, enter the rept-stat-iptps command to display the names of all the **IPGWx** linksets. This is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0 IP TPS USAGE REPORT

	THRESH	CONFIG/ RSVD	CONFIG/ MAX		TPS	PEAK	PEAKTIMESTAMP
LSN lsgw1101 11:40:04	80%		6000	TX:	5100	5500	05-02-10
11:40:04				RCV:	5100	5500	05-02-10
lsgw1103 11:40:04	80%		6000	TX:	5200	5500	05-02-10
11.10.01				RCV:	5200	5500	05-02-10
11:40:04 lsgw1105 11:40:04	80%		14000	TX:	7300	7450	05-02-10
				RCV:	7300	7450	05-02-10
11:40:04 lsgw1107 11:40:04	70%		4000	TX:	3200	3500	05-02-10
11:40:04				RCV:	3200	3500	05-02-10

Command Completed.

9. Enter the rtrv-ls:lsn=<IPGWx linkset name from the rept-stat-iptps output> to verify if the desired linkset is the mate of another IPGWx linkset.

For this example, enter this command.

rtrv-ls:lsn=lsgw1103



This is an example of the possible output.

```
rlghncxa03w 08-04-17 11:43:04 GMT EAGLE5 38.0.0
                                L3T SLT
                                                    GWS GWS GWS
LSN
            APCA
                   (SS7)
                          SCRN SET SET BEI LST LNKS ACT MES DIS
SLSCI NIS
lsqw1103
            003-002-004
                          none 1
                                  1
                                       no A
                                              1
                                                    off off off
no
     off
          CLLI
                       TFATCABMLO MTPRSE ASL8
                                  no
                             IPTPS LSUSEALM SLKUSEALM GTTMODE
          IPGWAPC MATELSN
                  lsgw1107
                             10000 70
                                         응 70
           LOC LINK SLC TYPE
           1103 A
                   0 SS7IPGW
Link set table is (14 of 1024) 1% full
```

If the name of the linkset you wish to use is not shown in the MATELSN field of the rtrv-ls output, repeat this step until all the **IPGWx** linksets have been displayed, or until a linkset has been found that has the linkset you wish to use assigned as a mate. If the linkset you wish to use is not the mate of another **IPGWx** linkset, continue the procedure with 10.

If the name of the linkset you wish to use is shown in the MATELSN field of the rtrv-ls output, perform the Removing a Mate IPGWx Linkset from another IPGWx Linkset procedure to remove this linkset from the other linkset as a mate. Then continue the procedure with 10.

If the desired linkset is the mate of another **IPGWx** linkset, and you do not wish to use this linkset, perform the Configuring an IPGWx Linkset procedure and add a new **IPGWx** linkset. Then continue the procedure with 10.

10. Add the signaling link to the database using the ent-slk command Table 4-3 shows the parameters and values that can be specified with the ent-slk command.

Table 4-3 IPGWx Signaling Link Parameter Combinations

IPGWx Signaling Link :loc = location of the IP card with one of these applications: SS7IPGW or IPGWI; and the DCM card type. (See Note 6) :link = A :lsn = linkset name (See Notes 1, 2, 3, 4, and 5) :slc = 0 - 15 (See Notes 4 and 5)



Table 4-3 (Cont.) IPGWx Signaling Link Parameter Combinations

IPGWx Signaling Link

Notes:

- 1. If the multgc=yes parameter is assigned to the linkset, the card's application must be **IPGWI**.
- 2. The ipgwapc=yes parameter must be assigned to the linkset.
- 3. If the card's application is **IPGWI**, the linkset adjacent point code must be **ITU**. If the card's application is **SS7IPGW**, the linkset adjacent point code must be **ANSI**. The domain of the linkset adjacent point code must be **SS7**.
- 4. A linkset can contain only one signaling link assigned to the **SS7IPGW** or **IPGWI** applications if the linkset contains a mate **IPGWx** linkset, or is the mate of an **IPGWx** linkset.
- 5. If the linkset does not have a mate **IPGWx** linkset assigned to it, or is not the mate of an **IPGWx** linkset, the linkset can contain up to 8 signaling links assigned to the **SS7IPGW** or **IPGWI** applications.

For this example, enter these commands.

```
ent-slk:loc=2207:link=a:lsn=lsnlp3:slc=0
ent-slk:loc=2211:link=a:lsn=lsnlp4:slc=0
```

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

```
rlghncxa03w 06-10-07 08:29:03 GMT EAGLE5 36.0.0 ENT-SLK: MASP A - COMPLTD
```

Note:

If adding the new signaling link will result in more than 700 signaling links in the database and the OAMHCMEAS value in thertry-measopts output ison, the scheduled UI measurement reports will be disabled.

11. Verify the changes using the rtrv-slk command with the card location and link parameter values specified in 10.

```
rtrv-slk:loc=2207:link=a
```

This is an example of the possible output.

```
rlghncxa03w 07-05-19 21:17:04 GMT EAGLE5 37.0.0

LOC LINK LSN SLC TYPE

2207 A lsnlp3 0 SS7IPGW
```

```
rtrv-slk:loc=2211:link=a
```

This is an example of the possible output.

```
rlghncxa03w 07-05-19 21:17:04 GMT EAGLE5 37.0.0
```



```
LOC LINK LSN SLC TYPE 2211 A lsnlp4 0 IPGWI
```

12. If any cards contain the first signaling link on a card, those cards must be brought into service with the rst-card command, specifying the location of the card.

For this example, enter these commands.

```
rst-card:loc=2207
rst-card:loc=2211
```

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

```
rlghncxa03w 06-10-23 13:05:05 GMT EAGLE5 36.0.0 Card has been allowed.
```

13. Activate all signaling links on the cards using the act-slk command, specifying the card location and link parameter value of each signaling link.

For this example, enter these commands.

```
act-slk:loc=2207:link=a
act-slk:loc=2211:link=a
```

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

```
rlghncxa03w 06-10-07 08:31:24 GMT EAGLE5 36.0.0 Activate Link message sent to card
```

14. Check the status of the signaling links added in 10 using the rept-stat-slk command with the card location and link parameter values specified in 10. The state of each signaling link should be in service normal (IS-NR) after the link has completed alignment (shown in the PST field). For this example, enter these commands.

```
rept-stat-slk:loc=2207:link=a
```

This is an example of the possible output.

```
rlghncxa03w 07-05-23 13:06:25 GMT EAGLE5 37.0.0

SLK LSN CLLI PST SST AST
2207,A lsnlp3 ------ IS-NR Avail ----
ALARM STATUS =
UNAVAIL REASON =
```

```
rept-stat-slk:loc=2211:link=a
```

This is an example of the possible output.

```
rlghncxa03w 07-05-23 13:06:25 GMT EAGLE5 37.0.0

SLK LSN CLLI PST SST AST

2211,A lsnlp4 ----- IS-NR Avail ----
```



```
ALARM STATUS = UNAVAIL REASON =
```

15. Back up the new changes using the <code>chg-db:action=backup:dest=fixed command.</code>

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.
```



Enter the rtrv-tbl-capacity command Will the addition of the signaling link Yes exceed the maximum number of signaling links the EAGLE 5 ISS can have? No What is the 2800 maximum number of signaling links the EAGLE 5 ISS can have? Less than 2800 Perform the "Enabling the Large System # Links Controlled Feature" procedure to enable the desired quantity of signaling links. This procedure cannot be Enter the rtrv-slk performed. The EAGLE 5 command ISS can contain a maximum of 2800 signaling links.

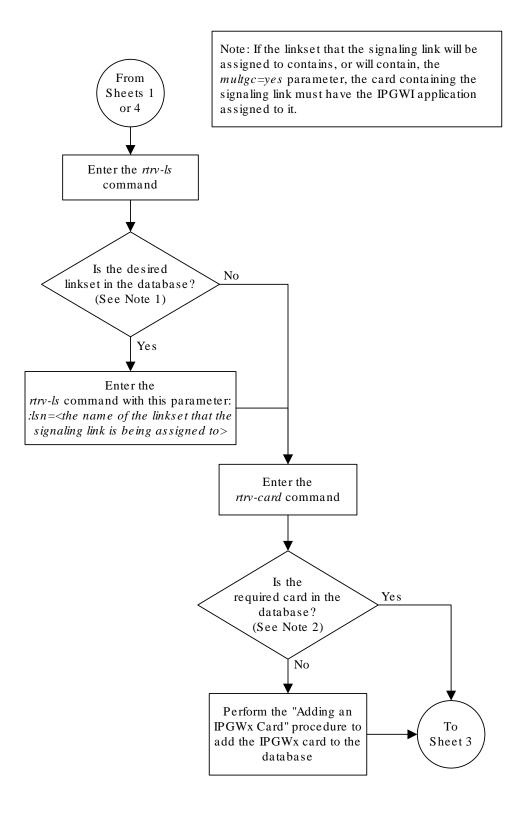
Figure 4-6 Adding an IPGWx Signaling Link

To Sheet 2



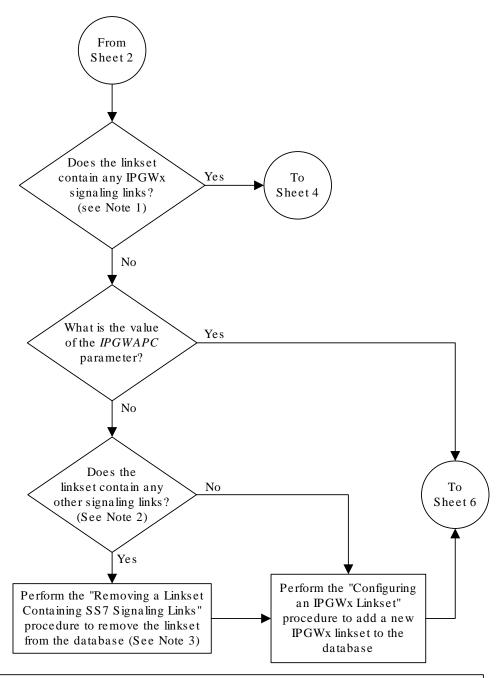
Sheet 1 of 6





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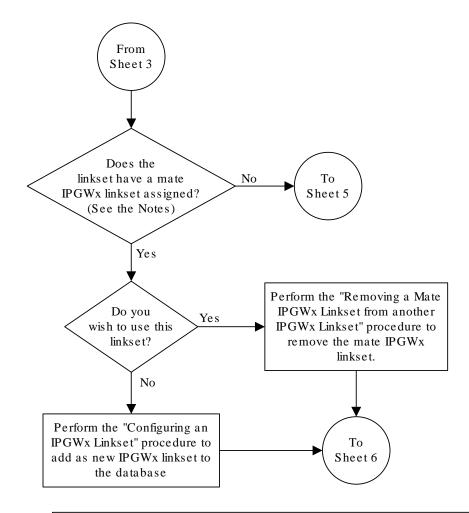
Note s

- 1. An IPGWx signaling link is a signaling link assigned to a card running either the SS7IPGW or IPGWI applications.
- 2. An IPGWx linkset can contain only IPGWx signaling links.
- 3. The *IPGWAPC*=yes parameter, required for an *IPGWx* linkset, can be specified only with the *ent-ls* command. To use this parameter for an existing linkset that has the *IPGWAPC*=no parameter, the linkset must be removed, then re-entered with the *IPGWAPC*=YES parameter.



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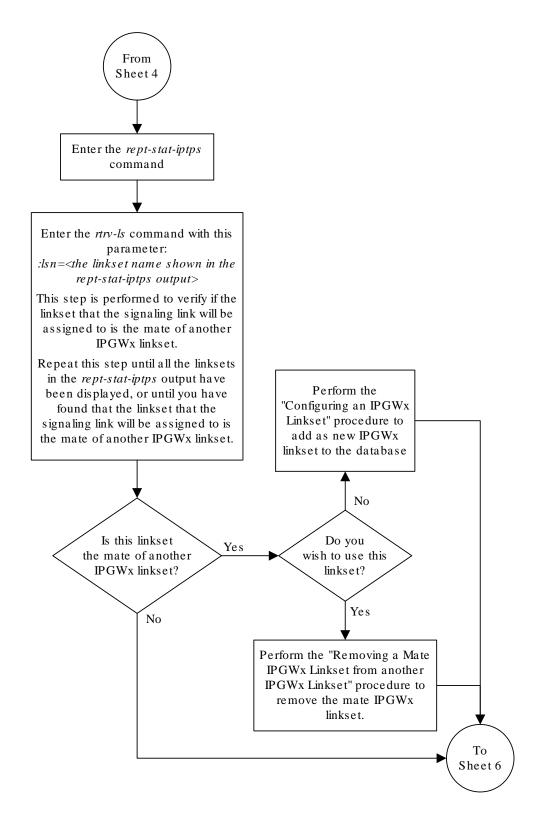


Notes:

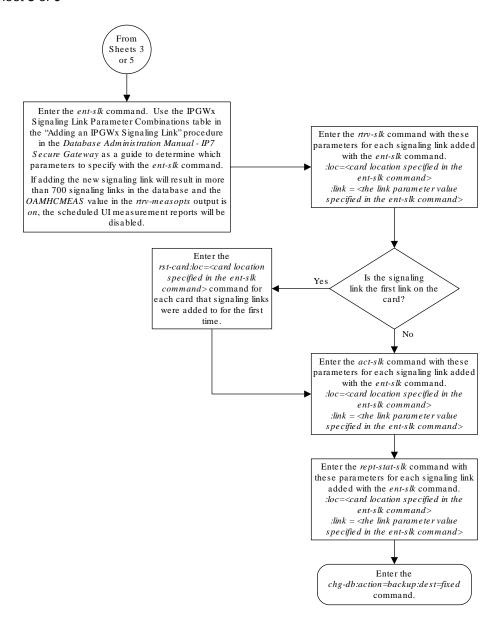
- 1. An IPGWx linkset can contain only one IPGWx signaling link if the IPGWx linkset has a mate IPGWx linkset assigned to it, or is the mate to an IPGWx linkset.
- 2. If the IPGWx linkset is not the mate to another IPGWx linkset, or does not have a mate IPGWx linkset assigned, the IPGWx linkset can contain up to 8 IPGWx signaling links.

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Sheet 6 of 6

Configuring an IP Link

This procedure is used to configure the link parameters for IP cards using the chg-ip-lnk command. These link parameters are used to configure the Ethernet hardware.

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

- :loc The card location of the IP card.
- :port The Ethernet interface on the IP card, A or B.
- : ipaddr IP address assigned to the Ethernet interface on the IP card. This is an IP address expressed in standard "dot notation." IP addresses consist of the system's network number and the machine's unique host number.
- : submask The subnet mask of the **IP** interface. A subnet mask is an **IP** address with a restricted range of values. The bits in the mask must be a string of one's followed by a string of zero's. There must be at least two one's in the mask, and the mask cannot be all one's. See Table 4-4 to assign the correct parameter values.
- : auto Tells hardware whether to automatically detect the duplex and speed.
- :duplex This is the mode of operation of the interface.
- : speed This is the bandwidth in megabits per second of the interface.
- :mactype This is the Media Access Control Type of the interface.
- : mcast The multicast control flag. This parameter enables or disables multicast support for the interface.

The EAGLE can contain a maximum of 2048 IP links.

A zero ipaddr parameter value (0.0.0.0) indicates the IP card Ethernet interface to IP link association is disabled. The host to the original IP address must be removed before the ipaddr=0.0.0.0 can be specified.

If the defrouter parameter of the chg-ip-card command contains an **IP** address for the card specified in this procedure, the network portion of one of the **IP** addresses assigned to the card in this procedure must match the network portion of the **IP** address specified by the defrouter parameter of the chg-ip-card command.

The network portion of the **IP** address is based on the class of the **IP** address (shown in Table 4-4). If the **IP** address is a Class A **IP** address, the first field is the network portion of the **IP** address. If the **IP** address is a Class B **IP** address, the first two fields are the network portion of the **IP** address. If the **IP** address is a Class C **IP** address, the first three fields are the network portion of the **IP** address. For example, if the **IP** address is 193.5.207.150, a Class C **IP** address, the network portion of the **IP** address is 193.5.207.

If the auto=yes parameter is specified, then the duplex and speed parameters are not allowed.

The loc parameter value must be shown in the rtrv-ip-card output.

The **IP** card must be placed out of service.

If either the <code>ipaddr</code> or <code>submask</code> parameters are specified, then both parameters must be specified. If the <code>ipaddr</code> parameter value is zero (0.0.0.0), the <code>submask</code> parameter is not required.

The **IP** address and subnet mask values cannot be changed to an address representing a different network if:



- If the network interface specified by the loc and port parameters has a default router, dnsa, or dsnb parameter values assigned to it, as shown in the rtrv-ip-card output.
- Any IP routes, shown in the rtrv-ip-rte output, reference the IP address for the network interface specified by the loc and port parameters.

The IP link cannot be changed if open associations reference the IP link being changed.

The network portion of the **IP** addresses assigned to the **IP** links on an **IP** card must be unique. For example, if **IP** links are assigned to **IP** card 1103, the network portion of the **IP** address for Ethernet interface A (port=a) must be different from the **IP** address for Ethernet interface B (port=b).

The submask parameter value is based upon the ipadddr setting. See Table 4-4 for the valid input values for the submask and ipaddr parameter combinations.

Table 4-4 Valid Subnet Mask Parameter Values

Network Class	IP Network Address Range	Valid Subnet Mask Values
		255.0.0.0 (the default value for a class A IP address)
		255.192.0.0
		255.224.0.0
Α	1.0.0.0 to 127.0.0.0 255.240.0.0 255.248.0.0	255.240.0.0
		255.248.0.0
		255.252.0.0
	255.254.0.0 255.255.128.1	255.254.0.0
		255.255.128.1
	255.255.0.0 (the default value for a IP address) 255.255.192.0 255.255.224.0 128.0.0.0 to 191.255.0.0 255.255.240.0 255.255.248.0 255.255.252.0	255.255.0.0 (the default value for a class B IP address)
		255.255.192.0
		255.255.224.0
A+B		255.255.240.0
		255.255.248.0
		255.255.252.0
		255.255.254.0
		255.255.255.128
		255.255.255.0 (the default value for a class C IP address)
		255.255.255.192
A+B+C	192.0.0.0 to 223.255.255.0	255.255.255.224
		255.255.255.240
		255.255.255.248
		255.255.255.252

If a Class B IP address is specified for the <code>ipaddr</code> parameter of the <code>chg-ip-lnk</code> command, the subnet address that results from the <code>ipaddr</code> and <code>submask</code> parameter values cannot be the same as the subnet address that results from the <code>pvn</code> and <code>pvnmask</code>, <code>fcna</code> and <code>fcnamask</code>, or <code>fcnb</code> and <code>fcnbmask</code> parameter values of the <code>chg-netopts</code> command. The <code>pvn</code> and <code>pvnmask</code>, <code>fcna</code> and <code>fcnamask</code>, or <code>fcnb</code> and <code>fcnamask</code>, or <code>fcnb</code> and <code>fcnamask</code> parameter values can be verified by entering the <code>rtrv-netopts</code> command. Choose <code>ipaddr</code> and <code>submask</code>



parameter values for the **IP** link whose resulting subnet address is not be the same as the subnet address resulting from the pvn and pvnmask, fcna and fcnamask, or fcnb and fcnbmask parameter values of the chg-netopts command.

Canceling the RTRV-ASSOC Command

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

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

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

1. Display the current link parameters associated with the **IP** card in the database by entering the rtrv-ip-lnk command.

The following is an example of the possible output.

rlghncxa03w 08-12-28 21:14:37 GMT EAGLE5 40.0.0							
	LOC	PORT	IPADDR	SUBMASK	DUPLEX	SPEED	${\tt MACTYPE}$
	AUTO	MCAST					
	1201	A	192.1.1.10	255.255.255.128	HALF	10	802.3
	NO	NO					
	1201	В			HALF	10	DIX
	NO	NO					
	1203	A	192.1.1.12	255.255.255.0			DIX
	YES	NO					
	1203	В			HALF	10	DIX
	NO	NO					
	1205	A	192.1.1.14	255.255.255.0	FULL	100	DIX
	NO	NO					
	1205	В			HALF	10	DIX
	NO	NO					
	2101	A	192.1.1.20	255.255.255.0	FULL	100	DIX
	NO	NO					
	2101	В			HALF	10	DIX
	NO	NO					
	2103	A	192.1.1.22	255.255.255.0	FULL	100	DIX
	NO	NO					
	2103	В			HALF	10	DIX
	NO	NO					



2105	A	192.1.1.24	255.255.255.0	FULL	100	DIX	NO	NO
2105	В			HALF	10	DIX	NO	NO
2205	A	192.1.1.30	255.255.255.0	FULL	100	DIX	NO	NO
2205	В			HALF	10	DIX	NO	NO
2207	A	192.1.1.32	255.255.255.0	FULL	100	DIX	NO	NO
2207	В			HALF	10	DIX	NO	NO
2213	A	192.1.1.50	255.255.255.0	FULL	100	DIX	NO	NO
2213	В			HALF	10	DIX	NO	NO
2301	A	192.1.1.52	255.255.255.0	FULL	100	DIX	NO	NO
2301	В			HALF	10	DIX	NO	NO

IP-LNK table is (20 of 2048) 1% full.



If the ipaddr=0.0.0.0 is not being specified in this procedure, continue the procedure with 3.

2. If IP address information is being added or changed (not deleted) in the link parameters, verify that the IP address is present in the IP host table by using the rtrv-ip-host:display=all command.

The following is an example of the possible output.

```
rlghncxa03w 13-06-28 21:15:37 GMT EAGLE5 45.0.0
```

```
LOCAL IPADDR LOCAL HOST
192.1.1.10
              IPNODE1-1201
192.1.1.12
             IPNODE1-1203
192.1.1.14
             IPNODE1-1205
192.1.1.20
              IPNODE2-1201
192.1.1.22
              IPNODE2-1203
192.1.1.24
             IPNODE2-1205
192.1.1.30
             KC-HLR1
192.1.1.32
              KC-HLR2
192.1.1.50
              DN-MSC1
192.1.1.52
              DN-MSC2
REMOTE IPADDR REMOTE HOST
150.1.1.5
              NCDEPTECONOMIC_DEVELOPMENT. SOUTHEASTERN_COORIDOR_ASHVL.
GOV
IP Host table is (11 of 4096) 0.26% full
```

If the current **IP** address of the **IP** link is shown in the rtrv-ip-host output, remove the host assigned to the **IP** address by performing the Removing an IP Host Assigned to an IPGWx Card procedure.

3. To change **IP** link parameters, the signaling link to the **IP** card and the **IP** card have to be inhibited.

Display the signaling link associated with the card shown in $\bf 1$ using the ${\tt rtrv-slk}$ command specifying the card location.

For this example, enter this command.

```
rtrv-slk:loc=1201
```

This is an example of the possible output.

```
rlghncxa03w 06-10-19 21:17:04 GMT EAGLE5 36.0.0
LOC
   LINK LSN SLC TYPE
        nc001
1201 A
                    0 SS7IPGW
```

4. Retrieve the status of the signaling link assigned to the IP card to be changed using the rept-stat-slk command.

For example, enter this command.

```
rept-stat-slk:loc=1201:link=a
```

The output lists the signaling link assigned to this card:

```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0
SLK
               CLLI
                         PST SST
                                           AST
      LSN
1201,A nc001
                ----- IS-NR
Command Completed.
```

If the signaling link is in service-normal (IS-NR), continue the procedure with 5 to deactivate the signaling link. If the signaling link is out-of-service-maintenance disabled (OOS-MT-DSBLD), continue the procedure with 7 to verify the IP card status.

5. Deactivate the signaling link assigned to the IP card using the dact-slk command.

For example, enter this command.

```
dact-slk:loc=1201:link=a
```



Caution:

This command impacts network performance and should only be used during periods of low traffic.

After this command has successfully completed, this message appears.

```
rlghncxa03w 06-10-12 09:12:36 GMT EAGLE5 36.0.0
Deactivate Link message sent to card.
```

6. Verify the new link status using the rept-stat-slk command.

For example, enter this command.

```
rept-stat-slk:loc=1201:link=a
```



The output displays the link status as **OOS-MT-DSBLD** and gives off a minor alarm:

```
rlghncxa03w 06-10-27 17:00:36 GMT EAGLE5 36.0.0

SLK LSN CLLI PST SST AST
1201,A nc001 ------------ OOS-MT-DSBLD AVAIL ---
ALARM STATUS = * 0236 REPT-LKS:not aligned
UNAVAIL REASON = NA
Command Completed.
```

7. Verify the status of the IP card to be inhibited using the rept-stat-card command.

For example, enter this command.

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

This is an example of the possible output.

```
rlghncxa03w 06-10-27 17:00:36 GMT EAGLE5 36.0.0
CARD VERSION TYPE GPL PST
                                    SST
                                            AST
1201 114-000-000 DCM SS7IPGW IS-NR Active
                                            ----
 ALARM STATUS = No Alarms.
              = 002-102-000
 BPDCM GPL
 IMT BUS A
             = Conn
 IMT BUS B
             = Conn
 SIGNALING LINK STATUS
    SLK PST
                      LS
                                CLLI
                     nc001
                                 -----
    A IS-NR
```

Command Completed.

If the **IP** card to be inhibited is in service-normal (**IS-NR**), continue the procedure with 8 to inhibit the card. If the **IP** card is out-of-service-maintenance disabled (**OOS-MT-DSBLD**), continue the procedure with 10 to change the **IP** link parameters.

8. Inhibit the IP card using the inh-card command.

For example, enter this command.

```
inh-card:loc=1201
```

This message should appear.

```
rlghncxa03w 06-10-28 21:18:37 GMT EAGLE5 36.0.0 Card has been inhibited.
```

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

Enter this command.

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

This is an example of the possible output.

rlghncxa03w 06-10-27 17:00:36 GMT EAGLE5 36.0.0



```
CARD VERSION TYPE GPL PST
                                      SST
                                              AST
1201 114-000-000 DCM SS7IPGW IS-NR
                                     Active
                                              ____
 ALARM STATUS = No Alarms.
 BPDCM GPL
             = 002-102-000
 IMT BUS A = Conn
IMT BUS B = Conn
 SIGNALING LINK STATUS
                  LS
nc001
    SLK PST
                                 CLLI
        IS-NR
                                  -----
```

Command Completed.

10. Display the attributes of the IP card assigned to the IP link being changed by entering the rtrv-ip-card command and specifying the card location of the IP link.



If the <code>ipaddr</code> or <code>submask</code> parameter values are not being changed, continue the procedure with 13 .

For this example, enter this command.

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

This is an example of the possible output.

```
rlghncxa03w 08-06-28 21:17:37 GMT EAGLE5 39.0.0

LOC 1201

SRCHORDR LOCAL

DNSA 150.1.1.1

DNSB ------

DEFROUTER ------

DOMAIN ------

SCTPCSUM crc32c

BPIPADDR ------

BPSUBMASK ------
```

If the <code>rtrv-ip-card</code> output shows an **IP** address for the default router (DEFROUTER) whose network portion matches the network portion of the **IP** address being changed, go to the Configuring an IP Card procedure and change the **IP** address of the default router to 0.0.0.0.0.

11. Display any IP routes referencing the IP link being changed by entering the rtrv-ip-rte command and specifying the card location of the IP link.

For this example, enter this command.

```
rtrv-ip-rte:loc=1201
```



This is an example of the possible output.

```
rlghncxa03w 06-10-28 21:17:37 GMT EAGLE5 36.0.0

LOC DEST SUBMASK GTWY

1201 128.252.10.5 255.255.255 140.188.13.33

1201 128.252.0.0 255.255.0.0 140.188.13.34

1201 150.10.1.1 255.255.255 140.190.15.3

IP Route table is (5 of 2048) 0.24% full
```

If the rtrv-ip-rte output shows that the card has **IP** routes assigned to it, go to the Removing an IP Route procedure and remove the **IP** routes from the database.

12. The subnet address that results from the <code>ipaddr</code> and <code>submask</code> parameter values of the <code>chg-ip-lnk</code> command cannot be the same as the subnet address that results from the <code>pvn</code> and <code>pvnmask</code>, <code>fcna</code> and <code>fcnamask</code>, or <code>fcnb</code> and <code>fcnbmask</code> parameter values of the <code>chg-netopts</code> command.



If a Class A or CIP address (see Table 4-4) will be specified for the ipaddr parameter in 14, continue the procedure with 13.

Display the pvn, pvnmask, fcna, fcnamask, fcnb, and fcnbmask parameter values of the chg-netopts command by entering the rtrv-netopts command.

If error message E3967 Cmd Rej: E5IS must be on is displayed after the rtrv-netopts command is executed, the pvn, pvnmask, fcna, fcnamask, fcnb, and fcnbmask parameters are not configured. Continue the procedure with 13.

This is an example of the possible output if the **E5IS** feature is on.

```
rlghncxa03w 09-02-28 21:17:37 GMT EAGLE5 40.1.0
NETWORK OPTIONS
-----
PVN = 128.20.30.40
PVNMASK = 255.255.192.0
FCNA = 170.120.50.0
FCNAMASK = 255.255.240.0
FCNB = 170.121.50.0
FCNBMASK = 255.255.254.0
```

Choose ipaddr and submask parameter values for the IP link whose resulting subnet address is not be the same as the subnet address resulting from the pvn and pvnmask, fcna and fcnamask, or fcnb and fcnbmask parameter values of the chg-netopts command. Continue the procedure with 13.

13. Display the associations referencing the local host name that is associated with the IP link being changed by entering the rtrv-assoc command and specifying the local host name shown in the rtrv-ip-host output in 2.



For this example, enter this command.

```
rtrv-assoc:lhost="ipnode-1201"
```

This is an example of the possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0

CARD IPLNK

ANAME LOC PORT LINK ADAPTER LPORT RPORT OPEN ALW swbe132 1201 A A M3UA 1030 2345 YES YES

IP Appl Sock/Assoc table is (3 of 4000) 1% full
Assoc Buffer Space Used (16 KB of 3200 KB) on LOC = 1201
```

If no associations are displayed in this step, continue the procedure with 14.

If the rtrv-assoc output shows that the open parameter for any associations is yes, perform one of these procedures to change the value of the open parameter the associations to no.

- Changing the Attributes of an M2PA Association
- Changing the Attributes of a M3UA or SUA Association
- **14.** Change the link parameters associated with the **IP** card in the database using the chg-ip-lnk command.

For this example, enter this command.

```
chg-ip-
lnk:loc=1201:port=a:ipaddr=192.1.1.10:submask=255.255.255.0
:auto=yes:mactype=dix
```

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

```
rlghncxa03w 06-10-28 21:18:37 GMT EAGLE5 36.0.0 CHG-IP-LNK: MASP A - COMPLTD
```

15. Verify the new link parameters associated with the **IP** card that was changed in 14 by entering the rtrv-ip-lnk command with the card location specified in 14.

For this example, enter this command.

The following is an example of the possible output.

16. Allow the **IP** card that was inhibited in 8 by using by using the alw-card command.



If8was not performed, continue the procedure with18.

For example, enter this command.

```
alw-card:loc=1201
```

This message should appear.

```
rlghncxa03w 06-10-28 21:20:37 GMT EAGLE5 36.0.0 Card has been allowed.
```

17. Verify the in-service normal (IS-NR) status of the IP card using the rept-stat-card command.

For example, enter this command.

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

This is an example of the possible output.

```
rlghncxa03w 06-10-27 17:00:36 GMT EAGLE5 36.0.0
CARD VERSION TYPE GPL PST SST
                                               AST
1201 114-000-000 DCM
                    SS7IPGW IS-NR Active
 ALARM STATUS = No Alarms.
 BPDCM GPL
              = 002-102-000
 IMT BUS A
              = Conn
 IMT BUS B = Conn
 SIGNALING LINK STATUS
                      LS
nc001
    SLK PST
                                   CLLI
         IS-NR
```

Command Completed.

18. Activate the signaling link from 5 using the act-slk command.



If5was not performed, continue the procedure with20.

For example, enter this command.

```
act-slk:loc=1201:link=a
```

The link changes its state from **OOS-MT-DSBLD** (out-of-service maintenance-disabled) to **IS-NR** (in-service normal).



The output confirms the activation.

```
rlghncxa03w 06-10-07 11:11:28 GMT EAGLE5 36.0.0 Activate Link message sent to card
```

19. Verify the in-service normal (IS-NR) status of the signaling link using the rept-stat-slk command.

For example, enter this command.

```
rept-stat-slk:loc=1201:link=a
```

This message should appear.

```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0

SLK LSN CLLI PST SST AST
1201,A nc001 ------ IS-NR

Command Completed.
```

20. Perform the Configuring an IP Card procedure and change the IP address of the default router to a non-zero value, where the network portion of the default router IP address matches the network portion of the IP link's new IP address.

Note:

If the ipaddr or submask values were not changed, continue the procedure with 22.

Note:

If the IP address of the default router was not changed to 0.0.0.0 in 10 , continue the procedure with 21.

21. Perform the Adding an IP Route procedure and add the **IP** routes back into the database.

Note:

If Proutes were not removed in 11, continue the procedure with 22.

22. Perform one of these procedures as necessary and change the value of the open parameter of the association to yes.

Note:

If theopen parameter value for an association was not changed in 13, continue the procedure with 23.

- Changing the Attributes of an M2PA Association
- Changing the Attributes of a M3UA or SUA Association
- 23. Back up the new changes using the chg-db:action=backup:dest=fixed command.

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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

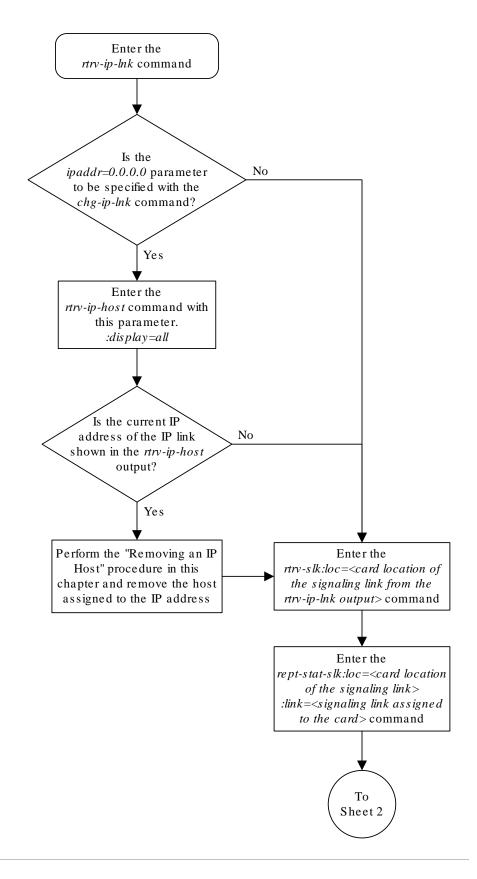
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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

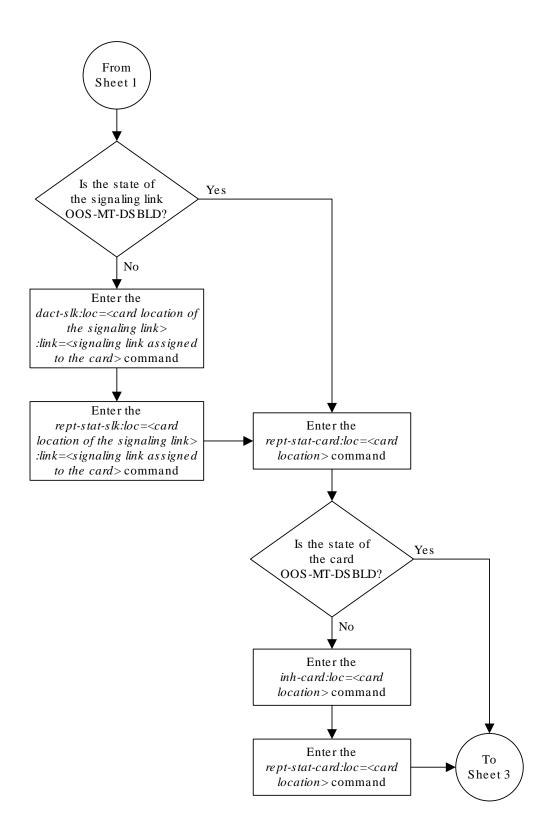


Figure 4-7 Configuring an IP Link



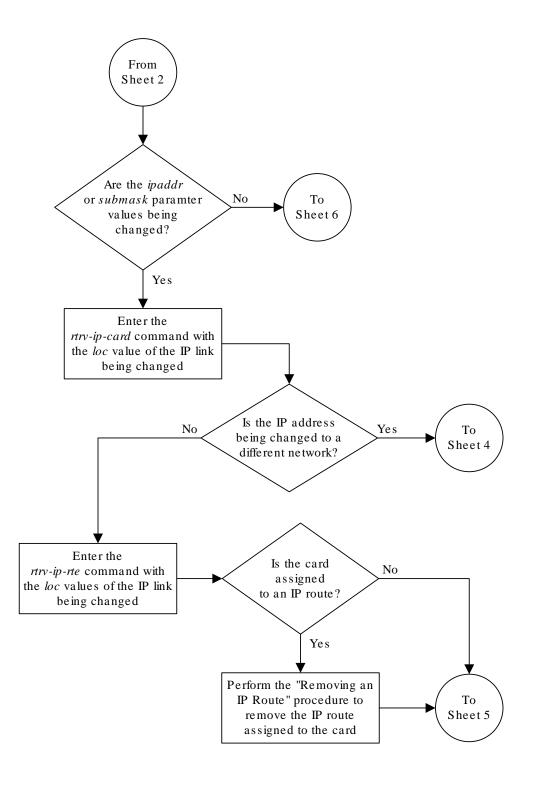
Sheet 1 of 9





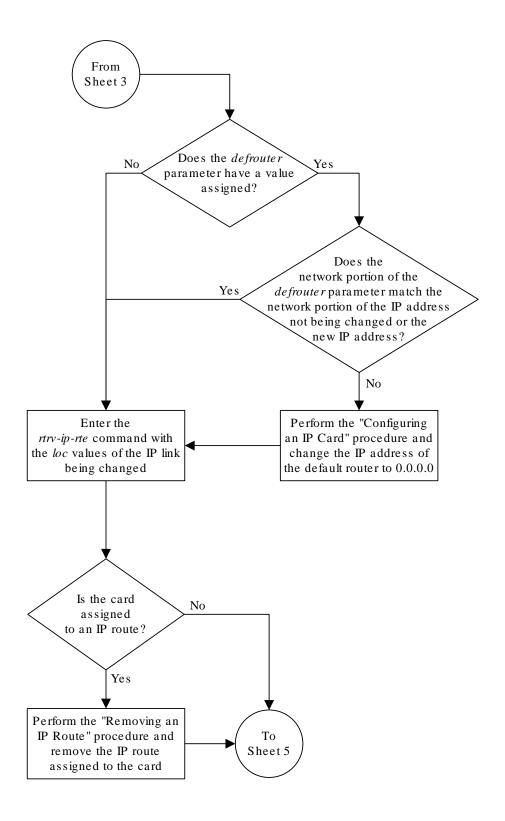
Sheet 2 of 9





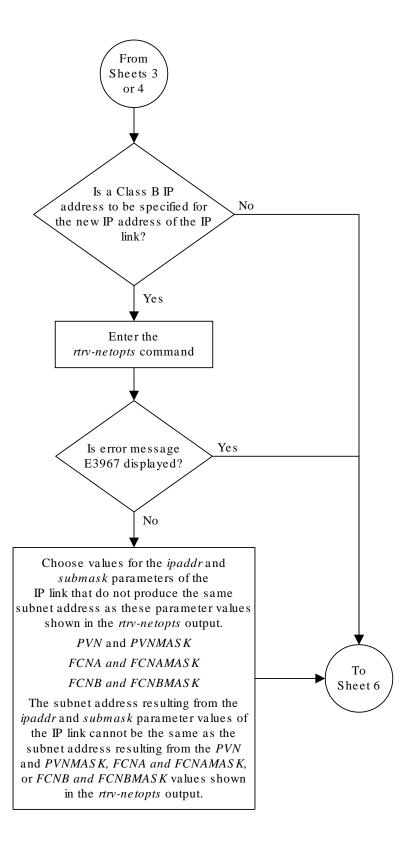
Sheet 3 of 9





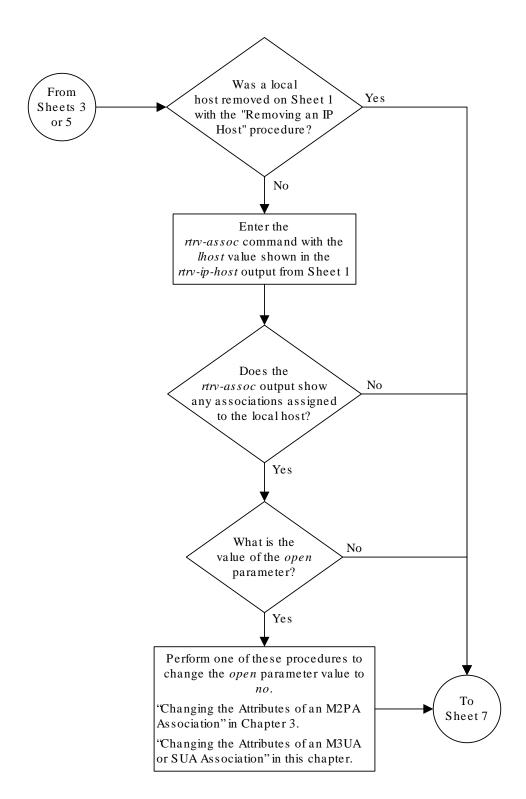
Sheet 4 of 9





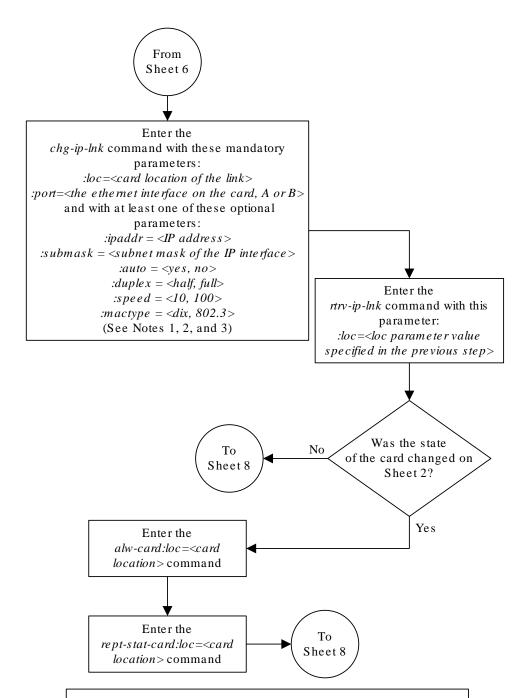
Sheet 5 of 9





Sheet 6 of 9



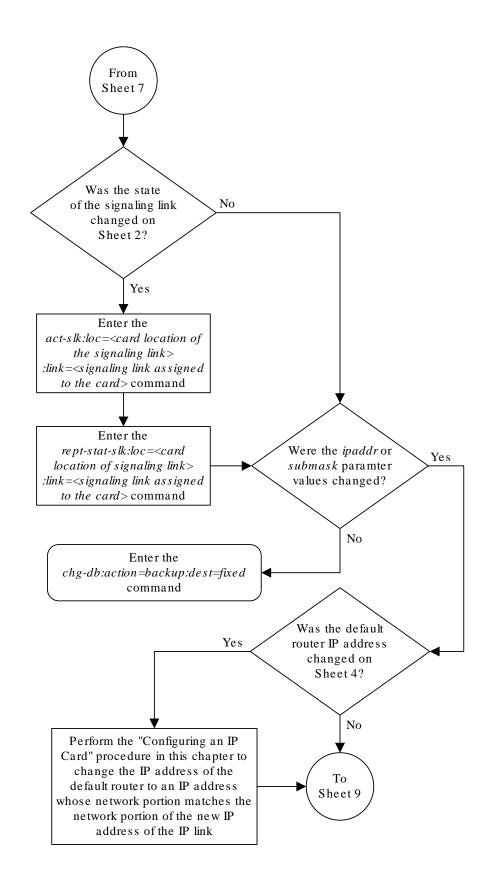


Notes:

- 1. If either the *ipaddr* or *submask* parameters are specified, then both parameters must be specified, unless the *ipaddr*=0.0.0.0 parameter is specified, then the *submask* parameter is not required.
- 2. The *ipaddr*=0.0.0.0 parameter disables the IP link.
- 3. If the *auto*=yes parameter is specified, then the *duplex* and *speed* parameters cannot be specified.

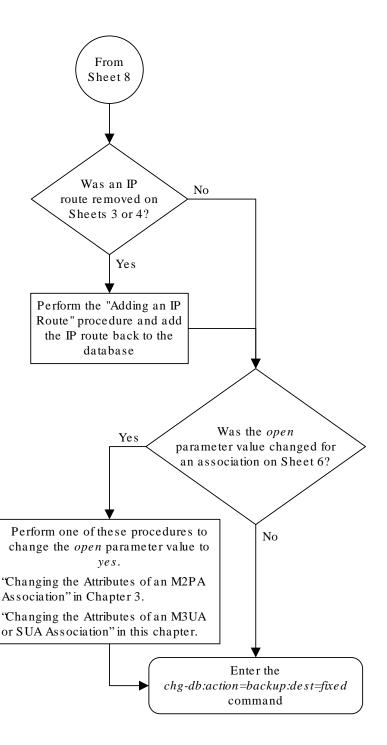
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Sheet 9 of 9

Adding an IP Host

This procedure associates hostnames with IP addresses using the ent-ip-host command.

The ent-ip-host command uses the following parameters.

:host- The host name to be associated with the **IP** address. This parameter identifies the logical name assigned to the device with the **IP** address indicated. The host name can contain up to 60 characters (using only these characters: a-z, A-Z, 0-9, -, .) and is not case sensitive. The host name must begin with a letter. Host names containing a dash (-) must be enclosed in double quotes.

:ipaddr – The **IP** address to be associated with the hostname. The node's **IP** address. This is an **IP** address expressed in standard "dot notation." **IP** addresses consist of the system's network number and the machine's unique host number.

: type — Specifies if the host resides on the IP card on the EAGLE 5 (type=local, the default value), or if the host resides on equipment that is not in the EAGLE 5 (type=remote). This parameter is optional.

The EAGLE 5 can contain a maximum of 4096 IP hosts.

The IP address for a local host must be shown in the rtrv-ip-lnk output.

The **IP** address for a remote host must not be shown in the rtrv-ip-lnk output.

 Display the current IP host information in the database by entering the rtrv-iphost:display=all command.

The following is an example of the possible output.

```
rlghncxa03w 13-06-28 21:17:37 GMT EAGLE5 45.0.0
LOCAL IPADDR LOCAL HOST
192.1.1.10 IPNODE1-1201
192.1.1.12
             IPNODE1-1203
192.1.1.14
             IPNODE1-1205
192.1.1.20
             IPNODE2-1201
192.1.1.22
             IPNODE2-1203
192.1.1.24
             IPNODE2-1205
192.1.1.32
              KC-HLR2
192.1.1.50
              DN-MSC1
192.1.1.52
              DN-MSC2
REMOTE IPADDR REMOTE HOST
150.1.1.5
              NCDEPTECONOMIC DEVELOPMENT. SOUTHEASTERN COORIDOR ASHVL.
GOV
IP Host table is (10 of 4096) .24% full
```

2. Verify that the IP address assigned to the IP links by entering the rtrv-ip-lnk command.



The following is an example of the possible output.

rlghncxa03w 08-12-28 21:14:37 GMT EAGLE5 40.0.0						
LOC PORT	IPADDR	SUBMASK	DUPLEX	SPEED	MACTYPE	
AUTO MCAST						
1201 A	192.1.1.10	255.255.255.128	HALF	10	802.3	
NO NO						
1201 В			HALF	10	DIX	
NO NO						
1203 A	192.1.1.12	255.255.255.0			DIX	
YES NO						
1203 В			HALF	10	DIX	
NO NO						
1205 A	192.1.1.14	255.255.255.0	FULL	100	DIX	
NO NO						
1205 В			HALF	10	DIX	
NO NO						
2101 A	192.1.1.20	255.255.255.0	FULL	100	DIX	
NO NO						
2101 В			HALF	10	DIX	
NO NO						
2103 A	192.1.1.22	255.255.255.0	FULL	100	DIX	
NO NO						
2103 В			HALF	10	DIX	
NO NO						
2105 A	192.1.1.24	255.255.255.0	FULL	100	DIX	
NO NO						
2105 В			HALF	10	DIX	
NO NO						
2207 A	192.1.1.32	255.255.255.0	FULL	100	DIX	
NO NO						
2207 В			HALF	10	DIX	
NO NO						
2213 A	192.1.1.50	255.255.255.0	FULL	100	DIX	
NO NO						
2213 B			HALF	10	DIX	
NO NO	400 4 4	055 055 055 1		100		
2301 A	192.1.1.52	255.255.255.0	FULL	100	DIX	
NO NO						
2301 B			HALF	10	DIX	
NO NO						

IP-LNK table is (20 of 2048) 1% full.

If a local host is being configured in this procedure, the **IP** address assigned to the local host must be shown in the rtrv-ip-lnk output. If the **IP** address is not shown in the rtrv-ip-lnk output, add the **IP** address by performing the Configuring an IP Link procedure.

If a remote host is being configured in this procedure, the IP address assigned to the remote host cannot be shown in the rtrv-ip-lnk output.

3. Add IP host information to the database by entering the ent-ip-host command.



If a local host is being configured, enter the <code>ent-ip-host</code> command with the **IP** address from 2, and the <code>type=local</code> parameter or without the <code>type</code> parameter. If the <code>type</code> parameter is not specified with the <code>ent-ip-host</code> command, the <code>type</code> parameter value defaults to <code>local</code>.

If a remote host is being configured, enter the <code>ent-ip-host</code> command with the **IP** address that is not shown in 2, and the <code>type=remote</code> parameter.

For example, enter this command.

```
ent-ip-host:host="kc-hlr1":ipaddr=192.1.1.30
```

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

```
rlghncxa03w 06-10-28 21:18:37 GMT EAGLE5 36.0.0 ENT-IP-HOST: MASP A - COMPLTD
```

4. Verify the new **IP** host information in the database by entering the rtrv-ip-host command with the host parameter value specified in 3.

For this example, enter this command.

```
rtrv-ip-host:host="kc-hlr1"
```

The following is an example of the possible output.

```
rlghncxa03w 13-06-28 21:19:37 GMT EAGLE5 45.0.0 LOCAL IPADDR LOCAL HOST 192.1.1.30 KC-HLR1

IP Host table is (11 of 4096) .26% full
```

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

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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

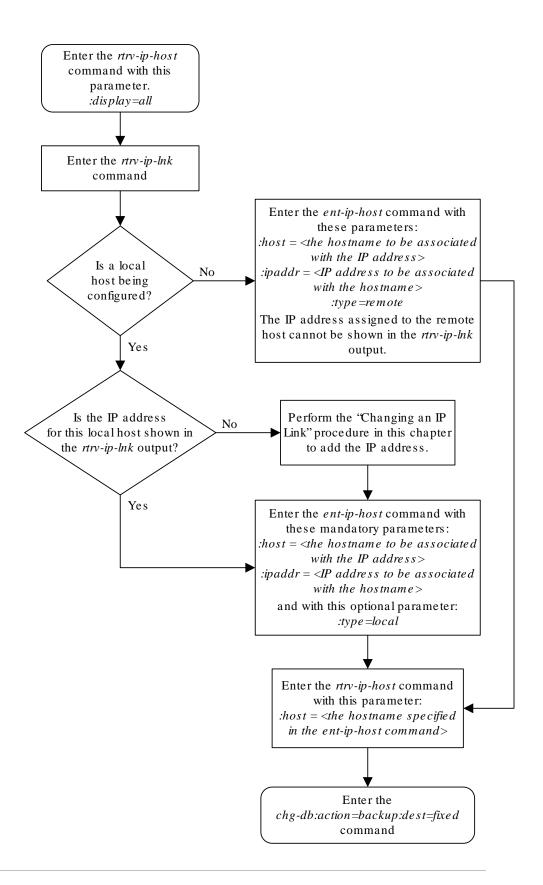
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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



Figure 4-8 Adding an IP Host



Configuring an IP Card

This procedure is used to change the **IP** stack parameters associated with an **IP** card in the database using the chg-ip-card command.

The chg-ip-card command uses the following parameters.

:loc - The card location of the IP card

: srchordr - Host Table Search Order

: dnsa – **Domain** name server A's **IP** address. This is an **IP** address expressed in standard "dot notation." **IP** addresses consist of the system's network number and the machine's unique host number.

: dnsb – **Domain** name server B's **IP** address. This is an **IP** address expressed in standard "dot notation." **IP** addresses consist of the system's network number and the machine's unique host number.

:domain - The domain name is used to construct a fully-qualified DNS name consisting of 120 characters or less. For example, a domain name can be tekelec.com, the hostname is john.doe. The fully-qualified DNS name would be john.doe@tekelec.com.

: defrouter – Default router IP address. This is an IP address expressed in standard "dot notation." IP addresses consist of the system's network number and the machine's unique host number.

:rstdomain - Reset **Domain** name. The parameter is used to reset the domain to a **NULL** value.

:sctpcsum - The SCTP checksum algorithm that will be applied to the traffic on the IP card, either adler32 or crc32c. The sctpcsum parameter can be specified only if the SCTPCSUM value in the rtrv-sg-opts output is percard.

The chg-ip-card command contains other parameters that cannot be used in this procedure. Refer to *Commands User's Guide* for more information about these parameters.

The **IP** card must be placed out of service.

The rstdomain parameter cannot be specified if the domain parameter is specified.

There is only one default router (defrouter parameter) for each IP card. The default router is used as the primary route unless a static IP routes is defined for the destination IP address. Static IP routes are assigned using the ent-ip-rte command in the Adding an IP Route procedure.

The network portion of the **IP** address of the default router must match the network portion of one of the **IP** addresses assigned to the card.

The network portion of the **IP** address is based on the class of the **IP** address (shown in Table 4-4). If the **IP** address is a Class A **IP** address, the first field is the network portion of the **IP** address. If the **IP** address is a Class B **IP** address, the first two fields are the network portion of the **IP** address. If the **IP** address is a Class C **IP** address, the first three fields are the network portion of the **IP** address. For example, if the **IP** address is 193.5.207.150, a Class C **IP** address, the network portion of the **IP** address is 193.5.207.



The default router can be associated with only one **IP** address assigned to the card if the defrouter parameter is specified. For example, the <code>dnsa</code> value for card 1101 is 150.1.1.10. The <code>dnsb</code> value for card 1101 is 160.25.37.1. A default router is provisioned with the **IP** address 150.1.1.4. The default router is associated with the Ethernet A **IP** address (the <code>dnsa</code> parameter value), but not the Ethernet B **IP** address (the <code>dnsb</code> parameter value).

If the default router is associated with one of the IP card's IP addresses, a second gateway router can be assigned to the other IP address on the IP card by provisioning a static IP route for the IP card using the ent-ip-rte command in the Adding an IP Route procedure. Static IP routes can provide gateway routers associated with the other IP address on the IP card. To provision the gateway router (the gtwy parameter of the ent-ip-rte command) for the other IP address assigned to the IP card, the network portion of the gateway router's IP address must match the network portion of the other IP address assigned to the IP card.

Specifying the **IP** address 0.0.0.0 for the dnsa or dnsb parameters, removes the **IP** address for Ethernet A (dnsa) or Ethernet B (dnsb).

When an **IP** card is entered into the database with the ent-card command, the **IP** stack parameters associated with this card are initially set with these default values:

- :srchordr SRVR
- :dnsa No DNSA IP address is specified
- : dnsb No DNSB IP address is specified
- :domain No domain name is specified
- :defrouter No default router IP address is specified
- :rstdomain No
- :sctpcsum crc32c

The value of any optional parameter not specified with the <code>chg-ip-card</code> command is not changed.

1. Display the current **IP** parameters associated with card in the database by entering the rtrv-ip-card command.

The following is an example of the possible output.

```
rlghncxa03w 08-06-28 21:17:37 GMT EAGLE5 39.0.0
  LOC 1201
   SRCHORDR SRVR
   DNSA
          150.1.1.1
   DNSB
   DEFROUTER -----
   DOMAIN -----
   SCTPCSUM crc32c
   BPIPADDR -----
   BPSUBMASK -----
  LOC 1203
   SRCHORDR LOCAL
        192.1.1.40
   DNSA
    DNSB
           _____
```



```
DEFROUTER ------
DOMAIN NC. TEKELEC. COM
SCTPCSUM crc32c
BPIPADDR -----
BPSUBMASK -----
LOC 1205
SRCHORDR SRVRONLY
DNSA 192.1.1.40
DNSB ------
DEFROUTER -----
DOMAIN NC. TEKELEC. COM
SCTPCSUM crc32c
BPIPADDR ------
BPSUBMASK -----
```

To change the parameters of an **IP** card, the signaling link to the card and the card have to be inhibited.

2. Display the signaling link associated with the card shown in 1 using the rtrv-slk command specifying the card location.

For this example, enter this command.

```
rtrv-slk:loc=1201
```

This is an example of the possible output.

```
rlghncxa03w 06-10-28 21:17:37 GMT EAGLE5 36.0.0 LOC LINK LSN SLC TYPE 1201 A nc001 0 SS7IPGW
```

3. Retrieve the status of the signaling link shown in 2 using the rept-stat-slk command specifying the card location and signaling link.

For example, enter this command.

```
rept-stat-slk:loc=1201:link=a
```

The output lists the signaling link assigned to this card:

If the signaling link is in service-normal (IS-NR), go to 4 to deactivate the signaling link. If the signaling link is out-of-service-maintenance disabled (OOS-MT-DSBLD), continue the procedure with 6 to verify the card status.

4. Deactivate the signaling link assigned to the IP card using the rept-stat-slk command.

For example, enter this command.

```
dact-slk:loc=1201:link=a
```



Caution:

This command impacts network performance and should only be used during periods of low traffic.

After this command has successfully completed, this message appears.

```
rlghncxa03w 06-10-12 09:12:36 GMT EAGLE5 36.0.0
Deactivate Link message sent to card.
```

5. Verify the new link status using the rept-stat-slk command.

For example, enter this command.

```
rept-stat-slk:loc=1201:link=a
```

The output displays the link status as **OOS-MT-DSBLD** and gives off a minor alarm:

```
rlghncxa03w 06-10-27 17:00:36 GMT EAGLE5 36.0.0
SLK LSN CLLI PST SST
                                            AST
1201,A nc001
                ----- OOS-MT-DSBLD AVAIL
ALARM STATUS = * 0236 REPT-LKS:not aligned
UNAVAIL REASON = NA
Command Completed.
```

6. Verify the status of the IP card to be inhibited using the rept-stat-card command.

For example, enter this command.

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

This is an example of the possible output.

```
rlghncxa03w 06-10-27 17:00:36 GMT EAGLE5 36.0.0
                                      SST
CARD VERSION TYPE GPL PST
                                              AST
1201 114-000-000 DCM
                    SS7IPGW IS-NR
                                     Active
 ALARM STATUS = No Alarms.
 BPDCM GPL
              = 002-102-000
 IMT BUS A
              = Conn
 IMT BUS B
              = Conn
 SIGNALING LINK STATUS
    SLK PST
                       LS
                                  CLLI
               nc001
        IS-NR
```

Command Completed.

If the **IP** card to be inhibited is in service-normal (**IS-NR**), go to 7 to inhibit the card. If the IP card is out-of-service-maintenance disabled (OOS-MT-DSBLD), continue the procedure with 9.

7. Inhibit the IP card using the inh-card command.



For example, enter this command.

```
inh-card:loc=1201
```

This message should appear.

```
rlghncxa03w 06-10-28 21:18:37 GMT EAGLE5 36.0.0 Card has been inhibited.
```

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

Enter this command.

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

This is an example of the possible output.

```
rlghncxa03w 06-10-27 17:00:36 GMT EAGLE5 36.0.0
                                     SST
CARD VERSION TYPE GPL PST
                                            AST
1201 114-000-000 DCM SS7IPGW IS-NR Active
                                              ----
 ALARM STATUS = No Alarms.
 BPDCM GPL
              = 002-102-000
 IMT BUS A
IMT BUS B
              = Conn
              = Conn
 SIGNALING LINK STATUS
                      LS
nc001
                                 CLLI
    SLK PST
    A IS-NR
                                  _____
```

Command Completed.

If the defrouter parameter will be specified in 11, continue the procedure with 11.

If the defrouter parameter will not be specified in 11, continue the procedure by performing one of these steps.

- If the sctpcsum parameter value for the card will not be changed, continue the procedure with 11.
- If the sctpcsum parameter value for the card will be changed, continue the procedure with 10.
- 9. Verify that the IP address of either Ethernet A or B (the address whose network portion matches the network portion of the defrouter parameter value to be used in 11) is in the IP link table by entering the rtrv-ip-lnk command with the card location specified in this procedure.

For this example, enter this command.

```
rtrv-ip-lnk:loc=1201
```

The following is an example of the possible output.

```
rlghncxa03w 06-10-28 21:17:37 GMT EAGLE5 36.0.0
LOC PORT IPADDR SUBMASK DUPLEX SPEED MACTYPE AUTO
MCAST
```



1201	A	192.1.1.10	255.255.255.0	 	DIX
YES	NO				
1201	В			 	DIX
YES	NO				

If the network portion of the **IP** address specified by the defrouter value does not match the network portions of either **IP** address displayed in this step, perform one of these actions:

- Choose another value for the defrouter parameter, making sure that the network portion of the new **IP** address matches the network portion of one of the **IP** addresses displayed in this step.
- Perform the Configuring an IP Link procedure and change one of the IP
 addresses shown in this step so that the network portion of the new IP
 address changed in the Configuring an IP Link procedure matches the network
 portion of the IP address value for the defrouter parameter.

After this step has been completed, continue the procedure by performing one of these steps.

- If the sctpcsum parameter value for the card will not be changed, continue the procedure with 11.
- If the sctpcsum parameter value for the card will be changed, continue the procedure with 10.
- 10. To change the sctpcsum parameter value for the IP card, the sctpcsum parameter value in the rtrv-sg-opts output must be percard. Verify the sctpcsum parameter value by entering the rtrv-sg-opts command.

The following is an example of the possible output.

```
rlghncxa03w 08-04-13 09:19:43 GMT EAGLE5 38.0.0
              1500
SRKQ:
SNMPCONT:
              tekelec
             public
GETCOMM:
SETCOMM:
             private
TRAPCOMM:
             public
             adler32
SCTPCSUM:
IPGWABATE:
              NO
UAMEASUSEDFTAS: NO
```

If the sctpcsum parameter value in the rtrv-sg-opts output is percard, continue the procedure with 11.

If the sctpcsum parameter value in the rtrv-sg-opts output is adler 32 or crc32c, perform the Changing the SCTP Checksum Algorithm Option for M3UA and SUA Associations procedure to change the sctpcsum parameter value to percard. After the Changing the SCTP Checksum Algorithm Option for M3UA and SUA Associations procedure has been performed, continue the procedure with 11.

11. Change the **IP** stack parameters associated with an **IP** card in the database using the chg-ip-card command.

For this example, enter this command.



```
chg-ip-
card:loc=1201:srchordr=local:dnsa=192.1.1.40:domain=nc.tekelec.co
m :sctpcsum=adler32
```

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

```
rlghncxa03w 06-10-28 21:20:37 GMT EAGLE5 36.0.0 CHG-IP-CARD: MASP A - COMPLTD
```

12. Verify the new IP parameters associated with the IP card that was changed in 11 by entering the rtrv-ip-card command. with the card location specified in 11

For this example, enter this command.

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

The following is an example of the possible output.



If7was not performed, continue the procedure with15.

13. Allow the IP card that was inhibited in 7 by using the alw-card command.

For example, enter this command.

```
alw-card:loc=1201
```

This message should appear.

```
rlghncxa03w 06-10-28 21:22:37 GMT EAGLE5 36.0.0 Card has been allowed.
```

14. Verify the in-service normal (IS-NR) status of the IP card using the rept-stat-card command.

For example, enter this command.

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



This is an example of the possible output.

```
rlghncxa03w 06-10-27 17:00:36 GMT EAGLE5 36.0.0
CARD VERSION TYPE GPL PST
                                         SST
                                                 AST
1201 114-000-000 DCM
                    SS7IPGW IS-NR
                                       Active
 ALARM STATUS = No Alarms.
               = 002-102-000
 BPDCM GPL
 IMT BUS A = Conn
IMT BUS B = Conn
 SIGNALING LINK STATUS
         PST LS
IS-NR nc001
    SLK PST
                                    CLLI
    A
```

Command Completed.

15. Activate the signaling link from 4 using the act-slk command.



If4was not performed, continue the procedure with17.

For example, enter this command.

```
act-slk:loc=1201:link=a
```

The link changes its state from **OOS-MT-DSBLD** (out-of-service maintenance-disabled) to **IS-NR** (in-service normal).

The output confirms the activation.

```
rlghncxa03w 06-10-07 11:11:28 GMT EAGLE5 36.0.0 Activate Link message sent to card
```

16. Verify the in-service normal (**IS-NR**) status of the signaling link using the rept-stat-slk command.

For example, enter this command.

```
rept-stat-slk:loc=1201:link=a
```

This message should appear.

```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0

SLK LSN CLLI PST SST AST

1201,A nc001 ------ IS-NR

Avail ----

Command Completed.
```

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

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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

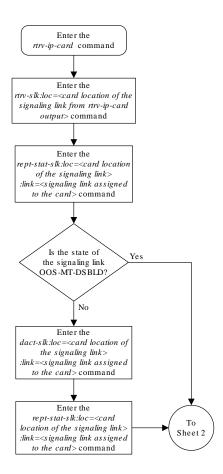
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

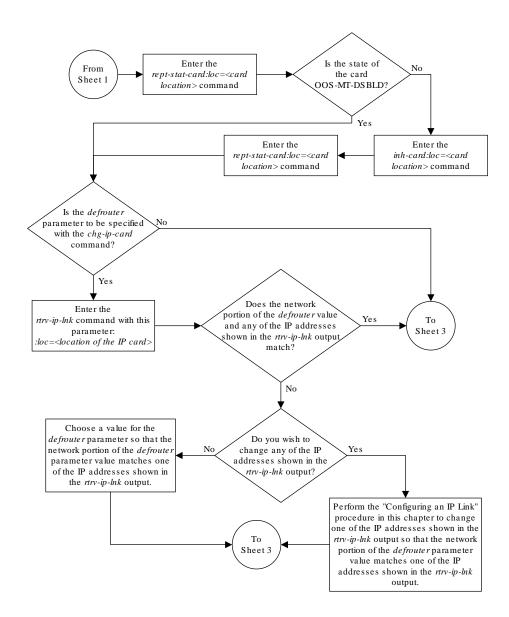
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```



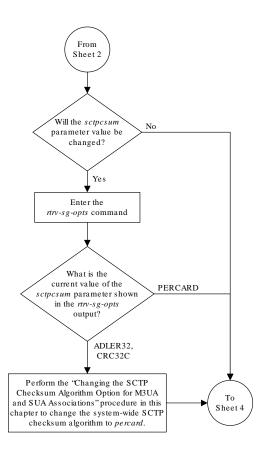
Figure 4-9 Configuring an IP Card



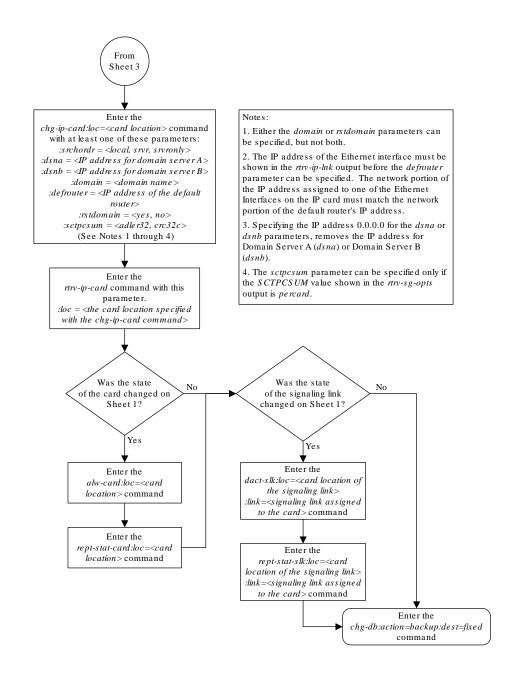
Sheet 1 of 4



Sheet 2 of 4



Sheet 3 of 4



Sheet 4 of 4

Adding an IP Route

This procedure is used to add an **IP** route to the database using the <code>ent-ip-rte</code> command.

The ent-ip-rte command uses these parameters.

:loc - The location of the IP card that the IP route will be assigned to.

: dest - The IP address of the remote host or network.

: submask - The subnet mask of the destination IP address.

: gtwy – The **IP** address of the gateway or router that will send the **IP** data to its final destination.

There can be a maximum of 64 **IP** routes assigned to an **IP** card.

The **EAGLE** can contain a maximum of 2048 **IP** routes.

Ethernet Interfaces A and B on the $\bf IP$ card specified by the loc parameter can be used.

The network portion of the **IP** address value of the gtwy parameter must be the same as the network portion of the **IP** addresses shown for either the A or B interfaces in the rtv-ip-card output.

The value of the dest and gtwy parameters cannot be 127.x.x.x (the loopback address), 0.0.0.0, or the **IP** addresses of the A or B interfaces on the **IP** card, and cannot be assigned to another **IP** card.

If the <code>dest</code> parameter value represents a host **IP** address, the value for the <code>submask</code> parameter must be 255.255.255.255. Otherwise, the <code>submask</code> parameter value is identifies the network/host **ID** portions that must be entered when the dest parameter value represents a network address.

The submask is applied to the **IP** address which is being routed to see if it yields a route match. For example, if **IP** address 192.1.1.2 is being routed and the **IP** routing table contains these entries.

Table 4-5 Sample IP Routing Table

IP address	Submask	Gateway
191.1.0.0	255.255.0.0	192.168.110.250
192.0.0.0	255.0.0.0	192.168.110.251

IP routing occurs as follows:

- 1. The subnet mask of route 1 (255.255.0.0) is applied to the **IP** address being routed (192.1.1.2) with the resulting **IP** address of 192.1.0.0. **IP** address 192.1.0.0 does not match **IP** address 191.1.0.0 in the **IP** routing table, so the next route is chosen.
- 2. The subnet mask of route 2 (255.0.0.0) is applied to the **IP** address being routed (192.1.1.2) with the resulting **IP** address of 192.0.0.0 which matches the second route in the **IP** routing table, so this route is selected for routing this datagram.

See Table 4-6 for the valid input values for the submask and dest parameter combinations.



Table 4-6 Valid Subnet Mask Parameter Values

Network Class	IP Network Address Range	Valid Subnet Mask Values
		255.0.0.0 (the default value for a class A IP address)
		255.192.0.0
		255.224.0.0
Α	1.0.0.0 to 127.0.0.0	255.240.0.0
		255.248.0.0
		255.252.0.0
		255.254.0.0
		255.255.128.1
		255.255.0.0 (the default value for a class B IP address)
		255.255.192.0
		255.255.224.0
A+B	128.1.0.0 to 191.255.0.0	255.255.240.0
		255.255.248.0
		255.255.252.0
		255.255.254.0
		255.255.255.128
		255.255.255.0 (the default value for a class C IP address)
		255.255.255.192
A+B+C	192.0.0.0 to 223.255.255.0	255.255.255.224
-		255.255.255.240
		255.255.255.248
		255.255.255.252

If a Class B IP address is specified for the dest parameter of the ent-ip-rte command, the subnet address that results from the dest and submask parameter values cannot be the same as the subnet address that results from the pvn and pvnmask, fcna and fcnamask, or fcnb and fcnbmask parameter values of the chg-netopts command. The pvn and pvnmask, fcna and fcnamask, or fcnb and fcnbmask parameter values can be verified by entering the rtrv-netopts command. Choose dest and submask parameter values for the IP route whose resulting subnet address is not be the same as the subnet address resulting from the pvn and pvnmask parameter values of the chg-netopts command.

Display the IP routes in the database with the rtrv-ip-rte command.
 This is an example of the possible output.

rlghn	cxa03w 06-10-28	09:12:36 GMT EAGLE	5 36.0.0
LOC	DEST	SUBMASK	GTWY
1301	128.252.10.5	255.255.255.255	140.188.13.33
1301	128.252.0.0	255.255.0.0	140.188.13.34
1301	150.10.1.1	255.255.255.255	140.190.15.3
1303	192.168.10.1	255.255.255.255	150.190.15.23
1303	192.168.0.0	255.255.255.0	150.190.15.24



```
IP Route table is (5 of 2048) 0.24% full
```

2. Display the IP cards in the database with the rtrv-ip-card command.

This is an example of the possible output.

```
rlghncxa03w 08-08-28 21:17:37 GMT EAGLE5 39.0.0
  LOC 1212
    SRCHORDR LOCAL
    DNSA 150.1.1.1
DNSB -----
    DEFROUTER 150.1.1.100
    DOMAIN NC. TEKELEC. COM
    SCTPCSUM crc32c
    BPIPADDR -----
    BPSUBMASK -----
  LOC 1301
    SRCHORDR SRVRONLY
    DNSA 140.188.13.10
    DNSB 140.190.15.28
    DEFROUTER -----
    DOMAIN NC. TEKELEC. COM
    SCTPCSUM crc32c
    BPIPADDR -----
    BPSUBMASK -----
  LOC 1303
    SRCHORDR LOCAL
         150.190.15.1
    DNSA
           _____
    DNSB
    DEFROUTER 150.190.15.25
    DOMAIN NC. TEKELEC. COM
    SCTPCSUM crc32c
    BPIPADDR -----
    BPSUBMASK -----
```

If the required **IP** card is not shown in the rtrv-ip-card output, perform the Adding an IPGWx Card to add the card to the database.

Perform the Configuring an IP Card and make sure that the network portion of the IP addresses assigned for the A or B interfaces of the IP card is the same as the network portion of the IP address that will be assigned to the gtwy parameter of the IP route



If a Class A or CIP address (see Table 4-6) will be specified for the dest parameter in 4, continue the procedure with 4.

3. The subnet address that results from the dest and submask parameter values of the ent-ip-rte command cannot be the same as the subnet address that results from the pvn and pvnmask, fcna and fcnamask, or fcnb and fcnbmask parameter values of the chg-netopts command.



Display the pvn, pvnmask, fcna, fcnamask, fcnb, and fcnbmask parameter values of the chg-netopts command by entering the rtrv-netopts command.

If error message E3967 Cmd Rej: E5IS must be on is displayed after the rtrv-netopts command is executed, the pvn, pvnmask, fcna, fcnamask, fcnb, and fcnbmask parameters are not configured. Continue the procedure with 4.

This is an example of the possible output if the **E5IS** feature is on.

```
rlghncxa03w 09-02-28 21:17:37 GMT EAGLE5 40.1.0

NETWORK OPTIONS
-----

PVN = 128.20.30.40

PVNMASK = 255.255.192.0

FCNA = 170.120.50.0

FCNAMASK = 255.255.240.0

FCNB = 170.121.50.0

FCNBMASK = 255.255.254.0
```

Choose dest and submask parameter values for the IP route whose resulting subnet address is not be the same as the subnet address resulting from the pvn and pvnmask, fcna and fcnamask, or fcnb and fcnbmask parameter values of the chg-netopts command. Continue the procedure with 4.

4. Add the **IP** route to the database using the ent-ip-rte command.

For this example, enter this command.

```
ent-ip-
rte:loc=1212:dest=132.10.175.20:submask=255.255.255.255 :gtwy=150
.1.1.50
```

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

```
rlghncxa03w 06-10-12 09:12:36 GMT EAGLE5 36.0.0 ENT-IP-RTE: MASP A - COMPLTD
```

5. Verify the changes using the rtrv-ip-rte command with the card location specified with the ent-ip-rte command in 4.

For this example, enter these commands.

```
rtrv-ip-rte:loc=1212
```

This is an example of the possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0

LOC DEST SUBMASK GTWY

1212 132.10.175.20 255.255.255 150.1.1.50

IP Route table is (6 of 2048) 0.29% full
```

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



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

BACKUP (FIXED) : MASP A - Backup starts on active MASP.

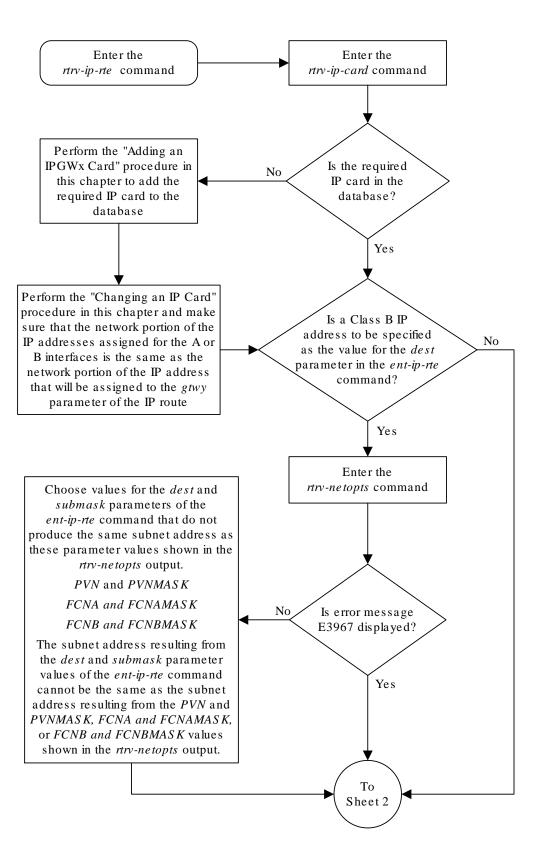
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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

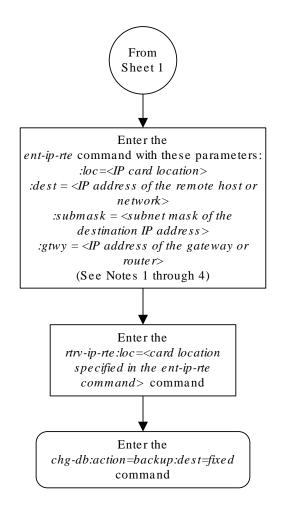


Figure 4-10 Adding an IP Route



Sheet 1 of 2





Notes:

- 1. The network portion of the IP address value of the *gtwy* parameter must be the same as the network portion of the IP addresses shown for either the A or B interfaces in the *rtrv-ip-card* output.
- 2. The value of the *dest* and *gtwy* parameters cannot the 127.x.x.x (the loopback address), 0.0.0.0, or the IP addresses of the A or B interfaces on the IP card, and cannot be assigned to another IP card.
- 3. There can be a maximum of 64 IP routes assigned to an IP card.
- 4. The EAGLE 5 ISS can contain a maximum of 1024 IP routes.



Sheet 2 of 2

Adding an M3UA or SUA Association

This procedure is used to configure M3UA or SUA associations using the ent-assoc command. The combination of a local host, local SCTP port, remote host and remote SCTP port defines an association. M3UA and SUA associations are assigned to cards running either the SS7IPGW or IPGWI applications (IPGWx cards).

The ent-assoc command uses these parameters:

: aname – The name assigned to the association. Valid association names can contain up to 15 alphanumeric characters where the first character is a letter and the remaining characters are alphanumeric characters. The aname parameter value is not case-sensitive.

:lhost - Local Hostname. The logical name assigned to the local host device.

:lport - The SCTP port number for the local host.

: rhost - Remote Hostname. The logical name assigned to the remote host device.

:rport - The SCTP port number for the remote host.

:link – The signaling link on the **IP** card. The value for the link parameter for **M3UA** or **SUA** associations is A.



The port parameter can be used in place of the link parameter to specify the signaling link on the card.

: adapter — The adapter layer for this association, either m3ua or sua. The adapter parameter is optional. The default value for the adapter parameter is m3ua.

:alhost - The alternate local host name.

The adapter=m2pa and m2patset parameters can be used only when configuring M2PA associations. Perform the Adding an M2PA Association or Adding an IPSG M2PA Association procedures to configure M2PA associations.

Associations contain fields whose values are not assigned using the <code>ent-assoc</code> command. When an association is added to the database, these fields receive their default values. If a different value is desired, the <code>chg-assoc</code> command must be used. To change these values perform the Changing the Attributes of a M3UA or SUA Association procedure.

These fields and their default values are shown in Table 4-7.

Table 4-7 M3UA and SUA Association Fields and Default Values

open=no	rmax=800	cwmin=3000	alw=no	uaps=10
istrms=2	rmode=lin	rtimes=10	ostrms=2	rmin=120



Table 4-7 (Cont.) M3UA and SUA Association Fields and Default Values

bufsize=16	rtxthr=0	rhostval=re
		laxed

An M3UA or SUA association can contain an alternate remote host. The alternate remote host is provisioned with the rhostand rhostype=alternate parameters of the chg-assoc command. A primary remote host can be provisioned on this procedure by specifying the rhost parameter with the ent-assoc command. To provision an alternate remote host for an M3UA or SUA association, perform Changing the Attributes of a M3UA or SUA Association.

The size of the buffers on the **E5-ENET** card is shown in the following list.

E5-ENET Card - 3200 KB

The size of the buffers assigned to each association that is assigned to the **IP** card cannot exceed the maximum buffer size for the **IP** card. When a new association is added, the default buffer size for the association is assigned to the association. If adding the new association causes the total buffer size for all the associations on the **IP** card to exceed the maximum buffer size for that **IP** card, the ent-assoc command will be rejected. If the you wish to add the association and the maximum buffer size for the **IP** card will be exceeded, the buffer size of the other associations assigned to the **IP** card must be decreased by performing the Changing the Buffer Size of a M3UA or SUA Association procedure. The available size of the buffers on the **IP** card can be verified by entering this command.

rtrv-assoc:lhost=<local host name assigned to the association being
changed>

The alhost parameter can also be used with the rtrv-assoc command to display the available size of the buffers on the IP card.

The aname parameter can be used with the rtrv-assoc command to display the available size of the buffers on the **IP** card and the size of the buffer assigned to the association.

The value of the <code>lhost</code>, <code>rhost</code>, or <code>alhost</code> parameters is a text string of up to 60 characters, with the first character being a letter. The command line on the terminal can contain up to 150 characters. If the host names are too long to fit on the <code>ent-assoc</code> command line, perform the <code>chg-assoc</code> command with the parameters and values necessary to complete the entry of the M3UA or SUA association.

The **EAGLE** can contain a maximum of 4000 connections (association to application server assignments).

The B Ethernet interface of the IP card can be used on the E5-ENET card.

If the association is to be activated in this procedure, with the chg-assoc command, the association must contain values for the lhost, lport, rhost, rport parameters.

The signaling link being assigned to the association must be in service. This state is shown in the rept-stat-slk output with the entries IS-NR in the PST field and Avail in the SST field.

Uni-homed endpoints are associations configured with the <code>lhost</code> parameter only. The <code>lhost</code> parameter value represents an **IP** address that corresponds to either the A or B network interface of the **IP** card. Multi-homed endpoints are associations configured with both the <code>lhost</code> and <code>alhost</code> parameters. The <code>lhost</code> parameter value represents an **IP** address

corresponding to one of the network interfaces (A or B) of the **IP** card while the alhost parameter value represents an **IP** address corresponding to the other network interface of the same **IP** card.

An alternate remote host can be configured for multi-homed associations using the rhost and rhosttype parameters of the chg-assoc command. The rhost parameter value with the rhostype=primary parameter represents an IP address that corresponds to one of the network interfaces at the remote end while the rhost parameter value with the rhostype=alternate parameter represents an IP address that corresponds to the other network interface at the remote end.

Canceling the RTRV-ASSOC Command

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

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

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

1. Display the associations in the database using the rtrv-assoc command. This is an example of possible output.

rlghncxa03w	06-10-28	09:12	09:12:36 GMT EAGLE5 36.0.0					
	CARD	IPLNK						
ANAME	LOC	PORT	LINK	ADAPTER	LPORT	RPORT	OPEN	ALW
swbel32	1201	A	A	M3UA	1030	2345	YES	YES
a2	1305	A	A	SUA	1030	2345	YES	YES
a3	1307	A	A	SUA	1030	2346	YES	YES
assoc3	1203	A	A1	M2PA	2048	1030	NO	NO

Perform one of these actions.

- If SUA associations are assigned to the desired IP link (shown by the entries in the CARD LOC and IPLNK PORT columns for an association whose ADAPTER value is SUA in the rtrv-assoc output), continue the procedure with 5.
- If M3UA associations are assigned to the desired IP link (shown by the entries in the CARD LOC and IPLNK PORT columns for an association whose



ADAPTER value is M3UA in the rtrv-assoc output), continue the procedure with 2.

- If the desired IP link is not shown in the rtrv-assoc output, continue the procedure with 3.
- 2. Display the signaling links assigned to the card that the new M3UA association will be assigned to by entering the rtrv-slk command with the card location displayed in 1. For this example, enter this command.

```
rtrv-slk:loc=1201
```

The following is an example of the possible output.

```
rlghncxa03w 08-04-06 10:07:25 GMT EAGLE5 38.0.0

LOC LINK LSN SLC TYPE
1201 A lsn1 0 SS7IPGW
```

If the value in the ${\tt TYPE}$ column is either SS7IPGW or IPGWI, continue the procedure with 5.

If the value in the TYPE column is IPSG, the links and host assigned to this card cannot be used in this procedure. If you wish to use this card to configure an M3UA association, perform the Adding an IPSG M3UA Association procedure.

If you do not wish to use this card to configure an M3UA association, perform one of these actions.

- Choose another card from the rtrv-assoc output in 1 and repeat this step.
- Continue the procedure with 3 to choose another IPGWx card and IP link for the new association.
- 3. Display the IP links in the database by entering the rtrv-ip-lnk command. The following is an example of the possible output.

rlghncxa03w 08-12-28 21:14:37 GMT EAGLE5 40.0.0								
LOC	PORT	IPADDR	SUBMASK	DUPLEX	SPEED	MACTYPE	AUTO	
MCAST								
1201	A	192.1.1.10	255.255.255.128	HALF	10	802.3	NO	NO
1201	В			HALF	10	DIX	NO	NO
1203	A		255.255.255.0			DIX	YES	NO
1203	В			HALF	10	DIX	NO	NO
1205	A		255.255.255.0		100	DIX	NO	NO
1205	В			HALF	10	DIX	NO	NO
2101	A		255.255.255.0		100	DIX	NO	NO
2101	В			HALF	10	DIX	NO	NO
2103	A		255.255.255.0		100	DIX	NO	NO
2103	В			HALF	10	DIX	NO	NO
2105	A		255.255.255.0		100	DIX	NO	NO
2105	В			HALF	10	DIX	NO	NO
2205	A		255.255.255.0		100	DIX	NO	NO
2205	В			HALF	10	DIX	NO	NO
2207	A		255.255.255.0		100	DIX	NO	NO
2207	В			HALF	10	DIX	NO	NO
2213	A	192.1.1.50	255.255.255.0	FULL	100	DIX	NO	NO
2213	В			HALF	10	DIX	NO	NO



If the required **IP** link is not in the database, add the **IP** link using the Configuring an **IP** Link procedure.

4. Verify that the local host name to be assigned to the association is in the database by using the rtrv-ip-host:display=all command. The following is an example of the possible output.

rlghncxa03w 13-06-28 21:15:37 GMT EAGLE5 45.0.0

```
LOCAL IPADDR LOCAL HOST
192.1.1.10 IPNODE1-1201
192.1.1.12
             IPNODE1-1203
192.1.1.14
             IPNODE1-1205
192.1.1.20
             IPNODE2-1201
             IPNODE2-1203
192.1.1.22
192.1.1.24
             IPNODE2-1205
192.1.1.30
             KC-HLR1
192.1.1.32
             KC-HLR2
192.1.1.50
            DN-MSC1
192.1.1.52
             DN-MSC2
REMOTE IPADDR REMOTE HOST
150.1.1.5
              NCDEPTECONOMIC DEVELOPMENT.
SOUTHEASTERN COORIDOR ASHVL. GOV
IP Host table is (11 of 4096) .26% full
```

The **IP** address of the **IP** link should be assigned to the local host name that will be assigned to the association.

The values of the <code>lhost</code> and <code>alhost</code> parameters must be in the <code>LOCAL HOST</code> column in the <code>rtrv-ip-host</code> output.

If the required hostname is not in the database, add the **IP** host name using the Adding an IP Host procedure.

5. Verify the available buffer size for the IP card that will contain the association being added in this procedure by entering the rtrv-assoc command with the local host name assigned to the association being added. For this example, enter this command.



If a newIP host was added in 4, continue the procedure with 6.

rtrv-assoc:lhost="IPNODE2-1305"



This is an example of the possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0

CARD IPLNK

ANAME LOC PORT LINK ADAPTER LPORT RPORT OPEN ALW
a2 1305 A A SUA 1030 2345 YES YES

IP Appl Sock/Assoc table is (8 of 4000) 1% full
Assoc Buffer Space Used (16 KB of 800 KB) on LOC = 1305
```

If adding the new association causes the total buffer size for all the associations on the **IP** card to exceed the maximum buffer size for that **IP** card, the ent-assoc command will be rejected.

The default buffer value for an M3UA or SUA association is 16.

If the you wish to add the association and the maximum buffer size for the **IP** card will be exceeded, the buffer size of the other associations assigned to the **IP** card must be decreased by performing the Changing the Buffer Size of a M3UA or SUA Association procedure.

6. Add the associations using the ent-assoc command. For this example, enter these commands.

```
ent-assoc:aname=assoc1:lhost=gw105.nc.tekelec.com:lport=1030:
rhost=gw100.nc.tekelec.com:rport=1030:adapter=m3ua:link=a
```

These are the rules that apply to adding M3UA or SUA associations that are assigned to IPGWx signaling links.

- The B Ethernet interface can be used with E5-ENET cards.
- Each local host on an IPGWx card can contain a maximum of 50 connections (association – application server assignments).
- The EAGLE can contain a maximum of 4000 connections (association application server assignments).
- The value of the <code>lhost</code>, <code>rhost</code>, or <code>alhost</code> parameters is a text string of up to 60 characters, with the first character being a letter. The command line on the terminal can contain up to 150 characters. If the host names are too long to fit on the <code>ent-assoc</code> command line, perform the <code>chg-assoc</code> command with the parameters and values necessary to complete the entry of the M3UA or SUA association.
- If the new association is to be activated in this procedure with the <code>chg-assoc</code> command, the association must contain values for the <code>lhost</code>, <code>rhost</code>, <code>lport</code>, and <code>rport</code> parameters.
- If the lhost and alhost are specified, the lhost parameter value represents the IP address corresponding to one of the network interfaces (A or B) on the IP card while the alhost parameter value represents the IP address corresponding to the other network interface of the same IP card.
- The default value for the adapter parameter is m3ua.
- The port parameter can be used in place of the link parameter to specify the signaling link assigned to the association.



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

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 ENT-ASSOC: MASP A - COMPLTD
```



If the association added in step 6 is not being activated in this procedure, skip step 7 and go to step 8.

7. Activate the association added in 6 by entering the <code>chg-assoc</code> command with the association name specified in 6 and the <code>open=yes</code> and <code>alw=yes</code> parameters. For example, enter this command.

```
chg-assoc:aname=assoc1:open=yes:alw=yes
```

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

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0 CHG-ASSOC: MASP A - COMPLTD
```

8. Verify the changes using the rtrv-assoc command specifying the association name specified in 6 and 7. For this example, enter these commands.

```
rtrv-assoc:aname=assoc1
```

This is an example of possible output.

```
rlghncxa03w 09-05-28 09:12:36 GMT EAGLE5 41.0.0
ANAME assoc1
    LOC
           1305
                                         LINK A
                       IPLNK PORT A
    ADAPTER M3UA
                      VER M3UA RFC
    LHOST gw105.nc.tekelec.com
    ALHOST ---
    RHOST
           gw100.nc.tekelec.com
    ARHOST ---
    LPORT 1030
                     RPORT
                              1030
    ISTRMS 2
                                         BUFSIZE 16
                      OSTRMS
                                2
                                120
                                                800
    RMODE LIN
                      RMIN
                                         RMAX
                                3000
    RTIMES 10
                      CWMIN
                                         UAPS
                                                10
    OPEN
          YES
                      ALW
                                YES
                                         RTXTHR
    RHOSTVAL RELAXED
```

```
IP Appl Sock table is (5 of 4000) 1% full Assoc Buffer Space Used (16 KB of 800 KB) on LOC = 1305
```



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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

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

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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



Note: The IP link is shown by the entries Enter the in the CARD LOC and IPLINK PORT rtrv-assoc command columns. The ADAPTER value of the association must be M3UA or SUA. Is the required IP link shown in the No To rtrv-assoc output? (See Sheet 2 the Note) Yes Are SUA associations Yes assigned to the IP link? Enter the No rtrv-slk command with this parameter. $:loc = < card\ location\ from\ the$ rtrv-assoc output> SS7IPGW, What is the value in the TYPE IPGWI To column of the rtrv-slk Sheet 3 output> **IPSG** The links and host assigned to

this card cannot be used in this procedure.

Do you wish to

use the card shown in the

rtrv-slk output to configure an

M3UA association?

Choose another card from the rtrv-assoc output whose adapter value is M3UA or SUA.

No

 $Ye\,s$

Figure 4-11 Adding an IPGWx M3UA or SUA Association



Perform the 'Configuring an

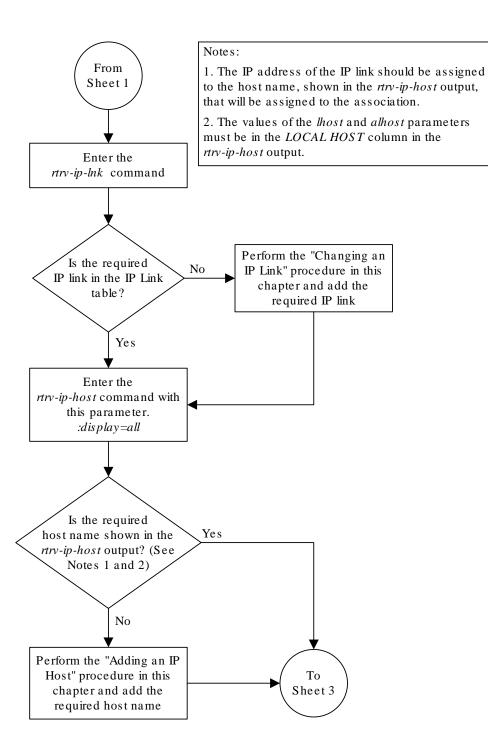
IPSG M3UA Association"

procedure in Chapter 6 of this

manual.

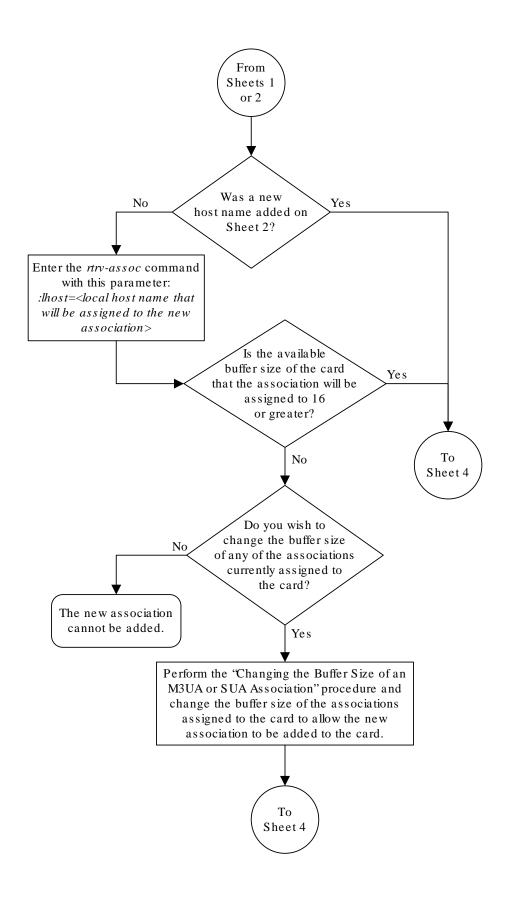
Sheet 1 of 4



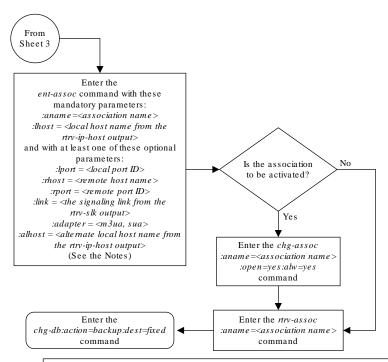


Sheet 2 of 4





Sheet 3 of 4



Notes:

- 1. The B Ethernet interface can be used with single-slot EDCMs or E5-ENET cards.
- 2. Each local host on an IPGWx card can contain a maximum of 50 connections (association application server assignments).
- 3. The EAGLE 5 ISS can contain a maximum of 4000 connections (association application server assignments).
- 4. The value of the *lhost*, *rhost*, or *alhost* parameters is a text string of up to 60 characters, with the first character being a letter. The command line on the terminal can contain up to 150 characters. If the host names are too long to fit on the *ent-assoc* command line, perform the *chg-assoc* command with the parameters and values necessary to complete the entry of the M3UA or SUA association.
- 5. If the new association is to be activated in this procedure with the *chg-assoc* command, the association must contain values for the *lhost*, *rhost*, *lpon*, and *rpon* parameters.
- 6. If the *lhost* and *alhost* are specified, the *lhost* parameter value represents the IP address corresponding to one of the network interfaces (A or B) on the IP card while the *alhost* parameter value represents the IP address corresponding to the other network interface of the same IP card.
- 7. The default value for the adapter parameter is m3ua.
- 8. The *port* parameter can be used in place of the *link* parameter to specify the signaling link assigned to the association.

Sheet 4 of 4

Adding a New Association to a New Application Server

This procedure is used create a new application server and assign a new association to the application server using the ent-as command.

The ent-as command uses these parameters:

: asname - The name of the new application server. The name of the application server can contain up to 15 alphanumeric characters, with the first character being an alphabetic character. Application server names are not case sensitive.

: aname – The name of the association being assigned to the application server.

The maximum number **SCTP** association to application server assignments that can be hosted by an **IPGWx** card (referenced by the lhost parameter of the association) is 50. For example, the IPGWx card currently contains 38 SCTP association to application server assignments. The **SCTP** association to application server assignments could be one SCTP association assigned to 38 application servers, two SCTP associations assigned to 19 application servers, or any combination of SCTP associations assigned to application servers that add up to 38. The SCTP association to application server assignments can be verified with the rtrv-

assoc: lhost = < local host name > and rtry-as: aname = < association name > commands.

Table 4-8 Examples of IPGWx Card Provisioning Limits

Number of Associations hosted by the IPGWx card	Number of Application Servers each Association is Assigned to *	Total Association - Application Server Assignments maintained by the IPGWx card
1	50	50
50	1	50
25	1	50
25	2	50
0	0	50
38	1	38
19	2	38
* The FAGI F can contain a m	aximum of 250 application serv	ers.

The **EAGLE** can contain a maximum of 250 application servers.

The open parameter of the association must be set to no before the association can be assigned to the application server. This can be verified with the rtrv-assoc command.

M2PA associations (adapter=m2pa) cannot be assigned to application servers. Only M3UA (adapter=m3ua) and SUA (adapter=sua) associations can be assigned to application servers. This can be verified in the ADAPTER field in the rtrv-assoc output.

The application server recovery timer (the tr parameter of the chq-as command) for the application server is set by default to 10 milliseconds when an application server is added. The traffic mode (the mode parameter of the chg-as command) for the application server is set by default to LOADSHARE when an application server is added. Perform the Changing an Application Server procedure to change these parameter values.

Canceling the RTRV-AS and RTRV-ASSOC Commands



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

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

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

1. Display the application servers in the database using the rtrv-as command. This is an example of possible output.

rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0

AS Name as1	Mode LOADSHARE	Tr ms 10	Association Names a2 a3 assoc1
as2	OVERRIDE	10	assoc7
as3	OVERRIDE	10	swbel32

AS table is (3 of 250) 1% full.

2. Display the associations in the database using the rtrv-assoc command. This is an example of possible output.

rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0

	CARD	IPLNK						
ANAME	LOC	PORT	LINK	ADAPTER	LPORT	RPORT	OPEN	ALW
swbel32	1201	A	A	M3UA	1030	2345	YES	YES
a2	1305	A	A	SUA	2000	2345	YES	YES
a3	1307	A	A	SUA	3000	3000	YES	YES
assoc1	1305	A	A	SUA	4000	1030	YES	YES
assoc7	1311	A	A	SUA	2500	2000	YES	YES



3. Display the IP host names in the database by using the rtrv-ip-host:display=all command. The following is an example of the possible output.

rlghncxa03w 13-06-28 21:15:37 GMT EAGLE5 45.0.0

```
LOCAL IPADDR LOCAL HOST
192.1.1.10 IPNODE1-1201
192.1.1.12
              GW105. NC. TEKELEC. COM
192.1.1.14 IPNODE1-1205
192.1.1.20 IPNODE2-1201
192.1.1.22 IPNODE2-1203
192.1.1.24
               IPNODE2-1205
192.1.1.30
              KC-HLR1
192.1.1.32
              KC-HLR2
192.1.1.50
              DN-MSC1
192.1.1.52
              DN-MSC2
REMOTE IPADDR REMOTE HOST
150.1.1.5
                NCDEPTECONOMIC DEVELOPMENT.
SOUTHEASTERN COORIDOR ASHVL. GOV
IP Host table is (11 of 4096) .26% full
```

If the **IP** host name for the new association is not shown in the LOCAL HOST column of the rtrv-ip-host output, add the **IP** host name by performing the Adding an IP Host procedure. After the IP host has been added, continue the procedure with 7.

If the **IP** host name for the new association is shown in the LOCAL HOST column of the rtrv-ip-host output, continue the procedure with 4.

4. Display the IP links in the database by entering the rtrv-ip-lnk command. The following is an example of the possible output.

rlghr	ncxa03v	v 08-12-28 21:14:	:37 GMT EAGLE5 40	0.0.0		
LOC	PORT	IPADDR	SUBMASK	DUPLEX	SPEED	MACTYPE
AUTO	MCAST					
1201	A	192.1.1.10	255.255.255.128	HALF	10	802.3
NO	NO					
1201	В			HALF	10	DIX
NO	NO					
1203	A	192.1.1.12	255.255.255.0			DIX
YES	NO					
1203	В			HALF	10	DIX
NO	NO					
1205	A	192.1.1.14	255.255.255.0	FULL	100	DIX
NO	NO					
1205	В			HALF	10	DIX
NO	NO					
2101	A	192.1.1.20	255.255.255.0	FULL	100	DIX
NO	NO					



2101	В			HALF	10	DIX	NO	NO
2103	A	192.1.1.22	255.255.255.0	FULL	100	DIX	NO	NO
2103	В			HALF	10	DIX	NO	NO
2105	A	192.1.1.24	255.255.255.0	FULL	100	DIX	NO	NO
2105	В			HALF	10	DIX	NO	NO
2205	A	192.1.1.30	255.255.255.0	FULL	100	DIX	NO	NO
2205	В			HALF	10	DIX	NO	NO
2207	A	192.1.1.32	255.255.255.0	FULL	100	DIX	NO	NO
2207	В			HALF	10	DIX	NO	NO
2213	A	192.1.1.50	255.255.255.0	FULL	100	DIX	NO	NO
2213	В			HALF	10	DIX	NO	NO
2301	A	192.1.1.52	255.255.255.0	FULL	100	DIX	NO	NO
2301	В			HALF	10	DIX	NO	NO

IP-LNK table is (20 of 2048) 1% full.

5. Enter the rtrv-card command with the location of the card, from the rtrv-ip-lnk output in 4, that will host the association that will be assigned to the application server. For this example, enter this command.

```
rtrv-card:loc=1205
```

This is an example of possible output.

```
rlghncxa03w 08-03-06 15:17:20 EST EAGLE5 38.0.0

CARD TYPE APPL LSET NAME LINK SLC LSET NAME LINK SLC 1205 DCM SS7IPGW lsn1 A 0
```

If the application assigned to the card is SS7IPGW or IPGWI, shown in the \mathtt{APPL} column, continue the procedure with 6.

If the application assigned to the card is IPSG, the host assigned to this card cannot be used for the association that will be assigned to the application server. Repeat this procedure from 3 and choose another IP host.

6. Display the associations assigned to the local host value that will be assigned to the association being configured in this procedure by entering the rtrv-assoc command with the lhost parameter. For this example, enter this command.

```
rtrv-assoc:lhost="IPNODE2-1205"
```

This is an example of the possible output.

```
rlghncxa03w 06-10-28 21:14:37 GMT EAGLE5 36.0.0
               CARD IPLNK
               LOC PORT LINK ADAPTER LPORT RPORT OPEN ALW
ANAME
a2
               1205 A
                      A
                              SUA
                                      2000 2048 YES YES
a3
               1205 A
                         Α
                              SUA
                                      3000 3000 YES YES
IP Appl Sock/Assoc table is (8 of 4000) 1% full
Assoc Buffer Space Used (32 KB of 3200 KB) on LOC = 1205
```

7. Display the application servers that the associations shown in 6 are assigned to by entering rtrv-as command with the names of the associations shown in 6. For this example, enter these commands.

```
rtrv-as:aname=a2
```

This is an example of the possible output.

```
rlghncxa03w 06-10-28 21:14:37 GMT EAGLE5 36.0.0

AS Name Mode Tr ms Association Names as1 LOADSHARE 2000 a2

AS Table is (3 of 250) 1% full

rtrv-as:aname=a3
```

This is an example of the possible output.

```
rlghncxa03w 06-10-28 21:14:37 GMT EAGLE5 36.0.0

AS Name Mode Tr ms Association Names as2 LOADSHARE 2000 a3

AS Table is (3 of 250) 2% full
```

The maximum number of **SCTP** association to application server assignments that can be hosted by an **IPGWx** card (referenced by the lhost parameter of the association) is 50.

If the number of **SCTP** association to application server assignments is less than 50, continue the procedure with 8.

If the number of **SCTP** association to application server assignments is 50, the local host value cannot be used in this procedure.

Repeat this procedure from 3 and select another local **IP** host from the rtrv-ip-host output or perform the Adding an IP Host procedure to add a new local **IP** host. After the new local **IP** host name as been added, continue the procedure with 8.

8. Add the new association by performing the Adding an M3UA or SUA Association procedure.

The open parameter value for this association must be set to no.

These are the rules that apply to the association and the application server.

- a. M2PA associations cannot be assigned to an application server.
- b. If the application server is being added in this procedure will be assigned to a routing key containing an rcontext parameter value, the adapter parameter value for the association assigned to this application server can be either M3UA or SUA.
- c. If the application server is being added in this procedure will be assigned to a routing key that does not contain an rcontext parameter value, the adapter parameter value for the association assigned to this application server must be M3UA.
- **d.** SUA associations and their corresponding application server, can be assigned to only these types of routing keys.
 - Full routing key DPC/SI=3/SSN
 - Partial routing key DPC/SI=3



- Partial routing key DPC only
- Partial routing key SI=3 only
- Default routing key.
- The routing key containing the application server with the SUA associations must have an rcontext value assigned to it. If the new application server will not be assigned to one of these types of routing keys, the adapter parameter value of the associations assigned to the application server must be M3UA.
- 5. The application of the card containing the signaling link assigned to the association is either SS7IPGW or IPGWI.
- Assign the new association to the new application server and add the new application server to the database using the ent-as command. For this example, enter this command

```
ent-as:asname=as4:aname=assoc10
```

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

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 ENT-AS: MASP A - COMPLTD;
```

10. Verify the changes using the rtrv-as command with the application server name and association name specified in **9**. For this example, enter this command.

```
rtrv-as:asname=as4:aname=assoc10
```

This is an example of possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0

AS Name Mode Tr ms Association Names as4 LOADSHARE 10 assoc10

AS table is (4 of 250) 1% full.
```



If you do not wish to change theopen parameter value of the association specified in 9, continue the procedure with 12.

11. Change the value of the open parameter to yes by specifying the chg-assoc command with the open=yes parameter. For this example, enter this command.

```
chg-assoc:aname=assoc10:open=yes
```

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

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 CHG-ASSOC: MASP A - COMPLTD;
```

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

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

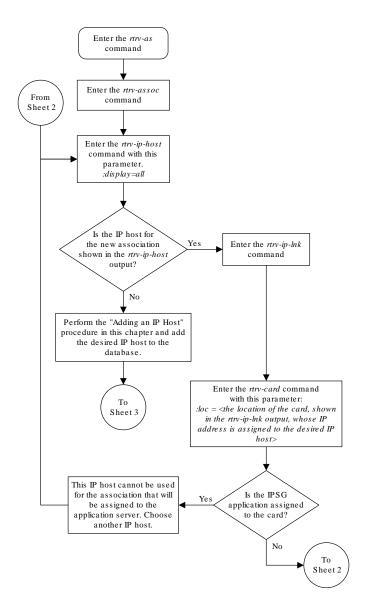
```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

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

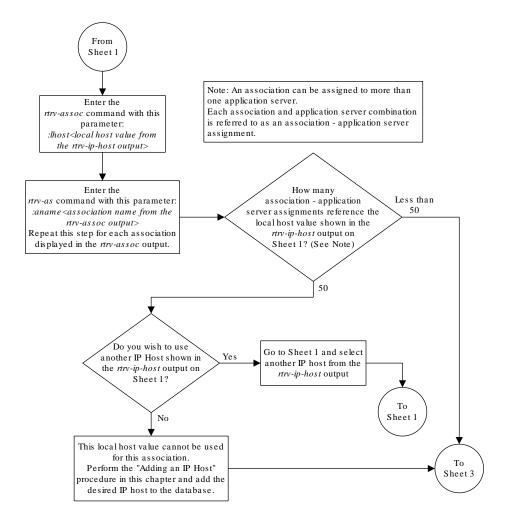
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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

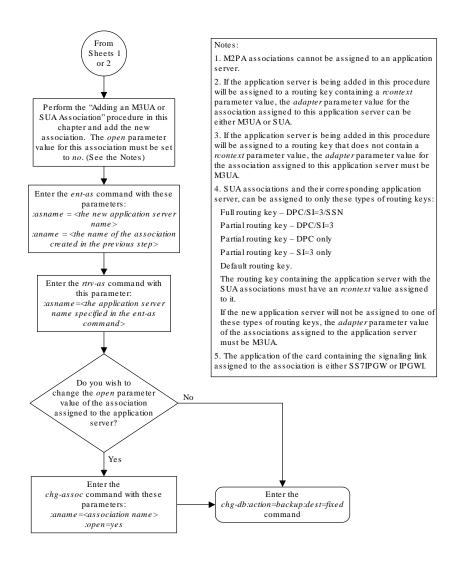
Figure 4-12 Adding a New Association to a New Application Server



Sheet 1 of 3



Sheet 2 of 3



Sheet 3 of 3

Adding an Existing Association to a New Application Server

This procedure is used create a new application server and assign an existing association to the application server using the ent-as command.

The ent-as command uses these parameters:

: asname – The name of the new application server. The name of the application server can contain up to 15 alphanumeric characters, with the first character being an alphabetic character. Application server names are not case sensitive.

: aname – The name of the association being assigned to the application server.

The maximum number SCTP association to application server assignments that can be hosted by an IPGWx card (referenced by the lhost parameter of the association) is 50. For example, the IPGWx card currently contains 38 SCTP association to application server assignments. The SCTP association to application server assignments could be one SCTP association assigned to 38 application servers, two SCTP associations assigned to 19 application servers, or any combination of SCTP associations assigned to application servers that add up to 38. The SCTP association to application server assignments can be verified with the rtrv-assoc:lhost=<local host name> and rtrv-association name> commands.

Table 4-9 Examples of IPGWx Card Provisioning Limits

Number of Associations hosted by the IPGWx card	Number of Application Servers each Association is Assigned to *	Total Association - Application Server Assignments maintained by the IPGWx card		
1	50	50		
50	1	50		
25	1	50		
25	2	50		
0	0	50		
38	1	38		
19	2	38		
* The EAGLE can contain a ma	ximum of 250 application servers.			

The open parameter of the association must be set to no before the association can be assigned to the application server. This can be verified with the rtrv-assoc command.

M2PA associations (adapter=m2pa) cannot be assigned to application servers. Only M3UA (adapter=m3ua) and SUA (adapter=sua) associations can be assigned to application servers. This can be verified in the ADAPTER field in the rtrv-assoc output.

The application server recovery timer (the tr parameter of the chg-as command) for the application server is set by default to 10 milliseconds when an application server is added. The traffic mode (the mode parameter of the chg-as command) for the application server is set by default to LOADSHARE when an application server is added. Perform the Changing an Application Server procedure to change these parameter values.

Canceling the RTRV-AS and RTRV-ASSOC Commands

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

- Press the F9 function key on the keyboard at the terminal where the rtrv-as or rtrv-assoc commands were entered.
- Enter the canc-cmd without the trm parameter at the terminal where the rtrv-as or rtrv-assoc commands were entered.
- Enter the canc-cmd:trm=<xx>, where <xx> is the terminal where the rtrv-as or rtrv-assoc commands were entered, from another terminal other that the terminal where the rtrv-as or rtrv-assoc commands were entered. To enter the canc-



cmd:trm=<xx> command, the terminal must allow Security Administration commands to be entered from it and the user must be allowed to enter Security Administration commands. The terminal's permissions can be verified with the rtrv-secu-trm command. The user's permissions can be verified with the rtrv-user or rtrv-secu-user commands.

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

1. Display the application servers in the database using the ${\tt rtrv-as}$ command.

This is an example of possible output.

rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0

AS Name	Mode	Tr ms	Association Names a2 a3 assoc1
as1	LOADSHARE	10	
as2	OVERRIDE	10	assoc7
as3	OVERRIDE	10	swbel32

AS table is (3 of 250) 1% full.



as1

If the association being added to the application server is not shown in the rtrv-as output in 1, continue the procedure with 3.

2. Display the associations in the database using the rtrv-assoc command and specifying the association name shown in the rtrv-as output in 1.

For this example, enter this command.

```
rtrv-assoc:aname=assoc1
```

This is an example of possible output.

```
rlghncxa03w 09-05-28 09:12:36 GMT EAGLE5 41.0.0
ANAME assoc1
     LOC
             1305
                          IPLNK PORT A
                                               LINK A
     ADAPTER SUA
                                    SUA RFC
                          VER
     LHOST gw102.nc.tekelec.com
     ALHOST ---
             gw100.nc.tekelec.com
     RHOST
     ARHOST ---
                                    1030
     LPORT 4000
                          RPORT
     ISTRMS 2
                          OSTRMS
                                     2
                                               BUFSIZE 16
     RMODE
             LIN
                          RMIN
                                    120
                                               RMAX
                                                       800
     RTIMES 10
                          CWMIN
                                     3000
                                               UAPS
                                                       10
                                     YES
                                              RTXTHR 10000
     OPEN
             YES
                          ALW
     RHOSTVAL RELAXED
     ASNAMES
```



```
IP Appl Sock table is (6 of 4000) 1% full
Assoc Buffer Space Used (16 KB of 800 KB) on LOC = 1305
```

If the association does not meet the requirements shown in 8, repeat this step with another association shown in 1, or continue the procedure with 3.

If the association does meet the requirements shown in 8, continue the procedure with 5.

3. Display the associations in the database using the rtrv-assoc command with the display=all parameter.

This is an example of possible output.

```
rlghncxa03w 09-05-28 09:12:36 GMT EAGLE5 41.0.0
ANAME swbel32
      LOC
               1201
                                                     LINK A
                             IPLNK PORT A
      ADAPTER M3UA
                             VER
                                         M3UA RFC
      LHOST
               gw101.nc.tekelec.com
      ALHOST
      RHOST
               gw100.ncd-economic-development.southeastern-corridor-
ash.gov
      ARHOST
      LPORT
               1030
                             RPORT
                                          2345
               2
                                          2
                                                     BUFSIZE 16
      ISTRMS
                             OSTRMS
      RMODE
               LIN
                             RMIN
                                          120
                                                     RMAX
                                                              800
                                          3000
                                                              10
               10
      RTIMES
                             CWMIN
                                                     UAPS
                                          YES
                                                              10000
      OPEN
               YES
                             ALW
                                                     RTXTHR
      RHOSTVAL RELAXED
      ASNAMES
      as3
IP Appl Sock table is (6 of 4000) 1% full
Assoc Buffer Space Used (16 KB of 800 KB) on LOC = 1201
ANAME a2
               1305
      LOC
                             IPLNK PORT A
                                                     LINK A
                                          SUA RFC
      ADAPTER SUA
                             VER
      LHOST
               gw102.nc.tekelec.com
      ALHOST
               gw100.nc.tekelec.com
      RHOST
      ARHOST
               2000
                                          2345
      LPORT
                             RPORT
      ISTRMS
               2
                             OSTRMS
                                          2
                                                     BUFSIZE 16
      RMODE
               LIN
                             RMIN
                                          120
                                                     RMAX
                                                              800
                                          3000
      RTIMES
               10
                                                              10
                             CWMIN
                                                     UAPS
      OPEN
               YES
                             ALW
                                          YES
                                                     RTXTHR
                                                              10000
      RHOSTVAL RELAXED
      ASNAMES
      as1
IP Appl Sock table is (6 of 4000) 1% full
Assoc Buffer Space Used (16 KB of 800 KB) on LOC = 1305
```



```
ANAME a3
            1307
     LOC
                        IPLNK PORT A
                                            LINK A
                                  SUA RFC
     ADAPTER SUA
                         VER
     LHOST
            gw103.nc.tekelec.com
     ALHOST
     RHOST gw106.nc.tekelec.com
     ARHOST ---
     LPORT 3000
                        RPORT
                                  2346
     ISTRMS 2
                         OSTRMS
                                  2
                                             BUFSIZE 16
     RMODE LIN
                        RMIN
                                  120
                                             RMAX
                                                     800
     RTIMES 10
                        CWMIN
                                   3000
                                             UAPS
                                                     10
     OPEN
            YES
                        ALW
                                   YES
                                            RTXTHR 10000
     RHOSTVAL RELAXED
     ASNAMES
     as1
IP Appl Sock table is (6 of 4000) 1% full
Assoc Buffer Space Used (16 KB of 800 KB) on LOC = 1307
ANAME assocl
     LOC
            1305
                         IPLNK PORT A
                                            LINK A
     ADAPTER SUA
                         VER
                                   SUA RFC
     LHOST gw102.nc.tekelec.com
     ALHOST ---
     RHOST
            gw100.nc.tekelec.com
     ARHOST
     LPORT 4000
                        RPORT
                                  1030
     ISTRMS 2
                        OSTRMS
                                  2
                                            BUFSIZE 16
                                   120
     RMODE LIN
                        RMIN
                                             RMAX
                                                     800
     RTIMES 10
                        CWMIN
                                   3000
                                             UAPS
                                                     10
     OPEN
           YES
                        ALW
                                   YES
                                             RTXTHR 10000
     RHOSTVAL RELAXED
     ASNAMES
     as1
IP Appl Sock table is (6 of 4000) 1% full
Assoc Buffer Space Used (16 KB of 800 KB) on LOC = 1305
ANAME assoc7
     LOC
            1311
                         IPLNK PORT A
                                             LINK A
     ADAPTER SUA
                         VER
                                   SUA RFC
     LHOST
            gw105.nc.tekelec.com
     ALHOST
     RHOST gw100.nc.tekelec.com
     ARHOST ---
            2500
                                   2000
     LPORT
                         RPORT
     ISTRMS 2
                         OSTRMS
                                   2
                                             BUFSIZE 16
                                                     800
     RMODE LIN
                        RMIN
                                  120
                                             RMAX
     RTIMES 10
                         CWMIN
                                  3000
                                             UAPS
                                                     10
                                   YES
     OPEN
            YES
                         ALW
                                             RTXTHR 10000
     RHOSTVAL RELAXED
```



```
ASNAMES as2
```

```
IP Appl Sock table is (6 of 4000) 1% full
Assoc Buffer Space Used (16 KB of 800 KB) on LOC = 1311
```

If the desired association is shown in the rtrv-assoc output, see 8 for the rules that apply to the association and the new application server, continue the procedure with 4.

If the desired association is not shown in the rtrv-assoc output, perform the Adding a New Association to a New Application Server procedure to add a new association to a new application server.

4. Enter the rtrv-card command with the location of the card, from the rtrv-assoc output in 3, that contains the association that will be assigned to the application server. For this example, enter this command.

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

This is an example of possible output.

```
rlghncxa03w 08-03-06 15:17:20 EST EAGLE5 38.0.0

CARD TYPE APPL LSET NAME LINK SLC LSET NAME LINK SLC

1201 DCM SS7IPGW lsn1 A 0
```

If the application assigned to the card is SS7IPGW or IPGWI, shown in the APPL column, continue the procedure with 5.

If the application assigned to the card is IPSG, the association assigned to this card cannot be assigned to the application server. Repeat this procedure from 3 and choose another association.

5. Display the associations assigned to the local IP host value specified in 2 or 3 by entering the rtrv-assoc command with the lhost parameter.

For this example, enter this command.

```
rtrv-assoc:lhost=gw102.nc.tekelec.com
```

This is an example of the possible output.

```
rlghncxa03w 06-10-28 21:14:37 GMT EAGLE5 36.0.0

CARD IPLNK

ANAME LOC PORT LINK ADAPTER LPORT RPORT OPEN ALW assoc1 1305 A A SUA 4000 1030 YES YES

IP Appl Sock/Assoc table is (5 of 4000) 1% full
Assoc Buffer Space Used (16 KB of 3200 KB) on LOC = 1305
```

6. Display the application servers that the associations shown in 5 are assigned to by entering rtrv-as command with the names of the associations shown in 5.

For this example, enter this command.

```
rtrv-as:aname=assoc1
```



This is an example of the possible output.

```
rlghncxa03w 06-10-28 21:14:37 GMT EAGLE5 36.0.0

AS Name Mode Tr ms Association Names as1 LOADSHARE 10 assoc1

AS Table is (3 of 250) 1% full
```

The maximum number of SCTP association to application server assignments that can be hosted by an IPGWx card (referenced by the lhost parameter of the association) is 50.

If the number of SCTP association to application server assignments is less than 50, continue the procedure with 7.

If the number of SCTP association to application server assignments is 50, the association shown in either 2 or 3 cannot be used in this procedure. Go back to 1 and choose another association to assign to the new application server.



If the value of the open parameter of the association being assigned to the application server in 5 is no, continue the procedure with 8.

7. Change the value of the open parameter to no by specifying the chg-assoc command with the open=no parameter.

For this example, enter this command.

```
chg-assoc:aname=assoc1:open=no
```

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

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 CHG-ASSOC: MASP A - COMPLTD;
```

8. Add the application server to the database with the name of the association shown in either 2 or 3 using the ent-as command.

These are the rules that apply to the association and the application server.

- M2PA associations cannot be assigned to an application server.
- If the application server is being added in this procedure will be assigned to a routing key containing an rcontext parameter value, the adapter parameter value for the association assigned to this application server can be either M3UA or SUA.
- If the application server is being added in this procedure will be assigned to a
 routing key that does not contain an rcontext parameter value, the
 adapter parameter value for the association assigned to this application
 server must be M3UA.
- SUA associations and their corresponding application server, can be assigned to only these types of routing keys.
 - Full routing key DPC/SI=3/SSN
 - Partial routing key DPC/SI=3



- Partial routing key DPC only
- Partial routing key SI=3 only
- Default routing key.
- The routing key containing the application server with the SUA associations must have an rcontext value assigned to it. If the new application server will not be assigned to one of these types of routing keys, the adapter parameter value of the associations assigned to the application server must be M3UA.

For this example, enter this command.

```
ent-as:asname=as4:aname=assoc1
```

This is an example of the possible outputs.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 ENT-AS: MASP A - COMPLTD;
```

9. Verify the changes using the rtrv-as command with the application server name specified in 8.

For this example, enter this command.

```
rtrv-as:asname=as4
```

This is an example of the possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0

AS Name Mode Tr ms Association Names as4 LOADSHARE 10 assoc1

AS table is (4 of 250) 1% full.
```



If you do not wish to change the open parameter value of the association specified in 8, continue the procedure with 11.

10. Change the value of the open parameter to yes by specifying the chg-assoc command with the open=yes parameter.

For this example, enter this command.

```
chg-assoc:aname=assoc1:open=yes
```

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

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 CHG-ASSOC: MASP A - COMPLTD;
```

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



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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

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

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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

Figure 4-13 Add an Existing Association to a New Application Server - Sheet 1 of 4

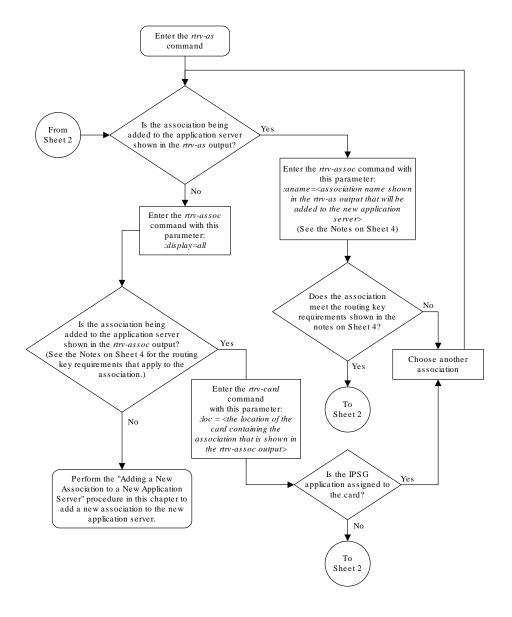




Figure 4-14 Add an Existing Association to a New Application Server - Sheet 2 of 4

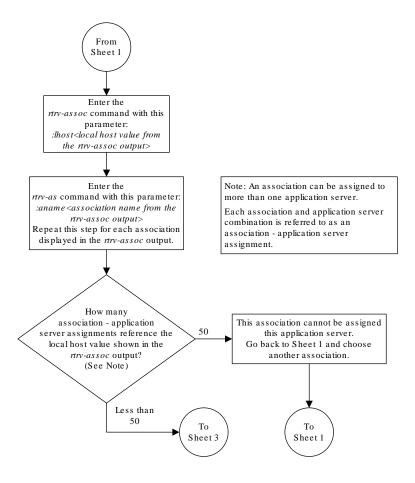




Figure 4-15 Add an Existing Association to a New Application Server - Sheet 3 of 4

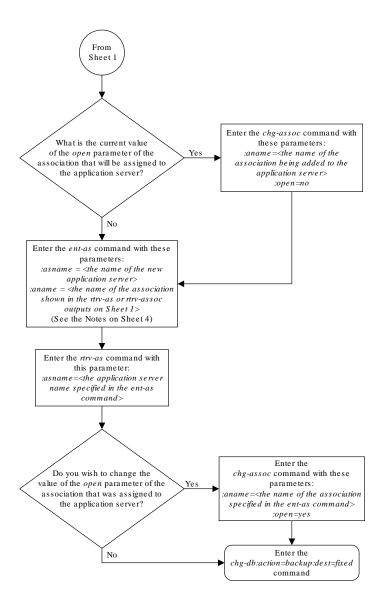


Figure 4-16 Add an Existing Association to a New Application Server - Sheet 4 of 4

Notes:

- 1. If the application server is being added in this procedure will be assigned to a routing key containing a *rcontext* parameter value, the *adapter* parameter value for the association assigned to this application server can be either M3UA or SUA.
- 2. If the application server is being added in this procedure will be assigned to a routing key that does not contain a *rcontext* parameter value, the *adapter* parameter value for the association assigned to this application server must be M3UA.
- 3. SUA associations and their corresponding application server, can be assigned to only these types of routing keys:

Full routing key - DPC/SI=3/SSN

Partial routing key - DPC/SI=3

Partial routing key - DPC only

Partial routing key - SI=3 only

Default routing key.

The routing key containing the application server with the SUA associations must have an rcontext value assigned to it.

If the new application server will not be assigned to one of these types of routing keys, the *adapter* parameter value of the associations assigned to the application server must be M3UA.

4. M2PA associations cannot be assigned to application servers.

Adding a New Association to an Existing Application Server

This procedure is used assign a new association to an existing application server using the ent-as command.



The ent-as command uses these parameters:

:asname - The name of the new application server.

: aname – The name of the association being assigned to the application server.

The maximum number **SCTP** association to application server assignments that can be hosted by an **IPGWx** card (referenced by the <code>lhost</code> parameter of the association) is 50. For example, the IPGWx card currently contains 38 SCTP association to application server assignments. The **SCTP** association to application server assignments could be one **SCTP** association assigned to 38 application servers, two **SCTP** associations assigned to 19 application servers, or any combination of **SCTP** associations assigned to application servers that add up to 38. The **SCTP** association to application server assignments can be verified with the <code>rtrv-</code>

assoc:lhost=<local host name> and rtrv-as:aname=<association
name> commands.

Table 4-10 Examples of IPGWx Card Provisioning Limits

Number of Associations hosted by the IPGWx card	Number of Application Servers each Association is Assigned to *	Total Association - Application Server Assignments maintained by the IPGWx card
1	50	50
50	1	50
25	1	50
25	2	50
0	0	50
38	1	38
19	2	38
* The EAGLE can contain a m	aximum of 250 application serv	ers.

A maximum of 16 associations can be assigned to an application server.

The open parameter of the association must be set to no before the association can be assigned to the application server. This can be verified with the rtrv-assoc command.

M2PA associations (adapter=m2pa) cannot be assigned to application servers. Only M3UA (adapter=m3ua) and SUA (adapter=sua) associations can be assigned to application servers. This can be verified in the ADAPTER field in the rtrv-assoc output.

The application running on the card hosting the association that will be assigned to the application server must be the same as the application running on the cards hosting the other associations assigned to the application server.

Canceling the RTRV-AS and RTRV-ASSOC Commands

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



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

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

1. Display the application servers in the database using the ${\tt rtrv-as}$ command.

This is an example of possible output.

2. Display the application server that the new association will be added to by entering the rtrv-as command with the name of the application server.

```
For this example, enter this command.
```

rtrv-as:asname=as2

This is an example of possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0

AS Name Mode Tr ms Association Names as2 OVERRIDE 10 assoc7

AS table is (2 of 250) 1% full.
```

A maximum of 16 associations can be assigned to an application server. If the application server displayed in this step contains less than 16 associations, continue the procedure with 3.

If the application server displayed in this step contains 16 associations, either select another application server to use in this procedure and repeat this step, or perform the



Adding a New Association to a New Application Server procedure to add the new association to a new application server.

3. Display the one of the associations assigned to the application server shown in 2 using the rtrv-assoc command and specifying the association name shown in the rtrv-as output from 2. For this example, enter this command.

```
rtrv-assoc:aname=assoc7
```

This is an example of possible output.

```
rlghncxa03w 09-05-28 09:12:36 GMT EAGLE5 41.0.0
ANAME assoc7
     LOC
             1203
                         IPLNK PORT A
                                              LINK A
                         VER
                                    SUA RFC
     ADAPTER SUA
     LHOST gw105.nc.tekelec.com
     ALHOST
     RHOST gw100.nc.tekelec.com
     ARHOST ---
     LPORT
            1030
                                    1030
                         RPORT
     ISTRMS 2
                         OSTRMS
                                    2
                                              BUFSIZE 16
     RMODE
            LIN
                                    120
                                                      800
                         RMIN
                                              RMAX
     RTIMES
             10
                         CWMIN
                                    3000
                                              UAPS
                                                      10
     OPEN
            YES
                                    YES
                                              RTXTHR 10000
                         ALW
     RHOSTVAL RELAXED
     ASNAMES
     as2
IP Appl Sock table is (7 of 4000) 1% full
Assoc Buffer Space Used (16 KB of 800 KB) on LOC = 1203
```

The adapter parameter value of all the associations assigned to an application server must be the same. This step identifies the adapter value of the associations assigned to the application server. The application running on the card hosting the new association must be the same as the application on the cards hosting the associations assigned to the application server.

4. Display the signaling link assigned to the card, shown in 3 by entering the rtrv-slk command with the card location of the signaling link shown in 3. For this example, enter this command.

```
rtrv-slk:loc=1203
```

The following is an example of the possible output.

```
rlghncxa03w 06-10-28 21:19:37 GMT EAGLE5 36.0.0

LOC LINK LSN SLC TYPE

1203 A lsn5 1 SS7IPGW
```

The application running on the card is shown in the \mathtt{TYPE} column of the $\mathtt{rtrv-slk}$ output.

For this example, the new association must be assigned to a card running the SS7IPGW application.



If the local host value shown in 3 will be assigned to the new association, continue the procedure with 8.

If another local host value will be assigned to the new association, perform 5.

5. Display the **IP** host names in the database by using the rtrv-ip-host:display=all command. The following is an example of the possible output.

```
rlghncxa03w 13-06-28 21:15:37 GMT EAGLE5 44.0.0
```

```
LOCAL IPADDR LOCAL HOST
192.1.1.10 IPNODE1-1201
192.1.1.12
            GW105. NC. TEKELEC. COM
192.1.1.14
             IPNODE1-1205
192.1.1.20
             IPNODE2-1201
192.1.1.22
             IPNODE2-1203
192.1.1.24
             IPNODE2-1205
192.1.1.30
            KC-HLR1
192.1.1.32
              KC-HLR2
192.1.1.50
            DN-MSC1
192.1.1.52
             DN-MSC2
REMOTE IPADDR REMOTE HOST
150.1.1.5 NCDEPTECONOMIC DEVELOPMENT. SOUTHEASTERN COORIDOR ASHVL.
GOV
```

IP Host table is (11 of 4096) .26% full

If the local **IP** host name for the new association is not shown in the LOCAL HOST column of the rtrv-ip-host output, add the new **IP** host name by performing the Adding an **IP** Host procedure. The new local **IP** host must be assigned to a card running the application shown in 4.

After the new local IP host has been added, continue the procedure with 9.

If the local IP host name for the new association is shown in the LOCAL HOST column of the rtrv-ip-host output, continue the procedure with 8.

6. Display the IP links in the database by entering the rtrv-ip-lnk command. The following is an example of the possible output.

```
rlghncxa03w 08-12-28 21:14:37 GMT EAGLE5 40.0.0
   PORT IPADDR
            SUBMASK DUPLEX SPEED MACTYPE AUTO
MCAST
1201 A
       192.1.1.10 255.255.255.128 HALF
                                      802.3
                                  10
                                           NO
                                               NO
       ----- HALF
                                      DIX
1201 B
                                  10
                                           NO
                                               NO
1203 A
       192.1.1.12
                 255.255.255.0 ----
                                      DIX
                                           YES NO
       ----- HALF
1203 В
                                  10
                                      DIX
                                           NO
                                               NO
1205 A
       192.1.1.14 255.255.255.0 FULL
                                  100
                                      DIX
                                           NO
                                               NO
       ----- HALF
1205 B
                                  10
                                      DIX
                                           NO
                                               NO
2101 A
       192.1.1.20 255.255.255.0 FULL
                                  100
                                      DTX
                                           NO
                                               NO
       ----- HALF
2101 в
                                  10
                                      DIX
                                           NO
                                               NO
                                  100
                                           NO
2103 A
       192.1.1.22 255.255.255.0 FULL
                                      DIX
                                               NO
2103 В
       ----- HALF
                                  10
                                      DIX
                                           NO
                                               NO
```



2105 A	192.1.1.24	255.255.255.0	FULL	100	DIX
NO NO 2105 B			- HALF	10	DIX
2205 A NO NO	192.1.1.30	255.255.255.0	FULL	100	DIX
2205 B			- HALF	10	DIX
NO NO 2207 A	192.1.1.32	255.255.255.0	FULL	100	DIX
NO NO 2207 B			- HALF	10	DIX
NO NO 2213 A NO NO	192.1.1.50	255.255.255.0	FULL	100	DIX
2213 B			- HALF	10	DIX
2301 A	192.1.1.52	255.255.255.0	FULL	100	DIX
NO NO 2301 B			- HALF	10	DIX
TD-INK	table is (20 of	: 2048) 1% full			

IP-LNK table is (20 of 2048) 1% full.

7. Display the signaling link assigned to the card, shown in 6, whose **IP** address is assigned to the local host shown in 5 by entering the rtrv-slk command with the card location of the signaling link. For this example, enter this command.

```
rtrv-slk:loc=1205
```

The following is an example of the possible output.

```
rlghncxa03w 06-10-28 21:19:37 GMT EAGLE5 36.0.0

LOC LINK LSN SLC TYPE
1205 A lsn5 1 SS7IPGW
```

The application running on the card is shown in the ${\tt TYPE}$ column of the ${\tt rtrv-slk}$ output.

For this example, the new association must be assigned to a card running the ${\tt SS7IPGW}$ application.

If the card's application shown in this step and in 4 are the same, continue the procedure with 8.

If the card's application shown in this step and in 4 are not the same, either repeat this procedure from 5 with another local **IP** host, or add the new local **IP** host name by performing the Adding an IP Host procedure. The new local **IP** host must be assigned to a card running the application shown in 4. After the new local **IP** host has been added, continue the procedure with 9.

8. Display the associations assigned to the local **IP** host value specified in 3 or 5 by entering the rtrv-assoc command with the lhost parameter. For this example, enter this command.

```
rtrv-assoc:lhost="IPNODE-1205"
```



This is an example of the possible output.

```
rlghncxa03w 06-10-28 21:14:37 GMT EAGLE5 36.0.0

CARD IPLNK

ANAME LOC PORT LINK ADAPTER LPORT RPORT OPEN ALW assoc1 1205 A A M3UA 1030 1030 YES YES

IP Appl Sock/Assoc table is (7 of 4000) 1% full
Assoc Buffer Space Used (16 KB of 3200 KB) on LOC = 1205
```

9. Display the application servers that the associations shown in 8 are assigned to by entering rtrv-as command with the names of the associations shown in 8. For this example, enter this command.

```
rtrv-as:aname=assoc1
```

This is an example of the possible output.

```
rlghncxa03w 06-10-28 21:14:37 GMT EAGLE5 36.0.0

AS Name Mode Tr ms Association Names as1 LOADSHARE 10 assoc1

AS Table is (2 of 250) 1% full
```

The maximum number of **SCTP** association to application server assignments that can be hosted by an **IPGWx** card (referenced by the lhost parameter of the association) is 50.

If the number of **SCTP** association to application server assignments is less than 50, continue the procedure with 10.

If the number of **SCTP** association to application server assignments is 50, either repeat this procedure from 5 with another local **IP** host, or add the new local **IP** host name by performing the Adding an IP Host procedure. The new local **IP** host must be assigned to a card running the application shown in 4 and 7. After the new local **IP** host has been added, continue the procedure with 10.

10. Add the new association by performing the Adding an M3UA or SUA Association procedure.

The open parameter value for this association must be set to no. The adapter value for this association must be the same as the adapter value shown in 3.

These are the rules that apply to the association and the application server.

- M2PA associations cannot be assigned to an application server.
- If the application server is being added in this procedure will be assigned to a routing key containing an rcontext parameter value, the adapter parameter value for the association assigned to this application server can be either M3UA or SUA.
- If the application server is being added in this procedure will be assigned to a routing key that does not contain an rcontext parameter value, the adapter parameter value for the association assigned to this application server must be M3UA.
- SUA associations and their corresponding application server, can be assigned to only these types of routing keys.
 - Full routing key DPC/SI=3/SSN



- Partial routing key DPC/SI=3
- Partial routing key DPC only
- Partial routing key SI=3 only
- Default routing key.
- The routing key containing the application server with the SUA associations must have an rcontext value assigned to it. If the new application server will not be assigned to one of these types of routing keys, the adapter parameter value of the associations assigned to the application server must be M3UA.
- The application of the card containing the signaling link assigned to the association is either SS7IPGW or IPGWI.
- 11. Add the association to the application server using the ent-as command with the name of the application server specified in 2 and the name of the new association. For this example, enter this command.

```
ent-as:asname=as2:aname=assoc10
```

This is an example of possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 ENT-AS: MASP A - COMPLTD;
```

12. Verify the changes using the rtrv-as command with the name of the application server specified in 11. For this example, enter this command.

```
rtrv-as:asname=as2
```

This is an example of possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0

AS Name Mode Tr ms Association Names as2 OVERRIDE 10 assoc7 assoc10
```

AS table is (2 of 250) 1% full.

Note:

If you do not wish to change theopen parameter value of the association specified in11, continue the procedure with14.

13. Change the value of the open parameter to yes by specifying the chg-assoc command with the open-yes parameter. For this example, enter this command.

```
chg-assoc:aname=assoc10:open=yes
```



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

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
CHG-ASSOC: MASP A - COMPLTD;
```

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

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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

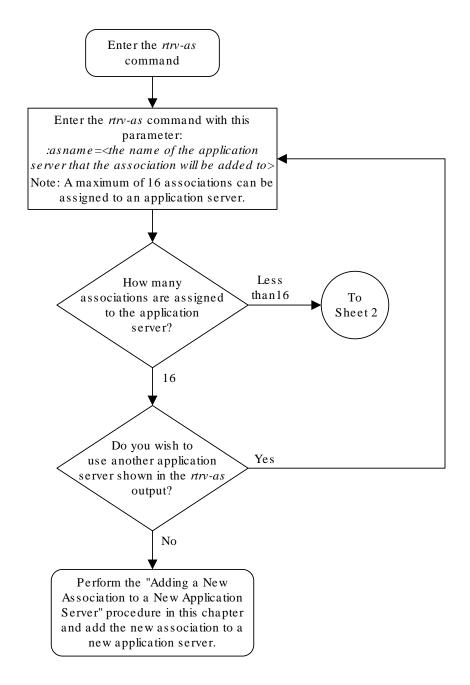
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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



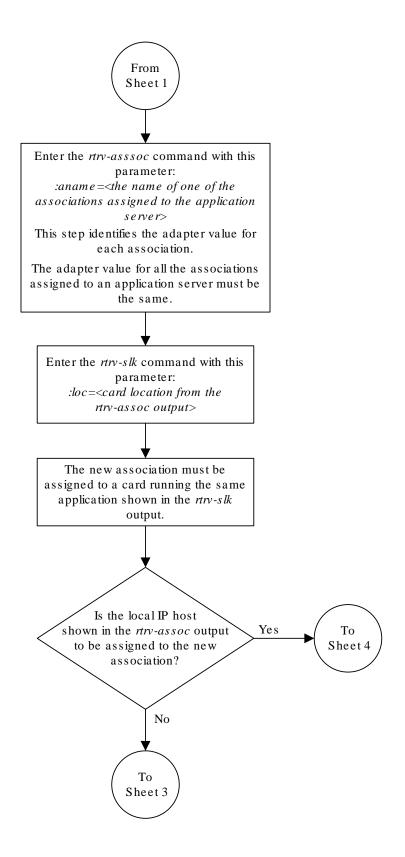
Figure 4-17 Adding a New Association to an Existing Application Server





Sheet 1 of 5

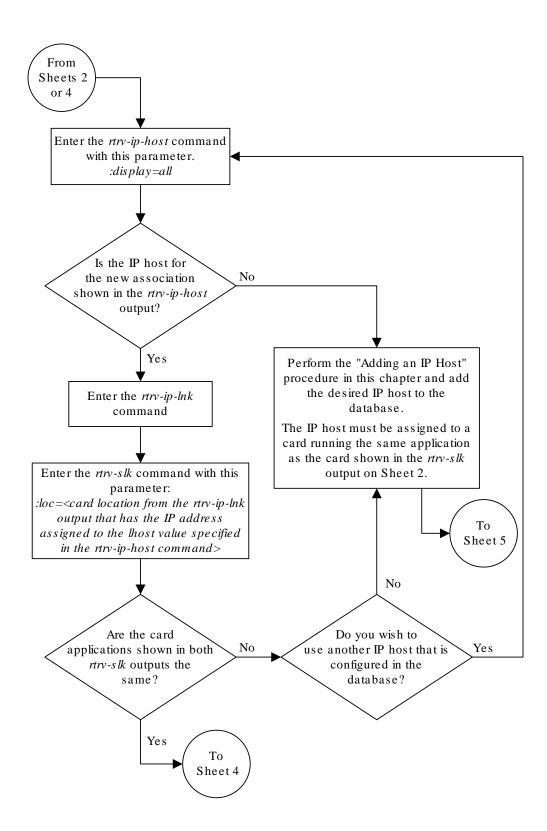




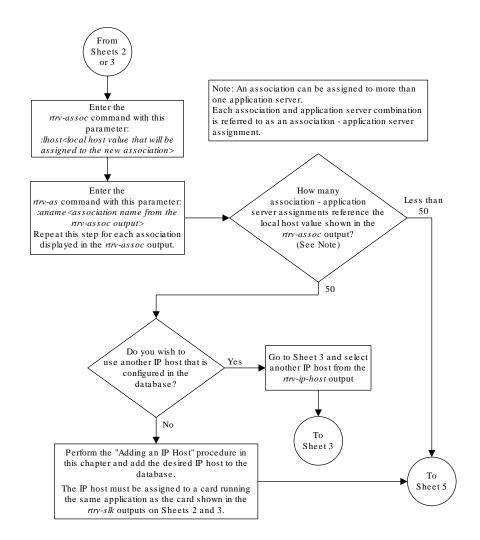


Sheet 2 of 5

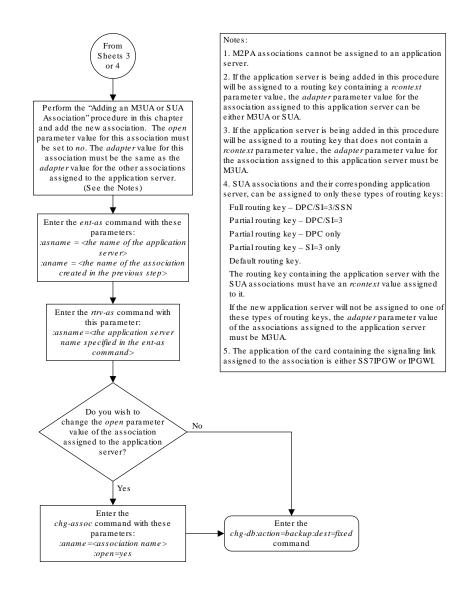




Sheet 3 of 5



Sheet 4 of 5



Sheet 5 of 5

Adding an Existing Association to an Existing Application Server

This procedure is used assign an existing association to an existing application server using the ent-as command.

The ent-as command uses these parameters:

: asname - The name of the application server.

: aname – The name of the association being assigned to the application server.

The maximum number SCTP association to application server assignments that can be hosted by an IPGWx card (referenced by the lhost parameter of the association) is 50. For example, the IPGWx card currently contains 38 SCTP association to application server assignments. The SCTP association to application server assignments could be one SCTP association assigned to 38 application servers, two SCTP associations assigned to 19 application servers, or any combination of SCTP associations assigned to application servers that add up to 38. The SCTP association to application server assignments can be verified with the rtrv-assoc:lhost=<local host name> and rtrv-association name> commands.

Table 4-11 Examples of IPGWx Card Provisioning Limits

Number of Associations hosted by the IPGWx card	Number of Application Servers each Association is Assigned to *	Total Association - Application Server Assignments maintained by the IPGWx card
1	50	50
50	1	50
25	1	50
25	2	50
0	0	50
38	1	38
19	2	38
* The EAGLE can contain a ma	ximum of 250 application servers.	

A maximum of 16 associations can be assigned to an application server.

The open parameter of the association must be set to no before the association can be assigned to the application server. This can be verified with the rtrv-assoc command.

M2PA associations (adapter=m2pa) cannot be assigned to application servers. Only M3UA (adapter=m3ua) and SUA (adapter=sua) associations can be assigned to application servers. This can be verified in the ADAPTER field in the rtrv-assoc output.

The application running on the card hosting the association that will be assigned to the application server must be the same as the application running on the cards hosting the other associations assigned to the application server.

Canceling the RTRV-AS and RTRV-ASSOC Commands

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

- Press the F9 function key on the keyboard at the terminal where the rtrv-as or rtrv-assoc commands were entered.
- Enter the canc-cmd without the trm parameter at the terminal where the rtrv-as or rtrv-assoc commands were entered.
- Enter the canc-cmd: trm=<xx>, where <xx> is the terminal where the rtrv-as or rtrv-assoc commands were entered, from another terminal other that the terminal where the rtrv-as or rtrv-assoc commands were entered. To enter the canc-



cmd:trm=<xx> command, the terminal must allow Security Administration commands to be entered from it and the user must be allowed to enter Security Administration commands. The terminal's permissions can be verified with the rtrv-secu-trm command. The user's permissions can be verified with the rtrv-user or rtrv-secu-user commands.

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

1. Display the application servers in the database using the rtrv-as command.

This is an example of possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
```

AS Name as1	Mode LOADSHARE	Tr ms	Association Names a2 a3 assoc1
as2	OVERRIDE	10	assoc7
as3	OVERRIDE	10	swbel32

AS table is (3 of 250) 1% full.

2. Display the application server that the new association will be added to by entering the rtrv-as command with the name of the application server.

For this example, enter this command.

```
rtrv-as:asname=as2
```

This is an example of possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
```

AS Name Mode Tr ms Association Names as 2 OVERRIDE 10 assoc7

AS table is (3 of 250) 1% full.

A maximum of 16 associations can be assigned to an application server. If the application server displayed in this step contains less than 16 associations, continue the procedure with 3.

If the application server displayed in this step contains 16 associations, either select another application server to use in this procedure and repeat this step, or perform the Adding an Existing Association to a New Application Server procedure to add the association to a new application server.



If the association being added to the application server is shown in the rtrv-as output in 1, continue the procedure with 4.

3. Display the associations in the database using the rtrv-assoc command.



This is an example of possible output.

rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0

	CARD	IPLNK						
ANAME	LOC	PORT	LINK	ADAPTER	LPORT	RPORT	OPEN	ALW
swbel32	1201	A	A	M3UA	1030	2345	YES	YES
a2	1305	A	A	SUA	2000	2345	YES	YES
a3	1307	A	A	SUA	3000	2346	YES	YES
assoc1	1305	A	A	SUA	4000	1030	YES	YES
assoc7	1305	A	A	SUA	4500	1030	YES	YES

If the association being added to the application server is shown in this step, continue the procedure with 4.

If the association being added to the application server is not shown in this step, perform the Adding a New Association to an Existing Application Server procedure to add a new association to the application server.

4. Display one of the associations assigned to the application server shown in 2 using the rtrv-assoc command and specifying the association name shown in the rtrv-as output from 2 or in the rtrv-assoc output in 3.

For this example, enter this command.

```
rtrv-assoc:aname=assoc7
```

This is an example of possible output.

```
rlghncxa03w 09-05-28 09:12:36 GMT EAGLE5 41.0.0
ANAME assoc7
    LOC 1203
                        IPLNK PORT A
                                           LINK A
    ADAPTER SUA
                        VER
                            SUA RFC
    LHOST gw105.nc.tekelec.com
    ALHOST ---
    RHOST gw100.nc.tekelec.com
    ARHOST ---
    LPORT
            4500
                        RPORT
                                  1030
    ISTRMS 2
                        OSTRMS
                                  2
                                           BUFSIZE 16
    RMODE LIN
                      RMIN
                                 120
                                           RMAX 800
    RTIMES 10
                       CWMIN
                                 3000
                                           UAPS
                                                   10
    OPEN
            YES
                        ALW
                                  YES
                                           RTXTHR 10000
    RHOSTVAL RELAXED
    ASNAMES
     as2
IP Appl Sock table is (6 of 4000) 1% full
Assoc Buffer Space Used (16 KB of 800 KB) on LOC = 1203
```

The adapter parameter value of all the associations assigned to an application server must be the same. This step identifies the adapter value of the associations assigned to the application server.

The application running on the card hosting the new association must be the same as the application on the cards hosting the associations assigned to the application server.



5. Display the signaling link assigned to the card, shown in 4 by entering the rtrv-slk command with the card location of the signaling link.

For this example, enter this command.

```
rtrv-slk:loc=1205
```

The following is an example of the possible output.

```
rlghncxa03w 06-10-28 21:19:37 GMT EAGLE5 36.0.0

LOC LINK LSN SLC TYPE
1205 A lsn5 1 SS7IPGW
```

The application running on the card is shown in the \mathtt{TYPE} column of the $\mathtt{rtrv-slk}$ output.

For this example, the new association must be assigned to a card running the SS7IPGW application.

6. Display the association being added to the application server using the rtrv-assoc command and specifying the name of the association being added.

For this example, enter this command.

```
rtrv-assoc:aname=assoc1
```

This is an example of possible output.

```
rlghncxa03w 09-05-28 09:12:36 GMT EAGLE5 41.0.0
ANAME assocl
    LOC
           1203
                         IPLNK PORT A
                                             LINK A
     ADAPTER SUA
                                  SUA RFC
                        VER
     LHOST gw101.nc.tekelec.com
     ALHOST ---
     RHOST gw100.nc.tekelec.com
     ARHOST ---
            4000
                                   1030
     LPORT
                        RPORT
                                   2
     ISTRMS 2
                        OSTRMS
                                             BUFSIZE 16
     RMODE LIN
                       RMIN
                                  120
                                            RMAX
                                                    800
     RTIMES 10
                        CWMIN
                                   3000
                                             UAPS
                                                     10
     OPEN
            YES
                        ALW
                                   YES
                                             RTXTHR 10000
     RHOSTVAL RELAXED
     ASNAMES
     as1
IP Appl Sock table is (6 of 4000) 1% full
Assoc Buffer Space Used (16 KB of 800 KB) on LOC = 1203
```

If the local host and adapter values shown in this step are the same as the local host and adapter values shown in 4, continue the procedure with 8.

If the adapter value shown in this step is not the same as the adapter value shown in 4, repeat this procedure from 3.

If the local host value shown in this step is not the same as the local host value shown in 4, but the adapter value shown in this step is the same as the adapter values shown in 4, continue the procedure with 7.



7. Display the signaling link assigned to the card, shown in 6 by entering the rtrv-slk command with the card location of the signaling link.

For this example, enter this command.

```
rtrv-slk:loc=1201
```

The following is an example of the possible output.

```
rlghncxa03w 06-10-28 21:19:37 GMT EAGLE5 36.0.0

LOC LINK LSN SLC TYPE
1201 A lsn1 0 SS7IPGW
```

The application running on the card is shown in the TYPE column of the rtrv-slk output.

For this example, the association being added to the application server must be assigned to a card running the SS7IPGW application.

If the card applications shown in this step and in $\bf 5$ are the same, continue the procedure with $\bf 8$.

If the card applications shown in this step and in 5 are not the same, repeat this procedure from 3.

8. Display the associations assigned to the local IP host value specified in by entering the rtrv-assoc command with the lhost parameter.

```
For this example, enter this command.
```

```
rtrv-assoc:lhost=gw101.nc.tekelec.com
```

This is an example of the possible output.

```
rlghncxa03w 06-10-28 21:14:37 GMT EAGLE5 36.0.0

CARD IPLNK

ANAME LOC PORT LINK ADAPTER LPORT RPORT OPEN ALW assoc1 1203 A A SUA 4000 1030 YES YES

IP Appl Sock/Assoc table is (6 of 4000) 1% full
Assoc Buffer Space Used (16 KB of 3200 KB) on LOC = 1203
```

9. Display the application servers that the associations shown in 8 are assigned to by entering rtrv-as command with the names of the associations shown in 8.

For this example, enter this command.

```
rtrv-as:aname=assoc1
```

This is an example of the possible output.

```
rlghncxa03w 06-10-28 21:14:37 GMT EAGLE5 36.0.0

AS Name Mode Tr ms Association Names as1 LOADSHARE 10 assoc1

AS Table is (3 of 250) 1% full
```

The maximum number of SCTP association to application server assignments that can be hosted by an IPGWx card (referenced by the lhost parameter of the association) is 50.



If the number of SCTP association to application server assignments is less than 50, continue the procedure with 10.

If the number of SCTP association to application server assignments is 50, either repeat this procedure from 3, or perform the Adding a New Association to an Existing Application Server procedure to add a new association to this application server.



If the value of the open parameter shown in 6 is no, continue the procedure with 11.

10. Change the value of the open parameter to no by specifying the chg-assoc command with the open=no parameter.

For this example, enter this command.

chg-assoc:aname=assoc1:open=no

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

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 CHG-ASSOC: MASP A - COMPLTD;
```

11. Add the association to the application server using the ent-as command.

For this example, enter this command ent-as:asname=assc1

This is an example of possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 ENT-AS: MASP A - COMPLTD;
```

12. Verify the changes using the rtrv-as command with the application server name specified in 11.

For this example, enter this command.

```
{\tt rtrv-as:} {\tt asname=as2}
```

This is an example of possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0

AS Name Mode Tr ms Association Names as2 OVERRIDE 10 assoc1 assoc7

AS table is (3 of 250) 1% full.
```



If you do not wish to change theopen parameter value of the association specified in 11, continue the procedure with 14.



13. Change the value of the open parameter to yes by specifying the chg-assoc command with the open=yes parameter.

For this example, enter this command.

```
chg-assoc:aname=assoc1:open=yes
```

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

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 CHG-ASSOC: MASP A - COMPLTD;
```

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

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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

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

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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



Figure 4-18 Add an Existing Application to an Existing Application Server - Sheet 1 of 5

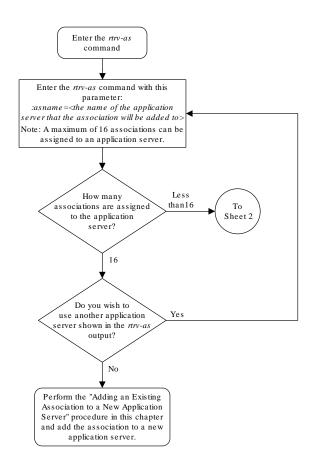
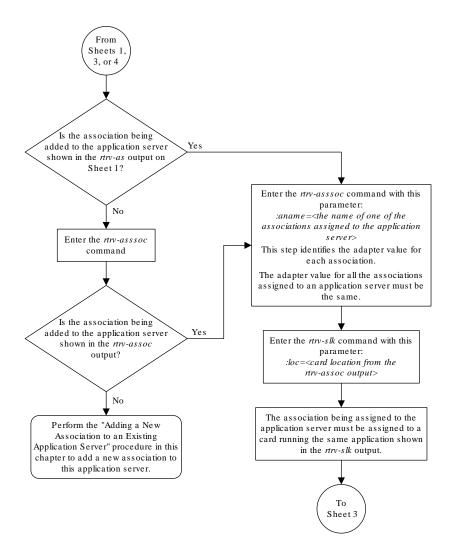




Figure 4-19 Add an Existing Application to an Existing Application Server - Sheet 2 of 5



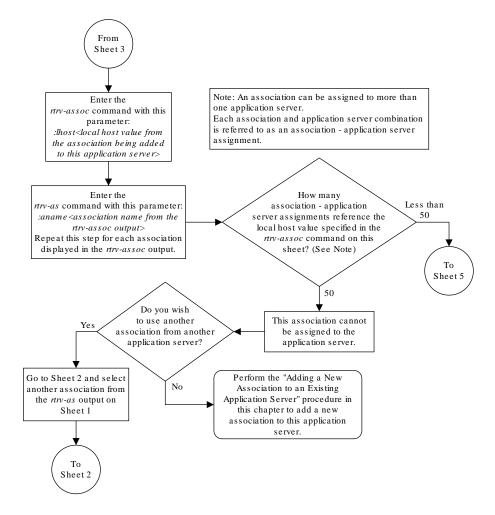


Enter the rtrv-asssoc command with this parameter: :aname=<the name of the association being From Sheet 2 assigned to the application server from the rtrv-as output (Sheet 1) or the rtrv-assoc $output \, (Sheet \, 2) \!\! >$ Is the adapter value of the association displayed in the previous step the same as the No adapter value of the associations assigned to the application server? Go back to Sheet 2 and select another association Yes Is the lhost value Enter the rtrv-slk command with this for the association shown parameter: in the previous step the same as :loc=<card location from the the lhost value shown in the rtrv-assoc output> rtrv-assoc output on Sheet 2? Yes Are the card applications shown in both Yes To rtrv-slk outputs the Sheet 4 same? No Go back to Sheet 2 and select another association To Sheet 2

Figure 4-20 Add an Existing Application to an Existing Application Server - Sheet 3 of 5



Figure 4-21 Add an Existing Application to an Existing Application Server - Sheet 4 of 5





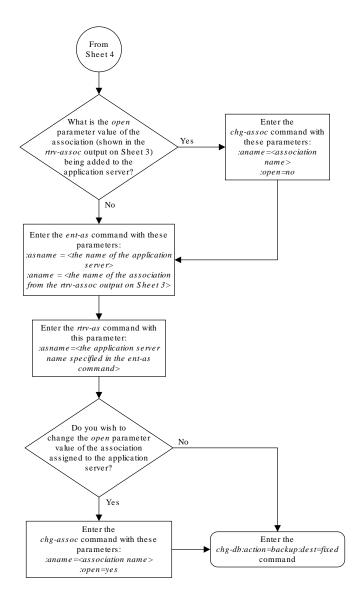


Figure 4-22 Add an Existing Application to an Existing Application Server - Sheet 5 of 5

Adding a Routing Key Containing an Application Server

This procedure is used to add a routing key containing an application server to the database using the <code>ent-appl-rtkey</code> command.

A routing key defines a filter that checks the specified values in an incoming **SS7 MSU** to determine which, if any, association receives the **MSU**. For more information about static routing keys, see Understanding Routing for SS7IPGW and IPGWI Applications.

The ent-appl-rtkey command uses these parameters.

: dpc/dpca/dpci/dpcn/dpcn24 – The destination point code value that is used to filter incoming MSUs. This parameter must not specify a cluster route. The destination point code of the routing key cannot be the APC of an IPGWx linkset or the SAPC assigned to an IPGWx linkset.

:opc/opca/opci/opcn/opcn24 — The originating point code value that is used to filter incoming MSUs. This parameter must not specify a cluster route. This parameter is valid only when the si parameter value is set to 4, 5, or 13. This parameter is required if si=4, 5, or 13 and type=full.



See the "**Point Code** Formats" section in *Database Administration -* **SS7** *User's Guide* for a definition of the point code types that are used on the **EAGLE** and for a definition of the different formats that can be used for **ITU** national point codes.

: si – The service indicator value that is used to filter incoming **MSUs**. The range of values for the service indicator parameter (si) can be a numerical value from 0 to 15, or for selected service indicator values, a text string can be used instead of numbers. Table 4-12 shows the text strings that can be used in place of numbers for the service indicator values.

