

Tekelec EAGLE[®] 5

Integrated Signaling System

Release 38.0

Database Administration Manual - IP7 Secure Gateway

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Patents

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

U.S. Patent Numbers:

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

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Table of Contents

Chapter 1. Introduction	1-1
Overview	1-1
Manual Organization	1-1
Related Publications	1-2
Documentation Availability, Packaging, and Updates	1-2
Documentation Admonishments	1-3
Customer Care Center	1-3
Emergency Response	1-4
Maintenance and Administration Subsystem	1-4
EAGLE 5 ISS Database Partitions	1-4
Fixed Disk Drive	1-5
Removable Cartridge	1-6
Locate Product Documentation on the Customer Support Site	1-6
Chapter 2. IP7 Secure Gateway Overview	2-1
Introduction	2-1
Hardware, Applications, and Functions	2-2
IP Connections	2-3
Point-to-Point Connectivity (IPLIM or IPLIMI Application)	2-12
Point-to-Multipoint Connectivity (SS7IPGW and IPGWI)	2-13
SNMP Agent Implementation	2-19
Mixed Networks Using the ANSI/ITUMTP Gateway Feature	2-21
IETF Adapter Layer Support	2-25
Overview	2-25
IP Signaling Gateway (IPSG)	2-35
Chapter 3. IETF IPLIMx M2PA Configuration Procedures	3-1
Adding IETF IPLIMx Components	3-1
Adding an IPLIMx Card	3-3
Adding an IPLIMx Signaling Link	3-12
Enabling the Large System # Links Controlled Feature	3-22
Configuring an IP Link	3-30
Adding an IP Host	3-47
Configuring an IP Card	3-50
Adding an IP Route	3-61
Adding an M2PA Association	3-66
Activating the Large BICC MSU Support for IP Signaling Feature	3-81
Removing IETF M2PA Components	3-88
Removing an IPLIMx Card	3-89

Removing an IPLIMx Signaling Link	3-90
Removing an IP Host Assigned to an IPLIMx Card	3-97
Removing an IP Route	3-102
Removing an M2PA Association	3-106
Changing IETF M2PA Components	3-108
Changing the Attributes of an M2PA Association	3-109
Changing the Buffer Size of an M2PA Association	3-122
Changing the Host Values of an M2PA Association	3-131
Changing the Link Value of an M2PA Association to another Link Value on the Same IPLIMx Card	3-147
Configuring SCTP Retransmission Control for an M2PA Association	3-155
Changing an M2PA Timer Set	3-161
Changing the SCTP Checksum Algorithm Option for M2PA Associations	3-168
Turning the Large BICC MSU Support for IP Signaling Feature Off	3-180
Chapter 4. IETF IPGWx M3UA and SUA Configuration Procedures	4-1
Adding IETF M3UA and SUA Components	4-2
Adding an IPGWx Card	4-4
Configuring an IPGWx Linkset	4-15
Adding a Mate IPGWx Linkset to another IPGWx Linkset	4-39
Adding an IPGWx Signaling Link	4-52
Enabling the Large System # Links Controlled Feature	4-65
Configuring an IP Link	4-73
Adding an IP Host	4-90
Configuring an IP Card	4-93
Adding an IP Route	4-104
Adding an M3UA or SUA Association	4-109
Adding a New Association to a New Application Server	4-119
Adding an Existing Association to a New Application Server	4-126
Adding a New Association to an Existing Application Server	4-136
Adding an Existing Association to an Existing Application Server	4-146
Adding a Routing Key Containing an Application Server	4-158
Adding a Network Appearance	4-175
Activating the Large BICC MSU Support for IP Signaling Feature	4-181
Removing IETF M3UA and SUA Components	4-188
Removing an IPGWx Card	4-189
Removing an IPGWx Signaling Link	4-191
Removing a Mate IPGWx Linkset from another IPGWx Linkset	4-196
Removing an IP Host Assigned to an IPGWx Card	4-207
Removing an IP Route	4-212
Removing an M3UA or SUA Association	4-216
Removing an Association from an Application Server	4-220
Removing a Routing Key Containing an Application Server	4-224
Removing a Network Appearance	4-232
Changing IETF M3UA and SUA Components	4-234
Changing IP Options	4-235
Changing the Attributes of an M3UA or SUA Association	4-238
Changing the Buffer Size of an M3UA or SUA Association	4-253

Changing the Host Values of an M3UA or SUA Association	4-263
Configuring SCTP Retransmission Control for an M3UA or SUA Association	4-278
Changing an Application Server	4-284
Changing the CIC Values in an Existing Routing Key Containing an Application Server ...	4-289
Changing the Routing Context Value in an Existing Routing Key	4-297
Changing the SCTP Checksum Algorithm Option for M3UA and SUA Associations	4-303
Changing a UA Parameter Set	4-320
Turning the Large BICC MSU Support for IP Signaling Feature Off	4-328
Chapter 5. End Office Support	5-1
Overview	5-1
Internal Point Code	5-2
New Installation of VXI Behind a EAGLE 5 ISS with End Office Support	5-4
One Node Migrates from PSTN to IP	5-4
A Signaling End Point is Added to a Deployed EAGLE 5 ISS Using End Office	5-5
Two Signaling End Points Move from PSTN to IP Using End Office	5-6
The EAGLE 5 ISS Simultaneously Acts as STP and End Office	5-7
The EAGLE 5 ISS Supports Multiple Network Types and Multiple Hosts as an End Node	5-8
Mated Pair Supports Two End Office Nodes	5-9
End Office Support Configuration	5-10
Adding an End Node Internal Point Code	5-11
Removing an End Node Internal Point Code	5-15
Chapter 6. IPSP M2PA and M3UA Configuration Procedures	6-1
Adding IPSP Components	6-2
Adding an IPSP Card	6-3
Adding an IPSP M2PA Linkset	6-12
Adding an IPSP M3UA Linkset	6-22
Configuring an IP Link	6-32
Adding an IP Host	6-48
Configuring an IP Card	6-52
Adding an IP Route	6-63
Adding an IPSP M2PA Association	6-68
Adding an IPSP M3UA Association	6-79
Adding an IPSP M2PA Signaling Link	6-88
Adding an IPSP M3UA Signaling Link	6-100
Enabling the Large System # Links Controlled Feature	6-117
Adding a Network Appearance	6-124
Activating the Large BICC MSU Support for IP Signaling Feature	6-130
Removing IPSP Components	6-137
Removing an IPSP Card	6-138
Removing an IPSP Linkset	6-140
Removing an IP Host Assigned to an IPSP Card	6-148
Removing an IP Route	6-153
Removing an IPSP Association	6-157
Removing an IPSP M2PA Signaling Link	6-161
Removing an IPSP M3UA Signaling Link	6-168

Removing a Network Appearance	6-175
Changing IPSG Components	6-177
Configuring IP Options	6-178
Configuring IPSG M3UA Linkset Options	6-181
Changing an IPSG M2PA Linkset	6-186
Changing an IPSG M3UA Linkset	6-194
Changing the Attributes of an IPSG Association	6-209
Changing the Buffer Size of an IPSG Association	6-227
Changing the Host Values of an IPSG Association	6-239
Configuring an IPSG Association for SCTP Retransmission Control	6-257
Changing the SCTP Checksum Algorithm Option for IPSG M2PA Associations	6-263
Changing the SCTP Checksum Algorithm Option for IPSG M3UA Associations	6-276
Changing an M2PA Timer Set	6-289
Changing a UA Parameter Set	6-295
Turning the Large BICC MSU Support for IP Signaling Feature Off	6-303
Glossary	Glossary-1
Index	Index-1

List of Figures

Figure 1-1. EAGLE 5 ISS Database Partitions.....	1-5
Figure 2-1. SCTP Association Database Relationships.....	2-4
Figure 2-2. IP Connections using an EDCM or E5-ENET Card running the IPGWx Applications.....	2-5
Figure 2-3. Typical SCTP Association Configuration.....	2-6
Figure 2-4. IP Connections using SSEDICMs running the IPLIMx Applications.....	2-6
Figure 2-5. IP Connections using E5-ENET Cards running the IPLIMx Applications.....	2-7
Figure 2-6. Multi-Homed Associations on EDCMs or E5-ENET Cards running the IPLIMx Applications.....	2-9
Figure 2-7. Multi-Homed Associations on EDCMs or E5-ENET Cards running the IPGWx Applications.....	2-10
Figure 2-8. Multi-Homed Association Database Relationships.....	2-10
Figure 2-9. EAGLE 5 ISS Network (STP Connectivity via MTP-over-IP).....	2-13
Figure 2-10. IP Network (SCP Connectivity via TCAP-over-IP).....	2-14
Figure 2-11. IP Network (SEP connectivity via ISUP, Q.BICC, and TUP-over-IP).....	2-15
Figure 2-12. Complex Network with ANSI, ITU-I, and ITU-N Nodes.....	2-22
Figure 2-13. AS/Association Relationship.....	2-26
Figure 2-14. SG/MGC/MG Network Diagram.....	2-26
Figure 2-15. IPLIMx Protocol Stack with SCTP as the Transport Layer.....	2-27
Figure 2-16. IPGWx Protocol Stack with SCTP as the Transport Layer.....	2-27
Figure 2-17. M2PA in the IP ⁷ Signaling Gateway.....	2-30
Figure 2-18. SCTP Connectivity.....	2-32
Figure 2-19. IP Signaling Gateway Database Relationships.....	2-36
Figure 5-1. An EAGLE 5 ISS with End Office Support and VXI Node.....	5-4
Figure 5-2. Network Before an EAGLE 5 ISS with End Office, Node P is to Migrate.....	5-5
Figure 5-3. Network After an EAGLE 5 ISS with End Office, Node P has Migrated.....	5-5
Figure 5-4. Original Network with Deployed EAGLE 5 ISS.....	5-6
Figure 5-5. New Network with an EAGLE 5 ISS Using End Office and End Node R.....	5-6
Figure 5-6. Network before Two Signaling End Points Migrate from PSTN to IP.....	5-7
Figure 5-7. Network after Two Signaling End Points Migrate from PSTN to IP.....	5-7
Figure 5-8. The EAGLE 5 ISS Simultaneously Acts as STP and End Office.....	5-8
Figure 5-9. Three Multiple-Element End Office Nodes.....	5-9
Figure 5-10. Mated Pair Supports Two End Office Nodes.....	5-10

List of Tables

Table 1-1. Admonishments.....	1-3
Table 2-1. Ethernet Interface and Signaling Link Combinations.....	2-4
Table 2-2. Uni-Homed and Multi-Homed Node Combinations.....	2-8
Table 2-3. SS7 Full Routing Keys per IPGWx Functionality.....	2-16
Table 2-4. Example SS7 Routing Key Table.....	2-17
Table 2-5. Routing Key Lookup Hierarchy.....	2-18
Table 2-6. SNMP Object Groups.....	2-19
Table 2-7. Deviations from SNMP Protocols.....	2-20
Table 2-8. Nodes and Point Codes in Complex Network Example.....	2-22
Table 2-9. Sample SCTP Endpoints.....	2-33
Table 2-10. Sample SCTP Associations.....	2-34
Table 2-11. Sample SCTP Associations.....	2-34
Table 3-1. IPLIMx Card Types.....	3-3
Table 3-2. E5-ENET and Single-Slot EDCMs Provisioning Combinations.....	3-3
Table 3-3. M2PA IPLIMx Signaling Link Parameter Combinations.....	3-17
Table 3-4. Valid Subnet Mask Parameter Values.....	3-32
Table 3-5. Sample IP Routing Table.....	3-61
Table 3-6. Valid Subnet Mask Parameter Values.....	3-62
Table 3-7. M2PA Association Fields and Default Values.....	3-67
Table 3-8. Change M2PA Association Parameters.....	3-109
Table 3-9. M2PA Timers.....	3-162
Table 4-1. IPGWx Card Types.....	4-4
Table 4-2. E5-ENET and Single-Slot EDCMs Provisioning Combinations.....	4-4
Table 4-3. Signaling Link Fair Share Example.....	4-17
Table 4-4. IPGWx Signaling Link Parameter Combinations.....	4-58
Table 4-5. Valid Subnet Mask Parameter Values.....	4-75
Table 4-6. Sample IP Routing Table.....	4-104
Table 4-7. Valid Subnet Mask Parameter Values.....	4-105
Table 4-8. M3UA and SUA Association Fields and Default Values.....	4-110
Table 4-9. Examples of IPGWx Card Provisioning Limits.....	4-119
Table 4-10. Examples of IPGWx Card Provisioning Limits.....	4-127
Table 4-11. Examples of IPGWx Card Provisioning Limits.....	4-136
Table 4-12. Examples of IPGWx Card Provisioning Limits.....	4-147
Table 4-13. Service Indicator Text String Values.....	4-158
Table 4-14. Routing Key Parameter Combinations for Adding a Routing Key Containing an Application Server.....	4-159
Table 4-15. Service Indicator Text String Values.....	4-225

Table 4-16. Routing Key Parameter Combinations for Removing Routing Keys.....	4-225
Table 4-17. Change M3UA and SUA Association Parameters.....	4-239
Table 4-18. Examples of IPGWx Card Provisioning Limits.....	4-264
Table 4-19. Service Indicator Text String Values.....	4-290
Table 4-20. Routing Key Parameter Combinations for Changing the Range of CIC Values in an Existing Routing Key	4-291
Table 4-21. Routing Key Parameter Combinations for Splitting the Range of CIC Values in an Existing Routing Key.....	4-292
Table 4-22. Service Indicator Text String Values.....	4-298
Table 4-23. Valid PVALUE Parameter Values if PARM=1.....	4-321
Table 4-24. Valid PVALUE Parameter Values if PARM=2.....	4-322
Table 5-1. Sample IPC Values.....	5-3
Table 6-1. E5-ENET and Single-Slot EDCMs Provisioning Combinations.....	6-4
Table 6-2. Signaling Link Fair Share Example.....	6-13
Table 6-3. Signaling Link Fair Share Example.....	6-23
Table 6-4. Valid Subnet Mask Parameter Values.....	6-33
Table 6-5. Sample IP Routing Table.....	6-63
Table 6-6. Valid Subnet Mask Parameter Values.....	6-64
Table 6-7. IPSG M2PA Association Fields and Default Values.....	6-69
Table 6-8. IPSG M3UA Association Fields and Default Values.....	6-80
Table 6-9. IPSG M2PA Signaling Link Parameter Combinations.....	6-94
Table 6-10. IPSG M3UA Signaling Link Parameter Combinations.....	6-109
Table 6-11. Signaling Link Fair Share Example.....	6-186
Table 6-12. Signaling Link Fair Share Example.....	6-195
Table 6-13. Change IPSG Association Parameters.....	6-209
Table 6-14. M2PA Timers.....	6-289
Table 6-15. Valid PVALUE Parameter Values if PARM=1.....	6-296
Table 6-16. Valid PVALUE Parameter Values if PARM=2.....	6-297

List of Flowcharts

Flowchart 1.	Adding an IPLIMx Card.....	3-9
Flowchart 2.	Adding an IPLIMx Signaling Link.....	3-20
Flowchart 3.	Enabling the Large System # Links Controlled Feature.....	3-28
Flowchart 4.	Configuring an IP Link.....	3-40
Flowchart 5.	Adding an IP Host.....	3-49
Flowchart 6.	Configuring an IP Card.....	3-57
Flowchart 7.	Adding an IP Route.....	3-65
Flowchart 8.	Adding an M2PA Association.....	3-76
Flowchart 9.	Activating the Large BICC MSU Support for IP Signaling Feature.....	3-86
Flowchart 10.	Removing an IPLIMx Card.....	3-90
Flowchart 11.	Removing an IPLIMx Signaling Link.....	3-96
Flowchart 12.	Removing an IP Host Assigned to an IPLIMx Card.....	3-101
Flowchart 13.	Removing an IP Route.....	3-105
Flowchart 14.	Removing an M2PA Association.....	3-108
Flowchart 15.	Changing the Attributes of an M2PA Association.....	3-117
Flowchart 16.	Changing the Buffer Size of an M2PA Association.....	3-128
Flowchart 17.	Changing the Host Values of an M2PA Association.....	3-141
Flowchart 18.	Changing the Link Value of an M2PA Association to another Link Value on the Same IPLIMx Card.....	3-152
Flowchart 19.	Configuring an M2PA Association for SCTP Retransmission Control.....	3-160
Flowchart 20.	Changing an M2PA Timer Set.....	3-167
Flowchart 21.	Changing the SCTP Checksum Algorithm Option for M2PA Associations.....	3-178
Flowchart 22.	Turning the Large BICC MSU Support for IP Signaling Feature Off.....	3-182
Flowchart 23.	Adding an IPGWx Card.....	4-10
Flowchart 24.	Configuring an IPGWx Linkset.....	4-30
Flowchart 25.	Adding a Mate IPGWx Linkset to another IPGWx Linkset.....	4-47
Flowchart 26.	Adding an IPGWx Signaling Link.....	4-61
Flowchart 27.	Enabling the Large System # Links Controlled Feature.....	4-71
Flowchart 28.	Configuring an IP Link.....	4-83
Flowchart 29.	Adding an IP Host.....	4-92
Flowchart 30.	Configuring an IP Card.....	4-100
Flowchart 31.	Adding an IP Route.....	4-108
Flowchart 32.	Adding an M3UA or SUA Association.....	4-115

Flowchart 33.	Adding a New Association to a New Application Server.....	4-124
Flowchart 34.	Adding an Existing Association to a New Application Server.....	4-133
Flowchart 35.	Adding a New Association to an Existing Application Server.....	4-142
Flowchart 36.	Adding an Existing Association to an Existing Application Server.....	4-153
Flowchart 37.	Adding a Routing Key Containing an Application Server...	4-171
Flowchart 38.	Adding a Network Appearance.....	4-179
Flowchart 39.	Activating the Large BICC MSU Support for IP Signaling Feature.....	4-186
Flowchart 40.	Removing an IPGWx Card.....	4-190
Flowchart 41.	Removing an IPGWx Signaling Link.....	4-195
Flowchart 42.	Removing a Mate IPGWx Linkset from another IPGWx Linkset.....	4-204
Flowchart 43.	Removing an IP Host Assigned to an IPGWx Card.....	4-211
Flowchart 44.	Removing an IP Route.....	4-215
Flowchart 45.	Removing an M3UA or SUA Association.....	4-219
Flowchart 46.	Removing an Association from an Application Server.....	4-223
Flowchart 47.	Removing a Routing Key Containing an Application Server.....	4-231
Flowchart 48.	Removing a Network Appearance.....	4-234
Flowchart 49.	Changing IP Options.....	4-238
Flowchart 50.	Changing the Attributes of an M3UA or SUA Association.	4-248
Flowchart 51.	Changing the Buffer Size of an M3UA or SUA Association.....	4-260
Flowchart 52.	Changing the Host Values of an M3UA or SUA Association.....	4-272
Flowchart 53.	Configuring an M3UA or SUA Association for SCTP Retransmission Control.....	4-283
Flowchart 54.	Changing an Application Server.....	4-288
Flowchart 55.	Changing the CIC Values in an Existing Routing Key Containing an Application Server.....	4-296
Flowchart 56.	Changing the Routing Context Value in an Existing Routing Key.....	4-302
Flowchart 57.	Changing the SCTP Checksum Algorithm Option for M3UA and SUA Associations.....	4-316
Flowchart 58.	Changing a UA Parameter Set.....	4-328
Flowchart 59.	Turning the Large BICC MSU Support for IP Signaling Feature Off.....	4-330
Flowchart 60.	Adding an End Node Internal Point Code.....	5-14
Flowchart 61.	Removing an End Node Internal Point Code.....	5-16
Flowchart 62.	Adding an IPSG Card.....	6-9
Flowchart 63.	Adding an IPSG M2PA Linkset.....	6-20
Flowchart 64.	Adding an IPSG M3UA Linkset.....	6-30
Flowchart 65.	Configuring an IP Link.....	6-42

Flowchart 66.	Adding an IP Host.....	6-51
Flowchart 67.	Configuring an IP Card.....	6-59
Flowchart 68.	Adding an IP Route.....	6-67
Flowchart 69.	Adding an IPSG M2PA Association.....	6-76
Flowchart 70.	Adding an IPSG M3UA Association.....	6-85
Flowchart 71.	Adding an IPSG M2PA Signaling Link.....	6-96
Flowchart 72.	Adding an IPSG M3UA Signaling Link.....	6-111
Flowchart 73.	Enabling the Large System # Links Controlled Feature.....	6-122
Flowchart 74.	Adding a Network Appearance.....	6-128
Flowchart 75.	Activating the Large BICC MSU Support for IP Signaling Feature.....	6-135
Flowchart 76.	Removing an IPSG Card.....	6-140
Flowchart 77.	Removing an IPSG Linkset.....	6-145
Flowchart 78.	Removing an IP Host Assigned to an IPSG Card.....	6-152
Flowchart 79.	Removing an IP Route.....	6-156
Flowchart 80.	Removing an IPSG Association.....	6-160
Flowchart 81.	Removing an IPSG M2PA Signaling Link.....	6-166
Flowchart 82.	Removing an IPSG M3UA Signaling Link.....	6-173
Flowchart 83.	Removing a Network Appearance.....	6-177
Flowchart 84.	Configuring IP Options.....	6-181
Flowchart 85.	Configuring IPSG M3UA Linkset Options.....	6-185
Flowchart 86.	Changing an IPSG M2PA Linkset.....	6-192
Flowchart 87.	Changing an IPSG M3UA Linkset.....	6-204
Flowchart 88.	Changing the Attributes of an IPSG Association.....	6-220
Flowchart 89.	Changing the Buffer Size of an IPSG Association.....	6-236
Flowchart 90.	Changing the Host Values of an IPSG Association.....	6-250
Flowchart 91.	Configuring an IPSG Association for SCTP Retransmission Control.....	6-262
Flowchart 92.	Changing the SCTP Checksum Algorithm Option for IPSG M2PA Associations.....	6-273
Flowchart 93.	Changing the SCTP Checksum Algorithm Option for IPSG M3UA Associations.....	6-285
Flowchart 94.	Changing an M2PA Timer Set.....	6-294
Flowchart 95.	Changing a UA Parameter Set.....	6-303
Flowchart 96.	Turning the Large BICC MSU Support for IP Signaling Feature Off.....	6-305

Introduction

Overview	1-1
Manual Organization	1-1
Related Publications	1-2
Documentation Availability, Packaging, and Updates	1-2
Documentation Admonishments	1-3
Customer Care Center	1-3
Emergency Response	1-4
Maintenance and Administration Subsystem	1-4
EAGLE 5 ISS Database Partitions	1-4
Fixed Disk Drive	1-5
Removable Cartridge	1-6
Locate Product Documentation on the Customer Support Site	1-6

Overview

The *Database Administration Manual – IP⁷ Secure Gateway* describes the procedures necessary for database administration personnel or translations personnel to create, modify, display, and maintain the EAGLE 5 ISS database, and to configure the EAGLE 5 ISS to implement the IP⁷ Secure Gateway functionality.

NOTE: Database administration privileges are password restricted. Only those persons with access to the command class “Database Administration” can execute the administrative functions. Other command classes and the commands allowed by those classes are listed in the *Commands Manual*.

Manual Organization

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

This document is organized into these sections:

[Chapter 1 Introduction](#) contains general information about the database and the organization of this manual.

[Chapter 2 IP7 Secure Gateway Overview](#) describes the basics of the IP⁷ Secure Gateway functionality.

[Chapter 3 IETF IPLIMx M2PA Configuration Procedures](#) describes the procedures necessary to configure the EAGLE 5 ISS 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.

[Chapter 4 IETF IPGWx M3UA and SUA Configuration Procedures](#) describes the procedures necessary to configure the EAGLE 5 ISS 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.

[Chapter 5 End Office Support](#) describes the procedures necessary to allow the EAGLE 5 ISS to share its true point code (TPC) with an IP-based node without the need for a separate point code for the IP node.

[Chapter 6 IPSG M2PA and M3UA Configuration Procedures](#) describes the procedures necessary to provision the IP Secure Gateway feature.

Related Publications

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

Documentation Availability, Packaging, and Updates

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

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

The electronic file of each manual is also available from the Tekelec Customer Support site. This site allows for 24-hour access to the most up-to-date documentation.

Printed documentation is available for GA releases on request only and with a lead time of four weeks. The printed documentation set includes pocket guides for commands and alarms. Pocket guides may also be ordered as a set or individually. Exceptions to printed documentation are:

- Hardware or Installation manuals are printed only without the linked attachments found in the electronic version of the manuals.
- The Release Notice is available only on the Customer Support site.

NOTE: Customers may print a reasonable number of each manual for their own use.

Documentation is updated when significant changes are made that affect system operation. Updates resulting from Severity 1 and 2 PRs are made to existing manuals. Other changes are included in the documentation for the next scheduled release. Updates are made by re-issuing an electronic file to the customer support site. Customers with printed documentation should contact their Sales Representative for an addendum. Occasionally, changes are communicated first with a Documentation Bulletin to provide customers with an advanced notice of the issue until officially released in the documentation. Documentation bulletins are posted on the Customer Support site and can be viewed per product and release.

Content changes are indicated with change bars, the revision of the manual part number is incremented, and the month of publication is updated.

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

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

Customer Care Center

The Tekelec Customer Care Center offers a point of contact for product and service support through highly trained engineers or service personnel. The Tekelec Customer Care Center is available 24 hours a day, 7 days a week at the following locations:

- Tekelec, USA
Phone:
+1 888 367 8552 (US and Canada only)
+1 919 460 2150 (international)
Email: support@tekelec.com
- Tekelec, Europe
Phone: +44 1784 467804
Email: ecsc@tekelec.com

When a call is received, a Customer Service Report (CSR) is issued to record the request for service. Each CSR includes an individual tracking number.

After a CSR is issued, the Customer Care Center determines the classification of the trouble. If a critical problem exists, emergency procedures are initiated. If the problem is not critical, information regarding the serial number of the system, COMMON Language Location Identifier (CLLI), initial problem symptoms (includes outputs and messages) is recorded. A primary Customer Care Center engineer is also assigned to work on the CSR and provide a solution to the problem. The CSR is closed when the problem is resolved.

Emergency Response

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

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

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

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

Maintenance and Administration Subsystem

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

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

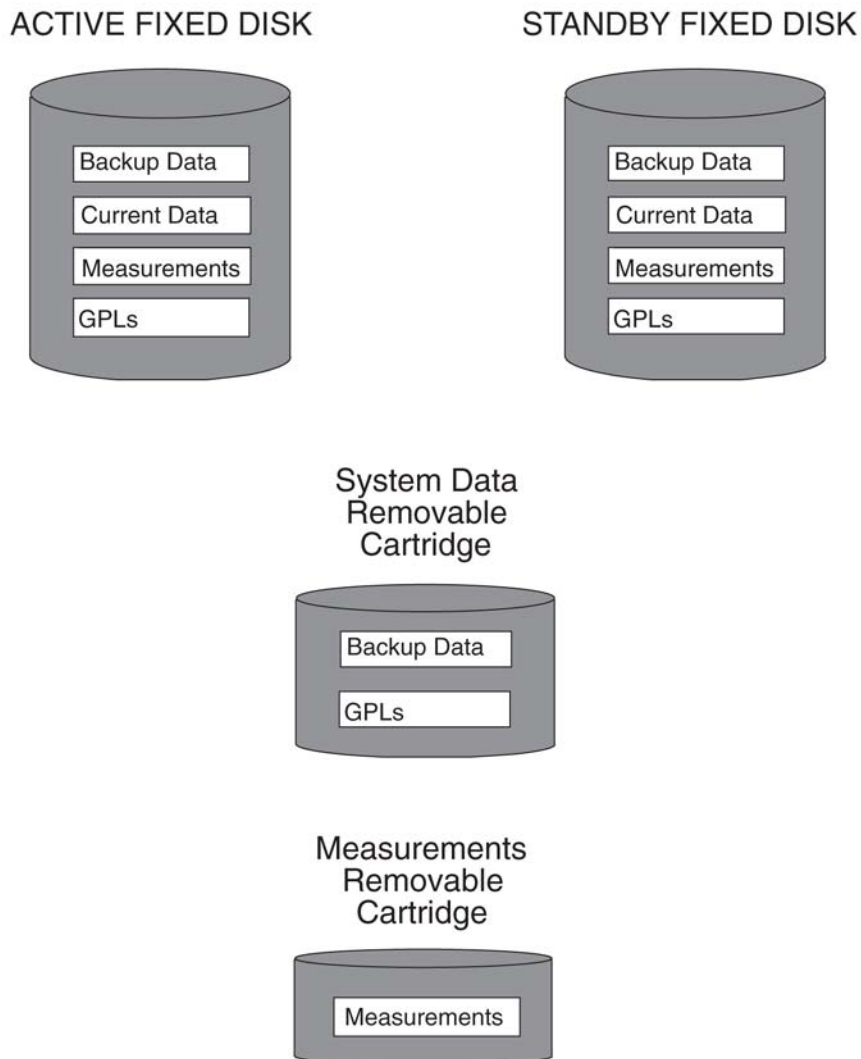
The GPSM-II card contains the communications processor and applications processor and provides connections to the IMT bus. The GPSM-II controls the maintenance and database administration activity.

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

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

EAGLE 5 ISS Database Partitions

The data that the EAGLE 5 ISS uses to perform its functions are stored in two separate areas: the fixed disk drives, and the removable cartridge. The following sections describe these areas and data that is stored on them. These areas and their partitions are shown in [Figure 1-1](#).

Figure 1-1. EAGLE 5 ISS Database Partitions

Fixed Disk Drive

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

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

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

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

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

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

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

Removable Cartridge

A removable cartridge is used for two purposes.

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

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

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

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

Additional and preformatted removable cartridges are available from the [Customer Care Center](#).

Locate Product Documentation on the Customer Support Site

To view or download product documentation, log into the Tekelec Customer Support site at:

<https://support.tekelec.com/index.asp>

1. Log in with your user name and password. (Click on **Need an Account?** if you need to register).
2. Select **EAGLE** from the Product Support menu.
3. Select the release number from the Release menu.
4. Locate the Notices section to view the latest Feature Notice.
5. Locate the Manuals section to view all manuals applicable to this release.

The documentation is listed in alphabetical order by the manual name. Only the first three manuals display. Click **more...** to see the remaining manuals.

6. Locate the latest revision of the manual name.

Confirm the release number and last available revision.

Select the 936-xxxx-x01 part number to download the complete documentation set with all linked files.

NOTE: The electronic file for this part number is quite large.

7. To view a manual, double-click the manual name.
8. To download a manual, right-click and select **Save Target As**.

NOTE: Customers may print a reasonable number of each manual for their own use.

IP7 Secure Gateway Overview

Introduction	2-1
Hardware, Applications, and Functions	2-2
IP Connections	2-3
Point-to-Point Connectivity (IPLIM or IPLIMI Application)	2-12
Point-to-Multipoint Connectivity (SS7IPGW and IPGWI)	2-13
SNMP Agent Implementation	2-19
Mixed Networks Using the ANSI/ITUMTP Gateway Feature	2-21
IETF Adapter Layer Support	2-25
Overview	2-25
IP Signaling Gateway (IPSG)	2-35

Introduction

The IP ⁷ Secure Gateway functionality in the EAGLE 5 ISS provides connectivity between SS7 and IP networks, enabling messages to pass between the SS7 network domain and the IP network domain, as follows:

- When an EAGLE 5 ISS receives an SS7 formatted message over an SS7 link, the IP ⁷ 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 IP ⁷ Secure Gateway functionality use associations to access the IP domain. Associations identify IP sessions.

- Conversely, when the EAGLE 5 ISS receives an IP formatted message over an IP link, the IP ⁷ 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, either a single-slot Enhanced-Performance Database Communications Module (EDCM) or E5-ENET card. 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 5 ISS. 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 5 ISS 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 5 ISS 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 5 ISS 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 5 ISS can support a maximum of 64 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:

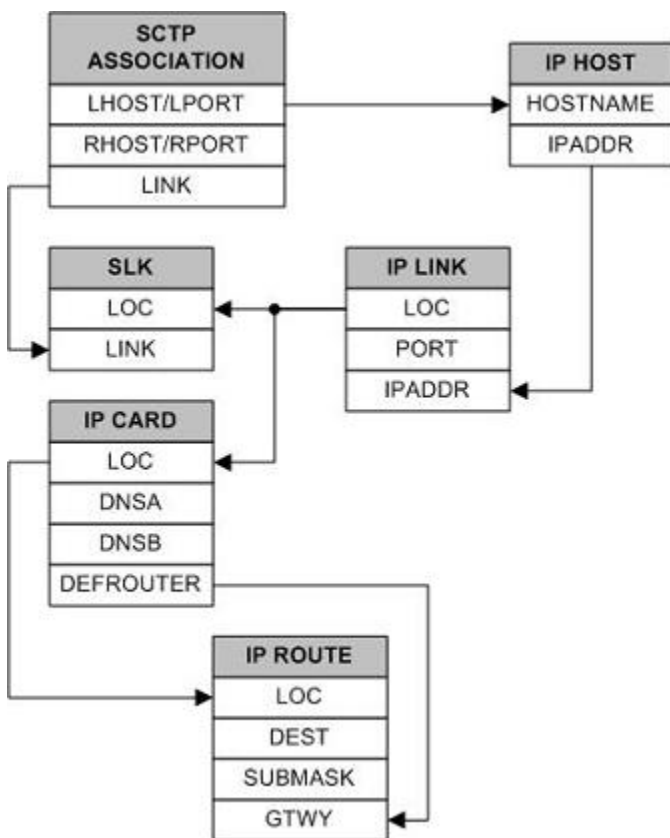
- Transport protocol – The SCTP transport protocol is specified by the **ent-assoc** and **chg-assoc** commands.
- Adapter protocol – The M3UA, M2PA, or SUA adapter protocol is specified by the **adapter** parameter of the **ent-assoc** and **chg-assoc** commands.
- One or two near-end (local) hosts – 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 5 ISS 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

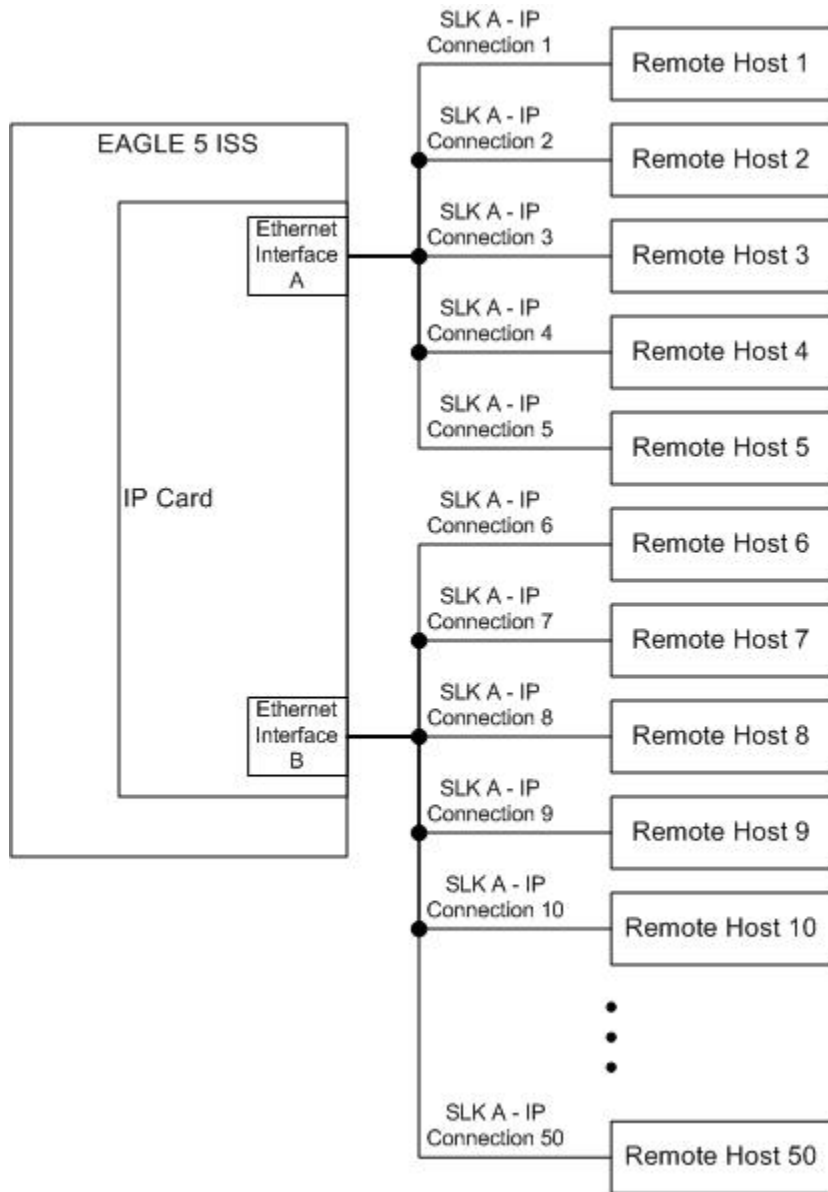
Card	Application	Ethernet Interface	Signaling Link
IPGWx	A	A	
Single-slot EDCM (SSEDCM)	IPLIMx	A and B	A, B, A1, B1, A2, B2, A3 and B3
	IPGWx	A and B	A
E5-ENET	IPLIMx	A and B	A - A7, B - B7
	IPGWx	A and B	A

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

Single-slot EDCMs running the IPGWx applications can have only one signaling link (A) and two Ethernet interfaces (A or B). With this card able to support up to 50 IP connections, these 50 connections can be established

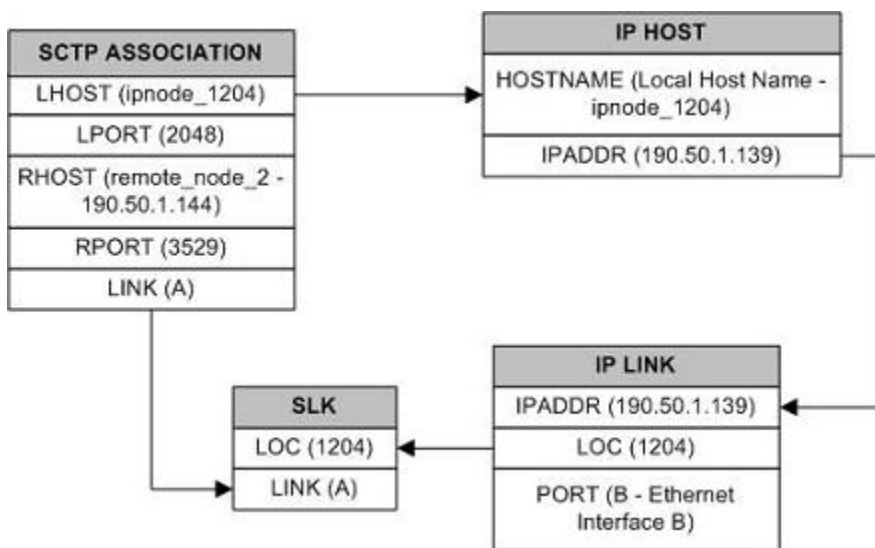
using both Ethernet interfaces A and B, as shown in [Figure 2-2](#) . The number of connections on each Ethernet interface can vary, but the total number connections on both interfaces cannot exceed 50. These 50 connections can also be established using only one Ethernet interface (A or B), if desired. Only signaling link A is used for the signaling link.

Figure 2-2. IP Connections using an EDCM or 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).

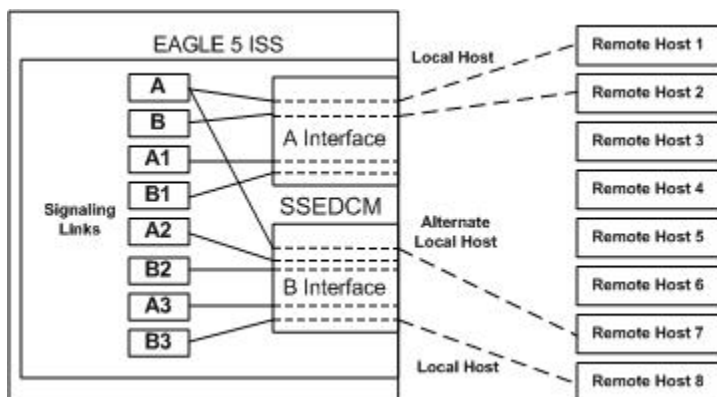
[Figure 2-3](#) shows typical IP connection data for a uni-homed SCTP association and how these components interact with each other.

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 a Single-slot EDCM Running the IPLIMx Application

Single-slot EDCMs (SSEDCMs) running the IPLIMx applications can have 8 signaling links (A, B, A1, B1, A2, B2, A3 or B3) and 2 Ethernet interfaces (A or B) resulting in a maximum of 8 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 8 signaling links and the 2 Ethernet interfaces can be used to establish IP connections.

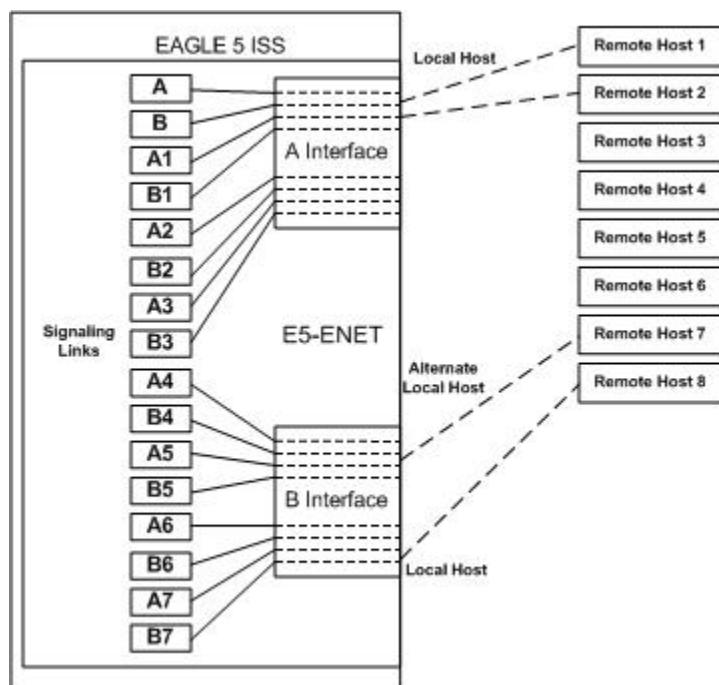
Figure 2-4. IP Connections using SSEDCMs running the IPLIMx Applications

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 2-5](#) shows some ways the 16 signaling links and the 2 Ethernet interfaces can be used to establish IP connections.

Figure 2-5. 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 EDCM or 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 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.

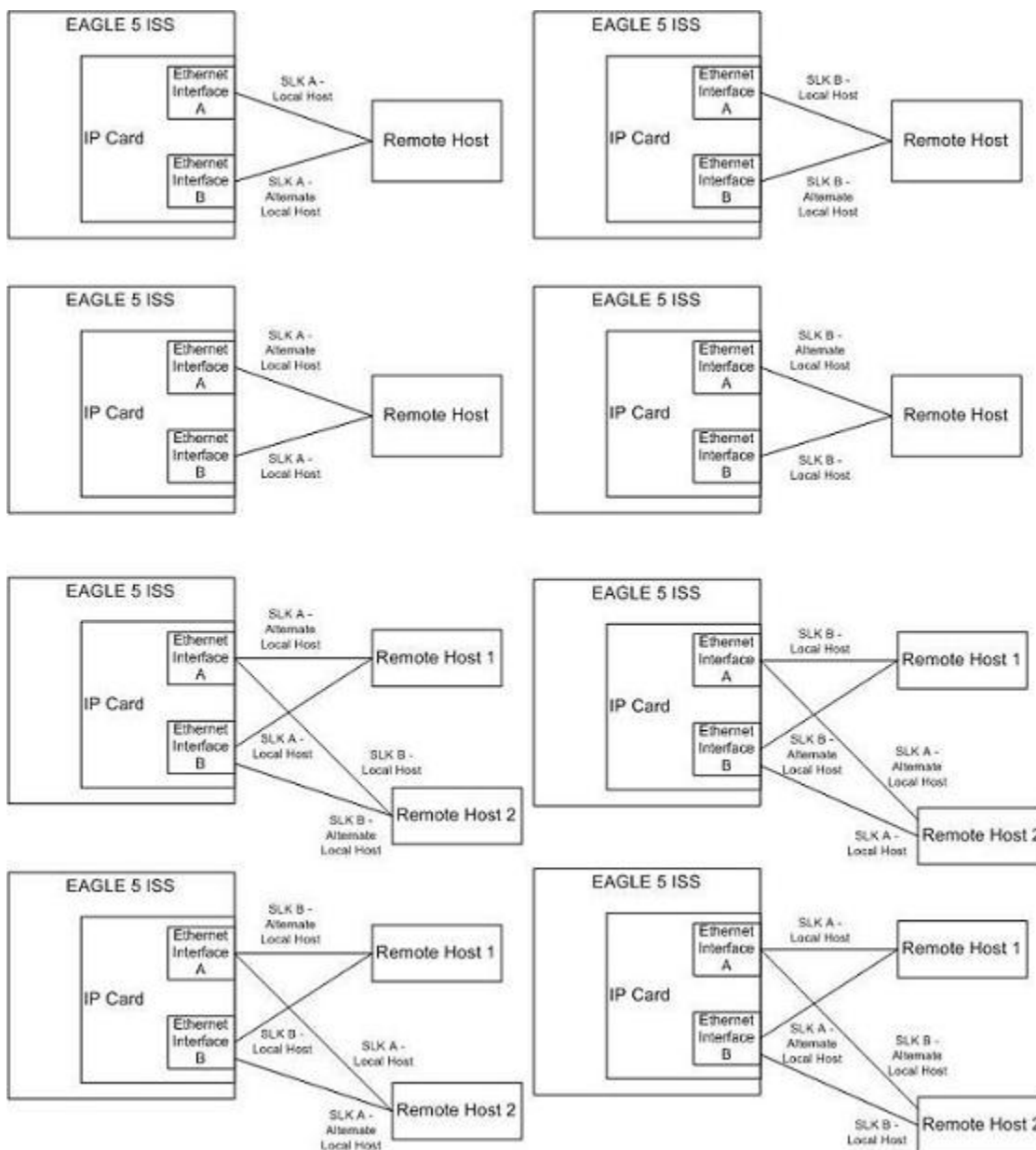
Table 2-2. Uni-Homed and Multi-Homed Node Combinations

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.

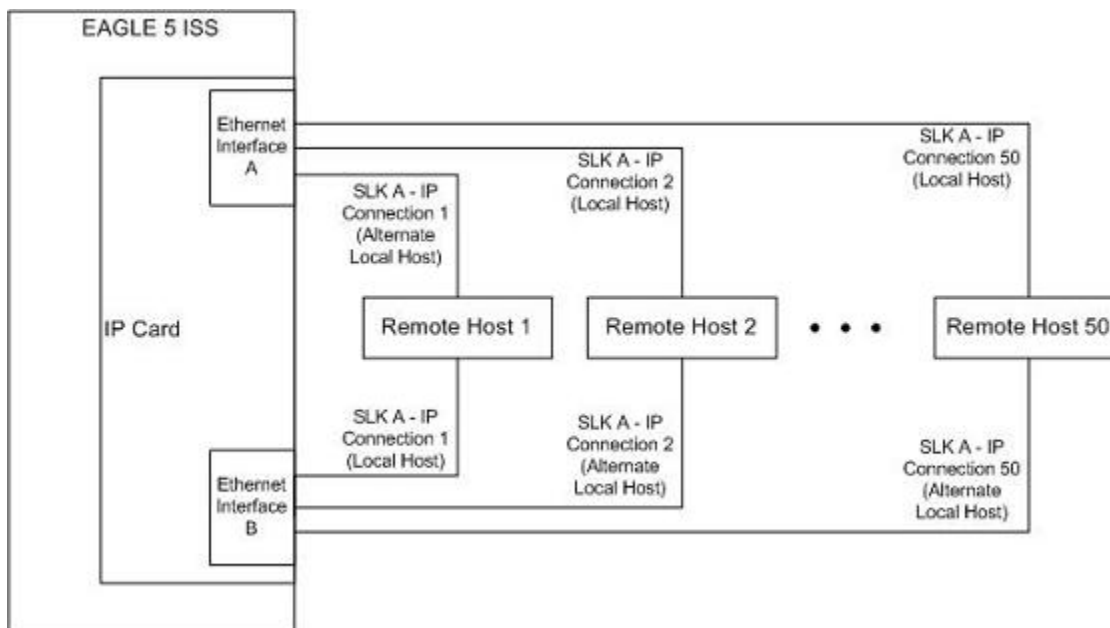
[Figure 2-6](#) shows the ways a multi-homed IP connection can be established on an IPLIMx card. The remote hosts can be multi-homed, but only one remote host can be specified for each multi-homed association in the EAGLE 5 ISS, so only one remote host is shown in [Figure 2-6](#) .

Figure 2-6. Multi-Homed Associations on EDCMs or E5-ENET Cards running the IPLIMx Applications

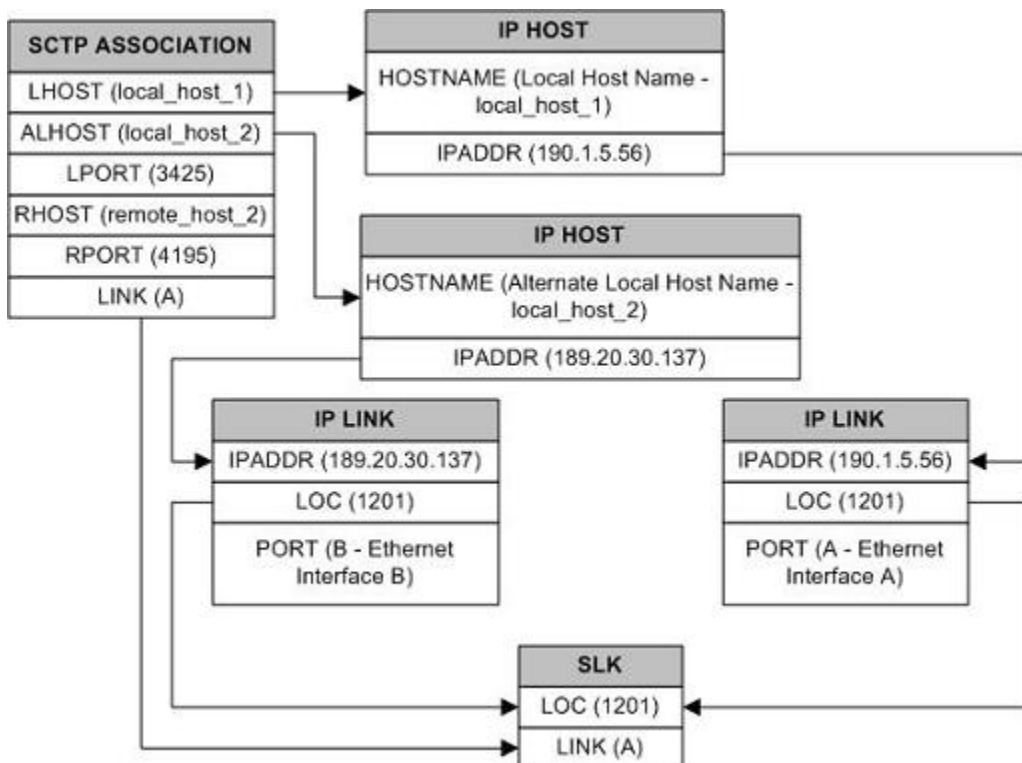
Multi-Homed Associations on EDCMs or E5-ENET Cards Running the IPGWx Applications

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 2-7](#) 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 5 ISS, so only one remote host is shown in [Figure 2-7](#).

Figure 2-7. Multi-Homed Associations on EDCMs or E5-ENET Cards running the IPGWx Applications

[Figure 2-8](#) shows the components of the multi-homed SCTP association and how these components interact with each other.

Figure 2-8. Multi-Homed Association Database Relationships

Using the data shown in [Figure 2-8](#), 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 5 ISS 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 **lhost** parameter of the **ent -assoc** or **chg -assoc** 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 **alhost** 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 **alhost** 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 **lhost** and **alhost** 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 **ent-ip-rte** 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 **ent-ip-rte** command with the location of the IP card, the IP address of the gateway router (the **gtwy** 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:

1. Host route
2. Subnetwork route
3. 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 5 ISS can contain up to 1024 IP routes.

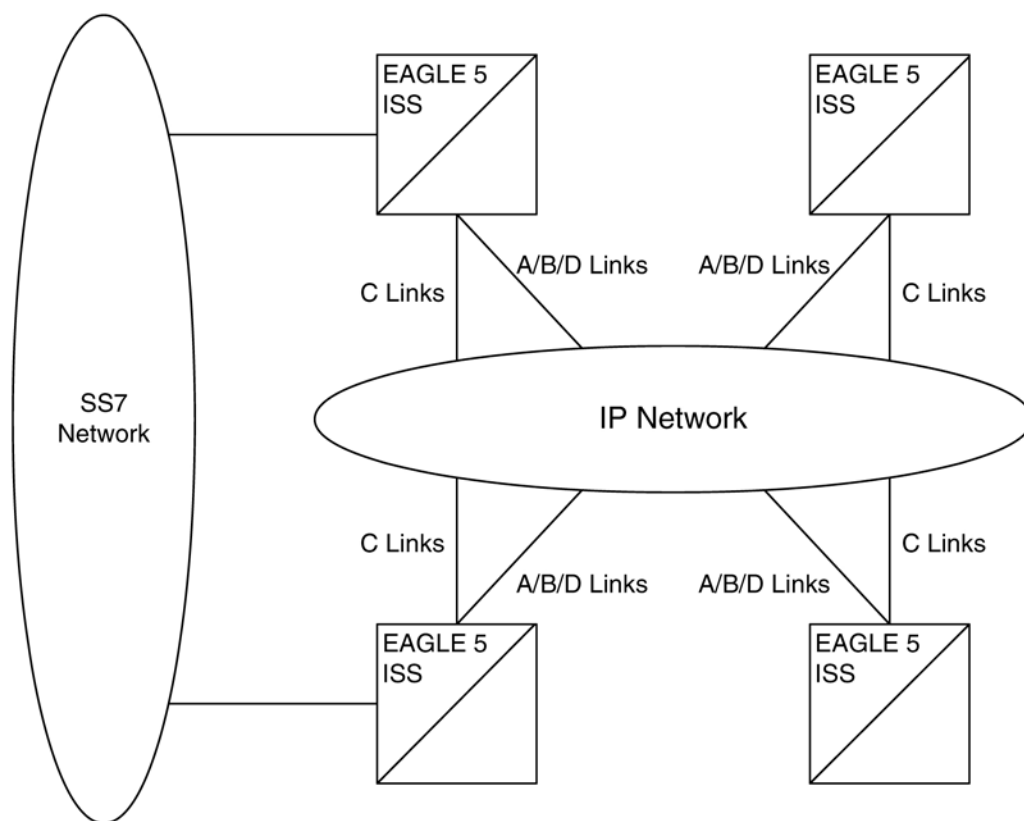
Point-to-Point Connectivity (IPLIM or IPLIMI Application)

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 SS7 MSUs. [Figure 2-9](#) 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 IP⁷ Secure Gateway functionality is deployed on both ends of the link (point-to-point connection). The EAGLE 5 ISS converts the SS7 MSUs to IP packets on one end of the link, and IP packets to SS7 MSUs on the other end of the link. The IPLIMx applications support M2PA/SCTP/IP associations over A, B, C, D, and E links.