Table 4-12 Service Indicator Text String \

	Service Indicator Value	Text String
0		snm
1		regtest
2		spltst
3		sccp
4		tup
5		isup
13		qbicc

: ssn – The subsystem value that is used to filter incoming MSUs. The ssn parameter is only valid when the si parameter value is set to 3 or sccp.

:cics – The starting circuit identification code that is used to filter incoming **MSUs**. When specified with cice, cics identifies the start of the range of circuit identification codes. The cics parameter is valid only when the si parameter value is set to 4, 5, or 13. The cics is required if si=4, 5, or 13 and type=full.

:cice — The ending circuit identification code that is used to filter incoming MSUs. When specified with cics, cice identifies the end of the range of circuit identification codes. The cice parameter is valid only when the si parameter value is set to 4, 5, or 13. The cice is required if si=4, 5, or 13 and type=full.

: type – The routing key type – Identifies the type of routing key that is being entered and used to route message signaling units (MSUs). One of three values, full/partial/



default, can be specified for the type parameter (see Table 4-13). If type is not explicitly specified, type=full is assumed.

: asname - Application server (AS) name.

:rcontext - The routing context parameter, which has two functions:

- Provides an index of the application server traffic that the sending application server is configured or registered to receive.
- Identifies the SS7 network context for the message. The routing context parameter implicitly defines the SS7 point code format used, the SS7 network indicator value, and the SCCP protocol type/variant/version used.

Application server names are shown in the rtrv-as output.

Only one application server can be assigned to a routing key. There is a maximum of 2500 routing keys allowed per **EAGLE**. The application server names in each routing key must be unique.

The number of static routing keys is limited by the srkq parameter that was specified on the chq-sq-opts command.

Routing keys are associated only with the ss7ipgw or ipgwi application.

Group codes are required for 14-bit ITU-N point codes (DPCN/OPCN) when the Duplicate Point Code feature is enabled.

The starting circuit identification code must be less than or equal to the ending circuit identification code.

The **ISUP** routing over **IP** feature must be on in order to enter a routing key with these parameters: dpc, si, opc, cics, and cice. The IPISUP field in the rtrv-feat command output shows whether or not this feature is on.

The parameter combinations used by the ent-appl-rtkey command are based on the type of routing key and the service indicator value in the routing key. The parameter combinations are shown in Table 4-13.

Table 4-13 Routing Key Parameter Combinations for Adding a Routing Key Containing an Application Server

Full Routing Key - SI = 3 (SCCP)	Partial Routing Key - SI = 3 (SCCP)	Full Routing Key - SI=4 (TUP), 5 (ISUP), 13 (QBICC)	Partial Routing Key - SI=4 (TUP), 5 (ISUP), 13 (QBICC)	Full Routing Key - Other SI Values	Partial Routing Key - Other SI Values	Default Routing Key
dpc (See Notes 1, 2, and 11)	type=parti al	dpc (See Notes 1 and 2)	type=partial	dpc (See Notes 1 and 2)	type=partial	type=default
si=3 (See Notes 4 and 11)	dpc (See Notes 1, 2, and 3)	si=4, 5, 13 (See Note 4)	dpc (See Notes 1, 2, and 3)	si=value other than 3, 4, 5, 13 (See Note 4)	dpc (See Notes 1, 2, and 3)	asname (See Note 10)



Table 4-13 (Cont.) Routing Key Parameter Combinations for Adding a Routing Key Containing an Application Server

Full Routing Key - SI = 3 (SCCP)	Partial Routing Key - SI = 3 (SCCP)	Full Routing Key - SI=4 (TUP), 5 (ISUP), 13 (QBICC)	Partial Routing Key - SI=4 (TUP), 5 (ISUP), 13 (QBICC)	Full Routing Key - Other SI Values	Partial Routing Key - Other SI Values	Default Routing Key
ssn (See Note 11)	si=3 (See Notes 3 and 4)	opc (See Notes 1 and 2)	si=4, 5, 13 (See Notes 3, 4, and 10)	type=full	si=value other than 3, 4, 5, 13 (See Notes 3, 4, and 10)	rcontext (See Note 10)
type=full	asname (See Note 10)	cics (See Notes 5, 6, 7, 8, and 9)	opc (See Notes 1, 2, and 3)	asname (See Note 10)	asname (See Note 10)	
asname (See Note 10)	rcontext (See Note 10)	cice (See Notes 5, 6, 7, 8, and 9)	asname (See Note 10)	rcontext (See Note 10)	rcontext (See Note 10)	
rcontext (See Note 10)		type=full	rcontext (See Note 10)			
		asname (See Note 10)				
		rcontext (See Note 10)				



Table 4-13 (Cont.) Routing Key Parameter Combinations for Adding a Routing Key Containing an Application Server

Routing Routing Routing Routing Routing Key - SI = Key - SI = Key - SI=4 Key - Other - Ot	Partial Default uting Key Routing Other SI Key Values
-------------------------------------------------------------------------------------------	----------------------------------------------------------------

Notes:

- 1. The dpc and opc parameters can be either an ANSI point code (dpca, opca), ITU-I point code or ITU-I spare point code (dpci, opci), 14-bit ITU-N point code or 14-bit ITU-N spare point code (dpcn, opcn), or 24-bit ITU-N point code (dpcn24, opcn24). If the dpc and opc parameters are specified, the dpc and opc must be the same type of point code. For example, if the dpca parameter is specified, the OPC is specified with the opca parameter. If either point code value is a spare point code, the other point code value must be a spare point code on the same type. For example, if the dpc value is an ITU-I spare point code, the opc value must be an ITU-I spare point code.
- 2. If the **ITU** National Duplicate **Point Code** feature is on, the values for the dpcn and opcn parameters must have group codes assigned to them. The field ITUDUPPC in the rtrv-feat command output shows whether or not the **ITU** National Duplicate **Point Code** feature is on. If group codes are specified for **ITU-N DPC** and **OPC**, the groups codes must be the same.
- 3. These parameters are optional for partial routing keys, but at least one these parameters must be specified with the ent-appl-rtkey command.
- 4. Text strings can be used in place of some numerical service indicator values. See Table 4-12 for a list of these text strings.
- 5. When the service indicator parameter value equals 4 and an **ANSI** dpc is specified, the opc, cics, and cice parameters cannot be used. If the service indicator parameter value equals 4 and an **ITU** dpc is specified, the opc, cics, and cice parameters are required.
- 6. If the service indicator parameter (si) value is 4, the values of the cics and cice parameters is from 0 to 4095.
- 7. If the service indicator parameter (si) value is 5 and the point code in the routing key is either an ITU-I, 14-bit ITU-N, or 24-bit ITU-N point code, the values of the cics and cice parameters is from 0 to 4095. If the point code in the routing key is an **ANSI** point code, the values of the cics and cice parameters is from 0 to 16383.
- 8. If the service indicator parameter value is 13, the values of the cics and cice parameters is from 0 to 4294967295.
- 9. The CIC range, defined by the cics and cice parameters, cannot overlap the CIC range in an existing routing key.
- 10. The following rules apply to using the rcontext parameter.
- The value of the rcontext parameter is from 0 to 4294967295.
- The rcontext parameter is required for a routing key containing an SUA application server.
- The rcontext parameter is optional for a routing key containing an M3UA application server.
- The rcontext parameter value must be unique in the database. Multiple routing keys cannot have the same rcontext value assigned.
- An application server can be assigned to only one routing key containing a routing context value
- If the application server being assigned to the new routing key is assigned to other routing keys that do not contain rcontext parameter values, the rcontext parameter cannot be specified for the new routing key.



Table 4-13 (Cont.) Routing Key Parameter Combinations for Adding a Routing Key Containing an Application Server

Key - SI = K	Partial Routing (ey - SI = 3 (SCCP)	Full Routing Key - SI=4 (TUP), 5 (ISUP), 13 (QBICC)	Partial Routing Key - SI=4 (TUP), 5 (ISUP), 13 (QBICC)	Full Routing Key - Other SI Values	Partial Routing Key - Other SI Values	Default Routing Key

- An application server can be assigned to multiple routing keys if those routing keys do not contain a routing context value.
- An application server can be assigned to either a routing key containing a routing context
 value, or to routing keys that do not contain a routing context value, but the application
 server cannot be assigned to both types of routing keys.
- In order for an M3UA or SUA association to be assigned to multiple routing keys with a
 routing context value, the M3UA or SUA association must be assigned to multiple
 application servers and then each application server must be assigned to a routing key
 containing a routing context value.
- 11. To communicate the status changes of remote **IP** subsystems (defined by the **DPC** and **SSN** specified in a full **SCCP** routing key), the **DPC** and **SSN** specified for a full **SCCP** routing key must be provisioned in the mated application table. Perform one of the mated application procedures in *Database Administration GTT User's Guide* to provision a mated application with the **DPC** and **SSN** specified for a full **SCCP** routing key.

Canceling the RTRV-AS and RTRV-APPL-RTKEY Commands

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

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

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

1. Display the current routing key information in the database by entering the rtrv-appl-rtkey command.

The following is an example of the possible output.

rlghncxa03w 08-04-28 21:15:37 GMT EAGLE5 38.0.0



RCONTEXT 2500	DPC 123-234-123 005-005-001 005-005-001 006-006-001	SI 5 5 5	ADPTR M3UA M3UA M3UA SUA	ASNAME as12 as9 as9 as10	TYPE FULL FULL FULL FULL
RCONTEXT	DPCI 2-100-7 3-137-6 4-035-7 6-006-6 6-006-7 6-006-6 6-006-8 6-006-8 6-024-7 6-024-7 7-008-7	SI 6 6 5 5 5 5 5 5 5 5 6	ADPTR M3UA SUA SUA M3UA M3UA M3UA M3UA M3UA M3UA M3UA M3	ASNAME as4 as1 as7 as2 as8 as2 as3 as5 as4 as4 as6	TYPE FULL FULL FULL FULL FULL FULL FULL FUL
RCONTEXT	DPC ******	SI **	ADPTR M3UA	ASNAME as11	TYPE DEFAULT

STATIC Route Key table is (17 of 2000) 1% full STATIC Route Key Socket Association table is (17 of 32000) 1% full

The database can contain only one default routing key. If the rtrv-appl-rtkey output contains a default routing key, a default routing key cannot be added in this procedure. Continue the procedure with 2 to add either a full or partial routing key with the desired application server.

2. Display the current application server information in the database by entering the rtrv-as command.

The following is an example of the possible output.

rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0

AS Name as1	Mode LOADSHARE	Tr ms 10	Association Names assoc1 assoc2 assoc3 assoc5 assoc6
as2	OVERRIDE	10	assoc7
as3	LOADSHARE	10	assoc8 assoc9
as4	LOADSHARE	10	assoc10 assoc11
as5	LOADSHARE	10	assoc12



			assoc13
as6	LOADSHARE	10	assoc14 assoc15
as7	LOADSHARE	10	assoc16 assoc17
as8	LOADSHARE	10	assoc18 assoc19
as9	LOADSHARE	10	assoc20 assoc21
as10	LOADSHARE	10	assoc22 assoc23
as12	LOADSHARE	10	assoc24
AS Table is	(11 of 250) 4% fu	11	

If the required application server is not in the database, perform one of these procedures to add the application server:

- Adding a New Association to a New Application Server
- Adding an Existing Association to a New Application Server
- Adding a New Association to an Existing Application Server
- Adding an Existing Association to an Existing Application Server.

If the rcontext parameter will not be specified for the routing key, make sure that the adapter parameter value for the associations assigned to the new application server is M3UA.

If the rcontext parameter will be specified for the routing key, make sure that the open parameter value of the associations is set to no. The adapter parameter value of these associations can be either SUA or M3UA.

SUA associations, and their corresponding application server, can be assigned to only these types of routing keys:

- Full routing key DPC/SI=3/SSN
- Partial routing key DPC/SI=3
- Partial routing key DPC only
- Partial routing key SI=3 only
- Default routing key.

After the new application server is added to the database, continue the procedure with 4.

3. Display the routing keys containing the application server being used in this procedure by entering the rtrv-appl-rtkey command with the application server name and the display=all parameter.

For this example, enter these commands.

```
rtrv-appl-rtkey:asname=as4:display=all
```



The following is an example of the possible output.

rlghncxa03w 08-04-28 09:12:36 GMT EAGLE5 38.0.0

RCONTEXT DPCI SI SSN OPCI CICE CICS ----- 6-024-7 5 --- 1-057-4 150 175 ASNAME ADPTR TYPE M3UA FULL as4 ANAMES assoc11 assoc12 RCONTEXT DPCI SI SSN OPCI CICS LOC CICE ----- 2-100-7 6 --- ---------ADPTR TYPE ASNAME M3UA FULL as4 ANAMES assoc11 assoc12 STATIC Route Key table is (17 of 2000) 1% full

STATIC Route Key Socket Association table is (17 of 32000) 1% full

rtrv-appl-rtkey:asname=as5:display=all

The following is an example of the possible output.

rlghncxa03w 08-04-28 09:12:36 GMT EAGLE5 38.0.0

SI SSN OPCI RCONTEXT DPCI CICS CICE 5 --- 3-200-4 200 4-035-7 300

ADPTR TYPE ASNAME M3UA FULL as5

ANAMES

assoc15 assoc16

STATIC Route Key table is (17 of 2000) 1% full STATIC Route Key Socket Association table is (17 of 32000) 1% full

If the application server is not assigned to any routing keys, the rcontext parameter can be specified for the new routing key using this application server. Continue the procedure with 4.

An application server can be assigned to only one routing key containing a routing context value. If the application server is assigned to other routing keys, the rcontext parameter cannot be specified for the new routing key being added in

this procedure. If you wish to use the rcontext parameter for the new routing key, perform one of these procedures to add the application server:

- Adding a New Association to a New Application Server
- Adding an Existing Association to a New Application Server
- Adding a New Association to an Existing Application Server
- Adding an Existing Association to an Existing Application Server.

After the new application server is added, continue the procedure with 6.

If the application server is assigned to other routing keys, and these routing keys do not contain rcontext parameter values, the application server can be assigned to the new routing key in this procedure, but the rcontext parameter cannot be specified for the new routing key.

If you do not wish to use the rcontext parameter for the new routing key, continue the procedure with 6.

4. Display the associations assigned to the application server displayed in 3, to verify the open parameter value of the association, using the rtrv-assoc command with the association names shown in 2.

For this example, enter these commands.

```
rtrv-assoc:aname=assoc11
```

This is an example of possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
ANAME assoc11
     LOC
              1203
                           IPLNK PORT A
                                                  LINK A
     ADAPTER M3UA
                                       M3UA RFC
                            VER
     LHOST
              gw110.nc.tekelec.com
     ALHOST
     RHOST
              gw100.nc.tekelec.com
              1030
                                       1030
     LPORT
                           RPORT
                                       2
     ISTRMS
              2
                           OSTRMS
                                                  BUFSIZE 16
                                       120
     RMODE
              LIN
                           RMIN
                                                  RMAX
                                                           800
     RTIMES 10
                            CWMIN
                                       3000
                                                  UAPS
                                                           10
     OPEN
              YES
                            M.TA
                                       YES
                                                  RTXTHR
                                                           10000
     ASNAMES
     as4
IP Appl Sock table is (10 of 4000) 1% full
Assoc Buffer Space Used (16 KB of 800 KB) on LOC = 1203
```

This is an example of possible output.

rtrv-assoc:aname=assoc12

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0

ANAME assoc12

LOC 1204 IPLNK PORT A LINK A
ADAPTER M3UA VER M3UA RFC
```



```
LHOST
       gw200.nc.tekelec.com
ALHOST
RHOST
       gw100.nc.tekelec.com
       2564 RPORT
                              1030
LPORT
ISTRMS 2
                   OSTRMS
                              2
                                        BUFSIZE 16
RMODE
                    RMIN
                              120
                                        RMAX
                                                800
       LIN
                               3000
RTIMES
      10
                    CWMIN
                                        UAPS
                                                10
OPEN
       YES
                    ALW
                              YES
                                        RTXTHR 10000
ASNAMES
as4
```

IP Appl Sock table is (10 of 4000) 1% full Assoc Buffer Space Used (16 KB of 800 KB) on LOC = 1204

rtrv-assoc:aname=assoc15

This is an example of possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
ANAME assoc15
              1207
     LOC
                           IPLNK PORT A
                                                 LINK A
     ADAPTER SUA
                                      SUA RFC
                           VER
     LHOST
             gw150.nc.tekelec.com
     ALHOST
     RHOST
              gw100.nc.tekelec.com
             1500
                                      1030
     LPORT
                           RPORT
     ISTRMS 2
                           OSTRMS
                                      2
                                                 BUFSIZE 16
                                      120
                                                         800
     RMODE
             LIN
                           RMIN
                                                 RMAX
     RTIMES
             10
                           CWMIN
                                       3000
                                                 UAPS
                                                         10
                                                         10000
     OPEN
             YES
                           ALW
                                      YES
                                                 RTXTHR
     ASNAMES
     as5
```

IP Appl Sock table is (4 of 4000) 1% full Assoc Buffer Space Used (16 KB of 800 KB) on LOC = 1207

rtrv-assoc:aname=assoc16

This is an example of possible output.

rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 ANAME assoc16 LOC 1211 IPLNK PORT A LINK A ADAPTER SUA VER SUA RFC LHOST gw160.nc.tekelec.com ALHOST RHOST gw100.nc.tekelec.com LPORT 3571 RPORT 1030 ISTRMS 2 2 OSTRMS BUFSIZE 16 RMODE RMIN 120 800 LIN RMAX RTIMES 10 CWMIN 3000 UAPS 10



```
OPEN YES ALW YES RTXTHR 10000

ASNAMES
as5

IP Appl Sock table is (4 of 4000) 1% full
Assoc Buffer Space Used (16 KB of 800 KB) on LOC = 1211
```

Repeat this step for each association name displayed in 3 to verify the open parameter of each association assigned to the application server.

If a new application server was added in 2, continue the procedure with 6.

If the rcontext parameter is not being specified in this procedure, continue the procedure with 6.

If the open parameter value for all the associations assigned to the application server is no (shown in this step), continue the procedure with 6.

5. Change the value of the open parameter to no by specifying the chg-assoc command with the open=no parameter.

For this example, enter this command.

```
chg-assoc:aname=assoc11:open=no
chg-assoc:aname=assoc12:open=no
chg-assoc:aname=assoc15:open=no
chg-assoc:aname=assoc16:open=no
chg-assoc:aname=assoc20:open=no
```

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

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 CHG-ASSOC: MASP A - COMPLTD
```

Caution:

TheIP connections using the associations specified in this step will not be able to carry any traffic when theopen parameter is changed tono.

Repeat this step for all the associations assigned to the application server that have the open=yes parameter value.

If a default routing key with an application server name is being added in this procedure, continue the procedure with 11.

If ITU-I or 14-bit ITU-N spare point codes are not being assigned to the routing key, or if ITU-I or 14-bit ITU-N spare point codes are shown in any routing keys shown in the rtrv-app-rtkey output in 1, continue the procedure with 7.

6. Display the status of the **ITU** National and International **Spare Point Code** Support feature by entering the rtrv-ctrl-feat command with the **ITU** National and International **Spare Point Code** Support feature part number.

Enter this command.

rtrv-ctrl-feat:partnum=893013601

The following is an example of the possible output.

rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0 The following features have been permanently enabled:

Feature Name Partnum Status Quantity Spare Point Code Support 893013601 on

The following features have been temporarily enabled:

Feature Name Trial Partnum Status Quantity Period Left

Zero entries found.

The following features have expired temporary keys:

Feature Name Partnum

Zero entries found.

If the ITU National and International Spare Point Code Support feature is not enabled, perform the "Activating the ITU National and International Spare Point Code Support feature" procedure in Database Administration - SS7 User's Guide and enable and turn on the ITU National and International Spare Point Code Support feature.

7. The DPC of the routing key cannot be the APC of an IPGWx linkset or an SAPC assigned to an IPGWx linkset.

Display the names of the IPGWx linksets by entering the rept-stat-iptps command. This is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0 IP TPS USAGE REPORT

	THRESH	CONFIG/	CONFIG/		TPS	PEAK	
PEAKTIMESTAMP		RSVD	MAX				
LSN lsgw1201 11:40:04	80%		10000	TX:	7200	7600	05-02-10
11.40.04				RCV:	7200	7600	05-02-10
11:40:04 lsgw1204 11:40:04	80%		10000	TX:	6700	7600	05-02-10
11 - 40 - 04				RCV:	6500	7600	05-02-10
11:40:04 lsgw1207 11:40:04	80%		10000	TX:	7300	7450	05-02-10
11:40:04				RCV:	7300	7450	05-02-10



```
lsgw1211 80% ---- 10000 TX: 7400 7450 05-02-10
11:40:04

RCV: 7400 7450 05-02-10

11:40:04
```

Command Completed.

8. Display the IPGWx linksets shown in the rept-stat-iptps output in 7 using the rtrv-ls command and specifying the name of the linkset shown in 7.

For this example, enter these commands.

```
rtrv-ls:lsn=lsgw1201
```

This is an example of the possible output.

rlghncxa03w 08-04-28 16:31:35 GMT EAGLE5 38.0.0

				L3T	SLT				GWS	GWS	GWS	
LSN	APCA	(SS7)	SCRN	SET	SET	BEI	LST	LNKS	ACT	MES	DIS	SLSCI
NIS												
lsgw1201	240-020	0-000	scr1	1	1	yes	A	1	off	off	off	yes
off												

 IPGWAPC MATELSN
 IPTPS LSUSEALM
 SLKUSEALM GTTMODE

 yes
 ----- 10000 70 % 70 % CdPA

 LOC LINK SLC TYPE
 IPLIML2

LOC LINK SLC TYPE 1201 A 0 SS7IPGW

Link set table is (14 of 1024) 1% full

rtrv-ls:lsn=lsgw1204

This is an example of the possible output.

rlghncxa03w 08-04-17 11:43:04 GMT EAGLE5 38.0.0

				L3T	SLT				GWS	GWS	GWS	
LSN	APCN	(SS7)	SCRN	SET	SET	BEI	LST	LNKS	ACT	MES	DIS	SLSCI
NIS												
lsgw1204	2968		none	1	1	no	A	1	off	off	off	
off												
	CLLI	TFZ	ATCABM:	LQ 1	MTPR	SE .	ASL8	SLSI	RSB	MUL:	ГGС	ITUTFR

LOC LINK SLC TYPE 1204 A 0 IPGWI

SAPCI 1-010-1

Link set table is (14 of 1024) 1% full.

rtrv-ls:lsn=lsgw1207

This is an example of the possible output.

rlghncxa03w 08-04-17 11:43:04 GMT EAGLE5 38.0.0

L3T SLT GWS GWS GWS LSN APCI (SS7) SCRN SET SET BEI LST LNKS ACT MES DIS SLSCI NIS

lsgw1207 2-154-0 none 1 1 no A 1 off off off --- off

CLLI TFATCABMLQ MTPRSE ASL8 SLSRSB MULTGC
ITUTFR
------ 1 --- 1 no
off

IPGWAPCMATELSNIPTPSLSUSEALMSLKUSEALMGTTMODEyes------1000070%70%CdPA

LOC LINK SLC TYPE 1207 A 0 IPGWI

SAPCN 5823

Link set table is (14 of 1024) 1% full.

rtrv-ls:lsn=lsgw1211

This is an example of the possible output.

rlghncxa03w 08-04-28 16:31:35 GMT EAGLE5 38.0.0

LOC LINK SLC TYPE 1211 A 0 SS71PGW

```
Link set table is (14 of 1024) 1% full
```

If the **DPC** of the routing key is shown in the rtrv-ls outputs in this step, choose another **DPC** value for the routing key that is not shown in the rtrv-ls outputs in this step.



If the SI value of the routing key being added is a value other than 4, 5, or 13, continue the procedure with 11.

9. Verify that the ISUP Routing over IP feature is on, by entering the rtrv-feat command.

If the **ISUP** Routing over **IP** feature is on, the **IPISUP** field should be set to on. For this example, the **ISUP** Routing over **IP** feature is off.



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

If the **ISUP** Routing over **IP** feature is on, continue the procedure with 11.

10. Turn the **ISUP** Routing over **IP** feature on by entering this command.

chg-feat:ipisup=on

Note:

Once the ISUP Routing over IP feature is turned on with the chg-feat command, it cannot be turned off.

The **ISUP** Routing over **IP** feature must be purchased before you turn this feature on with the <code>chg-feat</code> command. If you are not sure if you have purchased the **ISUP** Routing over **IP** feature, contact your Oracle Sales Representative or Account Representative.

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

```
rlghncxa03w 06-10-28 11:43:04 GMT EAGLE5 36.0.0 CHG-FEAT: MASP A - COMPLTD
```

11. Add a routing key entry to the database by entering the ent-appl-rtkey command.

The parameters required for the ent-appl-rtkey command are determined by the type of routing key being added and the service indicator value in the routing key. See Table 4-13 for the parameter combinations that can be used for the type of routing key being added to the database. For this example, enter these commands.



```
ent-appl-
rtkey:dpci=3-009-3:si=5:opci=4-100-3:cics=100 :cice=500:asna
me=as3:type=full
ent-appl-
rtkey:dpci=1-050-2:si=5:opci=6-077-7:cics=200 :cice=300:asna
me=as20:type=full:rcontext=2000
```

Note:

A routing key cannot be added with the application serveras4, displayed in3, because application serveras4 is assigned to a routing key containing a routing context value. Only one application server can be assigned to a routing key containing a routing context value.

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

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0 ENT-APPL-RTKEY: MASP A - COMPLTD
```

12. Verify the new routing key information in the database by entering the rtrv-appl-rtkey command with the routing key parameters specified in 11 (dpc, si, opc, cics, cice, ssn, asname, type, and rcontext, as applicable) with the display=all parameter.

For this example, enter these commands.

```
rtrv-appl-
rtkey:dpci=3-009-3:si=5:opci=4-100-3:cics=100 :cice=500:asna
me=as3:type=full:display=all
```

The following is an example of the possible output.

```
rlghncxa03w 08-04-28 21:16:37 GMT EAGLE5 38.0.0
```

```
RCONTEXT DPCI
                                        CICS
                                                   CICE
                      SI SSN OPCI
---- 3-009-3
                      5 --- 4-100-3
                                        100
                                                   500
   ADPTR TYPE
                 ASNAME
   M3UA FULL
                  as3
   ANAMES
   assoc11
                 assoc12
STATIC Route Key table is (19 of 2000) 1% full
STATIC Route Key Socket Association table is (19 of 32000) 1% full
rtrv-appl-
rtkey:dpci=1-050-2:si=5:opci=6-077-7:cics=200 :cice=300:asna
me=as20:type=full:rcontext=2000:display=all
```



The following is an example of the possible output.

```
rlghncxa03w 08-04-28 21:16:37 GMT EAGLE5 38.0.0
RCONTEXT DPCI
                       SI SSN OPCI
                                            CICS
                                                       CICE
2000
         1-050-2
                       5 --- 6-077-7
                                            200
                                                       300
   ADPTR TYPE
                  ASNAME
   SUA FULL
                   as20
   ANAMES
   assoc20
STATIC Route Key table is (19 of 2000) 1% full
STATIC Route Key Socket Association table is (19 of 32000) 1% full
```



If theopen parameter value of the associations assigned to the routing key added in this procedure was not changed (5was not performed), continue the procedure with14.

13. Change the value of the open parameter of the associations that were changed in 5 to yes by specifying the chg-assoc command with the open=yes parameter.

For this example, enter these commands.

```
chg-assoc:aname=assoc11:open=yes
chg-assoc:aname=assoc12:open=yes
chg-assoc:aname=assoc15:open=yes
chg-assoc:aname=assoc16:open=yes
chg-assoc:aname=assoc20:open=yes
```

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

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 CHG-ASSOC: MASP A - COMPLTD;
```

Repeat this step for all the associations that were changed in 5.

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

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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

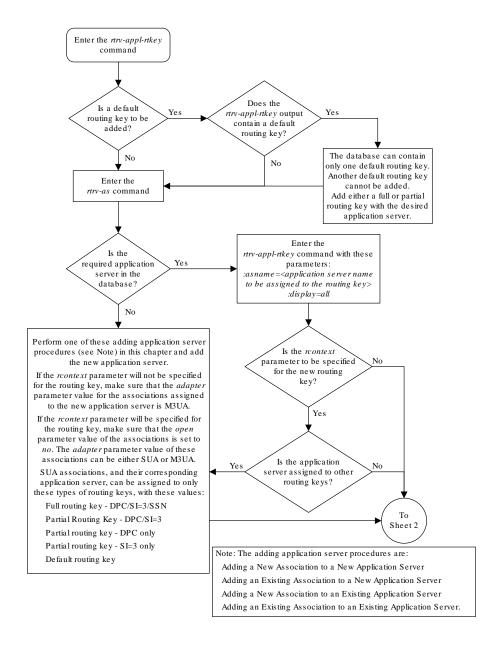
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
```



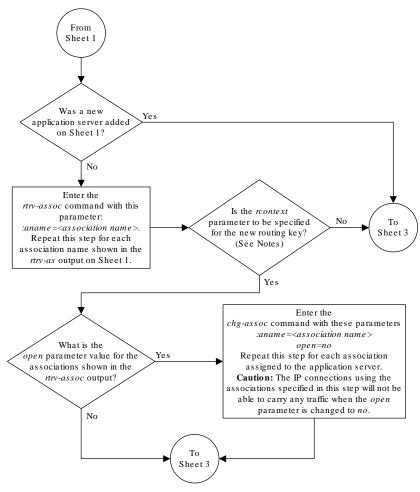
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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

Figure 4-23 Adding a Routing Key Containing an Application Server



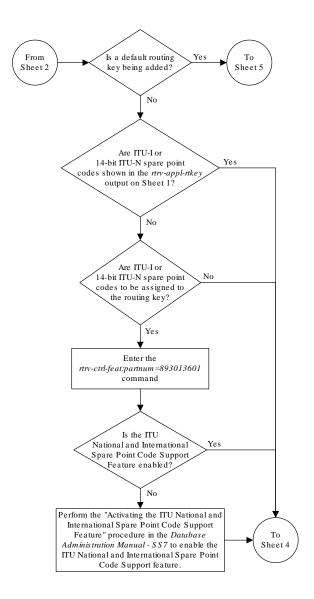
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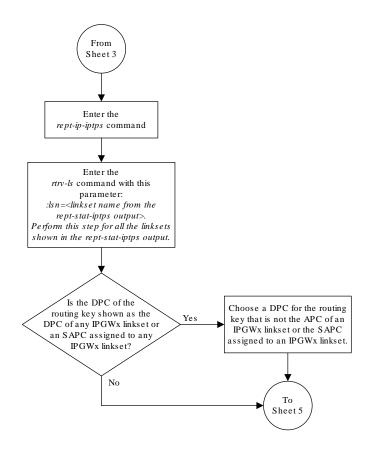
Notes

- 1. If the *adapter* parameter value for the application server is SUA, and a new application server is specified for the routing key, the *rcontext* parameter is required.
- 2. If the *adapter* parameter value for the application server is M3UA, and a new application server is specified for the routing key, the *roontext* parameter is optional.
- 3. If the application server is assigned to other routing keys, the *rcontext* parameter cannot be specified for this routing key. An application server can be assigned to only one routing key that contains an *rcontext* parameter value.

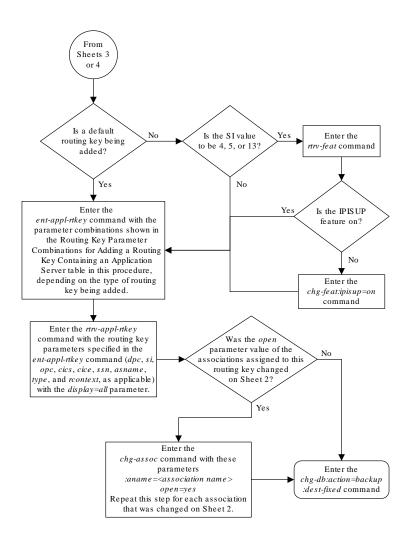
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Adding a Network Appearance

The network appearance field identifies the **SS7** network context for the message, for the purpose of logically separating the signaling traffic between the **SGP** (signaling gateway process) and the **ASP** (application server process) over a common **SCTP** (stream control transmission protocol) association. This field is contained in the **DATA**, **DUNA**, **DAVA**, **DRST**, **DAUD**, **SCON**, and **DUPU** messages.

The network appearance is provisioned in the database using the <code>ent-na</code> command with these parameters.

:na – the 32-bit value of the network appearance, from 0 to 4294967295.

:type – the network type of the network appearance, ansi (ANSI), itui (ITU-I), itun (14-bit ITU-N), itun24 (24-bit ITU-N), ituis (ITU-I Spare), ituns (14-bit ITU-N Spare).

:gc – the specific **ITU-N** group code associated with the network appearance.

The gc parameter can be specified only with the type=itun or type=ituns parameters.

The gc parameter must be specified with the type=itun or type=ituns parameters if the ITU Duplicate Point Code feature is on. If the ITU Duplicate Point Code feature is off, the gc parameter cannot be specified.

The gc parameter value must be shown in the rtrv-spc or rtrv-sid outputs.

The ituis or ituns parameters can be specified only if the ITU National and International Spare Point Code Support feature is enabled.

1. Display the network appearances in the database with the rtrv-na command. This is an example of the possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0

TYPE GC NA

ANSI -- 100

ITUN FR 4000000000

ITUN GE 1000000000
```

Note:

If thege parameter is not being specified in this procedure, continue the procedure with4.

2. Display the self-identification of the **EAGLE** using the rtrv-sid command. This is an example of the possible output.

rlghncxa03w PCA 001-001-001	06-10-28 09:12:36 PCI 1-200-6	GMT EAGLE5 36.0. PCN 13482	0 CLLI rlghncxa03w	PCTYPE OTHER
CPCA 002-002-002 002-002-006 004-002-001	002-002-003 002-002-007 004-003-003	002-002-00 002-002-00 144-212-00	8 002-002-0	
CPCA (LNP) 005-005-002	005-005-004	005-005-005		
CPCI 1-001-1	1-001-2	1-001-3	1-001-4	
CPCN				



02091	02092	02094	02097
02191	02192	11177	

If the desired group code is shown in the rtrv-sid output, continue the procedure with 4.

3. Display the secondary point codes in the database with the rtrv-spc command. This is an example of the possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
SPC (Secondary Point Codes)
SPCA
001-010-010
002-010-010
003-010-010
SPC-I
1-253-5
2-254-6
3-255-7
SPC-N
10-01-11-1-fr
13-02-12-0-ge
13-02-12-0-uk
SPC-N24
none
Secondary Point Code table is (9 of 40) 23% full
```

If the desired group code is not shown in the rtrv-spc or rtrv-sid outputs, go to the "Adding a **Secondary Point Code**" procedure in *Database Administration* - **SS7** *User's Guide* to turn the **ITU** Duplicate **Point Code** feature on, and add a secondary point code to the database with the desired group code value.

If the ituis or ituns parameters will not be specified in this procedure, continue the procedure with 5.

If the ituis or ituns parameters will be specified in this procedure, and ITU-I spare or 14-bit ITU-N spare network appearances are shown in the rtrv-na output in 1, or ITU-I spare or 14-bit ITU-N spare point codes are shown in the rtrv-sid output in 2, continue the procedure with 5.

4. Display the status of the ITU National and International Spare Point Code Support feature by entering the rtrv-ctrl-feat command with the ITU National and International Spare Point Code Support feature part number. Enter this command.

```
rtrv-ctrl-feat:partnum=893013601
```



The following is an example of the possible output.

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
The following features have been permanently enabled:
Feature Name
                          Partnum
                                     Status Ouantity
Spare Point Code Support 893013601 on
The following features have been temporarily enabled:
Feature Name
                         Partnum
                                    Status Quantity
                                                         Trial Period
Left.
Zero entries found.
The following features have expired temporary keys:
Feature Name
                         Partnum
Zero entries found.
```

If the ITU National and International Spare Point Code Support feature is not enabled, perform the "Activating the ITU National and International Spare Point Code Support feature" procedure in *Database Administration -* SS7 *User's Guide* and enable and turn on the ITU National and International Spare Point Code Support feature.

5. Add the network appearance to the database with the ent-na command.

If the gc parameter is specified with the ent-na command, the gc parameter value must be shown in the rtrv-sid output in 2, or assigned to an ITU-N point code (SPC-N) shown in the rtrv-spc output in 3. For this example, enter these commands.

```
ent-na:na=1000:type=itui
ent-na:na=3:type=itun24
ent-na:na=150000:type=itun:gc=uk
ent-na:na=2000:type=ituis
ent-na:na=5000:type=ituns:gc=sp
```

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

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 ENT-NA: MASP A - COMPLTD
```

6. Verify the changes using the rtrv-na command. This is an example of the possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0

TYPE GC NA

ANSI -- 100

ITUI -- 1000

ITUN uk 150000

ITUN fr 4000000000
```



```
        ITUN
        ge
        100000000

        ITUN24
        --
        3

        ITUIS
        --
        2000

        ITUNS
        sp
        5000
```

7. Back up the new changes, using the <code>chg-db:action=backup:dest=fixed command.</code>

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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

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

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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



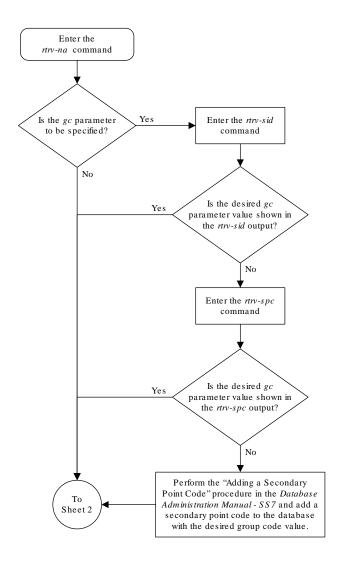
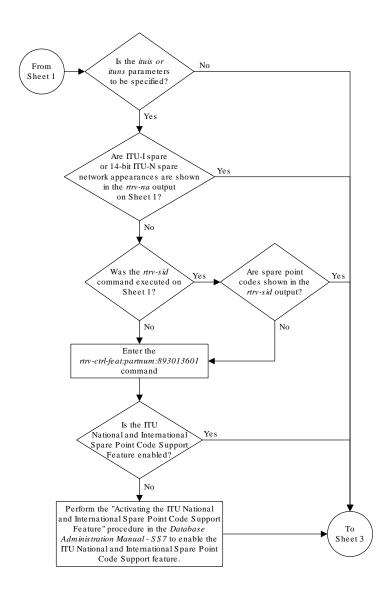
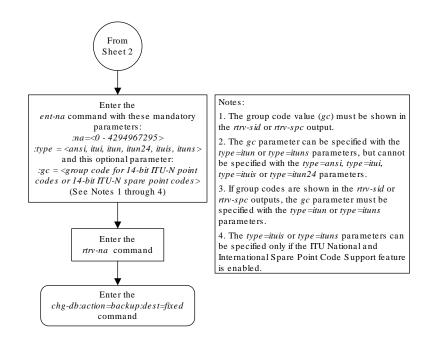


Figure 4-24 Adding a Network Appearance

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Activating the Large MSU Support for IP Signaling Feature

This procedure is used to enable and turn on the Large **MSU** Support for **IP** Signaling feature using the feature's part number and a feature access key.

The feature access key for the Large **MSU** Support for **IP** Signaling feature is based on the feature's part number and the serial number of the **EAGLE**, making the feature access key site-specific.

The <code>enable-ctrl-feat</code> command enables the controlled feature by inputting the controlled feature's access key and the controlled feature's part number with these parameters:

Note:

As of Release 46.3, the fak parameter is no longer required. This parameter is only used for backward compatibility.

: fak – The feature access key provided by Oracle. The feature access key contains 13 alphanumeric characters and is not case sensitive.

:partnum - The Oracle-issued part number of the Large MSU Support for IP Signaling feature, 893018401.

The <code>enable-ctrl-feat</code> command requires that the database contain a valid serial number for the <code>EAGLE</code>, and that this serial number is locked. This can be verified with the <code>rtrv-serial-num</code> command. The <code>EAGLE</code> 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 <code>EAGLE</code> is on-site, by using the <code>ent-serial-num</code> command. The <code>ent-serial-num</code> command uses these parameters.

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

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

Note:

To enter and lock the **EAGLE**'s serial number, the <code>ent-serial-num</code> command must be entered twice, once to add the correct serial number to the database with the <code>serial</code> parameter, then again with the <code>serial</code> and the <code>lock=yes</code> parameters to lock the serial number. You should verify that the serial number in the database is correct before locking the serial number. The serial number can be found on a label affixed to the control shelf (shelf 1100).

This feature cannot be temporarily enabled (with the temporary feature access key).

Once this feature has been enabled, the feature must be turned on with the chg-ctrl-feat command. The chg-ctrl-feat command uses these parameters:

:partnum - The Oracle-issued part number of the Large MSU Support for IP Signaling feature, 893018401.

: status=on - used to turn the Large MSU Support for IP Signaling feature on.



Once the Large MSU Support for **IP** Signaling feature has been turned on, it be can be turned off. For more information about turning the Large MSU Support for **IP** Signaling feature off, go to the Turning Off the Large MSU Support for **IP** Signaling Feature procedure.

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

The Large MSU Support for IP Signaling feature allows the EAGLE to process messages with a service indicator value of 6 to 15 and with a service information field (SIF) that is larger than 272 bytes. The large messages are processed only on E5-ENET cards. There are certain software components that if enabled or provisioned, that will not process large messages even if the Large MSU Support for IP Signaling feature is enabled and turned on. UIMs are displayed when most of these circumstances occur. These UIMs are:

- UIM 1333 Displayed when a large message is received on an M3UA association and the Large MSU Support for IP Signaling feature is not enabled or is enabled and turned off. The large message is discarded.
- UIM 1350 Displayed when a M2PA IP connection receives message with an SIF greater than 272 bytes and the Large MSU Support for IP Signaling feature is not enabled or is enabled and turned off. The large message is discarded.
- UIM 1352 Displayed when a message with an SIF greater than 272 bytes is received; the Large MSU Support for IP Signaling feature is enabled and turned on; there are routes available for the destination point code; but the selected outbound card does not support large messages.
- UIM 1353 Displayed when a large message passes a gateway screening screenset that redirects messages for the Database Transport Access (DTA) feature. Large messages are not redirected for the DTA feature.

For more information on these **UIM**s, refer to the *Unsolicited Alarm and Information Messages Reference*.



Large messages are not monitored by the EAGLE 5 Integrated Monitoring Support feature and are not sent to the **IMF**. A **UIM** is not generated.

 Display the status of the controlled features by entering the rtrv-ctrl-feat command.

The following is an example of the possible output.

rlghncxa03w 08-04-28 21:15:37 GMT EAGLE5 38.0.0 The following features have been permanently enabled:

Feature Name	Partnum	Status	Quantity
Command Class Management	893005801	on	
LNP Short Message Service	893006601	on	
Intermed GTT Load Sharing	893006901	on	
XGTT Table Expansion	893006101	on	400000
XMAP Table Expansion	893007710	off	
Large System # Links	893005910	on	2000
Routesets	893006401	on	6000
HC-MIM SLK Capacity	893012707	on	64



The following features have been temporarily enabled:

Feature Name Partnum Status Quantity Trial

Period Left

Zero entries found.

The following features have expired temporary keys:

Feature Name Partnum

Zero entries found.

If the Large MSU Support for **IP** Signaling feature is enabled and turned on, no further action is necessary. This procedure does not need to be performed.

If the Large MSU Support for **IP** Signaling feature is enabled and but not turned on, continue the procedure with 7.

If the Large MSU Support for **IP** Signaling feature is not enabled, continue the procedure with 2.



If thertry-ctrl-feat output in1shows any controlled features, continue this procedure with6. If thertry-ctrl-feat output shows only the HC-MIM SLK Capacity feature with a quantity of 64,2through5must be performed.

2. Display the serial number in the database with the rtrv-serial-num command.

This is an example of the possible output.

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
System serial number = nt00001231
System serial number is not locked.
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
Command Completed
```

Note:

If the serial number is correct and locked, continue the procedure with6. If the serial number is correct but not locked, continue the procedure with5. If the serial number is not correct, but is locked, this feature cannot be enabled and the remainder of this procedure cannot be performed. Contact the Customer Care Center to get an incorrect and locked serial number changed. Refer toMy Oracle Support (MOS)for the contact information. The serial number can be found on a label affixed to the control shelf (shelf 1100).



3. Enter the correct serial number into the database using the ent-serial-num command with the serial parameter.

For this example, enter this command.

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

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

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0 ENT-SERIAL-NUM: MASP A - COMPLTD
```

Verify that the serial number entered into 3 was entered correctly using the rtrvserial-num command.

This is an example of the possible output.

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
System serial number = nt00001231
System serial number is not locked.
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
Command Completed
```

If the serial number was not entered correctly, repeat 3 and 4 and re-enter the correct serial number.

5. Lock the serial number in the database by entering the ent-serial-num command with the serial number shown in 2, if the serial number shown in 2 is correct, or with the serial number shown in 4, if the serial number was changed in 3, and with the lock=yes parameter.

For this example, enter this command.

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

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

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0 ENT-SERIAL-NUM: MASP A - COMPLTD
```

6. Enable the Large MSU Support for IP Signaling feature with the enable-ctrl-feat command specifying the part number for the Large MSU Support for IP Signaling feature and the feature access key. Enter this command.

```
enable-ctrl-feat:partnum=893018401:fak=<Large MSU Support for IP
Signaling feature access key>
```



A temporary feature access key cannot be specified to enable this feature.

Note:

The values for the feature access key (the fak parameter) are provided by Oracle. If you do not have the feature access key for the feature you wish to enable, contact your Sales Representative or Account Representative.

When the <code>enable-crtl-feat</code> command has successfully completed, this message should appear.

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0 ENABLE-CTRL-FEAT: MASP B - COMPLTD
```

7. Turn the Large MSU Support for IP Signaling feature on with the chg-ctrl-feat command specifying the part number for the Large MSU Support for IP Signaling feature and the status=on parameter. Enter this command.

```
chg-ctrl-feat:partnum=893018401:status=on
```

When the <code>chg-crtl-feat</code> command has successfully completed, this message should appear.

```
rlghncxa03w 07-05-28 21:15:37 GMT EAGLE5 37.0.0 CHG-CTRL-FEAT: MASP B - COMPLTD
```

8. Verify the changes by entering the rtrv-ctrl-featcommand with the Large MSU Support for IP Signaling feature part number. Enter this command.

```
rtrv-ctrl-feat:partnum=893018401
```

The following is an example of the possible output.

```
rlghncxa03w 10-04-28 21:15:37 GMT EAGLE5 42.0.0 The following features have been permanently enabled:
```

```
Feature Name Partnum Status Quantity
Large MSU for IP Sig 893018401 on ----
```

The following features have been temporarily enabled:

Feature Name Partnum Status Quantity Trial

Period Left

Zero entries found.

The following features have expired temporary keys:

Feature Name Partnum

Zero entries found.



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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

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

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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



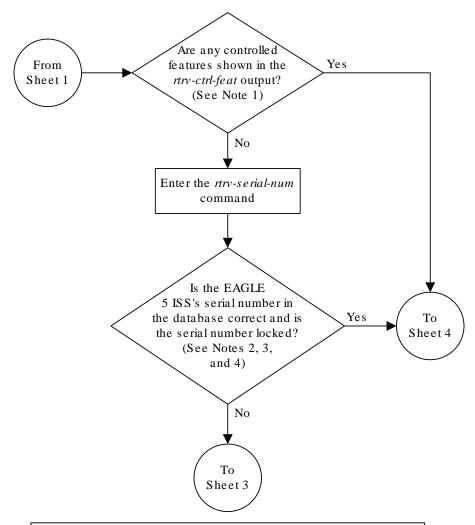
Enter the rtrv-ctrl-fe at command Is the Large MSU No To Support for IP Signaling Sheet 2 feature enabled? Yes Is the status The Large MSU Support for IP of the Large MSU On Signaling feature is enabled and Support for IP Signaling turned on. No further action is feature on necessary. or off? Off Enter the chg-ctrl-feat command with these parameters: :partnum=893018401 :status = onEnter the rtrv-ctrl-feat command with this parameter: :partnum=893018401 Enter the chg-db:action=backup:dest=fixed command

Figure 4-25 Activating the Large MSU Support for IP Signaling Feature



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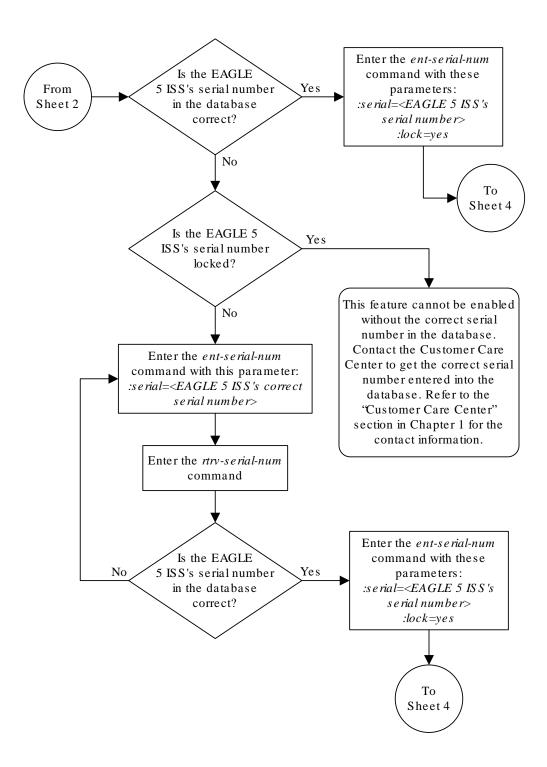
Notes:

- 1. If the *rtrv-ctrl-feat* output shows only the HC-MIM SLK Capacity feature with a quantity of 64, the answer to this question is no and the Eagle 5 ISS's serial number must be verified. This is the default entry for the *rtrv-ctrl-feat* output. This entry is shown whether or not the Eagle 5 ISS's serial number is in the database.
- 2. If the serial number is locked, it cannot be changed.
- 3. If the serial number is not locked, the controlled feature cannot be enabled.
- 4. The serial number can be found on a label affixed to the control shelf (shelf 1100).



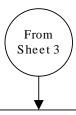
Sheet 2 of 4





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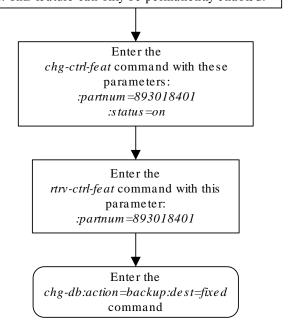


Enter the

enable-ctrl-feat command with these parameters:
:partnum=893018401
:fak=<Large MSU Support for IP Signaling feature
access key>

Notes:

- 1. If you do not have the feature access key for the Large MSU Support for IP Signaling feature, contact your Tekelec sales representative or account representative.
- 2. This feature can only be permanently enabled.





Sheet 4 of 4

Removing IETF M3UA and SUA Components

This section describes how to remove the following components from the database.

- An **IPGWx** Card Perform the Removing an IPGWx Card procedure
- A mate IPGWx linkset from another IPGWx linkset Perform the Removing a Mate IPGWx Linkset from another IPGWx Linkset procedure
- An IPGWx Signaling Link Perform the Removing an IPGWx Signaling Link procedure
- An IP Host Perform the Removing an IP Host Assigned to an IPGWx Card procedure
- An **IP** Route Perform the Removing an IP Route procedure
- An M3UA or SUA Association Perform the Removing a M3UA or SUA Association procedure
- An Association from an Application Server Perform the Removing an Association from an Application Server procedure
- A Routing Key Perform the Removing a Routing Key Containing an Application Server procedure
- A Network Appearance Perform the Removing a Network Appearance procedure

Removing an IPGWx Card

Use this procedure to remove an IP card, a card running one of these applications: ss7ipgw or ipgwi, from the database using the dlt-card command.

The card cannot be removed if it does not exist in the database. Prior to removing the card from the database, the signaling links assigned to the card must be removed.



Caution:

If the **IPGWx** card is the last **IP** card in service, removing this card from the database will cause traffic to be lost.

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

This is an example of the possible output.

```
rlghncxa03w 09-10-15 16:34:56 GMT EAGLE5 41.0.0
CARD TYPE
                      LSET NAME LINK SLC LSET NAME
               APPL
                                                         LINK SLC
1101
      DSM
               VSCCP
1102 TSM
               GLS
1113 GSPM
               EOAM
1114
      TDM-A
               EOAM
1115
      GSPM
1116 TDM-B
1117 MDAL
```



1201	LIMDS0	SS7ANSI	lsn1	A	0	lsn2
В 1						
1203	LIMDS0	SS7ANSI	lsn2	A	0	lsn1
В 1						
1204	LIMATM	ATMANSI	atmgwy	A	0	
1205	DCM	IPLIM	ipnode1	A	0	ipnode3
В 1						
1207	DCM	IPLIM	ipnode2	A	0	
1303	DCM	IPLIM	ipnode1	A	0	ipnode3
В 1						
1305	DCM	IPLIM	ipnode4	A	0	

Select a card whose application is either **SS7IPGW** or **IPGWI**.

Perform the Removing an IPGWx Signaling Link procedure to remove all the signaling links assigned to the card, shown in the LINK column of the rtrv-card output.

The card location is shown in the CARD field of the rtrv-card command output. No entries in the LSET NAME, LINK, and SLC columns mean that no signaling link is assigned to the card.

2. Remove the card from the database using the dlt-card command.

The ${\tt dlt-card}$ command has only one parameter, ${\tt loc}$, which is the location of the card. For this example, enter these commands.

```
dlt-card:loc=1205
```

When these commands have successfully completed, this message appears.

```
rlghncxa03w 06-10-12 09:12:36 GMT EAGLE5 36.0.0 DLT-CARD: MASP A - COMPLTD
```

3. Verify the changes using the rtrv-card command and specifying the card that was removed in 2.

For this example, enter these commands.

```
rtrv-card:loc=1205
rtrv-card:loc=1207
```

When these commands have successfully completed, this message appears.

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

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

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

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

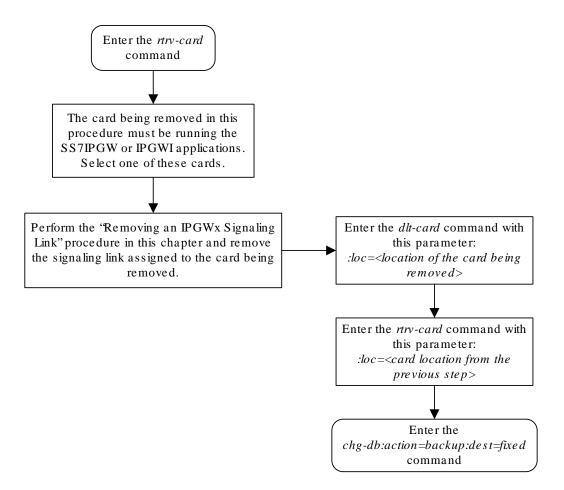


BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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



Figure 4-26 Removing an IPGWx Card



Removing an IPGWx Signaling Link

This procedure is used to remove an **IPGWx** signaling link from the database using the dlt-slk command. The dlt-slk command uses these parameters.

:loc - The card location of the IP card that the IP signaling link is assigned to.

: link – The signaling link on the card specified in the loc parameter.

: force – This parameter must be used to remove the last link in a linkset without having to remove all of the routes that referenced the linkset.

The tfatcabmlq parameter (**TFA/TCA** Broadcast Minimum **Link** Quantity), assigned to linksets, shows the minimum number of links in the given linkset (or in the combined link set in which it resides) that must be available for traffic. When the number of signaling links in the specified linkset is equal to or greater than the value of the tfatcabmlq parameter, the status of the routes that use the specified linkset is set to allowed and can carry traffic. Otherwise, these routes are restricted. The value of the tfatcabmlq parameter cannot exceed the total number of signaling links contained in the linkset.

If the linkset type of the linkset that contains the signaling link that is being removed is either A, B, D, E, or PRX, the signaling link can be removed regardless of the tfatcabmlq parameter value of the linkset and regardless of the LSRESTRICT option value. When a signaling link in one of these types of linksets is removed, the tfatcabmlq parameter value of the linkset is decreased automatically.

If the linkset type of the linkset that contains the signaling link that is being removed is C, the signaling link can be removed only:

- If the LSRESTRICT option is off. The LSRESTRICT option value is shown in the rtrv-ss7opts output.
- If the LSRESTRICT option is on and the number of signaling links assigned to the linkset will be equal to or greater than the value of the tfatcabmlq parameter value of the linkset after the signaling link is removed.

The tfatcabmlq parameter value of the linkset is shown in the TFATCABMLQ column of the rtrv-ls:lsn=<linkset name> output. The tfatcabmlq parameter value can be a fixed value (1 to 16) or 0. If the tfatcabmlq parameter value of the linkset is a fixed value, the number of signaling links that are in the linkset after the signaling link is removed must be equal to or greater than the tfatcabmlq parameter value of the linkset.

If the tfatcabmlq parameter value is 0, the signaling link can be removed. When the tfatcabmlq parameter value is 0, the value displayed in the TFATCABMLQ column of the rtrv-ls output is 1/2 of the number of signaling links contained in the linkset. If the number of signaling links in the linkset is an odd number, the tfatcabmlq parameter value is rounded up to the next whole number. As the signaling links are removed, the tfatcabmlq parameter value of the linkset is decreased automatically.

Canceling the RTRV-SLK Command

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



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

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

Display the current link configuration using the rtrv-slk command.
 This is an example of the possible output.

rlghn	cxa03v	v 09-07-19	21:16:	37 GMT I	EAGLE	5 41.1.	0		
					L2T			PCR	PCR
LOC	LINK	LSN	SLC	TYPE	SET	BPS	ECM	N1	N2
1201	A	ls01	0	LIMDS0	1	56000	BASIC		
1201	В	lsa1	0	LIMDS0	1	56000	BASIC		
1203	A	ls03	0	LIMDS0	3	56000	BASIC		
1203	В	lsa2	0	LIMDS0	1	56000	BASIC		
1204	В	ls01	1	LIMDS0	1	56000	BASIC		
1207	A	lsn1207a	0	LIMDS0	1	56000	BASIC		
1207	В	lsn1207b	0	LIMDS0	1	56000	BASIC		
1208	В	ls03	1	LIMDS0	3	56000	BASIC		
1213	В	ls05	0	LIMDS0	5	56000	BASIC		
1215	A	ls05	1	LIMDS0	5	56000	BASIC		
1311	A	ls01	2	LIMDS0	1	56000	BASIC		
1311	A1	ls05	2	LIMDS0	5	56000	BASIC		
1311	В	ls03	2	LIMDS0	3	56000	BASIC		
1311	В1	ls07	1	LIMDS0	7	56000	BASIC		
1313	A	ls07	0	LIMDS0	7	56000	BASIC		
					LP		ATM		
LOC	LINK	LSN	SLC	TYPE	SET	BPS	TSE:	L	VCI
VPI	$_{ m LL}$								
1302	A	atmansi0	0	LIMATM	3	154400	00 EXT	ERNAL	35
15	0								
1305	A	atmansi1	0	LIMATM	4	154400	00 INT	ERNAL	100
20	2								
1318	A	atmansi0	1	LIMATM	9	154400	00 LIN	Ξ	150
25	4								
					LP				
ATM			E1AT						
	LINK I	LSN	SLC T	YPE	SET	BPS	TSEL	VC]	I VPI
CRC4									
2101	A á	atmitu1	0 L	IME1ATM	5	2.048M	LINE	150) 2



```
ON
   1 20
2105 A
                  1 LIME1ATM 5
        atmitu1
                                2.048M LINE
                                              35 15
                                                      ON
                                                            2
LOC LINK LSN
                  SLC TYPE
                             IPLIML2
2202 A lsnlp1
                  O IPLIM SAALTALI
2205 A lsnip1
                  1 IPLIM
                             M2PA
2204 B lsnlp2
                  O IPLIM M2PA
2213 A lsnip5
                  O IPLIMI M2PA
                   1 IPLIM SAALTALI
2215 A
      lsnlp2
LOC LINK LSN
                  SLC TYPE
        lsnlp3 0 SS7IPGW lsnlp4 0 IPGWI
2207 A lsnlp3
2211 A
SLK table is (27 of 1200) 2% full
```

2. Display the linkset that contains the signaling link that is being removed by entering the rtrv-ls command with the name of the linkset shown in the LSN column of the rtrv-slk output.

For this example, enter these commands.

```
rtrv-ls:lsn=lsnlp3
```

This is an example of the possible output.

Link set table is (20 of 1024) 2% full

rlghncxa03w 10-07-17 11:43:04 GMT EAGLE5 42.0.0 L3T SLT GWS GWS GWS LSN APCA (SS7) SCRN SET SET BEI LST LNKS ACT MES DIS SLSCI NIS 002-009-003 scr2 1 1 lsnlp3 no a 1 on off on no off SPCA CLLI TFATCABMLO MTPRSE ASL8 ----- 1 no no RANDSLS off IPSG IPGWAPC GTTMODE CGGTMOD no yes CdPA no IPTPS LSUSEALM SLKUSEALM MATELSN ----- 32000 100% 80% LOC LINK SLC TYPE 1201 A 0 SS7IPGW

If the linkset type of the linkset is A, B, D, E, or PRX, continue the procedure with 5. If the linkset type of the linkset is C, continue the procedure with 3.

3. Display the LSRESTRICT option value by entering the rtrv-ss7opts command. This is an example of the possible output.

```
rlghncxa03w 10-07-30 15:09:00 GMT 42.0.0

SS7 OPTIONS

LSRESTRICT on
```



Thertry-feat command output contains other fields that are not used by this procedure. If you wish to see all the fields displayed by thertry-feat command, refer to the rtry-feat command description in Commands User's Guide.

The signaling link cannot be removed, if the LSRESTRICT option is on and the number of signaling links assigned to the linkset will be less than the value of the tfatcabmlq parameter value of the linkset if the signaling link is removed.

If the LSRESTRICT option is on and the number of signaling links assigned to the linkset will be equal to or greater than the value of the tfatcabmlq parameter value of the linkset if the signaling link is removed, continue the procedure with 5.

If the LSRESTRICT option is on and the number of signaling links assigned to the linkset will be less than the value of the tfatcabmlq parameter value of the linkset if the signaling link is removed, the signaling link cannot be removed unless the tfatcabmlq parameter value of the linkset is changed to 0. Continue the procedure with 4.

If the LSRESTRICT value is off, continue the procedure with 5.

4. Change the tfatcabmlq parameter value of the linkset to 0 by entering the chgls command with the name of the linkset that contains the signaling link that is being removed and the tfatcabmlq parameters. For this example, enter this command.

```
chg-ls:lsn=ls17:tfatcabmlq=0
```

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

```
rlghncxa03w 10-07-07 08:41:12 GMT EAGLE5 42.0.0

Link set table is (20 of 1024) 2% full.

CHG-LS: MASP A - COMPLTD
```

5. Any in-service **IP** connections on the signaling link being removed in this procedure must be placed out of service.

Have the far-end node for the signaling link being removed place the M3UA or SUA associations in either the ASP-INACTIVE or ASP-DOWN state.



6. Display the **IP** link associated with the card that the signaling link being removed the database is assigned to. Enter the rtrv-ip-lnk command with the card location of the signaling link being removed shown in 1. For this example, enter this command.

```
rtrv-ip-lnk:loc=2207
```

The following is an example of the possible output.

7. Display the IP host information associated with the IP link by entering the rtrv-ip-host command with the IP address shown in 6. For this example, enter these commands.

```
rtrv-ip-host:ipaddr=192.001.001.010
```

The following is an example of the possible output.

```
rlghncxa03w 08-12-28 21:17:37 GMT EAGLE5 40.0.0

LOCAL IPADDR LOCAL HOST
192.1.1.10 IPNODE1_2207

IP Host table is (11 of 4096) .26% full
```

8. Display the associations associated with the local host name shown in 7 by entering the rtrv-assoc command. For this example, enter this command.

```
rtrv-assoc:lhost=ipnode1 2207
```

This is an example of possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0

CARD IPLNK

ANAME LOC PORT LINK ADAPTER LPORT RPORT OPEN ALW assoc1 2207 A A M3UA 1030 1030 YES YES

IP Appl Sock/Assoc table is (4 of 4000) 1% full
Assoc Buffer Space Used (16 KB of 3200 KB) on LOC = 2207
```

9. Change the value of the open and alw parameters to no by specifying the chg-assoc command with the open=no and alw=no parameters, as necessary. For this example, enter this command.



If there is no association shown in7, or the open and alw parameter values of the association shown in7areno, continue the procedure with10.

```
chg-assoc:aname=assoc1:open=no:alw=no
```

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

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 CHG-ASSOC: MASP A - COMPLTD;
```

10. Deactivate the link to be removed using the dact-slk command, using the output from 1 to obtain the card location and link parameter value of the signaling link to be removed. For this example, enter these commands.

```
dact-slk:loc=2207:link=a
```

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

```
rlghncxa03w 06-10-07 08:41:12 GMT EAGLE5 36.0.0 Deactivate Link message sent to card
```

11. Verify that the link is out of service - maintenance disabled (OOS-MT-DSBLD) using the rept-stat-slk command with the card location and link parameter values specified in 10. For this example, enter these commands.

```
rept-stat-slk:loc=2207:link=a
```

This is an example of the possible output.

```
rlghncxa03w 06-10-23 13:06:25 GMT EAGLE5 36.0.0

SLK LSN CLLI PST SST AST
2207,A 1s04 1s04clli OOS-MT Unavail ----
ALARM STATUS = * 0235 REPT-LNK-MGTINH: local inhibited
UNAVAIL REASON = LI
```

12. Place the card that contains the signaling link shown in 11 out of service by entering the rmv-card command specifying the card location shown in 11. For this example, enter this command.

```
rmv-card:loc=2207
```

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

```
rlghncxa03w 06-10-07 08:41:12 GMT EAGLE5 36.0.0 Card has been inhibited.
```

13. Verify that the card has been inhibited by entering the rept-stat-card command with the card location specified in 12. For this example, enter this command.

```
rept-stat-card:loc=2207
```

This is an example of the possible output.

```
rlghncxa03w 07-05-27 16:43:42 GMT EAGLE5 37.0.0
CARD VERSION TYPE GPL PST SST
```



```
AST
2207 114-001-000 DCM
                      SS7IPGW OOS-MT-DSBLD Isolated ----
 ALARM STATUS = ** 0013 Card is isolated from the system
 BPDCM GPL
               = 002-102-000
 IMT BUS A
               = Disc
 IMT BUS B = Disc
 SIGNALING LINK STATUS
                      LS
lsnlp1
    SLK PST
                                  CLLI
                                               E5TS
    A OOS-MT
                                               INACTIVE
```

Command Completed.

14. Remove the signaling link from the **EAGLE** using the dlt-slk command. If there is only one signaling link in the linkset, the force=yes parameter must be specified to remove the signaling link.

In the example used in this procedure, the signaling link is the last signaling link in the linkset. Enter this command.

```
dlt-slk:loc=2207:link=a:force=yes
```

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

```
rlghncxa03w 06-10-07 08:41:17 GMT EAGLE5 36.0.0 DLT-SLK: MASP A - COMPLTD
```

Note:

If removing the signaling link will result in 700 or less signaling links in the database and theOAMHCMEAS value in thertrv-measopts output is on, the scheduled UI measurement reports will be enabled.

15. Verify the changes using the rtrv-slk command, with the card location and link values specified in 14. For this example, enter this command.

```
rtrv-slk:loc=2207:link=a
```

When the rtrv-slk command has completed, no entry is displayed showing that the signaling link has been removed.

```
rlghncxa03w 09-09-18 13:43:31 GMT EAGLE5 41.1.0 E2373 Cmd Rej: Link is unequipped in the database
```

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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

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

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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

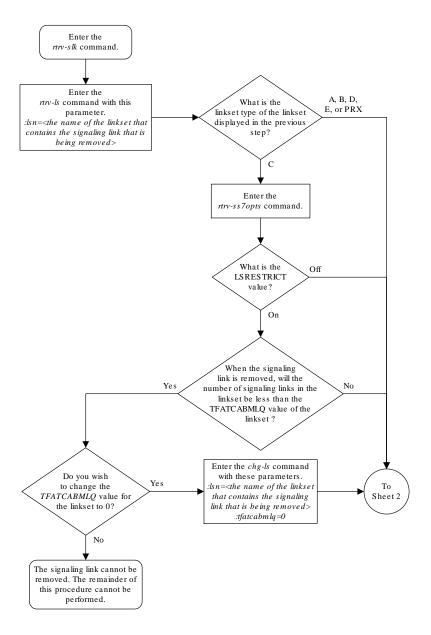
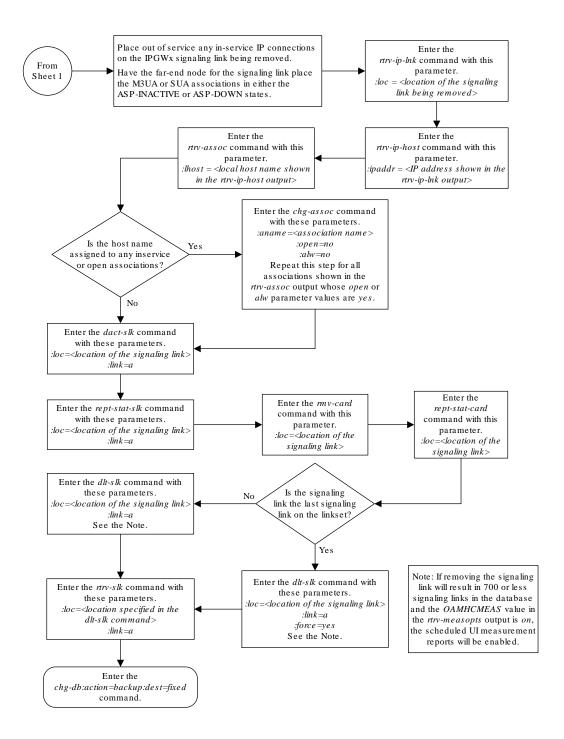


Figure 4-27 Removing an IPGWx Signaling Link

Sheet 1 of 2





Sheet 2 of 2

Removing a Mate IPGWx Linkset from another IPGWx Linkset

This procedure is used to remove a mate **IPGWx** linkset from an existing **IPGWx** linkset chg-ls command with these parameters.

:Isn — The name of the IPGWx linkset that contains the mate IPGWx Linkset that is being removed, shown in the rept-stat-iptps or rtrv-ls command outputs.

:matelsn - The name of the mate IPGWx linkset that is being removed.

: action=delete-removes the mate IPGWx linkset from the IPGWx linkset specified by the lsn parameter.

An **IPGWx** linkset is a linkset that contains signaling links assigned to **IPGWx** cards. **IPGWx** cards are cards running either the **SS7IPGW** or **IPGWI** applications.

The mate linkset name is displayed in the rtrv-ls:lsn=<linkset name> command output.

Before a mate **IPGWx** linkset can be removed from an **IPGWx** linkset, the card containing the **IPGWx** signaling link assigned to the mate linkset, and the signaling link assigned to that card must be placed out of service.

Other Optional Parameters

There are other optional parameters that can be used to configure a linkset. These parameters are not required for configuring an IPGWx linkset. These parameters are discussed in more detail in *Commands User's Guide* or in these sections.

- These procedures in this manual:
 - Configuring an IPGWx Linkset
 - Adding a Mate IPGWx Linkset to another IPGWx Linkset
 - Adding an IPSG M3UA Linkset
 - Adding an IPSG M2PA Linkset
 - Changing an IPSG M3UA Linkset
 - Changing an IPSG M2PA Linkset
- These procedures in the Database Administration SS7 User's Guide
 - Adding an SS7 Linkset
 - Changing an SS7 Linkset
 - Configuring an ITU Linkset with a Secondary Adjacent Point Code (SAPC)
- The "Configuring a Linkset for the GSM MAP Screening Feature" procedure in Database Administration - Features User's Guide.
- Display the system-wide IP TPS usage report, and the IPGWx linksets, by entering the rept-stat-iptps command. This is an example of the possible output.

```
rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0
IP TPS USAGE REPORT

THRESH CONFIG/ CONFIG/ TPS PEAK
PEAKTIMESTAMP

RSVD MAX
------
LSN
```



lsgw1101 11:40:04	80%	 6000	TX:	5100	5500	05-02-10
			RCV:	5100	5500	05-02-10
11:40:04 lsgw1103 11:40:04	80%	 6000	TX:	5200	5500	05-02-10
			RCV:	5200	5500	05-02-10
11:40:04 lsgw1105 11:40:04	80%	 14000	TX:	7300	7450	05-02-10
			RCV:	7300	7450	05-02-10
11:40:04 lsgw1107 11:40:04	70%	 4000	TX:	3200	3500	05-02-10
			RCV:	3200	3500	05-02-10
11:40:04		 				

Command Completed.

If no entries are displayed in the rept-stat-iptps output, there are no IPGWx linksets in the database. This procedure cannot be performed.

If entries are displayed in the rept-stat-iptps output, continue the procedure with 2.

2. Display the attributes of all the linksets shown in the rept-stat-iptps output in 1 by entering the rtrv-ls command with the name of each linkset shown in the rept-stat-iptps output in 1. For this example, enter these commands.

```
rtrv-ls:lsn=lsgw1101
```

rtrv-ls:lsn=lsgw1103

This is an example of the possible output.

```
rlghncxa03w 08-04-17 11:43:04 GMT EAGLE5 38.0.0
                              L3T SLT
                                                 GWS GWS GWS
LSN
           APCA
                  (SS7) SCRN SET SET BEI LST LNKS ACT MES DIS SLSCI
NIS
lsgw1101
           008-012-003
                                                 off off off no
                        none 1 1
                                     no A 1
off
          CLLI
                     TFATCABMLO MTPRSE ASL8
          _____
                                no
                                      no
                           IPTPS LSUSEALM SLKUSEALM GTTMODE
          IPGWAPC MATELSN
                 ----- 10000 70
                                     % 70 % CdPA
          yes
         LOC LINK SLC TYPE
          1101 A 0 SS7IPGW
Link set table is (14 of 1024) 1% full
```



This is an example of the possible output.

rlghncxa03w 08-04-17 11:43:04 GMT EAGLE5 38.0.0

LSN APCA (SS7) SCRN SET SET BEI LST LNKS ACT MES DIS SLSCI NIS
lsgw1103 003-002-004 none 1 1 no A 1 off off off no off

CLLI TFATCABMLQ MTPRSE ASL8

IPGWAPC MATELSN IPTPS LSUSEALM SLKUSEALM GTTMODE yes lsgw1107 10000 70 % 70 % CdPA

LOC LINK SLC TYPE 1103 A 0 SS7IPGW

Link set table is (14 of 1024) 1% full

rtrv-ls:lsn=lsgw1105

This is an example of the possible output.

rlghncxa03w 08-04-17 11:43:04 GMT EAGLE5 38.0.0

LSN APCA (SS7) SCRN SET SET BEI LST LNKS ACT MES DIS SLSCI NIS $009-002-003 \quad \text{none} \quad 1 \quad 1 \quad \text{no} \quad \text{A} \quad 1 \quad \text{off} \quad \text{off}$

CLLI TFATCABMLQ MTPRSE ASL8 ----- 1 no no

IPGWAPC MATELSN IPTPS LSUSEALM SLKUSEALM GTTMODE yes ----- 10000 70 % 70 % CdPA

LOC LINK SLC TYPE 1105 A 0 SS71PGW

Link set table is (14 of 1024) 1% full

rtrv-ls:lsn=lsgw1107

This is an example of the possible output.

rlghncxa03w 08-04-17 11:43:04 GMT EAGLE5 38.0.0

LSN APCA (SS7) SCRN SET SET BEI LST LNKS ACT MES DIS

```
SLSCI NIS
lsqw1107
           010-020-005
                                  no A 1
                                               off off off no
                       none 1 1
off
                     TFATCABMLQ MTPRSE ASL8
         CLLI
         ----- 1
                              nο
                                     nο
         IPGWAPC MATELSN IPTPS LSUSEALM SLKUSEALM GTTMODE
                ----- 10000 70
                                    % 70
                                             % CdPA
         LOC LINK SLC TYPE
         1107 A 0 SS7IPGW
Link set table is (14 of 1024) 1% full
```

If none of the linksets displayed in this step contain a mate IPGWx linkset, shown in the MATELSN column, this procedure cannot be performed.

If any of the linksets displayed in this step contain a mate IPGWx linkset, shown in the MATELSN column, continue this procedure with one of these steps.

- If a signaling link is assigned to the mate linkset, continue the procedure with 3.
- If a signaling link is not assigned to the mate linkset, continue the procedure with 12.
- 3. Display the status of the card containing the signaling link that is assigned to the mate IPGWx linkset that is being removed by entering the rept-stat-card command with the card location shown in the Loccolumn for the mate IPGWx linkset shown in 2. For this example, enter this command.

```
rept-stat-card:loc=1107
```

This is an example of the possible output.

```
rlghncxa03w 08-04-27 17:00:36 GMT EAGLE5 38.0.0
CARD VERSION
            TYPE GPL
                              PST
                                           SST
                                                   AST
1107 114-000-000 EDCM
                     SS7IPGW IS-NR
                                        Active
 ALARM STATUS = No Alarms.
                = 002-102-000
 BPDCM GPL
 IMT BUS A
                = Conn
 IMT BUS B
                = Conn
 SIGNALING LINK STATUS
   SLK PST
                        LS
                                    CLLI
                         lsgw1107
                                     _____
   Α
        IS-NR
Command Completed.
```

If the status of the card is out-of-service maintenance disabled (OOS-MT-DSBLD), continue the procedure with 12.

If the status of the card is not out-of-service maintenance disabled (OOS-MT-DSBLD), continue the procedure with 4.

4. Display the status of the signaling link assigned to the card shown in 3 by entering the rept-stat-slk command with the card location used in 3 and the link=a parameter. For this example, enter this command.

```
rept-stat-slk:loc=1107:link=a
```



This is an example of the possible output.

```
rlghncxa03w 08-04-27 17:00:36 GMT EAGLE5 38.0.0

SLK LSN CLLI PST SST AST

1107,A lsgw1107 ------ IS-NR Avail ----

ALARM STATUS = No Alarms.

UNAVAIL REASON = NA

Command Completed.
```

If the status of the signaling link is out-of-service maintenance disabled (OOS-MT-DSBLD), continue the procedure with 12.

If the status of the signaling link is not out-of-service maintenance disabled (OOS-MT-DSBLD), any in-service IP connections on the signaling link must be placed out of service. Continue the procedure by performing one of these steps.

- The recommended method is to have the far end node place these
 IPconnections out of service. Have the far-end node for the signaling link
 shown in 4 place the M3UA or SUA associations in either the ASP-INACTIVE
 or ASP-DOWN state. After the IP connections have been placed out of
 service, continue the procedure with 10.
- If you do not wish to have the far end node place these **IP**connections out of service, continue the procedure with 5.
- 5. Display the **IP** link associated with the card that the signaling link shown in 4 is assigned to by entering the rtrv-ip-lnk command with the card location shown in 4. For this example, enter this command.

```
rtrv-ip-lnk:loc=1107
```

The following is an example of the possible output.

 Display the IP host information associated with the IP link by entering the rtrvip-host command with the IP address shown in 5. For this example, enter this command.

```
rtrv-ip-host:ipaddr=192.003.001.010
```

The following is an example of the possible output.

```
rlghncxa03w 13-06-28 21:17:37 GMT EAGLE5 45.0.0

LOCAL IPADDR LOCAL HOST
192.3.1.10 IPNODE1 1107
```



```
IP Host table is (11 of 4096) .26% full
```

7. Display the association associated with the local host name shown in 6 by entering the rtrv-assoccommand.

For this example, enter this command.

```
rtrv-assoc:lhost=ipnode1 1107
```

This is an example of possible output.

```
rlghncxa03w 08-04-28 09:12:36 GMT EAGLE5 38.0.0
               CARD IPLNK
ANAME
               LOC PORT LINK ADAPTER LPORT RPORT OPEN ALW
assoc1
               1107 A
                         A M3UA 1030 1030 YES YES
IP Appl Sock/Assoc table is (4 of 4000) 1% full
Assoc Buffer Space Used (16 KB of 3200 KB) on LOC = 1107
```

8. Change the alw parameter values in the association shown in 7 using the chg-assoc command with the alw=no parameters, as necessary.



If theopen andalw parameter values of the association shown in 7 are no, continue the procedure with 10.

chg-assoc:aname=assoc1:alw=no



Caution:

This command impacts network performance and should only be used during periods of low traffic.

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

```
rlghncxa03w 08-04-28 09:12:36 GMT EAGLE5 38.0.0
CHG-ASSOC: MASP A - COMPLTD
```

Repeat this step for all associations shown in 7.

9. Change the open parameter values in the association shown in 7 using the chg-assoc command with the open=no parameters, as necessary.

```
chg-assoc:aname=assoc1:open=no
```



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

```
rlghncxa03w 08-04-28 09:12:36 GMT EAGLE5 38.0.0 CHG-ASSOC: MASP A - COMPLTD
```

Repeat this step for all associations shown in 7.

10. Deactivate the signaling link assigned to the IP card using the dact-slk command. For example, enter this command.

dact-slk:loc=1107:link=a (for the removing a mate linkset example)



Caution:

This command impacts network performance and should only be used during periods of low traffic.

After this command has successfully completed, this message appears.

```
rlghncxa03w 08-04-12 09:12:36 GMT EAGLE5 38.0.0 Deactivate Link message sent to card.
```

11. Inhibit the IP card using the inh-card command. For example, enter this command.

inh-card: loc=1107 (for the removing a mate linkset example)

This message should appear.

```
rlghncxa03w 08-04-28 21:18:37 GMT EAGLE5 38.0.0 Card has been inhibited.
```

12. Change the linkset shown in 2 by entering the chg-ls command with the matelsn and action=delete parameter.

For this example, enter this command.

```
chg-ls:lsn=lsgw1103:matelsn=lsgw1107:action=delete
```

When the ${\tt chg-ls}$ command has successfully completed, this message should appear.

```
rlghncxa03w 08-04-17 16:23:21 GMT EAGLE5 38.0.0 Link set table is ( 14 of 1024) 1% full CHG-LS: MASP A - COMPLTD
```

13. Verify the changes using the rtrv-ls command specifying the linkset name specified in 12 with the lsn parameter. For this example, enter this command.

```
rtrv-ls:lsn=lsgw1103
```



This is an example of the possible output.

```
rlghncxa03w 08-04-17 11:43:04 GMT EAGLE5 38.0.0
                              L3T SLT
                                                  GWS GWS GWS
LSN
            APCA
                   (SS7) SCRN SET SET BEI LST LNKS ACT MES DIS SLSCI
NIS
lsqw1103
            003-002-004
                         none 1 1
                                      no A 1
                                                  off off off no
off
          CLLI
                      TFATCABMLQ MTPRSE ASL8
                                no
          IPGWAPC MATELSN
                            IPTPS LSUSEALM SLKUSEALM GTTMODE
                  ----- 10000 70
                                       % 70
                                                % CdPA
          LOC LINK SLC TYPE
          1103 A 0 SS7IPGW
Link set table is ( 14 of 1024) 1% full
```

If the linkset shown in this step does not have a signaling link assigned to it, continue the procedure with 18.

If the linkset shown in this step has a signaling link assigned to it, continue the procedure with 14.

14. Allow the IP card that was inhibited in 11 using the alw-card command. For example, enter this command.

```
alw-card:loc=1107
```

This message should appear.

```
rlghncxa03w 08-04-28 21:21:37 GMT EAGLE5 38.0.0 Card has been allowed.
```

15. Activate the signaling link from 10 using the act-slk command. For example, enter one of these commands.

```
act-slk:loc=1107:link=a
```

The output confirms the activation.

```
rlghncxa03w 08-04-07 11:11:28 GMT EAGLE5 38.0.0 Activate Link message sent to card
```

16. Change the open and alw parameter values for all the associations changed in 8 or 9 using the chg-assoc command with the open=yes and alw=yes parameters.



If8and9were not performed, continue the procedure with17.



```
chg-assoc:aname=assoc1:open=yes:alw=yes
```

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

```
rlghncxa03w 08-04-28 09:12:36 GMT EAGLE5 38.0.0 CHG-ASSOC: MASP A - COMPLTD
```

- 17. Have the far-end node for the signaling link shown in 13 place the M3UA or SUA associations in the ASP-ACTIVE state to place the IP connections on the signaling link into service.
- 18. Back up the new changes using the chg-db:action=backup:dest=fixed
 command. These messages should appear, the active Maintenance and
 Administration Subsystem Processor (MASP) appears first.

.

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

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

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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



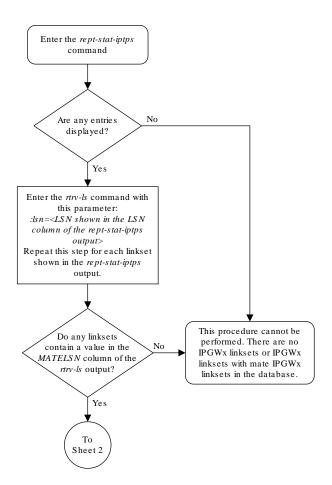
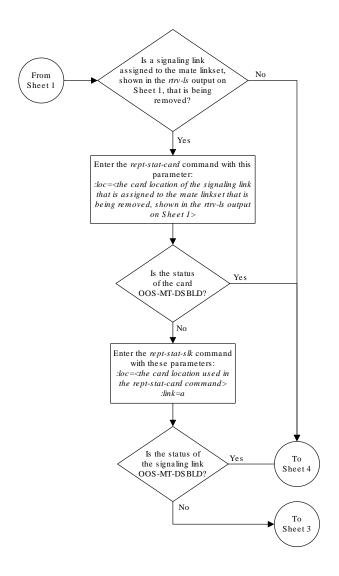
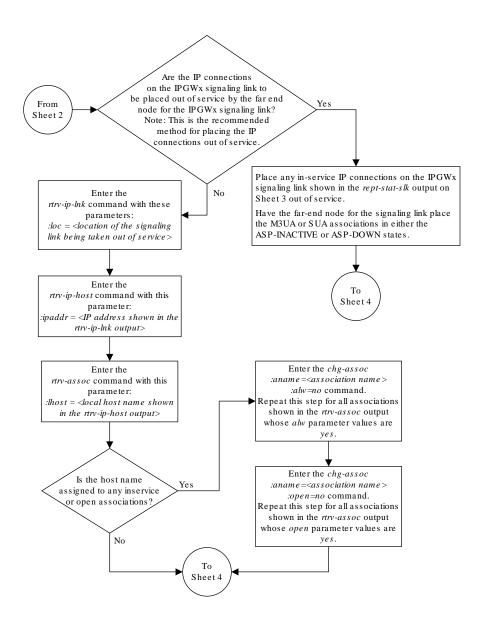


Figure 4-28 Removing a Mate IPGWx Linkset from another IPGWx Linkset

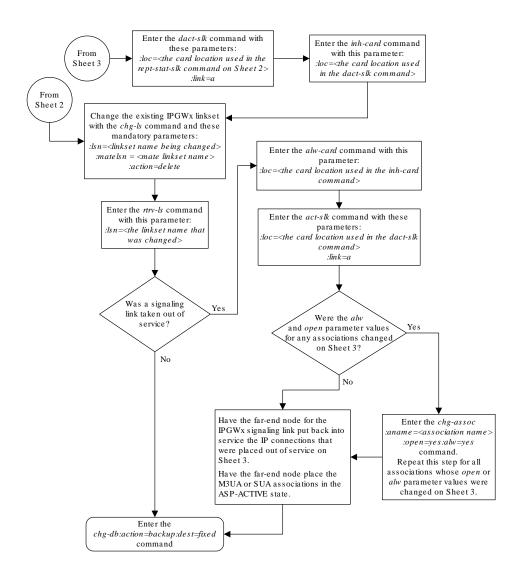




Sheet 2 of 4



Sheet 3 of 4



Sheet 4 of 4

Removing an IP Host Assigned to an IPGWx Card

This procedure removes an IP host that is assigned to an IPGWx card using the ${\tt dlt-ip-host}$ command.

The dlt-ip-host command uses the following parameter.

: host- Hostname. The hostname to be removed. This parameter identifies the logical name assigned to a device with an **IP** address.

No associations can reference the host name being removed in this procedure.

The associations referencing the host name can be removed by performing the Removing a M3UA or SUA Association procedure or the host name in these associations can be changed by performing the Changing the Host Values of a M3UA or SUA Association procedure. The host name assigned to associations is displayed in the rtrv-assoc outputs.

1. Display the current IP host information in the database by entering the rtrv-ip-host:display=all command.

The following is an example of the possible output.

```
rlghncxa03w 08-12-28 21:17:37 GMT EAGLE5 40.0.0
LOCAL IPADDR LOCAL HOST
192.1.1.10
             IPNODE1-1201
192.1.1.12
             IPNODE1-1203
192.1.1.14
             IPNODE1-1205
             IPNODE2-1201
192.1.1.20
192.1.1.22
            IPNODE2-1203
192.1.1.24
             IPNODE2-1205
192.1.1.30
             KC-HLR1
192.1.1.32
             KC-HLR2
192.1.1.50
             DN-MSC1
192.1.1.52
             DN-MSC2
192.3.3.33
            GW100. NC. TEKELEC. COM
REMOTE IPADDR REMOTE HOST
150.1.1.5 NCDEPTECONOMIC_DEVELOPMENT. SOUTHEASTERN_COORIDOR_ASHVL.
GOV
IP Host table is (12 of 4096) 0.29% full
```

If the IP host that is being removed is a remote host, continue the procedure with 5. If the IP host that is being removed is a local host, continue the procedure with 2.

2. Display the current link parameters associated with the **IP** card in the database by entering the rtrv-ip-lnk command. The following is an example of the possible output.

```
rlghncxa03w 08-12-28 21:14:37 GMT EAGLE5 40.0.0
   PORT IPADDR
LOC
             SUBMASK DUPLEX SPEED MACTYPE AUTO
MCAST
       192.1.1.10 255.255.255.128 HALF
1303 A
                                    10
                                        802.3
                                              NO
                                                 NO
1303 В
       ----- HALF
                                    10
                                        DIX
                                              NO
                                                 NO
       192.1.1.12
                  255.255.255.0 ----
1305 A
                                        DIX
                                              YES
                                                 NO
       ----- HALF
1305 B
                                    10
                                        DIX
                                              NO
                                                 NO
1313 A
       192.1.1.14 255.255.255.0 FULL
                                    100
                                        DIX
                                              NO
                                                 NO
       ----- HALF
1313 B
                                    10
                                        DIX
                                              NO
                                                 NO
2101 A
       192.1.1.20 255.255.255.0 FULL
                                    100
                                        DIX
                                              NO
                                                 NO
2101 B
       ----- HALF
                                    10
                                        DIX
                                              NO
                                                 NO
                  255.255.255.0 FULL
       192.1.1.22
2103 A
                                    100
                                        DIX
                                              NO
                                                 NO
2103 В
       ----- HALF
                                    10
                                        DIX
                                              NO
                                                 NO
```



NO NO	DIX
NO NO 2205 A 192.1.1.30 255.255.255.0 FULL 100	DIX
NO NO 2205 B HALF 10	DIX
NO NO 2207 A 192.1.1.32 255.255.255.0 FULL 100	DIX
NO NO	DIX
NO NO	
NO NO	DIX
2213 B HALF 10 NO NO	DIX
2301 A 192.1.1.52 255.255.255.0 FULL 100 NO NO	DIX
2301 B HALF 10	DIX
	DIX
2305 B HALF 10	DIX
NO NO	

IP-LNK table is (22 of 2048) 1% full.

3. Display the cards in the database using the rtrv-card command. This is an example of the possible output.

rlghncxa03w 09-05-28 09:12:36 GMT EAGLE5 41.0.0							
CARD	TYPE	APPL	LSET NAME	LINK	SLC	LSET NAME	
LINK S	LC						
1101	DSM	VSCCP					
1102	TSM	GLS					
1113	E5MCAP	EOAM					
1114	E5TDM-A						
1115	E5MCAP	EOAM					
1116	E5TDM-B						
1117	E5MDAL						
1201	LIMDS0	SS7ANSI	sp2	A	0	sp1	
В 0							
1203	LIMDS0	SS7ANSI	sp3	A	0		
1204	LIMDS0	SS7ANSI	sp3	A	1		
1206	LIMDS0	SS7ANSI	nsp3	A	1	nsp4	
В 1							
1301	LIMDS0	SS7ANSI	sp6	A	1	sp7	
В 0							
1302	LIMDS0	SS7ANSI	sp7	A	1	sp5	
В 1							
1303	DCM	IPLIM	ipnode1	A	0	ipnode3	
В 1							
1305	DCM	IPLIM	ipnode4	A	0		
1313	DCM	SS7IPGW	ipgtwy1	A	0		
2101	DCM	SS7IPGW	ipgtwy2	A	0		

2103	DCM	SS7IPGW	ipgtwy3	A	0			
2105	DCM	IPLIM	ipnode1	A1	1	ipnode5	В	2
2205	DCM	IPLIM	ipnode3	A2	0	ipnode6	В1	2
2207	DCM	IPLIM	ipnode5	A	0	ipnode4	В3	1
2213	DCM	IPLIM	ipnode5	A3	1	ipnode3	В2	2
2301	DCM	IPLIM	ipnode6	A	0	ipnode1	В	2
2305	DCM	IPLIM	ipnode6	A1	1	ipnode1	В1	3

Select an **IP** host whose **IP address** is assigned to a card running the **SS7IPGW** or **IPGWI** application.

4. Display the associations referencing the host name being removed in this procedure by entering the rtrv-assoc command with the local host name.

```
For this example, enter this command.
rtrv-assoc:lhost="IPNODE1-1205"
```

The following is an example of the possible output.

```
rlghncxa03w 06-10-28 21:14:37 GMT EAGLE5 36.0.0

CARD IPLNK

ANAME LOC PORT LINK ADAPTER LPORT RPORT OPEN ALW
a2 1313 A A M3UA 7205 7001 NO NO

IP Appl Sock/Assoc table is (4 of 4000) 1% full
Assoc Buffer Space Used (16 KB of 3200 KB) on LOC = 1203
```

If no associations referencing the host name being removed in this procedure are shown in this step, continue the procedure with 5.

Any associations referencing the host name must either be removed or the host name assigned to the association must be changed.

To remove the associations, perform the Removing a M3UA or SUA Association procedure.

Continue the procedure with 5 after the associations have been removed.

To change the host name assigned to the associations, perform the Changing the Host Values of a M3UA or SUA Association procedure.

Continue the procedure with 5 after the host name assigned to the associations have been changed.

5. Delete IP host information from the database by entering the dlt-ip-host command.

```
For example, enter this command. dlt-ip-host:host="IPNODE1-1205"
```

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

```
rlghncxa03w 06-10-28 21:19:37 GMT EAGLE5 36.0.0 DLT-IP-HOST: MASP A - COMPLTD
```

6. Verify the changes by entering the rtrv-ip-host command with the host name specified in 5.



For this example, enter this command.

```
rtrv-ip-host:host="IPNODE1-1205"
```

The following is an example of the possible output.

```
rlghncxa03w 09-07-28 21:20:37 GMT EAGLE5 41.1.0

No matching entries found.

IP Host table is (10 of 4096) 0.24% full
```

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

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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

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

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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



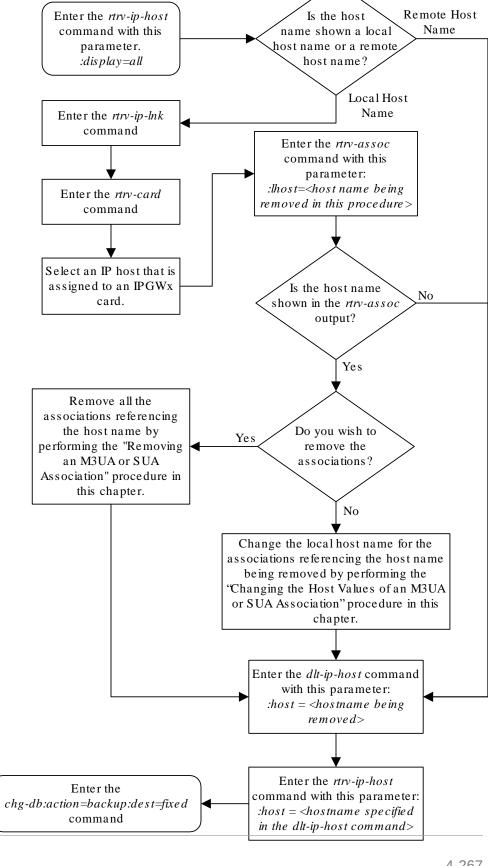


Figure 4-29 Removing an IP Host Assigned to an IPGWx Card



Removing an IP Route

This procedure is used to remove an **IP** route from the database using the dlt-ip-rte command.

The dlt-ip-rte command uses these parameters.

:loc - The location of the IP card containing the IP route being removed.

: dest – The **IP** address of the remote host or network assigned to the **IP** route being removed.

: force – To remove the IP route, the IP card that the route is assigned to must be out of service, or the force=yes parameter must be specified with the dlt-ip-rte command. The force=yes parameter allows the IP route to be removed if the IP card is in service.



Caution:

Removing an **IP** route while the **IP** card is still in service can result in losing the ability to route outbound **IP** traffic on the **IP** card. This can cause both **TCP** and **SCTP** sessions on the **IP** card to be lost.

1. Display the IP routes in the database with the rtrv-ip-rte command.

This is an example of the possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
LOC
    DEST
                             GTWY
              SUBMASK
1212 132.10.175.20
                     255.255.0.0
                                   150.1.1.50
1301 128.252.10.5
1301 128.252.0.0
                     255.255.255.255 140.188.13.33
                     255.255.0.0 140.188.13.34
1301 150.10.1.1
                     255.255.255.255 140.190.15.3
1303 192.168.10.1
                     255.255.255.255 150.190.15.23
1303 192.168.0.0
                     255.255.255.0 150.190.15.24
```

IP Route table is (6 of 2048) 0.29% full

2. Verify the state of the IP card containing the IP route being removed by entering the rept-stat-card command and specifying the card location of the IP card.

The IP card should be in the out-of-service maintenance-disabled (OOS-MT-DSBLD) in order to remove the IP route. If the IP card's state is out-of-service maintenance-disabled, the entry OOS-MT-DSBLD is shown in the PST column of the rept-stat-card output. For this example, enter this command. rept-stat-card: loc=1301

This is an example of the possible output.

```
rlghncxa03w 06-10-27 17:00:36 GMT EAGLE5 36.0.0
CARD VERSION TYPE GPL PST SST AST
```



```
1301 114-000-000 DCM
                     SS7IPGW IS-NR
                                         Active
 ALARM STATUS = No Alarms.
 BPDCM GPL
               = 002-102-000
               = Conn
 IMT BUS A
 IMT BUS B
              = Conn
 SIGNALING LINK STATUS
        PST
    SLK
                         LS
                                     CLLI
                       nc001
         IS-NR
    A
                                     _____
```

Command Completed.



If the output of 2 shows that the IP card's state is not OOS-MT-DSBLD, and you do not wish to change the state of the **IP** card, continue the procedure with

3. Change the IP card's state to OOS-MT-DSBLD using the inh-card command and specifying the card location of the IP card.

For this example, enter these commands.

```
inh-card:loc=1301
```

When this command has successfully completed, this message appears.

```
rlghncxa03w 06-10-12 09:12:36 GMT EAGLE5 36.0.0
Card has been inhibited.
```

4. Remove the IP route from the database using the dlt-ip-rte command.

If the state of the IP card is not OOS-MT-DSBLD, the force=yes parameter must be specified with the dlt-ip-rte command. For this example, enter this command. dlt-ip-rte:loc=1301:dest=128.252.0.0



Caution:

Removing an **IP** route while the **IP** card is still in service can result in losing the ability to route outbound IP traffic on the IP card. This can cause both TCP and **SCTP** sessions on the **IP** card to be lost.

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

```
rlghncxa03w 06-10-12 09:12:36 GMT EAGLE5 36.0.0
DLT-IP-RTE: MASP A - COMPLTD
```

5. Verify the changes using the rtrv-ip-rte command.

This is an example of the possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0

LOC DEST SUBMASK GTWY

1212 132.10.175.20 255.255.0.0 150.1.1.50

1301 128.252.10.5 255.255.255 140.188.13.33

1301 150.10.1.1 255.255.255.255 140.190.15.3

1303 192.168.10.1 255.255.255.255 150.190.15.23

1303 192.168.0.0 255.255.0.0 150.190.15.24

IP Route table is (5 of 2048) 0.24% full
```

6. Place the IP card back into service by using the alw-card command.



If the **IP** card containing the **IP** route that was removed from the database does not contain other **IP** routes, continue the procedure with 7.

For example, enter this command.

```
alw-card:loc=1301
```

This message should appear.

```
rlghncxa03w 06-10-28 21:22:37 GMT EAGLE5 36.0.0 Card has been allowed.
```

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

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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

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

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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



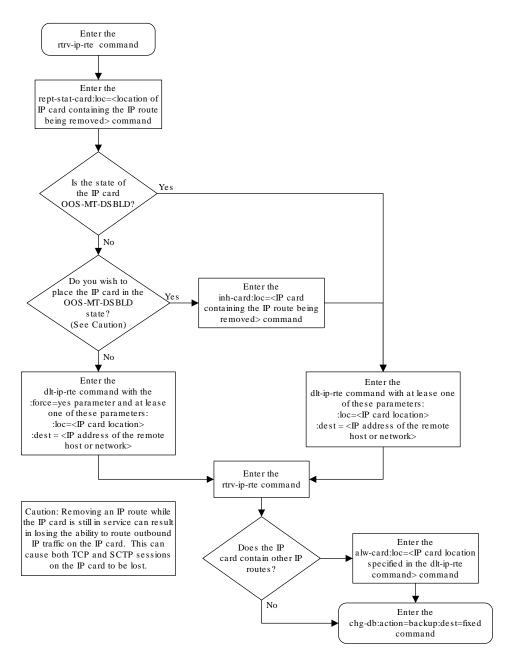


Figure 4-30 Removing an IP Route

Removing a M3UA or SUA Association

This procedure is used to remove a SUA association from the database or to remove a M3UA association that is assigned to a card running either the SS7IPGW or IPGWI

applications. Perform the Removing an IPSG Association procedure to remove a M3UA association that is assigned to a card running the IPSG application.

The dlt-assoc command uses one parameter, aname, the name of the association being removed from the database. The association being removed must be in the database.

The open parameter must be set to no before the association can be removed. Use the chg-assoc command to change the value of the open parameter.

The association being removed from the database cannot be assigned to an application server. This can be verified with the rtrv-as command. If the association is assigned to any application servers, go to the Removing an Association from an Application Server procedure and remove the association from the application servers.

Canceling the RTRV-ASSOC and RTRV-AS Commands

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

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

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

Display the associations in the database using the rtrv-assoc command.
 This is an example of possible output.

rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0

	CARD	IPLNK						
ANAME	LOC	PORT	LINK	ADAPTER	LPORT	RPORT	OPEN	ALW
swbel32	1201	A	A	M3UA	1030	2345	YES	YES
a2	1305	A	A	SUA	1030	2345	YES	YES
a3	1307	A	A	SUA	1030	2346	YES	YES
assoc1	1203	A	A1	M2PA	2048	1030	NO	NO

If the association that is being removed in this procedure is an SUA association, continue the procedure with 3.

If the association that is being removed in this procedure is an M3UA association, continue the procedure with 2.



2. Enter the rtrv-card command with the location of the card that is hosting the M3UA association that will be removed in this procedure. For this example, enter this command.

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

This is an example of possible output.

```
rlghncxa03w 08-03-06 15:17:20 EST EAGLE5 38.0.0

CARD TYPE APPL LSET NAME LINK SLC LSET NAME LINK SLC

1201 DCM SS7IPGW lsn1 A 0
```

If the application assigned to the card is SS7IPGW or IPGWI, shown in the APPL column, continue the procedure with 3.

If the application assigned to the card is IPSG, perform the Removing an IPSG Association procedure.

3. Display the application servers referencing the association being removed from the database using the rtrv-as command with the name of the association being removed in this procedure.

For this example, enter this command.

```
rtrv-as:aname=swbel32
```

This is an example of possible output.

```
AS Name Mode Tr ms Association Names as1 LOADSHARE 2000 swbel32 as2 OVERRIDE 10 swbel32
```

rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0

AS Table is (2 of 250) 1% full

If the association is assigned to any application servers, go to the Removing an Association from an Application Server procedure and remove the association from the application servers.

4. Change the value of the open parameter to no by specifying the chg-assoc command with the open=no parameter.



If the value of the open parameter for the association being removed from the database (shown in1) isno, continue this procedure with5.

For this example, enter this command.

```
chg-assoc:aname=swbel32:open=no
```



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

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 CHG-ASSOC: MASP A - COMPLTD;
```

5. Remove the association from the database using the dlt-assoc command.

For this example, enter this command.

```
dlt-assoc:aname=swbel32
```

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

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 DLT-ASSOC: MASP A - COMPLTD
```

6. Verify the changes using the rtrv-assoc command with the name of the association specified in 5.

For this example, enter this command.

```
rtrv-assoc:aname=swbel32
```

This is an example of possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0

No matching entries found

IP Appl Sock table is (3 of 4000) 1% full
```

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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

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

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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



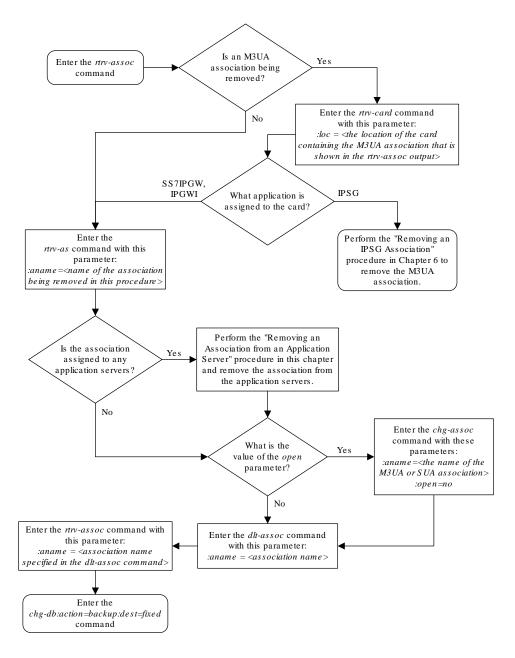


Figure 4-31 Removing a M3UA or SUA Association

Removing an Association from an Application Server

This procedure is used remove an association from an application server using the ${\tt dlt-as}$ command.

The dlt-as command uses these parameters:

: asname – The application server name containing the association being removed in this procedure.

: aname – The name of the association being removed from the application server.

The association name and application server name combination must be in the database.

The open parameter value in the association assigned to the application server specified in the ${\tt dlt-as}$ command must be no. This can be verified with the ${\tt rtrv-assoc}$ command. Use the ${\tt chg-assoc}$ command to change the value of the open parameter.

If the association is the only association assigned to the application server, the application server is removed from the database. The application server cannot be removed from the database if it is assigned to a routing key. This can be verified with the rtrv-appl-rtkey command.

Canceling the RTRV-AS, RTRV-ASSOC, and RTRV-APPL-RTKEY Commands

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

- Press the F9 function key on the keyboard at the terminal where the rtrv-as, rtrv-assoc, or rtrv-appl-rtkey commands were entered.
- Enter the canc-cmd without the trm parameter at the terminal where the rtrv-as, rtrv-assoc, or rtrv-appl-rtkey commands were entered.
- Enter the <code>canc-cmd:trm=<xx></code>, where <code><xx></code> is the terminal where the <code>rtrv-as</code>, <code>rtrv-assoc</code>, or <code>rtrv-appl-rtkey</code> commands were entered, from another terminal other that the terminal where the <code>rtrv-as</code>, <code>rtrv-assoc</code>, or <code>rtrv-appl-rtkey</code> commands were entered. To enter the <code>canc-cmd:trm=<xx>command</code>, 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 <code>rtrv-secu-trmcommand</code>. The user's permissions can be verified with the <code>rtrv-user</code> or <code>rtrv-secu-user</code> commands.

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

Display the application servers in the database using the rtrv-as command.
 This is an example of possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0

AS Name Mode Tr ms Association Names as1 LOADSHARE 10 assoc1 assoc2 assoc3
```



```
assoc5
assoc6

as2
OVERRIDE 10
assoc7
as3
LOADSHARE 10
assoc4

AS table is (3 of 250) 1% full.
```

2. Display the associations to be removed from the application server using the rtrv-assoc command and specifying the association name shown in the rtrv-as output in 1.

For this example, enter this command.

```
rtrv-assoc:aname=assoc1
```

This is an example of possible output.

```
rlghncxa03w 09-05-28 09:12:36 GMT EAGLE5 41.0.0
ANAME assocl
                            IPLNK PORT A
     LOC
              1203
                                                   LINK A
     ADAPTER M3UA
                            VER
                                        M3UA RFC
     LHOST
              gw105.nc.tekelec.com
     ALHOST
     RHOST
              gw100.nc.tekelec.com
     ARHOST
              ---
     LPORT
              1030
                            RPORT
                                        1030
                                        2
              2
                                                   BUFSIZE 16
     ISTRMS
                            OSTRMS
                                        120
                                                            800
     RMODE
              LIN
                            RMIN
                                                   RMAX
     RTIMES
              10
                            CWMIN
                                        3000
                                                   UAPS
                                                            10
                                        YES
                                                           10000
     OPEN
              YES
                            ALW
                                                   RTXTHR
     RHOSTVAL RELAXED
     ASNAMES
     as1
IP Appl Sock table is (4 of 4000) 1% full
Assoc Buffer Space Used (16 KB of 800 KB) on LOC = 1203
```

3. Change the value of the open parameter to no by specifying the chg-assoc command with the open=no parameter.



If the value of theopen parameter shown in 2 is no, continue the procedure with 4.

For this example, enter this command.

```
chg-assoc:aname=assoc1:open=no
```



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

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 CHG-ASSOC: MASP A - COMPLTD;
```

4. If the association is the only association assigned to the application server, the application server is removed from the database.



If the application server specified in this procedure contains more than one association, continue this procedure with 5.

The application server cannot be removed from the database if it is assigned to a routing key. Verify the routing keys that the application server is assigned to by entering the rtrv-appl-rtkey command with the application server name that will be specified in 5 and the display=all parameter. For this example, enter this command.

```
rtrv-appl-rtkey:asname=as1:display=all
```

rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0

STATIC Route Key table is (7 of 2000) 1% full

RCONTEXT CICE 	LOC 6-024-7	~-		OPCI 1-057-4		CICS 150	
	TYPE FULL						
as	AMES soc1 soc6	as:	soc2		assoc	23	assoc5
RCONTEXT CICE	LOC 2-100-7			OPCI		CICS	
	TYPE FULL	-					
as	AMES soc1 soc6	ass	soc2		assoc	:3	assoc5

STATIC Route Key Socket Association table is (7 of 32000) 1% full



If the application server is assigned to any routing keys, remove the routing keys referencing the application server by performing the Removing a Routing Key Containing an Application Server procedure.

5. Remove the association from the application server from the database using the dlt-as command.

For this example, enter this command.

dlt-as:asname=as1:aname=assoc1



If the association being removed from the application server is the only association assigned to the application server, the application server is removed from the database.

This is an example of possible inputs and outputs:

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 DLT-AS: MASP A - COMPLTD;
```

6. Verify the changes using the rtrv-as command with the application server name specified in 5.

For this example, enter this command.

```
rtrv-as:asname=as1
```

This is an example of possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
```

```
AS Name Mode Tr ms Association Names as1 LOADSHARE 10 assoc2 assoc3 assoc5 assoc6
```

AS table is (3 of 250) 1% full.

7. Change the value of the open parameter to yes by specifying the chg-assoc command with the open=yes parameter.



If the value of the open parameter was not changed in3, continue this procedure with8.

For this example, enter this command.

chg-assoc:aname=assoc1:open=yes



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

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 CHG-ASSOC: MASP A - COMPLTD;
```

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

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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

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

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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



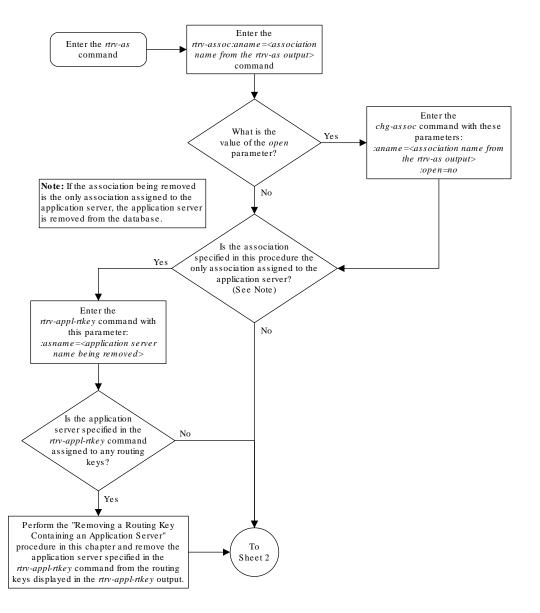
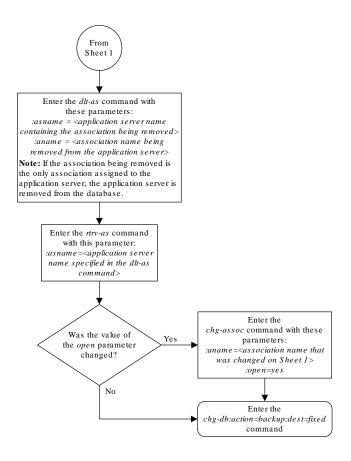


Figure 4-32 Removing an Association from an Application Server





Sheet 2 of 2

Removing a Routing Key Containing an Application Server

This procedure is used remove a static key from the database using the dlt-appl-rtkey command. For more information about static and dynamic routing keys, see Understanding Routing for SS7IPGW and IPGWI Applications.

The dlt-appl-rtkey command uses these parameters.

: dpc/dpca/dpci/dpcn/dpca24 - The destination point code value that is used to filter incoming MSUs.

:opc/opca/opci/opcn/opcn24 - The originating point code value that is used to filter incoming MSUs. This parameter must not specify a cluster route. This parameter must not specify a cluster route. This parameter is only valid when the si parameter value is set to 4, 5, or 13. This parameter is required if si=4, 5, or 13 and type=full.

Note:

See the "**Point Code** Formats" section in *Database Administration -* **SS7** *User's Guide* for a definition of the point code types that are used on the **EAGLE** and for a definition of the different formats that can be used for **ITU** national point codes.

:si – The service indicator value that is used to filter incoming **MSUs**. The range of values for the service indicator parameter (si) can be a numerical value from 0 to 15, or for selected service indicator values, a text string can be used instead of numbers. Table 4-14 shows the text strings that can be used in place of numbers for the service indicator values.

Table 4-14 Service Indicator Text String Values

Service Indicator Value	Text String	Service Indicator Value	Text String
0	snm	4	tup
1	regtest	5	isup
2	spltst	13	qbicc
3	sccp		

:ssn - The subsystem value that is used to filter incoming MSUs. The ssn parameter is only valid when the si parameter value is set to 3 or sccp.

:cics - The starting circuit identification code that is used to filter incoming **MSUs**. Specify with cice to delete routing keys with the circuit identification code or range of circuit identification codes. The cics parameter is only valid when the si parameter value is set to 4, 5, or 13. The cics is required if si=4, 5, or 13 and type=full.

: cice - The ending circuit identification code that is used to filter incoming **MSUs**. Specify with cics to delete routing keys with the circuit identification code or range of circuit identification codes. The cice parameter is only valid when the si parameter value is set to 4, 5, or 13. The cics is required if si=4, 5, or 13 and type=full.

: type - Identifies the type of routing key that is being deleted. One of three values, type = full/partial/default. If type is not explicitly specified, type = full is assumed.

:asname - Application server (AS) name.

:rcontext - The routing context parameter value assigned to the routing key.

The parameter combinations used by the dlt-appl-rtkey command are based on the type of routing key and the service indicator value in the routing key. The parameter combinations are shown in Table 4-15.



Table 4-15 Routing Key Parameter Combinations for Removing Routing Keys

Full Routing Key SI=3 (SCCP) (See Notes 1, 3, and 4)	Partial Routing Key SI=3 (SCCP) (See Notes 1, 3, and 4)	Full Routing Key SI=4 (TUP), 5 (ISUP), 13 (QBICC) (See Notes 1, 3, and 4)	Partial Routing Key SI=4 (TUP), 5 (ISUP), 13 (QBICC) (See Notes 1, 3, and 4)	Full Routing Key Other SI Values (See Notes 1, 3, and 4)	Partial Routing Key Other SI Values (See Notes 1, 3, and 4)	Default Routing Key (See Notes 1, 3, and 4)
dpc	type=parti al	dpc	type=partial	dpc	type=partial	type=default
si=3 (See Note 1)	dpc (See Note 2)	si=4, 5, 13 (See Note 1)	dpc (See Note 2)	si=value other than 3, 4, 5, 13 (See Note 1)	dpc (See Note 2)	asname
ssn	si=3 (See Notes 1 and 2)	opc	si=4, 5, 13 (See Notes 1 and 2)	type=full	si=value other than 3, 4, 5, 13 (See Notes 1 and 2)	rcontext (See Notes 3 and 4)
type=full	asname	cics	opc (See Note 2)	asname	asname	
asname	rcontext (See Notes 3 and 4)	cice	asname	rcontext (See Notes 3 and 4)	rcontext (See Notes 3 and 4)	
rcontext (See Notes 3 and 4)		type=full	rcontext (See Notes 3 and 4)			
		asname				
		rcontext (See Notes 3 and 4)				

Notes:

- 1. The values for these parameters must be entered exactly as shown in the rtrv-appl-rtkey command output for the routing key being removed. However, text strings can be used in place of some numerical service indicator values. See Table 4-14 for a list of these text strings.
- 2. These parameters are optional for partial routing keys, but at least one these parameters must be specified with the ${\tt dlt-appl-rtkey}$ command.
- 3. If the routing key contains a numerical value in the RCONTEXT column in the rtrv-appl-rtkey output, the dlt-appl-rtkey command can be specified with only the rcontext parameter and value instead of the dpc, si, ssn, opc, cics, cice, or type parameters and values to remove the routing key.
- 4. If the routing key contains dashes in the RCONTEXT column in the rtrv-appl-rtkey output, the dpc, si, ssn, opc, cics, cice, or type parameters and values must be used with the dlt-appl-rtkey command to remove the routing key.

Canceling the RTRV-APPL-RTKEY Command



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

- Press the F9 function key on the keyboard at the terminal where the rtrv-appl-rtkey command was entered.
- Enter the canc-cmd without the trm parameter at the terminal where the rtrv-appl-rtkey command was entered.
- Enter the <code>canc-cmd:trm=<xx></code>, where <code><xx></code> is the terminal where the <code>rtrv-appl-rtkey</code> commands were entered, from another terminal other that the terminal where the <code>rtrv-appl-rtkey</code> command was entered. To enter the <code>canc-cmd:trm=<xx></code> 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 <code>rtrv-secu-trm</code> command. The user's permissions can be verified with the <code>rtrv-user</code> or <code>rtrv-secu-user</code> commands.

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

1. Display the current routing key information in the database by entering the rtrv-appl-rtkey command.

The following is an example of the possible output.

rlghncxa03w 08-04-28 21:15:37 GMT EAGLE5 38.0.0

RCONTEXT	DPC	SI	ADPTR	ASNAME	TYPE
	123-234-123	5	M3UA	as9	FULL
	123-234-123	5	M3UA	as9	FULL
1000	005-005-001	5	SUA	as10	FULL
2000	005-005-001	5	SUA	as10	FULL
	006-006-001	5	M3UA	as11	FULL
	006-006-001	5	M3UA	as11	FULL
RCONTEXT	DPCI	SI	ADPTR	ASNAME	TYPE
		_	M3UA	as4	FULL
100	3-137-6	6	SUA	as1	FULL
225	4-035-7	5	M3UA	as7	FULL
	6-006-6	5	M3UA	as2	FULL
	6-006-7	5	M3UA	as8	FULL
	6-006-6	5	M3UA	as2	FULL
	6-006-6	5	M3UA	as2	FULL
	6-006-8	3	M3UA	as3	FULL
	6-006-8	5	M3UA	as5	FULL
	6-024-7	5	M3UA	as4	FULL
	6-024-7	5	M3UA	as4	FULL
300	7-008-7	6	SUA	as6	FULL
RCONTEXT	DPC	SI	ADPTR	ASNAME	TYPE
	******	**	M3UA	as123	DEFAULT

STATIC Route Key table is (15 of 2000) 1% full STATIC Route Key Socket Association table is (15 of 32000) 1% full



- If a routing context value is not assigned to the the routing key being removed in this procedure, continue the procedure with 3.
- 2. Display the specific routing key information for the routing key being removed from the database by entering the rtrv-appl-rtkey command with the display=all parameter and the RCONTEXT values shown in the rtrv-appl-rtkey output in 1 for the routing key being removed.

```
For this example, enter this command. rtrv-appl-rtkey:rcontext=225
```

This is an example of the possible output.

```
rlghncxa03w 08-04-28 21:16:37 GMT EAGLE5 38.0.0

RCONTEXT DPCI SI SSN OPCI CICS CICE 225 4-035-7 5 --- 2-007-3 2000 3000

ADPTR TYPE ASNAME M3UA FULL as7

ANAMES assoc15

STATIC Route Key table is (15 of 2000) 1% full STATIC Route Key Socket Association table is (15 of 32000) 1% full
```

After this step is performed, continue the procedure with 4.

3. Display the specific routing key information for the routing key being removed from the database by entering the rtrv-appl-rtkey command with the display=all parameter and the DPC, SI, andTYPE values shown in the rtrv-appl-rtkey output in 1 for the routing key being removed. For this example, enter this command.

```
rtrv-appl-rtkey:dpci=6-006-6:si=3:display=all:type=full
```

This is an example of the possible output.



4. Display the associations assigned to the routing key by entering the rtrv-assoc parameter with the association name shown in either 2 or 3. For this example, enter these commands.

```
rtrv-assoc:aname=assoc1
```

This is an example of possible output.

```
rlghncxa03w 09-05-28 09:12:36 GMT EAGLE5 41.0.0
ANAME assoc1
     LOC
              1203
                            IPLNK PORT A
                                                   LINK A
     ADAPTER M3UA
                                        M3UA RFC
                            VER
              gw105.nc.tekelec.com
     LHOST
              ___
     ALHOST
     RHOST
              gw100.nc.tekelec.com
     ARHOST
              1030
                                        1030
     LPORT
                            RPORT
                                                   BUFSIZE 16
              2
                                        2
     ISTRMS
                            OSTRMS
     RMODE
              LIN
                            RMIN
                                        120
                                                   RMAX
                                                            800
                                        3000
                                                            10
     RTIMES
              10
                            CWMIN
                                                   UAPS
     OPEN
              YES
                            ALW
                                        YES
                                                   RTXTHR
                                                            10000
     RHOSTVAL RELAXED
     ASNAMES
     as2
IP Appl Sock table is (8 of 4000) 1% full
Assoc Buffer Space Used (16 KB of 800 KB) on LOC = 1203
```

rtrv-assoc:aname=assoc15

This is an example of possible output.

```
rlghncxa03w 09-05-28 09:12:36 GMT EAGLE5 41.0.0
ANAME assoc15
     LOC
              1205
                            IPLNK PORT A
                                                  LINK A
     ADAPTER M3UA
                                       M3UA RFC
     LHOST
              gw115.nc.tekelec.com
     ALHOST
     RHOST
              gw100.nc.tekelec.com
     ARHOST
             ---
                                       2000
     LPORT
              2000
                           RPORT
     ISTRMS 2
                            OSTRMS
                                       2
                                                  BUFSIZE 16
     RMODE
              LIN
                           RMIN
                                       120
                                                  RMAX
                                                           800
     RTIMES
              10
                            CWMIN
                                       3000
                                                  UAPS
                                                           10
     OPEN
              YES
                            ALW
                                       YES
                                                  RTXTHR
                                                           10000
     RHOSTVAL RELAXED
     ASNAMES
     as7
IP Appl Sock table is (8 of 4000) 1% full
```

Assoc Buffer Space Used (16 KB of 800 KB) on LOC = 1203



Repeat this step for all the associations shown in 2 or 3.

Change the open parameter value of the association to no by using the chgassoc command.



If theopen parameter value of all the associations shown in4isno, continue the procedure with6.

For example, enter these commands.

```
chg-assoc:aname=assoc1:open=no
chg-assoc:aname=assoc15:open=no
```

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

```
rlghncxa03w 06-10-28 21:18:37 GMT EAGLE5 36.0.0 CHG-ASSOC: MASP A - COMPLTD
```



Caution:

The **IP** connections using the associations specified in this step will not be able to carry any traffic when the open parameter is changed tono.

Repeat this step for all the associations shown in 4 that contain the open=yes parameter value.

6. Remove the routing key information from the database by entering the dlt-appl-rtkey command.

The parameters required for the dlt-appl-rtkey command are determined by the type of routing key being added and the service indicator value in the routing key. See Table 4-15 for the parameter combinations that can be used for the type of routing key being added to the database. For example, enter these commands.

```
dlt-appl-rtkey:dpci=6-006-6:si=3:ssn=170:asname=as2
```

```
dlt-appl-rtkey:rcontext=225
```

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

```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0 DLT-APPL-RTKEY: MASP A - COMPLTD
```

7. Verify the changes by entering the rtrv-appl-rtkey command with the routing key parameters specified in 6 (dpc, si, opc, cics, cice, ssn, asname, and type, and loc, as applicable). For this example, enter these commands.

```
rtrv-appl-rtkey:dpci=6-006-6:si=3:ssn=170:asname=as2
```



The following is an example of the possible output.

```
rlghncxa03w 08-04-28 21:15:37 GMT EAGLE5 38.0.0

No matching entries found

STATIC Route Key table is (12 of 2000) 1% full
STATIC Route Key Socket Association table is (6 of 32000) 1% full
rtrv-appl-rtkey:rcontext=225
```

The following is an example of the possible output.

```
rlghncxa03w 08-04-28 21:15:37 GMT EAGLE5 38.0.0

No matching entries found

STATIC Route Key table is (12 of 2000) 1% full

STATIC Route Key Socket Association table is (6 of 32000) 1% full
```



If5was not performed, continue the procedure with9.

8. Change the open parameter value of the associations that were changed in 5 to yes by using the chg-assoc command.

```
For example, enter these commands.
```

```
chg-assoc:aname=assoc1:open=yes
chg-assoc:aname=assoc15:open=yes
```

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

```
rlghncxa03w 06-10-28 21:18:37 GMT EAGLE5 36.0.0 CHG-ASSOC: MASP A - COMPLTD
```

Repeat this step for all the associations that were changed in 9.

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

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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

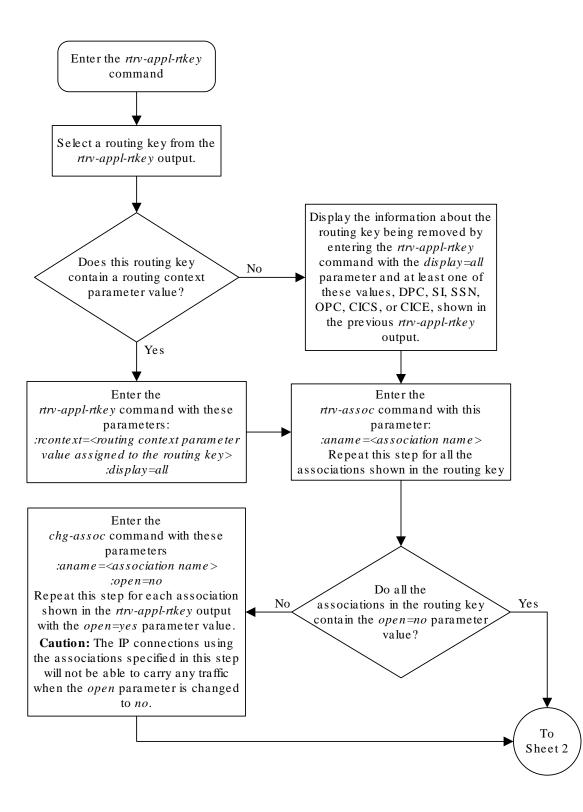
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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

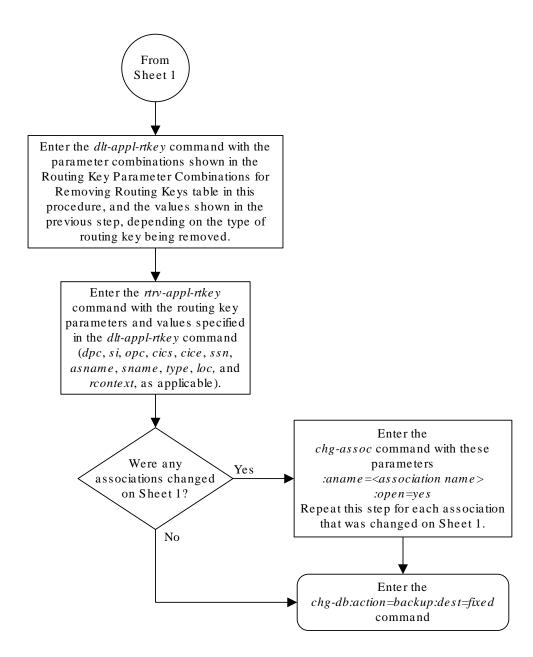


Figure 4-33 Removing a Routing Key Containing an Application Server



Sheet 1 of 2







Sheet 2 of 2

Removing a Network Appearance

This procedure removes the network appearance from the database using the dlt-na command with these parameters.

:na – the 32-bit value of the network appearance, from 0 to 4294967295.

:type – the network type of the network appearance, ansi (ANSI), itui (ITU-I), itun (14-bit ITU-N), itun24 (24-bit ITU-N), ituis (ITU-I Spare), ituns (14-bit ITU-N Spare).

:gc – the specific **ITU-N** group code associated with the network appearance.

Specifying the gc parameter removes the specific network appearance containing the na and gc parameter values.

Specifying the type=itun or type=ituns parameter without the gc parameter removes all 14-bit ITU-N or 14-bit ITU-N spare network appearances containing the specified na parameter value.

1. Display the network appearances in the database with the rtrv-na command.

This is an example of the possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
TYPE
      GC
                  NA
ANSI
      --
                 100
       --
                1000
ITUI
ITUN uk
              150000
ITUN fr 400000000
ITUN ge 100000000
ITUN24
      --
                   3
                2000
ITUIS --
ITUNS
                5000
      sp
```

2. Remove the network appearance from the database with the dlt-na command.

For this example, enter these commands.

```
dlt-na:na=100:type=ansi
dlt-na:na=40000000000:type=itun:gc=fr
```

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

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 DLT-NA: MASP A - COMPLTD
```

3. Verify the changes using the rtrv-na command.



This is an example of possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
TYPE
      GC
                  NA
                1000
ITUI
      --
              150000
ITUN uk
      ge 1000000000
ITUN
ITUN24 --
                   3
ITUIS --
                2000
ITUNS sp
                5000
```

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

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

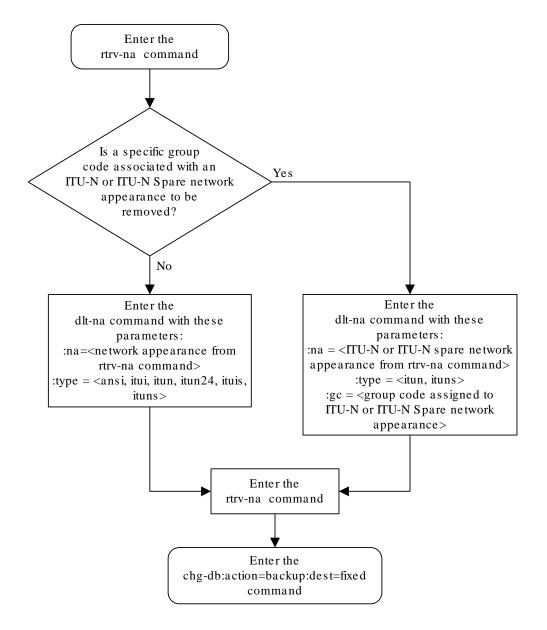
```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

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

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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

Figure 4-34 Removing a Network Appearance



Changing IETF M3UA and SUA Components

This section describes how to change the attributes of the following components in the database.

- IP Options Perform the Changing IP Options procedure.
- An M3UA or SUA Association Perform these procedures.
 - Changing the Attributes of a M3UA or SUA Association
 - Changing the Buffer Size of a M3UA or SUA Association
 - Changing the Host Values of a M3UA or SUA Association
- The SCTP Retransmission Parameters Perform the Changing the SCTP Checksum Algorithm Option for M3UA and SUA Associations procedure.
- An Application Server Perform the Changing an Application Server procedure.
- **CIC** Values in a Routing Key Perform the Changing the CIC Values in an Existing Routing Key Containing an Application Server procedure.
- Routing Context Values in a Routing Key Perform the Changing the Routing Context Value in an Existing Routing Key procedure.
- The SCTP Checksum Algorithm Perform the Changing the SCTP Checksum Algorithm Option for M3UA and SUA Associations procedure.
- A UA Parameter Set Perform the Changing a UA Parameter Set procedure.
- Turn off the Large MSU Support for **IP** Signaling feature Perform the Turning Off the Large MSU Support for IP Signaling Featureprocedure.

Changing IP Options

Use this procedure to change the **IP** options defined by these parameters: getcomm, setcomm, snmpcont, srkq, trapcomm, ipgwabate, and uameasusedftas.

The chg-sg-opts command also contains the sctpcsum parameter. Perform the one of these procedures to change the sctpcsum parameter value.

- Changing the SCTP Checksum Algorithm Option for M3UA and SUA Associations
- Changing the SCTP Checksum Algorithm Option for M2PA Associations
- Changing the SCTP Checksum Algorithm Option for IPSG M2PA Associations
- Changing the SCTP Checksum Algorithm Option for IPSG M3UA Associations

: getcomm – The community name used to validate SNMP *Get* and *GetNext* requests. This value applies to each IP card SNMP agent.

: setcomm – The community name used to validate SNMP Set requests. This value applies to each IP card SNMP agent.

: snmpcont – The system contact information for each IP card SNMP agent, used to define the sysContact object in the SNMP MIB II System Group.

: srkq – The static routing key quantity used to specify the maximum number of static routing key entries in the **Routing Key** table of each ss7ipgw and ipgwi card.



 $\verb|:trapcomm-The community name used when sending SNMP traps. This value applies to each IP card SNMP agent.$

:ipgwabate - enables (ipgwabate=yes) or disables (ipgwabate=no) **SS7** congestion abatement procedures for **IPGWx** signaling links (signaling links assigned to cards running the ss7ipgw or ipgwi applications). The default value for this parameter is no.

:uameasusedftas - specifies whether UA measurements are pegged against the default application server or against the application server shown by the routing context. The values for this parameter are yes and no. The system default value for this parameter is yes.

- yes UA measurement registers are pegged against the default application server.
- no UA measurements are pegged against the application server shown by the routing context.

The maximum value of the srkq parameter is 2500.

The value specified for the <code>srkq</code> parameter cannot be less than the current number of provisioned routing keys. The number of routing keys that are currently provisioned is shown in the <code>rtrv-appl-rtkey</code> or <code>rtrv-tbl-capacity</code> command outputs.

The values of the snmpcont, getcomm, setcomm, and trapcomm parameters are a string of up to 32 characters that is not case sensitive. If the character string contains characters other than alphanumeric characters, the character string must be enclosed in single quotes.

Display the current IP options in the database by entering the rtrv-sg-opts command.
 The following is an example of the possible output.

```
rlghncxa03w 08-04-28 21:17:37 GMT EAGLE5 38.0.0
SRKQ:
              250
SNMPCONT:
              john doe 555-123-4567
GETCOMM:
              public
SETCOMM:
             private
TRAPCOMM:
             public
SCTPCSUM:
              crc32c
IPGWABATE:
              NO
UAMEASUSEDFTAS YES
```

If the srkq parameter value will not be changed, continue the procedure with 3.

If the srkq parameter value will be changed, verify the number of routing keys that are currently provisioned by performing 2.

2. Enter the rtrv-tbl-capacity command to verify the number of routing keys that are currently provisioned.

The following is an example of the possible output.

```
rlghncxa03w 08-04-28 21:17:37 GMT EAGLE5 38.0.0

RTEKEY table is ( 53 of 2500) 2% full
```





Thertry-tbl-capacity command output contains other fields that are not used by this procedure. If you wish to see all the fields displayed by thertry-tbl-capacity command, see thertry-tbl-capacity command description in *Commands User's Guide*.

The number of routing keys that are currently provisioned is shown in the RTEKEY row of the rtrv-tbl-capacity output. In this example, there are 53 routing keys provisioned in the database. The new srkq parameter value cannot be less than 53.

3. Change the IP options in the database using the chg-sg-opts command.

For this example, enter this command.

```
chg-sg-opts:srkq=200:ipgwabate=yes:uameasusedftas=no
```

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

```
rlghncxa03w 08-04-28 21:18:37 GMT EAGLE5 38.0.0 CHG-SG-OPTS: MASP A - COMPLTD
```

4. Verify the new IP options in the database by entering the rtrv-sg-opts command.

The following is an example of the possible output.

```
rlghncxa03w 08-04-28 21:19:37 GMT EAGLE5 38.0.0
SRKQ:
             200
SNMPCONT:
             john doe 555-123-4567
             public
GETCOMM:
SETCOMM:
             private
TRAPCOMM:
             public
SCTPCSUM:
              crc32c
IPGWABATE:
              YES
UAMEASUSEDFTAS NO
```

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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

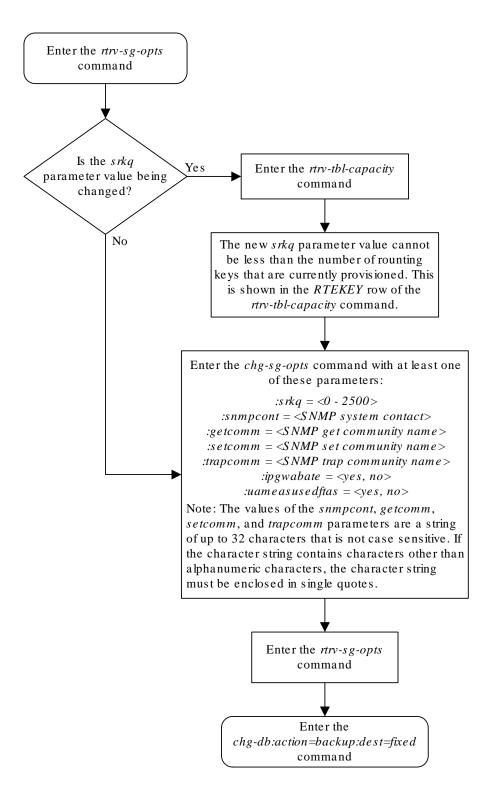
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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



Figure 4-35 Changing IP Options



Changing the Attributes of a M3UA or SUA Association

This procedure is used to change the values of the attributes of a M3UA or SUA association, assigned to cards that are running the SS7IPGW or IPGWI applications, using the chg-assoc command and the following parameters.

Table 4-16 Change M3UA and SUA Association Parameters

aname	lport	rhost	rport	open	alw
rmode	rmin	rmax	rtimes	cwmin	istrms
ostrms	uaps	rtxthr	rhosttype	rhostval	

If you wish to change the attributes of M3UA associations assigned to cards that are running the IPSG application, perform.

The chg-assoc command contains other parameters that are not used in this procedure. To change these parameters, perform these procedures.

- lhost and alhost Changing the Host Values of a M3UA or SUA Association
- bufsize Changing the Buffer Size of a M3UA or SUA Association

: aname - The name assigned to the association, shown in the rtrv-assoc output.

:lport - The SCTP port number for the local host.

:rhost – The host name for the remote host, rhost can be any string of characters starting with a letter and comprising these characters ['a'..'z', 'A'..'Z', '0'..'9', '-', '.']. Hostnames are not case-sensitive and can contain up to 60 characters. The default value of this optional parameter is empty (null string).

:rport - The SCTP port number for the remote host.

:adapter — The adapter layer for this association, either m3ua or sua. The adapter parameter is optional. The default value for the adapter parameter in this procedure is m3ua.

: open – The connection state for this association. Valid values are yes or no. When the open=yes parameter is specified, the connection manager opens the association if the association is operational. When the open=no parameter is specified, the connection manager will not open the association.

:alw – The connection state for this association. Valid values are yes or no. When the alw=yes parameter is specified, the connection manager allows the association to carry SS7 traffic. When the alw=no parameter is specified, the connection manager prohibits the association from carrying SS7 traffic.

:rmode — The retransmission policy used when packet loss is detected. The values are rfc or lin.

- rfc Standard RFC 2960 algorithm in the retransmission delay doubles after each retransmission. The RFC 2960 standard for congestion control is also used.
- lin Oracle's linear retransmission policy where each retransmission timeout value is the same as the initial transmission timeout and only the slow start algorithm is used for congestion control.



: rmin - The minimum value of the calculated retransmission timeout in milliseconds, from 10 - 1000.

: rmax – The maximum value of the calculated retransmission timeout in milliseconds, from 10 - 1000.

:rtimes – The number of times a data retransmission will occur before closing the association, from 3 - 12.

: cwmin – The minimum size in bytes of the association's congestion window and the initial size in bytes of the congestion window, from 1500 - 409600. The cwmin parameter value must be less than or equal to the size of the buffer used by the association, shown by the bufsize parameter value. If the buffer size for the association needs to be changed, perform Changing the Buffer Size of a M3UA or SUA Association.

The rmode, rmin, rmax, rtimes, and cwmin parameters are used to configure the SCTP retransmission controls for an association, in addition to other commands. Perform Configuring SCTP Retransmission Control for a M3UA or SUA Association to configure the SCTP retransmission controls for an association.

:istrms - The number of inbound streams (1 or 2) advertised by the **SCTP** layer for the association.

:ostrms – The number of outbound streams (1 or 2) advertised by the **SCTP** layer for the association.

: uaps - The UA parameter set value being assigned to either an M3UA or SUA association.

:rtxthr — The retransmission threshold for the association. The rtxthr parameter value indicates the number of retransmissions that can occur on the association that when exceeded will generate UAM 0537, Ethernet Error Threshold Exceeded. The value of this parameter is 0 to 65,535. The value of this parameter is shown in the RTXTHR field of the rtrv-assoc:aname=<association name> output. The rtxthr parameter value can be changed if the open parameter value is either yes or no.

:rhosttype — The type of remote host assigned to the association, primary or alternate. The primary remote host is shown in the RHOST field of the rtrv—assoc:aname=<association name> output. The alternate remote host is shown in the ARHOST field of the rtrv-assoc:aname=<association name> output.

An alternate remote host can be configured for multi-homed associations using the rhost and rhosttype parameters of the chg-assoc command. The rhost parameter value with the rhostype=primary parameter represents an IP address that corresponds to one of the network interfaces at the remote end while the rhost parameter value with the rhostype=alternate parameter represents an IP address that corresponds to the other network interface at the remote end.

:rhostval - The validation mode used for the association when an SCTP INIT/INIT-ACK message is received. The value of this parameter is shown in the RHOSTVAL field of the rtrv-assoc:aname=<association name> output. This parameter has two values.

- relaxed accept the message if the IP address for the primary or alternate remote host matches the IP address, source IP address, or the host name in the message.
- match accept the message if the message contains the primary remote host value and
 the alternate remote host value (if the alternate remote host is provisioned). If the
 alternate remote host is not provisioned, then accept the message if the message



contains the primary remote host value. Reject the message if it contains any IP address other than that of the primary or alternate remote host. Refer to the <code>chg-assoc</code> command description in *Commands User's Guide* for more information about this parameter.

If the value of the open parameter is yes, only the value of the alw, and rtxthr parameters can be changed. To change the values of other parameters, the value of the open parameter must be no.

To set the open parameter value to yes, the association specified by the aname parameter must contain values for the lhost, lport, rhost, and rport parameters. The lhost parameter value must have a signaling link assigned to it.

At least one optional parameter is required.

The command input is limited to 150 characters, including the hostnames.

The adapter parameter value cannot be changed if the association is assigned to an application server. This can be verified with the rtrv-as command. If the association is assigned to any application servers, perform Removing an Association from an Application Server to remove the association from the application servers.

The value of the rmin parameter must be less than or equal to the rmax parameter value.

If the card's application is either **SS7IPGW** or **IPGWI**, the signaling link being assigned to the association must be in service. This state is shown in the rept-stat-slk output with the entries IS-NR in the PST field and Avail in the SST field.

Canceling the RTRV-ASSOC and RTRV-AS Commands

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

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

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

Display the associations in the database using the rtrv-assoc command.
 This is an example of possible output.

rlghncxa03w 08-04-28 09:12:36 GMT EAGLE5 38.0.0



	CARD	IPLNK						
ANAME	LOC	PORT	LINK	ADAPTER	LPORT	RPORT	OPEN	ALW
swbel32	1201	A	A	M3UA	1030	2345	YES	YES
a2	1305	A	A	SUA	1030	2345	YES	YES
a3	1307	A	A	SUA	1030	2346	YES	YES
assoc1	1201	A	A	M3UA	2000	1030	YES	YES
assoc2	1205	A	A	M3UA	2048	2048	YES	YES
assoc3	1205	A	A	M3UA	3000	3000	YES	YES
assoc5	1205	A	A	M3UA	1500	3000	YES	YES

Select an association whose adapter value is M3UA or SUA. If the card shown in the CARD LOC column contains any SUA associations, continue the procedure with 3. If the card contains only M3UA associations, continue the procedure with 2.

2. Enter the rtrv-card command with the location of the card that is hosting the M3UA association that will be changed in this procedure. For this example, enter this command.

```
rtrv-card:loc=1205
```

This is an example of possible output.

```
rlghncxa03w 08-04-06 15:17:20 EST EAGLE5 38.0.0

CARD TYPE APPL LSET NAME LINK SLC LSET NAME LINK SLC 1205 DCM SS7IPGW e5e6a A 0
```

If the application assigned to the card is IPSG, perform Changing the Attributes of an IPSG Association.

If the application assigned to the card is SS7IPGW or IPGWI, continue the procedure with 3.

3. Continue the procedure by performing one of these actions.

If the application assigned to the card is SS7IPGW or IPGWI, shown in the APPL column, and the values of any of these parameters are being changed: lport, rhost, rport, adapter, rmode, rmin, rmax, rtimes, cwmin, istrms, ostrms, Or uaps, Continue the procedure by performing one of these actions.

- If the open parameter value for the association is yes, continue the procedure with 5.
- If the open parameter value for the association is no, continue the procedure with 6.

If the application assigned to the card is SS7IPGW or IPGWI, shown in the APPL column, and only the values of the alw, open, or rtxthr parameters are being changed, continue the procedure by performing one of these actions.

- If only the values of the alw parameter is being changed, or the open parameter value is being changed to no, continue the procedure with 12.
- If the value of the rtxthr parameter is being changed, continue the procedure with
- If the value of the open parameter value is being changed to yes, a signaling link must be assigned to the card shown in this step. If 2 was performed, perform one of these actions.



- If a signaling links is assigned to the card, entries area shown in the LSET NAME and LINK columns of the rtrv-card output in 2. If a signaling link is assigned to the card, perform one of these actions.
 - * If only the alw parameter is being specified with the open=yes parameter, continue the procedure with 12.
 - * If the value of the rtxthr parameter is being changed, continue the procedure with 6.
- If the value of the open parameter value is being changed to yes and a signaling link is not assigned to the card, performAdding an IPGWx Signaling Link to assign an IPGWx signaling link to the card. After the signaling link has been added, perform one of these actions.
 - * If only the alw parameter is being specified with the open=yes parameter, continue the procedure with 12.
 - * If the value of the rtxthr parameter is being changed, continue the procedure with 6.
- If the value of the open parameter value is being changed to yes, and 2 was not performed, continue the procedure with 4.
- 4. Display the signaling link that is assigned to the card containing the association that is being changed by entering the rtrv-slk command with the location of the card. For this example, enter this command.

```
rtrv-slk:loc=1205
```

This is an example of possible output.

```
rlghncxa03w 08-04-25 14:02:39 EST 38.0.0 rtrv-slk:loc=1101 Command entered at terminal #4.

LOC LINK LSN SLC TYPE 1205 A e5e6a 0 SS7IPGW
```

If a signaling link is shown in this step, perform one of these actions.

- If only the alw parameter is being specified with the open=yes parameter, continue the procedure with 12.
- If the value of the rtxthr parameter is being changed, continue the procedure with 6.

If a signaling link is not shown in this step, perform Adding an IPGWx Signaling Link to assign an IPGWx signaling link to the card. After the signaling link has been added, perform one of these actions.

- If only the alw parameter is being specified with the open=yes parameter, continue the procedure with 12.
- If the value of the rtxthr parameter is being changed, continue the procedure with 6.
- 5. Change the value of the open parameter to no by specifying the chg-assoc command with the open=no parameter.

For this example, enter this command.



```
chg-assoc:aname=assoc2:open=no
```

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

```
rlghncxa03w 08-04-28 09:12:36 GMT EAGLE5 38.0.0 CHG-ASSOC: MASP A - COMPLTD;
```

6. Display the association being changed by entering the rtrv-assoc command with the aname parameter specified in 5 or selected in 1.

```
For this example, enter this command.
```

```
rtrv-assoc:aname=assoc2
```

This is an example of the possible output.

```
rlghncxa03w 09-05-28 21:14:37 GMT EAGLE5 41.0.0
ANAME assoc2
     LOC
                     IPLNK PORT A
         1205
                                       LINK A
     ADAPTER M3UA VER M3UA RFC
     LHOST IPNODE2-1205
     ALHOST ---
     RHOST remotehost1
     ARHOST ---
     LPORT 2048
                      RPORT
                                2048
     ISTRMS 2
                      OSTRMS
                                2
                                        BUFSIZE 200
                     RMIN
                                        RMAX 800
     RMODE LIN
                               120
                     CWMIN
     RTIMES 10
                                3000
                                       UAPS
                                              10
                                        RTXTHR 2000
     OPEN
           No
                      ALW
                                YES
     RHOSTVAL RELAXED
    ASNAMES
    as1
                 as4
                              as6
```

Continue the procedure by performing one of these steps.

Assoc Buffer Space Used (800 KB of 800 KB) on LOC = 1205

IP Appl Sock/Assoc table is (8 of 4000) 1% full

- If only the rtxthr parameter value is being changed, continue the procedure with 12.
- If the adapter, uaps, or cwmin parameter values are not being changed, continue the procedure with 10.
- If the adapter parameter value is being changed, continue the procedure with 7.
- If the uaps parameter value is being changed, but the adapter parameter value is not being changed, continue the procedure with 8.
- If the cwmin parameter value is being changed, but the adapter and uaps parameter values are not being changed, continue the procedure with 9.
- 7. Display the application servers referencing the association being changed using the rtrv-as command with the name of the association being changed in this procedure.

For this example, enter this command.

rtrv-as:aname=assoc2

This is an example of possible output.

```
      rlghncxa03w
      08-04-28
      21:14:37
      GMT EAGLE5
      38.0.0

      AS Name
      Mode
      Tr ms
      Association Names

      as1
      LOADSHARE
      2000
      assoc2

      as4
      LOADSHARE
      2000
      assoc2

      as6
      LOADSHARE
      2000
      assoc2

      AS Table is (6 of 250)
      1% full
```

If the association is assigned to any application servers, performRemoving an Association from an Application Server to remove the association from the application servers.

Continue the procedure by performing one of these steps.

- If the uaps or cwmin parameter values are not being changed, continue the procedure with 10.
- If the uaps parameter value is being changed, continue the procedure with 8.
- If the cwmin parameter value is being changed, but the uaps parameter value is not being changed, continue the procedure with 9.
- 8. Verify the values of the **UA** parameter set you wish to assign to the association by entering the rtrv-uaps command with the desired parameter set.

Note:

If the <code>uaps</code> parameter will not be specified with the <code>chg-assoc</code> command, and the adapter parameter value is being changed to either <code>m3ua</code> or <code>sua</code>, the <code>UA</code> parameter set 10 will be assigned to the association.

For this example, enter this command.

```
rtrv-uaps:set=3
```

This is an example of possible output.

rlgh	ncxa03w	10-07-28	09	:12:36	GMT	EAGLE5	42.0.0
SET	TIMER	TVALU	JΕ	PARM		PVALUE	
3	1	1	L 0	1		3	
3	2	300	00	2		0	
3	3	1000	00	3		1	
3	4	500	00	4		0	
3	5		0	5		0	
3	6		0	6		0	
3	7		0	7		0	
3	8		0	8		0	



3 9 0 9 0 3 10 0 10 0

TIMER 2: False IP Connection Congestion Timer, max time an association can be congested before failing due to false congestion. SS7IPGW and IPGWI applications enforce 0-30000(ms). Not supported on IPSG application.

TVALUE : Valid range = 32-bits

TIMER 3: UA HeartBeat Period Timer T(beat), time (ms) between sending of BEAT msgs by NE. IPSG, SS7IPGW and IPGWI applications enforce $100\,(\text{ms})-60000\,(\text{ms})$.

TVALUE : Valid range = 32-bits

TIMER 4: UA HeartBeat Received Timer T(beat ack), timeout period for response BEAT ACK msgs by NE. IPSG, SS7IPGW and IPGWI applications enforce 100(ms)-10000(ms).

TVALUE : Valid range = 32-bits

PARM 1: ASP SNM options. Each bit is used as an enabled/disabled flag for a particular ASP SNM option. Not supported on IPSG application.

PVALUE : Valid range = 32-bits

BIT VALUE

 $\begin{array}{ll} \mbox{O=Broadcast} & \mbox{O=Disabled , 1=Enabled} \\ \mbox{1=Response Method} & \mbox{O=Disabled , 1=Enabled} \end{array}$

2-5=Reserved

6=Broadcast Congestion Status Change 0=Disabled , 1=Enabled 7-31=Reserved

PARM 2: ASP/AS Notification options. Each bit is used as an enabled/disabled flag for a particular ASP/AS Notification option. Not supported on IPSG application.

PVALUE : Valid range = 32-bits

IT BIT VALUE

0=ASP Active Notifications 0=Disabled , 1=Enabled 1=ASP Inactive Notifications 0=Disabled , 1=Enabled 2=ASP AS State Query 0=Disabled , 1=Enabled

3-31=Reserved

PARM 3: UA Serviceability Options. Each bit is used as an enabled/disabled flag for a particular UA Serviceability option. Supported on IPSG, SS7IPGW, and IPGWI applications. UA Graceful Shutdown supported on IPSG for M3UA only.

PVALUE : Valid range = 32-bits

BIT VALUE

0=UA Heartbeats 0=Disabled , 1=Enabled 1=UA Graceful Shutdown 0=Disabled , 1=Enabled

2-31=Reserved

PARM 4: SCTP Payload Protocol Indicator byte order option. Bit indicates PPI value is RCV/TX in Big Endian or Little Endian byte format. Supported on IPSG-M2PA associations only.

PVALUE : Valid range = 32-bits

BIT VALUE

0=Payload Protocol Indicator 0=Big Endian , 1=Little Endian 1-31=Reserved

If the **UA** parameter set you wish to assign to the association does not contain the desired values, performChanging a UA Parameter Set to change the desired parameter set values.



Caution:

Changing aUA parameter set may affect the performance of any associations using the parameter set being changed.

Continue the procedure by performing one of these steps.

- If the cwmin parameter value is not being changed, continue the procedure with 10.
- If the cwmin parameter value is being changed, continue the procedure with 9.
- To change the cwmin value, the new cwmin parameter value must be less than or equal to the bufsize parameter value.

The cwmin parameter is the number if bytes specified for the association's congestion window. The bufsize is the number of kilobytes specified for the size of the association's buffer. To determine whether or not the cwmin value is less than or equal to the bufsize value, perform one of these actions.

- Multiply the bufsize value by 1024.
- Divide the cwmin value by 1024.

Continue the procedure by performing one of these actions.

- If the new cwmin value is less than or equal to the bufsize value, continue the procedure with 10.
- If the new cwmin value is not less than or equal to the bufsize value, either choose another value for the cwmin parameter that is less than or equal to the bufsize value, or performChanging the Buffer Size of a M3UA or SUA Association to change the bufsize value so that the bufsize value is greater than or equal to the cwmin value. After the new cwmin value has been chosen or the bufsize value has been changed, continue the procedure with 10.
- 10. The remote hosts assigned to the association can be changed by specifying the rhost and rhosttype parameters with the chg-assoc command.

If the primary and alternate remote hosts are not being changed in this procedure, or if only the primary remote host is being changed, continue the procedure with 12.

To change the alternate remote host value for the association, the association must have a primary remote host assigned to it. If the association has a primary remote host, continue the procedure with 12. If the association does not have a primary remote host, continue the procedure with 10.



11. Assign a primary remote host to the association by entering the chg-assoc command with the name of the association and the primary remote host name.

For this example, enter this command.

```
chg-assoc:aname=assoc2:rhost="gw200.nc-Oracle.com"
```

The rhosttype=primary parameter can be specified with the chg-assoc command, but is not necessary.

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

```
rlghncxa03w 09-05-28 09:12:36 GMT EAGLE5 41.0.0 CHG-ASSOC: MASP A - COMPLTD;
```

12. Change the association using the chg-assoc command.

For this example, enter this command.

```
chg-assoc:aname=assoc2:rhost="gw200.nc-
Oracle.com":rport=3000 :rtxthr=10000:rhostval=match
```

If an alternate remote host is being specified for the association, for this example enter this command.

```
chg-assoc:aname=assoc2:rhost="gw210.nc-
Oracle.com":rhosttype=alternate:rport=3000 :rtxthr=10000:rhostval
=match
```

If only the alw, open, or rtxthr parameter values are being changed in this step, for this example, enter this command.

```
chg-assoc:aname=assoc2:alw=no:open=yes:rtxthr=10000
```

These are the rules that apply to the chg-assoc command.

- a. If any optional parameters are not specified with the chg-assoc command, those values are not changed.
- b. The value of the rmin parameter must be less than or equal to the rmax parameter value.
- c. The value of the rhost parameter is a text string of up to 60 characters, with the first character being a letter. The command input is limited to 150 characters, including the hostname.
- d. If the value of the open parameter is yes, only the values of the alw and rtxthr parameters can be changed. To change the values of the other parameters, the value of the open parameter must be no.

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

```
rlghncxa03w 08-04-28 09:12:36 GMT EAGLE5 38.0.0 CHG-ASSOC: MASP A - COMPLTD;
```





If the value of theopen parameter was not changed in3, continue the procedure with14.

13. Change the value of the open parameter to yes by specifying the chg-assoc command with the open=yes parameter.