Figure 2-9. EAGLE 5 ISS Network (STP Connectivity via MTP-over-IP)



Point-to-Multipoint Connectivity (SS7IPGW and IPGWI)

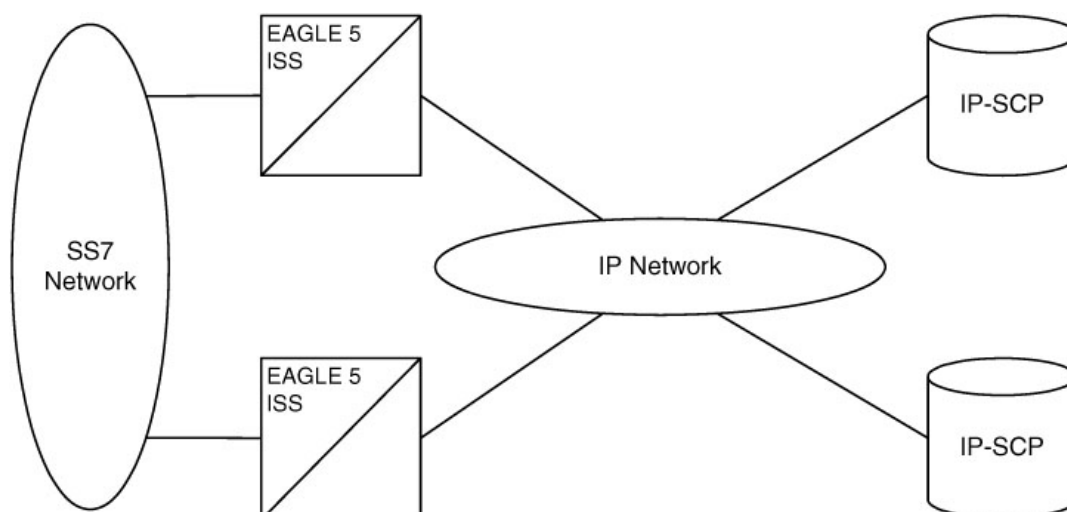
The following sections describe the types of point-to-multipoint connectivity, how routing is accomplished, and the MTP status functions provided by the **ss7ipgw** and **ipgwi** applications:

- [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 2-10](#) shows a diagram of this type of network.

Figure 2-10. IP Network (SCP Connectivity via TCAP-over-IP)



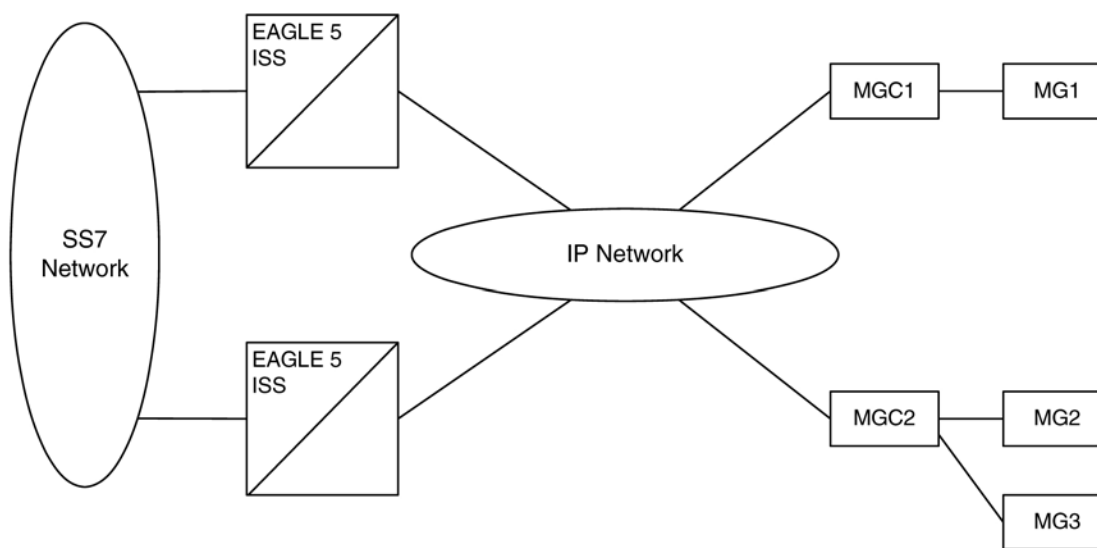
The EAGLE 5 ISS manages the virtual point codes and subsystem numbers for the IP-SCP. From the SS7 network perspective, the TCAP queries are routed using these virtual point codes/SSNs. The EAGLE 5 ISS maps the virtual point code/SSN to one or more TCP sessions (point-to-multipoint connection), converts the SS7 MSUs to IP packets by embedding the SCCP/TCAP data inside IP packets, and routes them over an IP network. The EAGLE 5 ISS 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:

1. Traditional SS7 devices route MSUs (such as TCAP Queries) to the EAGLE 5 ISS.
2. The EAGLE 5 ISS 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.
3. The TCAP query is processed at the IP-SCP, and the IP-SCP sends a TCAP reply back to the EAGLE 5 ISS.
4. The EAGLE 5 ISS 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 2-11](#) shows an example of this type of network.

Figure 2-11. IP Network (SEP connectivity via ISUP, Q.BICC, and TUP-over-IP)

The EAGLE 5 ISS 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 2-10](#). The EAGLE 5 ISS 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 5 ISS 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
SCP connectivity via TCAP-over-IP	Destination Point Code Service Indicator (=3) Subsystem Number
SEP connectivity via ISUP-over-IP	Destination Point Code Service Indicator (=5) Originating Point Code CIC Range Start CIC Range End
SEP connectivity via Q.BICC-over-IP	Destination Point Code Service Indicator (=13) Originating Point Code CIC Range Start CIC Range End
SEP connectivity via TUP-over-IP (ITU only)	Destination Point Code Service Indicator (=4) 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 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 SS7 MSU, 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-SSCP/non-ISUP/ non-Q.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 Connections that carry traffic for that Routing Key
DPC-SI-SSN routing key for SSCP/TCAP-over-IP connectivity						
5-5-5	03	6	-	-	-	kchlr11201 kchlr21201 kchlr11203 kchlr21203
ISUP-CIC routing key for ISUP-over-IP connectivity						
5-5-6	05	-	4-4-4	1	100	dnmsc11201 dnmsc21201 dnmsc11203 dnmsc21203
Q.BICC-CIC routing key for Q.BICC-over-IP connectivity						
4363	13	-	5834	48486	48486	lpmsg11204 lpmsg21204 lpmsg31204
TUP-CIC routing key for TUP-over-IP connectivity						
1-44-2	04	-	2-5-1	3948	3948	lpmsg11205

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 Connections that carry traffic for that Routing Key
						lpmsg21205 lpmsg31205
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

Type of MSU	Lookup Order per MSU Type	Segment of MSU that Must Match Routing Key	Routing Key Type
CIC	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
SCCP	1	dpc + si + ssn	Full
	2	dpc + si (ignore ssn)	Partial
	3	dpc (ignore si & ssn)	Partial
	4	si (ignore dpc & ssn)	Partial
	5	None	Default
OtherSI	1	dpc + si	Full
	2	dpc (ignore si)	Partial
	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 5 ISS 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 5 ISS 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
<i>system</i>	Text description of agent in printable ASCII characters	System description, object identifier, length of time since reinitialization of agent, other administrative details
<i>interfaces</i>	Information about hardware interfaces on the IP card	Table that contains for each interface, speed, physical address, current operational status, and packet statistics
<i>ip</i>	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
<i>icmp</i>	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
<i>tcp</i>	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

Group Name	Description	Contents
<i>udp</i>	Information about UDP operation	4 scalar objects that maintain UDP-related datagram statistics, and a table that contains address and port information
<i>snmp</i>	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 SNMP NMS 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 **chg-ip-card** command (or default data) which specifies DNS search order and DNS information.

Deviations from SNMP Protocol

[Table 2-7](#) shows how the EAGLE 5 ISS deviates from the standard SNMP protocol definition.

Table 2-7. Deviations from SNMP Protocols

Group	Variable Name	Usage	Deviation
<i>system</i>	<i>sysContact</i>	Text identification of contact information for agent	Cannot be set by <i>Set</i> command; may be set only by chg-sg-opts command.
	<i>sysLocation</i>	Physical location of agent	Cannot be set by <i>Set</i> command; internally set using configuration data already available; set to <CLLI>-<slot of IP card>
	<i>sysName</i>	Administratively assigned name for agent	Cannot be set by <i>Set</i> command; internally set using configuration data already available; set to <CLLI>-<slot of IP card>
<i>interface</i>	<i>ifAdminStatus</i>	Desired state of the interface	Cannot be set by <i>Set</i> command (to ensure that an NMS does not disrupt SS7 traffic by

Group	Variable Name	Usage	Deviation
			placing an IP interface in a nonoperable state)
<i>ip</i>	<i>ipForwarding</i> <i>ipDefaultTTL</i> <i>ipRoute Dest</i> <i>ipRouteIfIndex</i> <i>ipRouteMetric1-5</i> <i>ipRouteNextHop</i> <i>ipRouteType</i> <i>iprouteAge</i> <i>ipRouteMask</i>	IP route-specific values	Cannot be set by <i>Set</i> command
	<i>ipNetToMediaIfIndex</i> <i>ipNetToMediaPhysAdress</i> <i>ipNetToMediaNetAddress</i> <i>ipNetToMediaType</i>	IP-address specific information	Can be set by <i>Set</i> command, but not saved across IP card reloads
<i>tcp</i>	<i>tcpConnState</i>	State of a TCP connection	Cannot be set by <i>Set</i> command
<i>snmp</i>	<i>snmpEnableAuthenTraps</i>	Indicate whether agent is permitted to generate authentication failure traps	Cannot be set by <i>Set</i> command

Mixed Networks Using the ANSI/ITU MTP Gateway Feature

The optional ANSI/ITU MTP Gateway feature, now also available for IP networks, and the addition of the **iplimi** and **ipgwi** applications enables the EAGLE 5 ISS to act as an interface between nodes that support ANSI, ITU-I, and ITU-N protocols. For more information on the ANSI/ITU MTP Gateway feature, contact your Tekelec Sales Representative.

[Figure 2-12](#) 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 5 ISS to its mate are C links. Each EAGLE 5 ISS must have a C linkset for each network type that the EAGLE 5 ISS connects to. Therefore, in [Figure 2-12](#), 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 5 ISS 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 5 ISS 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 2-12. Complex Network with ANSI, ITU-I, and ITU-N Nodes

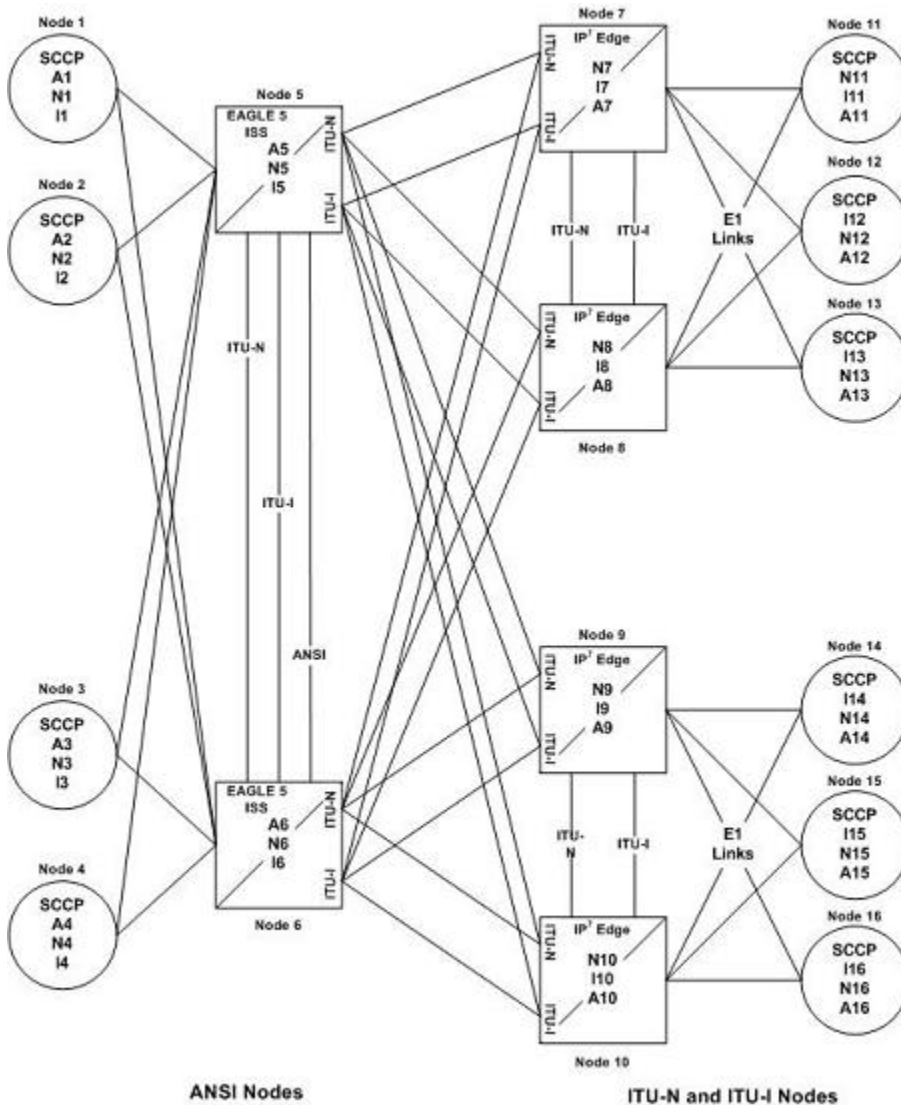


Table 2-8. Nodes and Point Codes in Complex Network Example

Node	Node Type	Network Types Supported	True Point Codes ¹	Alias Point Codes ²
1	SSP	ANSI	A1	N1, I1
2	SSP	ANSI	A2	I2
3	SSP	ANSI	A3	N3, I3
4	SSP	ANSI	A4	N4

Node	Node Type	Network Types Supported	True Point Codes ¹	Alias Point Codes ²
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	
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	A9
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	I12	N12, A12
13	SSP	ITU-I	I13	N13, A13
14	SSP	ITU-N	N14	I14, A14
15	SSP	ITU-I	I15	N15, A15
16	SSP	ITU-I	I16	N16, A16
Notes: 1. A true point code (TPC) defines a destination in the EAGLE 5 ISS'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 5 ISS 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 5 ISS when that EAGLE 5 ISS does not have a TPC for the same network type.				

The configured links and point codes in the complex network shown in [Figure 2-12](#) 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

The following steps demonstrate how an EAGLE 5 ISS routes and converts when an ITU-N node sends an MSU to another ITU-N node. For example, assume that Node 11 in [Figure 2-12](#) 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 **iplimi** 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 5 ISS 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 2-12](#) 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 5 ISS with IP⁷ 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 4-bit 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 5 ISS 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 5 ISS by the local host name, the local SCTP port, the remote host name, and the remote SCTP port.

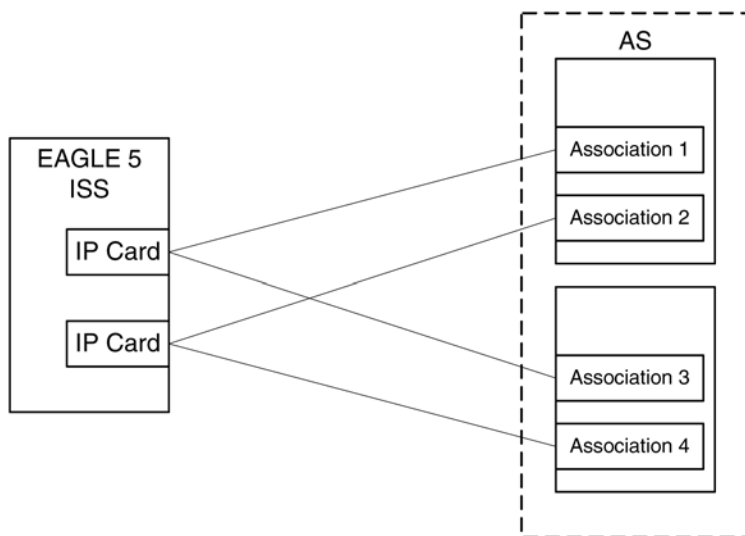
The three adapter layers used in the EAGLE 5 ISS are supported depending on the type of IP card being used for the IP connection. The SUA and M3UA adapter layers can be used only on IPGWx cards (cards running either the SS7IPGW or IPGWI applications). The M2PA adapter layer can be used only on IPLIMx 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 IETF SUA 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 5 ISS. SCTP associations assigned to IPGWx cards can be assigned to application servers and routing keys.

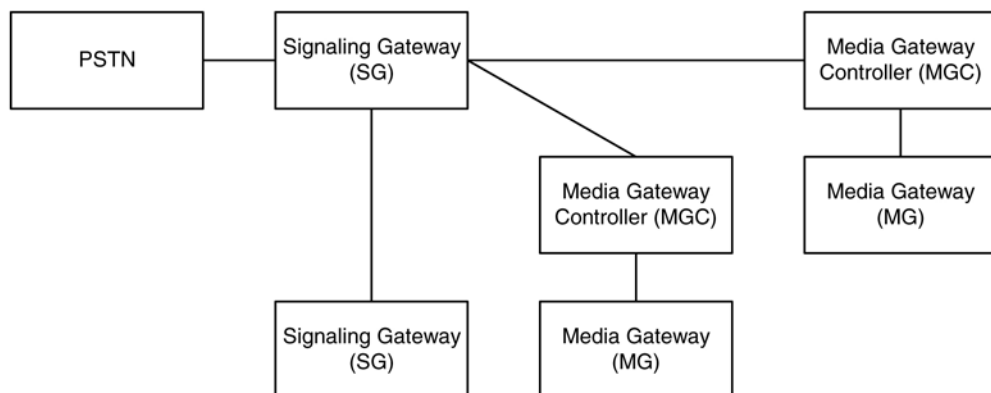
The IETF M2PA adapter layer is supported on IPLIMx cards. The M2PA adapter layer does not support application servers, therefore SCTP associations assigned to M2PA links on IPLIMx cards cannot be assigned to application servers.

[Figure 2-13](#) shows a typical configuration with four connections (SCTP associations) out of the EAGLE 5 ISS using IPGWx cards. Each association is connected to a process on the far end.

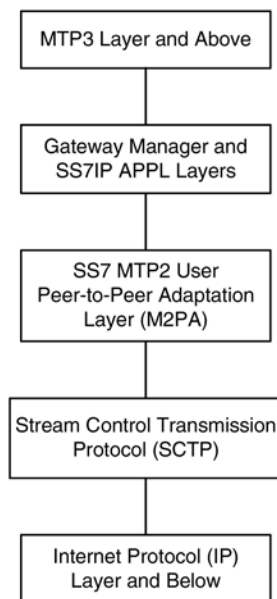
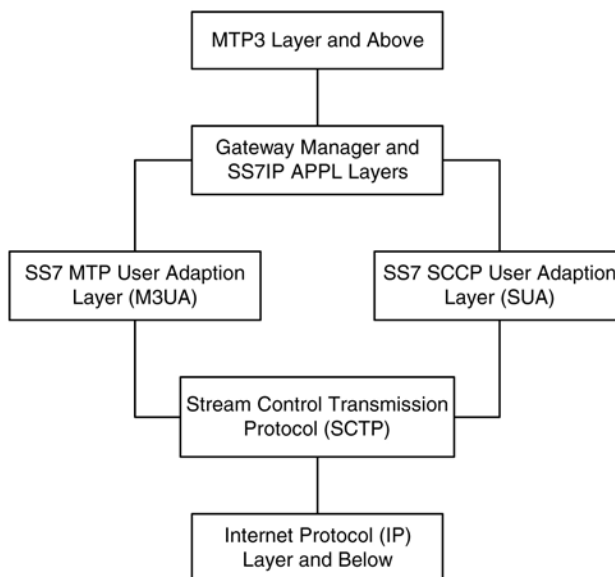
Figure 2-13. AS/Association Relationship

Feature Components

The EAGLE 5 ISS with IP⁷ Secure Gateway functionality is used as a signaling gateway between the PSTN and IP networks as shown in [Figure 2-14](#). This figure shows that signaling gateways interface with media gateway controllers (MGCs) and MGCs interface with media gateways (MGs).

Figure 2-14. 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 5 ISS 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 2-15](#). On an IPGWx card, the M3UA and SUA adapter layers can be used with SCTP as shown in [Figure 2-16](#).

Figure 2-15. IPLIMx Protocol Stack with SCTP as the Transport Layer**Figure 2-16.** 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 SS7 SCCP-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
- Pcstate 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 IP-resident database. The layer is expected to meet the following criteria:

- Support for the transfer of all SS7 MTP3-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.

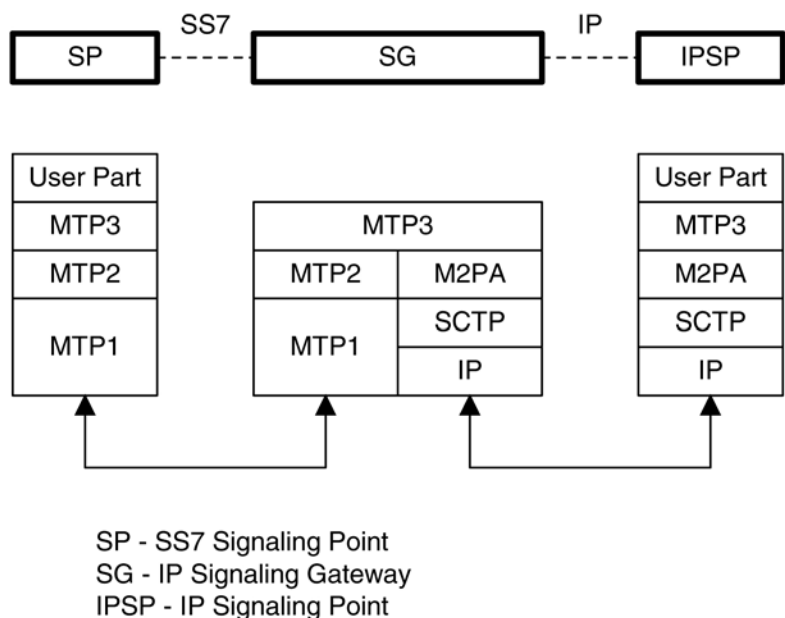
The M3UA layer at the signaling gateway maintains the availability of all configured remote application server processes, in order to manage the SCTP Associations and the traffic between the signaling gateway and application server processes. As well, the Active/Inactive state of remote application server 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 2-17](#) shows the protocol layers in three interconnected nodes involving the M2PA layer.

Figure 2-17. M2PA in the IP⁷ Signaling Gateway



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 5 ISS, 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.

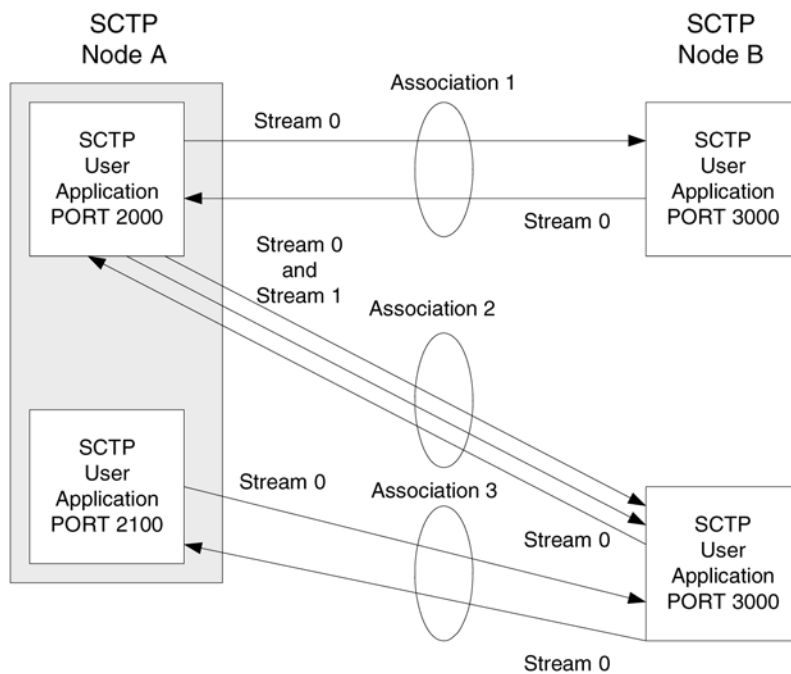
Enhanced Security

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 5 ISS 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 2-18](#) :

Figure 2-18. SCTP Connectivity



Key elements of the SCTP connection include:

- SCTP Instance
- SCTP Endpoint
- SCTP Association
- 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 2-18](#) 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 2-18](#) , 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 2-18](#) , 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	
Node-1	192.168.110.10	2100
	192.168.55.10	
Node-2	192.168.110.20	3000
Node-3	192.168.110.30	3000
	192.168.55.30	

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 2-18](#) , 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.

NOTE: 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 2-18](#) , 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. 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 card with the IPSG application. An E5-ENET 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).

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 32 IPSG M2PA or IPSG M3UA signaling links are supported per IPSG card.

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.

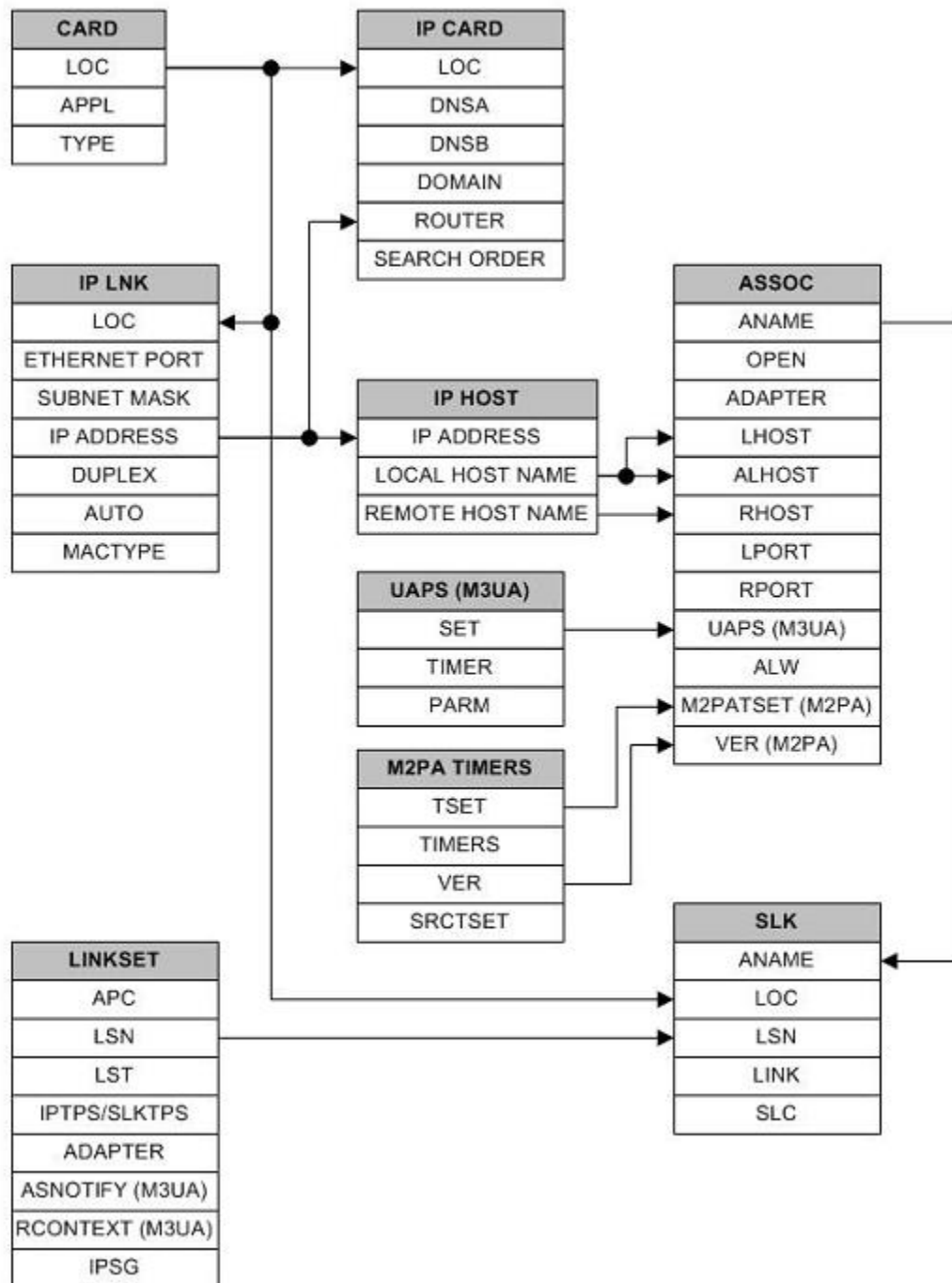
M2PA links on IPLIMx and IPSG cards can exist in the same linkset. M3UA links on IPSG and IPGWx cards cannot exist in the same linkset. M2PA and M3UA links cannot exist within the same linkset.

Each IPSG card can host up to 32 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 2-19](#). The provisioning for the IP Signaling Gateway feature is shown in [Chapter 6 IPSG M2PA and M3UA Configuration Procedures](#).

Figure 2-19. IP Signaling Gateway Database Relationships

IETF IPLIMx M2PA Configuration Procedures

Adding IETF IPLIMx Components	3-1
Adding an IPLIMx Card	3-3
Adding an IPLIMx Signaling Link	3-12
Enabling the Large System # Links Controlled Feature	3-22
Configuring an IP Link	3-30
Adding an IP Host	3-47
Configuring an IP Card	3-50
Adding an IP Route	3-61
Adding an M2PA Association	3-66
Activating the Large BICC MSU Support for IP Signaling Feature	3-81
Removing IETF M2PA Components	3-88
Removing an IPLIMx Card	3-89
Removing an IPLIMx Signaling Link	3-90
Removing an IP Host Assigned to an IPLIMx Card	3-97
Removing an IP Route	3-102
Removing an M2PA Association	3-106
Changing IETF M2PA Components	3-108
Changing the Attributes of an M2PA Association	3-109
Changing the Buffer Size of an M2PA Association	3-122
Changing the Host Values of an M2PA Association	3-131
Changing the Link Value of an M2PA Association to another Link Value on the Same IPLIMx Card	3-147
Configuring SCTP Retransmission Control for an M2PA Association	3-155
Changing an M2PA Timer Set	3-161
Changing the SCTP Checksum Algorithm Option for M2PA Associations	3-168
Turning the Large BICC MSU Support for IP Signaling Feature Off	3-180

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 IPLIM 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 the *Database Administration Manual - SS7*.
3. Configure the required IPLIMx linksets - see Chapter 3, “SS7 Configuration,” in the *Database Administration Manual - SS7*.
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 5 ISS 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 Manual - SS7*.
6. IP addresses must be assigned to the IPLIMx card configured in [Item 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 [Item 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 [Item 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 **ipliml2=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 an 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 5 ISS processes messages with a service information field (SIF) that is 272 bytes or smaller. The Large BICC (Bearer Independent Call Control) MSU Support for IP Signaling feature allows the EAGLE 5 ISS to process BICC messages with a SIF that is larger than 272 bytes. Perform the [Activating the Large BICC MSU Support for IP Signaling Feature](#) procedure to enable and turn on the Large BICC MSU Support for IP Signaling feature.

Adding an IPLIMx Card

This procedure is used to add an IPLIMx card to the database using the **ent-card** command. An IPLIMx card is a card that is running 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
Single-Slot EDCM	870-2372-01, 870-2372-08, 870-2372-13
E5-ENET	870-2212-xx

The EAGLE 5 ISS can support a mixture of single-slot EDCMs and E5-ENET cards. The EAGLE 5 ISS supports the combinations of the E5-ENET cards and single-slot EDCMs shown in [Table 3-2](#).

Table 3-2. E5-ENET and Single-Slot EDCMs Provisioning Combinations

Number of Provisioned E5-ENET Cards	Number of Provisioned Single-Slot EDCMs
100	0
90	20
80	40
70	60
60	80
50	100
40	120
30	140
20	160
18	164

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 or GPL 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 single-slot EDCM and 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 HIPR cards installed in slots 9 and 10 in that shelf. If HIPR 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=hipr** command to verify whether or not HIPR cards are installed in the same shelf as the E5-ENET card being provisioned in this procedure.

Procedure

1. The EAGLE 5 ISS can contain a maximum of 100 E5-ENET cards. If the EAGLE 5 ISS contains 100 E5-ENET cards, no single-slot EDCMs can be provisioned as IPLIMx cards (see [Table 3-2](#)). E5-ENET cards can run one of these GPLs: IPSPG, IPLHC, and IPGHC. E5-ENET cards can be provisioned as IPLIMx cards if the E5-ENET cards are running the IPLHC GPL. Verify the number of E5-ENET cards running the IPSPG GPL by entering this command.

rept-stat-gpl:gpl=ipsg

```
rlghncxa03w 08-03-05 08:12:53 GMT 38.0.0
GPL Auditing ON
```

GPL	CARD	RUNNING	APPROVED	TRIAL
IPSG	2101	130-003-000	130-003-000	130-002-000
IPSG	2103	130-003-000	130-003-000	130-002-000
IPSG	2105	130-003-000	130-003-000	130-002-000
IPSG	2107	130-003-000	130-003-000	130-002-000

Command Completed.

If 100 entries are shown in the **rept-stat-gpl** output, this procedure cannot be performed. The EAGLE 5 ISS contains the maximum number of E5-ENET cards.

If less than 100 entries are shown in this step, continue the procedure with [Step 2](#) and [Step 3](#) to verify the number of E5-ENET cards that are running the IPLHC and IPGHC GPLs.

2. Verify the number of E5-ENET cards running the IPLHC GPL by entering this command.

rept-stat-gpl:gpl=iplhc

```
rlghncxa03w 08-03-05 08:12:53 GMT 38.0.0
GPL Auditing ON
```

GPL	CARD	RUNNING	APPROVED	TRIAL
IPLHC	2201	130-003-000	130-003-000	130-002-000
IPLHC	2203	130-003-000	130-003-000	130-002-000
IPLHC	2205	130-003-000	130-003-000	130-002-000
IPLHC	2207	130-003-000	130-003-000	130-002-000

Command Completed.

3. Verify the number of E5-ENET cards running the IPGHC GPL by entering this command.

rept-stat-gpl:gpl=ipghc

```
rlghncxa03w 08-03-05 08:12:53 GMT 38.0.0
GPL Auditing ON
```

GPL	CARD	RUNNING	APPROVED	TRIAL
IPGHC	2301	130-003-000	130-003-000	130-002-000
IPGHC	2303	130-003-000	130-003-000	130-002-000
IPGHC	2305	130-003-000	130-003-000	130-002-000
IPGHC	2307	130-003-000	130-003-000	130-002-000

Command Completed.

If 100 entries are shown in the outputs of [Step 1](#) , [Step 2](#) , and [Step 3](#) , the remainder of this procedure cannot be performed. The EAGLE 5 ISS contains the maximum number of E5-ENET cards.

If less than 100 entries are shown in the outputs of [Step 1](#) , [Step 2](#) , and [Step 3](#) , continue the procedure with [Step 4](#) , [Step 5](#) , [Step 6](#) , and [Step 7](#) to verify the number of single-slot EDCMs that are provisioned in the EAGLE 5 ISS.

4. Verify the number of single-slot EDCMs running the SS7IPGW GPL by entering this command.

rept-stat-gpl:gpl=ss7ipgw

```
rlghncxa03w 08-03-05 08:12:53 GMT 38.0.0
GPL Auditing ON
```

GPL	CARD	RUNNING	APPROVED	TRIAL
SS7IPGW	2211	130-003-000	130-003-000	130-002-000
SS7IPGW	2213	130-003-000	130-003-000	130-002-000

Command Completed.

5. Verify the number of single-slot EDCMs running the IPGWI GPL by entering this command.

rept-stat-gpl:gpl=ipgwi

```
rlghncxa03w 08-03-05 08:12:53 GMT 38.0.0
GPL Auditing ON
```

GPL	CARD	RUNNING	APPROVED	TRIAL
IPGWI	2215	130-003-000	130-003-000	130-002-000
IPGWI	2217	130-003-000	130-003-000	130-002-000

Command Completed.

6. Verify the number of single-slot EDCMs running the IPLIM GPL by entering this command.

rept-stat-gpl:gpl=iplim

```
rlghncxa03w 08-03-05 08:12:53 GMT 38.0.0
GPL Auditing ON
```

GPL	CARD	RUNNING	APPROVED	TRIAL
IPLIM	1303	130-003-000	130-003-000	130-002-000
IPLIM	1305	130-003-000	130-003-000	130-002-000

Command Completed.

7. Verify the number of single-slot EDCMs running the IPLIMI GPL by entering this command.

rept-stat-gpl:gpl=iplimi

```
rlghncxa03w 08-03-05 08:12:53 GMT 38.0.0
GPL Auditing ON
```

GPL	CARD	RUNNING	APPROVED	TRIAL
IPLIMI	2311	130-003-000	130-003-000	130-002-000
IPLIMI	2313	130-003-000	130-003-000	130-002-000

Command Completed.

[Table 3-2](#) shows the combinations of E5-ENET cards and single-slot EDCMs that the EAGLE 5 ISS will support. If adding the new IPLIMx card will exceed the limits shown in [Table 3-2](#), the new IPLIMx card cannot be provisioned in the database and the remainder of this procedure cannot be performed.

If adding the new IPLIMx card will not exceed the limits shown in [Table 3-2](#), one of the following actions can be performed.

- The EAGLE 5 ISS can contain a maximum of 100 IPLIMx cards. The cards shown in the **rept-stat-gpl** outputs in [Step 2](#), [Step 6](#), and [Step 7](#) are IPLIMx cards. If the sum of the number of entries in these steps is 100, the new IPLIMx card cannot be provisioned in the database and the remainder of this procedure cannot be performed.
- If the sum of the number of entries shown in the **rept-stat-gpl** outputs in [Step 2](#), [Step 6](#), and [Step 7](#) is less than 100, continue the procedure with [Step 8](#).

8. 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 5 ISS for proper power distribution. Refer to the *Installation Manual - EAGLE 5 ISS* for the shelf power distribution.

```
rlghncxa03w 08-03-05 08:12:53 GMT 38.0.0
CARD   TYPE      APPL      LSET NAME      LINK SLC LSET NAME      LINK SLC
1101    TSM          SCCP
1102    TSM          GLS
1113    GSPM          EOAM
1114    TDM-A
1115    GSPM          EOAM
1116    TDM-B
1117    MDAL
1201    LIMDS0       SS7ANSI    sp2            A      0      sp1            B      0
1203    LIMDS0       SS7ANSI    sp3            A      0
1204    LIMDS0       SS7ANSI    sp3            A      1
1206    LIMDS0       SS7ANSI    nsp3           A      1      nsp4           B      1
1207    LIMV35       SS7GX25    nsp1           A      0
1208    LIMV35       SS7GX25    nsp1           A      1
1216    ACMENET      STPLAN
1301    LIMDS0       SS7ANSI    sp6            A      1      sp7            B      0
1302    LIMDS0       SS7ANSI    sp7            A      1      sp5            B      1
1303    DCM          IPLIM      ipnode1        A      0      ipnode3        B      1
1305    DCM          IPLIM      ipnode4        A      0
1307    ACMENET      STPLAN
2101    ENET         IPG
2103    ENET         IPG
2105    ENET         IPG
2107    ENET         IPG
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
```

If the required unprovisioned card slots (see the [Card Slot Selection](#) section) are shown in the **rtrv-card** output, continue the procedure with [Step 11](#).

If the required unprovisioned card slots are not shown in the **rtrv-card** output, [Step 9](#) must be performed.

9. Display the shelves in the database by entering the **rtrv-shlf** command. This is an example of the possible output.

```

r1ghncxa03w 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

r1ghncxa03w 07-05-01 09:12:36 GMT EAGLE5 37.0.0
SHELF DISPLAY
FRAME SHELF      TYPE
 1      1      CONTROL
 1      2      EXTENSION
 1      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 [Step 10](#) .

10. 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.

```

r1ghncxa03w 07-05-01 09:12:36 GMT EAGLE5 37.0.0
ENT-SHLF: MASP A - COMPLTD

```

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



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

NOTE: If the card being added in this procedure is not an E5-ENET card, continue the procedure with [Step 13](#) .

12. Verify that HIPR 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=hipr

This is an example of the possible output.

```

r1ghncxa03w 08-03-05 08:12:53 GMT 38.0.0
GPL      CARD      RUNNING      APPROVED      TRIAL
HIPR     1109      125-002-000  125-002-000  125-003-000
HIPR     1110      125-002-000  125-002-000  125-003-000
HIPR     1209      125-002-000  125-002-000  125-003-000
HIPR     1210      125-002-000  125-002-000  125-003-000
HIPR     1309      125-002-000  125-002-000  125-003-000
HIPR     1310      125-002-000  125-002-000  125-003-000
HIPR     2109      125-002-000  125-002-000  125-003-000
HIPR     2110      125-002-000  125-002-000  125-003-000
HIPR     2209      125-002-000  125-002-000  125-003-000
HIPR     2210      125-002-000  125-002-000  125-003-000
HIPR     2309      125-002-000  125-002-000  125-003-000
HIPR     2310      125-002-000  125-002-000  125-003-000
Command Completed

```

If HIPR cards are installed in the shelf containing the E5-ENET card, continue the procedure with [Step 13](#).

If HIPR cards are not installed on the shelf containing the E5-ENET card, go to the *Installation Manual - EAGLE 5 ISS* and install the HIPR cards. Once the HIPR cards have been installed, continue the procedure with [Step 13](#).

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

```
ent-card:loc=1311:type=dcml:appl=iplim
```

```
ent-card:loc=1313:type=dcml: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
```

14. Verify the changes using the **rtrv-card** command with the card location specified in [Step 13](#). 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
```

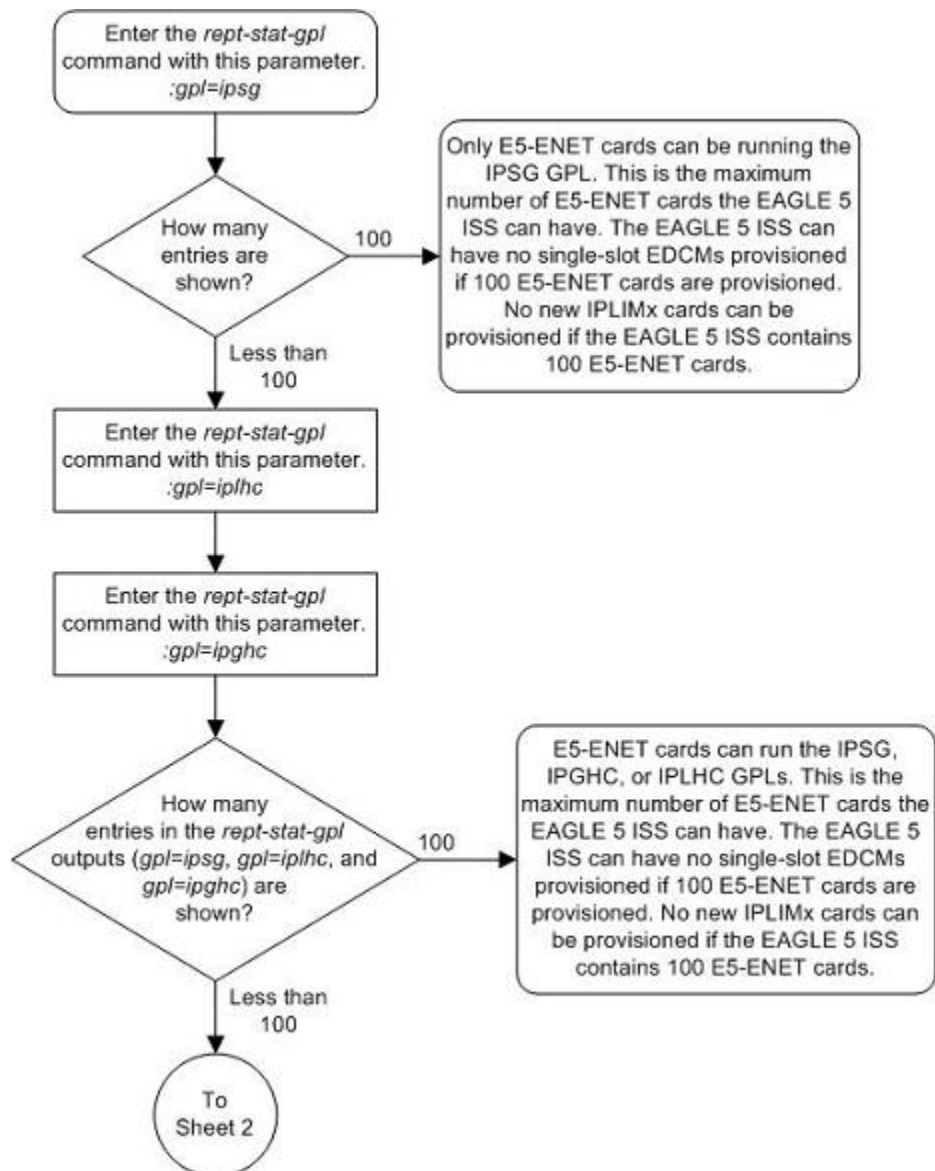
This is an example of the possible output.

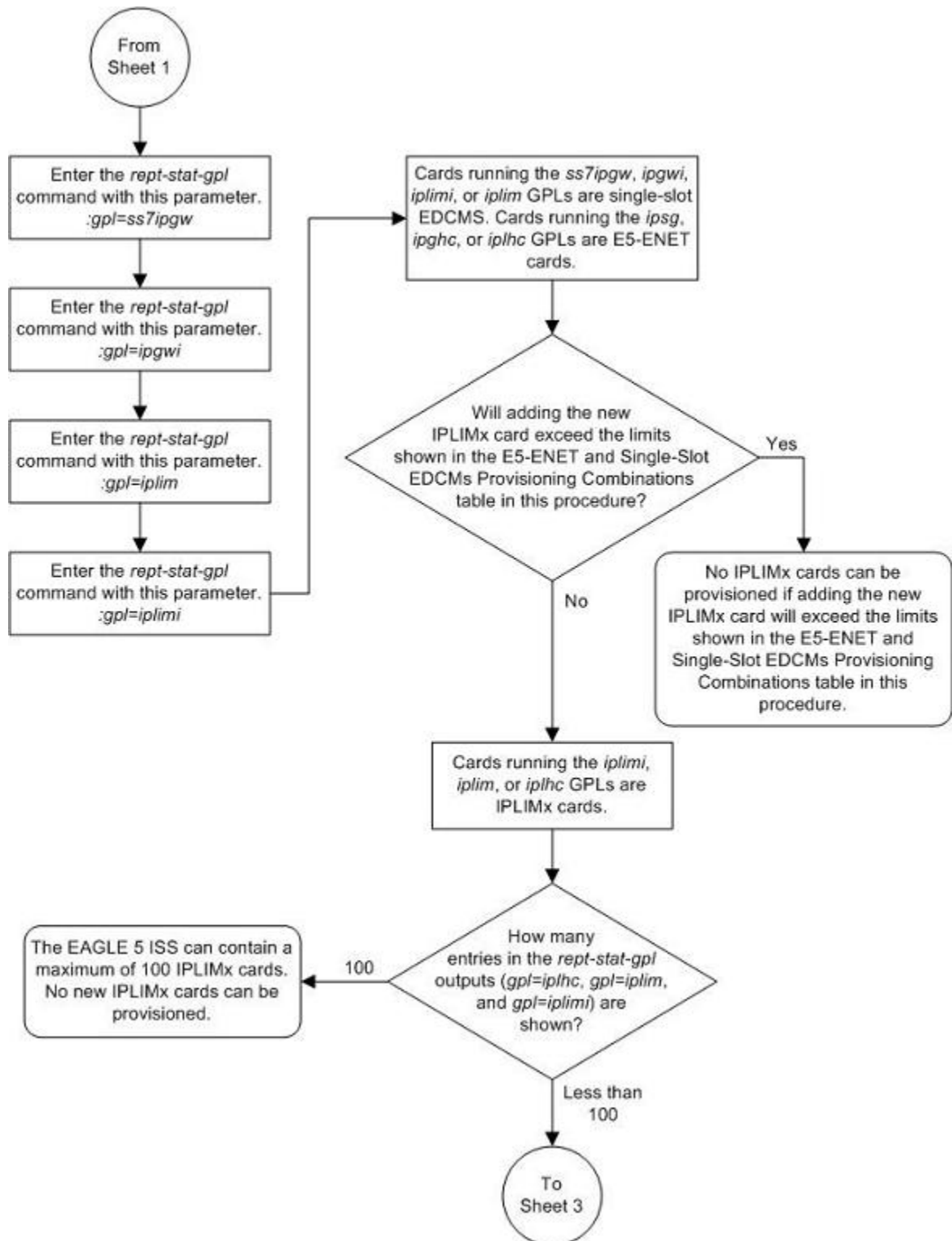
```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
CARD   TYPE      APPL      LSET NAME      LINK SLC LSET NAME      LINK SLC
1313   DCM        IPLIMI
```

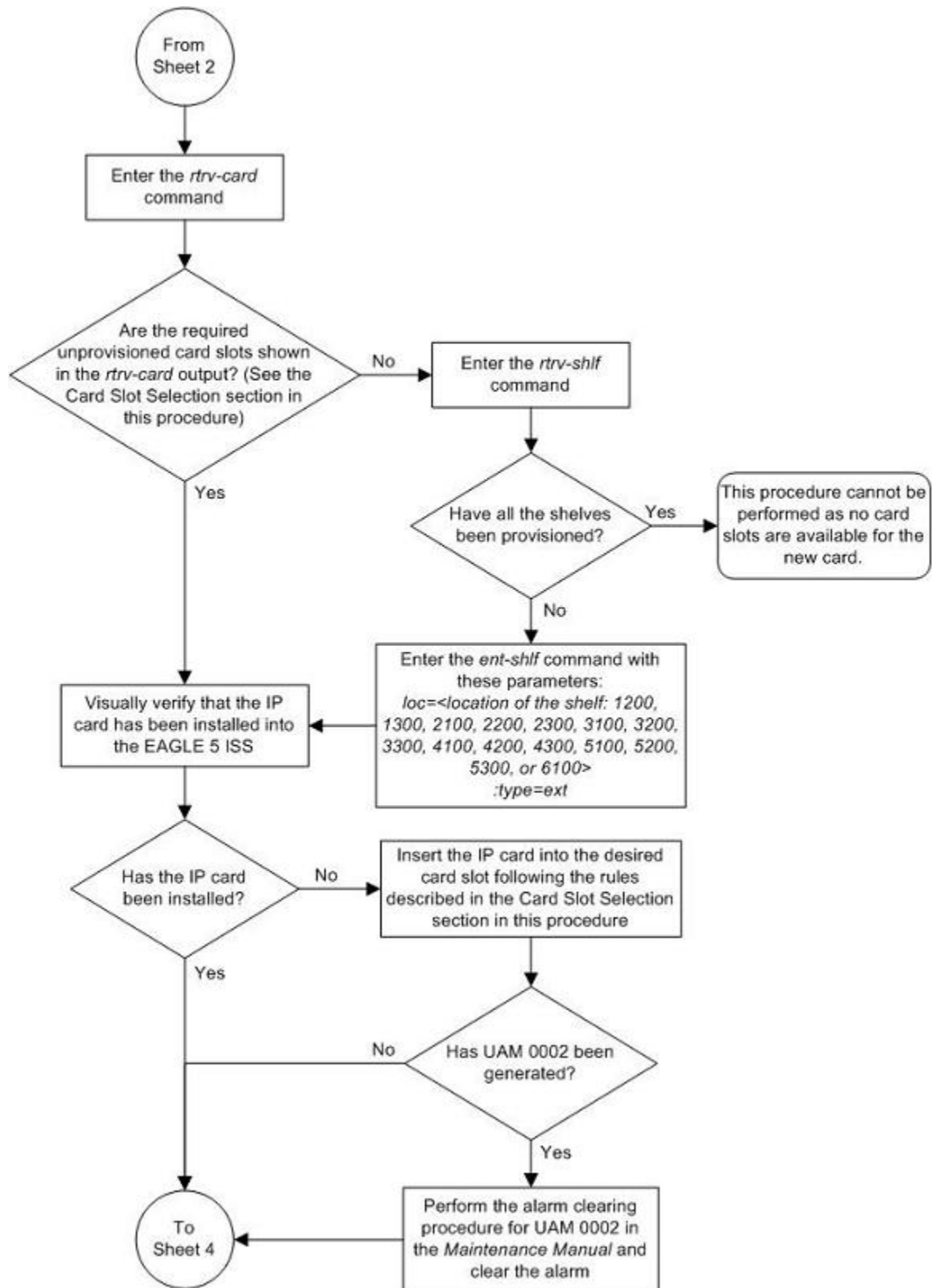
15. Back up the new changes using the **chg-db:action=backup:dest=fixed** command. These messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

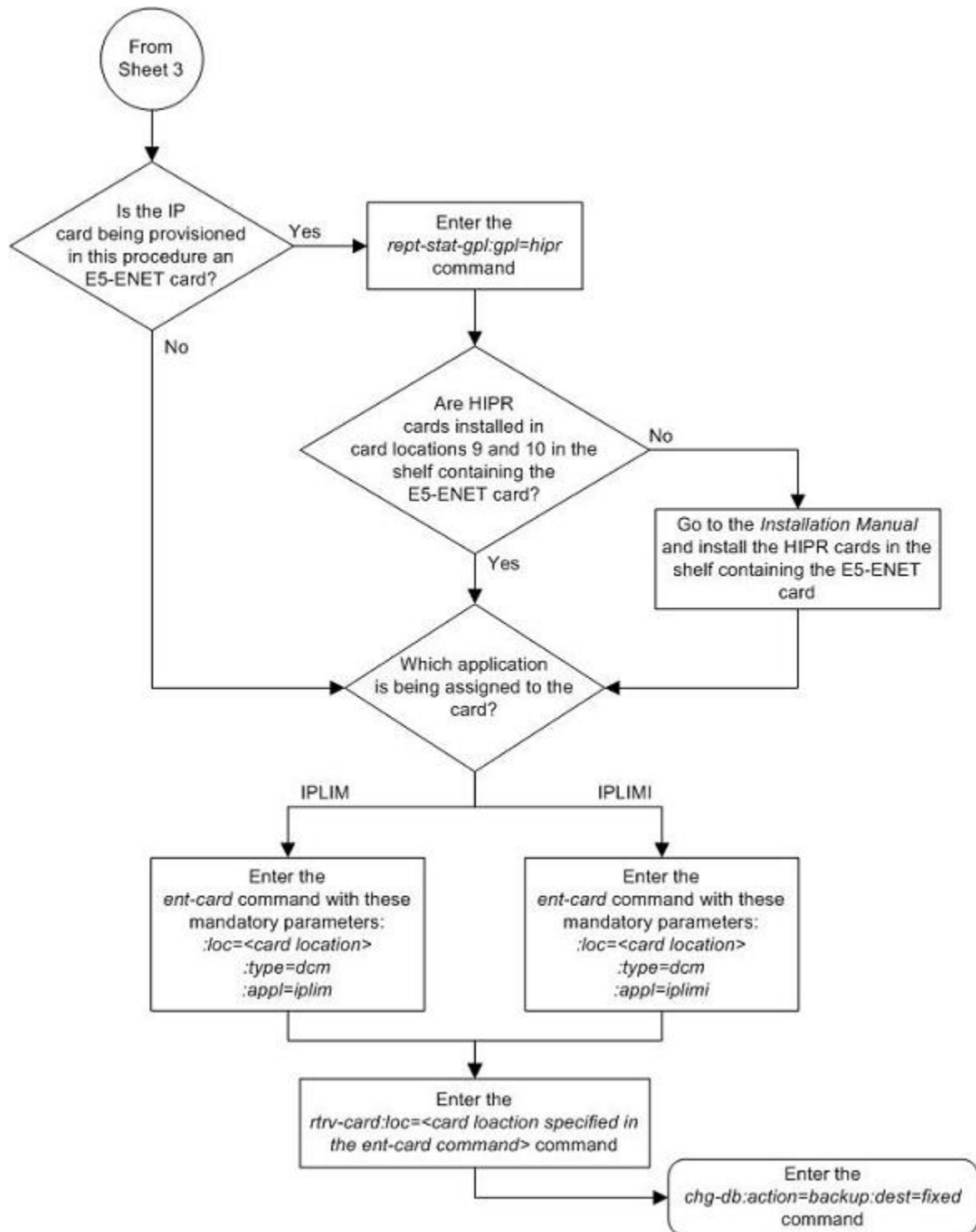
```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

Flowchart 3-1. Adding an IPLIMx Card









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 IPcards 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 5 ISS location and the distant node.

:ipliml2 – 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 the *Commands Manual* 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 the *Database Administration Manual - SS7*
 - Adding an SS7 Signaling Link
 - Adding an E1 Signaling Link
 - Adding a T1 Signaling Link
 - Adding an ATM High-Speed Signaling Link
- The "Adding an X.25 Signaling Link" procedure in the *Database Administration Manual - Features*.

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

- Shelf – perform the "Adding a Shelf" procedure in the *Database Administration Manual - System Management*.
- Card – perform the [Adding an IPLIMx Card](#) procedure
- Destination Point Code – perform the "Adding a Destination Point Code" procedure in the *Database Administration Manual - SS7*.
- Linkset – perform the "Adding an SS7 Linkset" procedure in the *Database Administration Manual - SS7*.

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

To configure the EAGLE 5 ISS to perform circular routing detection test on the signaling links, "Configuring Circular Route Detection" procedure in the *Database Administration Manual - SS7*.

NOTE: Circular route detection is not supported in ITU networks.

To provision a EAGLE 5 ISS with more than 700 signaling links, the EAGLE 5 ISS must have certain levels of hardware installed. See the "Requirements for EAGLE 5 ISSs Containing more than 700 Signaling Links" section for more information on these hardware requirements.

The EAGLE 5 ISS 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 5 ISS can have.

Requirements for EAGLE 5 ISSs Containing more than 700 Signaling Links

To provision an EAGLE 5 ISS with more than 700 signaling links (currently the EAGLE 5 ISS can have maximum capacities of 1200, or 1500, or 2000 signaling links), the following additional requirements must be met:

- The Measurements Platform feature must be enabled. Perform these procedures in the *Database Administration Manual - System Management* 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 or 2000 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

An EAGLE 5 ISS containing either 1200, or 1500, or 2000 signaling links can contain the following quantities of signaling links:

- 180 high-speed ATM signaling links assigned to the ATMANSI application. If there are any high-speed ATM signaling links assigned to the ATMITU application, the maximum number of high-speed ATM signaling links is 115.
- 100 signaling links assigned to either the IPLIM or IPLIMI applications.
- 64 signaling links assigned to either the **ss7ipgw** or **ipgwi** application, or combinations of the **ss7ipgw** and **ipgwi** applications.
- 64 unchannelized E1 signaling links.

The following hardware and applications are the only signaling link hardware and applications supported for an EAGLE 5 ISS containing more than 1500 signaling links.

- E1/T1MIM running the **ccs7itu** application.
- HC-MIM running the **ccs7itu** application.
- E5-E1T1 running the **ccs7itu** application.
- Single-slot EDCM running either the **iplimi** or **ipgwi** applications.
- E5-ENET running either the **iplimi** or **ipgwi** applications.
- ATM high-speed LIM running the **atmitu** application.

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 than the terminal where the **rept-stat-slk**, **rtrv-ls**, or **rtrv-slk** 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 the *Commands Manual*.

Procedure

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

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 L2T L1 PCR PCR
1201 B lsa1 0 LIMDS0 1 56000 --- --- BASIC --- -----
1203 B lsa2 0 LIMDS0 1 56000 --- --- BASIC --- -----
1205 A lsa3 0 LIMV35 3 64000 DCE ON BASIC --- -----
1207 A lsn1207a 0 LIMDS0 1 56000 --- --- BASIC --- -----
1207 B lsn1207b 0 LIMDS0 1 56000 --- --- BASIC --- -----
1214 A lsn1214a 0 LIMV35 2 64000 DTE --- PCR 76 3800
1214 B lsa3 1 LIMV35 3 64000 DCE ON BASIC --- -----
```

SLK table is (7 of 1200) 1% full.

If the **rtrv-slk** output shows that the maximum number of signaling links is 2000, continue the procedure with [Step 2](#).

If the **rtrv-slk** output shows that the maximum number of signaling links is 1200, and the signaling link being added increases the number beyond 1200, perform the [Enabling the Large System # Links Controlled Feature](#) procedure and enable the Large System # Links controlled feature for either 1500 signaling links or 2000 signaling links. Then continue the procedure with [Step 2](#).

If the **rtrv-slk** output shows that the maximum number of signaling links is 1500, and the signaling link being added increases the number beyond 1500, perform the [Enabling the Large System # Links Controlled Feature](#) procedure and enable the Large System # Links controlled feature for 2000 signaling links. Then continue the procedure with [Step 2](#).

If the addition of the new signaling link will not exceed the maximum number of signaling links, continue the procedure with [Step 2](#).

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

This is an example of the possible output.

```
rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 36.0.0
LSN APCA (SS7) SCRNL3T SLT GWS GWS GWS
e1e2 001-207-000 none 1 1 no B 6 off off off no off
ls1305 000-005-000 none 1 1 no A 1 off off off no off
ls1307 000-007-000 none 1 1 no A 1 off off off no off
e1m1s1 001-001-001 none 1 1 no A 7 off off off no off
e1m1s2 001-001-002 none 1 1 no A 7 off off off no off

LSN APCI (SS7) SCRNL3T SLT GWS GWS GWS
e1e2i 1-207-0 none 1 1 no B 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 A 1 off off off --- on
e1m2s1      1-011-1      none 1 1 no A 7 off off off --- off
e1m2s2      1-011-2      none 1 1 no A 7 off off off --- off

```

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

If the required linkset is not in the database, perform the "Adding an SS7 Linkset" procedure in the *Database Administration Manual - SS7* to add the linkset to the database. After the new linkset has been added, continue the procedure with [Step 4](#).

If the signaling link will be assigned to the linkset shown in this step, continue the procedure with [Step 3](#).

3. 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 06-10-17 11:43:04 GMT EAGLE5 36.0.0
                                L3T SLT
LSN      APCI  (SS7)  SCR N SET SET BEI LST LNKS ACT MES DIS SLSCI NIS
lsnipgw  2968      none 1 1 no A 1 off off off --- off

CLLI      TFATCABMLQ  MTPRSE  ASL8  SLSRSB  MULTGC  ITUTFR
----- 1          no    ---  1          yes    off

IPGWAPC  MATELSN  IPTPS  LSUSEALM  SLKUSEALM  GTTMODE
no      -----  ---  ---  ---  CdPA

LOC  LINK  SLC  TYPE  IPLIML2
1317 A    0  IPLIMI  M2PA

SAPCI
1-10-1

SAPCN
1234-aa
1235-bb
1200-zz

```

Link set table is (13 of 1024) 1% full.

Linksets can contain a mixture of signaling link types unless the card application is SS7IPGW or IPGWI.

4. Display the cards in the database using the **rtrv-card** command.

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
1102  TSM     GLS
1103  DCM     VXWLAN
1113  GSPM     EOAM
1114  TDM-A
1115  GSPM     EOAM
1116  TDM-B
1117  MDAL
1201  LIMDS0   SS7ANSI  lsa1      B    0
1202  LIMV35   SS7ANSI
1203  LIMDS0   SS7ANSI  lsa2      B    0
1204  LIMDS0   SS7ANSI
1205  LIMV35   SS7ANSI  lsa3      A    0
1206  LIMV35   SS7ANSI
1207  LIMDS0   SS7ANSI  lsn1207a  A    0  lsn1207b  B    0
1208  LIMDS0   SS7ANSI
1212  LIMV35   SS7ANSI

```

1213	LIMDS0	SS7ANSI						
1214	LIMV35	SS7ANSI	lsn1214a	A	0	lsa3	B	1
1215	LIMDS0	SS7ANSI						
1301	LIMV35	ATMANSI						
1302	LIMATM	ATMANSI						
1304	LIMV35	SS7ANSI						
1305	LIMATM	ATMANSI						
1308	LIMV35	SS7ANSI						
1311	LIMDS0	SS7ANSI						
1313	LIMDS0	SS7ANSI						
1315	LIMV35	CCS7ITU						
1317	LIMV35	CCS7ITU						
1318	LIMATM	ATMANSI						

If the required card is not in the database, perform the [Adding an IPLIMx Card](#) procedure and add the IP 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.

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

[Table 3-3](#) shows the parameters and values that can be specified with the **ent-slk** command.

Table 3-3. 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. ¹
:link = <see Note 2>
:lsn = linkset name ³
:slc = 0 - 15 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
```

6. Verify the changes using the **rtrv-slk** command with the card location and **link** parameter values specified in [Step 5](#) . For this example, enter these commands.

rtrv-slkl: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-slkl: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-slkl: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
```

7. 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=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.
```

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

act-slkl:loc=2204:link=b

act-slkl:loc=2205:link=a

act-slkl: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
```

9. Check the status of the signaling links added in [Step 5](#) using the **rept-stat-slkl** command with the card location and link parameter values specified in [Step 5](#). 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-slkl: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
```

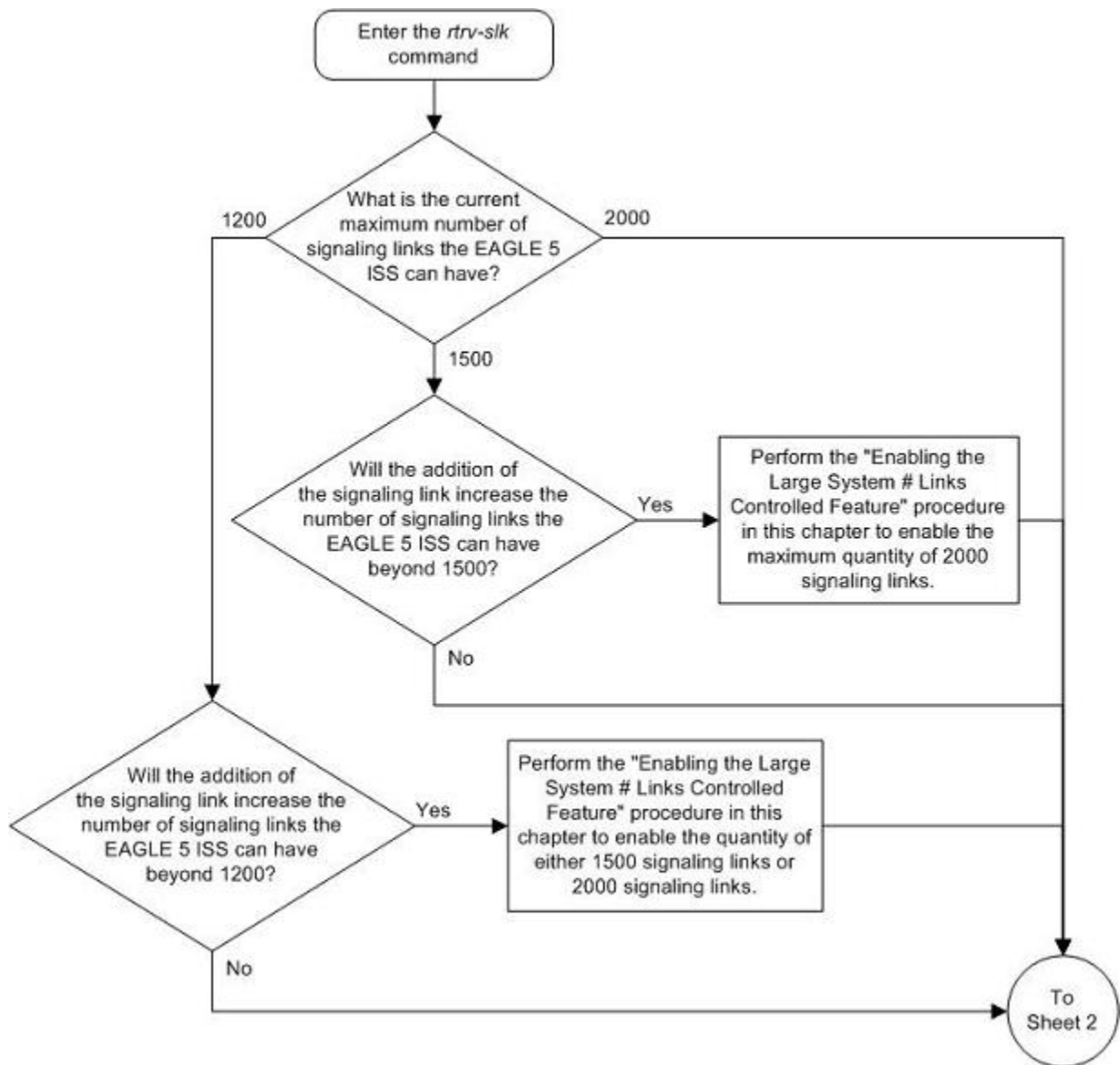
This is an example of the possible output.

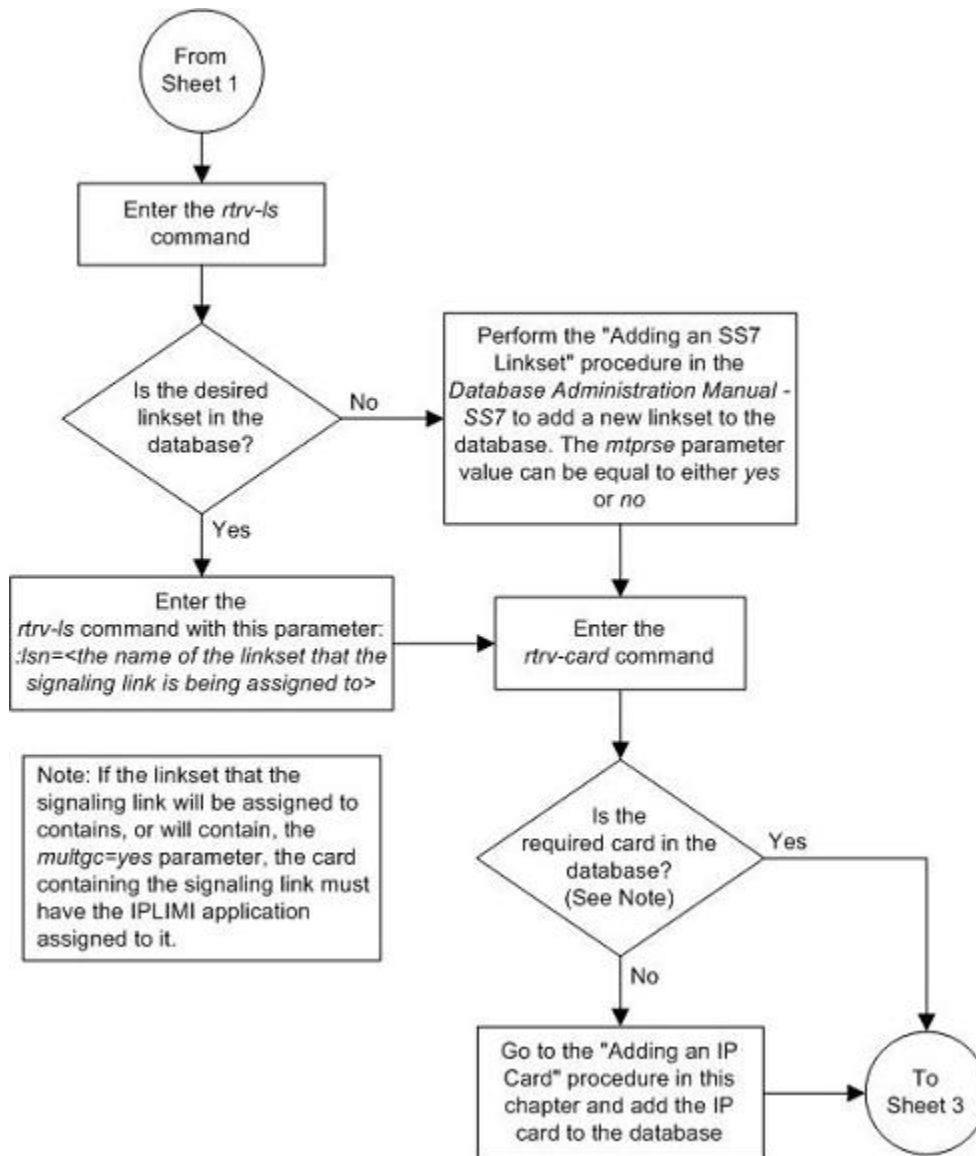
```
rlghncxa03w 07-05-23 13:06:25 GMT EAGLE5 37.0.0
SLK      LSN      CLLI      PST      SST      AST
2213,A   lsnlp5   ----- IS-NR      Avail    ----
ALARM STATUS      =
UNAVAIL REASON    =
```

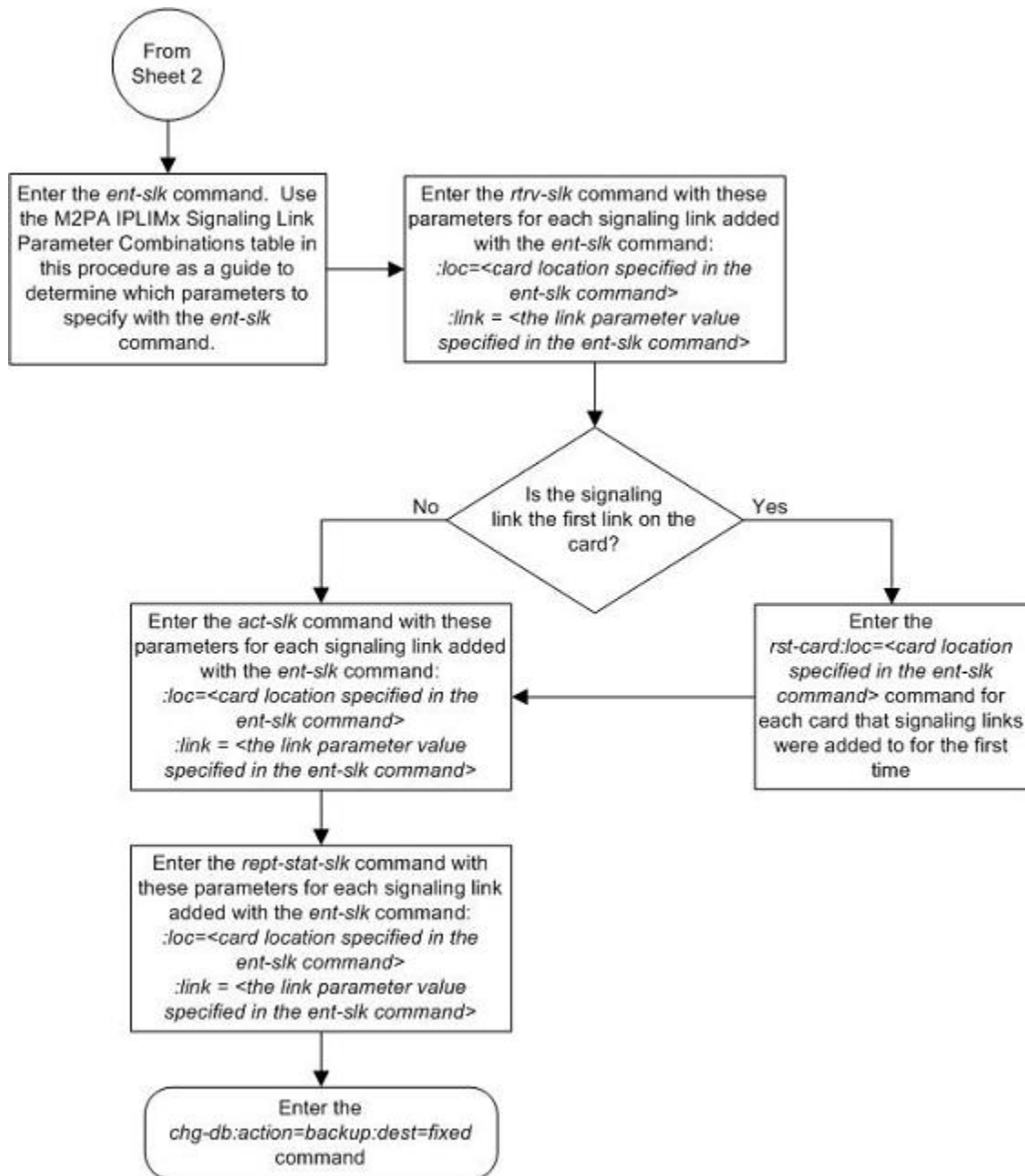
10. Back up the new changes using the **chg-db:action=backup:dest=fixed** command. These messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
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.
```

Flowchart 3-2. Adding an IPLIMx Signaling Link







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 5 ISS, making the feature access key site-specific.

This feature allows the EAGLE 5 ISS to contain a maximum of either 1500 or 2000 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:

: fak – The feature access key provided by Tekelec. The feature access key contains 13 alphanumeric characters and is not case sensitive.

: partnum – The Tekelec-issued part number associated with the signaling link quantity being enabled:

- 893005901 for the 1500 signaling link quantity
- 893005910 for the 2000 signaling link quantity.

The **enable-ctrl-feat** command requires that the database contain a valid serial number for the EAGLE 5 ISS, and that this serial number is locked. This can be verified with the **rtrv-serial-num** command. The EAGLE 5 ISS is shipped with a serial number in the database, but the serial number is not locked. The serial number can be changed, if necessary, and locked once the EAGLE 5 ISS is on-site, by using the **ent-serial-num** command. The **ent-serial-num** command uses these parameters.

: serial – The serial number assigned to the EAGLE 5 ISS. The serial number is not case sensitive.

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

NOTE: To enter and lock the EAGLE 5 ISS's serial number, the ent - serial - num command must be entered twice, once to add the correct serial number to the database with the serial parameter, then again with the serial and the lock=yes parameters to lock the serial number. You should verify that the serial number in the database is correct before locking the serial number. The serial number can be found on a label affixed to the control shelf (shelf 1100).

This feature cannot be temporarily enabled (with the temporary feature access key).

Once this feature is enabled with the **enable-ctrl-feat** command, the feature is also activated. The **chg-ctrl-feat** command is not necessary to activate the feature.

This feature cannot be disabled with the **chg-ctrl-feat** command and the **status=off** parameter.

Hardware Supported for Signaling Link Quantities Greater than 1500

The following hardware and applications are the only signaling link hardware and applications supported for an EAGLE 5 ISS containing more than 1500 signaling links.

- E1/T1 MIM running the **ccs7itu** application.
- HC-MIM running the **ccs7itu** application.
- E5-E1T1 card running the **ccs7itu** application.
- Single-slot EDCM running either the **iplimi** or **ipgwi** applications.
- E5-ENET card running either the **iplimi** or **ipgwi** applications.
- ATM high-speed LIM card running the **atmitu** application.

To increase the signaling link quantity to more than 1500 signaling links, HIPR cards must be installed into card locations 9 and 10 in each shelf in the EAGLE 5 ISS. Enter the **rept-stat-gpl:gpl=hipr** command to verify whether or not HIPR cards are installed in the EAGLE 5 ISS shelves.

Procedure

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.

NOTE: If the **rtrv-ctrl-feat output in [Step 1](#) shows any controlled features, or if the Large System # Links controlled feature is enabled for a quantity that is less than the desired quantity, continue the procedure with [Step 6](#) .**

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 with [Step 6](#) . If the serial number is correct but not locked, continue the procedure with [Step 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 [Customer Care Center](#) 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 5 ISS'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 [Step 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 [Step 3](#) and [Step 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 [Step 2](#), if the serial number shown in [Step 2](#) is correct, or with the serial number shown in [Step 4](#), if the serial number was changed in [Step 3](#), and with the **lock=yes** parameter.

For this example, enter this command.

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

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

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
ENT-SERIAL-NUM: MASP A - COMPLTD
```

6. Verify that HIPR cards are installed in card locations 9 and 10 in each shelf of the EAGLE 5 ISS.

NOTE: If the 2000 signaling link quantity is not being enabled in this procedure, continue the procedure with [Step 7](#).

Enter this command.

rept-stat-gpl:gpl=hipr

This is an example of the possible output.

```
rlghncxa03w 06-10-01 11:40:26 GMT EAGLE5 36.0.0
GPL      CARD      RUNNING      APPROVED      TRIAL
HIPR     1109      126-002-000      126-002-000      126-003-000
HIPR     1110      126-002-000      126-002-000      126-003-000
HIPR     1209      126-002-000      126-002-000      126-003-000
HIPR     1210      126-002-000      126-002-000      126-003-000
HIPR     1309      126-002-000      126-002-000      126-003-000
HIPR     1310      126-002-000      126-002-000      126-003-000
HIPR     2109      126-002-000      126-002-000      126-003-000
HIPR     2110      126-002-000      126-002-000      126-003-000
Command Completed
```

If HIPR cards are installed in each the shelf in the EAGLE 5 ISS, continue the procedure with [Step 7](#).

If HIPR cards are not installed on each shelf in the EAGLE 5 ISS, go to the *Installation Manual - EAGLE 5 ISS* and install the HIPR cards. Once the HIPR cards have been installed, continue the procedure with [Step 7](#).

NOTE: Before the 2000 signaling link quantity is enabled, make sure the EAGLE 5 ISS is configured with the signaling link hardware shown in the Hardware Supported for Signaling Link Quantities Greater than 1500 section.

If signaling hardware other than the hardware shown in the Hardware Supported for Signaling Link Quantities Greater than 1500 section is installed and provisioned, contact the Customer Care Center before enabling the 2000 signaling link quantity. Refer to [Customer Care Center](#) for the contact information.

7. 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 5 ISS 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 5 ISS can contain to 2000, enter this command.

enable-ctrl-feat:partnum=893005910:fak=<feature access key>

NOTE: 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 Tekelec. If you do not have the feature access key for the feature you wish to enable, contact your Tekelec Sales Representative or Account Representative.

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

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
ENABLE-CTRL-FEAT: MASP B - COMPLTD
```

8. Verify the changes by entering the **rtrv-ctrl-feat** command with the part number specified in [Step 7](#).

If the 1500 signaling link quantity was enabled in [Step 7](#), 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 [Step 7](#), 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
```


Database Administration Manual - IP7 Secure GatewayEnabling the Large System # Links Controlled Feature

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:

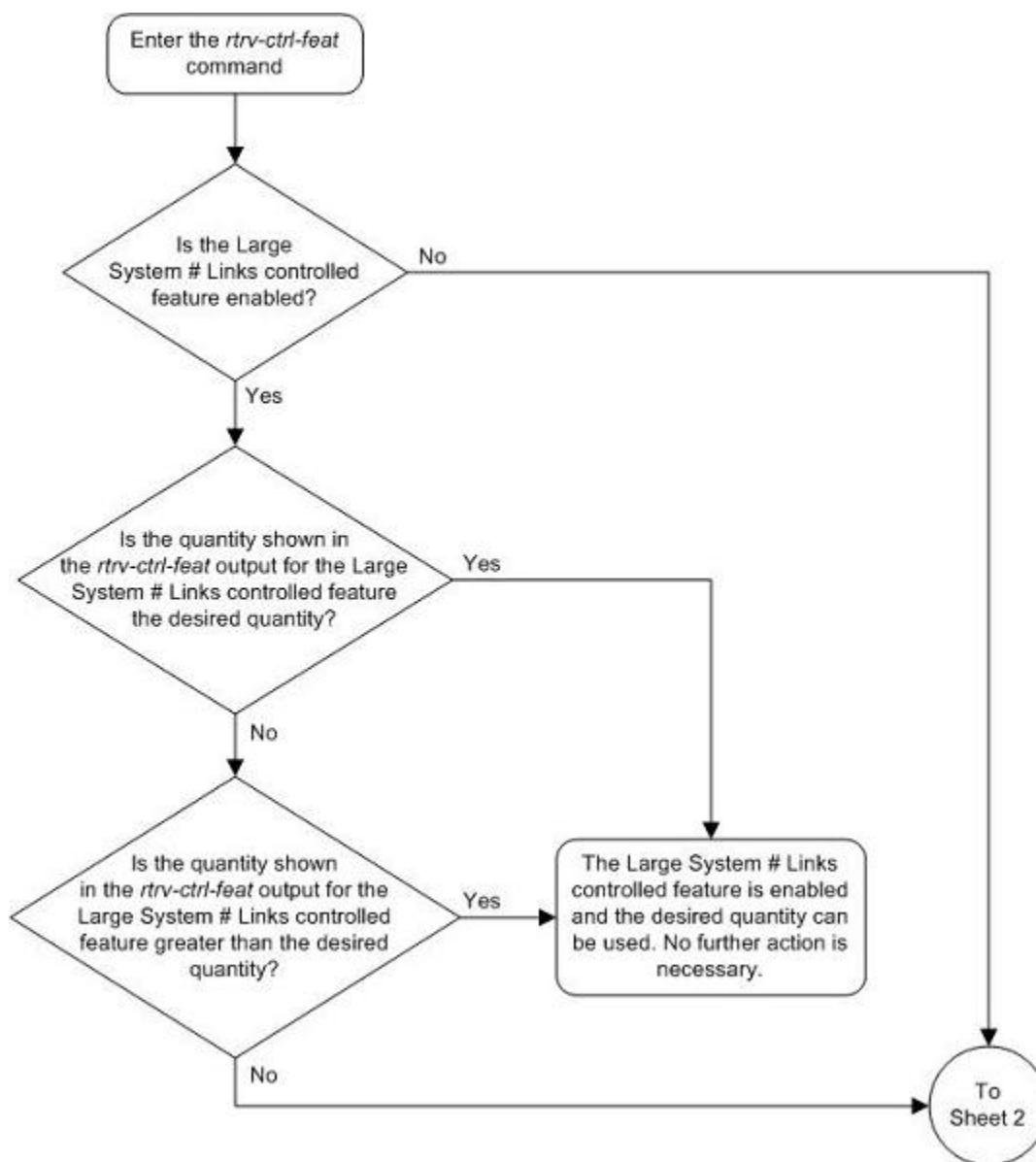
Feature Name	Partnum
Zero entries found.	

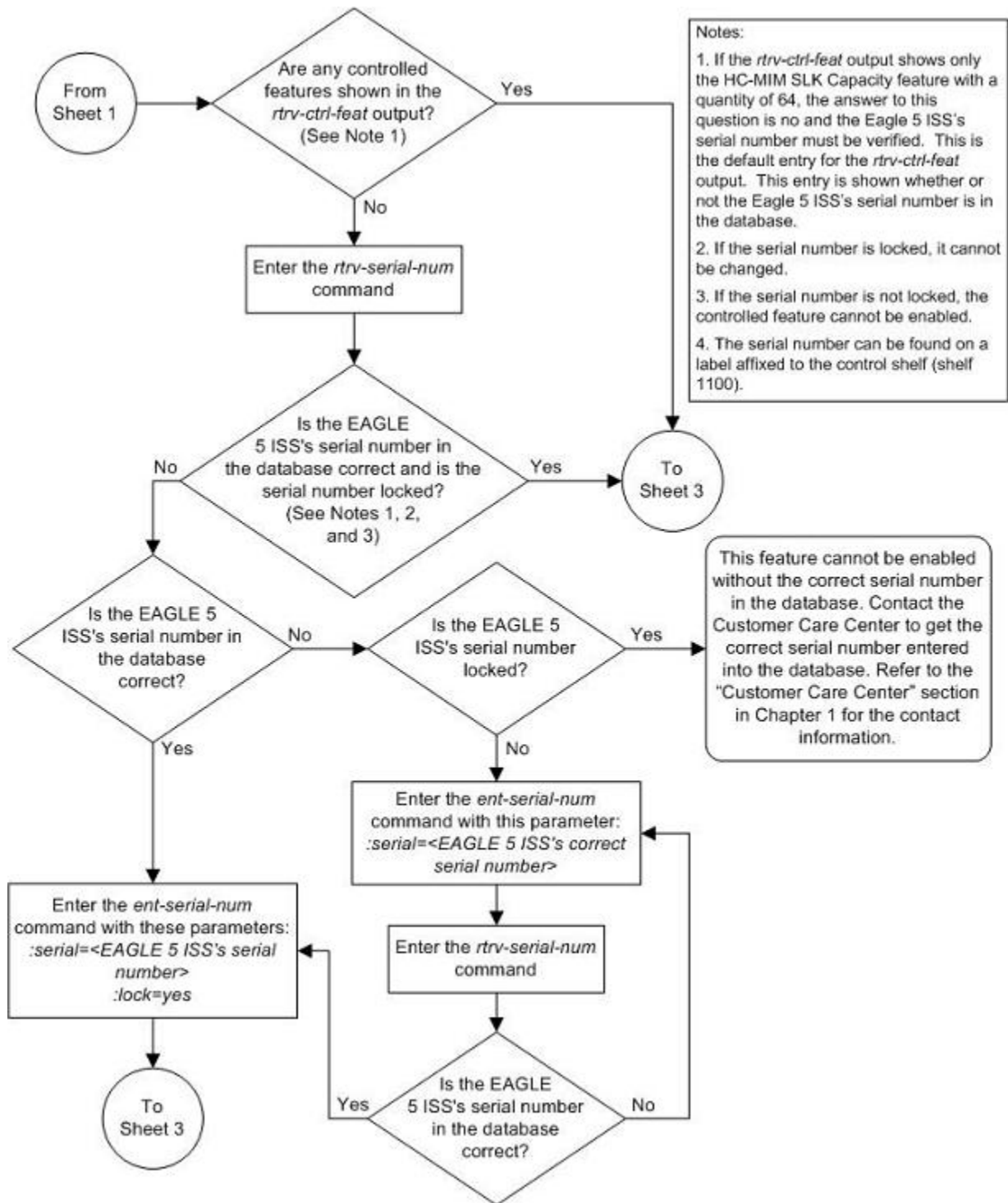
9. Back up the new changes using the **chg-db:action=backup:dest=fixed** command.

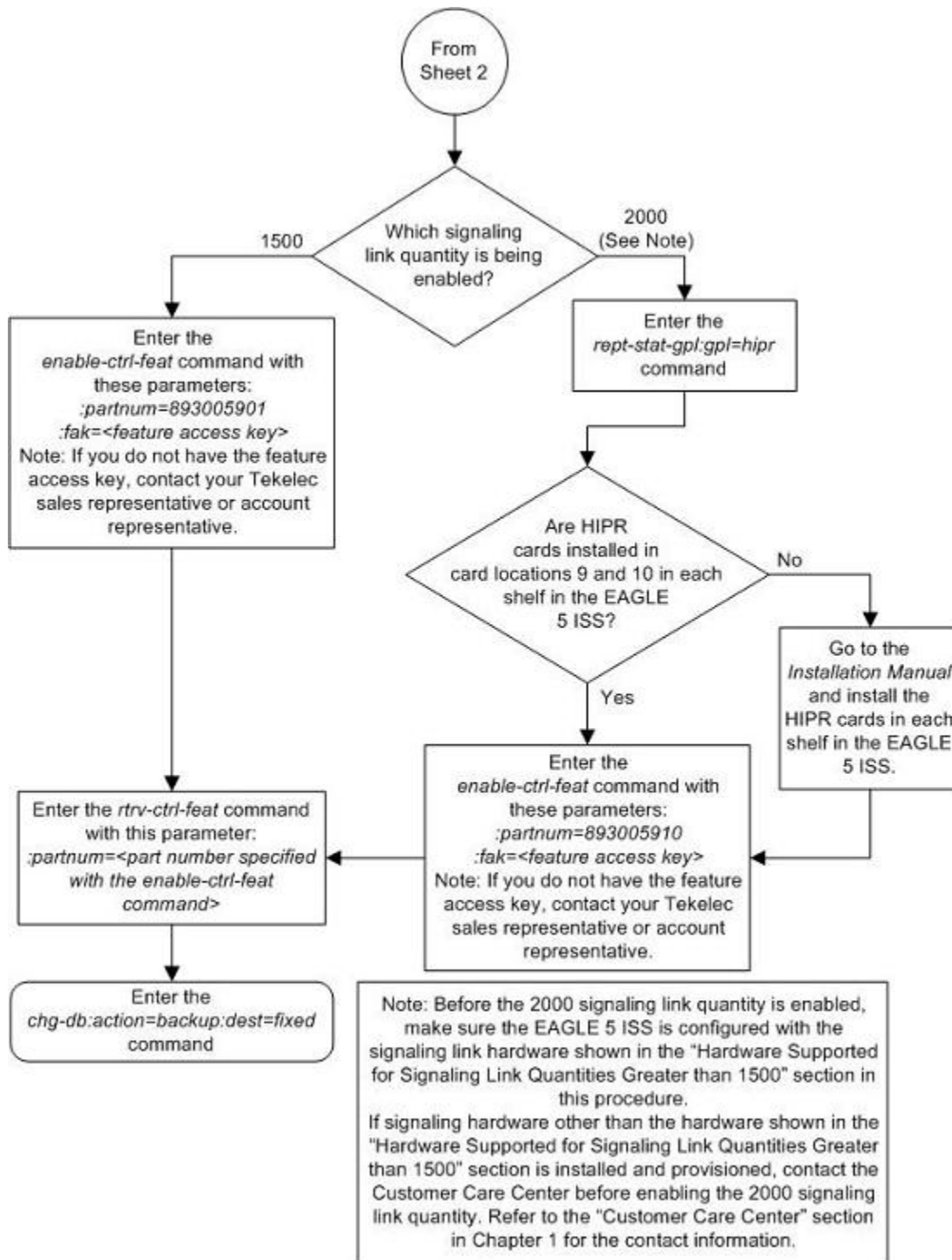
These messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
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.
```

Flowchart 3-3. Enabling the Large System # Links Controlled Feature







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 3-4](#) 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.

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 3-4](#)). 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 **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 **ipaddr** setting. See [Table 3-4](#) for the valid input values for the **submask** and **ipaddr** parameter combinations.

Table 3-4. Valid Subnet Mask Parameter Values

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

If a Class B IP address is specified for the **ipaddr** parameter of the **chg-ip-lnk** command, the subnet address that results from the **ipaddr** and **submask** parameter values cannot be the same as the subnet address that results from the **pvn** and **pvnmask** parameter values of the **chg-netopts** command. The **pvn** and **pvnmask** parameter values can be verified by entering the **rtrv-netopts** command. 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** 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** 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 than 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 the *Commands Manual*.

Procedure

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 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     802.3    NO    NO
1201  B    -----     -----     HALF    10     DIX      NO    NO
1203  A    192.1.1.12   255.255.255.0   ----    ---     DIX      YES   NO
1203  B    -----     -----     HALF    10     DIX      NO    NO
1205  A    192.1.1.14   255.255.255.0   FULL    100    DIX      NO    NO
1205  B    -----     -----     HALF    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
2103  A    192.1.1.22   255.255.255.0   FULL    100    DIX      NO    NO
2103  B    -----     -----     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
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    -----     -----     HALF    10     DIX      NO    NO
```

NOTE: If the **ipaddr=0.0.0.0** is not being specified in this procedure, continue the procedure with [Step 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** command.

The following is an example of the possible output.

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0

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-MS1
192.1.1.52      DN-MS2

REMOTE IPADDR  REMOTE HOST
150.1.1.5      NCDEPTECONOMIC_DEVELOPMENT. SOUTHEASTERN_COORIDOR_ASHVL. GOV

```

IP Host table is (11 of 512) 2% 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 [Adding an IP Host](#) 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 [Step 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
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 [Step 5](#) to deactivate the signaling link. If the signaling link is out-of-service-maintenance disabled (OOS-MT-DSBLD), continue the procedure with [Step 7](#) to verify the IP card status.

5. 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.

```

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      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.

If the IP card to be inhibited is in service-normal (IS-NR), continue the procedure with [Step 8](#) to inhibit the card. If the IP card is out-of-service-maintenance disabled (OOS-MT-DSBLD), continue the procedure with [Step 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 06-10-27 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.

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.

NOTE: If the **ipaddr** or **submask** parameter values are not being changed, continue the procedure with [Step 13](#) .

For this example, enter this command.

rtrv-ip-card:loc=1201

This is an example of the possible output.

```
rlghncxa03w 06-10-28 21:17:37 GMT EAGLE5 36.0.0
LOC 1201
  SRCHORDR  LOCAL
  DNSA      150.1.1.1
  DNSB      -----
  DEFROUTER -----
  DOMAIN    -----
```

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   255.255.255.255  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 1024) 1% 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** parameter values of the **chg-netopts** command.

NOTE: If a Class A or C IP address (see [Table 3-4](#)) will be specified for the **ipaddr** parameter in [Step 14](#) , continue the procedure with [Step 13](#) .

Display the **pvn** and **pvnmask** 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** and **pvnmask** parameters are not configured. Continue the procedure with [Step 13](#) .

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

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

```

NETWORK OPTIONS
-----
PVN      = 128.20.30.40
PVNMASK  = 255.255.192.0

```

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** parameter values of the **chg-netopts** command. Continue the procedure with [Step 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 [Step 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 [Step 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 an 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:m  
actype=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 [Step 14](#) by entering the **rtrv-ip-lnk** command with the card location specified in [Step 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 [Step 8](#) by using by using the **alw-card** command.

NOTE: If [Step 8](#) was not performed, continue the procedure with [Step 18](#) .

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 [Step 5](#) using the **act-slk** command.

NOTE: If [Step 5](#) was not performed, continue the procedure with [Step 20](#).

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 [Step 22](#).

NOTE: If the IP address of the default router was not changed to 0.0.0.0 in [Step 10](#) , continue the procedure with [Step 21](#) .

21. Perform the [Adding an IP Route](#) procedure and add the IP routes back into the database.

NOTE: If IP routes were not removed in [Step 11](#) , continue the procedure with [Step 22](#) .

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

NOTE: If the **open** parameter value for an association was not changed in [Step 13](#) , continue the procedure with [Step 23](#) .

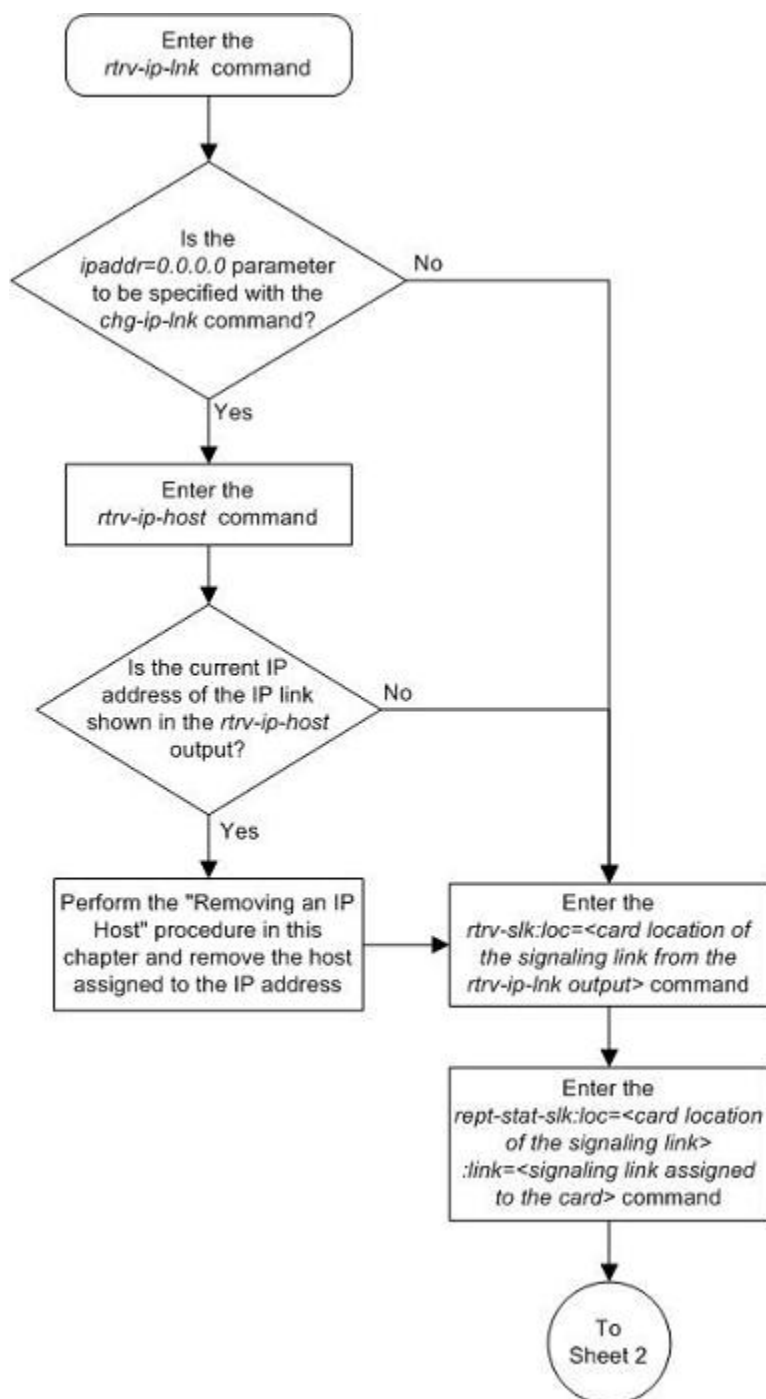
- [Changing the Attributes of an M2PA Association](#)
- [Changing the Attributes of an M3UA or SUA Association](#)

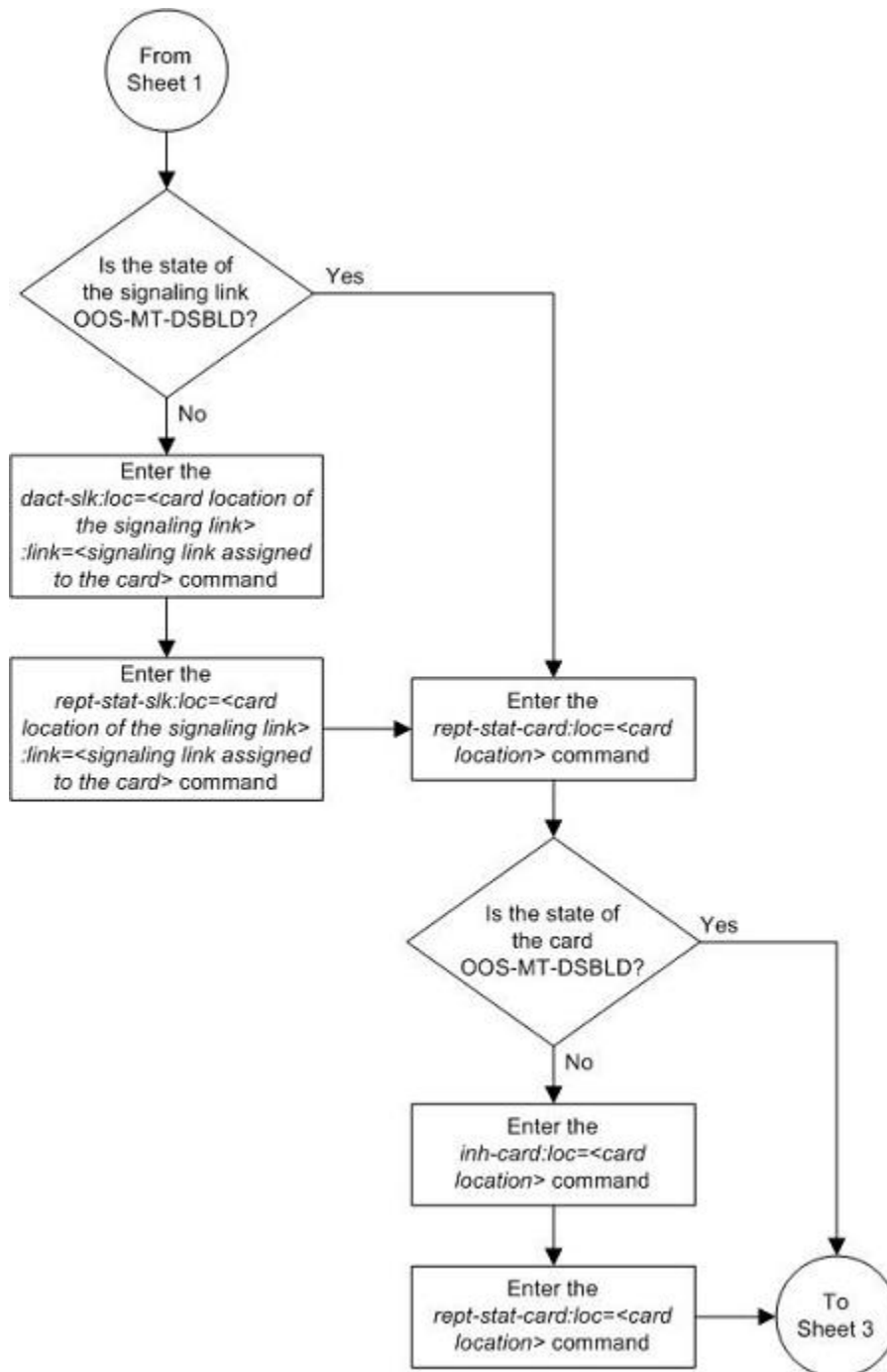
23. Back up the new changes using the **chg-db:action=backup:dest=fixed** command.

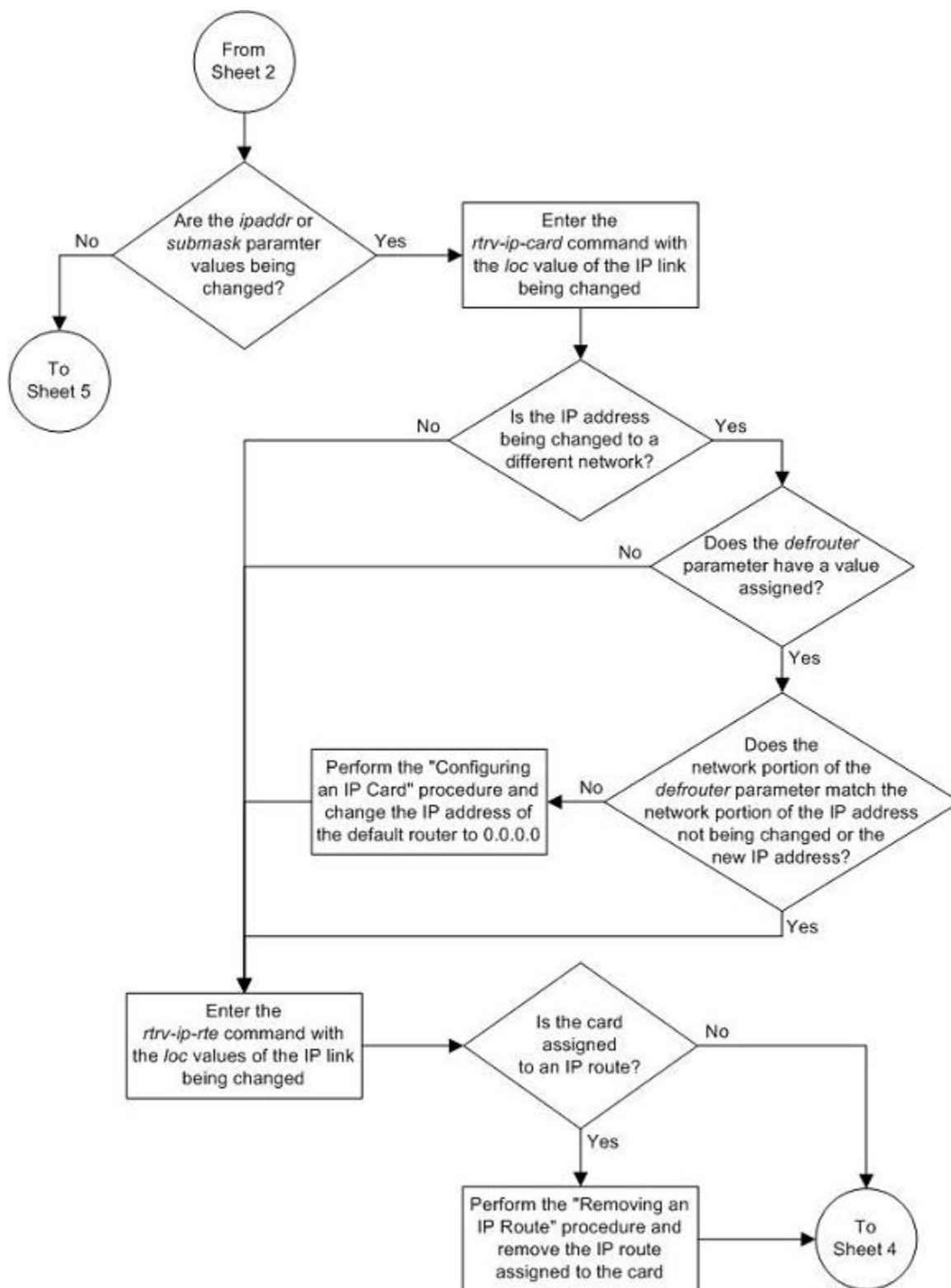
These messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

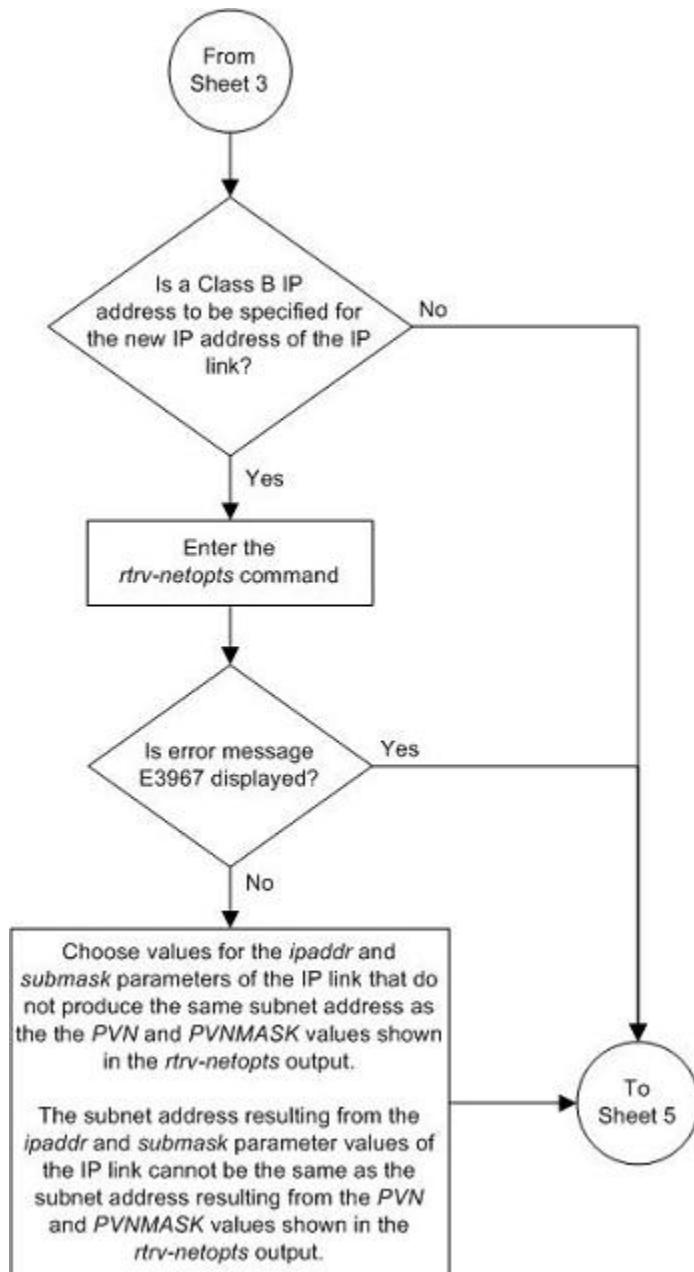
```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.  
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.  
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.  
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