```
For this example, enter this command. chg-assoc:aname=assoc2:open=yes
```

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

```
rlghncxa03w 08-04-28 09:12:36 GMT EAGLE5 38.0.0 CHG-ASSOC: MASP A - COMPLTD;
```

14. Verify the changes using the rtrv-assoc command specifying the association name specified in 12 and 13.

For this example, enter this command.

rtrv-assoc:aname=assoc2

This is an example of possible output.



If the Removing an Association from an Application Serverprocedure in 7 was not performed, continue the procedure with 16.

- **15.** Assign the association changed in **12** to all applicable application servers by performing one of these procedures:
 - Adding an Existing Association to a New Application Server
 - Adding an Existing Association to an Existing Application Server
- **16.** Back up the new changes, using the chg-db:action=backup:dest=fixed command. These messages should appear; the active **Maintenance and Administration Subsystem** Processor (**MASP**) appears first.

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

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

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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

If you wish to change the <code>lhost</code>, <code>alhost</code>, or <code>bufsize</code> values of the M3UA or SUA association, perform one of these procedures.

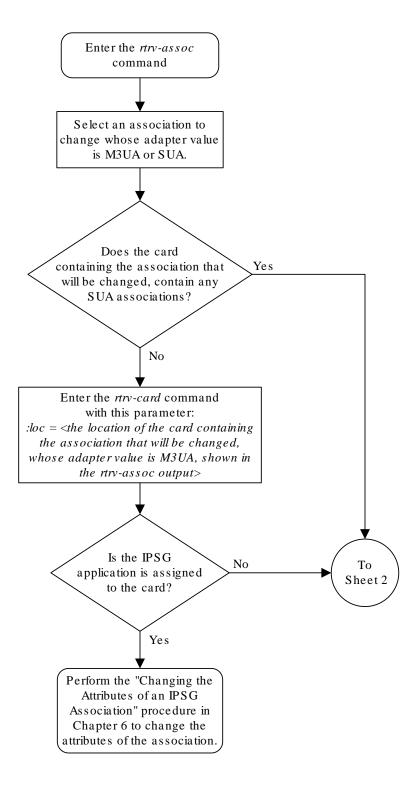
- lhost and alhost Changing the Host Values of a M3UA or SUA Association
- bufsize Changing the Buffer Size of a M3UA or SUA Association



If you do not wish to change the ${\tt lhost}$, ${\tt alhost}$, or ${\tt bufsize}$ values of the M3UA or SUA association, this procedure is finished.

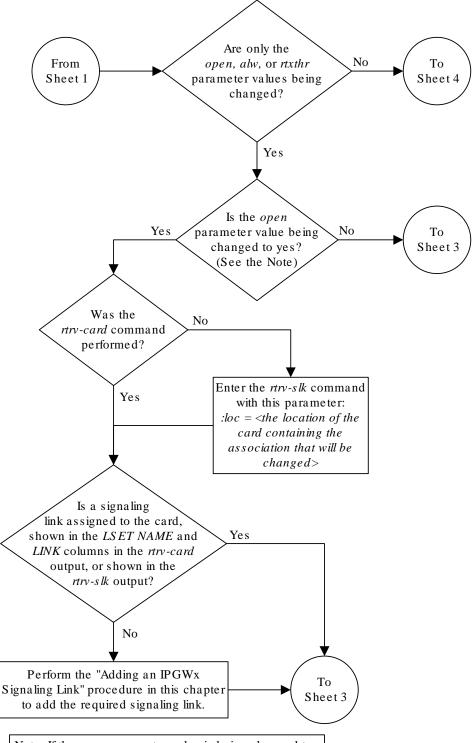


Figure 4-36 Changing the Attributes of a M3UA or SUA Association



Sheet 1 of 8

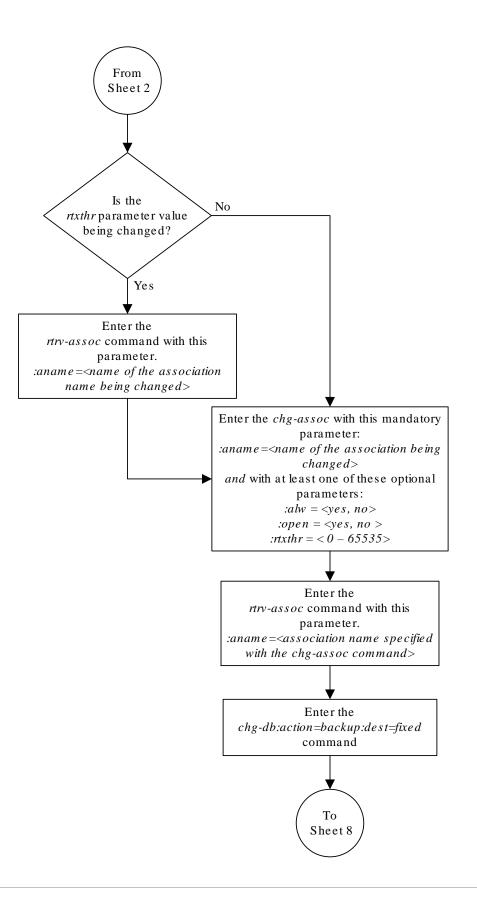




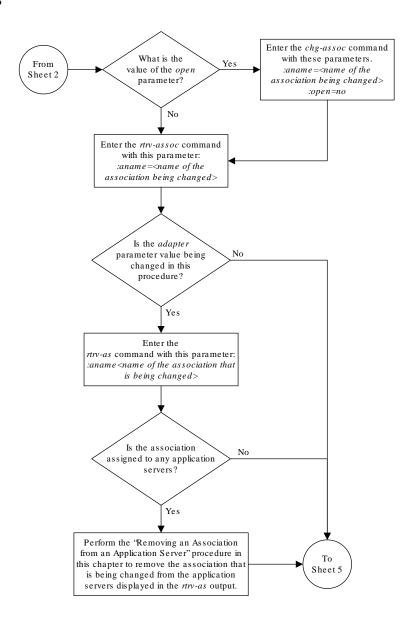
Note: If the *open* parameter value is being changed to *yes*, the association must contain values for the *lhost*, *lport*, *rhost*, and *rport* parameters. A signaling link containing the *loc* and *link* value that is assigned to the association must be provisioned in the database.

Sheet 2 of 8

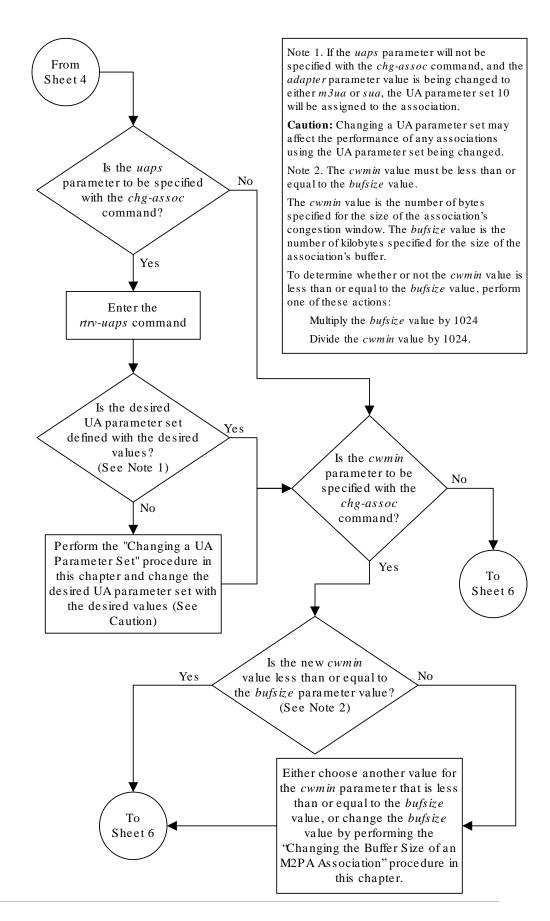




Sheet 3 of 8

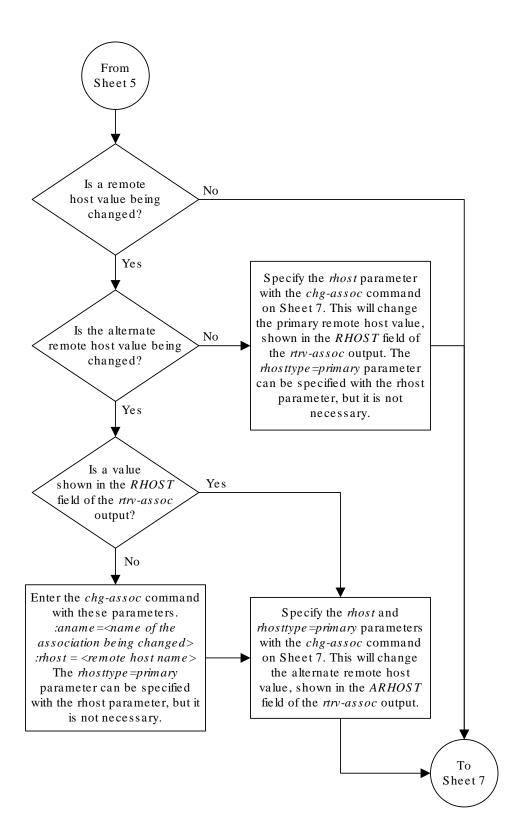


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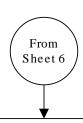






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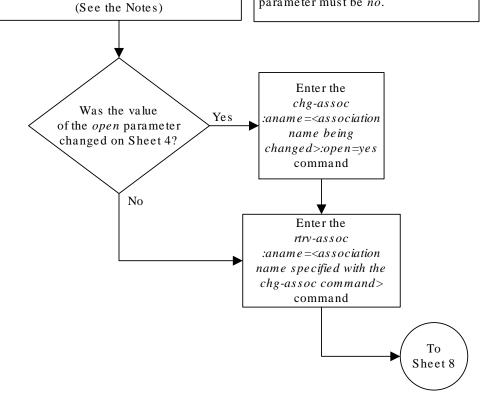
Enter the chg-assoc :aname = <association name being changed> command with these optional parameters:

:lport = <TCP port for the local host>
:rhost = <remote host name>
:rhosttype = <primary or alternate>
rhostval=<relaxed, match>
:rport = <TCP port for the remote host>
:alw = <yes, no>
:rmode = rfc or lin
:rmin = <10 - 1000>
:rmax = <10 - 1000>
:rtimes = <3 - 12>
:cwmin = <1500 - 409600>
:adapter = <m3ua, sua>
:istms = <1 or 2>
:ostrms = <1 or 2>
:uaps = <1 - 10>

rtxthr = <0 - 65535>

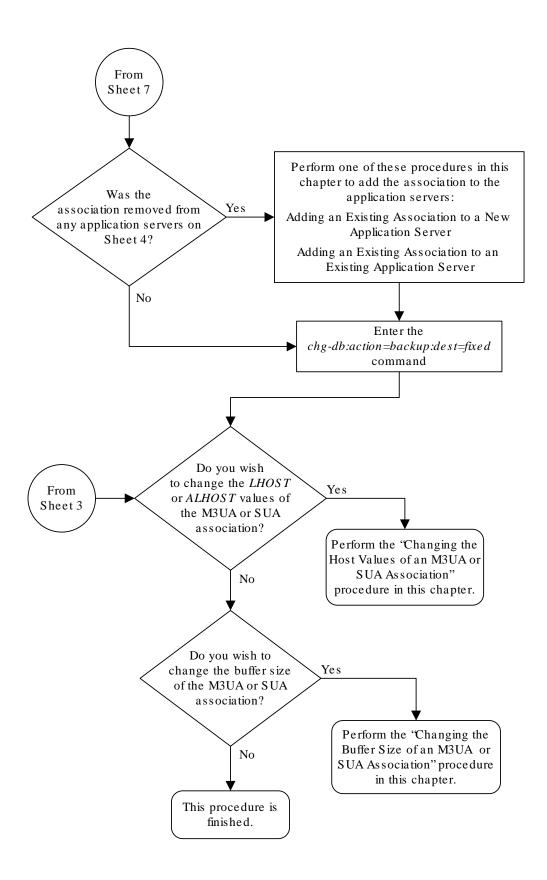
Notes:

- 1. If any optional parameters are not specified with the *chg-assoc* command, those values are not changed.
- 2. The value of the *min* parameter must be less than or equal to the *max* parameter value.
- 3. The value of the *rhost* parameter is a text string of up to 60 characters, with the first character being a letter. The command input is limited to 150 characters, including the hostname.
- 4. If the value of the *open* parameter is *yes*, only the values of the *alw* and *rtxthr* parameters can be changed. To change the values of the other parameters, the value of the *open* parameter must be *no*.



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Sheet 8 of 8

Changing the Buffer Size of a M3UA or SUA Association

This procedure is used to change the buffer size of a M3UA or a SUA association, assigned to cards that are running the SS7IPGW or IPGWI applications, using the <code>chg-assoc</code> command. If you wish to change the attributes of M3UA associations assigned to cards that are running the IPSG application, perform the Changing the Buffer Size of an IPSG Association procedure.

These parameters of the chg-assoc command are used in this procedure:

: aname — The name assigned to the association, shown in the rtrv-assoc output.

:open – The connection state for this association. Valid values are yes or no. When the open=yes parameter is specified, the connection manager opens the association if the association is operational. When the open=no parameter is specified, the connection manager will not open the association.

:bufsize – The size, in kilobytes, of the buffer used by the association. The values for this parameter are 8 kilobytes to 400 kilobytes. The maximum size of the buffers on the **IP** cards are shown in the following list:

E5-ENET Card - 3200 KB.

The size of the buffers assigned to each association that is assigned to the $\bf IP$ card cannot exceed the maximum buffer size for that card. If the bufsize parameter value causes the total buffer size for all the associations on the $\bf IP$ card to exceed the maximum buffer size for that $\bf IP$ card, the chg-assoc command will be rejected. The available size of the buffers on the $\bf IP$ card can be verified by entering this command.

rtrv-assoc:lhost=<local host name assigned to the association being
changed>

The alhost parameter can also be used with the rtrv-assoc command to display the available size of the buffers on the IP card.

The aname parameter can be used with the rtrv-assoc command to display the available size of the buffers on the **IP** card and the size of the buffer assigned to the association.

If you wish to increase the buffer size for this association to a value that is greater than available buffer size for the card, the buffer size of the other associations assigned to the card must be decreased.

The chg-assoc command contains other parameters that are not used this procedure. To change these parameters, perform these procedures.

- lhost and alhost Changing the Host Values of a M3UA or SUA Association
- Other attributes of the M3UA or SUA Association Changing the Attributes of a M3UA or SUA Association

Canceling the RTRV-ASSOC Command

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



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

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

Display the associations in the database using the rtrv-assoc command.
 This is an example of possible output.

rlghncxa03w 08-04-28 09:12:36 GMT EAGLE5 38.0.0

	CARD	IPLNK						
ANAME	LOC	PORT	LINK	ADAPTER	LPORT	RPORT	OPEN	ALW
swbel32	1201	A	A	M3UA	1030	2345	YES	YES
a2	1305	A	A	SUA	1030	2345	YES	YES
a3	1307	A	A	SUA	1030	2346	YES	YES
assoc1	1201	A	A	M3UA	2000	1030	YES	YES
assoc2	1205	A	A	M3UA	2048	2048	YES	YES
assoc3	1205	A	A	M3UA	3000	3000	YES	YES
assoc5	1205	A	A	M3UA	1500	3000	YES	YES

Select an association whose adapter value is M3UA or SUA. If the card shown in the CARD LOC column contains any SUA associations, and the <code>open</code> parameter value of the association is <code>no</code>, continue the procedure with 4. If the <code>open</code> parameter value of the association is <code>yes</code>, continue the procedure with 3

If the card contains only M3UA associations, continue the procedure with 2.

2. Enter the rtrv-card command with the location of the card that is hosting the M3UA association that will be changed in this procedure. For this example, enter this command.

```
rtrv-card:loc=1205
```

This is an example of possible output.

```
rlghncxa03w 08-04-06 15:17:20 EST EAGLE5 38.0.0

CARD TYPE APPL LSET NAME LINK SLC LSET NAME LINK SLC 1205 DCM SS7IPGW e5e6a A 0
```

If the application assigned to the card is SS7IPGW or IPGWI, shown in the APPL column, continue the procedure by performing one of these steps.



- If the open parameter value for the association being changed is yes, continue the procedure with 3.
- If the open parameter value for the association being changed is no, continue the procedure with 4.

If the application assigned to the card is IPSG, perform the Changing the Buffer Size of an IPSG Association procedure.

3. Change the value of the open parameter to no by specifying the chg-assoc command with the open=no parameter.

```
For this example, enter this command. chg-assoc:aname=assoc2:open=no
```

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

```
rlghncxa03w 08-04-28 09:12:36 GMT EAGLE5 38.0.0 CHG-ASSOC: MASP A - COMPLTD;
```

IP Appl Sock/Assoc table is (8 of 4000) 1% full

Assoc Buffer Space Used (800 KB of 800 KB) on LOC = 1205

4. Display the association being changed by entering the rtrv-assoc command with the aname parameter specified in 3 or the association selected in 1.

```
For this example, enter this command.
```

rtrv-assoc:aname=assoc2

This is an example of the possible output.

```
rlghncxa03w 09-05-28 21:14:37 GMT EAGLE5 41.0.0
ANAME assoc2
     LOC
            1205
                         IPLNK PORT A
                                            LINK A
                         VER M3UA RFC
     ADAPTER M3UA
     LHOST IPNODE2-1205
     ALHOST ---
     RHOST remotehost1
     ARHOST ---
     LPORT 2048
                       RPORT
                                   2048
     ISTRMS 2
                                            BUFSIZE 200
                        OSTRMS
                                   2
     RMODE
            LIN
                         RMIN
                                   120
                                            RMAX
                                                    800
     RTIMES 10
                        CWMIN
                                   3000
                                            UAPS
                                                    10
                                   YES
                                            RTXTHR 2000
     OPEN
            No
                         ALW
     RHOSTVAL RELAXED
     ASNAMES
     as1
                   as4
                                 as6
```

5. If the bufsize parameter value causes the total buffer size for all the associations on the IP card to exceed the maximum buffer size for that IP card, the chg-assoc command will be rejected.

If you wish to increase the buffer size for this association to a value that is greater than available buffer size for the card, the buffer size of the other associations assigned to the card must be decreased. Perform this step and 6, 7, and 8.

If the buffers on the other associations assigned to the card do not need to be changed, continue the procedure with 9.

Display the associations assigned to the **IP** card (and its corresponding local host) by entering the rtrv-assoc command with the local host name assigned to the association being changed. For this example, enter this command.

```
rtrv-assoc:lhost="IPNODE2-1205"
```

This is an example of the possible output.

```
rlghncxa03w 08-04-28 21:14:37 GMT EAGLE5 38.0.0
             CARD IPLNK
ANAME
             LOC PORT LINK ADAPTER LPORT RPORT OPEN ALW
assoc2
             1205 A A M3UA 2048 2048 YES YES
                       A
                            M3UA
                                   3000 3000 YES YES
assoc3
             1205 A
             1205 A
                            M3UA 1500 3000 YES YES
assoc5
                      A
IP Appl Sock/Assoc table is (8 of 4000) 1% full
Assoc Buffer Space Used (800 KB of 3200 KB) on LOC = 1205
```

6. Display each association shown in 5 by entering the rtrv-assoc command with the name of each association shown in 5.

For this example, enter these commands.

```
rtrv-assoc:aname=assoc2
```

This is an example of the possible output.

ANAME	assoc2					
	LOC	1205	IPLNK PORT	A	LINK A	
	ADAPTER	M3UA	VER	M3UA RFC		
	LHOST	IPNODE2-1205				
	ALHOST					
	RHOST	remotehost1				
	ARHOST					
	LPORT	2048	RPORT	2048		
	ISTRMS	2	OSTRMS	2	BUFSIZE	200
	RMODE	LIN	RMIN	120	RMAX	800
	RTIMES	10	CWMIN	3000	UAPS	10
	OPEN	YES	ALW	YES	RTXTHR	2000
	RHOSTVAL	RELAXED				
7	ASNAMES					
ć	as1	as4		as6		

IP Appl Sock/Assoc table is (8 of 4000) 1% full Assoc Buffer Space Used (800 KB of 800 KB) on LOC = 1205

rtrv-assoc:aname=assoc3



This is an example of the possible output.

ANAME	assoc3							
	LOC	1205	IPLNK PO	RT	A	LINK	A	
	ADAPTER	M3UA	VER		M3UA RFC			
	LHOST	IPNODE2-1205						
	ALHOST							
	RHOST	remotehost3						
	ARHOST							
	LPORT	3000	RPORT	300	0.0			
	ISTRMS	2	OSTRMS	2		BUFSI	ZΕ	400
	RMODE	LIN	RMIN	120)	RMAX		800
	RTIMES	10	CWMIN	300	00	UAPS		10
	OPEN	YES	ALW	YES	S	RTXTH	2	10000
	RHOSTVAL	RELAXED						
i	ASNAMES							
ė	as2	as3		as	s5			

IP Appl Sock/Assoc table is (8 of 4000) 1% full Assoc Buffer Space Used (800 KB of 800 KB) on LOC = 1205

rtrv-assoc:aname=assoc5

This is an example of the possible output.

ANAME	assoc5								
	LOC	1205	IPLNK POF	RT	A		LINK	A	
	ADAPTER	M3UA	VER		M3UA R	FC			
	LHOST	IPNODE2-1205							
	ALHOST								
	RHOST	remotehost3							
	ARHOST								
	LPORT	1500	RPORT	300	0.0				
	ISTRMS	2	OSTRMS	2			BUFSI	ZΕ	200
	RMODE	LIN	RMIN	120)		RMAX		800
	RTIMES	10	CWMIN	300	0.0		UAPS		10
	OPEN	YES	ALW	YES	5		RTXTH	3	10000
	RHOSTVAL	RELAXED							
7	ASNAMES								
	as2	as3			s 5				
C	154	ass		as	50				
TP App	IP Appl Sock/Assoc table is (8 of 4000) 1% full								

IP Appl Sock/Assoc table is (8 of 4000) 1% full Assoc Buffer Space Used (800 KB of 800 KB) on LOC = 1205

7. To change the bufsize value for the associations shown in 6, the new bufsize parameter value must be greater than or equal to the cwmin parameter value.

The <code>cwmin</code> parameter is the number if bytes specified for the association's congestion window. The <code>bufsize</code> is the number of kilobytes specified for the size of the association's buffer. To determine whether or not the <code>cwmin</code> value is less than or equal to the <code>bufsize</code> value, perform one of these actions.

- Multiply the bufsize value by 1024.
- Divide the cwmin value by 1024.

Continue the procedure by performing one of these actions.

- If the new bufsize value is greater than or equal to the cwmin value, continue the procedure with 8.
- If the new bufsize value is not greater than or equal to the cwmin value, either choose another value for the bufsize parameter that is greater than or equal to the cwmin value, or perform the Changing the Attributes of a M3UA or SUA Association procedure to change the bufsize value so that the bufsize value is greater than or equal to the cwmin value. After the new bufsize value has been chosen or the cwmin value has been changed, continue the procedure with 8.
- 8. Change the size of the buffers for one or more of the associations displayed in 6 to allow the buffer of the association displayed in 4 to be changed.

Enter the chg-assoc command with the bufsize parameter. For this example, enter this command.

```
chg-assoc:aname=assoc3:bufsize=200
```

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

```
rlghncxa03w 08-04-28 09:12:36 GMT EAGLE5 38.0.0 CHG-ASSOC: MASP A - COMPLTD;
```

9. To change the bufsize value for the association shown in 4, the new bufsize parameter value must be greater than or equal to the cwmin parameter value.

The <code>cwmin</code> parameter is the number if bytes specified for the association's congestion window. The <code>bufsize</code> is the number of kilobytes specified for the size of the association's buffer. To determine whether or not the <code>cwmin</code> value is less than or equal to the <code>bufsize</code> value, perform one of these actions.

- Multiply the bufsize value by 1024.
- Divide the cwmin value by 1024.

Continue the procedure by performing one of these actions.

- If the new bufsize value is greater than or equal to the cwmin value, continue the procedure with 10.
- If the new bufsize value is not greater than or equal to the cwmin value, either choose another value for the bufsize parameter that is greater than or equal to the cwmin value, or perform the Changing the Attributes of a M3UA or SUA Association procedure to change the bufsize value so that the bufsize value is greater than or equal to the cwmin value. After the new bufsize value has been chosen or the cwmin value has been changed, continue the procedure with 10.
- **10.** Change the association using the chg-assoc command.

For this example, enter this command.

```
chg-assoc:aname=assoc2:bufsize=250
```



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

```
rlghncxa03w 08-04-28 09:12:36 GMT EAGLE5 38.0.0 CHG-ASSOC: MASP A - COMPLTD;
```

If the value of the open parameter was not changed in 3, continue the procedure with 12.

If the value of the open parameter was changed in 3, continue the procedure with 11.

11. Change the value of the open parameter to yes by specifying the chg-assoc command with the open=yes parameter.

For this example, enter this command.

```
chg-assoc:aname=assoc2:open=yes
```

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

```
rlghncxa03w 08-04-28 09:12:36 GMT EAGLE5 38.0.0 CHG-ASSOC: MASP A - COMPLTD;
```

12. Verify the changes using the rtrv-assoc command specifying the association name specified in 10 and 11.

For this example, enter this command.

```
rtrv-assoc:aname=assoc2
```

This is an example of possible output.

```
rlghncxa03w 09-05-28 09:12:36 GMT EAGLE5 41.0.0
ANAME assoc2
     LOC
             1205
                         IPLNK PORT A
                                            LINK A
     ADAPTER M3UA
                        VER M3UA RFC
     LHOST IPNODE2-1205
     ALHOST ---
     RHOST gw200.nc-tekelec.com
     ARHOST ---
     LPORT 2048
                        RPORT
                                   3000
     ISTRMS 2
                        OSTRMS
                                   2
                                            BUFSIZE 250
     RMODE LIN
                        RMIN
                                   120
                                            RMAX
                                                    800
     RTIMES 10
                                   3000
                                                    10
                        CWMIN
                                            UAPS
     OPEN
            YES
                        ALW
                                   YES
                                            RTXTHR 10000
     RHOSTVAL RELAXED
     ASNAMES
     as1
                   as4
                                 as6
```

```
IP Appl Sock table is (8 of 4000) 1\% full Assoc Buffer Space Used (650 KB of 800 KB) on LOC = 1205
```



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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

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

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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

If you wish to change other attributes of the M3UA or SUA association, perform one of these procedures.

- lhost and alhost Changing the Host Values of a M3UA or SUA Association
- Other attributes of the M3UA or SUA Association Changing the Attributes of a M3UA or SUA Association

If you do not wish to change other attributes of the M3UA or SUA association, this procedure is finished.



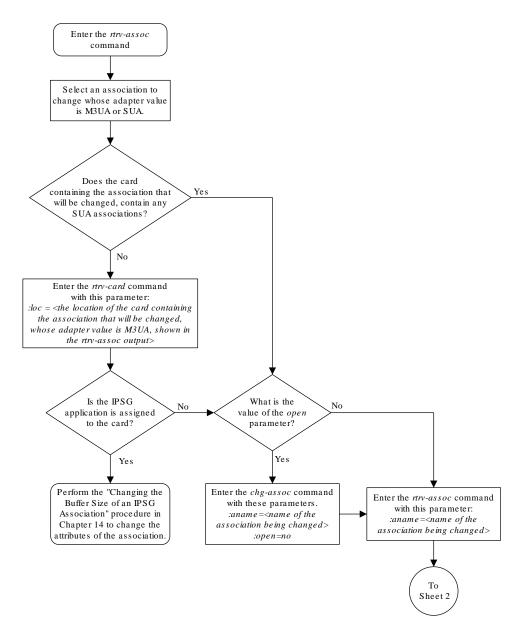
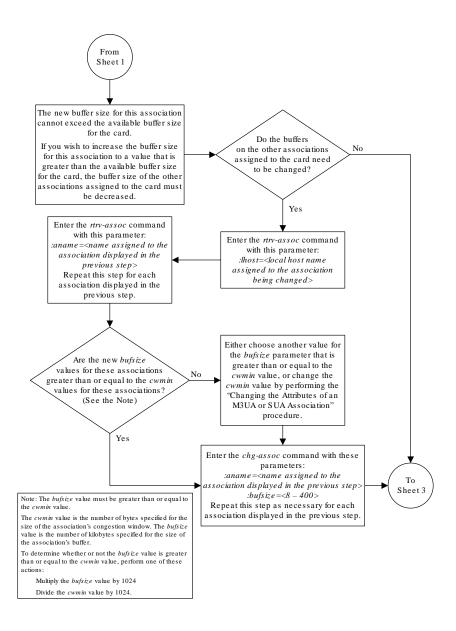
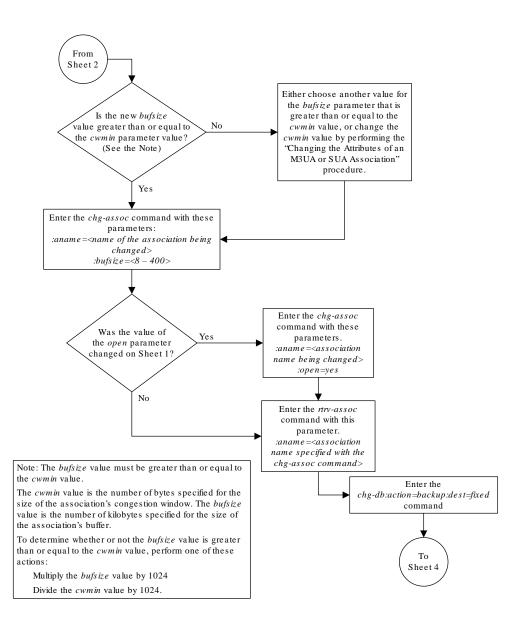


Figure 4-37 Changing the Buffer Size of an M3UA or SUA Association

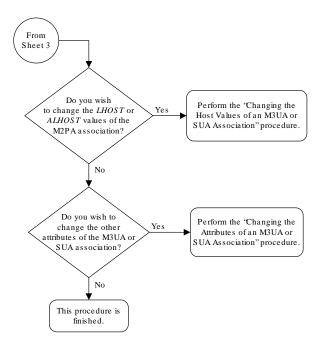




Sheet 2 of 4



Sheet 3 of 4



Sheet 4 of 4

Changing the Host Values of a M3UA or SUA Association

This procedure is used to change the host values of a M3UA or SUA association, assigned to cards that are running the SS7IPGW or IPGWI applications, using the chg-assoc command. If you wish to change the attributes of M3UA associations assigned to cards that are running the IPSG application, perform the Changing the Host Values of an IPSG Association procedure.

These parameters of the chg-assoc command are used in this procedure:

- : aname The name assigned to the association, shown in the rtrv-assoc output.
- : lhost The host name for the local host, shown in the rtrv-ip-host output.
- :lport The **SCTP** port number for the local host.
- :rhost The host name for the remote host, rhost can be any string of characters starting with a letter and comprising these characters ['a'..'z', 'A'..'Z', '0'..'9', '-', '.']. Hostnames are not case-sensitive and can contain up to 60 characters. The default value of this optional parameter is empty (null string).
- :rport The **SCTP** port number for the remote host.
- :link The signaling link on the IPGWx card. The value for the link parameter for M3UA or SUA associations is A.

Note:

The port parameter can be used in place of the link parameter to specify the signaling link on the card.

- :adapter The adapter layer for this association, either m3ua or sua. The adapter parameter is optional. The default value for the adapter parameter in this procedure is m3ua.
- :alhost The alternate local host name, shown in the rtrv-ip-host output.
- :open The connection state for this association. Valid values are yes or no. When the open=yes parameter is specified, the connection manager opens the association if the association is operational. When the open=no parameter is specified, the connection manager will not open the association.
- : uaps The UA parameter set value being assigned to either an M3UA or SUA association.

At least one optional parameter is required.

The command input is limited to 150 characters, including the hostnames.

The maximum number **SCTP** association to application server assignments that can be hosted by an **IPGWx** card (referenced by the lhost parameter of the association) is 50. For example, the IPGWx card currently contains 38 SCTP association to application server assignments. The **SCTP** association to application server assignments could be one **SCTP** association assigned to 38 application servers, two **SCTP** associations assigned to 19 application servers, or any combination of **SCTP** associations assigned to application servers that add up to 38. The **SCTP** association to application server assignments can be verified with the rtrv-assoc:lhost=<local host name> and rtrv-association name> commands.

Table 4-17 Examples of IPGWx Card Provisioning Limits

Number of Associations hosted by the IPGWx card	Number of Application Servers each Association is Assigned to *	Total Association - Application Server Assignments maintained by the IPGWx card
4	50	50



Number of Associations hosted by the IPGWx card	Number of Application Servers each Association is Assigned to *	Total Association - Application Server Assignments maintained by the IPGWx card
50	1	50
25	1	50
25	2	50
0	0	50
38	1	38
19	2	38

Table 4-17 (Cont.) Examples of IPGWx Card Provisioning Limits

* The **EAGLE** can contain a maximum of 250 application servers.

The **EAGLE** can contain a maximum of 4000 connections.

The B Ethernet interface of the **IP** card can be used on the **E5-ENET** cards.

If the card's application is either **SS7IPGW** or **IPGWI**, the signaling link being assigned to the association must be in service. This state is shown in the rept-stat-slk output with the entries IS-NR in the PST field and Avail in the SST field.

Uni-homed endpoints are associations configured with the <code>lhost</code> parameter only. The <code>lhost</code> parameter value represents an <code>IP</code> address that corresponds to either the A or B network interface of the <code>IP</code> card. Multi-homed endpoints are associations configured with both the <code>lhost</code> and <code>alhost</code> parameters. The <code>lhost</code> parameter value represents an <code>IP</code> address corresponding to one of the network interfaces (A or B) of the <code>IP</code> card while the <code>alhost</code> parameter value represents an <code>IP</code> address corresponding to the other network interface of the same <code>IP</code> card.

The alhost=none parameter removes the alternate local host from the specified association, which also removes the multi-homed endpoint capability.

Canceling the RTRV-ASSOC and RTRV-AS Commands

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

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



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

1. Display the associations in the database using the rtrv-assoc command.

This is an example of possible output.

rlghncxa03w 08-04-28 09:12:36 GMT EAGLE5 38.0.0

	CARD	IPLNK						
ANAME	LOC	PORT	LINK	ADAPTER	LPORT	RPORT	OPEN	ALW
swbel32	1201	A	A	M3UA	1030	2345	YES	YES
a2	1305	A	A	SUA	1030	2345	YES	YES
a3	1307	A	A	SUA	1030	2346	YES	YES
assoc1	1201	A	A	M3UA	2000	1030	YES	YES
assoc2	1205	A	A	M3UA	2048	2048	YES	YES
assoc3	1205	A	A	M3UA	3000	3000	YES	YES
assoc5	1205	A	A	M3UA	1500	3000	YES	YES

Select an association whose adapter value is M3UA or SUA. If the card shown in the ${\tt CARD}\ {\tt LOC}$ column contains any SUA associations, continue the procedure by performing one of these steps.

- If the open parameter value for the association being changed is yes, continue the procedure with 3.
- If the open parameter value for the association being changed is no, continue the procedure with 4.

If the card contains only M3UA associations, continue the procedure with 2.

2. Enter the rtrv-card command with the location of the card that is hosting the M3UA association that will be changed in this procedure. For this example, enter this command.

```
rtrv-card:loc=1205
```

This is an example of possible output.

```
rlghncxa03w 08-04-06 15:17:20 EST EAGLE5 38.0.0

CARD TYPE APPL LSET NAME LINK SLC LSET NAME LINK SLC 1205 DCM SS7IPGW e5e6a A 0
```

If the application assigned to the card is IPSG, perform the Changing the Host Values of an IPSG Association procedure.

If the application assigned to the card is SS7IPGW or IPGWI, continue the procedure by performing one of these steps.

- If the open parameter value for the association being changed is yes, continue the procedure with 3.
- If the open parameter value for the association being changed is no, continue the procedure with 4.
- 3. Change the value of the open parameter to no by specifying the chg-assoc command with the open=no parameter.

For this example, enter this command.



```
chg-assoc:aname=assoc2:open=no
```

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

```
rlghncxa03w 08-04-28 09:12:36 GMT EAGLE5 38.0.0 CHG-ASSOC: MASP A - COMPLTD;
```

4. Display the association being changed by entering the rtrv-assoc command with the aname parameter specified in 3 or the association selected in 1.

For this example, enter this command.

```
rtrv-assoc:aname=assoc2
```

This is an example of the possible output.

```
rlghncxa03w 09-05-28 21:14:37 GMT EAGLE5 41.0.0
ANAME assoc2
     LOC
            1205
                         IPLNK PORT A
                                            LINK A
     ADAPTER M3UA
                        VER M3UA RFC
     LHOST IPNODE2-1205
     ALHOST ---
     RHOST remotehost1
     ARHOST ---
     LPORT
             2048
                       RPORT
                                   2048
                        OSTRMS
                                   2
     ISTRMS 2
                                            BUFSIZE 200
                                            RMAX
                                                  800
     RMODE LIN
                        RMIN
                                   120
     RTIMES 10
                        CWMIN
                                   3000
                                            UAPS
                                                    10
     OPEN
            No
                         ALW
                                   YES
                                            RTXTHR 2000
     RHOSTVAL RELAXED
     ASNAMES
     as1
                   as4
                                 as6
```

```
IP Appl Sock/Assoc table is (8 of 4000) 1% full Assoc Buffer Space Used (800 KB of 800 KB) on LOC = 1205
```

If the association shown in this step is an M2PA association, continue the procedure with 5.

If the association shown in this step is an M3UA or SUA association, perform one of these actions.

- If the association does not have an ALHOST value, continue the procedure with 5.
- If the association does have an ALHOST value, and the ALHOST value will be removed along with changing the LHOST value of the association, continue the procedure with 5.
- If the association does have an ALHOST value, and the only action that will be performed in this procedure is to remove the ALHOST value from the association, continue the procedure with Oracle.
- 5. Verify that the local host name to be assigned to the association is in the database by using the rtrv-ip-host:display=all command.



The following is an example of the possible output.

rlghncxa03w 08-12-28 21:15:37 GMT EAGLE5 40.0.0

```
LOCAL IPADDR LOCAL HOST
192.1.1.10
             IPNODE1-1201
              GW105. NC. Oracle. COM
192.1.1.12
192.1.1.14
              IPNODE1-1205
192.1.1.20
              IPNODE2-1201
192.1.1.22
              IPNODE2-1203
192.1.1.24
              IPNODE2-1205
192.1.1.30
             KC-HLR1
192.1.1.32
              KC-HLR2
192.1.1.50
              DN-MSC1
192.1.1.52
              DN-MSC2
REMOTE IPADDR REMOTE HOST
150.1.1.5
              NCDEPTECONOMIC_DEVELOPMENT. SOUTHEASTERN_COORIDOR_ASHVL.
GOV
```

IP Host table is (11 of 4096) .26% full

6. Display the **IP** links in the database by entering the rtrv-ip-lnk command.

The following is an example of the possible output.

rlgl	rlghncxa03w 07-05-28 21:14:37 GMT EAGLE5 37.0.0							
LOC	POF	RT IPADDR	SUBMASK	DUPLEX	SPEED	MACTYPE	AUTO	
MCAS	ST							
1303	3 A		255.255.255.128		10	802.3	NO	NO
1303	3 B			HALF	10	DIX	NO	NO
130	5 A		255.255.255.0			DIX	YES	NO
130	5 B			HALF	10	DIX	NO	NO
1313	3 A		255.255.255.0		100	DIX	NO	NO
1313	3 B			HALF	10	DIX	NO	NO
210	1 A	192.1.1.20	255.255.255.0	FULL	100	DIX	NO	NO
210	1 B			HALF	10	DIX	NO	NO
2103	3 A	192.1.1.22	255.255.255.0	FULL	100	DIX	NO	NO
2103	3 B			HALF	10	DIX	NO	NO
210	5 A	192.1.1.24	255.255.255.0	FULL	100	DIX	NO	NO
210	5 B			HALF	10	DIX	NO	NO
220	5 A		255.255.255.0		100	DIX	NO	NO
220	5 B			HALF	10	DIX	NO	NO
220	7 A		255.255.255.0		100	DIX	NO	NO
220	7 B			HALF	10	DIX	NO	NO
221	3 A	192.1.1.50	255.255.255.0	FULL	100	DIX	NO	NO
221	3 B			HALF	10	DIX	NO	NO
230	1 A	192.1.1.52	255.255.255.0	FULL	100	DIX	NO	NO
230	1 B			HALF	10	DIX	NO	NO
230	5 A	192.3.3.33	255.255.255.0	FULL	100	DIX	NO	NO
230	5 B			HALF	10	DIX	NO	NO

IP-LNK table is (22 of 2048) 1% full.

If the required IP link, one that contains the desired IP address, is not shown in the rtrv-ip-lnk output, add the IP link using the Configuring an IP Link procedure. After the IP link has been added, assign the IP address of the IP link to the IP host name using the Adding an IP Host procedure, then continue the procedure with 11.

If the required **IP** link is shown in the rtrv-ip-lnk output, but the IP host is not shown in the rtrv-ip-host output in 5, assign the **IP** address of the **IP** link to the **IP** host name using the Adding an IP Host procedure, then continue the procedure with 11.

If the required **IP** host was shown in 5, the required **IP** link is shown in the rtrv-ip-lnk output in this step. Perform 7 to verify the application running on the card whose **IP** address is assigned to the **IP** host.

Note:

Thertrv-ip-host output must contain a host name for the association'slhost parameter and a host name for the association'salhost parameter, if thealhost parameter will be specified for the association. The IP address of the IP link should be assigned to the host name, shown in thertrv-ip-host output, that will be used as the association'slhost parameter value. If thealhost parameter will be specified for the association, the IP address of the IP link must be assigned to the host name that will be used as thealhost parameter value. The IP links associated with the association'slhost andalhost values must be assigned to the same card.

7. Display the application running on the IP card shown in 6 whose IP address is assigned to the IP host using the rept-stat-card command specifying the location of the IP card.

```
For this example, enter this command.
```

```
rept-stat-card:loc=1205
```

This is an example of the possible output.

```
rlghncxa03w 08-04-27 17:00:36 GMT EAGLE5 38.0.0
CARD VERSION TYPE
                      GPL
                                 PST
                                              SST
                                                       AST
1205 114-000-000 DCM
                        SS7IPGW IS-NR
                                              Active
 ALARM STATUS = No Alarms.
 BPDCM GPL
                 = 002-102-000
 IMT BUS A
                 = Conn
 IMT BUS B
                 = Conn
 SIGNALING LINK STATUS
     STK
                             T.S
         PST
                                         CLLI
     Α
           IS-NR
                             nc001
```

Command Completed.

8. Display the associations assigned to the local host that will be assigned to the association being configured in this procedure by entering the rtrv-assoc command with the lhost parameter.



For this example, enter this command.

rtrv-assoc:lhost="IPNODE2-1205"

This is an example of the possible output.

rlghncxa03w 08-04-28 21:14:37 GMT EAGLE5 38.0.0

	CARD	IPLNK						
ANAME	LOC	PORT	LINK	ADAPTER	LPORT	RPORT	OPEN	ALW
assoc2	1205	A	A	M3UA	2048	2048	YES	YES
assoc3	1205	A	A	M3UA	3000	3000	YES	YES
assoc5	1205	A	A	M3UA	1500	3000	YES	YES
IP Appl Sock/Ass	soc ta	able is	s (8 d	of 4000)	1% fu	11		
Assoc Buffer Spa	ace Us	sed (60	00 KB	of 3200	KB) or	n LOC =	= 1205	5

9. Display the application servers that the associations shown in 8 are assigned to by entering rtrv-as command with the names of the associations shown in 8.

For this example, enter these commands.

```
rtrv-as:aname=assoc2
```

This is an example of the possible output.

```
rlghncxa03w 08-04-28 21:14:37 GMT EAGLE5 38.0.0
AS Name
                      Tr ms Association Names
                Mode
as1
                LOADSHARE
                           2000
                                 assoc2
as4
                LOADSHARE
                           2000
                                 assoc2
                           2000
as6
                LOADSHARE
                                   assoc2
AS Table is (6 of 250) 1% full
```

rtrv-as:aname=assoc3

This is an example of the possible output.

```
rlghncxa03w 08-04-28 21:14:37 GMT EAGLE5 38.0.0
AS Name
                            Tr ms Association Names
                Mode
as2
                LOADSHARE
                            2000
                                 assoc3
                            2000 assoc3
as3
                LOADSHARE
                LOADSHARE
                            2000
as5
                                 assoc3
AS Table is (6 of 250) 2% full
rtrv-as:aname=assoc5
```



This is an example of the possible output.

```
      rlghncxa03w
      08-04-28
      21:14:37
      GMT EAGLE5
      38.0.0

      AS Name
      Mode
      Tr ms
      Association Names

      as2
      LOADSHARE
      2000
      assoc5

      as3
      LOADSHARE
      2000
      assoc5

      as5
      LOADSHARE
      2000
      assoc5

      AS Table is (6 of 250)
      2% full
```

The maximum number of **SCTP** association to application server assignments that can be hosted by an **IPGWx** card (referenced by the lhost parameter of the association) is 50.

If the number of **SCTP** association to application server assignments (shown in this step) is less than 50, continue the procedure by performing one of these steps.

- If the rept-stat-card command was not performed in 7, continue the procedure with 10.
- If the rept-stat-card command was performed in 7, and the link value will not be changed, continue the procedure with Oracle.
- If the rept-stat-card command was performed in 7, and the link value will be changed, continue the procedure with 11.

If the number of **SCTP** association to application server assignments (shown in this step) is 50, the local host value cannot be used in this procedure. Repeat 5 and 6 and select another **IP** link and **IP**.

10. Display the application running on the IP card shown in 6 using the rept-stat-card command specifying the location of the IP card.

For this example, enter this command.

```
rept-stat-card:loc=1205
```

This is an example of the possible output.

```
rlghncxa03w 08-04-27 17:00:36 GMT EAGLE5 38.0.0
CARD VERSION TYPE GPL PST
                                      SST
                                              AST
1205 114-000-000 DCM SS7IPGW IS-NR Active
 ALARM STATUS = No Alarms.
 BPDCM GPL
              = 002-102-000
 IMT BUS A
              = Conn
 IMT BUS B
              = Conn
 SIGNALING LINK STATUS
                      LS
nc001
    SLK PST
                                  CLLI
        IS-NR
                                   -----
```

Command Completed.

If the link value will not be changed, continue the procedure with Oracle.



- If the link value will be changed, continue the procedure with 11.
- 11. Display the signaling link that will be assigned to the association by entering the rtrv-slk command and specifying the card location and signaling link.

For this example, enter this command.

```
rtrv-slk:loc=1203
```

This is an example of the possible output.

```
rlghncxa03w 08-04-19 21:17:04 GMT EAGLE5 38.0.0

LOC LINK LSN SLC TYPE

1203 A e5e6a 1 SS7IPGW
```

If the required IPGWx signaling is shown in this step, continue the procedure with Oracle.

If the required IPGWx signaling is not shown in this step, perform the Adding an IPGWx Signaling Link to add the required IPGWx signaling link. After the signaling link has been added, continue the procedure with Oracle.

12. Change the association using the chg-assoc command.

For this example, enter this command.

```
chg-assoc:aname=assoc2:lhost=m3ua1:alhost=m3ua2:rhost="gw200.nc-
Oracle.com"
```

These are the rules that apply to the chg-assoc command.

- If any optional parameters are not specified with the chg-assoc command, those values are not changed.
- E5-ENET cards can use the B Ethernet interface.
- The number of association application server assignments on an IPGWx card cannot exceed 50.
- The EAGLE can contain a maximum of 4000 connections.
- The value of the lhost and rhost parameters is a text string of up to 60 characters, with the first character being a letter. The command input is limited to 150 characters, including the hostnames.
- Specifying the lhost parameter only creates a uni-homed endpoint. The network
 portion of the endpoint's IP address must be the same as the network portion of the
 IP address assigned to either the A or B network interface of the IP card.
- Specifying the lhost and alhost parameters creates a multi-homed endpoint. The
 network portion of the IP address associated with the lhost parameter must be the
 same as the network portion of the IP address assigned to one of the network
 interfaces (A or B) of the IP card, and the network portion of the IP address
 associated with the alhost parameter must be the same as the network portion of
 the IP address assigned to the other network interface on the IP card.
- The alhost=none parameter removes the alternate local host from the specified association, which also removes the multi-homed endpoint capability.
- If the uaps parameter is not specified with the chg-assoc command, and the adapter parameter value is being changed to either m3ua or sua, the uaps parameter value defaults to UA parameter set 10 (uaps=10).



• The port parameter can be used in place of the link parameter to specify the signaling link assigned to the association.

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

```
rlghncxa03w 08-04-28 09:12:36 GMT EAGLE5 38.0.0 CHG-ASSOC: MASP A - COMPLTD;
```



If the value of theopen parameter was not changed in3, continue the procedure with Oracle.

13. Change the value of the open parameter to yes by specifying the chg-assoc command with the open=yes parameter.

```
For this example, enter this command. chg-assoc:aname=assoc2:open=yes
```

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

```
rlghncxa03w 08-04-28 09:12:36 GMT EAGLE5 38.0.0 CHG-ASSOC: MASP A - COMPLTD;
```

14. Verify the changes using the rtrv-assoc command specifying the association name specified in Oracle and 13.

For this example, enter this command.

```
rtrv-assoc:aname=assoc2
```

This is an example of possible output.

rlghnc:	xa03w 09-0	05-28 09:12:36	GMT EAGLE5	41.0.0					
ANAME	assoc2								
	LOC	1205	IPLNK PORT	. A	LINK A				
	ADAPTER	M3UA	VER	M3UA RFC					
	LHOST	m3ua1							
	ALHOST	m3ua2							
	RHOST	gw200.nc-tekelec.com							
	ARHOST								
	LPORT	2048	RPORT	3000					
	ISTRMS	2	OSTRMS	2	BUFSIZE	250			
	RMODE	LIN	RMIN	120	RMAX	800			
	RTIMES	10	CWMIN	3000	UAPS	10			
	OPEN	YES	ALW	YES	RTXTHR	10000			
	RHOSTVAL	RELAXED							
i	ASNAMES								
ä	as1	as4		as6					



```
IP Appl Sock table is (8 of 4000) 1\% full Assoc Buffer Space Used (650 KB of 800 KB) on LOC = 1205
```

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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

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

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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

If you wish to change other attributes the of the M3UA or SUA association, perform one of these procedures.

- bufsize Changing the Buffer Size of a M3UA or SUA Association
- Other attributes of the M3UA or SUA association Changing the Attributes of a M3UA or SUA Association

If you do not wish to change the other attributes of the M3UA or SUA association, this procedure is finished.



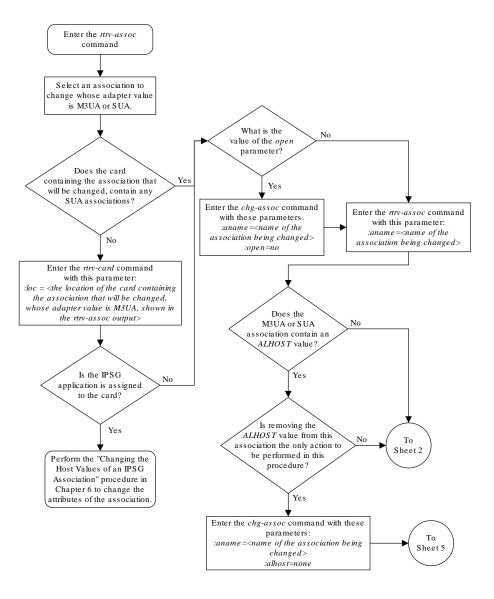
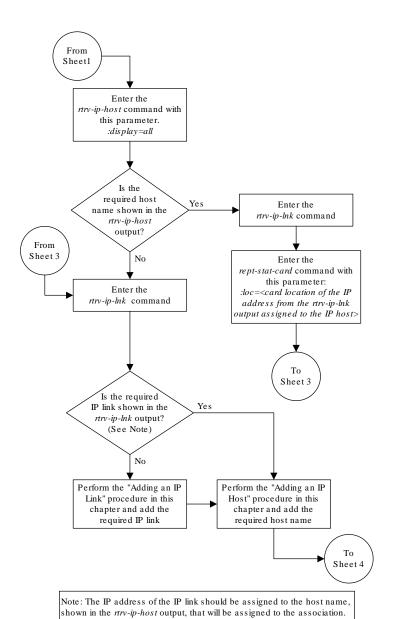


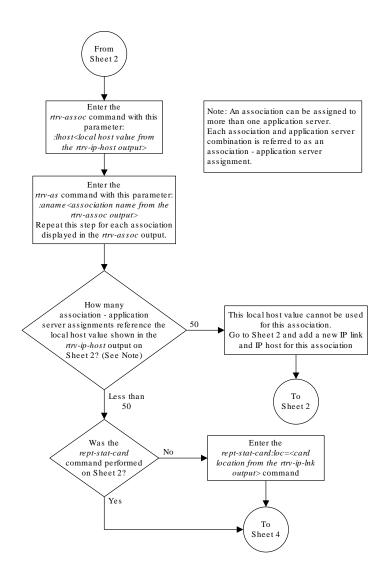
Figure 4-38 Changing the Host Values of a M3UA or SUA Association



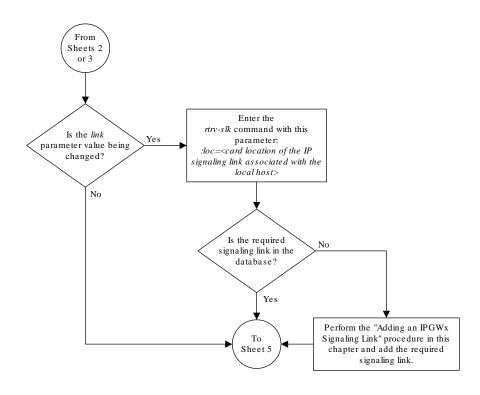




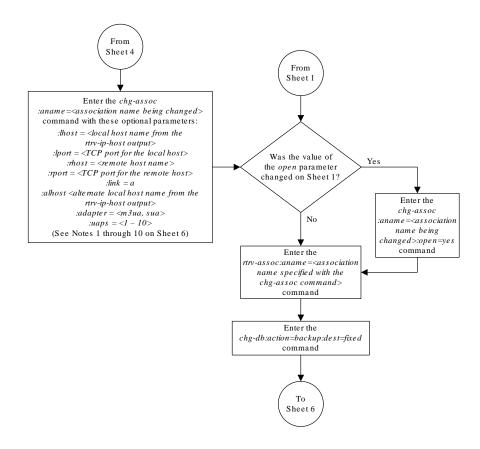
Sheet 2 of 6



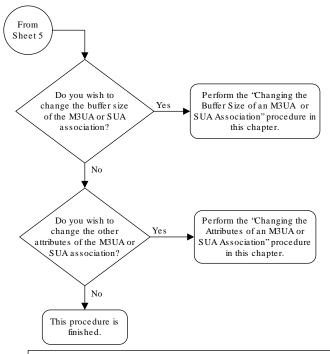
Sheet 3 of 6



Sheet 4 of 6



Sheet 5 of 6



Notes:

- 1. If any optional parameters are not specified with the chg-assoc command, those values are not changed.
- 2. Single-slot EDCMs or E5-ENET cards can use the B Ethernet interface.
- 3. The number of association application server assignments on an IPGWx card cannot exceed 50.
- 4. The EAGLE 5 ISS can contain a maximum of 4000 connections.
- 5. The value of the *lhost* and *rhost* parameters is a text string of up to 60 characters, with the first character being a letter. The command input is limited to 150 characters, including the hostnames
- 6. Specifying the *lhost* parameter only creates a uni-homed endpoint. The network portion of the endpoint's IP address must be the same as the network portion of the IP address assigned to either the A or B network interface of the IP card.
- 7. Specifying the *lhost* and *alhost* parameters creates a multi-homed endpoint. The network portion of the IP address associated with the *lhost* parameter must be the same as the network portion of the IP address assigned to one of the network interfaces (A or B) of the IP card, and the network portion of the IP address associated with the *alhost* parameter must be the same as the network portion of the IP address assigned to the other network interface on the IP card.
- $8. \ The \ \textit{alhost} = none \ parameter \ removes \ the \ alternate \ local \ host from \ the \ specified \ association, which \ also \ removes \ the \ multi-homed \ endpoint \ capability.$
- 9. If the uaps parameter is not specified with the chg-assoc command, and the adapter parameter value is being changed to either m3ua or sua, the uaps parameter value defaults to UA parameter set 10 (uaps=10).
- 10. The port parameter can be used in place of the link parameter to specify the signaling link assigned to the association.

Sheet 6 of 6

Configuring SCTP Retransmission Control for a M3UA or SUA Association

This procedure is used to gather the information required to configure the retransmission parameters for SUA associations and M3UA associations that are assigned to cards running

either the SS7IPGW or IPGWI applications. Perform the Configuring an IPSG Association for SCTP Retransmission Control procedure to configure the retransmission parameters for M3UA associations assigned to IPSG cards. If any assistance is needed to configure the retransmission parameters for associations, contact the Customer Care Center. Refer to My Oracle Support (MOS) for the contact information.

The retransmission parameters are configured using the rmode, rmin, rmax, rtimes, and cwmin parameters of the chg-assoc command.

:rmode — The retransmission mode used when packet loss is detected. The values are rfc or lin.

- rfc Standard RFC 2960 algorithm in the retransmission delay doubles after each retransmission. The RFC 2960 standard for congestion control is also used.
- lin Oracle's linear retransmission mode where each retransmission timeout value is the same as the initial transmission timeout and only the slow start algorithm is used for congestion control.
- : rmin The minimum value of the calculated retransmission timeout in milliseconds.
- : rmax The maximum value of the calculated retransmission timeout in milliseconds.



The rmin and rmax parameter values form a range of retransmission values. The value of the rmin parameter must be less than or equal to the rmax parameter value.

 $: {\tt rtimes}$ — The number of times a data retransmission occurs before closing the association.

: cwmin – The minimum size in bytes of the association's congestion window and the initial size in bytes of the congestion window.

For associations assigned to the ss7ipgw or ipgwi applications, the value of the cwmin parameter must be less than or equal to 16384.

The Changing the Attributes of a M3UA or SUA Association procedure is used to change the values of these parameters. In addition to using the Changing the Attributes of a M3UA or SUA Association procedure, these pass commands are also used in this procedure.

- ping tests for the presence of hosts on the network.
- assocrtt displays the SCTP round trip times for a specified association.
 Minimum, maximum, and average times are kept for each open association. The Retransmission Mode (RFC or LIN) and the configured Minimum and Maximum Retransmission Timeout limits are also displayed.
- sctp provides a summary list of all SCTP instances.
- sctp -a <association name> displays the measurements and information for a specific association.



Note:

The values for the minimum and maximum retransmission times in the output from this command are shown in microseconds.

For more information on the pass commands, see Commands User's Guide.

The chg-assoc command contains other optional parameters that can be used to configure an association. These parameters are not shown here because they are not necessary for configuring the SCTP retransmission parameters. These parameters are explained in more detail in the Changing the Attributes of a M3UA or SUA Association procedure, or in the and chg-assoc command description in *Commands User's Guide*.

Canceling the RTRV-ASSOC Command

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

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

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

Display the associations in the database using the rtrv-assoc command.
 This is an example of possible output.

rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0

		CARD	IPLNK						
ANAM	E	LOC	PORT	LINK	ADAPTER	LPORT	RPORT	OPEN	ALW
swbe	132	1201	A	A	M3UA	1030	2345	YES	YES
a2		1305	A	A	SUA	1030	2345	YES	YES
a3		1307	A	A	SUA	1030	2346	YES	YES
asso	c1	1201	A	A	M3UA	2000	1030	YES	YES

If the association that is being removed in this procedure is an SUA association, continue the procedure with 3.

If the association that is being removed in this procedure is an M3UA association, continue the procedure with 2.

2. Enter the rtrv-card command with the location of the card that is hosting the M3UA association that will be changed in this procedure. For this example, enter this command.



rtrv-card:loc=1201

This is an example of possible output.

```
rlghncxa03w 08-03-06 15:17:20 EST EAGLE5 38.0.0
CARD TYPE APPL LSET NAME LINK SLC LSET NAME LINK SLC 1201 DCM SS7IPGW 1sn1 A 0
```

If the application assigned to the card is SS7IPGW or IPGWI, shown in the APPL column, continue the procedure with 3.

If the application assigned to the card is IPSG, perform the Configuring an IPSG Association for SCTP Retransmission Control procedure.

3. Display the association that will be changed by entering the rtrv-assoc command with the name of the association. For this example, enter this command.

```
rtrv-assoc:aname=assoc1
```

This is an example of the possible output.

```
rlghncxa03w 09-05-28 21:14:37 GMT EAGLE5 41.0.0
ANAME assocl
     LOC
           1201
                       IPLNK PORT A
                                           LINK A
     ADAPTER M3UA
                        VER M3UA RFC
     LHOST IPNODE2-1205
     ALHOST ---
     RHOST gw100.nc.tekelec.com
     ARHOST ---
     LPORT 2000
                                  1030
                       RPORT
                                           BUFSIZE 200
     ISTRMS 2
                       OSTRMS
                                  2
     RMODE LIN
                       RMIN
                                  120
                                           RMAX
                                                   800
     RTIMES 10
                        CWMIN
                                  3000
                                           UAPS
                                                   10
     OPEN
            YES
                        ALW
                                  YES
                                           RTXTHR 2000
     RHOSTVAL RELAXED
    ASNAMES
    as1
                  as4
                                 as6
```

4. Enter the ping pass command specifying the card location of the local host, shown in 3, and the name of the remote host assigned to the association being changed, shown in 3.

This command is entered several times to obtain the average round trip time. For this example, enter this command.

```
pass:loc=1201:cmd="ping gw100.nc.tekelec.com"
```

IP Appl Sock/Assoc table is (8 of 4000) 1% full

Assoc Buffer Space Used (800 KB of 800 KB) on LOC = 1201

The following is an example of the possible output

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0 PASS: Command sent to card
```



```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
PING command in progress

rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
PING GW100. NC. TEKELEC. COM (192.1.1.30): 56 data bytes
64 bytes from tekral.nc.tekelec.com (192.1.1.30): icmp_seq=0. time=5. ms
64 bytes from tekral.nc.tekelec.com (192.1.1.30): icmp_seq=1. time=9. ms
64 bytes from tekral.nc.tekelec.com (192.1.1.30): icmp_seq=2. time=14. ms
----tekral PING Statistics----
3 packets transmitted, 3 packets received, 0% packet loss
round-trip (ms) min/avg/max = 5/9/14

PING command complete
```

If the **SCTP** retransmission parameters are not to be changed, do not perform 5 through 8. This procedure is finished.

- 5. Perform the Changing the Attributes of a M3UA or SUA Association procedure to change the retransmission parameters of the association based on the results of pinging the remote host.
- 6. Enter the assocrtt pass command to display the round trip time data collected after an association is established when an SCTP INIT message is sent and an acknowledgment is received.

The assocrtt command is entered with the card location from 4 (the card location assigned to the association being changed), and the name of the association being changed. This association must contain the local host name used in 4. For this example, enter this command.

```
pass:loc=1201:cmd="assocrtt assoc1"
```

The following is an example of the possible output

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
PASS: Command sent to card
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
ASSOCRTT: Association round-trip time report (in milliseconds)
Retransmission Configuration
   Retransmission Mode
                                   : LIN
   Minimum RTO: 120
   Maximum RTO: 800
Traffic Round-Trip Times
   Minimum round-trip time
                                   : 5
   Maximum round-trip time
                                   : 120
   Weighted Average round-trip time : 10
   Last recorded round-trip time : 10
Measured Congested Traffic Round-Trip Times
```



```
Minimum round-trip time : 0

Maximum round-trip time : 0

Weighted Average round-trip time : 0

Last recorded round-trip time : 0

;
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0

ASSOCRTT command complete
```

7. Enter the sctp -a <association name> pass command to determine if retransmissions have occurred.

The association name is the association name specified in 6. Specify the card location used in 6. For this example, enter this command.

```
pass:loc=1201:cmd="sctp -a assoc1"
```

The following is an example of the possible output

```
rlghncxa03w 10-12-28 21:15:37 GMT EAGLE5 43.0.0
```

Aname	Local	Local	Remote	Remote
	IP Address	Port	Address	Port
Assoc1	192.168.110.12	2222	192.168.112.4	5555
	192.168.112.12			

```
Configuration

Retransmission Mode = LIN

Min. Retransmission Timeout = 10000

Max. Retransmission Timeout = 800000

Max. Number of Retries = 10

Min. Congestion Window = 3000

Inbound Streams = 2

Outbound Streams = 2

Checksum Algorithm = crc32c

Send/Rcv Buffer Size = 204800

State = OPEN

ULP association id = 18

Number of nets = 2

Inbound Streams = 1

Outbound Streams = 2

Checksum Algorithm = crc32c
```

Nets Data

IP Address	192.168.112.4	State	Reachable
Port	7777	Primary	YES
MTU	1500	cwnd	16384
ssthresh	16384	RTO	120
IP Address Port MTU ssthresh	192.168.113.5	State	Reachable
	7777	Primary	NO
	1500	cwnd	16384
	16384	RTO	120

```
Last Net Sent To = 192.168.112.4

Last Net Rcvd From = 192.168.112.4

Over All Eror Count = 0

Peers Rwnd = 13880

My Rwnd = 16384

Max Window = 16384

Initial Seq Number = 24130
```



```
Next Sending Seq Number = 124686
              Last Acked Seq Number = 124669
        Maximum Outbound Char Count = 16384
         Current Outbound Char Count = 2112
            Number Unsent Char Count = 0
          Outbound Data Chunk Count = 16
                       Number Unsent = 0
               Number To Retransmit = 0
                  ip datagrams rcvd = 155402
 ip datagrams with data chunks rcvd = 120844
                   data chunks rcvd = 367908
                   data chunks read = 367900
                      dup tsns rcvd = 8
                         sacks rcvd = 38734
               gap ack blocks rcvd = 3
           heartbeat requests rcvd = 135
               heartbeat acks rcvd = 52
           heartbeat requests sent = 52
                  ip datagrams sent = 129254
 ip datagrams with data chunks sent = 73084
                   data chunks sent = 396330
        retransmit data chunks sent = 135
                        sacks sent = 64872
                        send failed = 0
             retransmit timer count = 0
    consecutive retransmit timeouts = 0
RTT between RMIN and RMAX inclusive = 6
             RTT greater than RMAX = 0
              fast retransmit count = 135
                  recv timer count = 0
             heartbeat timer count = 244
                  none left tosend = 0
               none left rwnd gate = 5
               none left cwnd gate = 8
    rlghncxa03w 10-12-28 21:15:37 GMT EAGLE5 43.0.0
   SCTP command complete
    rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
                                    Local Remote
   Aname
                     Local
                                                            Remote
                     IP Address
                                    Port Address
                                                            Port
   Assoc1
                     192.168.110.12 2222 192.168.112.4
                     192.168.112.12
             Configuration
                                                   State
       Retransmission Mode = LIN
                                       State = OPEN
Min. Retransmission Timeout = 10
                                        ULP association id = 18
Max. Retransmission Timeout = 800
                                        Number of nets = 2
    Max. Number of Retries = 10
                                        Inbound Streams = 1
```

```
Min. Congestion Window = 3000
                                       Outbound Streams = 2
           Inbound Streams = 2
          Outbound Streams = 2
                             Nets Data
        IP Address
                     192.168.112.4
                                        State
                                                  Reachable
              Port
                      7777
                                       Primary
                                                   YES
                      1500
                                                    16384
               MTU
                                          cwnd
           ssthresh
                      16384
                                           RTO
                                                    120
                    192.168.113.5
        IP Address
                                        State
                                                   Reachable
                     7777
              Port
                                       Primary
                                                    NO
               MTU
                      1500
                                           cwnd
                                                    16384
                    16384
                                                    120
          ssthresh
                                            RTO
                   Last Net Sent To = 192.168.112.4
                 Last Net Rcvd From = 192.168.112.4
                Over All Eror Count = 0
                         Peers Rwnd = 13880
                            My Rwnd = 16384
                         Max Window = 16384
                 Initial Seq Number = 24130
            Next Sending Seq Number = 124686
              Last Acked Seg Number = 124669
        Maximum Outbound Char Count = 16384
        Current Outbound Char Count = 2112
           Number Unsent Char Count = 0
          Outbound Data Chunk Count = 16
                      Number Unsent = 0
               Number To Retransmit = 0
                 ip datagrams rcvd = 155402
ip datagrams with data chunks rcvd = 120844
                  data chunks rcvd = 367908
                  data chunks read = 367900
                     dup tsns rcvd = 8
                        sacks rcvd = 38734
               gap ack blocks rcvd = 3
           heartbeat requests rcvd = 135
               heartbeat acks rcvd = 52
           heartbeat requests sent = 52
                 ip datagrams sent = 129254
ip datagrams with data chunks sent = 73084
                  data chunks sent = 396330
       retransmit data chunks sent = 135
                        sacks sent = 64872
                       send failed = 0
            retransmit timer count = 0
    consecutive retransmit timeouts = 0
RTT between RMIN and RMAX inclusive = 6
             RTT greater than RMAX = 0
             fast retransmit count = 135
                  recv timer count = 0
             heartbeat timer count = 244
```

```
none left tosend = 0
none left rwnd gate = 5
none left cwnd gate = 8
```

SCTP command complete

8. Perform the Changing the Attributes of a M3UA or SUA Association procedure to change the retransmission parameters of the association based on the results of the outputs of 6 and 7.

The Weighted Average round-trip time shown in the assocrtt pass command output in 5, and the data retransmission counts shown in the sctp -a pass command output in 6 are used as a guide to determine the appropriate values for the rmode, rmin, rmax, and rtimes parameters. If the retransmission parameters do not have to be adjusted, do not perform this step. This procedure is finished.

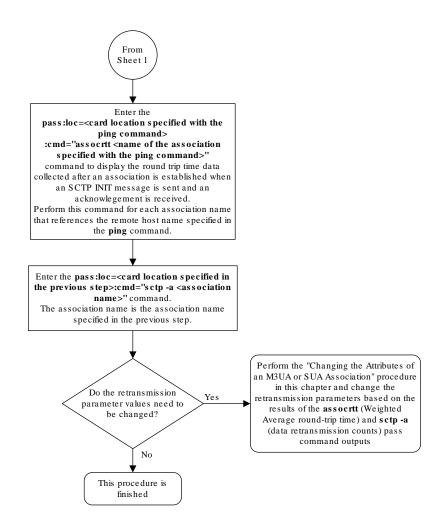


Enter the rtrv-card command with this parameter: Is an M3UA Enter the rtrv-assoc :loc = <the location of the card association being containing the M3UA association command changed? that will be changed, shown in the rtrv-assoc output> No Enter the rtrv-assoc command with this Is the $\ensuremath{\text{IPSG}}$ parameter: application is assigned :aname = < the name of the M3UA or SUA to the card? association that is being changed> Yes Enter the pass:loc=<card location of the Perform the "Configuring an IPSG association that is being changed> Association for SCTP Retransmission :cmd="ping <remote host name>" Control" procedure in Chapter 6 to command several times and ping the configure the SCTP retransmission remote host (the *RHOST* value in the previous step) to determine the control for the association. expected round trip time. Do the retransmission This procedure is parameter values need to finished be changed? Yes Perform the "Changing the Attributes of an M3UA or SUA Association" procedure in this chapter and change To Sheet 2 the retransmission parameters based on the results of pinging the remote host

Figure 4-39 Configuring SCTP Retransmission Control for a M3UA or SUA Association







Sheet 2 of 2

Changing an Application Server

This procedure is used change the characteristics of an existing application server using the chq-as command.

The chg-as command uses these parameters:

: asname - The name of the application server being changed.

:mode — The traffic mode assigned to the application server, either loadshare or override.

:tr - The application server recovery timer, 10 - 2000 milliseconds.

The mode parameter value cannot be changed unless the open parameter value of the all the associations assigned to the application server is set to no. This can be verified with the rtry-assoc command.

The association assignments for an application server cannot be changed with this procedure. To change an association assignment for an application server, go to the Removing an Association from an Application Server procedure and remove the association from the application server, then perform one of these procedures to add another association to the application server:

- Adding a New Association to an Existing Application Server
- Adding an Existing Association to an Existing Application Server.

Canceling the RTRV-AS and RTRV-ASSOC Commands

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

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

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

Display the application servers in the database using the rtrv-as command.
 This is an example of possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0

AS Name Mode Tr ms Association Names as1 LOADSHARE 10 assoc1 assoc2 assoc3 assoc5 assoc6
```



```
as2 OVERRIDE 10 assoc7 as3 LOADSHARE 10 assoc4
AS table is (2 of 250) 1% full.
```



If the mode parameter will not be specified with the chg-as command in 5, continue the procedure with 5.

2. Display one of the associations assigned to the application server shown in 1 using the rtrv-assoc command and specifying the association name shown in the rtrv-as output in 1.

For this example, enter this command.

```
rtrv-assoc:aname=assoc1
```

This is an example of possible output.

```
rlghncxa03w 09-05-28 09:12:36 GMT EAGLE5 41.0.0
ANAME assocl
     LOC
              1203
                                                  LINK A
                            IPLNK PORT A
     ADAPTER M3UA
                            VER
                                       M3UA RFC
     LHOST
              gw105.nc.tekelec.com
     ALHOST ---
     RHOST
              gw100.ncd-economic-development.southeastern-corridor-
ash.gov
              ___
     ARHOST
     LPORT
              1030
                           RPORT
                                       2345
                                       2
              2
                                                  BUFSIZE 16
     ISTRMS
                            OSTRMS
                                       120
                                                           800
     RMODE
              LIN
                           RMIN
                                                  RMAX
                                       3000
                                                           10
     RTIMES
              10
                            CWMIN
                                                  UAPS
     OPEN
              YES
                            ALW
                                       YES
                                                  RTXTHR
                                                          10000
     RHOSTVAL RELAXED
     ASNAMES
     as1
IP Appl Sock table is (4 of 4000) 1% full
Assoc Buffer Space Used (16 KB of 800 KB) on LOC = 1203
```



If the value of the {\tt open} parameter shown in this step is no, continue the procedure with 5.

3. Change the value of the open parameter to no by specifying the chg-assoc command with the open=no parameter.

For this example, enter this command. chg-assoc:aname=assoc1:open=no

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

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 CHG-ASSOC: MASP A - COMPLTD
```



If all the associations assigned to the application server been displayed, continue the procedure with5.

- 4. Repeat 2 and 3 for all associations assigned to the application server being changed.
- 5. Change the application server in the database using the chg-as command.

```
For this example, enter this command chg-as:asname=as1:mode=override:tr=1000
```

This is an example of possible inputs and outputs:

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 CHG-AS: MASP A - COMPLTD;
```

6. Verify the changes using the rtrv-as command.

This is an example of possible output.

rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0

AS Name	Mode	Tr ms	Association Names assoc1 assoc2 assoc3 assoc5 assoc6
as1	OVERRIDE	1000	
as2	OVERRIDE	10	assoc7
as3	LOADSHARE	10	assoc4

AS table is (2 of 250) 1% full



If the value of theopen parameter was not changed in3, continue the procedure with8.

7. Change the value of the open parameter to yes by specifying the chg-assoc command with the open=yes parameter.

For this example, enter this command.



```
chg-assoc:aname=assoc1:open=yes
```

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

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 CHG-ASSOC: MASP A - COMPLTD
```

Repeat this step for all associations that were changed in 3.

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

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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

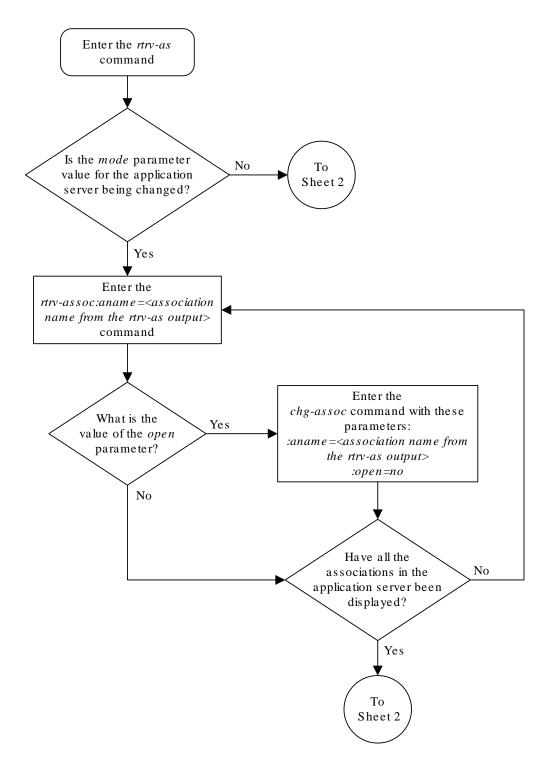
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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

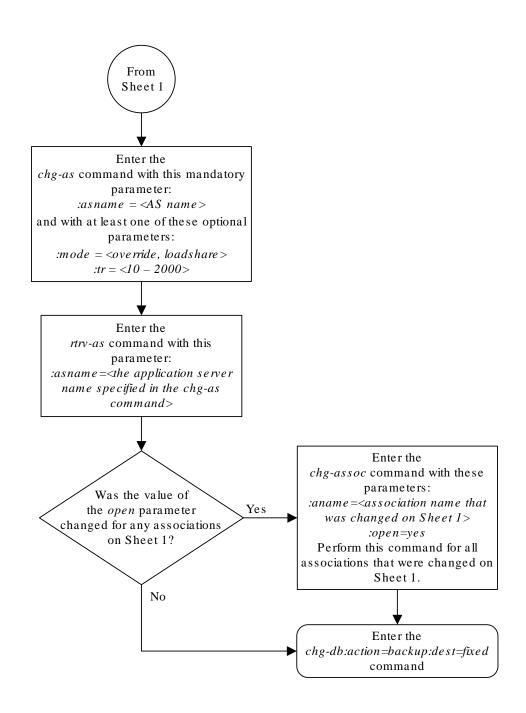


Figure 4-40 Changing an Application Server



Sheet 1 of 2





Sheet 2 of 2

Changing the CIC Values in an Existing Routing Key Containing an Application Server

This procedure is used to change the CIC values in an existing routing key using the chgapplartkey command. These parameters are used in this procedure.

: dpc/dpca/dpci/dpcn/dpcn24 - **Destination** point code value that is used to filter incoming **MSUs**.

: opc/opca/opci/opcn/opcn24 - The originating point code value that is used to filter incoming MSUs. This value must not specify a cluster route.



See the "**Point Code** Formats" section in the *Database Administration -* **SS7** *User's Guide* for a definition of the point code types that are used on the **EAGLE** and for a definition of the different formats that can be used for **ITU** national point codes.

: si – The service indicator value that is used to filter incoming **MSUs**. The range of values for the service indicator parameter (si) can be a numerical value either 4, 5, or 13, or for selected service indicator values, a text string can be used instead of numbers. Table 4-18 shows the text strings that can be used in place of numbers for the service indicator values.

Table 4-18 Service Indicator Text String Values

	Service Indicator Value	Text String
4	Oct vide indiducer value	tup
5		isup
13		qbicc

:cics - Starting circuit identification code that is used to filter incoming **MSUs**. Specify with cice to identify the routing key to be changed.

:cice - Ending circuit identification code that is used to filter incoming **MSUs**. Specify with cics to identify the routing key to be changed.

:ncics - New starting circuit identification code that is used to filter incoming **MSUs**. Specify the ncics parameter and/or the ncice parameter to change the range of circuit identification codes assigned to the routing key.

:ncice - New ending circuit identification code that is used to filter incoming **MSUs**. Specify the ncice parameter and/or the ncics parameter to change the range of circuit identification codes assigned to the routing key.

: split - The circuit identification code value where the specified range of **CIC** values for the routing key specified by the cics and cice values is to be split into two routing keys. The **CIC** values in one routing key ranges from the cics value of the original routing key to a



value equal to one less than the split value. The **CIC** values in the other routing key ranges from the split value to the cice value of the original routing key. All other parameters in both routing keys remain the same as in the original routing key. The range of **CIC** values cannot be split if the routing key contains a routing context parameter value.

:type - **Key** type. Identifies the type of routing key that will be changed. One of three values, type=full/partial/default. If type is not explicitly specified, type=full is assumed. Only the type=full parameter can be used in this procedure.

:rcontext - The routing context parameter value assigned to the routing key.

The ${\tt chg-appl-rtkey}$ command contains other parameters that are not used in this procedure.

: ssn – The subsystem number value that is used to filter incoming **MSUs**. See the Adding a Routing Key Containing an Application Server procedure for more information on using the ssn parameter with a routing key.

:nrcontext - The new routing context parameter value.

See the Changing the Routing Context Value in an Existing Routing Key procedure for changing the routing context parameter value in an existing routing key.

Rules for Changing the Range of CIC Values in an Existing Routing Key

The parameter combinations used by the <code>chg-appl-rtkey</code> command to change the range of **CIC** values in the routing key are shown in Table 4-19.

Table 4-19 Routing Key Parameter Combinations for Changing the Range of CIC Values in an Existing Routing Key

SI=4 (TUP)	SI=5	(ISUP)	SI=13 (QBICC)
dpci/dpcn/	dpc/dpca= <the <b="">DPC</the>	dpci/dpcn/	dpc/dpca/dpci/
dpcn24= <the <b="">DPC assigned to the routing key> (See Note 1)</the>	assigned to the routing key> (See Note 1)	dpcn24= <the <b="">DPC assigned to the routing key> (See Note 1)</the>	dpcn/dpcn24= <the DPC assigned to the routing key> (See Note 1)</the
si=4 (See Note 1)	si=5 (See Note 1)	si=5 (See Note 1)	si=13 (See Note 1)
opci/opcn/ opcn24= <the <b="">OPC assigned to the routing key> (See Note 1)</the>	opc/opca= <the <b="">OPC assigned to the routing key> (See Note 1)</the>	opci/opcn/ opcn24= <the <b="">OPC assigned to the routing key> (See Note 1)</the>	opc/opca/opci/ opcn/opcn24= <the OPC assigned to the routing key> (See Note 1)</the
cics= <the cics="" value<br="">assigned to the routing key> (See Notes 1 and 2)</the>	cics= <the <b="">CICS value assigned to the routing key>^{1, 2}</the>	cics= <the cics="" value<br="">assigned to the routing key> (See Notes 1 and 2)</the>	cics= <the cics="" value<br="">assigned to the routing key> (See Notes 1 and 2)</the>
cice= <the cice="" value<br="">assigned to the routing key> (See Notes 1 and 2)</the>	cice= <the cice="" value<br="">assigned to the routing key> (See Notes 1 and 2)</the>	cice= <the cice="" value<br="">assigned to the routing key> (See Notes 1 and 2)</the>	cice= <the cice="" value<br="">assigned to the routing key> (See Notes 1 and 2)</the>
type=full	type=full	type=full	type=full



Table 4-19	(Cont.) Routing Key Parameter Combinations for Changing the
Range of C	C Values in an Existing Routing Key

SI=4 (TUP)	SI=5	SI=13 (QBICC)	
ncics=<0 to 4095> (See Notes 2 and 3)	ncics=<0 to 16383> (See Notes 2 and 3)	ncics=<0 to 4095> (See Notes 2 and 3)	ncics=<0 to 4294967295> (See Notes 2 and 3)
ncice=<0 to 4095> (See Notes 2 and 3)	ncice=<0 to 16383> (See Notes 2 and 3)	ncice=<0 to 4095> (See Notes 2 and 3)	ncice=<0 to 4294967295> (See Notes 2 and 3)
rcontext= <the current<br="">routing context value assigned to the routing key> (See Notes 4 and 5)</the>	rcontext= <the current<br="">routing context value assigned to the routing key> (See Notes 4 and 5)</the>	rcontext= <the current<br="">routing context value assigned to the routing key> (See Notes 4 and 5)</the>	rcontext= <the current<br="">routing context value assigned to the routing key> (See Notes 4 and 5)</the>

- 1. The values for these parameters must be entered exactly as shown in the rtrv-appl-rtkey command output for the routing key being changed. However, text strings can be used in place of some numerical service indicator values. See Table 4-18 for a list of these text strings. The text string must correspond to the numerical value shown in the routing key being changed.
- 2. The cics and cice parameters must be specified and either the ncics or ncice parameters, or both, must be specified. If both the ncics and ncice parameters are specified, the value of the ncics parameter must be less than the value of the ncice parameter. If the ncics parameter is not specified, the value of the ncice parameter must be greater than or equal to the cics parameter value. If the ncice parameter is not specified, the value of the ncice parameter is not specified, the value of the ncics parameter must be less than or equal to the cice parameter value.
- 3. The new CIC range cannot overlap the CIC range in an existing routing key.
- 4. If the routing key contains a numerical value in the RCONTEXT column in the rtrv-appl-rtkey output, the rcontext parameter and value can be used in place of the dpc, si, opc, cics, cice, or type=full parameters and values to identify the routing that is being changed with the chg-appl-rtkey command. However, if only the rcontext parameter is used to identify the routing key being changed, only one of these parameters, ncics or ncice can be specified with the chg-appl-rtkey parameter. If you wish to specify the ncics and ncice parameters with the chg-appl-rtkey parameter, the dpc, si, opc, cics, cice, or type=full parameters and values must be specified with the chg-appl-rtkey command.
- 5. If the routing key contains dashes in the RCONTEXT column in the rtrv-appl-rtkey output, the dpc, si, opc, cics, cice, or type parameters and values must be used with the chg-appl-rtkey command to identify the routing key being changed.

Rules for Splitting the Range of CIC Values in an Existing Routing Key

The parameter combinations used by the chg-appl-rtkey command to split the range of CIC values in the routing key are shown in Table 4-20.

Splitting the range of **CIC** values creates two routing keys. The **CIC** values in one routing key ranges from the cics value of the original routing key to a value equal to one less than the split value. The **CIC** values in the other routing key ranges from the split value to the cice value of the original routing key. All other parameters in both routing keys remain the same as in the original routing key. The range of **CIC** values cannot be split if the routing key contains a routing context parameter value.



Table 4-20 Routing Key Parameter Combinations for Splitting the Range of CIC Values in an Existing Routing Key

SI=4 (TUP)	SI=5	(ISUP)	SI=13 (QBICC)
dpci/dpcn/	dpc/dpca= <the <b="">DPC</the>	dpci/dpcn/	dpc/dpca/dpci/
dpcn24= <the <b="">DPC assigned to the routing key> (See Note 1)</the>	assigned to the routing key> (See Note 1)	dpcn24= <the <b="">DPC assigned to the routing key> (See Note 1)</the>	dpcn/dpcn24= <the DPC assigned to the routing key> (See Note 1)</the
si=4 (See Note 1)	si=5 (See Note 1)	si=5 (See Note 1)	si=13 (See Note 1)
opci/opcn/	opc/opca= <the opc<="" td=""><td>opci/opcn/</td><td>opc/opca/opci/</td></the>	opci/opcn/	opc/opca/opci/
opcn24= <the <b="">OPC assigned to the routing key> (See Note 1)</the>	assigned to the routing key> (See Note 1)	opcn24= <the opc<br="">assigned to the routing key> (See Note 1)</the>	opcn/opcn24= <the assigned="" key="" opc="" routing="" the="" to=""> (See Note 1)</the>
cics= <the cics="" value<br="">assigned to the routing key> (See Note 1)</the>	cics= <the cics="" value<br="">assigned to the routing key> (See Note 1)</the>	cics= <the cics="" value<br="">assigned to the routing key> (See Note 1)</the>	cics= <the <b="">CICS value assigned to the routing key> (See Note 1)</the>
cice= <the cice="" value<br="">assigned to the routing key> (See Note 1)</the>	cice= <the cice="" value<br="">assigned to the routing key> (See Note 1)</the>	cice= <the cice="" value<br="">assigned to the routing key> (See Note 1)</the>	cice= <the cice="" value<br="">assigned to the routing key> (See Note 1)</the>
type=full	type=full	type=full	type=full
split=<0 to 4095> (See Note 2)	split=<0 to 16383> (See Note 2)	split=<0 to 4095> (See Note 2)	split=<0 to 4294967295> (See Note 2)

- 1. The values for these parameters must be entered exactly as shown in the rtrv-appl-rtkey command output for the routing key being changed. However, text strings can be used in place of some numerical service indicator values. See Table 4-18 for a list of these text strings. The text string must correspond to the numerical value shown in the routing key being changed.
- 2. The split parameter value must be greater than the cics parameter value and less than the cice parameter value.

Canceling the RTRV-APPL-RTKEY Command

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

- Press the F9 function key on the keyboard at the terminal where the rtrv-appl-rtkey command was entered.
- Enter the canc-cmd without the trm parameter at the terminal where the rtrv-appl-rtkey command was entered.
- Enter the canc-cmd:trm=<xx>, where <xx> is the terminal where the rtrv-appl-rtkey command was entered, from another terminal other that the terminal where the rtrv-appl-rtkey command was entered. To enter the canc-cmd:trm=<xx> command, the terminal must allow Security Administration commands to be entered from it and the user must be allowed to enter Security



Administration commands. The terminal's permissions can be verified with the rtrv-secu-trm command. The user's permissions can be verified with the rtrv-user or rtrv-secu-user commands.

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

1. Display the current routing key information in the database by entering the rtrv-appl-rtkey command.

The following is an example of the possible output.

rlghncxa03w 08-04-28 21:15:37 GMT EAGLE5 38.0.0

STATIC Route Key table is (17 of 2000) 1% full

RCONTEXT 2500	DPC 123-234-123 005-005-001 005-005-001 006-006-001	SI 5 5 5 5	ADPTR M3UA M3UA M3UA SUA	ASNAME as12 as9 as9 as10	TYPE FULL FULL FULL
RCONTEXT	DPCI	SI	ADPTR	ASNAME	TYPE
	2-100-7	6	M3UA	as4	FULL
100	3-137-6	6	SUA	as1	FULL
225	4-035-7	5	SUA	as7	FULL
	6-006-6	5	M3UA	as2	FULL
	6-006-7	5	M3UA	as8	FULL
	6-006-6	5	M3UA	as2	FULL
	6-006-6	5	M3UA	as2	FULL
	6-006-8	3	M3UA	as3	FULL
	6-006-8	5	M3UA	as5	FULL
	6-024-7	5	M3UA	as4	FULL
	6-024-7	5	M3UA	as4	FULL
300	7-008-7	6	SUA	as6	FULL
RCONTEXT	DPC	SI	ADPTR	ASNAME	TYPE
	******	**	M3UA	as11	DEFAULT

2. Display the specific routing key information for the routing key being changed by entering the rtrv-appl-rtkey command with the display=all parameter.

STATIC Route Key Socket Association table is (17 of 32000) 1% full

If the routing key being changed contains a routing context value, specify the rcontext parameter and value shown in the rtrv-appl-rtkey output in 1 for the routing key being changed.

If the routing key being changed does not contain a routing context value, specify the DPC, SI, and TYPE values shown in the rtrv-appl-rtkey output in 1 for the routing key being changed. The service indicator value for the routing key to be used in this procedure is either 4, 5, or 13.

For this example, enter these commands.

```
rtrv-appl-rtkey:dpc=123-234-123:si=5:type=full:display=all
```



This is an example of the possible output.

```
rlghncxa03w 08-04-28 21:16:37 GMT EAGLE5 38.0.0

RCONTEXT DPC SI SSN OPC CICS CICE
----- 123-234-123 5 --- 122-124-125 1 1000

ADPTR TYPE ASNAME
M3UA FULL as12

ANAMES
assoc20

STATIC Route Key table is (17 of 2000) 1% full
STATIC Route Key Socket Association table is (17 of 32000) 1% full
rtrv-appl-rtkey:rcontext=225:display=all
```

This is an example of the possible output.

```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0

RCONTEXT DPCI SI SSN OPCI CICS CICE
225 4-035-7 5 --- 2-007-3 2000 3000

ADPTR TYPE ASNAME
M3UA FULL as7

ANAMES
assoc15

STATIC Route Key table is (17 of 2000) 1% full
STATIC Route Key Socket Association table is (17 of 32000) 1% full
```

3. Change the CIC values of the routing key by entering the chg-appl-rtkey command.

The parameters required for the <code>chg-appl-rtkey</code> command are determined by the type of change being made to the routing key. Go to one of these sections to determine the required parameter combination.

- Rules for Changing the Range of CIC Values in an Existing Routing Key
- Rules for Splitting the Range of CIC Values in an Existing Routing Key

To change the range of **CIC** values for this example, enter these commands.

```
chg-appl-
rtkey:dpca=123-234-123:si=5:opca=122-124-125:cics=1:cice=100
0:ncice=2000
chg-appl-
rtkey:dpci=4-035-7:si=5:opci=2-007-3:cics=2000:cice=3000:nci
ce=4000
```

If a routing context value is assigned to the routing key, the rcontext parameter and value assigned to the routing key can be used to identify the routing key being

changed instead of the dpc, si, opc, cics, and cice parameters. If the rcontext parameter is specified only one of these parameters, ncics or ncice, can be specified with the chg-appl-rtkey parameter.

For this example, enter this command.

```
chg-appl-rtkey:rcontext=225:ncice=4000
```

To split the range of **CIC** values for this example, enter this command.

```
chg-appl-
rtkey:dpca=123-234-123:si=5:opca=122-124-125:cics=1:cice=1000:spl
it=500
```

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

```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0 CHG-APPL-RTKEY: MASP A - COMPLTD
```

4. Display the new routing key information in the database by entering the rtrv-appl-rtkey command with the display=all parameter.

If the routing key being changed contains a routing context value, specify the rcontext parameter and value specified in the chg-appl-rtkey command in 3. The DPC, SI, CICS, and CICE parameters and values used in 3 can be specified in the rtrv-appl-rtkey command for routing keys containing routing context values.

If the routing key being changed does not contain a routing context value, specify the DPC, SI, CICS, and CICE parameters and values specified in the chg-appl-rtkey command in 3. If the ncics or ncice parameters were specified in 3, the NCICS or NCICE values specified in 3 must be specified for the cics or cice parameters in this step.

For this example, enter these commands.

```
rtrv-appl-
rtkey:dpca=123-234-123:si=5:cics=1:cice=2000:display=all
rlghncxa03w 08-04-28 21:16:37 GMT EAGLE5 38.0.0
RCONTEXT DPC
                       SI SSN OPC
                                           CICS
                                                      CICE
----- 123-234-123 5 --- 122-124-125
                                         1
                                                      2000
   ADPTR TYPE
                 ASNAME
   M3UA FULL
                   as12
   ANAMES
   assoc20
STATIC Route Key table is (17 of 2000) 1% full
STATIC Route Key Socket Association table is (17 of 32000) 1% full
rtrv-appl-
rtkey:dpci=4-035-7:si=5:cics=2000:cice=4000 :display=all
or
```



rtrv-appl-rtkey:rcontext=225:display=all

This is an example of the possible output.

```
rlghncxa03w 08-04-28 21:16:37 GMT EAGLE5 38.0.0
RCONTEXT DPCI SI SSN OPCI CICS
                                                CICE
          4-035-7 5 --- 2-007-3 2000
225
                                                 4000
   ADPTR TYPE ASNAME
   SUA FULL
                as7
   ANAMES
   assoc15
STATIC Route Key table is (17 of 2000) 1% full
STATIC Route Key Socket Association table is (17 of 32000) 1% full
rtrv-appl-
rtkey:dpca=123-234-123:si=5:cics=1:cice=1000 :display=all
rlghncxa03w 08-04-28 21:16:37 GMT EAGLE5 38.0.0
RCONTEXT DPC
               SI SSN OPC CICS
                                                CICE
----- 123-234-123 5 --- 100-100-100 1
                                                 499
   ADPTR TYPE ASNAME
   M3UA FULL
                as12
   ANAMES
   assoc20
                                     CICS
RCONTEXT DPC
              SI SSN OPC
                                                CICE
----- 123-234-123 5 --- 122-124-125 500
                                                 1000
   ADPTR TYPE
                ASNAME
   M3UA FULL
                as12
   ANAMES
   assoc20
STATIC Route Key table is (18 of 2000) 1% full
STATIC Route Key Socket Association table is (18 of 32000) 1% full
```

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

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

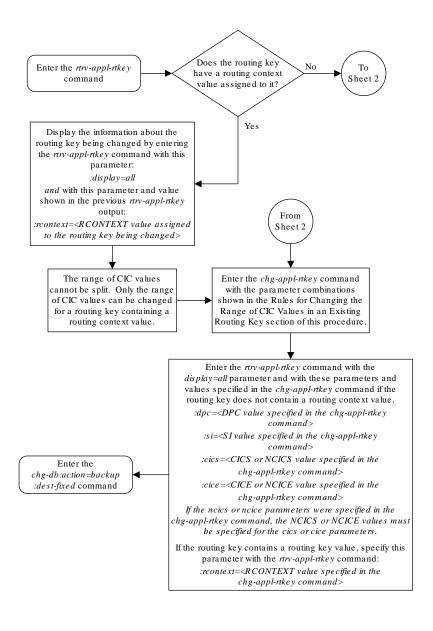
```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

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

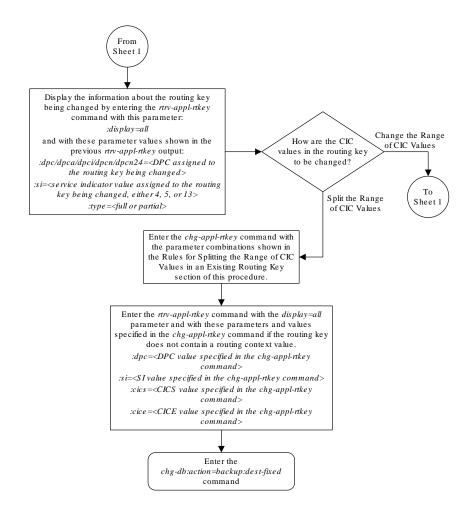
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
```

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

Figure 4-41 Changing the CIC Values in an Existing Routing Key Containing an Application Server



Sheet 1 of 2



Sheet 2 of 2

Changing the Routing Context Value in an Existing Routing Key

This procedure is used to change the routing context value in an existing routing key using the <code>chg-appl-rtkey</code> command.

The routing key being changed in this procedure must contain a number for the routing context value. If the routing context value shown for the routing key contains dashes

(-), this routing key cannot be used in this procedure. The dashes shows that the routing key does not have a routing context assigned to it.

To assign a routing context value to an existing M3UA routing key, the routing key must be removed by performing the Removing a Routing Key Containing an Application Server procedure, then re-enter the routing key with the routing context value by performing the Adding a Routing Key Containing an Application Server procedure. A routing context value must always be assigned to an SUA routing key.

These parameters are used in this procedure.

:rcontext - The current routing context parameter value, which has two functions:

- Provides an index of the application server traffic that the sending ASP is configured or registered to receive.
- Identifies the SS7 network context for the message. The routing context parameter implicitly defines the SS7 point code format used, the SS7 network indicator value, and the SCCP protocol type/variant/version used.

:nrcontext – The new routing context parameter value, from 0 to 4294967295. The new routing context value cannot be assigned to other routing keys.

The chg-appl-rtkey command contains other parameters that are not used in this procedure.

: dpc/dpca/dpci/dpcn/dpcn24 - **Destination** point code value that is used to filter incoming **MSUs**.

:opc/opca/opci/opcn/opcn24 - The originating point code value that is used to filter incoming MSUs. This value must not specify a cluster route.

:si – The service indicator value that is used to filter incoming **MSUs**. The range of values for the service indicator parameter (si) can be a numerical value from 0 to 15, or for selected service indicator values, a text string can be used instead of numbers. Table 4-21 shows the text strings that can be used in place of numbers for the service indicator values.

Table 4-21 Service Indicator Text String Values

Service Indicator Value	Text String	Service Indicator Value	Text String
0	snm	4	tup
1	regtest	5	isup
2	spltst	13	qbicc
3	sccp		

: ssn – The subsystem number value that is used to filter incoming MSUs.

:cics - Starting circuit identification code that is used to filter incoming MSUs.

: cice - Ending circuit identification code that is used to filter incoming MSUs.

:type - **Key** type. Identifies the type of routing key that will be changed. One of three values, type =full/partial/default. If type is not explicitly specified, type = full is assumed.

: $\verb|ncics|$ - New starting circuit identification code that is used to filter incoming MSUs.



:ncice - New ending circuit identification code that is used to filter incoming MSUs.

:split - The circuit identification code value where the specified range of the routing key specified by the cics and cice values is to be split into two entries.

See the Changing the CIC Values in an Existing Routing Key Containing an Application Server procedure for changing a routing key using the ncics, ncice, and split parameters.

Canceling the RTRV-APPL-RTKEY Command

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

- Press the F9 function key on the keyboard at the terminal where the rtrv-applrtkey command was entered.
- Enter the canc-cmd without the trm parameter at the terminal where the rtrv-appl-rtkey command was entered.
- Enter the canc-cmd:trm=<xx>, where <xx> is the terminal where the rtrv-appl-rtkey command was entered, from another terminal other that the terminal where the rtrv-appl-rtkey 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 of rtrv-secu-user commands.

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

 Display the current routing key information in the database by entering the rtrvappl-rtkey command. The following is an example of the possible output.

rlghncxa03w 08-04-28 21:15:37 GMT EAGLE5 38.0.0

RCONTEXT	DPC	SI	ADPTR	ASNAME	TYPE
	123-234-123	5	M3UA	as12	FULL
	005-005-001	5	M3UA	as9	FULL
	005-005-001	5	M3UA	as9	FULL
2500	006-006-001	5	SUA	as10	FULL
RCONTEXT	DPCI	SI	ADPTR	ASNAME	TYPE
	2-100-7	6	M3UA	as4	FULL
100	3-137-6	6	SUA	as1	FULL
225	4-035-7	5	M3UA	as7	FULL
310	6-006-6	5	SUA	as2	FULL
	6-006-7	5	M3UA	as8	FULL
1000	6-006-6	5	SUA	as2	FULL
500	6-006-6	5	SUA	as2	FULL
	6-006-8	3	M3UA	as3	FULL
	6-006-8	5	M3UA	as5	FULL
	6-024-7	5	M3UA	as4	FULL
	6-024-7	5	M3UA	as4	FULL



```
300 7-008-7 6 SUA as6 FULL

RCONTEXT DPC SI ADPTR ASNAME TYPE
----- ********* ** M3UA as11 DEFAULT

STATIC Route Key table is (17 of 2000) 1% full
STATIC Route Key Socket Association table is (17 of 32000) 1% full
```

2. Display the specific routing key information for the routing key being changed by entering the rtrv-appl-rtkey command with the display=all parameter and the RCONTEXT value shown in the rtrv-appl-rtkey output in 1 for the routing key being changed. For this example, enter this command.

```
rtrv-appl-rtkey:rcontext=310:display=all
```

This is an example of the possible output.

```
rlghncxa03w 08-04-28 21:16:37 GMT EAGLE5 38.0.0
RCONTEXT
          DPCI
                       SI SSN OPCI
                                            CICS
                                                       CICE
310
          6-006-6
                       5 --- 1-002-3
                                            75
                                                       100
   ADPTR TYPE ASNAME
   SUA
          FULL
                   as2
   ANAMES
   assoc1
STATIC Route Kev table is (17 of 2000) 1% full
STATIC Route Key Socket Association table is (17 of 32000) 1% full
```

If the routing context value shown for the routing key is dashes (-), this routing key cannot be used in this procedure. The dashes show that the routing key does not have a routing context assigned to it.

To assign a routing context value to a M3UA routing key that does not have a routing context value, the routing key must be removed by performing the Removing a Routing Key Containing an Application Server procedure. Re-enter the routing key with the routing context value by performing the Adding a Routing Key Containing an Application Server procedure. If you do not wish to assign a routing context value to this routing key, but you wish to change the routing context value in another routing key, repeat this step with another routing key shown in 1. If you do not wish to assign a routing context value to this routing key, and do not wish to change the routing context value in another routing key, this procedure cannot be performed.

If the routing key contains a routing context value, continue the procedure with 3.

3. Display the association displayed in the rtrv-appl-rtkey output in 2, using the rtrv-assoc command with the association name shown in 2.

```
rtrv-assoc:aname=assoc1
```

This is an example of possible output.

```
rlghncxa03w 09-05-28 09:12:36 GMT EAGLE5 41.0.0 ANAME assoc1
```



```
LOC
            1203
                         IPLNK PORT A
                                           LINK A
     ADAPTER SUA
                                   SUA RFC
                         VER
     LHOST
            gw105.nc.tekelec.com
     ALHOST ---
     RHOST
            gw100.nc.tekelec.com
     ARHOST ---
     LPORT
            1030
                        RPORT
                                   1030
                                  2
     ISTRMS 2
                        OSTRMS
                                            BUFSIZE 16
                       RMIN
     RMODE LIN
                                  120
                                                    800
                                            RMAX
     RTIMES 10
                        CWMIN
                                   3000
                                            UAPS
                                                    10
     OPEN
            YES
                        ALW
                                   YES
                                            RTXTHR 10000
     RHOSTVAL RELAXED
     ASNAMES
     as2
IP Appl Sock table is (4 of 4000) 1% full
Assoc Buffer Space Used (16 KB of 800 KB) on LOC = 1203
```

Repeat this step for each association name displayed in 2.



If theopen parameter value for all the associations assigned to the application server isno (shown in3), continue the procedure with5.

4. Change the value of the open parameter to no by specifying the chg-assoc command with the open=no parameter. For this example, enter this command.

```
chg-assoc:aname=assoc1:open=no
```

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

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
CHG-ASSOC: MASP A - COMPLTD;
```

Caution:

The **IP** connections using the associations specified in this step will not be able to carry any traffic when the open parameter is changed tono.

Repeat this step for all the associations assigned to the application server that have the open=yes parameter value.

5. Change the routing key information to the database by entering the chg-applrtkey command with the current and new routing context values. For this example, enter this command.

```
chg-appl-rtkey:nrcontext=5280:rcontext=310
```



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

```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0 CHG-APPL-RTKEY: MASP A - COMPLTD
```

6. Display the new routing key information in the database by entering the rtrv-appl-rtkey command with the new routing context value specified in 5 and the display=all parameter. For this example, enter this command.

```
rtrv-appl-rtkey:rcontext=5280:display=all
```

This is an example of the possible output.

```
rlghncxa03w 08-04-28 21:15:37 GMT EAGLE5 38.0.0

RCONTEXT DPCI SI SSN OPCI CICS CICE

5280 6-006-6 5 --- 1-002-3 75 100

ADPTR TYPE ASNAME

SUA FULL as2

ANAMES

assoc1

STATIC Route Key table is (17 of 2000) 1% full

STATIC Route Key Socket Association table is (17 of 32000) 1% full
```

Note:

If4was not performed in this procedure, continue the procedure with8.

7. Change the value of the open parameter of the associations that were changed in 4 to yes by specifying the chg-assoc command with the open=yes parameter. For this example, enter this command.

```
chg-assoc:aname=assoc1:open=yes
```

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

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 CHG-ASSOC: MASP A - COMPLTD;
```

Repeat this step for all the associations that were changed in 4.

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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

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

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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



Enter the rtrv-appl-rtkey command Display the information about the routing key being changed by Enter the entering the rtrv-appl-rtkey rtry-assoc command with this command with these parameters. parameter. :display=all:aname = <association name> :rcontext=<current routing context Repeat this step for each value assigned to the routing key association name displayed in being changed, shown in the the previous rtrv-appl-rtkey previous rtrv-appl-rtkey output> output. (See the Note) Do all the associations shown in the No rtrv-assoc output contain the open=no parameter value? Enter the Yes chg-assoc command with these parameters :aname = <association name > open=no Repeat this step for each association То assigned to the application server that Sheet 2 contains the *open=yes* parameter value. Caution: The IP connections using the associations specified in this step will not be able to carry any traffic when the open parameter is changed to no.

Figure 4-42 Changing the Routing Context Value in an Existing Routing Key

Note: If the *rcontext* field of the *rtrv-appl-rtkey* output contains dashes (-), the routing key does not contain a routing context value.

To add a routing context value to an existing M3UA routing key that currently does not have a routing context value, perform the following procedures.

Remove the routing key by performing the 'Removing an Application Routing Key" procedure. Record the routing key information before removing the routing key.

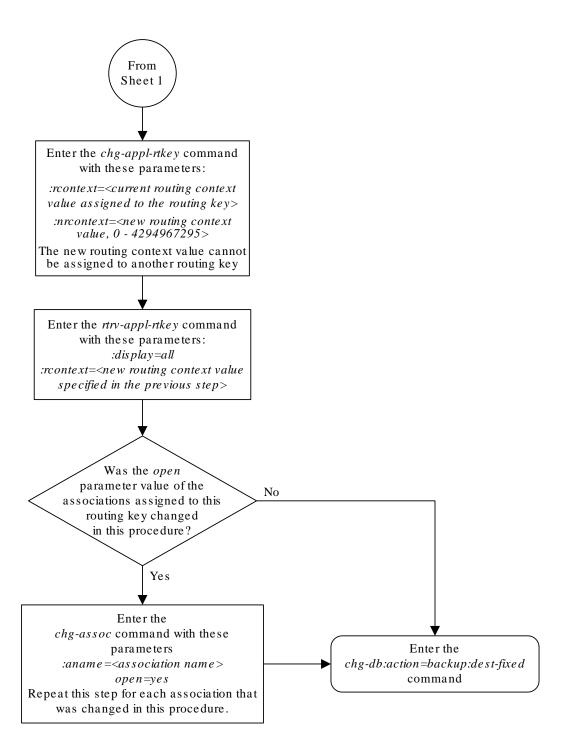
Add the routing key with the information recorded in the previous step and the routing context value by performing the "Adding an Application Routing Key Containing an Application Server" procedure.

A routing context value must always be assigned to an SUA routing key.



Sheet 1 of 2







Sheet 2 of 2

Changing the SCTP Checksum Algorithm Option for M3UA and SUA Associations

Use this procedure to change the SCTP checksum algorithm, either Adler-32 or CRC-32c, applied to traffic on SCTP associations. The sctpcsum parameter of the chg-sg-opts command is used to change this option. The Adler-32 and CRC-32c checksum algorithms specified in this procedure applies to all the associations that are assigned to all the IP cards running the SS7IPGW or IPGWI applications. This option is a system-wide option. To apply this option to associations assigned to cards running the IPLIM, IPLIMI, or IPSG applications, perform these procedures.

- Changing the SCTP Checksum Algorithm Option for IPSG M2PA Associations
- Changing the SCTP Checksum Algorithm Option for IPSG M3UA Associations
- Changing the SCTP Checksum Algorithm Option for M2PA Associations

The sctpcsum parameter contains another value, percard, that allows either the Adler-32 or CRC-32c SCTP checksum algorithm to be specified for the all the associations assigned to a specific card. With this option specified, the Adler-32 checksum algorithm can be specified for the associations on one card and the CRC-32c checksum algorithm can be specified for the associations on another card. Setting the sctpcsum parameter to percard changes the SCTP checksum algorithm for the associations assigned to a card to the SCTP checksum algorithm value for that card. The checksum algorithm for individual cards is provisioned by performing the Configuring an IP Card procedure.

Once the **SCTP** checksum option has been changed, the associations on each **IP** card need to be reset by changing the open parameter value for each association to no, then back to yes. This ensures that the associations on the **IP** card are using the new **SCTP** checksum algorithm.

Canceling the RTRV-ASSOC Command

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

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

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



1. Display the current **IP** options in the database by entering the rtrv-sg-opts command. The following is an example of the possible output.

```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0 SCTPCSUM: adler32
```

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

2. Display the cards in the **EAGLE** by entering the rtrv-card command. This is an example of the possible output.

rlghnc	xa03w 13-0	6-15 16:34	:56 GMT EAGLE5	45.0	.0	
CARD	TYPE	APPL	LSET NAME	LINK	SLC	LSET NAME
LINK S	LC					
1101	DSM	VSCCP				
1102	TSM	GLS				
1113	E5MCAP	EOAM				
1114	E5TDM-A					
1115	E5MCAP	EOAM				
1116	E5TDM-B					
1117	E5MDAL					
1201	LIMDS0	SS7ANSI	lsn1	A	0	lsn2
В 1						
1202	DCM	IPLIM	ipnode2	A	1	
1203	LIMDS0	SS7ANSI	lsn2	A	0	lsn1
В 1						
1204	LIMATM	ATMANSI	atmgwy	A	0	
1205	DCM	IPLIM	ipnode1	A	0	ipnode3
В 1						
1207	DCM	IPLIM	ipnode2	A	0	
1303	DCM	IPLIM	ipnode3	A	0	ipnode1
В 1						
1305	DCM	IPLIM	ipnode4	A	0	
1308	DCM	IPLIM	ipnode3	В	2	
			ipnode1	A1	2	ipnode4
B2 1						
1315	DCM	SS7IPGW	ipgtwy1	A		
1317	DCM	IPGWI	ipgtwy2	A		

Record the card location, shown in the LOC column, and signaling link, shown in the LINK column, information for all cards running the **SS7IPGW** and **IPGWI** applications.

- 3. At the IP near end node, stop all traffic to one of the IP cards running the SS7IPGW or IPGWI applications on the EAGLE.
- **4.** At the **EAGLE**, enter the msucount -1 pass command with the card location of the **IP** card selected in **3**. For this example, enter this command.

```
pass:loc=1315:cmd="msucount -1"
```



The following is an example of the possible output.

```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0

PASS: Command sent to card

rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0

MSUCOUNT: Command In Progress

rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0

MSUCOUNT: MSU Count Report

Link Measurements (Link A)

Transmit Counts

Receive Counts

rate msus bytes rate msus bytes

rate msus bytes

2000 4294967295 4294967295 2000 4294967295 4294967295

MTP Primitive (MTPP) counts

Reroute Counts
```

 sent pdus
 rcvd pdus
 dscrd pdus
 sent msus
 rcvd msus

 4294967295
 4294967295
 4294967295
 4294967295
 4294967295
 4294967295

END of Report

5. Display the **IP** addresses of the **IP** links in the database by entering the rtrv-ip-lnk command. The following is an example of the possible output.

_		w 08-12-28 21:17						
LOC	PORT	IPADDR	SUBMASK	DUPLEX	SPEED	MACTYPE	AUTO	
MCAST								
1202	A	192.1.1.10		HALF	10	DIX	NO	NO
1202	В			HALF	10	DIX	NO	NO
1205	A	192.1.1.12	255.255.255.0	HALF	10	DIX	NO	NO
1205	В			HALF	10	DIX	NO	NO
1207	A	192.1.1.14	255.255.255.0	HALF	10	DIX	NO	NO
1207	В			HALF	10	DIX	NO	NO
1303	A	192.1.1.20	255.255.255.0	HALF	10	DIX	NO	NO
1303	В			HALF	10	DIX	NO	NO
1305	A	192.1.1.22	255.255.255.0	HALF	10	DIX	NO	NO
1305	В			HALF	10	DIX	NO	NO
1308	A	192.1.1.24	255.255.255.0	HALF	10	DIX	NO	NO
1308	В			HALF	10	DIX	NO	NO
1315	A	192.1.1.50	255.255.255.0	HALF	10	DIX	NO	NO
1315	В			HALF	10	DIX	NO	NO
1317	A	192.1.1.52	255.255.255.0	HALF	10	DIX	NO	NO
1317	В				10	DIX	NO	NO
-							-	-

IP-LNK table is (16 of 2048) 1% full.

6. Display the current IP host information in the database by entering the rtrv-ip-host:display=all command. The following is an example of the possible output.

```
rlghncxa03w 08-12-28 21:17:37 GMT EAGLE5 40.0.0
LOCAL IPADDR LOCAL HOST
192.1.1.10 IPNODE1-1201
192.1.1.12
              IPNODE1-1203
             IPNODE1-1205
IPNODE2-1201
IPNODE2-1203
192.1.1.14
192.1.1.20
192.1.1.22
192.1.1.24
              IPNODE2-1205
192.1.1.32
              KC-HLR2
192.1.1.50
              DN-MSC1
192.1.1.52
             DN-MSC2
REMOTE IPADDR REMOTE HOST
150.1.1.5 NCDEPTECONOMIC DEVELOPMENT.
SOUTHEASTERN_COORIDOR_ASHVL. GOV
IP Host table is (10 of 4096) .24% full
```

7. Display the associations assigned to the IP card specified in 4, using the rtrv-assoc command with the local host name of the associations assigned to the IP card. To find the local host name of the association, the card location of the IP card is assigned to an IP address in the IP link table (rtrv-ip-lnk output). The IP

address is assigned to a hostname in the IP host table (rtrv-ip-host output).

For this example, the local host name of associations assigned to the **IP** card 1315 (the card specified in 4) is **DN-MSC1**. Enter this command.

```
rtrv-assoc:lhost=dn-msc1
```

The following is an example of the possible output.

8. At the **EAGLE**, enter the msucount -a pass command with the card location specified in 4 and the association names shown in 7. For this example, enter this command.

```
pass:loc=1315:cmd="msucount -a assoc3"
```

The following is an example of the possible output.

```
rlghncxa03w 06-10-28 21:17:37 GMT EAGLE5 36.0.0 PASS: Command sent to card
```



rlghncxa03w 06-10-28 21:17:37 GMT EAGLE5 36.0.0

MSUCOUNT: Command In Progress

rlghncxa03w 06-10-28 21:17:37 GMT EAGLE5 36.0.0

MSUCOUNT: MSU Count Report

IP Connection Measurements

Receive Counts Transmit Counts

msus	bytes	msus	bytes
4294967295	4294967295	4294967295	4294967295
Receive Discard	Counts	Transmit Discard	Counts

count reason reason count ---------link state 4294967295 sccp msg type 4294967295 4294967295 sccp class sccp msg type 4294967295 sccp class sccp class 4294967295 normalization error 4294967295 sccp called party 4294967295 invalid traffic type 4294967295 sccp calling party 4294967295 M3UA conversion error 4294967295 4294967295 SUA conversion error 4294967295 isup sio

normalization error 4294967295 error in XSRV packet 4294967295 M3UA PDU error 4294967295 SUA PDU error 4294967295 invalid rcontext 4294967295 Stored Transmit Discard Data

no stored transmit discard data Stored Receive Discard Data

53 41 53 49 69 73 6f 74 11 00 87 0a 01 03 01 05 05 00 01 02 03 04 05 06 07 08 09 00 00 00 00 00

END of Report

pass:loc=1315:cmd="msucount -a assoc6"

The following is an example of the possible output.

rlghncxa03w 06-10-28 21:17:37 GMT EAGLE5 36.0.0

 ${\tt PASS:} \ {\tt Command \ sent \ to \ card}$

rlghncxa03w 06-10-28 21:17:37 GMT EAGLE5 36.0.0

MSUCOUNT: Command In Progress

rlghncxa03w 06-10-28 21:17:37 GMT EAGLE5 36.0.0

MSUCOUNT: MSU Count Report

IP Connection Measurements

Receive Counts			Transmit Counts			
msus b	ytes		msus	bytes	bytes	
			4294967295 4294967295 Transmit Discard Counts			
			reason			
link state sccp msg type	429496 429496 429496 429496 429496 0r 429496 ket 429496 429496 429496	7295 7295 7295 7295 7295 7295 7295 7295	sccp msg type sccp class normalization invalid traff M3UA conversi	e n error fic type ion error	4294967295 4294967295 4294967295 4294967295 4294967295	
no stored transmi Stored Receive Di	t discard da	ata				
53 41 53 49 69 73 05 00 01 02 03 04 END of Report						

- 9. At the **IP** near end node, disconnect all the associations attached to the **IP** card specified in 8.
- **10.** At the **EAGLE**, place the signaling link on this **IP** card out of service using the dact-slk command. For this example, enter this command.

```
dact-slk:loc=1315:link=a
```

When this command has successfully completed, this message appears.

```
rlghncxa03w 06-10-12 09:12:36 GMT EAGLE5 36.0.0 Deactivate Link message sent to card
```

11. Change the SCTP checksum option in the database using the <code>chg-sg-opts</code> command. For this example, enter this command.

```
chg-sg-opts:sctpcsum=crc32c
```

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

```
rlghncxa03w 06-10-28 21:19:37 GMT EAGLE5 36.0.0 CHG-SG-OPTS: MASP A - COMPLTD
```



Continue the procedure by performing one of these actions.

- If the sctpcsum parameter value was changed to either adler32 or crc32c, continue the procedure with 12.
- If the sctpcsum parameter value was changed to percard, perform the Configuring an IP Card procedure to assign an sctpcsum parameter value to all the cards running the IPLIM or IPLIMI applications. After the Configuring an IP Card procedure has been performed, continue the procedure with 13.
- 12. Verify that the SCTP checksum algorithm was changed using the rtrv-sg-opts command. The SCTP checksum algorithm option value is shown in the SCTPCSUM parameter. The following is an example of the possible output.

```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0 SCTPCSUM: crc32c
```

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

13. Change the value of the open parameter of the associations shown in 7 to no by specifying the chg-assoc command with the open-no parameter. For this example, enter this command.

```
chg-assoc:aname=assoc3:open=no
chg-assoc:aname=assoc6:open=no
```

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

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 CHG-ASSOC: MASP A - COMPLTD;
```

14. Change the value of the open parameter of the associations changed in 13 to yes by specifying the chg-assoc command with the open=yes parameter. For this example, enter this command.

```
chg-assoc:aname=assoc3:open=yes
chg-assoc:aname=assoc6:open=yes
```

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

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
CHG-ASSOC: MASP A - COMPLTD;
```

15. Verify the checksum algorithm that is assigned to the associations shown in 14 by entering the sctp -a pass command with the card location of the IP card specified in 10 and the name of the associations specified in 14. For this example, enter this command.

```
pass:loc=1315:cmd="sctp -a assoc3 "
```

The following is an example of the possible output.

```
rlghncxa03w 10-12-28 21:16:37 GMT EAGLE5 43.0.0

Aname Local Local Primary Remote
IP Address Port Address Port
```



```
assoc3
                    192.1.1.50
                                      2345 192.168.112.4 1025
                    192.1.1.50
              Configuration
                                                       State
       Retransmission Mode = LIN
                                         State = OPEN
Min. Retransmission Timeout = 10000
                                        ULP association id = 18
Max. Retransmission Timeout = 800000
                                        Number of nets = 2
    Max. Number of Retries = 10
                                         Inbound Streams = 1
   Min. Congestion Window = 3000
                                        Outbound Streams = 2
           Inbound Streams = 2
          Outbound Streams = 2
        Checksum Algorithm = crc32c
      Send/Rcv Buffer Size = 204800
                                Nets Data
                      192.168.112.4
        IP Address
                                         State
                                                   Reachable
              Port
                      1025
                                        Primary
                                                   YES
                                                   16384
               MTU 1500
                                           cwnd
          ssthresh 16384
                                           RTO
                                                   120
        IP Address
                      192.168.112.5
                                        State
                                                   Reachable
                      7777
              Port
                                        Primary
               MTU
                       1500
                                           cwnd
                                                   16384
          ssthresh
                      16384
                                            RTO
                                                   120
                   Last Net Sent To = 192.168.112.4
                 Last Net Rcvd From = 192.168.112.4
                Over All Eror Count = 0
                         Peers Rwnd = 13880
                            My Rwnd = 16384
                         Max Window = 16384
                 Initial Seq Number = 24130
            Next Sending Seq Number = 124686
              Last Acked Seg Number = 124669
        Maximum Outbound Char Count = 16384
        Current Outbound Char Count = 2112
           Number Unsent Char Count = 0
          Outbound Data Chunk Count = 16
                      Number Unsent = 0
               Number To Retransmit = 0
                  ip datagrams rcvd = 155402
 ip datagrams with data chunks rcvd = 120844
                   data chunks rcvd = 367908
                   data chunks read = 367900
                      dup tsns rcvd = 8
                         sacks rcvd = 38734
                gap ack blocks rcvd = 3
            heartbeat requests rcvd = 135
                heartbeat acks rcvd = 52
            heartbeat requests sent = 52
                  ip datagrams sent = 129254
```

```
ip datagrams with data chunks sent = 73084
                   data chunks sent = 396330
        retransmit data chunks sent = 135
                         sacks sent = 64872
                        send failed = 0
             retransmit timer count = 0
     consecutive retransmit timeouts = 0
RTT between RMIN and RMAX inclusive = 6
              RTT greater than RMAX = 0
              fast retransmit count = 135
                   recv timer count = 0
              heartbeat timer count = 244
                   none left tosend = 0
                none left rwnd gate = 5
                none left cwnd gate = 8
;
   rlghncxa03w 10-12-28 21:16:37 GMT EAGLE5 43.0.0
   SCTP command complete
    rlghncxa03w 08-04-28 21:16:37 GMT EAGLE5 38.0.0
   Aname
                    Local
                                     Local Primary
                                                              Remote
                    IP Address
                                      Port
                                               Address
                                                              Port
   assoc3
                    192.1.1.50
                                      2345
                                               192.168.112.4 1025
                    192.1.1.50
              Configuration
                                                       State
                                         State = OPEN
       Retransmission Mode = LIN
Min. Retransmission Timeout = 10
                                         ULP association id = 18
Max. Retransmission Timeout = 800
                                         Number of nets = 2
    Max. Number of Retries = 10
                                         Inbound Streams = 1
   Min. Congestion Window = 3000
                                         Outbound Streams = 2
           Inbound Streams = 2
          Outbound Streams = 2
 Checksum Algorithm = crc32c
                                Nets Data
        IP Address
                      192.168.112.4
                                        State
                                                    Reachable
              Port
                      1025
                                        Primary
                                                   YES
               MTU
                      1500
                                           cwnd
                                                    16384
           ssthresh
                      16384
                                            RTO
                                                    120
        IP Address
                      192.168.112.5
                                        State
                                                    Reachable
                      7777
              Port
                                        Primary
                                                    NO
               MTU
                       1500
                                           cwnd
                                                    16384
                      16384
           ssthresh
                                            RTO
                                                    120
                   Last Net Sent To = 192.168.112.4
```

Last Net Rcvd From = 192.168.112.4

```
Over All Eror Count = 0
                          Peers Rwnd = 13880
                             My Rwnd = 16384
                          Max Window = 16384
                  Initial Seq Number = 24130
             Next Sending Seq Number = 124686
               Last Acked Seq Number = 124669
         Maximum Outbound Char Count = 16384
         Current Outbound Char Count = 2112
            Number Unsent Char Count = 0
           Outbound Data Chunk Count = 16
                       Number Unsent = 0
                Number To Retransmit = 0
                   ip datagrams rcvd = 155402
  ip datagrams with data chunks rcvd = 120844
                    data chunks rcvd = 367908
                    data chunks read = 367900
                       dup tsns rcvd = 8
                          sacks rcvd = 38734
                 gap ack blocks rcvd = 3
             heartbeat requests rcvd = 135
                 heartbeat acks rcvd = 52
             heartbeat requests sent = 52
                   ip datagrams sent = 129254
 ip datagrams with data chunks sent = 73084
                    data chunks sent = 396330
         retransmit data chunks sent = 135
                          sacks sent = 64872
                         send failed = 0
              retransmit timer count = 0
     consecutive retransmit timeouts = 0
RTT between RMIN and RMAX inclusive = 6
               RTT greater than RMAX = 0
               fast retransmit count = 135
                    recv timer count = 0
               heartbeat timer count = 244
                    none left tosend = 0
                 none left rwnd gate = 5
                 none left cwnd gate = 8
    rlghncxa03w 08-04-28 21:16:37 GMT EAGLE5 38.0.0
    SCTP command complete
pass:loc=1315:cmd="sctp -a assoc6 "
The following is an example of the possible output.
    rlghncxa03w 10-12-28 21:16:37 GMT EAGLE5 43.0.0
   Aname
                     Local
                                      Local
                                                Primary
```

```
Remote
                    IP Address
                                              Address
                                      Port
                                      4156
   assoc6
                    192.1.1.50
                                              192.168.112.4 1025
                    192.1.1.50
              Configuration
                                                      State
       Retransmission Mode = LIN
                                      State = OPEN
Min. Retransmission Timeout = 10000
                                        ULP association id = 18
Max. Retransmission Timeout = 800000
                                       Number of nets = 2
    Max. Number of Retries = 10
                                         Inbound Streams = 1
                                        Outbound Streams = 2
   Min. Congestion Window = 3000
           Inbound Streams = 2
          Outbound Streams = 2
        Checksum Algorithm = crc32c
      Send/Rcv Buffer Size = 204800
                                Nets Data
        IP Address
                     192.168.112.4
                                       State
                                                   Reachable
                     1025
                                                 YES
              Port
                                       Primary
                    1500
               MTU
                                          cwnd
                                                   16384
                                                  120
          ssthresh 16384
                                          RTO
        IP Address 192.168.112.5
Port 7777
                                        State
                                                   Reachable
                                                   NO
                                      Primary
               MTU
                   1500
                                          cwnd
                                                  16384
                     16384
                                           RTO
                                                   120
          ssthresh
                   Last Net Sent To = 192.168.112.4
                 Last Net Rcvd From = 192.168.112.4
                Over All Eror Count = 0
                         Peers Rwnd = 13880
                            My Rwnd = 16384
                         Max Window = 16384
                 Initial Seq Number = 24130
            Next Sending Seq Number = 124686
              Last Acked Seq Number = 124669
        Maximum Outbound Char Count = 16384
        Current Outbound Char Count = 2112
           Number Unsent Char Count = 0
          Outbound Data Chunk Count = 16
                      Number Unsent = 0
               Number To Retransmit = 0
                  ip datagrams rcvd = 155402
 ip datagrams with data chunks rcvd = 120844
                   data chunks rcvd = 367908
                   data chunks read = 367900
                      dup tsns rcvd = 8
                         sacks rcvd = 38734
```

gap ack blocks rcvd = 3
heartbeat requests rcvd = 135
heartbeat acks rcvd = 52

```
heartbeat requests sent = 52
                  ip datagrams sent = 129254
 ip datagrams with data chunks sent = 73084
                   data chunks sent = 396330
        retransmit data chunks sent = 135
                         sacks sent = 64872
                        send failed = 0
             retransmit timer count = 0
    consecutive retransmit timeouts = 0
RTT between RMIN and RMAX inclusive = 6
              RTT greater than RMAX = 0
              fast retransmit count = 135
                   recv timer count = 0
              heartbeat timer count = 244
                   none left tosend = 0
                none left rwnd gate = 5
                none left cwnd gate = 8
;
   rlghncxa03w 10-12-28 21:16:37 GMT EAGLE5 43.0.0
    SCTP command complete
   rlghncxa03w 08-04-28 21:16:37 GMT EAGLE5 38.0.0
   Aname
                    Local
                                              Primary
                                      Local
Remote
                    IP Address
                                      Port
                                              Address
   assoc6
                    192.1.1.50
                                      4156
                                              192.168.112.4 1025
                    192.1.1.50
              Configuration
                                                      State
       Retransmission Mode = LIN
                                       State = OPEN
Min. Retransmission Timeout = 10
                                        ULP association id = 18
Max. Retransmission Timeout = 800
                                       Number of nets = 2
    Max. Number of Retries = 10
                                        Inbound Streams = 1
   Min. Congestion Window = 3000
                                        Outbound Streams = 2
           Inbound Streams = 2
          Outbound Streams = 2
 Checksum Algorithm = crc32c
                                Nets Data
                   192.168.112.4
        IP Address
                                         State
                                                   Reachable
                     1025
                                                   YES
              Port
                                       Primary
               MTU 1500
                                                   16384
                                          cwnd
          ssthresh 16384
                                           RTO
                                                   120
        IP Address 192.168.112.5
                                                   Reachable
                                       State
              Port
                     7777
                                       Primary
                    1500
               MTU
                                                   16384
                                          cwnd
          ssthresh
                   16384
                                           RTO
                                                   120
```



```
Last Net Sent To = 192.168.112.4
                  Last Net Rcvd From = 192.168.112.4
                 Over All Eror Count = 0
                          Peers Rwnd = 13880
                             My Rwnd = 16384
                          Max Window = 16384
                  Initial Seq Number = 24130
             Next Sending Seq Number = 124686
               Last Acked Seg Number = 124669
         Maximum Outbound Char Count = 16384
         Current Outbound Char Count = 2112
            Number Unsent Char Count = 0
           Outbound Data Chunk Count = 16
                       Number Unsent = 0
                Number To Retransmit = 0
                   ip datagrams rcvd = 155402
  ip datagrams with data chunks rcvd = 120844
                    data chunks rcvd = 367908
                    data chunks read = 367900
                       dup tsns rcvd = 8
                          sacks rcvd = 38734
                 qap ack blocks rcvd = 3
             heartbeat requests rcvd = 135
                 heartbeat acks rcvd = 52
             heartbeat requests sent = 52
                   ip datagrams sent = 129254
  ip datagrams with data chunks sent = 73084
                    data chunks sent = 396330
         retransmit data chunks sent = 135
                          sacks sent = 64872
                         send failed = 0
              retransmit timer count = 0
     consecutive retransmit timeouts = 0
 RTT between RMIN and RMAX inclusive = 6
               RTT greater than RMAX = 0
               fast retransmit count = 135
                    recv timer count = 0
               heartbeat timer count = 244
                    none left tosend = 0
                 none left rwnd gate = 5
                 none left cwnd gate = 8
;
    rlghncxa03w 08-04-28 21:16:37 GMT EAGLE5 38.0.0
    SCTP command complete
```

If the checksum algorithm shown in any of the associations displayed in this step do not match the checksum algorithm specified in 11, contact the Customer Care Center. Refer to My Oracle Support (MOS) for the contact information.

If the checksum algorithm shown in all of the associations displayed in this step match the checksum algorithm specified in 11, continue the procedure with 16.

- **16.** At the **IP** near end node, configure all the associations attached to the **IP** card specified in **14** to use the **SCTP** checksum algorithm.
- 17. Put the signaling link that was placed out of service in 9 back into service using the act-slk command. For example, enter this command.

```
act-slk:loc=1315:link=a
```

When this command has successfully completed, this message appears.

```
rlghncxa03w 06-10-07 11:11:28 GMT EAGLE5 36.0.0 Activate Link message sent to card
```

18. Verify the in-service normal (IS-NR) status of the signaling link by using the rept-stat-slk command and specifying the card location and link value specified in 17. For example, enter this command.

```
rept-stat-slk:loc=1315:link=a
```

The following is an example of the possible output.

```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0

SLK LSN CLLI PST SST AST
1315,A ipgtwy1 ------ IS-NR Avail ----
Command Completed.
```

- **19.** At the **IP** near end node, connect one of the associations attached to the **IP** card specified in **13**.
- 20. At the **EAGLE**, enter the rept-stat-assoc command specifying the association names specified with the chg-assoc command in 13 and 14 to verify that the association is established with the **IP** near end node. For this example, enter this command.

```
rept-stat-assoc:aname=assoc3
```

The following is an example of the possible output.

rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0

```
ANAME LOC PORT LINK PST SST ASPID as1 1315 A A IS-NR ESTABLISHED 4294967295 ASNAME ANAME as5 as1 ASP-ACTIVE
```

Command Completed.

rept-stat-assoc:aname=assoc6



The following is an example of the possible output.

rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0

	CARD	IPLNK			
ANAME	LOC PORT	LINK	PST	SST	ASPID
as6	1315 A	A	IS-NR	ESTABLISHED	4294967295
ASNAME assoc6	ANAME as6		ASP-STATE		
455555	450		1101 110111	_	

Command Completed.

21. Enter the netstat -p sctp pass command with the card location of the IP card to determine if any errors have occurred. For this example, enter this command. For this example, enter this command.

```
pass:loc=1315:cmd="netstat -p sctp"
```

The following is an example of the possible output.

```
rlghncxa03w 08-04-28 21:16:37 GMT EAGLE5 38.0.0
ip packets sent...... 1474882
   ip packets sent with data chunk...... 306354
   control chunks (excluding retransmissions)..... 1172759
   ordered data chunks (excluding retransmissions).. 1534350
   unordered data chunks (excluding retransmissions) 0
   user messages fragmented due to MTU..... 0
   retransmit data chunks sent..... 4
   send failed..... 0
 ip packets received...... 1816035
   ip packets received with data chunk..... 989957
   control chunks (excluding duplicates)..... 833141
   ordered data chunks (excluding duplicates)..... 989968
   unordered data chunks (excluding duplicates).... 0
   out of the blue..... 4
   by upper layer..... 0
   connections terminated..... 4
   gracefully...... 0
 associations dropped due to retransmits..... 0
 consecutive retransmit timeouts..... 4
 heartbeat acks received...... 340239
```



If errors are shown in the pass command output, contact the Customer Care Center. Refer to My Oracle Support (MOS) for the contact information.

- 22. At the **IP** near end node, connect all the other associations attached to the **IP** card specified in 21.
- 23. At the **IP** near end node, activate one of the associations attached to the **IP** card specified in 21.
- **24.** At the **EAGLE**, enter the msucount -1 pass command with the card location of the **IP** card specified in **21**. For this example, enter this command.

```
pass:loc=1315:cmd="msucount -1"
```

The following is an example of the possible output.

Transmit Counts			Receive Counts			
rate msus	s byte	es	rate	msus		bytes
2000 4294	1967295 4294	967295	2000	4294	967295	4294967295
MTP Primitive (MTPP) counts		Reroute Counts				
sent pdus	rcvd pdus	dscrd pdus	sent m	ısus	rcvd m	ısus
4294967295	4294967295	4294967295	429496	7295	429496	7295
END of Repo	ort					



25. At the EAGLE, enter the msucount -a pass command with the card location specified in 24 and the association names specified in 20. For this example, enter this command.

```
pass:loc=1315:cmd="msucount -a assoc3"
```

The following is an example of the possible output.

rlghncxa03w 06-10-28 21:17:37 GMT EAGLE5 36.0.0 PASS: Command sent to card rlghncxa03w 06-10-28 21:17:37 GMT EAGLE5 36.0.0 MSUCOUNT: Command In Progress rlghncxa03w 06-10-28 21:17:37 GMT EAGLE5 36.0.0 MSUCOUNT: MSU Count Report _____ IP Connection Measurements _____

Receive Counts		Transmit Counts	
msus	bytes	msus	bytes
4004067005	4004067005	4004067005	100100

4294967295 4294967295 4294967295 4294967295 Receive Discard Counts Transmit Discard Counts

reason	count	reason	count
link state	4294967295	sccp msg type	4294967295
sccp msg type	4294967295	sccp class	4294967295
sccp class	4294967295	normalization error	4294967295
sccp called party	4294967295	invalid traffic type	4294967295
sccp calling party	4294967295	M3UA conversion error	4294967295
isup sio	4294967295	SUA conversion error	4294967295
normalization error	4294967295		
error in XSRV packet	4294967295		
M3UA PDU error	4294967295		
SUA PDU error	4294967295		

Stored Transmit Discard Data

no stored transmit discard data Stored Receive Discard Data

invalid rcontext 4294967295

53 41 53 49 69 73 6f 74 11 00 87 0a 01 03 01 05 05 00 01 02 03 04 05 06 07 08 09 00 00 00 00 00

END of Report

SUA PDU error

pass:loc=1315:cmd="msucount -a assoc6"



The following is an example of the possible output.

```
rlghncxa03w 06-10-28 21:17:37 GMT EAGLE5 36.0.0
PASS: Command sent to card
rlghncxa03w 06-10-28 21:17:37 GMT EAGLE5 36.0.0
MSUCOUNT: Command In Progress
rlghncxa03w 06-10-28 21:17:37 GMT EAGLE5 36.0.0
MSUCOUNT: MSU Count Report
IP Connection Measurements
Receive Counts
                                           Transmit Counts
                                                  bytes
msus bytes
                  -----
4294967295 4294967295 4294967295 4294967295
Receive Discard Counts
                                         Transmit Discard Counts
                           count
                                        reason
                                                                       count

      link state
      4294967295
      sccp msg type
      4294967295

      sccp msg type
      4294967295
      sccp class
      4294967295

      sccp class
      4294967295
      normalization error
      4294967295

      sccp called party
      4294967295
      invalid traffic type
      4294967295

sccp calling party 4294967295 M3UA conversion error 4294967295 isup sio 4294967295 SUA conversion error 4294967295
normalization error 4294967295
error in XSRV packet 4294967295
M3UA PDU error 4294967295
SUA PDU error 4294967295
invalid rcontext 4294967295
Stored Transmit Discard Data
no stored transmit discard data
Stored Receive Discard Data
_____
53 41 53 49 69 73 6f 74 11 00 87 0a 01 03 01 05
05 00 01 02 03 04 05 06 07 08 09 00 00 00 00 00
```

If the outputs of the pass commands in 24 and 25 show that traffic is not flowing over the association, contact the Customer Care Center. Refer to My Oracle Support (MOS) for the contact information.

- **26.** At the **IP** near end node, activate all the other associations attached to the **IP** card specified in **25**.
- 27. Repeat 3 through 26 to update the other IP cards in the EAGLE running the SS7IPGW and IPGWI applications with the new SCTP checksum algorithm.



END of Report

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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

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

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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

29. If the rtrv-card output in 2 shows cards running the IPLIM or IPLIMI applications, perform the Changing the SCTP Checksum Algorithm Option for M2PA Associations procedure.

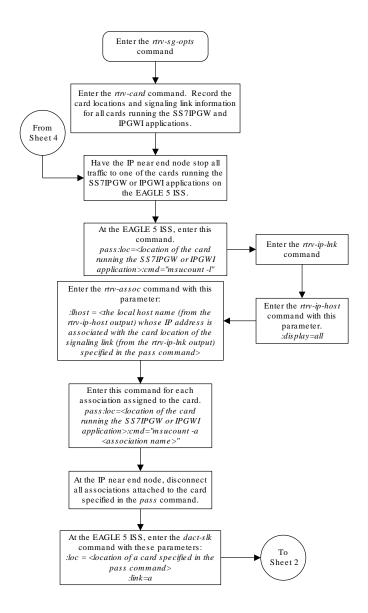
If the rtrv-card output in 2 shows cards running the IPSG application, perform these procedures.

- Changing the SCTP Checksum Algorithm Option for IPSG M3UA Associations
- Changing the SCTP Checksum Algorithm Option for IPSG M2PA Associations

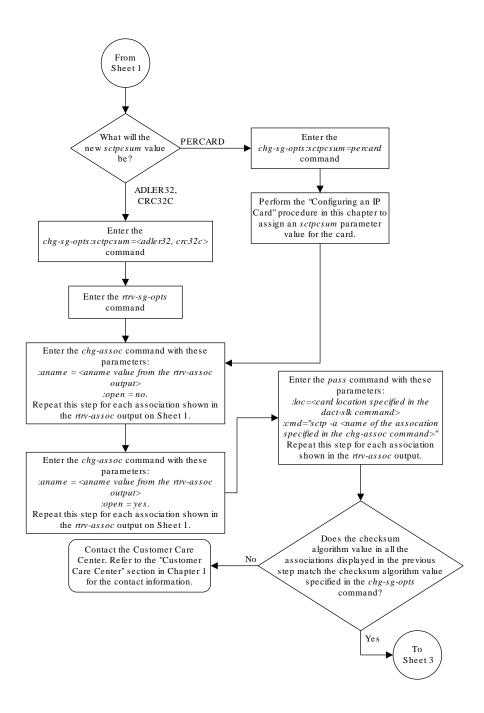
If the rtrv-card output in 2 shows that there are no cards running the IPLIM, IPLIMI, or IPSG applications, this procedure is finished.



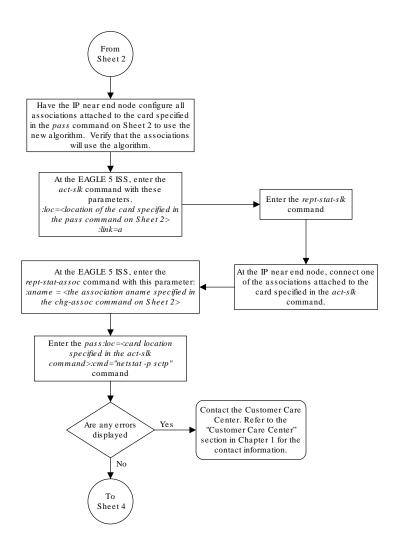
Figure 4-43 Changing the SCTP Checksum Algorithm Option for M3UA and SUA Associations



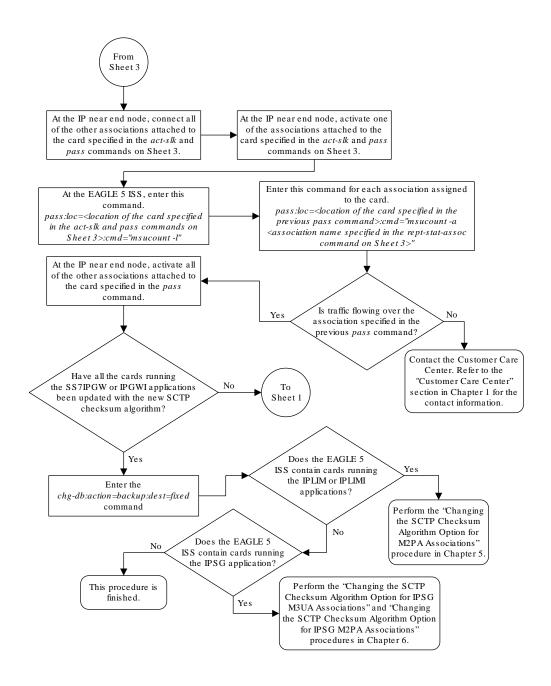
Sheet 1 of 4



Sheet 2 of 4



Sheet 3 of 4



Sheet 4 of 4

Changing a UA Parameter Set

Use this procedure to change the values in a **UA** (user adapter) parameter set using the chg-uaps command. The chg-uaps command uses these parameters.

:set - the UA parameter set being changed, from 1 - 9

:scrset – the source ${\bf UA}$ parameter set used to copy the values from one ${\bf UA}$ parameter set to another, from 1 to 10.

:timer – the timer being changed, from 1 to 10. Currently, there are only three timers defined:

- Timer 2 The False IP Connection Congestion Timer the maximum amount of time (in milliseconds) that an association is allowed to remain congested before failing due to false connection congestion.
- Timer 3 The UA Heartbeat Period Timer The frequency, in milliseconds, that heartbeat messages are transmitted.
- Timer 4 The UA Heartbeat Received Timer The amount of time, in milliseconds, that the EAGLE waits for a response to the heartbeat message that was transmitted. If a response to the heartbeat message is not received in the amount of time defined by Timer 4, the association is torn down

:tvalue - The value of the timer specified by the timer parameter.

- The value of timer 2 is from 10 to 30,000 milliseconds. The system default value is 3,000 milliseconds.
- The value of timer 3 is from 100 to 60,000 milliseconds. The system default value is 10.000 milliseconds.
- The value of timer 4 is from 100 to 10,000 milliseconds. The system default value is 5,000 milliseconds.

:parm – the **UA** parameters, from 1 to 10. Currently, only four UA parameters are defined.

- 1 Controlling ASPSNM Behavior
- 2 Controlling ASP/Application Server State Notification Behavior
- 3 UA Serviceability Options
- 4 **SCTP** Payload Protocol Indicator Option

:pvalue – the value of the **UA** parameters, which is dependent on the parm parameter value. The value of the pvalue parameter is a bit-mapped value, requiring a 0 in the specific bit position to disable the item, or a 1 in the specific bit position to enabled the item. The value of the pvalue parameter is a 32-bit number. Any bits not specified in the following lists are not used.

- If the parm value is 1, the bits used by the pvalue parameter are:
 - 1 Response Method controls the sending of an SNM TFC/UPU as a reply to a message received on an association for an unavailable destination. The SNM TFC/UPU is replicated to all associations that have this capability and meet the Response SNM Criteria. The default is to allow the response to be sent.
 - 1 Response Method controls the sending of an SNM TFC/UPU as a reply to a message received on an association for an unavailable destination. The SNM TFC/UPU is replicated to all associations that have this capability and meet the Response SNM Criteria. The default is to allow the response to be sent.
 - 6 Broadcast Congestion Status Change controls the sending of unsolicited congestion status changes by an ASP. Unsolicited congestion status messages (TFCs generated when a destination's congestion status changes)



are replicated to all **ASPs** who have this capability and meet the Multicast **SNM** Criteria. The default is to generate no unsolicited congestion status changes.

Table 4-22 shows the values can be entered for the pvalue parameter if the parm value is 1. The pvalue parameter value can be entered as a hexadecimal or a decimal number.

Table 4-22 Valid PVALUE Parameter Values if PARM=1

Bits Enabled	Bits Disabled	Hexadecimal Value	Decimal Value
None	Bit 0 - Broadcast Bit 1 - Response Method Bit 6 - Broadcast Congestion Status Change	h'0	0
Bit 0 - Broadcast	Bit 1 - Response Method Bit 6 - Broadcast Congestion Status Change	h'1	1
Bit 1 - Response Method	Bit 0 - Broadcast Bit 6 - Broadcast Congestion Status Change	h'2	2
Bit 0 - Broadcast Bit 1 - Response Method	Bit 6 - Broadcast Congestion Status Change	h'3*	3*
Bit 6 - Broadcast Congestion Status Change	Bit 0 - Broadcast Bit 1 - Response Method	h'40	64
Bit 6 - Broadcast Congestion Status Change Bit 0 - Broadcast	Bit 1 - Response Method	h'41	65
Bit 6 - Broadcast Congestion Status Change Bit 1 - Response Method	Bit 0 - Broadcast	h'42	66
Bit 0 - Broadcast Bit 1 - Response Method Bit 6 - Broadcast Congestion Status Change	None	h'43	67
* The system default value			

- If the parm value is 2, the bits used by the pvalue parameter are:
 - 0 ASP Active Notifications controls the sending of ASP-Active notifications. If this value is specified, an ASP-Default notification is sent when an ASP transitions to the ASP-ACTIVE state. The default is not to send ASP-Active notifications.
 - 1 ASP Inactive Notifications controls the sending of ASP-Inactive notifications. If
 this value is specified, an ASP-Inactive notification is sent when an ASP transitions to
 the ASP-INACTIVE state. The default is not to send ASP-Inactive notifications.



Note:

To see the **ASP** activations and inactivations, bits 0 and 1 of the pvalue parameter value need to be enabled. See Table 4-23.

- 2 - ASPAS State Query - controls the sending of ASP/AS State notifications on request by an ASP. If this value is specified, the EAGLE responds with ASP and AS state notifications if the remote ASP sends ASP-UP or ASP-INACTIVE, while the local ASP is in the ASP-INACTIVE state, or the remote ASP sends an ASP-ACTIVE notification while the local ASP is in the ASP-ACTIVE state. The default is not to send ASP/AS state notifications.

Table 4-23 shows the values can be entered for the pvalue parameter if the parm value is 2. The pvalue parameter value can be entered as a hexadecimal or a decimal number.

Table 4-23 Valid PVALUE Parameter Values if PARM=2

Bits Enabled	Bits Disabled	Hexadecim al Value	Decimal Value
None	Bit 0 - ASP Activate Notifications Bit 1 - ASP Inactivate Notifications Bit 2 - ASP AS State Query	h'0*	0*
Bit 0 - ASP Activate Notifications	Bit 2 - ASP Inactivate Notifications Bit 2 - ASP AS State Query	h'1	1
Bit 1 - ASP Inactivate Notifications	Bit 0 - ASP Activate Notifications Bit 2 - ASP AS State Query	h'2	2
Bit 0 - ASP Activate Notifications Bit 1 - ASP Inactivate Notifications	Bit 2 - ASP AS State Query	h'3	3
Bit 2 - ASP AS State Query	Bit 0 - ASP Activate Notifications Bit 1 - ASP Inactivate Notifications	h'4	4
Bit 0 - ASP Activate Notifications Bit 2 - ASP AS State Query	Bit 1 - ASP Inactivate Notifications	h'5	5
Bit 1 - ASP Inactivate Notifications Bit 2 - ASP AS State Query	Bit 0 - ASP Activate Notifications	h'6	6
Bit 0 - ASP Activate Notifications Bit 1 - ASP Inactivate Notifications Bit 2 - ASP AS State Query	None	h'7	7



Table 4-23 (Cont.) Valid PVALUE Parameter Values if PARM=2

Bits Enabled	Bits Disabled	Hexadecim al Value	Decimal Value
* The system default value			

- If the parm value is 3, the bits used by the pvalue parameter are:
 - 0 UA Heartbeats heartbeat messages are sent on connections from the EAGLE to the far-end node that are in the ASP-Down, ASP-Active, and ASP-Inactive states if the bit is enabled.
 - 1 UA Graceful Shutdown enables the graceful shutdown of IPSG M3UA connections if the bit is enabled.

Table 4-24 shows the values can be entered for the pvalue parameter if the parm value is 3. The pvalue parameter value can be entered as a hexadecimal or a decimal number.

Table 4-24 Valid PVALUE Parameter Values if PARM=3

Bits Enabled	Bits Disabled	Hexadecima I Value	Decimal Value
None	Bit 0 - UA Heartbeats Bit 1 - UA Graceful Shutdown	h'0*	0*
Bit 0 - UA Heartbeats	Bit 1 - UA Graceful Shutdown	h'1	1
Bit 1 - UA Graceful Shutdown	Bit 0 - UA Heartbeats	h'2	2
Bit 0 - UA Heartbeats Bit 1 - UA Graceful Shutdown	None	h'3	3
* The system default value			

• If the parm value is 4, the bit 0, the SCTP Payload Protocol Indicator byte order option, is used by the pvalue parameter. This bit indicates whether the SCTP Payload Protocol Indicator (PPI) in the received or transmitted message should be in the Big Endian and Little Endian byte format.

Table 4-25 shows the values can be entered for the pvalue parameter if the parm value is 4. The pvalue parameter value can be entered as a hexadecimal or a decimal number.

Table 4-25 Valid PVALUE Parameter Values if PARM=4

SCTP Payload Protocol Indicator Byte Order Option - Bit 0	Hexadecimal Value	Decimal Value
Big Endian Byte Format	h'0*	0*
Little Endian Byte Format	h'1	1
* The system default value		

UA parameter set 10 contains the default values for the **UA** parameter sets and cannot be changed.

The ${\tt set}$ and ${\tt scrset}$ parameter values cannot be the same.

If the scrset parameter is specified, no other optional parameter may be specified.



The timer and tvalue parameters must be specified together. If one is specified, the other must be specified.

The parm and pvalue parameters must be specified together. If one is specified, the other must be specified.

Canceling the RTRV-UAPS Command

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

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

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

 Display the values in the UA parameter set being changed by entering the rtrvuaps command and specifying the desired UA parameter set number, from 1 to 9.
 For this example, enter this command.

```
rtrv-uaps:set=3
```

This is an example of possible output.

rlghncxa(03w 10-07	7-28 09:12:	:36 GMT	EAGLE5	42.0.0
SET	TIMER	TVALUE	PARM	PVA	ALUE
3	1	0	1		3
3	2	3000	2		0
3	3	10000	3		0
3	4	5000	4		0
3	5	0	5		0
3	6	0	6		0
3	7	0	7		0
3	8	0	8		0
3	9	0	9		0
3	10	0	10		0

TIMER 2: False IP Connection Congestion Timer, max time an association can be congested before failing due to false

congestion. SS7IPGW and IPGWI applications enforce 0-30000(ms). Not supported on IPSG application.

TVALUE : Valid range = 32-bits

TIMER 3: UA HeartBeat Period Timer T(beat), time (ms) between sending of BEAT msgs by NE. IPSG, SS7IPGW and IPGWI applications enforce 100(ms)-60000(ms).

TVALUE: Valid range = 32-bits

TIMER 4: UA HeartBeat Received Timer T(beat ack), timeout period for response BEAT ACK msgs by NE. IPSG, SS7IPGW and IPGWI applications enforce 100(ms)-10000(ms).

TVALUE : Valid range = 32-bits

PARM 1: ASP SNM options. Each bit is used as an enabled/disabled flag for a particular ASP SNM option. Not supported on IPSG application.

PVALUE : Valid range = 32-bits

BIT VALUE

0=Broadcast 0=Disabled , 1=Enabled 1=Response Method 0=Disabled , 1=Enabled

2-5=Reserved

6=Broadcast Congestion Status Change 0=Disabled , 1=Enabled 7-31=Reserved

PARM 2: ASP/AS Notification options. Each bit is used as an enabled/disabled flag for a particular ASP/AS Notification option. Not supported on IPSG application.

PVALUE : Valid range = 32-bits

BIT VALUE

0=ASP Active Notifications 0=Disabled , 1=Enabled 1=ASP Inactive Notifications 0=Disabled , 1=Enabled 2=ASP AS State Query 0=Disabled , 1=Enabled

3-31=Reserved

PARM 3: UA Serviceability Options. Each bit is used as an enabled/disabled flag for a particular UA Serviceability option. Supported on IPSG, SS7IPGW, and IPGWI applications. UA Graceful Shutdown supported on IPSG for M3UA only.

PVALUE : Valid range = 32-bits

BIT VALUE

0=UA Heartbeats 0=Disabled , 1=Enabled 1=UA Graceful Shutdown 0=Disabled , 1=Enabled

2-31=Reserved

PARM 4: SCTP Payload Protocol Indicator byte order option. Bit indicates

PPI value is RCV/TX in Big Endian or Little Endian byte

format.

Supported on IPSG-M2PA associations only.

PVALUE : Valid range = 32-bits

BIT VALUE

0=Payload Protocol Indicator 0=Big Endian , 1=Little

Endian

1-31=Reserved

If the new values of the UA parameter set are being copied from another UA parameter set, continue the procedure with 2.

If the new values of the UA parameter set are not being copied from another UA parameter set, continue the procedure with 3.

2. Display the values in the **UA** parameter set that will be copied to the **UA** parameter set displayed in 1 by entering the rtrv-uaps command and specifying the desired **UA** parameter set number, from 1 to 10. For this example, enter this command.

```
rtrv-uaps:set=10
```

This is an example of possible output.

```
rlghncxa03w 10-07-28 09:12:36 GMT EAGLE5 42.0.0
   SET TIMER TVALUE PARM
                                PVALUE
          1
    10
                      0 1
                                      3
           2
    10
                  3000
                           2
                                      0
    10
           3
                 10000
                           3
                                      0
                  5000
    10
           4
                           4
                                      0
           5
                           5
                                      0
    10
                      0
    10
           6
                      0
                           6
                                      0
           7
                           7
    10
                      0
                                      0
    10
           8
                      0
                           8
                                      Ω
    10
           9
                      0
                           9
                                      0
                      0
    10
          10
                          10
                                      Λ
```

TIMER 2: False IP Connection Congestion Timer, max time an association can be congested before failing due to false congestion. SS7IPGW and IPGWI applications enforce 0-30000 (ms). Not supported on IPSG application. TVALUE : Valid range = 32-bits TIMER 3: UA HeartBeat Period Timer T(beat), time (ms) between sending of BEAT msgs by NE. IPSG, SS7IPGW and IPGWI applications enforce $100 \, (ms) - 60000 \, (ms)$. TVALUE: Valid range = 32-bits TIMER 4: UA HeartBeat Received Timer T(beat ack), timeout period for response BEAT ACK msgs by NE. IPSG, SS7IPGW and IPGWI applications enforce 100(ms)-10000(ms). TVALUE : Valid range = 32-bits PARM 1: ASP SNM options. Each bit is used as an enabled/ disabled flag for a particular ASP SNM option. Not supported on IPSG application.

PVALUE : Valid range = 32-bits

BIT BIT VALUE 0=Broadcast 0=Disabled ,



1=Enabled

1=Response Method 0=Disabled , 1=Enabled

2-5=Reserved

6=Broadcast Congestion Status Change 0=Disabled , 1=Enabled

7-31=Reserved

PARM 2: ASP/AS Notification options. Each bit is used as an

enabled/disabled flag for a particular ASP/AS

Notification option. Not supported on IPSG application.

PVALUE : Valid range = 32-bits

BIT VALUE

0=ASP Active Notifications 0=Disabled , 1=Enabled 1=ASP Inactive Notifications 0=Disabled , 1=Enabled 2=ASP AS State Query 0=Disabled , 1=Enabled

3-31=Reserved

PARM 3: UA Serviceability Options. Each bit is used as an

enabled/disabled flag for a particular UA Serviceability option. Supported on IPSG, SS7IPGW, and IPGWI applications.

UA Graceful Shutdown supported on IPSG for M3UA only.

PVALUE : Valid range = 32-bits

BIT VALUE

0=UA Heartbeats 0=Disabled , 1=Enabled 1=UA Graceful Shutdown 0=Disabled , 1=Enabled

2-31=Reserved

PARM 4: SCTP Payload Protocol Indicator byte order option. Bit

indicates

PPI value is RCV/TX in Big Endian or Little Endian byte

format.

Supported on IPSG-M2PA associations only.

PVALUE : Valid range = 32-bits

BIT VALUE

Endian

1-31=Reserved

- 3. Change the UA parameter set values using the <code>chg-uaps</code> command with the UA parameter set value used in 1. If the <code>parm</code> and <code>pvalue</code> parameters are being specified, see these tables for the valid values of the <code>pvalue</code> parameter.
 - Table 4-22
 - Table 4-23
 - Table 4-24
 - Table 4-25

For this example, enter this command.

```
chg-
```

```
uaps:set=3:timer=2:tvalue=2000:parm=2:pvalue=1:parm=3:pvalue=3
```

The value of the pvalue parameter can be entered as either a decimal value or a hexadecimal value. This example shows the pvalue parameter value of the chg-uaps command being entered as a decimal value. If the decimal value of the pvalue

parameter is 3, specify the pvalue=h'3 parameter to specify the hexadecimal value for the pvalue parameter.

```
chg-
uaps:set=3:timer=2:tvalue=2000:parm=2:pvalue=h'1:parm=3:pval
ue=h'3
```

If the values from one **UA** parameter set are being copied to another **UA** parameter set, only the set and scrset parameters can be specified with the chg-uaps command. For example, to copy the values from **UA** parameter set 10 to **UA** parameter set 5, enter this command.

```
chg-uaps:set=5:scrset=10
```

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

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 CHG-UAPS: MASP A - COMPLTD
```

4. Verify the changes using the rtrv-uaps command with the **UA** parameter set name used in 3. For this example, enter this command.

```
rtrv-uaps:set=3
```

This is an example of possible output.

```
rlghncxa03w 10-07-28 09:12:36 GMT EAGLE5 42.0.0
   SET TIMER TVALUE PARM PVALUE

3 1 0 1 3

3 2 2000 2 1

3 3 10000 3 3

3 4 5000 4 0
    3
          5
                      0
                           5
    3
          6
                      0 6
          7
                      0 7
    3
                                       0
                           8
           8
    3
                      0
                                       0
    3
           9
                     0
                           9
                                       0
    3
          10
                0
                           10
```

TIMER 2: False IP Connection Congestion Timer, max time an association can be congested before failing due to false

```
congestion. SS7IPGW and IPGWI applications enforce 0-30000(ms). Not supported on IPSG application.
```

TVALUE: Valid range = 32-bits

TIMER 3: UA HeartBeat Period Timer T(beat), time (ms) between sending

of BEAT msgs by NE. IPSG, SS7IPGW and IPGWI

applications

enforce $100 \, (ms) - 60000 \, (ms)$.

TVALUE: Valid range = 32-bits

TIMER 4: UA HeartBeat Received Timer T(beat ack), timeout period for $\ensuremath{\mathsf{T}}$



response BEAT ACK msgs by NE. IPSG, SS7IPGW and IPGWI applications enforce 100(ms)-10000(ms).

TVALUE: Valid range = 32-bits

PARM 1: ASP SNM options. Each bit is used as an enabled/disabled flag for a particular ASP SNM option. Not supported on IPSG application.

PVALUE : Valid range = 32-bits

BIT VALUE

0=Broadcast 0=Disabled , 1=Enabled 1=Response Method 0=Disabled , 1=Enabled

2-5=Reserved

 $\mbox{\ensuremath{\mbox{6-Broadcast}}}$ Congestion Status Change $\mbox{\ensuremath{\mbox{0-Disabled}}}$, $\mbox{\ensuremath{\mbox{1-Enabled}}}$

7-31=Reserved

PARM 2: ASP/AS Notification options. Each bit is used as an enabled/disabled flag for a particular ASP/AS Notification option. Not supported on IPSG application.

PVALUE : Valid range = 32-bits

BIT VALUE

0=ASP Active Notifications 0=Disabled , 1=Enabled 1=ASP Inactive Notifications 0=Disabled , 1=Enabled 2=ASP AS State Query 0=Disabled , 1=Enabled

3-31=Reserved

PARM 3: UA Serviceability Options. Each bit is used as an enabled/disabled flag for a particular UA Serviceability option. Supported on IPSG, SS7IPGW, and IPGWI applications. UA Graceful Shutdown supported on IPSG for M3UA only.

PVALUE : Valid range = 32-bits

BIT VALUE

0=UA Heartbeats 0=Disabled , 1=Enabled 1=UA Graceful Shutdown 0=Disabled , 1=Enabled

2-31=Reserved

PARM 4: SCTP Payload Protocol Indicator byte order option. Bit

indicates

PPI value is RCV/TX in Big Endian or Little Endian byte

format.

Supported on IPSG-M2PA associations only.

PVALUE : Valid range = 32-bits

BIT BIT VALUE

0=Payload Protocol Indicator 0=Big Endian , 1=Little

Endian

1-31=Reserved

If 2 was performed, for this example, enter this command.

rtrv-uaps:set=5

This is an example of possible output.

rlghncxa03w 10-07-28 09:12:36 GMT EAGLE5 42.0.0

SET	TIMER	TVALUE	PARM	PVALUE
5	1	0	1	3
5	2	3000	2	0
5	3	10000	3	0
5	4	5000	4	0
5	5	0	5	0
5	6	0	6	0
5	7	0	7	0
5	8	0	8	0
5	9	0	9	0
5	10	0	10	0

TIMER 2: False IP Connection Congestion Timer, max time an association can be congested before failing due to

false

congestion. SS7IPGW and IPGWI applications enforce 0-30000(ms). Not supported on IPSG application.