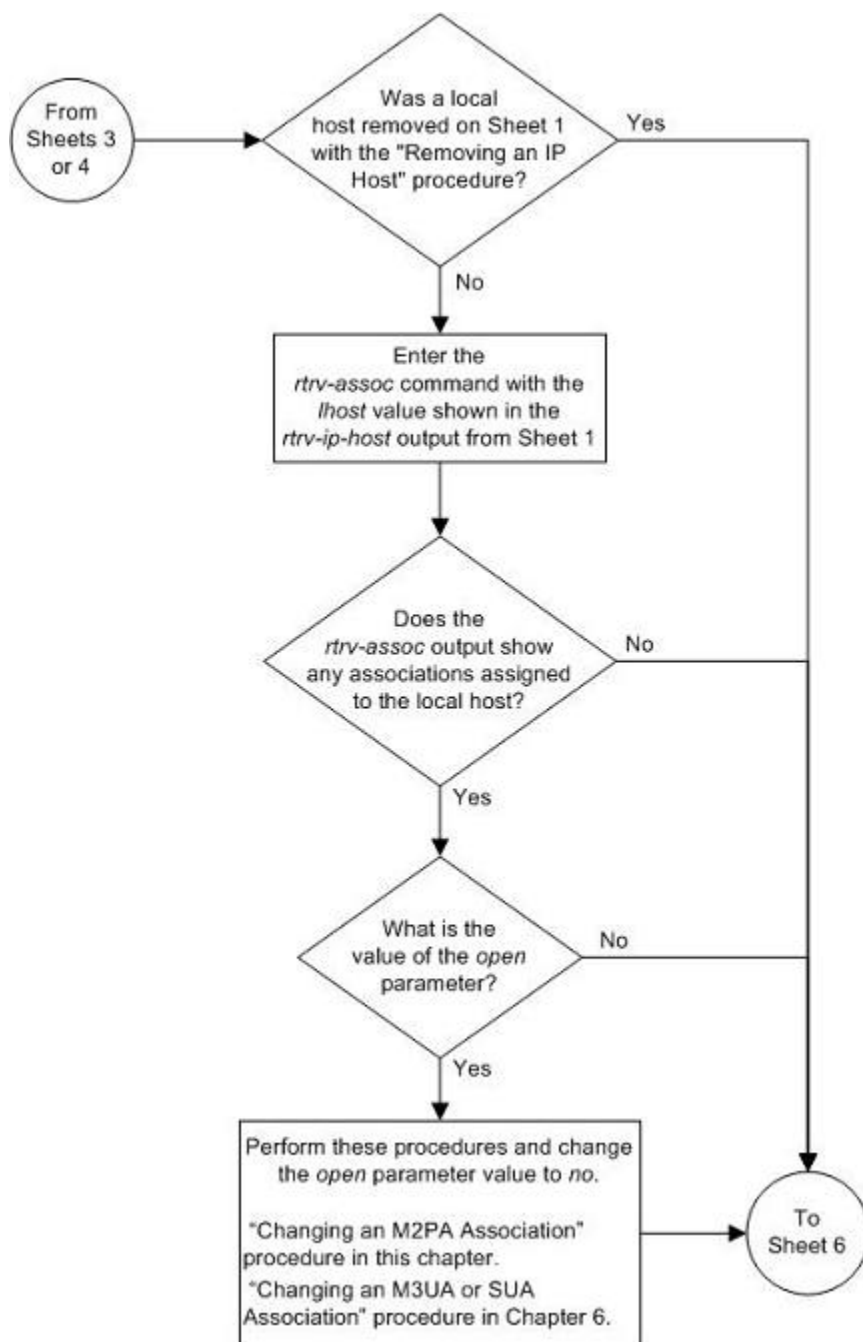
Flowchart 3-4. Configuring an IP Link

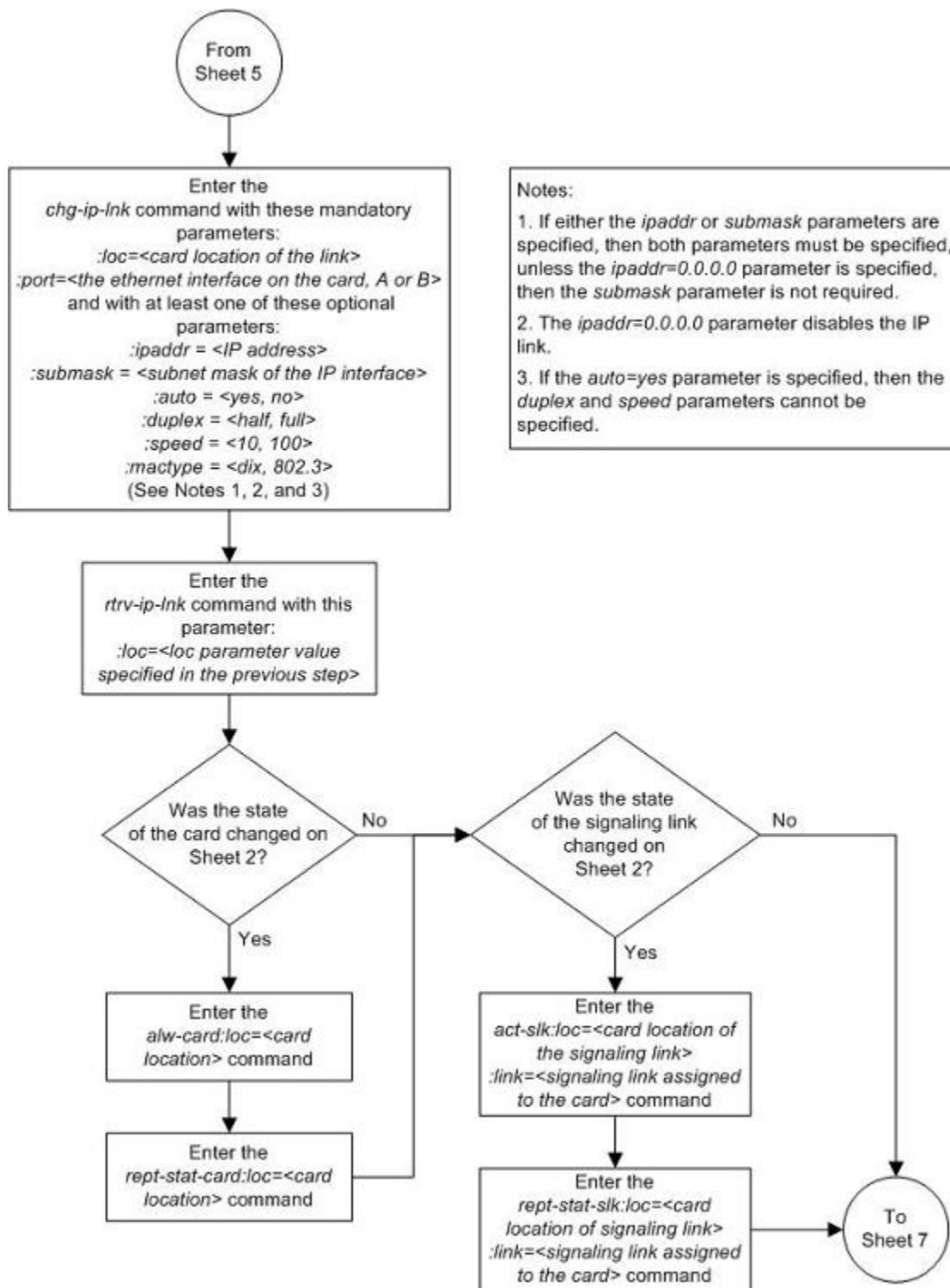


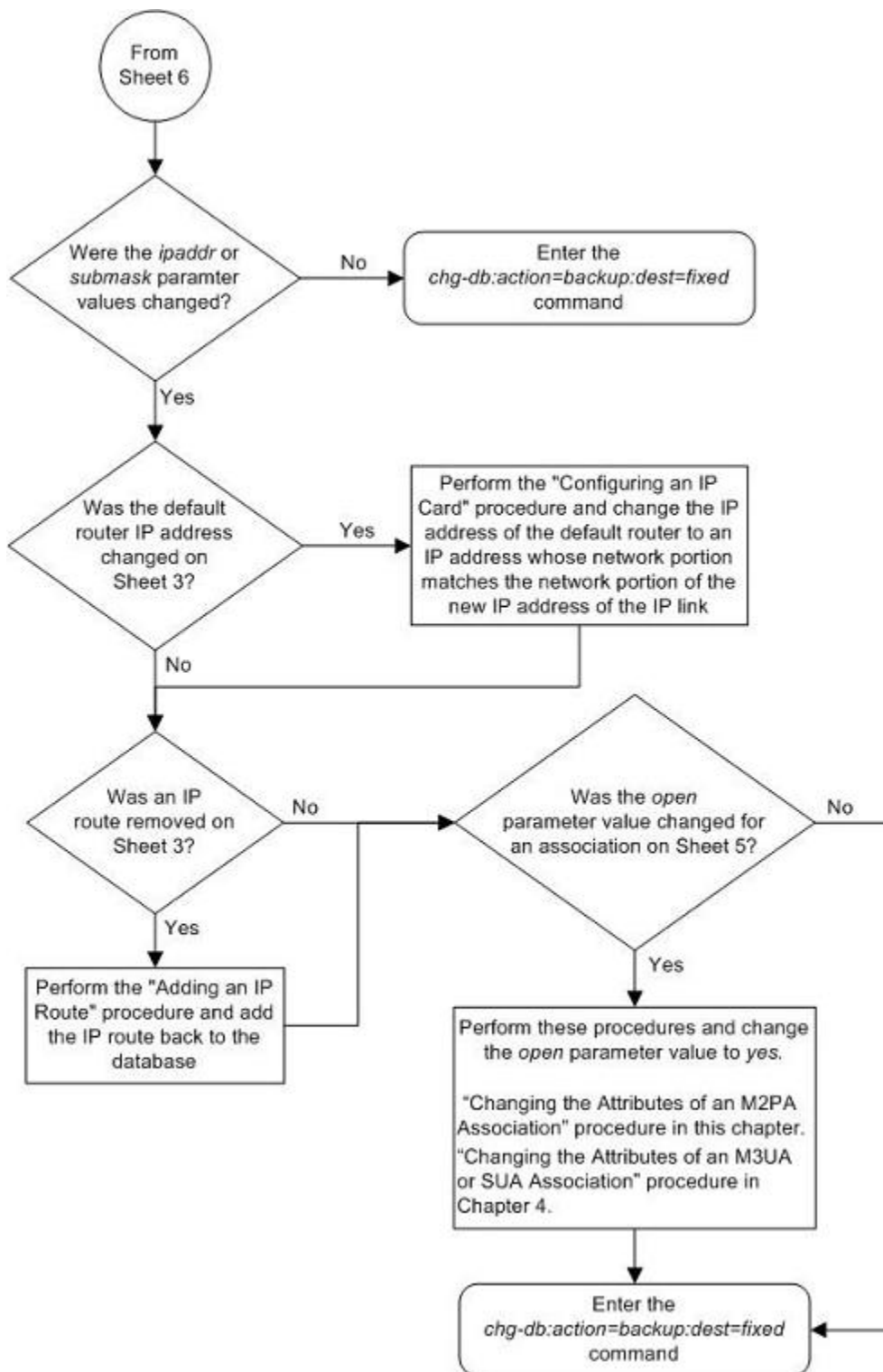












Adding an IP Host

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 ISS (**type=local**, the default value), or if the host resides on equipment that is not in the EAGLE 5 ISS (**type=remote**). This parameter is optional.

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.

Procedure

1. Display the current IP host information in the database by entering the **rtrv-ip-host** command.

The following is an example of the possible output.

```
rlghncxa03w 06-10-28 21:17:37 GMT EAGLE5 36.0.0
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-MS1
192.1.1.52      DN-MS2

REMOTE IPADDR    REMOTE HOST
150.1.1.5        NCDEPTECONOMIC_DEVELOPMENT. SOUTHEASTERN_COORIDOR_ASHVL. GOV

IP Host table is (10 of 512) 2% 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 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     802.3    NO    NO
1201  B    -----    -----    HALF    10     DIX      NO    NO
1203  A    192.1.1.12   255.255.255.0    ---     ---     DIX      YES   NO
1203  B    -----    -----    HALF    10     DIX      NO    NO
1205  A    192.1.1.14   255.255.255.0    FULL    100    DIX      NO    NO
1205  B    -----    -----    HALF    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
2103  A    192.1.1.22   255.255.255.0    FULL    100    DIX      NO    NO
2103  B    -----    -----    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
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	-----	-----	HALF	10	DIX	NO	NO

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 **ent-ip-host** command with the IP address from [Step 2](#), and the **type=local** parameter or without the **type** parameter. If the **type** parameter is not specified with the **ent-ip-host** command, the **type** parameter value defaults to **local**.

If a remote host is being configured, enter the **ent-ip-host** command with the IP address that is not shown in [Step 2](#), and the **type=remote** 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 [Step 3](#).

For this example, enter this command.

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

The following is an example of the possible output.

```
rlghncxa03w 06-10-28 21:19:37 GMT EAGLE5 36.0.0
LOCAL IPADDR      LOCAL HOST
192.1.1.30        KC-HLR1
```

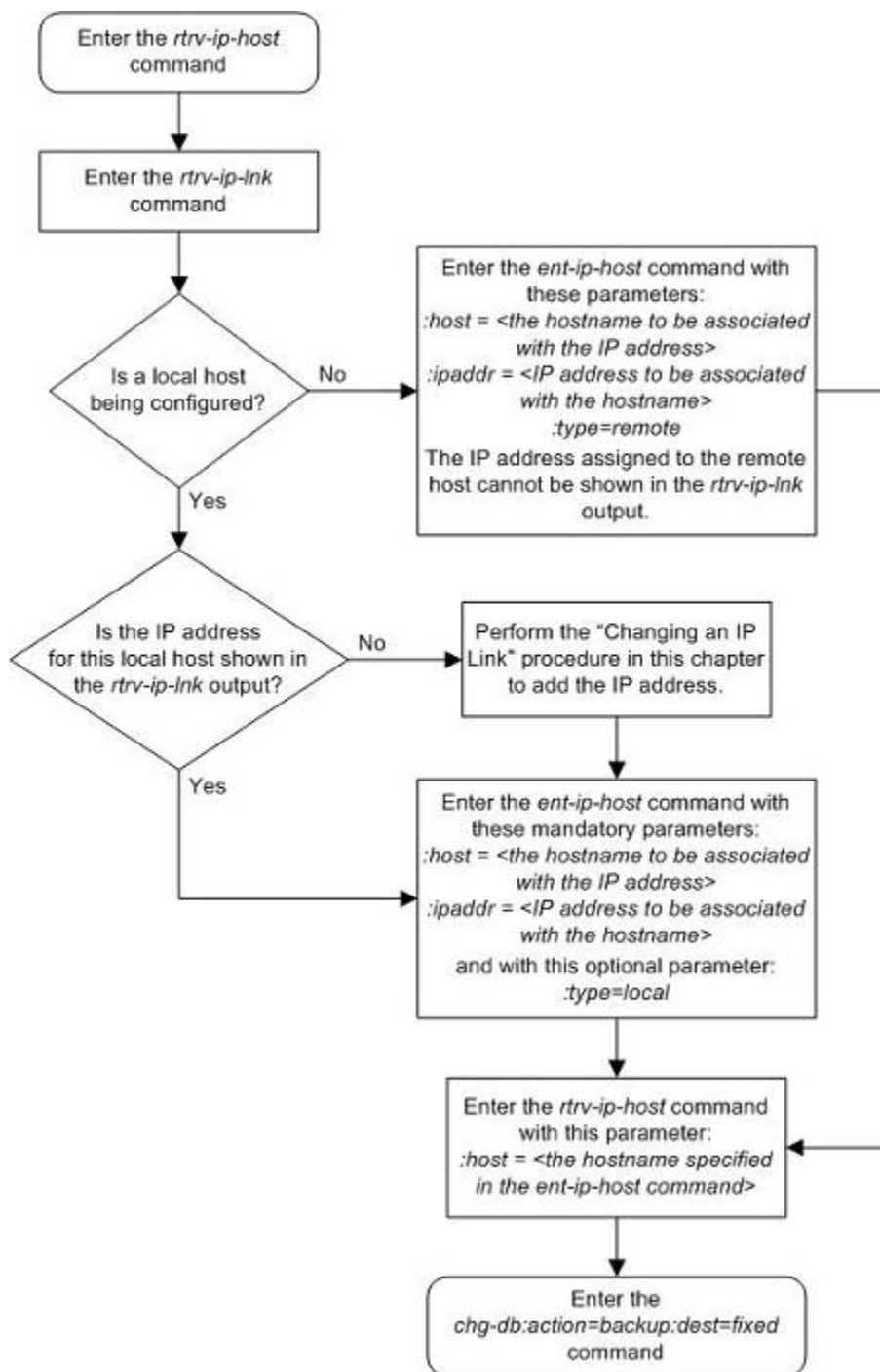
```
IP Host table is (11 of 512) 2% full
```

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.
```

Flowchart 3-5. 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

:dnrsa – 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.

:dnrsb – 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.

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

The **chg-ip-card** command contains other parameters that cannot be used in this procedure. Refer to the *Commands Manual* 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 3-4](#)). 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 **dnrsa** value for card 1101 is 150.1.1.10. The **dnrsb** 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 **dnrsa** parameter value), but not the Ethernet B IP address (the **dnrsb** 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.

Procedure

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.

```
r1ghncxa03w 08-04-28 21:17:37 GMT EAGLE5 38.0.0
LOC 1201
  SRCHORDR  SRVR
  DNSA      150.1.1.1
  DNSB      -----
  DEFROUTER -----
  DOMAIN    -----
  SCTPCSUM  crc32c
LOC 1203
  SRCHORDR  LOCAL
  DNSA      192.1.1.40
  DNSB      -----
  DEFROUTER -----
  DOMAIN    NC. TEKELEC. COM
  SCTPCSUM  crc32c
LOC 1205
  SRCHORDR  SRVRONLY
  DNSA      192.1.1.40
  DNSB      -----
  DEFROUTER -----
  DOMAIN    NC. TEKELEC. COM
  SCTPCSUM  crc32c
```

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 [Step 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
```

- Retrieve the status of the signaling link shown in [Step 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 [Step 4](#) to deactivate the signaling link. If the signaling link is out-of-service-maintenance disabled (OOS-MT-DSBLD), continue the procedure with [Step 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.
```

- 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.
```

- 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     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.

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

If the **defrouter** parameter will be specified in [Step 11](#), continue the procedure with [Step 11](#).

If the **defrouter** parameter will not be specified in [Step 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 [Step 11](#).
- If the **sctpcsum** parameter value for the card will be changed, continue the procedure with [Step 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 [Step 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 **sctpsum** parameter value for the card will not be changed, continue the procedure with [Step 11](#).
- If the **sctpsum** parameter value for the card will be changed, continue the procedure with [Step 10](#).

10. To change the **sctpsum** parameter value for the IP card, the **sctpsum** parameter value in the **rtrv-sg-opts** output must be **perc**ard. Verify the **sctpsum** 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
SRKQ:      1500
SNMPCONT:  tekelec
GETCOMM:   public
SETCOMM:   private
TRAPCOMM:  public
SCTPCSUM:  adler32
IPGWABATE: NO
UAMEASUSEDFTAS: NO
```

If the **sctpsum** parameter value in the **rtrv-sg-opts** output is **perc**ard, continue the procedure with [Step 11](#).

If the **sctpsum** 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 **sctpsum** parameter value to **perc**ard. After the [Changing the SCTP Checksum Algorithm Option for M2PA Associations](#) procedure has been performed, continue the procedure with [Step 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.com:sctpsum=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 [Step 11](#) by entering the **rtrv-ip-card** command with the card location specified in [Step 11](#) .

For this example, enter this command.

rtrv-ip-card:loc=1201

The following is an example of the possible output.

```
rlghncxa03w 08-04-28 21:17:37 GMT EAGLE5 38.0.0
LOC 1201
  SRCHORDR  LOCAL
  DNSA      192.1.1.40
  DNSB      -----
  DEFROUTER -----
  DOMAIN    NC. TEKELEC. COM
  SCTPCSUM  adler32
```

NOTE: If [Step 7](#) was not performed, continue the procedure with [Step 15](#) .

13. Allow the IP card that was inhibited in [Step 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  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.

15. Activate the signaling link from [Step 4](#) using the **act-slk** command.

NOTE: If [Step 4](#) was not performed, continue the procedure with [Step 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.

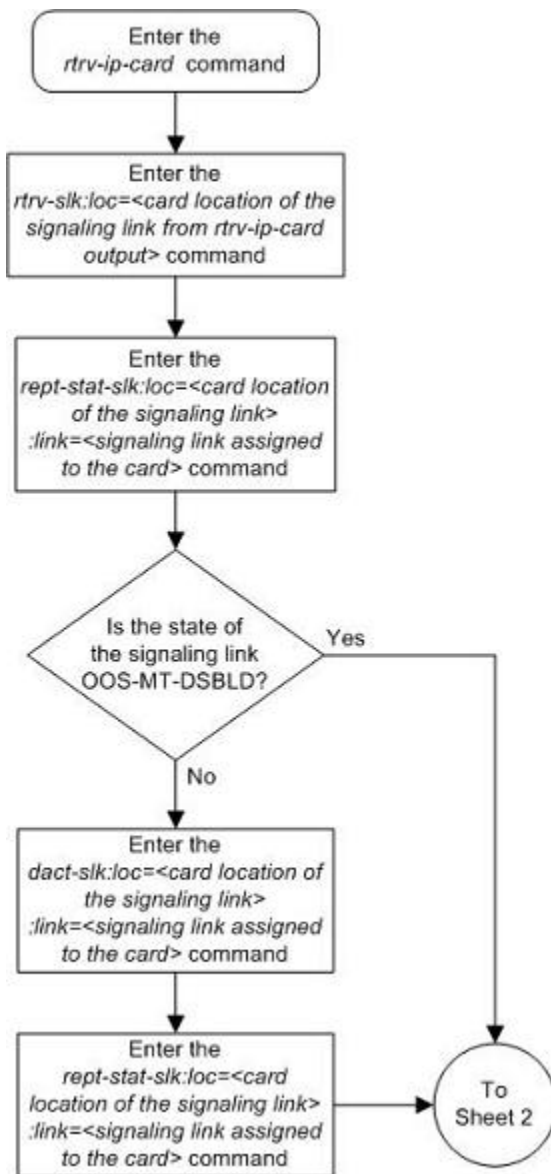
```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0
SLK      LSN      CLLI      PST      SST      AST
1201,A   nc001     -----   IS-NR
          Avail    ----
Command Completed.
```

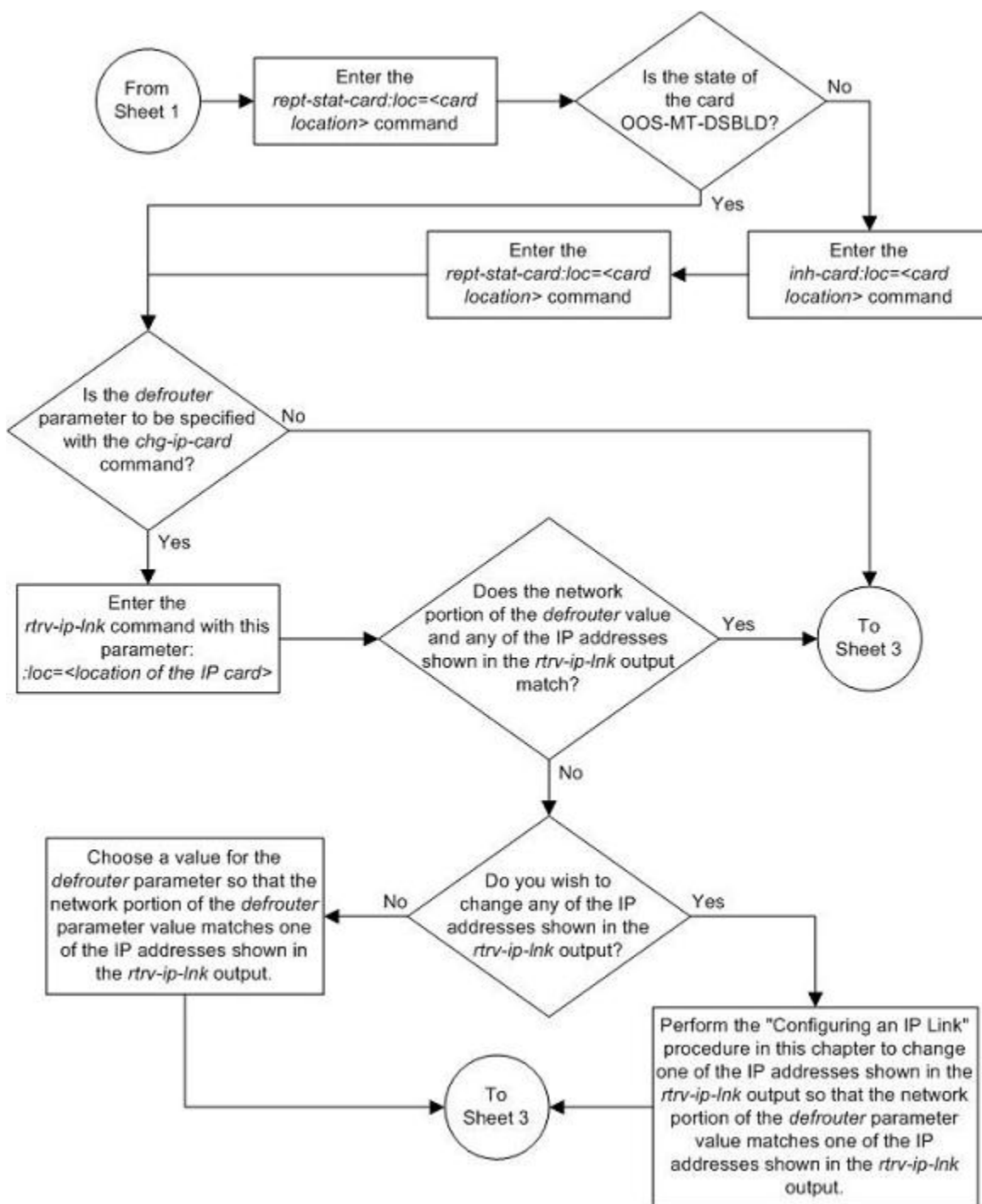
17. Back up the new changes using the **chg-db:action=backup:dest=fixed** command.

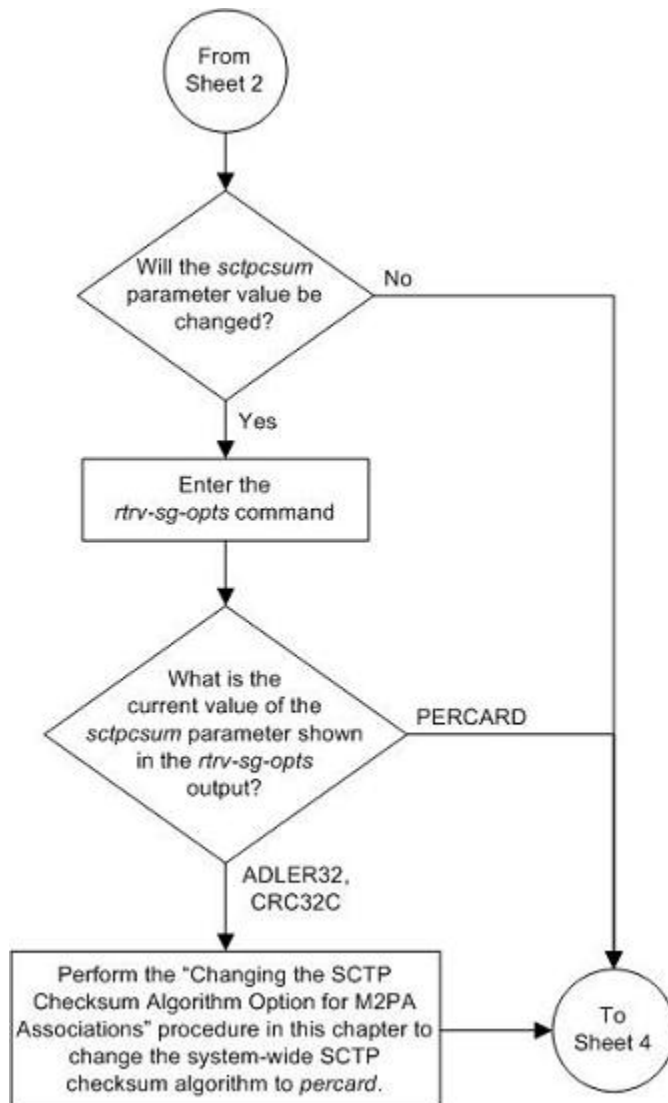
These messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

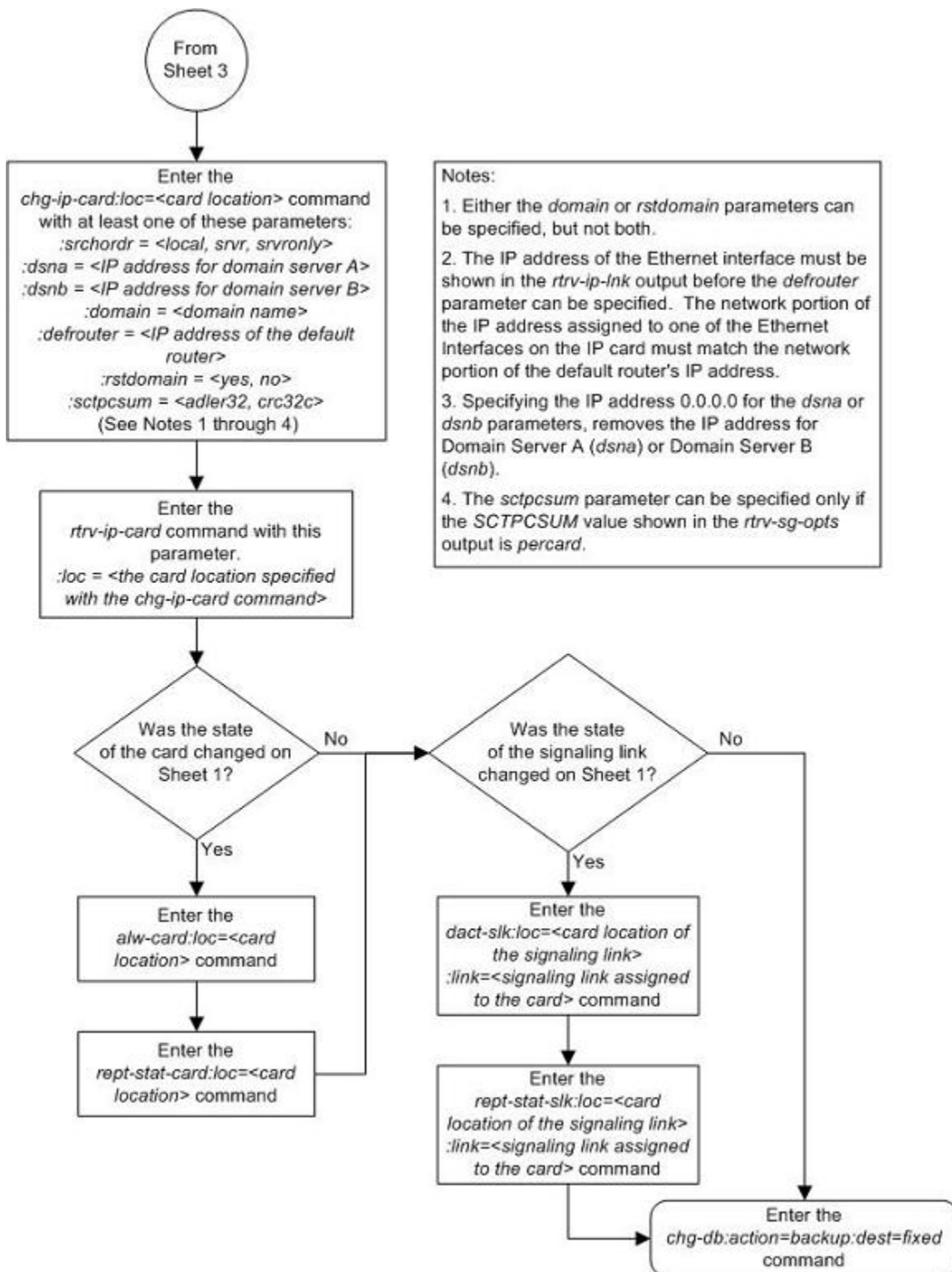
```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

Flowchart 3-6. Configuring an IP Card









Adding an IP Route

This procedure is used to add an IP route to the database using the **ent-ip-rte** 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 5 ISS can contain a maximum of 1024 IP routes.

Ethernet Interfaces A and B on the 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 **rtrv-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 **dest** parameter value represents a host IP address, the value for the **submask** parameter must be 255.255.255.255. Otherwise, the **submask** parameter value 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 3-5. 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 3-6](#) for the valid input values for the **submask** and **dest** parameter combinations.

Table 3-6. Valid Subnet Mask Parameter Values

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

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** parameter values of the **chg-netopts** command. The **pvn** and **pvnmask** 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.

Procedure

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
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 1024) 1% full

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

This is an example of the possible output.

```

rlghncxa03w 06-10-28 21:17:37 GMT EAGLE5 36.0.0
LOC 1212
  SRCHORDR  LOCAL
  DNSA      150.1.1.1
  DNSB      -----
  DEFROUTER 150.1.1.100
  DOMAIN    NC. TEKELEC. COM

LOC 1301
  SRCHORDR  SRVRONLY
  DNSA      140.188.13.10
  DNSB      140.190.15.28
  DEFROUTER -----
  DOMAIN    NC. TEKELEC. COM

LOC 1303
  SRCHORDR  LOCAL
  DNSA      150.190.15.1
  DNSB      -----
  DEFROUTER 150.190.15.25
  DOMAIN    NC. TEKELEC. COM

```

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 C IP address (see [Table 3-6](#)) will be specified for the **dest** parameter in [Step 4](#) , continue the procedure with [Step 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** parameter values of the **chg-netopts** command.

Display the **pvn** and **pvnmask** 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** and **pvnmask** parameters are not configured. Continue the procedure with [Step 4](#) .

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

```

rlghncxa03w 06-10-28 21:17:37 GMT EAGLE5 36.0.0
NETWORK OPTIONS
-----
PVN      = 128.20.30.40
PVMASK   = 255.255.192.0

```

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** parameter values of the **chg-netopts** command. Continue the procedure with [Step 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=150.1.1.5  
0
```

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 [Step 4](#) .

For this example, enter these commands.

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

This is an example of the possible output.

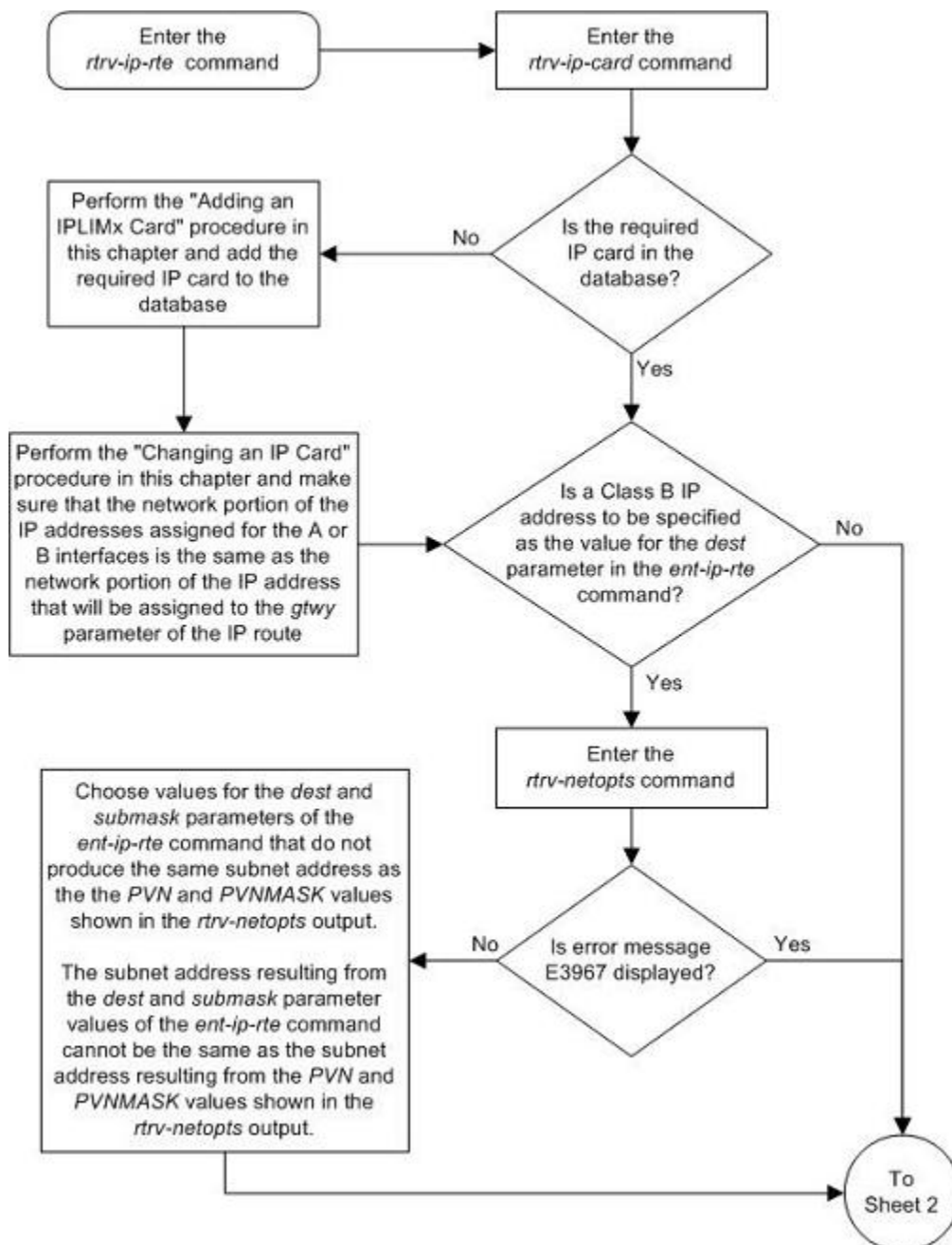
```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0  
LOC  DEST          SUBMASK          GTWY  
1212 132.10.175.20    255.255.255.255 150.1.1.50  
IP Route table is (6 of 1024) 1% full
```

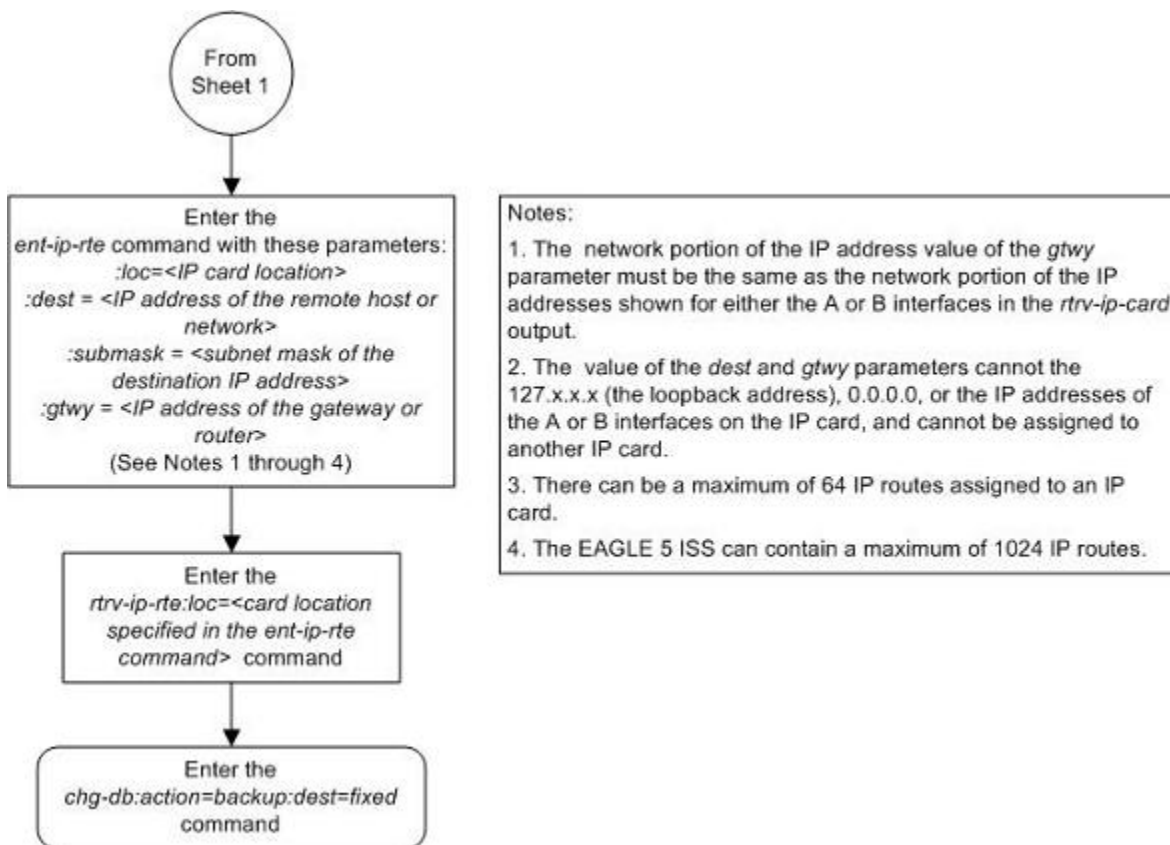
6. Back up the new changes using the **chg-db:action=backup:dest=fixed** command.

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.
```

Flowchart 3-7. Adding an IP Route





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 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 an 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**.

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 **ent -assoc** command. When an association is added to the database, these fields receive their default values. If a different value is desired, the **chg -assoc** 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 3-7](#) .

Table 3-7. 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		

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

- Single-Slot EDCM - 1600 KB
- 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 an 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 **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.

The EAGLE 5 ISS 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 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 B Ethernet interface of the IP card can be used on the single-slot EDCM or 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 **iplml2** 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 **OOS-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 **iplml2** parameter value of the signaling link assigned to the association must be **m2pa**.

Uni-homed endpoints are associations configured with the **lhost** parameter only. The **lhost** 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 **lhost** and **alhost** parameters. The **lhost** 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.

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 than 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 the *Commands Manual*.

Procedure

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
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 [Step 2](#).
 - If the desired IP link is not shown in the **rtrv-assoc** output, continue the procedure with [Step 3](#).
2. 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 [Step 1](#). 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 value in the **TYPE** column is either IPLIM or IPLIMI, continue the procedure with [Step 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 [Step 1](#) and repeat this step.
 - Continue the procedure with [Step 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 08-04-28 21:14:37 GMT EAGLE5 38.0.0

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	B	-----	-----	HALF	10	DIX	NO	NO
1203	A	192.1.1.12	255.255.255.0	----	---	DIX	YES	NO
1203	B	-----	-----	HALF	10	DIX	NO	NO
1205	A	192.1.1.14	255.255.255.0	FULL	100	DIX	NO	NO
1205	B	-----	-----	HALF	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
2103	A	192.1.1.22	255.255.255.0	FULL	100	DIX	NO	NO
2103	B	-----	-----	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
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	-----	-----	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** command. The following is an example of the possible output.

rlghncxa03w 08-04-28 21:15:37 GMT EAGLE5 38.0.0

```

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-MS1
192.1.1.52      DN-MS2

REMOTE IPADDR    REMOTE HOST
150.1.1.5        NCDEPTECONOMIC_DEVELOPMENT. SOUTHEASTERN_COORIDOR_ASHVL. GOV

```

IP Host table is (11 of 512) 2% full

The IP address of the IP link should be assigned to the local host name that will be assigned to the association.

The **ipliml2** parameter value of the signaling link must be **m2pa**.

The values of the **lhost** and **ahost** 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 [Step 3](#) or the card location of the IP link that was configured by performing the [Configuring an IP Link](#) procedure in [Step 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 [Step 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 **ipliml2=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 [Step 9](#).

6. Display the status of the signaling link shown in [Step 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 [Step 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 [Step 7](#).

7. Deactivate the signaling link from [Step 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 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 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.

NOTE: If the m2patset 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    T2    T3    T4N   T4E   T5    T6    T7    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

```

To display the M2PA RFC 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	T2	T3	T4N	T4E	T5	T6	T7	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
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
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
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 (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	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	T2	T3	T4N	T4E	T5	T6	T7	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
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
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
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 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.

- 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 IPLNK
ANAME LOC PORT LINK ADAPTER LPORT RPORT OPEN ALW
assoc2 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 **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 an M2PA Association](#) procedure.

- 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
```

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

NOTE: See [Flowchart 3-8](#) (Sheet 6) for the rules that apply to the **ent-assoc** command.

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
```

NOTE: If the association added in this step is not being activated in this procedure, continue the procedure with [Step 13](#).

12. Activate the association added in [Step 11](#) by entering the **chg-assoc** command with the association name specified in [Step 11](#) and the **open=yes** and **alw=yes** 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 **rt rv-assoc** command specifying the association name specified in [Step 11](#) and [Step 12](#). For this example, enter this command.

rt rv-assoc:aname=assoc2

This is an example of possible output.

```
rlghncxa03w 08-04-28 09:12:36 GMT EAGLE5 38.0.0
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
LPORT    1030          RPORT      1030
ISTRMS    2            OSTRMS      2          BUFSIZE  200
RMODE     LIN          RMIN         120        RMAX     800
RTIMES    10           CWMIN        3000     M2PATSET  1
OPEN      NO           ALW          NO         RTXTHR   0
```

```
IP Appl Sock table is (5 of 4000) 1% full
Assoc Buffer Space Used (400 KB of 1600 KB) on LOC = 1203
```

14. 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

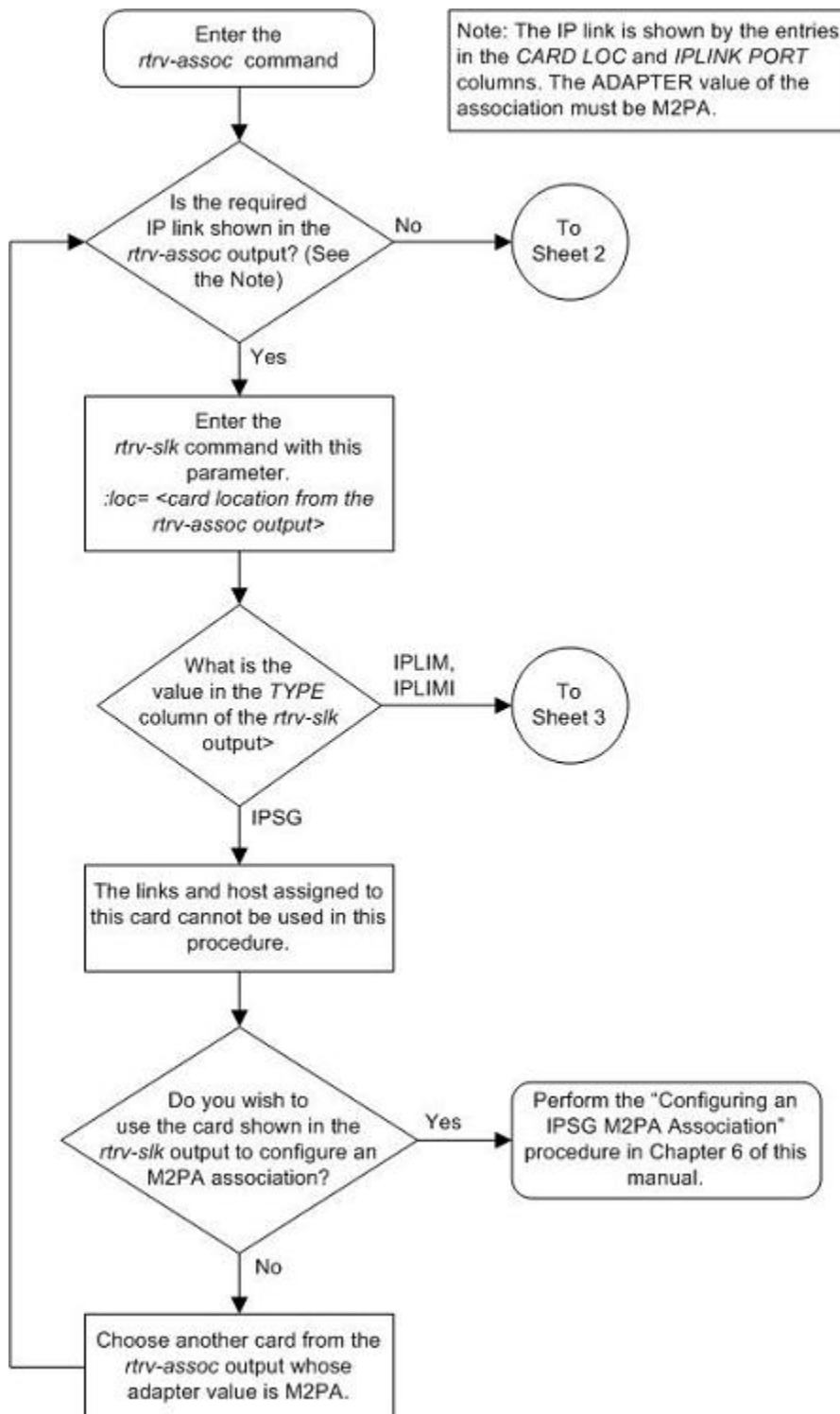
This is an example of the possible output.

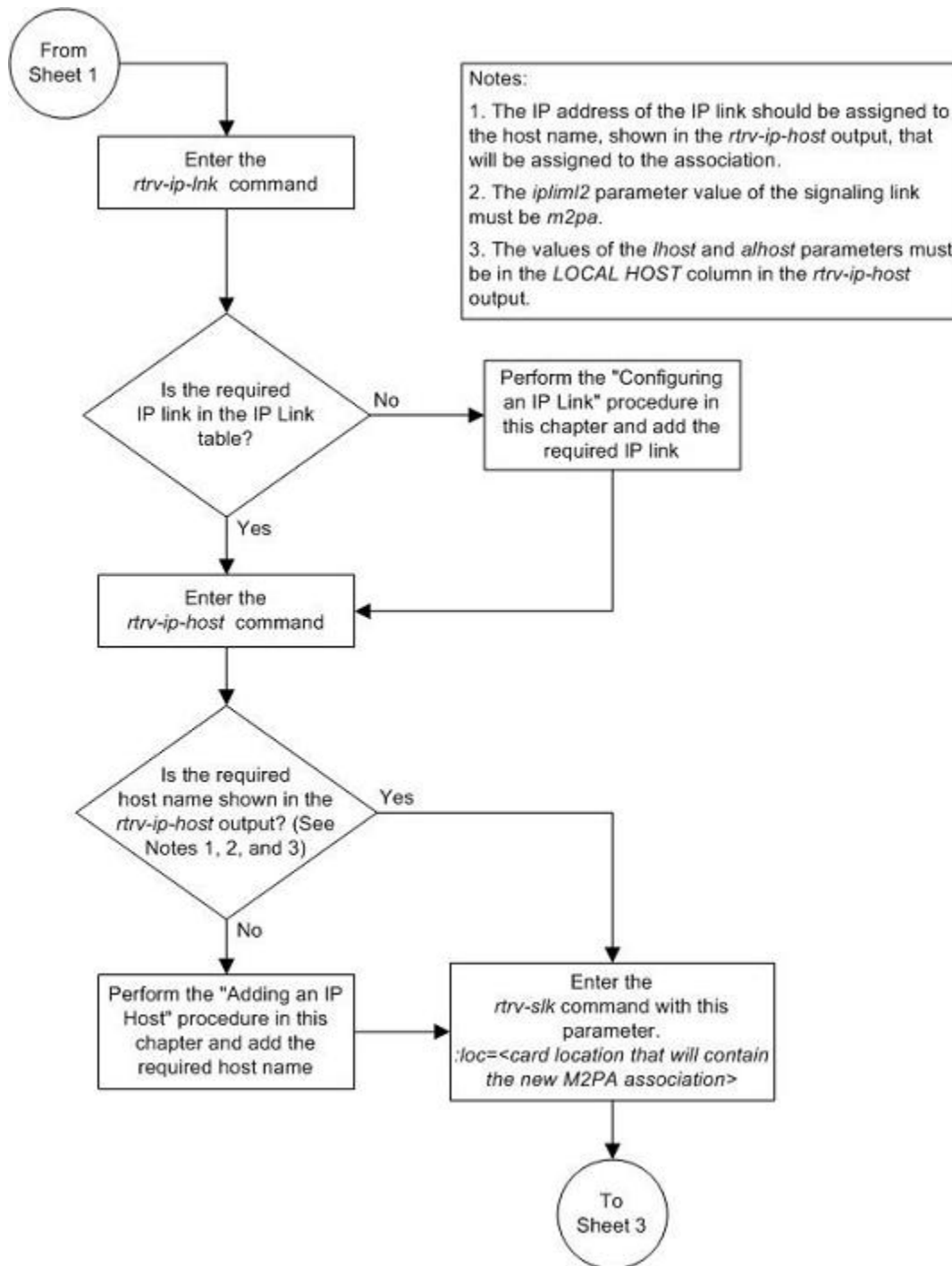
```
rlghncxa03w 08-04-28 21:16:37 GMT EAGLE5 38.0.0
SLK      LSN      CLLI      PST      SST      AST
1203,A    e5e6a      -----  IS-NR      Avail     ----
Command Completed.
```

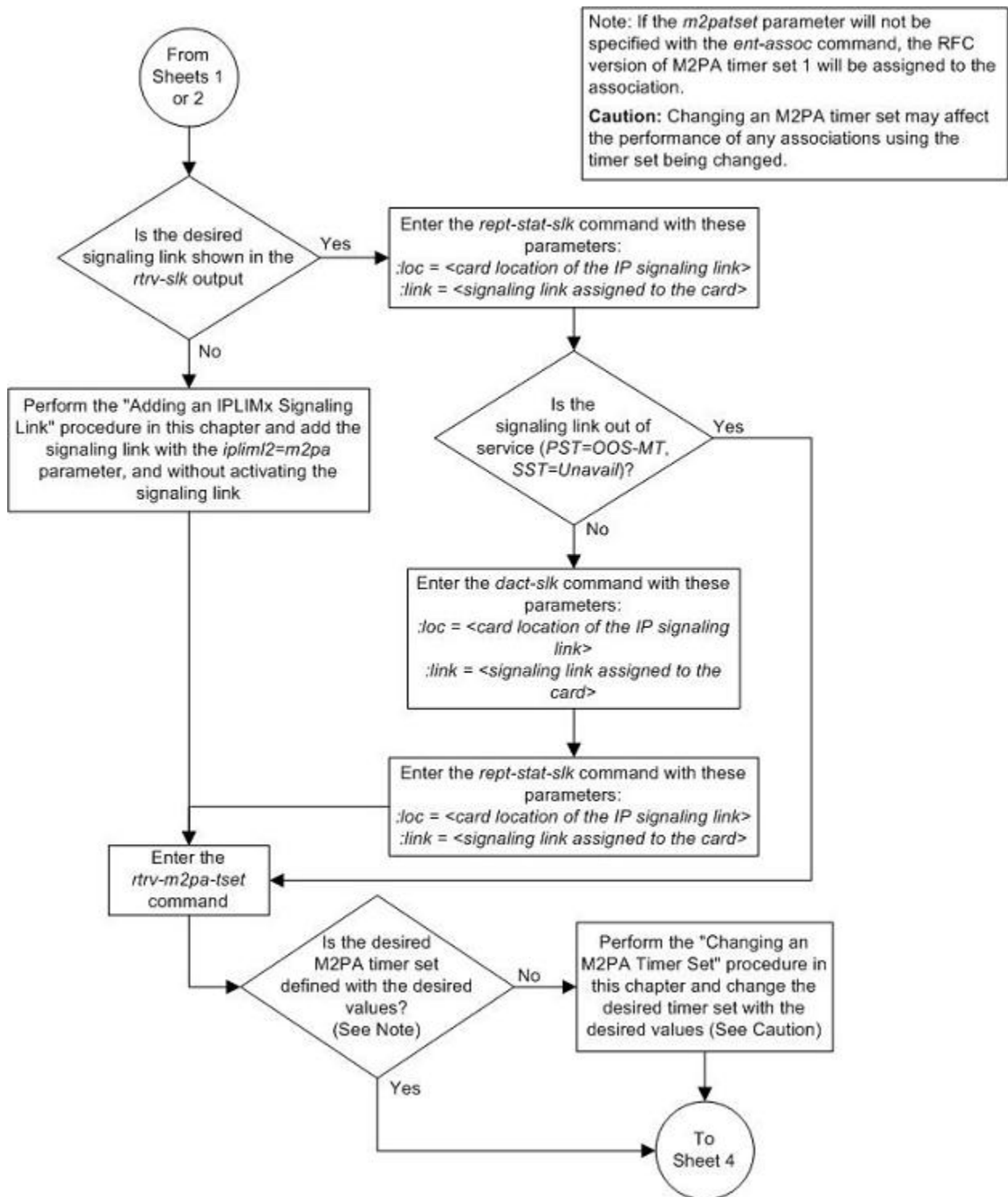

16. Back up the new changes, using the **chg-db:action=backup:dest=fixed** command. These messages should appear; the active Maintenance and Administration Subsystem Processor (MASP) appears first.

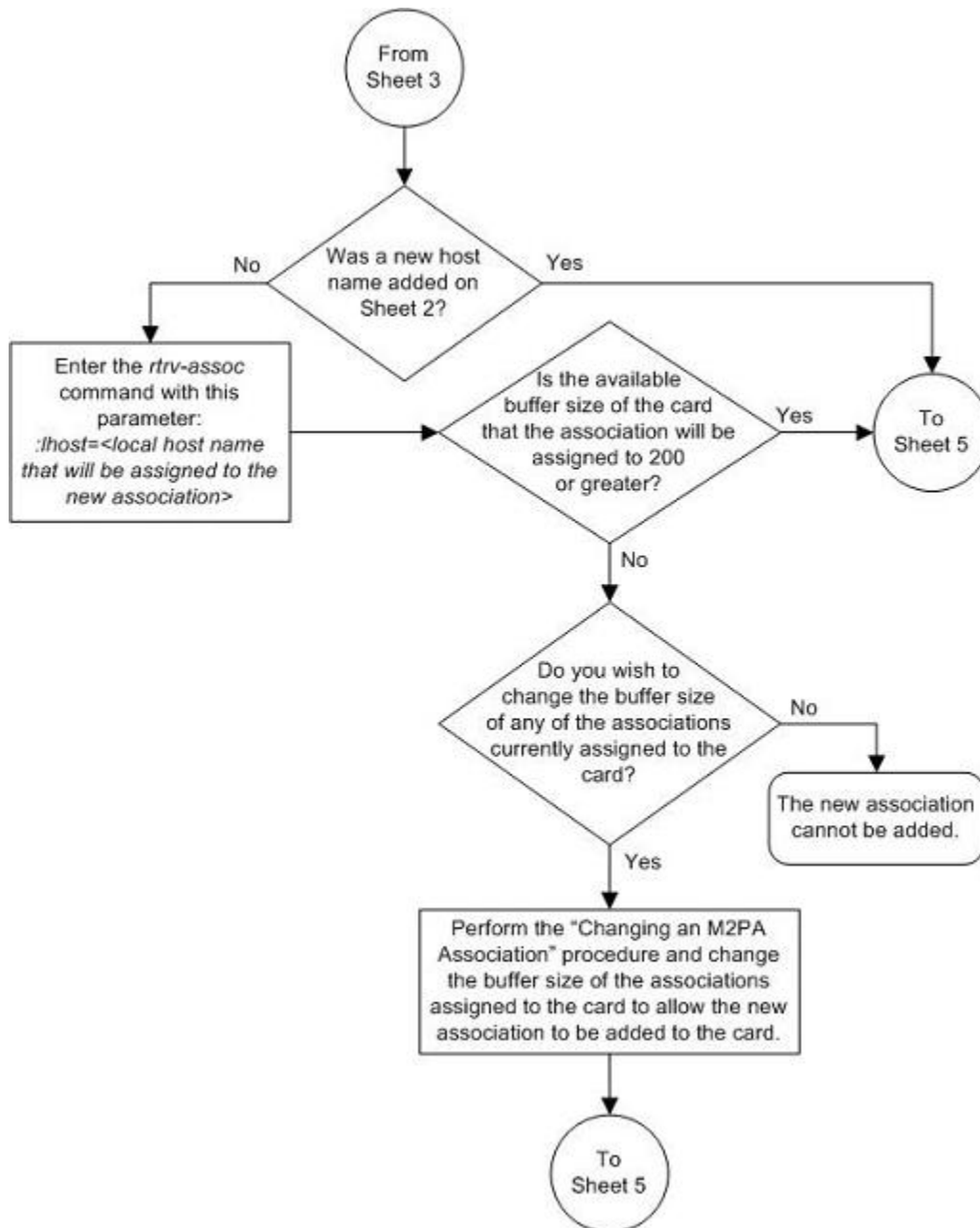
```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.  
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.  
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.  
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

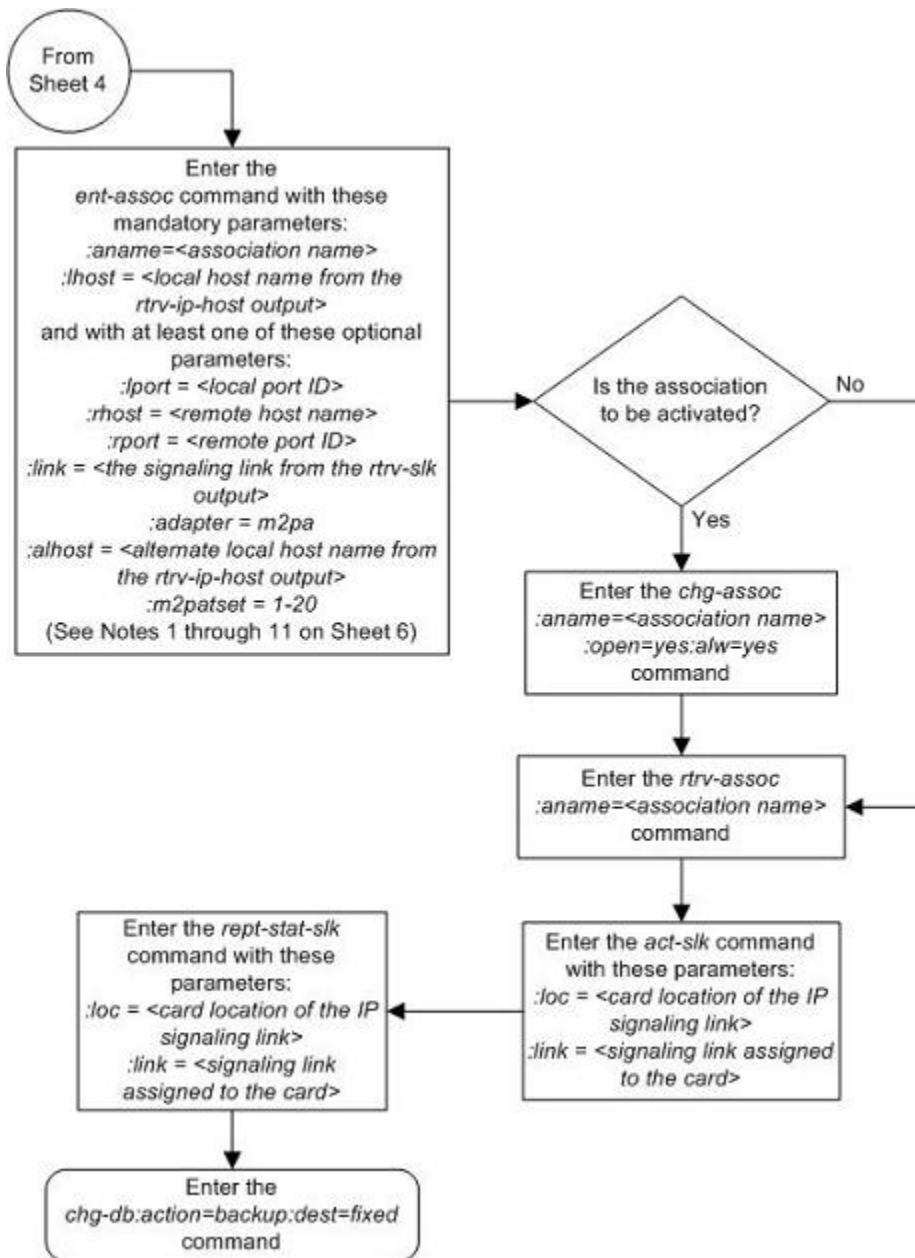
Flowchart 3-8. Adding an M2PA Association











Notes:

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).
3. The *adapter* parameter value for the association must be *m2pa*. The value of the *ipliml2* 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.

Activating the Large BICC MSU Support for IP Signaling Feature

This procedure is used to enable and turn on the Large BICC (Bearer Independent Call Control) MSU Support for IP Signaling feature using the feature's part number and a feature access key.

The feature access key for the Large BICC (Bearer Independent Call Control) MSU Support for IP Signaling feature is based on the feature's part number and the serial number of the EAGLE 5 ISS, making the feature access key site-specific.

The **enable-ctrl-feat** command enables the controlled feature by inputting the controlled feature's access key and the controlled feature's part number with these parameters:

: fak – The feature access key provided by Tekelec. The feature access key contains 13 alphanumeric characters and is not case sensitive.

: partnum – The Tekelec-issued part number of the Large BICC MSU Support for IP Signaling feature, 893018401.

The **enable-ctrl-feat** command requires that the database contain a valid serial number for the EAGLE 5 ISS, and that this serial number is locked. This can be verified with the **rtrv-serial-num** command. The EAGLE 5 ISS is shipped with a serial number in the database, but the serial number is not locked. The serial

number can be changed, if necessary, and locked once the EAGLE 5 ISS is on-site, by using the **ent-serial-num** command. The **ent-serial-num** command uses these parameters.

:serial – The serial number assigned to the EAGLE 5 ISS. The serial number is not case sensitive.

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

NOTE: To enter and lock the EAGLE 5 ISS's serial number, the ent-serial-num command must be entered twice, once to add the correct serial number to the database with the serial parameter, then again with the serial and the lock=yes parameters to lock the serial number. You should verify that the serial number in the database is correct before locking the serial number. The serial number can be found on a label affixed to the control shelf (shelf 1100).

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 Tekelec-issued part number of the Large BICC MSU Support for IP Signaling feature, 893018401.

:status=on – used to turn the Large BICC MSU Support for IP Signaling feature on.

Once the Large BICC MSU Support for IP Signaling feature has been turned on, it can be turned off. For more information about turning the Large BICC MSU Support for IP Signaling feature off, go to the [Turning the Large BICC MSU Support for IP Signaling Feature Off](#) procedure.

The status of the features in the EAGLE 5 ISS is shown with the **rtrv-ctrl-feat** command.

The Large BICC MSU Support for IP Signaling feature allows the EAGLE 5 ISS to process BICC messages with a service information field (SIF) that is larger than 272 bytes. The large BICC messages are processed only on single-slot EDCMs and E5-ENET cards. There are certain software components that if enabled or provisioned, that will not process large BICC messages even if the Large BICC 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 BICC message is received on an M3UA association and the Large BICC MSU Support for IP Signaling feature is not enabled or is enabled and turned off. The large BICC message is discarded.
- UIM 1350 – Displayed when a M2PA IP connection receives BICC message with an SIF greater than 272 bytes and the Large BICC MSU Support for IP Signaling feature is not enabled or is enabled and turned off. The large BICC message is discarded.
- UIM 1352 – Displayed when a BICC message with an SIF greater than 272 bytes is received; the Large BICC 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 BICC messages.
- UIM 1353 – Displayed when a large BICC message passes a gateway screening screenset that redirects messages for the Database Transport Access (DTA) feature. Large BICC messages are not redirected for the DTA feature.
- UIM 1354 – Displayed when a large BICC message passes a gateway screening screenset that copies messages for the STPLAN feature. Large BICC messages are not copied for the STPLAN feature.

For more information on these UIMs, refer to the *Maintenance Manual*.

NOTE: Large BICC messages are not monitored by the EAGLE 5 Integrated Monitoring Support feature and are not sent to the IMF. A UIM is not generated.

Procedure

1. Display the status of the controlled features by entering the **rtrv-ctrl-feat** command.

The following is an example of the possible output.

```
rlghncxa03w 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 BICC 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 BICC MSU Support for IP Signaling feature is enabled and but not turned on, continue this procedure with [Step 7](#).

If the Large BICC MSU Support for IP Signaling feature is not enabled, continue this procedure with [Step 2](#).

NOTE: If the **rtrv-ctrl-feat** output in [Step 1](#) shows any controlled features, continue this procedure with [Step 6](#). If the **rtrv-ctrl-feat** output shows only the HC-MIM SLK Capacity feature with a quantity of 64, [Step 2](#) through [Step 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
```

NOTE: If the serial number is correct and locked, continue the procedure with [Step 6](#). If the serial number is correct but not locked, continue the procedure with [Step 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 [Customer Care Center](#) 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 5 ISS'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 [Step 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 [Step 3](#) and [Step 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 [Step 2](#), if the serial number shown in [Step 2](#) is correct, or with the serial number shown in [Step 4](#), if the serial number was changed in [Step 3](#), and with the **lock=yes** parameter.

For this example, enter this command.

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

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

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
ENT-SERIAL-NUM: MASP A - COMPLTD
```

6. Enable the Large BICC MSU Support for IP Signaling feature with the **enable-ctrl-feat** command specifying the part number for the Large BICC MSU Support for IP Signaling feature and the feature access key. Enter this command.

enable-ctrl-feat:partnum=893018401:fak=<Large BICC MSU Support for IP Signaling feature access key>

NOTE: 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 Tekelec. If you do not have the feature access key for the feature you wish to enable, contact your Tekelec Sales Representative or Account Representative.

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

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
ENABLE-CTRL-FEAT: MASP B - COMPLTD
```

7. Turn the Large BICC MSU Support for IP Signaling feature on with the **chg-ctrl-feat** command specifying the part number for the Large BICC MSU Support for IP Signaling feature and the **status=on** parameter. Enter this command.

chg-ctrl-feat:partnum=893018401:status=on

When the **chg-ctrl-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-feat** command with the Large BICC 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 06-10-28 21:15:37 GMT EAGLE5 36.0.0
The following features have been permanently enabled:
```

Feature Name	Partnum	Status	Quantity
Large BICC MSU for IP Sig	893018401	on	----

The following features have been temporarily enabled:

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

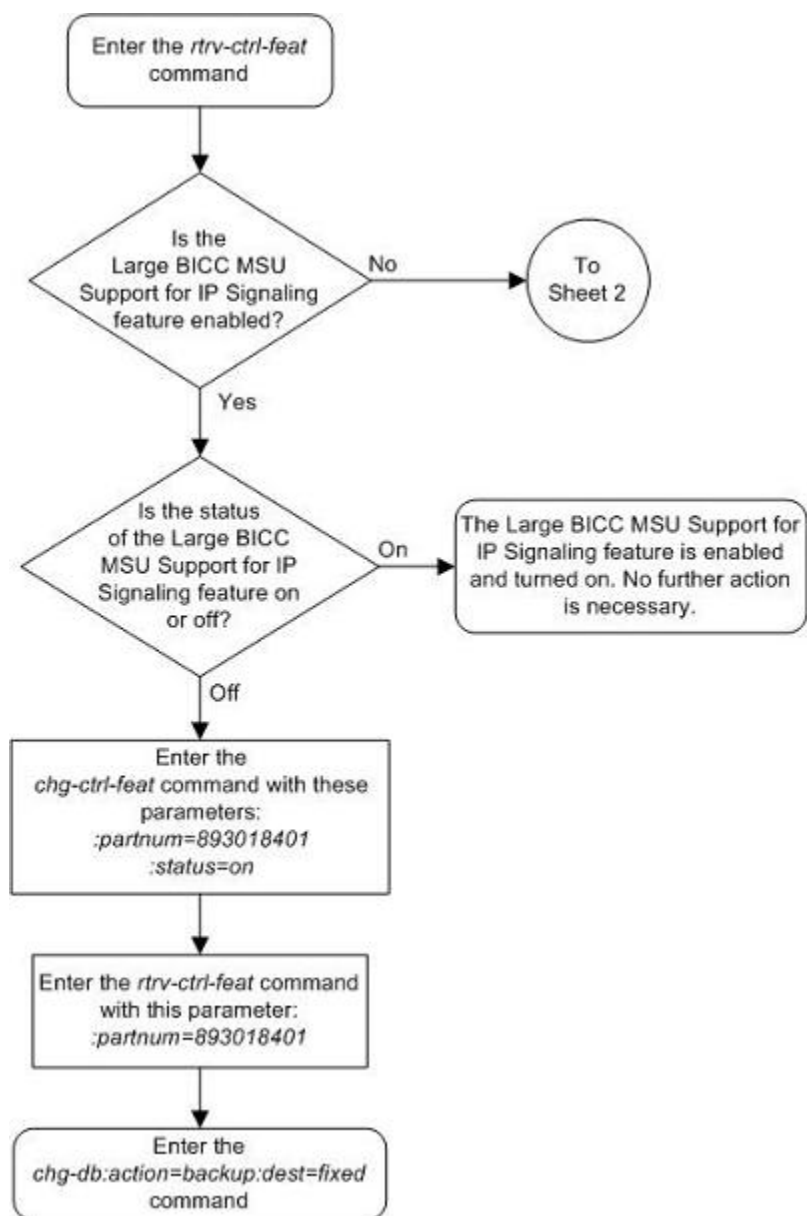
The following features have expired temporary keys:

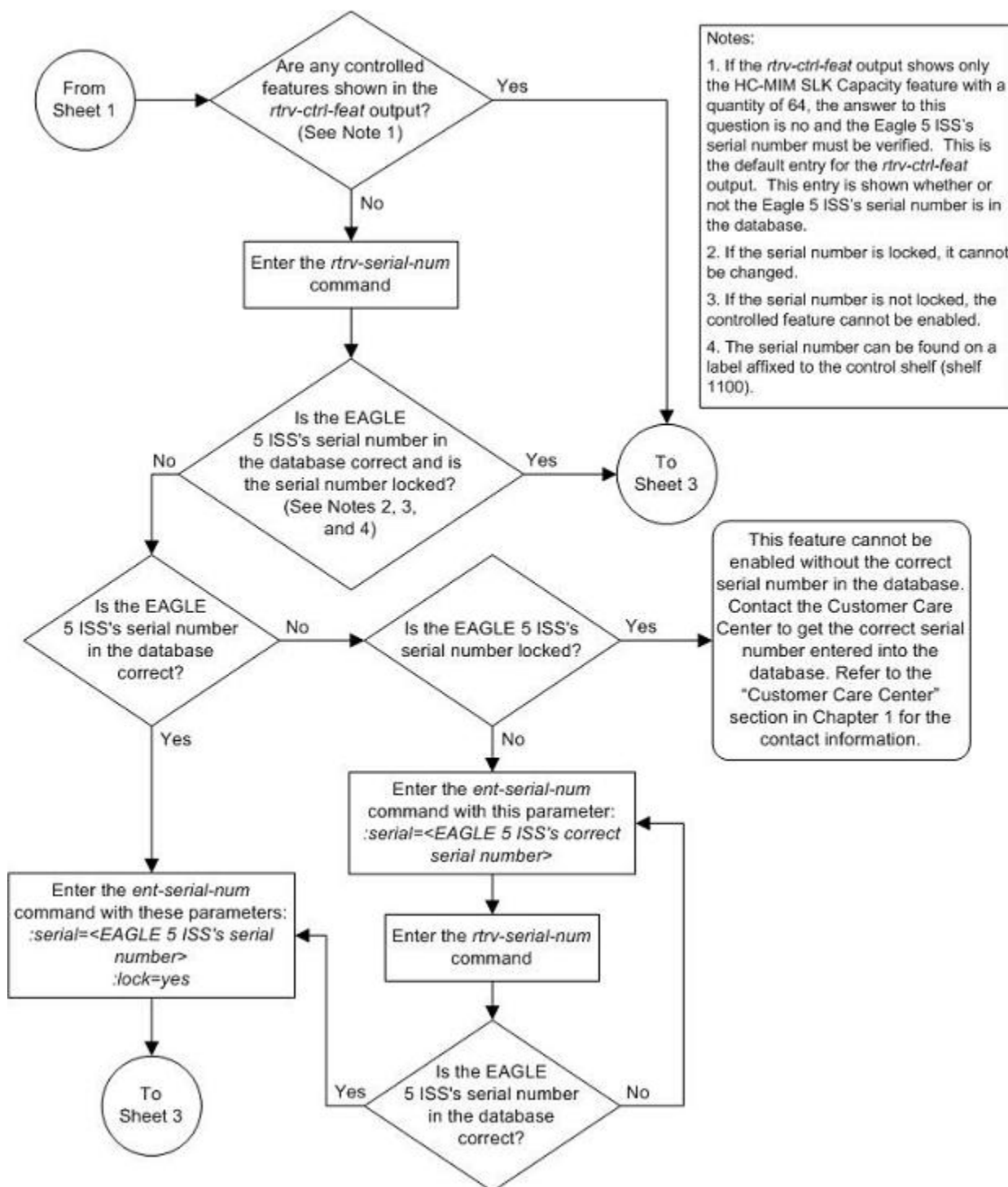
Feature Name	Partnum
Zero entries found.	

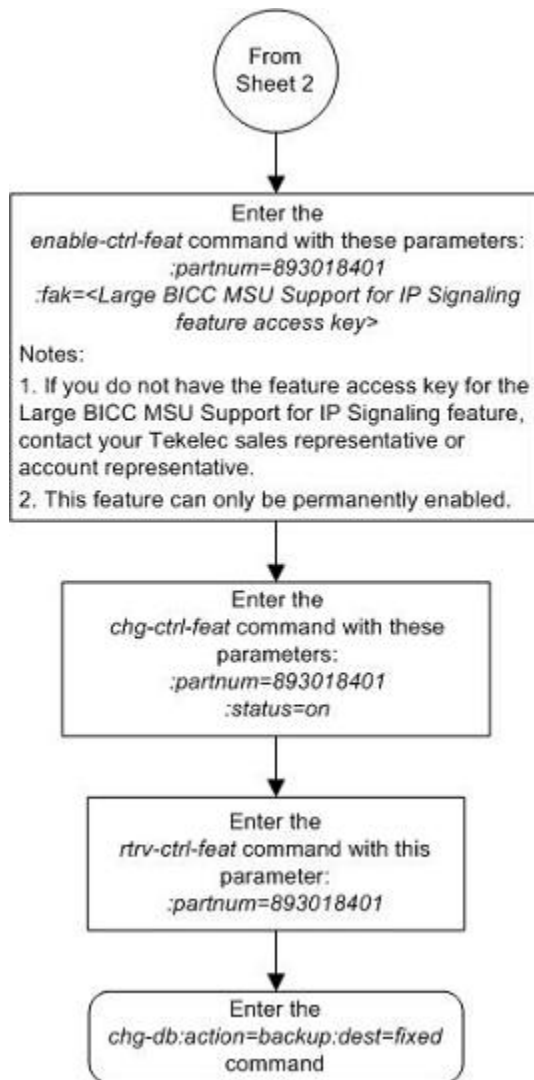
9. Back up the new changes using the **chg-db:action=backup:dest=fixed** command. These messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
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.
```

Flowchart 3-9. Activating the Large BICC MSU Support for IP Signaling Feature







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.

Procedure

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

This is an example of the possible output.

```
rlghncxa03w 06-10-15 16:34:56 GMT EAGLE5 36.0.0
CARD   TYPE      APPL      LSET NAME      LINK SLC LSET NAME      LINK SLC
1101   TSM         SCCP
1102   TSM         GLS
1104   ACMENET     STPLAN
1113   GSPM        EOAM
1114   TDM-A
1115   GSPM        EOAM
1116   TDM-B
1117   MDAL
1201   LIMDS0      SS7ANSI    lsn1           A    0    lsn2           B    1
1202   LIMV35      SS7GX25    lsngwy         A    0
1203   LIMV35      SS7ANSI    lsn2           A    0    lsn1           B    1
1204   LIMATM      ATMANSI    atmgyw         A    0
1205   DCM         IPLIM      ipnode1        A    0    ipnode3        B    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 [Step 2](#).

For this example, enter these commands.

```
rtrv-card:loc=1205
```

```
rtrv-card:loc=1207
```

When these commands have successfully completed, this message appears.

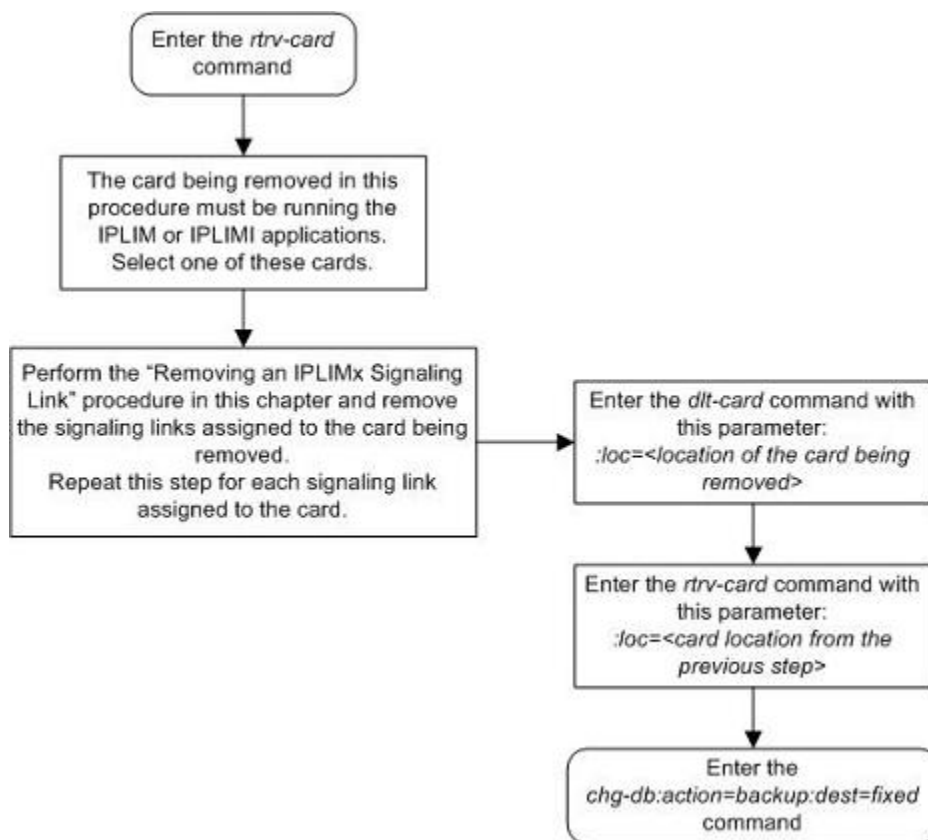
E2144 Cmd Rej: Location invalid for hardware configuration

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.
```

Flowchart 3-10. 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.

The **dlt-slk** command makes sure that the number of signaling links assigned to a linkset is greater than or equal to the value of the **tfatcabmlq** parameter. If the number of signaling links associated with a linkset drops below the value of the **tfatcabmlq** parameter for that linkset, the **tfatcabmlq** value for that linkset is automatically decremented. The value of the **tfatcabmlq** parameter for a specified linkset can be verified using the **rtrv-ls:lsn=<linkset name>** command specifying the name of the linkset. The **tfatcabmlq** parameter value is shown in the **tfatcabmlq** field of the **rtrv-ls** command output.

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 than 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 the *Commands Manual*.

Procedure

1. Display the current link configuration using the **rtrv-slk** command.

This is an example of the possible output.

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

L2T	L1	PCR	PCR								
SET	BPS	MODE	TSET								
ECM	N1	N2									
1201	A	ls01	0	LIMDS0	1	56000	---	---	BASIC	---	-----
1201	B	lsa1	0	LIMDS0	1	56000	---	---	BASIC	---	-----
1202	B	ls02	0	LIMV35	2	64000	DTE	---	BASIC	---	-----
1203	A	ls03	0	LIMDS0	3	56000	---	---	BASIC	---	-----
1203	B	lsa2	0	LIMDS0	1	56000	---	---	BASIC	---	-----
1204	B	ls01	1	LIMDS0	1	56000	---	---	BASIC	---	-----
1205	A	lsa3	0	LIMV35	4	64000	DCE	ON	BASIC	---	-----
1206	A	ls02	1	LIMV35	2	64000	DTE	---	BASIC	---	-----
1207	A	lsn1207a	0	LIMDS0	1	56000	---	---	BASIC	---	-----
1207	B	lsn1207b	0	LIMDS0	1	56000	---	---	BASIC	---	-----
1208	B	ls03	1	LIMDS0	3	56000	---	---	BASIC	---	-----
1212	A	ls04	0	LIMV35	4	64000	DTE	---	BASIC	---	-----
1213	B	ls05	0	LIMDS0	5	56000	---	---	BASIC	---	-----
1214	A	lsn1214a	0	LIMV35	2	64000	DTE	---	PCR	76	3800
1214	B	lsa3	1	LIMV35	4	64000	DCE	ON	BASIC	---	-----
1215	A	ls05	1	LIMDS0	5	56000	---	---	BASIC	---	-----
1301	B	ls06	0	LIMV35	6	56000	DTE	---	BASIC	---	-----
1304	B	ls06	1	LIMV35	6	56000	DTE	---	BASIC	---	-----

```

1308 A   ls06      2 LIMV35  6  56000 DTE  --- BASIC --- -----
1311 A   ls01      2 LIMDS0  1  56000 --- --- BASIC --- -----
1311 A1  ls05      2 LIMDS0  5  56000 --- --- BASIC --- -----
1311 B   ls03      2 LIMDS0  3  56000 --- --- BASIC --- -----
1311 B1  ls07      1 LIMDS0  7  56000 --- --- BASIC --- -----
1313 A   ls07      0 LIMDS0  7  56000 --- --- BASIC --- -----
1315 A   lsn5      0 LIMV35 11  64000 DTE  OFF BASIC --- -----
1317 A   lsi7      0 LIMV35 11  64000 DTE  OFF BASIC --- -----

```

```

LOC LINK LSN      SLC TYPE      LP      ATM      VCI VPI LL
1302 A   atmansi0  0 LIMATM  3  1544000 EXTERNAL 35 15 0
1305 A   atmansi1  0 LIMATM  4  1544000 INTERNAL 100 20 2
1318 A   atmansi0  1 LIMATM  9  1544000 LINE    150 25 4

```

```

LOC LINK LSN      SLC TYPE      LP      ATM      VCI VPI CRC4 SI SN
2101 A   atmitu1  0 LIME1ATM 5  2.048M LINE    150 2  ON  1 20
2105 A   atmitu1  1 LIME1ATM 5  2.048M LINE    35 15  ON  2 15

```

```

LOC LINK LSN      SLC TYPE      IPLIML2
2202 A   lsnlp1    0 IPLIM  M2PA
2205 A   lsnip1    1 IPLIM  M2PA
2204 B   lsnlp2    0 IPLIM  M2PA
2213 A   lsnip5    0 IPLIMI  M2PA
2215 A   lsnlp2    1 IPLIM  M2PA

```

```

LOC LINK LSN      SLC TYPE
2207 A   lsnlp3    0 SS7IPGW
2211 A   lsnlp4    0 IPGWI

```

SLK table is (31 of 1200) 6% full

2. 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 [Step 1](#) . For this example, enter these commands.

rtrv-ip-lnk:loc=2205

The following is an example of the possible output.

```

rlghncxa03w 06-10-28 21:14:37 GMT EAGLE5 36.0.0
LOC  PORT  IPADDR      SUBMASK      DUPLEX  SPEED  MACTYPE  AUTO  MCAST
2205 A   192.3.1.10    255.255.255.128 HALF    10     802.3    NO    NO
2205 B   -----

```

rtrv-ip-lnk:loc=2204

The following is an example of the possible output.

```

rlghncxa03w 06-10-28 21:14:37 GMT EAGLE5 36.0.0
LOC  PORT  IPADDR      SUBMASK      DUPLEX  SPEED  MACTYPE  AUTO  MCAST
2204 A   192.1.1.10    255.255.255.128 HALF    10     802.3    NO    NO
2204 B   -----

```

3. Display the IP host information associated with the IP link by entering the **rtrv-ip-host** command with the IP address shown in [Step 2](#) .

For this example, enter these commands.

rtrv-ip-host:ipaddr=192.001.001.010

The following is an example of the possible output.

```

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

LOCAL IPADDR  LOCAL HOST
192.1.1.10    IPNODE1_2204

```

IP Host table is (11 of 512) 2% full

rtrv-ip-host:ipaddr=192.003.001.010

The following is an example of the possible output.

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

LOCAL IPADDR	LOCAL HOST
192.3.1.10	IPNODE1_2205

IP Host table is (11 of 512) 2% full

4. Display the association associated with the local host name shown in [Step 3](#) 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

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

NOTE: If there are no associations assigned to the specified local host name, the rtrv-assoc output shows no association information as shown above.

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.

NOTE: If there is no association shown in [Step 4](#) , or the open and alw parameter values of the association shown in [Step 4](#) are no, continue the procedure with [Step 6](#) .

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;

6. Deactivate the link to be removed using the **dact-slk** command, using the output from [Step 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
```

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 [Step 6](#).

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   ls05      ls05clli  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   ls04      ls04clli  OOS-MT    Unavail  ----
ALARM STATUS = * 0235 REPT-LNK-MGTINH: local inhibited
UNAVAIL REASON = LI
```

8. 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.

NOTE: If the signaling link being removed is not the last signaling link on the card, continue the procedure with [Step 10](#).

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 [Step 7](#).

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.
```

9. Verify that the card has been inhibited by entering the **rept-stat-card** command with the card location specified in [Step 8](#). 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 -----
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       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.

10. Remove the signaling link from the EAGLE 5 ISS 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

```

11. Verify the changes using the **rtrv-slk** command with the card location and link values specified in [Step 10](#) . For this example, enter these commands.

rtrv-slk:loc=2204: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 07-05-19 21:16:37 GMT EAGLE5 37.0.0
LOC  LINK LSN          SLC TYPE    IPLIML2
No Links Set up.

```

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.

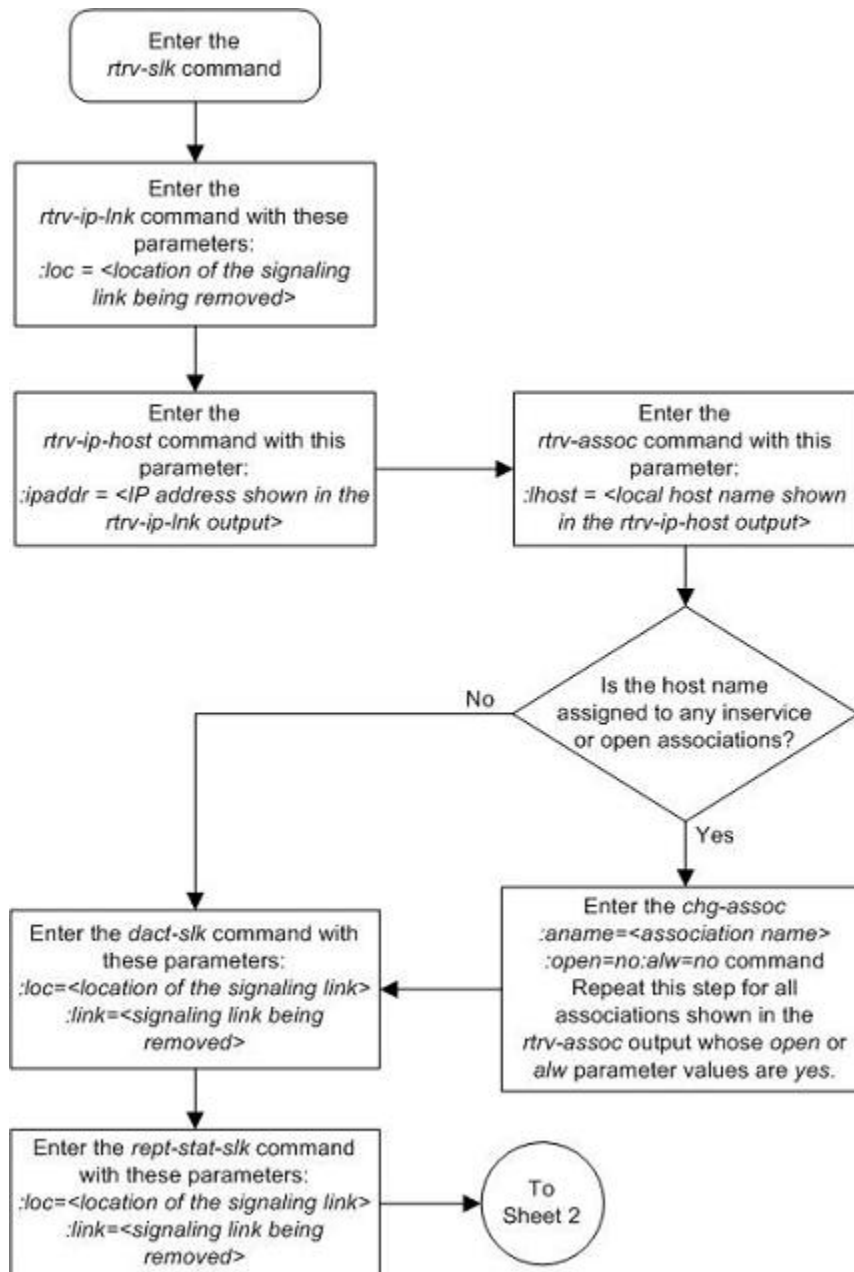
```

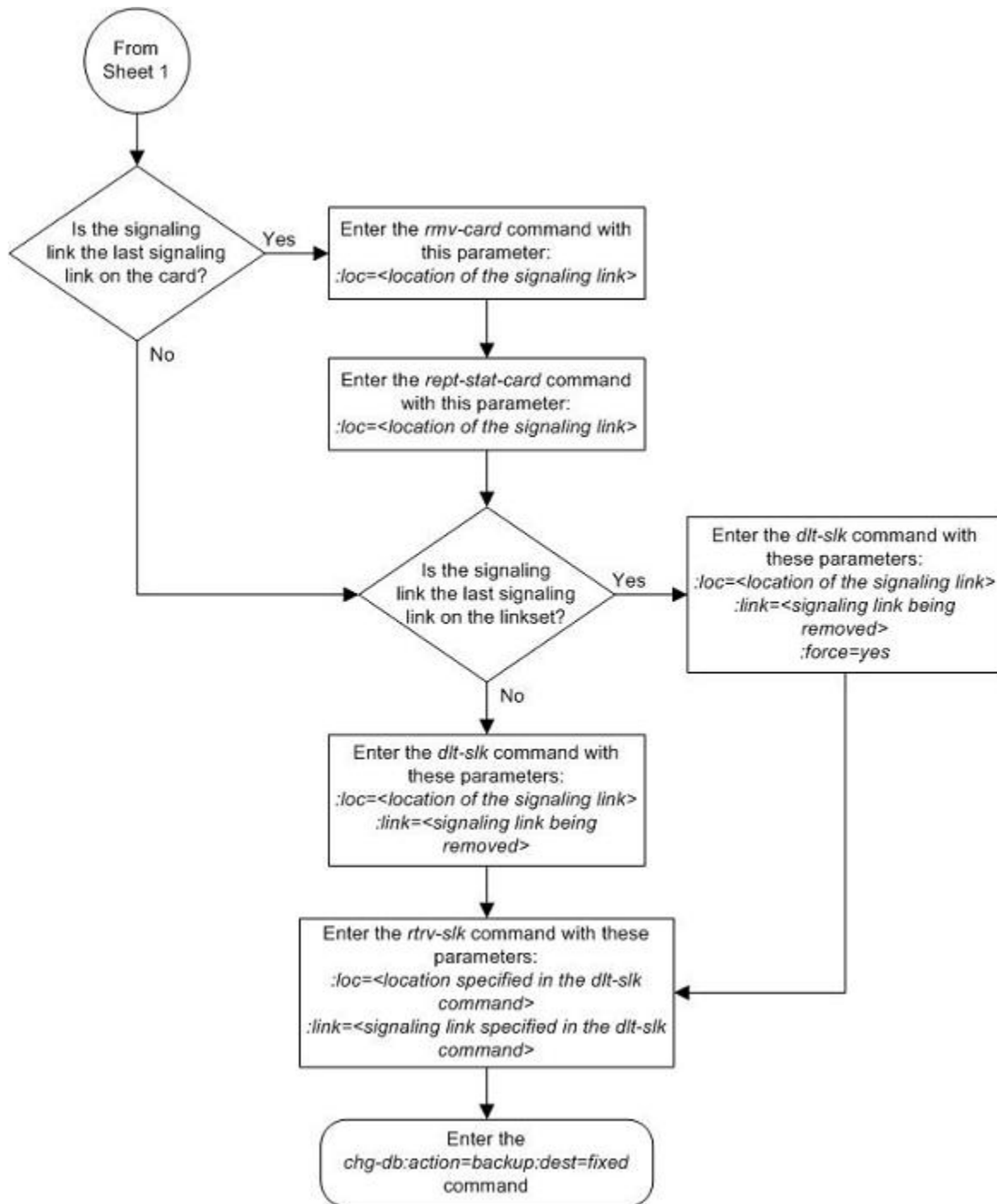
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.

```

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

Flowchart 3-11. Removing an IPLIMx Signaling Link





Removing an IP Host Assigned to an IPLIMx Card

This procedure removes an IP host that is assigned to an IPLIMx 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 M2PA Association](#) procedure or the host name in these associations can be changed by performing the [Changing the Host Values of an M2PA Association](#) procedure. The host name assigned to associations is displayed in the **rtrv-assoc** outputs.

Procedure

1. Display the current IP host information in the database by entering the **rtrv-ip-host** command.

The following is an example of the possible output.

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

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-MS1
192.1.1.52	DN-MS2
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 512) 2% full

If the IP host that is being removed is a remote host, continue the procedure with [Step 5](#) .

If the IP host that is being removed is a local host, continue the procedure with [Step 2](#) .

2. Display the current link parameters associated with the IP card in the database by entering the **rtrv-ip-link** 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
1303	A	192.1.1.10	255.255.255.128	HALF	10	802.3	NO	NO
1303	B	-----	-----	HALF	10	DIX	NO	NO
1305	A	192.1.1.12	255.255.255.0	----	---	DIX	YES	NO
1305	B	-----	-----	HALF	10	DIX	NO	NO
1313	A	192.1.1.14	255.255.255.0	FULL	100	DIX	NO	NO
1313	B	-----	-----	HALF	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
2103	A	192.1.1.22	255.255.255.0	FULL	100	DIX	NO	NO
2103	B	-----	-----	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
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	-----	-----	HALF	10	DIX	NO	NO


```

2305  A   192.3.3.33      255.255.255.0  FULL   100   DIX    NO    NO
2305  B   -----      -----      HALF   10    DIX    NO    NO

```

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

```

rlghncxa03w 07-05-28 09:12:36 GMT EAGLE5 37.0.0
CARD  TYPE      APPL      LSET NAME      LINK SLC LSET NAME      LINK SLC
1101   TSM        SCCP
1102   TSM        GLS
1113   GSPM        EOAM
1114   TDM-A
1115   GSPM        EOAM
1116   TDM-B
1117   MDAL
1201   LIMDS0     SS7ANSI  sp2            A    0    sp1            B    0
1203   LIMDS0     SS7ANSI  sp3            A    0
1204   LIMDS0     SS7ANSI  sp3            A    1
1206   LIMDS0     SS7ANSI  nsp3           A    1    nsp4           B    1
1207   LIMV35     SS7GX25  nsp1           A    0
1208   LIMV35     SS7GX25  nsp1           A    1
1216   ACMENET     STPLAN
1301   LIMDS0     SS7ANSI  sp6            A    1    sp7            B    0
1302   LIMDS0     SS7ANSI  sp7            A    1    sp5            B    1
1303   DCM        IPLIM    ipnode1        A    0    ipnode3        B    1
1305   DCM        IPLIM    ipnode4        A    0
1307   ACMENET     STPLAN
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        B    2
2205   DCM        IPLIM    ipnode3        A2   0    ipnode6        B1   2
2207   DCM        IPLIM    ipnode5        A    0    ipnode4        B3    1
2213   DCM        IPLIM    ipnode5        A3   1    ipnode3        B2    2
2301   DCM        IPLIM    ipnode6        A    0    ipnode1        B    2
2305   DCM        IPLIM    ipnode6        A1   1    ipnode1        B1    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 [Step 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 [Step 5](#) after the associations have been removed.

To change the host name assigned to the associations, perform the [Changing the Host Values of an M2PA Association](#) procedure.

Continue the procedure with [Step 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 [Step 5](#).

For this example, enter this command.

rtrv-ip-host:host=gw100.nc.tekelec.com

The following is an example of the possible output.

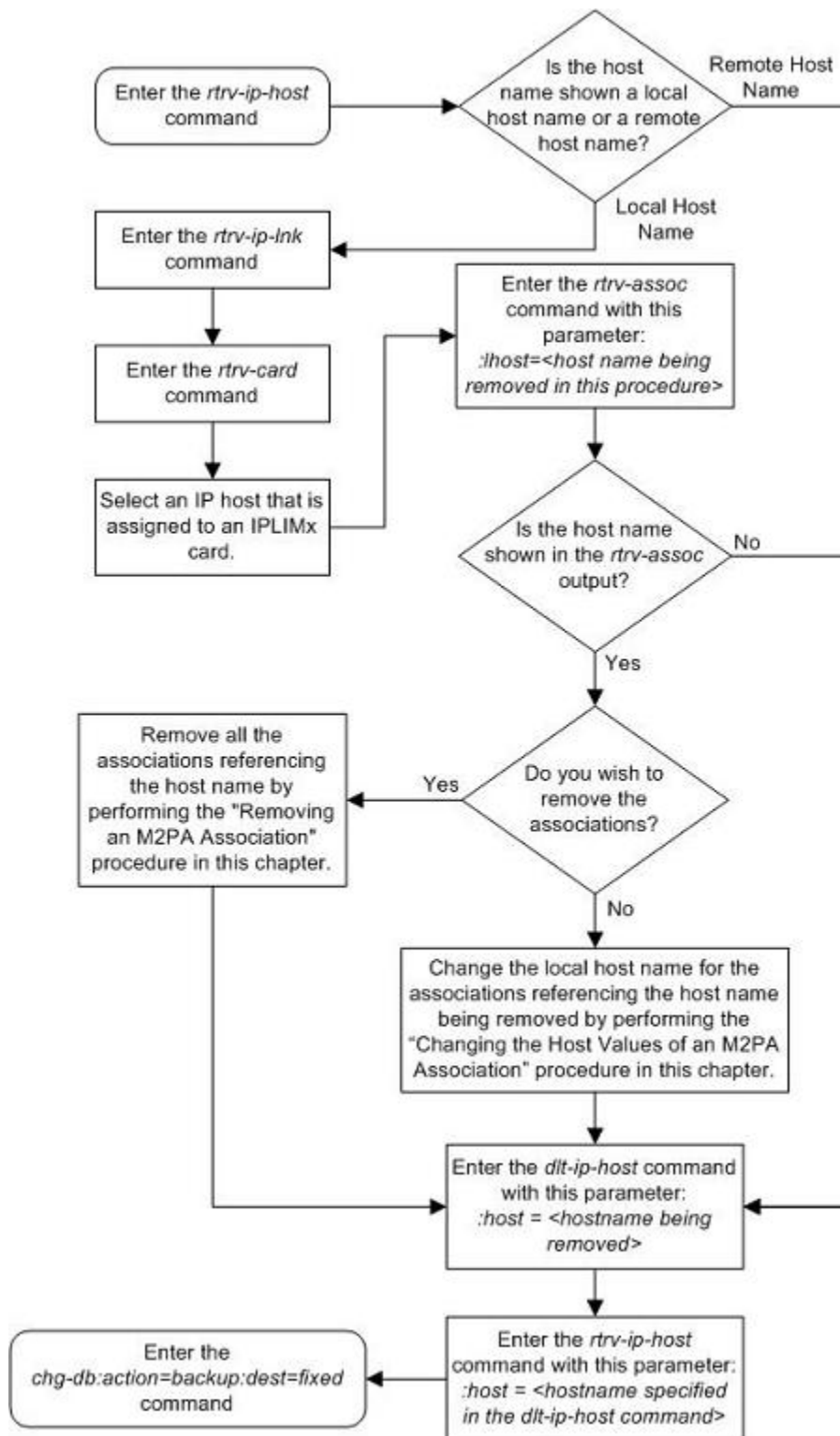
```
rlghncxa03w 06-10-28 21:20:37 GMT EAGLE5 36.0.0
LOCAL IPADDR      LOCAL HOST
IP Host table is (10 of 512) 2% full
```

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.
```

Flowchart 3-12. 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.

Procedure

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      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 (6 of 1024) 1% 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
SLK   PST        LS      CLLI
A     IS-NR      nc001   -----
```

Command Completed.

NOTE: If the output of [Step 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 [Step 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     255.255.255.255  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 1024) 1% full

6. Place the IP card back into service by using the **alw-card** command.

NOTE: If the IP card containing the IP route that was removed from the database does not contain other IP routes, continue the procedure with [Step 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.
```

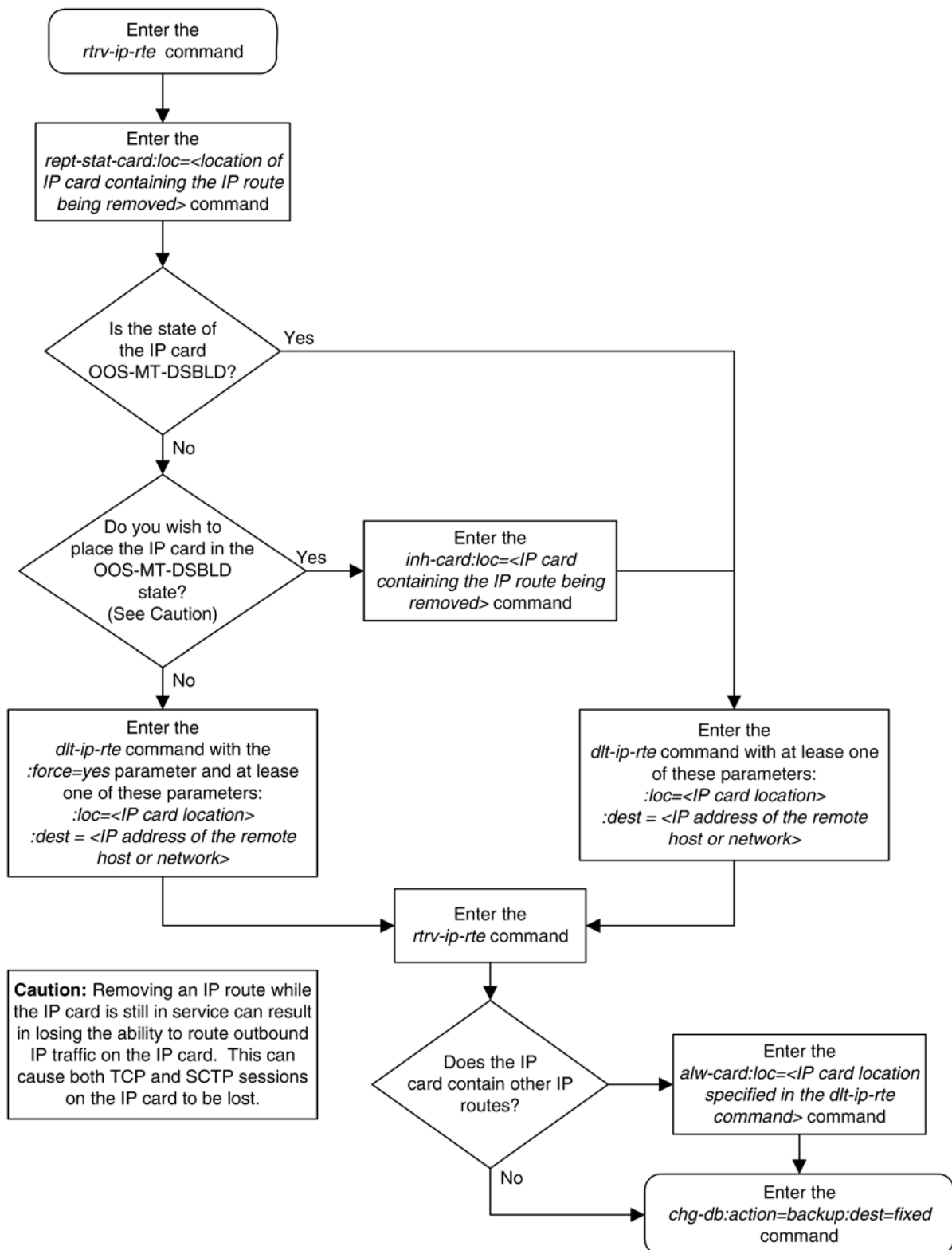
7. Back up the new changes using the **chg-db:action=backup:dest=fixed** command.

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.

Flowchart 3-13. Removing an IP Route



Removing an M2PA Association

This procedure is used to remove an association from the database using the **dlt-assoc** 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 than 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 the *Commands Manual*.

Procedure

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  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 **APPL** column, continue the procedure with [Step 3](#) .

If the application assigned to the card is IPSPG, perform the [Removing an IPSPG Association](#) procedure.

3. Change the value of the **open** parameter to **no** by specifying the **chg-assoc** command with the **open=no** parameter.

NOTE: If the value of the open parameter for the association being removed from the database (shown in [Step 1](#)) is no, continue this procedure with [Step 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. 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 [Step 4](#) .

For this example, enter this command.

rtrv-assoc : aname=assoc1

This is an example of possible output.