TVALUE : Valid range = 32-bits

TIMER 3: UA HeartBeat Period Timer T(beat), time (ms) between

sending

of BEAT msgs by NE. IPSG, SS7IPGW and IPGWI $\,$

applications

enforce $100 \, (ms) - 60000 \, (ms)$.

TVALUE : Valid range = 32-bits

TIMER 4: UA HeartBeat Received Timer T(beat ack), timeout

period for

response BEAT ACK msgs by NE. IPSG, SS7IPGW and IPGWI applications enforce $100\,(\text{ms})-10000\,(\text{ms})$.

TVALUE : Valid range = 32-bits

PARM 1: ASP SNM options. Each bit is used as an enabled/

disabled

flag for a particular ASP SNM option. Not supported on

IPSG

application.

PVALUE : Valid range = 32-bits

BIT VALUE 0=Broadcast 0=Disabled,

1=Enabled

1=Response Method 0=Disabled,

1=Enabled

2-5=Reserved

6=Broadcast Congestion Status Change 0=Disabled ,

1=Enabled

7-31=Reserved

PARM 2: ASP/AS Notification options. Each bit is used as an

enabled/disabled flag for a particular ASP/AS Notification option. Not supported on IPSG $\,$

application.

PVALUE : Valid range = 32-bits

BIT BIT VALUE 0=ASP Active Notifications 0=Disabled ,

1=Enabled

1=ASP Inactive Notifications 0=Disabled , 1=Enabled 2=ASP AS State Query 0=Disabled , 1=Enabled

3-31=Reserved

PARM 3: UA Serviceability Options. Each bit is used as an enabled/disabled flag for a particular UA Serviceability option. Supported on IPSG, SS7IPGW, and IPGWI applications. UA Graceful Shutdown supported on IPSG for M3UA only.

PVALUE : Valid range = 32-bits

BIT VALUE

0=UA Heartbeats 0=Disabled , 1=Enabled 1=UA Graceful Shutdown 0=Disabled , 1=Enabled

2-31=Reserved

PARM 4: SCTP Payload Protocol Indicator byte order option. Bit

indicates

PPI value is RCV/TX in Big Endian or Little Endian byte

format.

Supported on IPSG-M2PA associations only.

PVALUE : Valid range = 32-bits

BIT VALUE

O=Payload Protocol Indicator O=Big Endian , 1=Little

Endian

1-31=Reserved

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

BACKUP (FIXED) : MASP A - Backup starts on active MASP.

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

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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



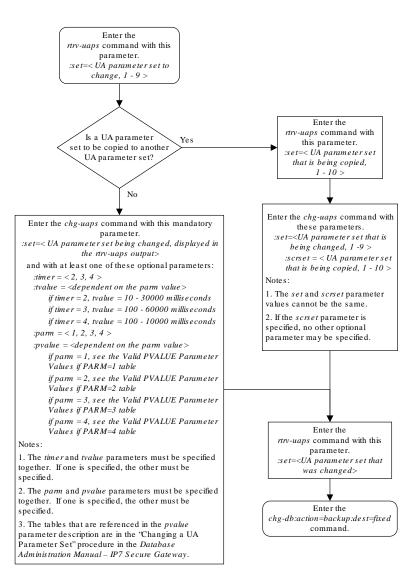


Figure 4-44 Changing a UA Parameter Set

Turning Off the Large MSU Support for IP Signaling Feature

This procedure is used to turn off the Large MSU Support for IP Signaling feature, using the <code>chg-ctrl-feat</code> command.

The chg-ctrl-feat command uses these parameters:

:partnum - The part number of the Large MSU Support for IP Signaling feature, 893018401.

: status=off - used to turn off the Large MSU Support for IP Signaling feature.

The status of the Large MSU Support for IP Signaling feature must be on and is shown with the rtrv-ctrl-feat command.



Caution:

If the Large MSU Support for IP Signaling feature is turned off, the EAGLE will not process messages with a signaling information field (**SIF**) that is larger than 272 bytes.

1. Display the status of the Large MSU Support for IP Signaling feature by entering the rtrv-ctrl-feat:partnum=893018401 command. The following is an example of the possible output.

```
rlghncxa03w 10-04-28 21:15:37 GMT EAGLE5 42.0.0 The following features have been permanently enabled:
```

```
Feature Name Partnum Status Quantity Large MSU for IP Sig 893018401 on ----
```

The following features have been temporarily enabled:

Feature Name Partnum Status Quantity Trial Period Left

Zero entries found.

The following features have expired temporary keys:

Feature Name Partnum Zero entries found.

If the status of the Large MSU Support for IP Signaling feature is off, or if the Large MSU Support for IP Signaling feature is not enabled, this procedure cannot be performed.

2. Turn off the Large MSU Support for IP Signaling feature by entering the chg-ctrl-feat command with the status=off parameter. For example, enter this command.

```
chg-ctrl-feat:partnum=893018401:status=off
```

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

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0 CHG-CTRL-FEAT: MASP B - COMPLTD
```

3. Verify that the Large MSU Support for IP Signaling feature has been turned off by using the rtrv-ctrl-feat:partnum=893018401 command. The following is an example of the possible output.

```
rlghncxa03w 10-04-28 21:15:37 GMT EAGLE5 42.0.0 The following features have been permanently enabled:
```



Feature Name Partnum Status Quantity Large MSU for IP Sig 893018401 off ----

The following features have been temporarily enabled:

Feature Name Partnum Status Quantity Trial

Period Left

Zero entries found.

The following features have expired temporary keys:

Feature Name Partnum

Zero entries found.

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

BACKUP (FIXED) : MASP A - Backup starts on active MASP.

BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk

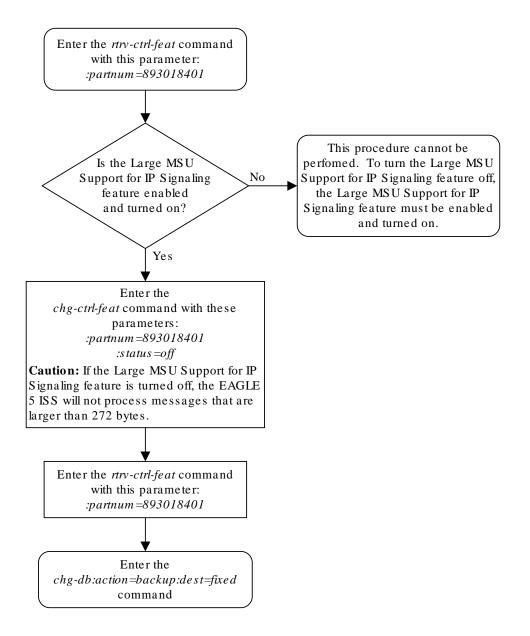
complete.

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk

complete.

Figure 4-45 Turning the Large MSU Support for IP Signaling Feature Off





5

End Office Support

Chapter 5, End Office Support, describes the procedures necessary to allow the EAGLE to share its true point code (TPC) with an IP-based node without the need for a separate point code for the IP node.

Overview

End Office Support enables the **EAGLE** to share its true point code (**TPC**) with an **IP**-based node without the need for a separate point code for the **IP** node. When the End Office Support feature is in use, the **EAGLE** shares a point code for up to three network types with attached **IP** network elements.

The **EAGLE** lets you take advantage of next generation network technology by migrating existing signaling end points from the **PSTN** to the **IP** network. The fact that the **EAGLE** is a signaling transfer point and has its own point code, however, can present a significant network management issue. This feature provides the means to perform the migration without obtaining a new point code or reconfiguring the network to interface with both the **EAGLE** and an **IP** end office node.

Characteristics of this feature include:

- The EAGLE allows a set of IP network elements to share its true point code.
- The EAGLE allows messages destined to its true point code and having SI>=3 to be forwarded to an IP network element.
- The **EAGLE** enables **IP** networks elements sharing its true point code to participate in network management.
- The EAGLE supports ANSI, ITU national and international end office nodes.
- The **EAGLE** implements the **MTP** procedures required for an end office node.
- The End Office Support feature does not reduce the rated TPS of any EAGLE application.

The Remote Application Table contains fields for assigning each user part to an end office node. The default value is 'not assigned'.

New Remote Application Table commands provide for adding, deleting, and retrieving userpart assignments:

- ent-rmt-appl
- dlt-rmt-appl
- rtrv-rmt-appl

The user parts SI=0, SI=1, and SI=2 cannot be assigned to an end office node. The SNM case is a special case in that UPUs may be forwarded, even though SI=0 cannot be assigned to a remote application. All other SNMs are processed as destined to the EAGLE rather than the end office node. This often results in a multicast throughout the EAGLE that updates the routing tables on all cards. An end office node can receive these messages via replication performed by MTPP.

Each **SS7**-based application that receives a message destined to a **TSPC** checks the user-part assignment within the Remote Application Table. If the user-part is assigned and the **SI** is greater than or equal to 3, then the message is forwarded to the appropriate application, otherwise it is processed as though destined to the **EAGLE**.

To assign a remote application for the **SCCP** (**SI**=3) user part, you must also specify a subsystem number. The Remote Application Table maintains a record of assignments for all possible subsystems (256). Subsystems are either assigned or not assigned.

Note:

SSN=0 is normally an invalid value. This feature makes use of **SSN**=0 for the purpose of forwarding certain **MSUs** to the end office node.

- Received SCCP Messages that indicate route-on-global-title are treated as having SSN=0 for remote application assignment. If a remote application is assigned to SSN=0, then the message is forwarded, otherwise it is distributed to the local SCCP application. In previous releases, this would occur only for mis-configured networks. Messages indicating route-on-global-title and intended for the EAGLE, not the end office node, should be sent to the EAGLE's capability point code.
- Received SCCP Messages that lack a Called Party SS are treated as having SSN=0 for remote application assignment. If a remote application is assigned to SSN=0, then the message is forwarded, otherwise it is distributed to the local SCCP application.
- Received SCCP Messages having a Called Party SS equal to SCMG (SSN=1) are
 processed and terminated by the EAGLE, and if SSN=1 has a remote application
 assigned, the MSU is also replicated and forwarded to the end office node.
- Received SSCP Messages having a Called Party SSN not equal to 0 or SCMG (1) and for which a remote application is assigned are forwarded to the end office node. Messages received for unassigned subsystems are distributed to the local SCCP application.
- The end office node cannot share SCCP subsystems (other than SCMG) with the EAGLE. If the end office node assigns a given subsystem, such as LNP, then the subsystem local to the EAGLE cannot receive messages. Remote applications take priority over local applications.

Internal Point Code

To route **SS7** messages to the **IP** address without adding another external point code, the End Office feature uses an internal point code (**IPC**). This point code is private to the **EAGLE**, and the **PSTN** has no awareness of it. Its sole purpose is to allow messages destined to the End Office Node to be routed from the inbound **LIM** to the **IPGWx** card (a card running either the **SS7IPGW** or **IPGWI** applications). An **IPC** must be entered as a destination and must be assigned for each network type having an end office node. This point code is also used internally by the **EAGLE** in order to route inbound messages to the outbound **IPGWx** card. The **EAGLE** can have up to three **IPCs**, one for **ANSI**, one for **ITU** International, and one for **ITU** National networks.

Table 5-1 displays a sample Remote Application Table. The Network Type and **SI** are used to index into the table, rather than being stored in the table.



Table 5-1 Sample IPC Values

IPC	Assigned to End Office Node	Assigned SSNs	Network Type	User-Part (SI)	Action taken when MSU is received for the TPC
p-0-1-0	FALSE	n/a	ANSI	0	No application can be assigned for SI=0. Note that TFCs are processed, replicated and sent to an end office node, if an application is assigned to any other user part. UPUs are forwarded if the application specified by the affected SI is assigned.
	FALSE	n/a		1	No application can be assigned for SI =1.
	FALSE	n/a		2	No application can be assigned for SI =2.
	TRUE	3, 7, 100		3	SCCP messages destined to the TSPC and with SSN assigned are forwarded to an end office node. SCCP messages destined to a TSPC and SSN not assigned are distributed to subsystems local to the EAGLE (e.g. LNP).
	FALSE	n/a		4	Terminate with UPU .
	TRUE	n/a		5	ISUP messages destined to a TSPC are forwarded to the end office node.
	FALSE	n/a		6 - 15	Terminate with UPU .
110	FALSE	n/a	ITU-N	0	No application can be assigned for SI=0. TFCs are processed, replicated and sent to an end office node, if an application is assigned to any other user part. UPUs are forwarded if the application specified by the affected SI is assigned.
	FALSE	n/a		1	No application can be assigned for SI =1.
	FALSE	n/a		2	No application can be assigned for SI =2.
	FALSE	NULL		3	Distribute to local SCCP .
	TRUE	n/a		4	TUP messages destined to the TSPC are forwarded to the end office node.
	FALSE	n/a		5 - 12	Terminate with UPU .
	TRUE	n/a		13	QBICC messages destined to the TSPC are forwarded to the end office node.
	FALSE	n/a		14, 15	Terminate with UPU .



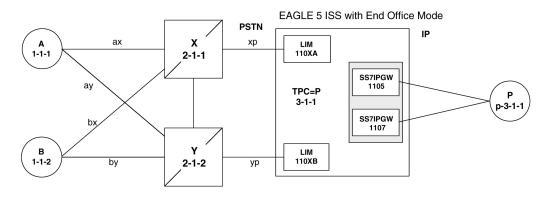
Table 5-1 (Cont.) Sample IPC Values

IPC	Assigned to End Office Node	Assigned SSNs	Network Type	User-Part (SI)	Action taken when MSU is received for the TPC
0-10-1	FALSE	n/a	ITU-I	0	No application can be assigned for SI=0. TFCs are processed, replicated and sent to an end office node, if an application is assigned to any other user part. UPUs are forwarded if the application specified by the affected SI is assigned.
	FALSE	n/a		1	No application can be assigned for SI =1.
	FALSE	n/a		2	No application can be assigned for SI =2.
	FALSE	NULL		3	Distribute to local SCCP .
	TRUE	n/a		4	TUP messages destined to the TSPC are forwarded to the end office node.
	FALSE	n/a		5 - 15	Terminate with UPU .

New Installation of VXI Behind a EAGLE with End Office Support

Figure 5-1 depicts a network in which a VXI node is deployed behind a EAGLE with End Office Support. Note that the VXI node resides in the IP network and shares the EAGLE's true point code. The PSTN views the EAGLE and VXI as one network element (one point code).

Figure 5-1 An EAGLE with End Office Support and VXI Node



One Node Migrates from PSTN to IP

Figure 5-2 and Figure 5-3 depict the migration of a signaling end point from the **PSTN** to an **IP** network using the **EAGLE** with the End Office Support feature.

PSTN

A ax

X
2-1-1

xp

PSTN

PSTN

PSTN

PSTN

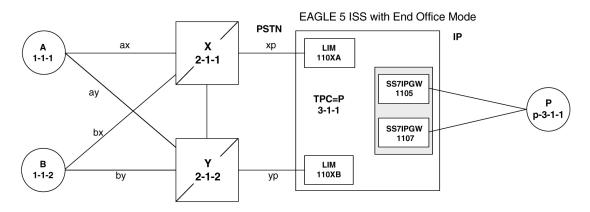
PSTN

PSTN

P 3-1-1

Figure 5-2 Network Before an EAGLE with End Office, Node P is to Migrate

Figure 5-3 Network After an EAGLE with End Office, Node P has Migrated



In Figure 5-3 the EAGLE no longer acts like a signaling transfer point, but rather acts like a signaling end point that has an IP-attached application user-part. The EAGLE and the IP network element share the point code P. All messages received by the EAGLE should be destined to P and all messages sent to the PSTN from the EAGLE have an OPC of P.

A Signaling End Point is Added to a Deployed EAGLE Using End Office

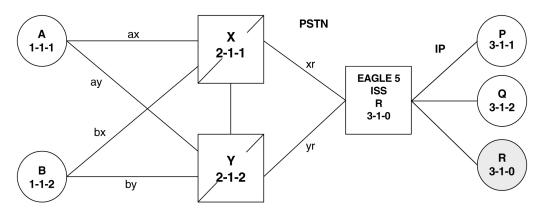
Another possible scenario for the End Office feature is that a customer has a deployed **EAGLE** with attached **IP** nodes, and wants to make use of the End Office feature to add a new **IP** node. Consider the following network diagrams, Figure 5-4 and Figure 5-5.



PSTN ax P 3-1-1 X 1-1-1 ΙP 2-1-1 xr EAGLE 5 ay ISS R 3-1-0 bx Υ Q В 2-1-2 1-1-2 3-1-2 by

Figure 5-4 Original Network with Deployed EAGLE

Figure 5-5 New Network with an EAGLE Using End Office and End Node R



In Figure 5-5 the customer saves a point code by using the End Office feature and making the new IP network element an end office node. No change is required in the **PSTN** or at P or Q. Non-network-management and non-test messages destined to R are now forwarded to an IP network element, rather than terminated by the **EAGLE**.

Two Signaling End Points Move from PSTN to IP Using End Office

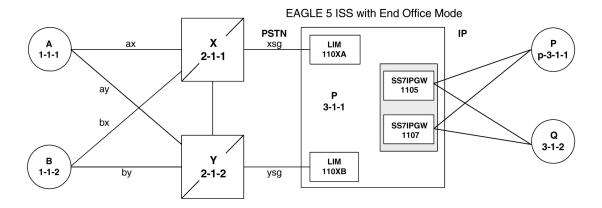
A more complex scenario arises when multiple signaling end points are to migrate from the **PSTN** to an **IP** network using the End Office feature. Consider Figure 5-6 and Figure 5-7.



PSTN PSTN ax хр X 1-1-1 3-1-1 2-1-1 уp ay bx Υ В Q 2-1-2 1-1-2 3-1-2 by yq

Figure 5-6 Network before Two Signaling End Points Migrate from PSTN to IP

Figure 5-7 Network after Two Signaling End Points Migrate from PSTN to IP



In Figure 5-7, P is an end office node, and so P serves as the adjacent point code for nodes X and Y. The following are key points about this figure:

- Q is not an end office node, and so the EAGLE behaves as an STP for messages originated by and destined to Q.
- Reprovisioning is required in the **PSTN**, since the Q is now behind P. One example of this is that the linksets between X and Q and between Y and Q must change.
- Traffic between P and Q are no longer routed through X/Y, but are routed within the EAGLE.

The EAGLE Simultaneously Acts as STP and End Office

Figure 5-8 depicts the **EAGLE** supporting three **IP** network elements, only one of which use the End Office feature, and two **PSTN** network elements. In addition, a capability point code is provisioned on the **EAGLE**, thereby allowing the use of **GTT**.



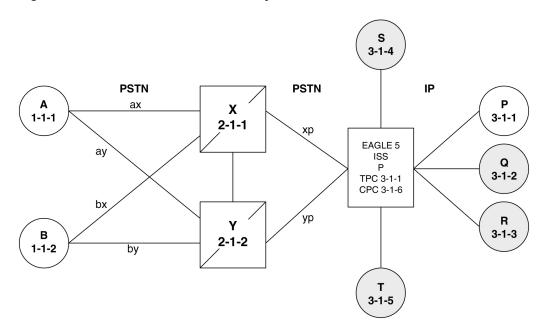


Figure 5-8 The EAGLE Simultaneously Acts as STP and End Office

Notes regarding Figure 5-8:

- P is the end office node, and so the **EAGLETPC=P**.
- Assume that end node P has an application assignment for SCCP.
- SCCP traffic destined to P is forwarded to the IP node via the SS7IPGW application.
- SCCP traffic destined to the CPC is distributed to the EAGLE's local SCCP application (e.g. GTT).
- Network elements Q, R, S, and T are not end office nodes, and so the **EAGLE** generates **TFx** network management concerning them.
- IP Network element P is an end office node, and so the EAGLE generates only UPU/SSP concerning it.

The EAGLE Supports Multiple Network Types and Multiple Hosts as an End Node

In Figure 5-9 the **EAGLE** supports an end office node for each of the three network types. Each end office node comprises multiple **IP** network elements. The **IP** network elements are distinguished by the remote host and remote port values of the **IP** network elements (**IP** address parameters).



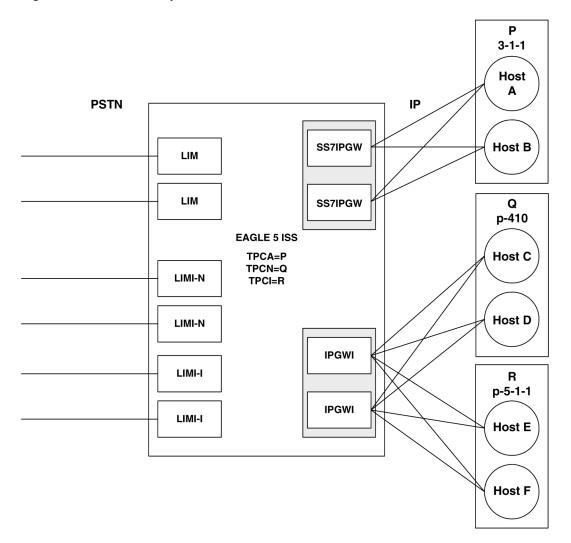


Figure 5-9 Three Multiple-Element End Office Nodes

Mated Pair Supports Two End Office Nodes

Figure 5-10 depicts a mated pair of **EAGLE**s with each **EAGLE** supporting an End Office Node. Note that **EAGLE** P lacks **IP** links to **IPNE**-Q and **EAGLE** Q lacks **IP** links to **IPNE**-P, since such links would conflict with the C-links of linkset pq.



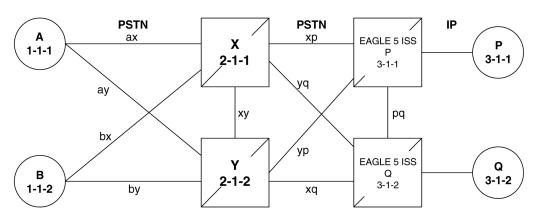


Figure 5-10 Mated Pair Supports Two End Office Nodes

Figure 5-10 shows that a mated pair of EAGLEs cannot share an End Office Node. Each EAGLE requires its own unique point code and so any attached End Office Nodes share those point codes. It would be possible for a single IP network element to act as both P and Q (have IP connections to both EAGLE P and EAGLE Q). This configuration, however, would not provide true redundancy. Messages destined to P are terminated either at EAGLE P or IPNE-P, and message destined to Q are terminated either at EAGLE Q or IPNE-Q. Should the IP link between EAGLE P and IPNE-P fail, this feature provides no way for EAGLE P to forward messages to the End Office Node using the linkset pq (the linkset between systems P and Q).

End Office Support Configuration

In addition to the internal point code provisioned in the database with the Adding an End Node Internal Point Code procedure, other entities must be configured in the database to support the End Office feature.

For IPGWx entities, these entities must be configured in the database.

- The internal point code must be in the destination point code table go to the "Adding a **Destination Point Code**" procedure in *Database Administration* - **SS7** *User's Guide*.
- An SS7 route to the internal point code go to either the "Adding a Route containing an SS7DPC" or "Adding a Route Containing an IPGWx Linkset" procedure in the Database Administration SS7 User's Guide.
- Signaling links assigned to the cards running either the SS7IPGW or IPGWI
 applications Adding an IPGWx Signaling Link in End Office Support
- IPGWx associations (with the corresponding application servers):
 - Adding an M3UA or SUA Association procedure in IETF M3UA and SUA Configuration Procedures
 - Adding a New Association to a New Application Server procedure in IETF M3UA and SUA Configuration Procedures
 - Adding an Existing Association to a New Application Server procedure in IETF M3UA and SUA Configuration Procedures
 - Adding a New Association to an Existing Application Server procedure in IETF M3UA and SUA Configuration Procedures

- Adding an Existing Association to an Existing Application Server procedure in IETF M3UA and SUA Configuration Procedures
- Routing key matching the user part specified in the Adding an End Node Internal Point
 Code procedure and with the DPC of the routing key equal to the true point code of the
 EAGLE (shown in the rtrv-sid output) See the Adding a Routing Key Containing an
 Application Server procedure in IETF M3UA and SUA Configuration Procedures .

For IPSG entities, these entities must be configured in the database.

- The internal point code must be in the destination point code table perform the "Adding a **Destination Point Code**" procedure in *Database Administration - SS7 User's Guide*.
- An **SS7** route to the internal point code perform the "Adding a **Route** containing an **SS7DPC**" procedure in *Database Administration SS7 User's Guide*.
- M3UA Linksets Adding an IPSG M3UA Linkset procedure in IPSG M2PA and M3UA Configuration Procedures
- M3UA associations Adding an IPSG M3UA Association procedure in IPSG M2PA and M3UA Configuration Procedures
- Signaling links assigned to the IPSG cards Adding an IPSG M3UA Signaling Link procedure in IPSG M2PA and M3UA Configuration Procedures

Adding an End Node Internal Point Code

This procedure is used to assign user parts to an internal point code (IPC), and thereby to an end office node using the ent-rmt-appl command. An internal point code is assigned to remote applications.

Only one IPC value for each network type can be configured. If you are adding an IPC value of the same network type as an existing IPC (for example, adding an ANSI IPC when the rtrv-rmt-appl output contains an ANSI IPC), the IPC value must be the same as the existing IPC value.

The ent-rmt-appl command uses these parameters:

:ipc/ipca/ipci/ipcn/ipcn24 - The end node's internal point code can be an ANSI (ipc/ipca), ITU-I or ITU-I spare (ipci), 14-bit ITU-N or 14-bit ITU-N spare (ipcn), or 24-bit ITU-N (ipcn24) point code.

Note:

The point code value can also be either a private (p-) or a private spare (ps-) point code, but does not have to be a private or private spare point code. Any point code can be a private point code. Only ITU-I or 14-bit ITU-N point codes can be private spare point codes. The point code value must be shown in the rtrv-dstn command output.

Note:

The EAGLE can contain 14-bit ITU-N point codes or 24-bit ITU-N point codes, but not both at the same time.



: si – The service indicator value designates which MSU user part is being assigned to a remote application. Valid values range from 3 to 15.

:ssn – The SCCP subsystem number parameter. This parameter is required if the si=3 parameter is specified and is not valid for any other si value. If the ssne parameter is also specified, then the ssn parameter serves as the starting value of a range. Valid values range from 0 to 255.

:ssne – The SCCP subsystem number range end parameter. The ssne value can be specified only if the si=3 parameter is specified and is not valid for any other si value. This parameter serves as an end of a range, and so must be greater than the ssn parameter value. Valid values range from 1 to 255.

The specified assignment cannot be an existing assignment, including SSN subsets.

 Display a report listing the remote application assignments using the rtrv-rmtappl command.

This is an example of possible output:

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
IPCA SI SSN
003-003-003 3 100, 110-119, 200
5

IPCI SI SSN
p-3-003-3 3 5, 50-100, 250
5

IPCN SI SSN
IPCN SI SSN
IPCN24 SI SSN
```

2. Display the current destination point codes, using the rtrv-dstn command.

This is an example of the possible output.

```
rlghncxa03w 10-12-10 11:43:04 GMT EAGLE5 43.0.0 Extended Processing Time may be Required
```

DPCA	CLLI	BEI ELEI A		ALIASI			
ALIASN/N24 DMN							
003-003-003		yes					
	SS7						
030-045-*	rlghncbb010	yes	yes				
	SS7						
111-011-*	rlghncbb000	yes	yes				
	SS7						
240-012-004	rlghncbb001	yes		1-111-1			
2500 S	S7						
240-012-005	rlghncbb002	yes		1-112-2			
1357 S	S7						
240-012-006	rlghncbb003	yes		1-112-3			
4257 S	S7						
240-012-008		yes		1-113-5			
6939 S	S7						



p-003-003-003		yes				SS7
DPCI 2-131-1 2-131-2 2-131-3 p-3-003-3	rlghncbb023	no no no				SS7
DPCN 7701 11038 p-16380 SS77	rlghncbb013	no no		222-200-200	ALIASI 2-121-1 2-121-2	
DESTINATION ENTR	IES ALLOCATE	D:	2000			
FULL DPC(s):			12			
EXCEPTION DP	C(s):		0			
NETWORK DPC(s):		0			
CLUSTER DPC(s):		2			
TOTAL DPC(s)	:		14			
CAPACITY (%			1%			
ALIASES ALLOCATE			12000			
ALIASES USED			18			
CAPACITY (%			1%			
X-LIST ENTRIES A	LLOCATED:		500			

If the IPC being added to the database is not shown in the rtrv-dstn output, go to the "Adding a Destination Point Code" procedure in *Database Administration - SS7 User's Guide* and add the IPC to the DPC table.

3. Add the remote application assignments using the <code>ent-rmt-appl</code> command.

For this example, enter these commands.

```
ent-rmt-appl:ipcn=p-16380:si=3:ssn=250
ent-rmt-appl:ipcn=p-16380:si=5
ent-rmt-appl:ipca=003-003-003:si=13
ent-rmt-appl:ipca=003-003-003:si=3:ssn=50:ssne=75
```

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

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 ENT-RMT-APPL: MASP A - COMPLTD;
```

4. Verify the changes using the rtrv-rmt-appl command.

This is an example of possible output:

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 IPCA SI SSN 003-003-003 3 50-75, 100, 110-119, 200
```



```
5
13

IPCI SI SSN
p-3-003-3 3 5, 50-100, 250
5

IPCN SI SSN
p-16380 3 250
5

IPCN24 SI SSN
```

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

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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

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

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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



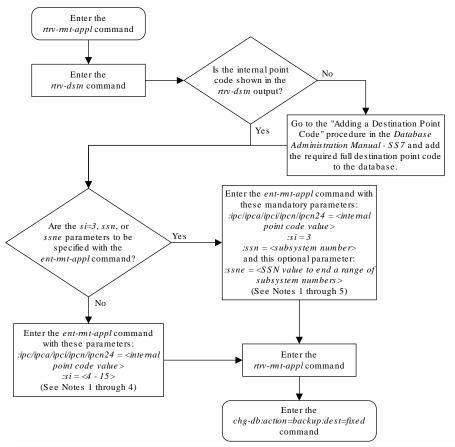


Figure 5-11 Add an End Node Internal Point Code

Notes:

- 1. If the ipc or ipca parameter is specified, only a full point code value can be specified.
- 2. The EAGLE 5 ISS can contain 14-bit ITU-N point codes or 24-bit ITU-N point codes, but not both at the
- 3. The point code value can be a non-spare, non-private, spare (s-), private (p-) or a private spare (ps-) point code, but does not have to be a spare, private, or private spare point code. Any point code can be a private point code. Only ITU-I or 14-bit ITU-N point codes can be private spare point codes or spare point codes. The point code value must be shown in the ntrv-dstn command output.
- 4. Only one IPC value for each network type can be configured. If you are adding an IPC value of the same network type as an existing IPC (for example, adding an ANSI IPC when the *rtrv-mt-appl* output contains an ANSI IPC), the IPC value must be the same as the existing IPC value.
- 5. The ssn parameter value cannot be greater than the ssne parameter value.

Removing an End Node Internal Point Code

The dlt-rmt-appl command is used to remove remote application assignments from the database.

The dlt-rmt-appl command uses these parameters:

: ipc/ipca/ipci/ipcn/ipcn24 – The end node's internal point code can be an ANSI, ANSI private (ipc/ipca), ITU-I, ITU-I spare, ITU-I private spare (ipci), 14-bit ITU-N, 14-bit ITU-N spare, 14-bit ITU-N private spare (ipcn), or 24-bit ITU-N, or 24-bit ITU-N private (ipcn24) point code.

: si – The service indicator value designates which **MSU** user part is being assigned to a remote application. Valid values range from 3 to 15.

:ssn – The SCCP subsystem number parameter. This parameter is required if the si=3 parameter is specified and is not valid for any other si value. If the ssne parameter is also specified, then the ssn parameter serves as the starting value of a range. Valid values range from 0 to 255.

:ssne – The SCCP subsystem number range end parameter. The ssne value can be specified only if the si=3 parameter is specified and is not valid for any other si value. This parameter serves as an end of a range, and so must be greater than the ssn parameter value. Valid values range from 1 to 255.

 Display a report listing the remote application assignments using the rtrv-rmtappl command.

This is an example of possible output:

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
   IPCA
                  SI SSN
   003-003-003
                   3 50-75, 100, 110-119, 200
                    13
   IPCI
                   SI SSN
                    3 5, 50-100, 250
 p-3-003-3
                    SI SSN
   IPCN
 p-16380
                     3 250
                     5
   IPCN24
                    SI SSN
```

2. Delete remote application assignments using the dlt-rmt-appl command.

For this example, enter these commands.

```
dlt-rmt-appl:ipca=003-003-003:si=3:ssn=100
dlt-rmt-appl:ipca=003-003-003:si=13
```

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

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 DLT-RMT-APPL: MASP A - COMPLTD;
```

3. Verify the changes using the rtrv-rmt-appl command.



This is an example of possible output:

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0

IPCA SI SSN
003-003-003 3 50-75, 110-119, 200
5

IPCI SI SSN
p-3-003-3 3 5, 50-100, 250
5

IPCN SI SSN
p-16380 3 250
5

IPCN24 SI SSN
```

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

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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

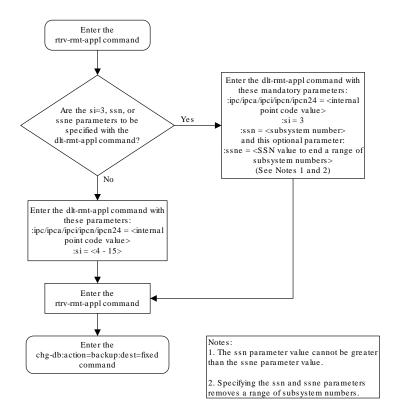
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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



Figure 5-12 Removing an End Node Internal Point Code





6

IPSG M2PA and M3UA Configuration Procedures

Chapter 6, IPSG M2PA and M3UA Configuration Procedures, describes the procedures necessary to configure the components necessary to establish IP connections using M2PA or M3UA associations on IPSG signaling links.

Adding IPSG Components

This section describes how to configure the components necessary to establish connections using IPSG M2PA associations on IPSG signaling links, and IPSG M3UA associations on IPSG signaling links.

The configuration of these connections consists of these items.

- 1. Configure the IPSG card with the Adding an IPSG Card procedure.
- Configure the required destination point codes see Chapter 2, "Configuring Destination Tables," in *Database Administration - SS7 User's Guide*.
- 3. Configure the required IPSG linksets perform the Adding an IPSG M2PA Linkset or the Adding an IPSG M3UA Linkset procedures.
- 4. IP addresses must be assigned to the IPSG card configured in step 1 by performing the Configuring an IP Link procedure. There are other IP link parameters that are assigned to the IPSG card when the IPSG card is configured. Default values are assigned to these parameters when the IPSG card is configured. These values can be displayed by the rtrv-ip-lnk command. These values can be changed by performing the Configuring an IP Link procedure.
- 5. Local **IP** hosts, assigned to the **IP** addresses assigned to step 4, must be configured in the database by performing the Adding an IP Host procedure. Verify the hosts with the rtrv-ip-host command. This establishes a relationship between the **IPSG** card related information and the association related information.
- 6. When the **IPSG** cards are added to the database in step 1, there are **IP** parameters that control the **IP** stack that are assigned default values. These parameter values can be displayed by the rtrv-ip-card command. These values can be changed by performing the Configuring an IP Card procedure.
- 7. Static IP routes provide more flexibility in selecting the path to the remote destination and reduces the dependence on default routers. Static IP routes are provisioned by performing the Adding an IP Route procedure.
- 8. IPSG Associations specify a connection between a local host/TCP port and a remote host/TCP port. Two types of IPSG associations can be provisioned: M2PA and M3UA. Associations that are assigned to IPSG M2PA signaling links must be IPSG M2PA associations. Associations that are assigned to IPSG M3UA signaling links must be IPSG M3UA associations. The IPSG M2PA association is configured by performing the Adding an IPSG M2PA Association procedure. The IPSG M3UA association is configured by performing the Adding an IPSG M3UA Association procedure. Associations can be assigned to IPLIMx or IPGWx signaling links also. These associations are configured by

performing the Adding an M2PA Association or Adding an M3UA or SUA Association procedures. A number of fields in the association cannot be configured with the Adding an IPSG M2PA Association or Adding an IPSG M3UA Association procedures and are set to default values. The values of these fields can be displayed using the rtrv-assoc command after the Adding an IPSG M2PA Association or Adding an IPSG M3UA Association procedures are performed. These values can be changed by performing the Changing the Attributes of an IPSG Association procedure.

9. There are two versions of IPSG M2PA associations, RFC and Draft 6, that can be configured in the database. When an IPSG M2PA association is added to the database with the Adding an IPSG M2PA Association procedure, the association is configured as an RFCM2PA association. The RFC version of M2PA timer set 1 is also assigned to the association when the IPSG M2PA association is added to the database.

There are two different versions, **RFC** and Draft 6, of **M2PA** timer sets that can be assigned to IPSG **M2PA** associations. Each version of the **M2PA** timer sets contains 20 timer sets. The values of these timer sets can be changed with the Changing an M2PA Timer Set procedure.

The version of the IPSG M2PA association and the M2PA timer set assigned to the association can be changed with Changing the Attributes of an IPSG Association procedure. The M2PA version of the association determines the version of the M2PA timer set that is assigned to the association. For example, if M2PA timer set 3 is assigned to the IPSG M2PA association, and the association is an RFC M2PA association, the RFC version of M2PA timer set 3 is used with the association. If M2PA timer set 7 is assigned to the IPSG M2PA association, and the association is a Draft 6 M2PA association, the Draft 6 version of M2PA timer set 7 is used with the association.

- 10. When an IPSG M3UA association is added to the database, UA parameter set 10 is assigned to the association. There are 10 UA parameter sets that can be assigned to an association, but the UA parameter set assignment can be changed, using the Changing the Attributes of an IPSG Association procedure. The values assigned to each UA parameter set can be changed, except for UA parameter set 10, using the Changing a UA Parameter Set procedure.
- 11. Configure the IPSG signaling links with either the Adding an IPSG M2PA Linkset or Adding an IPSG M3UA Signaling Link procedures. If the addition of these signaling links will exceed the current number of signaling links the EAGLE is allowed to have, the Enabling the Large System # Links Controlled Feature procedure will have to be performed to increase the quantity of signaling links.
- **12.** Configure the required routes see Chapter 3, "SS7 Configuration," in *Database Administration* **SS7** *User's Guide*.
- **13.** An internal point code can be provisioned to provide routing to an **IP** end office node. Configure the internal point codes by performing the Adding an End Node Internal Point Codeprocedure.
- 14. The network appearance field identifies the SS7 network context for the message, for the purpose of logically separating the signaling traffic between the SGP (signaling gateway process) and the application server over a common SCTP (stream control transmission protocol) association. This field is contained in the DATA, DUNA, DAVA, DRST, DAUD, SCON, and DUPU messages. Network appearances are configured by performing the Adding a Network Appearance procedure.



15. The EAGLE processes messages with a service information field (SIF) that is 272 bytes or smaller. The Large MSU Support for IP Signaling feature allows the EAGLE to process messages with a service indicator value of 6 to 15 and with a SIF that is larger than 272 bytes. Perform the Activating the Large MSU Support for IP Signaling Feature procedure to enable and turn on the Large MSU Support for IP Signaling feature.

Adding an IPSG Card

This procedure is used to add an **IPSG** card to the database using the ent-card command. An IPSG card is an E5-ENET-B or SLIC card that is running the IPSG application.

The ent-card command uses these parameters.

: loc – The location of the card being added to the database.

: type – The type of card being added to the database. For this procedure, the value of this parameter is enet for an E5-ENET card and enetb for E5-ENET-B. When provisioning the SLIC, the card type is slic.

: appl – The application software that is assigned to the card. For this procedure, the value of this parameter is ipsq.

: force – If the global title translation feature is on, the force=yes parameter allows the **IPSG** card to be added to the database even if the current **SCCP** transactions-per-second threshold is unable to support the additional **SCCP** transaction-per-second capacity created by adding the **IP** card. This parameter is obsolete and is no longer used.

Card Slot Selection

The **E5-ENET** card can be inserted into any card slot, except for card slots that must remain empty to accommodate dual-slot cards, slots 09 and 10 in each shelf, and slots 1113 through 1118.

To provision a E5-ENET card, the shelf containing the E5-ENET card must have HIPR2 cards installed in slots 9 and 10 in that shelf. If HIPR2 cards are not installed in the shelf that the E5-ENET card will occupy, the E5-ENET card will be auto-inhibited when the E5-ENET card is inserted into the shelf. Enter the rept-stat-gpl:gpl=hipr2 command to verify whether or not **HIPR2** cards are installed in the same shelf as the E5-ENET card being provisioned in this procedure.

1. Display the total provisioned system TPS by entering the rtrv-tps command.

This is an example of the possible output.

```
rlghncxa03w 10-07-30 16:20:46 GMT EAGLE 42.0.0

Total provisioned IPGW TPS = 30000

Total provisioned IPSG TPS = 400000

Total provisioned IPLIM TPS = 20000

Total provisioned ATM TPS = 3668

Total provisioned System TPS (453668 of 500000) 91%

Command Completed.
```



See Maximum Card Capacity for Different Card Types for MaxTPS values. If adding the new IPSG card will not exceed the maximum total provisioned system TPS, continue the procedure with 2.

If adding the new IPSG card will exceed the maximum total provisioned system TPS, and the maximum total provisioned system TPS is 500,000, perform the "Activating the HIPR2 High Rate Mode" feature in *Database Administration* - *System Management User's Guide* to enable and turn on the HIPR2 High Rate Mode feature. When the HIPR2 High Rate Mode feature is enabled and turned on, the maximum total provisioned system TPS is increased to 1,000,000 (1M). After the HIPR2 High Rate Mode feature has been enabled and turned on, continue the procedure with 2.

If adding the new IPSG card will exceed the maximum total provisioned system TPS, and the maximum total provisioned system TPS is 1M, This procedure cannot be performed. The maximum total provisioned system TPS the EAGLE can have is 1M,

2. Display the cards in the database using the rtrv-card command.

This is an example of the possible output. Cards should be distributed throughout the EAGLE for proper power distribution. Refer to *Installation Guide* for the shelf power distribution.

rlghnc	xa03w 13-0	6-05 08:12	:53 GMT 45.0.	0		
CARD	TYPE	APPL	LSET NAME	LINK	SLC	LSET NAME
LINK S	LC					
1101	DSM	VSCCP				
1102	TSM	GLS				
1113	E5MCAP	EOAM				
1114	E5TDM-A					
1115	E5MCAP	EOAM				
1116	E5TDM-B					
1117	E5MDAL					
1201	LIMDS0	SS7ANSI	sp2	A	0	sp1
В 0						
1203	LIMDS0	SS7ANSI	sp3	A	0	
1204	LIMDS0	SS7ANSI	sp3	A	1	
1206	LIMDS0	SS7ANSI	nsp3	A	1	nsp4
В 1						
1301	LIMDS0	SS7ANSI	sp6	A	1	sp7
В 0						
1302	LIMDS0	SS7ANSI	sp7	A	1	sp5
В 1						
1303	DCM	IPLIM	ipnode1	A	0	ipnode3
В 1						
1305	DCM	IPLIM	ipnode4	A	0	
2101	ENET	IPSG				
2103	ENET	IPSG				
2105	ENET	IPSG				
2107	ENET	IPSG				
2201	DCM	IPLIM				
2203	DCM	IPLIM				
2207	DCM	IPLIM				
2211	DCM	SS7IPGW				
2213	DCM	SS7IPGW				



2215	DCM	IPGWI
2217	DCM	IPGWI
2301	DCM	SS7IPGW
2303	DCM	SS7IPGW
2305	DCM	IPGWI
2307	DCM	IPGWI
2311	DCM	IPLIMI
2313	DCM	ILIMI

Continue the procedure by performing one of these actions.

- If the required unprovisioned card slots (see the Card Slot Selection section) are shown in the rtrv-card output, continue the procedure with 5.
- If the required unprovisioned card slots are not shown in the rtrv-card output, 3 must be performed.
- 3. Display the shelves in the database by entering the rtrv-shlf command. This is an example of the possible output.

```
rlghncxa03w 08-03-05 08:12:53 GMT 38.0.0
SHELF DISPLAY
FRAME SHELF
                 TYPE
 1
      1
              CONTROL
 1
       2
              EXTENSION
 1
       3
              EXTENSION
 2
      1
              EXTENSION
 2
       2
              EXTENSION
       3
               EXTENSION
```

If all the shelves are provisioned in the database, then the remainder of this procedure cannot be performed. There are no available card slots for the new **IPSG** card.

If all the shelves have not been provisioned in the database, continue the procedure with 4.

4. Add the required shelf using the ent-shlf command with the location of the shelf and the type=ext parameter. The shelf location values are 1200, 1300, 2100, 2200, 2300, 3100, 3200, 3300, 4100, 4200, 4300, 5100, 5200, 5300, and 6100. For this example, enter this command.

```
ent-shlf:loc=3100:type=ext
```

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

```
rlghncxa03w 07-05-01 09:12:36 GMT EAGLE5 37.0.0 ENT-SHLF: MASP A - COMPLTD
```

5. Verify that the card to be entered has been physically installed into the proper location (see the Card Slot Selection section). If the card has not been installed, insert the card into the desired card location following the rules described in the Card Slot Selection section.



Caution:

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

6. Verify that **HIPR2** cards are installed in card locations 9 and 10 in the shelf containing the E5-ENET card being added in this procedure. Enter this command.

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

This is an example of the possible output.

rlghncxa03	w 09-07-05	08:12:53 GMT	41.1.0	
GPL	CARD	RUNNING	APPROVED	TRIAL
HIPR2	1109	132-002-000	132-002-000	132-003-000
HIPR2	1110	132-002-000	132-002-000	132-003-000
HIPR2	1209	132-002-000	132-002-000	132-003-000
HIPR2	1210	132-002-000	132-002-000	132-003-000
HIPR2	1309	132-002-000	132-002-000	132-003-000
HIPR2	1310	132-002-000	132-002-000	132-003-000
HIPR2	2109	132-002-000	132-002-000	132-003-000
HIPR2	2110	132-002-000	132-002-000	132-003-000
HIPR2	2209	132-002-000	132-002-000	132-003-000
HIPR2	2210	132-002-000	132-002-000	132-003-000
HIPR2	2309	132-002-000	132-002-000	132-003-000
HIPR2	2310	132-002-000	132-002-000	132-003-000
Command Co	mpleted			

If HIPR2 cards are installed in the shelf containing the E5-ENET card, continue the procedure with 11.

If HIPR or HIPR2 cards are not installed on the shelf containing the E5-ENET card, go to Installation Guide and install the HIPR or HIPR2 cards. Once the HIPR or HIPR2 cards have been installed, continue the procedure with 11.

7. Enter the rtrv-stpopts command to verify whether or not the MFC option is on. This is an example of the possible output.

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

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



If the **MFC** option is off, perform the Configuring the MFC Option procedure in *Database Administration - System Management User's Guide* to turn on the MFC option.

If the MFC option is on or the Configuring the MFC Option procedure in *Database Administration - System Management User's Guide* was performed in this step, continue the procedure with 8.



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

8. Enter the rtrv-feat command to verify that the Fan feature is on.

If the Fan feature is on, shown in the rtrv-feat output, the FAN field should be set to on.

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

If the Fan feature is on, continue the procedure with 10.

If the Fan feature is off, continue the procedure with 8.

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

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



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

When the ${\tt chg-feat}$ has successfully completed, this message appears.

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

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

If the fans are installed, continue the procedure with 11.

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

11. Add the card using the ent-card command. For this example, enter these commands.

```
ent-card:loc=1311:type=enetb:appl=ipsg
ent-card:loc=1313:type=slic:appl=ipsg
```



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

```
rlghncxa03w 06-10-12 09:12:36 GMT EAGLE5 36.0.0 ENT-CARD: MASP A - COMPLTD
```

12. Verify the changes using the rtrv-card command with the card location specified in 11. For this example, enter these commands.

```
rtrv-card:loc=1311
```

This is an example of the possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0

CARD TYPE APPL LSET NAME LINK SLC LSET NAME
LINK SLC

1311 ENETB IPSG

rtrv-card:loc=1313
```

This is an example of the possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0

CARD TYPE APPL LSET NAME LINK SLC LSET NAME
LINK SLC

1313 SLIC IPSG
```

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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

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

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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



Enter the rtrv-tps command. What is 750,000 the maximum total procedure cannot provisioned system be performed. TPS value? Will adding the 500,000 new IPSG card exceed the maximum total provisioned system TPS value? See Perform the "Activating the HIPR2 High Note 1. Rate Mode Feature" procedure to enable and turn on the HIPR2 High Rate Mode feature. When the HIPR2 High Rate Mode feature is enabled and turned on, No the maximum total provisioned system TPS value is increased to 750,000. Enter the rtrv-card command. Has the Yes IP card been installed? No Are the required Yes unprovisioned card slots Insert the IP card into the desired card shown in the rtrv-card output? slot following the rules described in See Note 2. the Card Slot Selection section. This section is in the "Adding an IPSG Card" procedure in the Database Administration Manual – IP7 Secure Visually verify that the No IP card has been Gateway. installed into the EAGLE 5 ISS. Enter the rtrv-shlf command. Enter the ent-shlf command No Has UAM 0002 with these parameters. been generated? loc=<location of the shelf: Have all the Nο 1200, 1300, 2100, 2200, 2300, shelves been 3100, 3200, 3300, 4100, 4200, provisioned? Yes 4300, 5100, 5200, 5300, or 6100> :type = ext $Ye\,s$ Perform the alarm clearing procedure for UAM 0002 in the Unsolicited Alarm and This procedure cannot Information Messages manual be performed as no card to clear the alarm. slots are available for the new card.

Notes:

Secure Gateway.

1. The IPSG card uses 5000 - 10,000 TPS.

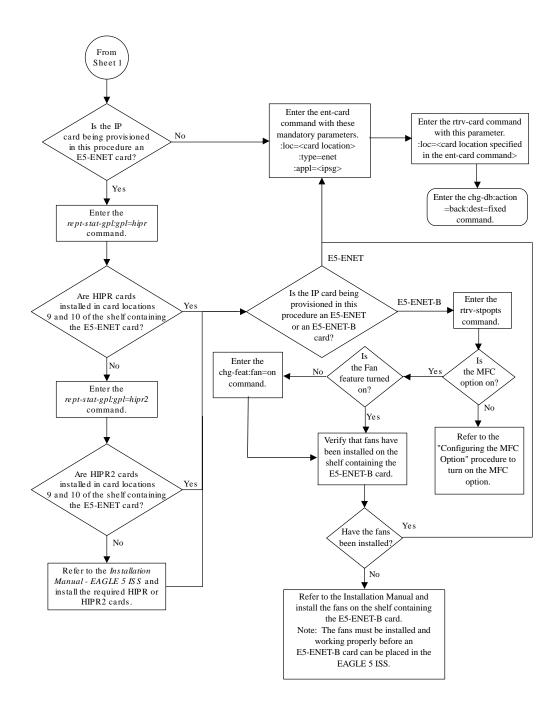
2. See the Card Slot Selection section in the "Adding an IPSG Card" procedure in the Database Administration Manual – IP7

Figure 6-1 Adding an IPSG Card

Sheet 1 of 2

То

Sheet 2



Sheet 2 of 2

Adding an IPSG M2PA Linkset

This procedure is used to configure **IPSG** M2PA linksets in the EAGLE using the entls commands with these parameters. :1sn – The name of the linkset. The linkset name can contain up to 10 characters, with the first character being a letter. However, the **SEAS** interface supports only eight characters. If this linkset is displayed on the SEAS interface and the linkset name contains more than eight characters, only the first eight characters in the linkset name are shown. If this linkset name contains more than eight characters, and is specified with the linkset commands on the SEAS interface, only the first eight characters can be specified.

: apc/apca/apci/apcn/apcn24 - Adjacent point code - the point code identifying the node that is next to the EAGLE. The adjacent point code can be one of the following types of point codes:

:apc/apca - ANSI point code, ANSI private point code

apci-ITU-I point code, ITU-I spare point code, ITU-I private point code, ITU-I private spare point code.

:apcn — 14-bit ITU-N point code, 14-bit ITU-N spare point code, 14-bit ITU-N private point code, 14-bit ITU-N private spare point code.

:apcn24 - 24-bit ITU-N point code, 24-bit ITU-N private point code.



See the "**Point Code** Formats" section in *Database Administration -* **SS7** *User's Guide* for a definition of the point code types that are used on the **EAGLE** and for a definition of the different formats that can be used for **ITU** national point codes.

- :1st The linkset type of the specified linkset, a, b, c, d, e. The linkset type prx can also be specified for an IPSG M2PA linkset. For more information on using the prx linkset type, refer to the "Adding an SS7 Linkset" procedure in *Database Administration SS7 User's Guide*.
- :ipsg This parameter specifies whether or not the linkset is an IPSG linkset. This parameter has two values, yes (if the linkset is an IPSG linkset) or no (if the linkset is not an IPSG linkset). For this procedure, the ipsg parameter value must be yes.
- :maxslktps The maximum number of transactions per second (TPS) for all signaling links that are assigned to the IPSG M2PA linkset. See Maximum Card Capacity for Different Card Types for MaxTPS values.
- :rsvdslktps The number of transactions per second (TPS) that is assigned to each IPSG signaling link that will be in the linkset. See Maximum Card Capacity for Different Card Types for MaxTPS values. The slktps parameter can be used in place of the rsvdslktps parameter.
- : tpsalmtype The TPS threshold that will generate alarms. This parameter has two values.
- rsvdslktps The RSVDSLKTPS threshold generates alarms.
- maxslktps The MAXSLKTPS threshold generates alarms.
- :lsusealm The linkset's TPS alarm threshold, from 10 to 100 percent of the linkset's IPTPS. When this threshold is reached, a major alarm (**UAM** 0115) is generated. When the linkset's IPTPS falls below this threshold, UAM 0115 is automatically cleared and UAM 0118 is generated.



:slkusealm – The signaling link TPS alarm threshold, from 10 to 100 percent of the signaling link's fair share of the linkset's TPS from 10 to 100 percent of the IPSG card's capacity See Maximum Card Capacity for Different Card Types for MaxTPS values. This threshold is reached when the signaling link's actual usage exceeds the percentage of the signaling link's fair share of the linkset's TPS or the percentage of the IPGWx card's capacity.

A signaling link's fair share of linkset's TPS is the linkset's TPS divided by the number of in-service links in the linkset. For example, if the linkset TPS is 4000 and there are 4 signaling links in the linkset, all in-service, then the signaling link's fair-share would be 1000 TPS (4000/4=1000). Table 6-1 shows this calculation for a linkset with 1, 2, 3 and 4 in-service signaling links.

	Number of In-Service Signaling Links	Linkset TPS	Signaling Link Fair Share of the Linkset TPS
4		4000	1000
3		4000	1333
2		4000	2000
1		4000	4000

Table 6-1 Signaling Link Fair Share Example

When this threshold is exceeded, a minor alarm (**UAM** 0116) is generated. When the amount of traffic on the signaling link falls below this threshold, **UAM** 0116 is automatically cleared and **UAM** 0119 is generated.

The signaling link TPS alarm shows that the linkset TPS is set too low for the linkset or that the **IPSG** card's capacity has been exceeded. Setting the signaling link TPS alarm threshold lower than the linkset TPS alarm threshold can give the user an earlier indication that the linkset TPS is inadequate or that traffic is not balanced across the links in the linkset.

:adapter - This parameter specifies the adapter layer for the signaling links that will be assigned to the IPSG M2PA linkset. This parameter has two values, m2pa and m3ua. For an IPSG M2PA linkset, the adapter parameter value must be m2pa.

The adjacent point code (**APC**) for the linkset must be defined in the database, must be in the SS7 domain and cannot match the point code or capability point code of the EAGLE. The domain of the point code is shown in the DMN field in the output of the rtrv-dstn command. The point code of the EAGLE is shown in the PCA, PCN, PCN24, or PCI fields and the capability point code of the **EAGLE** are shown in the CPCA, CPCN, CPCN24, or CPCI fields in the output of the rtrv-sid command. An **ANSI** adjacent point code must be a full point code and cannot be a cluster point code or a network routing point code.

If the APC is not in the destination point code table, go to the "Adding a **Destination Point Code**" procedure in *Database Administration* - **SS7** *User's Guide* and add the APC to the destination point code table.

Adding the IPSG M2PA linkset cannot exceed the maximum total provisioned system TPS shown in the rtrv-tps output. An IPSG M2PA linkset uses from 100 to MaxTPS (see Maximum Card Capacity for Different Card Types for MaxTPS values, as provisioned by the maxslktps parameter.



If adding the IPSG M2PA linkset will exceed the maximum total provisioned system TPS, and the maximum total provisioned system TPS is 500,000, perform the "Activating the HIPR2 High Rate Mode" feature in *Database Administration - System Management User's Guide* to enable and turn on the HIPR2 High Rate Mode feature. When the HIPR2 High Rate Mode feature is enabled and turned on, the maximum total provisioned system TPS is increased to 1,000,000 (1M). If the maximum total provisioned system TPS is 1M, or the maximum total provisioned system TPS is 500,000 and will not be increased, and adding the IPSG M2PA linkset will exceed the maximum total provisioned system TPS, the IPSG M2PA linkset cannot be added unless the amount of available TPS is reduced enough to allow the IPSG M2PA linkset to be added. The available TPS can be reduced by performing one or more of these actions.

- The IP TPS values of some IPGWx linksets have to be changed.
- The MAXSLKTPS values of some IPSG linksets (and the RSVDSLKTPS values if necessary) have to be changed.
- Some ATM high-speed signaling links have to be removed.
- An IPLIMx card that contains signaling links has to be removed.

Other Optional Parameters

There are other optional parameters that can be used to configure an IPSG M2PA linkset. These parameters are not required for configuring an IPSG M2PA linkset. These parameters are discussed in more detail in *Commands User's Guide* or in these sections.

- These procedures in this manual:
 - Adding a Mate IPGWx Linkset to another IPGWx Linkset
 - Removing a Mate IPGWx Linkset from another IPGWx Linkset
 - Configuring an IPGWx Linkset
- These procedures in Database Administration SS7 User's Guide
 - Adding an SS7 Linkset
 - Changing an SS7 Linkset
 - Configuring an ITU Linkset with a Secondary Adjacent Point Code (SAPC)
- The "Configuring a Linkset for the GSM MAP Screening Feature" procedure in *Database Administration Features User's Guide*.

Canceling the RTRV-LS and RTRV-DSTN Commands

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

- Press the F9 function key on the keyboard at the terminal where the rtrv-ls or rtrv-dstn commands were entered.
- Enter the canc-cmd without the trm parameter at the terminal where the rtrv-ls or rtrv-dstn commands were entered.
- Enter the canc-cmd:trm=<xx>, where <xx> is the terminal where the rtrv-ls or rtrv-dstn commands were entered, from another terminal other that the terminal where the rtrv-ls or rtrv-dstn commands were entered. To enter the canc-cmd:trm=<xx> command, the terminal must allow Security Administration commands to



be entered from it and the user must be allowed to enter Security Administration commands. The terminal's permissions can be verified with the rtrv-secu-trm command. The user's permissions can be verified with the rtrv-user or rtrv-secu-user commands.

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

Display the current linksets in the database using the rtrv-ls command.
 This is an example of the possible output.

rlghncxa03w 10-07-10 11:43:04 GMT EAGLE5 42.0.0

				_	SLT					GWS	
LSN SLSCI NIS	APCA	(SS7)	SCRN	SET	SET	BEI	LST	LNKS	ACT	MES	DIS
ipgwx1 no off	001-00	1-002	none	1	1	no	A	8	off	off	off
ipgwx2 no off	001-00	1-003	none	1	1	no	A	8	off	off	off
ipgwx3 no off	001-00	1-004	none	1	1	no	A	0	off	off	off
ls1305	001-00	5-000	none	1	1	no	A	1	off	off	off
ls1307	001-00	7-000	none	1	1	no	A	1	off	off	off
lsniplim no off	002-00	2-002	none	1	1	no	A	3	off	off	off
ipsglsn no off	003-00	3-003	none	1	1	no	A	6	off	off	off
lsn2 no off	003-00	3-004	none	1	1	no	A	1	off	off	off
lsn1 no off	003-00	3-005	none	1	1	no	A	1	off	off	off
ipsglsn2 no off	005-00	5-005	none	1	1	no	A	1	off	off	off
lsnds0 no off	009-00	9-009	none	1	1	no	A	2	off	off	off
				L3T	SLT				GWS	GWS	GWS
LSN SLSCI NIS	APCI	(SS7)	SCRN	SET	SET	BEI	LST	LNKS	ACT	MES	DIS
lsnituatm no off	1-002-	3	none	1	2	no	A	1	off	off	off

Link set table is (12 of 1024) 1% full.

2. Display the point code and capability point code of the **EAGLE** by using the rtrv-sid command.

This is an example of the possible output.

rlghncxa03w 10-07-10 11:43:04 GMT EAGLE5 42.0.0



PCA 001-001-001	PCI 1-200-6	PCN 13482	CLLI rlghn	cxa03w	PCTYPE OTHER
CPCA 002-002-001 002-002-006 004-002-001	002-002-003 002-002-007 004-003-003	002-002-00 002-002-00 144-212-00)8	002-002-0 002-002-0	
CPCA (LNP) 005-005-002	005-005-004	005-005-00)6		
CPCI 1-001-1	1-001-2	1-001-3		1-001-4	
CPCN 02091 02191	02092 02192	02094 11177		02097	

3. Display the destination point codes in the database by entering the rtrv-dstn command. This is an example of the possible output.

rlghncxa03w 10-12-10 11:43:04 GMT EAGLE5 43.0.0 Extended Processing Time may be Required

DPCA	CLLI	BEI	ELEI ALIASI	ALIASN/N24	DMN
001-207-000		no			SS7
001-001-002		no			SS7
001-001-003		no			SS7
001-001-004		no			SS7
001-005-000		no			SS7
001-007-000		no			SS7
002-002-002		no			SS7
003-002-004		no			SS7
003-003-003		no			SS7
003-003-004		no			SS7
003-003-005		no			SS7
005-005-005		no			SS7
008-012-003		no			SS7
009-002-003		no			SS7
009-009-009		no			SS7
010-020-005		no			SS7
DPCI	CLLI	BEI	ELEI ALIASA	ALIASN/N24	DMN
1-002-3		no			SS7
1-207-0		no			SS7
0-015-0		no			SS7
0-017-0		no			SS7
1-011-1		no			SS7
1-011-2		no			SS7

Destination table is (22 of 2000) 2% full Alias table is (0 of 12000) 0% full



If the new adjacent point code is not shown in the rtrv-dstn output, perform the "Adding a Destination Point Code" procedure in *Database Administration - SS7 User's Guide* to add the required point code. After the new adjacent point code has been added, continue the procedure with 7.

If the new adjacent point code is shown in the rtrv-dstn output, continue the procedure with 4.

4. Display the adjacent point code of the new linkset in the destination point code table by using the rtrv-dstn command and specifying the point code. For this example, enter this command.

```
rtrv-dstn:dpca=010-020-005
```

This is an example of the possible output.

```
rlghncxa03w 10-12-10 11:43:04 GMT EAGLE5 43.0.0
  DPCA
              CLLI
                        BEI ELEI ALIASI
ALIASN/N24 DMN
  010-020-005 ----- no --- ----
----- SS7
            NCAI RCAUSE NPRST SPLITIAM HMSMSC HMSCP
  SPCA
SCCPMSGCNV
                        none off none
                                          no
                                                 no
                                                      none
Destination table is (14 of 2000) 1% full
Alias table is (0 of 12000) 0% full
```

5. The APC of the linkset cannot be the DPC of any exception route. Verify that the adjacent point code of the linkset is not the DPC of any exception route by entering the rtrv-rtx command with the dpc/dpca/dpci/dpcn/dpcn24 parameter. The dpc/dpca/dpci/dpcn/dpcn24 parameter value is the adjacent point code value that will be specified for the linkset.

For this example, enter this command.

```
rtrv-rtx:dpca=010-020-005
```

This is an example of the possible output.

```
rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 37.5.0
   DPCA
               RTX-CRITERIA
                                         LSN
                                                     RC
                                                          APC
    010-020-005 OPCA
                 007-008-009
                                         ls1305
                                                     20
001-005-000
                 008-008-008
                                         ls1307
                                                     40
001-007-000
 DESTINATION ENTRIES ALLOCATED: 2000
    FULL DPC(s):
                                  13
    EXCEPTION DPC(s):
                                   5
    NETWORK DPC(s):
                                   0
    CLUSTER DPC(s):
                                   1
```



```
TOTAL DPC(s): 19
CAPACITY (% FULL): 1%
ALIASES ALLOCATED: 12000
ALIASES USED: 0
CAPACITY (% FULL): 0%
X-LIST ENTRIES ALLOCATED: 500
```

If the adjacent point code of the linkset is not the **DPC** of a route exception table entry, no entries are displayed in the rtrv-rtx output, but a summary of the point code quantities is displayed, as shown in the following output example.

```
rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 37.5.0
   DESTINATION ENTRIES ALLOCATED:
                                  2000
                                    15
       FULL DPC(s):
       EXCEPTION DPC(s):
                                     5
                                     0
       NETWORK DPC(s):
       CLUSTER DPC(s):
                                     1
                                    21
       TOTAL DPC(s):
       CAPACITY (% FULL):
                                    1%
                                  12000
   ALIASES ALLOCATED:
       ALIASES USED:
                                     0
       CAPACITY (% FULL):
                                     0%
   X-LIST ENTRIES ALLOCATED:
                                   500
```

If the point code specified in this step is shown in the <code>DPCA/DPCI/DPCN/DPCN24</code> columns in this step, the point code value cannot be used as an adjacent point code unless one of two actions are taken:

- Choose another adjacent point code value and repeat the procedure from 2.
- Remove all the entries displayed in this step by performing the "Removing a **Route** Exception Entry" procedure in *Database Administration* **SS7** *User's Guide*. After the entries have been removed, continue the procedure with 6.

If the adjacent point code of the linkset is not the **DPC** of a route exception table entry, continue the procedure with 6.

6. Display any entries in the route table whose **DPC** value is also the adjacent point code of the new linkset being added in this procedure, or the new adjacent point code of the existing linkset being changed in this procedure. Enter the rtrv-rte command with the dpc/dpca/dpci/dpcn/dpcn24 parameter. The dpc/dpca/dpci/dpcn/dpcn24 parameter value is the adjacent point code value that will be specified for the linkset. For this example, enter this command.

```
rtrv-rte:dpca=010-020-005
```

This is an example of the possible output.

```
PCA ALIASI ALIASN/N24 LSN RC APCA 010-020-005 ------ lsn1 1 003-003-005
```



1sn2 2 003-003-004 RTX:No

If the adjacent point code of the linkset is not the **DPC** of a route, the point code entry is displayed in the rtrv-rte output, but the **LSN**, **RC**, and **APC** columns contain dashes, as shown in the following output example.

If the point code specified in this step is shown in the DPCA/DPCI/DPCN/ DPCN24 columns in this step, the point code value cannot be used as an adjacent point code unless one of two actions are taken:

- Choose another adjacent point code value and repeat the procedure with 2.
- Remove all the entries displayed in this step by performing the "Removing a
 Route" procedure in *Database Administration SS7 User's Guide*. After the
 entries have been removed, continue the procedure with 12

If the adjacent point code of the linkset is not the **DPC** of a route, continue the procedure with 7.

7. Display the total provisioned system TPS by entering the rtrv-tps command. This is an example of the possible output.

rlghncxa03w 10-07-10 16:20:46 GMT EAGLE 42.0.0

CARD	NUM	NUM	RSVD	MAX
TYPE	CARDS	LINKS	TPS	TPS
IPGW	17	16	48000	80000
IPSG	3	7	4200	8000
IPLIM	2	4	8000	8000
ATM	2	2	3668	3668

Total provisioned System TPS (99668 of 500000) 20%

Command Completed.

An IPSG M2PA linkset uses 100 to MaxTPS (see Maximum Card Capacity for Different Card Types for MaxTPS values), as provisioned by the maxslktps parameter. If adding the new IPSG M2PA linkset will not exceed the maximum total provisioned system TPS, continue the procedure with 12.



If adding the new IPSG M2PA linkset will exceed the maximum total provisioned system TPS, and the maximum total provisioned system TPS is 500,000 shown, perform the "Activating the HIPR2 High Rate Mode Feature" procedure in *Database Administration - System Management User's Guide* to enable and turn on the HIPR2 High Rate Mode feature. When the HIPR2 High Rate Mode feature is enabled and turned on, the maximum total provisioned system TPS is increased to 1M. After the HIPR2 High Rate Mode feature has been enabled and turned on, continue the procedure with 12.

If the maximum total provisioned system TPS is 1M, or the maximum total provisioned system TPS is 500,000 and will not be increased, and adding the IPSG M2PA linkset will exceed the maximum total provisioned system TPS, the IPSG M2PA linkset cannot be added unless the amount of available TPS is reduced enough to allow the IPSG M2PA linkset to be added. The available TPS can be increased by performing one or more of these actions.

- The IP TPS values of some IPGWx linksets have to be changed. To perform this action, continue the procedure with 10.
- The MAXSLKTPS values of some IPSG linksets (and the RSVDSLKTPS values if necessary) have to be changed. To perform this action, continue the procedure with 10.
- Some ATM high-speed signaling links have to be removed. To perform this action, continue the procedure with 8.
- An IPLIMx card that contains signaling links has to be removed. To perform this action, continue the procedure with 9.
- 8. Display the ATM high-speed signaling links by entering this command.

```
rtrv-slk:type=saal
```

This is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0

	LOC L303	LINK A	LSN lsnds0	SLC 1	TYPE LIMATM	-	BPS 1.544M	ATM TSEL LINE	VCI 5	VPI O	LL 0		
	LOC	LINK	LSN	SLC	TYPE	LP SET	BPS	ATM TSEL	VCI	VPI	E1 CRC4	LATN SI	I
-	306	A	lsnituatm	0	LIME1ATM	21	2.048M	LINE	5	0	ON	3	0
Š	SLK t	table	is (30 of 3	1200)	2% full.								

If ATM high-speed signaling links are shown in the rtrv-slk output, perform the "Removing an SS7 Signaling Link" procedure in *Database Administration - SS7 User's Guide* to remove some of the ATM high-speed signaling links.

If ATM high-speed signaling links are not displayed in the rtrv-slk output, perform one or more of these actions to increase the available TPS.



Note:

If one or more of these actions are not performed to increase the available TPS and the available TPS will not allow the IPSG M2PA linkset to be added, the IPSG M2PA linkset cannot be added and the remainder of this procedure cannot be performed.

- The IP TPS values of some IPGWx linksets have to be changed. To perform this action, continue the procedure with 10.
- The MAXSLKTPS values of some IPSG linksets (and the RSVDSLKTPS values if necessary) have to be changed. To perform this action, continue the procedure with 10.
- An IPLIMx card that contains signaling links has to be removed. To perform this action, continue the procedure with 9.

If you do not wish to perform other actions to increase the available TPS and the available TPS will allow the IPSG M2PA linkset to be added, continue the procedure with 12.

Display the signaling links that are assigned to IPLIMx cards by entering this command.

```
rtrv-slk:type=iplim
```

This is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0

LOC	LINK	LSN	SLC	TYPE	ANAME	SLKTPS
1301	A	lsniplim	0	IPLIM	M2PA	
1301	A1	lsniplim	1	IPLIM	M2PA	
1301	В1	lsniplim	2	IPLIM	M2PA	
1317	A	lsniplimi	0	IPLIMI	M2PA	

SLK table is (30 of 1200) 2% full.

If IPLIMx cards containing signaling links are shown in the rtrv-slk output, perform the Removing an IPLIMx Card procedure to remove an IPLIMx card and its associated signaling links.

If IPLIMx cards containing signaling links are not displayed in the ${\tt rtrv-slk}$ output, perform one or more of these actions to increase the available TPS.

Note:

If one or more of these actions are not performed to increase the available TPS and the available TPS will not allow the IPSG M2PA linkset to be added, the IPSG M2PA linkset cannot be added and the remainder of this procedure cannot be performed.



- The IP TPS values of some IPGWx linksets have to be changed. To perform this action, continue the procedure with 10.
- The MAXSLKTPS values of some IPSG linksets (and the RSVDSLKTPS values if necessary) have to be changed. To perform this action, continue the procedure with 10.
- Some ATM high-speed signaling links have to be removed. To perform this action, continue the procedure with 8.

If you do not wish to perform other actions to increase the available TPS and the available TPS will allow the IPSG M2PA linkset to be added, continue the procedure with 12.

10. Display the IPGWx and IPSG linksets by entering this command.

rept-stat-iptps

This is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0 IP TPS USAGE REPORT

	THRESH	CONFIG/ RSVD	CONFIG/ MAX	TPS		PEAK	PEAKTIMESTAMP
LSN							
ipgwx1	100%		32000	TX:	3700	4000	10-07-19 09:49:19
				RCV:	3650	4000	10-07-19 09:49:19
ipgwx2	100%		16000	TX:	4800	5000	10-07-19 09:49:09
				RCV:	4850	5000	10-07-19 09:49:09
ipgwx3	100%		32000	TX:	427	550	10-07-19 09:49:19
				RCV:	312	450	10-07-19 09:49:19
ipsglsn	100%	600	24000	TX:	4800	5000	10-07-19 09:49:19
				RCV:	4800	5000	10-07-19
09:49:19							
ipsglsn2	100%	600	4000	TX:	427	550	10-07-19 09:49:19
				RCV:	312	450	10-07-19
09:49:19							

Command Completed.

If linksets are displayed in the rept-stat-iptps output, continue the procedure with 11.

If linksets are not displayed in the rept-stat-iptps output, perform one or more of these actions to increase the available TPS.

Note:

If one or more of these actions are not performed to increase the available TPS and the available TPS will not allow the IPSG M2PA linkset to be added, the IPSG M2PA linkset cannot be added and the remainder of this procedure cannot be performed.



- An IPLIMx card that contains signaling links has to be removed. To perform this action, continue the procedure with 9.
- Some ATM high-speed signaling links have to be removed. To perform this action, continue the procedure with 8.

If you do not wish to perform other actions to increase the available TPS and the available TPS will allow the IPSG M2PA linkset to be added, continue the procedure with 12.

11. Display the attributes of the linksets shown in 10 by entering the rtrv-ls command with the name of the linkset shown in 10.

For this example enter these commands.

```
rtrv-ls:lsn=ipgwx1
```

This is an example of the possible output.

```
rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0
```

```
L3T SLT
                                     GWS GWS GWS
LSN
           APCA
                 (SS7) SCRN SET SET BEI LST LNKS ACT MES DIS
SLSCI NIS
ipawx1
           001-001-002 none 1 1 no A 8
                                            off off off
no off
           SPCA
                       CLLI
                                 TFATCABMLQ MTPRSE ASL8
                                           --- no
         RANDSLS
         off
         IPSG IPGWAPC GTTMODE
                                    CGGTMOD
              yes CdPA
                                      no
                IPTPS LSUSEALM SLKUSEALM
         MATELSN
         ----- 32000 100% 80%
         LOC LINK SLC TYPE
         1101 A 0 SS7IPGW
         1102 A 1 SS7IPGW
         1103 A 2 SS7IPGW
         1104 A 3 SS7IPGW
         1105 A 4 SS7IPGW
         1106 A 5 SS7IPGW
         1107 A 6 SS7IPGW
         1108 A 7 SS7IPGW
```

Link set table is (8 of 1024) 1% full.

rtrv-ls:lsn=ipgwx2



This is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0

LSN APCA (SS7) SCRN SET SET BEI LST LNKS ACT MES DIS SLSCI
NIS
ipgwx2 001-001-003 none 1 1 no A 8 off off no
off

SPCA CLLI TFATCABMLQ MTPRSE ASL8

RANDSLS off

IPSG IPGWAPC GTTMODE CGGTMOD no yes CdPA no

MATELSN IPTPS LSUSEALM SLKUSEALM ----- 16000 100% 80%

 LOC
 LINK
 SLC
 TYPE

 1111
 A
 0
 SS71PGW

 1112
 A
 1
 SS71PGW

 1201
 A
 2
 SS71PGW

 1202
 A
 3
 SS71PGW

 1203
 A
 4
 SS71PGW

 1204
 A
 5
 SS71PGW

 1205
 A
 6
 SS71PGW

 1206
 A
 7
 SS71PGW

Link set table is (8 of 1024) 1% full.

rtrv-ls:lsn=ipgwx3

This is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0

LSN APCA (SS7) SCRN SET SET BEI LST LNKS ACT MES DIS SLSCI NIS
ipgwx3 001-001-004 none 1 1 no A 0 off off no off

SPCA CLLI TFATCABMLQ MTPRSE ASL8

RANDSLS off



IPSG IPGWAPC GTTMODE CGGTMOD
no yes CdPA no

MATELSN IPTPS LSUSEALM SLKUSEALM
----- 32000 100% 80%

Link set table is (8 of 1024) 1% full.

rtrv-ls:lsn=ipsglsn

This is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0

LSN APCA (SS7) SCRN SET SET BEI LST LNKS ACT MES DIS SLSCI NIS ipsglsn 003-003-003 none 1 1 no A 6 off off no off

SPCA CLLI TFATCABMLQ MTPRSE ASL8

RANDSLS off

IPSG IPGWAPC GTTMODE CGGTMOD yes no CdPA no

ADAPTER RSVDSLKTPS MAXSLKTPS 4000 m2pa 600 TPSALM LSUSEALM SLKUSEALM rsvdslktps 100% 100% LOC LINK SLC TYPE ANAME 1303 A 0 IPSG ipsgm2pa1 1303 A1 1 IPSG ipsgm2pa2 1303 B1 2 IPSG ipsgm2pa3 1303 A2 3 IPSG ipsgm2pa4 1303 A3 4 IPSG ipsgm2pa5 1307 A 5 IPSG m2pa2

Link set table is (8 of 1024) 1% full.

rtrv-ls:lsn=ipsglsn2

This is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0

					L3T	SLT				GWS	GWS	GWS	
LSN NIS	P	APCA	(SS7)	SCRN	SET	SET	BEI	LST	LNKS	ACT	MES	DIS	SLSCI
ipsglsn2 off	C	005-005-005		none	1	1	no	A	1	off	off	off	no
	SPCA CLLI				TFA			-	TPRSE ASL8				
	RANI off	SLS											
		G IPGW			Ξ		(CGGTI no	MOD				
	ADAPTER RSVDSLKTPS m2pa 600					TPS							
		TPSALM LSUSEAL rsvdslktps 100%											
	LOC LINK SLC TYPE 1303 B3 0 IPSG			ANAME ipsgm2pa6									

Link set table is (8 of 1024) 1% full.

Perform one or both of these actions as necessary.

- Perform the Configuring an IPGWx Linkset procedure to change the IPTPS value for any linksets shown in the rtrv-ls output whose IPGWAPC value is yes.
- Perform the Changing an IPSG M2PA Linkset procedure (for linkset whose IPSG value is yes and ADAPTER value is M2PA) or the Changing an IPSG M3UA Linkset procedure (for linkset whose IPSG value is yes and ADAPTER value is M3UA) to change the MAXSLKTPS value (and RSVDSLKTPS value if necessary) for any linksets shown in the rtrv-ls output.

Perform one or both of these actions to increase the available TPS if needed.

- An IPLIMx card that contains signaling links has to be removed. To perform this action, continue the procedure with 9.
- Some ATM high-speed signaling links have to be removed. To perform this action, continue the procedure with 8.

If you do not wish to perform other actions to increase the available TPS and the available TPS will allow the IPSG M2PA linkset to be added, continue the procedure with

12. Add the new linkset to the database using the ent-1s command. The new linkset must meet these conditions.

The name of this linkset cannot be used by another linkset – the linkset configuration is shown in the output of 1.

The APC of the new linkset must be in the destination point code table, but cannot be either the **EAGLE**'s point code or the **EAGLE**'s capability point code – shown in the

outputs of 2, 3, and 4. The adjacent point code can be one of the following types of point codes:

:apc/apca - ANSI point code, ANSI private point code

:apci — ITU-I point code, ITU-I spare point code, ITU-I private point code, ITU-I private spare point code.

:apcn – 14-bit ITU-N point code, 14-bit ITU-N spare point code, 14-bit ITU-N private point code, 14-bit ITU-N private spare point code.

:apcn24 - 24-bit ITU-N point code, 24-bit ITU-N private point code.

These parameters and values must also be specified for the IPSG M2PA linkset:

- ipsg=yes
- adapter=m2pa
- lst=<a,b,c,d,e>
- maxslktps=<100 > see Maximum Card Capacity for Different Card Types.
- rsvdslktps=<0 > see Maximum Card Capacity for Different Card Types.

Note:

The maxslktps parameter value must be greater than or equal to the rsvdslktps parameter value. The slktps parameter can be used in place of the rsvdslktps parameter.

- The ipgwapc, iptps, rcontext, and asnotif parameters cannot be specified for an IPSG M2PA linkset.
- These optional parameters can be specified with the ent-ls command.
 - lsusealm the linkset's IP TPS alarm threshold. The default value for the lsusealm parameter is 100.
 - slkusealm the signaling link IP TPS alarm threshold. The default value for the slkusealm parameter is 80.
 - tpsalmtype The TPS threshold that will generate alarms, either rsvdslktps or maxslktps. The default value for the tpsalmtype parameter is rsvdslktps.

For this example, enter this command.

```
ent-
ls:lsn=lsgw1107:apca=010-020-005:lst=a:ipsg=yes:rsvdslktps=2
00:maxslktps=1000 :lsusealm=70:slkusealm=70:adapter=m2pa
```

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

```
rlghncxa03w 06-10-17 16:23:21 GMT EAGLE5 37.5.0 Link set table is ( 14 of 1024) 1% full ENT-LS: MASP A - COMPLTD
```



13. Verify the changes using the rtrv-ls command specifying the linkset name specified in 12 with the lsn parameter. For this example, enter these commands.

```
rtrv-ls:lsn=lsgw1107
```

This is an example of the possible output.

```
rlghncxa03w 10-07-17 11:43:04 GMT EAGLE5 42.0.0
```

				L3T	SLT				GWS	GWS	GWS	
LSN NIS	APCA	(SS7)	SCRN	SET	SET	BEI	LST	LNKS	ACT	MES	DIS	SLSCI
lsgw1107 off	010-02	20-005	none	1	1	no	A	0	off	off	off	no
	SPCA		CLLI			TFA	TCABN	MLQ M'		E ASI	L8	
	RANDSLS off											
	IPSG I	PGWAPC	GTTMODE			(CGGTN	MOD				
	yes no		CdPA				no					
	ADAPTER RS m2pa 20			MAXSLKTPS 1000		ΓPS						
	TPSALM rsvdslkt		SEALM	SLI 709	KUSEA	ALM						

Link set table is (14 of 1024) 1% full

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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

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

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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



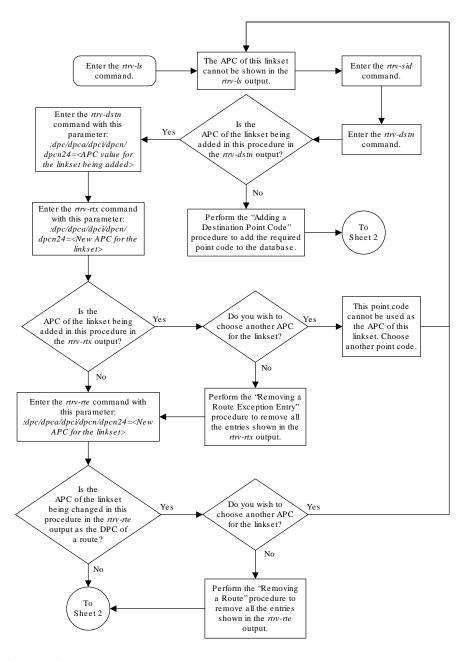
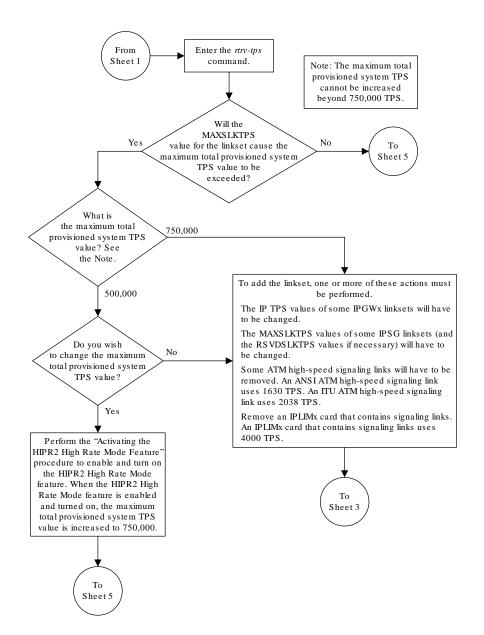


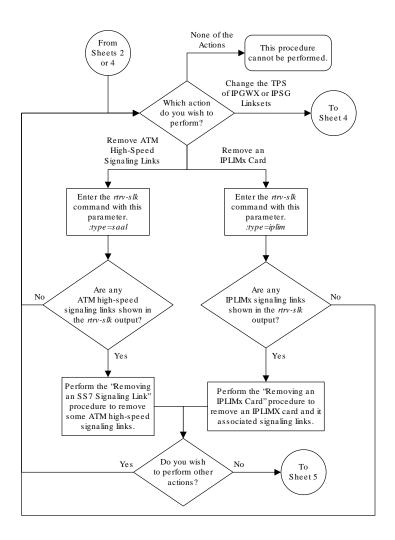
Figure 6-2 Adding an IPSG M2PA Linkset

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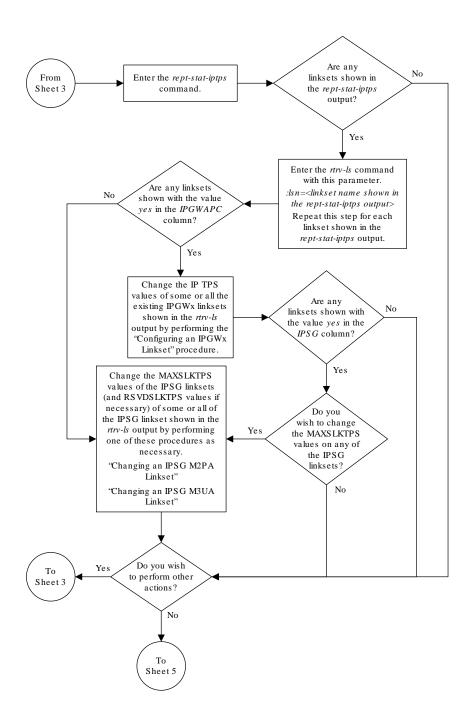




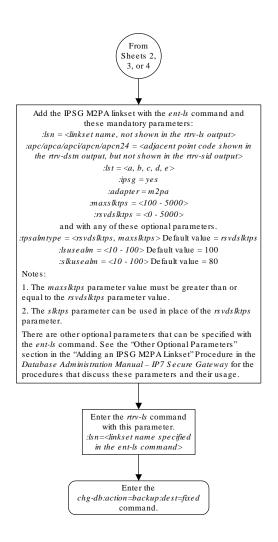
Sheet 2 of 5



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Sheet 5 of 5

Adding an IPSG M3UA Linkset

This procedure is used to configure **IPSG** M3UA linksets in the **EAGLE** using the ent-ls command with these parameters.

:lsn – The name of the linkset. The linkset name can contain up to 10 characters, with the first character being a letter. However, the **SEAS** interface supports only eight characters. If this linkset is displayed on the **SEAS** interface and the linkset name contains more than eight characters, only the first eight characters in the linkset name are shown. If this linkset name contains more than eight characters, and is specified

with the linkset commands on the **SEAS** interface, only the first eight characters can be specified.

: apc/apca/apci/apcn/apcn24 – Adjacent point code – the point code identifying the node that is next to the **EAGLE**. The adjacent point code can be one of the following types of point codes:

:apc/apca - ANSI point code, ANSI private point code

:apci – ITU-l point code, ITU-l spare point code, ITU-l private point code, ITU-l private spare point code.

:apcn – 14-bit ITU-N point code, 14-bit ITU-N spare point code, 14-bit ITU-N private point code, 14-bit ITU-N private spare point code.

:apcn24 - 24-bit ITU-N point code, 24-bit ITU-N private point code.



See the "**Point Code** Formats" section in *Database Administration -* **SS7** *User's Guide* for a definition of the point code types that are used on the **EAGLE** and for a definition of the different formats that can be used for **ITU** national point codes.

:1st - The linkset type of the linkset. For an IPSG M3UA linkset, only one value can be specified, A.

:ipsg- This parameter specifies whether or not the linkset is an IPSG linkset. This parameter has two values, yes (if the linkset is an IPSG linkset) or no (if the linkset is not an IPSG linkset). For this procedure, the ipsg parameter value must be yes.

:maxslktps - The maximum number of transactions per second (TPS) for all signaling links that are assigned to the IPSG M3UA linkset. See Maximum Card Capacity for Different Card Types for MaxTPS values.

:rsvdslktps - The number of transactions per second (TPS) that is assigned to each IPSG signaling link that will be in the linkset. See Maximum Card Capacity for Different Card Types for MaxTPS values. The slktps parameter can be used in place of the rsvdslktps parameter.

 $: {\tt tpsalmtype-The\ TPS\ threshold\ that\ will\ generate\ alarms.\ This\ parameter\ has\ two\ values.}$

- rsvdslktps The RSVDSLKTPS threshold generates alarms.
- maxslktps The MAXSLKTPS threshold generates alarms.

:lsusealm - The linkset's TPS alarm threshold, from 10 to 100 percent of the linkset's TPS. When this threshold is reached, a major alarm (UAM 0115) is generated. When the linkset's TPS falls below this threshold, UAM 0115 is automatically cleared and UAM 0118 is generated.

:slkusealm – The signaling link TPS alarm threshold, from 10 to 100 percent of the signaling link's fair share of the linkset's TPS from 10 to 100 percent of the **IPSG** card's capacity (5000 TPS). This threshold is reached when the signaling link's actual usage exceeds the percentage of the signaling link's fair share of the linkset's TPS or the percentage of the **IPSG** card's capacity.



A signaling link's fair share of linkset's TPS is the linkset's TPS divided by the number of in-service links in the linkset. For example, if the linkset TPS is 4000 and there are 4 signaling links in the linkset, all in-service, then the signaling link's fair-share would be 1000 TPS (4000/4=1000). Table 6-2 shows this calculation for a linkset with 1, 2, 3 and 4 in-service signaling links.

	Number of In-Service Signaling Links	Linkset TPS	Signaling Link Fair Share of the Linkset TPS
4		4000	1000
3		4000	1333
2		4000	2000
1		4000	4000

When this threshold is exceeded, a minor alarm (**UAM** 0116) is generated. When the amount of traffic on the signaling link falls below this threshold, **UAM** 0116 is automatically cleared and **UAM** 0119 is generated.

The signaling link TPS alarm shows that the linkset TPS is set too low for the linkset or that the **IPSG** card's capacity has been exceeded. Setting the signaling link TPS alarm threshold lower than the linkset TPS alarm threshold can give the user an earlier indication that the linkset TPS is inadequate or that traffic is not balanced across the links in the linkset.

:adapter - This parameter specifies the adapter layer for the signaling links that will be assigned to the IPSG M3UA linkset. This parameter has two values, m2pa and m3ua. For an IPSG M3UA linkset, the adapter parameter value must be m3ua.

:rcontext - This parameter specifies the routing context value that is assigned to the IPSG M3UA linkset. The value for this parameter is from 0 to 4294967295. The default value for this parameter is none, no value is specified.

:asnotif - This parameter specifies whether or not AS notifications will be sent for the IPSG M3UA linkset. This parameter has two values, yes, AS notifications will be sent for the linkset, and no, AS notifications will not be sent for the linkset. The default value for this parameter is yes.

The adjacent point code (**APC**) for the linkset must be defined in the database, must be in the SS7 domain, and cannot match the point code or capability point code of the EAGLE. The domain of the point code is shown in the DMN field in the output of the rtrv-dstn command. The point code of the EAGLE is shown in the PCA, PCN, PCN24, or PCI fields and the capability point code of the **EAGLE** are shown in the CPCA, CPCN, CPCN24, or CPCI fields in the output of the rtrv-sid command. An **ANSI** adjacent point code must be a full point code and cannot be a cluster point code or a network routing point code. The adjacent point code of the linkset cannot be a proxy point code, cannot have a proxy point code assigned to it, and cannot be assigned to another linkset.

If the APC is not in the destination point code table, go to the "Adding a **Destination Point Code**" procedure in *Database Administration* - **SS7** *User's Guide* and add the APC to the destination point code table.



Adding the IPSG M3UA linkset cannot exceed the maximum total provisioned system TPS shown in the rtrv-tps output. An IPSG M3UA linkset uses from 100 to 5000 TPS, as provisioned by the maxslktps parameter.

If adding the IPSG M3UA linkset will exceed the maximum total provisioned system TPS, and the maximum total provisioned system TPS is 500,000, perform the "Activating the HIPR2 High Rate Mode" feature in the *Database Administration - System Management User's Guide* to enable and turn on the HIPR2 High Rate Mode feature. When the HIPR2 High Rate Mode feature is enabled and turned on, the maximum total provisioned system TPS is increased to 1,000,000 (1M). If the maximum total provisioned system TPS is 1M, or the maximum total provisioned system TPS is 500,000 and will not be increased, and adding the IPSG M3UA linkset will exceed the maximum total provisioned system TPS, the IPSG M3UA linkset cannot be added unless the amount of available TPS is reduced enough to allow the IPSG M3UA linkset to be added. The available TPS can be reduced by performing one or more of these actions.

- The IP TPS values of some IPGWx linksets have to be changed.
- The MAXSLKTPS values of some IPSG linksets (and the RSVDSLKTPS values if necessary) have to be changed.
- Some ATM high-speed signaling links have to be removed.
- An IPLIMx card that contains signaling links has to be removed.

Other Optional Parameters

There are other optional parameters that can be used to configure an IPSG M3UA linkset. These parameters are not required for configuring an IPSG M3UA linkset. These parameters are discussed in more detail in *Commands User's Guide* or in these sections.

- These procedures in this manual:
 - Adding a Mate IPGWx Linkset to another IPGWx Linkset
 - Removing a Mate IPGWx Linkset from another IPGWx Linkset
 - Configuring an IPGWx Linkset
- These procedures in Database Administration SS7 User's Guide
 - Adding an SS7 Linkset
 - Changing an SS7 Linkset
 - Configuring an ITU Linkset with a Secondary Adjacent Point Code (SAPC)
- The "Configuring a Linkset for the GSM MAP Screening Feature" procedure in *Database Administration Features User's Guide*.



The mtprse, spc/spca/spci/spcn/spcn24, and ppc/ppca/ppci/ppcn/ppcn24 parameters cannot be specified for an IPSG M3UA linkset.

Canceling the RTRV-LS and RTRV-DSTN Commands

Because the rtrv-ls and rtrv-dstn commands used in this procedure can output information for a long period of time, the rtrv-ls and rtrv-dstn commands can be



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canceled and the output to the terminal stopped. There are three ways that the rtrv-ls and rtrv-dstn commands can be canceled.

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

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

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Display the current linksets in the database using the rtrv-ls command.
 This is an example of the possible output.

rlghncxa03w 10-07-10 11:43:04 GMT EAGLE5 42.0.0

				L3T	SLT				GWS	GWS	GWS
LSN	APCA	(SS7)	SCRN	SET	SET	BEI	LST	LNKS	ACT	MES	DIS
SLSCI NIS ipgwx1	001-001	-002	none	1	1	no	А	8	off	off	off
no off	001 001	. 002	HOHE	1	_	110	11	O	OII	OII	OII
ipgwx2	001-001	-003	none	1	1	no	A	8	off	off	off
no off	001 001	0.04		1	1		_	0	c c	c c	c c
ipgwx3 no off	001-001	-004	none	1	1	no	A	0	oii	off	OII
ls1305	001-005	5-000	none	1	1	no	Α	1	off	off	off
no off											
ls1307	001-007	7-000	none	1	1	no	Α	1	off	off	off
no off lsniplim	002-002	2-002	none	1	1	no	А	3	off	off	off
no off											
ipsglsn	003-003	3-003	none	1	1	no	A	6	off	off	off
no off lsn2	003-003	8-004	none	1	1	no	А	1	off	off	off
no off	000 000	, 001	110110	-	-	110		_	011	011	011
lsn1	003-003	3-005	none	1	1	no	A	1	off	off	off
no off ipsglsn2	005-005	5_005	none	1	1	no	А	1	off.	off	off
no off	003-003	7-003	none	1	Τ	110	A	1	OII	OII	OII
lsnds0	009-009	9-009	none	1	1	no	A	2	off	off	off
no off											
				L3T	SIT				GWS	GWS	GWS
LSN	APCI	(SS7)	SCRN	_		BEI	LST	LNKS			
SLSCI NIS											
lsnituatm	1-002-3	3	none	1	2	no	A	1	off	off	off



no off

Link set table is (12 of 1024) 1% full.

2. Display the point code and capability point code of the **EAGLE** by using the rtrv-sid command.

This is an example of the possible output.

rignncxausw	10-07-10 11:43:04	GMT EAGLE5 42	2.0.0	
PCA	PCI	PCN	CLLI	PCTYPE
001-001-001	1-200-6	13482	rlghncxa03	3w OTHER
CPCA				
002-002-001	002-002-003	002-002	2-004 002-	-002-005
002-002-006	002-002-007	002-002	2-008 002-	-002-009
004-002-001	004-003-003	144-212	2-003	
CPCA (LNP)				
005-005-002	005-005-004	005-005	5-006	
CPCI				
1-001-1	1-001-2	1-001-3	1-00	01-4
CPCN				
02091	02092	02094	020	097
02191	02192	11177		

3. Display the destination point codes in the database by entering the rtrv-dstn command. This is an example of the possible output.

rlghncxa03w 10-12-10 11:43:04 GMT EAGLE5 43.0.0 Extended Processing Time may be Required

DPCA	CLLI	BEI	ELEI	ALIASI	ALIASN/N24	DMN
001-207-000		no				SS7
001-001-002		no				SS7
001-001-003		no				SS7
001-001-004		no				SS7
001-005-000		no				SS7
001-007-000		no				SS7
002-002-002		no				SS7
003-002-004		no				SS7
003-003-003		no				SS7
003-003-004		no				SS7
003-003-005		no				SS7
005-005-005		no				SS7
008-012-003		no				SS7
009-002-003		no				SS7
009-009-009		no				SS7
010-020-005		no				SS7



DPCI		CLLI	BEI	ELEI	ALIASA
ALIASN/N24	DMN	I			
1-002-3			no		
	-	SS7			
1-207-0			no		
	-	SS7			
0-015-0			no		
	-	SS7			
0-017-0			no		
	-	SS7			
1-011-1			no		
	-	SS7			
1-011-2			no		
	-	SS7			

Destination table is (22 of 2000) 2% full Alias table is (0 of 12000) 0% full

If the adjacent point code is not shown in the rtrv-dstn output, perform the "Adding a Destination Point Code" procedure in *Database Administration - SS7 User's Guide* to add the required point code. This point code cannot be a proxy point code (the prx=yes value assigned to the point code) and a proxy point code (a point code value is shown in the PPC column) cannot be assigned to the point code. After the adjacent point code has been added, continue the procedure with 7.

If the adjacent point code is shown in the rtrv-dstn output, continue the procedure with 4.

4. Display the adjacent point code of the new linkset in the destination point code table by using the rtrv-dstn command and specifying the point code. For this example, enter this command.

```
rtrv-dstn:dpca=010-020-005
```

DPCA

This is an example of the possible output.

rlghncxa03w 10-12-10 11:43:04 GMT EAGLE5 43.0.0

	MN SS7	no			-		
SPCA SCCPMSGCNV	NCAI	RCAUSE	NPRST	SPLITIAM	HMSMSC	HMSCP	
		none	off	none	no	no	none

CLLI BEI ELEI ALIASI

Destination table is (14 of 2000) 1% full Alias table is (0 of 12000) 0% full

This point code cannot be a proxy point code (the prx=yes value assigned to the point code) and a proxy point code (a point code value is shown in the PPC column) cannot be assigned to the point code. If a proxy point code is shown in

this step, or if the point code is a proxy point code, choose another point code and repeat this procedure from 2.

If a proxy point code is not shown in this step, or if the point code is not a proxy point code, continue this procedure with 5.

5. The APC of the linkset cannot be the DPC of any exception route. Verify that the adjacent point code of the linkset is not the DPC of any exception route by entering the rtrv-rtx command with the dpc/dpca/dpci/dpcn/dpcn24 parameter. The dpc/dpca/dpci/dpcn/dpcn24 parameter value is the adjacent point code value that will be specified for the linkset.

For this example, enter this command.

```
rtrv-rtx:dpca=010-020-005
```

This is an example of the possible output.

```
rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 37.5.0
                RTX-CRITERIA
                                         LSN
                                                    RC
                                                         APC
   010-020-005 OPCA
                007-008-009
                                         ls1305
                                                    20
                                                         001-005-000
                008-008-008
                                         ls1307
                                                    40
                                                         001-007-000
 DESTINATION ENTRIES ALLOCATED: 2000
    FULL DPC(s):
                                 13
                                  5
    EXCEPTION DPC(s):
                                  0
    NETWORK DPC(s):
    CLUSTER DPC(s):
                                  1
                                  19
    TOTAL DPC(s):
                                  1%
    CAPACITY (% FULL):
                              12000
ALIASES ALLOCATED:
                                  0
    ALIASES USED:
    CAPACITY (% FULL):
                                  0%
                                 500
X-LIST ENTRIES ALLOCATED:
```

If the adjacent point code of the linkset is not the **DPC** of a route exception table entry, no entries are displayed in the rtrv-rtx output, but a summary of the point code quantities is displayed, as shown in the following output example.

```
rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 37.5.0
```

```
DESTINATION ENTRIES ALLOCATED:
                               2000
                                 15
   FULL DPC(s):
   EXCEPTION DPC(s):
                                  5
                                  0
   NETWORK DPC(s):
   CLUSTER DPC(s):
                                 1
                                 21
   TOTAL DPC(s):
   CAPACITY (% FULL):
                                  1%
                              12000
ALIASES ALLOCATED:
   ALIASES USED:
                                  0
   CAPACITY (% FULL):
                                  0 응
X-LIST ENTRIES ALLOCATED:
                                500
```



If the point code specified in this step is shown in the DPCA/DPCI/DPCN/ DPCN24 columns in this step, the point code value cannot be used as an adjacent point code unless one of two actions are taken:

- Choose another adjacent point code value and repeat the procedure from 2.
- Remove all the entries displayed in this step by performing the "Removing a
 Route Exception Entry" procedure in the Database Administration SS7
 User's Guide. After the entries have been removed, continue the procedure
 with 6.

If the point code specified in this step is not shown in the DPCA/DPCI/DPCN/DPCN24 columns in this step, continue this procedure with 6.

6. Display any entries in the route table whose **DPC** value is also the adjacent point code of the new linkset being added in this procedure, or the new adjacent point code of the existing linkset being changed in this procedure. Enter the rtrv-rte command with the dpc/dpca/dpci/dpcn/dpcn24 parameter. The dpc/dpca/dpci/dpcn/dpcn24 parameter value is the adjacent point code value that will be specified for the linkset. For this example, enter this command.

```
rtrv-rte:dpca=010-020-005
```

This is an example of the possible output.

rlghncxa03w 10-07-10 11:43:04 GMT EAGLE5 42.0.0

rlghncxa03w 10-07-10 11:43:04 GMT EAGLE5 42.0.0

If the adjacent point code of the linkset is not the **DPC** of a route, the point code entry is displayed in the rtrv-rte output, but the **LSN**, **RC**, and **APC** columns contain dashes, as shown in the following output example.

If the point code specified in this step is shown in the DPCA/DPCI/DPCN/ DPCN24 columns in this step, the point code value cannot be used as an adjacent point code unless one of two actions are taken:

Choose another adjacent point code value and repeat and repeat the procedure from 2.



Remove all the entries displayed in this step by performing the "Removing a Route" procedure in *Database Administration - SS7 User's Guide*. After the entries have been removed, continue the procedure with 7.

If the point code specified in this step is not shown in the DPCA/DPCI/DPCN/ DPCN24 columns in this step, continue this procedure with 7.

7. Display the total provisioned system TPS by entering the rtrv-tps command. This is an example of the possible output.

rlghncxa03w 10-07-10 16:20:46 GMT EAGLE 42.0.0

CARD	NUM	NUM	RSVD	MAX
TYPE	CARDS	LINKS	TPS	TPS
IPGW	17	16	48000	80000
IPSG	3	7	4200	8000
IPLIM	2	4	8000	8000
ATM	2	2	3668	3668

Total provisioned System TPS (99668 of 500000) 20%

Command Completed.

An IPSG M3UA linkset uses 100 to MaxTPS (see Maximum Card Capacity for Different Card Types for MaxTPS values), as provisioned by the maxslktps parameter. If adding the new IPSG M3UA linkset will not exceed the maximum total provisioned system TPS, continue the procedure with 12.

If adding the new IPSG M3UA linkset will exceed the maximum total provisioned system TPS, and the maximum total provisioned system TPS is 500,000 shown, perform the "Activating the HIPR2 High Rate Mode Feature" procedure in *Database Administration - System Management User's Guide* to enable and turn on the HIPR2 High Rate Mode feature. When the HIPR2 High Rate Mode feature is enabled and turned on, the maximum total provisioned system TPS is increased to 1M. After the HIPR2 High Rate Mode feature has been enabled and turned on, continue the procedure with 12.

If the maximum total provisioned system TPS is 1M, or the maximum total provisioned system TPS is 500,000 and will not be increased, and adding the IPSG M3UA linkset will exceed the maximum total provisioned system TPS, the IPSG M3UA linkset cannot be added unless the amount of available TPS is reduced enough to allow the IPSG M3UA linkset to be added. The available TPS can be increased by performing one or more of these actions.

- The IP TPS values of some IPGWx linksets have to be changed. To perform this
 action, continue the procedure with 10.
- The MAXSLKTPS values of some IPSG linksets (and the RSVDSLKTPS values if necessary) have to be changed. To perform this action, continue the procedure with 10.
- Some ATM high-speed signaling links have to be removed. To perform this action, continue the procedure with 8.
- An IPLIMx card that contains signaling links has to be removed. To perform this action, continue the procedure with 9.
- 8. Display the ATM high-speed signaling links by entering this command.



rtrv-slk:type=saal

This is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0

LOC LINK LSN 1303 A lsnds0	SLC TYPE 1 LIMATM	LP SET BPS 1 1.544M	ATM TSEL LINE	VCI 5	VPI LL 0 0
		LP	ATM		
E1ATM LOC LINK LSN CRC4 SI SN	SLC TYPE	SET BPS	TSEL	VCI	VPI
	0 LIME1ATM	1 21 2.048M	LINE	5	0

SLK table is (30 of 1200) 2% full.

If ATM high-speed signaling links are shown in the rtrv-slk output, perform the "Removing an SS7 Signaling Link" procedure in the *Database Administration* - *SS7 User's Guide* to remove some of the ATM high-speed signaling links.

If ATM high-speed signaling links are not displayed in the rtrv-slk output, perform one or more of these actions to increase the available TPS.

Note:

If one or more of these actions are not performed to increase the available TPS and the available TPS will not allow the IPSG M3UA linkset to be added, the IPSG M3UA linkset cannot be added and the remainder of this procedure cannot be performed.

- The IP TPS values of some IPGWx linksets have to be changed. To perform this action, continue the procedure with 10.
- The MAXSLKTPS values of some IPSG linksets (and the RSVDSLKTPS values if necessary) have to be changed. To perform this action, continue the procedure with 10.
- An IPLIMx card that contains signaling links has to be removed. To perform this action, continue the procedure with 9.

If you do not wish to perform other actions to increase the available TPS and the available TPS will allow the IPSG M3UA linkset to be added, continue the procedure with 12.

Display the signaling links that are assigned to IPLIMx cards by entering this command.

rtrv-slk:type=iplim



This is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0

LOC	LINK	LSN	SLC	TYPE	ANAME	SLKTPS
1301	A	lsniplim	0	IPLIM	M2PA	
1301	A1	lsniplim	1	IPLIM	M2PA	
1301	В1	lsniplim	2	IPLIM	M2PA	
1317	A	lsniplimi	0	IPLIMI	M2PA	
SLK t	able	is (30 of 1	200)	2% full.		

If IPLIMx cards containing signaling links are shown in the rtrv-slk output, perform the Removing an IPLIMx Card procedure to remove an IPLIMx card and its associated signaling links.

If IPLIMx cards containing signaling links are not displayed in the rtrv-slk output, perform one or more of these actions to increase the available TPS.



If one or more of these actions are not performed to increase the available TPS and the available TPS will not allow the IPSG M3UA linkset to be added, the IPSG M3UA linkset cannot be added and the remainder of this procedure cannot be performed.

- The IP TPS values of some IPGWx linksets have to be changed. To perform this action, continue the procedure with 10.
- The MAXSLKTPS values of some IPSG linksets (and the RSVDSLKTPS values if necessary) have to be changed. To perform this action, continue the procedure with 10.
- Some ATM high-speed signaling links have to be removed. To perform this action, continue the procedure with 8.

If you do not wish to perform other actions to increase the available TPS and the available TPS will allow the IPSG M3UA linkset to be added, continue the procedure with 12.

10. Display the IPGWx and IPSG linksets by entering this command.

```
rept-stat-iptps
```

This is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0 IP TPS USAGE REPORT

	THRESH	CONFIG/ RSVD	CONFIG/ MAX		TPS	PEAK	PEAKTIMESTAMP
LSN ipgwx1	100%		32000	TX:	3700	4000	10-07-19 09:49:19



00.40.40				RCV:	3650	4000	10-07-19
09:49:19 ipgwx2 09:49:09	100%		16000	TX:	4800	5000	10-07-19
				RCV:	4850	5000	10-07-19
09:49:09 ipgwx3 09:49:19	100%		32000	TX:	427	550	10-07-19
03.13.23				RCV:	312	450	10-07-19
09:49:19 ipsglsn 09:49:19	100%	600	24000	TX:	4800	5000	10-07-19
				RCV:	4800	5000	10-07-19
09:49:19 ipsglsn2 09:49:19	100%	600	4000	TX:	427	550	10-07-19
				RCV:	312	450	10-07-19
09:49:19							

Command Completed.

If linksets are displayed in the rept-stat-iptps output, continue the procedure with 11.

If linksets are not displayed in the rept-stat-iptps output, perform one or more of these actions to increase the available TPS.



If one or more of these actions are not performed to increase the available TPS and the available TPS will not allow the IPSG M3UA linkset to be added, the IPSG M3UA linkset cannot be added and the remainder of this procedure cannot be performed.

- An IPLIMx card that contains signaling links has to be removed. To perform this action, continue the procedure with 9.
- Some ATM high-speed signaling links have to be removed. To perform this action, continue the procedure with 8.

If you do not wish to perform other actions to increase the available TPS and the available TPS will allow the IPSG M3UA linkset to be added, continue the procedure with 12.

11. Display the attributes of the linksets shown in 10 by entering the rtrv-ls command with the name of the linkset shown in 10.

For this example enter these commands.

rtrv-ls:lsn=ipgwx1



This is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0

LSN APCA (SS7) SCRN SET SET BEI LST LNKS ACT MES DIS SLSCI
NIS
ipgwx1 001-001-002 none 1 1 no A 8 off off no
off

SPCA CLLI TFATCABMLQ MTPRSE ASL8

RANDSLS off

IPSG IPGWAPC GTTMODE CGGTMOD no yes CdPA no

MATELSN IPTPS LSUSEALM SLKUSEALM ----- 32000 100% 80%

LOC LINK SLC TYPE

1101 A 0 SS71PGW

1102 A 1 SS71PGW

1103 A 2 SS71PGW

1104 A 3 SS71PGW

1105 A 4 SS71PGW

1106 A 5 SS71PGW

1107 A 6 SS71PGW

1108 A 7 SS71PGW

Link set table is (8 of 1024) 1% full.

rtrv-ls:lsn=ipgwx2

This is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0

L3T SLT GWS GWS GWS
LSN APCA (SS7) SCRN SET SET BEI LST LNKS ACT MES DIS SLSCI
NIS
ipgwx2 001-001-003 none 1 1 no A 8 off off no
off

SPCA CLLI TFATCABMLQ MTPRSE ASL8

RANDSLS off



 IPSG
 IPGWAPC
 GTTMODE
 CGGTMOD

 no
 yes
 CdPA
 no

 MATELSN
 IPTPS
 LSUSEALM
 SLKUSEALM

 ----- 16000
 100%
 80%

 LOC
 LINK
 SLC
 TYPE

 1111
 A
 0
 SS7IPGW

 1112
 A
 1
 SS7IPGW

 1201
 A
 2
 SS7IPGW

 1202
 A
 3
 SS7IPGW

 1203
 A
 4
 SS7IPGW

 1204
 A
 5
 SS7IPGW

 1205
 A
 6
 SS7IPGW

 1206
 A
 7
 SS7IPGW

Link set table is (8 of 1024) 1% full.

rtrv-ls:lsn=ipgwx3

This is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0

LSN APCA (SS7) SCRN SET SET BEI LST LNKS ACT MES DIS SLSCI NIS ipgwx3 001-001-004 none 1 1 no A 0 off off off no off

SPCA CLLI TFATCABMLQ MTPRSE ASL8

RANDSLS off

IPSG IPGWAPC GTTMODE CGGTMOD no yes CdPA no

MATELSN IPTPS LSUSEALM SLKUSEALM ----- 32000 100% 80%

Link set table is (8 of 1024) 1% full.

rtrv-ls:lsn=ipsglsn

This is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0

L3T SLT GWS GWS GWS

LSN APCA (SS7) SCRN SET SET BEI LST LNKS ACT MES DIS SLSCI NIS ipsglsn 003-003-003 none 1 1 no A 6 off off off no

off

SPCA CLLI TFATCABMLQ MTPRSE ASL8

RANDSLS off

IPSG IPGWAPC GTTMODE CGGTMOD yes no CdPA no

ADAPTER RSVDSLKTPS MAXSLKTPS m2pa 600 4000

TPSALM LSUSEALM SLKUSEALM rsvdslktps 100% 100%

 LOC
 LINK
 SLC
 TYPE
 ANAME

 1303
 A
 0
 IPSG
 ipsgm2pa1

 1303
 A1
 1
 IPSG
 ipsgm2pa2

 1303
 B1
 2
 IPSG
 ipsgm2pa3

 1303
 A2
 3
 IPSG
 ipsgm2pa4

 1303
 A3
 4
 IPSG
 ipsgm2pa5

 1307
 A
 5
 IPSG
 m2pa2

Link set table is (8 of 1024) 1% full.

rtrv-ls:lsn=ipsglsn2

This is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0

LSN APCA (SS7) SCRN SET SET BEI LST LNKS ACT MES DIS SLSCI

NIS

ipsglsn2 005-005-005 none 1 1 no A 1 off off no

off

SPCA CLLI TFATCABMLQ MTPRSE ASL8

RANDSLS off

IPSG IPGWAPC GTTMODE CGGTMOD yes no CdPA no

ADAPTER RSVDSLKTPS MAXSLKTPS m2pa 600 4000

TPSALM LSUSEALM SLKUSEALM rsvdslktps 100% 100%

LOC LINK SLC TYPE ANAME 1303 B3 0 IPSG ipsgm2pa6

Link set table is (8 of 1024) 1% full.

Perform one or both of these actions as necessary.

- Perform the Configuring an IPGWx Linkset procedure to change the IPTPS
 value for any linksets shown in the rtrv-ls output whose IPGWAPC value is
 yes.
- Perform the Changing an IPSG M2PA Linkset procedure (for linkset whose IPSG value is yes and ADAPTER value is M2PA) or the Changing an IPSG M3UA Linkset procedure (for linkset whose IPSG value is yes and ADAPTER value is M3UA) to change the MAXSLKTPS value (and RSVDSLKTPS value if necessary) for any linksets shown in the rtrv-ls output.

Perform one or both of these actions to increase the available TPS if needed.

- An IPLIMx card that contains signaling links has to be removed. To perform this action, continue the procedure with 9.
- Some ATM high-speed signaling links have to be removed. To perform this action, continue the procedure with 8.

If you do not wish to perform other actions to increase the available TPS and the available TPS will allow the IPSG M3UA linkset to be added, continue the procedure with 12.

12. Add the new linkset to the database using the ent-ls command. The new linkset must meet these conditions.

The name of this linkset cannot be used by another linkset – the linkset configuration is shown in the output of 1.

The **APC** of the new linkset must be in the destination point code table, but cannot be either the **EAGLE**'s point code or the **EAGLE**'s capability point code – shown in the outputs of 2, 3, and 4. The adjacent point code can be one of the following types of point codes:

:apc/apca - ANSI point code, ANSI private point code

apci-ITU-I point code, ITU-I spare point code, ITU-I private point code, ITU-I private spare point code.

:apcn – 14-bit ITU-N point code, 14-bit ITU-N spare point code, 14-bit ITU-N private point code, 14-bit ITU-N private spare point code.

:apcn24 - 24-bit ITU-N point code, 24-bit ITU-N private point code.

These parameters and values must also be specified for the IPSG M3UA linkset:

- ipsq=yes
- adapter=m3ua
- lst=a



- maxslktps=<100 > see Maximum Card Capacity for Different Card Types.
- rsvdslktps=<0 > see Maximum Card Capacity for Different Card Types.



The maxslktps parameter value must be greater than or equal to the rsvdslktps parameter value. The slktps parameter can be used in place of the rsvdslktps parameter.

- The ipgwapc, iptps, mtprse, multgc, spc/spca/spci/spcn/spcn24, ppc/ppca/ppci/ppcn/ppcn24, and sapci/sapcn/sapcn24 parameters cannot be specified for an IPSG M3UA linkset.
- These optional parameters can be specified with the ent-ls command.
 - lsusealm the linkset's IP TPS alarm threshold. The default value for the lsusealm parameter is 100.
 - slkusealm the signaling link IP TPS alarm threshold. The default value for the slkusealm parameter is 80.
 - rcontext the routing context value. The default value for the rcontext parameter is none.
 - asnotif Are AS notifications for the linkset sent. The default value for the asnotif parameter is yes.
 - tpsalmtype The TPS threshold that will generate alarms, either rsvdslktps or maxslktps. The default value for the tpsalmtype parameter is rsvdslktps.

Note:

There are other optional parameters that can be specified with theent-ls command, but are not required for an IPSG M3UA linkset. These parameters and their usage are discussed in theOther Optional Parameters section of this procedure.

For this example, enter this command.

```
ent-
```

ls:lsn=lsgw1107:apca=010-020-005:lst=a:ipsg=yes:rsvdslktps=300:ma xslktps=1000 :lsusealm=70:slkusealm=70:adapter=m3ua:rcontext=250

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

```
rlghncxa03w 06-10-17 16:23:21 GMT EAGLE5 37.5.0 Link set table is ( 14 of 1024) 1% full ENT-LS: MASP A - COMPLTD
```

13. Verify the changes using the rtrv-ls command specifying the linkset name specified in 12 with the lsn parameter. For this example, enter these commands.

rtrv-ls:lsn=lsgw1107

This is an example of the possible output.

rlghncxa03w 10-07-17 11:43:04 GMT EAGLE5 42.0.0

LSN SLSCI NIS lsgw1107 no off	APCA	(SS7)) S	CRN					LNKS		GWS MES	
	010-020-005		n	one	1	1	no	A	0	off	off	off
-	SPCA	SPCA		CLLI			TFA:	rcabi	ABMLQ MTPRSE ASL8			L8
	IPSG IPGW yes no			-					GGTMOI no	D		
	ADAPTER m3ua				TPS			PS				
	-	TPSALM rsvdslktps		LSUSEALM 70%								
	RCONTEXT		ASNOTIF			NUMSLKALW		LW 1	NUMSL	KRSTI	R	
NUMSLKPROH	250		yes			1		1	1		1	
Link set table is (14 of 1024) 1% full												

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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

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

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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



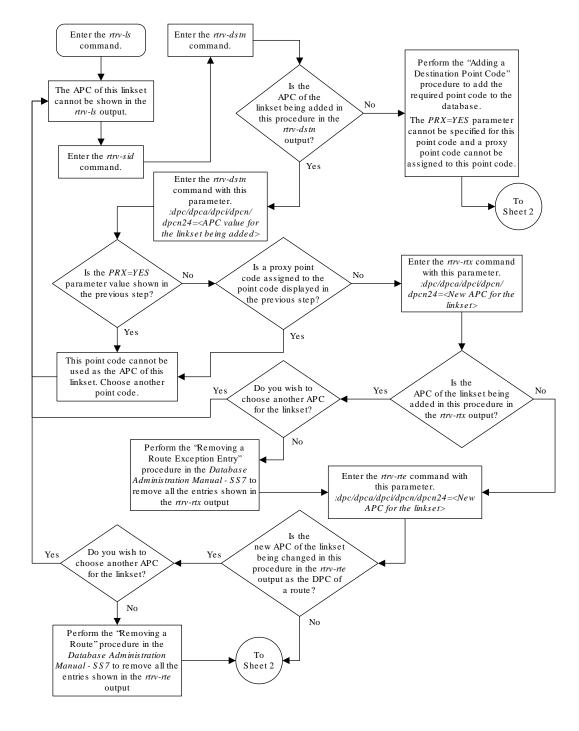
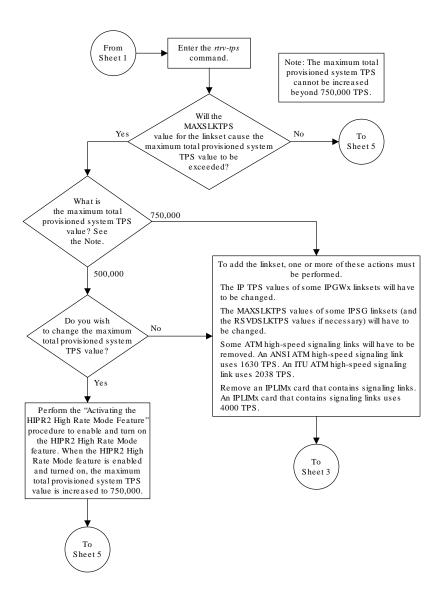
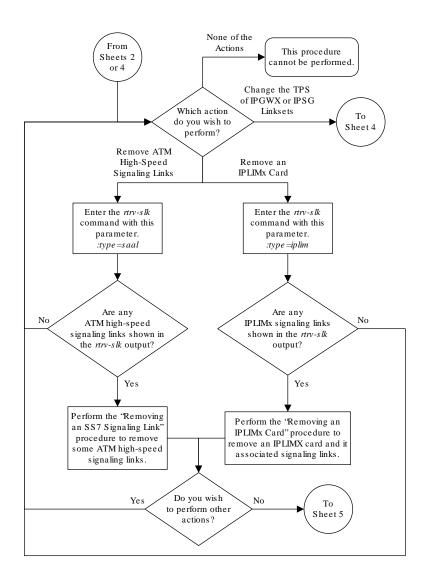


Figure 6-3 Adding an IPSG M3UA Linkset

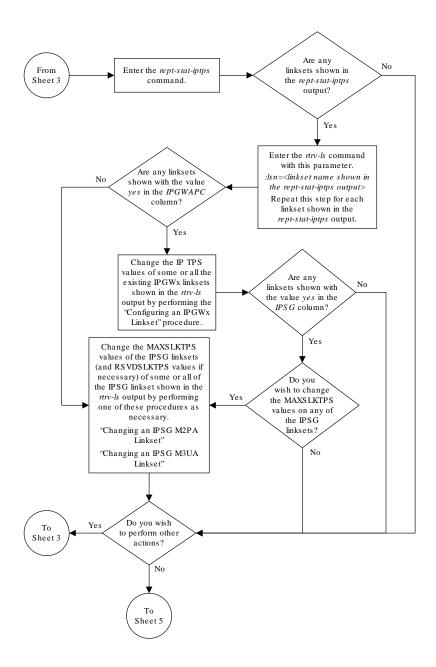
Sheet 1 of 5



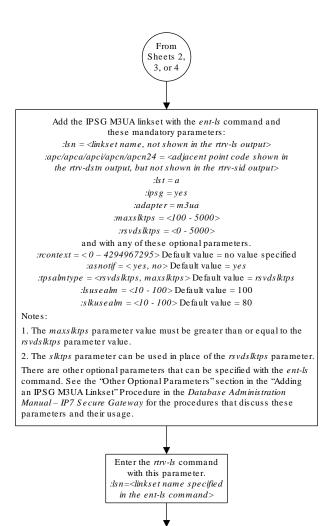
Sheet 2 of 5



Sheet 3 of 5



Sheet 4 of 5



Enter the chg-db:action=backup:dest=fixed

Sheet 5 of 5

Configuring an IP Link

This procedure is used to configure the link parameters for **IP** cards using the <code>chg-ip-lnk</code> command. These link parameters are used to configure the Ethernet hardware.

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

- :loc The card location of the IP card.
- :port The Ethernet interface on the IP card, A or B.
- :ipaddr IP address assigned to the Ethernet interface on the IP card. This is an IP address expressed in standard "dot notation." IP addresses consist of the system's network number and the machine's unique host number.
- : submask The subnet mask of the **IP** interface. A subnet mask is an **IP** address with a restricted range of values. The bits in the mask must be a string of one's followed by a string of zero's. There must be at least two one's in the mask, and the mask cannot be all one's. See Table 6-3 to assign the correct parameter values.
- : auto Tells hardware whether to automatically detect the duplex and speed.
- :duplex This is the mode of operation of the interface.
- : speed This is the bandwidth in megabits per second of the interface.
- :mactype This is the Media Access Control Type of the interface.
- :mcast The multicast control flag. This parameter enables or disables multicast support for the interface.

The EAGLE can contain a maximum of 2048 IP links.

A zero ipaddr parameter value (0.0.0.0) indicates the IP card Ethernet interface to IP link association is disabled. The host to the original IP address must be removed before the ipaddr=0.0.0.0 can be specified.

If the defrouter parameter of the chg-ip-card command contains an **IP** address for the card specified in this procedure, the network portion of one of the **IP** addresses assigned to the card in this procedure must match the network portion of the **IP** address specified by the defrouter parameter of the chg-ip-card command.

The network portion of the **IP** address is based on the class of the **IP** address (shown in Table 6-3). If the **IP** address is a Class A **IP** address, the first field is the network portion of the **IP** address. If the **IP** address is a Class B **IP** address, the first two fields are the network portion of the **IP** address. If the **IP** address is a Class C **IP** address, the first three fields are the network portion of the **IP** address. For example, if the **IP** address is 193.5.207.150, a Class C **IP** address, the network portion of the **IP** address is 193.5.207.

If the auto=yes parameter is specified, then the duplex and speed parameters are not allowed.

The loc parameter value must be shown in the rtrv-ip-card output.

The **IP** card must be placed out of service.

If either the ipaddr or submask parameters are specified, then both parameters must be specified. If the ipaddr parameter value is zero (0.0.0.0), the submask parameter is not required.

The **IP** address and subnet mask values cannot be changed to an address representing a different network if:

• If the network interface specified by the loc and port parameters has a default router, dnsa, or dsnb parameter values assigned to it, as shown in the rtrv-ip-card output.



• Any **IP** routes, shown in the rtrv-ip-rte output, reference the **IP** address for the network interface specified by the loc and port parameters.

The IP link cannot be changed if open associations reference the IP link being changed.

The network portion of the **IP** addresses assigned to the **IP** links on an **IP** card must be unique. For example, if **IP** links are assigned to **IP** card 1103, the network portion of the **IP** address for Ethernet interface A (port=a) must be different from the **IP** address for Ethernet interface B (port=b).

The submask parameter value is based upon the ipadddr setting. See Table 6-3 for the valid input values for the submask and ipaddr parameter combinations.

Table 6-3 Valid Subnet Mask Parameter Values

Network Class	IP Network Address Range	Valid Subnet Mask Values
		255.0.0.0 (the default value for a class A IP address)
		255.192.0.0
		255.224.0.0
Α	1.0.0.0 to 127.0.0.0	255.240.0.0
		255.248.0.0
		255.252.0.0
		255.254.0.0
		255.255.128.1
		255.255.0.0 (the default value for a class B IP address)
		255.255.192.0
		255.255.224.0
A+B	128.0.0.0 to 191.255.0.0	255.255.240.0
		255.255.248.0
		255.255.252.0
		255.255.254.0
		255.255.255.128
		255.255.255.0 (the default value for a class C IP address)
		255.255.255.192
A+B+C	192.0.0.0 to 223.255.255.0	255.255.255.224
		255.255.255.240
		255.255.255.248
		255.255.255.252

If a Class B IP address is specified for the <code>ipaddr</code> parameter of the <code>chg-ip-lnk</code> command, the subnet address that results from the <code>ipaddr</code> and <code>submask</code> parameter values cannot be the same as the subnet address that results from the <code>pvn</code> and <code>pvnmask</code>, <code>fcna</code> and <code>fcnamask</code>, or <code>fcnb</code> and <code>fcnamask</code> parameter values of the <code>chg-netopts</code> command. The <code>pvn</code> and <code>pvnmask</code>, <code>fcna</code> and <code>fcnamask</code>, or <code>fcnb</code> and <code>fcnamask</code> parameter values can be verified by entering the <code>rtrv-netopts</code> command. Choose <code>ipaddr</code> and <code>submask</code> parameter values for the <code>IP</code> link whose resulting subnet address is not be the same as the <code>subnet</code> address resulting from the <code>pvn</code> and <code>pvnmask</code>, <code>fcna</code> and <code>fcnamask</code>, or <code>fcnb</code> and <code>fcnamask</code>, or <code>fcnb</code> and <code>fcnamask</code> parameter values of the <code>chg-netopts</code> command.



Canceling the RTRV-ASSOC Command

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

- Press the F9 function key on the keyboard at the terminal where the rtrv-assoc command was were entered.
- Enter the canc-cmd without the trm parameter at the terminal where the rtrv-assoc command was entered.
- Enter the <code>canc-cmd:trm=<xx></code>, where <code><xx></code> is the terminal where the <code>rtrv-assoc</code> command was entered, from another terminal other that the terminal where the <code>rtrv-assoc</code> command was entered. To enter the <code>canc-cmd:trm=<xx></code> 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 <code>rtrv-secu-trm</code> command. The user's permissions can be verified with the <code>rtrv-user</code> or <code>rtrv-secu-user</code> commands.

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

1. Display the current link parameters associated with the **IP** card in the database by entering the rtrv-ip-lnk command.

The following is an example of the possible output.

rlghncxa03w 08-12-28 21:14:37 GMT EAGLE5 40.0.0 LOC PORT IPADDR SUBMASK DUPLEX SPEED MACTYPE								
AUTO MCAST	IPADDR	SUBMASK	DUPLEX	SPEED	MACTYPE			
1201 A NO NO	192.1.1.10	255.255.255.128	HALF	10	802.3			
1201 B			HALF	10	DIX			
NO NO								
1203 A	192.1.1.12	255.255.255.0			DIX			
YES NO								
1203 В			HALF	10	DIX			
NO NO								
1205 A	192.1.1.14	255.255.255.0	FULL	100	DIX			
NO NO				4.0				
1205 B			HALF	10	DIX			
NO NO	100 1 1 00	0.5. 0.5. 0.5. 0		4.00				
2101 A	192.1.1.20	255.255.255.0	FULL	100	DIX			
NO NO				4.0				
2101 B			HALF	10	DIX			
NO NO	100 1 1 00	0.5. 0.5. 0.5. 0		4.00				
2103 A	192.1.1.22	255.255.255.0	FULL	100	DIX			
NO NO								
2103 В			HALF	10	DIX			
NO NO								
2105 A	192.1.1.24	255.255.255.0	FULL	100	DIX			
NO NO								
2105 В			HALF	10	DIX			
NO NO								



2205	A	192.1.1.30	255.255.255.0	FULL	100	DIX	NO	NO
2205	В			HALF	10	DIX	NO	NO
2207	A	192.1.1.32	255.255.255.0	FULL	100	DIX	NO	NO
2207	В			HALF	10	DIX	NO	NO
2213	A	192.1.1.50	255.255.255.0	FULL	100	DIX	NO	NO
2213	В			HALF	10	DIX	NO	NO
2301	A	192.1.1.52	255.255.255.0	FULL	100	DIX	NO	NO
2301	В			HALF	10	DIX	NO	NO

IP-LNK table (20 of 2048) 1% full.



If the ipaddr=0.0.0 is not being specified in this procedure, continue the procedure with 3.

2. If IP address information is being added or changed (not deleted) in the link parameters, verify that the IP address is present in the IP host table by using the rtrv-ip-host:display=all command.

The following is an example of the possible output.

```
rlghncxa03w 08-12-28 21:15:37 GMT EAGLE5 40.0.0
```

```
LOCAL IPADDR LOCAL HOST
192.1.1.10
             IPNODE1-1201
192.1.1.12
             IPNODE1-1203
192.1.1.14
             IPNODE1-1205
192.1.1.20
             IPNODE2-1201
192.1.1.22
             IPNODE2-1203
              IPNODE2-1205
192.1.1.24
192.1.1.30
              KC-HLR1
192.1.1.32
              KC-HLR2
192.1.1.50
              DN-MSC1
192.1.1.52
              DN-MSC2
REMOTE IPADDR REMOTE HOST
150.1.1.5
              NCDEPTECONOMIC DEVELOPMENT. SOUTHEASTERN COORIDOR ASHVL.
GOV
```

IP Host table is (11 of 4096) 0.26% full

If the current **IP** address of the **IP** link is shown in the rtrv-ip-host output, remove the host assigned to the **IP** address by performing the Removing an IP Host Assigned to an **IPSG** Card procedure.

3. To change **IP** link parameters, the signaling links assigned to the **IP** card and the **IP** card have to be inhibited.

Display the signaling links assigned to the card shown in 1 using the rtrv-slk command specifying the card location.

For this example, enter this command.



rtrv-slk:loc=1201

This is an example of the possible output.

```
rlghncxa03w 08-04-12 15:36:20 GMT 38.0.0

LOC LINK LSN SLC TYPE ANAME SLKTPS 1201 A nc001 0 IPSG m2pa1 1015

IPTPS for LOC = 1102 is (1015 of 5000) 20%
```

4. Retrieve the status of the signaling links assigned to the **IP** card to be changed using the rept-stat-slk command.

For example, enter this command.

```
rept-stat-slk:loc=1201:link=a
```

The output lists the signaling link assigned to this card:

```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0

SLK LSN CLLI PST SST AST
1201,A nc001 ------ IS-NR

Command Completed.
```

If the signaling link is in service-normal (**IS-NR**), continue the procedure with 5 to deactivate the signaling link. If the signaling link is out-of-service-maintenance disabled (**OOS-MT-DSBLD**), continue the procedure with 7 to verify the **IP** card status.

5. Deactivate the signaling links assigned to the IP card using the dact-slk command.

For example, enter this command.

```
dact-slk:loc=1201:link=a
```



Caution:

This command impacts network performance and should only be used during periods of low traffic.

After this command has successfully completed, this message appears.

```
rlghncxa03w 06-10-12 09:12:36 GMT EAGLE5 36.0.0 Deactivate Link message sent to card.
```

6. Verify the new link status using the rept-stat-slk command.

For example, enter this command.

```
rept-stat-slk:loc=1201:link=a
```



The output displays the link status as **OOS-MT-DSBLD** and gives off a minor alarm:

```
rlghncxa03w 06-10-27 17:00:36 GMT EAGLE5 36.0.0

SLK LSN CLLI PST SST AST
1201,A nc001 ------- OOS-MT-DSBLD AVAIL ---
ALARM STATUS = * 0236 REPT-LKS:not aligned
UNAVAIL REASON = NA
Command Completed.
```

7. Verify the status of the IP card to be inhibited using the rept-stat-card command.

For example, enter this command.

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

This is an example of the possible output.

```
rlghncxa03w 10-12-01 09:12:36 GMT EAGLE5 43.0.0
CARD VERSION TYPE GPL PST
                                           SST
                                                   AST
1201 133-003-000 E5ENET IPSG
                              IS-NR Active
 ALARM STATUS = No Alarms.
 BLIXP GPL version = 133-003-000
 IMT BUS A
           = Conn
 IMT BUS B
               = Conn
 CURRENT TEMPERATURE = 32C ( 90F) [ALARM TEMP: 60C (140F)]
 PEAK TEMPERATURE: = 39C (103F)
                              [06-05-02 13:40]
 SIGNALING LINK STATUS
    SLK PST
                        LS
                                   CLLI
        IS-NR nc001
    A
```

Command Completed.

If the **IP** card to be inhibited is in service-normal (**IS-NR**), continue the procedure with 8 to inhibit the card. If the **IP** card is out-of-service-maintenance disabled (**OOS-MT-DSBLD**), continue the procedure with 10 to change the **IP** link parameters.

8. Inhibit the IP card using the inh-card command.

For example, enter this command.

```
inh-card:loc=1201
```

This message should appear.

```
rlghncxa03w 06-10-28 21:18:37 GMT EAGLE5 36.0.0 Card has been inhibited.
```

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

Enter this command.

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



This is an example of the possible output.

```
rlghncxa03w 06-10-01 09:12:36 GMT EAGLE5 36.0.0
CARD VERSION TYPE GPL PST
                                            SST
AST
1201 133-003-000 E5ENET IPSG
                             OOS-MT-DSBLD Manual
 ALARM STATUS = No Alarms.
 BLIXP GPL version = 133-003-000
 IMT BUS A = Conn
          = Conn
 IMT BUS B
 CURRENT TEMPERATURE = 32C ( 90F) [ALARM TEMP: 60C (140F)]
 PEAK TEMPERATURE: = 39C (103F)
                               [06-05-02 13:40]
 SIGNALING LINK STATUS
                       LS
nc001
    SLK PST
                                   CLLI
         IS-NR
    Α
```

Command Completed

10. Display the attributes of the IP card assigned to the IP link being changed by entering the rtrv-ip-card command and specifying the card location of the IP link.



If the ipaddr or submask parameter values are not being changed, continue the procedure with 13.

For this example, enter this command.

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

This is an example of the possible output.

If the rtrv-ip-card output shows an IP address for the default router (DEFROUTER) whose network portion matches the network portion of the IP address being changed, perform the Configuring an IP Card procedure and change the IP address of the default router to 0.0.0.0.



11. Display any **IP** routes referencing the **IP** link being changed by entering the rtrv-ip-rte command and specifying the card location of the **IP** link.

For this example, enter this command.

```
rtrv-ip-rte:loc=1201
```

This is an example of the possible output.

```
rlghncxa03w 06-10-28 21:17:37 GMT EAGLE5 36.0.0

LOC DEST SUBMASK GTWY

1201 128.252.10.5 255.255.255 140.188.13.33

1201 128.252.0.0 255.255.0.0 140.188.13.34

1201 150.10.1.1 255.255.255.255 140.190.15.3

IP Route table is (5 of 2048) 0.24% full
```

If the rtrv-ip-rte output shows that the card has **IP** routes assigned to it, perform the Removing an **IP** Route procedure and remove the **IP** routes from the database.

12. The subnet address that results from the <code>ipaddr</code> and <code>submask</code> parameter values of the <code>chg-ip-lnk</code> command cannot be the same as the subnet address that results from the <code>pvn</code> and <code>pvnmask</code>, <code>fcna</code> and <code>fcnamask</code>, or <code>fcnb</code> and <code>fcnbmask</code> parameter values of the <code>chg-netopts</code> command.

Note:

If a Class A or CIP address (see Table 6-3) will be specified for the ipaddr parameter in 14, continue the procedure with 13.

Display the pvn, pvnmask, fcna, fcnamask, fcnb, and fcnbmask parameter values of the chg-netopts command by entering the rtrv-netopts command.

If error message E3967 Cmd Rej: E5IS must be on is displayed after the rtrv-netopts command is executed, the pvn, pvnmask, fcna, fcnamask, fcnb, and fcnbmask parameters are not configured. Continue the procedure with 13.

This is an example of the possible output if the **E5IS** feature is on.

```
rlghncxa03w 09-02-28 21:17:37 GMT EAGLE5 40.1.0

NETWORK OPTIONS
------

PVN = 128.20.30.40

PVNMASK = 255.255.192.0

FCNA = 170.120.50.0

FCNAMASK = 255.255.240.0

FCNB = 170.121.50.0

FCNBMASK = 255.255.254.0
```

Choose ipaddr and submask parameter values for the IP link whose resulting subnet address is not be the same as the subnet address resulting from the pvn and pvnmask,



fcna and fcnamask, or fcnb and fcnbmask parameter values of the chgnetopts command. Continue the procedure with 13.

13. Display the associations referencing the local host name that is associated with the IP link being changed by entering the rtrv-assoc command and specifying the local host name shown in the rtrv-ip-host output in 2.

For this example, enter this command.

```
rtrv-assoc:lhost="ipnode-1201"
```

This is an example of the possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0

CARD IPLNK

ANAME LOC PORT LINK ADAPTER LPORT RPORT OPEN ALW swbel32 1201 A A M2PA 1030 2345 YES YES

IP Appl Sock/Assoc table is (3 of 4000) 1% full
Assoc Buffer Space Used (16 KB of 3200 KB) on LOC = 1201
```

If no associations are displayed in this step, continue the procedure with 14.

If the rtrv-assoc output shows that the open parameter for any associations is yes, perform the Changing the Attributes of an IPSG Association procedure to change the value of the open parameter the associations to no.

14. Change the link parameters associated with the **IP** card in the database using the chg-ip-lnk command.

For this example, enter this command.

```
chg-ip-
lnk:loc=1201:port=a:ipaddr=192.1.1.10:submask=255.255.255.0
:auto=yes:mactype=dix
```

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

```
rlghncxa03w 06-10-28 21:18:37 GMT EAGLE5 36.0.0 CHG-IP-LNK: MASP A - COMPLTD
```

15. Verify the new link parameters associated with the **IP** card that was changed in 14 by entering the rtrv-ip-lnk command with the card location specified in 14.

For this example, enter this command.

The following is an example of the possible output.

```
rlghncxa03w 07-05-28 21:14:37 GMT EAGLE5 37.0.0

LOC PORT IPADDR SUBMASK DUPLEX SPEED MACTYPE

AUTO MCAST

1201 A 192.1.1.10 255.255.255.128 HALF 10 DIX

YES NO
```



```
1201 B ------ HALF 10 DIX NO NO
```

16. Allow the IP card that was inhibited in 8 by using by using the alw-card command.

```
Note:
```

If8was not performed, continue the procedure with18.

For example, enter this command.

```
alw-card:loc=1201
```

This message should appear.

```
rlghncxa03w 06-10-28 21:20:37 GMT EAGLE5 36.0.0 Card has been allowed.
```

17. Verify the in-service normal (IS-NR) status of the IP card using the rept-stat-card command.

For example, enter this command.

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

This is an example of the possible output.

```
rlghncxa03w 10-12-01 09:12:36 GMT EAGLE5 43.0.0
CARD VERSION TYPE GPL PST
                                             SST
                                                      AST
1201 133-003-000 E5ENET IPSG
                                IS-NR
                                            Active
 ALARM STATUS = No Alarms.
 BLIXP GPL version = 133-003-000
 IMT BUS A
                = Conn
           = Conn
 IMT BUS B
 CURRENT TEMPERATURE = 32C (90F) [ALARM TEMP: 60C (140F)]
 PEAK TEMPERATURE: = 39C (103F)
                                 [06-05-02 13:40]
 SIGNALING LINK STATUS
    SLK
          PST
                         LS
                                    CLLI
                        nc001
    Α
          IS-NR
```

Command Completed.

18. Activate the signaling link from 5 using the act-slk command.



If5was not performed, continue the procedure with20.

For example, enter this command.

```
act-slk:loc=1201:link=a
```



The link changes its state from **OOS-MT-DSBLD** (out-of-service maintenance-disabled) to **IS-NR** (in-service normal).

The output confirms the activation.

```
rlghncxa03w 06-10-07 11:11:28 GMT EAGLE5 36.0.0 Activate Link message sent to card
```

19. Verify the in-service normal (IS-NR) status of the signaling link using the rept-stat-slk command.

For example, enter this command.

```
rept-stat-slk:loc=1201:link=a
```

This message should appear.

```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0
SLK LSN CLLI PST SST AST
1201,A nc001 ------ IS-NR
Command Completed.
```

20. Perform the Configuring an IP Card procedure and change the IP address of the default router to a non-zero value, where the network portion of the default router IP address matches the network portion of the IP link's new IP address.



If the ipaddr or submask values were not changed, continue the procedure with 22.

Note:

If the $\!I\!P$ address of the default router was not changed to 0.0.0.0 in 10 , continue the procedure with 21.

21. Perform the Adding an IP Route procedure and add the **IP** routes back into the database.



If **IP** routes were not removed in 11, continue the procedure with 22.

22. Perform the Changing the Attributes of an IPSG Association procedure and change the value of the open parameter of the association to yes.



Note:

If theopen parameter value for an association was not changed in13, continue the procedure with23.

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

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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

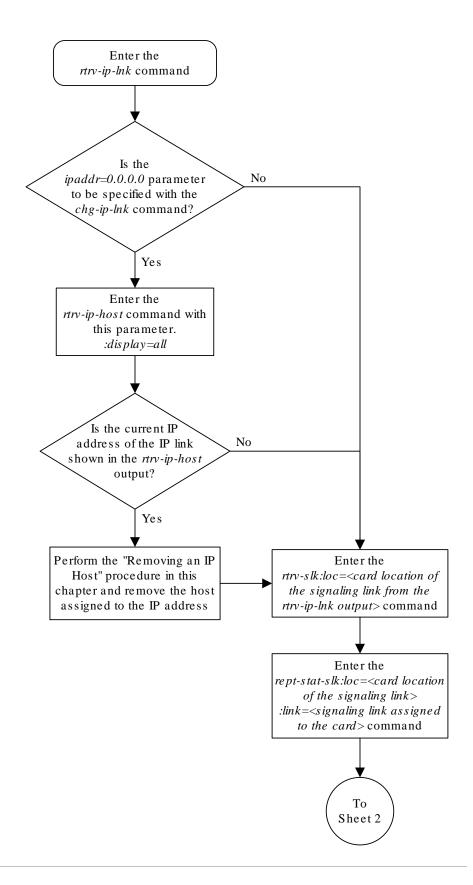
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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

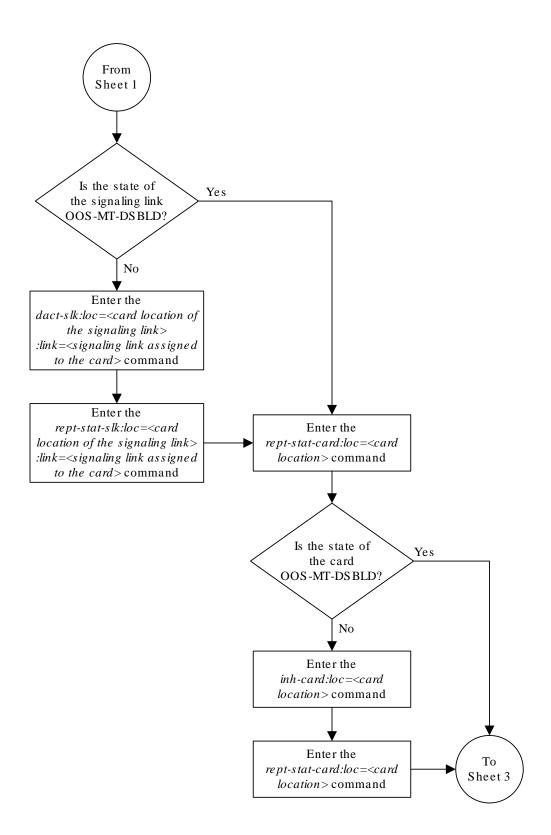


Figure 6-4 Configuring an IP Link



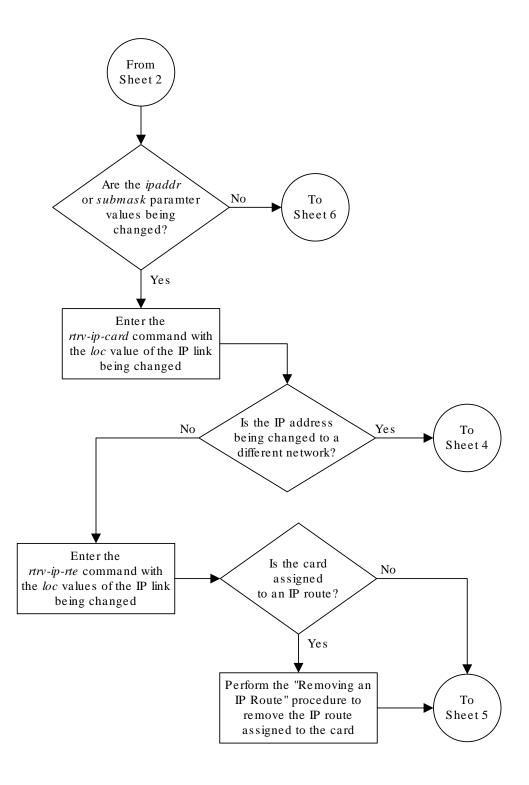
Sheet 1 of 9





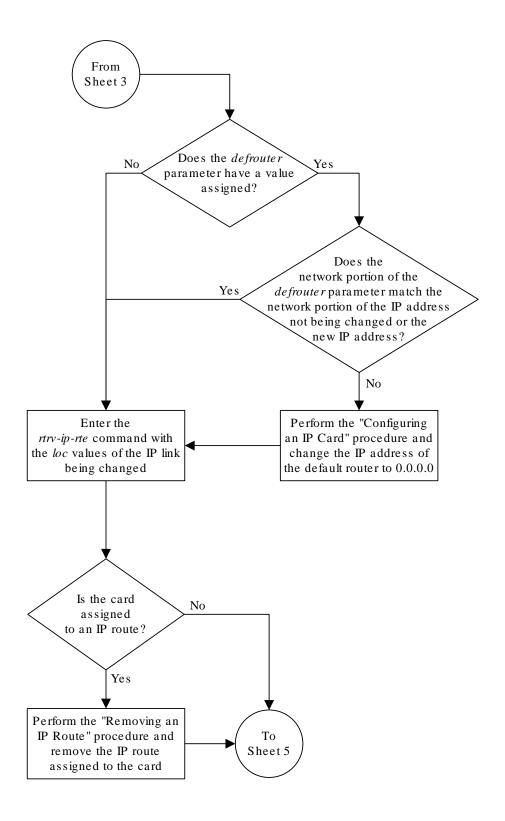
Sheet 2 of 9





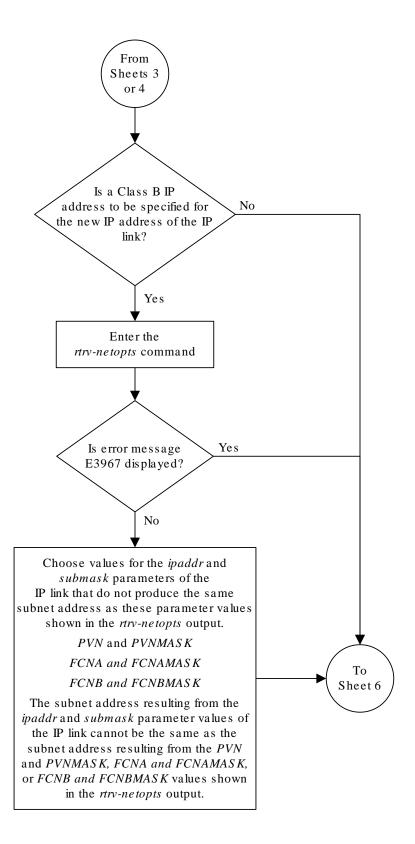
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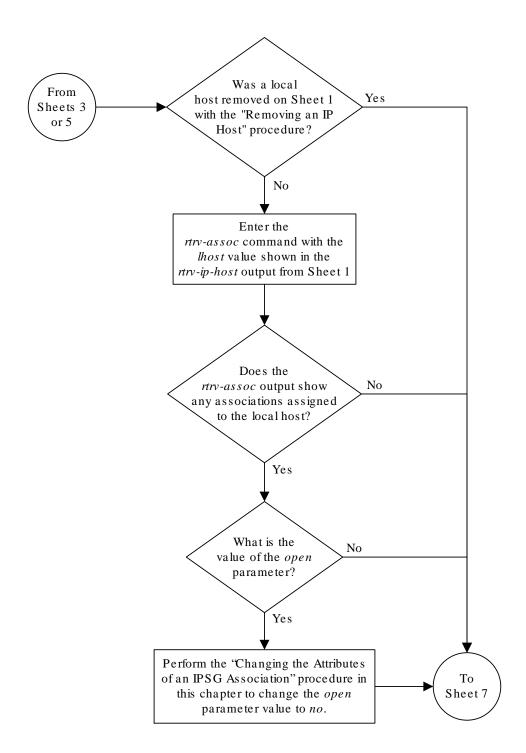
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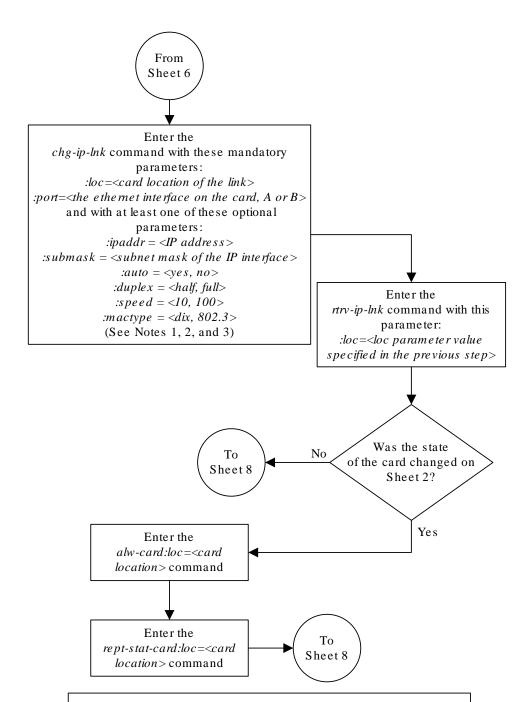
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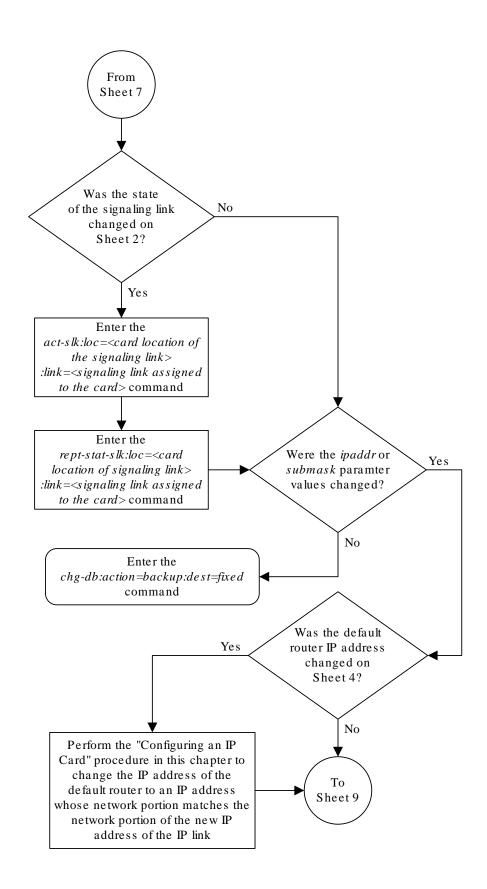


Notes:

- 1. If either the *ipaddr* or *submask* parameters are specified, then both parameters must be specified, unless the *ipaddr*=0.0.0.0 parameter is specified, then the *submask* parameter is not required.
- 2. The *ipaddr*=0.0.0.0 parameter disables the IP link.
- 3. If the *auto*=yes parameter is specified, then the *duplex* and *speed* parameters cannot be specified.

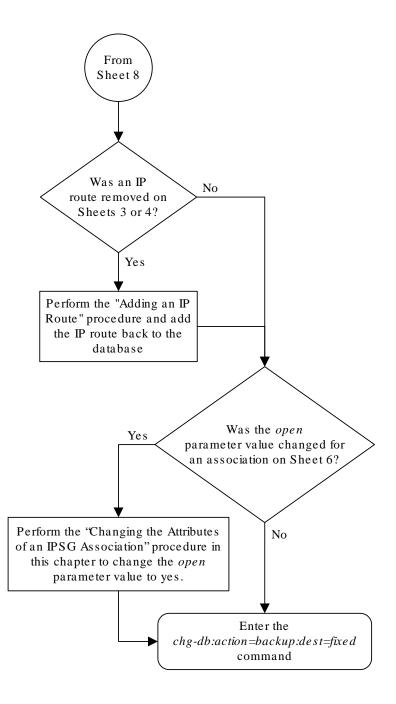
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Adding an IP Host

This procedure associates hostnames with IP addresses using the ent-ip-host command.

The ent-ip-host command uses the following parameters.

:host- The host name to be associated with the **IP** address. This parameter identifies the logical name assigned to the device with the **IP** address indicated. The host name can contain up to 60 characters (using only these characters: a-z, A-Z, 0-9, -, .) and is not case sensitive. The host name must begin with a letter. Host names containing a dash (-) must be enclosed in double quotes.

:ipaddr – The **IP** address to be associated with the hostname. The node's **IP** address. This is an **IP** address expressed in standard "dot notation." **IP** addresses consist of the system's network number and the machine's unique host number.

: type — Specifies if the host resides on the IP card on the EAGLE 5 (type=local, the default value), or if the host resides on equipment that is not in the EAGLE 5 (type=remote). This parameter is optional.

The EAGLE 5 can contain a maximum of 4026 IP hosts.

The IP address for a local host must be shown in the rtrv-ip-lnk output.

The **IP** address for a remote host must not be shown in the rtrv-ip-lnk output.

 Display the current IP host information in the database by entering the rtrv-iphost:display=all command.

The following is an example of the possible output.

```
rlghncxa03w 13-06-28 21:17:37 GMT EAGLE5 45.0.0
LOCAL IPADDR LOCAL HOST
192.1.1.10 IPNODE1-1201
192.1.1.12
             IPNODE1-1203
192.1.1.14
             IPNODE1-1205
192.1.1.20
             IPNODE2-1201
192.1.1.22
             IPNODE2-1203
192.1.1.24
             IPNODE2-1205
192.1.1.32
              KC-HLR2
192.1.1.50
              DN-MSC1
192.1.1.52
              DN-MSC2
REMOTE IPADDR REMOTE HOST
150.1.1.5
              NCDEPTECONOMIC DEVELOPMENT. SOUTHEASTERN COORIDOR ASHVL.
GOV
IP Host table is (10 of 4096) .24% full
```

2. Verify that the IP address assigned to the IP links by entering the rtrv-ip-lnk command.



The following is an example of the possible output.

rlghncxa03w 08-12-28 21:14:37 GMT EAGLE5 40.0.0 LOC PORT IPADDR SUBMASK DUPLEX SPEED MACTYPE					
AUTO MCAST		CODINION	DOLLLI	OTLLD	11101111
1201 A		255.255.255.128	HALF	10	802.3
NO NO 1201 B			HALF	10	DIX
NO NO 1203 A	192 1 1 12	255.255.255.0			DTX
YES NO	1,2,1,1,1,1	2001200120010			2111
1203 В			HALF	10	DIX
NO NO					
1205 A	192.1.1.14	255.255.255.0	FULL	100	DIX
NO NO					
1205 В			HALF	10	DIX
NO NO					
2101 A	192.1.1.20	255.255.255.0	FULL	100	DIX
NO NO					
2101 В			HALF	10	DIX
NO NO					
2103 A	192.1.1.22	255.255.255.0	FULL	100	DIX
NO NO					
2103 В			HALF	10	DIX
NO NO					
2105 A	192.1.1.24	255.255.255.0	FULL	100	DIX
NO NO					
2105 В			HALF	10	DIX
NO NO	100 1 1 00	055 055 055 0		100	
2207 A	192.1.1.32	255.255.255.0	F.OTT	100	DIX
NO NO			113 T E	1.0	DTV
2207 B			HALF	10	DIX
NO NO 2213 A	102 1 1 50	255.255.255.0	ד דווים	100	DIX
NO NO	192.1.1.50	233.233.233.0	гопп	100	DIV
2213 B			ПΣΤΕ	10	DIX
NO NO			пипг	10	DIX
	192 1 1 52	255.255.255.0	FIIT.T.	100	DTX
NO NO	172.1.1.72	200.200.200.0	1 0111	100	DIV
2301 B			HALF	10	DTX
NO NO					~ ***
TD_IMV +	able is 120 of 2	0/0\ 1 % full			

IP-LNK table is (20 of 2048) 1 % full.

If a local host is being configured in this procedure, the **IP** address assigned to the local host must be shown in the ${\tt rtrv-ip-lnk}$ output. If the **IP** address is not shown in the ${\tt rtrv-ip-lnk}$ output, add the **IP** address by performing the Configuring an IP Link procedure.

If a remote host is being configured in this procedure, the IP address assigned to the remote host cannot be shown in the rtrv-ip-lnk output.

3. Add IP host information to the database by entering the ent-ip-host command.



If a local host is being configured, enter the <code>ent-ip-host</code> command with the **IP** address from 2, and the <code>type=local</code> parameter or without the <code>type</code> parameter. If the <code>type</code> parameter is not specified with the <code>ent-ip-host</code> command, the <code>type</code> parameter value defaults to <code>local</code>.

If a remote host is being configured, enter the <code>ent-ip-host</code> command with the **IP** address that is not shown in 2, and the <code>type=remote</code> parameter.

For example, enter this command.

```
ent-ip-host:host="kc-hlr1":ipaddr=192.1.1.30
```

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

```
rlghncxa03w 06-10-28 21:18:37 GMT EAGLE5 36.0.0 ENT-IP-HOST: MASP A - COMPLTD
```

4. Verify the new **IP** host information in the database by entering the rtrv-ip-host command with the host parameter value specified in 3.