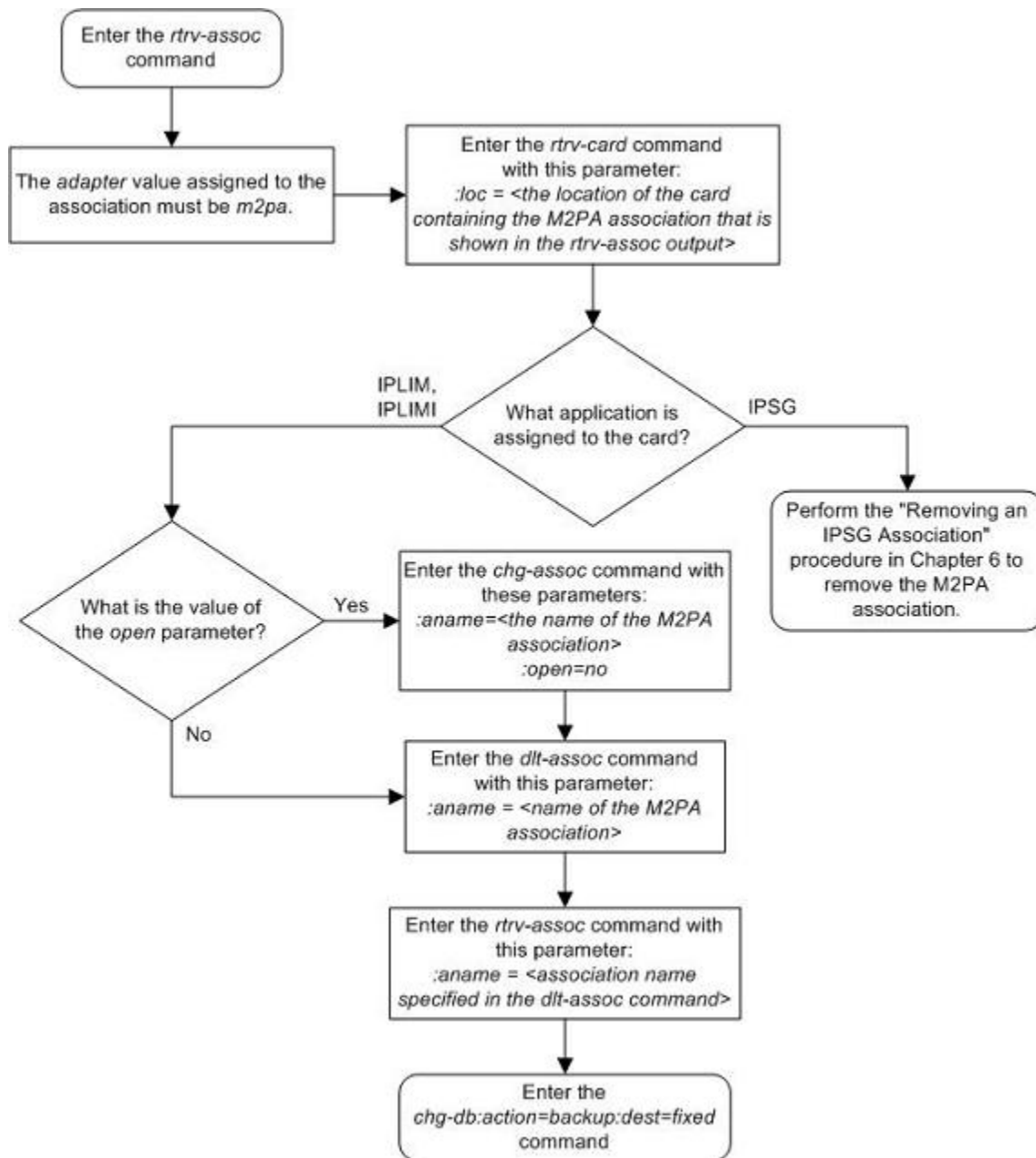
```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0

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.
```

Flowchart 3-14. 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 an M2PA Association](#)

- [Changing the Host Values of an M2PA Association](#)
- [Changing the Link Value of an 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 an M2PA Timer Set](#) procedure.
- The SCTP Checksum Algorithm – Perform the [Changing the SCTP Checksum Algorithm Option for M2PA Associations](#) procedure.
- Turn off the Large BICC MSU Support for IP Signaling feature – Perform the [Turning the Large BICC MSU Support for IP Signaling Feature Off](#) 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 3-8. Change M2PA Association Parameters

aname	lport	rhost	rport	open	alw
rmode	rmin	rmax	rtimes	cwmin	istrms
ostrms	m2patset	ver	rtxthr		

If you wish to change the attributes of M2PA associations assigned to cards that are running the IPSP application, perform the [Changing the Attributes of an IPSP Association](#) procedure.

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 an M2PA Association](#)
- **link** - [Changing the Link Value of an M2PA Association to another Link Value on the Same IPLIMx Card](#)
- **bufsize** - [Changing the Buffer Size of an 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.

: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** – Tekelec'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.

:cwmn – 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 **cwmn** 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 the [Changing the Buffer Size of an M2PA Association](#) procedure.

The **rmode**, **rmin**, **rmax**, **rtimes**, and **cwmn** parameters are used to configure the SCTP retransmission controls for an association, in addition to other commands. Go to the [Configuring SCTP Retransmission Control for an M2PA Association](#) procedure 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 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**.

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 **OOS-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 **ipliml2** 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 than 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 the *Commands Manual*.

Procedure

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
```

ANAME	CARD	IPLNK	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	B2	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 [Step 3](#) .
- If the **open** parameter value for the association is **no**, continue the procedure with [Step 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**, **rtxtthr** 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 [Step 7](#) .
- If the value of the **rtxtthr** parameter is being changed, continue the procedure with [Step 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 link 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 [Step 7](#) .
 - If the value of the **rtxtthr** parameter is being changed, continue the procedure with [Step 4](#) .
- If the value of the **open** parameter value is being changed to **yes** and a signaling link is not assigned to the card, perform the [Adding an IPLIMx Signaling Link](#) procedure 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 [Step 7](#) .
 - If the value of the **rtxtthr** parameter is being changed, continue the procedure with [Step 4](#) .

If the application assigned to the card is IPSPG, perform the [Changing the Attributes of an IPSPG 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.

```
r1ghncxa03w 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 [Step 3](#) or selected in [Step 1](#) .

For this example, enter this command.

rtrv-assoc : aname=assoc2

This is an example of the possible output.

```

rlghncxa03w 08-04-28 21:14:37 GMT EAGLE5 38.0.0
ANAME assoc2
  LOC      1205          IPLNK PORT  A          LINK  A
  ADAPTER  M2PA          VER          M2PA RFC
  LHOST    IPNODE2-1205
  ALHOST    ---
  RHOST     remotehost1
  LPORT    2048          RPORT      2048
  ISTRMS    2            OSTRMS     2          BUFSIZE  400
  RMODE     LIN          RMIN       120         RMAX     800
  RTIMES    10           CWMIN      3000        M2PATSET 1
  OPEN      NO           ALW        YES         RTXTHR   2000

```

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 be specified in this procedure, continue the procedure with [Step 7](#).
- If the **cwmin** parameter will be specified in this procedure, continue the procedure with [Step 5](#).
- If the **m2patset** parameter will be specified in this procedure, but the **cwmin** parameter will not be specified in this procedure, continue the procedure with [Step 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 of 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 [Step 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 [Step 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 the [Changing the Buffer Size 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 **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 [Step 6](#).
 - If the **m2patset** parameter will not be specified in this procedure, continue the procedure with [Step 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 RFC M2PA 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)

TSET	T1	T2	T3	T4N	T4E	T5	T6	T7	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

To display the M2PA RFC 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	T3	T4N	T4E	T5	T6	T7	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
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
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
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 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
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	T2	T3	T4N	T4E	T5	T6	T7	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
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
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
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 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.

- Change the association using the **chg-assoc** command.

For this example, enter this command.

```
chg-assoc:aname=assoc2:rhost="gw200.nc-  
tekelec.com":rport=3000 :rtxtthr=10000
```

If only the **alw**, **open**, or **rtxtthr** parameter values are being changed in this step, for this example, enter this command.

NOTE: See [Flowchart 3-15](#) (Sheet 5) for the rules that apply to the **chg-assoc** command.

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 [Step 3](#), continue the procedure with [Step 9](#).

8. 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;
```

9. Verify the changes using the **rtrv-assoc** command specifying the association name specified in [Step 7](#) and [Step 8](#).

For this example, enter this command.

rtrv-assoc:aname=assoc2

This is an example of possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
ANAME assoc2
  LOC      1205          IPLNK PORT  A          LINK  A
  ADAPTER  M2PA          VER          M2PA RFC
  LHOST    IPNODE2-1205
  ALHOST    ---
  RHOST     gw200.nc-tekelec.com
  LPORT     2048          RPORT      3000
  ISTRMS    2             OSTRMS     2           BUFSIZE  400
  RMODE     LIN           RMIN        120          RMAX     800
  RTIMES    10            CWMIN       3000         M2PATSET 1
  OPEN      YES           ALW         NO           RTXTHR  10000
```

```
IP Appl Sock table is (8 of 4000) 1% full
Assoc Buffer Space Used (1600 KB of 1600 KB) on LOC = 1205
```

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.
```

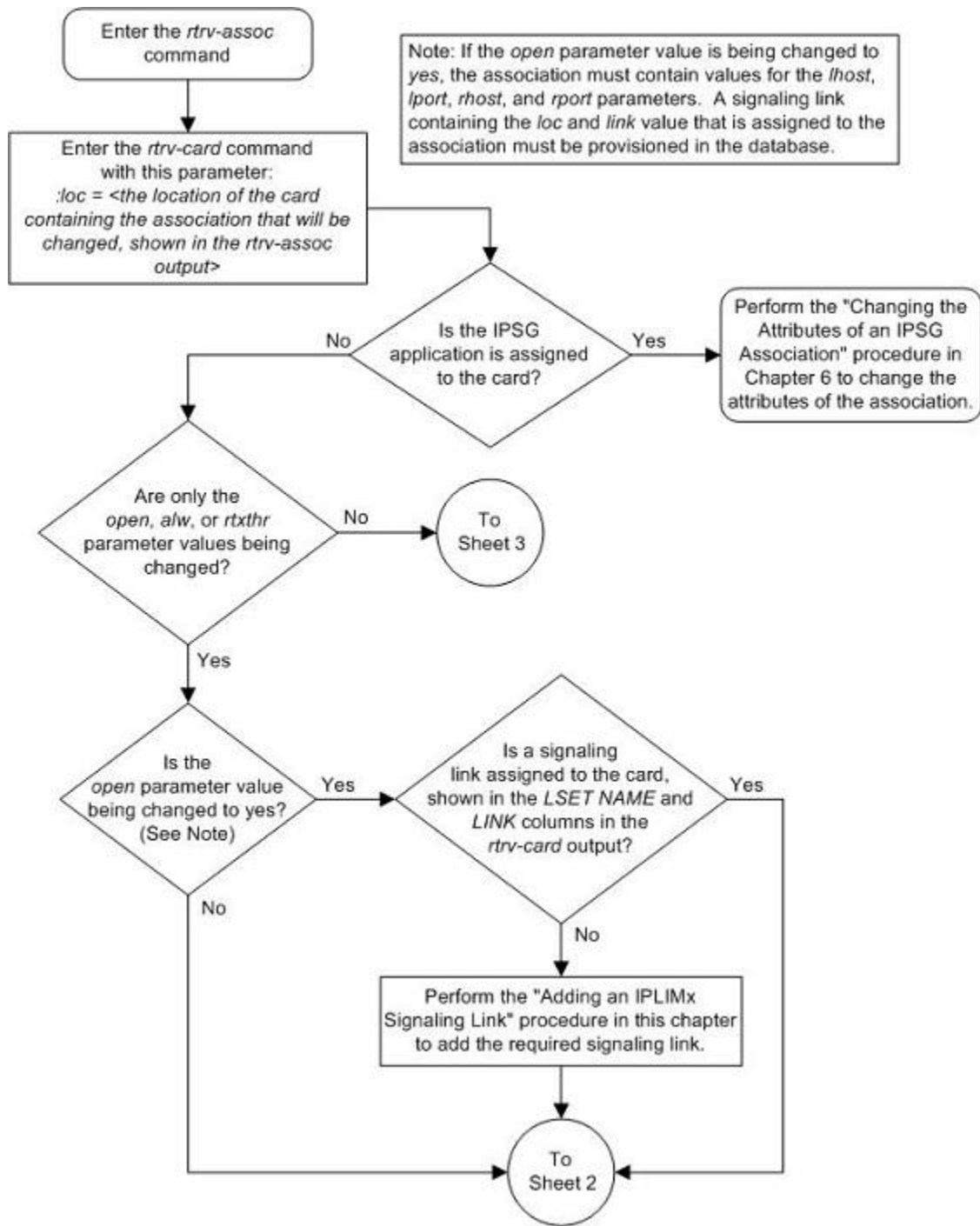
If you wish to change the **lhost**, **alhost**, **bufsize**, or **link** values of the M2PA association, perform one of these procedures.

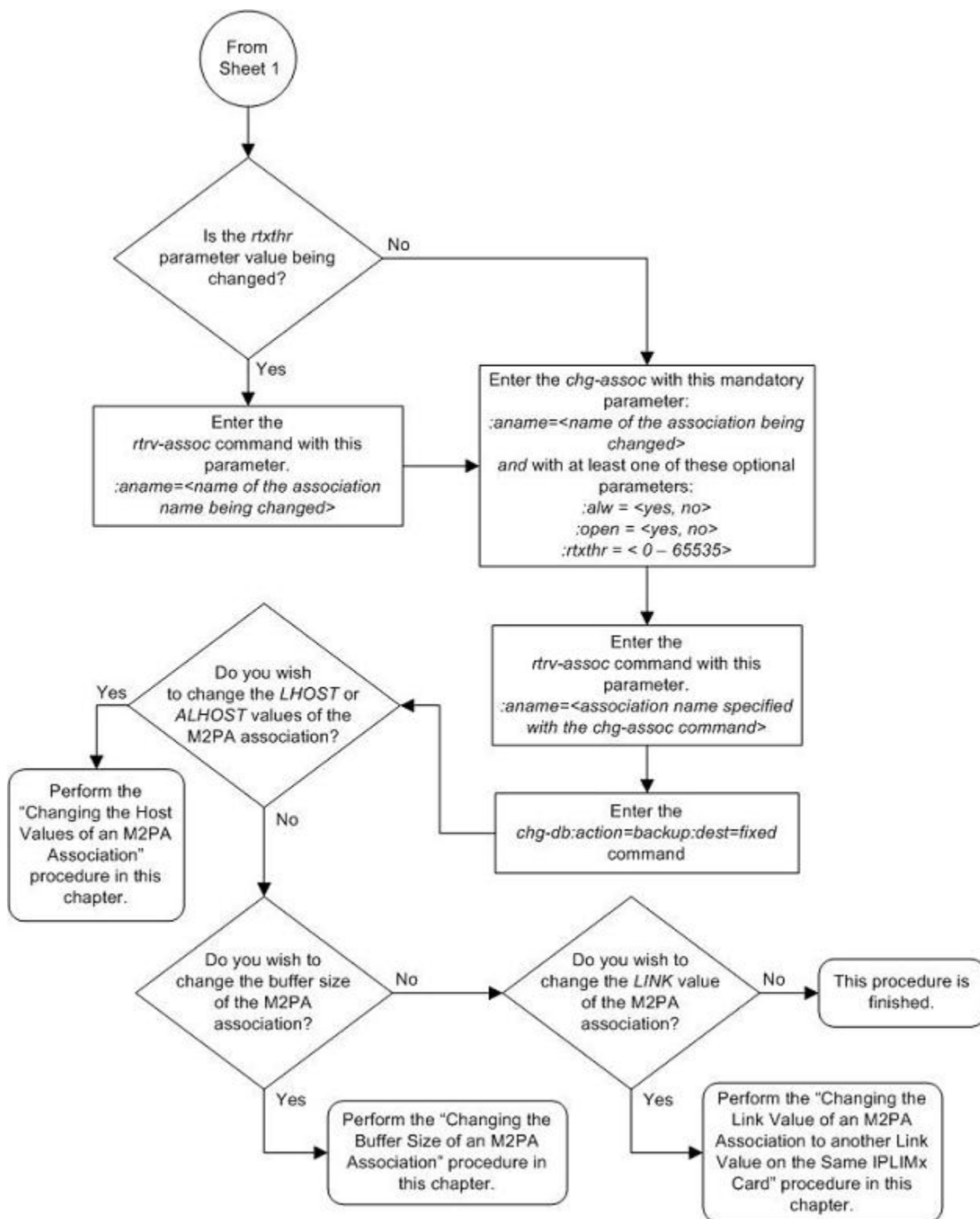
- **lhost** and **alhost** - [Changing the Host Values of an M2PA Association](#)
- **bufsize** - [Changing the Buffer Size of an M2PA Association](#)

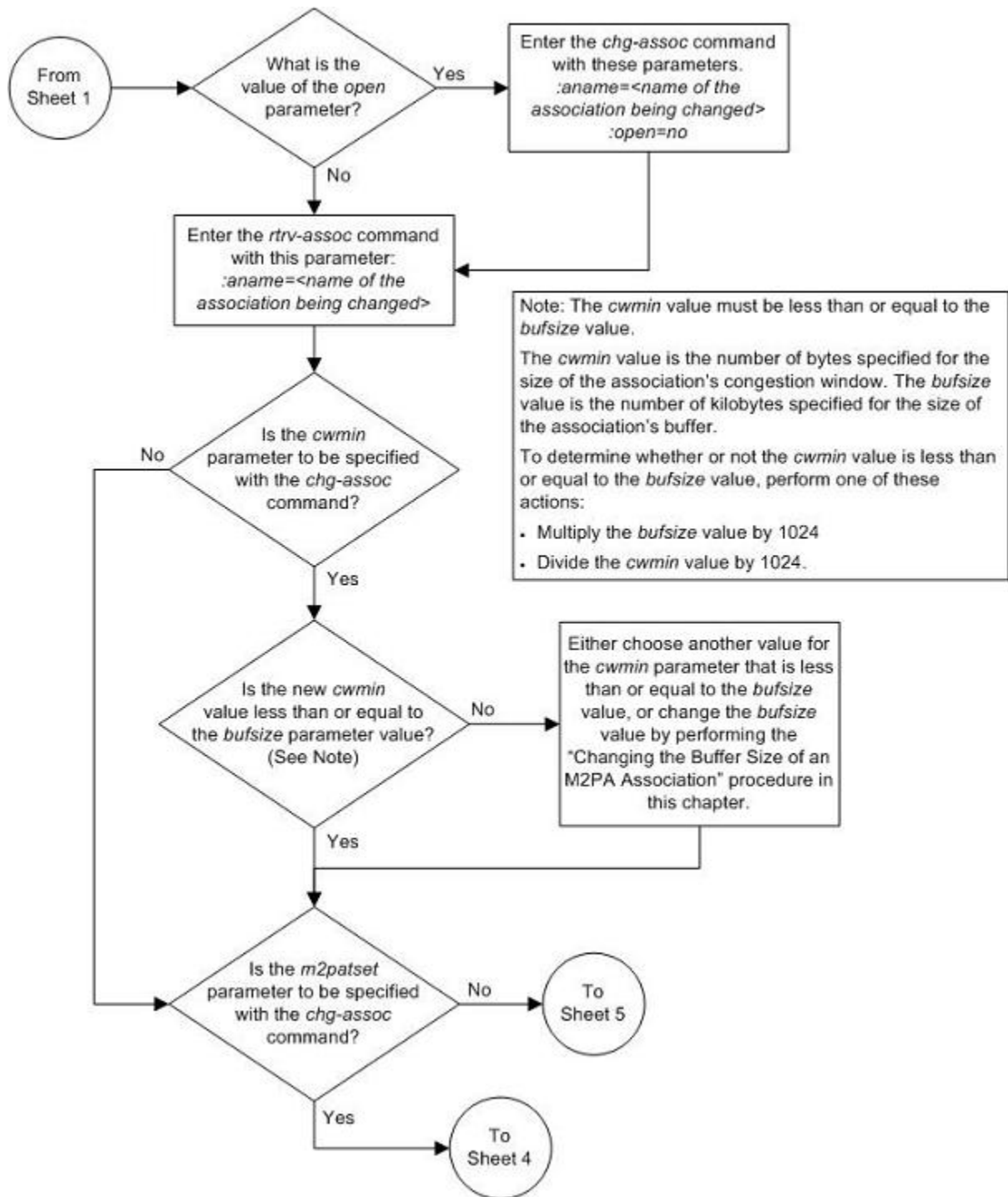
- **link** - [Changing the Link Value of an M2PA Association to another Link Value on the Same IPLIMx Card](#)

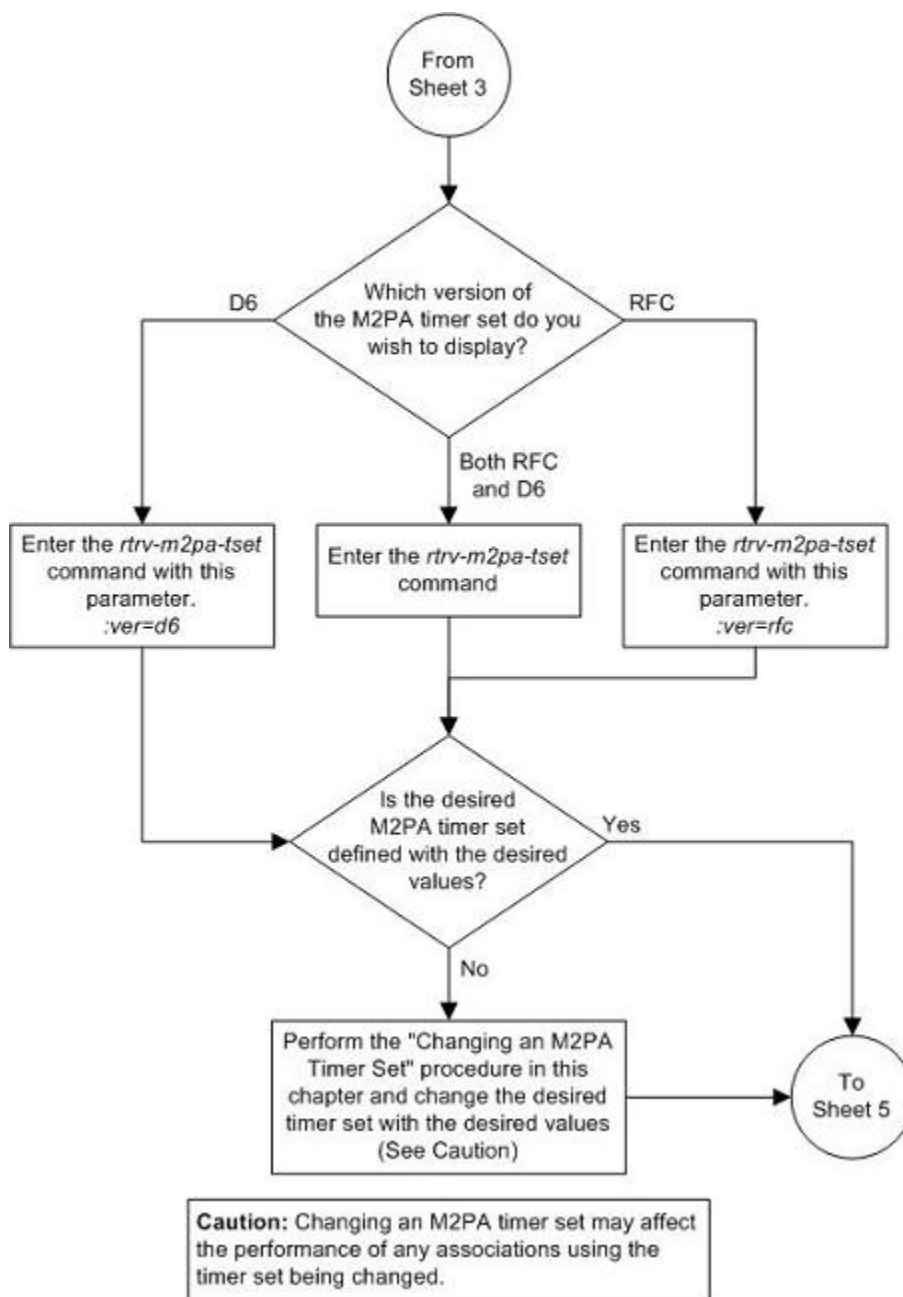
If you do not wish to change the **lhost**, **alhost**, **bufsize**, or **link** values of the M2PA association, this procedure is finished.

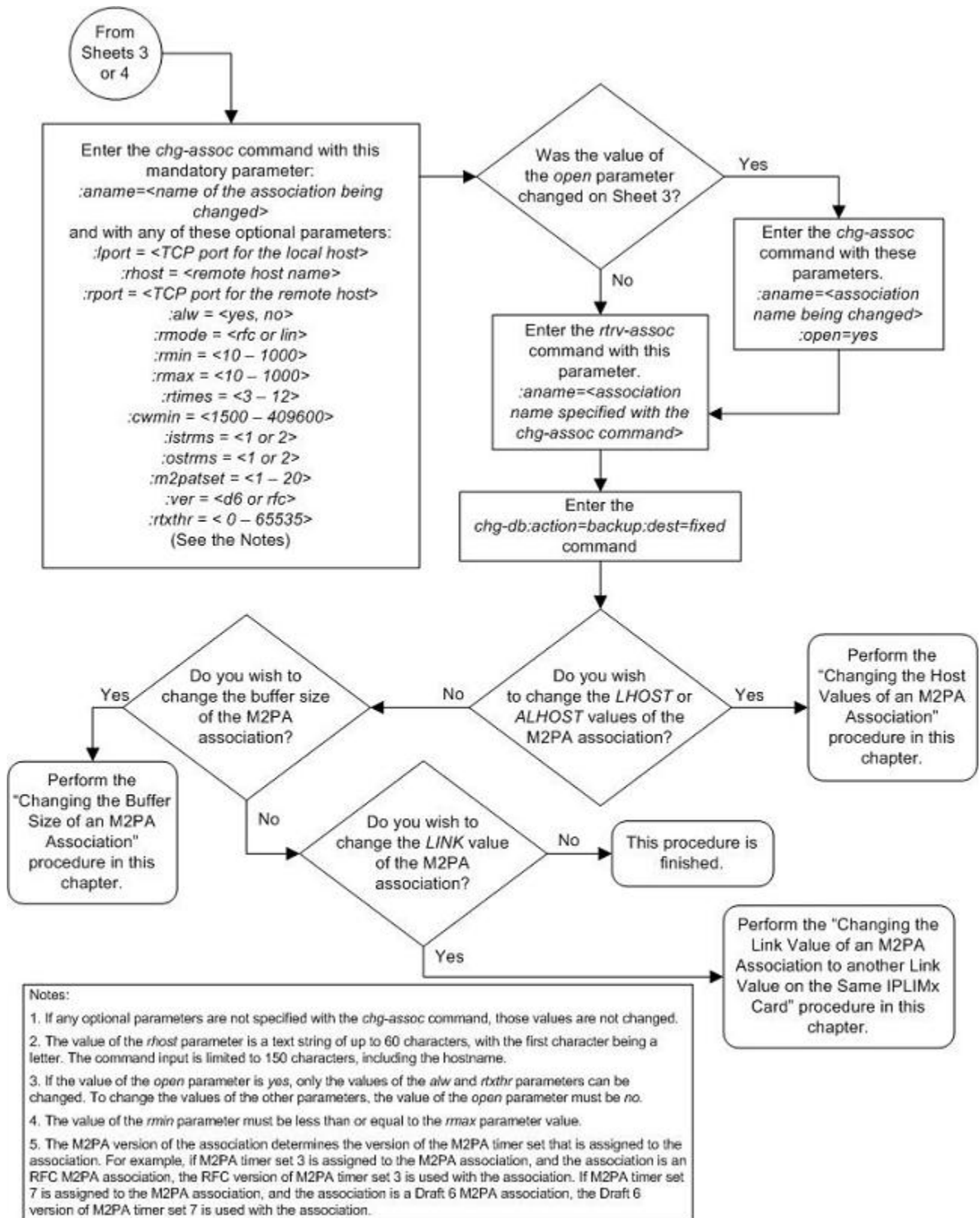
Flowchart 3-15. Changing the Attributes of an M2PA Association











Changing the Buffer Size of an M2PA Association

This procedure is used to change the buffer size of an M2PA association, assigned to cards that are running the IPLIM or IPLIMI applications, using the **chg-assoc** 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 single-slot EDCMs and E5-ENET cards are shown in the following list.

- Single-Slot EDCM - 1600 KB
- 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 an M2PA Association](#)
- **link** - [Changing the Link Value of an 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 than 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 the *Commands Manual*.

Procedure

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    B2   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 [Step 3](#).
- If the **open** parameter value for the association being changed is **no**, continue the procedure with [Step 4](#).

If the application assigned to the card is IPSPG, perform the [Changing the Buffer Size of an IPSPG 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 [Step 3](#) or the name of the association assigned to the card displayed in [Step 1](#).

For this example, enter this command.

rtrv-assoc:aname=assoc2

This is an example of the possible output.

```
rlghncxa03w 06-10-28 21:14:37 GMT EAGLE5 36.0.0
ANAME assoc2
  LOC      1205          IPLNK PORT  A          LINK  A
  ADAPTER  M2PA          VER        M2PA RFC
  LHOST    IPNODE2-1205
  ALHOST    ---
  RHOST     remotehost1
  LPORT     2048          RPORT      2048
  ISTRMS    2             OSTRMS    2           BUFSIZE  400
  RMODE     LIN           RMIN       120          RMAX     800
  RTIMES    10            CWMIN     3000         M2PATSET 1
  OPEN      NO            ALW        YES          RTXTHR  2000
```

```
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 [Step 6](#), [Step 7](#), and [Step 8](#).

If the buffers on the other associations assigned to the card do not need to be changed, continue the procedure with [Step 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    B2   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 [Step 5](#) by entering the **rtrv-assoc** command with the name of each association shown in [Step 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  M2PA      VER      M2PA RFC
  LHOST    IPNODE2-1205
  ALHOST    ---
  RHOST    remotehost1
  LPORT    2048      RPORT      2048
  ISTRMS   2          OSTRMS   2          BUFSIZE  400
  RMODE    LIN        RMIN     120        RMAX     800
  RTIMES   10         CWMIN    3000       M2PATSET 1
  OPEN     NO         ALW      YES        RTXTHR  2000

```

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.

```

ANAME assoc3
  LOC      1205      IPLNK PORT  A      LINK  B2
  ADAPTER  M2PA      VER      M2PA RFC
  LHOST    IPNODE2-1205
  ALHOST    ---
  RHOST    remotehost3
  LPORT    3000      RPORT      3000
  ISTRMS   2          OSTRMS   2          BUFSIZE  800
  RMODE    LIN        RMIN     120        RMAX     800
  RTIMES   10         CWMIN    3000       M2PATSET 1
  OPEN     YES        ALW      YES        RTXTHR  2000

```

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.

```

ANAME assoc5
  LOC      1205      IPLNK PORT  A      LINK  A3
  ADAPTER  M2PA      VER      M2PA RFC
  LHOST    IPNODE2-1205
  ALHOST    ---
  RHOST    remotehost3
  LPORT    1500      RPORT      3000
  ISTRMS   2          OSTRMS   2          BUFSIZE  400
  RMODE    LIN        RMIN     120        RMAX     800
  RTIMES   10         CWMIN    3000       M2PATSET 1
  OPEN     YES        ALW      YES        RTXTHR  2000

```

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 [Step 6](#) , the new **bufsize** parameter value must be greater than or equal to the **cwmin** parameter value.

The **cwmin** parameter is the number of 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 [Step 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 [Step 8](#) .

8. Change the size of the buffers for one or more of the associations displayed in [Step 6](#) to allow the buffer of the association displayed in [Step 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 [Step 4](#) , the new **bufsize** parameter value must be greater than or equal to the **cwmin** parameter value.

The **cwmin** parameter is the number of 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 [Step 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 [Step 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 [Step 3](#) , continue the procedure with [Step 12](#) .

If the value of the **open** parameter was changed in [Step 3](#) , continue the procedure with [Step 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 [Step 10](#) and [Step 11](#).

For this example, enter this command.

rtrv-assoc : aname=assoc2

This is an example of possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
ANAME assoc2
  LOC      1205          IPLNK PORT  A          LINK  A
  ADAPTER  M2PA          VER          M2PA RFC
  LHOST    IPNODE2-1205
  ALHOST    ---
  RHOST    gw200.nc-tekelec.com
  LPORT    2048          RPORT      3000
  ISTRMS   2             OSTRMS     2           BUFSIZE  500
  RMODE    LIN           RMIN        120         RMAX      800
  RTIMES   10            CWMIN       3000        M2PATSET 1
  OPEN     YES           ALW         YES         RTXTHR   10000
```

```
IP Appl Sock table is (8 of 4000) 1% full
Assoc Buffer Space Used (1300 KB of 1600 KB) on LOC = 1205
```

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

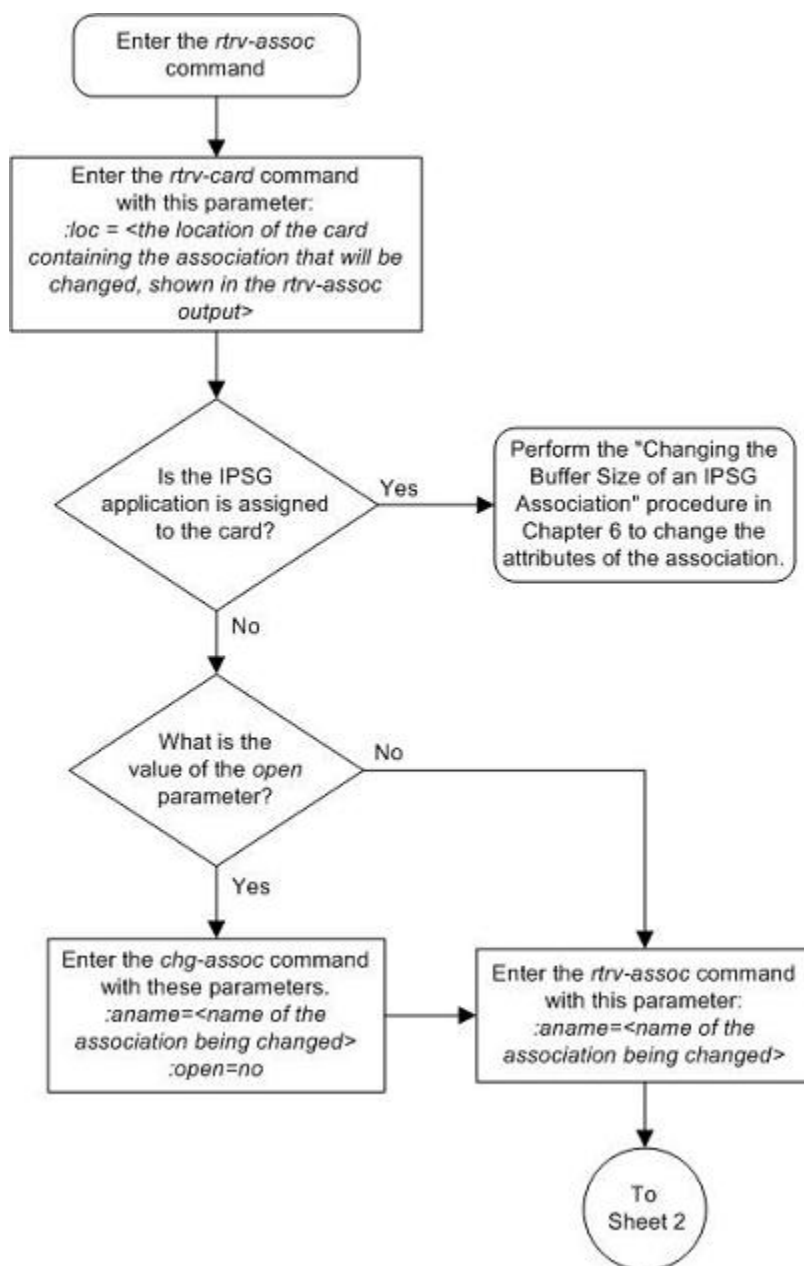
These messages should appear; the active Maintenance and Administration Subsystem Processor (MASP) appears first.

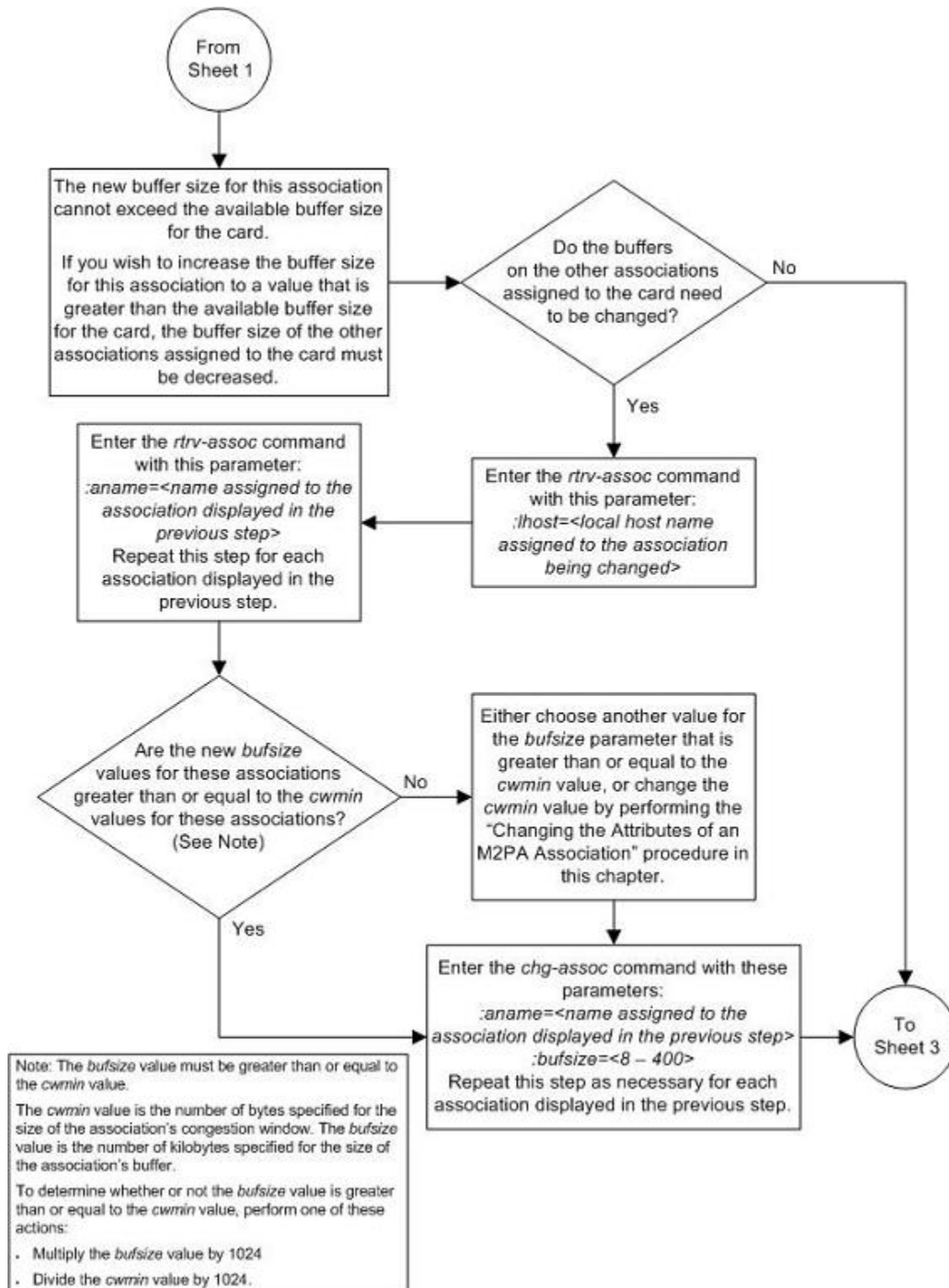
```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

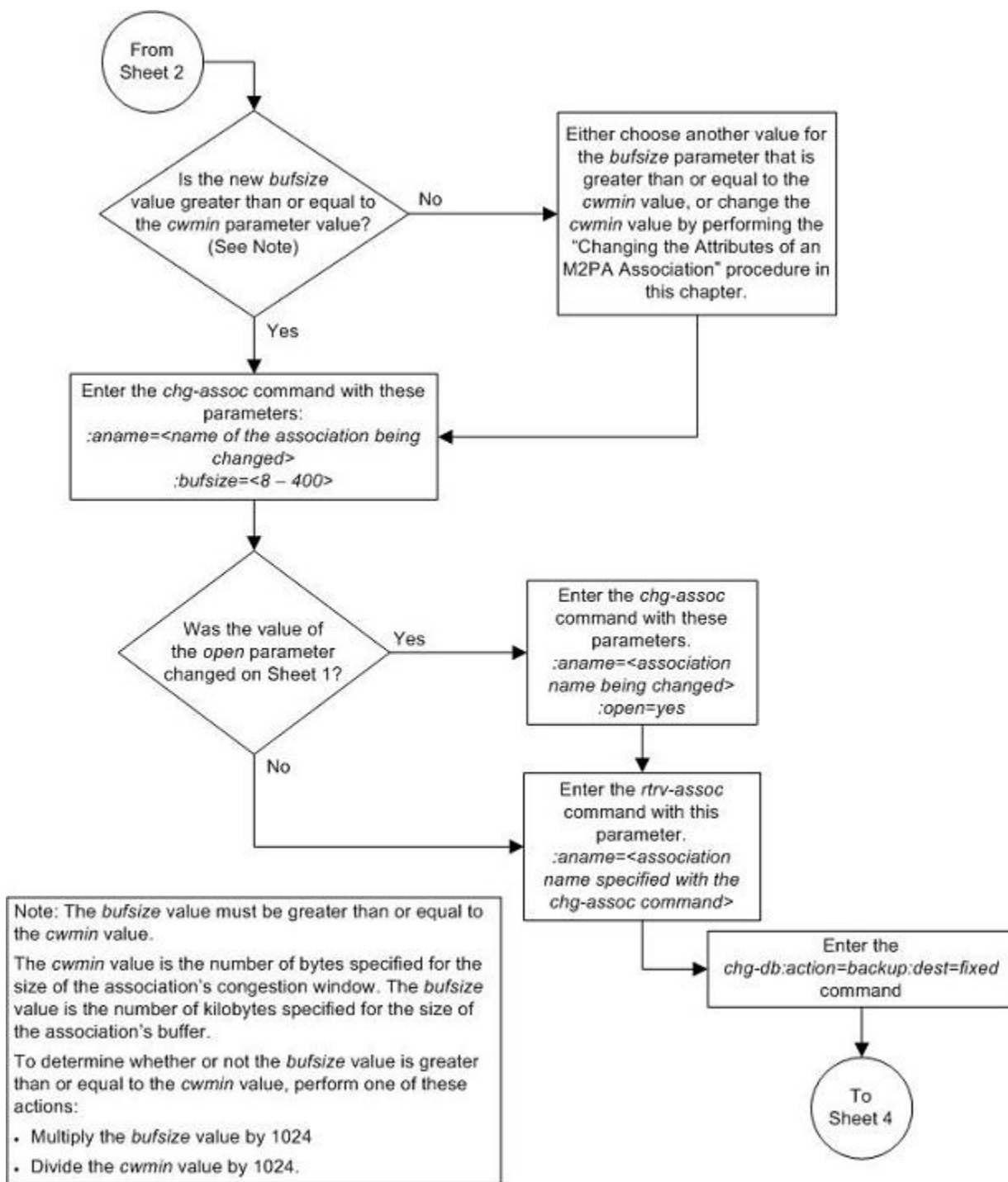
If you wish to change the other attributes of the M2PA association, perform one of these procedures.

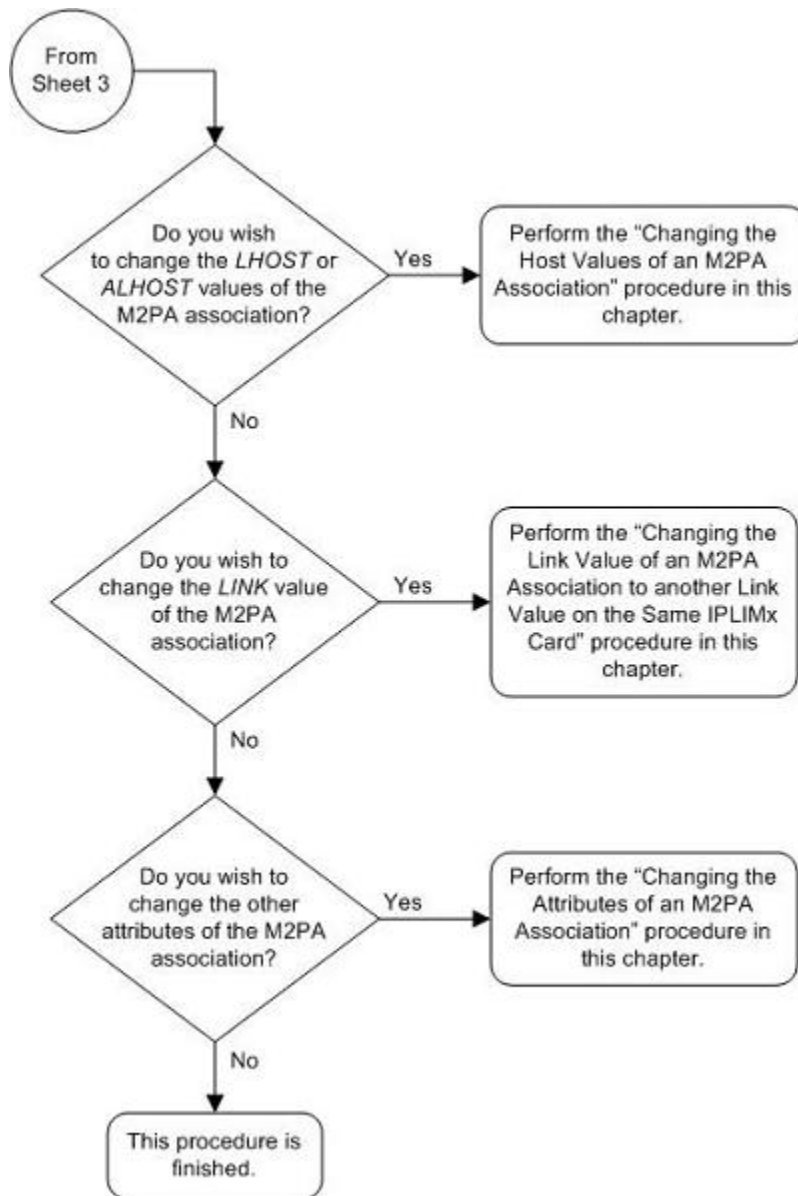
- **lhost** and **alhost** - [Changing the Host Values of an M2PA Association](#)
- **link** - [Changing the Link Value of an M2PA Association to another Link Value on the Same IPLIMx Card](#)
- Other attributes of the M2PA Association - [Changing the Attributes of an M2PA Association](#)

If you do not wish to change the other attributes of the M2PA association, this procedure is finished.

Flowchart 3-16. Changing the Buffer Size of an M2PA Association







Changing the Host Values of an M2PA Association

This procedure is used to change the host values of an M2PA association, assigned to cards that are running the IPLIM or IPLIMI applications, using the **chg-assoc** 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 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**.

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**.

: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 an 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 5 ISS 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 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 B Ethernet interface of the IP card can be used on single-slot EDCMs and 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 **lhost** parameter only. The **lhost** 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 **lhost** and **alhost** parameters. The **lhost** 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.

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 than 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 the *Commands Manual*.

Procedure

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
```

ANAME	CARD	IPLNK	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	B2	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 [Step 3](#).
- If the **open** parameter value for the association being changed is **no**, continue the procedure with [Step 4](#).

If the application assigned to the card is IPSPG, perform the [Changing the Host Values of an IPSPG 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 [Step 3](#).

For this example, enter this command.

rtrv-assoc : aname=assoc2

This is an example of the possible output.

```
rlghncxa03w 08-04-28 21:14:37 GMT EAGLE5 38.0.0
ANAME assoc2
  LOC      2105      IPLNK PORT  A,B      LINK  A
  ADAPTER  M2PA      VER        M2PA RFC
  LHOST    IPNODE2-1205
  ALHOST    M2PA1
  RHOST    remotehost1
  LPORT    2048      RPORT      2048
  ISTRMS    2        OSTRMS     2        BUFSIZE  400
  RMODE     LIN      RMIN       120      RMAX     800
  RTIMES    10      CWMIN      3000     M2PATSET 1
  OPEN      NO      ALW        YES      RTXTHR   2000
```

```
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 [Step 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 [Step 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 [Step 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 [Step 15](#).

5. Verify that the local host name to be assigned to the association is in the database by entering the **rtrv-ip-host** command.

The following is an example of the possible output.

```
rlghncxa03w 08-04-28 21:15:37 GMT EAGLE5 38.0.0
```

```
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
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 512) 2% 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.

```
rlghncxa03w 07-05-28 21:14:37 GMT EAGLE5 37.0.0
LOC  PORT  IPADDR      SUBMASK      DUPLEX  SPEED  MACTYPE  AUTO  MCAST
1303  A      192.1.1.10   255.255.255.128  HALF    10     802.3    NO    NO
1303  B      -----      -----      HALF    10     DIX      NO    NO
1305  A      192.1.1.12   255.255.255.0   ----    ---    DIX      YES   NO
1305  B      -----      -----      HALF    10     DIX      NO    NO
1313  A      192.1.1.14   255.255.255.0   FULL    100    DIX      NO    NO
1313  B      -----      -----      HALF    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
2103  A      192.1.1.22   255.255.255.0   FULL    100    DIX      NO    NO
2103  B      -----      -----      HALF    10     DIX      NO    NO
2105  A      192.1.1.24   255.255.255.0   FULL    100    DIX      NO    NO
2105  B      192.1.1.54   255.255.255.0   FULL    100    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      -----      -----      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. Then continue the procedure with [Step 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 [Step 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 [Step 11](#).

If the required IP host was shown in [Step 5](#), the required IP link is shown in the **rtrv-ip-lnk** output in this step. Perform [Step 7](#) to verify the application running on the card whose IP address is assigned to the IP host.

NOTE: 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. 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.

7. Display the application running on the IP card shown in [Step 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     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 [Step 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 [Step 7](#). If the **rtrv-ip-lnk** command was not executed in [Step 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 [Step 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 **ipliml2=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.

NOTE: If the `adapter` parameter value is not being changed from M3UA or SUA to M2PA, continue the procedure with [Step 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

as6           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 [Step 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 [Step 10](#)

10. Display the application running on the IP card shown in [Step 6](#) using the **rept-stat-card** command specifying the location of the IP card.

NOTE: If the `rept-stat-card` command was performed in [Step 7](#) , continue the procedure with [Step 11](#) .

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      -----
B2    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.

NOTE: If a new signaling link was added in [Step 8](#) , continue the procedure with [Step 15](#) .

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 **ipliml2** parameter value for the signaling link assigned to the association must be **m2pa**. If the **ipliml2** 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 **ipliml2=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 [Step 11](#) using the **rept-stat-slk** command specifying the card location and signaling link.

NOTE: If the [Adding an IPLIMx Signaling Link](#) procedure was not performed in [Step 11](#), continue the procedure with [Step 15](#).

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.
```

NOTE: If the primary state (PST) of the signaling link is **OOS-MT** and the secondary state (SST) is **Unavail**, continue the procedure with [Step 15](#).

13. Deactivate the signaling link from [Step 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.

```
chg-assoc:aname=assoc2:lhost=m2pa2:alhost=m2pa3:rhost="gw200.nc-
tekelec.com"
```

NOTE: See [Flowchart 3-17](#) (Sheet 7) for the rules that apply to the **chg-assoc** command.

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;
```

NOTE: If the value of the **open** parameter was not changed in [Step 3](#) , continue the procedure with [Step 17](#) .

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 [Step 15](#) and [Step 16](#) .

For this example, enter this command.

rtrv-assoc : aname=assoc2

This is an example of possible output.

```
rlghncxa03w 08-04-28 09:12:36 GMT EAGLE5 38.0.0
ANAME assoc2
  LOC      1203          IPLNK PORT  A,B      LINK  A
  ADAPTER  M2PA          VER        M2PA RFC
  LHOST    M2PA2
  ALHOST    M2PA3
  RHOST     gw200.nc-tekelec.com
  LPORT     2048          RPORT      3000
  ISTRMS    2            OSTRMS      2          BUFSIZE  500
  RMODE     LIN           RMIN        120         RMAX      800
  RTIMES    10           CWMIN       3000        M2PATSET 1
  OPEN      YES          ALW         YES         RTXTHR   10000
```

```
IP Appl Sock table is (8 of 4000) 1% full
Assoc Buffer Space Used (1300 KB of 1600 KB) on LOC = 1203
```

18. 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
```

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.

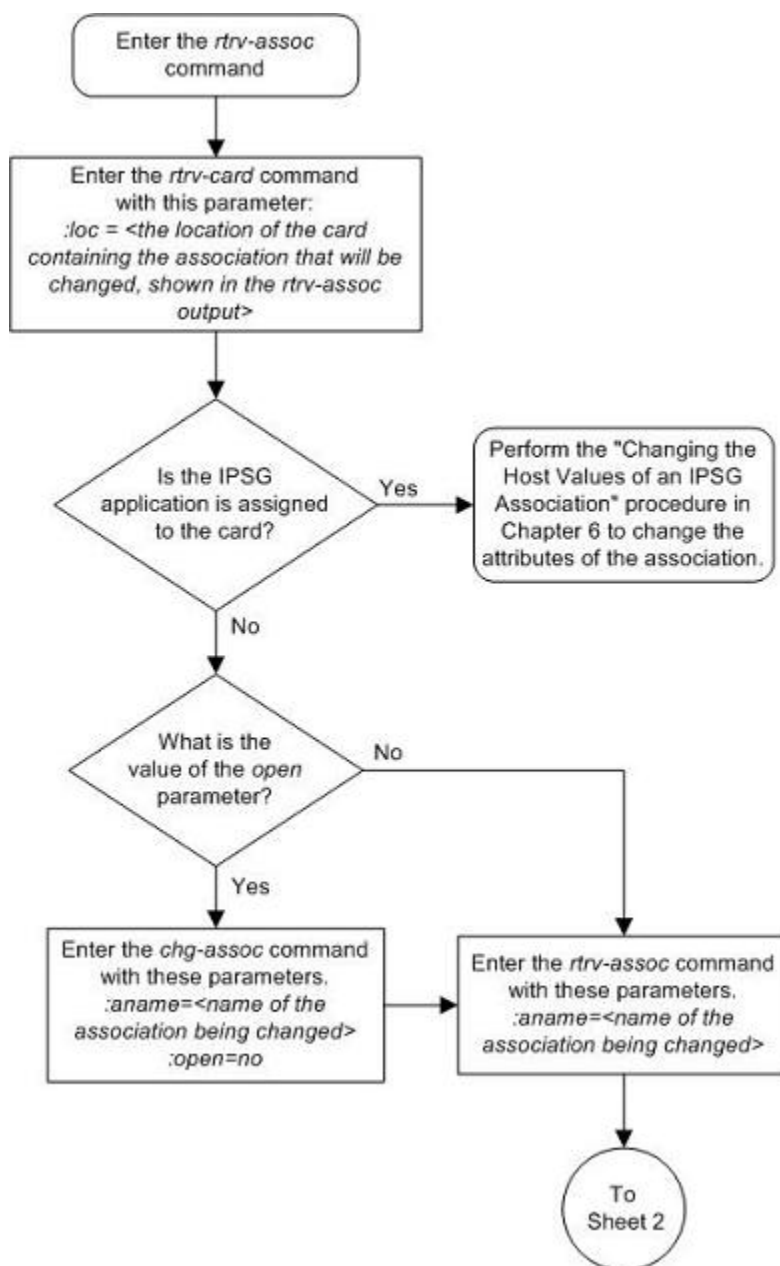
These messages should appear; the active Maintenance and Administration Subsystem Processor (MASP) appears first.

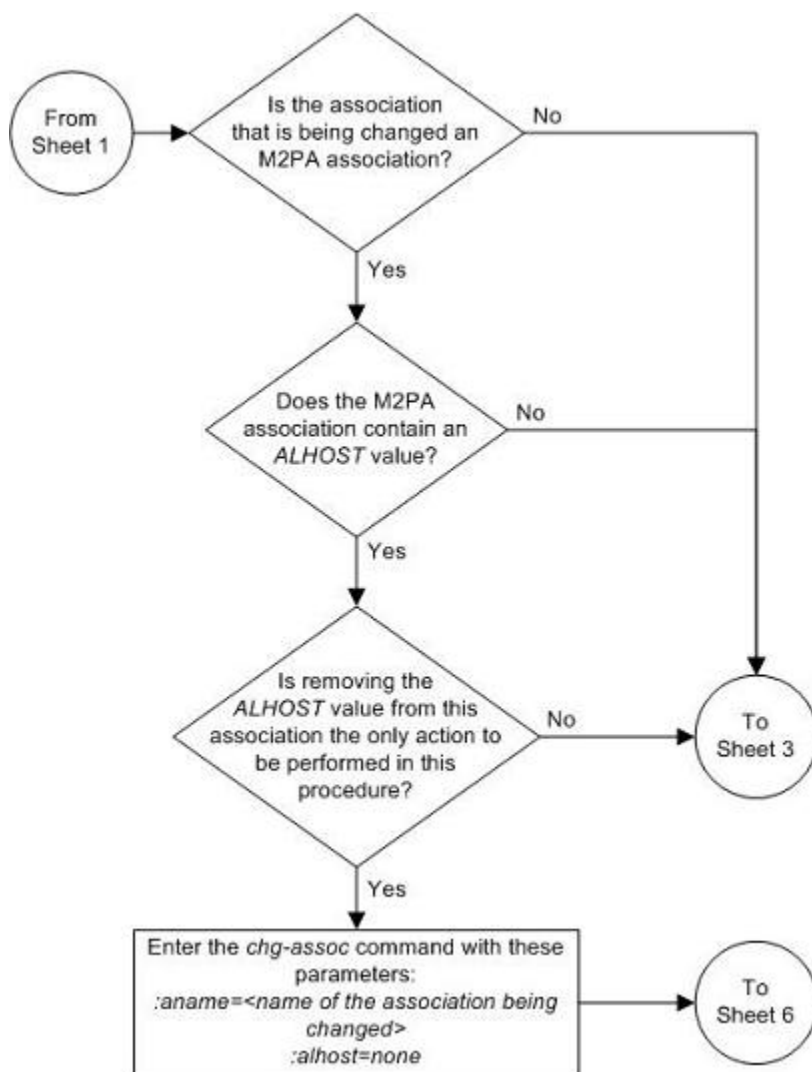
```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

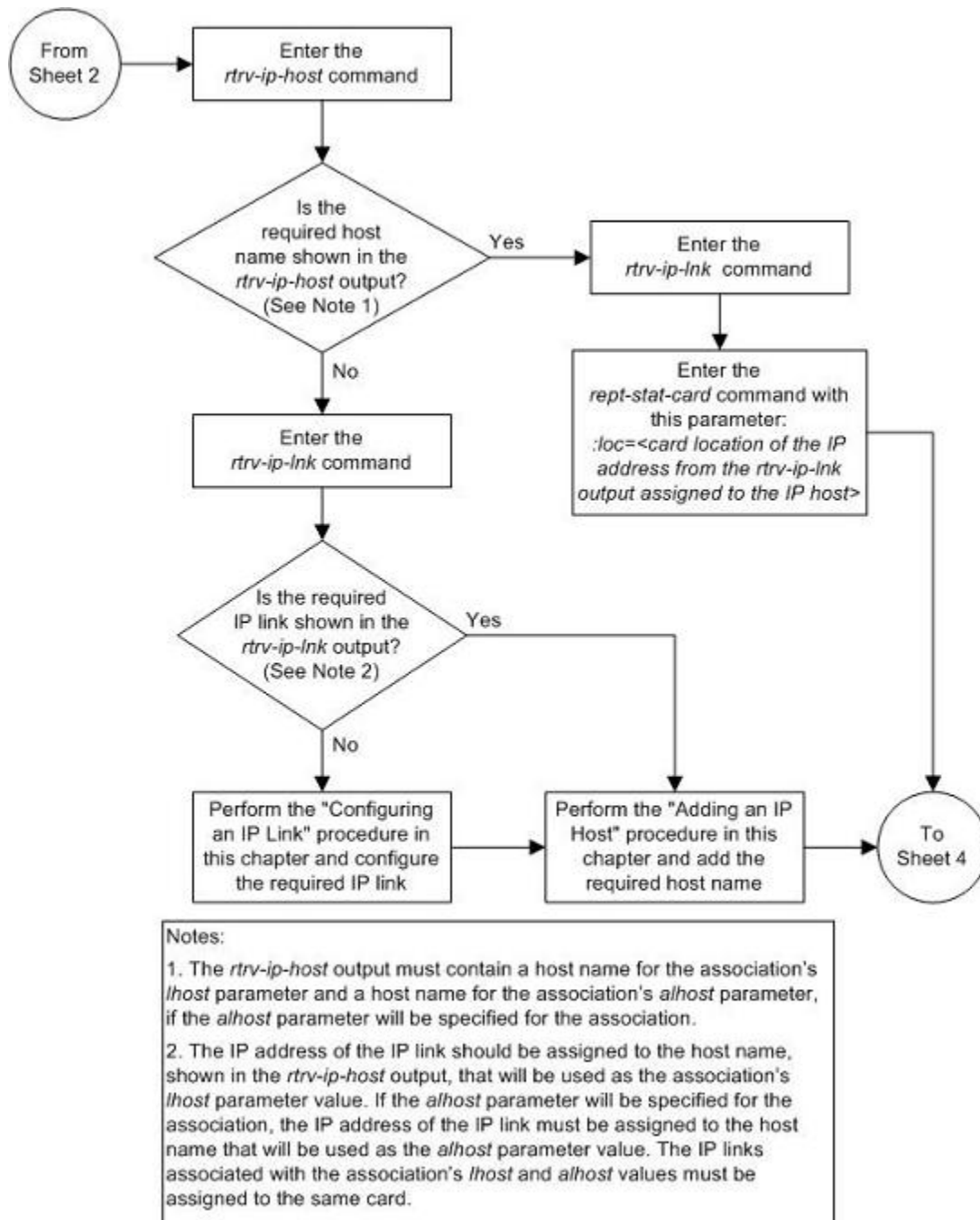
If you wish to change the other attributes of the M2PA association, perform one of these procedures.

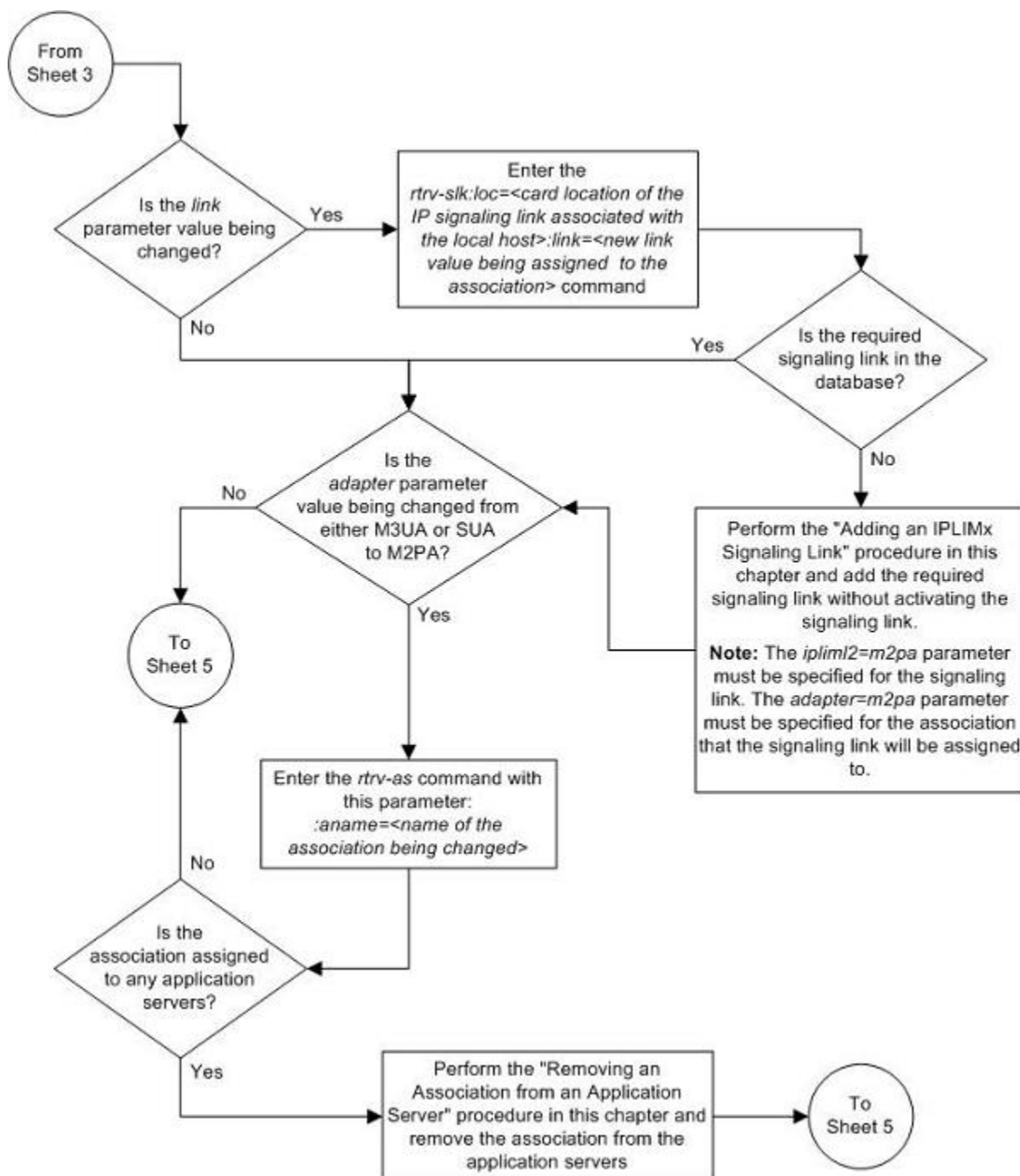
- **bufsize** - [Changing the Buffer Size of an M2PA Association](#)
- Other attributes of the M2PA Association - [Changing the Attributes of an M2PA Association](#)

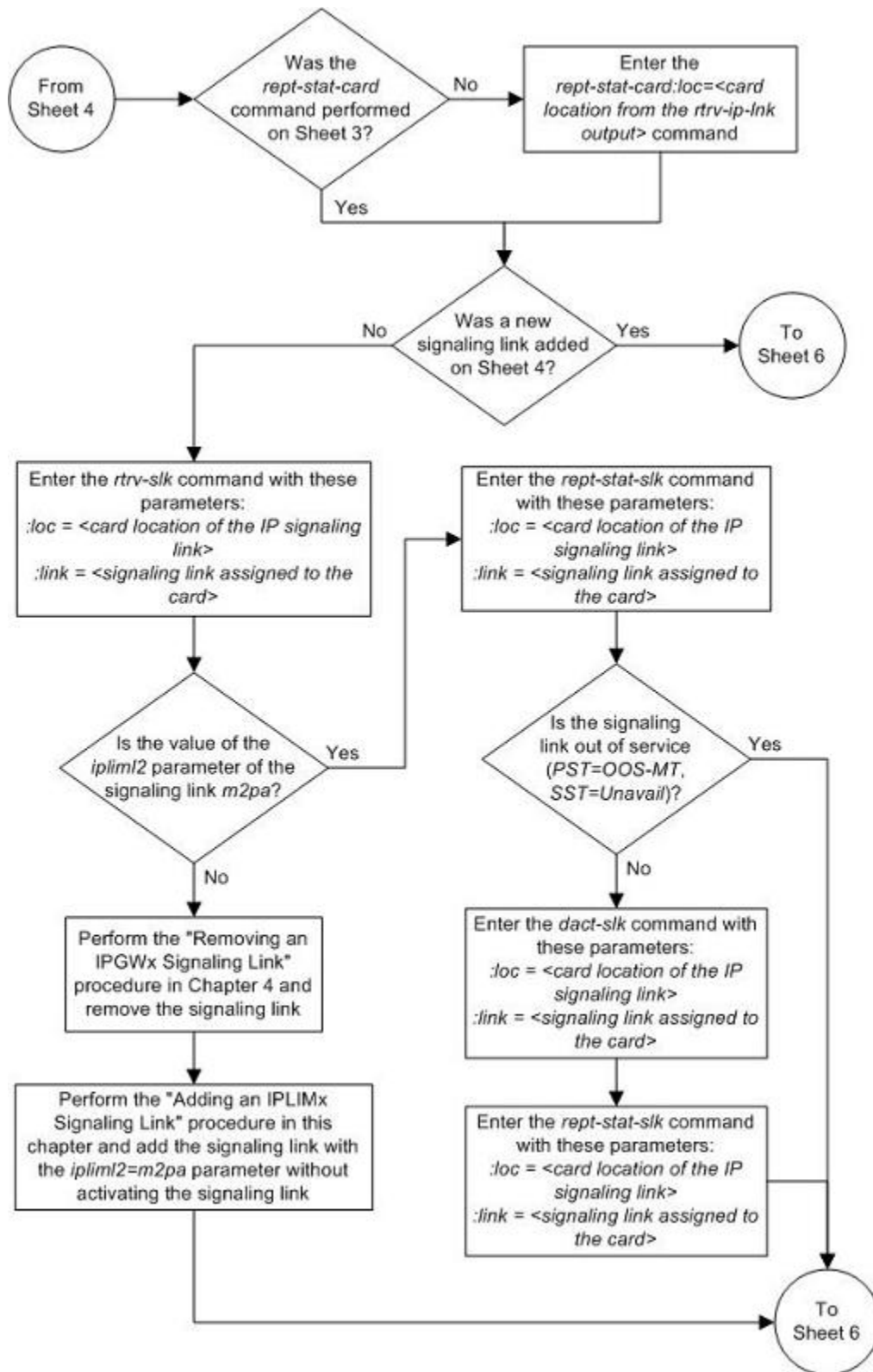
If you do not wish to change the other attributes of the M2PA association, this procedure is finished.

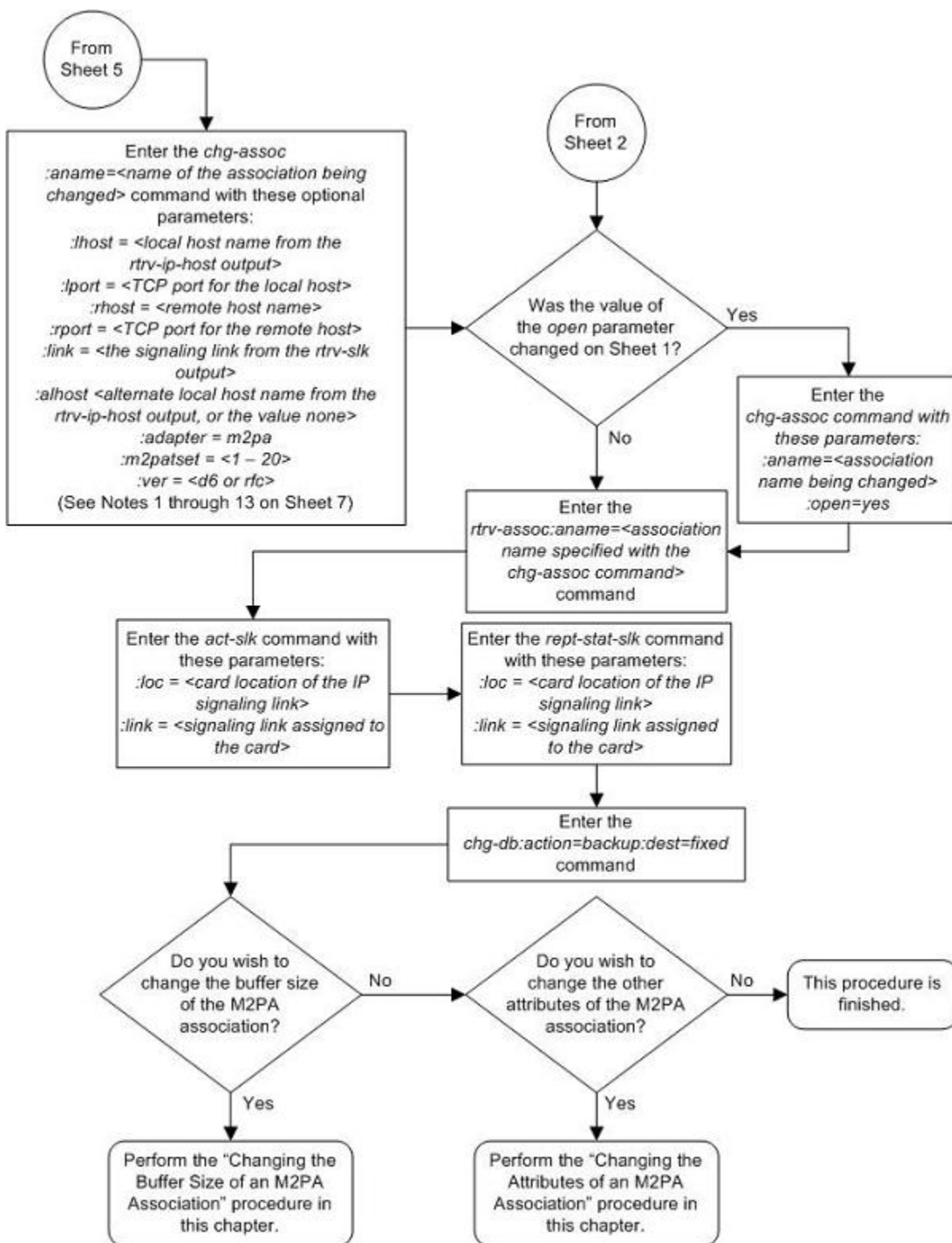
Flowchart 3-17. Changing the Host Values of an M2PA Association











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 *ipliml2=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.

Changing the Link Value of an 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 **chg-assoc** command is used to change the **link** value for the association. If you wish to change the attributes of M2PA associations assigned to cards that are running the IPSP application, perform the [Changing the Attributes of an IPSP 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**.

NOTE: 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 an M2PA Association](#)
- **bufsize** - [Changing the Buffer Size of an M2PA Association](#)
- Other attributes of the M2PA Association - [Changing the Attributes of an M2PA Association](#)

If you do not wish to change the **lhost**, **alhost**, **bufsize**, or **link** 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 than 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 the *Commands Manual*.

Procedure

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
```

ANAME	CARD	IPLNK	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      B2     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 [Step 3](#).
- If the **open** parameter value for the association being changed is **no**, continue the procedure with [Step 4](#).

If the application assigned to the card is IPSP, perform the [Changing the Attributes of an IPSP 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 [Step 2](#), perform the [Adding an IPLIMx Signaling Link](#) procedure to provision the signaling link with the card location specified in [Step 2](#) and the new link value. After the new signaling link has been provisioned, continue the procedure with [Step 8](#).
 - If the new link value is shown in the **rtrv-card** output in [Step 2](#) and in the **rtrv-assoc** output in [Step 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 [Step 2](#) and the new link value. After the new signaling link has been provisioned, continue the procedure with [Step 8](#).
 - If the new link value is shown in the **rtrv-card** output in [Step 2](#) but not in the **rtrv-assoc** output in [Step 1](#), continue the procedure with [Step 5](#).
5. Display the status of the signaling link that will be the new **link** value for the association shown in [Step 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 [Step 6](#) .

If the primary state (PST) of the signaling link is **OOS-MT** and the secondary state (SST) is **Unavail**, continue the procedure with [Step 8](#) .

6. Deactivate the signaling link shown in [Step 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.

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 [Step 3](#) , continue the procedure with [Step 10](#) .

If the value of the **open** parameter was changed in [Step 3](#) , continue the procedure with [Step 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 [Step 8](#) and [Step 9](#).

For this example, enter this command.

rtrv-assoc:aname=assoc2

This is an example of possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
ANAME assoc2
LOC      1205          IPLNK PORT  A          LINK  A3
ADAPTER  M2PA          VER          M2PA RFC
LHOST    IPNODE2-1205
ALHOST    ---
RHOST    gw200.nc-tekelec.com
LPORT    2048          RPORT      3000
ISTRMS   2             OSTRMS    2           BUFSIZE  500
RMODE    LIN           RMIN       120          RMAX     800
RTIMES   10            CWMIN     3000         M2PATSET 1
OPEN     YES           ALW        YES          RTXTHR   10000
```

IP Appl Sock 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 [Step 6](#), continue the procedure with [Step 11](#).

If the state of the signaling link was not changed in [Step 6](#), continue the procedure with [Step 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.

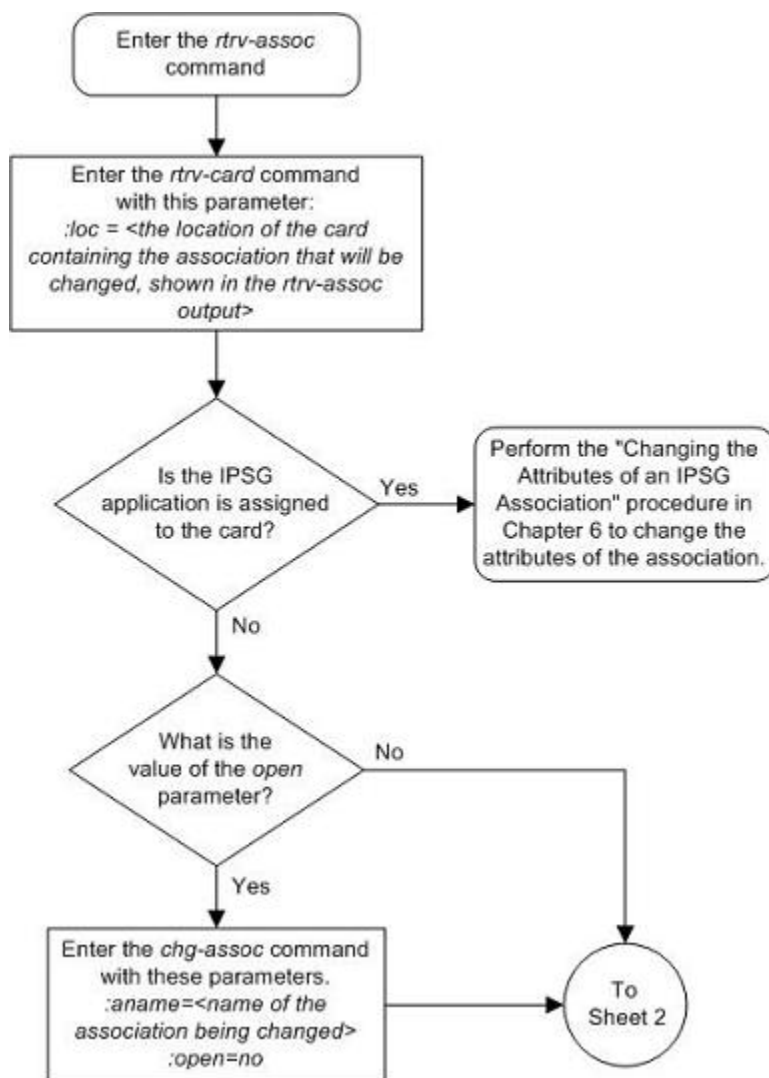
```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

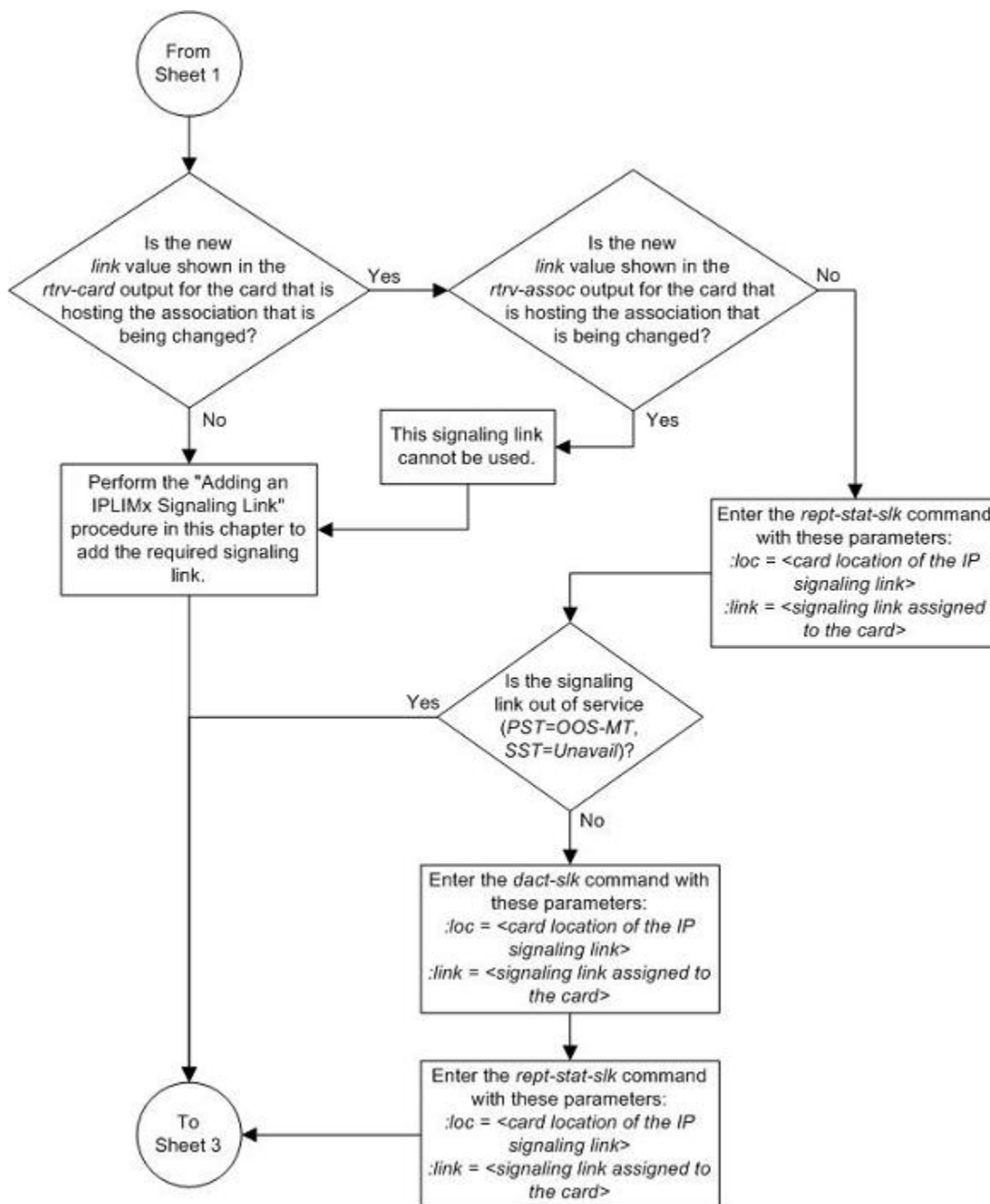
If you wish to change the other attributes of the M2PA association, perform one of these procedures.

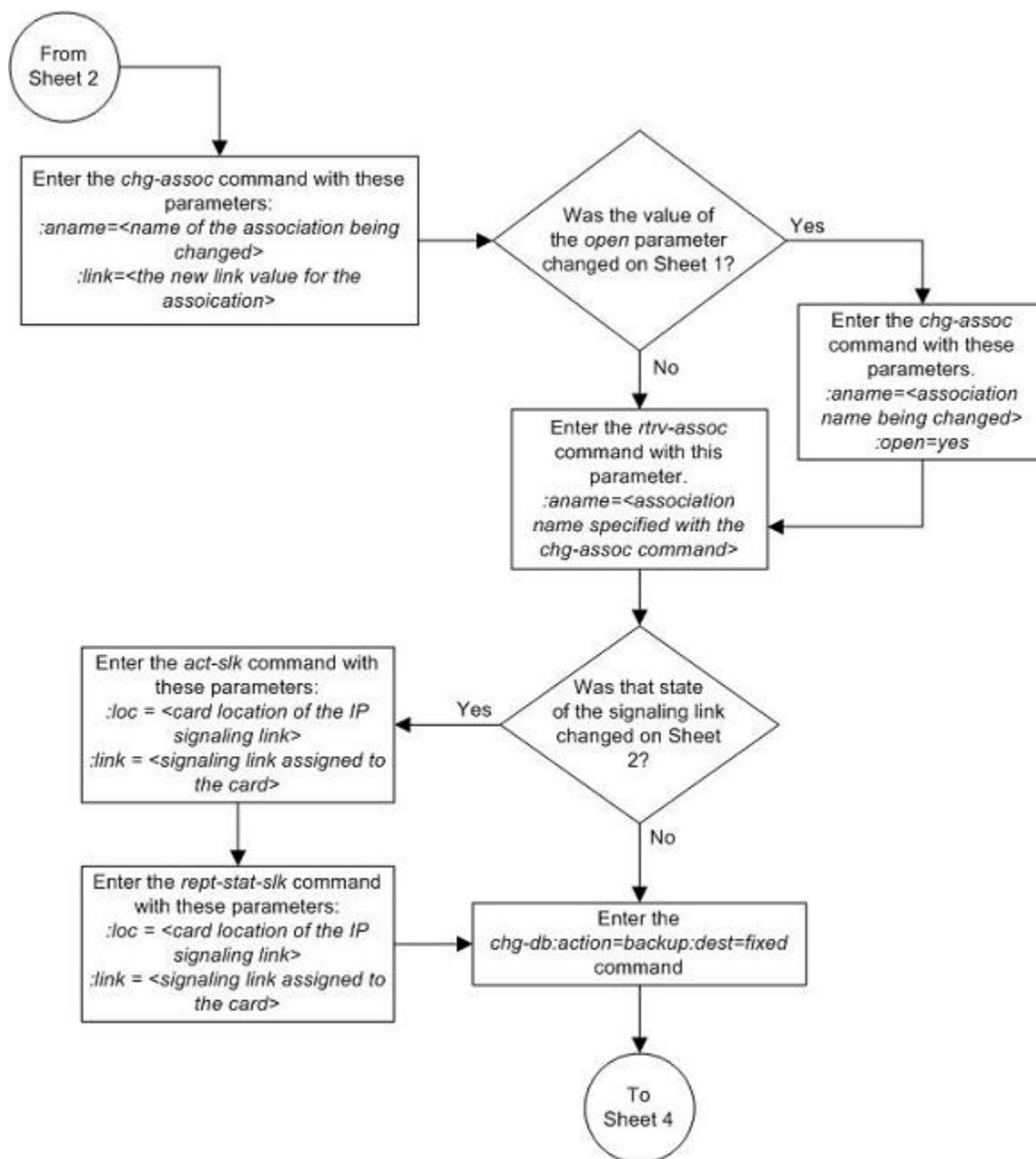
- **lhost** and **alhost** - [Changing the Host Values of an M2PA Association](#)
- **bufsize** - [Changing the Buffer Size of an M2PA Association](#)
- Other attributes of the M2PA Association - [Changing the Attributes of an M2PA Association](#)

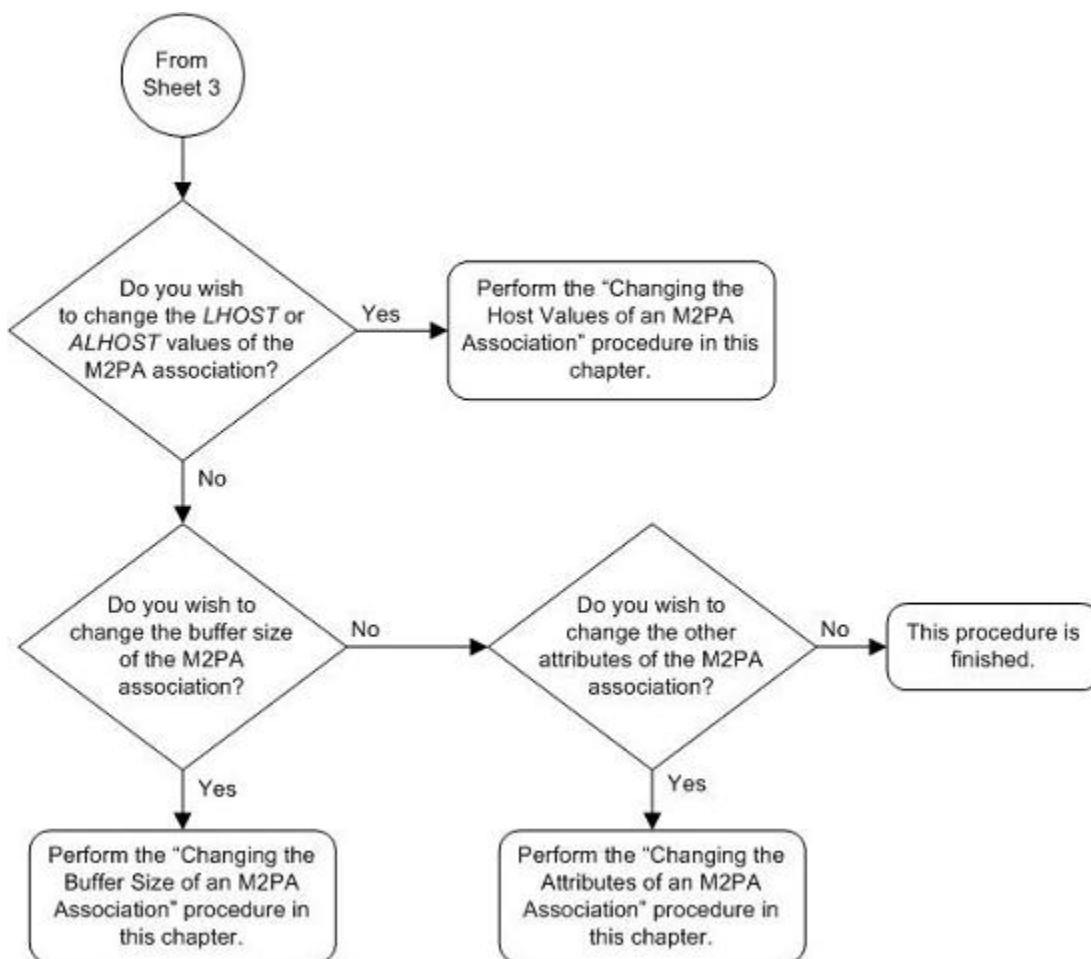
If you do not wish to change the other attributes of the M2PA association, this procedure is finished.

Flowchart 3-18. Changing the Link Value of an M2PA Association to another Link Value on the Same IPLIMx Card









Configuring SCTP Retransmission Control for an 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 IPSC Association for SCTP Retransmission Control](#) procedure to configure the retransmission parameters for M2PA associations assigned to IPSC cards. If any assistance is needed to configure the retransmission parameters for associations, contact the Customer Care Center. Refer to [Customer Care Center](#) 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** – Tekelec'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.

:cwmn – 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.

For more information on the **pass** commands, see the *Commands Manual*.

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 **chg-assoc** command description in the *Commands Manual*.

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 than 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 the *Commands Manual*.

Procedure

1. Display the associations in the database using the **rtrv-assoc** command.

This is an example of possible output.

```
r1ghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
```

ANAME	CARD	IPLNK	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 [Step 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 08-04-28 21:14:37 GMT EAGLE5 38.0.0
ANAME assoc1
LOC      1201      IPLNK PORT  A      LINK  A
ADAPTER  M2PA      VER      M2PA RFC
LHOST    IPNODE2-1205
ALHOST    ---
RHOST    gw100.nc.tekelec.com
LPORT    2000      RPORT    1030
ISTRMS   2      OSTRMS   2      BUFSIZE 400
RMODE    LIN      RMIN     120      RMAX     800
RTIMES   10      CWMIN    3000    M2PATSET 1
OPEN     YES      ALW      YES      RTXTHR   2000
```

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 [Step 3](#), and the name of the remote host assigned to the association being changed, shown in [Step 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

5. 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.

NOTE: If the SCTP retransmission parameters are not to be changed, do not perform [Step 6](#) through [Step 8](#) . This procedure is finished.

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 acknowledgement is received.

The **assocrtt** command is entered with the card location from [Step 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 [Step 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 RT0: 120
  Maximum RT0: 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 [Step 6](#) . Specify the card location used in [Step 6](#) . For this example, enter this command.

pass:loc=1201:cmd="sctp -a assoc1"

The following is an example of the possible output

```
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	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	

Nets Data

IP Address	192.168.112.4	State	Reachable
Port	7777	Primary	YES
MTU	1500	cwnd	16384
ssthresh	16384	RT0	120

IP Address	192.168.113.5	State	Reachable
Port	7777	Primary	NO
MTU	1500	cwnd	16384
ssthresh	16384	RT0	120

```

Last Net Sent To = 192.168.112.4
Last Net Rcvd From = 192.168.112.4
Over All Error 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

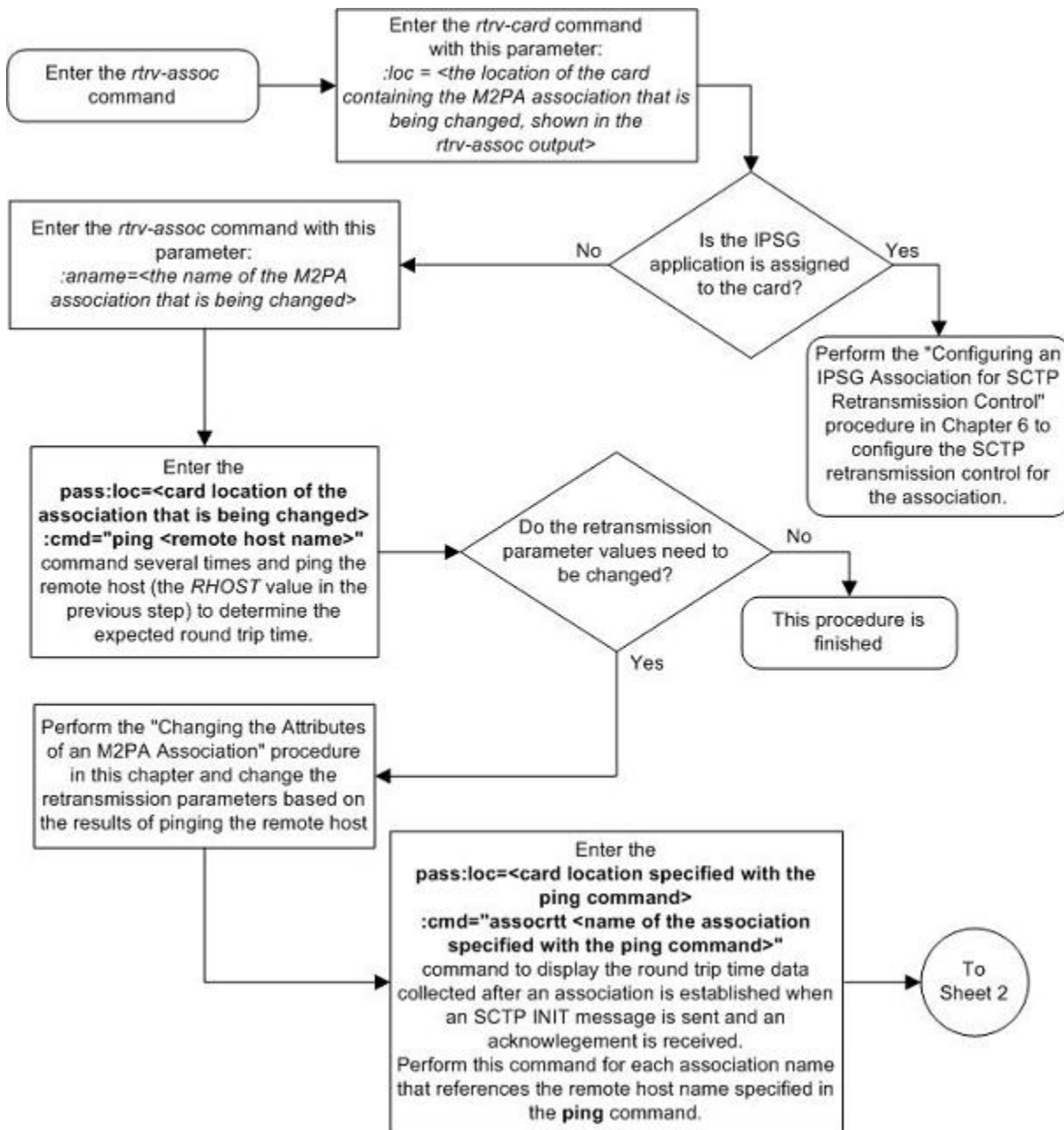
```

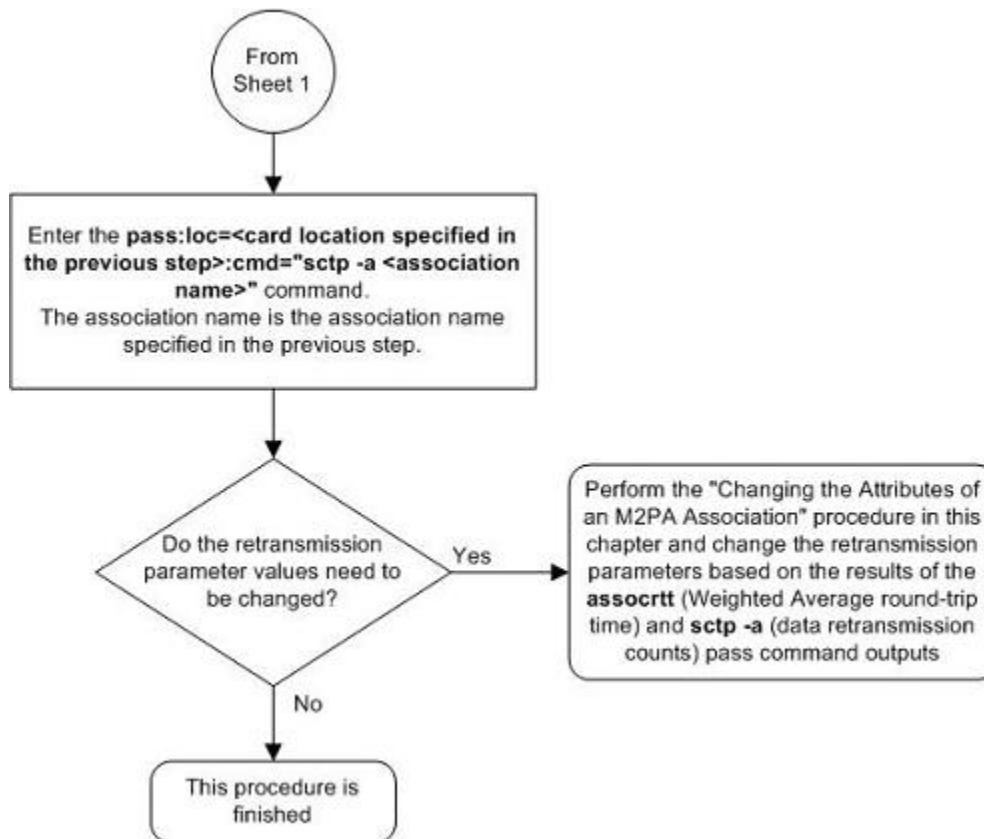
SCTP command complete

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 [Step 6](#) and [Step 7](#).

NOTE: The **Weighted Average round-trip time** shown in the **assocrtt** pass command output in [Step 6](#), and the data retransmission counts shown in the **sctp - a** pass command output in [Step 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.

Flowchart 3-19. Configuring an M2PA Association for SCTP Retransmission Control





Changing an M2PA Timer Set

This procedure is used to change the values of the M2PA timers in an 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 5 ISS 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 3-9](#) .

Table 3-9. M2PA Timers

Timer	Draft 6 Timer Name	RFC Timer Name	Definition	Value (in milliseconds)	DRAFT 6 System Default Value (in milliseconds)	RFC System Default Value (in milliseconds)
: 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
: t3	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
	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 Timer (Normal)		The amount of time the M2PA adapter layer generates Link Status Proving messages during normal proving.	1000 - 70000	10000	30000
: t4e	Proving Timer (Emergency)		The amount of time the M2PA adapter layer generates Link Status Proving messages during emergency proving.	400 - 5000	500	500
: t5	Busy Rate Timer		The amount of time between sending Link Status Busy messages while the link is in-service.	80 - 10000	1000	100
: t6	Remote Congestion Timer		The amount of time that a congested link will remain in service.	1000 - 6000	3000	3000

Timer	Draft 6 Timer Name	RFC Timer Name	Definition	Value (in milliseconds)	DRAFT 6 System Default Value (in milliseconds)	RFC System Default Value (in milliseconds)
:t7	Excess Delay in Acknowledgement Timer		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 Rate 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 Rate Timer		The amount of time between sending Link Status Ready messages while the T3 timer is running.	100 - 500	250	250
:t18	Processor Outage Rate Timer		The amount of time between sending Link Status Processor Outage messages while the link is in-service.	100 - 10000	1000	1000
* The T2 Timer can be specified only for the M2PA RFC version. ** The value of the T16 Timer is in microseconds.						

The value of any timer parameter not specified with the **chg-m2pa-tset** command is not changed.

Procedure

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 **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	T1	T2	T3	T4N	T4E	T5	T6	T7	T16	T17	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
8	10000	-----	10000	10000	500	1000	3000	1200	200000	250	1000
9	27500	-----	3850	4859	450	5700	3750	1150	250	375	8750
10	10000	-----	10000	10000	500	1000	3000	1200	200000	250	1000
11	10000	-----	10000	10000	500	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
15	10000	-----	10000	10000	500	1000	3000	1200	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
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 M2PA RFC 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	T2	T3	T4N	T4E	T5	T6	T7	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	T1	T2	T3	T4N	T4E	T5	T6	T7	T16	T17	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
8	10000	-----	10000	10000	500	1000	3000	1200	200000	250	1000
9	27500	-----	3850	4859	450	5700	3750	1150	250	375	8750
10	10000	-----	10000	10000	500	1000	3000	1200	200000	250	1000
11	10000	-----	10000	10000	500	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
15	10000	-----	10000	10000	500	1000	3000	1200	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
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

M2PA RFC Timers (in msec, T16 in microsec)

TSET	T1	T2	T3	T4N	T4E	T5	T6	T7	T16	T17	T18
1	6000	20000	5000	20000	500	5000	3000	1000	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

- Change the desired timer set with the **chg-m2pa-tset** command. To change a specific timer set, enter the **chg-m2pa-tset** command with the **tset** and **ver** 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=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:t7=1150:t16=250000:t17=375:t18=8750:ver=d6

NOTE: The values for the M2PA timers are shown in [Table 3-9](#) .

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: The **ver** parameter is optional and does not have to be specified to change the M2PA RFC timer values. The default value for the **ver** parameter is **rfc**. If you wish to change the M2PA Draft 6 timer values, the **ver=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
```

- Verify the changes by entering the **rtrv-m2pa-tset** command specifying the timer set and version parameter values specified in [Step 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	T2	T3	T4N	T4E	T5	T6	T7	T16	T17	T18
1	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	T3	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	T3	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)

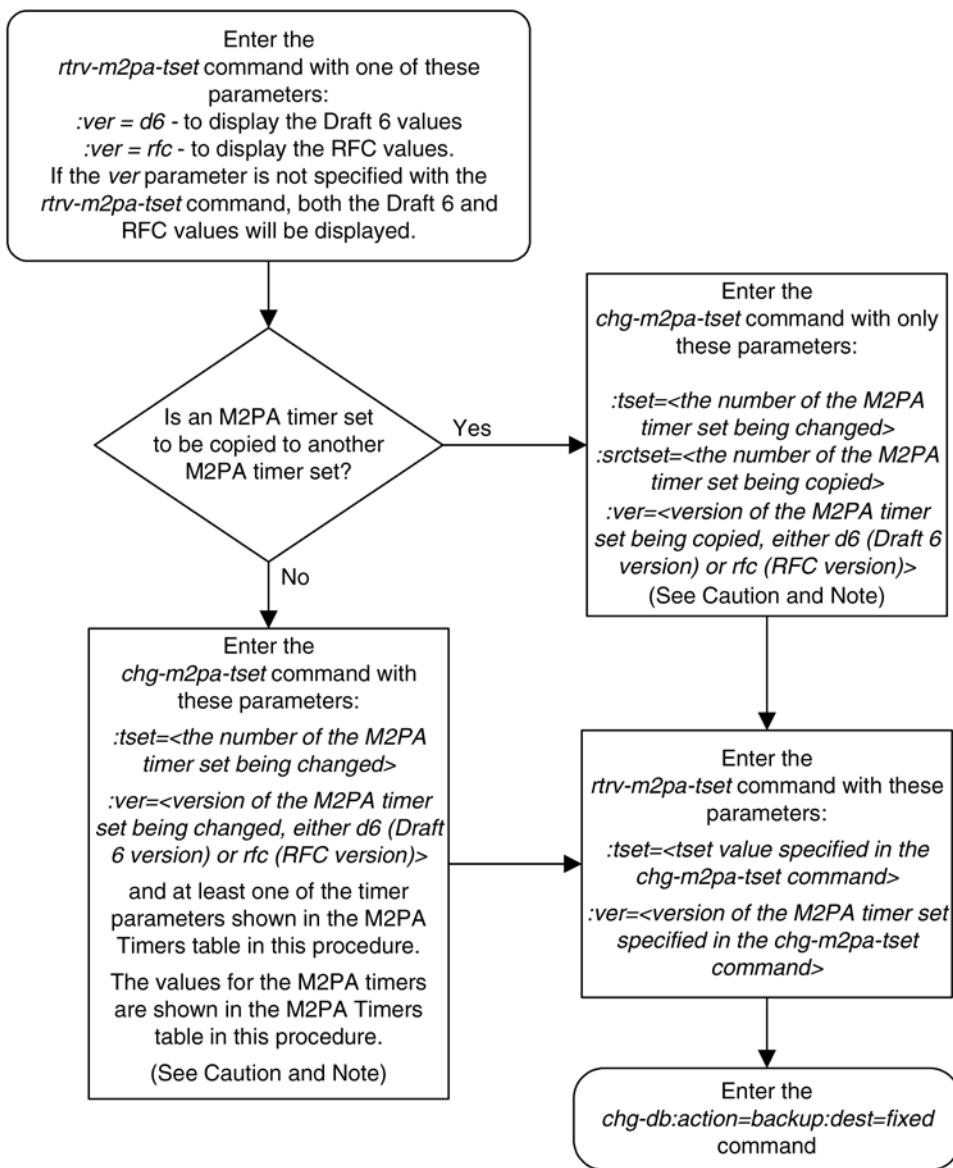
TSET	T1	T2	T3	T4N	T4E	T5	T6	T7	T16	T17	T18
9	27500	-----	3850	45000	450	5700	3750	1150	250000	375	8750

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.

```

Flowchart 3-20. 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 **sctpchecksum** 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 **sctpchecksum** 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 **sctpchecksum** 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 than 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 the *Commands Manual*.

Procedure

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
```

NOTE: 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 the *Commands Manual*.

2. Display the cards in the EAGLE 5 ISS by entering the **rtrv-card** command. This is an example of the possible output.

```
rlghncxa03w 06-10-15 16:34:56 GMT EAGLE5 36.0.0
CARD   TYPE      APPL      LSET NAME      LINK SLC      LSET NAME      LINK SLC
1101    TSM          SCCP
1102    TSM          GLS
1104    ACMENET      STPLAN
1113    GSPM          EOAM
1114    TDM-A
1115    GSPM          EOAM
1116    TDM-B
1117    MDAL
1201    LIMDS0       SS7ANSI    lsn1           A      0      lsn2           B      1
1202    DCM          IPLIM      ipnode2        A      1
1203    LIMV35       SS7ANSI    lsn2           A      0      lsn1           B      1
1204    LIMATM       ATMANSI    atmgyw         A      0
1205    DCM          IPLIM      ipnode1        A      0      ipnode3        B      1
1207    DCM          IPLIM      ipnode2        A      0
1303    DCM          IPLIM      ipnode3        A      0      ipnode1        B      1
1305    DCM          IPLIM      ipnode4        A      0
1308    DCM          IPLIM      ipnode3        B      2      ipnode4        B2     1
        ipnode1        A1     2
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 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 [Step 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 [Step 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
```

NOTE: 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 the *Commands Manual*.

5. Select one of the IP cards shown in the **rtrv-card** output in [Step 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 06-10-28 21:17:37 GMT EAGLE5 36.0.0
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      NO    NO
1205  B      -----     -----     HALF    10     DIX      NO    NO
1207  A      192.1.1.14   255.255.255.0 HALF    10     DIX      NO    NO
1207  B      -----     -----     HALF    10     DIX      NO    NO
1303  A      192.1.1.20   255.255.255.0 HALF    10     DIX      NO    NO
1303  B      -----     -----     HALF    10     DIX      NO    NO
1305  A      192.1.1.22   255.255.255.0 HALF    10     DIX      NO    NO
1305  B      -----     -----     HALF    10     DIX      NO    NO
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      NO    NO
1315  B      -----     -----     HALF    10     DIX      NO    NO
1317  A      192.1.1.52   255.255.255.0 HALF    10     DIX      NO    NO
1317  B      -----     -----     HALF    10     DIX      NO    NO
```

IP-LNK table is (16 of 512) 3% full.

7. Display the current IP host information in the database by entering the **rtrv-ip-host** command. The following is an example of the possible output.

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

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-MS1
192.1.1.52    DN-MS2

REMOTE IPADDR  REMOTE HOST
150.1.1.5     NCDEPTECONOMIC_DEVELOPMENT. SOUTHEASTERN_COORIDOR_ASHVL. GOV
```

IP Host table is (10 of 512) 2% full

8. Display the associations assigned to the IP card specified in [Step 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 [Step 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 [Step 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 [Step 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 [Step 10](#) by entering the **sctp-a** pass command with the card location of the IP card specified in [Step 5](#) and the name of the associations specified in [Step 10](#) . For this example, enter this command.

pass: loc=1308: cmd="sctp -a assoc2 "

The following is an example of the possible output.

```
rlghncxa03w 08-04-28 21:16:37 GMT EAGLE5 38.0.0
Aname      Local      Local      Primary      Remote
            IP Address  Port       Address      Port
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
```

Changing the SCTP Checksum Algorithm Option for Database Administration Manual - IP7 Secure Gateway M2PA Associations

```

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	RT0	120

IP Address	192.168.112.5	State	Reachable
Port	7777	Primary	NO
MTU	1500	cwnd	16384
ssthresh	16384	RT0	120

```

      Last Net Sent To = 192.168.112.4
      Last Net Rcvd From = 192.168.112.4
      Over All Error 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 08-04-28 21:16:37 GMT EAGLE5 38.0.0
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 = 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
sssthresh       16384              RTO        120

IP Address      192.168.112.5      State      Reachable
Port            7777              Primary    NO
MTU             1500              cwnd       16384
sssthresh       16384              RTO        120

Last Net Sent To = 192.168.112.4
Last Net Rcvd From = 192.168.112.4
Over All Error 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 assoc5 "

The following is an example of the possible output.

```

rlghncxa03w 08-04-28 21:16:37 GMT EAGLE5 38.0.0
Aname          Local          Local  Primary  Remote
                IP Address      Port   Address  Port
assoc5         192.1.1.24      1057   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
sssthresh       16384              RTT        120

IP Address      192.168.112.5      State      Reachable
Port            7777              Primary    NO
MTU             1500              cwnd       16384
sssthresh       16384              RTT        120

```

```

Last Net Sent To = 192.168.112.4
Last Net Rcvd From = 192.168.112.4
Over All Error 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 [Step 3](#) , contact the Customer Care Center. Refer to [Customer Care Center](#) for the contact information.

If the checksum algorithm shown in all of the associations displayed in this step match the checksum algorithm specified in [Step 3](#) , continue the procedure with [Step 12](#) .