For this example, enter this command.

```
rtrv-ip-host:host="kc-hlr1"
```

The following is an example of the possible output.

```
rlghncxa03w 13-06-28 21:19:37 GMT EAGLE5 45.0.0 LOCAL IPADDR LOCAL HOST 192.1.1.30 KC-HLR1

IP Host table is (11 of 4096) .26% full
```

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

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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

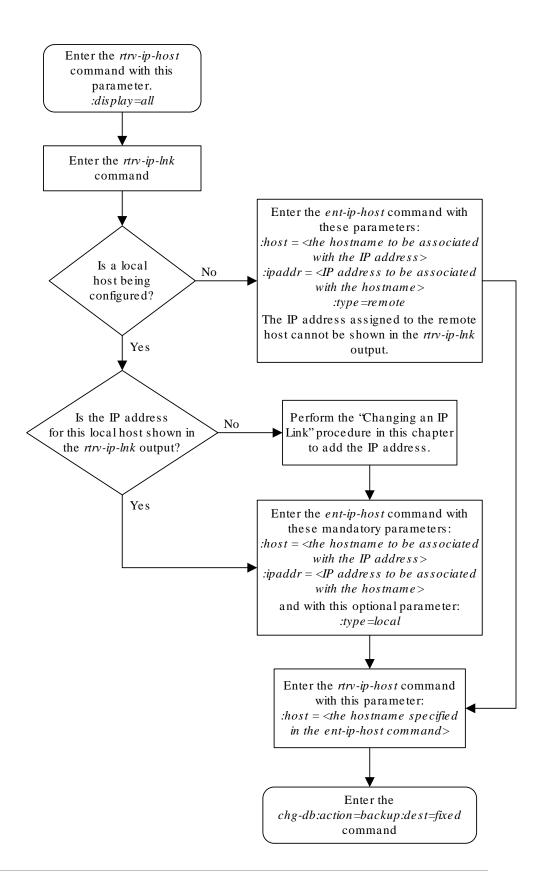
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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



Figure 6-5 Adding an IP Host



Configuring an IP Card

This procedure is used to change the **IP** stack parameters associated with an **IP** card in the database using the chg-ip-card command.

The chg-ip-card command uses the following parameters.

- :loc The card location of the IP card
- : srchordr Host Table Search Order
- : dnsa **Domain** name server A's **IP** address. This is an **IP** address expressed in standard "dot notation." **IP** addresses consist of the system's network number and the machine's unique host number.
- : dnsb **Domain** name server B's **IP** address. This is an **IP** address expressed in standard "dot notation." **IP** addresses consist of the system's network number and the machine's unique host number.
- :domain The domain name is used to construct a fully-qualified DNS name consisting of 120 characters or less. For example, a domain name can be tekelec.com, the hostname is john.doe. The fully-qualified DNS name would be john.doe@tekelec.com.
- : defrouter Default router IP address. This is an IP address expressed in standard "dot notation." IP addresses consist of the system's network number and the machine's unique host number.
- :rstdomain Reset Domain name. The parameter is used to reset the domain to a NULL value.
- :sctpcsum The SCTP checksum algorithm that will be applied to the traffic on the IP card, either adler32 or crc32c. The sctpcsum parameter can be specified only if the SCTPCSUM value in the rtrv-sg-opts output is percard.

The chg-ip-card command contains other parameters that cannot be used in this procedure. Refer to *Commands User's Guide* for more information about these parameters.

The **IP** card must be placed out of service.

The rstdomain parameter cannot be specified if the domain parameter is specified.

There is only one default router (defrouter parameter) for each IP card. The default router is used as the primary route unless a static IP routes is defined for the destination IP address. Static IP routes are assigned using the ent-ip-rte command in the Adding an IP Route procedure.

The network portion of the **IP** address of the default router must match the network portion of one of the **IP** addresses assigned to the card.

The network portion of the **IP** address is based on the class of the **IP** address (shown in Table 6-3). If the **IP** address is a Class A **IP** address, the first field is the network portion of the **IP** address. If the **IP** address is a Class B **IP** address, the first two fields are the network portion of the **IP** address. If the **IP** address is a Class C **IP** address, the first three fields are the network portion of the **IP** address. For example, if the **IP** address is 193.5.207.150, a Class C **IP** address, the network portion of the **IP** address is 193.5.207.



The default router can be associated with only one **IP** address assigned to the card if the defrouter parameter is specified. For example, the <code>dnsa</code> value for card 1101 is 150.1.1.10. The <code>dnsb</code> value for card 1101 is 160.25.37.1. A default router is provisioned with the **IP** address 150.1.1.4. The default router is associated with the Ethernet A **IP** address (the <code>dnsa</code> parameter value), but not the Ethernet B **IP** address (the <code>dnsb</code> parameter value).

If the default router is associated with one of the IP card's IP addresses, a second gateway router can be assigned to the other IP address on the IP card by provisioning a static IP route for the IP card using the ent-ip-rte command in the Adding an IP Route procedure. Static IP routes can provide gateway routers associated with the other IP address on the IP card. To provision the gateway router (the gtwy parameter of the ent-ip-rte command) for the other IP address assigned to the IP card, the network portion of the gateway router's IP address must match the network portion of the other IP address assigned to the IP card.

Specifying the **IP** address 0.0.0.0 for the dnsa or dnsb parameters, removes the **IP** address for Ethernet A (dnsa) or Ethernet B (dnsb).

When an **IP** card is entered into the database with the ent-card command, the **IP** stack parameters associated with this card are initially set with these default values:

- :srchordr SRVR
- :dnsa No DNSA IP address is specified
- : dnsb No DNSB IP address is specified
- :domain No domain name is specified
- :defrouter No default router IP address is specified
- :rstdomain No
- :sctpcsum CRC32C

The value of any optional parameter not specified with the <code>chg-ip-card</code> command is not changed.

1. Display the current **IP** parameters associated with card in the database by entering the rtrv-ip-card command.

The following is an example of the possible output.

```
rlghncxa03w 08-06-28 21:17:37 GMT EAGLE5 39.0.0
  LOC 1201
   SRCHORDR SRVR
   DNSA
          150.1.1.1
   DNSB
   DEFROUTER -----
   DOMAIN -----
   SCTPCSUM crc32c
   BPIPADDR -----
   BPSUBMASK -----
  LOC 1203
   SRCHORDR LOCAL
        192.1.1.40
   DNSA
    DNSB
           -----
```



```
DEFROUTER ------
DOMAIN NC. TEKELEC. COM
SCTPCSUM crc32c
BPIPADDR -----
BPSUBMASK -----
LOC 1205
SRCHORDR SRVRONLY
DNSA 192.1.1.40
DNSB ------
DEFROUTER -----
DOMAIN NC. TEKELEC. COM
SCTPCSUM crc32c
BPIPADDR ------
BPSUBMASK -----
```

To change the parameters of an **IP** card, the signaling link to the card and the card have to be inhibited.

2. Display the signaling link associated with the card shown in 1 using the rtrv-slk command specifying the card location.

For this example, enter this command.

```
rtrv-slk:loc=1201
```

This is an example of the possible output.

```
rlghncxa03w 08-04-12 15:36:20 GMT 38.0.0

LOC LINK LSN SLC TYPE ANAME SLKTPS 1201 A nc001 0 IPSG m2pa1 1015

IPTPS for LOC = 1102 is (1015 of 5000) 20%
```

3. Retrieve the status of the signaling link shown in 2 using the rept-stat-slk command specifying the card location and signaling link.

For example, enter this command.

```
rept-stat-slk:loc=1201:link=a
```

The output lists the signaling link assigned to this card:

```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0

SLK LSN CLLI PST SST AST
1201,A nc001 ------ IS-NR

Avail ----

Command Completed.
```

If the signaling link is in service-normal (**IS-NR**), continue the procedure with 4 to deactivate the signaling link. If the signaling link is out-of-service-maintenance disabled (**OOS-MT-DSBLD**), continue the procedure with 6 to verify the card status.

 Deactivate the signaling link assigned to the IP card using the rept-stat-slk command.



For example, enter this command.

dact-slk:loc=1201:link=a



Caution:

This command impacts network performance and should only be used during periods of low traffic.

After this command has successfully completed, this message appears.

```
rlghncxa03w 06-10-12 09:12:36 GMT EAGLE5 36.0.0
Deactivate Link message sent to card.
```

5. Verify the new link status using the rept-stat-slk command.

For example, enter this command.

```
rept-stat-slk:loc=1201:link=a
```

The output displays the link status as OOS-MT-DSBLD and gives off a minor alarm:

```
rlghncxa03w 06-10-27 17:00:36 GMT EAGLE5 36.0.0
SLK LSN CLLI PST SST
                                            AST
1201,A nc001
               ----- OOS-MT-DSBLD AVAIL
ALARM STATUS = * 0236 REPT-LKS:not aligned
UNAVAIL REASON = NA
Command Completed.
```

6. Verify the status of the IP card to be inhibited using the rept-stat-card command.

For example, enter this command.

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

This is an example of the possible output.

```
rlghncxa03w 10-12-01 09:12:36 GMT EAGLE5 43.0.0
CARD VERSION TYPE GPL PST
                                            SST
AST
1201 133-003-000 E5ENET IPSG IS-NR
                                          Active
 ALARM STATUS = No Alarms.
 BLIXP GPL version = 133-003-000
               = Conn
 IMT BUS A
           = Conn
 IMT BUS B
 CURRENT TEMPERATURE = 32C (90F) [ALARM TEMP: 60C (140F)]
 PEAK TEMPERATURE: = 39C (103F)
                               [06-05-02 13:40]
 SIGNALING LINK STATUS
    SLK PST
                        LS
                                   CLLI
    A
        IS-NR
                        nc001
                                    _____
```



Command Completed.

If the **IP** card to be inhibited is in service-normal (**IS-NR**), continue the procedure with 7 to inhibit the card. If the **IP** card is out-of-service-maintenance disabled (**OOS-MT-DSBLD**), continue the procedure with 9.

7. Inhibit the IP card using the inh-card command.

For example, enter this command.

```
inh-card:loc=1201
```

This message should appear.

```
rlghncxa03w 06-10-28 21:18:37 GMT EAGLE5 36.0.0 Card has been inhibited.
```

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

Enter this command.

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

This is an example of the possible output.

```
rlghncxa03w 10-12-01 09:12:36 GMT EAGLE5 43.0.0
CARD VERSION TYPE GPL PST
                                           SST
                                                    AST
1201 133-003-000 E5ENET IPSG
                               OOS-MT-DSBLD Manual
 ALARM STATUS = No Alarms.
 BLIXP GPL version = 133-003-000
 IMT BUS A
               = Conn
 IMT BUS B
                = Conn
 CURRENT TEMPERATURE = 32C (90F) [ALARM TEMP: 60C (140F)]
 PEAK TEMPERATURE: = 39C (103F)
                               [06-05-02 13:40]
 SIGNALING LINK STATUS
                                  CLLI
    SLK PST
                        LS
    A
        IS-NR
                        nc001
                                   -----
```

Command Completed

If the defrouter parameter will be specified in 11, continue the procedure with 11.

If the defrouter parameter will not be specified in 11, continue the procedure by performing one of these steps.

- If the sctpcsum parameter value for the card will not be changed, continue the procedure with 11.
- If the sctpcsum parameter value for the card will be changed, continue the procedure with 10.
- 9. Verify that the **IP** address of either Ethernet A or B (the address whose network portion matches the network portion of the defrouter parameter value to be used in 11) is in the **IP** link table by entering the rtrv-ip-lnk command with the card location specified in this procedure.



For this example, enter this command.

```
rtrv-ip-lnk:loc=1201
```

The following is an example of the possible output.

```
rlghncxa03w 06-10-28 21:17:37 GMT EAGLE5 36.0.0

LOC PORT IPADDR SUBMASK DUPLEX SPEED MACTYPE

AUTO MCAST

1201 A 192.1.1.10 255.255.255.0 ---- DIX

YES NO

1201 B ------ DIX

YES NO
```

If the network portion of the **IP** address specified by the defrouter value does not match the network portions of either **IP** address displayed in this step, perform one of these actions:

- Choose another value for the defrouter parameter, making sure that the
 network portion of the new IP address matches the network portion of one of
 the IP addresses displayed in this step.
- Perform the Configuring an IP Link procedure and change one of the IP
 addresses shown in this step so that the network portion of the new IP
 address changed in the Configuring an IP Link procedure matches the network
 portion of the IP address value for the defrouter parameter.

After this step has been completed, continue the procedure by performing one of these steps.

- If the sctpcsum parameter value for the card will not be changed, continue the procedure with 11.
- If the sctpcsum parameter value for the card will be changed, continue the procedure with 11.
- 10. To change the sctpcsum parameter value for the IP card, the sctpcsum parameter value in the rtrv-sg-opts output must be percard. Verify the sctpcsum parameter value by entering the rtrv-sg-opts command.

The following is an example of the possible output.

```
rlghncxa03w 08-04-13 09:19:43 GMT EAGLE5 38.0.0
SRKO:
            1500
SNMPCONT:
            tekelec
GETCOMM:
           public
SETCOMM:
            private
           public
TRAPCOMM:
SCTPCSUM:
             adler32
IPGWABATE:
             NO
UAMEASUSEDFTAS: NO
```

If the sctpcsum parameter value in the rtrv-sg-opts output is percard, continue the procedure with 11.



If the sctpcsum parameter value in the rtrv-sg-opts output is adler 32 or crc32c, perform the one of these procedures to change the sctpcsum parameter value to percard, depending on the ADAPTER value of the association.

- Changing the SCTP Checksum Algorithm Option for IPSG M2PA Associations
- Changing the SCTP Checksum Algorithm Option for IPSG M3UA Associations

After the SCTP checksum algorithm has been changed, continue the procedure with 11.

11. Change the **IP** stack parameters associated with an **IP** card in the database using the chg-ip-card command.

For this example, enter this command.

```
chg-ip-
card:loc=1201:srchordr=local:dnsa=192.1.1.40:domain=nc.tekelec.co
m :sctpcsum=adler32
```

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

```
rlghncxa03w 06-10-28 21:20:37 GMT EAGLE5 36.0.0 CHG-IP-CARD: MASP A - COMPLTD
```

12. Verify the new **IP** parameters associated with the **IP** card that was changed in 11 by entering the rtrv-ip-card command with the card location specified in 11.

For this example, enter this command.

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

The following is an example of the possible output.

```
rlghncxa03w 08-06-28 21:17:37 GMT EAGLE5 39.0.0

LOC 1201

SRCHORDR LOCAL

DNSA 192.1.1.40

DNSB -----

DEFROUTER -----

DOMAIN NC. TEKELEC. COM

SCTPCSUM adler32

BPIPADDR ------

BPSUBMASK -----
```



If 7 was not performed, continue the procedure with 15.

13. Allow the IP card that was inhibited in 7 by using the alw-card command.

For example, enter this command.

```
alw-card:loc=1201
```



This message should appear.

```
rlghncxa03w 06-10-28 21:22:37 GMT EAGLE5 36.0.0 Card has been allowed.
```

14. Verify the in-service normal (IS-NR) status of the IP card using the rept-stat-card command.

For example, enter this command.

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

This is an example of the possible output.

```
rlghncxa03w 10-12-01 09:12:36 GMT EAGLE5 43.0.0
CARD VERSION TYPE GPL PST
                                                 SST
AST
1201 133-003-000 E5ENET IPSG IS-NR
                                               Active
 ALARM STATUS = No Alarms.
 BLIXP GPL version = 133-003-000
 IMT BUS A = Conn
 IMT BUS B
                 = Conn
 CURRENT TEMPERATURE = 32C (90F) [ALARM TEMP: 60C (140F)]
PEAK TEMPERATURE: = 39C (103F) [06-05-02 13:40]
 SIGNALING LINK STATUS
     SLK
         PST
                          LS
                                        CLLI
           IS-NR
     A
                           nc001
                                        -----
```

Command Completed.

15. Activate the signaling link from 4 using the act-slk command.



If 4 was not performed, continue the procedure with 17.

For example, enter this command.

```
act-slk:loc=1201:link=a
```

The link changes its state from **OOS-MT-DSBLD** (out-of-service maintenance-disabled) to **IS-NR** (in-service normal).

The output confirms the activation.

```
rlghncxa03w 06-10-07 11:11:28 GMT EAGLE5 36.0.0 Activate Link message sent to card
```

16. Verify the in-service normal (**IS-NR**) status of the signaling link using the rept-stat-slk command.

For example, enter this command.



```
rept-stat-slk:loc=1201:link=a
```

This message should appear.

17. Back up the new changes using the <code>chg-db:action=backup:dest=fixed command.</code>

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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

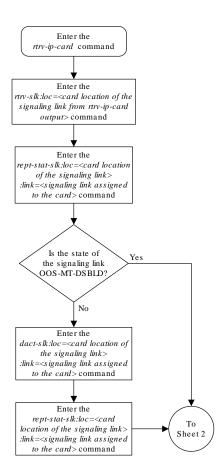
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

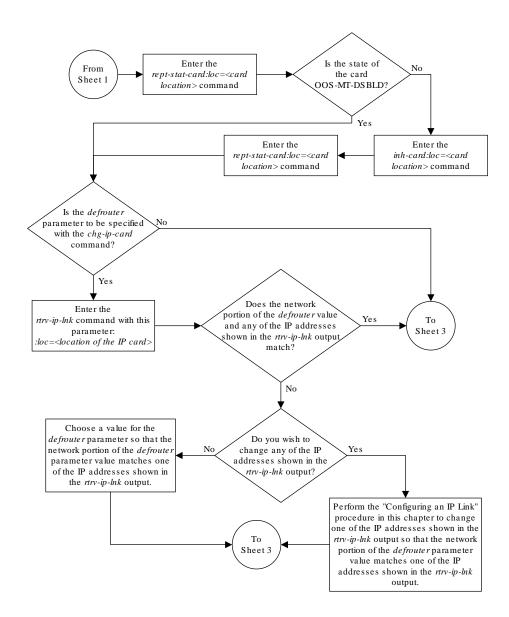
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```



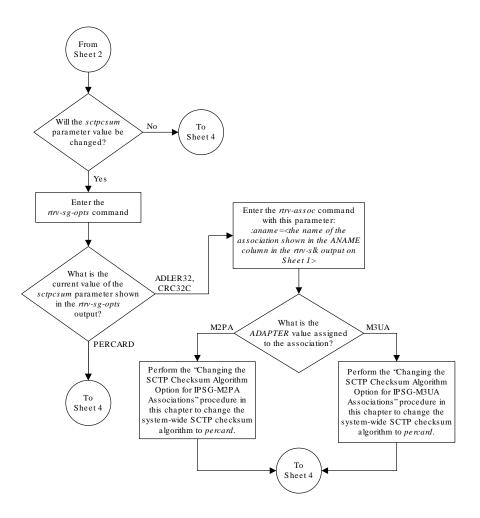
Figure 6-6 Configuring an IP Card



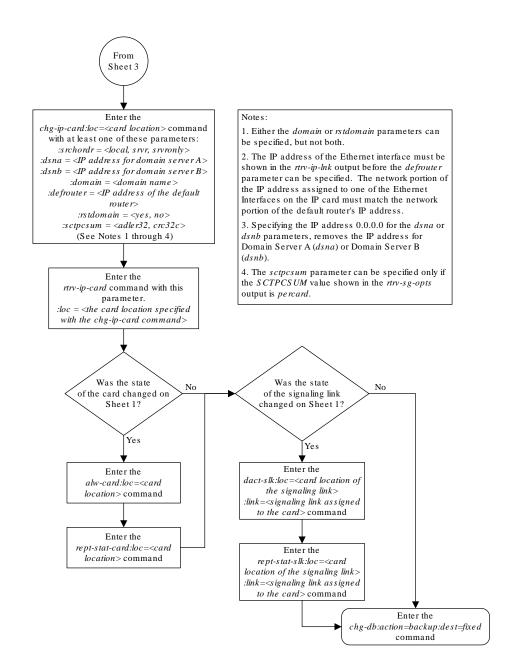
Sheet 1 of 4



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Sheet 4 of 4

Adding an IP Route

This procedure is used to add an **IP** route to the database using the <code>ent-ip-rte</code> command.

The ent-ip-rte command uses these parameters.

:loc - The location of the IP card that the IP route will be assigned to.

: dest - The IP address of the remote host or network.

: submask - The subnet mask of the destination IP address.

: gtwy – The **IP** address of the gateway or router that will send the **IP** data to its final destination.

There can be a maximum of 64 **IP** routes assigned to an **IP** card.

The **EAGLE** can contain a maximum of 2048 **IP** routes.

Ethernet Interfaces A and B on the $\bf IP$ card specified by the loc parameter can be used.

The network portion of the **IP** address value of the gtwy parameter must be the same as the network portion of the **IP** addresses shown for either the A or B interfaces in the rtv-ip-card output.

The value of the dest and gtwy parameters cannot be 127.x.x.x (the loopback address), 0.0.0.0, or the **IP** addresses of the A or B interfaces on the **IP** card, and cannot be assigned to another **IP** card.

If the <code>dest</code> parameter value represents a host **IP** address, the value for the <code>submask</code> parameter must be 255.255.255.255. Otherwise, the <code>submask</code> parameter value is identifies the network/host **ID** portions that must be entered when the dest parameter value represents a network address.

The submask is applied to the **IP** address which is being routed to see if it yields a route match. For example, if **IP** address 192.1.1.2 is being routed and the **IP** routing table contains these entries.

Table 6-4 Sample IP Routing Table

IP address	Submask	Gateway
191.1.0.0	255.255.0.0	192.168.110.250
192.0.0.0	255.0.0.0	192.168.110.251

IP routing occurs as follows:

- 1. The subnet mask of route 1 (255.255.0.0) is applied to the **IP** address being routed (192.1.1.2) with the resulting **IP** address of 192.1.0.0. **IP** address 192.1.0.0 does not match **IP** address 191.1.0.0 in the **IP** routing table, so the next route is chosen.
- 2. The subnet mask of route 2 (255.0.0.0) is applied to the **IP** address being routed (192.1.1.2) with the resulting **IP** address of 192.0.0.0 which matches the second route in the **IP** routing table, so this route is selected for routing this datagram.

See Table 6-5 for the valid input values for the submask and dest parameter combinations.



Table 6-5 Valid Subnet Mask Parameter Values

Network Class	IP Network Address Range	Valid Subnet Mask Values			
		255.0.0.0 (the default value for a class A IP address)			
		255.192.0.0			
		255.224.0.0			
Α	1.0.0.0 to 127.0.0.0	255.240.0.0			
		255.248.0.0			
		255.252.0.0			
		255.254.0.0			
		255.255.128.1			
		255.255.0.0 (the default value for a class B IP address)			
	255.255.192.0	255.255.192.0			
		255.255.224.0			
A+B	128.1.0.0 to 191.255.0.0	255.255.128.1 255.255.0.0 (the default value for a class B IP address) 255.255.192.0			
		255.255.248.0			
		255.255.240.0 255.255.248.0 255.255.252.0			
		255.255.255.128			
		255.255.255.0 (the default value for a class C IP address)			
		255.255.255.192			
A+B+C	192.0.0.0 to 223.255.255.0	255.255.255.224			
-		255.255.255.240			
		255.255.255.248			
		255.255.255.252			

If a Class B IP address is specified for the dest parameter of the ent-ip-rte command, the subnet address that results from the dest and submask parameter values cannot be the same as the subnet address that results from the pvn and pvnmask, fcna and fcnamask, or fcnb and fcnbmask parameter values of the chg-netopts command. The pvn and pvnmask, fcna and fcnamask, or fcnb and fcnbmask parameter values can be verified by entering the rtrv-netopts command. Choose dest and submask parameter values for the IP route whose resulting subnet address is not be the same as the subnet address resulting from the pvn and pvnmask, fcna and fcnamask, or fcnb and fcnbmask parameter values of the chg-netopts command.

Display the IP routes in the database with the rtrv-ip-rte command.
 This is an example of the possible output.

rlghn	cxa03w 06-10-28	09:12:36 GMT EAGLE	5 36.0.0
LOC	DEST	SUBMASK	GTWY
1301	128.252.10.5	255.255.255.255	140.188.13.33
1301	128.252.0.0	255.255.0.0	140.188.13.34
1301	150.10.1.1	255.255.255.255	140.190.15.3
1303	192.168.10.1	255.255.255.255	150.190.15.23



```
1303 192.168.0.0 255.255.255.0 150.190.15.24

IP Route table is (5 of 2048) 0.24% full
```

2. Display the IP cards in the database with the rtrv-ip-card command.

This is an example of the possible output.

```
rlghncxa03w 08-08-28 21:17:37 GMT EAGLE5 39.0.0
  LOC 1212
   SRCHORDR LOCAL
    DNSA 150.1.1.1
         _____
    DNSB
    DEFROUTER 150.1.1.100
    DOMAIN NC. TEKELEC. COM
   SCTPCSUM crc32c
   BPIPADDR -----
   BPSUBMASK -----
  LOC 1301
   SRCHORDR SRVRONLY
    DNSA 140.188.13.10
   DNSB 140.190.15.28
    DEFROUTER -----
    DOMAIN NC. TEKELEC. COM
    SCTPCSUM crc32c
   BPIPADDR -----
   BPSUBMASK -----
  LOC 1303
    SRCHORDR LOCAL
   DNSA 150.190.15.1
           _____
    DNSB
    DEFROUTER 150.190.15.25
    DOMAIN NC. TEKELEC. COM
    SCTPCSUM crc32c
    BPIPADDR -----
    BPSUBMASK -----
```

If the required IP card is not shown in the rtrv-ip-card output, perform the Adding an IPSG Card procedure to add the card to the database.

Perform the Configuring an IP Link procedure and make sure that the network portion of the IP addresses assigned for the A or B interfaces of the IP card is the same as the network portion of the IP address that will be assigned to the gtwy parameter of the IP route

Note:

If a Class A or C IP address (see Table 6-5) will be specified for the dest parameter in 4, continue the procedure with 4.

3. The subnet address that results from the dest and submask parameter values of the ent-ip-rte command cannot be the same as the subnet address that

results from the pvn and pvnmask, fcna and fcnamask, or fcnb and fcnbmask parameter values of the chq-netopts command.

Display the pvn, pvnmask, fcna, fcnamask, fcnb, and fcnbmask parameter values of the chg-netopts command by entering the rtrv-netoptscommand.

If error message E3967 Cmd Rej: E5IS must be on is displayed after the rtrv-netopts command is executed, the pvn, pvnmask, fcna, fcnamask, fcnb, and fcnbmask parameters are not configured. Continue the procedure with 4.

This is an example of the possible output if the **E5IS** feature is on.

```
rlghncxa03w 09-02-28 21:17:37 GMT EAGLE5 40.1.0

NETWORK OPTIONS
------

PVN = 128.20.30.40

PVNMASK = 255.255.192.0

FCNA = 170.120.50.0

FCNAMASK = 255.255.240.0

FCNB = 170.121.50.0

FCNBMASK = 255.255.254.0
```

Choose dest and submask parameter values for the IP route whose resulting subnet address is not be the same as the subnet address resulting from the pvn and pvnmask, fcna and fcnamask, or fcnb and fcnbmask parameter values of the chg-netopts command. Continue the procedure with 4.

4. Add the **IP** route to the database using the ent-ip-rte command.

For this example, enter this command.

```
ent-ip-
rte:loc=1212:dest=132.10.175.20:submask=255.255.255.255 :gtwy=150
.1.1.50
```

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

```
rlghncxa03w 06-10-12 09:12:36 GMT EAGLE5 36.0.0 ENT-IP-RTE: MASP A - COMPLTD
```

5. Verify the changes using the rtrv-ip-rte command with the card location specified with the ent-ip-rte command in 4.

For this example, enter these commands.

```
rtrv-ip-rte:loc=1212
```

This is an example of the possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0

LOC DEST SUBMASK GTWY

1212 132.10.175.20 255.255.255 150.1.1.50

IP Route table is (6 of 2048) 0.29% full
```



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

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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

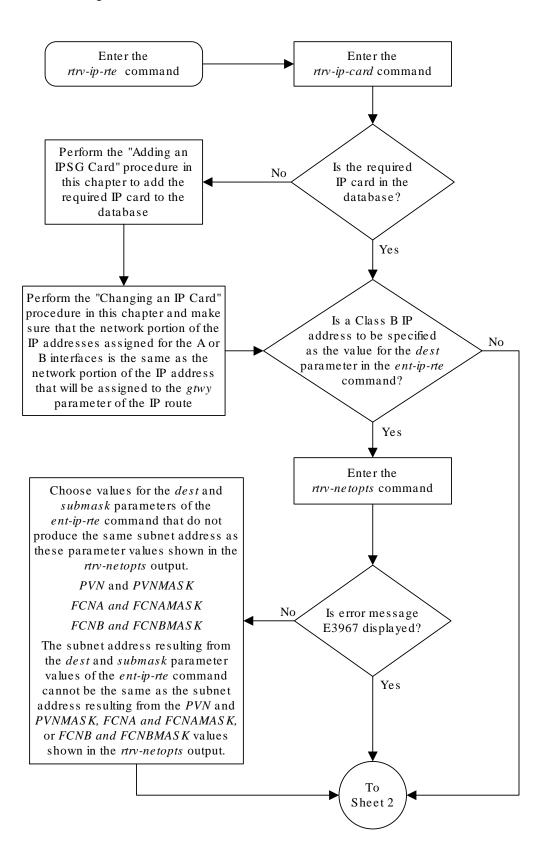
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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

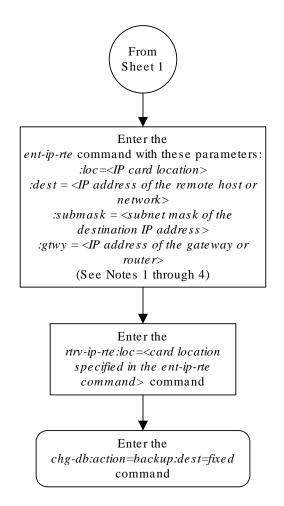


Figure 6-7 Adding an IP Route



Sheet 1 of 2





Notes:

- 1. The network portion of the IP address value of the *gtwy* parameter must be the same as the network portion of the IP addresses shown for either the A or B interfaces in the *rtrv-ip-card* output.
- 2. The value of the *dest* and *gtwy* parameters cannot the 127.x.x.x (the loopback address), 0.0.0.0, or the IP addresses of the A or B interfaces on the IP card, and cannot be assigned to another IP card.
- 3. There can be a maximum of 64 IP routes assigned to an IP card.
- 4. The EAGLE 5 ISS can contain a maximum of 1024 IP routes.



Sheet 2 of 2

Adding an IPSG M2PA Association

This procedure is used to configure IPSG M2PA associations using the ent-assoc command. The combination of a local host, local SCTP port, remote host and remote SCTP port defines an association. IPSG M2PA associations are assigned to E5-ENET cards running the IPSG application (IPSG cards).

The ent-assoc command uses these parameters to add an IPSG M2PA association to the database.

: aname – The name assigned to the association. Valid association names can contain up to 15 alphanumeric characters where the first character is a letter and the remaining characters are alphanumeric characters. The aname parameter value is not case-sensitive.

- :1host Local Hostname. The logical name assigned to the local host device.
- :lport The SCTP port number for the local host.
- : rhost Remote Hostname. The logical name assigned to the remote host device.
- :rport The SCTP port number for the remote host.
- : adapter The adapter layer for this association, m2pa. The adapter parameter is optional. The default value for the adapter parameter is m2pa.
- :alhost The alternate local host name.
- :m2patset The M2PA timer set assigned to the association. The m2patset
 parameter can be specified only with the adapter=m2pa parameter. If the
 adapter=m2pa parameter is specified, and the m2patset parameter is not specified
 with the ent-assoc command, the default value for the m2patset parameter (1 M2PA timer set 1) is assigned to the association.

Associations contain fields whose values are not assigned using the <code>ent-assoc</code> command. When an association is added to the database, these fields receive their default values. If a different value is desired, the <code>chg-assoc</code> command must be used. To change these values perform the Changing the Attributes of an IPSG Association procedure.

These fields and their default values are shown in Table 6-6.

Table 6-6 IPSG M2PA Association Fields and Default Values

open=no	rmax=800	cwmin=3000	alw=no	uaps=10
istrms=2	rmode=lin	rtimes=10	ostrms=2	rmin=120
ver=rfc	bufsize=200	rtxthr=0	<pre>rhostval=rel axed</pre>	

The link parameter cannot be specified for an IPSG M2PA association.

An IPSG M2PA association can contain an alternate remote host. The alternate remote host is provisioned with the rhost and rhostype=alternate parameters of



the chg-assoc command. A primary remote host can be provisioned on this procedure by specifying the rhost parameter with the ent-assoc command. To provision an alternate remote host for an IPSG M2PA association, perform Changing the Attributes of an IPSG Association.

The size of the buffers on the IPSG cards is 3200 KB. The size of the buffers assigned to each association that is assigned to the **IPSG** card cannot exceed the maximum buffer size for the **IPSG** card. When a new association is added, the default buffer size for the association is assigned to the association. If adding the new association causes the total buffer size for all the associations on the **IPSG** card to exceed the maximum buffer size for that **IPSG** card, the ent-assoc command will be rejected. If the you wish to add the association and the maximum buffer size for the **IPSG** card will be exceeded, the buffer size of the other associations assigned to the **IPSG** card must be decreased by performing the **Changing the Buffer Size of an IPSG Association** procedure. The available size of the buffers on the **IPSG** card can be verified by entering this command.

rtrv-assoc:lhost=<local host name assigned to the association>

The alhost parameter can also be used with the rtrv-assoc command to display the available size of the buffers on the **IPSG** card.

The aname parameter can be used with the rtrv-assoc command to display the available size of the buffers on the **IPSG** card and the size of the buffer assigned to the association.

The value of the <code>lhost</code>, <code>rhost</code>, or <code>alhost</code> parameters is a text string of up to 60 characters, with the first character being a letter. The command line on the terminal can contain up to 150 characters. If the host names are too long to fit on the <code>ent-assoc</code> command line, perform the <code>chg-assoc</code> command with the parameters and values necessary to complete the entry of the M2PA association.

The **EAGLE** can contain a maximum of 4000 connections (association to application server assignments).

A maximum of 32 IPSG M2PA associations can be assigned to an IPSG card.

The B Ethernet interface of the **IPSG** card can be used.

To activate the association after the association is assigned to a signaling link, the association must contain values for the <code>lhost</code>, <code>lport</code>, <code>rhost</code>, <code>rport</code> parameters.

Uni-homed endpoints are associations configured with the <code>lhost</code> parameter only. The <code>lhost</code> parameter value represents an <code>IP</code> address that corresponds to either the A or B network interface of the <code>IPSG</code> card. Multi-homed endpoints are associations configured with both the <code>lhost</code> and <code>alhost</code> parameters. The <code>lhost</code> parameter value represents an <code>IP</code> address corresponding to one of the network interfaces (A or B) of the <code>IP</code> card while the <code>alhost</code> parameter value represents an <code>IP</code> address corresponding to the other network interface of the same <code>IPSG</code> card.

An alternate remote host can be configured for multi-homed associations using the rhost and rhosttype parameters of the chg-assoc command. The rhost parameter value with the rhostype=primary parameter represents an IP address that corresponds to one of the network interfaces at the remote end while the rhost parameter value with the rhostype=alternate parameter represents an IP address that corresponds to the other network interface at the remote end.

Canceling the RTRV-ASSOC Command



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

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

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

1. Display the associations in the database using the rtrv-assoc command. This is an example of possible output.

```
rlghncxa03w 08-04-28 09:12:36 GMT EAGLE5 38.0.0
            CARD IPLNK
             LOC PORT LINK ADAPTER LPORT RPORT OPEN ALW
swbel32
            1201 A A M3UA 1030 2345 YES YES
                          SUA
a2
             1305 A A
                                1030 2345 YES YES
             1307 A A SUA
                               1030 2346 YES YES
a3
             1203 A A1 M2PA
assoc3
                                2048 1030 NO
                                              NO
```

Perform one of these actions.

- If the desired IP link (shown by the entries in the CARD LOC and IPLNK PORT columns for an association whose ADAPTER value is M2PA) is shown in the rtrv-assoc output, continue the procedure with 2.
- If the desired IP link is not shown in the rtrv-assoc output, continue the procedure with 4.
- 2. Display the card that the new M2PA association will be assigned to by entering the rtrv-card command with the card location displayed in 1. For this example, enter this command.

```
rtrv-card:loc=1203
```

The following is an example of the possible output.

```
rlghncxa03w 08-04-28 09:12:36 GMT EAGLE5 38.0.0

CARD TYPE APPL LSET NAME LINK SLC LSET NAME LINK SLC
1203 ENET IPSG m2pa1 A1 0
```

If the value in the TYPE column is IPSG, continue the procedure with 3.



If the value in the TYPE column is either IPLIM or IPLIMI, the host assigned to this card cannot be used in this procedure. If you wish to use this card to configure an M2PA association, perform the Adding an M2PA Association procedure.

If you do not wish to use this card to configure an IPSG M2PA association, perform one of these actions.

- Choose another card from the rtry-assoc output in 1 and repeat this step.
- Continue the procedure with 4 to choose another IPSG card and IP link for the new IPSG M2PA association.
- 3. Display the associations assigned to the card that the new association will be assigned to by entering the rtrv-assoc command with the card location specified in 2. For this example, enter this command.

```
rtrv-assoc:loc=1203
```

The following is an example of the possible output.

```
rlghncxa03w 08-04-28 09:12:36 GMT EAGLE5 38.0.0

CARD IPLNK

ANAME LOC PORT LINK ADAPTER LPORT RPORT OPEN ALW assoc3 1203 A A1 M2PA 2048 1030 NO NO

IP Appl Sock/Assoc table is (4 of 4000) 1% full
Assoc Buffer Space Used (200 KB of 800 KB) on LOC = 1203
```

An IPSG card can contain a maximum of 32 IPSG M2PA or M3UA associations when running on the E5-ENET/E5--ENET-B card or DEIR card. An IPSG application running on the SLIC card can contain a maximum of 128 associations.. If 32 associations are displayed in the rtrv-assoc output, the new IPSG M2PA association cannot be added to this card. Choose another IPSG card and repeat this procedure from 1.

If less than 32 associations are shown in the rtrv-assoc output, continue the procedure with 6.

4. Display the **IP** links in the database by entering the rtrv-ip-lnk command. The following is an example of the possible output.

```
rlghncxa03w 08-12-28 21:14:37 GMT EAGLE5 40.0.0
    PORT IPADDR SUBMASK DUPLEX SPEED MACTYPE AUTO
LOC
MCAST
1201 A
       192.1.1.10 255.255.255.128 HALF
                                   10
                                       802.3
                                             NO
                                                NΟ
1201 B
       ----- HALF
                                   10
                                       DIX
                                             NO
                                                NO
                  255.255.255.0 ----
       192.1.1.12
1203 A
                                             YES NO
                                       DIX
1203 B
       ----- HALF
                                       DTX
                                             NO
                                   10
                                                NΟ
1205 A
       192.1.1.14 255.255.255.0 FULL
                                   100
                                       DIX
                                             NO
                                                NO
1205 B
       ----- HAT.F
                                   10
                                       DIX
                                             NO
                                                NΟ
2101 A
       192.1.1.20
                  255.255.255.0 FULL
                                   100
                                       DIX
                                             NO
                                                NΟ
       ----- HALF
2101 В
                                   10
                                       DIX
                                             NO
                                                NΟ
       192.1.1.22
                 255.255.255.0 FULL
2103 A
                                       DIX
                                             NO
                                                NO
       ----- HALF
2103 В
                                   10
                                       DIX
                                             NO
                                                NO
2105 A
       192.1.1.24 255.255.255.0 FULL
                                   100
                                       DIX
                                             NO
                                                NO
2105 B
       ----- HALF
                                   10
                                       DIX
                                             NO
                                                NO
2205 A
       192.1.1.30 255.255.255.0 FULL
                                   100
                                       DIX
                                             NO
                                                NO
```



2205 B			- HALF	10	DIX
NO NO 2207 A	192.1.1.32	255.255.255.0	FULL	100	DIX
NO NO 2207 B			- HALF	10	DIX
NO NO 2213 A	192.1.1.50	255.255.255.0	FULL	100	DIX
NO NO 2213 B			- HALF	10	DIX
NO NO 2301 A	192.1.1.52	255.255.255.0	FULL	100	DIX
NO NO 2301 B NO NO			- HALF	10	DIX
IP-LNK	table is (20 of	2048) 1% full.			

If the required **IP** link is not in the database, add the **IP** link using the Configuring an **IP** Link procedure.

5. Verify that the local host name to be assigned to the association is in the database by using the rtrv-ip-host:display=all command. The following is an example of the possible output.

rlghncxa03w 13-06-28 21:15:37 GMT EAGLE5 45.0.0

```
LOCAL IPADDR LOCAL HOST
192.1.1.10 IPNODE1-1201
192.1.1.12 IPNODE1-1203
192.1.1.14 IPNODE1-1205
192.1.1.20
              IPNODE2-1201
192.1.1.22
              IPNODE2-1203
             IPNODE2-1205
192.1.1.24
             KC-HLR1
192.1.1.30
192.1.1.32
              KC-HLR2
192.1.1.50
              DN-MSC1
192.1.1.52
               DN-MSC2
REMOTE IPADDR REMOTE HOST
150.1.1.5 NCDEPTECONOMIC DEVELOPMENT.
SOUTHEASTERN_COORIDOR_ASHVL. GOV
IP Host table is (11 of 4096) .26% full
```

The $\bf IP$ address of the $\bf IP$ link should be assigned to the local host name that will be assigned to the association.

The values of the <code>lhost</code> and <code>alhost</code> parameters must be in the <code>LOCAL HOST</code> column in the <code>rtrv-ip-host</code> output.

If the required hostname is not in the database, add the **IP** host name using the Adding an IP Host procedure.

6. Verify the values of the M2PA timer set you wish to assign to the association by entering the rtrv-m2pa-tset command with the ver=rfc parameter.

When an IPSG M2PA association is provisioned in this procedure, the RFC M2PA version is assigned to the IPSG M2PA association by default.

The M2PA version of the association determines the version of the M2PA timer set that is assigned to the association. For example, if M2PA timer set 3 is assigned to the IPSG M2PA association, and the association is an RFC IPSG M2PA association, the RFC version of M2PA timer set 3 is used with the association. If M2PA timer set 7 is assigned to the IPSG M2PA association, and the association is a Draft 6 IPSG M2PA association, the Draft 6 version of M2PA timer set 7 is used with the association.

If you wish to assign the Draft 6 **M2PA** version to this association and use the Draft 6 **M2PA** timer sets, perform the Changing the Attributes of an IPSG Association procedure after this procedure is completed to change the **M2PA** version of this association.



If the m2 patset parameter will not be specified with the ent-assoc command, the M2PA timer set 1 will be assigned to the association.

To display the M2PA Draft 6 timer values, enter this command.

```
rtrv-m2pa-tset:ver=d6
```

This is an example of the possible output.

rlghncxa03w 08-04-28 21:16:37 GMT EAGLE5 38.0.0

```
M2PA Draft 6 Timers (in msec, T16 in microsec)
TSET T1
           Т2
                  Т3
                        T4N
                             T4E T5
                                        Τ6
                                             Т7
                                                   T16
                                                          T17
                                                              T18
                       20000 500
1
    6000
           ---- 5000
                                  5000 4000 1000 100000 150
                                                              500
2
    7500
           ----- 1500 2000 500
                                  9000 1250 300
                                                   150000 175
                                                              600
3
    100000 ----- 2000 3000
                             500
                                  4000 1500 500
                                                   170000 200
                                                              800
    200000 ----- 20000 4000
                                        2000 700
4
                             500
                                   6000
                                                   480000 225
                                                              900
5
    250000 ----- 30000 30000 500
                                  100
                                        2250 400
                                                   400000 400
                                                              8000
    50000 ----- 50000 60000 500
                                  500
                                        4500 800
                                                   300000 300
                                                              7000
7
    10000 ----- 10000 10000 500
                                  1000
                                        3000 1200 200000 250
                                                              1000
8
    80000
           ---- 1500 15000 500
                                  8000
                                        2750 1100
                                                   350000 350
                                                              5000
9
    27500 ---- 3850 4859 450
                                  5700
                                        3750 1150
                                                   250
                                                              8750
                                                          375
    90000 ----- 2500 50000 500
                                                  440000 450
10
                                  7500
                                        5000 1750
                                                              3000
    20000
11
           ----- 4500 5500 500
                                  6500
                                        5500 1600
                                                   250000 475
                                                              4500
12
    30000
           ---- 7500 7000
                             500
                                  750
                                        4250 1800
                                                   275000 275
                                                               3500
13
    40000
          ---- 35000 9000 500
                                  1250 3500 1900 500
                                                              9000
                                                          325
14
    70000
          ----- 45000 11000 500
                                  1500
                                        1750 900
                                                   1000
                                                          125 6000
1.5
    9000
           ----- 25000 40000 500
                                  2500
                                        3250 600
                                                   5000
                                                          425
                                                              5500
16
    75000 ----- 15000 25000 500
                                  4500
                                        1600 1400 6000
                                                              9500
                                                          240
17
    350000 ----- 60000 70000 600
                                  10000 6000 2000 500000 500
                                                              10000
18
    150000 ----- 55000 35000 500
                                  3500
                                        5750 1500
                                                   125000 440
                                                              750
19
    175000 ----- 12500 45000 500
                                  1100
                                        2600 1300
                                                   7000
                                                          340
                                                              850
20
    1000
           ----- 1000 1000 400 80
                                        1000 200
                                                   100
                                                          100 100
```

To display the M2PARFC values, enter this command.

```
rtrv-m2pa-tset:ver=rfc
```



This is an example of the possible output.

rlghncxa03w 08-04-28 21:16:37 GMT EAGLE5 38.0.0

M2PA RFC Timers (in msec, T16 in microsec)

TSET 1	6000	T2 75000	T3 5000	T4N 20000	T4E 500	T5 5000	T6 4000	T7 1000		T17 150	T18 500
2	7500	8000	1500	2000	500	9000	1250		150000		600
3	100000	10000	2000	3000	500	4000	1500	500	170000	200	800
4	200000	6000	20000	4000	500	6000	2000	700	480000	225	900
5	250000	140000	30000	30000	500	100	2250	400	400000	400	
8000											
6	50000	100000	50000	60000	500	500	4500	800	300000	300	
7000											
7	300000	20000	2000	10000	500	1000	3000	1200	200000	250	
1000											
8	80000	130000	1500	15000	500	8000	2750	1100	350000	350	
5000											
9	27500	120000	3850	4859	450	5700	3750	1150	250	375	
8750											
10	90000	9000	2500	50000	500	7500	5000	1750	440000	450	
3000											
11	20000	60000	4500	5500	500	6500	5500	1600	250000	475	
4500											
12	30000	50000	7500	7000	500	750	4250	1800	275000	275	
3500											
13	40000	90000	35000	9000	500	1250	3500	1900	500	325	
9000											
14	70000	45000	45000	11000	500	1500	1750	900	1000	125	
6000	70000	10000	10000	11000	000	1000	1700	300	1000	120	
15	9000	30000	25000	40000	500	2500	3250	600	5000	425	
5500	3000	30000	20000	10000	500	2000	3230	000	3000	120	
16	75000	15000	15000	25000	500	4500	1600	1400	6000	240	
9500	73000	13000	13000	23000	500	1000	1000	1400	0000	240	
17	250000	150000	60000	70000	600	10000	6000	2000	500000	500	
10000		130000	00000	70000	000	10000	0000	2000	300000	300	
	150000	20000	55000	35000	500	3500	E7E0	1500	125000	110	750
18											
19	175000	12500	12500		500	1100		1300	7000	340	850
20	1000	5000	1000	1000	400	80	1000	200	100	100	100

If the ver parameter is not specified when entering the rtrv-m2pa-tset command, both the Draft 6 and **RFC** values are displayed. This is an example of the possible output.

rlghncxa03w 08-04-28 21:16:37 GMT EAGLE5 38.0.0

```
M2PA Draft 6 Timers (in msec, T16 in microsec)

TSET T1 T2 T3 T4N T4E T5 T6 T7 T16 T17 T18

1 6000 ----- 5000 20000 500 5000 4000 1000 10000 150 500

2 7500 ----- 1500 2000 500 9000 1250 300 150000 175 600

3 100000 ----- 2000 3000 500 4000 1500 500 170000 200 800
```



```
4
     200000 ----- 20000 4000
                                500
                                      6000
                                            2000 700
                                                        480000 225
                                                                     900
     250000 ----- 30000 30000 500
5
                                      100
                                            2250 400
                                                        400000 400
                                                                     8000
     50000
            ---- 50000 60000 500
                                      500
                                            4500 800
                                                        300000 300
                                                                     7000
6
7
     10000
            ---- 10000 10000 500
                                      1000
                                            3000 1200
                                                        200000 250
                                                                     1000
8
     80000
            ---- 1500
                          15000 500
                                      8000
                                            2750 1100
                                                        350000 350
                                                                     5000
9
     27500
            ---- 3850
                          4859
                                      5700
                                            3750 1150
                                                        250
                                                                375
                                                                     8750
                                 450
     90000
10
            ---- 2500
                          50000 500
                                      7500
                                            5000 1750
                                                        440000 450
                                                                     3000
     20000
            ---- 4500
                          5500
                                500
                                      6500
                                            5500 1600
                                                        250000 475
                                                                     4500
11
12
     30000
            ---- 7500
                          7000
                                500
                                      750
                                            4250 1800
                                                        275000 275
                                                                     3500
13
     40000
            ---- 35000 9000
                                500
                                      1250
                                            3500 1900
                                                        500
                                                                325
                                                                     9000
14
     70000
            ---- 45000 11000 500
                                      1500
                                            1750 900
                                                        1000
                                                                125
                                                                     6000
15
     9000
            ---- 25000 40000 500
                                      2500
                                            3250 600
                                                        5000
                                                                425
                                                                     5500
16
     75000
           ----- 15000 25000 500
                                      4500
                                            1600 1400
                                                        6000
                                                                240
                                                                     9500
17
     350000 ----- 60000 70000 600
                                      10000 6000 2000
                                                        500000 500
                                                                     10000
18
     150000 ----- 55000 35000 500
                                      3500
                                            5750 1500
                                                        125000 440
                                                                     750
19
                                      1100
                                                        7000
     175000 ----- 12500 45000 500
                                            2600 1300
                                                                340
                                                                     850
20
     1000
            ---- 1000
                          1000
                                400
                                      80
                                            1000 200
                                                        100
                                                                100
                                                                     100
M2PA RFC Timers (in msec, T16 in microsec)
TSET T1
            T2
                    Т3
                          T4N
                                 T4E
                                      T5
                                            Т6
                                                  Т7
                                                        T16
                                                                T17
                                                                     T18
1
     6000
            75000
                    5000
                          20000 500
                                      5000
                                            4000 1000
                                                        100000 150
                                                                     500
2
     7500
            8000
                    1500
                          2000
                                500
                                      9000
                                            1250 300
                                                        150000 175
                                                                     600
     100000 10000
                   2000
                          3000
3
                                500
                                      4000
                                            1500 500
                                                        170000 200
                                                                     800
4
     200000 6000
                    20000 4000
                                 500
                                      6000
                                            2000 700
                                                        480000 225
                                                                     900
     250000 140000 30000 30000 500
                                      100
                                            2250 400
                                                        400000 400
                                                                     8000
5
     50000 100000 50000 60000 500
6
                                      500
                                            4500 800
                                                        300000 300
                                                                     7000
7
     300000 20000
                    2000
                          10000 500
                                      1000
                                            3000 1200
                                                        200000 250
                                                                     1000
8
     80000
            130000 1500
                          15000 500
                                      8000
                                            2750 1100
                                                        350000 350
                                                                     5000
9
     27500
            120000 3850
                          4859
                                450
                                      5700
                                            3750 1150
                                                        250
                                                                375
                                                                     8750
     90000
            9000
                    2500
                          50000 500
                                      7500
                                            5000 1750
                                                        440000 450
                                                                     3000
10
            60000
11
     20000
                   4500
                          5500
                                500
                                      6500
                                            5500 1600
                                                        250000 475
                                                                     4500
12
     30000
            50000
                    7500
                          7000
                                500
                                      750
                                            4250 1800
                                                        275000 275
                                                                     3500
13
     40000
            90000
                    35000 9000
                                500
                                      1250
                                            3500 1900
                                                        500
                                                                     9000
14
     70000
            45000
                   45000 11000 500
                                      1500
                                            1750 900
                                                        1000
                                                                125
                                                                     6000
15
     9000
            30000
                    25000 40000 500
                                      2500
                                            3250 600
                                                        5000
                                                                425
                                                                     5500
     75000 15000 15000 25000 500
                                      4500 1600 1400
                                                        6000
                                                                240
                                                                     9500
16
                                      10000 6000 2000
     350000 150000 60000 70000 600
17
                                                        500000 500
                                                                     10000
     150000 20000
                   55000 35000 500
                                      3500
                                            5750 1500
                                                        125000 440
                                                                     750
18
19
     175000 12500
                    12500 45000 500
                                      1100
                                            2600 1300
                                                        7000
                                                                340
                                                                     850
20
     1000
            5000
                    1000 1000
                                      80
                                            1000 200
                                                        100
                                                                100
                                                                     100
                                 400
```

If the **M2PA** timer set you wish to assign to the association does not contain the desired values, go to the Changing an M2PA Timer Set procedure and changed the desired timer values.



Caution:

Changing an **M2PA** timer set may affect the performance of any associations using the timer set being changed.

7. Verify the available buffer size for the IPSG card that will contain the association being added in this procedure by entering the rtrv-assoc command with the local host name assigned to the association being added. For this example, enter this command.



If a new host was added in 5, continue the procedure with 8.

```
rtrv-assoc:lhost="IPNODE2-1203"
```

This is an example of the possible output.

```
rlghncxa03w 08-04-28 09:12:36 GMT EAGLE5 38.0.0

CARD IPLNK

ANAME LOC PORT LINK ADAPTER LPORT RPORT OPEN ALW assoc3 1203 A A1 M2PA 2048 1030 NO NO

IP Appl Sock/Assoc table is (8 of 4000) 1% full
Assoc Buffer Space Used (200 KB of 1600 KB) on LOC = 1203
```

If adding the new association causes the total buffer size for all the associations on the **IP** card to exceed the maximum buffer size for that **IP** card, the <code>ent-assoc</code> command will be rejected.

The default buffer value for an IPSG M2PA association is 200.

If the you wish to add the association and the maximum buffer size for the **IP** card will be exceeded, the buffer size of the other associations assigned to the **IP** card must be decreased by performing the Changing the Buffer Size of an IPSG Association procedure.

8. Add the associations using the ent-assoc command. For this example, enter this command.

```
ent-
assoc:aname=assoc2:lhost=gw107.nc.tekelec.com:lport=2000:
rhost=gw100.nc.tekelec.com:rport=1030:adapter=m2pa
```

These are the rules that apply to adding IPSG M2PA associations.

- **a.** The EAGLE can contain a maximum of 4000 connections (association application server assignments).
- **b.** The default value for the adapter parameter is m2pa.
- c. A maximum of 32 IPSG M2PA or M3UA associations can be assigned to the IPSG card running on the E5-ENET/E5--ENET-B card or DEIR card. An IPSG application running on the SLIC card can contain a maximum of 128 associations.
- d. The value of the lhost, rhost, or alhost parameters is a text string of up to 60 characters, with the first character being a letter. The command line on the terminal can contain up to 150 characters. If the host names are too long to fit on the ent-assoc command line, perform the chg-assoc command with the



- parameters and values necessary to complete the entry of the IPSG M2PA association.
- e. To activate the association after the association is assigned to a signaling link, the association must contain values for the <code>lhost</code>, <code>rhost</code>, <code>lport</code>, and <code>rport</code> parameters.
- f. If the lhost and alhost parameters are specified, the lhost parameter value represents the IP address corresponding to one of the network interfaces (A or B) on the IP card while the alhost parameter value represents the IP address corresponding to the other network interface of the same IP card.
- g. The m2patset parameter can be specified only with the adapter=m2pa parameter.
- h. The m2patset parameter value defaults to M2PA timer set 1 (m2patset=1) if the m2patset parameter is not specified.
- i. When the adapter=m2pa parameter is specified, the RFC M2PA version is assigned to the M2PA association by default. If you wish to assign the Draft 6 M2PA version to this association, perform the Changing the Attributes of an IPSG Association procedure after this procedure is completed to change the M2PA version of this association.

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

```
rlghncxa03w 08-04-28 09:12:36 GMT EAGLE5 38.0.0 ENT-ASSOC: MASP A - COMPLTD
```

9. Verify the changes using the rtrv-assoc command specifying the association name specified in 8. For this example, enter this command.

```
rtrv-assoc:aname=assoc2
```

This is an example of possible output.

```
rlghncxa03w 10-07-28 09:12:36 GMT EAGLE5 42.0.0
ANAME assoc2
     LOC
              1203
                           IPLNK PORT A
                                                 LINK
     ADAPTER M2PA
                                   M2PA RFC
                           VER
     LHOST gw105.nc.tekelec.com
     ALHOST ---
     RHOST
             gw100.nc.tekelec.com
     ARHOST ---
     LPORT
             1030
                           RPORT
                                     1030
     ISTRMS
                                                 BUFSIZE 200
              2
                           OSTRMS
                                     2
     RMODE
             LIN
                                     120
                                                         800
                           RMIN
                                                 RMAX
     RTIMES 10
                           CWMIN
                                     3000
                                                 UAPS
                                                         10
     OPEN
             NO
                           ALW
                                     YES
                                                 RTXTHR
                                                         \cap
     RHOSTVAL RELAXED
                           M2PATSET
```

IP Appl Sock table is (5 of 4000) 1% full Assoc Buffer Space Used (400 KB of 1600 KB) on LOC = 1203



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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

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

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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



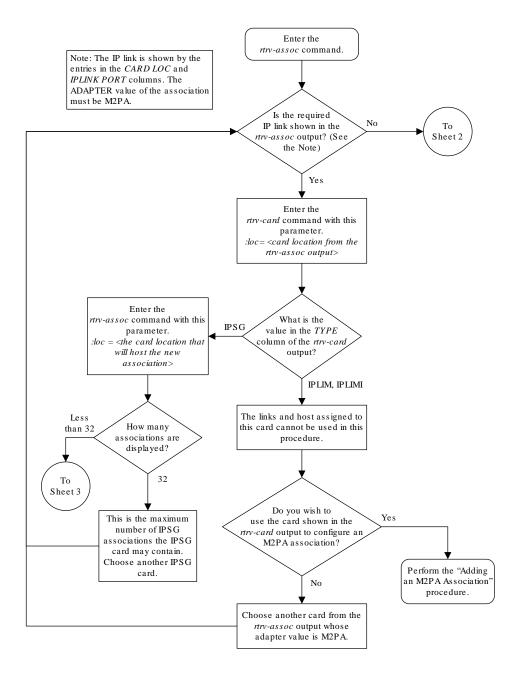
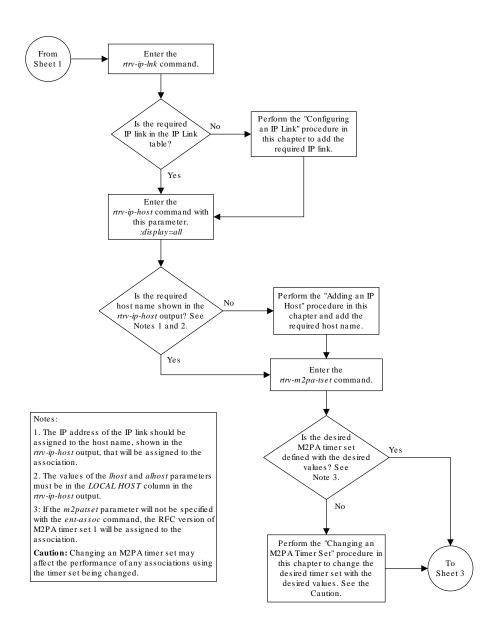
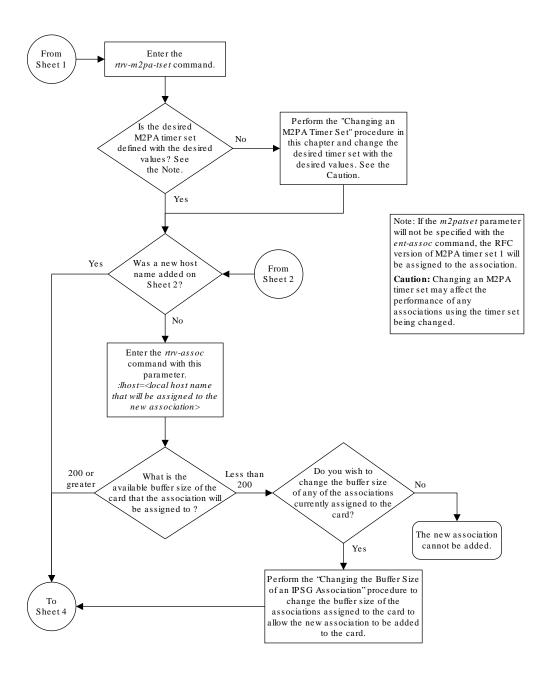


Figure 6-8 Adding an IPSG M2PA Association

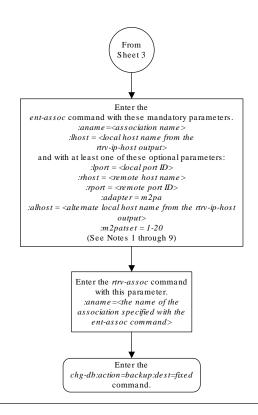
Sheet 1 of 4



Sheet 2 of 4



Sheet 3 of 4



Notes:

- 1. The EAGLE 5 ISS can contain a maximum of 4000 connections (association application server assignments).
- 2. The default value for the adapter parameter is m2pa.
- 3. A maximum of 32 IPSG M2PA or M3UA associations can be assigned to the IPSG card.
- 4. The value of the *lhost*, *rhost*, or *alhost* parameters is a text string of up to 60 characters, with the first character being a letter. The command line on the terminal can contain up to 150 characters. If the host names are too long to fit on the *ent-assoc* command line, perform the *chg-assoc* command with the parameters and values necessary to complete the entry of the IPSG MZPA association.
- 5. To activate the association after the association is assigned to a signaling link, the association must contain values for the *lhost*, *rhost*, *lport*, and *rport* parameters.
- 6. If the *lhost* and *alhost* parameters are specified, the *lhost* parameter value represents the IP address corresponding to one of the network interfaces (A or B) on the IP card while the *alhost* parameter value represents the IP address corresponding to the other network interface of the same IP card.
- 7. The m2patset parameter can be specified only with the adapter=m2pa parameter.
- 8. The m2patset parameter value defaults to M2PA timer set 1 (m2patset=1) if the m2patset parameter is not specified.
- 9. When the adapter=m2pa parameter is specified, the RFC M2PA version is assigned to the M2PA association by default. If you wish to assign the Draft 6 M2PA version to this association, perform the "Changing the Attributes of an IPSG Association" procedure in this chapter after this procedure is completed to change the M2PA version of this association.

Sheet 4 of 4

Adding an IPSG M3UA Association

This procedure is used to configure IPSG M3UA associations using the ent-assoc command. The combination of a local host, local SCTP port, remote host and remote SCTP port defines an association. IPSG M3UA associations are assigned to E5-ENET cards running the IPSG application (IPSG cards).

The ent-assoc command uses these parameters to add an IPSG M3UA association to the database.

: aname – The name assigned to the association. Valid association names can contain up to 15 alphanumeric characters where the first character is a letter and the remaining characters are alphanumeric characters. The aname parameter value is not case-sensitive.

- :lhost Local Hostname. The logical name assigned to the local host device.
- :lport The SCTP port number for the local host.
- : rhost Remote Hostname. The logical name assigned to the remote host device.
- :rport The SCTP port number for the remote host.
- : adapter The adapter layer for this association, m3ua. The adapter parameter is required for adding an IPSG M3UA association. The default value for the adapter parameter is m2pa.
- :alhost The alternate local host name.

The link parameter cannot be specified for an IPSG M3UA association.

The adapter=m2pa and m2patset parameters can be used only when configuring M2PA associations. Perform the Adding an M2PA Association or Adding an IPSG M2PA Association procedures to configure M2PA associations.

Associations contain fields whose values are not assigned using the ent-assoc command. When an association is added to the database, these fields receive their default values. If a different value is desired, the <code>chg-assoc</code> command must be used. To change these values perform the Changing the Attributes of an IPSG Association procedure.

These fields and their default values are shown in Table 6-7.

Table 6-7 IPSG M3UA Association Fields and Default Values

open=no	rmax=800	cwmin=30	alw=no	uaps=10
istrms=2	rmode=lin	rtimes=1	ostrms=2	rmin=120
bufsize=200	rtxthr=0	rhostval =relaxed		

An IPSG M3UA association can contain an alternate remote host. The alternate remote host is provisioned with the rhost and rhostype=alternate parameters of the chg-assoc command. A primary remote host can be provisioned on this procedure by specifying the rhost parameter with the ent-assoc command. To provision an alternate remote host for an IPSG M3UA association, perform Changing the Attributes of an IPSG Association.

The size of the buffers on the IPSG cards is 3200 KB. The size of the buffers assigned to each association that is assigned to the **IPSG** card cannot exceed the maximum buffer size for the **IPSG** card. When a new association is added, the default buffer size for the association is assigned to the association. If adding the new association causes the total buffer size for all the associations on the **IPSG** card to exceed the maximum buffer size for that **IPSG** card, the ent-assoc command will be rejected. If the you wish to add the association and the maximum buffer size for the **IPSG** card will be exceeded, the buffer size of the other associations assigned to the **IPSG** card must be decreased by performing the **Changing the Buffer Size of an IPSG Association** procedure. The available size of the buffers on the **IPSG** card can be verified by entering this command.



rtrv-assoc:lhost=<local host name assigned to the association
being changed>

The alhost parameter can also be used with the rtrv-assoc command to display the available size of the buffers on the **IP** card.

The aname parameter can be used with the rtrv-assoc command to display the available size of the buffers on the **IP** card and the size of the buffer assigned to the association.

The value of the <code>lhost</code>, <code>rhost</code>, or <code>alhost</code> parameters is a text string of up to 60 characters, with the first character being a letter. The command line on the terminal can contain up to 150 characters. If the host names are too long to fit on the <code>ent-assoc</code> command line, perform the <code>chg-assoc</code> command with the parameters and values necessary to complete the entry of the M3UA association.

The **EAGLE** can contain a maximum of 4000 connections (association to application server assignments).

The B Ethernet interface of the **IPSG** card can be used.

To activate the association after the association is assigned to a signaling link, the association must contain values for the lhost, lport, rhost, rport parameters.

Uni-homed endpoints are associations configured with the <code>lhost</code> parameter only. The <code>lhost</code> parameter value represents an <code>IP</code> address that corresponds to either the A or B network interface of the <code>IPSG</code> card. Multi-homed endpoints are associations configured with both the <code>lhost</code> and <code>alhost</code> parameters. The <code>lhost</code> parameter value represents an <code>IP</code> address corresponding to one of the network interfaces (A or B) of the <code>IPSG</code> card while the <code>alhost</code> parameter value represents an <code>IP</code> address corresponding to the other network interface of the same <code>IPSG</code> card.

An alternate remote host can be configured for multi-homed associations using the rhost and rhosttype parameters of the chg-assoc command. The rhost parameter value with the rhostype=primary parameter represents an IP address that corresponds to one of the network interfaces at the remote end while the rhost parameter value with the rhostype=alternate parameter represents an IP address that corresponds to the other network interface at the remote end.

Canceling the RTRV-ASSOC Command

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

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



command. The user's permissions can be verified with the rtrv-user or rtrv-secu-user commands.

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

1. Display the associations in the database using the rtrv-assoc command. This is an example of possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
             CARD IPLNK
ANAME
             LOC PORT LINK ADAPTER LPORT RPORT OPEN ALW
swbel32
             1201 A
                      A M3UA
                                1030 2345 YES YES
                     A
                          SUA
             1305 A
                                 1030 2345 YES
                                               YES
             1307 A A SUA 1030 2346 YES YES
a3
assoc3
             1203 A A1 M2PA 2048 1030 NO
                                               NO
```

Perform one of these actions.

- If the desired IP link (shown by the entries in the CARD LOC and IPLNK PORT columns for an association whose ADAPTER value is M3UA) is shown in the rtrv-assoc output, continue the procedure with 2.
- If the desired IP link is not shown in the rtrv-assoc output, continue the procedure with 4.
- 2. Display the card that the new M3UA association will be assigned to by entering the rtrv-card command with the card location displayed in 1. For this example, enter this command.

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

The following is an example of the possible output.

```
rlghncxa03w 08-04-28 09:12:36 GMT EAGLE5 38.0.0
CARD TYPE APPL LSET NAME LINK SLC LSET NAME LINK SLC 1201 ENET IPSG m3ua1 A 0
```

If the value in the TYPE column is IPSG, continue the procedure with 3.

If the value in the TYPE column is either SS7IPGW or IPGWI, the host assigned to this card cannot be used in this procedure. If you wish to use this card to configure an M3UA association, perform the Adding an M3UA or SUA Association procedure.

If you do not wish to use this card to configure an M3UA association, perform one of these actions.

- Choose another card from the rtrv-assoc output in 1 and repeat this step.
- Continue the procedure with 4 to choose another IPSG card and IP link for the new IPSG M3UA association.
- 3. Display the associations assigned to the card that the new association will be assigned to by entering the rtrv-assoc command with the card location specified in 2. For this example, enter this command.

```
rtrv-assoc:loc=1203
```



The following is an example of the possible output.

```
rlghncxa03w 08-04-28 09:12:36 GMT EAGLE5 38.0.0

CARD IPLNK

ANAME LOC PORT LINK ADAPTER LPORT RPORT OPEN ALW swbel32 1201 A A M3UA 1030 2345 YES YES

IP Appl Sock/Assoc table is (4 of 4000) 1% full
Assoc Buffer Space Used (200 KB of 800 KB) on LOC = 1203
```

An IPSG card can contain a maximum of 32 IPSG M2PA or M3UA associations when running on the E5-ENET/E5--ENET-B card or DEIR card. An IPSG application running on the SLIC card can contain a maximum of 128 associations.. If 32 associations are displayed in the rtrv-assoc output, the new IPSG M3UA association cannot be added to this card. Choose another IPSG card and repeat this procedure from 1.

If less than 32 associations are shown in the rtrv-assoc output, continue the procedure with 6.

4. Display the **IP** links in the database by entering the rtrv-ip-lnk command. The following is an example of the possible output.

rlghncxa03w 08-12-28 21:14:37 GMT EAGLE5 40.0.0						
LOC	PORT	IPADDR	SUBMASK	DUPLEX	SPEED	MACTYPE
AUTO 1						
1201	A	192.1.1.10	255.255.255.128	HALF	10	802.3
NO I	NO					
1201	В			HALF	10	DIX
NO I	NO					
1203	A	192.1.1.12	255.255.255.0			DIX
YES :	NO					
1203	В			HALF	10	DIX
NO I	NO					
1205	A	192.1.1.14	255.255.255.0	FULL	100	DIX
NO I	NO					
1205	В			HALF	10	DIX
NO I	NO					
2101	A	192.1.1.20	255.255.255.0	FULL	100	DIX
NO I	NO					
2101	В			HALF	10	DIX
NO I	NO					
2103	A	192.1.1.22	255.255.255.0	FULL	100	DIX
NO I	NO					
2103	В			HALF	10	DIX
NO I	NO					
2105	A	192.1.1.24	255.255.255.0	FULL	100	DIX
NO I	NO					
2105	В			HALF	10	DIX
NO I	NO					
2205	A	192.1.1.30	255.255.255.0	FULL	100	DIX
NO I	NO					
2205	В			HALF	10	DIX



```
NO NO
2207 A
       192.1.1.32
                 255.255.255.0 FULL
                                  100
                                      DIX
                                           NO
                                               NΟ
2207 В
       ----- HALF
                                  10
                                      DIX
                                            NO
                                               NΟ
2213 A
       192.1.1.50 255.255.255.0 FULL
                                  100
                                      DIX
                                           NO
                                               NO
       ----- HALF
2213 B
                                  10
                                      DIX
                                           NO
                                               NO
2301 A
       192.1.1.52 255.255.255.0 FULL
                                  100
                                      DIX
                                           NO
                                               NO
2301 B
       ----- HALF
                                  10
                                      DIX
                                           NO
                                               NO
IP-LNK table (20 of 2048) 1% full.
```

If the required **IP** link is not in the database, add the **IP** link using the Configuring an **IP** Link procedure.

5. Verify that the local host name to be assigned to the association is in the database by using the rtrv-ip-host:display=all command. The following is an example of the possible output.

rlghncxa03w 13-06-28 21:15:37 GMT EAGLE5 45.0.0

```
LOCAL IPADDR LOCAL HOST
192.1.1.10
              IPNODE1-1201
192.1.1.12
              IPNODE1-1203
192.1.1.14
             IPNODE1-1205
192.1.1.20
             IPNODE2-1201
192.1.1.22
             IPNODE2-1203
            IPNODE2-1205
192.1.1.24
192.1.1.30
             KC-HLR1
192.1.1.32
             KC-HLR2
192.1.1.50
              DN-MSC1
192.1.1.52
              DN-MSC2
REMOTE IPADDR REMOTE HOST
150.1.1.5
              NCDEPTECONOMIC DEVELOPMENT. SOUTHEASTERN COORIDOR ASHVL.
GOV
```

IP Host table is (11 of 4096) .26% full

The **IP** address of the **IP** link should be assigned to the local host name that will be assigned to the association.

The values of the lhost and alhost parameters must be in the LOCAL HOST column in the rtrv-ip-host output.

If the required hostname is not in the database, add the **IP** host name using the Adding an **IP** Host procedure.

6. Verify the available buffer size for the **IP** card that will contain the association being added in this procedure by entering the rtrv-assoc command with the local host name assigned to the association being added. For this example, enter this command.



If a newIP host was added in 5, continue the procedure with 7.

```
rtrv-assoc:lhost="IPNODE2-1305"
```

This is an example of the possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0

CARD IPLNK

ANAME LOC PORT LINK ADAPTER LPORT RPORT OPEN ALW
a2 1305 A A SUA 1030 2345 YES YES

IP Appl Sock/Assoc table is (8 of 4000) 1% full
Assoc Buffer Space Used (16 KB of 800 KB) on LOC = 1305
```

If adding the new association causes the total buffer size for all the associations on the **IP** card to exceed the maximum buffer size for that **IP** card, the ent-assoc command will be rejected.

The default buffer value for an M3UA or SUA association is 16.

If the you wish to add the association and the maximum buffer size for the **IP** card will be exceeded, the buffer size of the other associations assigned to the **IP** card must be decreased by performing the Changing the Buffer Size of an IPSG Association procedure.

 Add the associations using the ent-assoc command. For this example, enter these commands.

```
ent-
assoc:aname=assoc1:lhost=gw105.nc.tekelec.com:lport=1030:
rhost=gw100.nc.tekelec.com:rport=1030:adapter=m3ua
```

These are the rules that apply to adding IPSG M3UA associations.

- a. The EAGLE can contain a maximum of 4000 connections (association application server assignments).
- b. A maximum of 32 IPSG M2PA or M3UA associations can be assigned to the IPSG card running on the E5-ENET/E5--ENET-B card or DEIR card. An IPSG application running on the SLIC card can contain a maximum of 128 associations.
- c. The value of the lhost, rhost, or alhost parameters is a text string of up to 60 characters, with the first character being a letter. The command line on the terminal can contain up to 150 characters. If the host names are too long to fit on the ent-assoc command line, perform the chg-assoc command with the parameters and values necessary to complete the entry of the IPSG M3UA association.
- d. To activate the association after the association is assigned to a signaling link, the association must contain values for the lhost, rhost, lport, and rport parameters.
- e. If the lhost and alhost parameters are specified, the lhost parameter value represents the IP address corresponding to one of the network interfaces (A or B) on the IP card while the alhost parameter value represents the IP address corresponding to the other network interface of the same IP card.



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

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 ENT-ASSOC: MASP A - COMPLTD
```

8. Verify the changes using the rtrv-assoc command specifying the association name specified in 7. For this example, enter these commands.

```
rtrv-assoc:aname=assoc1
```

This is an example of possible output.

```
rlghncxa03w 09-05-28 09:12:36 GMT EAGLE5 41.0.0
ANAME assoc1
     LOC
          1305
                          IPLNK PORT A
                                                LINK A
     ADAPTER M3UA
                          VER M3UA RFC
     LHOST gw105.nc.tekelec.com
     ALHOST ---
     \begin{array}{lll} {\tt RHOST} & {\tt gw100.nc.tekelec.com} \\ {\tt ARHOST} & {\tt ---} \end{array}
                                  1030
     LPORT 1030
                        RPORT
                         OSTRMS
     ISTRMS 2
                                     2
                                                BUFSIZE 16
     RMODE LIN
                         RMIN
                                     120
                                                RMAX
                                                        800
                          CWMIN
     RTIMES 10
                                     3000
                                                UAPS
                                                         10
     OPEN YES
                         ALW
                                     YES
                                               RTXTHR 0
     RHOSTVAL RELAXED
IP Appl Sock table is (5 of 4000) 1% full
Assoc Buffer Space Used (16 KB of 800 KB) on LOC = 1305
```

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

```
BACKUP (FIXED): MASP A - Backup starts on active MASP.

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

BACKUP (FIXED): MASP A - Backup starts on standby MASP.

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



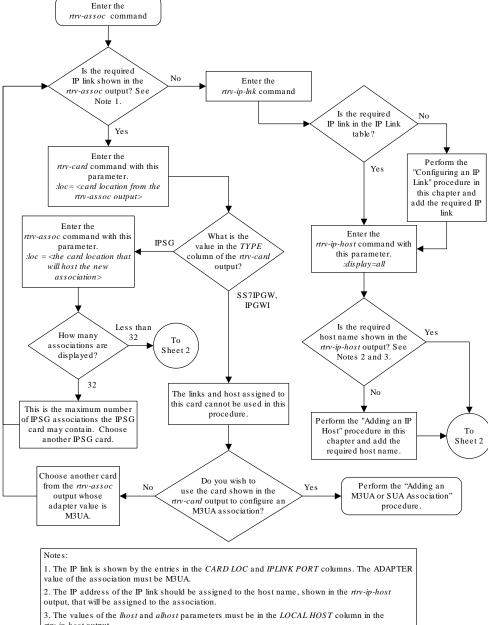
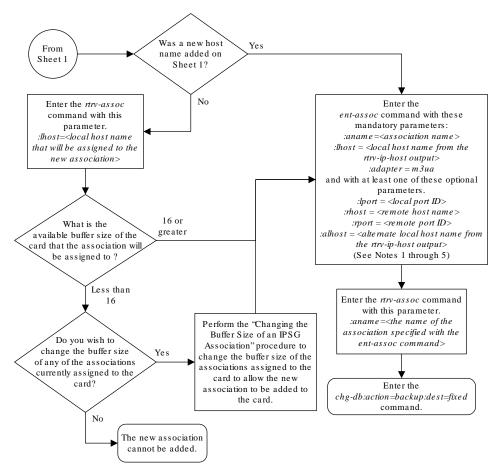


Figure 6-9 Adding an IPSG M3UA Association

rtrv-ip-host output.

Sheet 1 of 2



Notes

- 1. The EAGLE 5 ISS can contain a maximum of 4000 connections (association application server assignments).
- 2. A maximum of 32 IPSG M2PA or M3UA associations can be assigned to the IPSG card.
- 3. The value of the *lhost*, *rhost*, or *alhost* parameters is a text string of up to 60 characters, with the first character being a letter. The command line on the terminal can contain up to 150 characters. If the host names are too long to fit on the *ent-assoc* command line, perform the *chg-assoc* command with the parameters and values necessary to complete the entry of the IPSG M3UA association.
- 4. To activate the association after the association is assigned to a signaling link, the association must contain values for the *lhost*, *thost*, *lpon*, and *tpon* parameters.
- 5. If the *lhost* and *alhost* parameters are specified, the *lhost* parameter value represents the IP address corresponding to one of the network interfaces (A or B) on the IP card while the *alhost* parameter value represents the IP address corresponding to the other network interface of the same IP card.

Sheet 2 of 2

Adding an IPSG M2PA Signaling Link

This procedure is used to add an **IPSG** M2PA signaling link to the database using the ent-slk command. An IPSG M2PA signaling link is a signaling link that is assigned to an IPSG card and that contains an IPSG linkset and IPSG association whose ADAPTER value is M2PA. The ent-slk command uses these parameters to add an IPSG M2PA signaling link.

: loc – The card location of the **IPSG** card that the **IPSG** M2PA signaling link will be assigned to. The cards specified by this parameter are **E5-ENET** cards running the **IPSG** application.

- : link The signaling link on the card specified in the loc parameter.
- :1sn The name of the linkset that will contain the signaling link.
- : slc The signaling link code. The **SLC** must be unique within the linkset. It must be the same at both the **EAGLE** location and the distant node.

: aname – The name of the IPSG M2PA association that will be assigned to the IPSG M2PA signaling link.

The ent-slk command contains other optional parameters that are not used to configure an IPGWx signaling link. These parameters are discussed in more detail in *Commands User's Guide* or in these sections.

- These procedures in this manual:
 - Adding an IPLIMx Signaling Link
 - Adding an IPGWx Signaling Link
- These procedures in Database Administration SS7 User's Guide
 - Adding an SS7 Signaling Link
 - Adding an E1 Signaling Link
 - Adding a T1 Signaling Link
 - Adding an ATM High-Speed Signaling Link

These items must be configured in the database before an **IPSG** M2PA signaling link can be added:

- Shelf perform the "Adding a Shelf" procedure in Database Administration -System Management User's Guide.
- IPSG Card perform the Adding an IPSG Card procedure.
- Destination Point Code perform the "Adding a Destination Point Code" procedure in Database Administration - SS7 User's Guide.
- IPSG M2PA Linkset perform the Adding an IPSG M2PA Linkset procedure.
- IPSG M2PA Association perform the Adding an IPSG M2PA Association procedure.

Verify that the link has been physically installed (all cable connections have been made).

To configure the **EAGLE** to perform circular routing detection test on the signaling links, "Configuring Circular **Route** Detection" procedure in *Database Administration* - **SS7** *User's Guide*.



Circular route detection is not supported in **ITU** networks.



To provision a EAGLE with more than 1200 signaling links, the EAGLE must have certain levels of hardware installed. See the EAGLE section for more information on these hardware requirements.

The **EAGLE** can contain a mixture of low-speed, **E1**, **T1**, **ATM** high-speed, and **IP** signaling links. The Determining the Number of High-Speed and Low-Speed Signaling Links section describes how to determine the quantities of the different types of signaling links the **EAGLE** can have.

When the IPSG M2PA signaling link is added, the RSVDSLKTPS value that is assigned to the linkset will be assigned to the signaling link. The sum of the TPS used by all the signaling links that are assigned to the IPSG card cannot exceed MaxTPS. See Maximum Card Capacity for Different Card Types for MaxTPS values. The TPS used by the IPSG card and the TPS used by each signaling link that is assigned to the IPSG card is shown by entering the rtrv-slk command with the location of the IPSG card. If the MaxTPS limit for the IPSG card will be exceeded by adding the IPSG M2PA signaling link, one of these actions must be performed.

- Another IPSG card must be used for the IPSG M2PA signaling link.
- The RSVDSLKTPS values for the linksets shown in the rtrv-slk output for the IPSG card must be reduced enough to allow the IPSG M2PA linkset to be added.

If adding the IPSG M2PA signaling link will exceed the maximum total provisioned system TPS, and the maximum total provisioned system TPS is 500,000, perform the "Activating the HIPR2 High Rate Mode" feature in *Database Administration - System Management User's Guide* to enable and turn on the HIPR2 High Rate Mode feature. When the HIPR2 High Rate Mode feature is enabled and turned on, the maximum total provisioned system TPS is increased to 1,000,000 (1M). If the maximum total provisioned system TPS is 1M, or the maximum total provisioned system TPS is 500,000 and will not be increased, and adding the IPSG M2PA signaling link will exceed the maximum total provisioned system TPS, the IPSG M2PA signaling link cannot be added unless the amount of available TPS is reduced enough to allow the IPSG M2PA signaling link to be added. The available TPS can be reduced by performing one or more of these actions.

- The IP TPS values of some IPGWx linksets have to be changed.
- The MAXSLKTPS values of some IPSG linksets (and the RSVDSLKTPS values if necessary) have to be changed.
- Some ATM high-speed signaling links have to be removed.
- An IPLIMx card that contains signaling links has to be removed.

Canceling the REPT-STAT-SLK, RTRV-LS, and RTRV-SLK Commands

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

- Press the F9 function key on the keyboard at the terminal where the rept-stat-slk, rtrv-ls, or rtrv-slk commands were entered.
- Enter the canc-cmd without the trm parameter at the terminal where the rept-stat-slk, rtrv-ls, or rtrv-slk commands were entered.
- Enter the canc-cmd:trm=<xx>, where <xx> is the terminal where the rept-stat-slk, rtrv-ls, or rtrv-slk commands were entered, from another terminal other that the terminal where the rept-stat-slk, rtrv-ls, or rtrv-slk commands was



entered. To enter the <code>canc-cmd:trm=<xx></code> 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 <code>rtrv-secu-trm</code> command. The user's permissions can be verified with the <code>rtrv-user</code> or <code>rtrv-secu-user</code> commands.

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

 Display the maximum number of signaling links the EAGLE can have and the number of signaling links that are currently provisioned by entering the rtrvtbl-capacity command.

This is an example of the possible output.

```
rlghncxa03w 09-07-19 21:16:37 GMT EAGLE5 41.1.0

SLK table is ( 5 of 1200) 1% full
```

Note:

Thertrv-tbl-capacity command output contains other fields that are not used by this procedure. If you wish to see all the fields displayed by thertrv-tbl-capacity command, refer to thertrv-tbl-capacitycommand description in *Commands User's Guide*.

If the addition of the new signaling link will not exceed the maximum number of signaling links the EAGLE can have, continue the procedure with 2.

If the addition of the new signaling link will exceed the maximum number of signaling links the EAGLE can have, and the maximum number of signaling links is less than 2800, perform the Enabling the Large System # Links Controlled Feature procedure to enable the desired quantity of signaling links. After the new quantity of signaling links has been enabled, continue the procedure with 2.

If the addition of the new signaling link will exceed the maximum number of signaling links the EAGLE can have (in this example, the maximum number of signaling links is 1200), and the maximum number of signaling links is 2800, this procedure cannot be performed. The EAGLE cannot contain more than 2800 signaling links.

2. Display the current signaling link configuration using the rtrv-slk command.

```
rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0
rt.rv-slk
Command entered at terminal #4.
                              L2T
                                               PCR PCR
LOC LINK LSN
                  SLC TYPE
                              SET BPS
                                         ECM
                                   56000 BASIC ----
1312 A lsnds0
                  0 LIMDS0
                              1
                              LP
                                        MTA
LOC LINK LSN
                  SLC TYPE
                              SET BPS
                                        TSEL
                                                VCI
                                                      VPI LL
1305 A lsnds0
                                                5
                                                      0
                  1 LIMATM
                              1 1.544M LINE
```



LOC LINK	LSN	SLC	TYPE	LP SET	BPS	ATM TSEL	VCI	VPI	E CRC4	1ATI SI	M
SN 1306 A	lsnituatm	0	LIME1ATM	21	2.048M	LINE	5	0	ON	3	0
LOC LINK 1303 A 1303 B1 1303 A2 1303 A3 1303 B3 1307 A 2204 B	LSN ipsglsn ipsglsn ipsglsn ipsglsn ipsglsn ipsglsn2 ipsglsn lsnlp2	SLC 0 1 2 3 4 0 5	TYPE IPSG IPSG IPSG IPSG IPSG IPSG IPSG IPSG	ipso ipso ipso ipso	gm2pa1 gm2pa2 gm2pa3 gm2pa4 gm2pa5 gm2pa6		SLKTPS 600 600 600 600 600 1000 600 500				
LOC LINK 1301 A 1301 A1 1301 B1	LSN lsniplim lsniplim lsniplim	SLC 0 1 2	TYPE IPLIM IPLIM IPLIM	IPLI M2PA M2PA M2PA	A						
LOC LINK 1201 A 1202 A 1203 A 1204 A 1205 A 1206 A 1101 A 1102 A 1103 A 1104 A 1105 A 1106 A 1107 A 1108 A 1111 A 1112 A	LSN ipgwx2 ipgwx2 ipgwx2 ipgwx2 ipgwx2 ipgwx1 ipgwx1 ipgwx1 ipgwx1 ipgwx1 ipgwx1 ipgwx1 ipgwx1 ipgwx2 ipgwx2	SLC 2 3 4 5 6 7 0 1 2 3 4 5 6 7 0 1 2 3 4 5	TYPE SS7IPGW								

3. Display the cards in the database using the rtrv-card command.

This is an example of the possible output.

rlghncx	a03w 13-0	6-28 09:12	2:36 GMT EAG	LE5 45	5.0.0			
CARD	TYPE	APPL	LSET NAME	LINK	SLC LSET	NAME	LINK	SLC
1101	DCM	SS7IPGW	ipgwx1	A	0			
1102	DCM	SS7IPGW	ipgwx1	A	1			
1103	DCM	SS7IPGW	ipgwx1	A	2			
1104	DCM	SS7IPGW	ipgwx1	A	3			
1105	DCM	SS7IPGW	ipgwx1	A	4			
1106	DCM	SS7IPGW	ipgwx1	A	5			
1107	DCM	SS7IPGW	ipgwx1	A	6			



1108	DCM	SS7IPGW	ipgwx1	A	7			
1111	DCM	SS7IPGW	ipgwx2	A	0			
1112	DCM	SS7IPGW	ipgwx2	A	1			
1113	E5MCAP	OAMHC						
1114	E5TDM-A							
1115	E5MCAP	OAMHC						
1116	E5TDM-B							
1117	E5MDAL							
1201	DCM	SS7IPGW	ipgwx2	A	2			
1202	DCM	SS7IPGW	ipgwx2	A	3			
1203	DCM	SS7IPGW	ipgwx2	A	4			
1204	DCM	SS7IPGW	ipgwx2	A	5			
1205	DCM	SS7IPGW	ipgwx2	A	6			
1206	DCM	SS7IPGW	ipgwx2	A	7			
1301	DCM	IPLIM	lsniplim	A	0	lsniplim	A1	1
			lsniplim	В1	2			
1303	ENET	IPSG	ipsglsn	A	0	ipsglsn	A1	1
			ipsglsn	В1	2	ipsglsn	A2	3
			ipsglsn	A3	4	ipsglsn2	В3	0
1305	LIMATM	ATMANSI	lsnds0	A	1			
1306	LIME1ATM	ATMITU	lsnituatm	A	0			
1307	ENET	IPSG	ipsglsn	A	5			
1311	DCM	IPLIM						
1312	LIMDS0	SS7ANSI	lsnds0	A	0			

If the required IPSG card is not in the database, perform the Adding an IPSG Card procedure and add the **IPSG** card to the database. After the IPSG card has been added, continue the procedure with 5.

If the required IPSG card is in the database, continue the procedure with 4.

4. Display the signaling links assigned to the IPSG card by entering the rtrv-slk command with the card location of the IPSG card. For this example, enter this command.

```
rtrv-slk:loc=2204
```

This is an example of the possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0

LOC LINK LSN SLC TYPE ANAME SLKTPS 2204 B lsnlp2 0 IPSG m2pa 500

IPTPS for LOC = 2204 is ( 500 of 5000) 10%
```

An IPSG card can contain a maximum of 32 (128 for SLIC) IPSG signaling links. If 32 signaling links are shown in the rtrv-slk output, the new signaling link cannot be added to this card. Choose another IPSG card and repeat this procedure from 3.

If fewer than 32 signaling links are shown in the rtrv-slk output, continue the procedure by performing one of these actions.

- If the IPTPS value shown in the rtrv-slk output is less than the MaxTPS (see Maximum Card Capacity for Different Card Types for MaxTPS values, continue the procedure with 5.
- If the IPTPS value shown in the rtrv-slk output is the MaxTPS, the new signaling link cannot be added to this card. Choose another IPSG card and repeat this procedure from 3.
- 5. Display the IPSG and IPGWx linksets by entering the rept-stat-iptps command. This is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0 IP TPS USAGE REPORT

	THRESH	CONFIG/ RSVD	CONFIG/ MAX		TPS	PEAK	PEAKTIMESTAMP
LSN							
ipgwx1	100%		32000	TX:	3700	4000	10-07-19 09:49:19
				RCV:	3650	4000	10-07-19 09:49:19
ipgwx2	100%		16000	TX:	4800	5000	10-07-19 09:49:09
				RCV:	4850	5000	10-07-19 09:49:09
ipgwx3	100%		32000	TX:	427	550	10-07-19 09:49:19
				RCV:	312	450	10-07-19 09:49:19
ipsglsn	100%	600	24000	TX:	4800	5000	10-07-19 09:49:19
				RCV:	4800	5000	10-07-19
09:49:19							
ipsglsn2	100%	600	4000	TX:	427	550	10-07-19 09:49:19
				RCV:	312	450	10-07-19 09:49:19
isipgw	100%	500	4000	TX:	427	550	10-07-19 09:49:19
				RCV:	312	450	10-07-19
09:49:19							

Command Completed.

If the desired linkset is shown in the rept-stat-iptps output, continue the procedure with 6.

If the desired linkset is not shown in the rept-stat-iptps output, add the linkset by performing the Adding an IPSG M2PA Linkset procedure. Continue the procedure with one of these actions.

- If a new IPSG card was added in 3, continue the procedure with 7.
- If the signaling link will be assigned to an existing IPSG card, the RSVDSLKTPS value that is assigned to the linkset will be assigned to the signaling link. The sum of the TPS used by all the signaling links that are assigned to the IPSG card cannot exceed the MaxTPS. See Maximum Card Capacity for Different Card Types for MaxTPS values. The TPS used by the IPSG card and the TPS used by each signaling link that is assigned to the IPSG card is shown by entering the rtrv-slk command with the location of the IPSG card. If the MaxTPS limit for the IPSG card will be exceeded by adding the IPSG M2PA signaling link, one of these actions must be performed.



- Another IPSG card must be used for the IPSG M2PA signaling link.
 Repeat this procedure from 3.
- The RSVDSLKTPS values for the linksets shown in the rtrv-slk output for the IPSG card, shown in 4, must be reduced enough to allow the IPSG M2PA linkset to be added. Perform these procedures as necessary to change the RSVDSLKTPS values for the linksets. After the linksets have been changed, continue the procedure with 7.
 - Changing an IPSG M2PA Linkset
 - * Changing an IPSG M3UA Linkset
- 6. Display the linkset that the signaling link is being assigned to using the rtrv-ls command, specifying the name of the linkset that the signaling link is being assigned to.

For this example, enter this command.

```
rtrv-ls:lsn=lsipqw
```

This is an example of the possible output.

```
rlghncxa03w 10-07-17 11:43:04 GMT EAGLE5 42.0.0
                            L3T SLT
                                               GWS GWS GWS
LSN
           APCN
                 (SS7) SCRN SET SET BEI LST LNKS ACT MES DIS
SLSCI NIS
lsipgw
           2968
                       none 1 1 no A 1
                                               off off off
    off
                        CLLI
                                   TFATCABMLQ MTPRSE ASL8
            SPCN
                        _____
         SLSRSB RANDSLS ITUTFR
               off off
         IPSG IPGWAPC GTTMODE
                                      CGGTMOD
                      CdPA
         yes
              no
                                       no
         ADAPTER
                  RSVDSLKTPS MAXSLKTPS
                  500
                            4000
         m2pa
                 LSUSEALM SLKUSEALM
         TPSALM
         rsvdslktps 100%
                             100%
         LOC LINK SLC TYPE
                             ANAME
         1317 A 0 IPSG
                            m2pa2
```

If the IPSG value of the linkset is no, choose another linkset and repeat this procedure from 5.

Link set table is (13 of 1024) 1% full.

If the IPSG value of the linkset is yes and the ADAPTER value is m3ua, choose another linkset and repeat this procedure from 5.



If the IPSG value of the linkset is yes, and the ADAPTER value is m2pa, continue the procedure by performing one of these actions.

- If a new IPSG card was added in 3, continue the procedure with 7.
- If the signaling link will be assigned to an existing IPSG card, the RSVDSLKTPS value that is assigned to the linkset will be assigned to the signaling link. The sum of the TPS used by all the signaling links that are assigned to the IPSG card cannot exceed the MaxTPS. See Maximum Card Capacity for Different Card Types for MaxTPS values. The TPS used by the IPSG card and the TPS used by each signaling link that is assigned to the IPSG card is shown by entering the rtrv-slk command with the location of the IPSG card. If the MaxTPS limit for the IPSG card will be exceeded by adding the IPSG M2PA signaling link, one of these actions must be performed.
 - Another IPSG card must be used for the IPSG M2PA signaling link. Repeat this procedure from 3.
 - The RSVDSLKTPS values for the linksets shown in the rtrv-slk output for the IPSG card, shown in 4, must be reduced enough to allow the IPSG M2PA linkset to be added. Perform these procedures as necessary to change the RSVDSLKTPS values for the linksets. After the linksets have been changed, continue the procedure with 7.
 - * Changing an IPSG M2PA Linkset
 - Changing an IPSG M3UA Linkset
- 7. Display the total provisioned system TPS by entering the rtrv-tps command. This is an example of the possible output.

rlghncxa03w 10-07-10 16:20:46 GMT EAGLE 42.0.0

CARD	NUM	NUM	RSVD	MAX
TYPE	CARDS	LINKS	TPS	TPS
IPGW	17	16	48000	80000
IPSG	4	8	4700	12000
IPLIM	2	4	8000	8000
ATM	2	2	3668	3668

Total provisioned System TPS (103668 of 500000) 21%

Command Completed.

An IPSG M2PA signaling link uses can use as much as the MaxTPS (see Maximum Card Capacity for Different Card Types for MaxTPS values, as provisioned by the rsvdslktps parameter of the linkset that the IPSG M2PA signaling link will be added to. If adding the new IPSG M2PA signaling link will not exceed the maximum total provisioned system TPS, continue the procedure with 11.

If adding the new IPSG M2PA signaling link will exceed the maximum total provisioned system TPS, and the maximum total provisioned system TPS is 500,000 shown, perform the "Activating the HIPR2 High Rate Mode Feature" procedure in *Database Administration - System Management User's Guide* to enable and turn on the HIPR2 High Rate Mode feature. When the HIPR2 High Rate Mode feature is enabled and turned on, the maximum total provisioned system TPS is increased to 1M. After the HIPR2 High Rate Mode feature has been enabled and turned on, continue the procedure with 11.



If the maximum total provisioned system TPS is 1M, or the maximum total provisioned system TPS is 500,000 and will not be increased, and adding the IPSG M2PA signaling link will exceed the maximum total provisioned system TPS, the IPSG M2PA signaling link cannot be added unless the amount of available TPS is reduced enough to allow the IPSG M2PA signaling link to be added. The available TPS can be increased by performing one or more of these actions.

- Some ATM high-speed signaling links have to be removed. To perform this action, continue the procedure with 8.
- An IPLIMx card that contains signaling links has to be removed. To perform this action, continue the procedure with 9.
- The IP TPS values of some IPGWx linksets have to be changed or the MAXSLKTPS values of some IPSG linksets (and the RSVDSLKTPS values if necessary) have to be changed.
 If linksets are displayed in the rept-stat-iptps output in 5, continue the procedure with 10.

If linksets are not displayed in the rept-stat-iptps output in 5, perform one or more of these actions to increase the available TPS.



If one or more of these actions are not performed to increase the available TPS and the available TPS will not allow the IPSG M2PA signaling link to be added, the IPSG M2PA signaling link cannot be added and the remainder of this procedure cannot be performed.

- An IPLIMx card that contains signaling links has to be removed. To perform this action, continue the procedure with 9.
- Some ATM high-speed signaling links have to be removed. To perform this action, continue the procedure with 8.
- 8. Display the ATM high-speed signaling links by entering this command.

```
rtrv-slk:type=saal
```

This is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0

LOC 130	LINK 3 A	LSN lsnds0	SLC	TYPE LIMATM	LP SET 1	BPS 1.544M	ATM TSEL LINE	VCI 5	VPI 0	LL 0
					LP		ATM			
E1A	ľΜ									
LOC	LINK	LSN	SLC	TYPE	SET	BPS	TSEL	VCI	VPI	
CRC	4 SI SI	N								
130	5 A	lsnituatm	0	LIME1ATM	21	2.048M	LINE	5	0	
ON	3 0									
SLK	table	is (30 of 3	1200)	2% full.						



If ATM high-speed signaling links are shown in the rtrv-slk output, perform the "Removing an SS7 Signaling Link" procedure in *Database Administration -* **SS7** *User's Guide* to remove some of the ATM high-speed signaling links.

If ATM high-speed signaling links are not displayed in the rtrv-slk output, perform one or more of these actions to increase the available TPS.



If one or more of these actions are not performed to increase the available TPS and the available TPS will not allow the IPSG M2PA signaling link to be added, the IPSG M2PA signaling link cannot be added and the remainder of this procedure cannot be performed.

- An IPLIMx card that contains signaling links has to be removed. To perform this action, continue the procedure with 9.
- The IP TPS values of some IPGWx linksets have to be changed or the MAXSLKTPS values of some IPSG linksets (and the RSVDSLKTPS values if necessary) have to be changed.

If linksets are displayed in the rept-stat-iptps output in 5, continue the procedure with 10.

If linksets are not displayed in the rept-stat-iptps output in 5, an IPLIMx card that contains signaling links has to be removed. To perform this action, continue the procedure with 9.

If you do not wish to perform other actions to increase the available TPS and the available TPS will allow the IPSG M2PA signaling link to be added, continue the procedure with 11.

9. Display the signaling links that are assigned to IPLIMx cards by entering this command.

```
rtrv-slk:type=iplim
```

This is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0

LOC	LINK	LSN S	SLC 1	TYPE	ANAME	SLKTPS
1301	A	lsniplim 0)]	IPLIM	M2PA	
1301	A1	lsniplim 1	.]	IPLIM	M2PA	
1301	В1	lsniplim 2	2]	IPLIM	M2PA	
1317	A	lsniplimi 0)]	IPLIMI	M2PA	
SLK t	able	is (30 of 12	200)	2% full.		

If IPLIMx cards containing signaling links are shown in the rtrv-slk output, perform the Removing an IPLIMx Card procedure to remove an IPLIMx card and its associated signaling links.

If IPLIMx cards containing signaling links are not displayed in the rtrv-slk output, perform one or more of these actions to increase the available TPS.



Note:

If one or more of these actions are not performed to increase the available TPS and the available TPS will not allow the IPSG M2PA signaling link to be added, the IPSG M2PA signaling link cannot be added and the remainder of this procedure cannot be performed.

- Some ATM high-speed signaling links have to be removed. To perform this action, continue the procedure with 8.
- The IP TPS values of some IPGWx linksets have to be changed or the MAXSLKTPS values of some IPSG linksets (and the RSVDSLKTPS values if necessary) have to be changed.
 If linksets are displayed in the rept-stat-intps output in 5, continue the

If linksets are displayed in the rept-stat-iptps output in 5, continue the procedure with 10.

If linksets are not displayed in the rept-stat-iptps output in 5, some ATM high-speed signaling links have to be removed. To perform this action, continue the procedure with 8.

If you do not wish to perform other actions to increase the available TPS and the available TPS will allow the IPSG M2PA signaling link to be added, continue the procedure with 11.

10. Display the attributes of the linksets shown in 5 by entering the rtrv-ls command with the name of the linkset shown in 5.

For this example enter these commands.

```
rtrv-ls:lsn=ipgwx1
```

This is an example of the possible output.

```
rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0
                             L3T SLT
                                                GWS GWS GWS
LSN
            APCA (SS7) SCRN SET SET BEI LST LNKS ACT MES DIS
SLSCI NIS
            001-001-002 none 1 1
ipgwx1
                                    no A 8
                                                off off off
no
   off
            SPCA
                       CLLI
                                    TFATCABMLQ MTPRSE ASL8
                                                    no
         RANDSLS
         off
         IPSG IPGWAPC GTTMODE
                                       CGGTMOD
               yes
                      CdPA
                                        no
                 IPTPS LSUSEALM SLKUSEALM
         MATELSN
         ----- 32000 100% 80%
         LOC LINK SLC TYPE
         1101 A 0 SS7IPGW
```



```
1102 A 1 SS71PGW
1103 A 2 SS71PGW
1104 A 3 SS71PGW
1105 A 4 SS71PGW
1106 A 5 SS71PGW
1107 A 6 SS71PGW
1108 A 7 SS71PGW
```

Link set table is (8 of 1024) 1% full.

rtrv-ls:lsn=ipgwx2

This is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0

```
LSN APCA (SS7) SCRN SET SET BEI LST LNKS ACT MES DIS SLSCI NIS
ipgwx2 001-001-003 none 1 1 no A 8 off off no off
```

SPCA CLLI TFATCABMLQ MTPRSE ASL8

RANDSLS off

IPSG IPGWAPC GTTMODE CGGTMOD no yes CdPA no

MATELSN IPTPS LSUSEALM SLKUSEALM ----- 16000 100% 80%

LOC LINK SLC TYPE
1111 A 0 SS71PGW
1112 A 1 SS71PGW
1201 A 2 SS71PGW
1202 A 3 SS71PGW
1203 A 4 SS71PGW
1204 A 5 SS71PGW
1205 A 6 SS71PGW
1206 A 7 SS71PGW

Link set table is (8 of 1024) 1% full.

rtrv-ls:lsn=ipgwx3

This is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0

L3T SLT GWS GWS GWS APCA (SS7) SCRN SET SET BEI LST LNKS ACT MES DIS LSN SLSCI NIS ipqwx3 001-001-004 none 1 1 no A 0 off off off no off SPCA CLLI TFATCABMLQ MTPRSE ASL8 ----- 1 RANDSLS off IPSG IPGWAPC GTTMODE CGGTMOD no yes CdPA no MATELSN IPTPS LSUSEALM SLKUSEALM **-----** 32000 100% 80%

Link set table is (8 of 1024) 1% full.

rtrv-ls:lsn=ipsglsn

This is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0

L3T SLT GWS GWS GWS LSN APCA (SS7) SCRN SET SET BEI LST LNKS ACT MES DIS SLSCI NIS ipsglsn 003-003-003 none 1 1 no A 6 off off no off CLLI TFATCABMLQ MTPRSE ASL8 SPCA ----- 3 RANDSLS off IPSG IPGWAPC GTTMODE CGGTMOD yes no CdPA no ADAPTER SLKTPS LSUSEALM SLKUSEALM RCONTEXT ASNOTIF m2pa 600 100% 80% none no LOC LINK SLC TYPE ANAME 1303 A 0 IPSG ipsgm2pa1 1303 A1 1 IPSG ipsgm2pa2 1303 B1 2 IPSG ipsgm2pa3 ipsgm2pa4 1303 A2 3 IPSG 1303 A3 4 IPSG ipsgm2pa5 1307 A 5 IPSG m2pa2

```
Link set table is (8 of 1024) 1% full.
```

rtrv-ls:lsn=ipsglsn2

This is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0

LSN NIS ipsglsn2 off		APCA 005-00	,	,	CRN	SET		BEI	LST		ACT		DIS	
		SPCA		C:	LLI			TFA:	rcabi	MLQ M'	rprsi 	E ASI	L8	
	RAN off	DSLS												
	IPS yes		WAPC	GTTI CdP	MODE A			(CGGTN no	MOD				
	ADA m2p	PTER a		KTPS		ISEAI 1%		SLKUS 80%	SEALN	M RC0	ONTEX	ΚΤ	ASNO no	OTIF
	LOC	LINK 3 B3	SLC 0	TYPE IPSG		ANA	AME sgm21	pa6						

Link set table is (8 of 1024) 1% full.

Perform one or both of these actions as necessary.

- Perform the Configuring an IPGWx Linkset procedure to change the IPTPS value for any linksets shown in the rtrv-ls output whose IPGWAPC value is yes.
- Perform the Changing an IPSG M2PA Linkset procedure (for linkset whose IPSG value is yes and ADAPTER value is M2PA) or the Changing an IPSG M3UA Linkset procedure (for linkset whose IPSG value is yes and ADAPTER value is M3UA) to change the MAXSLKTPS value (and RSVDSLKTPS value if necessary) for any linksets shown in the rtrv-ls output.

Perform one or both of these actions to increase the available TPS if needed.

- An IPLIMx card that contains signaling links has to be removed. To perform this action, continue the procedure with 9.
- Some ATM high-speed signaling links have to be removed. To perform this action, continue the procedure with 8.

If you do not wish to perform other actions to increase the available TPS and the available TPS will allow the IPSG M2PA signaling link to be added, continue the procedure with 11.

11. Display the associations that are assigned to the card that will be assigned to the signaling link by entering rtrv-assoc command with the location of the card. For this example, enter this command.

```
rtrv-assoc:loc=2204
```

This is an example of the possible output.

rlghncxa03w 08-04-22 19:24:18 EST 38.0.0

	CARD	IPLNK						
ANAME	LOC	PORT	LINK	ADAPTER	LPORT	RPORT	OPEN	ALW
m2pa2	2204	A	В	M2PA	3001	3000	NO	YES
m2pa3	2204	A		M2PA	3002	3000	YES	YES
m2pa4	2204	A		M2PA	3003	3000	YES	YES

```
IP Appl Sock/Assoc table is (7 of 4000) 1\% full Assoc Buffer Space Used (1400 KB of 6400 KB) on LOC = 2204
```

Associations that can be assigned to an IPSG M2PA signaling link cannot be assigned to a signaling link shown by dashes in the LINK column, and the ADAPTER value of the association must be M2PA. If the associations displayed in this step do not meet these requirements, add the IPSG M2PA association by performing the Adding an IPSG M2PA Association procedure. After the association has been added, continue the procedure with 12.

If the associations displayed in this step meet these requirements, continue the procedure with 12.

12. Add the signaling link to the database using the ent-slk command.

Table 6-8 shows the parameters and values that can be specified with the ent-slk command.

Table 6-8 IPSG M2PA Signaling Link Parameter Combinations

IPSG M2PA Signaling Link Mandatory Parameters :loc = location of the IPSG card :link = a - a15, b - b15 :lsn = linkset name :slc = 0 - 15 :aname = the name of the IPSG M2PA association

For this example, enter this command.

```
ent-slk:loc=2204:link=a10:lsn=lsipgw:slc=1:aname=m2pa3
```

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

```
rlghncxa03w 06-10-07 08:29:03 GMT EAGLE5 36.0.0 ENT-SLK: MASP A - COMPLTD
```





If adding the new signaling link will result in more than 700 signaling links in the database and the OAMHCMEAS value in thertry-measopts output ison, the scheduled UI measurement reports will be disabled.

13. Verify the changes using the rtrv-slk command with the card location and link parameter values specified in 12. For this example, enter these commands.

```
rtrv-slk:loc=2204:link=a10
```

This is an example of the possible output.

```
rlghncxa03w 06-10-19 21:16:37 GMT EAGLE5 36.0.0

LOC LINK LSN SLC TYPE ANAME SLKTPS 2204 A10 lsipgw 1 IPSG m2pa3 500
```

14. If any cards contain the first signaling link on a card, those cards must be brought into service with the rst-card command, specifying the location of the card. For this example, enter this command.

```
rst-card:loc=2205
```

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

```
rlghncxa03w 06-10-23 13:05:05 GMT EAGLE5 36.0.0 Card has been allowed.
```

15. Activate all signaling links on the cards using the act-slk command, specifying the card location and link parameter value of each signaling link. For this example, enter this command.

```
act-slk:loc=2204:link=a10
```

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

```
rlghncxa03w 06-10-07 08:31:24 GMT EAGLE5 36.0.0 Activate Link message sent to card
```

16. Check the status of the signaling links added in 12 using the rept-stat-slk command with the card location and link parameter values specified in 12. The state of each signaling link should be in service normal (IS-NR) after the link has completed alignment (shown in the PST field). For this example, enter these commands.

```
rept-stat-slk:loc=2204:link=a10
```

This is an example of the possible output.

```
rlghncxa03w 07-05-23 13:06:25 GMT EAGLE5 37.0.0

SLK LSN CLLI PST SST AST

2204,A10 lsipgw ------ IS-NR Avail ----
```



```
ALARM STATUS = UNAVAIL REASON =
```

17. Change the open parameter value of the association that was assigned to the signaling link by entering the chg-assoc command with the open=yes parameter and the name of the association that was association. For this example, enter this command.

```
chg-assoc:aname=m2pa3:open=yes
```

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

```
rlghncxa03w 06-10-07 08:29:03 GMT EAGLE5 36.0.0 CHG-ASSOC: MASP A - COMPLTD
```

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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

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

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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



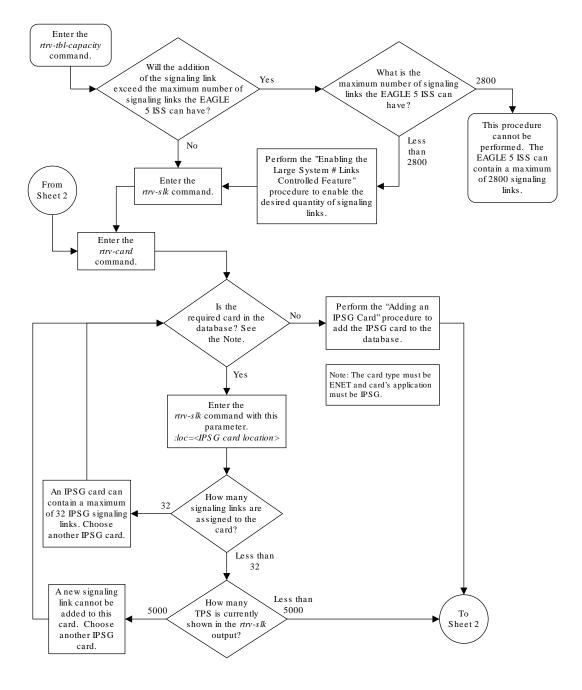
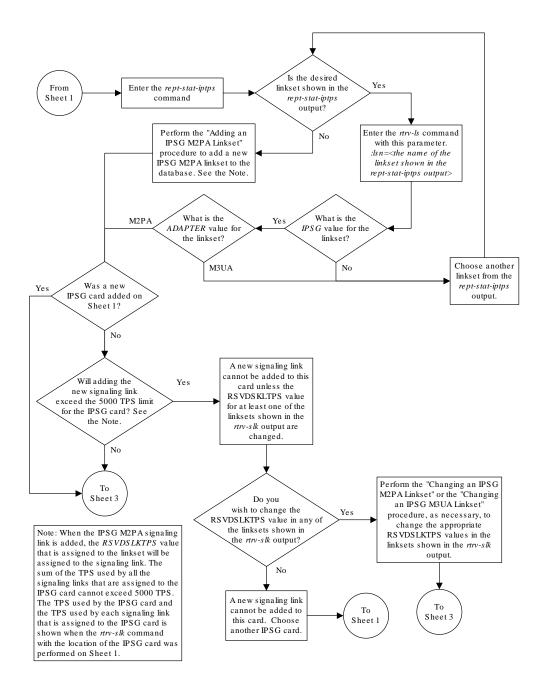
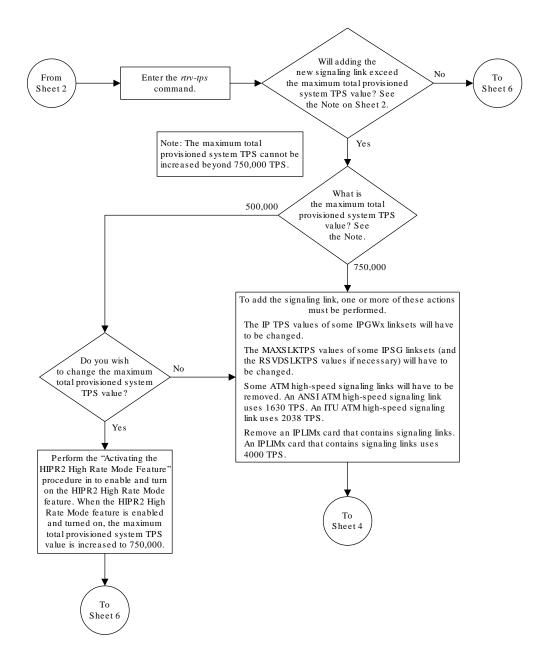


Figure 6-10 Adding an IPSG M2PA Signaling Link

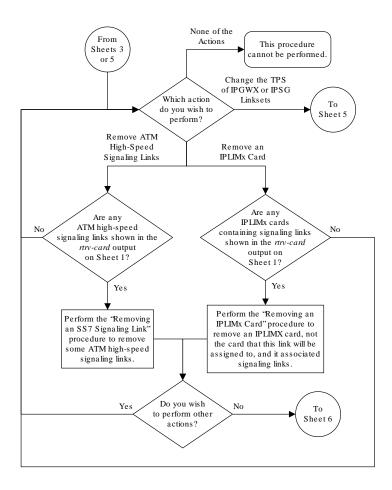
Sheet 1 of 6



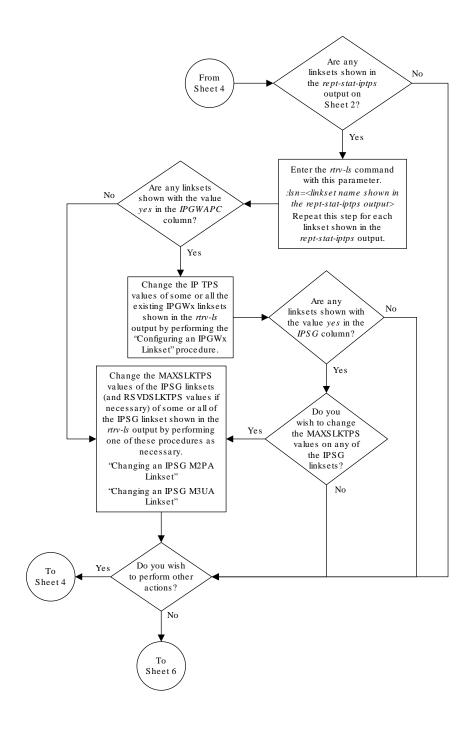
Sheet 2 of 6



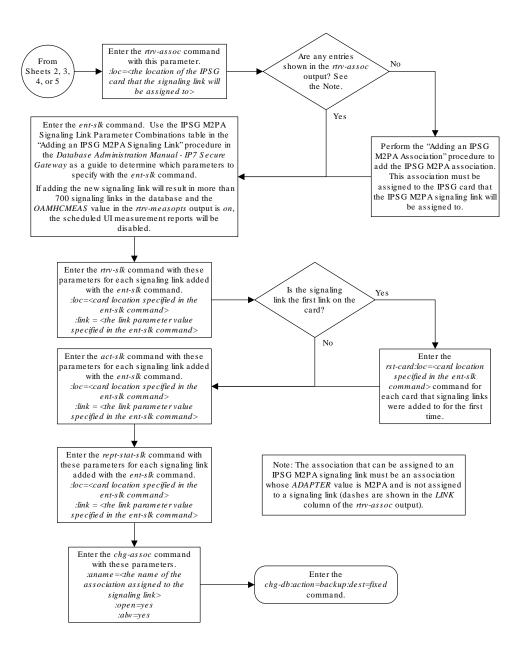
Sheet 3 of 6



Sheet 4 of 6



Sheet 5 of 6



Sheet 6 of 6

Adding an IPSG M3UA Signaling Link

This procedure is used to add an **IPSG** M3UA signaling link to the database using the ent-slk command. An IPSG M3UA signaling link is a signaling link that is assigned to an IPSG card and that contains an IPSG linkset and IPSG association whose ADAPTER value is M3UA. The ent-slk command uses these parameters to add an IPSG M3UA signaling link.

: loc – The card location of the IPSG card that the IPSG M3UA signaling link will be assigned to. The cards specified by this parameter are E5-ENET cards running the IPSG application.

- : link The signaling link on the card specified in the loc parameter.
- :1sn The name of the linkset that will contain the signaling link.
- : slc The signaling link code. The **SLC** must be unique within the linkset. It must be the same at both the **EAGLE** location and the distant node.

: aname – The name of the IPSG M3UA association that will be assigned to the IPSG M3UA signaling link.

The ent-slk command contains other optional parameters that are not used to configure an IPGWx signaling link. These parameters are discussed in more detail in *Commands User's Guide* or in these sections.

- These procedures in this manual:
 - Adding an IPLIMx Signaling Link
 - Adding an IPGWx Signaling Link
- These procedures in Database Administration SS7 User's Guide
 - Adding an SS7 Signaling Link
 - Adding an E1 Signaling Link
 - Adding a T1 Signaling Link
 - Adding an ATM High-Speed Signaling Link

These items must be configured in the database before an **IPSG** M3UA signaling link can be added:

- Shelf perform the "Adding a Shelf" procedure in *Database Administration System Management User's Guide*.
- IPSG Card perform the Adding an IPSG Card procedure.
- Destination **Point Code** perform the "Adding a **Destination Point Code**" procedure in *Database Administration -* **SS7** *User's Guide*.
- IPSG M3UA Linkset perform the Adding an IPSG M3UA Linkset procedure.
- IPSG M3UA Association perform the Adding an IPSG M3UA Association procedure.

Verify that the link has been physically installed (all cable connections have been made).

To configure the **EAGLE** to perform circular routing detection test on the signaling links, "Configuring Circular **Route** Detection" procedure in the *Database Administration* - **SS7**.



Circular route detection is not supported in **ITU** networks.

To provision a **EAGLE** with more than 1200 signaling links, the **EAGLE** must have certain levels of hardware installed. See the Requirements for EAGLEs Containing more than 1200 Signaling Links section for more information on these hardware requirements.



The **EAGLE** can contain a mixture of low-speed, **E1**, **T1**, **ATM** high-speed, and **IP** signaling links. The Determining the Number of High-Speed and Low-Speed Signaling Links section describes how to determine the quantities of the different types of signaling links the **EAGLE** can have.

- HC-MIM
- E5-E1/T1
- E5-ATM
- E5-SM4G
- E5-ENET
- E5-based control cards
- E5-STC card for the EAGLE Integrated Monitoring Support feature

When the IPSG M3UA signaling link is added, the RSVDSLKTPS value that is assigned to the linkset will be assigned to the signaling link. The sum of the TPS used by all the signaling links that are assigned to the IPSG card cannot exceed the MaxTPS. See Maximum Card Capacity for Different Card Types for MaxTPS values. The TPS used by the IPSG card and the TPS used by each signaling link that is assigned to the IPSG card is shown by entering the rtrv-slk command with the location of the IPSG card. If the MaxTPS limit for the IPSG card will be exceeded by adding the IPSG M3UA signaling link, one of these actions must be performed.

- Another IPSG card must be used for the IPSG M3UA signaling link.
- The RSVDSLKTPS values for the linksets shown in the rtrv-slk output for the IPSG card must be reduced enough to allow the IPSG M3UA linkset to be added.

If adding the IPSG M3UA signaling link will exceed the maximum total provisioned system TPS, and the maximum total provisioned system TPS is 500,000, perform the "Activating the HIPR2 High Rate Mode" feature in *Database Administration - System Management* to enable and turn on the HIPR2 High Rate Mode feature. When the HIPR2 High Rate Mode feature is enabled and turned on, the maximum total provisioned system TPS is increased to 1,000,000 (1M). If the maximum total provisioned system TPS is 1M, or the maximum total provisioned system TPS is 500,000 and will not be increased, and adding the IPSG M3UA signaling link will exceed the maximum total provisioned system TPS, the IPSG M3UA signaling link cannot be added unless the amount of available TPS is reduced enough to allow the IPSG M3UA signaling link to be added. The available TPS can be reduced by performing one or more of these actions.

- The IP TPS values of some IPGWx linksets have to be changed.
- The MAXSLKTPS values of some IPSG linksets (and the RSVDSLKTPS values if necessary) have to be changed.
- Some ATM high-speed signaling links have to be removed.
- An IPLIMx card that contains signaling links has to be removed.

Canceling the REPT-STAT-SLK, RTRV-LS, and RTRV-SLK Commands

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



- Press the F9 function key on the keyboard at the terminal where the rept-stat-slk, rtrv-ls, or rtrv-slk commands were entered.
- Enter the canc-cmd without the trm parameter at the terminal where the rept-stat-slk, rtrv-ls, or rtrv-slk commands were entered.
- Enter the canc-cmd:trm=<xx>, where <xx> is the terminal where the rept-stat-slk, rtrv-ls, or rtrv-slk commands were entered, from another terminal other that the terminal where the rept-stat-slk, rtrv-ls, or rtrv-slk commands 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 rtry-secu-user commands.

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

1. Display the maximum number of signaling links the EAGLE can have and the number of signaling links that are currently provisioned by entering the rtrv-tbl-capacity command.

This is an example of the possible output.

```
rlghncxa03w 09-07-19 21:16:37 GMT EAGLE5 41.1.0

SLK table is ( 5 of 1200) 1% full
```

Note:

Thertry-tbl-capacity command output contains other fields that are not used by this procedure. If you wish to see all the fields displayed by thertry-tbl-capacity command, refer to thertry-tbl-capacitycommand description in the *Commands User's Guide*.

If the addition of the new signaling link will not exceed the maximum number of signaling links the EAGLE can have, continue the procedure with 2.

If the addition of the new signaling link will exceed the maximum number of signaling links the EAGLE can have, and the maximum number of signaling links is less than 2800, perform the Enabling the Large System # Links Controlled Feature procedure to enable the desired quantity of signaling links. After the new quantity of signaling links has been enabled, continue the procedure with 2.

If the addition of the new signaling link will exceed the maximum number of signaling links the EAGLE can have (in this example, the maximum number of signaling links is 1200), and the maximum number of signaling links is 2800, this procedure cannot be performed. The EAGLE cannot contain more than 2800 signaling links.

2. Display the current signaling link configuration using the rtrv-slk command.

```
rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0 rtrv-slk
Command entered at terminal #4.
```



LL

LOC LINK 1312 A	LSN lsnds0	SLC 0	TYPE LIMDS0	L2T SET	BPS 56000	ECM BASI	PCR N1 C	PCR N2
LOC LINK 1305 A	LSN lsnds0	SLC 1	TYPE LIMATM	LP SET 1	BPS 1.544M	ATM TSEL LINE	VC.	I VPI O
				LP		ATM		
E1ATM	T 011	0 - 0	munn.	0.00	DDG	man.		
LOC LINK CRC4 SI SN		SLC	TYPE	SET	BPS	TSEL	VC	I VPI
1306 A ON 3 0	lsnituatm	0	LIME1ATM	21	2.048M	LINE	5	0
LOC LINK	LSN	SLC	TYPE	ANAN	ИE		SLKTPS	
1303 A	ipsglsn	0	IPSG	ips	gm2pa1		600	
1303 A1	ipsglsn	1	IPSG	ips	gm2pa2		600	
1303 B1	ipsglsn	2	IPSG		gm2pa3		600	
1303 A2	ipsglsn	3	IPSG		gm2pa4		600	
1303 A3	ipsglsn	4	IPSG		gm2pa5		600	
1303 B3	ipsglsn2	0	IPSG		gm2pa6		1000	
1307 A	ipsglsn	5	IPSG	m2pa			600	
2204 B	lsnlp2	0	IPSG	m3ua	i.		500	
LOC LINK	LSN	SLC	TYPE	IPLI	IML2			
1301 A	lsniplim	0	IPLIM	M2PA	A			
1301 A1	lsniplim	1	IPLIM	M2PA	A			
1301 B1	lsniplim	2	IPLIM	M2PA	A			
LOC LINK	LSN	SLC	TYPE					
1201 A	ipgwx2	2	SS7IPGW					
1202 A	ipgwx2	3	SS7IPGW					
1203 A	ipgwx2	4	SS7IPGW					
1204 A	ipgwx2	5	SS7IPGW					
1205 A	ipgwx2	6	SS7IPGW					
1206 A	ipgwx2	7	SS7IPGW					
1101 A	ipgwx1	0	SS7IPGW					
1102 A	ipgwx1	1	SS7IPGW					
1103 A	ipgwx1	2	SS7IPGW					
1104 A	ipgwx1	3 4	SS7IPGW					
1105 A 1106 A	ipgwx1 ipgwx1	5	SS7IPGW SS7IPGW					
1100 A 1107 A	ipgwx1	6	SS7IPGW SS7IPGW					
1107 A	ipgwx1	7	SS7IIGW SS7IPGW					
1111 A	ipgwx2	0	SS7IPGW SS7IPGW					
1112 A	ipgwx2	1	SS7IPGW					
SLK table	is (30 of 3	1200)	2% full.					

3. Display the cards in the database using the rtrv-card command.

This is an example of the possible output.

rlghnc	xa03w 13-0	6-28 09:1	2:36 GMT EAG	LE5 45	5.0.0	0			
CARD	TYPE	APPL	LSET NAME	LINK	SLC	LSET	NAME	LINK	SLC
1101	DCM	SS7IPGW	ipgwx1	A	0				
1102	DCM	SS7IPGW	ipgwx1	A	1				
1103	DCM	SS7IPGW	ipgwx1	A	2				
1104	DCM	SS7IPGW	ipgwx1	A	3				
1105	DCM	SS7IPGW	ipgwx1	A	4				
1106	DCM	SS7IPGW	ipgwx1	A	5				
1107	DCM	SS7IPGW	ipgwx1	A	6				
1108	DCM	SS7IPGW	ipgwx1	A	7				
1111	DCM	SS7IPGW	ipgwx2	A	0				
1112	DCM	SS7IPGW	ipgwx2	A	1				
1113	E5MCAP	OAMHC							
1114	E5TDM-A								
1115	E5MCAP	OAMHC							
1116	E5TDM-B								
1117	E5MDAL								
1201	DCM	SS7IPGW	ipgwx2	A	2				
1202	DCM	SS7IPGW	ipgwx2	A	3				
1203	DCM	SS7IPGW	ipgwx2	A	4				
1204	DCM	SS7IPGW	ipgwx2	A	5				
1205	DCM	SS7IPGW	ipgwx2	A	6				
1206	DCM	SS7IPGW	ipgwx2	A	7				
1301	DCM	IPLIM	lsniplim	A	0	lsnip	lim	A1	1
			lsniplim	В1	2				
1303	ENET	IPSG	ipsglsn	A	0	ipsgl	sn	A1	1
			ipsglsn	B1	2	ipsgl	sn	A2	3
			ipsglsn	A3	4	ipsgl	sn2	В3	0
1305	LIMATM	ATMANSI	lsnds0	A	1				
1306	LIME1ATM	ATMITU	lsnituatm	A	0				
1307	ENET	IPSG	ipsglsn	A	5				
1311	DCM	IPLIM							
1312	LIMDS0	SS7ANSI	lsnds0	A	0				

If the required IPSG card is not in the database, perform the Adding an IPSG Card procedure and add the **IPSG** card to the database. After the IPSG card has been added, continue the procedure with 5.

If the required IPSG card is in the database, continue the procedure with 4.

4. Display the signaling links assigned to the IPSG card by entering the rtrv-slk command with the card location of the IPSG card. For this example, enter this command.

```
rtrv-slk:loc=2204
```

This is an example of the possible output.

rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0

LOC LINK LSN SLC TYPE ANAME SLKTPS 2204 B lsnlp2 0 IPSG m3ua 500



IPTPS for LOC = 2204 is (500 of 5000) 10%

An IPSG card can contain a maximum of 32 (128 for SLIC) IPSG signaling links. If 32 signaling links are shown in the rtrv-slk output, the new signaling link cannot be added to this card. Choose another IPSG card and repeat this procedure from 3.

If fewer than 32 signaling links are shown in the rtrv-slk output, continue the procedure by performing one of these actions.

- If the IPTPS value shown in the rtrv-slk output is less than the MaxTPS (see Maximum Card Capacity for Different Card Types for MaxTPS values), continue the procedure with 5.
- If the IPTPS value shown in the rtrv-slk output is the MaxTPS, the new signaling link cannot be added to this card. Choose another IPSG card and repeat this procedure from 3.
- 5. Display the IPSG and IPGWx linksets by entering the rept-stat-iptps command.

This is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0 IP TPS USAGE REPORT

THRESH PEAKTIMESTAMP	THRESH	CONFIG/	CONFIG/		TPS	PEAK	
	71111	RSVD	MAX				
LSN	1000		20000		2500	4000	10 07 10
ipgwx1 09:49:19	100%		32000	TX:	3700	4000	10-07-19
				RCV:	3650	4000	10-07-19
09:49:19 ipgwx2	100%		16000	TX:	4800	5000	10-07-19
09:49:09	1000		10000	171.	1000	3000	10 07 19
				RCV:	4850	5000	10-07-19
09:49:09 ipgwx3	100%		32000	TX:	427	550	10-07-19
09:49:19	1000		02000		12.		10 0. 13
00 10 10				RCV:	312	450	10-07-19
09:49:19 ipsglsn	100%	600	24000	TX:	4800	5000	10-07-19
09:49:19	1000	000	21000	111.	1000	0000	10 0, 13
00 10 10				RCV:	4800	5000	10-07-19
09:49:19 ipsglsn2	100%	600	4000	TX:	427	550	10-07-19
09:49:19	1000	000	1000	171.	12 /	330	10 07 19
				RCV:	312	450	10-07-19
09:49:19 isipgw	100%	500	4000	TX:	427	550	10-07-19
19:49:19	1009	500	4000	IV:	44/	330	10-01-19
				RCV:	312	450	10-07-19



09:49:19

Command Completed.

If the desired linkset is shown in the rept-stat-iptps output, continue the procedure with 6.

If the desired linkset is not shown in the rept-stat-iptps output, add the linkset by performing the Adding an IPSG M2PA Linkset procedure. Continue the procedure with one of these actions.

- If a new IPSG card was added in 3, continue the procedure with 7.
- If the signaling link will be assigned to an existing IPSG card, the RSVDSLKTPS value that is assigned to the linkset will be assigned to the signaling link. The sum of the TPS used by all the signaling links that are assigned to the IPSG card cannot exceed the MaxTPS. See Maximum Card Capacity for Different Card Types for MaxTPS values. The TPS used by the IPSG card and the TPS used by each signaling link that is assigned to the IPSG card is shown by entering the rtrv-slk command with the location of the IPSG card. If the MaxTPS limit for the IPSG card will be exceeded by adding the IPSG M2PA signaling link, one of these actions must be performed.
 - Another IPSG card must be used for the IPSG M2PA signaling link. Repeat this procedure from 3.
 - The RSVDSLKTPS values for the linksets shown in the rtrv-slk output for the IPSG card, shown in 4, must be reduced enough to allow the IPSG M2PA linkset to be added. Perform these procedures as necessary to change the RSVDSLKTPS values for the linksets. After the linksets have been changed, continue the procedure with 7.
 - Changing an IPSG M2PA Linkset
 - Changing an IPSG M3UA Linkset
- 6. Display the linkset that the signaling link will be assigned to using the rtrv-ls command, specifying the name of the linkset that the signaling link is being assigned to.

For this example, enter this command.

```
rtrv-ls:lsn=lsipqw
```

This is an example of the possible output.

rlghncxa03w 10-07-17 11:43:04 GMT EAGLE5 42.0.0

											-	
	SPCN		CLLI			TFA:	rcabi	MLQ M	TPRSI	E ASI	ւ8	
off	010 01	0 101	none	_	_	110	71	1	OII	OII	OII	
NIS lsipgw	010-01	0-101	none	1	1	no	Δ	1	off	off	off	
LSN	APCA	(SS7)	SCRN		SLT SET		LST	LNKS		GWS MES		SLSCI

RANDSLS

off



IPSG	IPGW	APC	GTTMODE		CGGTMOD	
yes	no		CdPA		no	
ADAPTE	ER		DSLKTPS	MAXSLKTPS		
m3ua		500		4000		
TPSALM	=		SEALM	SLKUSEALM		
rsvdsl	ktps	80%		80%		
RCONTE	EXT	ASNO	DTIF	NUMSLKALW	NUMSLKRSTR	
none		yes		1	1	1
	LINK S			ANAME		
1317 A	7 (0]	IPSG	m3ua20		

Link set table is (13 of 1024) 1% full.

If the IPSG value of the linkset is no, choose another linkset and repeat this procedure from 5.

If the IPSG value of the linkset is yes and the ADAPTER value is m2pa, choose another linkset and repeat this procedure from 5.

If the IPSG value of the linkset is yes, and the ADAPTER value is m3ua, continue the procedure by performing one of these actions.

- If a new IPSG card was added in 3, continue the procedure with 7.
- If the signaling link will be assigned to an existing IPSG card, the RSVDSLKTPS value that is assigned to the linkset will be assigned to the signaling link. The sum of the TPS used by all the signaling links that are assigned to the IPSG card cannot exceed MaxTPS. See Maximum Card Capacity for Different Card Types for MaxTPS values. The TPS used by the IPSG card and the TPS used by each signaling link that is assigned to the IPSG card is shown by entering the rtrv-slk command with the location of the IPSG card. If the MaxTPS limit for the IPSG card will be exceeded by adding the IPSG M2PA signaling link, one of these actions must be performed.
 - Another IPSG card must be used for the IPSG M2PA signaling link.
 Repeat this procedure from 3.
 - The RSVDSLKTPS values for the linksets shown in the rtrv-slk output for the IPSG card, shown in 4, must be reduced enough to allow the IPSG M2PA linkset to be added. Perform these procedures as necessary to change the RSVDSLKTPS values for the linksets. After the linksets have been changed, continue the procedure with 7.
 - * Changing an IPSG M3UA Linkset
 - * Changing an IPSG M2PA Linkset
- 7. Display the total provisioned system TPS by entering the rtrv-tps command. This is an example of the possible output.

rlghncxa03w 10-07-10 16:20:46 GMT EAGLE 42.0.0



CARD	NUM	NUM	RSVD	MAX
TYPE	CARDS	LINKS	TPS	TPS
IPGW	17	16	48000	80000
IPSG	4	8	4700	12000
IPLIM	2	4	8000	8000
ATM	2	2	3668	3668

Total provisioned System TPS (103668 of 500000) 21%

Command Completed.

An IPSG M3UA signaling link uses can use as much as the MaxTPS RSVDSLKTPS (see Maximum Card Capacity for Different Card Types for MaxTPS values), as provisioned by the rsvdslktps parameter of the linkset that the IPSG M3UA signaling link will be added to. If adding the new IPSG M3UA signaling link will not exceed the maximum total provisioned system TPS, continue the procedure with 11.

If adding the new IPSG M3UA signaling link will exceed the maximum total provisioned system TPS, and the maximum total provisioned system TPS is 500,000 shown, perform the "Activating the HIPR2 High Rate Mode Feature" procedure in the *Database Administration - System Management* to enable and turn on the HIPR2 High Rate Mode feature. When the HIPR2 High Rate Mode feature is enabled and turned on, the maximum total provisioned system TPS is increased to 1M. After the HIPR2 High Rate Mode feature has been enabled and turned on, continue the procedure with 11.

If the maximum total provisioned system TPS is 1M, or the maximum total provisioned system TPS is 500,000 and will not be increased, and adding the IPSG M3UA signaling link will exceed the maximum total provisioned system TPS, the IPSG M3UA signaling link cannot be added unless the amount of available TPS is reduced enough to allow the IPSG M3UA signaling link to be added. The available TPS can be increased by performing one or more of these actions.

- Some ATM high-speed signaling links have to be removed. To perform this action, continue the procedure with 8.
- An IPLIMx card that contains signaling links has to be removed. To perform this action, continue the procedure with 9.
- The IP TPS values of some IPGWx linksets have to be changed or the MAXSLKTPS values of some IPSG linksets (and the RSVDSLKTPS values if necessary) have to be changed.

If linksets are displayed in the rept-stat-iptps output in 5, continue the procedure with 10.

If linksets are not displayed in the rept-stat-iptps output in 5, perform one or more of these actions to increase the available TPS.

Note:

If one or more of these actions are not performed to increase the available TPS and the available TPS will not allow the IPSG M3UA signaling link to be added, the IPSG M3UA signaling link cannot be added and the remainder of this procedure cannot be performed.



- An IPLIMx card that contains signaling links has to be removed. To perform this action, continue the procedure with 9.
- Some ATM high-speed signaling links have to be removed. To perform this action, continue the procedure with 8.
- 8. Display the ATM high-speed signaling links by entering this command.

```
rtrv-slk:type=saal
```

This is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0

						LP		ATM			
LOC	LIN	ΙK	LSN	SLC	TYPE	SET	BPS	TSEL	VCI	VPI	LL
1303	A		lsnds0	1	LIMATM	1	1.544M	LINE	5	0	0
						LP		ATM			
E1ATN	1										
LOC	LIN	ΙK	LSN	SLC	TYPE	SET	BPS	TSEL	VCI	VPI	
CRC4	SI	SN	Ī								
1306	A		lsnituatm	0	LIME1ATM	21	2.048M	LINE	5	0	
ON	3	0									
_											

SLK table is (30 of 1200) 2% full.

If ATM high-speed signaling links are shown in the rtrv-slk output, perform the "Removing an SS7 Signaling Link" procedure in *Database Administration - SS7* to remove some of the ATM high-speed signaling links.

If ATM high-speed signaling links are not displayed in the rtrv-slk output, perform one or more of these actions to increase the available TPS.



If one or more of these actions are not performed to increase the available TPS and the available TPS will not allow the IPSG M3UA signaling link to be added, the IPSG M3UA signaling link cannot be added and the remainder of this procedure cannot be performed.

- An IPLIMx card that contains signaling links has to be removed. To perform this action, continue the procedure with 9.
- The IP TPS values of some IPGWx linksets have to be changed or the MAXSLKTPS values of some IPSG linksets (and the RSVDSLKTPS values if necessary) have to be changed.

If linksets are displayed in the rept-stat-iptps output in 5, continue the procedure with 10.

If linksets are not displayed in the rept-stat-iptps output in 5, an IPLIMx card that contains signaling links has to be removed. To perform this action, continue the procedure with 9.



If you do not wish to perform other actions to increase the available TPS and the available TPS will allow the IPSG M3UA signaling link to be added, continue the procedure with 11.

9. Display the signaling links that are assigned to IPLIMx cards by entering this command.

```
rtrv-slk:type=iplim
```

This is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0

LOC	LINK	LSN	SLC	TYPE	ANAME	SLKTPS
1301	A	lsniplim	0	IPLIM	M2PA	
1301	A1	lsniplim	1	IPLIM	M2PA	
1301	В1	lsniplim	2	IPLIM	M2PA	
1317	A	lsniplimi	0	IPLIMI	M2PA	

SLK table is (30 of 1200) 2% full.

If IPLIMx cards containing signaling links are shown in the rtrv-slk output, perform the Removing an IPLIMx Card procedure to remove an IPLIMx card and its associated signaling links.

If IPLIMx cards containing signaling links are not displayed in the rtrv-slk output, perform one or more of these actions to increase the available TPS.

Note:

If one or more of these actions are not performed to increase the available TPS and the available TPS will not allow the IPSG M3UA signaling link to be added, the IPSG M3UA signaling link cannot be added and the remainder of this procedure cannot be performed.

- Some ATM high-speed signaling links have to be removed. To perform this action, continue the procedure with 8.
- The IP TPS values of some IPGWx linksets have to be changed or the MAXSLKTPS values of some IPSG linksets (and the RSVDSLKTPS values if necessary) have to be changed.

If linksets are displayed in the rept-stat-iptps output in 5, continue the procedure with 10.

If linksets are not displayed in the rept-stat-iptps output in 5, some ATM high-speed signaling links have to be removed. To perform this action, continue the procedure with 8.

If you do not wish to perform other actions to increase the available TPS and the available TPS will allow the IPSG M3UA signaling link to be added, continue the procedure with 11.

10. Display the attributes of the linksets shown in 5 by entering the rtrv-ls command with the name of the linkset shown in 5.

For this example enter these commands.



rtrv-ls:lsn=ipgwx1

This is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0

LSN APCA (SS7) SCRN SET SET BEI LST LNKS ACT MES DIS SLSCI NIS ipgwx1 001-001-002 none 1 1 no A 8 off off off no off

SPCA CLLI TFATCABMLQ MTPRSE ASL8

RANDSLS off

IPSG IPGWAPC GTTMODE CGGTMOD no yes CdPA no

MATELSN IPTPS LSUSEALM SLKUSEALM ----- 32000 100% 80%

 LOC
 LINK
 SLC
 TYPE

 1101
 A
 0
 SS71PGW

 1103
 A
 2
 SS71PGW

 1104
 A
 3
 SS71PGW

 1105
 A
 4
 SS71PGW

 1106
 A
 5
 SS71PGW

 1107
 A
 6
 SS71PGW

 1108
 A
 7
 SS71PGW

Link set table is (8 of 1024) 1% full.

rtrv-ls:lsn=ipgwx2

This is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0

L3T SLT GWS GWS GWS LSN APCA (SS7) SCRN SET SET BEI LST LNKS ACT MES DIS SLSCI NIS ipgwx2 001-001-003 none 1 1 no A 8 off off off no off

SPCA CLLI TFATCABMLQ MTPRSE ASL8

RANDSLS

off

IPSG IPGWAPC GTTMODE CGGTMOD no yes CdPA no

MATELSN IPTPS LSUSEALM SLKUSEALM ----- 16000 100% 80%

 LOC
 LINK
 SLC
 TYPE

 1111
 A
 0
 SS7IPGW

 1112
 A
 1
 SS7IPGW

 1201
 A
 2
 SS7IPGW

 1202
 A
 3
 SS7IPGW

 1203
 A
 4
 SS7IPGW

 1204
 A
 5
 SS7IPGW

 1205
 A
 6
 SS7IPGW

 1206
 A
 7
 SS7IPGW

Link set table is (8 of 1024) 1% full.

rtrv-ls:lsn=ipgwx3

This is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0

LSN APCA (SS7) SCRN SET SET BEI LST LNKS ACT MES DIS SLSCI NIS ipgwx3 001-001-004 none 1 1 no A 0 off off no off

SPCA CLLI TFATCABMLQ MTPRSE ASL8

RANDSLS off

IPSG IPGWAPC GTTMODE CGGTMOD no yes CdPA no

MATELSN IPTPS LSUSEALM SLKUSEALM ----- 32000 100% 80%

Link set table is (8 of 1024) 1% full.

rtrv-ls:lsn=ipsglsn

This is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0

L3T SLT GWS GWS GWS APCA (SS7) SCRN SET SET BEI LST LNKS ACT MES DIS LSN SLSCI NIS ipsglsn 003-003-003 none 1 1 no A 6 off off no off SPCA CLLI TFATCABMLQ MTPRSE ASL8 ----- 3 RANDSLS off IPSG IPGWAPC GTTMODE CGGTMOD yes no CdPA no ADAPTER SLKTPS LSUSEALM SLKUSEALM RCONTEXT ASNOTIF m2pa 600 100% 80% none no LOC LINK SLC TYPE ANAME 1303 A 0 IPSG ipsgm2pa1 1303 A1 1 IPSG ipsgm2pa2 1303 B1 2 IPSG ipsgm2pa3 1303 A2 3 IPSG ipsgm2pa4 1303 A3 4 IPSG ipsgm2pa5 1307 A 5 IPSG m2pa2

Link set table is (8 of 1024) 1% full.

rtrv-ls:lsn=ipsglsn2

This is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0

L3T SLT GWS GWS GWS APCA (SS7) SCRN SET SET BEI LST LNKS ACT MES DIS SLSCI NIS ipsglsn2 005-005-005 none 1 1 no A 1 off off off no off SPCA TFATCABMLQ MTPRSE ASL8 CLLI ----- 1 no RANDSLS off IPSG IPGWAPC GTTMODE CGGTMOD yes no CdPA ADAPTER SLKTPS LSUSEALM SLKUSEALM RCONTEXT ASNOTIF

```
m2pa 1000 100% 80% none no

LOC LINK SLC TYPE ANAME

1303 B3 0 IPSG ipsgm2pa6
```

Link set table is (8 of 1024) 1% full.

Perform one or both of these actions as necessary.

- Perform the Configuring an IPGWx Linkset procedure to change the IPTPS value for any linksets shown in the rtrv-ls output whose IPGWAPC value is yes.
- Perform the Changing an IPSG M2PA Linkset procedure (for linkset whose IPSG value is yes and ADAPTER value is M2PA) or the Changing an IPSG M3UA Linkset procedure (for linkset whose IPSG value is yes and ADAPTER value is M3UA) to change the MAXSLKTPS value (and RSVDSLKTPS value if necessary) for any linksets shown in the rtrv-ls output.

Perform one or both of these actions to increase the available TPS if needed.

- An IPLIMx card that contains signaling links has to be removed. To perform this action, continue the procedure with 9.
- Some ATM high-speed signaling links have to be removed. To perform this action, continue the procedure with 8.

If you do not wish to perform other actions to increase the available TPS and the available TPS will allow the IPSG M3UA signaling link to be added, continue the procedure with 11.

11. Display the associations that are assigned to the card that will be assigned to the signaling link by entering rtrv-assoc command with the location of the card. For this example, enter this command.

```
rtrv-assoc:loc=2204
```

This is an example of the possible output.

rlghncxa03w 06-10-17 11:43:04 GMT EAGLE5 36.0.0

	CARD	IPLNK						
ANAME	LOC	PORT	LINK	ADAPTER	LPORT	RPORT	OPEN	ALW
m3ua2	2204	A	В	M3UA	3001	3000	NO	YES
m3ua3	2204	A		M3UA	3002	3000	YES	YES
m3ua4	2204	A	**	M3UA	3003	3000	YES	YES

```
IP Appl Sock/Assoc table is (7 of 4000) 1\% full Assoc Buffer Space Used (1400 KB of 6400 KB) on LOC = 2204
```

To assign an association to an IPSG M3UA signaling link, the ADAPTER value for that association must be M3UA. If the ADAPTER value for the associations displayed in this step is not M3UA, add the IPSG M3UA association by performing the Adding an IPSG M3UA Association procedure. After the association has been added, continue the procedure with 15.



If the ADAPTER value of the associations displayed in this step is M3UA, and the association is not assigned to a signaling link (shown by dashes in the LINK column), continue the procedure with 15.

If the ADAPTER value of the associations displayed in this step is M3UA, and the association is assigned to a signaling link, continue the procedure with 12.

12. Display the signaling links that the association is assigned to by entering the rtrv-slk command with the name of the association that will be added to the signaling link. For this example, enter this command.

```
rtrv-slk:aname=m3ua4
```

This is an example of the possible output.

```
rlghncxa03w 06-10-17 11:43:04 GMT EAGLE5 36.0.0
```

LOC	LINK	LSN	SLC	TYPE	ANAME	SLKTPS
2204	A	m3ua1	0	IPSG	m3ua4	300
2204	A2	m3ua2	0	IPSG	m3ua4	300
2204	A12	m3ua3	1	IPSG	m3ua4	300

An IPSG M3UA association can be assigned to a maximum of 16 IPSG M3UA signaling links. If 16 signaling links are shown in this step, choose another IPSG card and repeat this procedure from 3.

If 15 or less signaling links are shown in this step, continue the procedure from 13.

13. Display all the linksets that contain the signaling links shown in 12by entering the rtrv-ls command with the linkset name shown in 12. For this example, enter this command.

```
rtrv-ls:lsn=m3ua1
```

This is an example of the possible output.

m3ua

rlghncxa03w 10-07-17 11:43:04 GMT EAGLE5 42.0.0

300

LSN SLSCI	NIS	AP	CA	(SS7)	SCRN	L3T SET		BEI	LST	LNKS		GWS MES	
m3ua1	off	00	2-002	-003	none	1	1	no	A	1	off	off	off
		SP	CA 		CLLI			TFA:	rcabi	MLQ M'	TPRSI 	E ASI no	78
		RANDS off	LS										
		IPSG yes	IPGW no		GTTMODE CdPA	Ξ		(CGGTN no	MOD			
		ADAPT	ER	RSVDS	SLKTPS	MΑΣ	KSLK:	ΓPS					

4000



TPSALM LSUSEALM SLKUSEALM rsvdslktps 100% 80%

RCONTEXT ASNOTIF NUMSLKALW NUMSLKRSTR NUMSLKPROH

25 yes 1 1 1

LOC LINK SLC TYPE ANAME 2204 A 0 IPSG m3ua4

Link set table is (13 of 1024) 1% full.

rtrv-ls:lsn=m3ua2

This is an example of the possible output.

rlghncxa03w 10-07-17 11:43:04 GMT EAGLE5 42.0.0

LSN APCA (SS7) SCRN SET SET BEI LST LNKS ACT MES DIS SLSCI

NIS

m3ua2 002-002-004 none 1 1 no A 1 off off off no

off

SPCA CLLI TFATCABMLQ MTPRSE ASL8

RANDSLS

off

IPSG IPGWAPC GTTMODE CGGTMOD yes no CdPA no

ADAPTER RSVDSLKTPS MAXSLKTPS m3ua 300 4000

TPSALM LSUSEALM SLKUSEALM

rsvdslktps 100% 80%

RCONTEXT ASNOTIF NUMSLKALW NUMSLKRSTR NUMSLKPROH 50 yes 1 1 1

LOC LINK SLC TYPE ANAME 2204 A2 0 IPSG m3ua4

Link set table is (13 of 1024) 1% full.

rtrv-ls:lsn=m3ua3

This is an example of the possible output.

rlghncxa03w 10-07-17 11:43:04 GMT EAGLE5 42.0.0

L3T SLT GWS GWS GWS LSN APCA (SS7) SCRN SET SET BEI LST LNKS ACT MES DIS SLSCI NIS m3ua3 002-002-005 none 1 1 no A 1 off off off off no CLLI TFATCABMLQ MTPRSE ASL8 SPCA ----- ----RANDSLS off IPSG IPGWAPC GTTMODE CGGTMOD yes no CdPA no ADAPTER RSVDSLKTPS MAXSLKTPS 300 4000 m3ua TPSALM LSUSEALM SLKUSEALM rsvdslktps 100% 80% RCONTEXT ASNOTIF NUMSLKALW NUMSLKRSTR NUMSLKPROH 75 1 1 yes LOC LINK SLC TYPE ANAME 2204 A12 0 IPSG m3ua4

Link set table is (13 of 1024) 1% full.

14. Display the linkset that will be assigned to the new signaling link by entering the rtrv-ls command with the name of the linkset. For this example, enter this command.

rtrv-ls:lsn=lsipgw

This is an example of the possible output.

rlghncxa03w 10-07-17 11:43:04 GMT EAGLE5 42.0.0

LSN APCA (SS7) SCRN SET SET BEI LST LNKS ACT MES DIS SLSCI NIS lsipgw 010-010-101 none 1 1 no A 1 off off off --- off

SPCN CLLI TFATCABMLQ MTPRSE ASL8

RANDSLS off

IPSG IPGWAPC GTTMODE CGGTMOD yes no CdPA no

ADAPTER m3ua	RSVDSLKTPS 500	MAXSLKTPS 4000		
TPSALM rsvdslktps	LSUSEALM 100%	SLKUSEALM 80%		
RCONTEXT none	ASNOTIF yes	NUMSLKALW 1	NUMSLKRSTR 1	NUMSLKPROH 1
	SLC TYPE O IPSG	ANAME m3ua20		

Link set table is (13 of 1024) 1% full.

To assign an IPSG M3UA association to more than one signaling link, the linksets that contain the signaling links must contain unique routing context (RCONTEXT) values. If the linkset displayed in this step contains a unique routing context value, compared to the routing context values shown in 13, continue the procedure with 15.

If the linkset displayed in this step does not contain a unique routing context value, perform the Changing an IPSG M3UA Linkset procedure to change the routing context value in this linkset that is unique, compared to the routing context values shown in 13. After the Changing an IPSG M3UA Linkset procedure has been performed, continue the procedure with 15.

15. Add the signaling link to the database using the ent-slk command.

Table 6-9 shows the parameters and values that can be specified with the ent-slk command.

Table 6-9 IPSG M3UA Signaling Link Parameter Combinations

IPSG M3UA Signaling Link Mandatory Parameters :loc = location of the IPSG card :link = a - a15, b - b15 :lsn = linkset name :slc = 0 - 15 :aname = the name of the IPSG M3UA association

For this example, enter this command.

```
ent-slk:loc=2204:link=a10:lsn=lsipqw:slc=1:aname=m3ua4
```

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

```
rlghncxa03w 06-10-07 08:29:03 GMT EAGLE5 36.0.0 ENT-SLK: MASP A - COMPLTD
```



If adding the new signaling link will result in more than 700 signaling links in the database and the OAMHCMEAS value in thertry-measopts output ison, the scheduled UI measurement reports will be disabled.

16. Verify the changes using the rtrv-slk command with the card location and link parameter values specified in **15**. For this example, enter these commands.

```
rtrv-slk:loc=2204:link=a10
```

This is an example of the possible output.

```
rlghncxa03w 06-10-19 21:16:37 GMT EAGLE5 36.0.0
```

LOC	LINK	LSN	SLC	TYPE	ANAME	SLKTPS
2204	A10	lsipaw	1	IPSG	m3ua4	500

17. If any cards contain the first signaling link on a card, those cards must be brought into service with the rst-card command, specifying the location of the card. For this example, enter this command.

```
rst-card:loc=2205
```

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

```
rlghncxa03w 06-10-23 13:05:05 GMT EAGLE5 36.0.0 Card has been allowed.
```

18. Activate all signaling links on the cards using the act-slk command, specifying the card location and link parameter value of each signaling link. For this example, enter this command.

```
act-slk:loc=2204:link=a10
```

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

```
rlghncxa03w 06-10-07 08:31:24 GMT EAGLE5 36.0.0 Activate Link message sent to card
```

19. Check the status of the signaling links added in 15 using the rept-stat-slk command with the card location and link parameter values specified in 15. The state of each signaling link should be in service normal (IS-NR) after the link has completed alignment (shown in the PST field). For this example, enter these commands.

```
rept-stat-slk:loc=2204:link=a10
```

This is an example of the possible output.

```
rlghncxa03w 07-05-23 13:06:25 GMT EAGLE5 37.0.0

SLK LSN CLLI PST SST AST

2204,A10 lsipgw ------ IS-NR Avail ----
```



```
ALARM STATUS = UNAVAIL REASON =
```

If the OPEN value of the association that was assigned to the signaling link is yes, continue the procedure with 21.

If the OPEN value of the association that was assigned to the signaling link is nos, continue the procedure with 20.

20. Change the open parameter value of the association that was assigned to the signaling link by entering the chg-assoc command with the open=yes parameter and the name of the association that was association. For this example, enter this command.

```
chg-assoc:aname=m3ua4:open=yes
```

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

```
rlghncxa03w 06-10-07 08:29:03 GMT EAGLE5 36.0.0 CHG-ASSOC: MASP A - COMPLTD
```

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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

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

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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

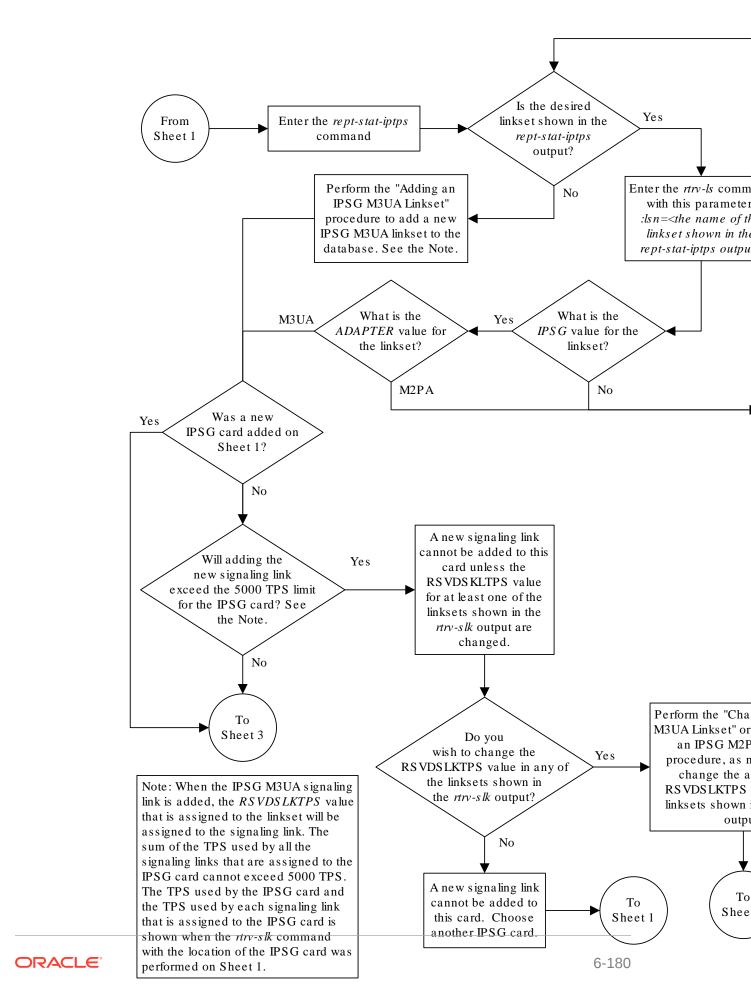


Enter the rtrv-tbl-capacity command. Will the addition What is the of the signaling link Yes maximum number of signaling exceed the maximum number of links the EAGLE 5 ISS can signaling links the EAGLE have? 5 ISS can have? Less No than Perform the "Enabling the 2800 Large System # Links From Enter the Controlled Feature" Sheets 2 rtrv-slk command. procedure to enable the or 6 desired quantity of signaling links. Enter the rtrv-card command. Is the Perform the "Adding an required card in the No IPSG Card" procedure to database? See add the IPSG card to the the Note. database. Yes Note: The card type must be ENET and card's application must be IPSG. Enter the rtrv-slk command with this parameter. :loc=<IPSG card location> An IPSG card can How many contain a maximum 32 signaling links are of 32 IPSG signaling assigned to the links. Choose card? another IPSG card. Less than 32 A new signaling Less than link cannot be How many 5000 5000 TPS is currently added to this To card. Choose shown in the rtrv-slk Sheet 2 another IPSG output? card.

Figure 6-11 Adding an IPSG M3UA Signaling Link

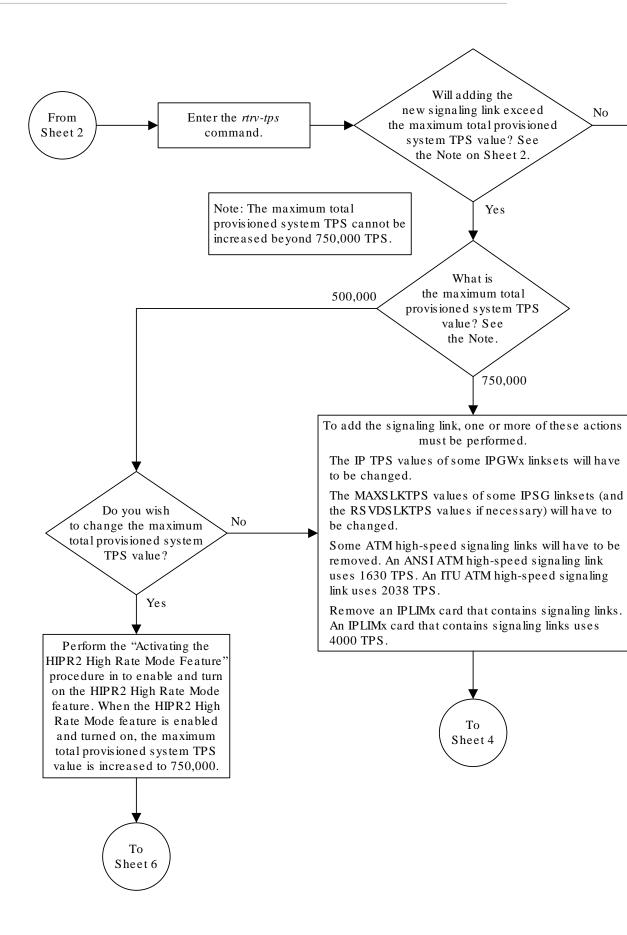
Sheet 1 of 7





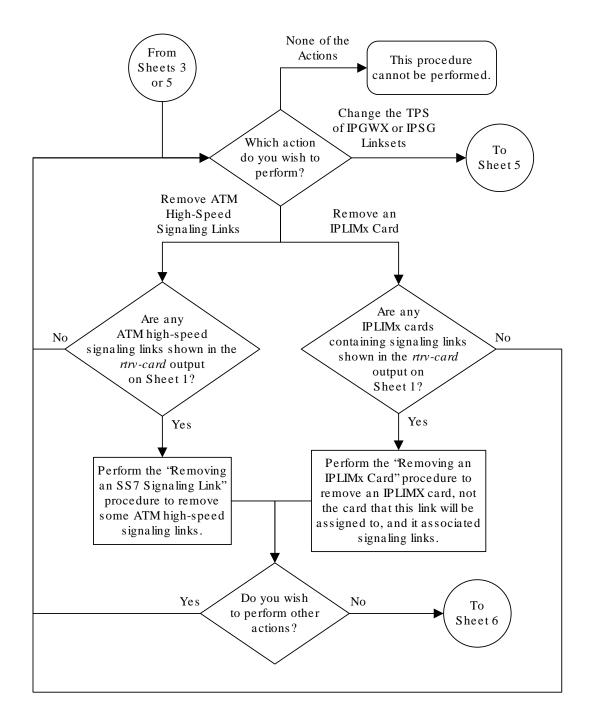
Sheet 2 of 7





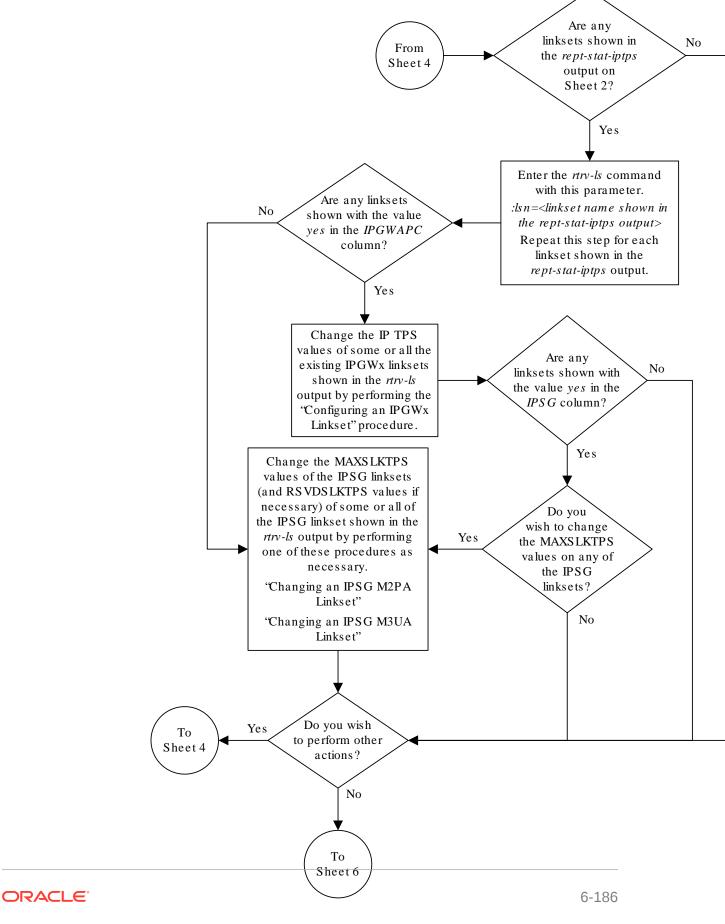
Sheet 3 of 7





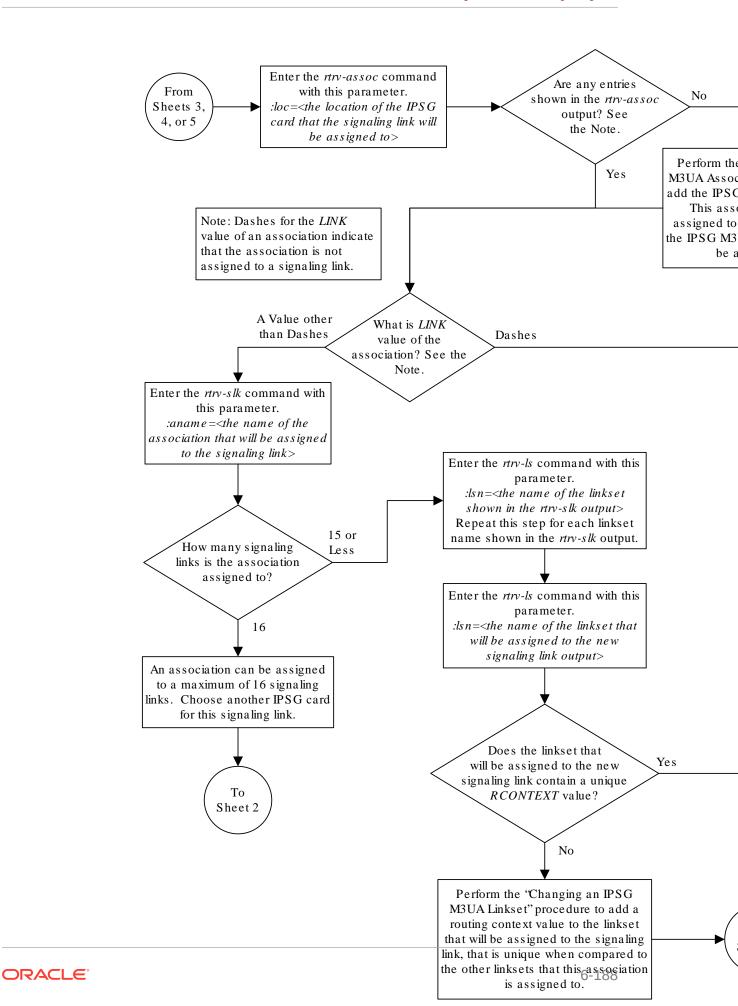
Sheet 4 of 7





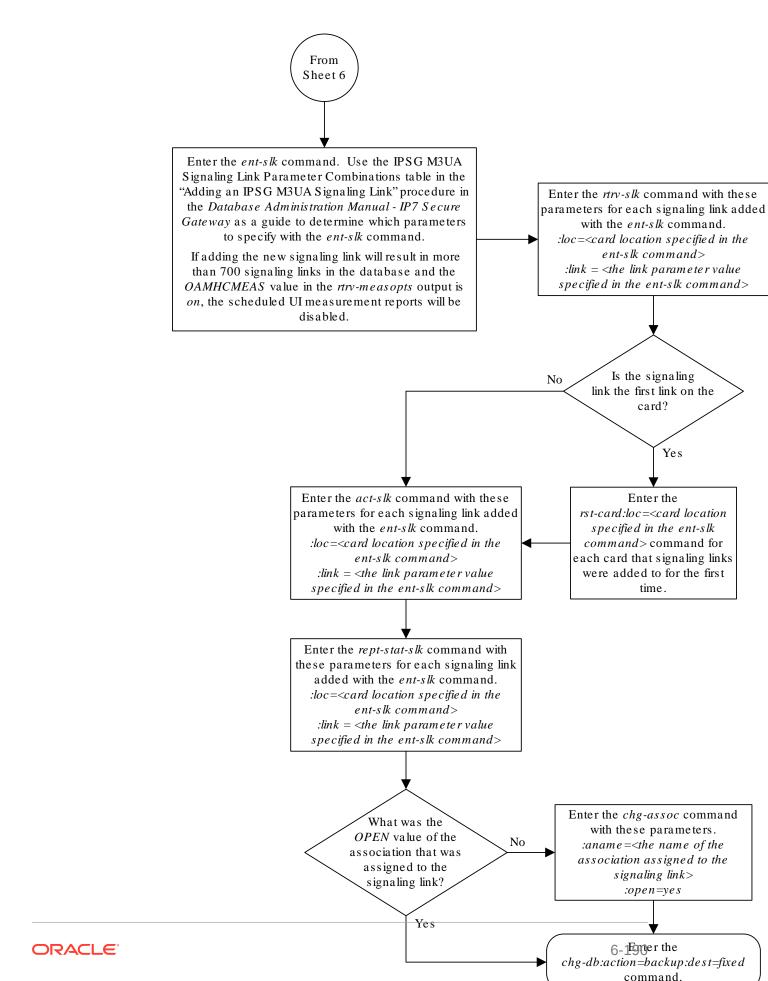
Sheet 5 of 7





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Sheet 7 of 7

Adding a Network Appearance

The network appearance field identifies the **SS7** network context for the message, for the purpose of logically separating the signaling traffic between the **SGP** (signaling gateway process) and the **ASP** (application server process) over a common **SCTP** (stream control transmission protocol) association. This field is contained in the **DATA**, **DUNA**, **DAVA**, **DRST**, **DAUD**, **SCON**, and **DUPU** messages.

The network appearance is provisioned in the database using the ent-na command with these parameters.

:na – the 32-bit value of the network appearance, from 0 to 4294967295.

:type – the network type of the network appearance, ansi (ANSI), itui (ITU-I), itun (14-bit ITU-N), itun24 (24-bit ITU-N), ituis (ITU-I Spare), ituns (14-bit ITU-N Spare).

:gc – the specific **ITU-**N group code associated with the network appearance.

The gc parameter can be specified only with the type=itun or type=ituns parameters.

The gc parameter must be specified with the type=itun or type=ituns parameters if the ITU Duplicate Point Code feature is on. If the ITU Duplicate Point Code feature is off, the gc parameter cannot be specified.

The gc parameter value must be shown in the rtrv-spc or rtrv-sid outputs.

The ituis or ituns parameters can be specified only if the ITU National and International Spare Point Code Support feature is enabled.

1. Display the network appearances in the database with the rtrv-na command. This is an example of the possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0

TYPE GC NA

ANSI -- 100

ITUN FR 4000000000

ITUN GE 1000000000
```



If thegc parameter is not being specified in this procedure, continue the procedure with4.

2. Display the self-identification of the **EAGLE** using the rtrv-sid command. This is an example of the possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0

PCA PCI PCN CLLI PCTYPE

001-001-001 1-200-6 13482 rlghncxa03w OTHER
```



CPCA 002-002-002 002-002-006 004-002-001	002-002-003 002-002-007 004-003-003	002-002-004 002-002-008 144-212-003	002-002-005 002-002-009
CPCA (LNP) 005-005-002	005-005-004	005-005-005	
CPCI 1-001-1	1-001-2	1-001-3	1-001-4
CPCN 02091 02191	02092 02192	02094 11177	02097

If the desired group code is shown in the rtrv-sid output, continue the procedure with 4.

3. Display the secondary point codes in the database with the rtrv-spc command. This is an example of the possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
SPC (Secondary Point Codes)
SPCA
001-010-010
002-010-010
003-010-010
SPC-I
1-253-5
2-254-6
3-255-7
SPC-N
10-01-11-1-fr
13-02-12-0-ge
13-02-12-0-uk
SPC-N24
none
Secondary Point Code table is (9 of 40) 23% full
```

If the desired group code is not shown in the rtrv-spc or rtrv-sid outputs, go to the "Adding a **Secondary Point Code**" procedure in *Database Administration* - **SS7** *User's Guide* to turn the **ITU** Duplicate **Point Code** feature on, and add a secondary point code to the database with the desired group code value.

If the ituis or ituns parameters will not be specified in this procedure, continue the procedure with 5.

If the ituis or ituns parameters will be specified in this procedure, and ITU-I spare or 14-bit ITU-N spare network appearances are shown in the rtrv-na output in 1, or ITU-I spare or 14-bit ITU-N spare point codes are shown in the rtrv-sid output in 2, continue the procedure with 5.

4. Display the status of the **ITU** National and International **Spare Point Code** Support feature by entering the rtrv-ctrl-feat command with the **ITU** National and International **Spare Point Code** Support feature part number. Enter this command.

```
rtrv-ctrl-feat:partnum=893013601
```

The following is an example of the possible output.

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
The following features have been permanently enabled:
Feature Name
                          Partnum
                                     Status Quantity
Spare Point Code Support 893013601 on
The following features have been temporarily enabled:
Feature Name
                                                         Trial Period
                          Partnum
                                    Status Ouantity
T.eft
Zero entries found.
The following features have expired temporary keys:
Feature Name
                         Partnum
Zero entries found.
```

If the ITU National and International Spare Point Code Support feature is not enabled, perform the "Activating the ITU National and International Spare Point Code Support feature" procedure in *Database Administration* - SS7 *User's Guide* and enable and turn on the ITU National and International Spare Point Code Support feature.

5. Add the network appearance to the database with the ent-na command.

If the gc parameter is specified with the ent-na command, the gc parameter value must be shown in the rtrv-sid output in 2, or assigned to an ITU-N point code (SPC-N) shown in the rtrv-spc output in 3. For this example, enter these commands.

```
ent-na:na=1000:type=itui
ent-na:na=3:type=itun24
ent-na:na=150000:type=itun:gc=uk
ent-na:na=2000:type=ituis
ent-na:na=5000:type=ituns:gc=sp
```

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

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 ENT-NA: MASP A - COMPLTD
```



6. Verify the changes using the rtrv-na command. This is an example of the possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
TYPE
      GC
                 NA
ANSI
      --
                 100
      --
ITUI
                1000
ITUN uk
              150000
ITUN fr 400000000
ITUN ge 100000000
ITUN24 --
ITUIS --
                2000
ITUNS
                5000
     sp
```

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

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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

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

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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



Enter the rtrv-na command Yes Enter the rtrv-sid Is the gc parameter to be specified? command No Is the desired gcYes parameter value shown in the rtrv-sid output? No Enter the rtrv-spc command Is the desired gcYes parameter value shown in the rtrv-spc output? No Perform the "Adding a Secondary Point Code" procedure in the Database To Administration Manual - SS7 and add a Sheet 2 secondary point code to the database

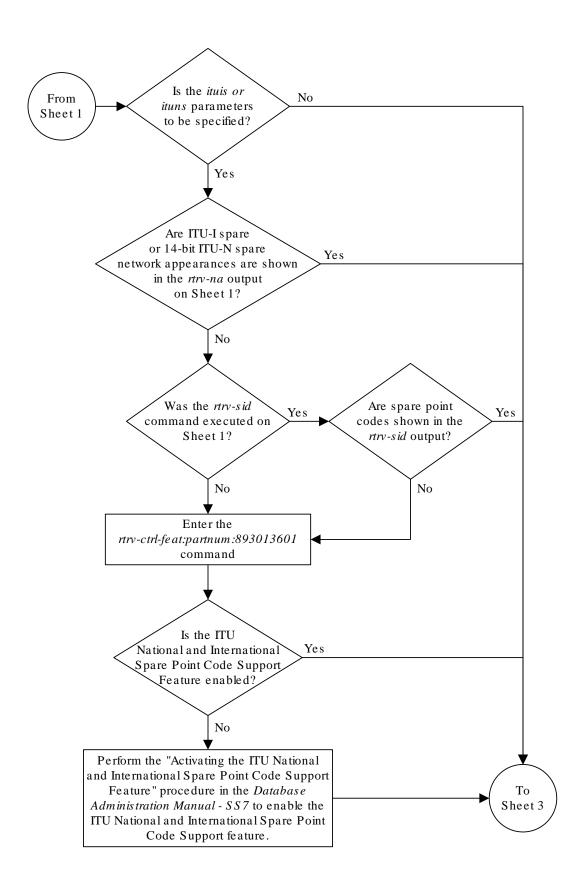
Figure 6-12 Adding a Network Appearance



with the desired group code value.

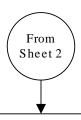
Sheet 1 of 3





Sheet 2 of 3





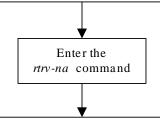
Enter the

ent-na command with these mandatory parameters:

:na=<0 - 4294967295>

:type = <ansi, itui, itun, itun24, ituis, ituns> and this optional parameter:

:gc = <group code for 14-bit ITU-N point codes or 14-bit ITU-N spare point codes> (See Notes 1 through 4)



Enter the chg-db:action=backup:dest=fixed command

Notes:

- 1. The group code value (gc) must be shown in the rtv-sid or rtv-spc output.
- 2. The gc parameter can be specified with the type=itun or type=ituns parameters, but cannot be specified with the type=ansi, type=itui, type=ituis or type=itun24 parameters.
- 3. If group codes are shown in the *rtrv-sid* or *rtrv-spc* outputs, the *gc* parameter must be specified with the *type=itun* or *type=ituns* parameters.
- 4. The *type=ituis* or *type=ituns* parameters can be specified only if the ITU National and International Spare Point Code Support feature is enabled.



Sheet 3 of 3

Activating the Large MSU Support for IP Signaling Feature

This procedure is used to enable and turn on the Large **MSU** Support for **IP** Signaling feature using the feature's part number and a feature access key.

The feature access key for the Large **MSU** Support for **IP** Signaling feature is based on the feature's part number and the serial number of the **EAGLE**, making the feature access key site-specific.

The <code>enable-ctrl-feat</code> command enables the controlled feature by inputting the controlled feature's access key and the controlled feature's part number with these parameters:



As of Release 46.3, the ${\tt fak}$ parameter is no longer required. This parameter is only used for backward compatibility.

: fak – The feature access key provided by Oracle. The feature access key contains 13 alphanumeric characters and is not case sensitive.

:partnum - The Oracle-issued part number of the Large MSU Support for IP Signaling feature, 893018401.

The <code>enable-ctrl-feat</code> command requires that the database contain a valid serial number for the <code>EAGLE</code>, and that this serial number is locked. This can be verified with the <code>rtrv-serial-num</code> command. The <code>EAGLE</code> 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 <code>EAGLE</code> is on-site, by using the <code>ent-serial-num</code> command. The <code>ent-serial-num</code> command uses these parameters.

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

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

Note:

To enter and lock the **EAGLE**'s serial number, the <code>ent-serial-num</code> command must be entered twice, once to add the correct serial number to the database with the <code>serial</code> parameter, then again with the <code>serial</code> and the <code>lock=yes</code> parameters to lock the serial number. You should verify that the serial number in the database is correct before locking the serial number. The serial number can be found on a label affixed to the control shelf (shelf 1100).



This feature cannot be temporarily enabled (with the temporary feature access key).

Once this feature has been enabled, the feature must be turned on with the <code>chg-ctrl-feat</code> command. The <code>chg-ctrl-feat</code> command uses these parameters:

:partnum - The Oracle-issued part number of the Large MSU Support for IP Signaling feature, 893018401.

:status=on - used to turn the Large MSU Support for IP Signaling feature on.

Once the Large MSU Support for IP Signaling feature has been turned on, it be can be turned off. For more information about turning the Large MSU Support for IP Signaling feature off, go to the Turning Off the Large MSU Support for IP Signaling Feature procedure.

The status of the features in the **EAGLE** is shown with the rtry-ctrl-feat command.

The Large MSU Support for IP Signaling feature allows the EAGLE to process messages with a service indicator value of 6 to 15 and with a service information field (SIF) that is larger than 272 bytes. The large messages are processed only on E5-ENET cards. There are certain software components that if enabled or provisioned, that will not process large messages even if the Large MSU Support for IP Signaling feature is enabled and turned on. UIMs are displayed when most of these circumstances occur. These UIMs are:

- UIM 1333 Displayed when a large message is received on an M3UA association and the Large MSU Support for IP Signaling feature is not enabled or is enabled and turned off. The large message is discarded.
- UIM 1350 Displayed when a M2PA IP connection receives message with an SIF greater than 272 bytes and the Large MSU Support for IP Signaling feature is not enabled or is enabled and turned off. The large message is discarded.
- UIM 1352 Displayed when a message with an SIF greater than 272 bytes is received; the Large MSU Support for IP Signaling feature is enabled and turned on; there are routes available for the destination point code; but the selected outbound card does not support large messages.
- UIM 1353 Displayed when a large message passes a gateway screening screenset that redirects messages for the Database Transport Access (DTA) feature. Large messages are not redirected for the DTA feature.

For more information on these **UIM**s, refer to *Unsolicited Alarm and Information Messages Reference*.



Large messages are not monitored by the EAGLE 5 Integrated Monitoring Support feature and are not sent to the **IMF**. A **UIM** is not generated.

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 08-04-28 21:15:37 GMT EAGLE5 38.0.0 The following features have been permanently enabled:
```



Feature Name	Partnum	Status	Quantity
Command Class Management	893005801	on	
LNP Short Message Service	893006601	on	
Intermed GTT Load Sharing	893006901	on	
XGTT Table Expansion	893006101	on	400000
XMAP Table Expansion	893007710	off	
Large System # Links	893005910	on	2000
Routesets	893006401	on	6000
HC-MIM SLK Capacity	893012707	on	64
The following features have	<i>r</i> e been temp	porarily	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 Large MSU Support for IP Signaling feature is enabled and turned on, no further action is necessary. This procedure does not need to be performed.

If the Large MSU Support for IP Signaling feature is enabled and but not turned on, continue this procedure with 7.

If the Large MSU Support for IP Signaling feature is not enabled, continue this procedure with 2.

Note:

If thertry-ctrl-feat output in 1 shows any controlled features, continue this procedure with 6. If the rtrv-ctrl-feat output shows only the HC-MIM SLK Capacity feature with a quantity of 64, 2 through 5 must be performed.

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

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
System serial number = nt00001231
System serial number is not locked.
```

rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0 Command Completed





If the serial number is correct and locked, continue the procedure with 6. If the serial number is correct but not locked, continue the procedure with 5. If the serial number is not correct, but is locked, this feature cannot be enabled and the remainder of this procedure cannot be performed. Contact the Customer Care Center to get an incorrect and locked serial number changed. Refer to My Oracle Support (MOS) for the contact information. The serial number can be found on a label affixed to the control shelf (shelf 1100).

3. Enter the correct serial number into the database using the ent-serial-num command with the serial parameter.

For this example, enter this command.

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

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

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0 ENT-SERIAL-NUM: MASP A - COMPLTD
```

4. Verify that the serial number entered into 3 was entered correctly using the rtrv-serial-num command.

This is an example of the possible output.

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
System serial number = nt00001231
System serial number is not locked.
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
Command Completed
```

If the serial number was not entered correctly, repeat 3 and 4 and re-enter the correct serial number.

5. Lock the serial number in the database by entering the ent-serial-num command with the serial number shown in 2, if the serial number shown in 2 is correct, or with the serial number shown in 4, if the serial number was changed in 3, and with the lock=yes parameter.

For this example, enter this command.

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

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

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0 ENT-SERIAL-NUM: MASP A - COMPLTD
```



6. Enable the Large MSU Support for IP Signaling feature with the enable-ctrl-feat command specifying the part number for the Large MSU Support for IP Signaling feature and the feature access key. Enter this command.

enable-ctrl-feat:partnum=893018401:fak=<Large MSU Support
for IP Signaling feature access key>



A temporary feature access key cannot be specified to enable this feature.



The values for the feature access key (the fak parameter) are provided by Oracle. If you do not have the feature access key for the feature you wish to enable, contact your Sales Representative or Account Representative.

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

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0 ENABLE-CTRL-FEAT: MASP B - COMPLTD
```

7. Turn the Large MSU Support for IP Signaling feature on with the chg-ctrl-feat command specifying the part number for the Large MSU Support for IP Signaling feature and the status=on parameter. Enter this command.

```
chg-ctrl-feat:partnum=893018401:status=on
```

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

```
rlghncxa03w 07-05-28 21:15:37 GMT EAGLE5 37.0.0 CHG-CTRL-FEAT: MASP B - COMPLTD
```

8. Verify the changes by entering the rtrv-ctrl-featcommand with the Large MSU Support for IP Signaling feature part number. Enter this command.

```
rtrv-ctrl-feat:partnum=893018401
```

The following is an example of the possible output.

rlghncxa03w 10-04-28 21:15:37 GMT EAGLE5 42.0.0 The following features have been permanently enabled:

```
Feature Name Partnum Status Quantity Large MSU for IP Sig 893018401 on ----
```

The following features have been temporarily enabled:



Feature Name Partnum Status Quantity Trial Period

Left

Zero entries found.

The following features have expired temporary keys:

Feature Name Partnum

Zero entries found.

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

 ${\tt BACKUP}$ (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.



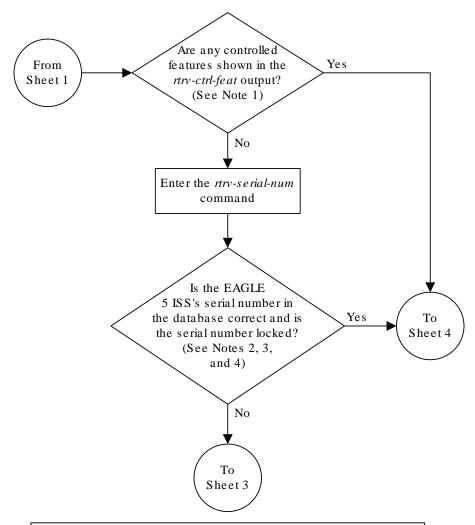
Enter the rtrv-ctrl-fe at command Is the Large MSU No To Support for IP Signaling Sheet 2 feature enabled? Yes Is the status The Large MSU Support for IP of the Large MSU On Signaling feature is enabled and Support for IP Signaling turned on. No further action is feature on necessary. or off? Off Enter the chg-ctrl-feat command with these parameters: :partnum=893018401 :status = onEnter the rtrv-ctrl-feat command with this parameter: :partnum=893018401 Enter the chg-db:action=backup:dest=fixed command

Figure 6-13 Activating the Large MSU Support for IP Signaling Feature



Sheet 1 of 4





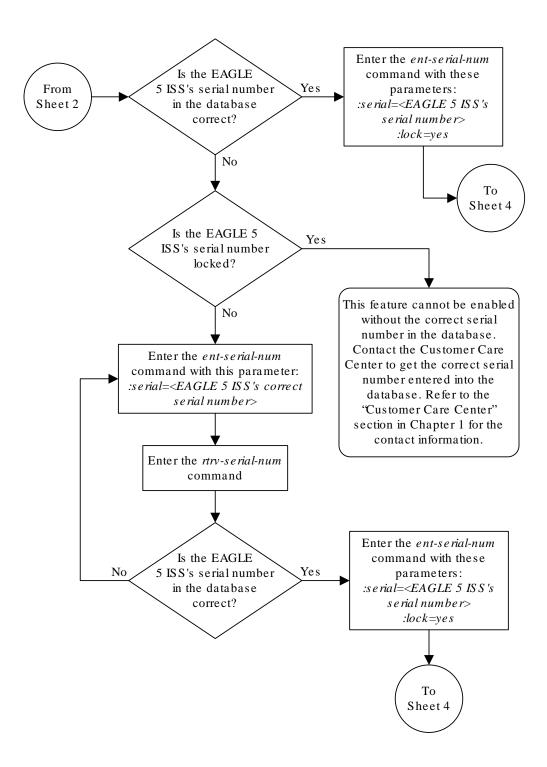
Notes:

- 1. If the *rtrv-ctrl-feat* output shows only the HC-MIM SLK Capacity feature with a quantity of 64, the answer to this question is no and the Eagle 5 ISS's serial number must be verified. This is the default entry for the *rtrv-ctrl-feat* output. This entry is shown whether or not the Eagle 5 ISS's serial number is in the database.
- 2. If the serial number is locked, it cannot be changed.
- 3. If the serial number is not locked, the controlled feature cannot be enabled.
- 4. The serial number can be found on a label affixed to the control shelf (shelf 1100).



Sheet 2 of 4

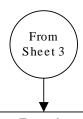






Sheet 3 of 4



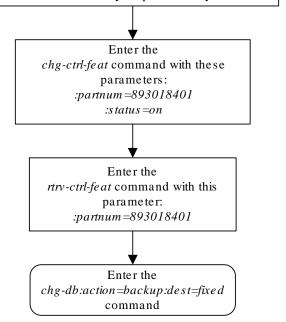


Enter the

enable-ctrl-feat command with these parameters:
:partnum=893018401
:fak=<Large MSU Support for IP Signaling feature
access key>

Notes:

- 1. If you do not have the feature access key for the Large MSU Support for IP Signaling feature, contact your Tekelec sales representative or account representative.
- 2. This feature can only be permanently enabled.





Removing IPSG Components

This section describes how to remove the following components from the database.

- An IPSG Card Perform the Removing an IPSG Card procedure
- An IPSG Linkset Perform the Removing an IPSG Linkset procedure
- An IP Host Perform the Removing an IP Host Assigned to an IPSG Card procedure
- An IP Route Perform the Removing an IP Route procedure
- An IPSG Association Perform the Removing an IPSG Association procedure
- An IPSG M2PA Signaling Link Perform the Removing an IPSG M2PA Signaling Link procedure
- An IPSG M2PA Signaling Link Perform the Removing an IPSG M3UA Signaling Link procedure

Removing an IPSG Card

Use this procedure to remove an IPSG card, a card running the ipsg application, from the database using the dlt-card command.

The card cannot be removed if it does not exist in the database. Before removing the card from the database, the signaling links assigned to the card must be removed.



Caution:

If the **IPGWx** card is the last **IP** card in service, removing this card from the database will cause traffic to be lost.

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

This is an example of the possible output.

rlghnc	xa03w 09-0	4-13 17:00	:02 GMT	EAGLE5	41.0	0.0				
CARD	TYPE	APPL	LSET NA	ME	LINK	SLC	LSET	NAME	LINK	SLC
1101	DSM	VSCCP								
1102	TSM	GLS								
1113	GSPM	EOAM								
1114	TDM-A									
1115	GSPM	EOAM								
1116	TDM-B									
1117	MDAL									
1201	LIMDS0	SS7ANSI	lsn1		A	0	lsn2		В	1
1203	LIMDS0	SS7ANSI	lsn2		A	0	lsn1		В	1
1204	LIMATM	ATMANSI	atmgwy		A	0				
1205	ENET	IPSG	ipsgnod	.e1	A	0	ipsgr	node1	В	1
1207	ENET	IPSG	ipsgnod	.e2	A	0				



1303	DCM	IPLIM	ipnode1	A	0	ipnode3
в 0						
1305	DCM	IPLIM	ipnode4	A	0	

Select a card whose application is IPSG.

2. Display the linksets that are assigned to the IPSG card by entering the rtrv-ls command with the names of the linksets that are assigned to the IPSG card, shown in the rtrv-card output in 1.

For this example, enter these commands.

rtrv-ls:lsn=ipsgnode1

This is an example of the possible output.

rlghncxa03w 08-04-13 17:00:02 GMT 38.0.0

				L3T	SLT				GWS	GWS	GWS
LSN	APCA	(SS7)	SCRN	SET	SET	BEI	LST	LNKS	ACT	MES	DIS
SLSCI NIS											
ipsgnode1	001-001	L-003	none	1	1	no	A	2	off	off	off
no off											

SPCA	CLLI	TFATCABMLQ	MTPRSE	ASL8
		1	no	no

IPSG	IPGWAPC	GTTMODE	CGGTMOD
yes	no	CdPA	no

	ADAPTER	SLKTPS	LSUSEALM	SLKUSEALM	RCONTEXT
TOTT TO					

ASNOTIF

m2pa	1015	100%	80%	none	no
------	------	------	-----	------	----

LOC	LINK	SLC	TYPE	ANAME
1205	A	0	IPSG	m2pa1
1205	В	1	IPSG	m2pa1

Link set table is (11 of 1024) 1% full.

rtrv-ls:lsn=ipsgnode2

This is an example of the possible output.

rlghncxa03w 08-04-13 17:17:00 GMT 38.0.0

				L3T	SLT				GWS	GWS	GWS
LSN	APCA	(SS7)	SCRN	SET	SET	BEI	LST	LNKS	ACT	MES	DIS
SLSCI NIS											
ipsgnode2	003-003	-004	none	1	1	no	A	1	off	off	off
no off											
	SPCA		CLLI			TFA	[CABI	MLQ M	[PRSE	E ASI	78



```
----- ---
                               nο
                                    no
IPSG IPGWAPC GTTMODE
                        CGGTMOD
yes no CdPA
                          nο
ADAPTER
      SLKTPS LSUSEALM SLKUSEALM RCONTEXT
                                       ASNOTIF
       2000
              100%
                      80%
m3ua
                              none
                                       yes
NUMSLKALW NUMSLKRSTR NUMSLKPROH
LOC LINK SLC TYPE
                ANAME
1207 A 0 IPSG m3ua1
```

Link set table is (11 of 1024) 1% full.

If the ADAPTER value assigned to the linkset is m2pa, perform the Removing an IPSG M2PA Signaling Link procedure to remove the M2PA signaling links assigned to the card.

If the ADAPTER value assigned to the linkset is m3ua, perform the Removing an IPSG M3UA Signaling Link procedure to remove the M3UA signaling links assigned to the card.

After the signaling links have been removed from the database, continue the procedure with 3.

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 these commands.

```
dlt-card:loc=1205
dlt-card:loc=1207
```

When these commands have successfully completed, this message appears.

```
rlghncxa03w 08-04-13 17:00:02 GMT EAGLE5 36.0.0 DLT-CARD: MASP A - COMPLTD
```

4. Verify the changes using the rtrv-card command and specifying the card that was removed in 3.

For this example, enter these commands.

```
rtrv-card:loc=1205
rtrv-card:loc=1207
```

When these commands have successfully completed, this message appears.

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

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

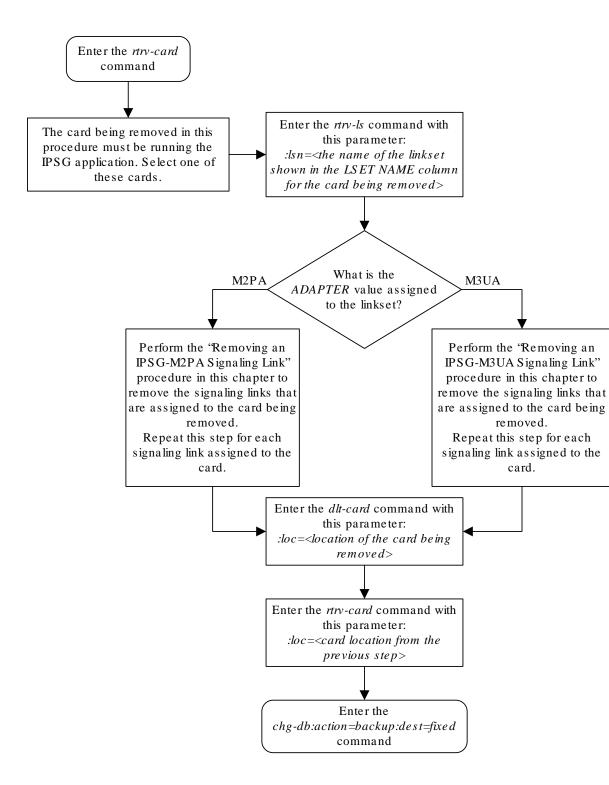


These messages appear, the active **Maintenance and Administration Subsystem** Processor (**MASP**) appears first.

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



Figure 6-14 Removing an IPSG Card



Removing an IPSG Linkset

This procedure is used to remove a IPSG linkset from the database using the dlt-ls command. An IPSG linkset is a linkset whose ipsg parameter value is yes.

The dlt-ls command has only one parameter, lsn, which is the name of the linkset to be removed from the database.

The linkset to be removed must exist in the database.

To remove a linkset, all links associated with the linkset must be removed.

The linkset to be removed cannot be referenced by a routeset.

If the Flexible Linkset Optional Based Routing feature is enabled and turned on, and the linkset is referenced by a GTT selector, the linkset cannot be removed.

A proxy linkset whose APC is assigned to more than one proxy linkset cannot be removed if the linkset contains the proxy point code (shown in the PPCA/PPCI/PPCN/PPCN24 field in the rtrv-ls:apc/apca/apci/apcn/apcn24=<APC of the linkset> output) that is also assigned to the APC of the linkset. The proxy point code assigned to the APC of the linkset is shown in the rtrv-dstn:dpc/dpca/dpci/dpcn/dpcn24=<APC of the linkset> output. The linksets that do not contain the proxy point code that is assigned to the APC of the linkset must be removed before the linkset containing proxy point code that is assigned to the APC of the linkset can be removed.

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 Commands User's Guide.

1. Display the IPSG linksets by entering the rept-stat-iptps command. This is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0 IP TPS USAGE REPORT



	THRESH	CONFIG/ RSVD	CONFIG/ MAX	TPS	PEAK	PEAKTIMESTAMP
LSN						
is1	100%	500	2000 TX:	427	550	10-07-19 09:49:19
			RCV:	312	450	10-07-19
09:49:19						

Command Completed.

2. Display the linkset that will be removed by entering the rtrv-ls command with the name of the linkset shown in 1. This is an example of the possible output.

rtrv-ls:lsn=ls1

This is an example of the possible output.

tekel	lecstp 18-	01-22	05:3	1:51	EST EAG	SLE 4	6.6	.0.0	.0-71	.21.	0			
	LSN	AP	CA	(SS7)	SCRN	L3T SET		BEI	LST :	LNKS		GWS MES		
]	I NIS ls1 off	003	3-003	-003	gws1	1	1	no	Α :	15	on	on	on	
			PCA		CLLI				rcabm:			E ASL	18	
		RAND: off	SLS											
			GTTI CdP			CG n		OD						
			LINK A		TYPE LIMATM	SET	BP		TSEL			VP 0		
					TYPE IPLIM	IPL M2P		2						
PORT	ΤS	LOC	LINK	SLC	TYPE				ECM			PCR N2		E1
1	1	1205	A	6	LIME1	1	5	6000	BAS	IC -			1205	
PORT	ΨS	LOC	LINK	SLC	TYPE	L2T SET		PS	ECM			PCR N2		Т1
1	1	1206	A	10	LIMT1	1	5	6000	BAS	IC -			1206	



```
Link set table is (7 of 1024) 1% full.
```

If the IPSG value of the linkset is no, perform the "Removing a Linkset Containing SS7 Signaling Links" procedure to remove the linkset.

If the IPSG value of the linkset is yes, perform one of these actions.

- If the linkset being removed is a proxy linkset (LST=PRX), and more than one linkset is shown in the rtrv-ls output that contains the APC of the linkset being removed, continue the procedure with 3.
- If the linkset being removed is not a proxy linkset, or is a proxy linkset whose APC is not used by more than one linkset, continue the procedure with 5.
- 3. Display the linksets that contain the APC of the linkset being removed by entering the rtrv-ls command with the APC of the linkset. For this example, enter this command.

```
rtrv-ls:apca=150-001-002
```

APCA

This is an example of the possible output.

150-001-002

```
rlghncxa03w 07-08-23 11:09:57 EST 37.0.0
```

			L3T	SLT				GWS	GWS	GWS
LSN	PPCA	SCRN	SET	SET	BEI	LST	LNKS	ACT	MES	DIS
SLSCI NIS										
lsn150	150-001-001	none	1	1	no	PRX	1	off	off	off
no off										
lsn151	150-001-004	none	1	1	no	PRX	1	off	off	off
no off										

```
Link set table is (14 of 1024) 1% full.
```

4. Display the attributes of the APC of the linkset being removed by entering the rtrv-dstn command with the APC of the linkset. For this example, enter this command.

```
rtrv-dstn:dpca=150-001-002
```

This is an example of the possible output.

rlghncxa03w 10-12-15 09:22:39 GMT EAGLE5 43.0.0

DPCA	CLLI	BEI EL	EI A	LIASI			
ALIASN/N24 150-001-002	DMN 	no			_		
130-001-002	SS7	no					
	557						
PPCA	NCAI PRX	RCAUSE	NPRST	SPLITIAM	HMSMSC	HMSCP	
SCCPMSGCNV							
150-001-001	no	50	on	20	no	no	none



```
Destination table is (14 of 2000) 1% full Alias table is (0 of 12000) 0% full PPC table is (2 of 10) 20% full
```

A proxy linkset whose APC is assigned to more than one proxy linkset cannot be removed if the linkset contains the proxy point code (shown in the PPCA/PPCI/PPCN/PPCN24 field in 3) that is also assigned to the APC of the linkset (shown in 4). The linksets that do not contain the proxy point code that is assigned to the APC of the linkset must be removed before the linkset containing proxy point code that is assigned to the APC of the linkset can be removed.

5. Display the routes in the database by using the rtrv-rte command, specifying the name of the linkset you wish to remove. For this example, enter this command.

```
rtrv-rte:lsn=ls1
```

This is an example of the possible output.

```
rlghncxa03w 07-05-10 11:43:04 GMT EAGLE5 37.0.0 LSN DPC RC 1s1 240-012-004 10
```

If any routes reference the linkset to be removed, remove these routes by performing the "Removing a Route" procedure in the *Database Administration - SS7 User's Guide*.

6. Remove all links in the linkset by performing one of these procedures.

If the ADAPTER value of the linkset is M2PA, shown in the rtrv-ls output in 2, perform the Removing an IPSG M2PA Signaling Link procedure.

If the ADAPTER value of the linkset is M3UA, shown in the rtrv-ls output in 2, perform the Removing an IPSG M3UA Signaling Link procedure.

7. Display any entires in the route exception table whose linkset name is the name of the linkset being removed in this procedure. Enter the rtrv-rtx command with the lsn parameter. For this example, enter this command.

```
rtrv-rtx:lsn=ls1
```

This is an example of the possible output.

rlghncxa03w 07-05-10 11:43:04 GMT EAGLE5 37.0.0

DPCA	RTX-CRITERIA		LSN	RC	APC
240-012-006	OPCA 008-008-008		ls1	40	240-012-004
DESTINATION E	NTRIES ALLOCATED:	2000			
FULL DPC (s):	15			
EXCEPTION	DPC(s):	5			
NETWORK D	PC(s):	0			
CLUSTER D	PC(s):	1			
TOTAL DPC	(s):	21			
CAPACITY	(% FULL):	1%			



ALIASES ALLOCATED:	12000
ALIASES USED:	0
CAPACITY (% FULL):	0%
X-LIST ENTRIES ALLOCATED:	500

If the linkset being removed in this procedure is not assigned to a route exception table entry, no entries are displayed in the rtrv-rtx output, but a summary of the point code quanties is displayed.

If the name of the linkset being removed in this procedure shown in the ${ t LSN}$ column in this step, perform one of these procedures:

- a. Change the name of the linkset in the entries displayed in this step by performing the "Changing a Route Exception Entry" procedure in the Database Administration - SS7 User's Guide.
- b. Remove all the entries displayed in this step by performing the "Removing a Route Exception Entry" procedure in the Database Administration - SS7 User's Guide.
- 8. Verify whether or not the Flexible Linkset Optional Based Routing feature is enabled and turned on by entering this command.

```
rtrv-ctrl-feat:partnum=893027701
```

This is an example of the possible output.

```
rlghncxa03w 09-05-10 11:43:04 GMT EAGLE5 41.0.0
The following features have been permanently enabled:
```

```
Partnum Status Quantity
Flex Lset Optnl Based Rtg 893027701 on
```

The following features have been temporarily enabled:

Feature Name Partnum Status Quantity Trial Period Left.

Zero entries found.

The following features have expired temporary keys:

Feature Name Partnum

Zero entries found.

If the Flexible Linkset Optional Based Routing feature is enabled and turned on, continue the procedure with 9.

If the Flexible Linkset Optional Based Routing feature is not enabled or not turned on, continue the procedure with 10.

9. Display the GTT selectors that contain the linkset that is being removed by entering the rtrv-qttsel command with the name of the linkset. For this example, enter this command.

```
rtrv-qttsel:lsn=ls1
```



This is an example of the possible output.

rlghncxa03w 09-05-10 11:43:04 GMT EAGLE5 41.0.0

GTI	CG		CDPA		CGPA
ANSI TT NP	NAI SSN SEL	ID LSN	GTTSET		GTTSET
2 180 (cdgta)	any non	ie ls1		()	cdgta4
GTI	CG		CDPA		CGPA
INTL TT NP	NAI SSN SEL	JID LSN	GTTSET		GTTSET
GTI	CG		CDPA		CGPA
NATL TT NP		JID LSN	GTTSET		GTTSET
GTI	CG		CDPA		CGPA
N24 TT NP	NAI SSN SEL	ID LSN	GTTSET		GTTSET

If GTT selectors are shown in the rtrv-gttsel output, perform the "Removing a GTT Selector" procedure in the *Database Administration - GTT User's Guide* to remove all entries shown in this step. After the GTT selectors have been removed, continue the procedure with 10.

If GTT selectors are not shown in the rtrv-gttsel output, continue the procedure with 10.

10. Remove the linkset using the dlt-ls command. For this example, enter this command.

```
dlt-ls:lsn=ls1
```

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

```
rlghncxa03w 07-05-17 16:03:12 GMT EAGLE5 37.0.0 Link set table is ( 23 of 1024) 2% full DLT-LS: MASP A - COMPLTD
```

11. Verify the changes using the rtrv-ls command with the linkset name used in 10.

For this example, enter this command.

```
rtrv-ls:lsn=ls1
```

If the removal of the linkset was successful, the following message is displayed.

```
E2346 Cmd Rej: Linkset not defined
```

Continue the procedure with 12 if the linkset that was removed in 10 has any of these attributes:

The linkset was not a proxy linkset.



- The linkset was a proxy linkset whose APC was assigned to only the proxy linkset that was removed in 10.
- The linkset was a proxy linkset and:
 - The APC of this linkset is assigned to more than one linkset.
 - The linkset did not contain the proxy point code that was assigned to the APC of the linkset.
 - The linkset that contains the proxy point code that is assigned to the APC of the linkset will not be removed from the database.

If you wish to remove the proxy linkset that contains the proxy point code that is also assigned to the APC of the linkset, and the database contains other linksets that are assigned to this APC, these other linksets must be removed before the proxy linkset that contains the proxy point code that is also assigned to the APC of the linkset can be removed. Repeat this procedure from 4 to remove these linksets. After these linksets have been removed, perform this procedure again from 4 to remove the proxy linkset that contains the proxy point code that is also assigned to the APC of the linkset.

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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

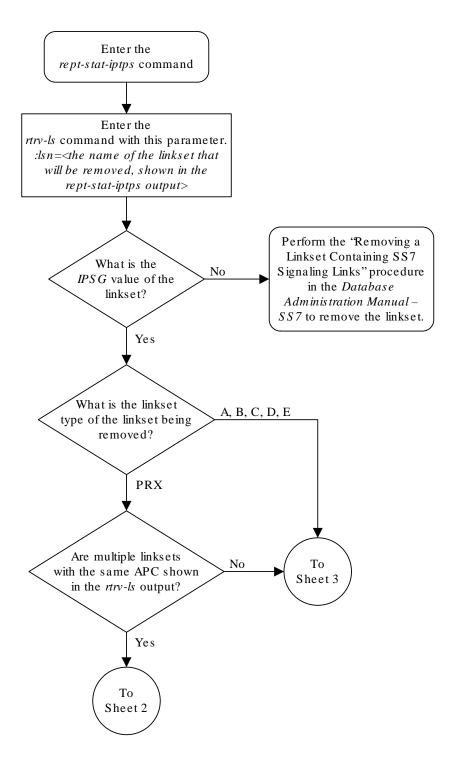
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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

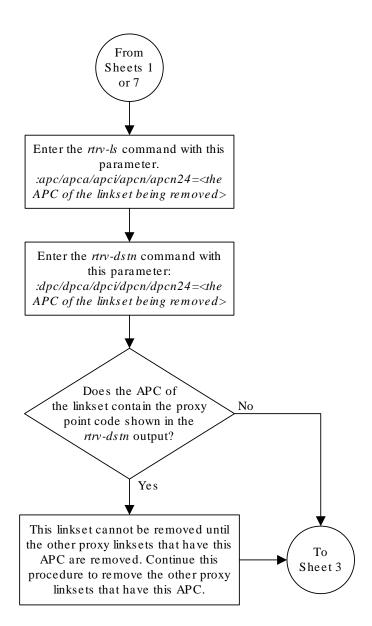


Figure 6-15 Removing an IPSG Linkset



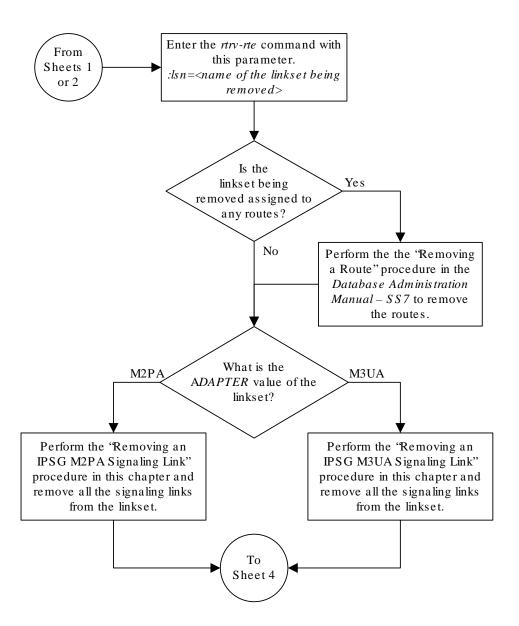
Sheet 1 of 7





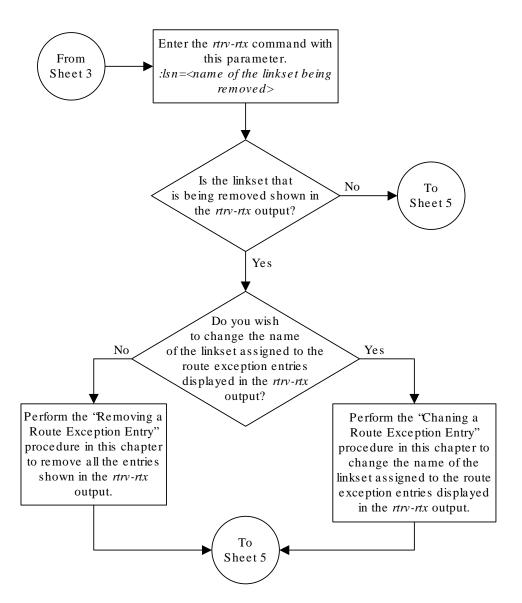
Sheet 2 of 7





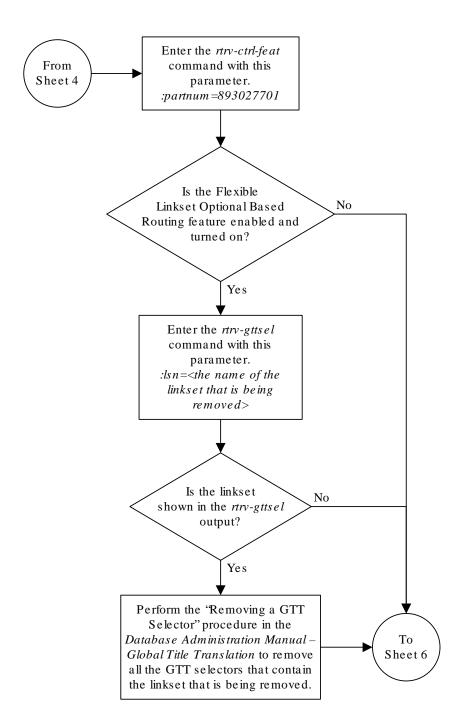
Sheet 3 of 7





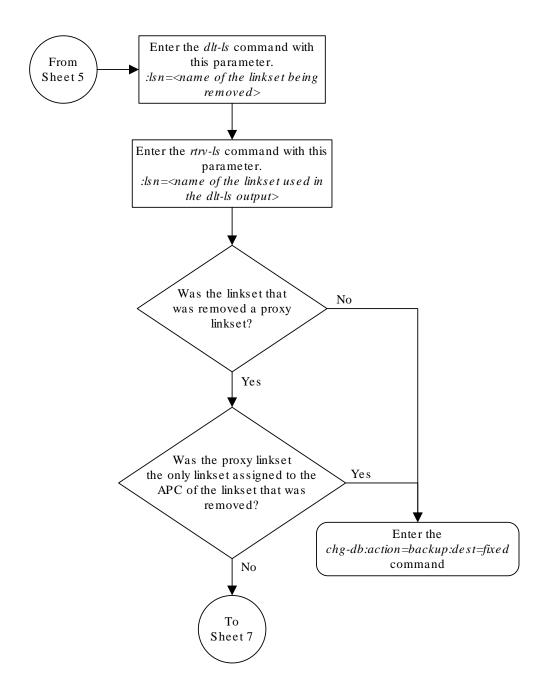
Sheet 4 of 7





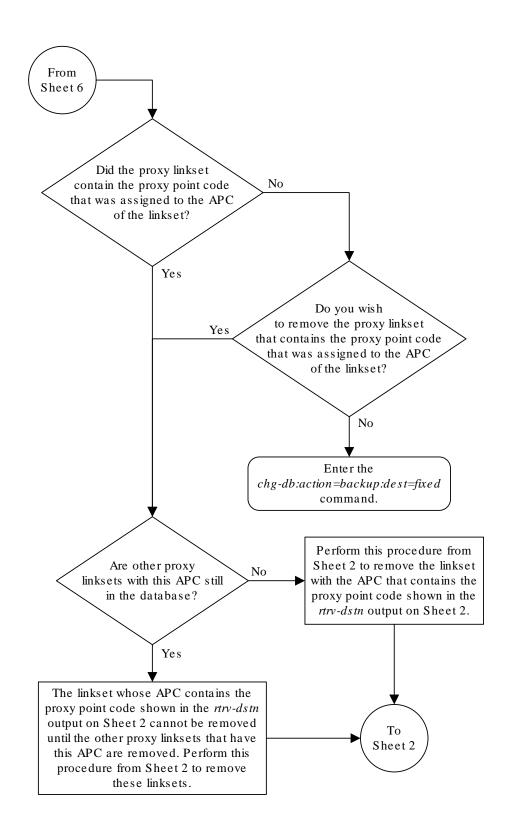
Sheet 5 of 7





Sheet 6 of 7





Sheet 7 of 7

Removing an IP Host Assigned to an IPSG Card

This procedure removes an IP host that is assigned to an IPSG card using the dlt-ip-host command.

The dlt-ip-host command uses the following parameter.

: host – Hostname. The hostname to be removed. This parameter identifies the logical name assigned to a device with an **IP** address.

No associations can reference the host name being removed in this procedure.

The associations referencing the host name can be removed by performing the Removing an IPSG Association procedure or the host name in these associations can be changed by performing the Changing the Host Values of an IPSG Association procedure. The host name assigned to associations is displayed in the rtrv-assoc outputs.

1. Display the current IP host information in the database by entering the rtrv-ip-host:display=all command.

The following is an example of the possible output.

```
rlghncxa03w 13-06-28 21:17:37 GMT EAGLE5 45.0.0
```

```
LOCAL IPADDR LOCAL HOST
192.1.1.10 IPNODE1-1201
192.1.1.12
             IPNODE1-1203
192.1.1.14
             IPNODE1-1205
            IPNODE2-1201
IPNODE2-1203
192.1.1.20
192.1.1.22
192.1.1.24
             IPNODE2-1205
192.1.1.30
              KC-HLR1
192.1.1.32
               KC-HLR2
192.1.1.50
               DN-MSC1
192.1.1.52
             DN-MSC2
192.3.3.33
              GW100. NC. TEKELEC. COM
REMOTE IPADDR REMOTE HOST
150.1.1.5
          NCDEPTECONOMIC DEVELOPMENT.
SOUTHEASTERN COORIDOR ASHVL. GOV
IP Host table is (12 of 4096) .29% full
```

If the IP host that is being removed is a remote host, continue the procedure with 5.

If the IP host that is being removed is a local host, continue the procedure with 2.



2. Display the current link parameters associated with the IP card in the database by entering the rtrv-ip-lnk command. The following is an example of the possible output.

rlghncxa03w 08-12-28 21:14:37 GMT EAGLE5 40.0.0								
LOC	PORT	IPADDR	SUBMASK	DUPLEX	SPEED	${\tt MACTYPE}$	AUTO	
MCAST								
1303	A	192.1.1.10			10	802.3	NO	NO
1303	В			HALF	10	DIX	NO	NO
1305	A	192.1.1.12	255.255.255.0			DIX	YES	NO
1305	В			HALF	10	DIX	NO	NO
1313	A	192.1.1.14			100	DIX	NO	NO
1313	В			HALF	10	DIX	NO	NO
2101	A	192.1.1.20			100	DIX	NO	NO
2101	В				10	DIX	NO	NO
2103	A	192.1.1.22			100	DIX	NO	NO
2103	В			HALF	10	DIX	NO	NO
2105	A	192.1.1.24			100	DIX	NO	NO
2105	В				10	DIX	NO	NO
2205	A	192.1.1.30			100	DIX	NO	NO
2205	В				10	DIX	NO	NO
2207	A	192.1.1.32			100	DIX	NO	NO
2207	В				10	DIX	NO	NO
2213	A	192.1.1.50			100	DIX	NO	NO
2213	В			HALF	10	DIX	NO	NO
2301	A	192.1.1.52			100	DIX	NO	NO
2301	В				10	DIX	NO	NO
2305	A				100	DIX	NO	NO
2305	В			HALF	10	DIX	NO	NO
2301 2305	B A	192.3.3.33	255.255.255.0	HALF FULL	10 100	DIX	NO NO	

IP-LNK table is (22 of 2048) 1% full.

3. Display the cards in the database using the rtrv-card command. This is an example of the possible output.

rlghncxa03w 13-05-28 09:12:36 GMT EAGLE5				45.0.	. 0				
	CARD	TYPE	APPL	LSET NAME	LINK	SLC	LSET NAME	LINK	SLC
	1101	DSM	VSCCP						
	1102	TSM	GLS						
	1113	E5MCAP	EOAM						
	1114	E5TDM-A							
	1115	E5MCAP	EOAM						
	1116	E5TDM-B							
	1117	E5MDAL							
	1201	LIMDS0	SS7ANSI	sp2	A	0	sp1	В	0
	1203	LIMDS0	SS7ANSI	sp3	A	0			
	1204	LIMDS0	SS7ANSI	sp3	A	1			
	1206	LIMDS0	SS7ANSI	nsp3	A	1	nsp4	В	1
	1301	LIMDS0	SS7ANSI	sp6	A	1	sp7	В	0
	1302	LIMDS0	SS7ANSI	sp7	A	1	sp5	В	1
	1303	DCM	IPLIM	ipnode1	A	0	ipnode3	В	1
	1305	DCM	IPLIM	ipnode4	A	0			
	1313	DCM	SS7IPGW	ipgtwy1	A	0			
	2101	ENET	IPSG	ipgtwy2	A	0			



2103		DCM	SS7IPGW	ipgtwy3	A	0	
2105		DCM	IPLIM	ipnode1	A1	1	ipnode5
В	2						
2205		DCM	IPLIM	ipnode3	A2	0	ipnode6
В1	2						
2207		DCM	IPLIM	ipnode5	A	0	ipnode4
В3	1						
2213		DCM	IPLIM	ipnode5	A3	1	ipnode3
В2	2						
2301		DCM	IPLIM	ipnode6	A	0	ipnode1
В	2						
2305		ENET	IPSG	ipnode6	A1	1	ipnode1
В1	3						

Select an **IP** host whose **IP address** is assigned to a card running the **IPSG** application.

4. Display the associations referencing the host name being removed in this procedure by entering the rtrv-assoc command with the local host name.

For this example, enter these commands.

```
rtrv-assoc:lhost=gw100.nc.tekelec.com
```

The following is an example of the possible output.

```
rlghncxa03w 06-10-28 21:14:37 GMT EAGLE5 36.0.0

CARD IPLNK

ANAME LOC PORT LINK ADAPTER LPORT RPORT OPEN ALW
a2 2305 A A M2PA 7205 7001 NO NO

IP Appl Sock/Assoc table is (4 of 4000) 1% full
Assoc Buffer Space Used (200 KB of 1600 KB) on LOC = 2305

rtrv-assoc:lhost=ipnode2-1201
```

The following is an example of the possible output.

```
rlghncxa03w 06-10-28 21:14:37 GMT EAGLE5 36.0.0

CARD IPLNK

ANAME LOC PORT LINK ADAPTER LPORT RPORT OPEN ALW m3ual 2101 A A M3UA 2000 2000 NO NO

IP Appl Sock/Assoc table is (4 of 4000) 1% full
Assoc Buffer Space Used (16 KB of 800 KB) on LOC = 2101
```

If no associations referencing the host name being removed in this procedure are shown in this step, continue the procedure with 5.

Any associations referencing the host name must either be removed or the host name assigned to the association must be changed.

To remove the associations, perform the Removing an IPSG Association procedure.



Continue the procedure with 5 after the associations have been removed.

To change the host name assigned to the associations, perform the Changing the Host Values of an IPSG Association procedure.

Continue the procedure with 5 after the host name assigned to the associations have been changed.

5. Delete IP host information from the database by entering the dlt-ip-host command.

For example, enter these commands.

```
dlt-ip-host:host=gw100.nc.tekelec.com
dlt-ip-host:host="ipnode2-1201"
```

When these commands have successfully completed, the following message should appear.

```
rlghncxa03w 06-10-28 21:19:37 GMT EAGLE5 36.0.0 DLT-IP-HOST: MASP A - COMPLTD
```

6. Verify the changes by entering the rtrv-ip-host command with the host name specified in 5.

For this example, enter these commands.

```
rtrv-ip-host:host=gw100.nc.tekelec.com
rtrv-ip-host:host="ipnode2-1201"
```

The following is an example of the possible output.

```
rlghncxa03w 13-06-28 21:20:37 GMT EAGLE5 45.0.0

No matching entries found.

IP Host table is (10 of 4096) .24% full
```

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

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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

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

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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



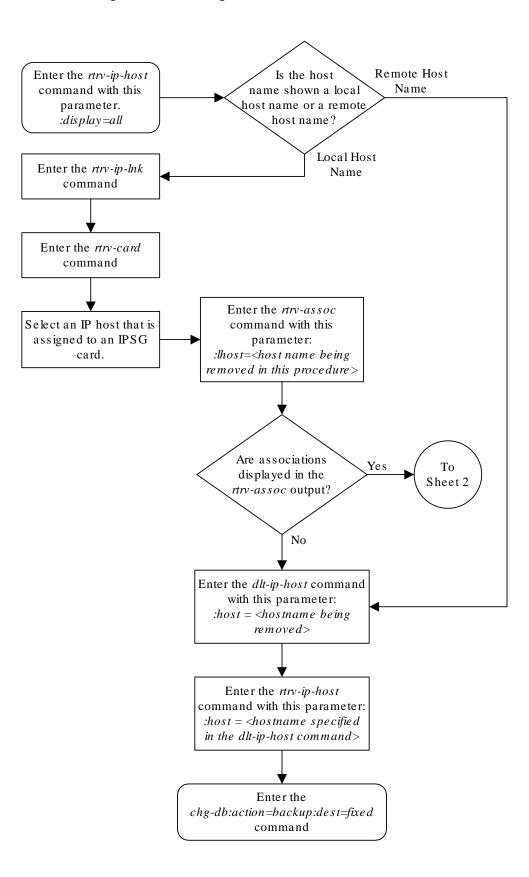
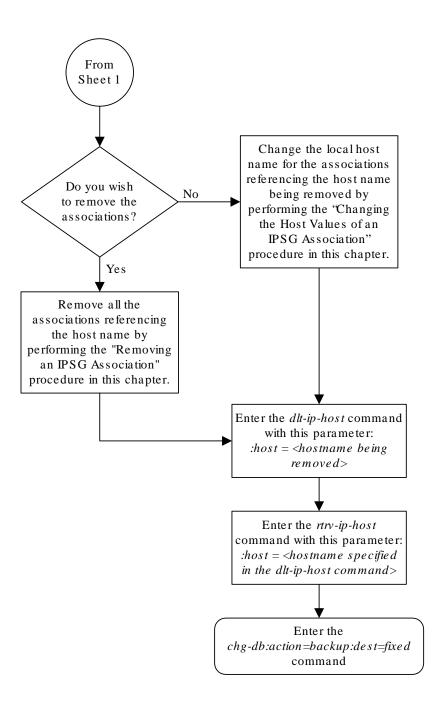


Figure 6-16 Removing an IP Host Assigned to an IPSG Card



Sheet 1 of 2





Sheet 2 of 2

Removing an IP Route

This procedure is used to remove an **IP** route from the database using the dlt-ip-rte command.

The dlt-ip-rte command uses these parameters.

:loc - The location of the IP card containing the IP route being removed.

: dest – The **IP** address of the remote host or network assigned to the **IP** route being removed.

: force – To remove the **IP** route, the **IP** card that the route is assigned to must be out of service, or the force=yes parameter must be specified with the dlt-ip-rte command. The force=yes parameter allows the **IP** route to be removed if the **IP** card is in service.



Caution:

Removing an **IP** route while the **IP** card is still in service can result in losing the ability to route outbound **IP** traffic on the **IP** card. This can cause both **TCP** and **SCTP** sessions on the **IP** card to be lost.

1. Display the IP routes in the database with the rtrv-ip-rte command.

This is an example of the possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
LOC
      DEST
                       SUBMASK
                                        GTWY
1212 132.10.175.20
                       255.255.0.0
                                        150.1.1.50
1301 128.252.10.5
1301 128.252.0.0
1301 150.10.1.1
                       255.255.255.255 140.188.13.33
                       255.255.0.0 140.188.13.34
                       255.255.255.255 140.190.15.3
1303 192.168.10.1
                       255.255.255.255 150.190.15.23
1303 192.168.0.0
                       255.255.255.0 150.190.15.24
```

2. Verify the state of the **IP** card containing the **IP** route being removed by entering the rept-stat-card command and specifying the card location of the **IP** card.

The **IP** card should be in the out-of-service maintenance-disabled (**OOS-MT-DSBLD**) in order to remove the **IP** route. If the **IP** card's state is out-of-service maintenance-disabled, the entry OOS-MT-DSBLD is shown in the PST column of the rept-stat-card output. For this example, enter this command.

```
rept-stat-card:loc=1301
```

This is an example of the possible output.

IP Route table is (6 of 2048) 0.29% full

rlghncxa03w 10-12-01 09:12:36 GMT EAGLE5 43.0.0



```
CARD VERSION
                TYPE
                        GPL
                                 PST
                                              SST
AST
1301 133-003-000 E5ENET
                        IPSG
                                  IS-NR
                                              Active
 ALARM STATUS = No Alarms.
 BLIXP GPL version = 133-003-000
 IMT BUS A
                 = Conn
 IMT BUS B
                = Conn
 CURRENT TEMPERATURE = 32C ( 90F)
                                  [ALARM TEMP: 60C (140F)]
 PEAK TEMPERATURE: = 39C (103F)
                                  [06-05-02 13:40]
 SIGNALING LINK STATUS
    SLK
        PST
                          LS
                                     CLLI
          IS-NR
                          nc001
                                      _____
    Δ
```

Command Completed.



If the output of 2 shows that the **IP** card's state is not **OOS-MT-DSBLD**, and you do not wish to change the state of the **IP** card, continue the procedure with 4.

3. Change the IP card's state to OOS-MT-DSBLD using the inh-card command and specifying the card location of the IP card.

For this example, enter these commands.

inh-card:loc=1301

When this command has successfully completed, this message appears.

```
rlghncxa03w 06-10-12 09:12:36 GMT EAGLE5 36.0.0
Card has been inhibited.
```

4. Remove the IP route from the database using the dlt-ip-rte command.

If the state of the IP card is not OOS-MT-DSBLD, the force=yes parameter must be specified with the dlt-ip-rte command. For this example, enter this command.

```
dlt-ip-rte:loc=1301:dest=128.252.0.0
```

Caution:

Removing an **IP** route while the **IP** card is still in service can result in losing the ability to route outbound **IP** traffic on the **IP** card. This can cause both TCP and SCTP sessions on the IP card to be lost.

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

```
rlghncxa03w 06-10-12 09:12:36 GMT EAGLE5 36.0.0
DLT-IP-RTE: MASP A - COMPLTD
```



5. Verify the changes using the rtrv-ip-rte command.

This is an example of the possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0

LOC DEST SUBMASK GTWY

1212 132.10.175.20 255.255.0.0 150.1.1.50

1301 128.252.10.5 255.255.255 140.188.13.33

1301 150.10.1.1 255.255.255.255 140.190.15.3

1303 192.168.10.1 255.255.255.255 150.190.15.23

1303 192.168.0.0 255.255.0.0 150.190.15.24

IP Route table is (5 of 2048) 0.24% full
```

6. Place the IP card back into service by using the alw-card command.



If the **IP** card containing the **IP** route that was removed from the database does not contain other **IP** routes, continue the procedure with 7.

For example, enter this command.

```
alw-card:loc=1301
```

This message should appear.

```
rlghncxa03w 06-10-28 21:22:37 GMT EAGLE5 36.0.0 Card has been allowed.
```

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

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

```
BACKUP (FIXED): MASP A - Backup starts on active MASP.

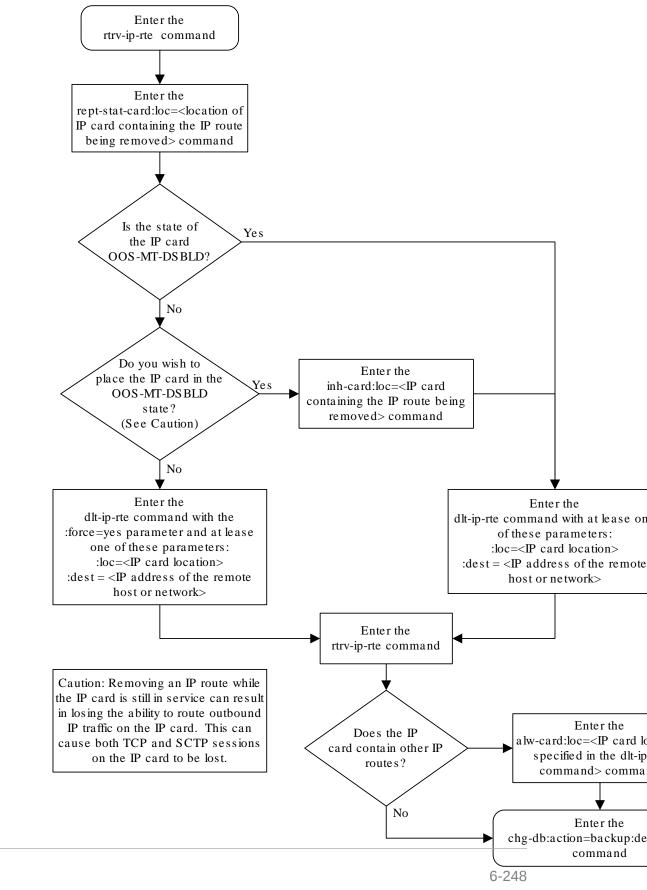
BACKUP (FIXED): MASP A - Backup on active MASP to fixed disk complete.

BACKUP (FIXED): MASP A - Backup starts on standby MASP.

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



Figure 6-17 Removing an IP Route



Removing an IPSG Association

This procedure is used to remove an IPSG association from the database using the dlt-assoc command. An IPSG association is an M2PA or M3UA association that is assigned to an IPSG card.

The dlt-assoc command uses one parameter, aname, the name of the association being removed from the database. The association being removed must be in the database.

The open parameter must be set to no before the association can be removed. Use the chg-assoc command to change the value of the open parameter.

The adapter value assigned to the association being removed in this procedure must be either m2pa or m3ua. The application assigned to the card that is hosting the association must be IPSG.

If the adapter value of the association is m2pa and the application assigned to the card is either IPLIM or IPLIMI (an IPLIMx card), perform the Removing an M2PA Association to remove an M2PA association assigned to an IPLIMx card.

If the adapter value of the association is m3ua and the application assigned to the card is either SS7IPGW or IPGWI (an IPGWx card), perform the Removing a M3UA or SUA Association to remove an M3UA association assigned to an IPGWx card.

Canceling the RTRV-ASSOC Command

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

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

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

Display the associations in the database using the rtrv-assoc command.
 This is an example of possible output.

rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0

	CARD	IPLNK						
ANAME	LOC	PORT	LINK	ADAPTER	LPORT	RPORT	OPEN	ALW
swbel32	1201	A	A	M3UA	1030	2345	YES	YES
a2	1305	A	A	SUA	1030	2345	YES	YES



```
a3 1307 A A SUA 1030 2346 YES YES assoc1 1203 A A1 M2PA 2048 1030 NO NO
```

Select an association whose ADAPTER value is either M3UA or M2PA.

2. Enter the rtrv-card command with the location of the card that is hosting the association that will be removed in this procedure. For this example, enter these commands.

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

This is an example of possible output.

```
rlghncxa03w 08-03-06 15:17:20 EST EAGLE5 38.0.0

CARD TYPE APPL LSET NAME LINK SLC LSET NAME LINK SLC 1201 ENET IPSG 1sn2 A 0
```

```
rtrv-card:loc=1203
```

This is an example of possible output.

```
rlghncxa03w 08-03-06 15:17:20 EST EAGLE5 38.0.0

CARD TYPE APPL LSET NAME LINK SLC LSET NAME LINK SLC

1203 ENET IPSG lsn1 A1 0
```

If the application assigned to the card is IPSG, shown in the APPL column, and signaling links are not assigned to the card, continue the procedure with 3.

If the application assigned to the card is IPSG, shown in the \mathtt{APPL} column, and signaling links are assigned to the card, perform one of these procedures depending on the $\mathtt{ADAPTER}$ value that is assigned to the association that will be removed.

- If the ADAPTER value is M2PA, perform the Removing an IPSG M2PA Signaling Link procedure.
- If the ADAPTER value is M3UA, perform the Removing an IPSG M3UA Signaling Link procedure.

After the signaling links have been removed from the card, continue the procedure with 3.

If the application assigned to the card is IPLIM or IPLIMI, perform the Removing an M2PA Association procedure.

If the application assigned to the card is SS7IPGW or IPGWI, perform the Removing a M3UA or SUA Association procedure.

3. Change the value of the open parameter to no by specifying the chg-assoc command with the open=no parameter.





If the value of the open parameter for the association being removed from the database (shown in 1) is no, continue this procedure with 4.

For this example, enter these commands.

```
chg-assoc:aname=assoc1:open=no
chg-assoc:aname=swbe132:open=no
```

When the ${\tt chg-assoc}$ command has successfully completed, this message should appear.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 CHG-ASSOC: MASP A - COMPLTD;
```

4. Remove the association from the database using the dlt-assoc command.

For this example, enter these commands.

```
dlt-assoc:aname=assoc1
dlt-assoc:aname=swbel32
```

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

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 DLT-ASSOC: MASP A - COMPLTD
```

5. Verify the changes using the rtrv-assoc command with the name of the association specified in 4.

For this example, enter these commands.

```
rtrv-assoc:aname=assoc1
rtrv-assoc:aname=swbel32
```

This is an example of possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0

No matching entries found

IP Appl Sock table is (2 of 4000) 1% full
```

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

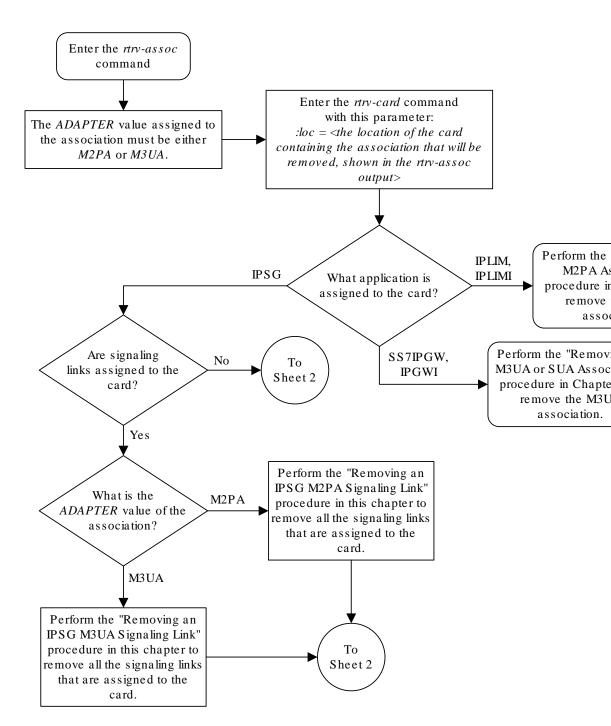
```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

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

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

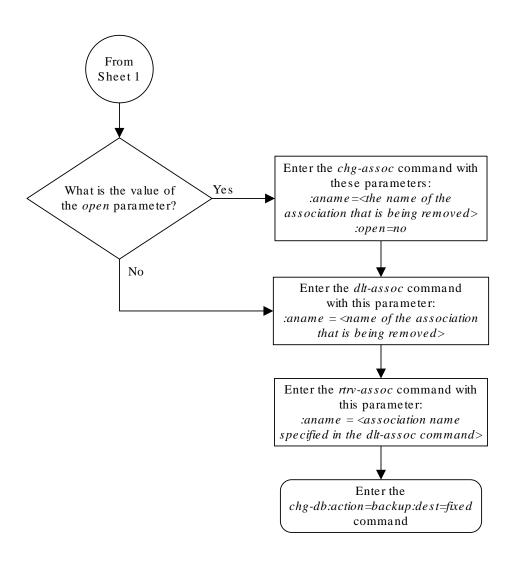


Figure 6-18 Removing an IPSG Association



Sheet 1 of 2





Sheet 2 of 2

Removing an IPSG M2PA Signaling Link

This procedure is used to remove an IPSG M2PA signaling link from the database using the dlt-slk command. The dlt-slk command uses these parameters.

:loc - The card location of the IPSG card that the IPSG M2PA signaling link is assigned to.

:link - The signaling link on the card specified in the loc parameter.

: force – This parameter must be used to remove the last link in a linkset without having to remove all of the routes that referenced the linkset.

The tfatcabmlq parameter (**TFA/TCA** Broadcast Minimum **Link** Quantity), assigned to linksets, shows the minimum number of links in the given linkset (or in the combined link set in which it resides) that must be available for traffic. When the number of signaling links in the specified linkset is equal to or greater than the value of the tfatcabmlq parameter, the status of the routes that use the specified linkset is set to allowed and can carry traffic. Otherwise, these routes are restricted. The value of the tfatcabmlq parameter cannot exceed the total number of signaling links contained in the linkset.

If the linkset type of the linkset that contains the signaling link that is being removed is either A, B, D, E, or PRX, the signaling link can be removed regardless of the tfatcabmlq parameter value of the linkset and regardless of the LSRESTRICT option value. When a signaling link in one of these types of linksets is removed, the tfatcabmlq parameter value of the linkset is decreased automatically.

If the linkset type of the linkset that contains the signaling link that is being removed is C, the signaling link can be removed only:

- If the LSRESTRICT option is off. The LSRESTRICT option value is shown in the rtrv-ss7opts output.
- If the LSRESTRICT option is on and the number of signaling links assigned to the linkset will be equal to or greater than the value of the tfatcabmlq parameter value of the linkset after the signaling link is removed.

 The tfatcabmlq parameter value of the linkset is shown in the TFATCABMLQ column of the rtrv-ls:lsn=<linkset name> output. The tfatcabmlq parameter value can be a fixed value (1 to 16) or 0. If the tfatcabmlq parameter value of the linkset is a fixed value, the number of signaling links that are in the linkset after the signaling link is removed must be equal to or greater than the tfatcabmlq parameter value of the linkset.

If the tfatcabmlq parameter value is 0, the signaling link can be removed. When the tfatcabmlq parameter value is 0, the value displayed in the TFATCABMLQ column of the rtrv-ls output is 1/2 of the number of signaling links contained in the linkset. If the number of signaling links in the linkset is an odd number, the tfatcabmlq parameter value is rounded up to the next whole number. As the signaling links are removed, the tfatcabmlq parameter value of the linkset is decreased automatically.

Canceling the RTRV-SLK Command



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

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

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

Display the IPSG signaling links by entering this command.

```
rtrv-slk:type=ipsg
```

This is an example of the possible output.

rlghncxa03w 06-10-19 21:16:37 GMT EAGLE5 36.0.0

LOC	LINK	LSN	SLC	TYPE	ANAME	SLKTPS
2202	A	lsnlp1	0	IPSG	assoc2	500
2205	A	lsnip1	1	IPSG	assoc3	500
2204	A	ls04	0	IPSG	assoc1	500
2213	A	lsnip5	0	IPSG	assoc4	750
2215	A	lsnlp2	1	IPSG	assoc5	1000

2. Display the associations assigned to the IPSG card containing the signaling link that will be removed by entering the rtrv-assoc command and specifying the card location of the IPSG card. For this example, enter this command.

For this example, enter this command.

```
rtry-assoc:loc=2204
```

This is an example of possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0

CARD IPLNK

ANAME LOC PORT LINK ADAPTER LPORT RPORT OPEN ALW assoc1 2204 A A M2PA 1030 1030 YES YES

IP Appl Sock/Assoc table is (4 of 4000) 1% full
Assoc Buffer Space Used (16 KB of 3200 KB) on LOC = 2204
```

If the ADAPTER value of the associations shown in this step is M2PA, continue the procedure with 3.



If the ADAPTER value for the associations is M3UA, perform one of these actions.

- If you wish to remove the signaling link assigned to this card, perform the Removing an IPSG M3UA Signaling Link.
- If you do not wish to remove the signaling link assigned to this card, select another card from 1 and repeat this step.
- 3. Display the linkset that contains the signaling link that is being removed by entering the rtrv-ls command with the name of the linkset shown in the LSN column of the rtrv-slk output.

For this example, enter these commands.

```
rtrv-ls:lsn=ls04
```

This is an example of the possible output.

```
rlghncxa03w 10-07-17 11:43:04 GMT EAGLE5 42.0.0
```

```
L3T SLT
                                              GWS GWS GWS
LSN
           APCA
                  (SS7) SCRN SET SET BEI LST LNKS ACT MES DIS
SLSCI NIS
ls04
            002-009-003 scr2 1 1 no a 1
                                              on off on
no
   off
                        CLLI TFATCABMLQ MTPRSE ASL8
            SPCA
                                   1 no no
         RANDSLS
         off
         IPSG IPGWAPC GTTMODE
                                     CGGTMOD
         yes no CdPA
                                      no
         ADAPTER RSVDSLKTPS MAXSLKTPS
         m2pa
                  1000
                           4000
                 LSUSEALM SLKUSEALM
         TPSALM
         rsvdslktps 100% 100%
         LOC LINK SLC TYPE ANAME 2204 A 0 IPSG m2pa2
```

If the linkset type of the linkset is A, B, D, E, or PRX, continue the procedure by performing one of these steps.

- If the OPEN or ALW values for the associations is YES, continue the procedure with 6.
- If the <code>OPEN</code> and <code>ALW</code> values for the associations is <code>NO</code>, continue the procedure with 7.

If the linkset type of the linkset is C, continue the procedure with 4.

Link set table is (20 of 1024) 2% full

4. Display the LSRESTRICT option value by entering the rtrv-ss7opts command.

This is an example of the possible output.

```
rlghncxa03w 10-07-30 15:09:00 GMT 42.0.0

SS7 OPTIONS

LSRESTRICT on
```

Note:

Thertry-feat command output contains other fields that are not used by this procedure. If you wish to see all the fields displayed by thertry-feat command, refer to the rtry-feat command description in *Commands User's Guide*

The signaling link cannot be removed, if the LSRESTRICT option is on and the number of signaling links assigned to the linkset will be less than the value of the tfatcabmlq parameter value of the linkset if the signaling link is removed.

If the LSRESTRICT option is on and the number of signaling links assigned to the linkset will be less than the value of the tfatcabmlq parameter value of the linkset if the signaling link is removed, the signaling link cannot be removed unless the tfatcabmlq parameter value of the linkset is changed to 0. Continue the procedure with 5.

If the LSRESTRICT option is on and the number of signaling links assigned to the linkset will be equal to or greater than the value of the tfatcabmlq parameter value of the linkset if the signaling link is removed, the "Configuring the Restricted Linkset Option" procedure has been performed, or if the LSRESTRICT value is off, continue the procedure by performing one of these steps.

- If the OPEN or ALW values for the associations is YES, continue the procedure with 6.
- If the OPEN and ALW values for the associations is NO, continue the procedure with 7.
- 5. Change the tfatcabmlq parameter value of the linkset to 0 by entering the chg-ls command with the name of the linkset that contains the signaling link that is being removed and the tfatcabmlq parameters. For this example, enter this command.

```
chg-ls:lsn=ls17:tfatcabmlq=0
```

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

```
rlghncxa03w 10-07-07 08:41:12 GMT EAGLE5 42.0.0

Link set table is (20 of 1024) 2% full.

CHG-LS: MASP A - COMPLTD
```

Continue the procedure by performing one of these steps.

- If the OPEN or ALW values for the associations is YES, continue the procedure with 6.
- If the OPEN and ALW values for the associations is NO, continue the procedure with 7.



6. Change the value of the open and alw parameters to no by specifying the chgassoc command with the open=no and alw=no parameters, as necessary.

For this example, enter this command.

```
chg-assoc:aname=assoc1:open=no:alw=no
```

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

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 CHG-ASSOC: MASP A - COMPLTD;
```

7. Deactivate the link to be removed using the dact-slk command, using the output from 1 to obtain the card location and link parameter value of the signaling link to be removed.

For this example, enter these commands.

```
dact-slk:loc=2204:link=a
```

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

```
rlghncxa03w 06-10-07 08:41:12 GMT EAGLE5 36.0.0 Deactivate Link message sent to card
```

8. Verify that the link is out of service - maintenance disabled (OOS-MT-DSBLD) using the rept-stat-slk command with the card location and link parameter values specified in 7.

For this example, enter this command.

```
rept-stat-slk:loc=2204:link=a
```

This is an example of the possible output.

```
rlghncxa03w 06-10-23 13:06:25 GMT EAGLE5 36.0.0

SLK LSN CLLI PST SST AST
2204,A 1s04 1s04clli OOS-MT Unavail ----
ALARM STATUS = * 0235 REPT-LNK-MGTINH: local inhibited
UNAVAIL REASON = LI
```

9. If the signaling link to be removed is the last signaling link on a card, the card must be inhibited before the signaling link is removed.



If the signaling link being removed is not the last signaling link on the card, continue the procedure with 11.

Enter the rmv-card command and specify the location of the card to be inhibited. The card location is shown in the output of rept-stat-slk command executed in 8.



In the example used for this procedure, the signaling link is the last signaling link on the card and must be inhibited. Enter this command.

```
rmv-card:loc=2204
```

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

```
rlghncxa03w 06-10-07 08:41:12 GMT EAGLE5 36.0.0
Card has been inhibited.
```

10. Verify that the card has been inhibited by entering the rept-stat-card command with the card location specified in 9. For this example, enter this command.

```
rept-stat-card:loc=2204
```

This is an example of the possible output.

```
rlghncxa03w 10-12-01 09:12:36 GMT EAGLE5 43.0.0
CARD VERSION
                  TYPE GPL
                                                    SST
                                                               AST
2204 133-003-000 E5ENET IPSG
                                     OOS-MT-DSBLD Isolated ----
 ALARM STATUS = No Alarms.
 BLIXP GPL version = 133-003-000
 IMT BUS A = Disc
 IMT BUS B
                  = Disc
 CURRENT TEMPERATURE = 32C ( 90F) [ALARM TEMP: 60C (140F)]
PEAK TEMPERATURE: = 39C (103F) [06-05-02 13:40]
  SIGNALING LINK STATUS
                              LS
     SIK PST
                                          CTiTiT
     Α
            OOS-MT
                              lsnlp2
                                           -----
```

Command Completed.

11. Display the linkset that contains the signaling link that is being removed by entering the rtry-ls command with the name of the linkset shown in the LSN column in 10. For this example, enter this command.

```
rtrv-ls:lsn=ls04
```

This is an example of the possible output.

```
rlghncxa03w 08-05-27 16:43:42 GMT EAGLE5 38.0.0
```

```
L3T SLT
                                             GWS GWS GWS
LSN
                 (SS7) SCRN SET SET BEI LST LNKS ACT MES DIS SLSCI
           APCA
NIS
ls04
           001-001-003 none 1 1
                                 no A 1
                                             off off off no
off
           SPCA
                       CLLI
                                 TFATCABMLQ MTPRSE ASL8
         ----- 1
                                          no
                                                 no
         IPSG IPGWAPC GTTMODE
                                    CGGTMOD
         yes
            no
                     CdPA
                                     no
         ADAPTER SLKTPS LSUSEALM SLKUSEALM RCONTEXT
```



ASNOTIF

```
m2pa 500 100% 80% none no

LOC LINK SLC TYPE ANAME

1102 A 2 IPSG assoc1
```

Link set table is (22 of 1024) 2% full.

12. Remove the signaling link from the **EAGLE** using the dlt-slk command.

If there is only one signaling link in the linkset, shown in 11, the force=yes parameter must be specified to remove the signaling link.

In the example used in this procedure, the signaling link is the last signaling link in the linkset. Enter this command.

```
dlt-slk:loc=2204:link=a:force=yes
```

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

```
rlghncxa03w 06-10-07 08:41:17 GMT EAGLE5 36.0.0 DLT-SLK: MASP A - COMPLTD
```

Note:

If removing the signaling link will result in 700 or less signaling links in the database and theOAMHCMEAS value in thertry-measopts output is on, the scheduled UI measurement reports will be enabled.

13. Verify the changes using the rtrv-slk command with the card location and link values specified in 12. For this example, enter this command.

```
rtrv-slk:loc=2204:link=a
```

When the rtrv-slk command has completed, the specified signaling link is not shown in the rtrv-slk output, as shown in this example.

```
rlghncxa03w 09-09-18 13:43:31 GMT EAGLE5 41.1.0 E2373 Cmd Rej: Link is unequipped in the database
```

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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

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

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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



Enter the Enter the rtrv-assoc command with this rtrv-slk command with this parameter. parameter. :loc = <location of the signaling :type=ipsglink being removed> What is the Do you wis M2PA M3UA ADAPTER value of the remove the IPS associations shown in the signalingrtrv-assoc output? Enter the rtrv-ls command with this parameter. :lsn=<the name of the linkset that Perform the 'Re contains the signaling link that is being removed> IPSG M3UAS Link" procedure the IPSG M3UA A, B, D, What is the C E, or PRX linkset type of the linkset displayed in the previous step? When the signaling Enter the link is removed, will the rtrv-ss7opts command. No number of signaling links in the linkset be less than the TFATCABMLQ value of the linkset? What is the Off On Yes LSRESTRICT value? Enter the chg-ls command with these parameters. Do you wish Yes No to change the To :lsn=<the name of the linkset Sheet 2 TFATCABMLQ value for that contains the signaling link that is being removed> the linkset to 0? :tfatcabmlq=0The signal removed.

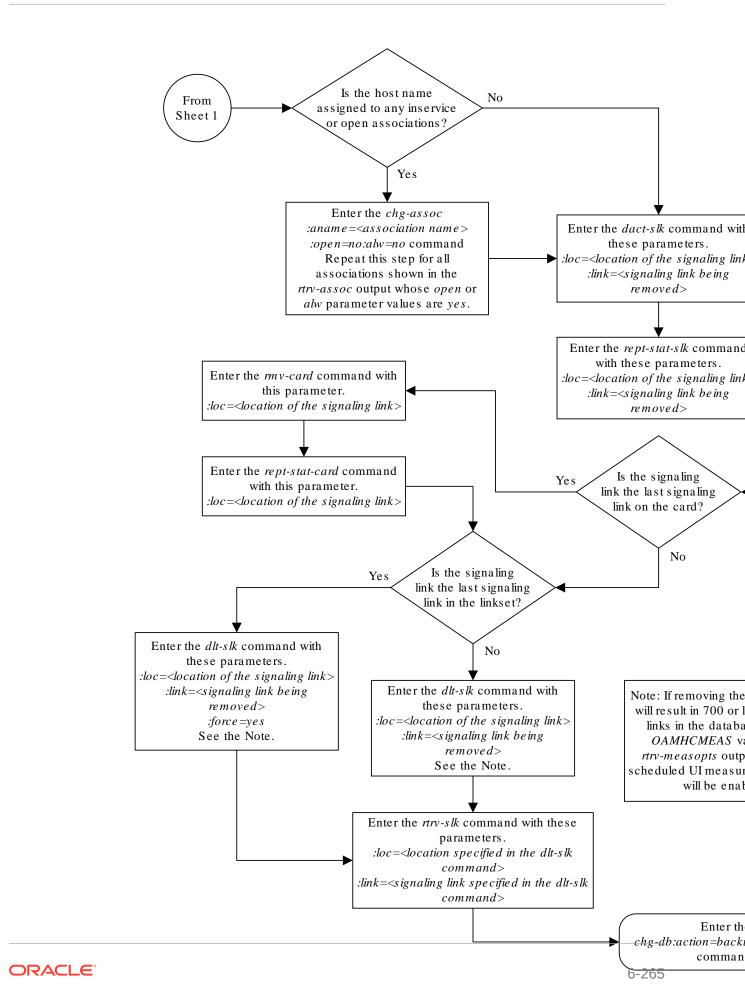
Figure 6-19 Removing an IPSG M2PA Signaling Link



this proc

Sheet 1 of 2





Sheet 2 of 2

Removing an IPSG M3UA Signaling Link

This procedure is used to remove an IPSG M3UA signaling link from the database using the dlt-slk command. The dlt-slk command uses these parameters.

: loc — The card location of the **IPSG** card that the **IPSG** M3UA signaling link is assigned to.

:link - The signaling link on the card specified in the loc parameter.

: force – This parameter must be used to remove the last link in a linkset without having to remove all of the routes that referenced the linkset.

The IPSG M3UA signaling link cannot be removed if removing the IPSG M3UA signaling link will cause the number of IS-NR IPSG M3UA signaling links in the linkset to be less than the <code>NUMSLKALW</code>, <code>NUMSLKRSTR</code>, or <code>NUMSLKPROH</code> values shown in the <code>rtrv-ls</code> output. The <code>NUMSLKALW</code>, <code>NUMSLKRSTR</code>, and <code>NUMSLKPROH</code> values are defined as follows.

- NUMSLKALW specifies the number of IS-NR (in-service normal) signaling links in the IPSG M3UA linkset required to change the state of the linkset from the Restricted or Prohibited state to the Allowed state.
- NUMSLKRSTR specifies the number of signaling links in the IPSG M3UA linkset required to change the state of the linkset from the Allowed state to the Restricted state.
- NUMSLKPROH specifies the number of signaling links in the IPSG M3UA linkset required to change the state of the linkset from the Allowed or Restricted state to the Prohibited state.

For more information about the NUMSLKALW, NUMSLKRSTR, and NUMSLKPROH values, refer to the Configuring IPSG M3UA Linkset Options procedure.

If the NUMSLKALW, NUMSLKRSTR, and NUMSLKPROH values are 1 or 0, then the IPSG M3UA signaling link can be removed. The value 0 is shown in the rtrv-ls output as a number with an asterisk (*), for example, 2*.

Canceling the RTRV-SLK Command

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

- Press the F9 function key on the keyboard at the terminal where the rtrv-slk command was entered.
- Enter the canc-cmd without the trm parameter at the terminal where the rtrv-slk command was entered.
- Enter the canc-cmd:trm=<xx>, where <xx> is the terminal where the rtrv-slk command was entered, from another terminal other that the terminal where the rtrv-slk command was entered. To enter the canc-cmd:trm=<xx> command, the terminal must allow Security Administration commands to be



entered from it and the user must be allowed to enter Security Administration commands. The terminal's permissions can be verified with the rtrv-secu-trm command. The user's permissions can be verified with the rtrv-user or rtrv-secu-user commands.

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

1. Display the IPSG signaling links by entering this command.

```
rtrv-slk:type=ipsg
```

This is an example of the possible output.

rlghncxa03w 06-10-19 21:16:37 GMT EAGLE5 36.0.0

LOC	LINK	LSN	SLC	TYPE	ANAME	SLKTPS
2202	A	lsnlp1	0	IPSG	assoc2	500
2205	A	lsnip1	1	IPSG	assoc3	500
2204	A	ls04	0	IPSG	assoc1	500
2207	A	lsnlp3	0	IPSG	assoc11	850
2211	A	lsnlp4	0	IPSG	assoc12	950
2213	A	lsnip5	0	IPSG	assoc4	750
2215	A	lsnlp2	1	IPSG	assoc5	1000

2. Display the associations assigned to the IPSG card containing the signaling link that will be removed by entering the rtrv-assoc command and specifying the card location of the IPSG card. For this example, enter this command.

For this example, enter this command.

```
rtrv-assoc:loc=2207
```

This is an example of possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0

CARD IPLNK

ANAME LOC PORT LINK ADAPTER LPORT RPORT OPEN ALW assoc11 2207 A A M3UA 1030 1030 YES YES

IP Appl Sock/Assoc table is (7 of 4000) 1% full
Assoc Buffer Space Used (16 KB of 3200 KB) on LOC = 2207
```

If the ADAPTER value of the associations shown in this step is M3UA, continue the procedure with 3.

If the ADAPTER value for the associations is M2PA, perform one of these actions.

- If you wish to remove the signaling link assigned to this card, perform the Removing an IPSG M2PA Signaling Link.
- If you do not wish to remove the signaling link assigned to this card, select another card from 1 and repeat this step.



3. Display the linkset that contains the signaling link that is being removed by entering the rtrv-ls command with the name of the linkset shown in the LSN column in 1. For this example, enter this command.

This is an example of the possible output.

rlghncxa03w 08-05-27 16:43:42 GMT EAGLE5 38.0.0

LSN SLSCI NIS lsnlp3 no off	APCA	(SS7)	SCRN		SLT SET		LST	LNKS		GWS MES	
	001-001	L-003	none	1	1	no	A	1	off	off	off
	SPCA		CLLI			TFA'	TCABI	MLQ M'	TPRS1	E ASI	L8
ASNOTIF	IPSG IPGWAPC GTTMOD yes no CdPA			Ξ	CGGTMOD no						
	ADAPTER	ADAPTER SLKTPS		LSUSEALM SLKU			JSEALM RCONTEXT		XT		
	m3ua	500	100) 응		80%		noi	ne		yes
	NUMSLKALW 1	NUMSLKRSTR 1		NUMSLKPROH 1							
		SLC TYPE 0 IPSG									
Link set t	able is (22	of 102	24) 28	fu.	11.						

The IPSG M3UA signaling link cannot be removed if removing the IPSG M3UA signaling link will cause the number of IS-NR IPSG M3UA signaling links in the linkset to be less than the <code>NUMSLKALW</code>, <code>NUMSLKRSTR</code>, and <code>NUMSLKPROH</code> values shown in the <code>rtrv-ls</code> output. If the <code>NUMSLKALW</code>, <code>NUMSLKRSTR</code>, and <code>NUMSLKPROH</code> values are 1 or 0, then the IPSG M3UA signaling link can be removed. The value 0 is shown in the <code>rtrv-ls</code> output as a number with an asterisk (*) is displayed in the <code>rtrv-ls</code> output, for example, 2*.

If you do not wish to change the NUMSLKALW, NUMSLKRSTR, or NUMSLKPROH values, this signaling link cannot be removed and the remainder of this procedure cannot be performed.

If you with to change the NUMSLKALW, NUMSLKRSTR, or NUMSLKPROH values, perform the Configuring IPSG M3UA Linkset Options procedure to change the required values. After the Configuring IPSG M3UA Linkset Options has been performed, continue the procedure with 4

4. Any in-service **IP** connections on the signaling link being removed in this procedure must be placed out of service.

Have the far-end node for the signaling link being removed place the M3UA associations in either the ASP-INACTIVE or ASP-DOWN state.



- If the OPEN or ALW values for the associations is YES, continue the procedure with 5.
- If the OPEN and ALW values for the associations is NO, continue the procedure with 6.
- 5. Change the value of the open and alw parameters to no by specifying the chg-assoc command with the open=no and alw=no parameters, as necessary. For this example, enter this command.

```
chg-assoc:aname=assoc11:open=no:alw=no
```

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

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 CHG-ASSOC: MASP A - COMPLTD;
```

6. Deactivate the link to be removed using the dact-slk command, using the output from 1 to obtain the card location and link parameter value of the signaling link to be removed. For this example, enter these commands.

```
dact-slk:loc=2207:link=a
```

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

```
rlghncxa03w 06-10-07 08:41:12 GMT EAGLE5 36.0.0 Deactivate Link message sent to card
```

7. Verify that the link is out of service - maintenance disabled (OOS-MT-DSBLD) using the rept-stat-slk command with the card location and link parameter values specified in 6. For this example, enter these commands.

```
rept-stat-slk:loc=2207:link=a
```

This is an example of the possible output.

```
rlghncxa03w 06-10-23 13:06:25 GMT EAGLE5 36.0.0

SLK LSN CLLI PST SST AST
2207,A lsnlp3 ls07clli OOS-MT Unavail ----
ALARM STATUS = * 0235 REPT-LNK-MGTINH: local inhibited
UNAVAIL REASON = LI
```

8. Place the card that contains the signaling link shown in 7 out of service by entering the rmv-card command specifying the card location shown in 7. For this example, enter this command.

```
rmv-card:loc=2207
```

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

```
rlghncxa03w 06-10-07 08:41:12 GMT EAGLE5 36.0.0 Card has been inhibited.
```

9. Verify that the card has been inhibited by entering the rept-stat-card command with the card location specified in 8. For this example, enter this command.

```
rept-stat-card:loc=2207
```



This is an example of the possible output.

```
rlghncxa03w 10-12-01 09:12:36 GMT EAGLE5 43.0.0
CARD VERSION TYPE GPL
                                            SST
AST
2207 133-003-000 E5ENET IPSG
                               OOS-MT-DSBLD Isolated
 ALARM STATUS = No Alarms.
 BLIXP GPL version = 133-003-000
 IMT BUS A = Disc
           = Disc
 IMT BUS B
 CURRENT TEMPERATURE = 32C (90F) [ALARM TEMP: 60C (140F)]
 PEAK TEMPERATURE: = 39C (103F)
                                [06-05-02 13:40]
 SIGNALING LINK STATUS
    SLK PST
                         LS
                                    CLLI
         OOS-MT
    Α
                         lsnlp2
```

Command Completed.

10. Remove the signaling link from the **EAGLE** using the dlt-slk command. If there is only one signaling link in the linkset, the force=yes parameter must be specified to remove the signaling link.

In the example used in this procedure, the signaling link is the last signaling link in the linkset. Enter this command.

```
dlt-slk:loc=2207:link=a:force=yes
```

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

```
rlghncxa03w 06-10-07 08:41:17 GMT EAGLE5 36.0.0 DLT-SLK: MASP A - COMPLTD
```

Note:

If removing the signaling link will result in 700 or less signaling links in the database and theOAMHCMEAS value in thertry-measopts output is on, the scheduled UI measurement reports will be enabled.

11. Verify the changes using the rtrv-slk command, with the card location and link values specified in 10. For this example, enter this command.

```
rtrv-slk:loc=2207:link=a
```

When the rtrv-slk command has completed, no entry is displayed showing that the signaling link has been removed.

```
rlghncxa03w 09-09-18 13:43:31 GMT EAGLE5 41.1.0 E2373 Cmd Rej: Link is unequipped in the database
```



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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

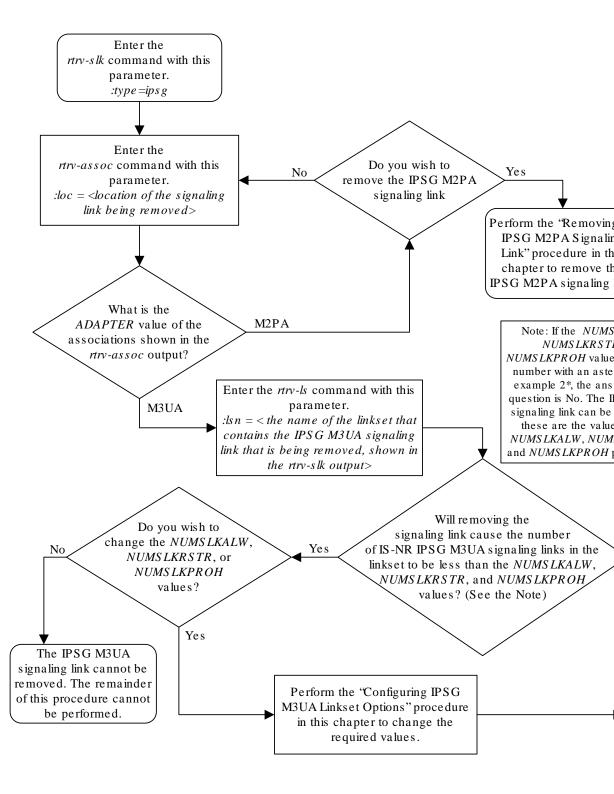
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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

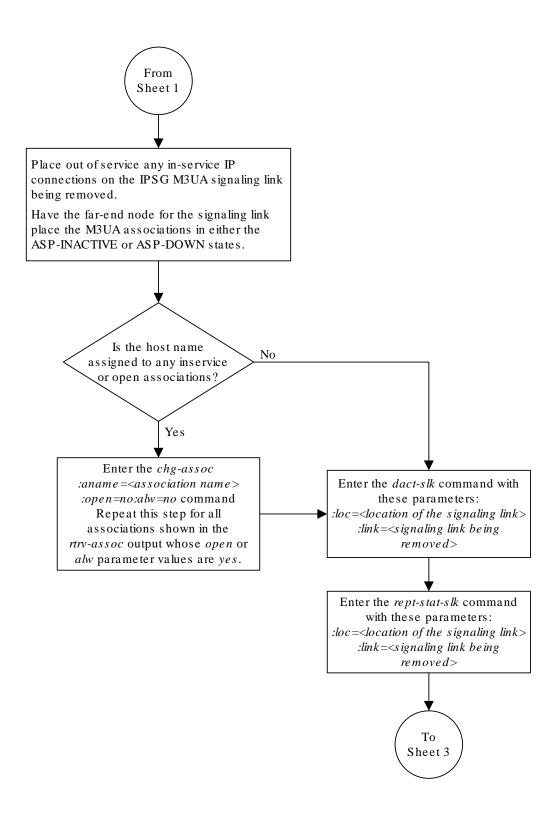


Figure 6-20 Removing an IPSG M3UA Signaling Link



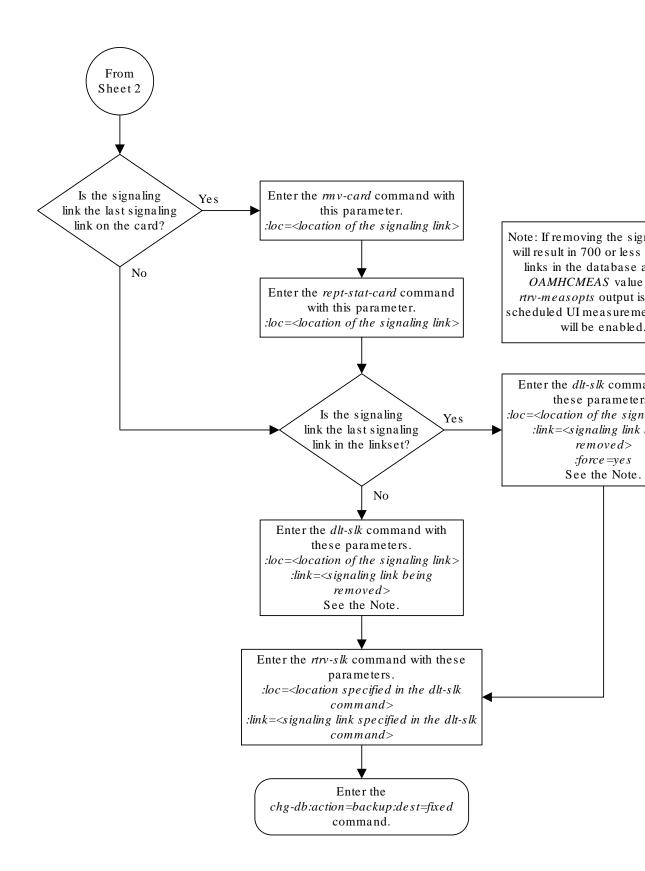
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Removing a Network Appearance

This procedure removes the network appearance from the database using the ${\tt dlt-na}$ command with these parameters.

:na – the 32-bit value of the network appearance, from 0 to 4294967295.

:type – the network type of the network appearance, ansi (ANSI), itui (ITU-I), itun (14-bit ITU-N), itun24 (24-bit ITU-N), ituis (ITU-I Spare), ituns (14-bit ITU-N Spare).

:gc – the specific **ITU-N** group code associated with the network appearance.

Specifying the gc parameter removes the specific network appearance containing the na and gc parameter values.

Specifying the type=itun or type=ituns parameter without the gc parameter removes all 14-bit ITU-N or 14-bit ITU-N spare network appearances containing the specified na parameter value.

1. Display the network appearances in the database with the rtrv-na command.

This is an example of the possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
TYPE
      GC
                  NA
ANSI
      --
                 100
       --
ITUI
                1000
               150000
ITUN uk
ITUN fr 400000000
ITUN ge 100000000
ITUN24
      --
                   3
                 2000
ITUIS --
ITUNS
                5000
      sp
```

2. Remove the network appearance from the database with the dlt-na command.

For this example, enter these commands.

```
dlt-na:na=100:type=ansi
dlt-na:na=40000000000:type=itun:gc=fr
```

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

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 DLT-NA: MASP A - COMPLTD
```

3. Verify the changes using the rtrv-na command.



This is an example of possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
TYPE
      GC
                  NA
                1000
ITUI
      --
              150000
ITUN uk
      ge 1000000000
ITUN
ITUN24 --
                   3
ITUIS --
                2000
ITUNS sp
                5000
```

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

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

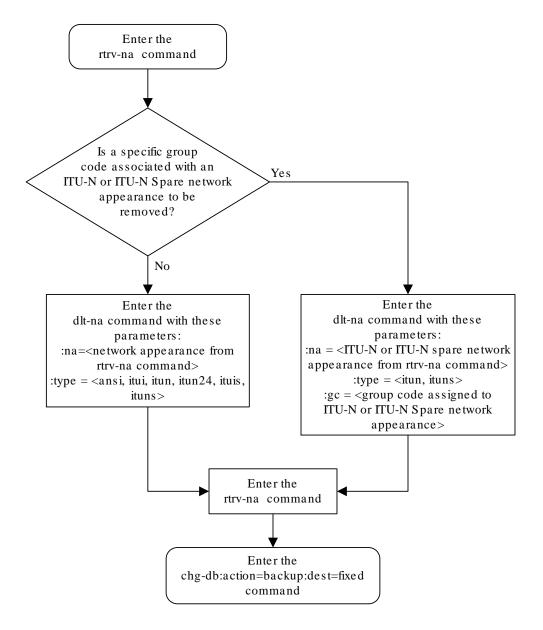
```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

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

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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

Figure 6-21 Removing a Network Appearance





Changing IPSG Components

This section describes how to change the attributes of the following components in the database.

- Changing an IPLIMx card that contains IPLIMx M2PA signaling links to an IPSG card that contains IPSG M2PA signaling links – perform the Changing an IPLIMx Card to an IPSG Card procedure.
- IP options perform the Configuring IP Options procedure.
- The options for an IPSG M3UA linkset perform the Configuring IPSG M3UA Linkset Options procedure.
- An IPSG Linkset Perform these procedures.
 - Changing an IPSG M2PA Linkset
 - Changing an IPSG M3UA Linkset
- An IPSG Association Perform these procedures.
 - Changing the Attributes of an IPSG Association
 - Changing the Buffer Size of an IPSG Association
 - Changing the Host Values of an IPSG Association
- The SCTP retransmission parameters Perform the Configuring an IPSG Association for SCTP Retransmission Control procedure.
- The SCTP Checksum Algorithm Perform these procedures.
 - Changing the SCTP Checksum Algorithm Option for IPSG M2PA Associations
 - Changing the SCTP Checksum Algorithm Option for IPSG M3UA Associations
- The M2PA timer set for an IPSG M2PA association perform the Changing an M2PA Timer Set procedure.
- The UA parameter set for an IPSG M3UA association perform the Changing a UA Parameter Set procedure.
- Turn off the Large MSU Support for IP Signaling feature Perform the Turning Off the Large MSU Support for IP Signaling Feature procedure.

Changing an IPLIMx Card to an IPSG Card

This procedure is used to change an IPLIMx card to an IPSG card. The linksets, signaling links, and M2PA associations that are assigned to the IPLIMx card are changed to IPSG M2PA linksets, IPSG M2PA signaling links, and IPSG M2PA associations. To change an IPLIMx card to an IPSG card, the <code>chg-card</code> command is used with these parameters.

:loc - The card location of the IPLIMx card.

: nappl - The new application that is assigned to the card, ipsg.

The IPLIMx card must be an E5-ENET card that is running either the IPLIM or IPLIMI applications. IPLIMx signaling links must be assigned to the card. M2PA associations must be assigned to the signaling links. Before the chg-card command can be executed, the IPLIMx card and its signaling links must be taken out of service.



If adding the IPLIMx signaling link will exceed the maximum total provisioned system TPS, and the maximum total provisioned system TPS is 500,000, perform the "Activating the HIPR2 High Rate Mode" feature in *Database Administration - System Management* to enable and turn on the HIPR2 High Rate Mode feature. When the HIPR2 High Rate Mode feature is enabled and turned on, the maximum total provisioned system TPS is increased to 1,000,000 (1M). If the maximum total provisioned system TPS is 1M, or the maximum total provisioned system TPS is 500,000 and will not be increased, and adding the IPLIMx signaling link will exceed the maximum total provisioned system TPS, the IPLIMx signaling link cannot be added unless the amount of available TPS is reduced enough to allow the IPLIMx signaling link to be added. The available TPS can be reduced by performing one or more of these actions.

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

This is an example of the possible output.

rlghnc	xa03w 13-0	6-19 21:16	:37 GMT EAGLE5	45.0	.0			
CARD	TYPE	APPL	LSET NAME	LINK	SLC	LSET NAME	LINK	SLC
1101	DSM	VSCCP						
1102	TSM	GLS						
1113	E5MCAP	EOAM						
1114	E5TDM-A							
1115	E5MCAP	EOAM						
1116	E5TDM-B							
1117	E5MDAL							
1201	LIMDS0	SS7ANSI	sp2	A	0	sp1	В	0
1203	LIMDS0	SS7ANSI	sp3	A	0			
1204	LIMDS0	SS7ANSI	sp3	A	1			
1206	LIMDS0	SS7ANSI	nsp3	A	1	nsp4	В	1
1301	LIMDS0	SS7ANSI	sp6	A	1	sp7	В	0
1302	LIMDS0	SS7ANSI	sp7	A	1	sp5	В	1
1303	DCM	IPLIM	ipnode1	A	0	ipnode3	В	0
1305	DCM	IPLIM	ipnode4	A	0			
2101	ENET	IPSG						
2103	ENET	IPSG						
2105	ENET	IPSG						
2107	ENET	IPSG						
2201	DCM	IPLIM						
2203	DCM	IPLIM						
2207	DCM	IPLIM						
2211	DCM	SS7IPGW						
2213	DCM	SS7IPGW						
2215	DCM	IPGWI						
2217	DCM	IPGWI						
2301	DCM	SS7IPGW						
2303	DCM	SS7IPGW						
2305	DCM	IPGWI						
2307	DCM	IPGWI						
2311	DCM	IPLIMI						
2313	DCM	IPLIMI						

If no card that are assigned to the IPLIM or IPLIMI applications are shown in the rtrv-card output, this procedure cannot be performed.



If cards that are assigned to the IPLIM or IPLIMI applications are shown in the rtrv-card output, continue the procedure with 2.

2. Display the attributes of the IPLIMx card that will be changed by entering the rept-stat-card command with the card location of the IPLIMx card. For this example, enter this command.

```
rept-stat-card:loc=1303
```

This is an example of possible output.

```
rlghncxa03w 10-12-28 09:12:36 GMT EAGLE5 43.0.0
CARD VERSION TYPE GPL
                                 PST
                                               SST
AST
1303 133-003-000 ENET
                         IPLIM
                                  IS-NR
                                               Active
 ALARM STATUS = No Alarms.
 BLIXP GPL version = 133-003-000
 IMT BUS A
                 = Conn
 IMT BUS B
                 = Conn
 CURRENT TEMPERATURE = 32C (90F) [ALARM TEMP: 60C (140F)]
 PEAK TEMPERATURE: = 39C (103F)
                                   [06-05-02 13:40]
 SIGNALING LINK STATUS
    SLK PST
                          LS
                                      CLLI
                          ipnode1
                                      -----
    Α
         IS-NR
                                       _____
          IS-NR
                          ipnode3
    В
```

Command Completed.

If the TYPE value for the card is not ENET, this card is not an E5-ENET card. Choose another card from the rtrv-card output in 1 and repeat this step.

If the TYPE value for the card is ENET, this card is an E5-ENET card.

If signaling links are not assigned to the card, this procedure cannot be performed. To make this card an IPSG card, perform the Removing an IPLIMx Card to remove the card from the database. After the card has been removed from the database, perform the procedures in IPSG M2PA and M3UA Configuration Procedures to configure an IPSG card with IPSG M2PA signaling links.

If signaling links are assigned to the card, continue the procedure by performing one of these steps.

- If the state of all the signaling links that are assigned to the card is OOS-MT-DSBLD and the state of the card is OOS-MT-DSBLD, continue the procedure with 5.
- If the state of all the signaling links that are assigned to the card is OOS-MT-DSBLD, but the state of the card is not OOS-MT-DSBLD, continue the procedure with 4.
- If the state of any of the signaling links that are assigned to the card is not OOS-MT-DSBLD, continue the procedure with 3.
- 3. Place the signaling links shown in 2 whose state is not OOS-MT-DSBLD out of service by entering the dact-slk command with the card location shown in the CARD column of the rept-stat-card output, and link value of the signaling link shown in the SLK column of the rept-stat-card output.



For this example, enter these commands.

```
dact-slk:loc=1303:link=a
dact-slk:loc=1303:link=b
```

When these commands have successfully completed, this message appears.

```
rlghncxa03w 10-07-17 11:43:04 GMT EAGLE5 42.0.0
Deactivate Link message sent to card.
```

Continue the procedure by performing one of these steps.

- If the state of the card is OOS-MT-DSBLD, continue the procedure with 5.
- If the state of the card is not OOS-MT-DSBLD, continue the procedure with 4.
- 4. Place the card out of service by entering the rmv-card command with the card location shown in the CARD column of the rept-stat-card output 2. For this example, enter this command.

```
rmv-card:loc=1303
```

When the command has successfully completed, this message appears.

```
rlghncxa03w 10-07-17 11:43:04 GMT EAGLE5 42.0.0
Card has been inhibited.
```

5. Display the linksets that contain the signaling links shown in the rept-stat-card output in 2 by entering the rtrv-1s command with the name of the linkset shown in the LS column in the rept-stat-card output. Repeat this step for each linkset shown in the rept-stat-card output.

For this example, enter these commands.

```
rtrv-ls:lsn=ipnode1
```

This is an example of possible output.

```
rlghncxa03w 10-07-17 11:43:04 GMT EAGLE5 42.0.0
```

LSN NIS	AP	°CA	(SS7)	SCRN	-	SLT SET	BEI	LST	LNKS		GWS MES		SLSCI
ipnodel off	00	2-002	2-002	none	1	1	no	A	1	off	off	off	no
	SP	CA		CLLI			TFA'	rcabi	MLQ M'		E ASI	L8	
	RANDSLS off												
	IPSG no	IPGW no		GTTMODI CdPA	Ε		(CGGTN no	MOD				



LOC LINK SLC TYPE IPLIML2 1303 A 0 IPLIM M2PA

Link set table is (25 of 1024) 2% full.

rtrv-ls:lsn=ipnode3

This is an example of possible output.

rlghncxa03w 10-07-17 11:43:04 GMT EAGLE5 42.0.0

L3T SLT GWS GWS GWS LSN APCA (SS7) SCRN SET SET BEI LST LNKS ACT MES DIS SLSCI NIS ipnode3 002-002-003 none 1 1 no A 1 off off off no off SPCA CLLI TFATCABMLQ MTPRSE ASL8 no RANDSLS off IPSG IPGWAPC GTTMODE CGGTMOD no CdPA no LOC LINK SLC TYPE IPLIML2 1303 B 0 IPLIM M2PA

Link set table is (25 of 1024) 2% full.

When the chg-card command is executed, the RSVDSLKTPS and MAXSLKTPS values of the linkset will be assigned based on the current IPSG value of the linkset.

If the current IPSG value of the linkset is no, the RSVDSLKTPS value of the linkset will be 0 (zero) and the MAXSLKTPS value of the linkset will be 4000.

If the current IPSG value of the linkset is yes, the RSVDSLKTPS and the MAXSLKTPS values will not be changed. The total TPS used by the signaling links in this linkset will be the number of signaling links in the linkset multiplied by the RSVDSLKTPS value of the linkset.

6. Display the associations that are assigned to the card by entering the rtrv-assoc command with the card location of the card that is being changed.

For this example, enter this command.

rtrv-assoc:loc=1303

This is an example of possible output.

rlghncxa03w 10-07-17 11:43:04 GMT EAGLE5 42.0.0

CARD IPLNK

ANAME LOC PORT LINK ADAPTER LPORT RPORT OPEN ALW



If M2PA associations are not shown in the rtrv-assoc output, perform the Adding an M2PA Association procedure to add M2PA associations to the card.

If M2PA associations are shown in the rtrv-assoc output, or after the M2PA associations have been added in this step, continue the procedure by performing one of these actions.

- If the current IPSG value of all the linksets shown in 5 is no, continue the procedure with 7.
- If the current IPSG value of all the linksets shown in 5 is yes, and the card's MaxTPS (see Maximum Card Capacity for Different Card Types for MaxTPS values) will not be exceeded when the chg-card command is executed, continue the procedure with 7.
- If the current IPSG value of any of the linksets shown in 5 is yes, and the card's MaxTPS value will be exceeded when the chg-card command is executed, perform the Changing an IPSG M2PA Linkset procedure to change the RSVDSLKTPS value, and the MAXSLKTPS value if necessary, of each IPSG linkset shown in the rept-stat-card output in 2 as required. After the linksets have been changed, continue the procedure with 7.
- 7. Display the total provisioned system TPS by entering the rtrv-tps command. This is an example of the possible output.

rlghncxa03w 10-07-10 16:20:46 GMT EAGLE 42.0.0

CARD TYPE	NUM CARDS	NUM LINKS	RSVD TPS	MAX TPS
IPGW	17	16	48000	80000
IPSG	4	8	4700	12000
IPLIM	2	4	8000	8000
ATM	2	2	3668	3668

Total provisioned System TPS (103668 of 500000) 21%

Command Completed.

If the RSVDSLKTPS or the MAXSLKTPS values of each linkset shown in 5 will not exceed the maximum total provisioned system TPS value shown in the rtrv-tps output, continue the procedure with 8.

If the RSVDSLKTPS or the MAXSLKTPS values of any linkset shown in 5 will exceed the maximum total provisioned system TPS value shown in the rtrv-tps output, continue the procedure by performing one of these actions.

If the maximum total provisioned system TPS value is 500,000, perform the "Activating the HIPR2 High Rate Mode Feature" procedure in *Database*



Administration - System Management to increase the maximum total provisioned system TPS value to 1M. After the "Activating the HIPR2 High Rate Mode Feature" procedure has been performed, continue the procedure with 8

- If the maximum total provisioned system TPS value is 1M, perform the Changing an IPSG M2PA Linkset procedure as necessary to change the MAXSLKTPS value, and the RSVDSLKTPS value if necessary, of the linksets shown in 2 to allow the IPLIMx card to be changed to an IPSG card with this procedure. After the Changing an IPSG M2PA Linkset procedure has been performed, continue the procedure with 8.
- 8. Change the IPLIMx card to an IPSG card by entering the chg-card command with the card location of the card being changed and the new card application, ipsq.

For this example, enter this command.

```
chg-card:loc=1303:nappl=ipsg
```

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

```
rlghncxa03w 10-07-10 16:20:46 GMT EAGLE 42.0.0 CHG-CARD: MASP A - COMPLTD
```

9. Verify that the card has been changed by entering the rtrv-card command with the card location specified in 8.

For this example, enter this command.

```
rtrv-card:loc=1303
```

This is an example of the possible output.

```
rlghncxa03w 10-07-10 16:20:46 GMT EAGLE 42.0.0

CARD TYPE APPL LSET NAME LINK SLC LSET NAME
LINK SLC

1311 ENET IPSG ipnode1 A 0 ipnode3

B 0
```

10. Display the linksets that were displayed in **5** by entering the rtrv-ls command with the name of each linkset that was specified in **5**.

For this example, enter these commands.

```
rtrv-ls:lsn=ipnode1
```

This is an example of possible output.

```
rlghncxa03w 10-07-17 11:43:04 GMT EAGLE5 42.0.0
```

```
LSN APCA (SS7) SCRN SET SET BEI LST LNKS ACT MES DIS SLSCI NIS ipnodel 002-002-002 none 1 1 no A 1 off off off no off
```



SPCA CLLI TFATCABMLQ MTPRSE ASL8

RANDSLS

off

IPSG IPGWAPC GTTMODE CGGTMOD yes no CdPA no

ADAPTER RSVDSLKTPS MAXSLKTPS m2pa 0 4000

TPSALM LSUSEALM SLKUSEALM rsvdslktps 80% 100%

LOC LINK SLC TYPE ANAME 1303 A 0 IPSG iplim1

Link set table is (25 of 1024) 2% full.

rtrv-ls:lsn=ipnode3

This is an example of possible output.

rlghncxa03w 10-07-17 11:43:04 GMT EAGLE5 42.0.0

LSN APCA (SS7) SCRN SET SET BEI LST LNKS ACT MES DIS SLSCI NIS ipnode3 002-002-003 none 1 1 no A 1 off off no off

SPCA CLLI TFATCABMLQ MTPRSE ASL8

RANDSLS

off

IPSG IPGWAPC GTTMODE CGGTMOD yes no CdPA no

ADAPTER RSVDSLKTPS MAXSLKTPS m2pa 0 4000

TPSALM LSUSEALM SLKUSEALM rsvdslktps 80% 100%

LOC LINK SLC TYPE ANAME 1303 B 0 IPSG iplim2

Link set table is (25 of 1024) 2% full.

Continue the procedure by performing these steps or actions as needed.

- If IPSG value of the linksets displayed in this step was no when this procedure
 was started, and you wish to change the RSVDSLKTPS value of any of the
 linksets, perform the Changing an IPSG M2PA Linkset procedure to change
 the RSVDSLKTPS value, and the MAXSLKTPS value if necessary, of each IPSG
 linkset.
- If 4 was performed to the state of the IPLIMx card, continue the procedure with 11.
- If 3 was performed to change the state of the signaling links in the linksets, continue the procedure with 12.
- If IPSG value of the linksets displayed in this step was yes when this
 procedure was started, 4 was not performed to the state of the IPLIMx card,
 and 3 was not performed to change the state of the signaling links in the
 linksets, continue the procedure with 13.
- 11. Put the card back into service by entering the rst-card command with the card location specified in 9.

For this example, enter this command.

```
rst-card:loc=1303
```

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

```
rlghncxa03w 10-07-17 11:43:04 GMT EAGLE5 42.0.0 Card has been allowed.
```

If 3 was not performed to change the state of the signaling links in the linksets, continue the procedure with 13.

If 3 was performed to change the state of the signaling links in the linksets, continue the procedure with 12.

Put the signaling links that were taken out of service in 3 back into service by entering the act-slk command with the card location and link values specified in 3. For this example, enter these commands.

```
act-slk:loc=1303:link=a
act-slk:loc=1303:link=b
```

When these commands have successfully completed, this message appears.

```
rlghncxa03w 10-07-17 11:43:04 GMT EAGLE5 42.0.0 Activate Link message sent to card
```

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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

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

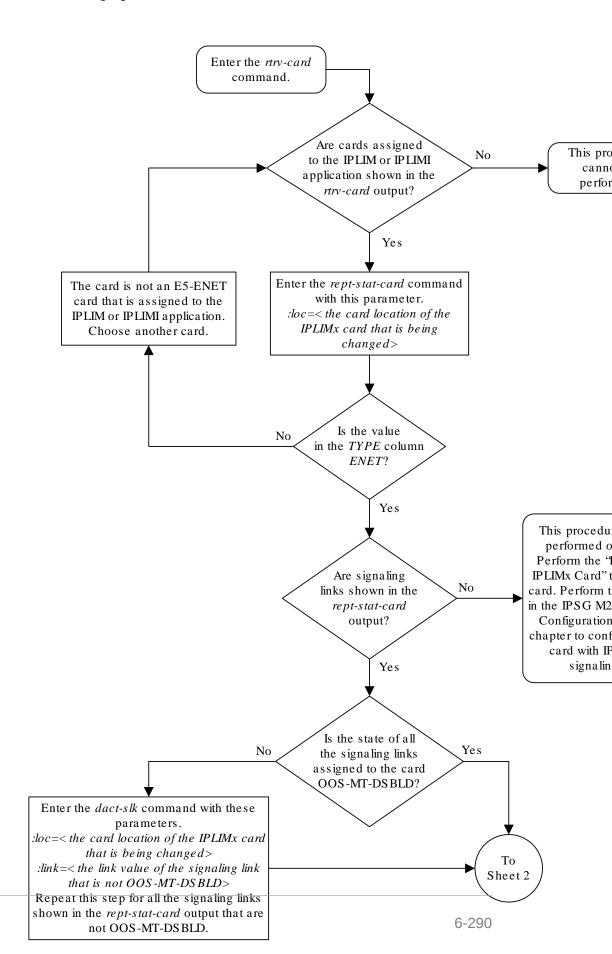
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
```



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

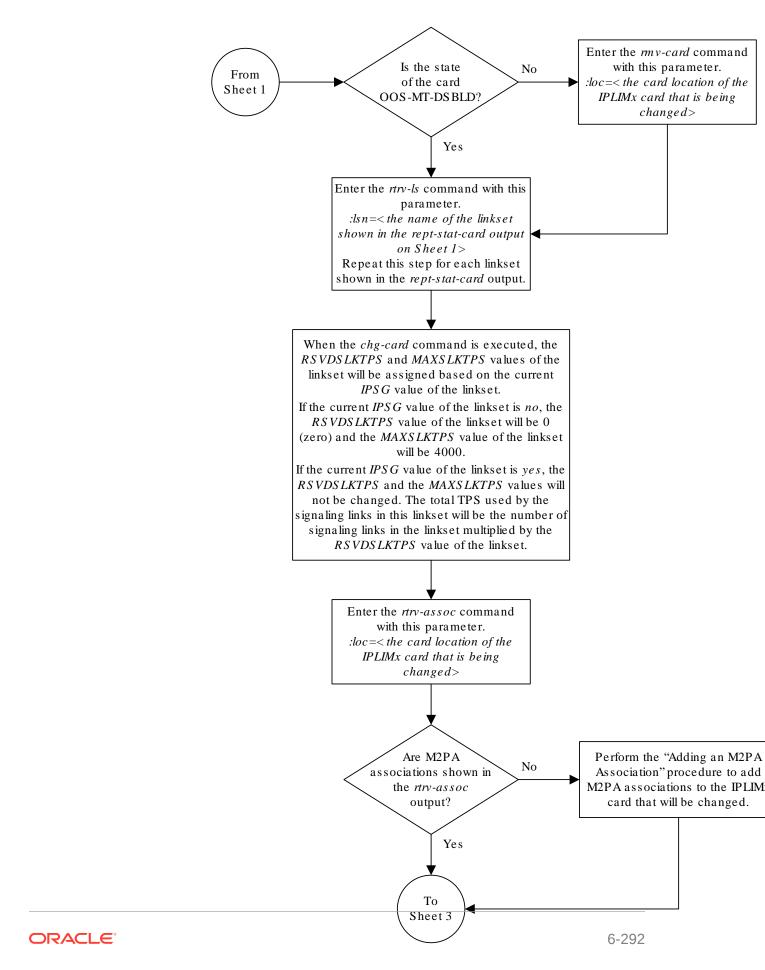


Figure 6-22 Changing IPLIMx Card to IPSG Card



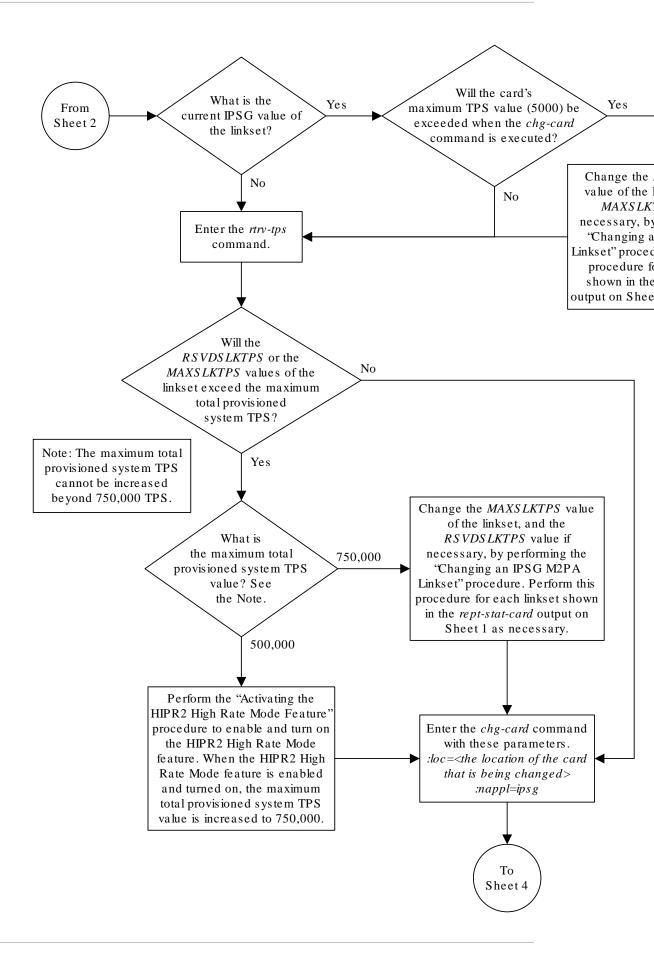
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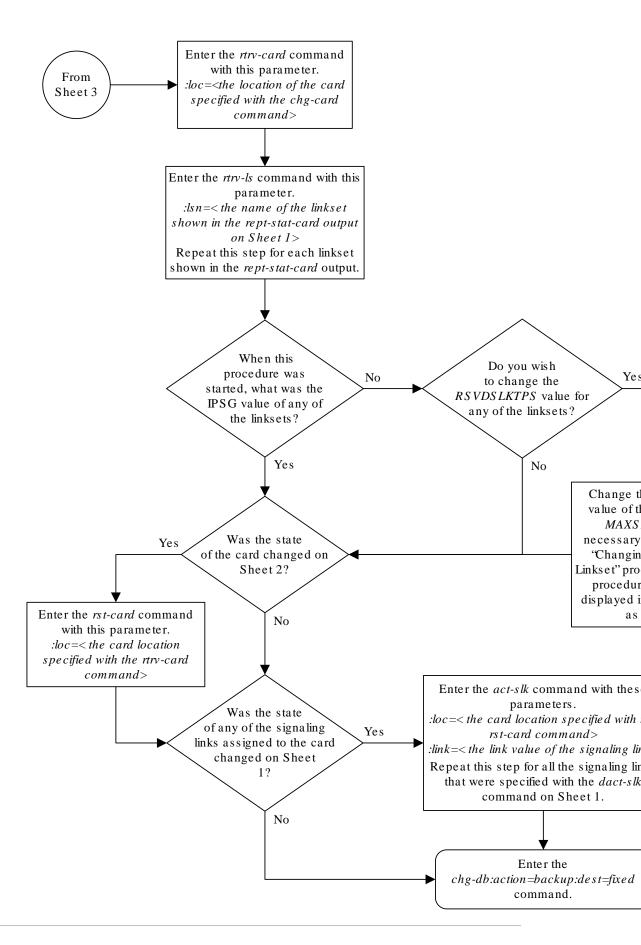
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Configuring IP Options

Use this procedure to change the **IP** options defined by these parameters: getcomm, setcomm, snmpcont, srkg, trapcomm, ipgwabate, and uameasusedftas.

The chg-sg-opts command also contains the sctpcsum parameter. Perform the one of these procedures to change the sctpcsum parameter value.

- Changing the SCTP Checksum Algorithm Option for M3UA and SUA Associations
- Changing the SCTP Checksum Algorithm Option for M2PA Associations
- Changing the SCTP Checksum Algorithm Option for IPSG M2PA Associations
- Changing the SCTP Checksum Algorithm Option for IPSG M3UA Associations

: getcomm – The community name used to validate **SNMP** *Get* and *GetNext* requests. This value applies to each **IP** card **SNMP** agent.

: setcomm – The community name used to validate **SNMP** *Set* requests. This value applies to each **IP** card **SNMP** agent.

: snmpcont – The system contact information for each IP card SNMP agent, used to define the sysContact object in the SNMP MIB II System Group.

: srkq – The static routing key quantity used to specify the maximum number of static routing key entries in the **Routing Key** table of each ss7ipgw and ipgwi card.

 $\verb|:trapcomm-The community name used when sending SNMP traps. This value applies to each IP card SNMP agent.$

:ipgwabate - enables (ipgwabate=yes) or disables (ipgwabate=no) **SS7** congestion abatement procedures for **IPGWx** signaling links (signaling links assigned to cards running the ss7ipgw or ipgwi applications). The default value for this parameter is no.

: uameasusedftas - specifies whether UA measurements are pegged against the default application server or against the application server shown by the routing context. The values for this parameter are yes and no. The system default value for this parameter is yes.

- yes UA measurement registers are pegged against the default application server.
- no UA measurements are pegged against the application server shown by the routing context.

The maximum value of the srkg parameter is 2500.

The value specified for the <code>srkq</code> parameter cannot be less than the current number of provisioned routing keys. The number of routing keys that are currently provisioned is shown in the <code>rtrv-appl-rtkey</code> or <code>rtrv-tbl-capacity</code> command outputs.

The values of the snmpcont, getcomm, setcomm, and trapcomm parameters are a string of up to 32 characters that is not case sensitive. If the character string contains characters other than alphanumeric characters, the character string must be enclosed in single quotes.

1. Display the current **IP** options in the database by entering the rtrv-sq-opts command.



The following is an example of the possible output.

rlghncxa03w 08-04-28 21:17:37 GMT EAGLE5 38.0.0 SRKQ: 250 SNMPCONT: john doe 555-123-4567 GETCOMM: public SETCOMM: private TRAPCOMM: public SCTPCSUM: crc32c IPGWABATE: NO

If the srkg parameter value will not be changed, continue the procedure with 3.

If the srkq parameter value will be changed, verify the number of routing keys that are currently provisioned by performing 2.

2. Enter the rtrv-tbl-capacity command to verify the number of routing keys that are currently provisioned.

The following is an example of the possible output.

```
rlghncxa03w 08-04-28 21:17:37 GMT EAGLE5 38.0.0

RTEKEY table is ( 53 of 2500) 2% full
```

Note:

UAMEASUSEDFTAS YES

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

The number of routing keys that are currently provisioned is shown in the RTEKEY row of the rtrv-tbl-capacity output. In this example, there are 53 routing keys provisioned in the database. The new srkq parameter value cannot be less than 53.

3. Change the IP options in the database using the chq-sq-opts command.

For this example, enter this command.

```
chg-sg-opts:srkq=200:ipgwabate=yes:uameasusedftas=no
```

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

```
rlghncxa03w 08-04-28 21:18:37 GMT EAGLE5 38.0.0 CHG-SG-OPTS: MASP A - COMPLTD
```



4. Verify the new **IP** options in the database by entering the rtrv-sg-opts command. The following is an example of the possible output.

```
rlghncxa03w 08-04-28 21:19:37 GMT EAGLE5 38.0.0 SRKQ: 200 SNMPCONT: john doe 555-123-4567 GETCOMM: public SETCOMM: private TRAPCOMM: public SCTPCSUM: crc32c IPGWABATE: YES UAMEASUSEDFTAS NO
```

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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

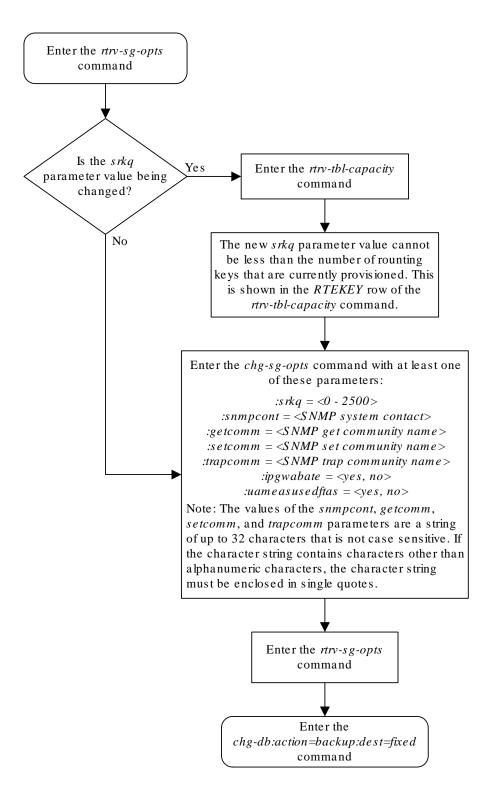
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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



Figure 6-23 Configuring IP Options



Configuring IPSG M3UA Linkset Options

This procedure is used to configure the options for an IPSG M3UA linkset with the chglsopts command and these parameters.

:1sn - The name of the IPSG M3UA linkset.

:numslkalw - This parameter specifies the number of IS-NR (in-service normal) signaling links in the IPSG M3UA linkset required to change the state of the linkset from the Restricted or Prohibited state to the Allowed state. When the number of IS-NR signaling links in the linkset changes from a value that is less than the numslkalw parameter value to a value that is equal or greater than the numslkalw value, the state of the linkset changes to the Allowed state. The value of this parameter is from 0 to 16. The value of this parameter cannot exceed the number of signaling links that are assigned to the linkset. The value 0 represents half the number of signaling links that are assigned to the linkset. If this parameter is not specified, the current value of this parameter is not changed. The system default value for this parameter is 1.

:numslkrstr - This parameter specifies the number of signaling links in the IPSG M3UA linkset required to change the state of the linkset from the Allowed state to the Restricted state. When the number of IS-NR signaling links in the linkset changes from a value that is equal to or greater than the numslkrstr parameter value to a value that is less than the numslkrstr parameter value and greater than the numslkproh parameter value, the state of the linkset changes from the Allowed state to the Restricted state. Changing the state of the linkset from the Prohibited state to the Restricted state is not supported. The value of this parameter is from 0 to 16. The value of this parameter cannot exceed the number of signaling links that are assigned to the linkset. The value 0 represents half the number of signaling links that are assigned to the linkset. If this parameter is not specified, the current value of this parameter is not changed. The system default value for this parameter is 1.

:numslkproh - This parameter specifies the number of signaling links in the IPSG M3UA linkset required to change the state of the linkset from the Allowed or Restricted state to the Prohibited state. When the number of IS-NR signaling links in the linkset changes from a value that is equal to or greater than the numslkproh parameter value to a value that is less than the numslkproh parameter value, the state of the linkset changes from the Allowed or Restricted state to the Prohibited state. The value of this parameter is from 0 to 16. The value of this parameter cannot exceed the number of signaling links that are assigned to the linkset. The value 0 represents half the number of signaling links that are assigned to the linkset. If this parameter is not specified, the current value of this parameter is not changed. The system default value for this parameter is 1.

An IPSG M3UA linkset is a linkset that contains these values: IPSG=yes, ADAPTER=m3ua.

If the IPSG M3UA linkset contains no signaling links, the value of the numslkalw, numslkrstr, or numslkproh parameters can only be changed to 0 or 1.

If 0 is specified as the value of the numslkalw, numslkrstr, or numslkproh parameters, a number with an asterisk (*) is shown as the value of the numslkalw, numslkrstr, or numslkproh parameter.

1. Display the IPSG and IPGWx linksets that are provisioned in the database by entering the rept-stat-iptps command.



The following is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0 IP TPS USAGE REPORT

PEAKTIMEST	THRESH	CONFIG/	CONFIG/		TPS	PEAK	
PEARITMEST	.AMP	RSVD	MAX				
LSN							
ipgwx1	100%		32000	TX:	3700	4000	10-07-19
09:49:19				RCV:	3650	4000	10-07-19
09:49:19				1\C V •	3030	4000	10 07 19
ipgwx2	100%		16000	TX:	4800	5000	10-07-19
09:49:09							
00.40.00				RCV:	4850	5000	10-07-19
09:49:09 ipgwx3	100%		32000	TX:	427	550	10-07-19
09:49:19	1000		32000	171.	12 /	330	10 07 19
				RCV:	312	450	10-07-19
09:49:19							
ipsglsn	100%	600	24000	TX:	4800	5000	10-07-19
09:49:19				RCV:	4800	5000	10-07-19
09:49:19				1000.	1000	3000	10 07 19
ipsglsn2	100%	600	4000	TX:	427	550	10-07-19
09:49:19							
00 40 10				RCV:	312	450	10-07-19
09:49:19 ipsgm3ua	100%	100	500	TX:	312	450	10-07-19
1psgmsua 09:49:19	1000	100	500	ΙΛ.	212	400	10 07 19
				RCV:	312	450	10-07-19
09:49:19							

Command Completed.

If no linksets are shown in this step, this procedure cannot be performed.

If linksets are shown in this step, continue the procedure with 2.

2. Display one of the linksets shown in 1 by entering the rtrv-ls command with the name of one of the linksets shown in 1. For this example, enter this command.

```
rtrv-ls:lsn=ipsgm3ua
```

The following is an example of the possible output.

tekelecstp 18-01-22 05:43:50 EST EAGLE 46.6.0.0.0-71.21.00



```
L3T SLT
                                             GWS GWS GWS
                   (SS7) SCRN SET SET BEI LST LNKS ACT MES DIS
   LSN
               APCA
SLSCI NIS
               008-008-004 none 1 1 no A 3 off off off
   ipsqm3ua
nο
   off
               SPCA
                           CLLI
                                      TFATCABMLQ MTPRSE ASL8
            RANDSLS
            off
            IPSG GTTMODE
                              CGGTMOD
            yes CdPA
                                no
            ADAPTER
                     RSVDSLKTPS MAXSLKTPS
                     100 100
            m3ua
            TPSALM LSUSEALM SLKUSEALM
            rsvdslktps 80% 80%
            RCONTEXT ASNOTIF NUMSLKALW NUMSLKRSTR NUMSLKPROH
                              2* 1
            1234567890 yes
                                                   1
            LOC LINK SLC TYPE ANAME
            1102 A2 0 IPSG ipsgm3ua1102
            1202 A3 1 IPSG ipsgm3ua1202
            1302 A4 2 IPSG ipsgm3ua1302
   Link set table is (1 of 1024) 1% full.
;
```

IPSG M3UA linksets are shown by the entry m3ua in the ADAPTER column of the rtrv-1s output. If the linkset is an IPSG M3UA linkset, continue the procedure with 3

If the linkset is not an IPSG M3UA linkset, perform one of these actions.

- Choose another linkset from 1 and repeat this step.
- If you do not wish to choose another linkset, the remainder of this procedure cannot be performed. This procedure is finished.
- 3. Change the IPSG M3UA linkset options by entering the chg-lsopts command.

For this example, enter this command.

```
\verb|chg-lsopts:lsn=ipsgm3ua:numslkalw=3:numslkrstr=2:numslkproh=2||
```

The value of the numslkalw, numslkrstr, or numslkproh parameters cannot exceed the number of signaling links that are assigned to the linkset.

The value of the numslkrstr parameter must be less than or equal to the numslkalw parameter value.

The value of the numslkproh parameter must be less than or equal to the numslkrstr parameter value.



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

```
rlghncxa03w 08-04-28 21:18:37 GMT EAGLE5 38.0.0 Link set table is (13 of 1024) 1% full. CHG-LSOPTS: MASP A - COMPLTD
```

4. Verify the changes by entering the rtrv-ls command with the name of the linkset specified in 3. For this example, enter this command.

```
rtrv-ls:lsn=ipsqm3ua
```

The following is an example of the possible output.

```
tekelecstp 18-01-22 05:43:50 EST EAGLE
46.6.0.0.0-71.21.00
                           L3T SLT
                                            GWS GWS GWS
   LSN APCA (SS7) SCRN SET SET BEI LST LNKS ACT MES
DIS SLSCI NIS
             008-008-004 none 1 1 no A 3 off off
   ipsqm3ua
off no off
                     CLLI TFATCABMLQ MTPRSE ASL8
               SPCA
            RANDSLS
            off
                            CGGTMOD
            IPSG GTTMODE
            yes CdPA
                              no
            ADAPTER RSVDSLKTPS MAXSLKTPS
            m3ua
                    100 100
            TPSALM LSUSEALM SLKUSEALM
            rsvdslktps 80% 80%
            RCONTEXT ASNOTIF NUMSLKALW NUMSLKRSTR
NUMSLKPROH
                             2* 1
            1234567890 yes
                                                 1
            LOC LINK SLC TYPE ANAME
            1102 A2 0 IPSG ipsgm3ua1102
1202 A3 1 IPSG ipsgm3ua1202
            1302 A4 2 IPSG ipsgm3ua1302
   Link set table is (1 of 1024) 1% full.
```



;

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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

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

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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



Are any Enter the rept-stat-iptps linksets shown in the No This procedure cann command. performed. rept-stat-iptps output? Yes Enter the rtrv-ls command with this parameter. :lsn=<the name of the linkset shown in the LSN column of the rept-stat-iptps output> This linkset is not an IPSG Is the M3UA links and the procedure ADAPTER parameter value No cannot be performed on this m3ua shown in the linkset. This procedure can be Yes rtrv-ls output? performed only for IPSG M3UA linksets. Do you wish to Yes perform this procedure on another linkset? Enter the *chg-ls opts* command with this mandatory parameter: :lsn = <the name of the IPSG M3UA linkset> and with at least one of these parameters: :numslkalw = <0 - 16> $:num \, s \, lkrs \, tr = <0 - 16>$:numslkproh = <0 - 16>Notes: 1. The values of the nums lkalw, nums lkrstr, or nums lkproh parameters cannot be greater than the number of signaling links that are assigned to the linkset. Enter the rtrv-ls comma 2. The value 0 for the nums lkalw, nums lkrstr, or nums lkproh parameters is this parameter. considered to be half the number of signaling links assigned to the linkset. :lsn=<the name of the specified in the chg-3. The system default value for the nums lkalw, nums lkrstr, or nums lkproh command> parameters is 1. 4. If any optional parameter is not specified with the chg-lsopts command, the value for that parameter will not be changed. 5. If the linkset does not contain any signaling links, only the values 0 or 1 Enter the can be specified for the nums lkalw, nums lkrstr, or nums lkproh chg-db:action=backup:d parameters. command 6. The value of the numslkrstr parameter must be less than or equal to the numslkalw parameter value. 7. The value of the *numslkproh* parameter must be less than or equal to

Figure 6-24 Configuring IPSG M3UA Linkset Options



the numslkrstr parameter value.

Changing an IPSG M2PA Linkset

This procedure is used to change an IPSG M2PA linkset, a linkset that contains the IPSG value yes and whose ADAPTER value is m2pa, in the EAGLE using the chg-ls commands with these parameters.

:lsn - The name of the linkset that will be changed, shown in the rtrv-ls output.

:ipsg-This parameter specifies whether or not the linkset is an IPSG linkset. This parameter has two values, yes (if the linkset is an IPSG linkset) or no (if the linkset is not an IPSG linkset). For this procedure, the ipsg parameter value must be yes.

:maxslktps - The maximum number of transactions per second (TPS) for all signaling links that are assigned to the IPSG M2PA linkset. See Maximum Card Capacity for Different Card Types for MaxTPS values.

:rsvdslktps - The number of transactions per second (TPS) that is assigned to each IPSG signaling link that will be in the linkset. See Maximum Card Capacity for Different Card Types for MaxTPS values. The slktps parameter can be used in place of the rsvdslktps parameter.

: tpsalmtype - The TPS threshold that will generate alarms. This parameter has two values.

- rsvdslktps The RSVDSLKTPS threshold generates alarms.
- maxslktps The MAXSLKTPS threshold generates alarms.

:adapter - This parameter specifies the adapter layer for the signaling links that will be assigned to the IPSG M2PA linkset. This parameter has two values, m2pa and m3ua. For an IPSG M2PA linkset, the adapter parameter value must be m2pa.

:lsusealm - The linkset's TPS alarm threshold, from 10 to 100 percent of the linkset's TPS. When this threshold is reached, a major alarm (**UAM** 0115) is generated. When the linkset's TPS falls below this threshold, **UAM** 0115 is automatically cleared and **UAM** 0118 is generated.

:slkusealm - The signaling link TPS alarm threshold, from 10 to 100 percent of the signaling link's fair share of the linkset's TPS or from 10 to 100 percent of the IPSG card's capacity. See Maximum Card Capacity for Different Card Types for MaxTPS values. This threshold is reached when the signaling link's actual usage exceeds the percentage of the signaling link's fair share of the linkset's TPS or the percentage of the IPSG card's capacity.

A signaling link's fair share of linkset's TPS is the linkset's TPS divided by the number of inservice links in the linkset. For example, if the linkset TPS is 4000 and there are 4 signaling links in the linkset, all in-service, then the signaling link's fair-share would be 1000 TPS (4000/4=1000). Table 6-10 shows this calculation for a linkset with 1, 2, 3 and 4 in-service signaling links.

Table 6-10 Signaling Link Fair Share Example

Number of In-Service Signaling Links	Linkset TPS	Signaling Link Fair Share of the Linkset TPS
4	4000	1000
3	4000	1333



Table 6-10 (Cont.) Signaling Link Fair Share Example	Table 6-10	(Cont.)	Signaling	Link Fair	r Share	Example
------------------------------------------------------	-------------------	---------	-----------	-----------	---------	---------

Number of In-Service Signaling Links	Linkset TPS	Signaling Link Fair Share of the Linkset TPS
2	4000	2000
1	4000	4000

When this threshold is exceeded, a minor alarm (**UAM** 0116) is generated. When the amount of traffic on the signaling link falls below this threshold, **UAM** 0116 is automatically cleared and **UAM** 0119 is generated.

The signaling link TPS alarm shows that the linkset TPS is set too low for the linkset or that the **IPSG** card's capacity has been exceeded. Setting the signaling link TPS alarm threshold lower than the linkset TPS alarm threshold can give the user an earlier indication that the linkset TPS is inadequate or that traffic is not balanced across the links in the linkset.

Changing the MAXSLKTPS or RSVDSLKTPS values for the IPSG M2PA linkset cannot exceed the maximum total provisioned system TPS shown in the rtrv-tps output. If changing the IPSG M2PA linkset will exceed the maximum total provisioned system TPS, and the maximum total provisioned system TPS is 500,000, perform the "Activating the HIPR2 High Rate Mode" feature in *Database Administration - System Management* to enable and turn on the HIPR2 High Rate Mode feature. When the HIPR2 High Rate Mode feature is enabled and turned on, the maximum total provisioned system TPS is increased to 1,000,000 (1M). If the maximum total provisioned system TPS is 1M or the maximum total provisioned system TPS is 500,000 and will not be increased, and changing the MAXSLKTPS or RSVDSLKTPS values for the IPSG M2PA linkset will exceed the maximum total provisioned system TPS, the MAXSLKTPS or RSVDSLKTPS values for the IPSG M2PA linkset cannot be changed unless the amount of available TPS is reduced enough to allow the MAXSLKTPS or RSVDSLKTPS values for the IPSG M2PA linkset to be changed. The available TPS can be reduced by performing one or more of these actions.

- The IP TPS values of some IPGWx linksets have to be changed.
- The MAXSLKTPS values of some IPSG linksets (and the RSVDSLKTPS values if necessary) have to be changed.
- Some ATM high-speed signaling links have to be removed.
- An IPLIMx card that contains signaling links has to be removed.

This procedure can also be used to change an IPSG M3UA linkset or a non-IPSG linkset to an IPSG M2PA linkset.

Other Optional Parameters

There are other optional parameters for an IPSG M2PA that can be changed. These parameters are not required for IPSG M2PA linkset. These parameters are discussed in more detail in *Commands User's Guide* or in these sections.

- These procedures in this manual:
 - Adding a Mate IPGWx Linkset to another IPGWx Linkset
 - Removing a Mate IPGWx Linkset from another IPGWx Linkset
 - Configuring an IPGWx Linkset



- These procedures in Database Administration SS7 User's Guide
 - Adding an SS7 Linkset
 - Changing an SS7 Linkset
 - Configuring an ITU Linkset with a Secondary Adjacent Point Code (SAPC)
- The "Configuring a Linkset for the GSM MAP Screening Feature" procedure in *Database Administration Features User's Guide*.

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 Commands User's Guide.

Display the current linksets in the database using the rtrv-ls command.
 This is an example of the possible output.

rlghncxa03w	08-04-1	0 11:43	:04 GM	T EAG	GLE5	38.	0.0					
				L3T	SLT				GWS	GWS	GWS	
LSN	APCA	(SS7)	SCRN	SET	SET	BEI	LST	LNKS	ACT	MES	DIS	SLSCI
NIS												
e1e2	001-20	7-000	none	1	1	no	В	6	off	off	off	no
off												
elm1s1	001-00	1-001	none	1	1	no	A	7	off	off	off	no
off												
e1m1s2	001-00	1-002	none	1	1	no	A	7	off	off	off	no
off												
ls1305	001-00	5-000	none	1	1	no	A	1	off	off	off	no
off												
ls1307	001-00	7-000	none	1	1	no	Α	1	off	off	off	no
off												
lsgw1101	008-01	2-003	none	1	1	no	Α	1	off	off	off	no
off												
lsgw1103	003-00	2-004	none	1	1	no	Α	1	off	off	off	no
off												
lsgw1105	009-00	2-003	none	1	1	no	A	1	off	off	off	no
off												



				L3T	SLT				GWS	GWS	GWS
LSN	APCI	(SS7)	SCRN	SET	SET	BEI	LST	LNKS	ACT	MES	DIS
SLSCI NIS											
e1e2i	1-207-)	none	1	1	no	В	4	off	off	off
on											
ls1315	0-015-0)	none	1	1	no	A	1	off	off	off
off											
ls1317	0-017-0)	none	1	1	no	Α	1	off	off	off
on											
e1m2s1	1-011-	1	none	1	1	no	Α	7	off	off	off
off											
e1m2s2	1-011-2	2	none	1	1	no	Α	7	off	off	off
off											

Link set table is (13 of 1024) 1% full.

2. Display a linkset shown in 1 by entering the rtrv-ls command with the name of the linkset shown in 1. For this example, enter these commands.

```
rtrv-ls:lsn=lsqw1101
```

This is an example of the possible output.

If you do not wish to change this linkset, choose another linkset from 1 and repeat this step.

If this linkset will be changed, perform one of these steps.

- of the IPGWAPC value of the linkset is yesor if the IPGWAPC and IPSG values of the linkset are no, the linkset must be removed from the database and then an IPSG M2PA linkset must be added. Perform the "Removing a Linkset Containing SS7 Signaling Links" procedure in *Database Administration SS7 User's Guide* to remove the linkset. After the linkset has been removed, perform the Adding an IPSG M2PA Linkset procedure to add the IPSG M2PA linkset. After the IPSG M2PA linkset has been added, perform the Adding an IPSG M2PA Signaling Link procedure to add IPSG M2PA signaling links to the new IPSG M2PA linkset. This procedure is finished.
- If the IPSG value of the linkset is yes, continue the procedure with one of these steps.
 - If the ADAPTER value of the linkset is M3UA, perform the Adding an IPSG M3UA Signaling Link procedure to remove the IPSG M3UA signaling links from the linkset. After the IPSG M3UA linksets have been removed from the linkset, continue the procedure with 3.
 - If the ADAPTER value of the linkset is M2PA, continue the procedure with one of these steps.
 - * If the RSVDSLKTPS value of the linkset will not be changed, continue the procedure with 5.
 - * If the RSVDSLKTPS value of the linkset will be changed, continue the procedure with 4.
- 3. Change the ADAPTER value of the linkset to M2PA by entering the chg-ls command with the adapter=m2pa parameter and the name of the linkset that is being changed. For this example, enter this command.

```
\verb|chg-ls:lsn=lssg1101:adapter=m2pa|\\
```



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

```
rlghncxa03w 08-04-20 13:34:40 GMT EAGLE5 38.0.0

Link set table is (13 of 1024) 1% full.

CHG-LS: MASP A - COMPLTD
```

After the ADAPTER value of the linkset has been changed, continue the procedure by performing one of these steps.

- If the RSVDSLKTPS value of the linkset will not be changed, continue the procedure with 5.
- If the RSVDSLKTPS value of the linkset will be changed, continue the procedure with
 4.
- 4. The new RSVDSLKTPS value for the linkset cannot allow the sum of the TPS used by all the IPSG signaling links that are assigned to each IPSG card shown in the linkset to exceed the MaxTPS (see Maximum Card Capacity for Different Card Types for MaxTPS values) and cannot exceed the maximum total provisioned system TPS.

To verify the TPS for the IPSG cards containing the IPSG signaling links in the linkset, enter the rtrv-slk command with the card location of each signaling link that is assigned to the linkset. For this example, enter these commands.

```
rtrv-slk:loc=1101
```

This is an example of the possible output.

```
rlghncxa03w 08-04-24 14:02:40 EST 38.0.0
rtrv-slk:loc=1101
Command entered at terminal #4.

LOC LINK LSN SLC TYPE ANAME SLKTPS
1101 A2 lssg1101 0 IPSG m2pa2 1000

IPTPS for LOC = 1101 is (1000 of 5000) 20%

rtrv-slk:loc=1105
```

This is an example of the possible output.

```
rlghncxa03w 08-04-24 14:02:40 EST 38.0.0
rtrv-slk:loc=1101
Command entered at terminal #4.

LOC LINK LSN SLC TYPE ANAME SLKTPS
1105 A7 lssg1101 0 IPSG m2pa2 1000

IPTPS for LOC = 1105 is (1000 of 5000) 20%
```



If the new RSVDSLKTPS value for the linkset will allow the TPS for the IPSG cards containing the IPSG signaling links in the linkset to exceed the MaxTPS (See Maximum Card Capacity for Different Card Types for MaxTPS values), choose an RSVDSLKTPS value that will not exceed the MaxTPS limit for the IPSG card.

5. Display the total provisioned system TPS by entering the rtrv-tps command. This is an example of the possible output.

rlghncxa03w 10-07-10 16:20:46 GMT EAGLE 42.0.0

CARD	NUM	NUM	RSVD	MAX
TYPE	CARDS	LINKS	TPS	TPS
IPGW	17	16	48000	80000
IPSG	3	7	4200	8000
IPLIM	2	4	8000	8000
ATM	2	2	3668	3668

Total provisioned System TPS (99668 of 500000) 20%

Command Completed.

An IPSG M2PA linkset uses MAXSLKTPS (see Maximum Card Capacity for Different Card Types for MaxTPS values), as provisioned by the maxslktps parameter. If adding the new IPSG M2PA linkset will not exceed the maximum total provisioned system TPS, continue the procedure with 11.

If adding the new IPSG M2PA linkset will exceed the maximum total provisioned system TPS, and the maximum total provisioned system TPS is 500,000 shown, perform the "Activating the HIPR2 High Rate Mode Feature" procedure in *Database Administration - System Management User's Guide* to enable and turn on the HIPR2 High Rate Mode feature. When the HIPR2 High Rate Mode feature is enabled and turned on, the maximum total provisioned system TPS is increased to 1M. After the HIPR2 High Rate Mode feature has been enabled and turned on, continue the procedure with 11.

If the maximum total provisioned system TPS is 1M, or the maximum total provisioned system TPS is 500,000 and will not be increased, and adding the IPSG M2PA linkset will exceed the maximum total provisioned system TPS, the IPSG M2PA linkset cannot be added unless the amount of available TPS is reduced enough to allow the IPSG M2PA linkset to be changed. The available TPS can be increased by performing one or more of these actions.

- The IP TPS values of some IPGWx linksets have to be changed. To perform this action, continue the procedure with 8.
- The MAXSLKTPS values of some IPSG linksets (and the RSVDSLKTPS values if necessary) have to be changed. To perform this action, continue the procedure with 8.
- Some ATM high-speed signaling links have to be removed. To perform this
 action, continue the procedure with 6.
- An IPLIMx card that contains signaling links has to be removed. To perform this action, continue the procedure with 7.
- 6. Display the ATM high-speed signaling links by entering this command.



rtrv-slk:type=saal

This is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0

LOC 1303	LINK A	LSN lsnds0	-	TYPE LIMATM		BPS 1.544M	ATM TSEL LINE	VCI 5	VPI 0	LL 0		
LOC SN	LINK	LSN	SLC	TYPE	LP SET	BPS	ATM TSEL	VCI	VPI	E1 CRC4	ATN SI	I
1306	A	lsnituatm	0	LIME1ATM	21	2.048M	LINE	5	0	ON	3	0
SLK t	table	is (30 of 1	1200)	2% full.								

If ATM high-speed signaling links are shown in the rtrv-slk output, perform the "Removing an SS7 Signaling Link" procedure in *Database Administration - SS7 User's Guide* to remove some of the ATM high-speed signaling links.

If ATM high-speed signaling links are not displayed in the rtrv-slk output, perform one or more of these actions to increase the available TPS.

Note:

If one or more of these actions are not performed to increase the available TPS and the available TPS will not allow the IPSG M2PA linkset to be changed, the IPSG M2PA linkset cannot be added and the remainder of this procedure cannot be performed.

- The IP TPS values of some IPGWx linksets have to be changed. To perform this action, continue the procedure with 8.
- The MAXSLKTPS values of some IPSG linksets (and the RSVDSLKTPS values if necessary) have to be changed. To perform this action, continue the procedure with 8.
- An IPLIMx card that contains signaling links has to be removed. To perform this action, continue the procedure with 7.

If you do not wish to perform other actions to increase the available TPS and the available TPS will allow the IPSG M2PA linkset to be changed, continue the procedure with 11.

7. Display the signaling links that are assigned to IPLIMx cards by entering this command.

```
\verb"rtrv-slk:type=iplim"
```

This is an example of the possible output.

```
rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0

LOC LINK LSN SLC TYPE ANAME SLKTPS
```



```
1301 A lsniplim 0 IPLIM M2PA
1301 A1 lsniplim 1 IPLIM M2PA
1301 B1 lsniplim 2 IPLIM M2PA
1317 A lsniplimi 0 IPLIMI M2PA
SLK table is (30 of 1200) 2% full.
```

If IPLIMx cards containing signaling links are shown in the rtrv-slk output, perform the Removing an IPLIMx Card procedure to remove an IPLIMx card and its associated signaling links.

If IPLIMx cards containing signaling links are not displayed in the rtrv-slk output, perform one or more of these actions to increase the available TPS.



If one or more of these actions are not performed to increase the available TPS and the available TPS will not allow the IPSG M2PA linkset to be changed, the IPSG M2PA linkset cannot be added and the remainder of this procedure cannot be performed.

- The IP TPS values of some IPGWx linksets have to be changed. To perform this action, continue the procedure with 8.
- The MAXSLKTPS values of some IPSG linksets (and the RSVDSLKTPS values if necessary) have to be changed. To perform this action, continue the procedure with 8.
- Some ATM high-speed signaling links have to be removed. To perform this action, continue the procedure with 6.

If you do not wish to perform other actions to increase the available TPS and the available TPS will allow the IPSG M2PA linkset to be changed, continue the procedure with 11.

8. Display the IPGWx and IPSG linksets by entering this command.

```
rept-stat-iptps
```

This is an example of the possible output.

```
rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0 IP TPS USAGE REPORT
```

PEAKTIMESTA	THRESH AMP	CONFIG/	CONFIG/		TPS	PEAK	
		RSVD	MAX				
LSN ipgwx1	100%		32000	TX:	3700	4000	10-07-19
09:49:19				RCV:	3650	4000	10-07-19
09:49:19				1.00.	3030	1000	10 07 19
ipgwx2	100%		16000	TX:	4800	5000	10-07-19



09:49:09								
				RCV:	4850	5000	10-07-19	09:49:09
ipgwx3	100%		32000	TX:	427	550	10-07-19	09:49:19
				RCV:	312	450	10-07-19	09:49:19
ipsglsn	100%	600	24000	TX:	4800	5000	10-07-19	09:49:19
				RCV:	4800	5000	10-07-19	
09:49:19								
ipsglsn2	100%	600	4000	TX:	427	550	10-07-19	09:49:19
				RCV:	312	450	10-07-19	
09:49:19								

Command Completed.

If linksets are displayed in the rept-stat-iptps output, continue the procedure with 9.

If linksets are not displayed in the rept-stat-iptps output, perform one or more of these actions to increase the available TPS.



If one or more of these actions are not performed to increase the available TPS and the available TPS will not allow the IPSG M2PA linkset to be changed, the IPSG M2PA linkset cannot be added and the remainder of this procedure cannot be performed.

- An IPLIMx card that contains signaling links has to be removed. To perform this action, continue the procedure with 7.
- Some ATM high-speed signaling links have to be removed. To perform this action, continue the procedure with 6.

If you do not wish to perform other actions to increase the available TPS and the available TPS will allow the IPSG M2PA linkset to be changed, continue the procedure with 11.

9. Display the attributes of the linksets shown in 8 by entering the rtrv-ls command with the name of the linkset shown in 8.

For this example enter these commands.

```
rtrv-ls:lsn=ipgwx1
```

This is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0

LSN NIS	APCA (S	S7) SC		SLT SET	BEI	LST	LNKS	-	GWS MES	-	SLSCI
ipgwx1 off	001-001-0	02 no	ne 1	1	no	A	8	off	off	off	no
	SPCA	CL	LI		TFAT	ГСАВМ	MLQ M'	rprse 	E ASI	78	



RANDSLS

off

IPSG IPGWAPC GTTMODE CGGTMOD no yes CdPA no

MATELSN IPTPS LSUSEALM SLKUSEALM ----- 32000 100% 80%

LOC LINK SLC TYPE
1101 A 0 SS71PGW
1102 A 1 SS71PGW
1103 A 2 SS71PGW
1104 A 3 SS71PGW
1105 A 4 SS71PGW
1106 A 5 SS71PGW

1107 A 6 SS7IPGW 1108 A 7 SS7IPGW

Link set table is (8 of 1024) 1% full.

rtrv-ls:lsn=ipqwx2

This is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0

LSN APCA (SS7) SCRN SET SET BEI LST LNKS ACT MES DIS SLSCI NIS ipgwx2 001-001-003 none 1 1 no A 8 off off off

no off

SPCA CLLI TFATCABMLQ MTPRSE ASL8

RANDSLS

off

IPSG IPGWAPC GTTMODE CGGTMOD no yes CdPA no

MATELSN IPTPS LSUSEALM SLKUSEALM ----- 16000 100% 80%

LOC LINK SLC TYPE

1111 A 0 SS7IPGW

1112 A 1 SS7IPGW

1201 A 2 SS7IPGW

1202 A 3 SS7IPGW

1203 A 4 SS7IPGW

1204 A 5 SS7IPGW



1205 A 6 SS7IPGW 1206 A 7 SS7IPGW

Link set table is (8 of 1024) 1% full.

rtrv-ls:lsn=ipgwx3

This is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0

LSN APCA (SS7) SCRN SET SET BEI LST LNKS ACT MES DIS SLSCI NIS
ipgwx3 001-001-004 none 1 1 no A 0 off off no off

SPCA CLLI TFATCABMLQ MTPRSE ASL8

RANDSLS off

IPSG IPGWAPC GTTMODE CGGTMOD no yes CdPA no

MATELSN IPTPS LSUSEALM SLKUSEALM ----- 32000 100% 80%

Link set table is (8 of 1024) 1% full.

rtrv-ls:lsn=ipsglsn

This is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0

LSN APCA (SS7) SCRN SET SET BEI LST LNKS ACT MES DIS SLSCI NIS ipsglsn 003-003-003 none 1 1 no A 6 off off no

SPCA CLLI TFATCABMLQ MTPRSE ASL8

RANDSLS off

IPSG IPGWAPC GTTMODE CGGTMOD yes no CdPA no

ADAP m2pa	ΓER	RSV 600	DSLKTPS)	MAXSLKTPS 4000			
TPSAI	LM slktps		JSEALM)%	SLKUSEALM 100%			
LOC	LINK	SLC	TYPE	ANAME			
1303	A	0	IPSG	ipsgm2pa1			
1303	A1	1	IPSG	ipsgm2pa2			
1303	В1	2	IPSG	ipsgm2pa3			
1303	A2	3	IPSG	ipsgm2pa4			
1303	A3	4	IPSG	ipsgm2pa5			
1307	A	5	IPSG	m2pa2			

Link set table is (8 of 1024) 1% full.

rtrv-ls:lsn=ipsglsn2

This is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0

				L3T	SLT				GWS	GWS	GWS
LSN	APCA	(SS7)	SCRN	SET	SET	BEI	LST	LNKS	ACT	MES	DIS
SLSCI NIS											
ipsglsn2	005-00	5-005	none	1	1	no	A	1	off	off	off
no off											

SPCA	CLLI	TFATCABMLQ	MTPRSE	ASL8
		1		no

RANDSLS off

IPSG	IPGWAPC	GTTMODE	CGGTMOD
yes	no	CdPA	no

ADAPTER	RSVDSLKTPS	MAXSLKTPS
m2pa	600	4000

Link set table is (8 of 1024) 1% full.

Perform these actions as necessary.



- Perform the Configuring an IPGWx Linkset procedure to change the IPTPS value for any linksets shown in the rtrv-ls output whose IPGWAPC value is yes.
- Perform one of these actions to change the MAXSLKTPS value (and RSVDSLKTPS value if necessary) for any linksets shown in the rtrv-ls output whose IPSG value is yes.
 - If the ADAPTER value of the linkset is M3UA, perform the Changing an IPSG
 M3UA Linkset procedure.
 - If the ADAPTER value of the linkset is M2PA, continue the procedure with 10.

Perform one or both of these actions to increase the available TPS if needed.

- An IPLIMx card that contains signaling links has to be removed. To perform this action, continue the procedure with 7.
- Some ATM high-speed signaling links have to be removed. To perform this action, continue the procedure with 6.

If you do not wish to perform other actions to increase the available TPS and the available TPS will allow the IPSG M2PA linkset to be changed, continue the procedure with 11.

10. Reduce the MAX SLKTPS, and RSVDSLKTPS value if necessary, for the linksets displayed in 9 by entering the chg-ls command with the new maxslktps and rsvdslktps values. For this example, enter these commands.

```
chg-ls:lsn=ipsglsn:maxslktps=3000
chg-ls:lsn=ipsglsn2:maxslktps=3000
```

Note:

Thersvdslktps value must be less than or equal to the maxslktps value.

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

```
rlghncxa03w 10-07-17 16:23:21 GMT EAGLE5 42.0.0

Link set table is (13 of 1024) 1% full

CHG-LS: MASP A - COMPLTD
```

- 11. Change the linkset by entering the chg-ls command with the name of the linkset and at least one of these optional parameters and values.
 - rsvdslktps = 100 MaxTPS
 - maxslktps = 0 MaxTPS
 - tpsalmtype = rsvdslktps Or maxslktps
 - lsusealm = 10 100
 - slkusealm = 10 100

For this example, enter this command.



```
chg-
ls:lsn=lssg1101:rsvdslktps=500:maxslktps=3000:tpsalmtype=max
slktps :lsusealm=60:slkusealm=70
```



Thersvdslktps value must be less than or equal to the maxslktps value.

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

```
rlghncxa03w 06-10-17 16:23:21 GMT EAGLE5 37.5.0

Link set table is ( 13 of 1024) 1% full

CHG-LS: MASP A - COMPLTD
```

Note:

There are other optional parameters that can be specified with thechg-ls command, but are not required for an IPSG M2PA linkset. These parameters and their usage are discussed in the Other Optional Parameters section of this procedure.

12. Verify the changes using the rtrv-ls command specifying the linkset name specified in 11. For this example, enter this command.

```
rtrv-ls:lsn=lssg1101
```

This is an example of the possible output.

```
rlghncxa03w 10-07-20 13:34:40 GMT EAGLE5 42.0.0
                            L3T SLT
                                     GWS GWS GWS
LSN
           APCA (SS7) SCRN SET SET BEI LST LNKS ACT MES DIS
SLSCI NIS
lssg1101
           008-012-003 none 1 1 no A 2
                                              off off off
no
    off
           SPCA
                      CLLI
                                 TFATCABMLQ MTPRSE ASL8
                                                no
         RANDSLS
         off
         IPSG IPGWAPC GTTMODE
                                    CGGTMOD
                     CdPA
         yes no
                                      no
         ADAPTER
                RSVDSLKTPS MAXSLKTPS
         m2pa
                  500
                            3000
```



		TPS/ maxs				JSEALM 8		SLKUSEALM 70%	[
		1101	. A2	2	0	TYPE IPSG IPSG		ANAME m2pa2 m2pa3	
Link	set	table	is	(13	3 of	1024)	1%	full.	

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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

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

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

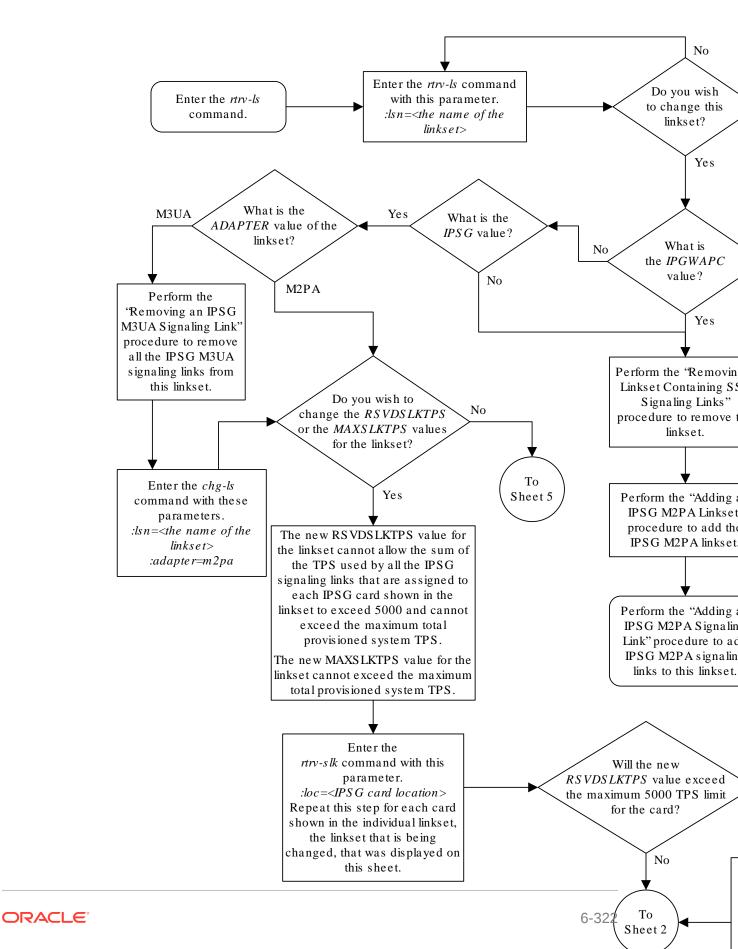
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

If the linkset that was changed in this procedure was an IPSG M2PA linkset when this procedure was started, this procedure is finished.

If the linkset that was changed in this procedure was either a non-IPSG linkset or an IPSG M3UA linkset when this procedure was started, preform the Adding an IPSG M2PA Signaling Link procedure to add IPSG M2PA signaling links to the linkset.

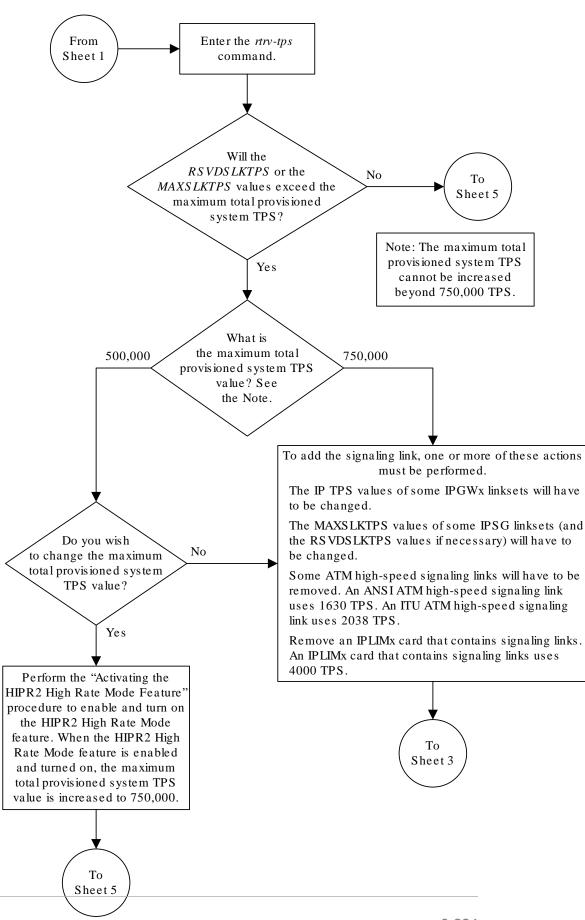


Figure 6-25 Changing an IPSG M2PA Linkset



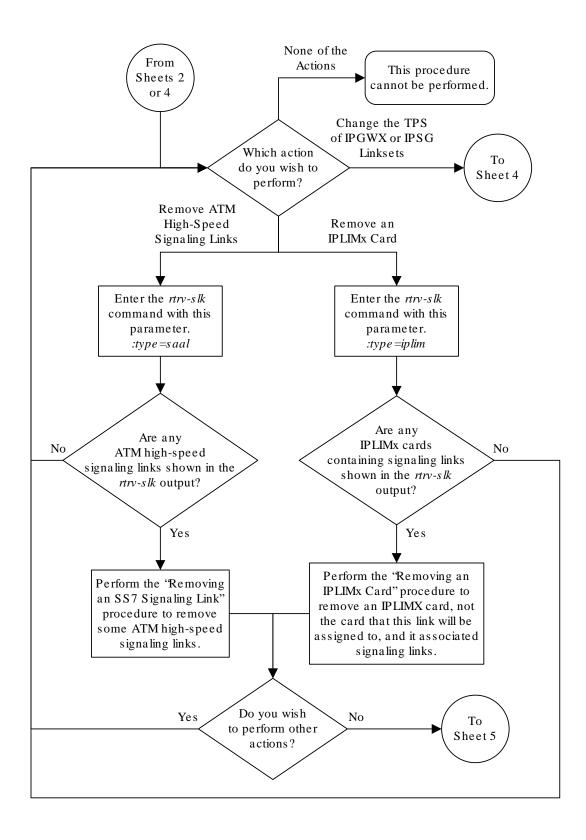
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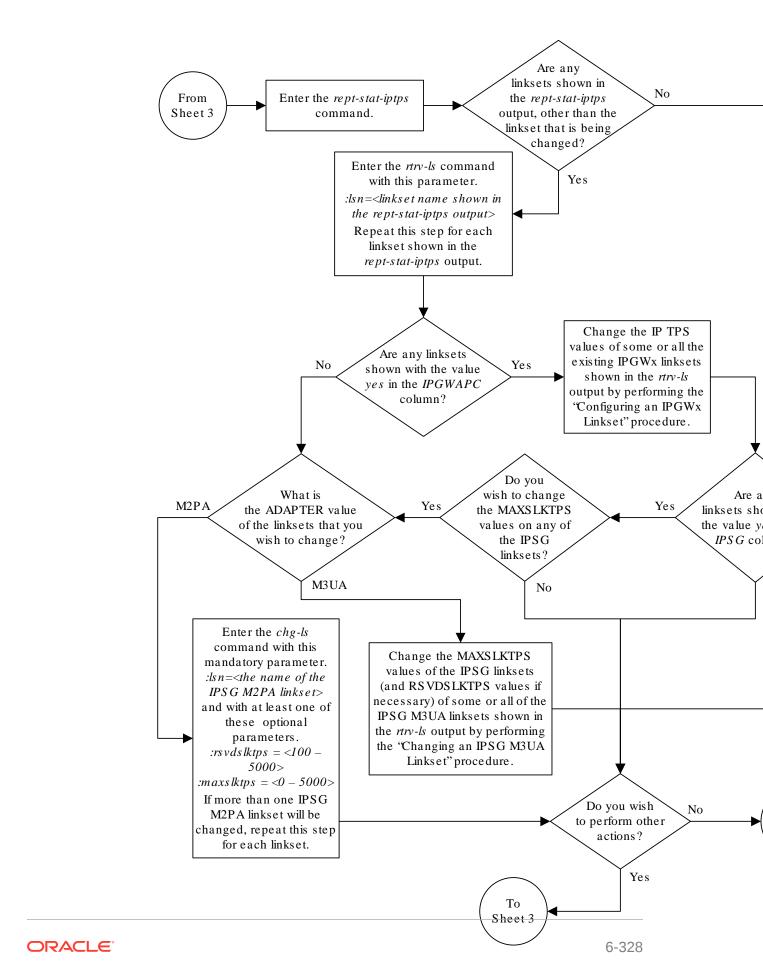
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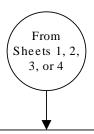
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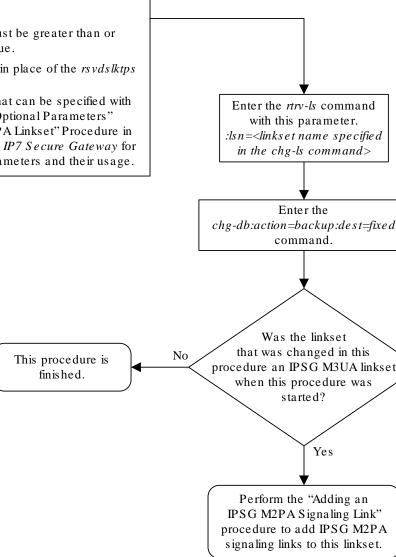


Enter the chg-ls command with this mandatory parameter: $:lsn = < the \ name \ of \ the \ linkset>$ and with at least one of these optional parameters. $:rsvds\ lktps = < 100 - 5000>$ $:maxs\ lktps = < 0 - 5000>$ $:tpsalmtype = < rsvds\ lktps, \ maxs\ lktps>$:lsusealm = < 10 - 100> $:s\ lkusealm = < 10 - 100>$

Notes:

- 1. The *maxslktps* parameter value must be greater than or equal to the *rsvdslktps* parameter value.
- 2. The *slktps* parameter can be used in place of the *rsvdslktps* parameter.

There are other optional parameters that can be specified with the *chg-ls* command. See the 'Other Optional Parameters' section in the 'Changing an IPSG M2PA Linkset' Procedure in the *Database Administration Manual – IP7 Secure Gateway* for the procedures that discuss these parameters and their usage.





Sheet 5 of 5

Changing an IPSG M3UA Linkset

This procedure is used to change an IPSG M3UA linkset, a linkset that contains the IPSG value yes and whose ADAPTER value is m3ua, in the EAGLE using the chg-ls commands with these parameters.

- :lsn The name of the linkset that will be changed, shown in the rtrv-1s output.
- :ipsg- This parameter specifies whether or not the linkset is an IPSG linkset. This parameter has two values, yes (if the linkset is an IPSG linkset) or no (if the linkset is not an IPSG linkset). For this procedure, the ipsg parameter value must be yes.
- :maxslktps The maximum number of transactions per second (TPS) for all signaling links that are assigned to the IPSG M3UA linkset. See Maximum Card Capacity for Different Card Types for MaxTPS values.
- :rsvdslktps The number of transactions per second (TPS) that is assigned to each IPSG signaling link that will be in the linkset. See Maximum Card Capacity for Different Card Types for MaxTPS values. The slktps parameter can be used in place of the rsvdslktps parameter.
- : tpsalmtype The TPS threshold that will generate alarms. This parameter has two values.
- rsvdslktps The RSVDSLKTPS threshold generates alarms.
- maxslktps The MAXSLKTPS threshold generates alarms.
- :adapter This parameter specifies the adapter layer for the signaling links that will be assigned to the IPSG M3UA linkset. This parameter has two values, m2pa and m3ua. For an IPSG M3UA linkset, the adapter parameter value must be m3ua.
- :rcontext This parameter specifies the routing context value that is assigned to the IPSG M3UA linkset. The value for this parameter is from 0 to 4294967295. The default value for this parameter is none, no value is specified.
- :action=delete This parameter is used to remove an existing routing context (RCONTEXT) value from the IPSG M3UA linkset. If the rcontext value for the IPSG M3UA linkset is none, the linkset does not contain a routing context value.
- :asnotif This parameter specifies whether or not AS notifications will be sent for the IPSG M3UA linkset. This parameter has two values, yes, AS notifications will be sent for the linkset, and no, AS notifications will not be sent for the linkset. The default value for this parameter is yes.
- :lsusealm The linkset's TPS alarm threshold, from 10 to 100 percent of the linkset's TPS. When this threshold is reached, a major alarm (**UAM** 0115) is generated. When the linkset's TPS falls below this threshold, **UAM** 0115 is automatically cleared and **UAM** 0118 is generated.
- :slkusealm The signaling link TPS alarm threshold, from 10 to 100 percent of the signaling link's fair share of the linkset's TPS or from 10 to 100 percent of the IPSG card's capacity. See Maximum Card Capacity for Different Card Types for MaxTPS values. This



threshold is reached when the signaling link's actual usage exceeds the percentage of the signaling link's fair share of the linkset's TPS or the percentage of the **IPSG** card's capacity.

A signaling link's fair share of linkset's TPS is the linkset's TPS divided by the number of in-service links in the linkset. For example, if the linkset TPS is 4000 and there are 4 signaling links in the linkset, all in-service, then the signaling link's fair-share would be 1000 TPS (4000/4=1000). Table 6-11 shows this calculation for a linkset with 1, 2, 3 and 4 in-service signaling links.

Table 6-11 Signaling Link Fair Share Example

	Number of In-Service Signaling Links	Linkset TPS	Signaling Link Fair Share of the Linkset TPS
4		4000	1000
3		4000	1333
2		4000	2000
1		4000	4000

When this threshold is exceeded, a minor alarm (**UAM** 0116) is generated. When the amount of traffic on the signaling link falls below this threshold, **UAM** 0116 is automatically cleared and **UAM** 0119 is generated.

The signaling link TPS alarm shows that the linkset TPS is set too low for the linkset or that the **IPSG** card's capacity has been exceeded. Setting the signaling link TPS alarm threshold lower than the linkset TPS alarm threshold can give the user an earlier indication that the linkset TPS is inadequate or that traffic is not balanced across the links in the linkset.

Changing the MAXSLKTPS or RSVDSLKTPS values for the IPSG M3UA linkset cannot exceed the maximum total provisioned system TPS shown in the rtrv-tps output. If changing the IPSG M3UA linkset will exceed the maximum total provisioned system TPS, and the maximum total provisioned system TPS is 500,000, perform the "Activating the HIPR2 High Rate Mode" feature in *Database Administration - System Management User's Guide* to enable and turn on the HIPR2 High Rate Mode feature. When the HIPR2 High Rate Mode feature is enabled and turned on, the maximum total provisioned system TPS is increased to 1,000,000 (1M). If the maximum total provisioned system TPS is 1M or the maximum total provisioned system TPS is 500,000 and will not be increased, and changing the MAXSLKTPS or RSVDSLKTPS values for the IPSG M3UA linkset will exceed the maximum total provisioned system TPS, the MAXSLKTPS or RSVDSLKTPS values for the IPSG M3UA linkset cannot be changed unless the amount of available TPS is reduced enough to allow the MAXSLKTPS or RSVDSLKTPS values for the IPSG M3UA linkset to be changed. The available TPS can be reduced by performing one or more of these actions.

- The IP TPS values of some IPGWx linksets have to be changed.
- The MAXSLKTPS values of some IPSG linksets (and the RSVDSLKTPS values if necessary) have to be changed.
- Some ATM high-speed signaling links have to be removed.
- An IPLIMx card that contains signaling links has to be removed.

This procedure can also be used to change an IPSG M2PA linkset or a non-IPSG linkset to an IPSG M3UA linkset.



Other Optional Parameters

There are other optional parameters for an IPSG M3UA that can be changed. These parameters are not required for IPSG M3UA linkset. These parameters are discussed in more detail in the *Commands User's Guide* or in these sections.

- The Configuring IPSG M3UA Linkset Options procedure in this manual.
- These procedures in Database Administration SS7 User's Guide
 - Adding an SS7 Linkset
 - Changing an SS7 Linkset
 - Configuring an ITU Linkset with a Secondary Adjacent Point Code (SAPC)
- The "Configuring a Linkset for the GSM MAP Screening Feature" procedure in the Database Administration - Features User's Guide.

Note:

The mtprse, spc/spca/spci/spcn/spcn24, sapci/sapcn/sapcn24, and ppc/ppca/ppci/ppcn/ppcn24 parameters cannot be specified for an IPSG M3UA linkset.

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 Commands User's Guide.

1. Display the current linksets in the database using the rtrv-ls command.

This is an example of the possible output.



elm1s1	001-003	1-001	none	1	1	no	A	7	off	off	off
no off elm1s2 no off	001-001	1-002	none	1	1	no	A	7	off	off	off
ls1305	001-005	5-000	none	1	1	no	A	1	off	off	off
ls1307	001-00	7-000	none	1	1	no	A	1	off	off	off
lsgw1101	008-012	2-003	none	1	1	no	A	1	off	off	off
lsgw1103	003-002	2-004	none	1	1	no	A	1	off	off	off
lsgw1105	009-002	2-003	none	1	1	no	A	1	off	off	off
				L3T	SLT				GWS	GWS	GWS
LSN SLSCI NIS	APCI	(SS7)	SCRN	_	SLT SET	BEI	LST	LNKS		GWS MES	
SLSCI NIS e1e2i	APCI 1-207-0		SCRN none	_		BEI no	LST B	LNKS	ACT		DIS
SLSCI NIS e1e2i on 1s1315)		SET	SET				ACT	MES	DIS
SLSCI NIS e1e2i on ls1315 off ls1317	1-207-0)	none	SET	SET	no	В	4	ACT off	MES off	DIS off off
SLSCI NIS ele2i on ls1315 off	1-207-0	0	none	SET 1	SET 1	no no	В	4	ACT off off	MES off off	DIS off off

Link set table is (13 of 1024) 1% full.

2. Display a linkset shown in 1 by entering the rtrv-ls command with the name of the linkset shown in 1. For this example, enter these commands.

rtrv-ls:lsn=lsgw1101

This is an example of the possible output.

rlghncxa03w 10-07-20 13:34:40 GMT EAGLE5 42.0.0

LSN	AP	CA	(SS7)	SCRN	L3T SET		BEI	LST	LNKS		GWS MES	
SLSCI NIS lssg1101 no off	00	8-012	-003	none	1	1	no	A	2	off	off	off
	SP	CA		CLLI			TFAT	ГСАВМ	MLQ M'	TPRSI	E ASI	L8
	RANDS off	LS										
	IPSG ves	IPGW no	_	GTTMODE CdPA	Ξ		(CGGTN no	MOD			



ADAPTER m3ua	RSVDSLKTPS 1000	MAXSLKTPS 4000		
TPSALM rsvdslktps	LSUSEALM 100%	SLKUSEALM 80%		
RCONTEXT 100	ASNOTIF no	NUMSLKALW 1	NUMSLKRSTR 1	NUMSLKPROH 1
1101 A2	SLC TYPE 0 IPSG 1 IPSG	ANAME mu3a2 m3ua3		

Link set table is (13 of 1024) 1% full.

If you do not wish to change this linkset, choose another linkset from 1 and repeat this steps.

If this linkset will be changed, perform one of these steps.

- If the IPGWAPC value of the linkset is yes, the linkset must be removed from the database and then an IPSG M3UA linkset must be added. Perform the "Removing a Linkset Containing SS7 Signaling Links" procedure in *Database Administration SS7 User's Guide* to remove the linkset. After the linkset has been removed, perform the Adding an IPSG M3UA Linkset procedure to add the IPSG M3UA linkset. After the IPSG M3UA linkset has been added, perform the Adding an IPSG M3UA Signaling Link procedure to add IPSG M3UA signaling links to the new IPSG M3UA linkset. This procedure is finished.
- If the IPGWAPC value of the linkset is no, continue the procedure by performing one of these steps.
 - If the LST value of the linkset is PRX, the linkset must be removed from the database and then an IPSG M3UA linkset must be added. Perform the "Removing a Linkset Containing SS7 Signaling Links" procedure in *Database Administration SS7 User's Guide* to remove the linkset. After the linkset has been removed, perform the Adding an IPSG M3UA Linkset procedure to add the IPSG M3UA linkset. After the IPSG M3UA linkset has been added, perform the Adding an IPSG M3UA Signaling Link procedure to add IPSG M3UA signaling links to the new IPSG M3UA linkset. This procedure is finished.
 - If the LST value of the linkset is a value other than PRX and the IPSG value of the linkset is no, remove the signaling links from the linkset by performing these procedures as necessary.
 - * Removing an SS7 Signaling Link in *Database Administration SS7 User's Guide*.
 - * Removing an IPLIMx Signaling Link After the signaling links have been removed from the linkset, continue the procedure with 3
- If the IPSG value of the linkset is yes, continue the procedure with one of these steps.
 - If the ADAPTER value of the linkset is M2PA, remove the signaling links from the linkset by performing these procedures as necessary.



- * Removing an SS7 Signaling Link in the *Database Administration* SS7 User's Guide.
- * Removing an IPLIMx Signaling Link
- Removing an IPSG M2PA Signaling Link
 After the signaling links have been removed from the linkset, continue the procedure with 4 if the linkset type for the linkset is B, C, D, or E. If the linkset type of the linkset is A, continue the procedure with 5.
- If the ADAPTER value of the linkset is M3UA, continue the procedure with one of these steps.
 - * If the RSVDSLKTPS value of the linkset will not be changed, continue the procedure with 12.
 - * If the RSVDSLKTPS value of the linkset will be changed, continue the procedure with 5.
- 3. Change the IPSG value of the linkset by entering the chg-ls command with the ipsg=yes parameter and the name of the linkset that is being changed. For this example, enter this command.

```
chg-ls:lsn=lssg1101:ipsg=yes
```

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

```
rlghncxa03w 08-04-20 13:34:40 GMT EAGLE5 38.0.0

Link set table is (13 of 1024) 1% full.

CHG-LS: MASP A - COMPLTD
```

After the IPSG value of the linkset has been changed, continue the procedure with 5.

When the IPSG value is changed to yes, the ADAPTER value of the linkset is set to m2pa, the RSVDSLKTPS value of the linkset is set to 5000.

4. The linkset type of an IPSG M3UA linkset must be A. If the linkset type of the linkset is not A, change the linkset type of the linkset by entering the chg-ls command with the name of the linkset and the lst=a parameter. For this example, enter this command.

If the linkset type of the linkset is A, this step does not need to be performed. Continue the procedure with 5.

```
chg-ls:lsn=lssg1101:lst=a
```

When the ${\tt chg-ls}$ command has successfully completed, this message should appear.

```
rlghncxa03w 08-04-20 13:34:40 GMT EAGLE5 38.0.0 Link set table is (13 of 1024) 1% full.
```



```
CHG-LS: MASP A - COMPLTD
```

5. The new RSVDSLKTPS value for the linkset cannot allow the sum of the TPS used by all the IPSG signaling links that are assigned to each IPSG card shown in the linkset to exceed the MaxTPS (see Maximum Card Capacity for Different Card Types for MaxTPS values) and cannot exceed the maximum total provisioned system TPS.

To verify the TPS for the IPSG cards containing the IPSG signaling links in the linkset, enter the rtrv-slk command with the card location of each signaling link that is assigned to the linkset. For this example, enter these commands.

```
rtrv-slk:loc=1101
```

This is an example of the possible output.

```
rlghncxa03w 08-04-24 14:02:40 EST 38.0.0

LOC LINK LSN SLC TYPE ANAME SLKTPS 1101 A2 lssg1101 0 IPSG m3ua2 1000

IPTPS for LOC = 1101 is (1000 of 5000) 20%

rtrv-slk:loc=1105
```

This is an example of the possible output.

```
rlghncxa03w 08-04-24 14:02:40 EST 38.0.0

LOC LINK LSN SLC TYPE ANAME SLKTPS 1105 A7 lssg1101 0 IPSG m3ua3 1000

IPTPS for LOC = 1105 is (1000 of 5000) 20%
```

If the new RSVDSLKTPS value for the linkset will allow the TPS for the IPSG cards containing the IPSG signaling links in the linkset to exceed the MaxTPS (see Maximum Card Capacity for Different Card Types for MaxTPS values), choose an RSVDSLKTPS value that will not exceed the MaxTPS limit for the IPSG card.

6. Display the total provisioned system TPS by entering the rtrv-tps command. This is an example of the possible output.

giiii o	21405W I	0 07 10	10.20.10	OIII LIIOLL	12.0.0
CARD TYPE	NUM CARDS	NUM LINKS	RSVD TPS	MAX TPS	
IPGW	17	16	48000	80000	
IPSG	3	7	4200	8000	
IPLIM	2	4	8000	8000	
ATM	2	2	3668	3668	

rlghncxa03w 10-07-10 16:20:46 GMT EAGLE 42.0.0

Total provisioned System TPS (99668 of 500000) 20%



Command Completed.

An IPSG M3UA linkset uses 100 to MAXSLKTPS (see Maximum Card Capacity for Different Card Types for MaxTPS values), as provisioned by the maxslktps parameter. If adding the new IPSG M3UA linkset will not exceed the maximum total provisioned system TPS, continue the procedure with 12.

If adding the new IPSG M3UA linkset will exceed the maximum total provisioned system TPS, and the maximum total provisioned system TPS is 500,000 shown, perform the "Activating the HIPR2 High Rate Mode Feature" procedure in *Database Administration - System Management User's Guide* to enable and turn on the HIPR2 High Rate Mode feature. When the HIPR2 High Rate Mode feature is enabled and turned on, the maximum total provisioned system TPS is increased to 1M. After the HIPR2 High Rate Mode feature has been enabled and turned on, continue the procedure with 12.

If the maximum total provisioned system TPS is 1M, or the maximum total provisioned system TPS is 500,000 and will not be increased, and adding the IPSG M3UA linkset will exceed the maximum total provisioned system TPS, the IPSG M3UA linkset cannot be added unless the amount of available TPS is reduced enough to allow the IPSG M3UA linkset to be changed. The available TPS can be increased by performing one or more of these actions.

- The IP TPS values of some IPGWx linksets have to be changed. To perform this action, continue the procedure with 9.
- The MAXSLKTPS values of some IPSG linksets (and the RSVDSLKTPS values if necessary) have to be changed. To perform this action, continue the procedure with 9.
- Some ATM high-speed signaling links have to be removed. To perform this action, continue the procedure with 7.
- An IPLIMx card that contains signaling links has to be removed. To perform this action, continue the procedure with 8.
- 7. Display the ATM high-speed signaling links by entering this command.

```
rtrv-slk:type=saal
```

This is an example of the possible output.

SLK table is (30 of 1200) 2% full.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0

LOC 1303		NK	LSN lsnds0	SLC 1	TYPE LIMATM		BPS 1.544M	ATM TSEL LINE	VCI 5	VPI O	LL O
						LP		ATM			
E1AT	M										
LOC	LI	NK	LSN	SLC	TYPE	SET	BPS	TSEL	VCI	VPI	
CRC4	SI	SI	N								
1306	Α		lsnituatm	0	LIME1ATM	21	2.048M	LINE	5	0	
ON	3	0									



If ATM high-speed signaling links are shown in the rtrv-slk output, perform the "Removing an SS7 Signaling Link" procedure in *Database Administration - SS7 User's Guide* to remove some of the ATM high-speed signaling links.

If ATM high-speed signaling links are not displayed in the rtrv-slk output, perform one or more of these actions to increase the available TPS.



If one or more of these actions are not performed to increase the available TPS and the available TPS will not allow the IPSG M3UA linkset to be changed, the IPSG M3UA linkset cannot be added and the remainder of this procedure cannot be performed.

- The IP TPS values of some IPGWx linksets have to be changed. To perform this action, continue the procedure with 9.
- The MAXSLKTPS values of some IPSG linksets (and the RSVDSLKTPS values if necessary) have to be changed. To perform this action, continue the procedure with 9.
- An IPLIMx card that contains signaling links has to be removed. To perform this
 action, continue the procedure with 8.

If you do not wish to perform other actions to increase the available TPS and the available TPS will allow the IPSG M3UA linkset to be changed, continue the procedure with 12.

8. Display the signaling links that are assigned to IPLIMx cards by entering this command.

```
rtrv-slk:type=iplim
```

This is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0

LOC	LINK	LSN	SLC	TYPE	ANAME	SLKTPS
1301	A	lsniplim	0	IPLIM	M2PA	
1301	A1	lsniplim	1	IPLIM	M2PA	
1301	В1	lsniplim	2	IPLIM	M2PA	
1317	A	lsniplimi	0	IPLIMI	M2PA	

SLK table is (30 of 1200) 2% full.

If IPLIMx cards containing signaling links are shown in the rtrv-slk output, perform the Removing an IPLIMx Card procedure to remove an IPLIMx card and its associated signaling links.

If IPLIMx cards containing signaling links are not displayed in the rtrv-slk output, perform one or more of these actions to increase the available TPS.



Note:

If one or more of these actions are not performed to increase the available TPS and the available TPS will not allow the IPSG M3UA linkset to be changed, the IPSG M3UA linkset cannot be added and the remainder of this procedure cannot be performed.

- The IP TPS values of some IPGWx linksets have to be changed. To perform this action, continue the procedure with 9.
- The MAXSLKTPS values of some IPSG linksets (and the RSVDSLKTPS values if necessary) have to be changed. To perform this action, continue the procedure with 9.
- Some ATM high-speed signaling links have to be removed. To perform this action, continue the procedure with 7.

If you do not wish to perform other actions to increase the available TPS and the available TPS will allow the IPSG M3UA linkset to be changed, continue the procedure with 12.

9. Display the IPGWx and IPSG linksets by entering this command.

This is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0 IP TPS USAGE REPORT

PEAKTIMEST	THRESH	CONFIG/	CONFIG/		TPS	PEAK	
PEANIIMES!	AMP	RSVD	MAX				
LSN ipgwx1 09:49:19	100%		32000	TX:	3700	4000	10-07-19
09:49:19				RCV:	3650	4000	10-07-19
ipgwx2 09:49:09	100%		16000	TX:	4800	5000	10-07-19
				RCV:	4850	5000	10-07-19
09:49:09 ipgwx3 09:49:19	100%		32000	TX:	427	550	10-07-19
				RCV:	312	450	10-07-19
09:49:19 ipsglsn 09:49:19	100%	600	24000	TX:	4800	5000	10-07-19
				RCV:	4800	5000	10-07-19
09:49:19 ipsglsn2 09:49:19	100%	600	4000	TX:	427	550	10-07-19
00.40.10				RCV:	312	450	10-07-19



09:49:19

Command Completed.

If linksets are displayed in the rept-stat-iptps output, continue the procedure with 10.

If linksets are not displayed in the rept-stat-iptps output, perform one or more of these actions to increase the available TPS.



If one or more of these actions are not performed to increase the available TPS and the available TPS will not allow the IPSG M3UA linkset to be changed, the IPSG M3UA linkset cannot be added and the remainder of this procedure cannot be performed.

- An IPLIMx card that contains signaling links has to be removed. To perform this action, continue the procedure with 8.
- Some ATM high-speed signaling links have to be removed. To perform this action, continue the procedure with 7.

If you do not wish to perform other actions to increase the available TPS and the available TPS will allow the IPSG M3UA linkset to be changed, continue the procedure with 12.

10. Display the attributes of the linksets shown in 9 by entering the rtrv-ls command with the name of the linkset shown in 9.

For this example enter these commands.

rtrv-ls:lsn=ipgwx1

This is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0

					L3T	SLT				GWS	GWS	GWS	
LSN NIS	A	APCA	(SS7)	SCRN	_	-	BEI	LST	LNKS				SLSCI
ipgwx1 off	0	01-001	-002	none	1	1	no	A	8	off	off	off	no
	S 	SPCA		CLLI			TFATCABMLQ M			TPRSI 	E ASI	L8	
	RANDSLS off												
	IPSG no	G IPGW yes	APC G	TTMODI dPA	Ξ		(CGGTI no	MOD				
	MATE	ELSN	IPTPS	LS	JSEAI	LM S	SLKUS	SEALN	1				



```
----- 32000 100% 80%
```

LOC LINK SLC TYPE

1101 A 0 SS7IPGW

1102 A 1 SS7IPGW

1103 A 2 SS7IPGW

1104 A 3 SS7IPGW

1105 A 4 SS7IPGW

1106 A 5 SS7IPGW

1107 A 6 SS7IPGW

1108 A 7 SS7IPGW

Link set table is (8 of 1024) 1% full.

rtrv-ls:lsn=ipgwx2

This is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0

LSN APCA (SS7) SCRN SET SET BEI LST LNKS ACT MES DIS SLSCI NIS ipgwx2 001-001-003 none 1 1 no A 8 off off off no off

SPCA CLLI TFATCABMLQ MTPRSE ASL8

RANDSLS

off

IPSG IPGWAPC GTTMODE CGGTMOD no yes CdPA no

MATELSN IPTPS LSUSEALM SLKUSEALM ----- 16000 100% 80%

LOC LINK SLC TYPE
1111 A 0 SS7IPGW
1112 A 1 SS7IPGW
1201 A 2 SS7IPGW
1202 A 3 SS7IPGW
1203 A 4 SS7IPGW
1204 A 5 SS7IPGW
1205 A 6 SS7IPGW
1206 A 7 SS7IPGW

Link set table is (8 of 1024) 1% full.

rtrv-ls:lsn=ipgwx3



This is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0

off

SPCA CLLI TFATCABMLQ MTPRSE ASL8

RANDSLS off

IPSG IPGWAPC GTTMODE CGGTMOD no yes CdPA no

MATELSN IPTPS LSUSEALM SLKUSEALM ----- 32000 100% 80%

Link set table is (8 of 1024) 1% full.

rtrv-ls:lsn=ipsglsn

This is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0

LSN APCA (SS7) SCRN SET SET BEI LST LNKS ACT MES DIS SLSCI NIS ipsglsn 003-003-003 none 1 1 no A 6 off off no off

SPCA CLLI TFATCABMLQ MTPRSE ASL8

RANDSLS off

IPSG IPGWAPC GTTMODE CGGTMOD yes no CdPA no

ADAPTER RSVDSLKTPS MAXSLKTPS m3ua 600 4000

TPSALM LSUSEALM SLKUSEALM maxslktps 100% 100%

RCONTEXT ASNOTIF NUMSLKALW NUMSLKRSTR NUMSLKPROH

400		yes	3	1	1	1
LOC 1303 1303 1303 1303 1303	A1 B1 A2	SLC 0 1 2 3 4	TYPE IPSG IPSG IPSG IPSG IPSG	ANAME ipsgm2pa1 ipsgm2pa2 ipsgm2pa3 ipsgm2pa4 ipsgm2pa5		
1307	A	5	IPSG	m2pa2		

Link set table is (8 of 1024) 1% full.

rtrv-ls:lsn=ipsglsn2

This is an example of the possible output.

rlghncxa03w 10-07-19 21:16:37 GMT EAGLE5 42.0.0

	APCA	(SS7) SC		3T SLT SET SET					GWS MES	
SLSCI NIS ipsglsn2 no off	005-005	-005 nc	one 1	. 1	no	A	1	off	off	off
	SPCA	CI	LLI 		TFA	TCABN	MLQ M.	rprs: 	E ASI	78
	RANDSLS off									
	IPSG IPGW yes no					CGGTN no	MOD			
		RSVDSLKTPS 600								
	TPSALM maxslktps			SLKUSEA	ALM					
	RCONTEXT 300			NUMSLKA 1	ALW	NUMS	SLKRS'		NUMSI 1	LKPROH
	LOC LINK 1303 B3	-		ANAME	pa6					

Link set table is (8 of 1024) 1% full.

Perform these actions as necessary.

Perform the Configuring an IPGWx Linkset procedure to change the IPTPS
value for any linksets shown in the rtrv-ls output whose IPGWAPC value is
yes.

- Perform one of these actions to change the MAXSLKTPS value (and RSVDSLKTPS value if necessary) for any linksets shown in the rtrv-ls output whose IPSG value is yes.
 - If the ADAPTER value of the linkset is M2PA, perform the Changing an IPSG M2PA Linkset procedure.
 - If the ADAPTER value of the linkset is M3UA, continue the procedure with 11.

Perform one or both of these actions to increase the available TPS if needed.

- An IPLIMx card that contains signaling links has to be removed. To perform this action, continue the procedure with 8.
- Some ATM high-speed signaling links have to be removed. To perform this action, continue the procedure with 7.

If you do not wish to perform other actions to increase the available TPS and the available TPS will allow the IPSG M3UA linkset to be changed, continue the procedure with 12.

11. Reduce the MAX SLKTPS, and RSVDSLKTPS value if necessary, for the linksets displayed in 10 by entering the chg-ls command with the new maxslktps and rsvdslktps values. For this example, enter these commands.

```
chg-ls:lsn=ipsglsn:maxslktps=3000
chg-ls:lsn=ipsglsn2:maxslktps=3000
```

Note:

The $\verb|rsvdslktps|$ value must be less than or equal to the $\verb|maxslktps|$ value.

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

```
rlghncxa03w 10-07-17 16:23:21 GMT EAGLE5 42.0.0

Link set table is ( 13 of 1024) 1% full

CHG-LS: MASP A - COMPLTD
```

12. Change the linkset by entering the chg-ls command with the name of the linkset and any of these optional parameters and values.

if the ADAPTER, SLKTPS, ASNOTIF, LSUSEALM, and SLKUSEALM values will not be changed, do not perform this step. Continue the procedure with 16.

- adapter = m3ua
- rsvdslktps = 100 MaxTPS
- maxslktps = 0 MaxTPS
- tpsalmtype = rsvdslktps Or maxslktps
- lsusealm = 10 100
- slkusealm = 10 100



asnotif = yes or no

For this example, enter this command.

```
chg-ls:lsn=lssg1101:slktps=500:lsusealm=60:slkusealm=70
chg-
ls:lsn=lssg1101:rsvdslktps=500:maxslktps=3000:tpsalmtype=max
slktps :lsusealm=60:slkusealm=70
```



Thersvdslktps value must be less than or equal to the maxslktps value.

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

```
rlghncxa03w 06-10-17 16:23:21 GMT EAGLE5 37.5.0

Link set table is ( 13 of 1024) 1% full

CHG-LS: MASP A - COMPLTD
```

Note:

There are other optional parameters that can be specified with thechg-ls command, but are not required for an IPSG M3UA linkset. These parameters and their usage are discussed in the Other Optional Parameters section of this procedure.

If you do not wish to change the RCONTEXT value of the linkset, continue the procedure with 17.

If you wish to change the RCONTEXT value of the linkset, continue the procedure with by performing one of these steps.

- If the ADAPTER value of the linkset was changed to m3ua in 12 continue the procedure with 16.
- If the ADAPTER value of the linkset was m3ua when this procedure was started, and the linkset contains signaling links, continue the procedure with 13.
- If the ADAPTER value of the linkset was m3ua when this procedure was started, and the linkset does not contains signaling links, continue the procedure with 16.
- If the ADAPTER value of the linkset was m3ua when this procedure was started, the RCONTEXT value is being removed from the linkset, perform one of these actions. If the linkset does not contains signaling links, continue the procedure with 16. If the linkset does contain signaling links, remove the signaling links from the linkset by performing the Removing an IPSG M3UA



Signaling Link procedure. After the signaling links have been removed, continue the procedure with 16.

13. Deactivate all the signaling links in the linkset by entering the dact-slk command with the location and link value of each signaling link in the linkset. For this example, enter these commands.

```
dact-slk:loc=1101:link=a2
dact-slk:loc=1101:link=a7
```

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

```
rlghncxa03w 08-04-25 06:49:44 EST 38.0.0 Deactivate Link message sent to card Command Completed.
```

14. Display the signaling links that the association, shown in the rtrv-ls output in 2, is assigned to by entering the rtrv-slk command with the name of the association that will be added to the signaling link. For this example, enter this command.

```
rtrv-slk:aname=m3ua2
```

This is an example of the possible output.

```
rlghncxa03w 06-10-17 11:43:04 GMT EAGLE5 36.0.0
```

LOC	LINK	LSN	SLC	TYPE	ANAME	SLKTPS
1101	A2	lssg1101	0	IPSG	m3ua2	1000
2204	A	m3ua1	0	IPSG	m3ua2	300

```
rtrv-slk:aname=m3ua3
```

This is an example of the possible output.

```
rlghncxa03w 06-10-17 11:43:04 GMT EAGLE5 36.0.0
```

LOC	LINK	LSN	SLC	TYPE	ANAME	SLKTPS
1105	A7	lssg1101	1	IPSG	m3ua3	1000
2204	B6	m31121	1	TPSG	m31123	300

15. Display all the linksets that contain the signaling links shown in 14, other than the linkset that is being changed in this procedure (this linkset has been displayed in 2), by entering the rtrv-ls command with the linkset name shown in 14. For this example, enter this command.

```
rtrv-ls:lsn=m3ua1
```

This is an example of the possible output.

```
rlghncxa03w 10-07-17 11:43:04 GMT EAGLE5 42.0.0
```



LSN	APC	:A	(SS7)	SCRN					LNKS		GWS MES	
SLSCI m3ua1 no	002	-002	-003	none	1	1	no	А	2	off	off	off
	SPC	CA 		CLLI			TFA	rcabi	MLQ M.	rprsi 	E ASI no	8
	RANDSL off	ıS										
	IPSG yes						(CGGTN no	MOD			
	ADAPTE m3ua			_		_	ΓPS					
	TPSALM rsvdsl						ALM					
	RCONTE 25		ASNOT yes			MSLKA	ALW	NUMS	SLKRST		NUMSI 1	CKPROH
	LOC L 2204 A 2204 B	7	0 IP	SG	m3ı	ıa2						

Link set table is (13 of 1024) 1% full.

An IPSG M3UA association can be assigned to different signaling links in different linksets only if the routing context (RCONTEXT) values in the linksets are different. Choose a routing context value for the linkset that is being changed that is different from the routing context values shown in this step.

16. Change the existing routing context value by entering the chg-ls command with the rcontext parameter.

If the routing context value of the linkset is being changed to a new value, for this example, enter this command.

```
chg-ls:lsn=lssg1101:rcontext=200
```

If the existing routing context value is being removed from the linkset, for this example, enter this command.

```
chg-ls:lsn=lssg1101:rcontext=100:action=delete
```

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

```
rlghncxa03w 06-10-17 16:23:21 GMT EAGLE5 37.5.0
Link set table is (13 of 1024) 1% full
CHG-LS: MASP A - COMPLTD
```



17. Verify the changes using the rtrv-ls command specifying the linkset name specified in 12 and 16. For this example, enter this command.

```
rtrv-ls:lsn=lssg1101
```

This is an example of the possible output.

```
rlghncxa03w 10-07-20 13:34:40 GMT EAGLE5 42.0.0
```

				L3T	SLT				GWS	GWS	GWS	
LSN NIS	APCA	(SS7)	SCRN	SET	SET	BEI	LST	LNKS	ACT	MES	DIS	SLSCI
	008-01	2-003	none	1	1	no	A	2	off	off	off	no

SPCA	CLLI	TFATCABMLQ	MTPRSE	ASL8
		2		no

RANDSLS off

IPSG IPGWAPC GTTMODE CGGTMOD yes no CdPA no

ADAPTER	RSVDSLKTPS	MAXSLKTPS
m3ua	500	4000
TPSALM	LSUSEALM	SLKUSEALM

maxslktps 60% 70%

RCONTEXT	ASNOTIF	NUMSLKALW	NUMSLKRSTR	NUMSLKPROH
200	yes	1	1	1

```
LOC LINK SLC TYPE ANAME 1101 A2 0 IPSG m2pa2 1105:A7 1 IPSG m2pa3
```

Link set table is (13 of 1024) 1% full.

If signaling links were deactivated in 13, continue the procedure with 18.

If signaling links were not deactivated in 13, continue the procedure with 19.

18. Activate all signaling links that were deactivated in 13 using the act-slk command, specifying the card location and link parameter value of each signaling link. For this example, enter this command.

```
act-slk:loc=1101:link=a2
act-slk:loc=1101:link=a7
```

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

```
rlghncxa03w 06-10-07 08:31:24 GMT \, EAGLE5 36.0.0 Activate Link message sent to card
```



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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

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

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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

If the linkset that was changed in this procedure contained signaling links that were deactivated when 16 was performed, this procedure is finished.

If the linkset that was changed in this procedure contained no signaling links when 12 or 16 were performed, perform the Adding an IPSG M3UA Signaling Link procedure to add IPSG M3UA signaling links to the linkset.



Sheet 5

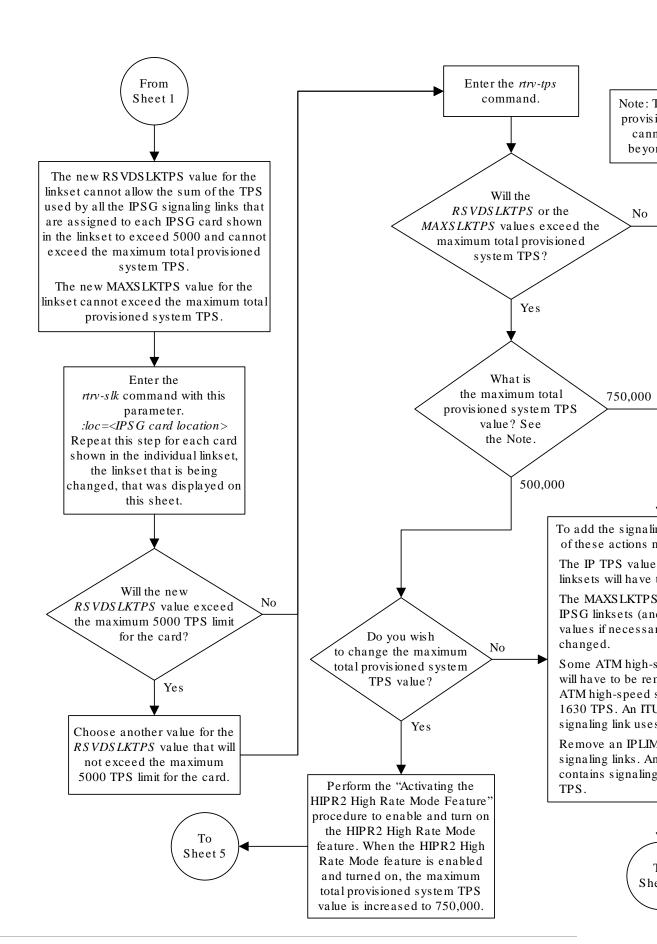
6-351

Enter the rtrv-ls command. Enter the rtrv-ls command Perform the 'Re with this parameter. :lsn=<the name of the What is Linkset Contai No links e t> the IPGWAPC Signaling I value? procedure to re linkset Yes Do you wish No Yes Perform the "A to change this IPSG M3UA linkset? procedure to What is PRX IPSG M3UA the LST value of the linkset? Perform the "A A, B, C, IPSG M3UAS D, E Link" procedus IPSG M3UAs links to this l What is the M2PA Yes No What is the ADAPTER value of IPSG value? the linkset? M3UA Enter the *chg-ls* В, С, command with these What is Are No D, E parameters. signaling links shown in the LST value of the :lsn=<the name of th the linkset? linkset? links et> : ls t = aΑ Yes Perform these procedures as required to remove the signaling links from the Do you wish to linkset. change the MAXSLKT "Removing an SS7 Signaling Link" or RS VDS LKTPS valu 'Removing an IPLIMx for the linkset? Signaling Link" 'Removing an IPSG M2PA Signaling Link" No To

Figure 6-26 Changing an IPSG M3UA Linkset

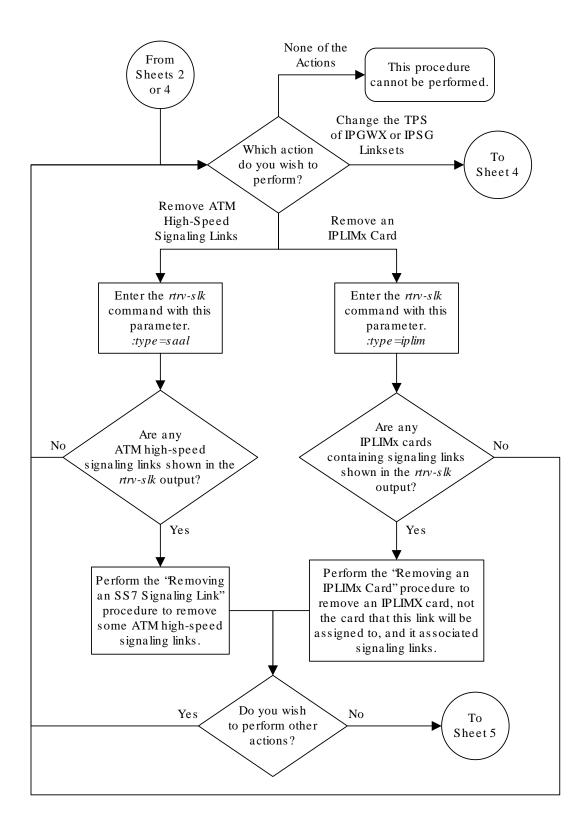
Sheet 1 of 8





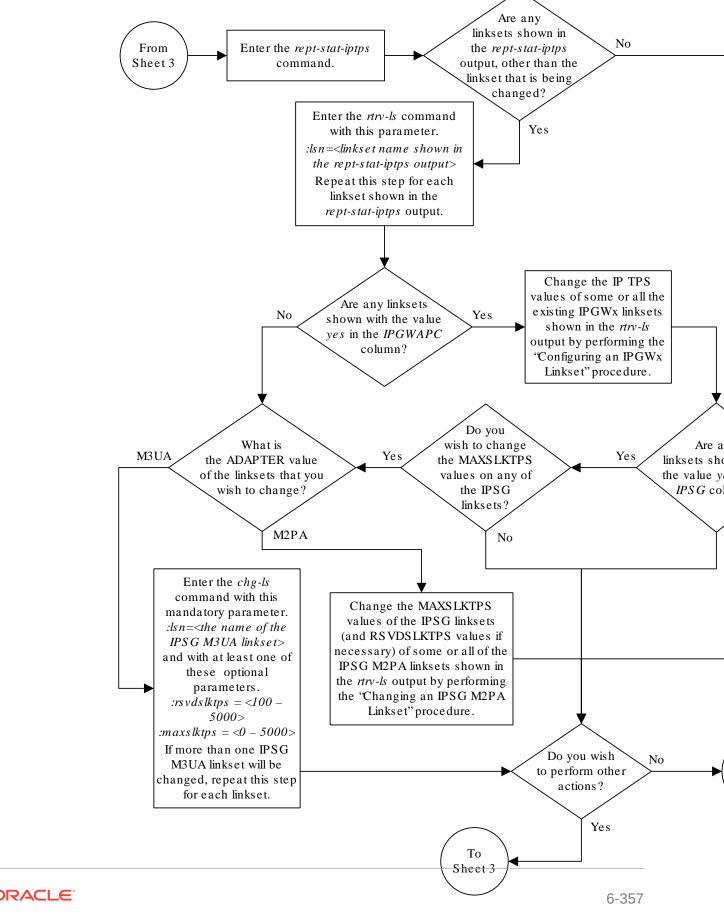
Sheet 2 of 8





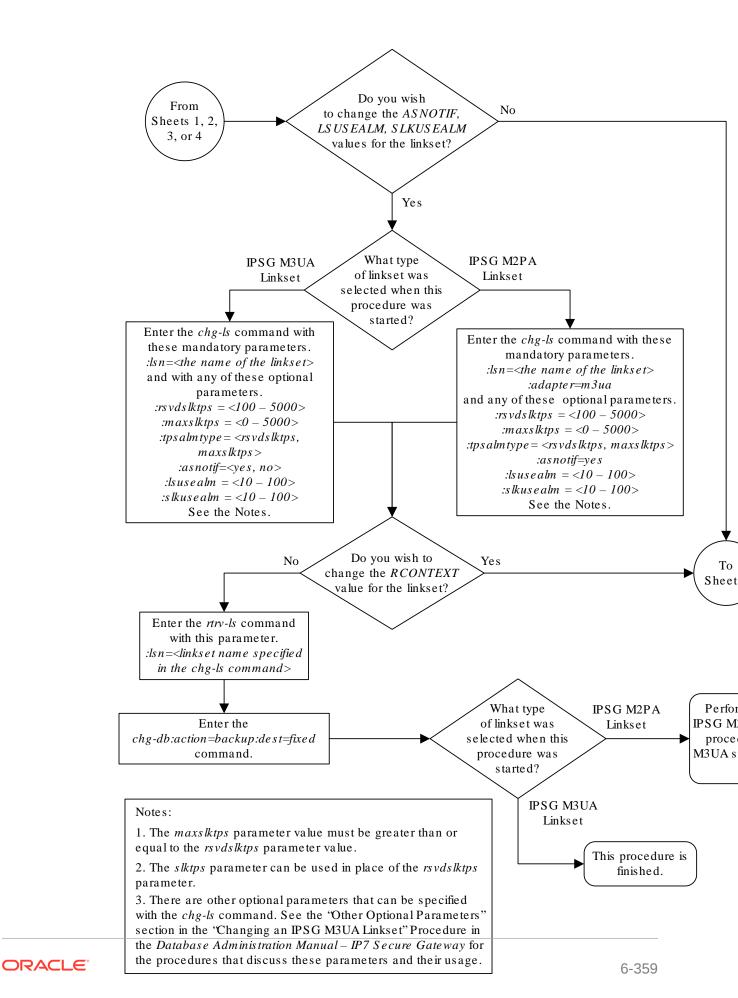
Sheet 3 of 8





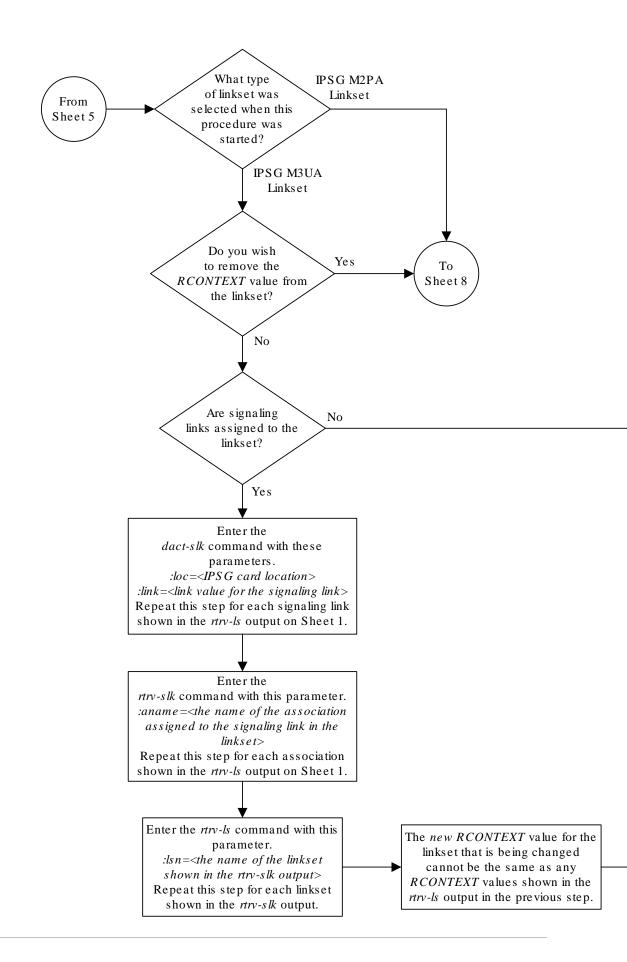
Sheet 4 of 8





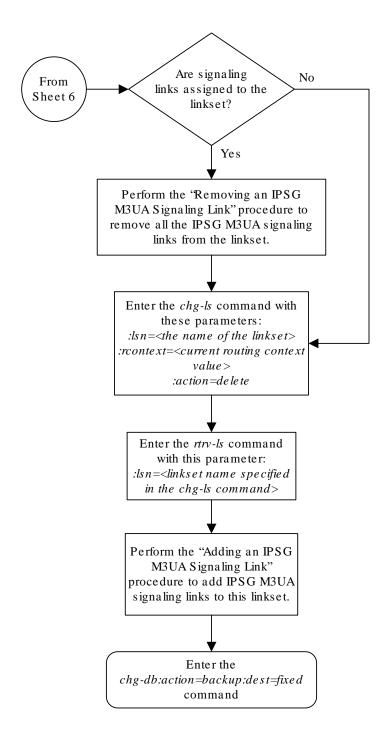
Sheet 5 of 8





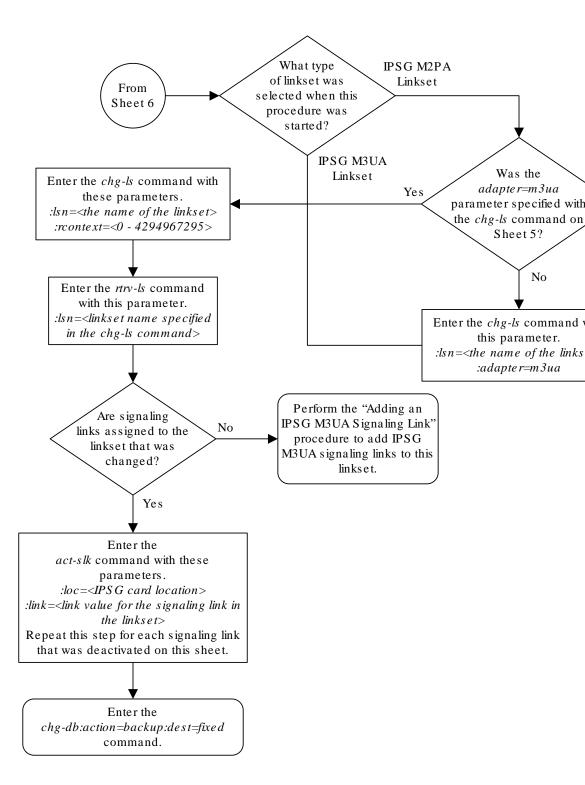
Sheet 6 of 8





Sheet 7 of 8





Sheet 8 of 8

Changing the Attributes of an IPSG Association

This procedure is used to change the values of the attributes of an IPSG association, assigned to cards that are running the IPSG application, IPSG cards, using the <code>chg-assoc</code> command and the following parameters.

Table 6-12 Change IPSG Association Parameters

aname	lport	rhost	rport	open	alw
rmode	rmin	rmax	rtimes	cwmin	istrms
ostrms	m2patset	ver	rtxthr	uaps	rhosttype
rhostval					

If you wish to change the attributes of M2PA associations assigned to cards that are running the IPLIM or IPLIMI applications, perform Changing the Attributes of an M2PA Association.

If you wish to change the attributes of M3UA associations assigned to cards that are running the SS7IPGW or IPGWI applications, perform Changing the Attributes of a M3UA or SUA Association.

The chg-assoc command contains other parameters that are not used in this procedure. To change these parameters, perform these procedures.

- lhost and alhost Changing the Host Values of an IPSG Association.
- bufsize Changing the Buffer Size of an IPSG Association

: aname - The name assigned to the association, shown in the rtry-assoc output.

:lport - The SCTP port number for the local host.

:rhost – The host name for the remote host, rhost can be any string of characters starting with a letter and comprising these characters ['a'..'z', 'A'..'Z', '0'..'9', '-', '.']. Hostnames are not case-sensitive and can contain up to 60 characters. The default value of this optional parameter is empty (null string).

:rport - The SCTP port number for the remote host.

:open – The connection state for this association. Valid values are yes or no. When the open=yes parameter is specified, the connection manager opens the association if the association is operational. When the open=no parameter is specified, the connection manager will not open the association. If the open=no parameter is specified for an established IPSG M3UA association, and the UA Graceful Shutdown option is enabled (refer to Changing a UA Parameter Set for more information), the IPSG M3UA connection will be gracefully shutdown.

:alw – The connection state for this association. Valid values are yes or no. When the alw=yes parameter is specified, the connection manager allows the association to carry SS7 traffic. When the alw=no parameter is specified, the connection manager prohibits the association from carrying SS7 traffic.



Note:

If the adapter parameter value for the association is M3UA, the alw parameter cannot be specified.

:rmode — The retransmission policy used when packet loss is detected. The values are rfc or lin.

- rfc Standard **RFC** 2960 algorithm in the retransmission delay doubles after each retransmission. The **RFC** 2960 standard for congestion control is also used.
- lin Oracle's linear retransmission policy where each retransmission timeout value is
 the same as the initial transmission timeout and only the slow start algorithm is used for
 congestion control.

: rmin - The minimum value of the calculated retransmission timeout in milliseconds, from 10 - 1000.

: rmax - The maximum value of the calculated retransmission timeout in milliseconds, from 10 - 1000.

:rtimes – The number of times a data retransmission will occur before closing the association from 3 - 12.

: cwmin – The minimum size in bytes of the association's congestion window and the initial size in bytes of the congestion window, from 1500 - 409600. The cwmin parameter value must be less than or equal to the size of the buffer used by the association, shown by the bufsize parameter value. If the buffer size for the association needs to be changed, perform Changing the Buffer Size of a M2PA Association.

The rmode, rmin, rmax, rtimes, and cwmin parameters are used to configure the SCTP retransmission controls for an association, in addition to other commands. Perform Configuring SCTP Retransmission Control for a M2PA Association to configure the SCTP retransmission controls for an association.

:istrms - The number of inbound streams (1 or 2) advertised by the SCTP layer for the association.

:ostrms – The number of outbound streams (1 or 2) advertised by the **SCTP** layer for the association.

:m2patset — The M2PA timer set assigned to the association. The m2patset parameter can be specified only with the adapter=m2pa parameter, or if the association already has the adapter=m2pa parameter assigned and the adapter parameter value is not being changed. If the adapter parameter value is being changed to m2pa, and the m2patset parameter is not specified, the default value for the m2patset parameter (1 - M2PA timer set 1) is assigned to the association. If the adapter parameter value for the association is m2pa, is not being changed, and the m2patset parameter is not specified with the chg-assoc command, the m2patset parameter value is not changed.

:ver – The M2PA version assigned to the M2PA association, either the RFC version (ver=rfc), or the Draft 6 version (ver=d6). The ver parameter can be specified only if, when this procedure is completed, the adapter parameter value is m2pa. If the adapter parameter value is being changed to m2pa, and the ver parameter is not specified, the



default **M2PA** version of **RFC** is assigned to the association. To change the ver parameter value, the open parameter value for the association must be no.

: uaps – The **UA** parameter set value being assigned to an M2PA or an **M3UA** association.

:rtxthr — The retransmission threshold for the association. The rtxthr parameter value indicates the number of retransmissions that can occur on the association that when exceeded will generate UAM 0537, Ethernet Error Threshold Exceeded. The value of this parameter is 0 to 65,535. The value of this parameter is shown in the RTXTHR field of the rtrv-assoc:aname=<association name> output. The rtxthr parameter value can be changed if the open parameter value is either yes or no.

:rhosttype — The type of remote host assigned to the association, primary or alternate. The primary remote host is shown in the RHOST field of the rtrv-assoc:aname=<association name> output. The alternate remote host is shown in the ARHOST field of the rtrv-assoc:aname=<association name> output.

An alternate remote host can be configured for multi-homed associations using the rhost and rhosttype parameters of the chg-assoc command. The rhost parameter value with the rhostype=primary parameter represents an IP address that corresponds to one of the network interfaces at the remote end while the rhost parameter value with the rhostype=alternate parameter represents an IP address that corresponds to the other network interface at the remote end.

:rhostval - The validation mode used for the association when an SCTP INIT/INIT-ACK message is received. The value of this parameter is shown in the RHOSTVAL field of the rtrv-assoc:aname=<association name> output. This parameter has two values.

- relaxed accept the message if the IP address for the primary or alternate remote host matches the IP address, source IP address, or the host name in the message.
- match accept the message if the message contains the primary remote host value and the alternate remote host value (if the alternate remote host is provisioned). If the alternate remote host is not provisioned, then accept the message if the message contains the primary remote host value. Reject the message if it contains any IP address other than that of the primary or alternate remote host.

Refer to the chg-assoc command description in *Commands User's Guide* for more information about this parameter.

If the value of the open parameter is yes, only the value of the alw and rtxthr parameters can be changed. To change the values of other parameters, the value of the open parameter must be no.

To set the open parameter value to yes, the association specified by the aname parameter must contain values for the lhost, lport, rhost, and rport parameters. The association must be assigned to a signaling link.

At least one optional parameter is required.

The command input is limited to 150 characters, including the hostnames.

The value of the rmin parameter must be less than or equal to the rmax parameter value.



The m2patset and ver parameters can be specified only for IPSG M2PA associations.

Canceling the RTRV-ASSOC Command

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

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

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

1. Display the associations in the database using the rtrv-assoc command.

This is an example of possible output.

rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0

	CARD	IPLNK						
ANAME	LOC	PORT	LINK	ADAPTER	LPORT	RPORT	OPEN	ALW
swbel32	1201	A	A	M3UA	1030	2345	YES	YES
a2	1305	A	A	SUA	1030	2345	YES	YES
a3	1307	A	A	SUA	1030	2346	YES	YES
assoc1	1201	A	A	M3UA	2000	1030	YES	YES
assoc2	1205	A	A	M2PA	2048	2048	YES	YES
assoc3	1205	A	В2	M2PA	3000	3000	YES	YES
assoc5	1205	A	A3	M2PA	1500	3000	YES	YES

 Enter the rtrv-card command with the location of the card that is hosting the M2PA or M3UA association that will be changed in this procedure. For this example, enter these commands.

```
rtrv-card:loc=1205
```

This is an example of possible output.

```
rlghncxa03w 08-04-06 15:17:20 EST EAGLE5 38.0.0

CARD TYPE APPL LSET NAME LINK SLC LSET NAME LINK SLC

1205 ENET IPSG e5e6a A 0 e5e6a B2 1

e5e6a A3 2
```

rtrv-card:loc=1201



This is an example of possible output.

```
rlghncxa03w 08-04-06 15:17:20 EST EAGLE5 38.0.0

CARD TYPE APPL LSET NAME LINK SLC LSET NAME LINK SLC 1201 ENET IPSG ipsgm3ua1 A 0
```

If the application assigned to the card is IPSG, shown in the APPL column, and the values of any of these parameters are being changed: lport, rhost, rport, rmode, rmin, rmax, rtimes, cwmin, istrms, ostrms, ver, m2patset, or uaps, continue the procedure by performing one of these steps.

- If the open parameter value for the association is yes, continue the procedure with 3.
- If the open parameter value for the association is no, continue the procedure with 4.

If the application assigned to the card is IPSG, shown in the APPL column, and only the values of the alw, open, or rtxthr parameters are being changed, continue the procedure by performing one of these steps.



If the adapter parameter value for the association is M3UA, the alw parameter cannot be specified.

- If only the values of the alw parameter is being changed, or the open parameter value is being changed to no, continue the procedure with 10.
- If the value of the rtxthr parameter is being changed, continue the procedure with 4.
- If the value of the open parameter value is being changed to yes, the association must be assigned to a signaling link. If the association is assigned to a signaling link, the signaling link value is shown in the LINK column in the rtrv-assoc output, in 1. If the association is not assigned to a signaling link, dashes are shown in the LINK column in the rtrv-assoc output. If association is assigned to a signaling link, perform one of these actions.
 - If only the alw parameter is being specified with the open=yes parameter, continue the procedure with 10.
 - If the value of the rtxthr parameter is being changed, continue the procedure with 4.
- If the value of the open parameter value is being changed to yes and the association is not assigned to a signaling link, perform one of these procedures.
 - If the ADAPTER value of the association is M2PA, perform Adding an IPSG M2PA Signaling Link.
 - If the ADAPTER value of the association is M3UA, perform Adding an IPSG M3UA Signaling Link.



- After the association has been assigned to a signaling link, perform one of these actions.
 - If only the alw parameter is being specified with the open=yes parameter, continue the procedure with 10.
 - If the value of the rtxthr parameter is being changed, continue the procedure with 4

If the application assigned to the card is IPLIM or IPLIMI, perform Changing the Attributes of an M2PA Association.

If the application assigned to the card is SS7IPGW or IPGWI, perform Changing the Attributes of a M3UA or SUA Association.

3. Change the value of the open parameter to no by specifying the chg-assoc command with the open=no parameter.

For this example, enter these commands.

```
chg-assoc:aname=assoc2:open=no
chg-assoc:aname=assoc1:open=no
```

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

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 CHG-ASSOC: MASP A - COMPLTD;
```

IP Appl Sock/Assoc table is (7 of 4000) 1% full

Assoc Buffer Space Used (800 KB of 6400 KB) on LOC = 1205

4. Display the association being changed by entering the rtrv-assoc command with the aname parameter specified in 3 or selected in 1.

For this example, enter these commands.

```
rtrv-assoc:aname=assoc2
```

This is an example of the possible output.

```
rlghncxa03w 10-07-28 21:14:37 GMT EAGLE5 42.0.0
ANAME assoc2
     LOC
             1205
                         IPLNK PORT A
                                             LINK A
     ADAPTER M2PA
                         VER M2PA RFC
     LHOST IPNODE2-1205
     ALHOST ---
     RHOST
            remotehost1
     ARHOST ---
     LPORT 2048
                        RPORT
                                   2048
     ISTRMS 2
                                             BUFSIZE 400
                         OSTRMS
                                   2
     RMODE LIN
                         RMIN
                                   120
                                             RMAX
                                                    800
                                                    10
     RTIMES 10
                        CWMIN
                                   3000
                                             UAPS
     OPEN
            NO
                         ALW
                                   YES
                                             RTXTHR 2000
     RHOSTVAL RELAXED
                         M2PATSET
     LSN
     e5e6a
```



rtrv-assoc:aname=assoc1

This is an example of the possible output.

rlghncxa03w 09-05-28 21:14:37 GMT EAGLE5 41.0.0

ANA	ME assoc1					
	LOC	1201	IPLNK PORT	A	LINK	A
	ADAPTER	M3UA	VER	M3UA RFC		
	LHOST	m3ua1				
	ALHOST					
	RHOST	remote1				
	ARHOST					
	LPORT	2000	RPORT	1030		
	ISTRMS	2	OSTRMS	2	BUFSIZE	200
	RMODE	LIN	RMIN	120	RMAX	800
	RTIMES	10	CWMIN	3000	UAPS	10
	OPEN	NO	ALW	NO	RTXTHR	0
	RHOSTVAL	RELAXED				
	LSN					
	ipsgm3ua	1				

IP Appl Sock/Assoc table is (7 of 4000) 1% full Assoc Buffer Space Used (200 KB of 6400 KB) on LOC = 1201

Continue the procedure by performing one of these actions.

- If the cwmin parameter will be be specified in this procedure, continue the procedure with 5.
- 5. To change the cwmin value, the new cwmin parameter value must be less than or equal to the bufsize parameter value.

The cwmin parameter is the number if bytes specified for the association's congestion window. The bufsize is the number of kilobytes specified for the size of the association's buffer. To determine whether or not the cwmin value is less than or equal to the bufsize value, perform one of these actions.

- Multiply the bufsize value by 1024.
- Divide the cwmin value by 1024.

Continue the procedure by performing one of these actions.

- If the new cwmin value is less than or equal to the bufsize value, continue the procedure with by performing one of these actions.
 - If the m2patset parameter will be specified for an M2PA association, continue the procedure with 6.
 - If the uaps parameter will be specified for an M3UA association, continue the procedure with 7.
 - If the rhost parameter will be specified for the association, continue the procedure with 8.



- If the m2patset, uaps, or rhost parameter will not be specified for the association, continue the procedure with 10.
- If the new cwmin value is not less than or equal to the bufsize value, either choose another value for the cwmin parameter that is less than or equal to the bufsize value, or perform Changing the Buffer Size of an IPSG Association to change the bufsize value so that the bufsize value is greater than or equal to the cwmin value. After the new cwmin value has been chosen or the bufsize value has been changed, continue the procedure by performing one of these actions.
 - If the m2patset parameter will be specified for an M2PA association, continue the procedure with 6.
 - If the uaps parameter will be specified for an M3UA association, continue the procedure with 7.
 - If the rhost parameter will be specified for the association, continue the procedure with 8.
 - If the m2patset, uaps, or rhost parameter will not be specified for the association, continue the procedure with 10.
- 6. Verify the values of the M2PA timer set you wish to assign to the association by entering the rtrv-m2pa-tset command with the M2PA version (either ver=rfc to display the RFCM2PA timer values or ver=d6 to display the Draft 6 M2PA timer values) of the timer set you wish to assign to the association.

If the ver parameter is not specified with the rtrv-m2pa-tset command, both the RFC and Draft 6 timer values are displayed.

To display the **M2PA** Draft 6 timer values, enter this command.

rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0

```
rtrv-m2pa-tset:ver=d6
```

This is an example of the possible output.

```
M2PA Draft 6 Timers (in msec, T16 in microsec)
TSET T1
           Τ2
                  Т3
                        T4N
                              T4E T5
                                         Τ6
                                              Τ7
                                                    T16
                                                           T17
1
    6000
           ---- 5000
                        20000 500
                                   5000
                                         4000 1000 100000 150
2
    7500
           ---- 1500
                        2000
                              500
                                   9000
                                         1250 300
                                                    150000 175
                              500
3
    100000 ----- 2000 3000
                                   4000
                                         1500 500
                                                    170000 200
4
    200000 ----- 20000 4000 500
                                   6000
                                         2000 700
```

```
480000 225
                                                               900
5
    250000 ----- 30000 30000 500
                                   100
                                         2250 400
                                                   400000 400
                                                               8000
6
    50000 ----- 50000 60000 500
                                   500
                                         4500 800
                                                   300000 300
                                                               7000
7
    10000 ----- 10000 10000 500
                                   1000
                                        3000 1200
                                                   200000 250
                                                               1000
    80000
           ----- 1500 15000 500
                                   8000
                                        2750 1100
                                                   350000 350
                                                               5000
8
9
    27500
           ---- 3850 4859 450
                                   5700
                                        3750 1150
                                                   250
                                                          375
                                                               8750
    90000
10
           ---- 2500 50000 500
                                   7500
                                        5000 1750
                                                   440000 450
                                                               3000
    20000
           ----- 4500 5500 500
                                   6500
                                                   250000 475
11
                                        5500 1600
                                                               4500
12
    30000
           ---- 7500 7000
                              500
                                   750
                                         4250 1800
                                                   275000 275
                                                               3500
13
    40000
           ---- 35000 9000
                              500
                                   1250
                                        3500 1900
                                                   500
                                                          325
                                                               9000
14
    70000
           ----- 45000 11000 500
                                   1500
                                        1750 900
                                                   1000
                                                          125
                                                               6000
15
    9000
           ----- 25000 40000 500
                                   2500
                                        3250 600
                                                   5000
                                                          425
                                                               5500
16
    75000 ----- 15000 25000 500
                                   4500 1600 1400 6000
                                                          240
                                                               9500
17
    350000 ----- 60000 70000 600
                                   10000 6000 2000 500000 500
                                                               10000
```



T18

500

600

800

18	150000	 55000	35000	500	3500	5750	1500	125000	440	750
19	175000	 12500	45000	500	1100	2600	1300	7000	340	850
20	1000	 1000	1000	400	80	1000	200	100	100	100

To display the M2PARFC values, enter this command.

```
rtrv-m2pa-tset:ver=rfc
```

This is an example of the possible output.

rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0

M2PA RFC Timers (in msec, T16 in microsec)

TSET 1 2 3 4 5	T1 6000 7500 100000 200000 250000	T2 75000 8000 10000 6000 140000	T3 5000 1500 2000 20000 30000	T4N 20000 2000 3000 4000 30000	T4E 500 500 500 500 500	T5 5000 9000 4000 6000 100	T6 4000 1250 1500 2000 2250	500 700	T16 100000 150000 170000 480000 400000	200 225	T18 500 600 800 900
8000 6 7000	50000	100000	50000	60000	500	500	4500	800	300000	300	
7 1000	300000	20000	2000	10000	500	1000	3000	1200	200000	250	
8 5000	80000	130000	1500	15000	500	8000	2750	1100	350000	350	
9 8750	27500	120000	3850	4859	450	5700	3750	1150	250	375	
10 3000	90000	9000	2500	50000	500	7500	5000	1750	440000	450	
11 4500	20000	60000	4500	5500	500	6500	5500	1600	250000	475	
12 3500	30000	50000	7500	7000	500	750	4250	1800	275000	275	
13 9000	40000	90000	35000	9000	500	1250	3500	1900	500	325	
14 6000	70000	45000	45000	11000	500	1500	1750	900	1000	125	
15 5500	9000	30000	25000	40000	500	2500	3250	600	5000	425	
16 9500	75000	15000	15000	25000	500	4500	1600	1400	6000	240	
17 10000	350000	150000	60000	70000	600	10000	6000	2000	500000	500	
18 19 20	150000 175000 1000	20000 12500 5000	55000 12500 1000	35000 45000 1000	500 500 400	3500 1100 80		1500 1300 200	125000 7000 100	440 340 100	750 850 100



If the ver parameter is not specified when entering the rtrv-m2pa-tset command, both the Draft 6 and **RFC** values are displayed. This is an example of the possible output.

rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0

M2PA Draft 6 Timers (in msec, T16 in microsec)

TSET	T1	Т2	Т3	T4N	T4E	T5	Т6	Т7	T16	T17	T18
1	6000		5000	20000	500	5000	4000	1000	100000	150	500
2	7500		1500	2000	500	9000	1250	300	150000	175	600
3	100000		2000	3000	500	4000	1500	500	170000	200	800
4	200000		20000	4000	500	6000	2000	700	480000	225	900
5	250000		30000	30000	500	100	2250	400	400000	400	8000
6	50000		50000	60000	500	500	4500	800	300000	300	7000
7	10000		10000	10000	500	1000	3000	1200	200000	250	1000
8	80000		1500	15000	500	8000	2750	1100	350000	350	5000
9	27500		3850	4859	450	5700	3750	1150	250	375	8750
10	90000		2500	50000	500	7500	5000	1750	440000	450	3000
11	20000		4500	5500	500	6500	5500	1600	250000	475	4500
12	30000		7500	7000	500	750	4250	1800	275000	275	3500
13	40000		35000	9000	500	1250	3500	1900	500	325	9000
14	70000		45000	11000	500	1500	1750	900	1000	125	6000
15	9000		25000	40000	500	2500	3250	600	5000	425	5500
16	75000		15000	25000	500	4500	1600	1400	6000	240	9500
17	350000		60000	70000	600	10000	6000	2000	500000	500	10000
18	150000		55000	35000	500	3500	5750	1500	125000	440	750
19	175000		12500	45000	500	1100	2600	1300	7000	340	850
20	1000		1000	1000	400	80	1000	200	100	100	100

M2PA RFC Timers (in msec, T16 in microsec)

```
TSET T1
            Т2
                    Т3
                          T4N
                                T4E
                                      T5
                                            Τ6
                                                  Т7
                                                        T16
                                                               T17
                                                                     T18
1
     6000
            75000
                    5000
                          20000 500
                                      5000
                                            4000 1000
                                                        100000 150
                                                                     500
                                            1250 300
                                                                     600
2
                          2000
     7500
            8000
                    1500
                                500
                                      9000
                                                        150000 175
     100000 10000
                    2000
                          3000
                                500
                                      4000
                                            1500 500
                                                        170000 200
                                                                     800
3
4
     200000 6000
                    20000 4000
                                500
                                      6000
                                            2000 700
                                                        480000 225
                                                                     900
5
     250000 140000 30000 30000 500
                                      100
                                            2250 400
                                                        400000 400
                                                                     8000
     50000 100000 50000 60000 500
                                      500
                                            4500 800
                                                        300000 300
                                                                     7000
6
7
     300000 20000 2000 10000 500
                                      1000
                                            3000 1200
                                                        200000 250
                                                                     1000
8
     80000
           130000 1500
                          15000 500
                                      8000
                                            2750 1100
                                                        350000 350
                                                                     5000
9
     27500
            120000 3850
                          4859
                                450
                                      5700
                                            3750 1150
                                                        250
                                                                375
                                                                     8750
     90000
            9000
                    2500
                          50000 500
                                            5000 1750
                                                                     3000
10
                                      7500
                                                        440000 450
     20000
            60000 4500
                          5500
                                500
                                      6500
                                            5500 1600
                                                        250000 475
                                                                     4500
11
            50000
12
     30000
                    7500
                          7000
                                500
                                      750
                                            4250 1800
                                                        275000 275
                                                                     3500
     40000
            90000
                                                                     9000
13
                    35000 9000
                                500
                                      1250
                                            3500 1900
                                                        500
                                                                325
14
     70000
            45000
                    45000 11000 500
                                      1500
                                            1750 900
                                                        1000
                                                               125
                                                                     6000
15
     9000
            30000
                    25000 40000 500
                                      2500
                                            3250 600
                                                        5000
                                                               425
                                                                     5500
16
     75000 15000 15000 25000 500
                                      4500 1600 1400
                                                        6000
                                                               240
                                                                     9500
     350000 150000 60000 70000 600
17
                                      10000 6000 2000
                                                        500000 500
                                                                     10000
     150000 20000
18
                    55000 35000 500
                                      3500
                                            5750 1500
                                                        125000 440
                                                                     750
19
     175000 12500
                    12500 45000 500
                                      1100
                                            2600 1300
                                                        7000
                                                               340
                                                                     850
20
     1000
            5000
                    1000 1000
                                400
                                      80
                                            1000 200
                                                        100
                                                               100
                                                                     100
```



Caution:

Changing an M2PA timer set may affect the performance of any associations using the timer set being changed.

If the M2PA timer set you wish to assign to the association does not contain the desired values, perform the Changing an M2PA Timer Set procedure to change the desired timer values.

After the M2PA timer set values have been changed, or if you have decided not to change the M2PA timer set values, continue the procedure by performing one of these actions.

- If the uaps parameter will be specified for an M3UA association, continue the procedure with 7.
- If the rhost parameter will be specified for the association, continue the procedure with 8.
- If the uaps or rhost parameter will not be specified for the association, continue the procedure with 10.
- 7. Verify the values of the **UA** parameter set you wish to assign to the association by entering the rtrv-uaps command with the desired parameter set.

For this example, enter this command.

```
rtrv-uaps:set=3
```

This is an example of possible output.

rlghncxa(03w 10-07	-28 09:12:36	GMT	EAGLE5	42.0.0
SET	TIMER	TVALUE P.	ARM	PVA	LUE
3	1	10	1		3
3	2	3000	2		0
3	3	10000	3		1
3	4	5000	4		0
3	5	0	5		0
3	6	0	6		0
3	7	0	7		0
3	8	0	8		0
3	9	0	9		0
3	10	0	10		0

```
TIMER 2: False IP Connection Congestion Timer, max time an
             association can be congested before failing due to
false
             congestion. SS7IPGW and IPGWI applications enforce
             0-30000 (ms). Not supported on IPSG application.
    TVALUE : Valid range = 32-bits
    TIMER 3: UA HeartBeat Period Timer T(beat), time (ms) between
sending
             of BEAT msgs by NE. IPSG, SS7IPGW and IPGWI
applications
             enforce 100 \, (ms) - 60000 \, (ms).
```



TVALUE : Valid range = 32-bits

TIMER 4: UA HeartBeat Received Timer T(beat ack), timeout period for response BEAT ACK msgs by NE. IPSG, SS7IPGW and IPGWI applications enforce 100(ms)-10000(ms).

TVALUE : Valid range = 32-bits

PARM 1: ASP SNM options. Each bit is used as an enabled/disabled flag for a particular ASP SNM option. Not supported on IPSG application.

PVALUE : Valid range = 32-bits

BIT VALUE

 $\begin{array}{ll} \mbox{O=Broadcast} & \mbox{O=Disabled , 1=Enabled} \\ \mbox{1=Response Method} & \mbox{O=Disabled , 1=Enabled} \end{array}$

2-5=Reserved

 $6 ext{-Broadcast Congestion Status Change }0 ext{-Disabled}$, $1 ext{-Enabled}$

7-31=Reserved

PARM 2: ASP/AS Notification options. Each bit is used as an enabled/disabled flag for a particular ASP/AS Notification option. Not supported on IPSG application.

PVALUE : Valid range = 32-bits

BIT VALUE

0=ASP Active Notifications 0=Disabled , 1=Enabled 1=ASP Inactive Notifications 0=Disabled , 1=Enabled 2=ASP AS State Query 0=Disabled , 1=Enabled

3-31=Reserved

PARM 3: UA Serviceability Options. Each bit is used as an enabled/disabled flag for a particular UA Serviceability option. Supported on IPSG, SS7IPGW, and IPGWI applications. UA Graceful Shutdown supported on IPSG for M3UA only.

PVALUE : Valid range = 32-bits

BIT VALUE

0=UA Heartbeats 0=Disabled , 1=Enabled 1=UA Graceful Shutdown 0=Disabled , 1=Enabled

2-31=Reserved

PARM 4: SCTP Payload Protocol Indicator byte order option. Bit indicates

PPI value is RCV/TX in Big Endian or Little Endian byte

format.

Supported on IPSG-M2PA associations only.

PVALUE : Valid range = 32-bits

BIT BIT VALUE

0=Payload Protocol Indicator 0=Big Endian , 1=Little

Endian

1-31=Reserved

Caution:

Changing a**UA** parameter set may affect the performance of any associations using the parameter set being changed.

If the **UA** parameter set you wish to assign to the association does not contain the desired values, perform the Changing a UA Parameter Set procedure to change the desired parameter set values.

After the UA parameter set values have been changed, or if you have decided not to change the UA parameter set values, continue the procedure by performing one of these actions.

- If the rhost parameter will be specified for the association, continue the procedure with 8.
- If the uaps or rhost parameter will not be specified for the association, continue the procedure with 10.
- **8.** The remote hosts assigned to the association can be changed by specifying the rhost and rhosttype parameters with the chq-assoc command.

If the primary and alternate remote hosts are not being changed in this procedure, or if only the primary remote host is being changed, continue the procedure with 10.

To change the alternate remote host value for the association, the association must have a primary remote host assigned to it. If the association has a primary remote host, continue the procedure with 10. If the association does not have a primary remote host, continue the procedure with 9.

9. Assign a primary remote host to the association by entering the chg-assoc command with the name of the association and the primary remote host name.

For this example, enter this command.

```
chg-assoc:aname=assoc2:rhost="gw200.nc-Oracle.com"
```

The rhosttype=primary parameter can be specified with the chg-assoc command, but is not necessary.

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

```
rlghncxa03w 09-05-28 09:12:36 GMT EAGLE5 41.0.0
CHG-ASSOC: MASP A - COMPLTD;
```

10. Change the association using the chg-assoc command.

For this example, enter these commands.

```
chg-assoc:aname=assoc2:rhost="gw200.nc-
Oracle.com" :rport=3000:rtxthr=10000:rhostval=match
chg-
assoc:aname=assoc1:rport=3000:rtxthr=10000:uaps=3:rhostval=m
atch
```

If an alternate remote host is being specified for the association, for this example enter this command.



chg-assoc:aname=assoc2:rhost="gw210.ncOracle.com":rhosttype=alternate :rport=3000:rtxthr=10000:rhostval
=match



Them2patset andver parameters can be specified only for M2PA associations.

If only the alw, open, rtxthr parameter values are being changed in this step, for this example, enter this command.



If the ${\tt adapter}$ parameter value for the association is M3UA, the ${\tt alw}$ parameter cannot be specified.

chg-assoc:aname=assoc2:alw=no:open=yes:rtxthr=10000

These are the rules that apply to changing the attributes of an IPSG association.

- a. If any optional parameters are not specified with the chg-assoc command, those values are not changed.
- b. The value of the rhost parameter is a text string of up to 60 characters, with the first character being a letter. The command input is limited to 150 characters, including the hostname.
- c. If the value of the open parameter is yes, only the values of the alw and rtxthr parameters can be changed. To change the values of the other parameters, the value of the open parameter value must be no.
- d. The value of the rmin parameter must be less than or equal to the rmax parameter value.
- e. The M2PA version of the association determines the version of the M2PA timer set that is assigned to the association. For example, if M2PA timer set 3 is assigned to the M2PA association, and the association is an RFC M2PA association, the RFC version of M2PA timer set 3 is used with the association. If M2PA timer set 7 is assigned to the M2PA association, and the association is a Draft 6 M2PA association, the Draft 6 version of M2PA timer set 7 is used with the association.
- f. The m2patset and ver parameters can be specified only for IPSG M2PA associations.
- g. If the adapter parameter value for the association is M3UA, the alw parameter cannot be specified.

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

rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 CHG-ASSOC: MASP A - COMPLTD;



If the value of the open parameter was not changed in 3, continue the procedure with Oracle.

11. Change the value of the open parameter to yes by specifying the chg-assoc command with the open=yes parameter.

For this example, enter these commands.

```
chg-assoc:aname=assoc2:open=yes
chg-assoc:aname=assoc1:open=yes
```

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

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 CHG-ASSOC: MASP A - COMPLTD;
```

12. Verify the changes using the rtrv-assoc command specifying the association name specified in 10 and 11.

For this example, enter these commands.

```
rtrv-assoc:aname=assoc2
```

This is an example of possible output.

```
rlghncxa03w 10-07-28 21:14:37 GMT EAGLE5 42.0.0
ANAME assoc2
     LOC
           1205
                       IPLNK PORT A
                                         LINK A
     ADAPTER M2PA
                       VER M2PA RFC
     LHOST IPNODE2-1205
     ALHOST ---
     RHOST gw200.nc-Oracle.com
     ARHOST gw210.nc-Oracle.com
     LPORT 2048 RPORT
                                2048
     ISTRMS 2
                      OSTRMS
                                2
                                          BUFSIZE 400
                                 120
                      RMIN
     RMODE LIN
                                          RMAX 800
     RTIMES 10
                      CWMIN
                                 3000
                                         UAPS 10
     OPEN
           YES
                      ALW
                                 NO
                                          RTXTHR 10000
     RHOSTVAL MATCH M2PATSET
                                 1
     LSN
     e5e6a
IP Appl Sock/Assoc table is (7 of 4000) 1% full
Assoc Buffer Space Used (800 KB of 6400 KB) on LOC = 1205
```

This is an example of the possible output.

rtrv-assoc:aname=assoc1

```
rlghncxa03w 09-05-28 21:14:37 GMT EAGLE5 41.0.0

ANAME assoc1

LOC 1201 IPLNK PORT A LINK A
```



```
ADAPTER M3UA
                         VER
                                   M3UA RFC
     LHOST
             m3ua1
     ALHOST
     RHOST remote1
     ARHOST ---
     LPORT
             2000
                         RPORT
                                    3000
     ISTRMS 2
                         OSTRMS
                                   2
                                              BUFSIZE 200
                                                      800
     RMODE LIN
                         RMIN
                                   120
                                              RMAX
     RTIMES 10
                         CWMIN
                                   3000
                                                      3
                                              UAPS
     OPEN
            YES
                          ALW
                                   NO
                                              RTXTHR 10000
     RHOSTVAL MATCH
     LSN
     ipsgm3ua1
IP Appl Sock/Assoc table is (7 of 4000) 1% full
Assoc Buffer Space Used (200 KB of 6400 KB) on LOC = 1201
```

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

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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

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

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

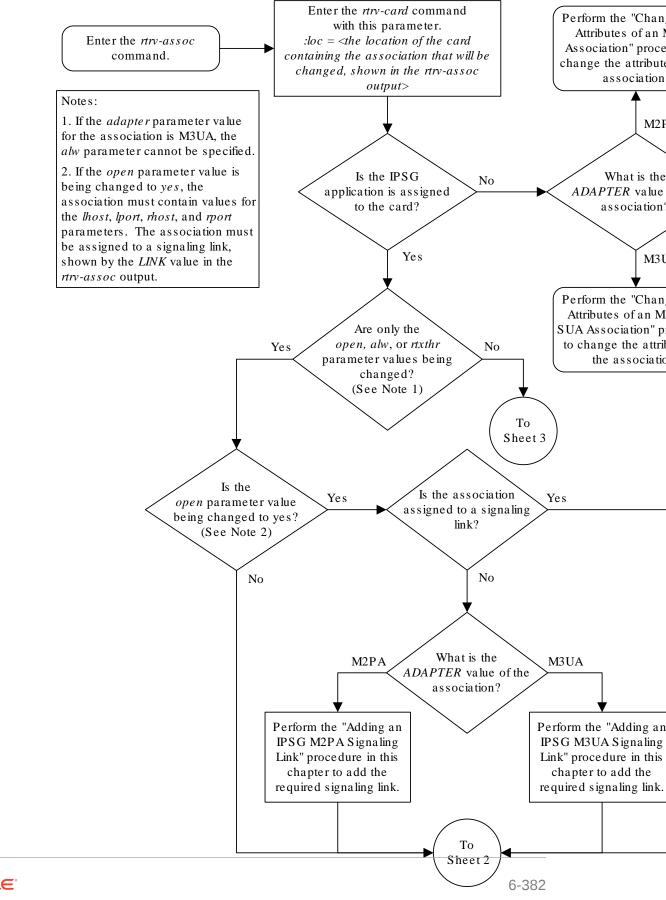
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

If you wish to change the <code>lhost</code>, <code>alhost</code>, or <code>bufsize</code> values of the IPSG association, perform one of these procedures.

- lhost and alhost Changing the Host Values of an IPSG Association
- bufsize Changing the Buffer Size of an IPSG Association

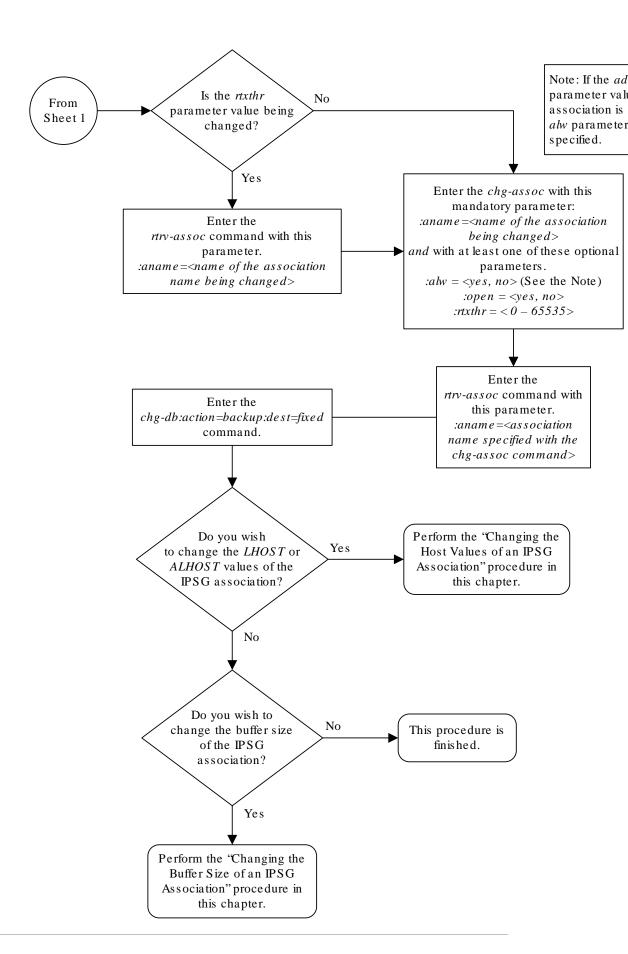
If you do not wish to change the <code>lhost</code>, <code>alhost</code>, <code>bufsize</code>, or <code>link</code> values of the IPSG association, this procedure is finished.

Figure 6-27 Changing the Attributes of an IPSG Association



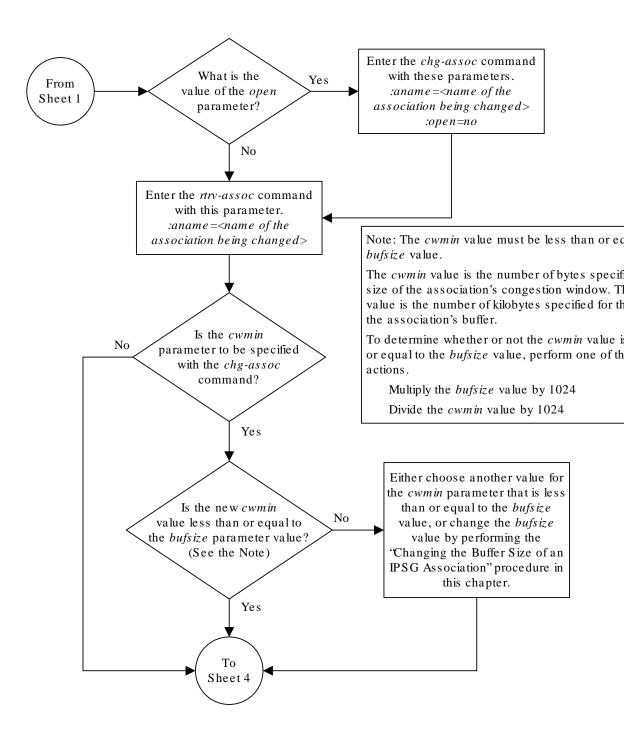
Sheet 1 of 5





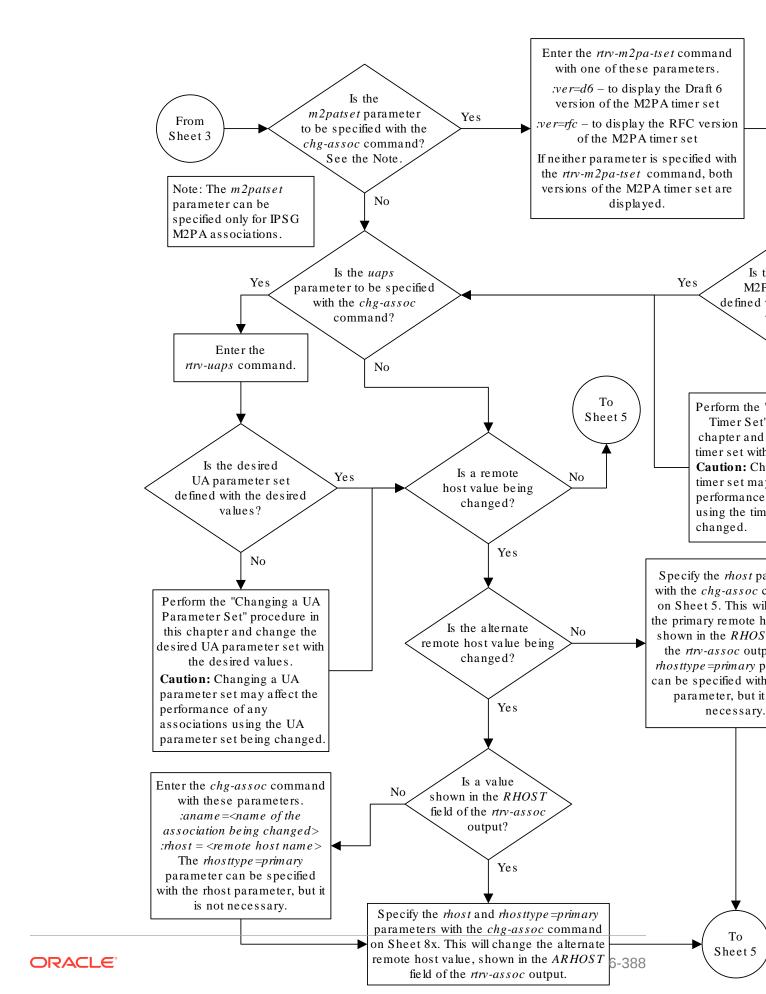
Sheet 2 of 5





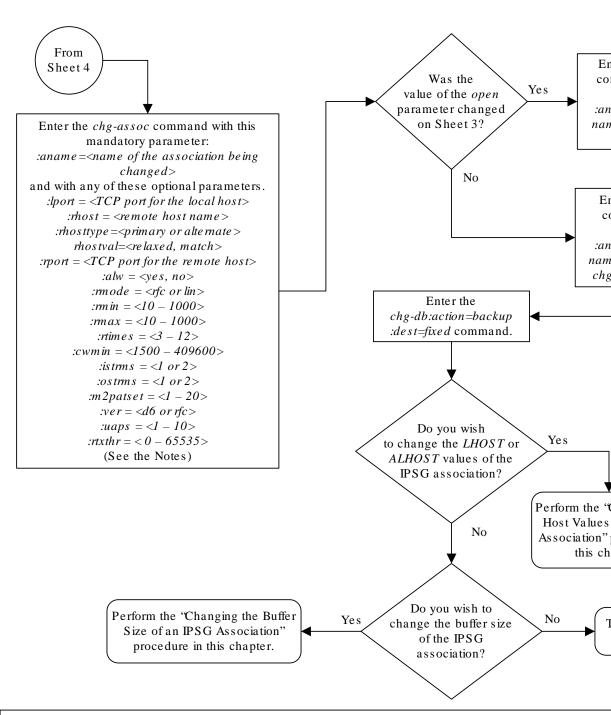
Sheet 3 of 5





Sheet 4 of 5





Notes:

- 1. If any optional parameters are not specified with the chg-assoc command, those values are not changed.
- 2. The value of the *rhost* parameter is a text string of up to 60 characters, with the first character being a letter input is limited to 150 characters, including the hostname.
- 3. If the value of the *open* parameter is *yes*, only the values of the *alw* and *rtxthr* parameters can be changed. values of the other parameters, the value of the *open* parameter value must be *no*.
- 4. The value of the min parameter must be less than or equal to the max parameter value.
- 5. The M2PA version of the association determines the version of the M2PA timer set that is assigned to the a example, if M2PA timer set 3 is assigned to the M2PA association, and the association is an RFC M2PA association of M2PA timer set 3 is used with the association. If M2PA timer set 7 is assigned to the M2PA association association is a Draft 6 M2PA association, the Draft 6 version of M2PA timer set 7 is used with the association
- 6. The *m2patset* and *ver* parameters can be specified only for IPSG M2PA associations.
- 7. If the adapter parameter value for the association is M3UA, the alw parameter cannot be specified.



Sheet 5 of 5

Changing the Buffer Size of an IPSG Association

This procedure is used to change the buffer size of an **IPSG** association, assigned to E5-ENET cards that are running the IPSG application, IPSG cards, using the <code>chg-assoc</code> command.

If you wish to change the buffer size of M2PA associations assigned to cards that are running the IPLIM or IPLIMI applications, perform the Changing the Buffer Size of a M2PA Association procedure.

If you wish to change the buffer size of M3UA associations assigned to cards that are running the SS7IPGW or IPGWI applications, perform the Changing the Buffer Size of a M3UA or SUA Association procedure.

These parameters of the chg-assoc command are used in this procedure:

: aname - The name assigned to the association, shown in the rtrv-assoc output.

:open – The connection state for this association. Valid values are yes or no. When the open=yes parameter is specified, the connection manager opens the association if the association is operational. When the open=no parameter is specified, the connection manager will not open the association. If the open=no parameter is specified for an established IPSG M3UA association, and the UA Graceful Shutdown option is enabled (refer to Changing a UA Parameter Set for more information), the IPSG M3UA connection will be gracefully shutdown.

:bufsize – The size, in kilobytes, of the buffer used by the association. The values for this parameter are 8 kilobytes to 400 kilobytes. The maximum size of the buffers on an IPSG card is 6400 KB.

The size of the buffers assigned to each association that is assigned to the **IP** card cannot exceed the maximum buffer size for that card. If the bufsize parameter value causes the total buffer size for all the associations on the **IPSG** card to exceed the maximum buffer size for that **IPSG** card, the chg-assoc command will be rejected. The available size of the buffers on the **IPSG** card can be verified by entering this command.

rtrv-assoc:lhost=<local host name assigned to the association being changed>

The alhost parameter can also be used with the rtrv-assoc command to display the available size of the buffers on the IP card.

The aname parameter can be used with the rtrv-assoc command to display the available size of the buffers on the **IP** card and the size of the buffer assigned to the association.

If you wish to increase the buffer size for this association to a value that is greater than available buffer size for the card, the buffer size of the other associations assigned to the card must be decreased.

The chg-assoc command contains other parameters that are not used in this procedure. To change these parameters, perform these procedures.

lhost and alhost - Changing the Host Values of an IPSG Association



 Other attributes of the IPSG Association - Changing the Buffer Size of an IPSG Association

Canceling the RTRV-ASSOC Command

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

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

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

Display the associations in the database using the rtrv-assoc command.
 This is an example of possible output.

rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0

	CARD	IPLNK						
ANAME	LOC	PORT	LINK	ADAPTER	LPORT	RPORT	OPEN	ALW
swbel32	1201	A	A	M3UA	1030	2345	YES	YES
a2	1305	A	A	SUA	1030	2345	YES	YES
a3	1307	A	A	SUA	1030	2346	YES	YES
assoc1	1201	A	A	M3UA	2000	1030	YES	YES
assoc2	1205	A	A	M2PA	2048	2048	YES	YES
assoc3	1205	A	В2	M2PA	3000	3000	YES	YES
assoc5	1205	A	A3	M2PA	1500	3000	YES	YES

Enter the rtrv-card command with the location of the card that is hosting the association that will be changed in this procedure. For this example, enter this command.

```
rtrv-card:loc=1205
```

This is an example of possible output.

```
rlghncxa03w 08-04-06 15:17:20 EST EAGLE5 38.0.0

CARD TYPE APPL LSET NAME LINK SLC LSET NAME LINK SLC 1205 ENET IPSG e5e6a A 0 e5e6a B2 1 e5e6a A3 2
```



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

This is an example of possible output.

```
rlghncxa03w 08-04-06 15:17:20 EST EAGLE5 38.0.0
CARD TYPE APPL LSET NAME LINK SLC LSET NAME LINK SLC 1201 ENET IPSG ipsgm3ua1 A 0
```

If the application assigned to the card is IPSG, shown in the APPL column, continue the procedure by performing one of these steps.

- If the open parameter value for the association being changed is yes, continue the procedure with 3.
- If the open parameter value for the association being changed is no, continue the procedure with 4.

If the application assigned to the card is IPLIM or IPLIMI, perform the Changing the Buffer Size of a M2PA Association procedure.

If the application assigned to the card is SS7IPGW or IPGWI, perform the Changing the Buffer Size of a M3UA or SUA Association procedure.

3. Change the value of the open parameter to no by specifying the chg-assoc command with the open=no parameter.

For this example, enter these commands.

```
chg-assoc:aname=assoc2:open=no
chg-assoc:aname=assoc1:open=no
```

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

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 CHG-ASSOC: MASP A - COMPLTD;
```

4. Display the association that is being changed by entering the rtrv-assoc command with the aname parameter and the name of the association specified in 3.

For this example, enter this command.

```
rtrv-assoc:aname=assoc2
```

This is an example of the possible output.

```
rlghncxa03w 10-07-28 21:14:37 GMT EAGLE5 42.0.0
ANAME assoc2
      LOC
            1205
                         IPLNK PORT A
                                             LINK A
      ADAPTER M2PA
                        VER M2PA RFC
     LHOST IPNODE2-1205
     ALHOST ---
      RHOST
             remotehost1
     ARHOST ---
      LPORT 2048
                                   2048
                        RPORT
      ISTRMS 2
                         OSTRMS
                                   2
                                             BUFSIZE 300
                                   120
                                             RMAX
      RMODE
             LIN
                         RMIN
                                                     800
```



```
RTIMES
               10
                              CWMIN
                                          3000
                                                     UAPS
                                                               10
                                                     RTXTHR
                                                               2000
       OPEN
                              ALW
                                          YES
                NO
       RHOSTVAL RELAXED
                              M2PATSET
       LSN
       e5e6a
IP Appl Sock/Assoc table is (7 of 4000) 1% full
Assoc Buffer Space Used (700 KB of 6400 KB) on LOC = 1205
```

rtrv-assoc:aname=assoc1

This is an example of the possible output.

```
rlghncxa03w 09-05-28 21:14:37 GMT EAGLE5 41.0.0
```

ANAME	assoc1					
	LOC	1201	IPLNK PORT	A	LINK	A
	ADAPTER	M3UA	VER	M3UA RFC		
	LHOST	m3ua1				
	ALHOST					
	RHOST	remote1				
	ARHOST					
	LPORT	2000	RPORT	1030		
	ISTRMS	2	OSTRMS	2	BUFSIZE	200
	RMODE	LIN	RMIN	120	RMAX	800
	RTIMES	10	CWMIN	3000	UAPS	10
	OPEN	NO	ALW	YES	RTXTHR	0
	RHOSTVAL	RELAXED				
	LSN					
	ipsgm3ua1					

IP Appl Sock/Assoc table is (7 of 4000) 1% full Assoc Buffer Space Used (400 KB of 6400 KB) on LOC = 1201

5. If the bufsize parameter value causes the total buffer size for all the associations on the IPSG card to exceed the maximum buffer size for that IPSG card, the chgassoc command will be rejected.

If you wish to increase the buffer size for this association to a value that is greater than available buffer size for the card, the buffer size of the other associations assigned to the card must be decreased. Perform this step, 6, 7, and 8.

If the buffers on the other associations assigned to the card do not need to be changed, continue the procedure with 9.

Display the associations assigned to the **IP** card (and its corresponding local host) by entering the rtrv-assoc command with the local host name assigned to the association being changed. For this example, enter these commands.

```
rtrv-assoc:lhost=IPNODE2-1205
```



This is an example of the possible output.

rlghncxa03w 06-10-28 21:14:37 GMT EAGLE5 36.0.0 CARD IPLNK ANAME LOC PORT LINK ADAPTER LPORT RPORT OPEN ALW assoc2 1205 A A M2PA 2048 2048 YES YES 1205 A M2PA 3000 3000 YES YES assoc3 В2 assoc5 1205 A A3 M2PA 1500 3000 YES YES

IP Appl Sock/Assoc table is (7 of 4000) 1% full Assoc Buffer Space Used (800 KB of 6400 KB) on LOC = 1205

rtrv-assoc:lhost=m3ua1

This is an example of the possible output.

rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0

CARD IPLNK

ANAME LOC PORT LINK ADAPTER LPORT RPORT OPEN ALW swbel32 1201 A A M3UA 1030 2345 YES YES assoc1 1201 A A M3UA 2000 1030 YES YES

IP Appl Sock/Assoc table is (7 of 4000) 1% full
Assoc Buffer Space Used (400 KB of 6400 KB) on LOC = 1201

6. Display each association shown in 5 by entering the rtrv-assoc command with the name of each association shown in 5.

For this example, enter these commands.

rtrv-assoc:aname=assoc2

e5e6a

This is an example of the possible output.

ANAME assoc2 LOC 1205 IPLNK PORT A LINK A ADAPTER M2PA VER M2PA RFC LHOST IPNODE2-1205 ALHOST ---RHOST remotehost1 ARHOST ---LPORT 2048 RPORT 2048 ISTRMS 2 OSTRMS 2 BUFSIZE 300 RMODE LIN RMIN 120 RMAX 800 RTIMES 10 CWMIN 3000 UAPS 10 OPEN NO ALW YES RTXTHR 2000 RHOSTVAL RELAXED M2PATSET 1 LSN



IP Appl Sock/Assoc table is (7 of 4000) 1% full Assoc Buffer Space Used (700 KB of 6400 KB) on LOC = 1205

rtrv-assoc:aname=assoc3

This is an example of the possible output.

ANAME	assoc3						
	LOC	1205	IPLNK PORT	A	LINK	B2	
	ADAPTER	M2PA	VER	M2PA RFC			
	LHOST	IPNODE2-1205					
	ALHOST						
	RHOST	remotehost3					
	ARHOST						
	LPORT	3000	RPORT	3000			
	ISTRMS	2	OSTRMS	2	BU	JFSIZE	200
	RMODE	LIN	RMIN	120	RN	XAN	800
	RTIMES	10	CWMIN	3000	U	APS	10
	OPEN	YES	ALW	YES	R7	TXTHR	
2000							
	RHOSTVAL	RELAXED	M2PATSET	1			
	LSN						
	e5e6a						

IP Appl Sock/Assoc table is (7 of 4000) 1% full Assoc Buffer Space Used (700 KB of 6400 KB) on LOC = 1205

rtrv-assoc:aname=assoc5

This is an example of the possible output.

ANAME	assoc5					
	LOC	1205	IPLNK PORT	A	LINK A3	
	ADAPTER	M2PA	VER	M2PA RFC		
	LHOST	IPNODE2-1205				
	ALHOST					
	RHOST	remotehost3				
	ARHOST					
	LPORT	1500	RPORT	3000		
	ISTRMS	2	OSTRMS	2	BUFSIZE	200
	RMODE	LIN	RMIN	120	RMAX	800
	RTIMES	10	CWMIN	3000	UAPS	10
	OPEN	YES	ALW	YES	RTXTHR	
2000						
	RHOSTVAL	RELAXED	M2PATSET	1		
	T 037					
	LSN					
	e5e6a					

IP Appl Sock/Assoc table is (7 of 4000) 1% full Assoc Buffer Space Used (700 KB of 6400 KB) on LOC = 1205

rtrv-assoc:aname=assoc1

This is an example of the possible output.

rlghncxa03w 09-05-28 21:14:37 GMT EAGLE5 41.0.0

ANAME	assoc1					
	LOC	1201	IPLNK PORT	A	LINK	A
	ADAPTER	M3UA	VER	M3UA RFC		
	LHOST	m3ua1				
	ALHOST					
	RHOST	remote1				
	ARHOST					
	LPORT	2000	RPORT	1030		
	ISTRMS	2	OSTRMS	2	BUFSIZE	200
	RMODE	LIN	RMIN	120	RMAX	800
	RTIMES	10	CWMIN	3000	UAPS	10
	OPEN	NO	ALW	YES	RTXTHR	0
	RHOSTVAL	RELAXED				
	LSN					
	ipsgm3ua1	L				

IP Appl Sock/Assoc table is (7 of 4000) 1% full Assoc Buffer Space Used (400 KB of 6400 KB) on LOC = 1201 $\,$

rtrv-assoc:aname=swbel32

This is an example of the possible output.

rlghncxa03w 09-05-28 21:14:37 GMT EAGLE5 41.0.0

ANAME	swbel32					
	LOC	1201	IPLNK PORT	A	LINK	A
	ADAPTER	M3UA	VER	M3UA RFC		
	LHOST	m3ua1				
	ALHOST					
	RHOST	remote1				
	ARHOST					
	LPORT	1030	RPORT	2345		
	ISTRMS	2	OSTRMS	2	BUFSIZE	200
	RMODE	LIN	RMIN	120	RMAX	800
	RTIMES	10	CWMIN	3000	UAPS	10
	OPEN	NO	ALW	YES	RTXTHR	0
	RHOSTVAL	RELAXED				
	LSN					
	ipsgm3ua1	1				

IP Appl Sock/Assoc table is (7 of 4000) 1% full Assoc Buffer Space Used (400 KB of 6400 KB) on LOC = 1201 $\,$

7. To change the bufsize value for the associations shown in 6, the new bufsize parameter value must be greater than or equal to the cwmin parameter value.

The cwmin parameter is the number if bytes specified for the association's congestion window. The bufsize is the number of kilobytes specified for the size of the association's buffer. To determine whether or not the cwmin value is less than or equal to the bufsize value, perform one of these actions.

- Multiply the bufsize value by 1024.
- Divide the cwmin value by 1024.

Continue the procedure by performing one of these actions.

- If the new bufsize value is greater than or equal to the cwmin value, continue the procedure with 8.
- If the new bufsize value is not greater than or equal to the cwmin value, either choose another value for the bufsize parameter that is greater than or equal to the cwmin value, or perform the Changing the Attributes of an IPSG Association procedure to change the bufsize value so that the bufsize value is greater than or equal to the cwmin value. After the new bufsize value has been chosen or the cwmin value has been changed, continue the procedure with 8.
- 8. Change the size of the buffers for one or more of the associations displayed in 6 to allow the buffer of the association displayed in 4 to be changed.

Enter the chg-assoc command with the bufsize parameter. For this example, enter this command.

```
chg-assoc:aname=assoc3:bufsize=100
```

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

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 CHG-ASSOC: MASP A - COMPLTD;
```

9. To change the bufsize value for the association shown in 4, the new bufsize parameter value must be greater than or equal to the cwmin parameter value.

The <code>cwmin</code> parameter is the number if bytes specified for the association's congestion window. The <code>bufsize</code> is the number of kilobytes specified for the size of the association's buffer. To determine whether or not the <code>cwmin</code> value is less than or equal to the <code>bufsize</code> value, perform one of these actions.

- Multiply the bufsize value by 1024.
- Divide the cwmin value by 1024.

Continue the procedure by performing one of these actions.

- If the new bufsize value is greater than or equal to the cwmin value, continue the procedure with 10.
- If the new bufsize value is not greater than or equal to the cwmin value, either choose another value for the bufsize parameter that is greater than or equal to the cwmin value, or perform the Changing the Attributes of an IPSG Association procedure to change the bufsize value so that the bufsize value is greater than or equal to the cwmin value. After the new bufsize



value has been chosen or the cwmin value has been changed, continue the procedure with 10.

10. Change the association using the chg-assoc command.

For this example, enter these commands.

```
chg-assoc:aname=assoc2:bufsize=400
chg-assoc:aname=assoc1:bufsize=400
```

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

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 CHG-ASSOC: MASP A - COMPLTD;
```

If the value of the open parameter was not changed in 3, continue the procedure with 12.

If the value of the open parameter was changed in 3, continue the procedure with 11.

11. Change the value of the open parameter to yes by specifying the chg-assoc command with the open-yes parameter.

For this example, enter this command.

```
chg-assoc:aname=assoc2:open=yes
chg-assoc:aname=assoc1:open=yes
```

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

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 CHG-ASSOC: MASP A - COMPLTD;
```

12. Verify the changes using the rtrv-assoc command specifying the association name specified in 10 and 11.

For this example, enter these commands.

```
rtrv-assoc:aname=assoc2
```

This is an example of possible output.

RTIMES	10	CWMIN	3000	UAPS	10
OPEN	NO	ALW	YES	RTXTHR	2000
RHOSTVAL	RELAXED	M2PATSET	1		

```
ANAME assoc2
                       IPLNK PORT A
    LOC
           1205
                                          LINK A
    ADAPTER M2PA
                       VER M2PA RFC
    LHOST IPNODE2-1205
    ALHOST ---
           remotehost1
    RHOST
    ARHOST ---
    LPORT 2048
                       RPORT
                                 2048
    ISTRMS
                       OSTRMS
                                 2
                                          BUFSIZE 400
    RMODE
            LIN
                       RMIN
                                 120
                                          RMAX
                                                 800
```



```
RTIMES 10
                            CWMIN
                                       3000
                                                  UAPS
                                                          10
                                                          2000
      OPEN
              YES
                                       YES
                                                  RTXTHR
                            ALW
      RHOSTVAL RELAXED
                            M2PATSET
      LSN
      e5e6a
IP Appl Sock/Assoc table is (7 of 4000) 1% full
Assoc Buffer Space Used (800 KB of 6400 KB) on LOC = 1205
```

For this example, enter these commands.

```
rtrv-assoc:aname=assoc1
```

rlghncxa03w 09-05-28 21:14:37 GMT EAGLE5 41.0.0

ANAME	assoc1					
	LOC	1201	IPLNK PORT	А	LINK	A
	ADAPTER	M3UA	VER	M3UA RFC		
	LHOST	m3ua1				
	ALHOST					
	RHOST	remote1				
	ARHOST					
	LPORT	2000	RPORT	1030		
	ISTRMS	2	OSTRMS	2	BUFSIZE	400
	RMODE	LIN	RMIN	120	RMAX	800
	RTIMES	10	CWMIN	3000	UAPS	10
	OPEN	YES	ALW	YES	RTXTHR	0
	RHOSTVAL	RELAXED				
	LSN					
	ipsgm3ua1	L				

```
IP Appl Sock/Assoc table is (7 of 4000) 1% full
Assoc Buffer Space Used (600 KB of 6400 KB) on LOC = 1201
```

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

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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

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

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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

If you wish to change the other attributes of the IPSG association, perform one of these procedures.

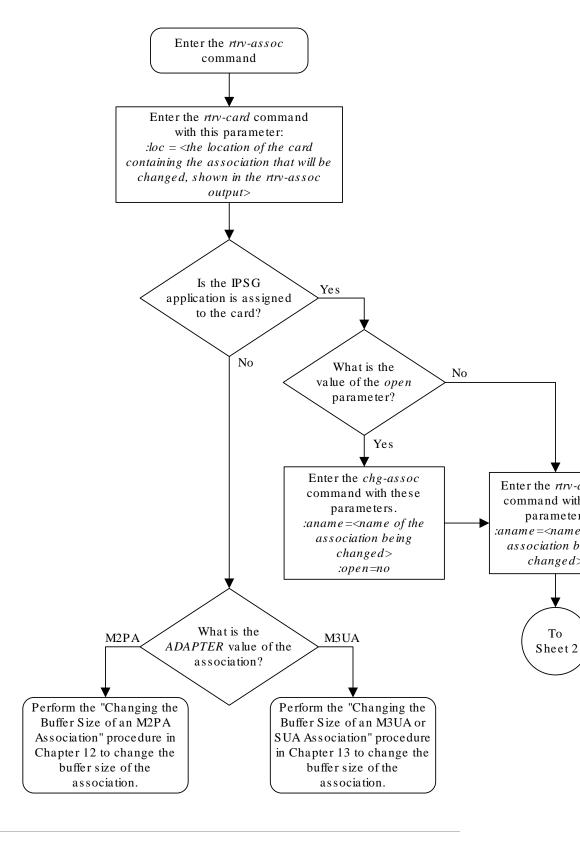
lhost and alhost - Changing the Host Values of an IPSG Association

 Other attributes of the IPSG Association - Changing the Attributes of an IPSG Association

If you do not wish to change the other attributes of the IPSG association, this procedure is finished.

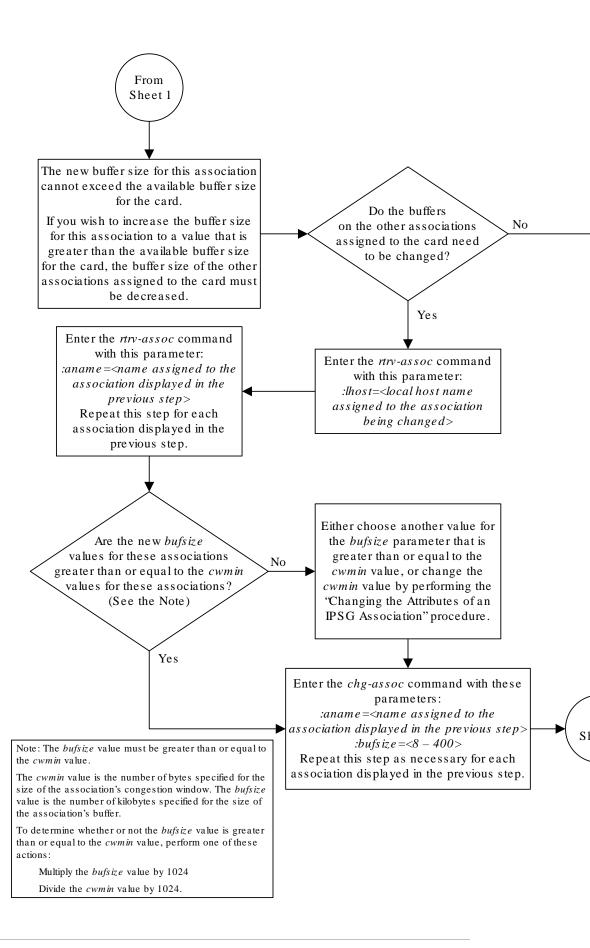


Figure 6-28 Changing the Buffer Size of an IPSG Association



Sheet 1 of 4

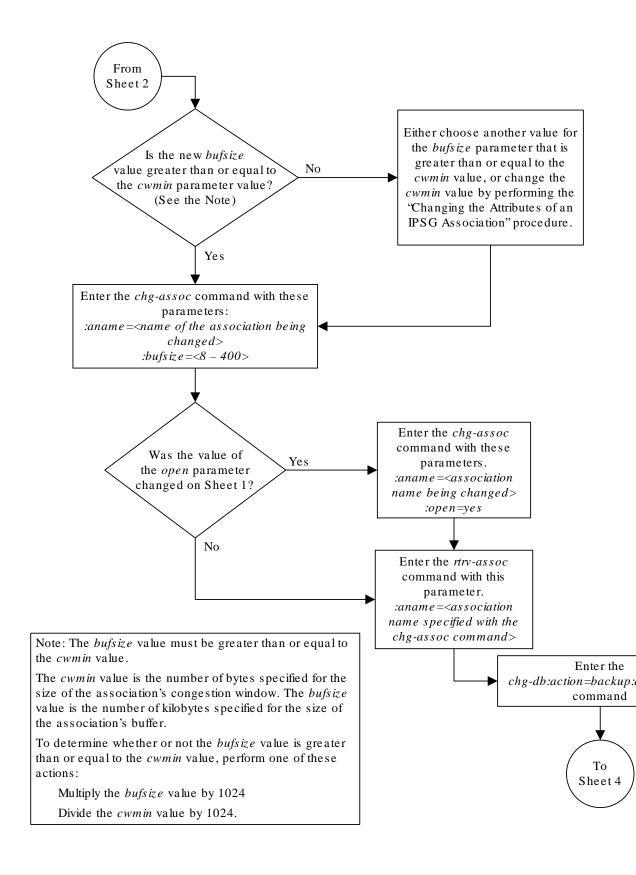






Sheet 2 of 4

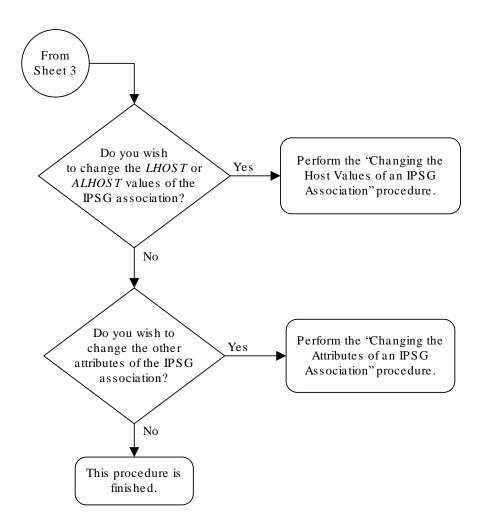






Sheet 3 of 4





Sheet 4 of 4

Changing the Host Values of an IPSG Association

This procedure is used to change the host values of an **IPSG** association, assigned to E5-ENET cards that are running the IPSG application, IPSG cards, using the <code>chg-assoc</code> command.

If you wish to change the host values of M2PA associations assigned to cards that are running the IPLIM or IPLIMI applications, perform the Changing the Host Values of a M2PA Association procedure.

If you wish to change the host values of M3UA associations assigned to cards that are running the SS7IPGW or IPGWI applications, perform the Changing the Host Values of a M3UA or SUA Association procedure.

These parameters of the chg-assoc command are used in this procedure:

- : aname The name assigned to the association, shown in the rtrv-assoc output.
- : lhost The host name for the local host, shown in the rtrv-ip-host output.
- :lport The SCTP port number for the local host.
- :alhost The alternate local host name, shown in the rtrv-ip-host output.
- :adapter The adapter layer for this association, m2pa or m3ua.
- :open The connection state for this association. Valid values are yes or no. When the open=yes parameter is specified, the connection manager opens the association if the association is operational. When the open=no parameter is specified, the connection manager will not open the association. If the open=no parameter is specified for an established IPSG M3UA association, and the UA Graceful Shutdown option is enabled (refer to Changing a UA Parameter Set for more information), the IPSG M3UA connection will be gracefully shutdown.
- :m2patset The M2PA timer set assigned to the association. The m2patset parameter can be specified only with the adapter=m2pa parameter, or if the association already has the adapter=m2pa parameter assigned and the adapter parameter value is not being changed. If the adapter parameter value is being changed to m2pa, and the m2patset parameter is not specified, the default value for the m2patset parameter (1 M2PA timer set 1) is assigned to the association. If the adapter parameter value for the association is m2pa, is not being changed, and the m2patset parameter is not specified with the chg-assoc command, the m2patset parameter value is not changed.
- : ver- The M2PA version assigned to the M2PA association, either the RFC version (ver=rfc), or the Draft 6 version (ver=d6). The ver parameter can be specified only if, when this procedure is completed, the adapter parameter value is m2pa. If the adapter parameter value is being changed to m2pa, and the ver parameter is not specified, the default M2PA version of RFC is assigned to the association. To change the ver parameter value, the open parameter value for the association must be no.
- : uaps The UA parameter set value being assigned to an M2PA or an M3UA association.

The chg-assoc command contains other parameters that are not used in this procedure. To change these parameters, perform these procedures.



- bufsize Changing the Buffer Size of an IPSG Association
- Other attributes of the IPSG association Changing the Attributes of an IPSG Association

At least one optional parameter must be specified.

The command input is limited to 150 characters, including the hostnames.

The **EAGLE** can contain a maximum of 4000 connections.

A maximum of 32 associations can be assigned to an IPSG card running on an E5-ENET/E5--ENET-B card or DEIR card.

An IPSG application running on the SLIC card can contain a maximum of 128 associations.

Before the local host value of the IPSG association can be changed, the signaling link that the association is assigned to must be removed by performing one of these procedures.

- If the ADAPTER value of the association is M2PA, perform the Removing an IPSG M2PA Signaling Link procedure.
- If the ADAPTER value of the association is M3UA, perform the Removing an IPSG M3UA Signaling Link procedure.

Uni-homed endpoints are associations configured with the <code>lhost</code> parameter only. The <code>lhost</code> parameter value represents an <code>IP</code> address that corresponds to either the A or B network interface of the <code>IPSG</code> card. Multi-homed endpoints are associations configured with both the <code>lhost</code> and <code>alhost</code> parameters. The <code>lhost</code> parameter value represents an <code>IP</code> address corresponding to one of the network interfaces (A or B) of the <code>IPSG</code> card while the <code>alhost</code> parameter value represents an <code>IPSG</code> address corresponding to the other network interface of the same <code>IPSG</code> card.

The alhost=none parameter removes the alternate local host from the specified association, which also removes the multi-homed endpoint capability.

Canceling the RTRV-ASSOC Command

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

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



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

1. Display the associations in the database using the rtrv-assoc command.

This is an example of possible output.

rlghncxa03w 08-04-28 09:12:36 GMT EAGLE5 38.0.0

	CARD	IPLNK						
ANAME	LOC	PORT	LINK	ADAPTER	LPORT	RPORT	OPEN	ALW
swbel32	1201	A	A	M3UA	1030	2345	YES	YES
a2	1305	A	A	SUA	1030	2345	YES	YES
a3	1307	A	A	SUA	1030	2346	YES	YES
assoc1	1201	A	A	M3UA	2000	1030	YES	YES
assoc2	2105	A	A	M2PA	2048	2048	YES	YES
assoc3	2105	A	В2	M2PA	3000	3000	YES	YES
assoc5	2105	A	A3	M2PA	1500	3000	YES	YES

2. Enter the rtrv-card command with the location of the card that is hosting the IPSG association that will be changed in this procedure. For this example, enter this command.

```
rtrv-card:loc=2105
```

This is an example of possible output.

```
rlghncxa03w 08-04-06 15:17:20 EST EAGLE5 38.0.0

CARD TYPE APPL LSET NAME LINK SLC LSET NAME LINK SLC 2105 ENET IPSG e5e6a A 0 e5e6a B2 1 e5e6a A3 2
```

If the application assigned to the card is IPSG, shown in the APPL column, continue the procedure by performing one of these steps.

- If the open parameter value for the association being changed is yes, continue the procedure with 3.
- If the open parameter value for the association being changed is no, continue the procedure with Oracle.

If the application assigned to the card is IPLIM or IPLIMI, perform the Changing the Host Values of a M2PA Association procedure.

If the application assigned to the card is SS7IPGW or IPGWI, perform the Changing the Host Values of a M3UA or SUA Association procedure.

3. Change the value of the open parameter to no by specifying the chg-assoc command with the open=no parameter.

For this example, enter this command.

```
chg-assoc:aname=assoc2:open=no
```

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

```
rlghncxa03w 08-04-28 09:12:36 GMT EAGLE5 38.0.0 CHG-ASSOC: MASP A - COMPLTD;
```



4. Display the association being changed by entering the rtrv-assoc command with the aname parameter specified in 3.

For this example, enter this command.

```
rtrv-assoc:aname=assoc2
```

This is an example of the possible output.

```
rlghncxa03w 10-07-28 21:14:37 GMT EAGLE5 42.0.0
ANAME assoc2
                          IPLNK PORT A, B
      LOC
              2105
                                              LINK A
      ADAPTER M2PA
                          VER
                                   M2PA RFC
      LHOST IPNODE2-1205
      ALHOST M2PA1
      RHOST gw200.nc-Oracle.com
      ARHOST ---
                          RPORT
      LPORT
             2048
                                     2048
      ISTRMS 2
                          OSTRMS
                                     2
                                               BUFSIZE 400
                                     120
                                                       800
      RMODE LIN
                          RMIN
                                               RMAX
      RTIMES 10
                          CWMIN
                                     3000
                                               UAPS
                                                       10
                                     YES
                                               RTXTHR
                                                       2000
      OPEN
             NO
                          ALW
      RHOSTVAL RELAXED
                          M2PATSET
                                     1
      LSN
      e5e6a
IP Appl Sock/Assoc table is (8 of 4000) 1% full
```

Continue the procedure by performing one of these actions.

Assoc Buffer Space Used (800 KB of 6400 KB) on LOC = 2105

- If the association does not have an ALHOST value, continue the procedure with 5.
- If the association does have an ALHOST value, and the ALHOST value will be removed along with changing the LHOST value of the association, continue the procedure with 5.
- If the association does have an ALHOST value, and the only action that will be
 performed in this procedure is to remove the ALHOST value from the
 association, continue the procedure with 11.
- 5. Verify that the local host name to be assigned to the association is in the database by entering the rtrv-ip-host:display=all command.

The following is an example of the possible output.

rlghncxa03w 13-06-28 21:15:37 GMT EAGLE5 45.0.0

```
LOCAL IPADDR LOCAL HOST
192.1.1.10 IPNODE1-1201
192.1.1.12 GW105. NC. Oracle. COM
192.1.1.14 IPNODE1-1205
192.1.1.20 IPNODE2-1201
192.1.1.22 IPNODE2-1203
```



```
192.1.1.24
            IPNODE2-1205
192.1.1.30
             KC-HLR1
192.1.1.32
              KC-HLR2
192.1.1.50
             DN-MSC1
192.1.1.52
             DN-MSC2
192.1.1.54
             M2PA1
REMOTE IPADDR REMOTE HOST
150.1.1.5
              NCDEPTECONOMIC DEVELOPMENT. SOUTHEASTERN COORIDOR ASHVL.
GOV
IP Host table is (12 of 4096) .29% full
```

If the required IP host is shown in the rtrv-ip-host output, continue the procedure with 7.

If the required IP host is not shown in the rtrv-ip-host output, continue the procedure with 6.

6. Display the **IP** links in the database by entering the rtrv-ip-lnk command.

The following is an example of the possible output.

IP-LNK table is (20 of 2048) 1% full.

rlghno	cxa03w	<i>i</i> 08-12-28 21:14:	:37 GMT EAGLE5 40	0.0.0				
LOC	PORT	IPADDR	SUBMASK	DUPLEX	SPEED	${\tt MACTYPE}$	AUTO	
MCAST								
1201	A	192.1.1.20			100	DIX	NO	NO
1201	В			HALF	10	DIX	NO	NO
1303	A		255.255.255.128		10	802.3	NO	NO
1303	В			HALF	10	DIX	NO	NO
1305	A	192.1.1.12				DIX	YES	NO
1305	В			HALF	10	DIX	NO	NO
1313	A	192.1.1.14	255.255.255.0	FULL	100	DIX	NO	NO
1313	В			HALF	10	DIX	NO	NO
2103	A		255.255.255.0		100	DIX	NO	NO
2103	В			HALF	10	DIX	NO	NO
2105	A	192.1.1.24	255.255.255.0	FULL	100	DIX	NO	NO
2105	В	192.1.1.54	255.255.255.0	FULL	100	DIX	NO	NO
2205	A		255.255.255.0		100	DIX	NO	NO
2205	В			HALF	10	DIX	NO	NO
2207	A		255.255.255.0		100	DIX	NO	NO
2207	В			HALF	10	DIX	NO	NO
2213	A		255.255.255.0		100	DIX	NO	NO
2213	В			HALF	10	DIX	NO	NO
2301	A	192.1.1.52	255.255.255.0	FULL	100	DIX	NO	NO
2301	В			HALF	10	DIX	NO	NO

If the required **IP** link, one that contains the desired **IP** address, is not shown in the rtrv-ip-lnk output, add the **IP** link using the Configuring an IP Link procedure. After the **IP** link has been added, assign the **IP** address of the **IP** link to the **IP** host name using the Adding an IP Host procedure.

If the required **IP** link is shown in the rtrv-ip-lnk output, but the IP host is not shown in the rtrv-ip-host output in 5, assign the **IP** address of the **IP** link to the **IP** host name using the Adding an IP Host procedure.

Note:

Thertrv-ip-host output must contain a host name for the association'slhost parameter and a host name for the association'salhost parameter, if thealhost parameter will be specified for the association. The IP address of the IP link should be assigned to the host name, shown in thertrv-ip-host output, that will be used as the association'slhost parameter value. If thealhost parameter will be specified for the association, the IP address of the IP link must be assigned to the host name that will be used as thealhost parameter value. The IP links associated with the association'slhost andalhost values must be assigned to the same card.

After the new IP host has been added, continue the procedure by performing one of these steps.

- If the ADAPTER value of the association is not being changed, continue the procedure with 11.
- If the ADAPTER value of the association is being changed, continue the procedure by performing one of these steps.
 - If the ADAPTER value of the association is being changed to M2PA, perform one of these steps.
 - * If the m2patset, ver, and uaps parameters will not be specified for the association, continue the procedure with 11.
 - * If the m2patset and ver parameters will be specified for the association, continue the procedure with 9.
 - * If only the uaps parameter will be specified for the association, continue the procedure with 10.
 - If the ADAPTER value of the association is being changed to M3UA, perform one of these steps.
 - * If the uaps parameter will not be specified for the association, continue the procedure with 11.
 - * If the uaps parameter will be specified for the association, continue the procedure with 10.
- Display the associations that are assigned to the new local host by entering the rtrv-assoc command with the name of the new local host. For this example, enter this command.

```
rtrv-assoc:lhost="IPNODE2-1201"
```

The following is an example of the possible output.

```
rlghncxa03w 08-04-19 21:17:04 GMT EAGLE5 38.0.0 CARD IPLNK
```



```
ANAME LOC PORT LINK ADAPTER LPORT RPORT OPEN ALW swbel32 1201 A A M3UA 1030 2345 YES YES assoc1 1201 A A M3UA 2000 1030 YES YES

IP Appl Sock/Assoc table is (7 of 4000) 1% full
Assoc Buffer Space Used (400 KB of 6400 KB) on LOC = 1201
```

A maximum of 32 associations can be assigned to a local host. If 32 associations are shown in this steps, repeat this procedure from 5 and choose another local host.

If the number of associations shown in this step is less than 32, continue the procedure with 8.

8. Before the local host of the association can be changed, the association cannot be assigned to a signaling link.

If dashes are shown in the LINK column of the rtrv-assoc output in 1, the association is not assigned to a signaling link.

If the association is assigned to a signaling link, perform one of these procedures.

- If the ADAPTER value of the association is M2PA, perform the Removing an IPSG M2PA Signaling Link procedure.
- If the ADAPTER value of the association is M3UA, perform the Removing an IPSG M3UA Signaling Link procedure.

After the signaling link has been removed, or if the association is not assigned to a signaling link, continue the procedure by performing one of these steps.

- If the ADAPTER value of the association is not being changed, continue the procedure with 11.
- If the ADAPTER value of the association is being changed, continue the procedure by performing one of these steps.
 - If the ADAPTER value of the association is being changed to M2PA, perform one
 of these steps.
 - * If the m2patset, ver, and uaps parameters will not be specified for the association, continue the procedure with 11.
 - * If the m2patset and ver parameters will be specified for the association, continue the procedure with 9.
 - * If only the uaps parameter will be specified for the association, continue the procedure with 10.
 - If the ADAPTER value of the association is being changed to M3UA, perform one
 of these steps.
 - * If the uaps parameter will not be specified for the association, continue the procedure with 11.
 - * If the uaps parameter will be specified for the association, continue the procedure with 10.
- 9. Verify the values of the M2PA timer set you wish to assign to the association by entering the rtrv-m2pa-tset command with the M2PA version (either ver=rfc to display the RFCM2PA timer values or ver=d6 to display the Draft 6 M2PA timer values) of the timer set you wish to assign to the association.



If the ver parameter is not specified with the rtrv-m2pa-tset command, both the RFC and Draft 6 timer values are displayed.

To display the **M2PA** Draft 6 timer values, enter this command.

rtrv-m2pa-tset:ver=d6

This is an example of the possible output.

rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0

M2PA Draft 6 Timers (in msec, T16 in microsec)

112111	DIGIC	J IIIICI.	J (±11 1		110 11	I MICI	3500)				
TSET 1 2	6000	T2 	5000	T4N 20000 2000	T4E 500 500	T5 5000 9000	T6 4000 1250	1000	T16 100000 150000	150	T18 500 600
3	100000		2000	3000	500	4000	1500	500	170000	200	800
4 5 8000					500 500	6000 100	2000 2250		480000 400000		900
6 7000	50000		50000	60000	500	500	4500	800	300000	300	
7 1000	10000		10000	10000	500	1000	3000	1200	200000	250	
8 5000	80000		1500	15000	500	8000	2750	1100	350000	350	
9 8750	27500		3850	4859	450	5700	3750	1150	250	375	
10 3000	90000		2500	50000	500	7500	5000	1750	440000	450	
11 4500	20000		4500	5500	500	6500	5500	1600	250000	475	
12 3500	30000		7500	7000	500	750	4250	1800	275000	275	
13 9000	40000		35000	9000	500	1250	3500	1900	500	325	
14 6000	70000		45000	11000	500	1500	1750	900	1000	125	
15 5500	9000		25000	40000	500	2500	3250	600	5000	425	
16 9500	75000		15000	25000	500	4500	1600	1400	6000	240	
17 10000			60000	70000	600	10000	6000	2000	500000	500	
18 19	150000					3500 1100		1500 1300	125000 7000		750 850
20				1000		80		200	100		100

To display the **M2PARFC** values, enter this command.

rtrv-m2pa-tset:ver=rfc

This is an example of the possible output.

rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0



```
M2PA RFC Timers (in msec, T16 in microsec)
TSET T1
            T2
                    Т3
                           T4N
                                 T4E
                                      Т5
                                             Т6
                                                  Т7
                                                         T16
                                                                T17
                                                                      T18
1
     6000
             75000
                    5000
                           20000 500
                                       5000
                                             4000 1000
                                                         100000 150
                                                                      500
2
     7500
            8000
                    1500
                           2000
                                 500
                                       9000
                                             1250 300
                                                         150000 175
                                                                      600
     100000 10000
3
                    2000
                           3000
                                 500
                                       4000
                                             1500 500
                                                         170000 200
                                                                      800
                                      6000
     200000 6000
                    20000 4000
                                             2000 700
                                                         480000 225
                                                                      900
4
                                 500
     250000 140000 30000 30000 500
                                      100
                                             2250 400
                                                         400000 400
                                                                      8000
5
6
     50000 100000 50000 60000 500
                                       500
                                             4500 800
                                                         300000 300
                                                                      7000
7
     300000 20000
                    2000
                          10000 500
                                      1000
                                             3000 1200
                                                         200000 250
                                                                      1000
8
     80000
            130000 1500
                          15000 500
                                       8000
                                             2750 1100
                                                         350000 350
     27500
            120000 3850
                           4859
                                       5700
                                             3750 1150
                                                         250
                                                                375
                                                                      8750
9
                                 450
10
     90000
            9000
                    2500
                           50000 500
                                       7500
                                             5000 1750
                                                         440000 450
                                                                      3000
11
     20000
            60000
                    4500
                           5500
                                 500
                                       6500
                                             5500 1600
                                                         250000 475
                                                                      4500
     30000
            50000
                    7500
                           7000
                                             4250 1800
12
                                 500
                                       750
                                                         275000 275
                                                                      3500
            90000
                    35000 9000
13
     40000
                                 500
                                      1250
                                             3500 1900
                                                         500
                                                                325
                                                                      9000
            45000
14
     70000
                    45000 11000 500
                                      1500
                                             1750 900
                                                         1000
                                                                125
                                                                      6000
     9000
            30000
                    25000 40000 500
                                      2500
                                             3250 600
                                                         5000
15
                                                                425
                                                                      5500
16
     75000 15000 15000 25000 500
                                      4500
                                             1600 1400
                                                         6000
                                                                240
                                                                      9500
17
     350000 150000 60000 70000 600
                                       10000 6000 2000
                                                         500000 500
                                                                      10000
18
     150000 20000
                    55000 35000 500
                                       3500
                                             5750 1500
                                                         125000 440
                                                                      750
19
     175000 12500
                    12500 45000 500
                                      1100
                                             2600 1300
                                                         7000
                                                                340
                                                                      850
```

If the ver parameter is not specified when entering the rtrv-m2pa-tset command, both the Draft 6 and **RFC** values are displayed. This is an example of the possible output.

1000 200

1000 1000

```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0
M2PA Draft 6 Timers (in msec, T16 in microsec)
TSET T1
                    Т3
                          T4N
                                T4E
                                      Т5
                                            Т6
                                                 Т7
                                                        T16
                                                               T17
                                                                    T18
            T2
1
     6000
            ---- 5000
                          20000 500
                                      5000
                                            4000 1000
                                                       100000 150
                                                                     500
2
     7500
            ---- 1500
                          2000
                                500
                                      9000
                                            1250 300
                                                                     600
                                                        150000 175
3
     100000 ----- 2000
                          3000
                                500
                                      4000
                                            1500 500
                                                        170000 200
                                                                     800
     200000 ----- 20000 4000
                                      6000
                                            2000 700
                                                                     900
4
                                500
                                                        480000 225
5
     250000 ----- 30000 30000 500
                                      100
                                            2250 400
                                                        400000 400
                                                                     8000
     50000
            ---- 50000 60000 500
                                      500
                                            4500 800
                                                        300000 300
                                                                    7000
6
7
     10000
            ----- 10000 10000 500
                                      1000
                                            3000 1200
                                                        200000 250
                                                                     1000
     80000
                          15000 500
                                      8000
                                            2750 1100
                                                        350000 350
                                                                     5000
8
            ----- 1500
     27500
                                      5700
                                            3750 1150
9
            ---- 3850
                          4859
                                450
                                                        250
                                                               375
                                                                     8750
10
     90000
            ---- 2500
                          50000 500
                                      7500
                                            5000 1750
                                                        440000 450
                                                                     3000
11
     20000
            ---- 4500
                          5500
                                500
                                      6500
                                            5500 1600
                                                        250000 475
                                                                     4500
12
     30000
            ---- 7500
                          7000
                                500
                                      750
                                            4250 1800
                                                        275000 275
                                                                     3500
13
     40000
            ---- 35000 9000
                                500
                                      1250
                                            3500 1900
                                                        500
                                                               325
                                                                     9000
14
     70000
            ---- 45000 11000 500
                                      1500
                                            1750 900
                                                        1000
                                                               125
                                                                     6000
15
     9000
            ---- 25000 40000 500
                                      2500
                                            3250 600
                                                        5000
                                                               425
                                                                     5500
16
     75000
            ----- 15000 25000 500
                                      4500
                                            1600 1400
                                                        6000
                                                               240
                                                                     9500
17
     350000 ----- 60000 70000 600
                                      10000 6000 2000
                                                        500000 500
                                                                    10000
18
     150000 ----- 55000 35000 500
                                      3500
                                            5750 1500
                                                        125000 440
                                                                     750
19
     175000 ----- 12500 45000 500
                                            2600 1300
                                                        7000
                                                                    850
                                      1100
                                                               340
20
     1000
            ----- 1000 1000
                                400
                                      80
                                            1000 200
                                                        100
                                                               100
                                                                    100
```

$lackbox{A}$

Caution:

Changing an M2PA timer set may affect the performance of any associations using the timer set being changed.

If the M2PA timer set you wish to assign to the association does not contain the desired values, go to the Changing an M2PA Timer Set procedure and changed the desired timer values.

After the M2PA timer set values have been changed, of if you do not wish to change any of the M2PA timer set values, continue the procedure by performing one of these steps.

• If the uaps parameter will not be specified for the association, continue the procedure with 11.

- If the uaps parameter will be specified for the association, continue the procedure with 10.
- 10. Verify the values of the **UA** parameter set you wish to assign to the association by entering the rtrv-uaps command with the desired parameter set.

For this example, enter this command.

rtrv-uaps:set=3

This is an example of possible output.

rlghncxa03w 10-07-28 09:12:36 GMT EAGLE5 42.0.0 SET TIMER TVALUE PARM PVALUE

TIMER 2: False IP Connection Congestion Timer, max time an association can be congested before failing due to false congestion. SS7IPGW and IPGWI applications enforce 0-30000 (ms). Not supported on IPSG application.

TVALUE : Valid range = 32-bits

TIMER 3: UA HeartBeat Period Timer T(beat), time (ms) between sending of BEAT msgs by NE. IPSG, SS7IPGW and IPGWI applications enforce 100(ms)-60000(ms).

TVALUE: Valid range = 32-bits

TIMER 4: UA HeartBeat Received Timer T(beat ack), timeout period for response BEAT ACK msgs by NE. IPSG, SS7IPGW and IPGWI applications enforce $100\,(\text{ms})-10000\,(\text{ms})$.

TVALUE: Valid range = 32-bits

PARM 1: ASP SNM options. Each bit is used as an enabled/disabled flag for a particular ASP SNM option. Not supported on IPSG application.

PVALUE : Valid range = 32-bits

BIT VALUE

0=Broadcast 0=Disabled , 1=Enabled 1=Response Method 0=Disabled , 1=Enabled

2-5=Reserved

6=Broadcast Congestion Status Change 0=Disabled , 1=Enabled 7-31=Reserved

PARM 2: ASP/AS Notification options. Each bit is used as an enabled/disabled flag for a particular ASP/AS Notification option. Not supported on IPSG application.

PVALUE : Valid range = 32-bits

```
BIT
                                                  BIT VALUE
             0=ASP Active Notifications
                                                  0=Disabled,
1=Enabled
            1=ASP Inactive Notifications
                                                  0=Disabled,
1=Enabled
             2=ASP AS State Query
                                                  0=Disabled ,
1=Enabled
             3-31=Reserved
    PARM 3: UA Serviceability Options. Each bit is used as an
             enabled/disabled flag for a particular UA
Serviceability
             option. Supported on IPSG, SS7IPGW, and IPGWI
applications.
             UA Graceful Shutdown supported on IPSG for M3UA only.
    PVALUE : Valid range = 32-bits
            ВТТ
                                                  BIT VALUE
             0=UA Heartbeats
                                                  0=Disabled ,
1=Enabled
            1=UA Graceful Shutdown
                                                  0=Disabled ,
1=Enabled
             2-31=Reserved
    PARM 4: SCTP Payload Protocol Indicator byte order option. Bit
indicates
             PPI value is RCV/TX in Big Endian or Little Endian
byte format.
             Supported on IPSG-M2PA associations only.
    PVALUE : Valid range = 32-bits
                                               BIT VALUE
             0=Payload Protocol Indicator
                                               0=Big Endian ,
1=Little Endian
             1-31=Reserved
```

If you do not wish to change the UA parameter set values, continue the procedure with **11**.

If the **UA** parameter set you wish to assign to the association does not contain the desired values, go to the Changing a UA Parameter Set procedure and change the desired parameter set values. After the UA parameter set values have been changed, continue the procedure with 11.



Caution:

Changing aUA parameter set may affect the performance of any associations using the parameter set being changed.

11. Change the association using the chg-assoc command.

For this example, enter this command.

chg-assoc:aname=assoc2:lhost=m2pa2:alhost=m2pa3

Note:

See (Sheet 7) for the rules that apply to the chg-assoc command.

These are the rules that apply to changing the host values of an IPSG association.

- If any optional parameters are not specified with the chg-assoc command, those values are not changed.
- The EAGLE can contain a maximum of 4000 connections.
- The host of an IPSG association can contains a maximum of 32 IPSG associations.
- The value of the lhost parameters is a text string of up to 60 characters, with the first character being a letter. The command input is limited to 150 characters, including the hostnames.
- Specifying the lhost parameter only creates a uni-homed endpoint. The network portion of the endpoint's IP address must be the same as the network portion of the IP address assigned to either the A or B network interface of the IP card.
- Specifying the lhost and alhost parameters creates a multi-homed endpoint. The
 network portion of the IP address associated with the lhost parameter must be the
 same as the network portion of the IP address assigned to one of the network
 interfaces (A or B) of the IP card, and the network portion of the IP address
 associated with the alhost parameter must be the same as the network portion of
 the IP address assigned to the other network interface on the IP card.
- The alhost=none parameter removes the alternate local host from the specified association, which also removes the multi-homed endpoint capability.
- The m2patset and ver parameters can be specified only for IPSG M2PA associations.
- If the mp2atset parameter is not specified with the chg-assoc command, and the adapter parameter value is being changed to m2pa, the m2patset parameter value defaults to M2PA timer set 1 (m2patset=1).
- The M2PA version of the association determines the version of the M2PA timer set that is assigned to the association. For example, if M2PA timer set 3 is assigned to the M2PA association, and the association is an RFC M2PA association, the RFC version of M2PA timer set 3 is used with the association. If M2PA timer set 7 is assigned to the M2PA association, and the association is a Draft 6 M2PA association, the Draft 6 version of M2PA timer set 7 is used with the association.
- If the adapter parameter value of the association is changed to m2pa in this procedure and the ver parameter is not specified, the version of the association will be RFC. To make this association a M2PA Draft 6 association, the ver=d6 parameter must be specified for this association.

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

rlghncxa03w 08-04-28 09:12:36 GMT EAGLE5 38.0.0 CHG-ASSOC: MASP A - COMPLTD;

Continue the procedure by performing one of these steps.



- If the association was not assigned to a signaling link when this procedure was started, and the open parameter value was not changed in 3, continue the procedure with Oracle.
- If the association was not assigned to a signaling link when this procedure was started, and the open parameter value was changed in 3, continue the procedure with 12.
- If the association was assigned to a signaling link when this procedure was started, continue the procedure with 12.
- **12.** Assign the association to a signaling link by performing one of these procedures.

If the ADAPTER value of the association is M2PA, perform the Adding an IPSG M2PA Signaling Link procedure.

If the ADAPTER value of the association is M3UA, perform the Adding an IPSG M3UA Signaling Link procedure.

After the association has been assigned to a signaling link, continue the procedure with one of these steps.

- If the open parameter value was not changed in 3, continue the procedure with Oracle.
- If the open parameter value was changed in 3, continue the procedure with 13
- **13.** Change the value of the open parameter to yes by specifying the chg-assoc command with the open=yes parameter.

For this example, enter this command.

```
chg-assoc:aname=assoc2:open=yes
```

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

```
rlghncxa03w 08-04-28 09:12:36 GMT EAGLE5 38.0.0
CHG-ASSOC: MASP A - COMPLTD;
```

14. Verify the changes using the rtrv-assoc command specifying the association name specified in 11 and 13.

For this example, enter this command.

```
rtrv-assoc:aname=assoc2
```

This is an example of possible output.

rlghncz	ka03w 10-	07-28 21:14:37	GMT EAGLE5	42.0.0		
ANAME	assoc2					
	LOC	2107	IPLNK PORT	А,В	LINK	
	ADAPTER	M2PA	VER	M2PA RFC		
	LHOST	M2PA2				
	ALHOST	M2PA3				
	RHOST	gw200.nc-teke	lec.com			
	ARHOST					
	LPORT	2048	RPORT	2048		
	ISTRMS	2	OSTRMS	2	BUFSIZE	400
	RMODE	LIN	RMIN	120	RMAX	800
	RTIMES	10	CWMIN	3000	UAPS	10



```
OPEN
              NO
                           ALW
                                      YES
                                                RTXTHR
                                                        2000
      RHOSTVAL RELAXED
                           M2PATSET
                                      1
      LSN
      e5e6a
IP Appl Sock/Assoc table is (8 of 4000) 1% full
Assoc Buffer Space Used (200 KB of 6400 KB) on LOC = 2107
rlghncxa03w 09-05-28 21:14:37 GMT EAGLE5 41.0.0
ANAME assoc2
                          IPLNK PORT A,B
      LOC
              2107
                                               LINK --
      ADAPTER M2PA
                          VER M2PA RFC
      LHOST M2PA2
      ALHOST M2PA3
      RHOST gw200.nc-tekelec.com
      ARHOST ---
      LPORT 2048
                          RPORT
                                      2048
      ISTRMS 2
                           OSTRMS
                                      2
                                                BUFSIZE 400
      RMODE LIN
                          RMIN
                                      120
                                                RMAX
                                                        800
      RTIMES 10
                          CWMIN
                                      3000
                                               M2PATSET 1
      OPEN
                                      YES
                                                RTXTHR 2000
             NO
                           ALW
      RHOSTVAL RELAXED
      LSN
      e5e6a
IP Appl Sock/Assoc table is (8 of 4000) 1% full
```

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

Assoc Buffer Space Used (200 KB of 6400 KB) on LOC = 2107

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

```
BACKUP (FIXED): MASP A - Backup starts on active MASP.

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

BACKUP (FIXED): MASP A - Backup starts on standby MASP.

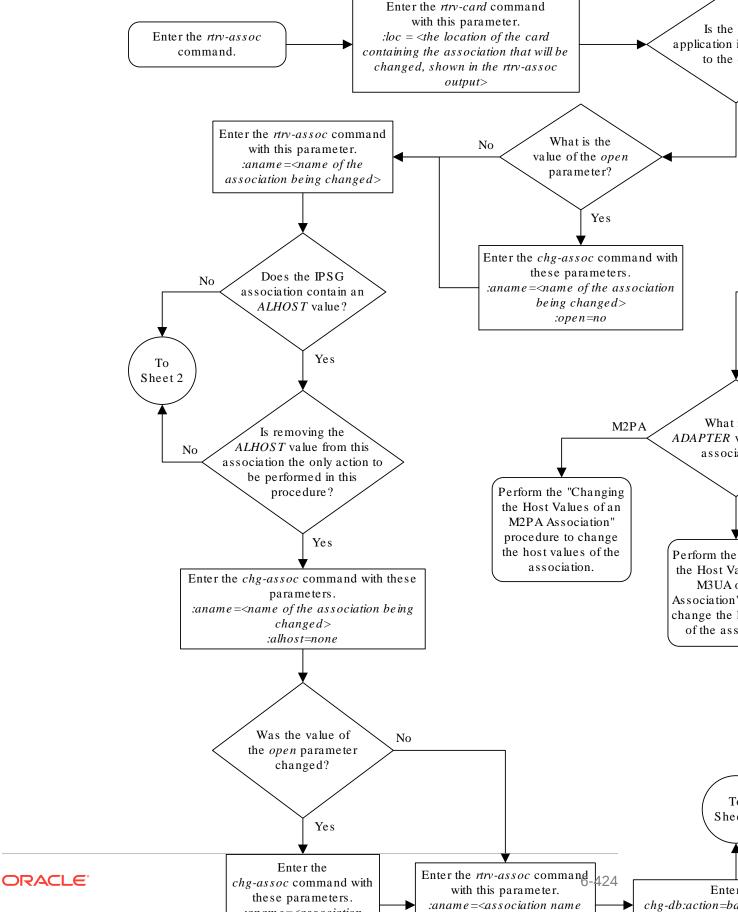
BACKUP (FIXED): MASP A - Backup on standby MASP to fixed disk complete.
```

If you wish to change the other attributes of the IPSG association, perform one of these procedures.

- bufsize Changing the Buffer Size of an IPSG Association
- Other attributes of the IPSG Association Changing the Attributes of an IPSG Association

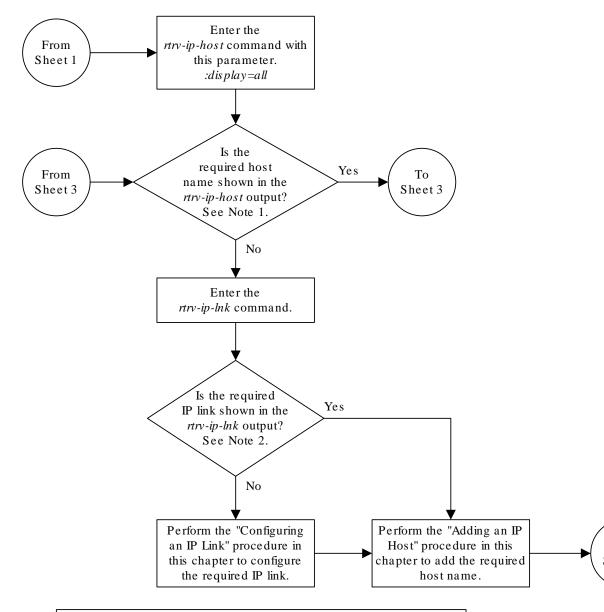
If you do not wish to change the other attributes of the IPSG association, this procedure is finished.

Figure 6-29 Changing the Host Values of an IPSG Association



Sheet 1 of 6





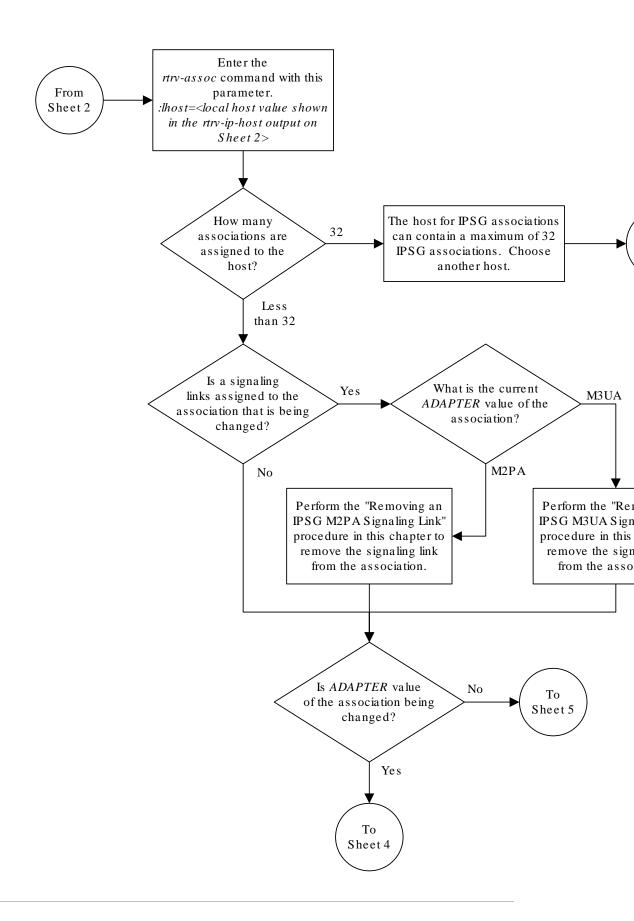
Notes:

- 1. The *rtrv-ip-host* output must contain a host name for the association's *lhost* parameter and a host name for the association's *alhost* parameter, if the *alhost* parameter will be specified for the association.
- 2. The IP address of the IP link should be assigned to the host name, shown in the rtrv-ip-host output, that will be used as the association's lhost parameter value. If the alhost parameter will be specified for the association, the IP address of the IP link must be assigned to the host name that will be used as the alhost parameter value. The IP links associated with the association's lhost and alhost values must be assigned to the same card.



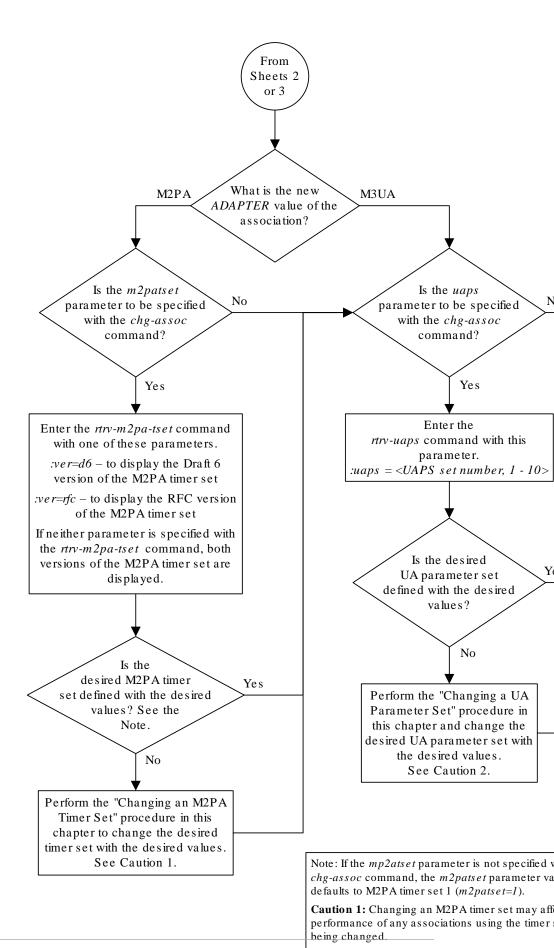
Sheet 2 of 6





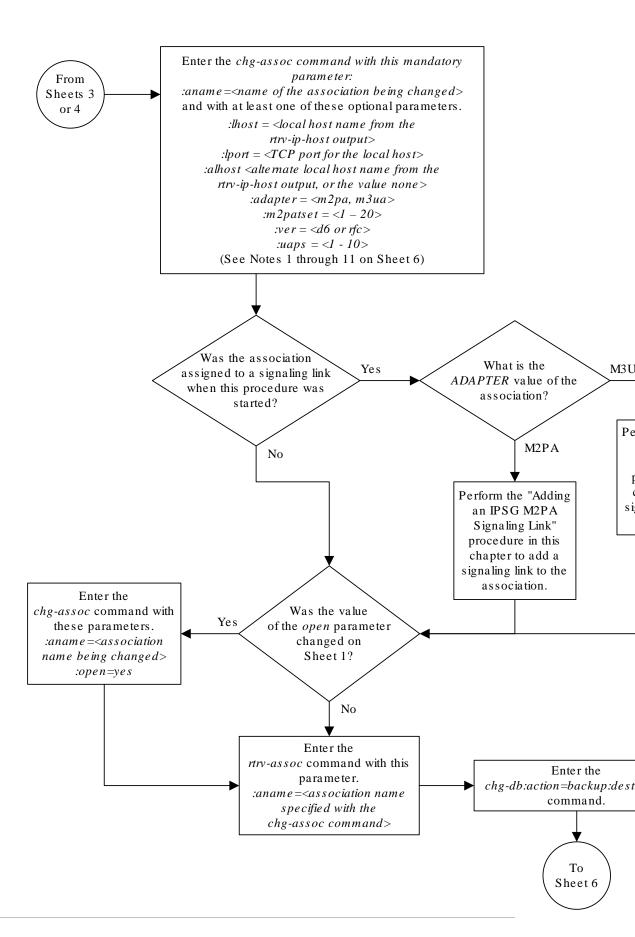
Sheet 3 of 6





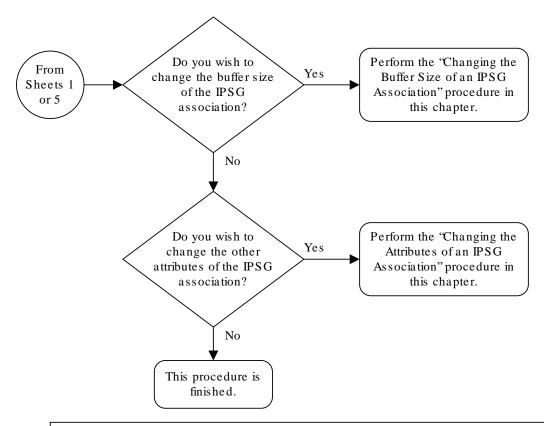
Sheet 4 of 6





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Notes:

- 1. If any optional parameters are not specified with the chg-assoc command, those values are not changed.
- 2. The EAGLE 5 ISS can contain a maximum of 4000 connections.
- 3. The host of an IPSG association can contains a maximum of 32 IPSG associations.
- 4. The value of the *lhost* and *rhost* parameters is a text string of up to 60 characters, with the first character being a The command input is limited to 150 characters, including the hostnames
- 5. Specifying the *lhost* parameter only creates a uni-homed endpoint. The network portion of the endpoint's IP add must be the same as the network portion of the IP address assigned to either the A or B network interface of the IP
- 6. Specifying the *lhost* and *alhost* parameters creates a multi-homed endpoint. The network portion of the IP address associated with the *lhost* parameter must be the same as the network portion of the IP address assigned to one of network interfaces (A or B) of the IP card, and the network portion of the IP address associated with the *alhost* paramust be the same as the network portion of the IP address assigned to the other network interface on the IP card.
- 7. The *alhost=none* parameter removes the alternate local host from the specified association, which also removes multi-homed endpoint capability.
- 8. The *m2patset* and *ver* parameters can be specified only for IPSG M2PA associations.
- 9. If the *mp2atset* parameter is not specified with the *chg-assoc* command, and the *adapter* parameter value is being changed to *m2pa*, the *m2patset* parameter value defaults to M2PA timer set 1 (*m2patset=1*).
- 10. The M2PA version of the association determines the version of the M2PA timer set that is assigned to the association for example, if M2PA timer set 3 is assigned to the M2PA association, and the association is an RFC M2PA association. If M2PA timer set 7 is assigned to the M2PA association, and the association is a Draft 6 M2PA association, the Draft 6 version of M2PA timer set 7 is used with association.
- 11. If the adapter parameter value of the association is changed to m2pa in this procedure and the ver parameter is specified, the version of the association will be RFC. To make this association a M2PA Draft 6 association, the ver-parameter must be specified for this association.



Sheet 6 of 6

Configuring an IPSG Association for SCTP Retransmission Control

This procedure is used to gather the information required to configure the retransmission parameters for M2PA or M3UA associations assigned to cards running the IPSG application. Perform the Configuring SCTP Retransmission Control for a M2PA Association procedure to configure the retransmission parameters for M2PA associations assigned to IPLIMx cards. Perform the Configuring SCTP Retransmission Control for a M3UA or SUA Association procedure to configure the retransmission parameters for M3UA associations assigned to IPLIMx cards. If any assistance is needed to configure the retransmission parameters for associations, contact My Oracle Support (MOS).

The retransmission parameters are configured using the rmode, rmin, rmax, rtimes, and cwmin parameters of the chg-assoc command.

 $: {\tt rmode}$ — The retransmission mode used when packet loss is detected. The values are ${\tt rfc}$ or ${\tt lin}$.

- rfc Standard RFC 2960 algorithm in the retransmission delay doubles after each retransmission. The RFC 2960 standard for congestion control is also used.
- lin Oracle's linear retransmission mode where each retransmission timeout value is
 the same as the initial transmission timeout and only the slow start algorithm is used for
 congestion control.
- : rmin The minimum value of the calculated retransmission timeout in milliseconds.
- : rmax The maximum value of the calculated retransmission timeout in milliseconds.

Note:

The rmin and rmax parameter values form a range of retransmission values. The value of the rmin parameter must be less than or equal to the rmax parameter value.

: rtimes - The number of times a data retransmission occurs before closing the association.

: cwmin – The minimum size in bytes of the association's congestion window and the initial size in bytes of the congestion window.

The Changing the Attributes of an IPSG Association procedure is used to change the values of these parameters. In addition to using the Changing the Attributes of an IPSG Association procedure, these pass commands are also used in this procedure.

- ping tests for the presence of hosts on the network.
- assocrtt displays the SCTP round trip times for a specified association. Minimum, maximum, and average times are kept for each open association. The Retransmission Mode (RFC or LIN) and the configured Minimum and Maximum Retransmission Timeout limits are also displayed.



- sctp provides a summary list of all SCTP instances.
- sctp -a <association name> displays the measurements and information for a specific association.



The values for the minimum and maximum retransmission times in the output from this command are shown in microseconds.

For more information on the pass commands, see Commands User's Guide.

The chg-assoc command contains other optional parameters that can be used to configure an association. These parameters are not shown here because they are not necessary for configuring the **SCTP** retransmission parameters. These parameters are explained in more detail in the Changing the Attributes of an IPSG Association procedure, or in the and chg-assoc command description in *Commands User's Guide*.

Canceling the RTRV-ASSOC Command

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

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

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

Display the associations in the database using the rtrv-assoc command.
 This is an example of possible output.

rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0

	CARD	IPLNK						
ANAME	LOC	PORT	LINK	ADAPTER	LPORT	RPORT	OPEN	ALW
swbel32	1201	A	A	M3UA	1030	2345	YES	YES
a2	1305	A	A	SUA	1030	2345	YES	YES
a3	1307	A	A	SUA	1030	2346	YES	YES
assoc1	1201	A	A	M2PA	2000	1030	YES	YES



2. Enter the rtrv-card command with the location of the card that is hosting the M2PA association that will be changed in this procedure. For this example, enter this command.

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

This is an example of possible output.

```
rlghncxa03w 08-03-06 15:17:20 EST EAGLE5 38.0.0

CARD TYPE APPL LSET NAME LINK SLC LSET NAME LINK SLC

1201 DCM IPLIM lsn1 A 0
```

If the application assigned to the card is IPSG, shown in the APPL column, continue the procedure with 3.

If the application assigned to the card is IPLIM or IPLIMI, perform the Configuring SCTP Retransmission Control for a M2PA Association procedure.

If the application assigned to the card is SS7IPGW or IPGWI, perform the Configuring SCTP Retransmission Control for a M3UA or SUA Association procedure.

3. Display the association that will be changed by entering the rtrv-assoc command with the name of the association. For this example, enter this command.

```
rtrv-assoc:aname=assoc1
```

This is an example of the possible output.

```
rlghncxa03w 10-07-28 21:14:37 GMT EAGLE5 42.0.0
ANAME assoc1
      LOC
            1201
                         IPLNK PORT A
                                             LINK A
     ADAPTER M2PA
                         VER M2PA RFC
      LHOST IPNODE2-1205
      ALHOST
      RHOST gw100.nc.tekelec.com
      ARHOST ---
             2000
                                   1030
      LPORT
                         RPORT
      ISTRMS 2
                         OSTRMS
                                   2
                                             BUFSIZE 400
      RMODE LIN
                         RMIN
                                   120
                                             RMAX
                                                     800
      RTIMES 10
                         CWMIN
                                   3000
                                             UAPS
                                                     10
      OPEN
             NO
                         ALW
                                   YES
                                             RTXTHR
                                                     2000
      RHOSTVAL RELAXED
                         M2PATSET
```

```
IP Appl Sock/Assoc table is (8 of 4000) 1% full Assoc Buffer Space Used (1600 KB of 1600 KB) on LOC = 1201
```

4. Enter the ping pass command specifying the card location of the local host, shown in 3, and the name of the remote host assigned to the association being changed, shown in 3.

This command is entered several times to obtain the average round trip time. For this example, enter this command.

```
pass:loc=1201:cmd="ping gw100.nc.tekelec.com"
```

The following is an example of the possible output

rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0



```
PASS: Command sent to card

rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0

PING command in progress

rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0

PING GW100. NC. TEKELEC. COM (192.1.1.30): 56 data bytes
64 bytes from tekral.nc.tekelec.com (192.1.1.30): icmp_seq=0.

time=5. ms
64 bytes from tekral.nc.tekelec.com (192.1.1.30): icmp_seq=1.

time=9. ms
64 bytes from tekral.nc.tekelec.com (192.1.1.30): icmp_seq=2.

time=14. ms
----tekral PING Statistics----
3 packets transmitted, 3 packets received, 0% packet loss
round-trip (ms) min/avg/max = 5/9/14

PING command complete
```

If the **SCTP** retransmission parameters are not to be changed, do not perform 5 through 8. This procedure is finished.

- 5. Perform the Changing the Attributes of an IPSG Association procedure to change the retransmission parameters of the association based on the results of pinging the remote host.
- 6. Enter the assocrtt pass command to display the round trip time data collected after an association is established when an SCTP INIT message is sent and an acknowledgment is received.

The assocrtt command is entered with the card location from 4 (the card location assigned to the association being changed), and the name of the association being changed. This association must contain the host name used in 4. For this example, enter this command.

```
pass:loc=1201:cmd="assocrtt assoc1"
```

The following is an example of the possible output

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0

PASS: Command sent to card

rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0

ASSOCRTT: Association round-trip time report (in milliseconds)

Retransmission Configuration
   Retransmission Mode : LIN
   Minimum RTO: 120
   Maximum RTO: 800

Traffic Round-Trip Times

Minimum round-trip time : 5
   Maximum round-trip time : 120
   Weighted Average round-trip time : 10
```



```
Last recorded round-trip time : 10

Measured Congested Traffic Round-Trip Times

Minimum round-trip time : 0

Maximum round-trip time : 0

Weighted Average round-trip time : 0

Last recorded round-trip time : 0

;
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0

ASSOCRTT command complete
```

 Enter the sctp -a <association name> pass command to determine if retransmissions have occurred.

The association name is the association name specified in 6. Specify the card location used in 6. For this example, enter this command.

```
pass:loc=1201:cmd="sctp -a assoc1"
```

The following is an example of the possible output

rlghncxa03w 10-12-28 21:15:37 GMT EAGLE5 43.0.0

Aname	Local	Local	Remote	Remote	
	IP Address	Port	Address	Port	
Assoc1	192.168.110.12	2222	192.168.112.4	5555	
	192.168.112.12				

```
Configuration
                                                 State
       Retransmission Mode = LIN
                                   State = OPEN
Min. Retransmission Timeout = 10
                                       ULP association id = 18
Max. Retransmission Timeout = 800
                                       Number of nets = 2
    Max. Number of Retries = 10
                                       Inbound Streams = 1
   Min. Congestion Window = 3000
                                       Outbound Streams = 2
           Inbound Streams = 2
          Outbound Streams = 2
        Checksum Algorithm = crc32c
      Send/Rcv Buffer Size = 204800
```

Nets Data

IP Address	192.168.112.4	State	Reachable
Port	7777	Primary	YES
MTU	1500	cwnd	16384
ssthresh	16384	RTO	120
IP Address	192.168.113.5	State	Reachable
Port	7777	Primary	NO
MTU	1 5 0 0		16384
	1500	cwnd	10304
ssthresh	16384	RTO	120

Last Net Sent To = 192.168.112.4Last Net Rcvd From = 192.168.112.4Over All Eror Count = 0

```
Peers Rwnd = 13880
                             My Rwnd = 16384
                          Max Window = 16384
                  Initial Seq Number = 24130
            Next Sending Seq Number = 124686
               Last Acked Seq Number = 124669
        Maximum Outbound Char Count = 16384
        Current Outbound Char Count = 2112
           Number Unsent Char Count = 0
          Outbound Data Chunk Count = 16
                      Number Unsent = 0
                Number To Retransmit = 0
                  ip datagrams rcvd = 155402
 ip datagrams with data chunks rcvd = 120844
                  data chunks rcvd = 367908
                   data chunks read = 367900
                      dup tsns rcvd = 8
                         sacks rcvd = 38734
                gap ack blocks rcvd = 3
           heartbeat requests rcvd = 135
                heartbeat acks rcvd = 52
           heartbeat requests sent = 52
                  ip datagrams sent = 129254
ip datagrams with data chunks sent = 73084
                   data chunks sent = 396330
        retransmit data chunks sent = 135
                         sacks sent = 64872
                        send failed = 0
             retransmit timer count = 0
    consecutive retransmit timeouts = 0
RTT between RMIN and RMAX inclusive = 6
              RTT greater than RMAX = 0
              fast retransmit count = 135
                   recv timer count = 0
              heartbeat timer count = 244
                  none left tosend = 0
               none left rwnd gate = 5
                none left cwnd gate = 8
;
    rlghncxa03w 10-12-28 21:15:37 GMT EAGLE5 43.0.0
    SCTP command complete
    rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
   Aname
                    Local
                                    Local Remote
                                                            Remote
                    IP Address
                                    Port Address
                                                            Port
   Assoc1
                    192.168.110.12 2222 192.168.112.4
                     192.168.112.12
```



```
Configuration
                                                  State
       Retransmission Mode = LIN
                                       State = OPEN
Min. Retransmission Timeout = 10
                                        ULP association id = 18
Max. Retransmission Timeout = 800
                                        Number of nets = 2
    Max. Number of Retries = 10
                                        Inbound Streams = 1
   Min. Congestion Window = 3000
                                        Outbound Streams = 2
           Inbound Streams = 2
          Outbound Streams = 2
                             Nets Data
                     192.168.112.4
        IP Address
                                                  Reachable
                                        State
              Port
                      7777
                                        Primary
                                                   YES
               МТП
                      1500
                                           cwnd
                                                    16384
          ssthresh
                      16384
                                           RTO
                                                    120
                    192.168.113.5
        IP Address
                                         State
                                                    Reachable
              Port
                    7777
                                       Primary
                                                  NO
                      1500
                                                   16384
               MTU
                                           cwnd
           ssthresh
                      16384
                                            RTO
                                                    120
                   Last Net Sent To = 192.168.112.4
                 Last Net Rcvd From = 192.168.112.4
                Over All Eror Count = 0
                         Peers Rwnd = 13880
                            My Rwnd = 16384
                         Max Window = 16384
                 Initial Seq Number = 24130
            Next Sending Seg Number = 124686
              Last Acked Seg Number = 124669
        Maximum Outbound Char Count = 16384
        Current Outbound Char Count = 2112
           Number Unsent Char Count = 0
          Outbound Data Chunk Count = 16
                      Number Unsent = 0
               Number To Retransmit = 0
                 ip datagrams rcvd = 155402
ip datagrams with data chunks rcvd = 120844
                  data chunks rcvd = 367908
                  data chunks read = 367900
                     dup tsns rcvd = 8
                        sacks rcvd = 38734
               gap ack blocks rcvd = 3
           heartbeat requests rcvd = 135
               heartbeat acks rcvd = 52
           heartbeat requests sent = 52
                 ip datagrams sent = 129254
ip datagrams with data chunks sent = 73084
                  data chunks sent = 396330
       retransmit data chunks sent = 135
                        sacks sent = 64872
                       send failed = 0
            retransmit timer count = 0
```

```
consecutive retransmit timeouts = 0

RTT between RMIN and RMAX inclusive = 6

RTT greater than RMAX = 0

fast retransmit count = 135

recv timer count = 0

heartbeat timer count = 244

none left tosend = 0

none left rwnd gate = 5

none left cwnd gate = 8

SCTP command complete
```

8. Perform the Changing the Attributes of an IPSG Association procedure to change the retransmission parameters of the association based on the results of the outputs of 6 and 7.

The Weighted Average round-trip time shown in the assocrtt pass command output in 6, and the data retransmission counts shown in the sctp-a pass command output in 7 are used as a guide to determine the appropriate values for the rmode, rmin, rmax, and rtimes parameters. If the retransmission parameters do not have to be adjusted, do not perform this step. This procedure is finished.



Enter the rtrv-card command with this parameter: Enter the rtrv-assoc :loc = <the location of the cardcommand containing the M2PA or M3UA association that is being changed, shown in the rtrv-assoc output> Is the IPSG Yes No application is assigned to the card? Enter the rtrv-assoc command with this What is the M2PA parameter: ADAPTER value of the :aname =<the name of the IPSG association? association that is being changed> M3UA Enter the Perform the "Adding an Perfe pass:loc=<card location of the M2PA M3UA or SUA Association association that is being changed> for SCTP Retransmission Retra :cmd="ping <remote host name>" Control" procedure in proce command several times and ping the Chapter 4 to configure the col remote host (the RHOST value in the SCTP retransmission control re tra n previous step) to determine the for the association. expected round trip time. Perform the "Changing the Attributes of an IPSG Do the retransmission Association" procedure in Yes

this chapter to change the

retransmission parameters based on the results of pinging the remote host.

To

Sheet 2

Figure 6-30 Configuring an IPSG Association for SCTP Retransmission Control

parameter values need to

be changed?

This procedure is

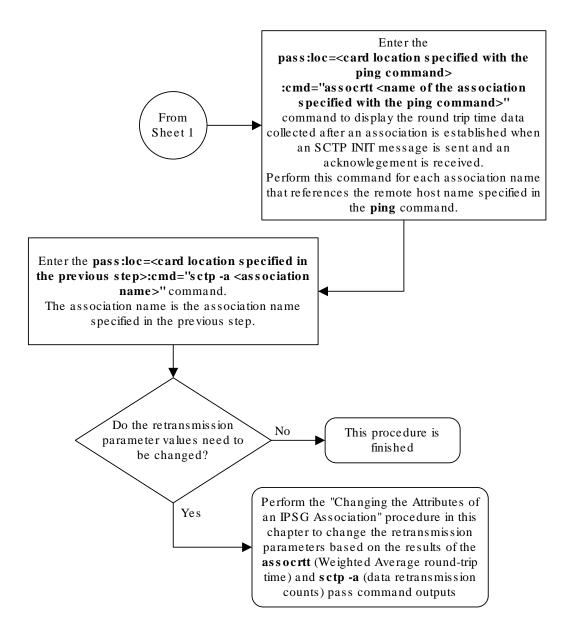
finished

No



Sheet 1 of 2







Sheet 2 of 2

Changing the SCTP Checksum Algorithm Option for IPSG M2PA Associations

Use this procedure to change the SCTP checksum algorithm, either Adler-32 or CRC-32c, applied to traffic on SCTP associations. The sctpcsum parameter of the chg-sg-opts command is used to change this option. The Adler-32 and CRC-32c checksum algorithms specified in this procedure applies to all the M2PA associations that are assigned to all the IP cards running the IPSG application. This option is a system-wide option. To apply this option to associations assigned to cards running the IPLIM, IPLIMI, SS7IPGW, or IPGWI applications, or to IPSG M3UA associations, perform these procedures.

- Changing the SCTP Checksum Algorithm Option for M3UA and SUA Associations
- Changing the SCTP Checksum Algorithm Option for M2PA Associations
- Changing the SCTP Checksum Algorithm Option for IPSG M3UA Associations

The sctpcsum parameter contains another value, percard, that allows either the Adler-32 or CRC-32c SCTP checksum algorithm to be specified for the all the associations assigned to a specific card. With this option specified, the Adler-32 checksum algorithm can be specified for the associations on one card and the CRC-32c checksum algorithm can be specified for the associations on another card. Setting the sctpcsum parameter to percard changes the SCTP checksum algorithm for the associations assigned to a card to the SCTP checksum algorithm value for that card. The checksum algorithm for individual cards is provisioned by performing the Configuring an IP Link procedure.

Once the **SCTP** checksum option has been changed, the associations on each **IP** card need to be reset by changing the open parameter value for each association to no, then back to yes. This ensures that the associations on the **IP** card are using the new **SCTP** checksum algorithm.

Canceling the RTRV-ASSOC Command

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

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



command. The user's permissions can be verified with the rtrv-user or rtrv-secu-user commands.

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

1. Display the current IP options in the database by entering the rtrv-sg-opts command. The following is an example of the possible output.

```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0 SCTPCSUM: adler32
```

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

2. Display the cards in the **EAGLE** by entering the rtrv-card command. This is an example of the possible output.

rlghnc	xa03w 09-1	0-15 16:34	:56 GMT EAGLE5	41.0	.0			
CARD	TYPE	APPL	LSET NAME	LINK	SLC	LSET NAME	LINK	SLC
1101	DSM	VSCCP						
1102	TSM	GLS						
1113	GSPM	EOAM						
1114	TDM-A							
1115	GSPM	EOAM						
1116	TDM-B							
1117	MDAL							
1201	LIMDS0	SS7ANSI	lsn1	A	0	lsn2	В	1
1202	DCM	IPLIM	ipnode2	A	1			
1203	LIMDS0	SS7ANSI	lsn2	A	0	lsn1	В	1
1204	LIMATM	ATMANSI	atmgwy	A	0			
1205	DCM	IPLIM	ipnode1	A	0	ipnode3	В	1
1207	DCM	IPLIM	ipnode2	A	0			
1303	DCM	IPLIM	ipnode3	A	0	ipnode1	В	1
1305	DCM	IPLIM	ipnode4	A	0			
1308	ENET	IPSG	ipnode3	В	2			
			ipnode1	A1	2	ipnode4	В2	1
1315	DCM	SS7IPGW	ipgtwy1	A				
1317	DCM	IPGWI	ipgtwy2	A				

Record the card location, shown in the LOC column, and signaling link, shown in the LINK column, information for all cards running the **IPSG** application.

3. Select one of the IPSG cards shown in 2. Display the associations assigned to the IPSG card by entering the rrtrv-assoc command and specifying the card location of the IPSG card. For this example, enter this command.

```
rtrv-assoc:loc=1308
```

The following is an example of the possible output.

```
rlghncxa03w 08-04-28 09:12:36 GMT EAGLE5 38.0.0 CARD IPLNK
```



ANAME	LOC	PORT	LINK	ADAPTER	LPORT	RPORT	OPEN	ALW
assoc2	1308	A	A1	M2PA	2187	1025	YES	YES
assoc4	1308	A	В	M2PA	3290	1025	YES	YES
assoc5	1308	A	В2	M2PA	1057	1025	YES	YES
IP Appl Sock/Ass	soc tak	ole is	(9 01	E 4000) 1	l% fuli	L		
Assoc Buffer Spa	ace Use	-d (600) KB (of 3200 F	KB) on	$I_1 \cap C_1 =$	1308	

If the ADAPTER value of the associations shown in the rtrv-assoc output is M2PA, continue the procedure with 4.

If the ADAPTER value of the associations shown in the rtrv-assoc output is M3UA, do not perform the remainder of this procedure. Perform the Changing the SCTP Checksum Algorithm Option for IPSG M3UA Associations procedure to change the SCTP checksum algorithm for IPSG M3UA associations.

4. Change the **SCTP** checksum option in the database using the <code>chg-sg-opts</code> command. For this example, enter this command.

```
chg-sg-opts:sctpcsum=crc32c
```

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

```
rlghncxa03w 06-10-28 21:19:37 GMT EAGLE5 36.0.0 CHG-SG-OPTS: MASP A - COMPLTD
```

Continue the procedure by performing one of these actions.

- If the sctpcsum parameter value was changed to either adler32 or crc32c, continue the procedure with 5.
- If the sctpcsum parameter value was changed to percard, perform the Configuring an IP Card procedure to assign an sctpcsum parameter value to all the cards containing IPSG M2PA associations. After the Configuring an IP Card procedure has been performed, continue the procedure with 6.
- 5. Verify that the SCTP checksum algorithm was changed using the rtrv-sg-opts command. The SCTP checksum algorithm option value is shown in the SCTPCSUM parameter. The following is an example of the possible output.

```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0 SCTPCSUM: crc32c
```

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

6. Place the signaling links assigned to the IPSG card out of service using the dact-slk command, specifying the LOC and LINK values shown in 3. For this example, enter these commands.

```
dact-slk:loc=1308:link=a1
dact-slk:loc=1308:link=b
```



```
dact-slk:loc=1308:link=b2
```

When these commands have successfully completed, this message appears.

```
rlghncxa03w 06-10-12 09:12:36 GMT EAGLE5 36.0.0 Deactivate Link message sent to card
```

7. Change the value of the open parameter of the associations shown in 3 to no by specifying the chg-assoc command with the open-no parameter. For this example, enter this command.

```
chg-assoc:aname=assoc2:open=no
chg-assoc:aname=assoc4:open=no
chg-assoc:aname=assoc5:open=no
```

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

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 CHG-ASSOC: MASP A - COMPLTD;
```

8. Change the value of the open parameter of the associations changed in 7 to yes by specifying the chg-assoc command with the open=yes parameter. For this example, enter this command.

```
chg-assoc:aname=assoc2:open=yes
chg-assoc:aname=assoc4:open=yes
chg-assoc:aname=assoc5:open=yes
```

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

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 CHG-ASSOC: MASP A - COMPLTD;
```

9. Verify the checksum algorithm that is assigned to the associations shown in 8 by entering the sctp -a pass command with the card location of the **IP** card specified in 6 and the name of the associations specified in 8. For this example, enter this command.

```
pass:loc=1308:cmd="sctp -a assoc2 "
```

The following is an example of the possible output.

```
rlghncxa03w 10-12-28 21:16:37 GMT EAGLE5 43.0.0
   Aname
                 Local Local Primary
                                                         Remote
                  IP Address
                                  Port Address
                                                         Port
                                 2187 192.168.112.4 1025
                  192.1.1.24
   assoc2
                   192.1.1.24
             Configuration
                                                  State
       Retransmission Mode = LIN
                                      State = OPEN
Min. Retransmission Timeout = 10000
                                      ULP association id = 18
Max. Retransmission Timeout = 800000
                                     Number of nets = 2
    Max. Number of Retries = 10
                                      Inbound Streams = 1
   Min. Congestion Window = 3000
                                      Outbound Streams = 2
          Inbound Streams = 2
```



```
Outbound Streams = 2
Checksum Algorithm = crc32c
Send/Rcv Buffer Size = 204800
```

Nets Data

```
192.168.112.4
                                     Reachable
IP Address
                            State
            1025
     Port
                           Primary
                                     YES
            1500
                                      16384
      MTU
                              cwnd
  ssthresh
            16384
                               RTO
                                      120
IP Address 192.168.112.5
Port 7777
                            State
                                      Reachable
                           Primary
                                      NO
          1500
      MTU
                               cwnd
                                       16384
          16384
                                      120
 ssthresh
                               RTO
         Last Net Sent To = 192.168.112.4
```

Last Net Sent To = 192.168.112.4 Last Net Revd From = 192.168.112.4

Over All Eror Count = 0

Peers Rwnd = 13880

My Rwnd = 16384

Max Window = 16384

Initial Seq Number = 24130

Next Sending Seq Number = 124686

Last Acked Seq Number = 124669

Maximum Outbound Char Count = 16384

Current Outbound Char Count = 2112

Number Unsent Char Count = 0

Outbound Data Chunk Count = 16

Number Unsent = 0

Number To Retransmit = 0

ip datagrams rcvd = 155402

ip datagrams with data chunks rcvd = 120844

data chunks rcvd = 367908

data chunks read = 367900

dup tsns rcvd = 8

sacks rcvd = 38734

gap ack blocks rcvd = 3

heartbeat requests rcvd = 135

heartbeat acks rcvd = 52

heartbeat requests sent = 52

ip datagrams sent = 129254

ip datagrams with data chunks sent = 73084

data chunks sent = 396330

retransmit data chunks sent = 135

sacks sent = 64872

send failed = 0

retransmit timer count = 0

consecutive retransmit timeouts = 0

RTT between RMIN and RMAX inclusive = 6

RTT greater than RMAX = 0

fast retransmit count = 135

recv timer count = 0



```
heartbeat timer count = 244
                 none left tosend = 0
              none left rwnd gate = 5
               none left cwnd gate = 8
;
   rlghncxa03w 10-12-28 21:16:37 GMT EAGLE5 43.0.0
   SCTP command complete
   rlghncxa03w 08-04-28 21:16:37 GMT EAGLE5 38.0.0
                        Local Primary
   Aname
                  Local
                  IP Address
                                  Port
                                          Address
                  192.1.1.24
                                  2187 192.168.112.4 1025
   assoc2
                  192.1.1.24
             Configuration
                                                 State
       Retransmission Mode = LIN
                                 State = OPEN
Min. Retransmission Timeout = 10
                                    ULP association id = 18
Max. Retransmission Timeout = 800
                                   Number of nets = 2
    Max. Number of Retries = 10
                                     Inbound Streams = 1
   Min. Congestion Window = 3000
                                    Outbound Streams = 2
          Inbound Streams = 2
         Outbound Streams = 2
 Checksum Algorithm = crc32c
                             Nets Data
       IP Address 192.168.112.4
                                    State
                                              Reachable
             Port 1025
                                   Primary
                                              YES
             MTU 1500
                                      cwnd 16384
         ssthresh 16384
                                       RTO
                                              120
       State
                                              Reachable
                                    Primary
                                      cwnd
                                              16384
         ssthresh 16384
                                       RTO
                                              120
```

Last Net Sent To = 192.168.112.4 Last Net Rcvd From = 192.168.112.4

Over All Eror Count = 0

Peers Rwnd = 13880

My Rwnd = 16384

Max Window = 16384

Initial Seq Number = 24130

Next Sending Seq Number = 124686

Last Acked Seq Number = 124669

Maximum Outbound Char Count = 16384

Current Outbound Char Count = 2112

Number Unsent Char Count = 0

Outbound Data Chunk Count = 16

```
Number Unsent = 0
                Number To Retransmit = 0
                   ip datagrams rcvd = 155402
  ip datagrams with data chunks rcvd = 120844
                    data chunks rcvd = 367908
                    data chunks read = 367900
                       dup tsns rcvd = 8
                          sacks rcvd = 38734
                 gap ack blocks rcvd = 3
             heartbeat requests rcvd = 135
                 heartbeat acks rcvd = 52
             heartbeat requests sent = 52
                   ip datagrams sent = 129254
  ip datagrams with data chunks sent = 73084
                    data chunks sent = 396330
         retransmit data chunks sent = 135
                          sacks sent = 64872
                         send failed = 0
              retransmit timer count = 0
     consecutive retransmit timeouts = 0
 RTT between RMIN and RMAX inclusive = 6
               RTT greater than RMAX = 0
               fast retransmit count = 135
                    recv timer count = 0
               heartbeat timer count = 244
                    none left tosend = 0
                none left rwnd gate = 5
                 none left cwnd gate = 8
    rlghncxa03w 08-04-28 21:16:37 GMT EAGLE5 38.0.0
    SCTP command complete
pass:loc=1308:cmd="sctp -a assoc4 "
The following is an example of the possible output.
    rlghncxa03w 10-12-28 21:16:37 GMT EAGLE5 43.0.0
   Aname
                     Local
                                        Local
                                                Primary
Remote
                     IP Address
                                        Port
                                                Address
                                                               Port.
                                                192.168.112.4 1025
    assoc4
                     192.1.1.24
                                        3290
                     192.1.1.24
               Configuration
                                                        State
        Retransmission Mode = LIN
                                           State = OPEN
Min. Retransmission Timeout = 10000
                                           ULP association id = 18
Max. Retransmission Timeout = 800000
                                           Number of nets = 2
                                          Inbound Streams = 1
    Max. Number of Retries = 10
                                    Outbound Streams = 2
   Min. Congestion Window = 3000
```

Inbound Streams = 2
Outbound Streams = 2
Checksum Algorithm = crc32c
Send/Rcv Buffer Size = 204800

Nets Data

IP Address 192.168.112.4 State Reachable Port 1025 Primary YES MTU 1500 cwnd 16384 RTO 120 ssthresh 16384 192.168.112.5 IP Address State Reachable Port 7777 Primary NO MTU 1500 cwnd 16384 16384 RTO 120 ssthresh Last Net Sent To = 192.168.112.4Last Net Rcvd From = 192.168.112.4 Over All Eror Count = 0 Peers Rwnd = 13880

Peers Rwnd = 13880

My Rwnd = 16384

Max Window = 16384

Initial Seq Number = 24130

Next Sending Seq Number = 124686

Last Acked Seq Number = 124669

Maximum Outbound Char Count = 16384

Current Outbound Char Count = 2112

Number Unsent Char Count = 0

Outbound Data Chunk Count = 16

ip datagrams with data chunks sent = 73084

data chunks sent = 396330

retransmit data chunks sent = 135

sacks sent = 64872

send failed = 0

retransmit timer count = 0

consecutive retransmit timeouts = 0

RTT between RMIN and RMAX inclusive = 6

RTT greater than RMAX = 0

```
fast retransmit count = 135
                  recv timer count = 0
              heartbeat timer count = 244
                  none left tosend = 0
               none left rwnd gate = 5
               none left cwnd gate = 8
;
   rlghncxa03w 10-12-28 21:16:37 GMT EAGLE5 43.0.0
   SCTP command complete
   rlghncxa03w 08-04-28 21:16:37 GMT EAGLE5 38.0.0
   Aname
                   Local
                             Local
                                            Primary
Remote
                   IP Address
                                    Port
                                            Address
                   192.1.1.24
                                    3290 192.168.112.4 1025
   assoc4
                   192.1.1.24
              Configuration
                                                    State
       Retransmission Mode = LIN
                                      State = OPEN
Min. Retransmission Timeout = 10
                                       ULP association id = 18
Max. Retransmission Timeout = 800
                                      Number of nets = 2
    Max. Number of Retries = 10
                                       Inbound Streams = 1
   Min. Congestion Window = 3000
                                      Outbound Streams = 2
           Inbound Streams = 2
          Outbound Streams = 2
 Checksum Algorithm = crc32c
                              Nets Data
                   192.168.112.4
        IP Address
                                      State
                                                 Reachable
              Port
                    1025
                                      Primary
                                                 YES
              MTU 1500
                                        cwnd
                                                 16384
                    16384
                                         RTO
                                                 120
          ssthresh
        IP Address 192.168.112.5
                                      State
                                                 Reachable
             Port 7777
                                     Primary
                                                 NO
              MTU
                    1500
                                                 16384
                                         cwnd
          ssthresh
                   16384
                                         RTO
                                                 120
```

Last Net Sent To = 192.168.112.4 Last Net Rcvd From = 192.168.112.4

Over All Eror Count = 0

Peers Rwnd = 13880

My Rwnd = 16384

Max Window = 16384

Initial Seq Number = 24130

Next Sending Seq Number = 124686

Last Acked Seq Number = 124669

Maximum Outbound Char Count = 16384

```
Current Outbound Char Count = 2112
            Number Unsent Char Count = 0
           Outbound Data Chunk Count = 16
                       Number Unsent = 0
                Number To Retransmit = 0
                   ip datagrams rcvd = 155402
  ip datagrams with data chunks rcvd = 120844
                    data chunks rcvd = 367908
                    data chunks read = 367900
                       dup tsns rcvd = 8
                          sacks rcvd = 38734
                 qap ack blocks rcvd = 3
             heartbeat requests rcvd = 135
                 heartbeat acks rcvd = 52
             heartbeat requests sent = 52
                   ip datagrams sent = 129254
  ip datagrams with data chunks sent = 73084
                    data chunks sent = 396330
         retransmit data chunks sent = 135
                          sacks sent = 64872
                         send failed = 0
              retransmit timer count = 0
     consecutive retransmit timeouts = 0
 RTT between RMIN and RMAX inclusive = 6
               RTT greater than RMAX = 0
               fast retransmit count = 135
                    recv timer count = 0
               heartbeat timer count = 244
                    none left tosend = 0
                 none left rwnd gate = 5
                 none left cwnd gate = 8
;
    rlghncxa03w 08-04-28 21:16:37 GMT EAGLE5 38.0.0
    SCTP command complete
pass:loc=1308:cmd="sctp -a assoc5 "
The following is an example of the possible output.
    rlghncxa03w 10-12-28 21:16:37 GMT EAGLE5 43.0.0
    Aname
                     Local
                                       Local Primary
                                                                Remote
                     IP Address
                                       Port
                                                Address
                                                                Port
                     192.1.1.24
                                        1057
                                                192.168.112.4 1025
    assoc5
                     192.1.1.24
               Configuration
                                                         State
        Retransmission Mode = LIN
                                           State = OPEN
Min. Retransmission Timeout = 10000
                                           ULP association id = 18
Max. Retransmission Timeout = 800000
                                          Number of nets = 2
```

```
Max. Number of Retries = 10
                                        Inbound Streams = 1
  Min. Congestion Window = 3000
                                        Outbound Streams = 2
          Inbound Streams = 2
         Outbound Streams = 2
       Checksum Algorithm = crc32c
     Send/Rcv Buffer Size = 204800
                               Nets Data
       IP Address
                     192.168.112.4
                                        State
                                                  Reachable
              Port 1025
                                      Primary
                                                   YES
         MTU 1500 ssthresh 16384
                                          cwnd
                                                  16384
                                          RTO
                                                   120
       IP Address 192.168.112.5
Port 7777
                                       State Reachable
                                      Primary
                   1500
              MTU
                                                   16384
                                          cwnd
                     16384
                                           RTO
                                                   120
          ssthresh
                  Last Net Sent To = 192.168.112.4
                Last Net Rcvd From = 192.168.112.4
                Over All Eror Count = 0
                         Peers Rwnd = 13880
                           My Rwnd = 16384
                        Max Window = 16384
                Initial Seq Number = 24130
           Next Sending Seq Number = 124686
             Last Acked Seq Number = 124669
       Maximum Outbound Char Count = 16384
       Current Outbound Char Count = 2112
          Number Unsent Char Count = 0
         Outbound Data Chunk Count = 16
                     Number Unsent = 0
              Number To Retransmit = 0
                  ip datagrams rcvd = 155402
 ip datagrams with data chunks rcvd = 120844
                  data chunks rcvd = 367908
                   data chunks read = 367900
                     dup tsns rcvd = 8
                        sacks rcvd = 38734
                gap ack blocks rcvd = 3
           heartbeat requests rcvd = 135
               heartbeat acks rcvd = 52
            heartbeat requests sent = 52
                 ip datagrams sent = 129254
 ip datagrams with data chunks sent = 73084
                  data chunks sent = 396330
        retransmit data chunks sent = 135
                         sacks sent = 64872
                       send failed = 0
            retransmit timer count = 0
    consecutive retransmit timeouts = 0
RTT between RMIN and RMAX inclusive = 6
```



```
RTT greater than RMAX = 0
              fast retransmit count = 135
                  recv timer count = 0
              heartbeat timer count = 244
                  none left tosend = 0
               none left rwnd gate = 5
               none left cwnd gate = 8
;
   rlghncxa03w 10-12-28 21:16:37 GMT EAGLE5 43.0.0
   SCTP command complete
   rlghncxa03w 08-04-28 21:16:37 GMT EAGLE5 38.0.0
   Aname
                  Local
                                   Local Primary
                                                          Remote
                   IP Address
                                    Port
                                            Address
                                                          Port
                   192.1.1.24
                                    1057 192.168.112.4 1025
   assoc5
                   192.1.1.24
              Configuration
                                                    State
                                     State = OPEN
       Retransmission Mode = LIN
Min. Retransmission Timeout = 10
                                       ULP association id = 18
Max. Retransmission Timeout = 800
                                      Number of nets = 2
    Max. Number of Retries = 10
                                       Inbound Streams = 1
   Min. Congestion Window = 3000
                                     Outbound Streams = 2
           Inbound Streams = 2
          Outbound Streams = 2
 Checksum Algorithm = crc32c
                              Nets Data
                   192.168.112.4
        IP Address
                                      State
                                                 Reachable
                    1025
              Port
                                     Primary
                                                YES
              MTU 1500
                                        cwnd
                                                 16384
                    16384
                                         RTO
                                                 120
          ssthresh
        IP Address 192.168.112.5
Port 7777
                                      State
                                                Reachable
                                     Primary
                                                NO
              MTU 1500
                                        cwnd
                                                 16384
          ssthresh 16384
                                         RTO
                                                 120
```

Last Net Sent To = 192.168.112.4 Last Net Rcvd From = 192.168.112.4

Over All Eror Count = 0

Peers Rwnd = 13880

My Rwnd = 16384

Max Window = 16384

Initial Seq Number = 24130

Next Sending Seq Number = 124686

Last Acked Seq Number = 124669

Maximum Outbound Char Count = 16384

```
Current Outbound Char Count = 2112
           Number Unsent Char Count = 0
           Outbound Data Chunk Count = 16
                      Number Unsent = 0
                Number To Retransmit = 0
                   ip datagrams rcvd = 155402
 ip datagrams with data chunks rcvd = 120844
                    data chunks rcvd = 367908
                    data chunks read = 367900
                       dup tsns rcvd = 8
                          sacks rcvd = 38734
                 gap ack blocks rcvd = 3
            heartbeat requests rcvd = 135
                heartbeat acks rcvd = 52
             heartbeat requests sent = 52
                   ip datagrams sent = 129254
 ip datagrams with data chunks sent = 73084
                   data chunks sent = 396330
         retransmit data chunks sent = 135
                          sacks sent = 64872
                         send failed = 0
             retransmit timer count = 0
    consecutive retransmit timeouts = 0
RTT between RMIN and RMAX inclusive = 6
               RTT greater than RMAX = 0
               fast retransmit count = 135
                    recv timer count = 0
               heartbeat timer count = 244
                   none left tosend = 0
                none left rwnd gate = 5
                 none left cwnd gate = 8
;
    rlghncxa03w 08-04-28 21:16:37 GMT EAGLE5 38.0.0
```

If the checksum algorithm shown in any of the associations displayed in this step do not match the checksum algorithm specified in 4, contact the Customer Care Center. Refer to My Oracle Support (MOS) for the contact information.

If the checksum algorithm shown in all of the associations displayed in this step match the checksum algorithm specified in 4, continue the procedure with 10.

10. Put the signaling links that were placed out of service in 6 back into service using the act-slk command. For example, enter this command.

```
act-slk:loc=1308:link=a1
act-slk:loc=1308:link=b
act-slk:loc=1308:link=b2
```

SCTP command complete



When these commands have successfully completed, this message appears.

```
rlghncxa03w 06-10-07 11:11:28 GMT EAGLE5 36.0.0 Activate Link message sent to card
```

11. Verify the in-service normal (IS-NR) status of the signaling link by using the rept-stat-slk command and specifying the card location and link values specified in 10.

For example, enter these commands.

```
rept-stat-slk:loc=1308:link=a1
```

This message should appear.

```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0

SLK LSN CLLI PST SST AST
1308,A1 ipnode1 ------ IS-NR Avail ----
Command Completed.
```

```
rept-stat-slk:loc=1308:link=b
```

This message should appear.

```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0

SLK LSN CLLI PST SST AST 1308,B ipnode3 ----- IS-NR Avail ----
```

```
rept-stat-slk:loc=1308:link=b2
```

This message should appear.

```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0

SLK LSN CLLI PST SST AST 1308,B2 ipnode4 ------ IS-NR Avail ----
Command Completed.
```

12. Enter the netstat -p sctp pass command with the card location of the IP card to determine if any errors have occurred. For this example, enter this command.

```
pass:loc=1308:cmd="netstat -p sctp"
```



```
send failed..... 0
 ip packets received with data chunk..... 989957
   control chunks (excluding duplicates)...... 833141
   ordered data chunks (excluding duplicates)..... 989968
   unordered data chunks (excluding duplicates).... 0
   user messages reassembled......0
   sacks received...... 153763
   out of the blue..... 4
   by upper layer..... 0
   connections terminated..... 4
   gracefully...... 0
 associations dropped due to retransmits...... 0
 consecutive retransmit timeouts..... 4
 associations supported..... 50
 milliseconds cookie life at 4-way start-up handshake. 5000
 retransmission attempts allowed at start-up phase.... 8
;
 rlghncxa03w 08-04-28 21:16:37 GMT EAGLE5 38.0.0
 NETSTAT command complete
```

If errors are shown in the pass command output, contact the Customer Care Center. Refer to My Oracle Support (MOS) for the contact information.

- 13. Repeat 6 through 12 to update the other IPSG cards in the EAGLE that contain IPSG M2PA associations with the new SCTP checksum algorithm.
- 14. Back up the database by entering 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.
```



15. If the rtrv-card output in 2 shows cards running the SS7IPGW or IPGWI applications, perform the Changing the SCTP Checksum Algorithm Option for M3UA and SUA Associations procedure.

If the rtrv-card output in 2 shows cards running the **IPLIM** or **IPLIMI** applications, perform the Changing the SCTP Checksum Algorithm Option for M2PA Associations procedure.

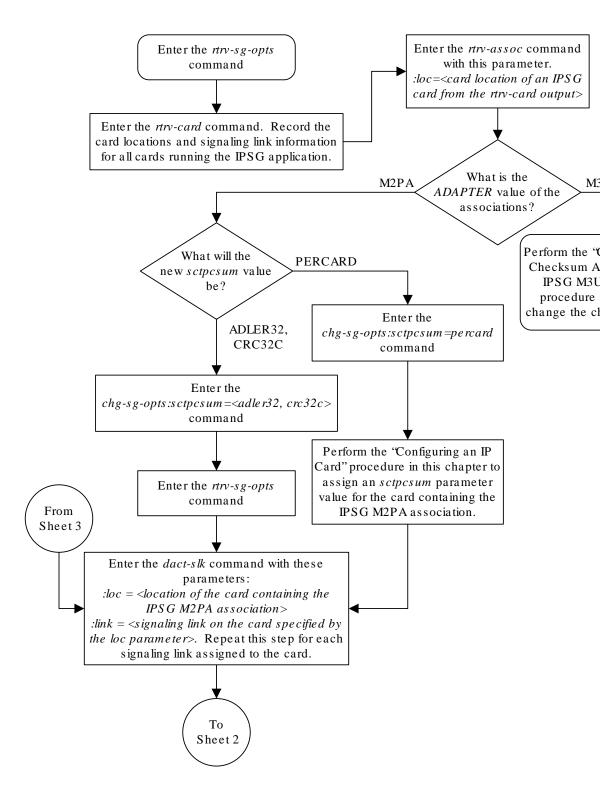
If the rtrv-card output in 2 shows that there are no cards running the SS7IPGW, IPGWI, IPLIM, or IPLIMI applications, this procedure is finished.



M3

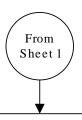
IPSG M3U

Figure 6-31 Changing the SCTP Checksum Algorithm Option for IPSG M2PA **Associations**



Sheet 1 of 3





Enter the *chg-assoc* command with these parameters:

:aname = \langle aname value from the rtrv-assoc output \rangle :open = no.

Repeat this step for each association shown in the *rtrv-assoc* output.

Enter the *chg-assoc* command with these parameters:

:aname = <aname value from the rtrv-assoc output> :open = yes.

Repeat this step for each association shown in the *rtrv-assoc* output.

Enter the *pass* command with these parameters:

:loc=<card location specified in the dact-slk command>

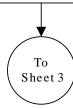
:cmd="sctp -a <name of the assocation
specified in the chg-assoc command>"
Repeat this step for each association
shown in the rtrv-assoc output.

Does the checksum algorithm value in all the associations displayed in the previous step match the checksum algorithm value specified in the chg-sg-opts command on Sheet 1?

Yes

Enter the *act-slk* command with these parameters:

:loc = <location of the card specified in the dact-slk command on Sheet 1>
 :link = <signaling link on the card specified in the dact-slk command on Sheet 1>.
 Repeat this step for each signaling link assigned to the card.



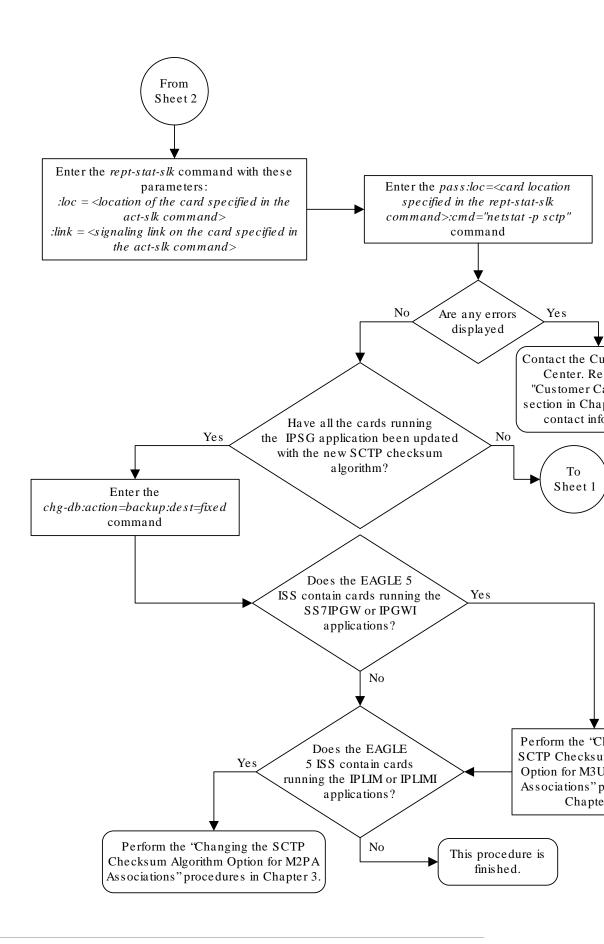
>No

Conta Care (the "Cen Cha



Sheet 2 of 3





Sheet 3 of 3

Changing the SCTP Checksum Algorithm Option for IPSG M3UA Associations

Use this procedure to change the SCTP checksum algorithm, either Adler-32 or CRC-32c, applied to traffic on SCTP associations. The sctpcsum parameter of the chg-sg-opts command is used to change this option. The Adler-32 and CRC-32c checksum algorithms specified in this procedure applies to all the M3UA associations that are assigned to all the IP cards running the IPSG application. This option is a system-wide option. To apply this option to associations assigned to cards running the IPLIM, IPLIMI, SS7IPGW, or IPGWI applications, or to IPSG M2PA associations, perform these procedures.

- Changing the SCTP Checksum Algorithm Option for IPSG M2PA Associations
- Changing the SCTP Checksum Algorithm Option for M3UA and SUA Associations
- Changing the SCTP Checksum Algorithm Option for M2PA Associations

The sctpcsum parameter contains another value, percard, that allows either the Adler-32 or CRC-32c SCTP checksum algorithm to be specified for the all the associations assigned to a specific card. With this option specified, the Adler-32 checksum algorithm can be specified for the associations on one card and the CRC-32c checksum algorithm can be specified for the associations on another card. Setting the sctpcsum parameter to percard changes the SCTP checksum algorithm for the associations assigned to a card to the SCTP checksum algorithm value for that card. The checksum algorithm for individual cards is provisioned by performing the Configuring an IP Card procedure.

Once the **SCTP** checksum option has been changed, the associations on each **IP** card need to be reset by changing the open parameter value for each association to no, then back to yes. This ensures that the associations on the **IP** card are using the new **SCTP** checksum algorithm.

Canceling the RTRV-ASSOC Command

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

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

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



1. Display the current **IP** options in the database by entering the rtrv-sg-opts command. The following is an example of the possible output.

```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0 SCTPCSUM: adler32
```

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

2. Display the cards in the **EAGLE** by entering the rtrv-card command. This is an example of the possible output.

rlghno	xa03w 09-1	0-15 16:34	:56 GMT EAGLE5	41.0	.0	
CARD	TYPE	APPL	LSET NAME	LINK	SLC	LSET NAME
LINK S	SLC					
1101	DSM	VSCCP				
1102	TSM	GLS				
1113	GSPM	EOAM				
1114	TDM-A					
1115	GSPM	EOAM				
1116	TDM-B					
1117	MDAL					
1201	LIMDS0	SS7ANSI	lsn1	A	0	lsn2
в 1						
1202	DCM	IPLIM	ipnode2	A	1	
1203	LIMDS0	SS7ANSI	lsn2	A	0	lsn1
В 1						
1204	LIMATM	ATMANSI	atmgwy	A	0	
1205	DCM	IPLIM	ipnode1	A	0	ipnode3
В 1						
1207	DCM	IPLIM	ipnode2	A	0	
1303	DCM	IPLIM	ipnode3	A	0	ipnode1
В 1	-					
1305	DCM	IPLIM	ipnode4	A	0	
1308	DCM	IPLIM	ipnode3	В	2	
			ipnode1	A1	2	ipnode4
B2 1	-					
1315	ENET	IPSG	ipgtwy1	A		
1317	DCM	IPGWI	ipgtwy2	A		

Record the card location, shown in the LOC column, and signaling link, shown in the LINK column, information for all cards running the **IPSG** application.

3. Select one of the IPSG cards shown in 2. Display the associations assigned to the IPSG card by entering the rtrv-assoc command and specifying the card location of the IPSG card. For this example, enter this command.

```
rtrv-assoc:loc=1315
```



The following is an example of the possible output.

```
rlghncxa03w 08-04-28 09:12:36 GMT EAGLE5 38.0.0

CARD IPLNK

ANAME LOC PORT LINK ADAPTER LPORT RPORT OPEN ALW assoc3 1315 A A M3UA 2345 1025 YES YES

IP Appl Sock/Assoc table is (9 of 4000) 1% full
Assoc Buffer Space Used (19 KB of 800 KB) on LOC = 1315
```

If the ADAPTER value of the associations shown in the rtrv-assoc output is M3UA, continue the procedure with 4.

If the ADAPTER value of the associations shown in the rtrv-assoc output is M2PA, do not perform the remainder of this procedure. Perform the Changing the SCTP Checksum Algorithm Option for M2PA Associations procedure to change the SCTP checksum algorithm for IPSG M2PA associations.

- 4. At the IP near end node, stop all traffic to the IP card specified in 3 on the EAGLE.
- At the EAGLE, enter the msucount -l pass command with the card location of the IP card selected in 3. For this example, enter this command.

```
pass:loc=1315:cmd="msucount -1"
```

The following is an example of the possible output.

```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0
PASS: Command sent to card
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0
MSUCOUNT: Command In Progress
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0
MSUCOUNT: MSU Count Report
_____
Link Measurements (Link A)
______
Transmit Counts
                        Receive Counts
______
rate msus bytes
                        rate msus bytes
---- ------
2000 4294967295 4294967295 2000 4294967295 4294967295 MTP Primitive (MTPP) counts Reroute Counts
______
sent pdus rcvd pdus dscrd pdus sent msus rcvd msus
4294967295 4294967295 4294967295 4294967295 4294967295
```

6. At the **EAGLE**, enter the msucount -a pass command with the card location specified in 5 and the association names shown in 3. For this example, enter this command.



END of Report

pass:loc=1315:cmd="msucount -a assoc3"

The following is an example of the possible output.

rlghncxa03w 06-10-28 21:17:37 GMT EAGLE5 36.0.0 PASS: Command sent to card rlghncxa03w 06-10-28 21:17:37 GMT EAGLE5 36.0.0 MSUCOUNT: Command In Progress rlghncxa03w 06-10-28 21:17:37 GMT EAGLE5 36.0.0 MSUCOUNT: MSU Count Report _____ IP Connection Measurements Receive Counts Transmit Counts msus bytes msus bytes -----

 4294967295
 4294967295
 4294967295
 4294967295

 Receive Discard Counts
 Transmit Discard Counts

 4294967295 _____ count reason reason count

 link state
 4294967295
 sccp msg type
 4294967295

 sccp msg type
 4294967295
 sccp class
 4294967295

 sccp class
 4294967295
 normalization error
 4294967295

 sccp called party 4294967295 invalid traffic type 4294967295 sccp calling party 4294967295 M3UA conversion error 4294967295 isup sio 4294967295 SUA conversion error 4294967295 normalization error 4294967295 error in XSRV packet 4294967295 M3UA PDU error 4294967295 SUA PDU error 4294967295 invalid rcontext 4294967295 Stored Transmit Discard Data no stored transmit discard data Stored Receive Discard Data

53 41 53 49 69 73 6f 74 11 00 87 0a 01 03 01 05 05 00 01 02 03 04 05 06 07 08 09 00 00 00 00 00

END of Report

- 7. At the IP near end node, disconnect all the associations attached to the IP card specified in 6.
- 8. At the EAGLE, place the signaling link on this IP card out of service using the dact-slk command. For this example, enter this command.

dact-slk:loc=1315:link=a



When this command has successfully completed, this message appears.

```
rlghncxa03w 06-10-12 09:12:36 GMT EAGLE5 36.0.0 Deactivate Link message sent to card
```

9. Change the SCTP checksum option in the database using the chg-sg-opts command. For this example, enter this command.

```
chg-sg-opts:sctpcsum=crc32c
```

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

```
rlghncxa03w 06-10-28 21:19:37 GMT EAGLE5 36.0.0 CHG-SG-OPTS: MASP A - COMPLTD
```

Continue the procedure by performing one of these actions.

- If the sctpcsum parameter value was changed to either adler32 or crc32c, continue the procedure with 10.
- If the sctpcsum parameter value was changed to percard, perform the Configuring an IP Card procedure to assign an sctpcsum parameter value to all the cards running the IPLIM or IPLIMI applications. After the Configuring an IP Card procedure has been performed, continue the procedure with 11.
- **10.** Verify that the **SCTP** checksum algorithm was changed using the rtrv-sg-opts command. The **SCTP** checksum algorithm option value is shown in the SCTPCSUM parameter. The following is an example of the possible output.

```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0 SCTPCSUM: crc32c
```

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

11. Change the value of the open parameter of the associations shown in 3 to no by specifying the chg-assoc command with the open=no parameter. For this example, enter this command.

```
chq-assoc:aname=assoc3:open=no
```

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

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 CHG-ASSOC: MASP A - COMPLTD;
```

12. Change the value of the open parameter of the associations changed in 11 to yes by specifying the chg-assoc command with the open=yes parameter. For this example, enter this command.

```
chg-assoc:aname=assoc3:open=yes
```



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

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 CHG-ASSOC: MASP A - COMPLTD;
```

13. Verify the checksum algorithm that is assigned to the associations shown in 12 by entering the sctp -a pass command with the card location of the IP card specified in 8 and the name of the associations specified in 12. For this example, enter this command.

```
pass:loc=1315:cmd="sctp -a assoc3 "
```

The following is an example of the possible output.

```
rlghncxa03w 10-12-28 21:16:37 GMT EAGLE5 43.0.0
   Aname
                   Local
                                     Local
                                             Primary
Remote
                   IP Address
                                     Port
                                             Address
                   192.1.1.50
                                     2345
                                             192.168.112.4 1025
   assoc3
                   192.1.1.50
              Configuration
                                                     State
       Retransmission Mode = LIN
                                      State = OPEN
Min. Retransmission Timeout = 10000
                                       ULP association id = 18
Max. Retransmission Timeout = 800000
                                      Number of nets = 2
    Max. Number of Retries = 10
                                        Inbound Streams = 1
   Min. Congestion Window = 3000
                                      Outbound Streams = 2
           Inbound Streams = 2
          Outbound Streams = 2
        Checksum Algorithm = crc32c
      Send/Rcv Buffer Size = 204800
                               Nets Data
        IP Address
                      192.168.112.4
                                        State
                                                 Reachable
                      1025
                                                 YES
              Port
                                      Primary
               MTU
                     1500
                                         cwnd
                                                 16384
                                         RTO
                                                 120
          ssthresh 16384
        IP Address
                   192.168.112.5
                                      State
                                                 Reachable
                                                 NO
              Port
                      7777
                                      Primary
              MTU
                     1500
                                         cwnd
                                                 16384
          ssthresh
                      16384
                                          RTO
                                                 120
                  Last Net Sent To = 192.168.112.4
                Last Net Rcvd From = 192.168.112.4
                Over All Eror Count = 0
                        Peers Rwnd = 13880
                           My Rwnd = 16384
                        Max Window = 16384
```

Initial Seq Number = 24130
Next Sending Seq Number = 124686
Last Acked Seq Number = 124669

Maximum Outbound Char Count = 16384 Current Outbound Char Count = 2112



```
Number Unsent Char Count = 0
          Outbound Data Chunk Count = 16
                     Number Unsent = 0
               Number To Retransmit = 0
                  ip datagrams rcvd = 155402
 ip datagrams with data chunks rcvd = 120844
                   data chunks rcvd = 367908
                   data chunks read = 367900
                      dup tsns rcvd = 8
                         sacks rcvd = 38734
                gap ack blocks rcvd = 3
            heartbeat requests rcvd = 135
                heartbeat acks rcvd = 52
            heartbeat requests sent = 52
                  ip datagrams sent = 129254
 ip datagrams with data chunks sent = 73084
                   data chunks sent = 396330
        retransmit data chunks sent = 135
                         sacks sent = 64872
                        send failed = 0
             retransmit timer count = 0
    consecutive retransmit timeouts = 0
RTT between RMIN and RMAX inclusive = 6
              RTT greater than RMAX = 0
              fast retransmit count = 135
                   recv timer count = 0
              heartbeat timer count = 244
                   none left tosend = 0
                none left rwnd gate = 5
                none left cwnd gate = 8
    rlghncxa03w 10-12-28 21:16:37 GMT EAGLE5 43.0.0
   SCTP command complete
   rlghncxa03w 08-04-28 21:16:37 GMT EAGLE5 38.0.0
   Aname
                    Local
                                      Local Primary
                    IP Address
                                      Port
                                               Address
                                                              Port
   assoc3
                    192.1.1.50
                                      2345 192.168.112.4 1025
                    192.1.1.50
              Configuration
                                                       State
                                      State = OPEN
       Retransmission Mode = LIN
                                        ULP association id = 18
Min. Retransmission Timeout = 10
                                      Number of nets = 2
Max. Retransmission Timeout = 800
    Max. Number of Retries = 10
                                         Inbound Streams = 1
   Min. Congestion Window = 3000
                                        Outbound Streams = 2
           Inbound Streams = 2
          Outbound Streams = 2
```

Checksum Algorithm = crc32c

Nets Data

```
IP Address
                     192.168.112.4
                                                   Reachable
                                        State
                     1025
                                                   YES
              Port
                                       Primary
                     1500
              MTU
                                          cwnd
                                                   16384
                                                   120
          ssthresh
                     16384
                                           RTO
       IP Address
                     192.168.112.5
                                        State
                                                   Reachable
             Port
                     7777
                                      Primary
                                                   NO
              MTU
                     1500
                                                   16384
                                          cwnd
          ssthresh
                     16384
                                           RTO
                                                   120
                  Last Net Sent To = 192.168.112.4
                Last Net Rcvd From = 192.168.112.4
               Over All Eror Count = 0
                        Peers Rwnd = 13880
                           My Rwnd = 16384
                        Max Window = 16384
                Initial Seq Number = 24130
           Next Sending Seq Number = 124686
             Last Acked Seq Number = 124669
       Maximum Outbound Char Count = 16384
       Current Outbound Char Count = 2112
          Number Unsent Char Count = 0
         Outbound Data Chunk Count = 16
                     Number Unsent = 0
              Number To Retransmit = 0
                  ip datagrams rcvd = 155402
ip datagrams with data chunks rcvd = 120844
                  data chunks rcvd = 367908
                   data chunks read = 367900
                      dup tsns rcvd = 8
                        sacks rcvd = 38734
                gap ack blocks rcvd = 3
           heartbeat requests rcvd = 135
               heartbeat acks rcvd = 52
           heartbeat requests sent = 52
                  ip datagrams sent = 129254
ip datagrams with data chunks sent = 73084
                  data chunks sent = 396330
       retransmit data chunks sent = 135
                        sacks sent = 64872
                       send failed = 0
            retransmit timer count = 0
    consecutive retransmit timeouts = 0
RTT between RMIN and RMAX inclusive = 6
             RTT greater than RMAX = 0
              fast retransmit count = 135
                   recv timer count = 0
```

heartbeat timer count = 244



```
none left tosend = 0
none left rwnd gate = 5
none left cwnd gate = 8

;

rlghncxa03w 08-04-28 21:16:37 GMT EAGLE5 38.0.0
SCTP command complete
```

If the checksum algorithm shown in any of the associations displayed in this step do not match the checksum algorithm specified in 9, contact the Customer Care Center. Refer to My Oracle Support (MOS) for the contact information.

If the checksum algorithm shown in all of the associations displayed in this step match the checksum algorithm specified in 9, continue the procedure with 14.

- **14.** At the **IP** near end node, configure all the associations attached to the **IP** card specified in **12** to use the **SCTP** checksum algorithm.
- 15. Put the signaling link that was placed out of service in 7 back into service using the act-slk command. For example, enter this command.

```
act-slk:loc=1315:link=a
```

When this command has successfully completed, this message appears.

```
rlghncxa03w 06-10-07 11:11:28 GMT EAGLE5 36.0.0 Activate Link message sent to card
```

16. Verify the in-service normal (**IS-NR**) status of the signaling link by using the rept-stat-slk command and specifying the card location and link value specified in **15**. For example, enter this command.

```
rept-stat-slk:loc=1315:link=a
```

```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0

SLK LSN CLLI PST SST AST
1315,A ipgtwy1 ------ IS-NR Avail ----
```

- 17. At the **IP** near end node, connect one of the associations attached to the **IP** card specified in 11.
- 18. At the EAGLE, enter the rept-stat-assoc command specifying the association names specified with the chg-assoc command in 11 and 12 to verify that the association is established with the IP near end node. For this example, enter this command.

```
rept-stat-assoc:aname=assoc3
```



The following is an example of the possible output.

rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0

CARD IPLNK ANAME LOC PORT LINK PST SST ASPID as1 1315 A IS-NR undefined ESTABLISHED LSN ANAME ASP STATE assoc3 ACTIVE lpgtwy1 Command Completed.

19. Enter the netstat -p sctp pass command with the card location of the IP card to determine if any errors have occurred. For this example, enter this command. For this example, enter this command.

```
pass:loc=1315:cmd="netstat -p sctp"
```

```
rlghncxa03w 08-04-28 21:16:37 GMT EAGLE5 38.0.0
ip packets sent with data chunk...... 306354
   control chunks (excluding retransmissions)..... 1172759
   ordered data chunks (excluding retransmissions).. 1534350
   unordered data chunks (excluding retransmissions) 0
   user messages fragmented due to MTU..... 0
   retransmit data chunks sent..... 4
   send failed...... 0
 ip packets received...... 1816035
   ip packets received with data chunk...... 989957
   control chunks (excluding duplicates)...... 833141
   ordered data chunks (excluding duplicates)..... 989968
   unordered data chunks (excluding duplicates).... 0
   data chunks read..... 988601
   out of the blue..... 4
   by upper layer..... 0
   connections terminated..... 4
   gracefully...... 0
 associations dropped due to retransmits...... 0
 consecutive retransmit timeouts..... 4
```



If errors are shown in the pass command output, contact the Customer Care Center. Refer to My Oracle Support (MOS) for the contact information.

- 20. At the **IP** near end node, connect all the other associations attached to the **IP** card specified in 19.
- **21.** At the **IP** near end node, activate one of the associations attached to the **IP** card specified in **19**.
- 22. At the **EAGLE**, enter the msucount -1 pass command with the card location of the **IP** card specified in 19. For this example, enter this command.

```
pass:loc=1315:cmd="msucount -1"
```

```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0
PASS: Command sent to card

rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0
MSUCOUNT: Command In Progress

rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0
MSUCOUNT: MSU Count Report

Link Measurements (Link A)
```

Transmit	t Counts		Receive Counts				
rate r	msus	byte	s	rate	msus		bytes
2000	4294967295	4294	967295	2000	4294	967295	4294967295
MTP Prir	mitive (MTP	P) co	Reroute Counts				
sent pdi	us rcvd p	dus	dscrd pdus	sent msus rcvd msu		ısus	
42949672	 295 429496	7295	4294967295	429496	7295	429496	7295
END of E	Report						



23. At the **EAGLE**, enter the msucount -a pass command with the card location specified in 22 and the association names specified in 18. For this example, enter this command.

```
pass:loc=1315:cmd="msucount -a assoc3"
```

The following is an example of the possible output.

Receive Counts		Transmit Counts				
msus b	ytes	msus	4294967295 Counts			
4294967295 4	294967295 ounts	4294967295 Transmit Discard				
reason		reason	count			
link state sccp msg type	4294967295 4294967295 4294967295 4294967295 4294967295 4294967295 4294967295 4294967295 4294967295 4294967295 4294967295	sccp msg type sccp class normalization er invalid traffic M3UA conversion				
no stored transmi Stored Receive Di	t discard data scard Data					

53 41 53 49 69 73 6f 74 11 00 87 0a 01 03 01 05 05 00 01 02 03 04 05 06 07 08 09 00 00 00 00 00

END of Report

If the outputs of the pass commands in 22 and 23 show that traffic is not flowing over the association, refer to My Oracle Support (MOS).



- 24. At the IP near end node, activate all the other associations attached to the IP card specified in 23.
- **25.** Repeat 4 through 24 to update the other **IPSG** cards in the **EAGLE** that contain IPSG M3UA associations with the new **SCTP** checksum algorithm.
- 26. Back up the new changes using the chg-db:action=backup:dest=fixed
 command. These messages should appear, the active Maintenance and
 Administration Subsystem Processor (MASP) appears first.

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

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

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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

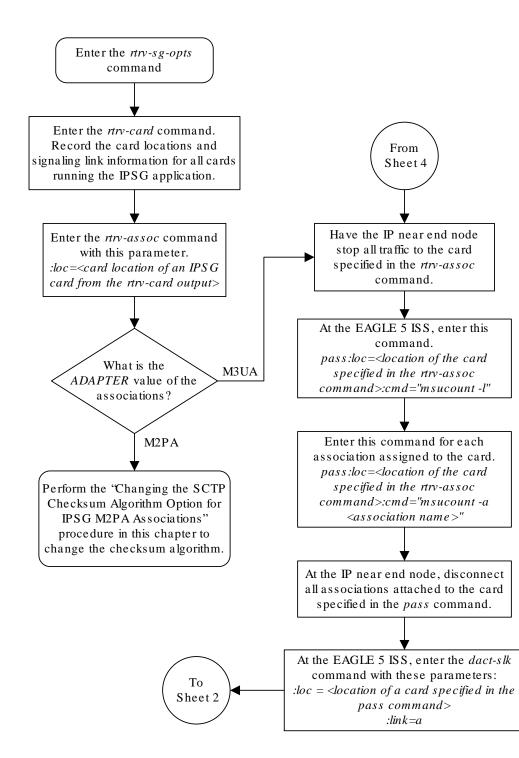
27. If the rtrv-card output in 2 shows cards running the IPLIM or IPLIMI applications, perform the Changing the SCTP Checksum Algorithm Option for M2PA Associations procedure.

If the rtrv-card output in 2 shows cards running the **SS7IPGW** or IPGWI applications, perform the Changing the SCTP Checksum Algorithm Option for M3UA and SUA Associations procedure.

If the rtrv-card output in 2 shows that there are no cards running the IPLIM, IPLIMI, SS7IPGW, or IPGWI applications, this procedure is finished.



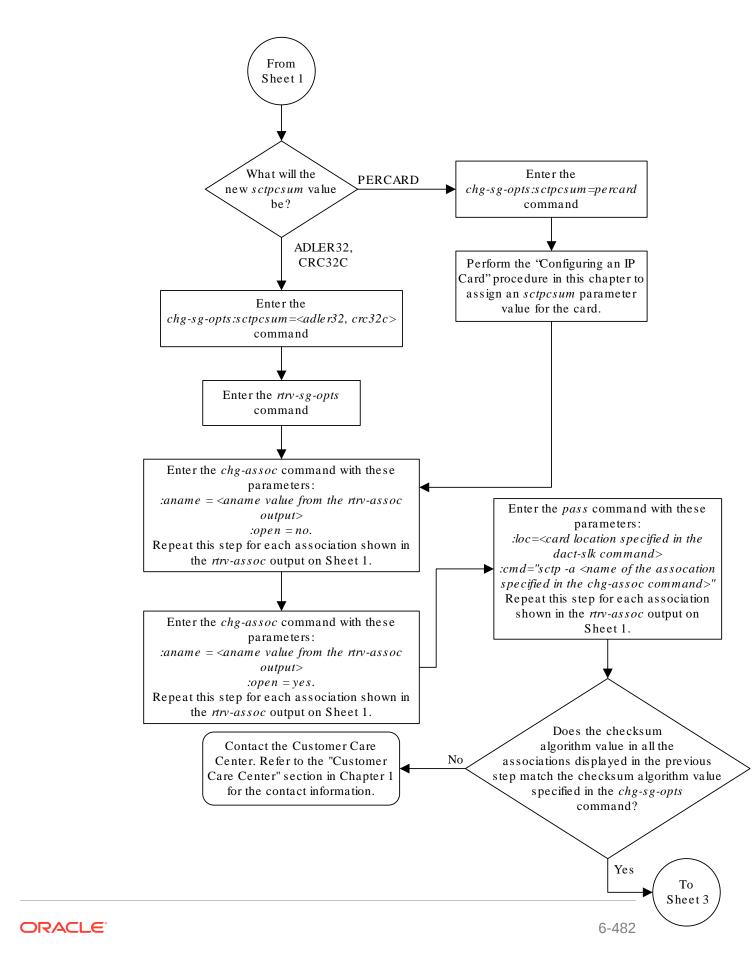
Figure 6-32 Changing the SCTP Checksum Algorithm Option for IPSG M3UA Associations





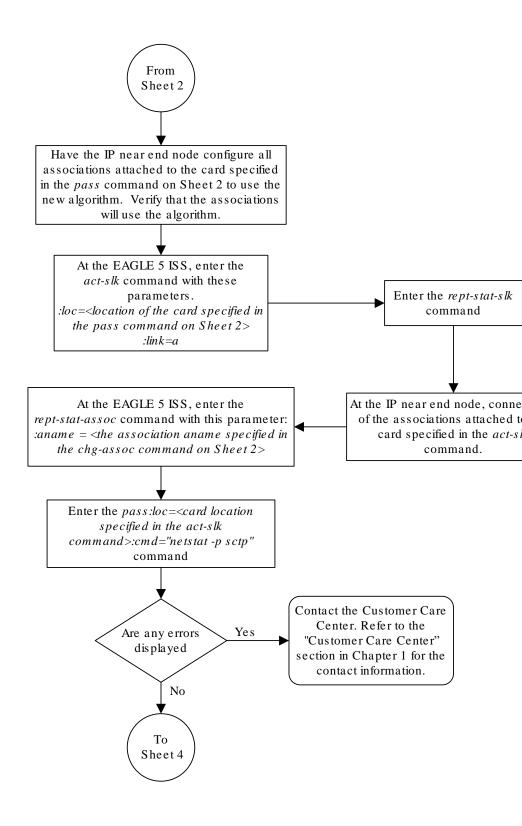
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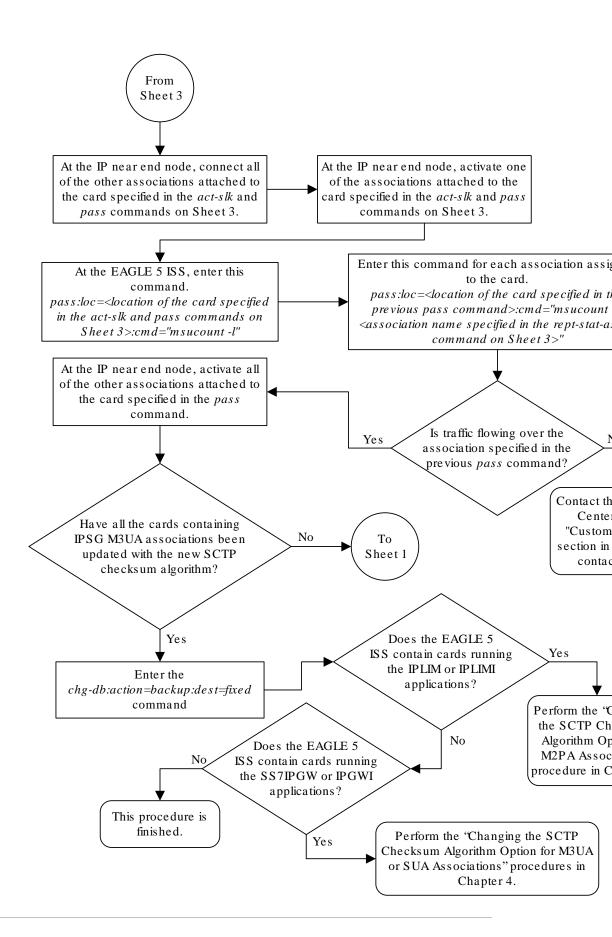






Sheet 3 of 4





Sheet 4 of 4

Changing an M2PA Timer Set

This procedure is used to change the values of the M2PA timers in an M2PA timer set using the <code>chg-m2pa-tset</code> command. The M2PA timers are used to control the behavior of the signaling link assigned to an M2PA association (an association containing the M2PA adapter layer - <code>adapter=m2pa</code>) during signaling link alignment and proving, and during times of transmit congestion.

The **EAGLE** contains 20 **M2PA** timer sets. One of these timer sets is assigned to an **M2PA** association using the m2patset parameter of either the ent-assoc or chg-assoc command. If the m2patset parameter is not specified with the ent-assoc command, or with the chg-assoc command if the adapter layer for that association is being changed to **M2PA**, timer set 1 is automatically assigned to the association.



Caution:

Changing an **M2PA** timer set may affect the performance of any associations using the timer set being changed.

The chg-m2pa-tset command uses these parameters.

:tset - The M2PA timer set being changed, 1 - 20.

: srctset — The timer values in an existing M2PA timer set can be copied to another M2PA timer set, specified by the tset parameter. The srctset parameter specifies the timer set that is to be copied. If the srctset parameter is specified, no other timer values can be specified, The srctset parameter value cannot be the timer set specified by the tset parameter.

:ver - The M2PA version, either Draft 6 (ver=d6) or RFC (ver=rfc).



Note:

The definitions of timers **T1** and T3 for the Draft 6 version are different from the **RFC** version. The T2 timer applies only to the **RFC** version. The definitions of timers T4N, T4E, T5, T6, T7, T16, T17 and T18 for are the same for the Draft 6 version and the **RFC** version.

The timer parameter descriptions and values are shown in Table 6-13.



Table 6-13 M2PA Timers

Timer	Draft 6 Timer Name	RFC Timer Name	Definition	Value (in msecs)	DRAFT 6 System Default Value (in msecs)	RFC System Default Value (in msecs)
:t1	N/A	Ready Timer	The amount of time after proving the M2PA adapter layer waits to receive a Link Status Ready message from the peer.	1000 - 350000	N/A	300000
:t1	Alignment Timer	N/A	The amount of time the M2PA adapter layer waits to receive a Link Status Alignment message from the peer.	1000 - 350000	10000	N/A
:t2*	N/A	N/A Ready Timer Status the per Statu	The the amount of time the M2PA adapter layer waits to receive a Link Status Alignment/Link Status Proving message after sending a Link Status Alignment message. Timer T2 is not used in M2PA Draft 6 timer sets.	5000 - 150000	N/A	20000
	N/A Alignment N Timer L m T Ready N/A Ia		The amount of time the Alignment Timer M2PA layer waits to receive a Link Status Alignment message from the peer.		N/A	2000
:t3			The amount of time after proving the M2PA adapter layer waits to receive a Link Status Ready message from the peer.	1000 - 60000	10000	N/A
:t4n			The amount of time the M2PA adapter layer generates Link Status Proving messages during normal proving.	1000 - 70000	10000	30000
:t4e			The amount of time the M2PA adapter layer generates Link Status Proving messages during emergency proving.	400 - 5000	500	500
:t5	Busy Ra	ate Timer	The amount of time between sending Link Status Busy messages while the link is inservice.	80 - 10000	1000	100
:t6			The amount of time that a congested link will remain in service.	1000 - 6000	3000	3000



Table 6-13 (Cont.) M2PA Timers

Timer	Draft 6 Timer Name	RFC Timer Name	Definition	Value (in msecs)	DRAFT 6 System Default Value (in msecs)	RFC System Default Value (in msecs)
:t7	Acknowle	Delay in edgement ner	The maximum amount of time that may pass between when a user data message is transmitted and an acknowledgement for that message is received from the peer. If this timer expires, the link is taken out of service.	200 - 2000	1200	1200
:t16	Proving R	ate Timer	The amount of time between sending Link Status Proving messages while the T4N or T4E timer is running.	100 - 500000 **	200000 **	200000 **
:t17	Ready R	ate Timer	The amount of time between sending Link Status Ready messages while the T3 timer is running.	100 - 500	250	250
:t18		or Outage Timer	The amount of time between sending Link Status Processor Outage messages while the link is in-service.	100 - 10000	1000	1000
msecs ·	- millisecon	ds				
* The T	2 Timer car	n he snecifi	ed only for the M2PA RFC versi	on		

^{*} The T2 Timer can be specified only for the M2PA RFC version.

The value of any timer parameter not specified with the chg-m2pa-tset command is not changed.

1. Display the M2PA timer sets in the database by entering the rtrv-m2pa-tset command with the version of the M2PA timer sets you wish to change with the verparameter.

To display the **M2PA** Draft 6 timer values, enter this command.

rtrv-m2pa-tset:ver=d6

rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0

M2PA Draft 6 Timers (in msec, T16 in microsec)

TSET	Т1	Т2	Т3	T4N	T4E	Т5	Т6	Т7	T16	Т17	T18
1	6000		5000	20000	500	5000	3000	1000	200000	250	1000
2	10000		10000	10000	500	1000	3000	1200	200000	250	1000
3	10000		10000	10000	500	1000	3000	1200	200000	250	1000
4	10000		10000	10000	500	1000	3000	1200	200000	250	1000
5	10000		10000	10000	500	1000	3000	1200	200000	250	1000
6	10000		10000	10000	500	1000	3000	1200	200000	250	1000
7	10000		10000	10000	500	1000	3000	1200	200000	250	1000

^{**} The value of the T16 Timer is in microseconds.

8	10000	 10000	10000	500	1000	3000	1200	200000	250
1000 9 8750	27500	 3850	4859	450	5700	3750	1150	250	375
10 1000	10000	 10000	10000	500	1000	3000	1200	200000	250
11 1000	10000	 10000	10000	500	1000	3000	1200	200000	250
12 1000	10000	 10000	10000	500	1000	3000	1200	200000	250
13 1000	10000	 10000	10000	500	1000	3000	1200	200000	250
14 1000	10000	 10000	10000	500	1000	3000	1200	200000	250
15 1000	10000	 10000	10000	500	1000	3000	1200	200000	250
16 1000	10000	 10000	10000	500	1000	3000	1200	200000	250
17 1000	10000	 10000	10000	500	1000	3000	1200	200000	250
18 1000	10000	 10000	10000	500	1000	3000	1200	200000	250
19 1000	10000	 10000	10000	500	1000	3000	1200	200000	250
20 1000	10000	 10000	10000	500	1000	3000	1200	200000	250

To display the **M2PARFC** timer values, enter this command.

rtrv-m2pa-tset:ver=rfc

rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0

M2PA RFC Timers (in msec, T16 in microsec)

-	T1 6000	T2 20000	T3 5000		T4E 500	T5 5000	T6 3000	T7 1000	T16 200000		T18
	300000	20000	2000	30000	500	100	3000	1200	200000	250	
2 1000	300000	20000	2000	30000	500	100	3000	1200	200000	250	
3 1000	300000	20000	2000	30000	500	100	3000	1200	200000	250	
4 1000	300000	20000	2000	30000	500	100	3000	1200	200000	250	
5 1000	300000	20000	2000	30000	500	100	3000	1200	200000	250	
6 1000	300000	20000	2000	30000	500	100	3000	1200	200000	250	
7 1000	300000	20000	2000	30000	500	100	3000	1200	200000	250	
8 1000	300000	20000	2000	30000	500	100	3000	1200	200000	250	



```
9
     27500 10000
                    3850
                          4859
                                 450
                                      5700
                                             3750 1150
                                                         250
                                                                375
                                                                      8750
     300000 20000
                    2000
                                             3000 1200
                          30000 500
                                      100
                                                        200000 250
                                                                     1000
10
     300000 20000
                    2000
                          30000 500
                                      100
                                             3000 1200
                                                        200000 250
                                                                     1000
11
12
     300000 20000
                    2000
                          30000 500
                                      100
                                             3000 1200
                                                        200000 250
                                                                     1000
13
     300000 20000
                    2000
                          30000 500
                                      100
                                             3000 1200
                                                        200000 250
     300000 20000
                    2000
                          30000 500
                                      100
                                             3000 1200
                                                        200000 250
                                                                     1000
14
                    2000
15
     300000 20000
                          30000 500
                                      100
                                             3000 1200
                                                        200000 250
                                                                     1000
     300000 20000
                    2000
                          30000 500
                                      100
                                             3000 1200
                                                        200000 250
                                                                     1000
16
17
     300000 20000
                    2000
                          30000 500
                                      100
                                             3000 1200
                                                        200000 250
                                                                     1000
18
     300000 20000
                    2000
                           30000 500
                                      100
                                             3000 1200
                                                        200000 250
                                                                     1000
19
     300000 20000
                    2000
                          30000 500
                                      100
                                             3000 1200
                                                        200000 250
                                                                     1000
20
     300000 20000
                    2000
                          30000 500
                                      100
                                             3000 1200
                                                        200000 250
                                                                     1000
```

If the ver parameter is not specified when entering the rtrv-m2pa-tset command, both the Draft 6 and **RFC** values are displayed. This is an example of the possible output.

```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0
```

M2PA Draft 6 Timers (in msec, T16 in microsec)

```
TSET T1
                                     T5
                                           Τ6
                                                 Т7
                                                       T16
                                                              T17
                                                                   T18
            Τ2
                   Т3
                          T4N
                                T4E
1
     6000
            ---- 5000
                         20000 500
                                     5000
                                           3000 1000
                                                       200000 250
                                                                   1000
2
     10000
            ----- 10000 10000 500
                                     1000
                                           3000 1200
                                                       200000 250
                                                                   1000
     10000
            ----- 10000 10000 500
                                     1000
                                           3000 1200
                                                       200000 250
                                                                   1000
3
     10000
4
            ---- 10000 10000 500
                                     1000
                                           3000 1200
                                                       200000 250
                                                                   1000
5
     10000
            ----- 10000 10000 500
                                     1000
                                           3000 1200
                                                       200000 250
                                                                   1000
6
     10000
            ----- 10000 10000 500
                                     1000
                                           3000 1200
                                                       200000 250
7
     10000
            ---- 10000 10000 500
                                     1000
                                           3000 1200
                                                       200000 250
                                                                   1000
8
     10000
            ----- 10000 10000 500
                                     1000
                                           3000 1200
                                                       200000 250
                                                                   1000
9
     27500
            ---- 3850 4859
                                450
                                     5700
                                           3750 1150
                                                       250
                                                              375
                                                                   8750
     10000
            ----- 10000 10000 500
                                     1000
                                           3000 1200
                                                                   1000
10
                                                       200000 250
     10000
            ----- 10000 10000 500
11
                                     1000
                                           3000 1200
                                                       200000 250
                                                                   1000
12
     10000
            ----- 10000 10000 500
                                     1000
                                           3000 1200
                                                       200000 250
                                                                   1000
13
     10000
            ----- 10000 10000 500
                                     1000
                                           3000 1200
                                                       200000 250
                                                                   1000
14
     10000
            ----- 10000 10000 500
                                     1000
                                           3000 1200
                                                       200000 250
                                                                   1000
     10000
            ----- 10000 10000 500
                                           3000 1200
15
                                     1000
                                                       200000 250
                                                                   1000
16
     10000
            ----- 10000 10000 500
                                     1000
                                           3000 1200
                                                       200000 250
                                                                   1000
17
     10000
            ----- 10000 10000 500
                                     1000
                                           3000 1200
                                                       200000 250
                                                                   1000
                                           3000 1200
18
     10000
            ----- 10000 10000 500
                                     1000
                                                       200000 250
                                                                   1000
19
     10000
            ----- 10000 10000 500
                                     1000
                                           3000 1200
                                                       200000 250
                                                                   1000
20
     10000
            ----- 10000 10000 500
                                     1000
                                           3000 1200
                                                       200000 250
                                                                   1000
```

M2PA RFC Timers (in msec, T16 in microsec)

```
TSET T1
             Т2
                    Т3
                           T4N
                                 T4E
                                      T5
                                             Τ6
                                                  Т7
                                                         T16
                                                                 T17
                                                                      T18
             20000
                    5000
                          20000 500
                                       5000
                                             3000 1000
                                                         200000 250
                                                                      1000
1
     6000
2
     300000 20000
                    2000
                           30000 500
                                       100
                                             3000 1200
                                                         200000 250
                                                                      1000
3
     300000 20000
                    2000
                           30000 500
                                       100
                                             3000 1200
                                                         200000 250
                                                                      1000
     300000 20000
                    2000
                           30000 500
                                       100
                                             3000 1200
                                                         200000 250
                                                                      1000
4
5
     300000 20000
                    2000
                           30000 500
                                       100
                                             3000 1200
                                                         200000 250
                                                                      1000
     300000 20000
                    2000
                           30000 500
                                       100
                                             3000 1200
                                                         200000 250
                                                                      1000
6
7
     300000 20000
                    2000
                                       100
                                             3000 1200
                                                         200000 250
                                                                      1000
                           30000 500
     300000 20000
                    2000
                          30000 500
                                      100
                                             3000 1200
                                                         200000 250
                                                                      1000
```

9	27500	10000	3850	4859	450	5700	3750	1150	250	375
8750 10 1000	300000	20000	2000	30000	500	100	3000	1200	200000	250
11 1000	300000	20000	2000	30000	500	100	3000	1200	200000	250
12 1000	300000	20000	2000	30000	500	100	3000	1200	200000	250
13 1000	300000	20000	2000	30000	500	100	3000	1200	200000	250
14	300000	20000	2000	30000	500	100	3000	1200	200000	250
15 1000	300000	20000	2000	30000	500	100	3000	1200	200000	250
16 1000	300000	20000	2000	30000	500	100	3000	1200	200000	250
17	300000	20000	2000	30000	500	100	3000	1200	200000	250
1000	300000	20000	2000	30000	500	100	3000	1200	200000	250
1000 19	300000	20000	2000	30000	500	100	3000	1200	200000	250
1000 20 1000	300000	20000	2000	30000	500	100	3000	1200	200000	250

2. Change the desired timer set with the <code>chg-m2pa-tset</code> command. To change a specific timer set, enter the <code>chg-m2pa-tset</code> command with the <code>tset</code> and <code>ver</code> parameters and the timer parameters you wish to change. For this example, to change the values of the **RFC** version of timer set 1, enter this command.

```
chg-m2pa-
tset:tset=1:t1=27500:t2=10000:t3=3850:t4e=450:t4n=45000:t5=5
700 :t6=3750:t7=1150:t16=250000:t17=375:t18=8750:ver=rfc
```

To change the values of the Draft 6 version of timer set 1, enter this command.

```
chg-m2pa-
tset:tset=1:t1=27500:t3=3850:t4e=450:t4n=45000:t5=5700 :t6=3
750:t7=1150:t16=250000:t17=375:t18=8750:ver=d6
```

Note:

The values for the M2PA timers are shown in Table 6-13.

To copy an M2PA timer set to another timer set, enter the chg-m2pa-tset command with the tset, ver, and srctset parameters. For this example, to copy the RFC version of timer set 9 to timer set 1, enter this command.

```
chg-m2pa-tset:tset=1:srctset=9:ver=rfc
```

To copy the Draft 6 version of timer set 9 to timer set 1, enter this command.

```
chg-m2pa-tset:tset=1:srctset=9:ver=d6
```



Note:

Thever parameter is optional and does not have to be specified to change the M2PARFC timer values. The default value for thever parameter isrfc. If you wish to change the M2PA Draft 6 timer values, thever=d6 parameter must be specified with the chg-m2pa-tset command.

When the chg-m2pa-tset command has successfully completed, the following message should appear.

```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0 CHG-M2PA-TSET: MASP A - COMPLTD
```

3. Verify the changes by entering the rtrv-m2pa-tset command specifying the timer set and version parameter values specified in 2. For this example, enter one of these commands.

```
rtrv-m2pa-tset:tset=1:ver=rfc
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0
M2PA RFC Timers (in msec, T16 in microsec)
TSET T1
           Т2
                 Т3
                       T4N
                             T4E T5
                                       Τ6
                                            Τ7
                                                 T16
                                                         T17 T18
    27500 10000 3850 45000 450 5700 3750 1150 250000 375 8750
rtrv-m2pa-tset:tset=1:ver=d6
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0
M2PA Draft 6 Timers (in msec, T16 in microsec)
TSET T1
                 Т3
                       T4N
                             T4E T5
                                       T6 T7
                                                 T16
                                                         T17 T18
    27500
          ---- 3850 45000 450 5700 3750 1150 250000 375 8750
rtrv-m2pa-tset:tset=9:ver=rfc
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0
M2PA RFC Timers (in msec, T16 in microsec)
TSET T1
           Τ2
                 Т3
                       T4N
                             T4E T5
                                       Τ6
                                            Т7
                                                 T16
                                                         T17 T18
    27500 10000 3850 45000 450 5700 3750 1150 250000 375 8750
```



```
rtrv-m2pa-tset:tset=9:ver=d6

rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0

M2PA Draft 6 Timers (in msec, T16 in microsec)

TSET T1 T2 T3 T4N T4E T5 T6 T7 T16 T17

T18
9 27500 ----- 3850 45000 450 5700 3750 1150 250000 375
8750
```

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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

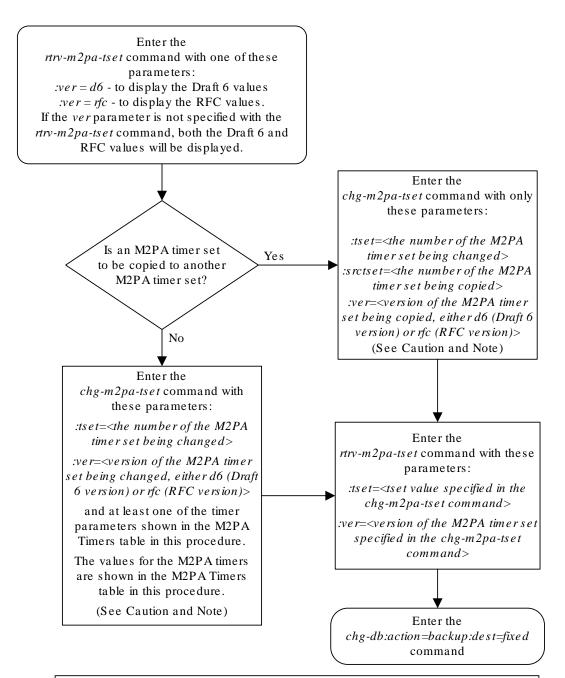
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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



Figure 6-33 Changing an M2PA Timer Set



Notes:

- 1. Either the timer parameters or the *srctset* parameter must be specified with the *chg-m2pa-tset* command. Both the timer parameters and the *srctset* parameter cannot be specified with the *chg-m2pa-tset* command.
- 2. If the *ver* parameter is not specified with the *chg-m2pa-tset* command, the RFC values will be changed. To change the Draft 6 values, the *ver=d6* parameter must be specified with the *chg-m2pa-tset* command.

Caution: Changing an M2PA timer set may affect the performance of any associations using the timer set being changed.

Changing a UA Parameter Set

Use this procedure to change the values in a **UA** (user adapter) parameter set using the chg-uaps command. The chg-uaps command uses these parameters.

:set - the UA parameter set being changed, from 1 - 9

:scrset – the source **UA** parameter set used to copy the values from one **UA** parameter set to another, from 1 to 10.

:timer – the timer being changed, from 1 to 10. Currently, there are only three timers defined:

- Timer 2 The False IP Connection Congestion Timer the maximum amount of time (in milliseconds) that an association is allowed to remain congested before failing due to false connection congestion.
- Timer 3 The UA Heartbeat Period Timer The frequency, in milliseconds, that heartbeat messages are transmitted.
- Timer 4 The UA Heartbeat Received Timer The amount of time, in milliseconds, that the EAGLE waits for a response to the heartbeat message that was transmitted. If a response to the heartbeat message is not received in the amount of time defined by Timer 4, the association is torn down

:tvalue - The value of the timer specified by the timer parameter.

- The value of timer 2 is from 10 to 30,000 milliseconds. The system default value is 3,000 milliseconds.
- The value of timer 3 is from 100 to 60,000 milliseconds. The system default value is 10,000 milliseconds.
- The value of timer 4 is from 100 to 10,000 milliseconds. The system default value is 5.000 milliseconds.

:parm-the **UA** parameters, from 1 to 10. Currently, only four UA parameters are defined.

- 1 Controlling ASPSNM Behavior
- 2 Controlling ASP/Application Server State Notification Behavior
- 3 UA Serviceability Options
- 4 **SCTP** Payload Protocol Indicator Option

:pvalue – the value of the **UA** parameters, which is dependent on the parm parameter value. The value of the pvalue parameter is a bit-mapped value, requiring a 0 in the specific bit position to disable the item, or a 1 in the specific bit position to enabled the item. The value of the pvalue parameter is a 32-bit number. Any bits not specified in the following lists are not used.

- If the parm value is 1, the bits used by the pvalue parameter are:
 - 0 Broadcast controls broadcast phase SNMTFPs, TFRs and TFAs that are sent when a destination's status changes. If this flag is set, SNMTFPs/TFRs/ TFAs are replicated to all associations/sockets that meet the Multicast SNM Criteria and have this enabled. The default is to enable all broadcast phase messages.



- 1 Response Method controls the sending of an SNMTFC/UPU as a reply to a
 message received on an association/socket for an unavailable destination. The
 SNMTFC/UPU is replicated to all associations/sockets that have this capability and
 meet the Response SNM Criteria. The default is to allow the response to be sent.
- 6 Broadcast Congestion Status Change controls the sending of unsolicited congestion status changes by an ASP. Unsolicited congestion status messages (TFCs generated when a destination's congestion status changes) are replicated to all ASPs who have this capability and meet the Multicast SNM Criteria. The default is to generate no unsolicited congestion status changes.

Table 6-14 shows the values can be entered for the pvalue parameter if the parm value is 1. The pvalue parameter value can be entered as a hexadecimal or a decimal number.

Table 6-14 Valid PVALUE Parameter Values if PARM=1

Bits Enabled	Bits Disabled	Hexadecimal Value	Decimal Value
None	Bit 0 - Broadcast Bit 1 - Response Method Bit 6 - Broadcast Congestion Status Change	h'0	0
Bit 0 - Broadcast	Bit 1 - Response Method Bit 6 - Broadcast Congestion Status Change	h'1	1
Bit 1 - Response Method	Bit 0 - Broadcast Bit 6 - Broadcast Congestion Status Change	h'2	2
Bit 0 - Broadcast Bit 1 - Response Method	Bit 6 - Broadcast Congestion Status Change	h'3*	3*
Bit 6 - Broadcast Congestion Status Change	Bit 0 - Broadcast Bit 1 - Response Method	h'40	64
Bit 6 - Broadcast Congestion Status Change Bit 0 - Broadcast	Bit 1 - Response Method	h'41	65
Bit 6 - Broadcast Congestion Status Change Bit 1 - Response Method	Bit 0 - Broadcast	h'42	66
Bit 0 - Broadcast Bit 1 - Response Method Bit 6 - Broadcast Congestion Status Change	None	h'43	67
* The system default value			

- If the parm value is 2, the bits used by the pvalue parameter are:
 - 0 ASP Active Notifications controls the sending of ASP-Active notifications. If this value is specified, an ASP-Default notification is sent when an ASP transitions to the ASP-ACTIVE state. The default is not to send ASP-Active notifications.



1 – ASP Inactive Notifications – controls the sending of ASP-Inactive notifications. If this value is specified, an ASP-Inactive notification is sent when an ASP transitions to the ASP-INACTIVE state. The default is not to send ASP-Inactive notifications.



To see the **ASP** activations and inactivations, bits 0 and 1 of the pvalue parameter value need to be enabled. See Table 6-15.

2 – ASPAS State Query – controls the sending of ASP/AS State notifications on request by an ASP. If this value is specified, the EAGLE responds with ASP and AS state notifications if the remote ASP sends ASP-UP or ASP-INACTIVE, while the local ASP is in the ASP-INACTIVE state, or the remote ASP sends an ASP-ACTIVE notification while the local ASP is in the ASP-ACTIVE state. The default is not to send ASP/AS state notifications.

Table 6-15 shows the values can be entered for the pvalue parameter if the parm value is 2. The pvalue parameter value can be entered as a hexadecimal or a decimal number.

Table 6-15 Valid PVALUE Parameter Values if PARM=2

Bits Enabled	Bits Disabled	Hexadecim al Value	Decimal Value
	Bit 0 - ASP Activate Notifications		
None	Bit 1 - ASP Inactivate Notifications	h'0*	0*
	Bit 2 - ASP AS State Query		
Bit 0 - ASP Activate Notifications	Bit 1 - ASP Inactivate Notifications Bit 2 - ASP AS State Query	h'1	1
Bit 1 - ASP Inactivate Notifications	Bit 0 - ASP Activate Notifications Bit 2 - ASP AS State Query	h'2	2
Bit 0 - ASP Activate Notifications Bit 1 - ASP Inactivate Notifications	Bit 2 - ASP AS State Query	h'3	3
Bit 2 - ASP AS State Query	Bit 0 - ASP Activate Notifications Bit 1 - ASP Inactivate Notifications	h'4	4
Bit 0 - ASP Activate Notifications Bit 2 - ASP AS State Query	Bit 1 - ASP Inactivate Notifications	h'5	5
Bit 1 - ASP Inactivate Notifications Bit 2 - ASP AS State Query	Bit 0 - ASP Activate Notifications	h'6	6



Table 6-15 (Cont.) Valid PVALUE Parameter Values if PARM=2

Bits Enabled		Bits Disabled	Hexadecim al Value	Decimal Value
Bit 0 - ASP Activate Notifications				
Bit 1 - ASP Inactivate Notifications Bit 2 - ASP AS State Query	None		h'7	7
* The system default value				

- If the parm value is 3, the bits used by the pvalue parameter are:
 - 0 UA Heartbeats heartbeat messages are sent on connections from the EAGLE to the far-end node that are in the ASP-Down, ASP-Active, and ASP-Inactive states if the bit is enabled.
 - 1 UA Graceful Shutdown enables the graceful shutdown of IPSG M3UA connections if the bit is enabled.

Table 6-16 shows the values can be entered for the pvalue parameter if the parm value is 3. The pvalue parameter value can be entered as a hexadecimal or a decimal number.

Table 6-16 Valid PVALUE Parameter Values if PARM=3

Bits Enabled	Bits Disabled	Hexadecima I Value	Decimal Value
None	Bit 0 - UA Heartbeats Bit 1 - UA Graceful Shutdown	h'0*	0*
Bit 0 - UA Heartbeats	Bit 1 - UA Graceful Shutdown	h'1	1
Bit 1 - UA Graceful Shutdown	Bit 0 - UA Heartbeats	h'2	2
Bit 0 - UA Heartbeats Bit 1 - UA Graceful Shutdown	None	h'3	3
* The system default value			

• If the parm value is 4, the bit 0, the SCTP Payload Protocol Indicator byte order option, is used by the pvalue parameter. This bit indicates whether the SCTP Payload Protocol Indicator (PPI) in the received or transmitted message should be in the Big Endian and Little Endian byte format.

Table 6-17 shows the values can be entered for the pvalue parameter if the parm value is 4. The pvalue parameter value can be entered as a hexadecimal or a decimal number.

Table 6-17 Valid PVALUE Parameter Values if PARM=4

SCTP Payload Protocol Indicator Byte Order Option - Bit 0	Hexadecimal Value	Decimal Value
Big Endian Byte Format	h'0*	0*
Little Endian Byte Format	h'1	1
* The system default value		



UA parameter set 10 contains the default values for the **UA** parameter sets and cannot be changed.

The set and scrset parameter values cannot be the same.

If the scrset parameter is specified, no other optional parameter may be specified.

The timer and tvalue parameters must be specified together. If one is specified, the other must be specified.

The parm and pvalue parameters must be specified together. If one is specified, the other must be specified.

Canceling the RTRV-UAPS Command

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

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

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

 Display the values in the UA parameter set being changed by entering the rtrvuaps command and specifying the desired UA parameter set number, from 1 to 9.
 For this example, enter this command.

```
rtrv-uaps:set=3
```

This is an example of possible output.

rlghncxa	03w 10-07-	28 09:12:36	GMT	EAGLE5	42.0.0
SET	TIMER	TVALUE P	ARM	PV	ALUE
3	1	0	1		3
3	2	3000	2		0
3	3	10000	3		0
3	4	5000	4		0
3	5	0	5		0
3	6	0	6		0
3	7	0	7		0
3	8	0	8		0
3	9	0	9		0
3	10	0	10		0



TIMER 2: False IP Connection Congestion Timer, max time an association can be congested before failing due to false congestion. SS7IPGW and IPGWI applications enforce 0-30000(ms). Not supported on IPSG application.

TVALUE: Valid range = 32-bits

TIMER 3: UA HeartBeat Period Timer T(beat), time (ms) between sending of BEAT msgs by NE. IPSG, SS7IPGW and IPGWI applications enforce 100(ms)-60000(ms).

TVALUE : Valid range = 32-bits

TIMER 4: UA HeartBeat Received Timer T(beat ack), timeout period for response BEAT ACK msgs by NE. IPSG, SS7IPGW and IPGWI applications enforce 100(ms)-10000(ms).

TVALUE : Valid range = 32-bits

PARM 1: ASP SNM options. Each bit is used as an enabled/disabled flag for a particular ASP SNM option. Not supported on IPSG application.

PVALUE : Valid range = 32-bits

BIT VALUE

 $\begin{array}{ll} \mbox{O=Broadcast} & \mbox{O=Disabled , 1=Enabled} \\ \mbox{1=Response Method} & \mbox{O=Disabled , 1=Enabled} \end{array}$

2-5=Reserved

6=Broadcast Congestion Status Change 0=Disabled , 1=Enabled 7-31=Reserved

7-31=Reserved

PARM 2: ASP/AS Notification options. Each bit is used as an enabled/disabled flag for a particular ASP/AS Notification option. Not supported on IPSG application.

PVALUE : Valid range = 32-bits

BIT VALUE

0=ASP Active Notifications 0=Disabled , 1=Enabled 1=ASP Inactive Notifications 0=Disabled , 1=Enabled 2=ASP AS State Query 0=Disabled , 1=Enabled

3-31=Reserved

PARM 3: UA Serviceability Options. Each bit is used as an enabled/disabled flag for a particular UA Serviceability option. Supported on IPSG, SS7IPGW, and IPGWI applications. UA Graceful Shutdown supported on IPSG for M3UA only.

PVALUE : Valid range = 32-bits

BIT VALUE

0=UA Heartbeats 0=Disabled , 1=Enabled 1=UA Graceful Shutdown 0=Disabled , 1=Enabled

2-31=Reserved

PARM 4: SCTP Payload Protocol Indicator byte order option. Bit indicates

PPI value is RCV/TX in Big Endian or Little Endian byte

format.

Supported on IPSG-M2PA associations only.

PVALUE : Valid range = 32-bits

BIT VALUE

Endian

1-31=Reserved

If the new values of the UA parameter set are being copied from another UA parameter set, continue the procedure with 2.

If the new values of the UA parameter set are not being copied from another UA parameter set, continue the procedure with 3.

 Display the values in the UA parameter set that will be copied to the UA parameter set displayed in 1 by entering the rtrv-uaps command and specifying the desired UA parameter set number, from 1 to 10. For this example, enter this command.

rtrv-uaps:set=10

This is an example of possible output.

rlghncxa	03w 10-07-	28 09:12:36	GMT	EAGLE5	42.0.0
SET	TIMER	TVALUE P	ARM	PVA	ALUE
10	1	0	1		3
10	2	3000	2		0
10	3	10000	3		0
10	4	5000	4		0
10	5	0	5		0
10	6	0	6		0
10	7	0	7		0
10	8	0	8		0
10	9	0	9		0
10	10	0	10		0

TIMER 2: False IP Connection Congestion Timer, max time an association can be congested before failing due to false

congestion. SS7IPGW and IPGWI applications enforce 0-30000(ms). Not supported on IPSG application.

TVALUE : Valid range = 32-bits

TIMER 3: UA HeartBeat Period Timer T(beat), time (ms) between sending

of BEAT msgs by NE. IPSG, SS7IPGW and IPGWI

applications

enforce $100 \, (ms) - 60000 \, (ms)$.

TVALUE : Valid range = 32-bits

TIMER 4: UA HeartBeat Received Timer T(beat ack), timeout period for

response BEAT ACK msgs by NE. IPSG, SS7IPGW and IPGWI applications enforce $100\,(\text{ms})-10000\,(\text{ms})$.

TVALUE : Valid range = 32-bits

PARM 1: ASP SNM options. Each bit is used as an enabled/disabled

flag for a particular ASP SNM option. Not supported on

IPSG

application.

PVALUE : Valid range = 32-bits

BIT VALUE

2-5=Reserved

6=Broadcast Congestion Status Change 0=Disabled , 1=Enabled

7-31=Reserved

PARM 2: ASP/AS Notification options. Each bit is used as an enabled/disabled flag for a particular ASP/AS

Notification option. Not supported on IPSG application.

PVALUE : Valid range = 32-bits

BIT VALUE

0=ASP Active Notifications 0=Disabled , 1=Enabled 1=ASP Inactive Notifications 0=Disabled , 1=Enabled 2=ASP AS State Query 0=Disabled , 1=Enabled

3-31=Reserved

PARM 3: UA Serviceability Options. Each bit is used as an enabled/disabled flag for a particular UA Serviceability option. Supported on IPSG, SS7IPGW, and IPGWI applications. UA Graceful Shutdown supported on IPSG for M3UA only.

PVALUE : Valid range = 32-bits

BIT VALUE

0=UA Heartbeats 0=Disabled , 1=Enabled 1=UA Graceful Shutdown 0=Disabled , 1=Enabled

2-31=Reserved

PARM 4: SCTP Payload Protocol Indicator byte order option. Bit

indicates

PPI value is RCV/TX in Big Endian or Little Endian byte

format.

Supported on IPSG-M2PA associations only.

PVALUE : Valid range = 32-bits

BIT VALUE

0=Payload Protocol Indicator 0=Big Endian , 1=Little

Endian

1-31=Reserved

- 3. Change the **UA** parameter set values using the chg-uaps command with the **UA** parameter set value used in 1. If the parm and pvalue parameters are being specified, see these tables for the valid values of the pvalue parameter.
 - Table 6-14
 - Table 6-15
 - Table 6-16
 - Table 6-17

For this example, enter this command.

```
cha-
```

uaps:set=3:timer=2:tvalue=2000:parm=2:pvalue=1:parm=3:pvalue=3

The value of the <code>pvalue</code> parameter can be entered as either a decimal value or a hexadecimal value. This example shows the <code>pvalue</code> parameter value of the <code>chg-uaps</code> command being entered as a decimal value. If the decimal value of the <code>pvalue</code> parameter is 3, specify the <code>pvalue=h'</code> 3 parameter to specify the hexadecimal value for the <code>pvalue</code> parameter.

```
chg-
uaps:set=3:timer=2:tvalue=2000:parm=2:pvalue=h'1:parm=3:pval
ue=h'3
```

If the values from one **UA** parameter set are being copied to another **UA** parameter set, only the set and scrset parameters can be specified with the chg-uaps command. For example, to copy the values from **UA** parameter set 10 to **UA** parameter set 5, enter this command.

```
chg-uaps:set=5:scrset=10
```

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

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0 CHG-UAPS: MASP A - COMPLTD
```

4. Verify the changes using the rtrv-uaps command with the **UA** parameter set name used in 3. For this example, enter this command.

```
rtrv-uaps:set=3
```

This is an example of possible output.

rlghncxa	03w 10-07	-28 09:12:36	GMT	EAGLE5	42.0.0
SET	TIMER	TVALUE P	ARM	PVA	ALUE
3	1	0	1		3
3	2	2000	2		1
3	3	10000	3		3
3	4	5000	4		0
3	5	0	5		0
3	6	0	6		0
3	7	0	7		0
3	8	0	8		0
3	9	0	9		0
3	10	0	10		0

TIMER 2: False IP Connection Congestion Timer, max time an association can be congested before failing due to false

congestion. SS7IPGW and IPGWI applications enforce 0-30000(ms). Not supported on IPSG application.

TVALUE: Valid range = 32-bits

TIMER 3: UA HeartBeat Period Timer T(beat), time (ms) between sending

of BEAT msgs by NE. IPSG, SS7IPGW and IPGWI applications

enforce 100(ms)-60000(ms).

TVALUE: Valid range = 32-bits



TIMER 4: UA HeartBeat Received Timer T(beat ack), timeout period for response BEAT ACK msgs by NE. IPSG, SS7IPGW and IPGWI applications enforce 100(ms)-10000(ms).

TVALUE: Valid range = 32-bits

PARM 1: ASP SNM options. Each bit is used as an enabled/disabled flag for a particular ASP SNM option. Not supported on IPSG application.

PVALUE : Valid range = 32-bits

BIT VALUE

2-5=Reserved

 $6 ext{-Broadcast Congestion Status Change 0=Disabled}$, $1 ext{-Enabled}$

7-31=Reserved

PARM 2: ASP/AS Notification options. Each bit is used as an enabled/disabled flag for a particular ASP/AS Notification option. Not supported on IPSG application.

PVALUE : Valid range = 32-bits

BIT VALUE

0=ASP Active Notifications 0=Disabled , 1=Enabled 1=ASP Inactive Notifications 0=Disabled , 1=Enabled 2=ASP AS State Query 0=Disabled , 1=Enabled

3-31=Reserved

PARM 3: UA Serviceability Options. Each bit is used as an enabled/disabled flag for a particular UA Serviceability option. Supported on IPSG, SS7IPGW, and IPGWI applications. UA Graceful Shutdown supported on IPSG for M3UA only.

PVALUE : Valid range = 32-bits

BIT VALUE

0=UA Heartbeats 0=Disabled , 1=Enabled 1=UA Graceful Shutdown 0=Disabled , 1=Enabled

2-31=Reserved

PARM 4: SCTP Payload Protocol Indicator byte order option. Bit

indicates

PPI value is RCV/TX in Big Endian or Little Endian byte

format.

Supported on IPSG-M2PA associations only.

PVALUE : Valid range = 32-bits

BIT VALUE

Endian

1-31=Reserved

If 2 was performed, for this example, enter this command.

rtrv-uaps:set=5



This is an example of possible output.

rlghncxa03w 10-07-28 09:12:36 GMT EAGLE5 42.0.0 TIMER TVALUE PARM 5 1 0 3 1 5 2 2 0 3000 5 3 10000 3 0 5 4 5000 4 5 5 5 0 0 5 6 0 6 5 7 7 0 0 5 8 0 8 0 5 9 0 9 0 5 10 0 10 0 TIMER 2: False IP Connection Congestion Timer, max time an association can be congested before failing due to false congestion. SS7IPGW and IPGWI applications enforce 0-30000 (ms). Not supported on IPSG application. TVALUE : Valid range = 32-bits TIMER 3: UA HeartBeat Period Timer T(beat), time (ms) between sending of BEAT msgs by NE. IPSG, SS7IPGW and IPGWI applications enforce $100 \, (ms) - 60000 \, (ms)$. TVALUE: Valid range = 32-bits TIMER 4: UA HeartBeat Received Timer T (beat ack), timeout period for response BEAT ACK msgs by NE. IPSG, SS7IPGW and IPGWI applications enforce 100 (ms) -10000 (ms). TVALUE : Valid range = 32-bits PARM 1: ASP SNM options. Each bit is used as an enabled/ disabled flag for a particular ASP SNM option. Not supported on IPSG

application.

PVALUE : Valid range = 32-bits

BIT VALUE 0=Broadcast 0=Disabled,

1=Enabled

1=Response Method 0=Disabled,

1=Enabled

2-5=Reserved

6=Broadcast Congestion Status Change 0=Disabled ,

1=Enabled

7-31=Reserved

PARM 2: ASP/AS Notification options. Each bit is used as an enabled/disabled flag for a particular ASP/AS Notification option. Not supported on IPSG



application.

PVALUE : Valid range = 32-bits

BIT VALUE

0=ASP Active Notifications 0=Disabled , 1=Enabled 1=ASP Inactive Notifications 0=Disabled , 1=Enabled 2=ASP AS State Query 0=Disabled , 1=Enabled

3-31=Reserved

PARM 3: UA Serviceability Options. Each bit is used as an

enabled/disabled flag for a particular UA Serviceability option. Supported on IPSG, SS7IPGW, and IPGWI applications.

UA Graceful Shutdown supported on IPSG for M3UA only.

PVALUE : Valid range = 32-bits

BIT VALUE

0=UA Heartbeats 0=Disabled , 1=Enabled 1=UA Graceful Shutdown 0=Disabled , 1=Enabled

2-31=Reserved

PARM 4: SCTP Payload Protocol Indicator byte order option. Bit

indicates

PPI value is RCV/TX in Big Endian or Little Endian byte

format.

Supported on IPSG-M2PA associations only.

PVALUE : Valid range = 32-bits

BIT VALUE

0=Payload Protocol Indicator 0=Big Endian , 1=Little

Endian

1-31=Reserved

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

BACKUP (FIXED) : MASP A - Backup starts on active MASP.

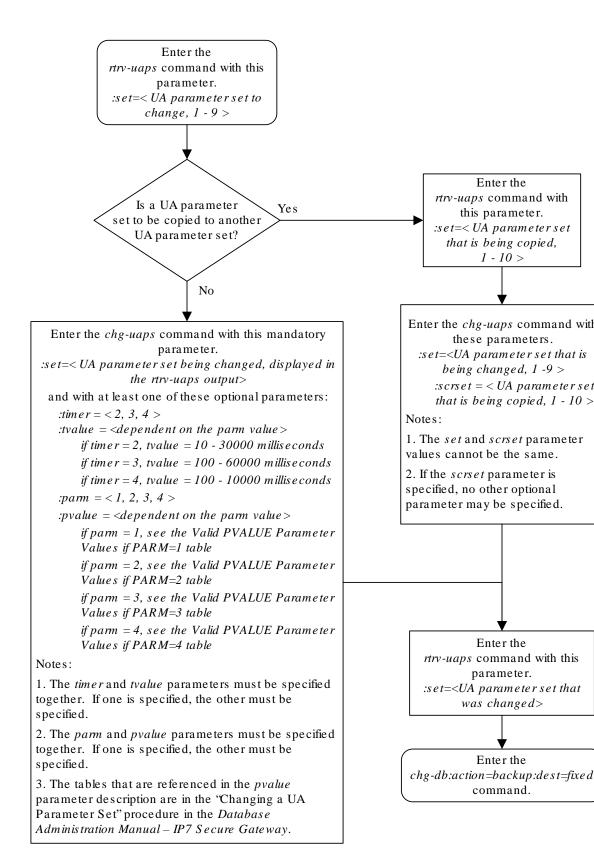
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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



Figure 6-34 Changing a UA Parameter Set



Turning Off the Large MSU Support for IP Signaling Feature

This procedure is used to turn off the Large MSU Support for IP Signaling feature, using the chg-ctrl-feat command.

The chg-ctrl-feat command uses these parameters:

:partnum - The part number of the Large MSU Support for IP Signaling feature, 893018401.

: status=off - used to turn off the Large MSU Support for IP Signaling feature.

The status of the Large MSU Support for IP Signaling feature must be on and is shown with the rtrv-ctrl-feat command.



Caution:

If the Large MSU Support for IP Signaling feature is turned off, the EAGLE will not process messages with a signaling information field (SIF) that is larger than 272 bytes.

Display the status of the Large MSU Support for IP Signaling feature by entering the rtrv-ctrl-feat:partnum=893018401 command. The following is an example of the possible output.

```
rlghncxa03w 10-04-28 21:15:37 GMT EAGLE5 42.0.0
The following features have been permanently enabled:
```

Feature Name Partnum Status Quantity Large MSU for IP Sig 893018401 on

The following features have been temporarily enabled:

Feature Name Partnum Status Quantity Trial Period Left

Zero entries found.

The following features have expired temporary keys:

Feature Name Partnum Zero entries found.

If the status of the Large MSU Support for IP Signaling feature is off, or if the Large MSU Support for IP Signaling feature is not enabled, this procedure cannot be performed.

Turn off the Large MSU Support for IP Signaling feature by entering the chq-ctrl-feat command with the status=off parameter. For example, enter this command.

chg-ctrl-feat:partnum=893018401:status=off



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

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0 CHG-CTRL-FEAT: MASP B - COMPLTD
```

3. Verify that the Large MSU Support for IP Signaling feature has been turned off by using the rtrv-ctrl-feat:partnum=893018401 command. The following is an example of the possible output.

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

```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.

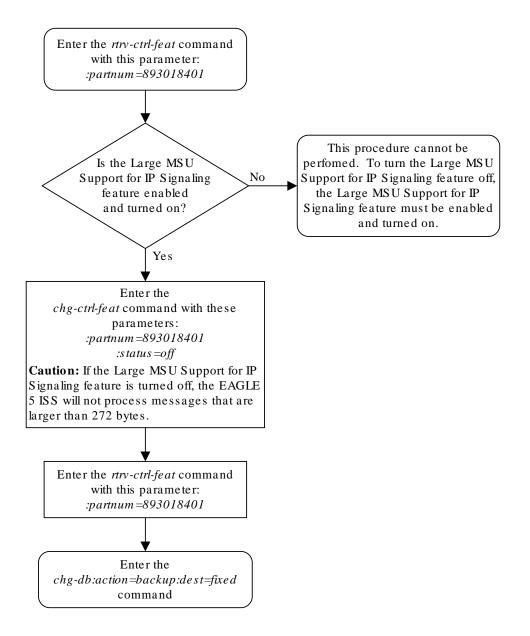
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.

BACKUP (FIXED) : MASP A - Backup starts on standby MASP.

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



Figure 6-35 Turning Off the Large MSU Support for IP Signaling Feature





A

Reference Information

Appendix D, Reference Information, contains the following information that is used by more than one procedure in this manual: Requirements for EAGLEs Containing more than 700 Signaling Links Determining the Number of High-Speed and Low-Speed Signaling Links

Maximum Card Capacity for Different Card Types

Maximum Card Capacity (MaxTPS), Maximum RSVDSLKTPS and MAXSLKTPS, and Allowable Value Ranges for RSVDSLKTPS and MAXSLKTPS.

If the E5-ENET-B IPSG High Throughput feature is turned ON, then the maximum capacity supported on the E5-ENET-B IPSG card is 9500 TPS, otherwise the capacity is limited to a maximum of 6500 TPS. The SLIC card working as IPSG supports the maximum capacity of 12K irrespective of the **ON** or **OFF** status of the High Throughput. See the following table:

Table A-1 MaxTPS Per Card

Card Type	IPSG High		Max MAXSLKTP	Range		
	Throughp ut FAK Status	Card Capacity)	S	S	RSVDSLKTPS	MAXSLKTPS
E5-ENET-A	N/A	5000	5000	5000	0-5000	100-5000
E5-ENET-B	OFF	6500	6500	6500	0-6500	100-6500
E5-ENET-B	ON	9500	9500	9500	0-9500	100-9500
SLIC	OFF	12000	12000	12000	0-12000	100-12000
SLIC	ON	12000	12000	12000	0-12000	100-12000

Requirements for EAGLEs Containing more than 1200 Signaling Links

To provision an EAGLE with more than 1200 signaling links (currently the EAGLE can have maximum capacities of 1200, 1500, 2000, or 2800 signaling links), the following additional requirements must be met:

- The Measurements Platform feature must be enabled. Perform these procedures in Database Administration - System Management User's Guide to enable the Measurements Platform Feature:
 - Adding an MCPM
 - Configuring the IP Communications Link for the Measurements Platform Feature
 - Adding an FTP Server
- To provision more than 1200 signaling links, the Large System # Links controlled feature must be enabled for 1500, 2000, or 2800 signaling links. For more information on

enabling this feature, go to the Enabling the Large System # Links Controlled Feature procedure.

Determining the Number of High-Speed and Low-Speed Signaling Links

The EAGLE can contain these quantities of signaling links.

- The maximum number of IP signaling links (signaling links assigned to IPLIMx cards, IPGWx cards, or IPSG cards) or ATM high-speed signaling links (signaling links (signaling links (signaling links assigned to cards running either ATMANSI or ATMITU applications), is limited by the total provisioned system TPS (transactions per second). If the HIPR2 High Rate Mode feature is not enabled or turned on, the total provisioned system TPS is 500,000 TPS. If the HIPR2 High Rate Mode feature is enabled and turned on, the total provisioned system TPS is 1,000,000 (1M) TPS. The total provisioned system TPS is shown in the rtrv-tps output. The EAGLE supports these quantities.
 - 187 IPLIMx cards with each card supporting 4000 TPS. An IPLIMx card can contain up to 16 signaling links. For more information about configuring an IPLIMx signaling link, see the "Adding an IPLIMx Signaling Link" procedure in *Database Administration IP7 User's Guide*. The EAGLE can support a maximum of 250 IPLIMx cards but not all the IPLIMx cards can contain provisioned signaling links.
 - 187 IPGWx cards with each card supporting 4000 TPS. An IPGWx card can contain one signaling link. For more information about configuring an IPGWx signaling link, see the "Adding an IPGWx Signaling Link" procedure in *Database Administration IP7 User's Guide*. The EAGLE can support a maximum of 250 IPGWx cards if the TPS that is assigned to some of the IPGWx cards is less than 4000, and there are no other types of cards are in the database other than the control cards.
 - 150 IPSG cards with each card supporting 5000 TPS. An IPSG card can contain up to 32 (128 for SLIC) signaling links. For more information about configuring an IPSG signaling link, see the "Adding an IPSG M2PA Signaling Link" procedure or "Adding an IPSG M3UA Signaling Link" procedure in Database Administration IP7 User's Guide. The EAGLE can support a maximum of 250 IPSG cards if the TPS that is assigned to some of the IPSG cards is less than 5000, and there are no other types of cards are in the database other than the control cards.
 - The amount of TPS for an ANSI ATM high-speed signaling link is 1630. The amount of TPS for an ITU ATM high-speed signaling link is 2038. The EAGLE supports a maximum of 460 ANSI ATM high-speed signaling links and a maximum or 368 ITU ATM high-speed signaling links.
- A maximum of 80 unchannelized E1 signaling links. An HC MIM can contain two
 unchannelized E1 signaling links. An E5-E1T1 card can contain one
 unchannelized E1 signaling link.
- A maximum of 180 unchannelized T1 signaling links. An unchannelized T1 signaling link can be assigned only to an E5-E1T1 card. An E5-E1T1 card can contain one unchannelized T1 signaling link.

The EAGLE can contain a maximum of 250 cards. This quantity does not include the control cards. The sum of the quantities of the signaling links shown in this list cannot



be provisioned in the EAGLE as the EAGLE cannot contain enough cards to support the sum of the quantities of these signaling links.

Other signaling links, not shown in this list, can be provisioned if there is space in the shelves for the cards that support these signaling links, and the enabled signaling link quantity is not exceeded.

This hardware is the only hardware that is supported for an EAGLE containing 2001 to 2800 signaling links.

- E5-E1/T1/E5-E1T1-B
- E5-ATM-E5-ATM-B
- E5-SM4G/E5-SM8G
- E5-ENET/E5-ENET-B
- E5-STC card for the EAGLE 5 Integrated Monitoring Support feature

Enabling the Large System # Links Controlled Feature

This procedure is used to enable the Large System # Links controlled feature using the feature's part number and a feature access key.

The feature access key for the Large System # Links controlled feature is based on the feature's part number and the serial number of the **EAGLE**, making the feature access key site-specific.

This feature allows the **EAGLE** to contain a maximum of either 1500, 2000, or 2800 signaling links.

The enable-ctrl-feat command enables the controlled feature by inputting the controlled feature's access key and the controlled feature's part number with these parameters:



As of Release 46.3, the fak parameter is no longer required. This parameter is only used for backward compatibility.

: fak – The feature access key provided by Oracle. The feature access key contains 13 alphanumeric characters and is not case sensitive.

:partnum - The Oracle-issued part number associated with the signaling link quantity being enabled:

- 893005901 for the 1500 signaling link quantity
- 893005910 for the 2000 signaling link quantity.
- 893005911 for the 2800 signaling link quantity.

The <code>enable-ctrl-feat</code> command requires that the database contain a valid serial number for the <code>EAGLE</code>, and that this serial number is locked. This can be verified with the <code>rtrv-serial-num</code> command. The <code>EAGLE</code> 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 <code>EAGLE</code> is on-site, by using the <code>ent-serial-num</code> command. The <code>ent-serial-num</code> command uses these parameters.



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

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

Note:

To enter and lock the **EAGLE**'s serial number, the <code>ent-serial-num</code> command must be entered twice, once to add the correct serial number to the database with the <code>serial</code> parameter, then again with the <code>serial</code> and the <code>lock=yes</code> parameters to lock the serial number. You should verify that the serial number in the database is correct before locking the serial number. The serial number can be found on a label affixed to the control shelf (shelf 1100).

This feature cannot be temporarily enabled (with the temporary feature access key).

Once this feature is enabled with the <code>enable-ctrl-feat</code> command, the feature is also activated. The <code>chg-ctrl-feat</code> command is not necessary to activate the feature.

This feature cannot be turned off with the <code>chg-ctrl-feat</code> command and the <code>status=off</code> parameter.

Hardware Supported for Signaling Link Quantities Greater than 2000

This hardware is the only hardware that is supported for an EAGLE containing 2001 to 2800 signaling links.

- HC-MIM
- E5-E1/T1
- E5-ATM
- E5-SM4G
- E5-ENET
- E5-based control cards
- E5-STC card for the EAGLE Integrated Monitoring Support feature

To increase the signaling link quantity to more than 2000 signaling links, or HIPR2 cards must be installed into card locations 9 and 10 in each shelf in the **EAGLE**. Enter the rept-stat-gpl:gpl=hipr2 command to verify whether or not **HIPR2** cards are installed in the EAGLE shelves.

1. Display the status of the Large System # Links controlled feature by entering the rtrv-ctrl-feat command.

The following is an example of the possible output.

rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0 The following features have been permanently enabled:



Feature Name	Partnum	Status	Quantity
Command Class Management	893005801	on	
LNP Short Message Service	893006601	on	
Intermed GTT Load Sharing	893006901	on	
XGTT Table Expansion	893006101	on	400000
XMAP Table Expansion	893007710	off	
Routesets	893006401	on	6000
HC-MIM SLK Capacity	893012707	on	64

The following features have been temporarily enabled:

Feature Name Partnum Status Quantity Trial Period Left

Zero entries found.

The following features have expired temporary keys:

Feature Name Partnum Zero entries found.

If the rtrv-ctrl-feat output shows that the controlled feature is enabled for the desired quantity or for a quantity that is greater than the desired quantity, no further action is necessary. This procedure does not need to be performed.

2. Display the serial number in the database with the rtrv-serial-num command.

This is an example of the possible output.

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
System serial number = nt00001231
System serial number is not locked.
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
Command Completed
```

If the serial number is correct and locked, continue the procedure by performing one of these steps.

- If the enabled quantity will be 1500, continue the procedure with 8.
- If the enabled quantity will be 2000 or 2800, continue the procedure with 6.

If the serial number is correct but not locked, continue the procedure with 5.

If the serial number is not correct and not locked, continue the procedure with 3.

If the serial number is not correct, but is locked, this feature cannot be enabled and the remainder of this procedure cannot be performed. Contact the Customer Care Center to get an incorrect and locked serial number changed. Refer to My Oracle Support (MOS) for the contact information. The serial number can be found on a label affixed to the control shelf (shelf 1100).

3. Enter the correct serial number into the database using the ent-serial-num command with the serial parameter.

For this example, enter this command.

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

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

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0 ENT-SERIAL-NUM: MASP A - COMPLTD
```

4. Verify that the serial number entered into 3 was entered correctly using the rtrv-serial-num command.

This is an example of the possible output.

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
System serial number = nt00001231
System serial number is not locked.
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
Command Completed
```

If the serial number was not entered correctly, repeat 3 and 4 and re-enter the correct serial number.

5. Lock the serial number in the database by entering the ent-serial-num command with the serial number shown in 2, if the serial number shown in 2 is correct, or with the serial number shown in 4, if the serial number was changed in 3, and with the lock=yes parameter.

For this example, enter this command.

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

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

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0 ENT-SERIAL-NUM: MASP A - COMPLTD
```

Continue the procedure by performing one of these steps.

- If the enabled quantity will be 1500, continue the procedure with 8.
- If the enabled quantity will be 2000 or 2800, continue the procedure with 6.
- 6. Verify that HIPR2 cards are installed in card locations 9 and 10 in each shelf of the EAGLE. Enter this command.

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

This is an example of the possible output.

```
rlghncxa03w 09-07-01 11:40:26 GMT EAGLE5 41.1.0
```



GPL	CARD	RUNNING	APPROVED	TRIAL
HIPR2	1109	132-002-000	132-002-000	132-003-000
HIPR2	1110	132-002-000	132-002-000	132-003-000
HIPR2	1209	132-002-000	132-002-000	132-003-000
HIPR2	1210	132-002-000	132-002-000	132-003-000
HIPR2	1309	132-002-000	132-002-000	132-003-000
HIPR2	1310	132-002-000	132-002-000	132-003-000
HIPR2	2109	132-002-000	132-002-000	132-003-000
HIPR2	2110	132-002-000	132-002-000	132-003-000
Command	Completed			

7. Before the 2000 or 2800 signaling link quantity can be enabled, make sure the EAGLE is configured with the hardware shown in the "Hardware Supported for Signaling Link Quantities Greater than 2000" section.

If hardware other than the hardware shown in the "Hardware Supported for Signaling Link Quantities Greater than 2000" section is installed and provisioned, contact the Customer Care Center before enabling the 2000 or 2800 signaling link quantity. Refer to My Oracle Support (MOS) for the contact information.

8. Enable the Large System # Links controlled feature for the desired quantity with the enable-ctrl-feat command specifying the part number corresponding to the new quantity of signaling links and the feature access key.

To increase the number of signaling links the **EAGLE** can contain to 1500, enter this command.

```
enable-ctrl-feat:partnum=893005901:fak=<feature access key>
```

To increase the number of signaling links the **EAGLE** can contain to 2000, enter this command.

```
enable-ctrl-feat:partnum=893005910:fak=<feature access key>
```

To increase the number of signaling links the EAGLE can contain to 2800, enter this command.

enable-ctrl-feat:partnum=893005911:fak=<feature access key>



A temporary feature access key cannot be specified to enable this feature.

Note:

The values for the feature access key (the fak parameter) are provided by Oracle. If you do not have the feature access key for the feature you wish to enable, contact your Sales Representative or Account Representative.



When the <code>enable-crtl-feat</code> command has successfully completed, this message should appear.

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0 ENABLE-CTRL-FEAT: MASP B - COMPLTD
```

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

If the 1500 signaling link quantity was enabled in 8, enter this command.

```
rtrv-ctrl-feat:partnum=893005901
```

The following is an example of the possible output.

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0 The following features have been permanently enabled:
```

Feature Name Partnum Status Quantity Large System # Links 893005901 on 1500

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 2000 signaling link quantity was enabled in 8, enter this command.

rtrv-ctrl-feat:partnum=893005910

The following is an example of the possible output.

rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0 The following features have been permanently enabled:

Feature Name Partnum Status Quantity Large System # Links 893005910 on 2000

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 2800 signaling link quantity was enabled in 8, enter this command.

```
rtrv-ctrl-feat:partnum=893005911
```

The following is an example of the possible output.

rlghncxa03w 09-07-28 21:15:37 GMT EAGLE5 41.1.0 The following features have been permanently enabled:

Feature Name Partnum Status Quantity
Large System # Links 893005911 on 2800

The following features have been temporarily enabled:

Feature Name Partnum Status Quantity Trial Period

Left

Zero entries found.

The following features have expired temporary keys:

Feature Name Partnum

Zero entries found.

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

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

BACKUP (FIXED) : MASP A - Backup starts on active MASP.

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

 ${\tt BACKUP}$ (FIXED) : MASP A - Backup starts on standby MASP.

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



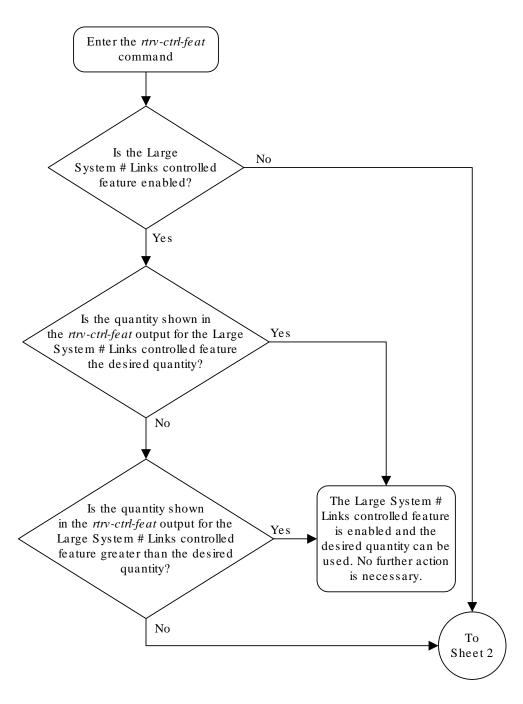
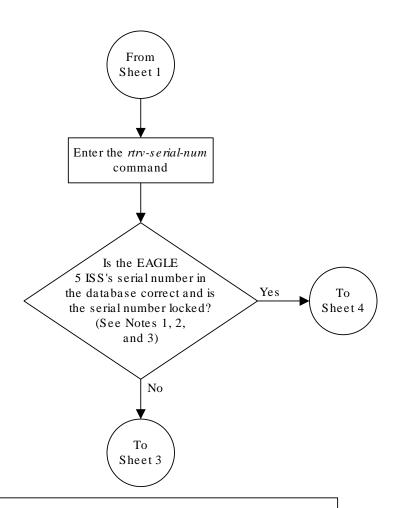


Figure A-1 Enabling the Large System # Links Controlled Feature



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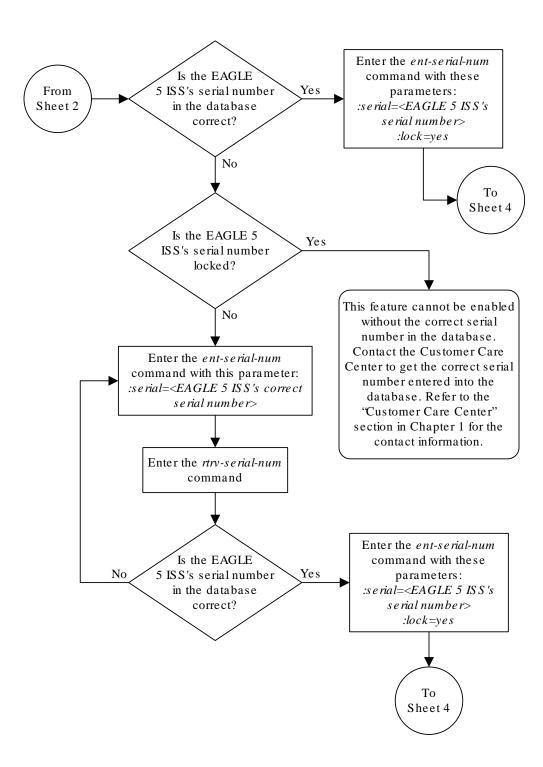
Notes:

- 1. If the serial number is locked, it cannot be changed.
- 2. If the serial number is not locked, the controlled feature cannot be enabled.
- 3. The serial number can be found on a label affixed to the control shelf (shelf 1100).



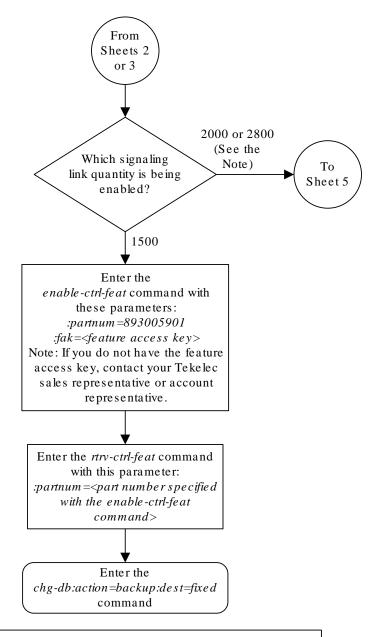
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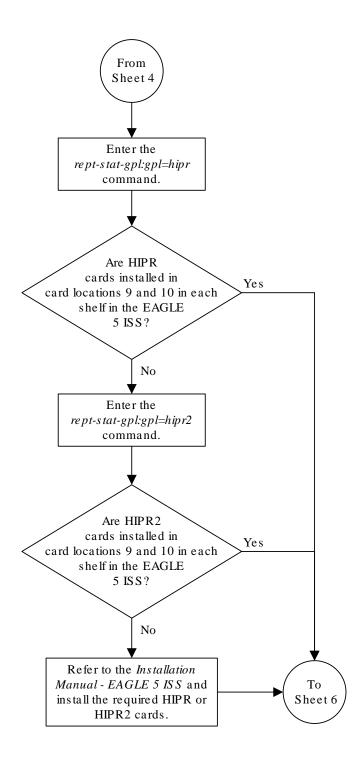


Note: Before the 2800 signaling link quantity is enabled, make sure the EAGLE 5 ISS is configured with the required hardware shown in the "Hardware Supported for Signaling Link Quantities Greater than 2000" section in this procedure.

If hardware other than the hardware shown in the "Hardware Supported for Signaling Link Quantities Greater than 2000" section is installed and provisioned, contact the Customer Care Center before enabling the 2800 signaling link quantity. Refer to the "Customer Care Center" section in Chapter 1 for the contact information.

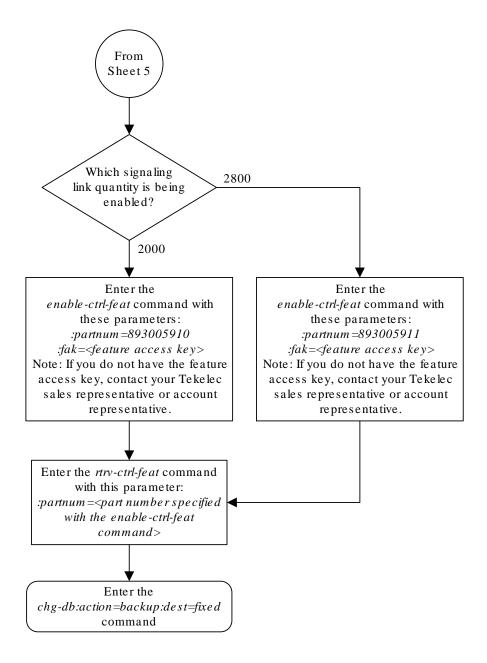
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