12. Put the signaling links that were placed out of service in [Step 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 [Step 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      ----
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 ----
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 ----
Command Completed.
```

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..... 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
  sacks sent..... 496302
  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
  duplicate tsns received..... 0
  sacks received..... 153763
  gap ack blocks received..... 0
  out of the blue..... 4
  with invalid checksum..... 0
connections established..... 2954
  by upper layer..... 0
  by remote endpoint..... 2958
connections terminated..... 4
  ungracefully..... 2952
  gracefully..... 0
associations dropped due to retransmits..... 0
consecutive retransmit timeouts..... 4
retransmit timer count..... 6
fast retransmit count..... 0
heartbeat requests received..... 330275
heartbeat acks received..... 340239
heartbeat requests sent..... 340258
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 [Customer Care Center](#) for the contact information.

15. Repeat [Step 5](#) through [Step 14](#) to update the other IP cards in the EAGLE 5 ISS running the IPLIM and IPLIMI applications with the new SCTP checksum algorithm.

If the **rtrv-card** output in [Step 2](#) shows cards running the SS7IPGW, IPGWI, or IPKG applications, continue the procedure with [Step 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.
```

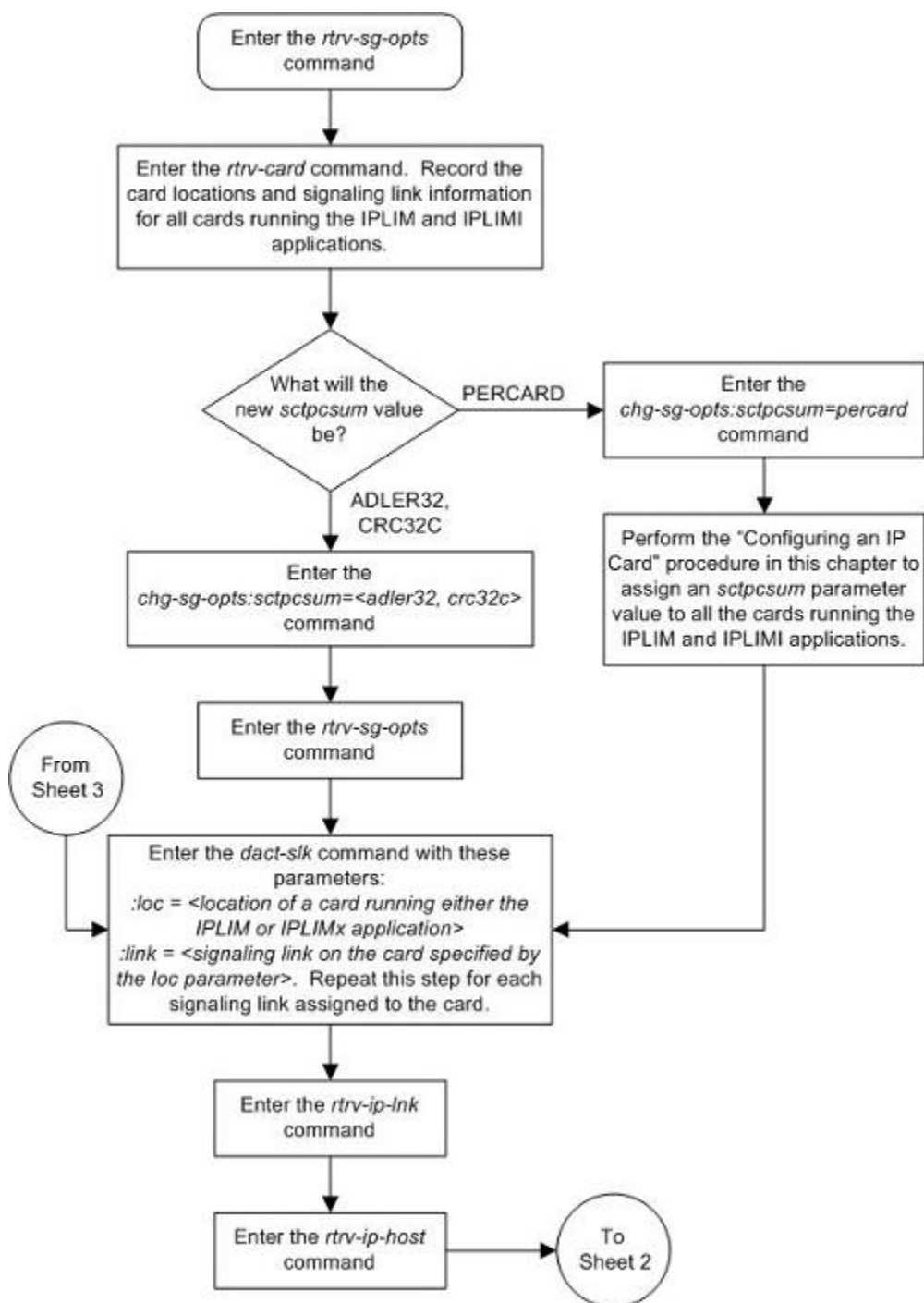
17. If the **rtrv-card** output in [Step 2](#) shows cards running the SS7IPGW or IPGWI applications, perform the [Changing the SCTP Checksum Algorithm Option for M3UA and SUA Associations](#) procedure.

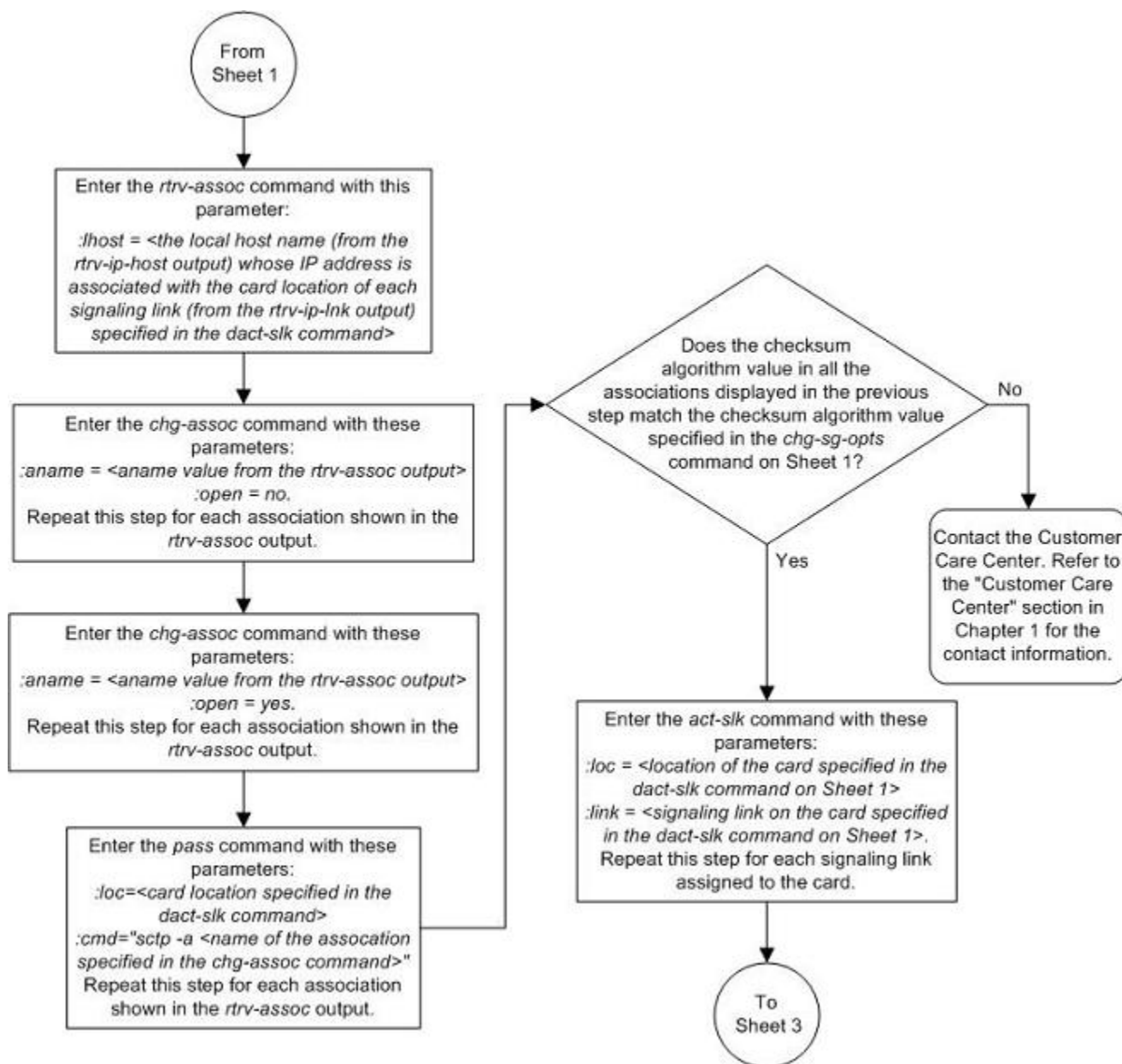
If the **rtrv-card** output in [Step 2](#) shows cards running the IPKG application, perform these procedures.

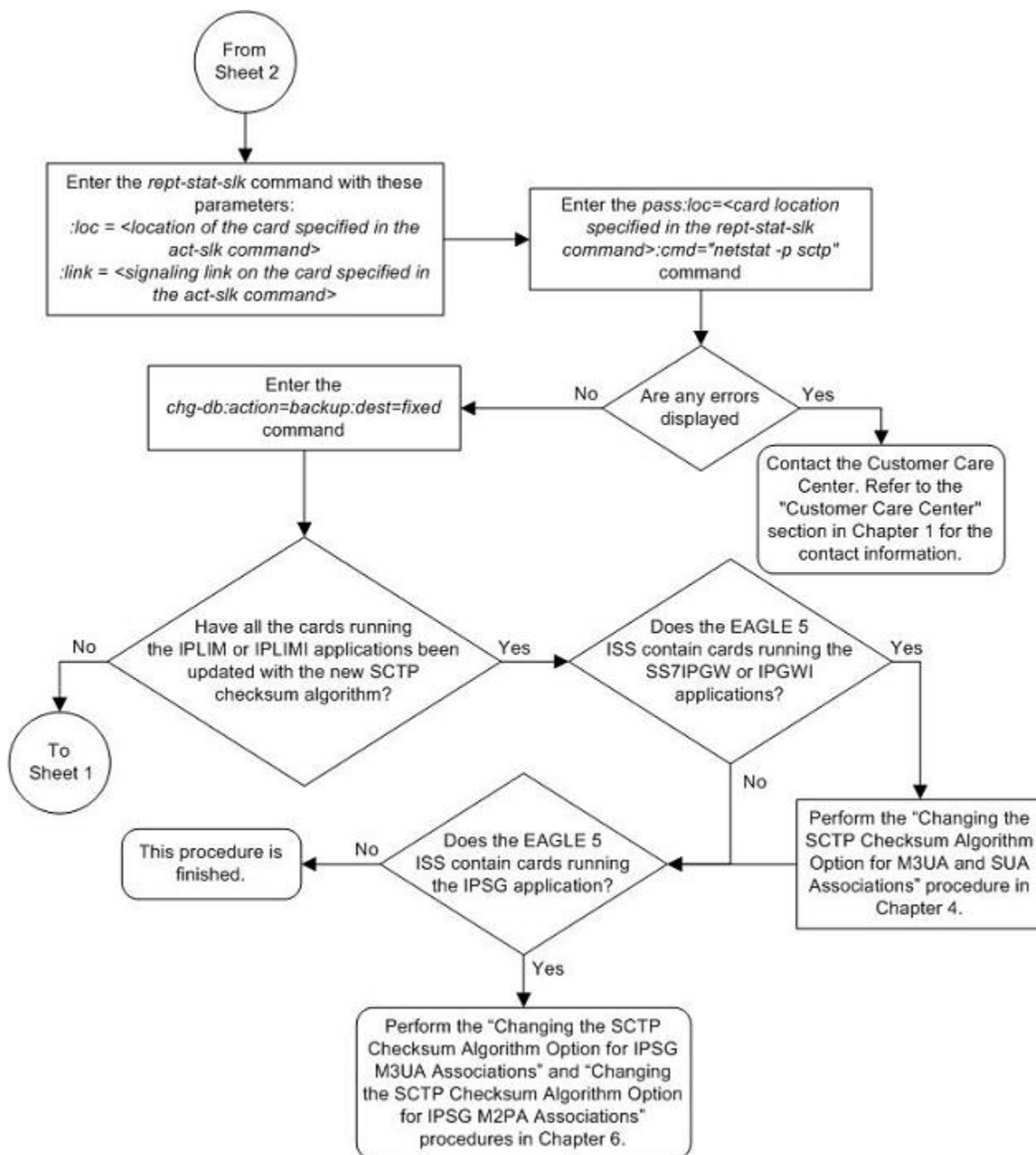
- [Changing the SCTP Checksum Algorithm Option for IPKG M3UA Associations](#)
- [Changing the SCTP Checksum Algorithm Option for IPKG M2PA Associations](#)

If the **rtrv-card** output in [Step 2](#) shows that there are no cards running the SS7IPGW, IPGWI, or IPKG applications, this procedure is finished.

Flowchart 3-21. Changing the SCTP Checksum Algorithm Option for M2PA Associations







Turning the Large BICC MSU Support for IP Signaling Feature Off

This procedure is used to turn off the Large BICC (Bearer Independent Call Control) 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 BICC MSU Support for IP Signaling feature, 893018401.

:status=off – used to turn off the Large BICC MSU Support for IP Signaling feature.

The status of the Large BICC MSU Support for IP Signaling controlled feature must be on and is shown with the **rtrv-ctrl-feat** command.



CAUTION: If the Large BICC MSU Support for IP Signaling feature is turned off, the EAGLE 5 ISS will not process BICC messages with a signaling information field (SIF) that is larger than 272 bytes.

Procedure

1. Display the status of the Large BICC 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 06-10-28 21:15:37 GMT EAGLE5 36.0.0
The following features have been permanently enabled:
```

Feature Name	Partnum	Status	Quantity
Large BICC 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 BICC MSU Support for IP Signaling feature is off, or if the Large BICC MSU Support for IP Signaling feature is not enabled, this procedure cannot be performed.

2. Turn off the Large BICC 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 BICC 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 06-10-28 21:15:37 GMT EAGLE5 36.0.0
The following features have been permanently enabled:
```

Feature Name	Partnum	Status	Quantity
Large BICC 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:

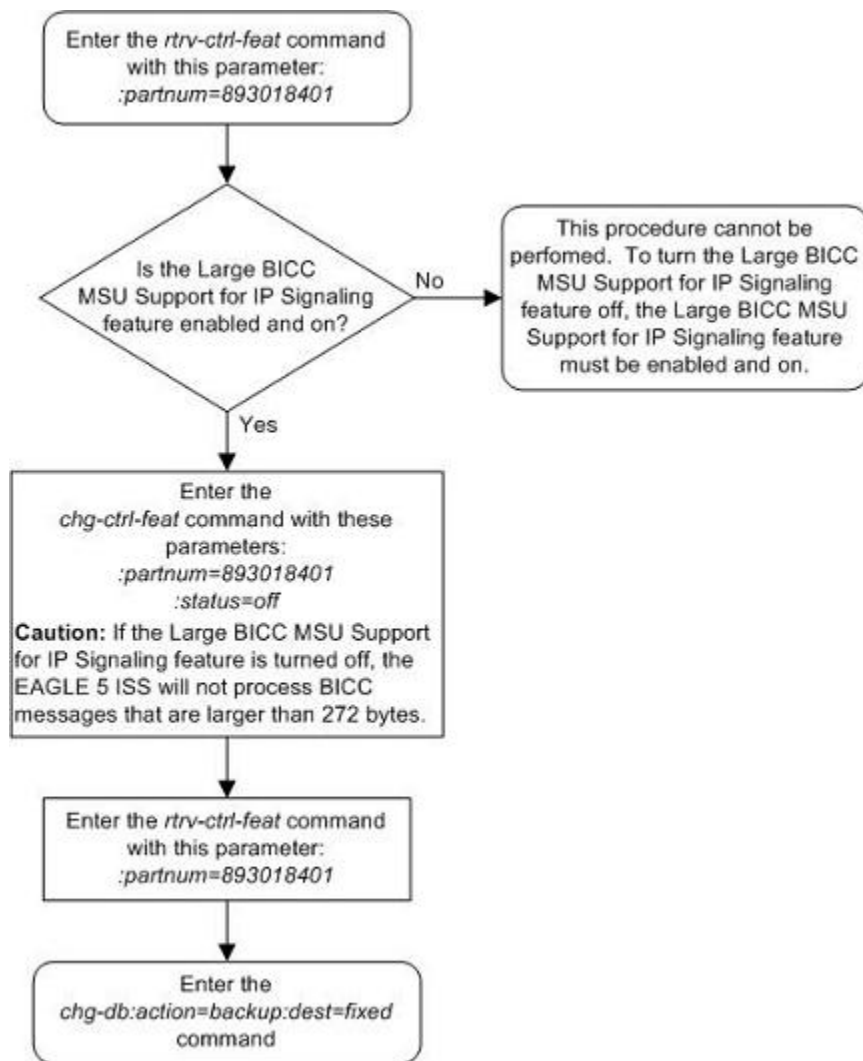
Turning the Large BICC MSU Support for IP Signaling Database Administration Manual - IP7 Secure Gateway Feature Off

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.

Flowchart 3-22. Turning the Large BICC MSU Support for IP Signaling Feature Off



IETF IPGWx M3UA and SUA Configuration Procedures

Adding IETF M3UA and SUA Components	4-2
Adding an IPGWx Card	4-4
Configuring an IPGWx Linkset	4-15
Adding a Mate IPGWx Linkset to another IPGWx Linkset	4-39
Adding an IPGWx Signaling Link	4-52
Enabling the Large System # Links Controlled Feature	4-65
Configuring an IP Link	4-73
Adding an IP Host	4-90
Configuring an IP Card	4-93
Adding an IP Route	4-104
Adding an M3UA or SUA Association	4-109
Adding a New Association to a New Application Server	4-119
Adding an Existing Association to a New Application Server	4-126
Adding a New Association to an Existing Application Server	4-136
Adding an Existing Association to an Existing Application Server	4-146
Adding a Routing Key Containing an Application Server	4-158
Adding a Network Appearance	4-175
Activating the Large BICC MSU Support for IP Signaling Feature	4-181
Removing IETF M3UA and SUA Components	4-188
Removing an IPGWx Card	4-189
Removing an IPGWx Signaling Link	4-191
Removing a Mate IPGWx Linkset from another IPGWx Linkset	4-196
Removing an IP Host Assigned to an IPGWx Card	4-207
Removing an IP Route	4-212
Removing an M3UA or SUA Association	4-216
Removing an Association from an Application Server	4-220
Removing a Routing Key Containing an Application Server	4-224
Removing a Network Appearance	4-232
Changing IETF M3UA and SUA Components	4-234
Changing IP Options	4-235
Changing the Attributes of an M3UA or SUA Association	4-238
Changing the Buffer Size of an M3UA or SUA Association	4-253

Changing the Host Values of an M3UA or SUA Association	4-263
Configuring SCTP Retransmission Control for an M3UA or SUA Association	4-278
Changing an Application Server	4-284
Changing the CIC Values in an Existing Routing Key Containing an Application Server	4-289
Changing the Routing Context Value in an Existing Routing Key	4-297
Changing the SCTP Checksum Algorithm Option for M3UA and SUA Associations	4-303
Changing a UA Parameter Set	4-320
Turning the Large BICC MSU Support for IP Signaling Feature Off	4-328

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.

1. Configure the IPGWx card with the [Adding an IPGWx Card](#) procedure. Turn the ISUP-over-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 Tekelec Sales Representative or Account Representative. Once a feature has been turned on with the chg-feat command, the feature cannot be turned off.
2. Configure the required destination point codes - see Chapter 2, "Configuring Destination Tables," in the *Database Administration Manual - SS7*.
3. 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 5 ISS 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 Manual - SS7*.
6. IP addresses must be assigned to the IPGWx card configured in step 1 by performing the [Configuring 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 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 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 [Chapter 3 IETF IPLIMx 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 **rtrv-assoc** 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 an M3UA or SUA Association](#), [Changing the Buffer Size of an 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 an 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 the [Adding 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 Code](#) procedure.
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 5 ISS processes messages with a service information field (SIF) that is 272 bytes or smaller. The Large BICC (Bearer Independent Call Control) MSU Support for IP Signaling feature allows the EAGLE 5 ISS to process BICC messages with a SIF that is larger than 272 bytes. Perform the [Activating the Large BICC MSU Support for IP Signaling Feature](#) procedure to enable and turn on the Large BICC 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. A maximum of 64 IPGWx cards can be provisioned in the database. [Table 4-1](#) shows the cards that can be provisioned in this procedure.

Table 4-1. IPGWx Card Types

Card Type	Part Number
Single-Slot EDCM	870-2372-01, 870-2372-08, 870-2372-13
E5-ENET	870-2212-xx

The EAGLE 5 ISS can support a mixture of single-slot EDCMs and E5-ENET cards. The EAGLE 5 ISS supports the combinations of the E5-ENET cards and single-slot EDCMs shown in [Table 4-2](#).

Table 4-2. E5-ENET and Single-Slot EDCMs Provisioning Combinations

Number of Provisioned E5-ENET Cards	Number of Provisioned Single-Slot EDCMs
100	0
90	20
80	40
70	60
60	80
50	100
40	120
30	140
20	160
18	164

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 or GPL 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 [Understanding Routing for SS7IPGW and IPGWI Applications](#).

NOTE: 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 Tekelec 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 single-slot EDCM and 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 HIPR cards installed in slots 9 and 10 in that shelf. If HIPR 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=hipr** command to verify whether or not HIPR cards are installed in the same shelf as the E5-ENET card being provisioned in this procedure.

Procedure

1. The EAGLE 5 ISS can contain a maximum of 100 E5-ENET cards. If the EAGLE 5 ISS contains 100 E5-ENET cards, no single-slot EDCMs can be provisioned as IPGWx cards (see [Table 4-2](#)). E5-ENET cards can run one of these GPLs: IPGHC, IPLHC, and IPGHC. E5-ENET cards can be provisioned as IPGWx cards if the E5-ENET cards are running the IPGHC GPL. Verify the number of E5-ENET cards running the IPGHC GPL by entering this command.

rept-stat-gpl:gpl=ipsg

```
rlghncxa03w 08-03-05 08:12:53 GMT 38.0.0
GPL Auditing ON
```

GPL	CARD	RUNNING	APPROVED	TRIAL
IPSG	2101	130-003-000	130-003-000	130-002-000
IPSG	2103	130-003-000	130-003-000	130-002-000
IPSG	2105	130-003-000	130-003-000	130-002-000
IPSG	2107	130-003-000	130-003-000	130-002-000

Command Completed.

If 100 entries are shown in the **rept-stat-gpl** output, this procedure cannot be performed. The EAGLE 5 ISS contains the maximum number of E5-ENET cards.

If less than 100 entries are shown in this step, continue the procedure with [Step 2](#) and [Step 3](#) to verify the number of E5-ENET cards that are running the IPLHC and IPGHC GPLs.

2. Verify the number of E5-ENET cards running the IPLHC GPL by entering this command.

rept-stat-gpl:gpl=iplhc

```
rlghncxa03w 08-03-05 08:12:53 GMT 38.0.0
GPL Auditing ON
```

GPL	CARD	RUNNING	APPROVED	TRIAL
IPLHC	2201	130-003-000	130-003-000	130-002-000
IPLHC	2203	130-003-000	130-003-000	130-002-000
IPLHC	2205	130-003-000	130-003-000	130-002-000
IPLHC	2207	130-003-000	130-003-000	130-002-000

Command Completed.

3. Verify the number of E5-ENET cards running the IPGHC GPL by entering this command.

rept-stat-gpl:gpl=ipghc

```
rlghncxa03w 08-03-05 08:12:53 GMT 38.0.0
GPL Auditing ON
```

GPL	CARD	RUNNING	APPROVED	TRIAL
IPGHC	2301	130-003-000	130-003-000	130-002-000
IPGHC	2303	130-003-000	130-003-000	130-002-000
IPGHC	2305	130-003-000	130-003-000	130-002-000
IPGHC	2307	130-003-000	130-003-000	130-002-000

Command Completed.

If 100 entries are shown in the outputs of [Step 1](#) , [Step 2](#) , and [Step 3](#) , the remainder of this procedure cannot be performed. The EAGLE 5 ISS contains the maximum number of E5-ENET cards.

If less than 100 entries are shown in the outputs of [Step 1](#) , [Step 2](#) , and [Step 3](#) , continue the procedure with [Step 4](#) , [Step 5](#) , [Step 6](#) , and [Step 7](#) to verify the number of single-slot EDCMs that are provisioned in the EAGLE 5 ISS.

4. Verify the number of single-slot EDCMs running the SS7IPGW GPL by entering this command.

rept-stat-gpl:gpl=ss7ipgw

```
rlghncxa03w 08-03-05 08:12:53 GMT 38.0.0
GPL Auditing ON
```

GPL	CARD	RUNNING	APPROVED	TRIAL
SS7IPGW	2211	130-003-000	130-003-000	130-002-000
SS7IPGW	2213	130-003-000	130-003-000	130-002-000

Command Completed.

5. Verify the number of single-slot EDCMs running the IPGWI GPL by entering this command.

rept-stat-gpl:gpl=ipgwi

```
rlghncxa03w 08-03-05 08:12:53 GMT 38.0.0
GPL Auditing ON
```

GPL	CARD	RUNNING	APPROVED	TRIAL
IPGWI	2215	130-003-000	130-003-000	130-002-000
IPGWI	2217	130-003-000	130-003-000	130-002-000

Command Completed.

6. Verify the number of single-slot EDCMs running the IPLIM GPL by entering this command.

rept-stat-gpl:gpl=iplim

```
rlghncxa03w 08-03-05 08:12:53 GMT 38.0.0
GPL Auditing ON
```

GPL	CARD	RUNNING	APPROVED	TRIAL
IPLIM	1303	130-003-000	130-003-000	130-002-000
IPLIM	1305	130-003-000	130-003-000	130-002-000

Command Completed.

7. Verify the number of single-slot EDCMs running the IPLIMI GPL by entering this command.

rept-stat-gpl:gpl=iplimi

```
rlghncxa03w 08-03-05 08:12:53 GMT 38.0.0
GPL Auditing ON
```

GPL	CARD	RUNNING	APPROVED	TRIAL
IPLIMI	2311	130-003-000	130-003-000	130-002-000
IPLIMI	2313	130-003-000	130-003-000	130-002-000

Command Completed.

[Table 4-2](#) shows the combinations of E5-ENET cards and single-slot EDCMs that the EAGLE 5 ISS will support. If adding the new IPGWx card will exceed the limits shown in [Table 4-2](#) , the new IPGWx card cannot be provisioned in the database and the remainder of this procedure cannot be performed.

If adding the new IPGWx card will not exceed the limits shown in [Table 4-2](#) , one of the following actions can be performed.

- The EAGLE 5 ISS can contain a maximum of 64 IPGWx cards. The cards shown in the **rept-stat-gpl** outputs in [Step 3](#) , [Step 4](#) , and [Step 5](#) are IPGWx cards. If the sum of the number of entries

in these steps is 64, the new IPGWx card cannot be provisioned in the database and the remainder of this procedure cannot be performed.

- If the sum of the number of entries shown in the **rept-stat-gpl** outputs in [Step 3](#) , [Step 4](#) , and [Step 5](#) is less than 64, continue the procedure with [Step 8](#) .

8. 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 5 ISS for proper power distribution. Refer to the *Installation Manual - EAGLE 5 ISS* for the shelf power distribution.

```
rlghncxa03w 08-03-05 08:12:53 GMT 38.0.0
CARD  TYPE      APPL      LSET NAME      LINK SLC LSET NAME      LINK SLC
1101   TSM        SCCP
1102   TSM        GLS
1113   GSPM        EOAM
1114   TDM-A
1115   GSPM        EOAM
1116   TDM-B
1117   MDAL
1201   LIMDS0     SS7ANSI   sp2           A    0    sp1           B    0
1203   LIMDS0     SS7ANSI   sp3           A    0
1204   LIMDS0     SS7ANSI   sp3           A    1
1206   LIMDS0     SS7ANSI   nsp3          A    1    nsp4          B    1
1207   LIMV35     SS7GX25   nsp1          A    0
1208   LIMV35     SS7GX25   nsp1          A    1
1216   ACMENET     STPLAN
1301   LIMDS0     SS7ANSI   sp6           A    1    sp7           B    0
1302   LIMDS0     SS7ANSI   sp7           A    1    sp5           B    1
1303   DCM        IPLIM     ipnode1       A    0    ipnode3       B    1
1305   DCM        IPLIM     ipnode4       A    0
1307   ACMENET     STPLAN
2101   ENET        IPSPG
2103   ENET        IPSPG
2105   ENET        IPSPG
2107   ENET        IPSPG
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
```

If the required unprovisioned card slots (see the [Card Slot Selection](#) section) are shown in the **rtrv-card** output, continue the procedure with [Step 11](#) .

If the required unprovisioned card slots are not shown in the **rtrv-card** output, [Step 9](#) must be performed.

9. 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 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 [Step 10](#).

10. 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
```

11. Verify that the card to be entered has been physically installed into the proper location (see 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 the *Maintenance Manual* before proceeding with this procedure.

If the card being added in this procedure is not an E5-ENET card, continue the procedure with [Step 13](#).

12. Verify that HIPR 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=hipr

This is an example of the possible output.

```
rlghncxa03w 08-03-05 08:12:53 GMT 38.0.0
GPL      CARD      RUNNING      APPROVED      TRIAL
HIPR     1109      125-002-000  125-002-000  125-003-000
HIPR     1110      125-002-000  125-002-000  125-003-000
HIPR     1209      125-002-000  125-002-000  125-003-000
HIPR     1210      125-002-000  125-002-000  125-003-000
HIPR     1309      125-002-000  125-002-000  125-003-000
HIPR     1310      125-002-000  125-002-000  125-003-000
HIPR     2109      125-002-000  125-002-000  125-003-000
HIPR     2110      125-002-000  125-002-000  125-003-000
HIPR     2209      125-002-000  125-002-000  125-003-000
HIPR     2210      125-002-000  125-002-000  125-003-000
HIPR     2309      125-002-000  125-002-000  125-003-000
HIPR     2310      125-002-000  125-002-000  125-003-000
Command Completed
```

If HIPR cards are installed in the shelf containing the E5-ENET card, continue the procedure by performing one of these steps..

- If the ISUP-over-IP feature will be used, continue the procedure with [Step 13](#).
- If the ISUP-over-IP feature will not be used, continue the procedure with [Step 15](#).

If HIPR cards are not installed on the shelf containing the E5-ENET card, go to the *Installation Manual - EAGLE 5 ISS* and install the HIPR cards. Once the HIPR cards have been installed, continue the procedure by performing one of these steps..

- If the ISUP-over-IP feature will be used, continue the procedure with [Step 13](#).

- If the ISUP-over-IP feature will not be used, continue the procedure with [Step 15](#).

13. Verify that 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**.

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

If the ISUP-over-IP feature is on, continue the procedure with [Step 15](#).

If the ISUP-over-IP feature is not on, continue the procedure with [Step 14](#).

NOTE: If the features you wish to use are already on, continue the procedure with [Step 15](#).

14. Turn the ISUP-over-IP feature on by entering this command.

chg-feat:ipisup=on

NOTE: Once the ISUP-over-IP feature is turned on with the **chg-feat command, it cannot be turned off.**

NOTE: 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 Tekelec 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
```

15. Add the card using the **ent-card** command.

For this example, enter these commands.

ent-card:loc=1315:type=dcn:appl=ss7ipgw

ent-card:loc=1317:type=dcn: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
```

16. Verify the changes using the **rtrv-card** command with the card location specified in [Step 15](#).

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				

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.

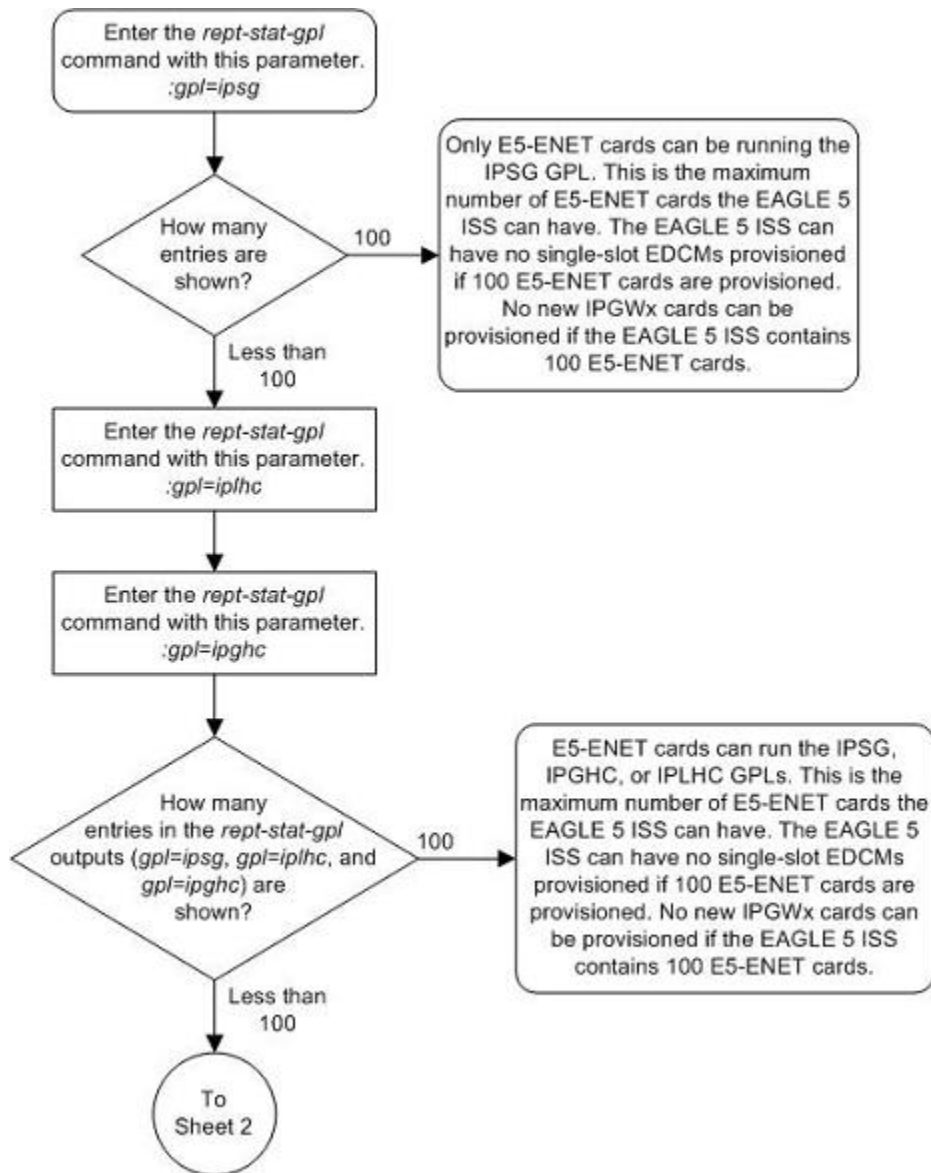
```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

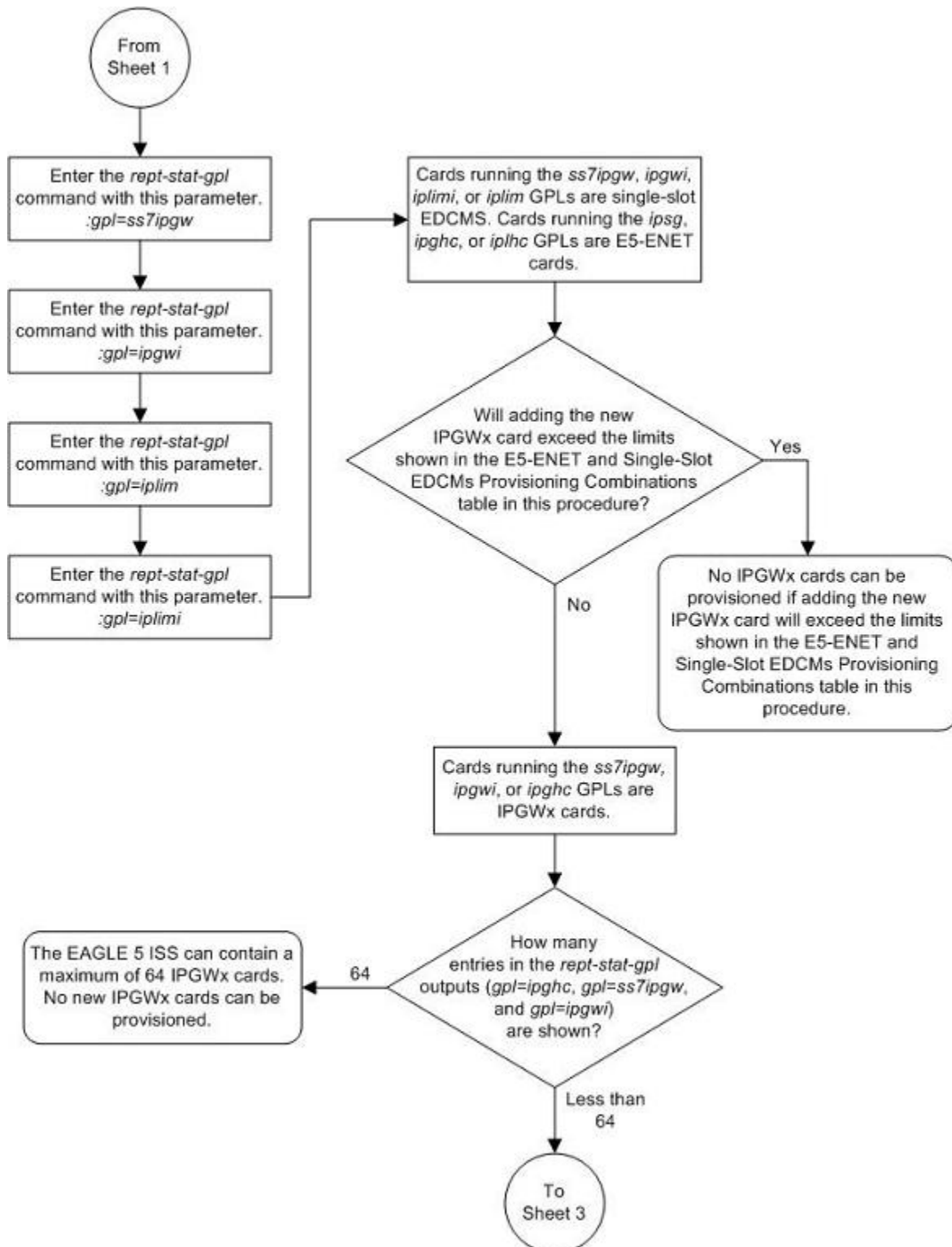
18. If you wish to change the quantity of static routing keys in the database, perform the [Changing IP Options](#) procedure.

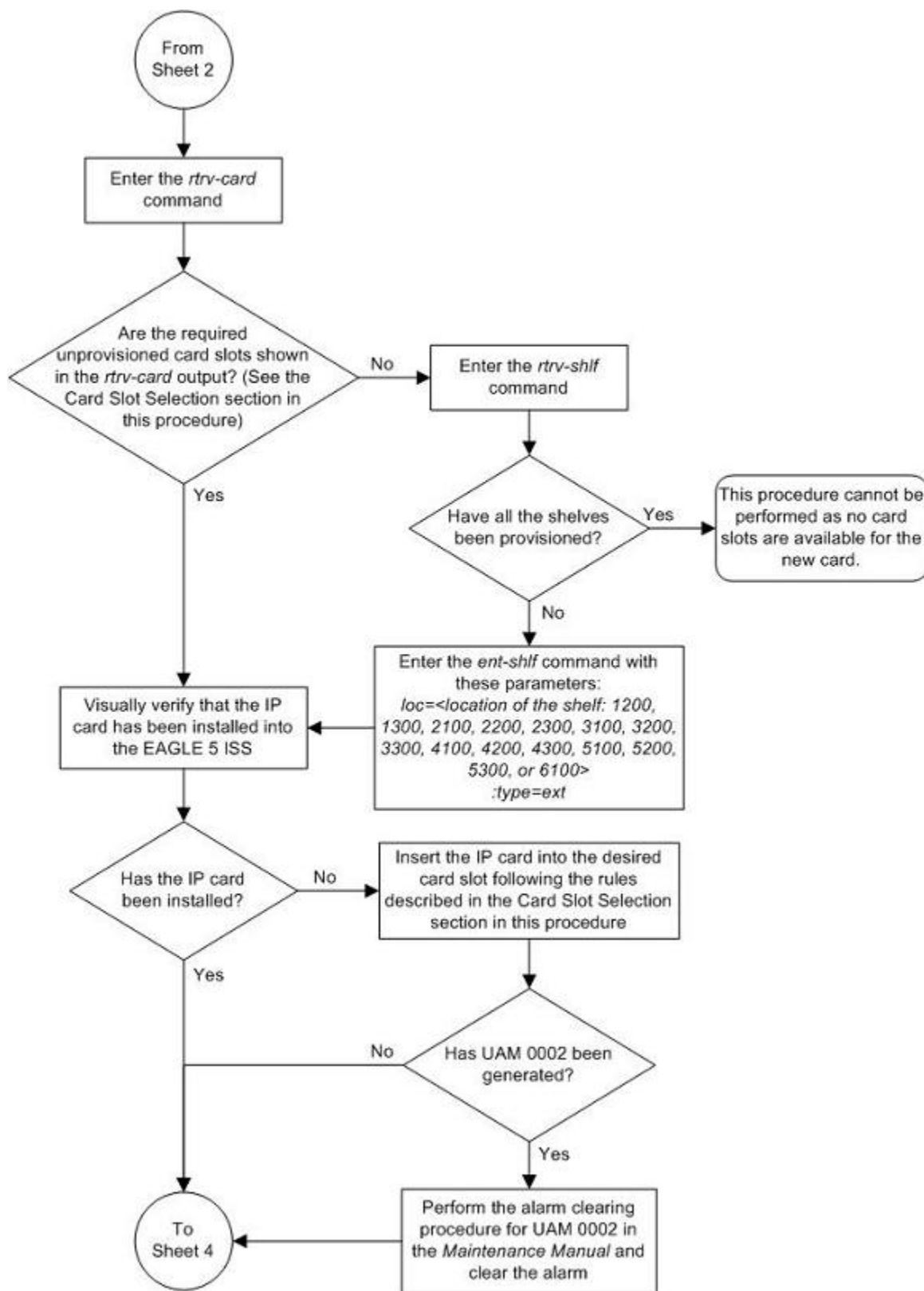
Otherwise, this procedure is finished.

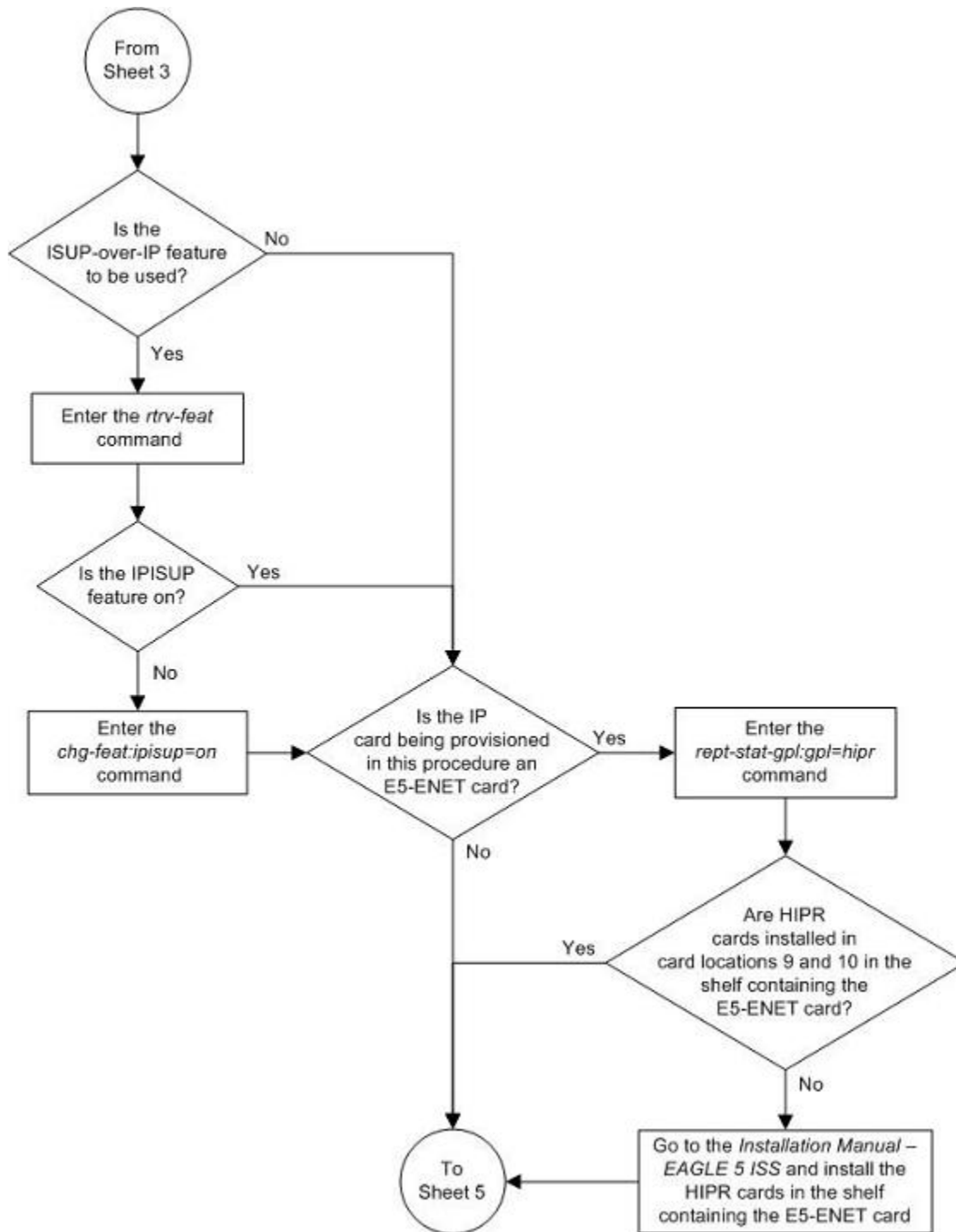
Flowchart 4-1. Adding an IPGWx Card

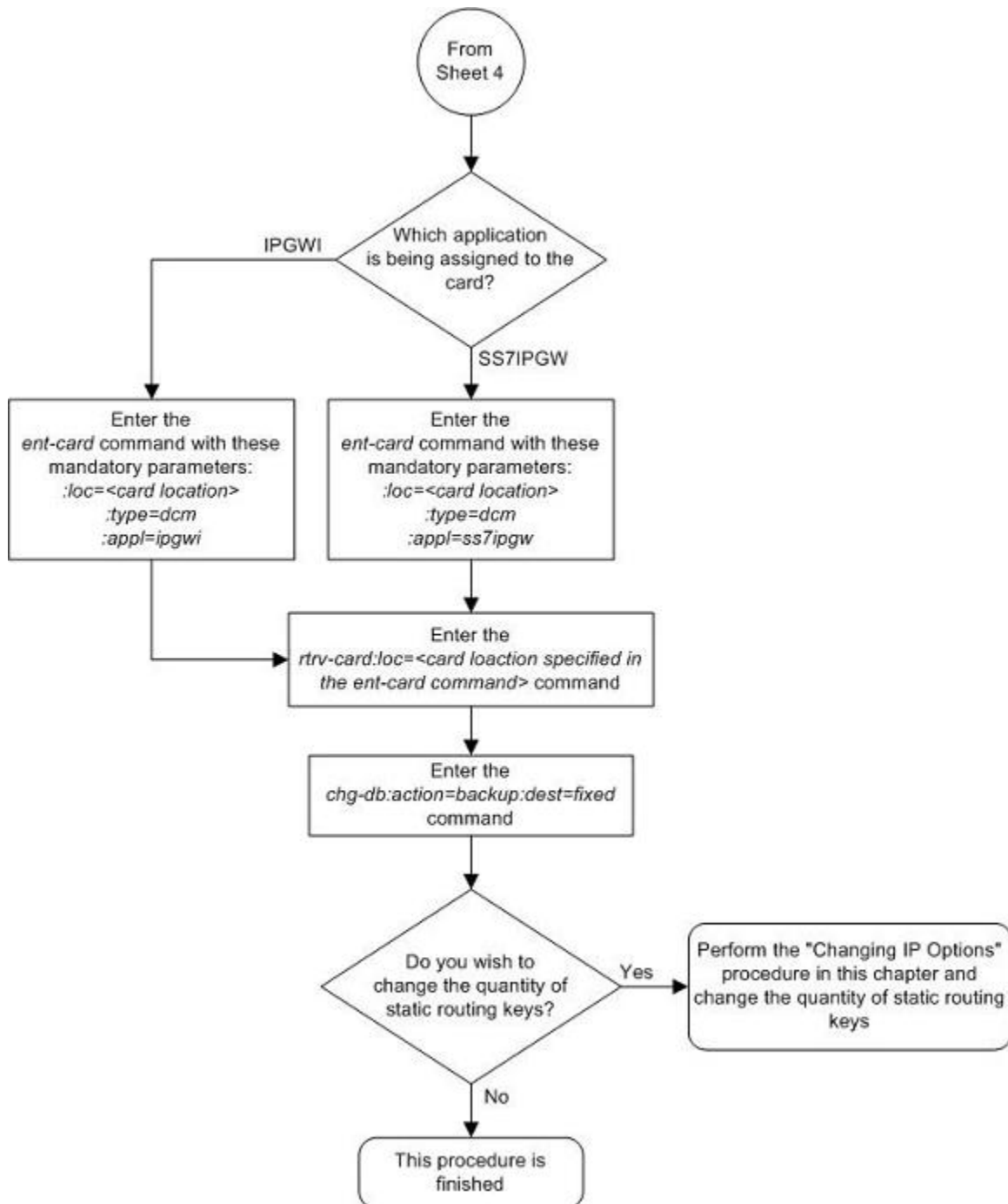
NOTE: Before executing this procedure, make sure you have purchased the ISUP-over-IP feature. If you are not sure whether you have purchased the ISUP-over-IP feature, contact your Tekelec Sales Representative or Account Representative.











Configuring an IPGWx Linkset

This procedure is used to configure IPGWx linksets in the EAGLE 5 ISS using the **ent - ls** or **chg - ls** commands with these parameters. An IPGWx linkset is a linkset that contains signaling links running either the SS7IPGW or IPGWI applications.

NOTE: This procedure is not used to configure a mate IPGWx linkset, with the **mate lsn** and **action** parameters. To configure a mate IPGWx linkset, perform either the [Adding a Mate IPGWx Linkset to another IPGWx Linkset](#) or [Removing a Mate IPGWx Linkset from another IPGWx Linkset](#) 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 5 ISS. 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 the *Database Administration Manual - SS7* for a definition of the point code types that are used on the EAGLE 5 ISS 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 **ent - ls** command. Specifying this parameter with the **chg - ls** command is required only if the adjacent point code of the linkset is being changed.

: lst – The linkset type of the specified linkset - The **lst** parameter must be specified with the **ent - ls** command. Specifying this parameter with the **chg - ls** 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**.

NOTE: The **ipgwapc** parameter can be specified only with the **ent - ls** command.

To provision ISUP-CIC routing keys, the **ipgwapc=yes** parameter and the IP Gateway ISUP routing feature must be turned on. Verify this with the **rtrv-feat** command. If the IP Gateway ISUP routing feature is turned on, the **ipisup** field should be set to **on**. If the IP Gateway ISUP routing feature is not turned on, enter the **chg-feat:ipisup=on** 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 Tekelec 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 system-wide IPTPS value of 500,000.

: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 (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 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 4-3](#) shows this calculation for a linkset with 1, 2, 3 and 4 in-service signaling links.

Table 4-3. 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 Manual - SS7*.

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 **ituduppc** field should be set to **on**. If the ITU duplicate point code feature is not turned on, enter the **chg-feat:ituduppc=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 Tekelec Sales Representative or Account Representative.**

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 5 ISS. The domain of the point code is shown in the **DOMAIN** field in the output of the **rtrv-dstn** command. The point code of the EAGLE 5 ISS is shown in the **PCA**, **PCN**, **PCN24**, or **PCI** fields and the capability point code of the EAGLE 5 ISS 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 the *Database Administration Manual - SS7* 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 **ipgwapc=yes** parameter and the IP Gateway ISUP routing feature must be turned on. Verify this with the **rtrv-feat** command. If the IP Gateway ISUP routing feature is turned on, the **ipisup** field should be set to **on**. If the IP Gateway ISUP routing feature is not turned on, enter the **chg-feat:ipisup=on** command.

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 **chg-feat command. If you are not sure if you have purchased the IP Gateway ISUP routing feature, contact your Tekelec 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 the *Commands Manual* 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 the *Database Administration Manual - SS7*
 - Adding an SS7 Linkset
 - Changing an SS7 Linkset

- Configuring an ITU Linkset with a Secondary Adjacent Point Code (SAPC)
- These procedures in the *Database Administration Manual - Features*.
 - Adding an X.25 Signaling Link
 - Changing an X.25 Signaling Link
 - Configuring a Linkset for the GSM MAP Screening Feature

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 than 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 the *Commands Manual*.

Procedure

1. Display the system-wide IPTPS usage report, and the IPGWx linksets, by entering the **rept-stat-iptps** command. This is an example of the possible output.

```
rlghncxa03w 08-04-10 11:43:04 GMT EAGLE5 38.0.0

IP TPS USAGE REPORT
```

	THRESH	CONFIG		TPS	PEAK	PEAKTIMESTAMP

LSN						
LSGW1101	80%	10000	TX:	7200	7600	08-04-10 11:40:04
			RCV:	7200	7600	08-04-10 11:40:04
LSGW1103	80%	10000	TX:	6700	7600	08-04-10 11:40:04
			RCV:	6500	7600	08-04-10 11:40:04
LSGW1105	80%	10000	TX:	7300	7450	08-04-10 11:40:04
			RCV:	7300	7450	08-04-10 11:40:04

Command Completed.

If the addition of the IPGWx linkset, or if the IPGWx linkset that is being changed would result in the sum of all the linkset IP TPS to exceed 500,000, the IPGWx linkset cannot be added or changed unless the IP TPS values of the current IPGWx linksets and if necessary, the SLK TPS values of the IPSP linksets are changed. To change the IP TPS values of the IPGWx and IPSP linksets, continue the procedure with [Step 2](#).

If the addition of the IPGWx linkset, or if the IPGWx linkset that is being changed would result in the sum of all the linkset IP TPS that is less than 500,000, continue the procedure with [Step 5](#).

2. Display each linkset shown in [Step 1](#) by entering the **rtrv-ls** command with the name of the linkset shown in [Step 1](#). For this example, enter these commands.

rtrv-ls:lsn=lsgw1101

This is an example of the possible output.

rlghncxa03w 08-04-20 13:34:40 GMT EAGLE5 38.0.0

LSN	APCA	(SS7)	SCRN	SET	SET	BEI	LST	LNKS	ACT	MES	DIS	SLSCI	NIS
lsgw1101	008-012-003		none	1	1	no	A	1	off	off	off	no	off
	SPCA		CLLI			TFATCABMLQ		MTPRSE	ASL8				
	-----		-----			1		---	no				
	IPSG	IPGWAPC	GTTMODE			CGGTMOD							
	no	yes	CdPA			no							
	MATELSN	IPTPS	LSUSEALM			SLKUSEALM							
	-----	10000	100%			80%							
	LOC	LINK	SLC	TYPE									
	1101	A	0	SS7IPGW									

Link set table is (13 of 1024) 1% full.

rtrv-ls:lsn=lsgw1103

This is an example of the possible output.

rlghncxa03w 08-04-20 13:34:40 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
	SPCA		CLLI			TFATCABMLQ		MTPRSE	ASL8				
	-----		-----			1		---	no				
	IPSG	IPGWAPC	GTTMODE			CGGTMOD							
	no	yes	CdPA			no							
	MATELSN	IPTPS	LSUSEALM			SLKUSEALM							
	-----	10000	100%			80%							
	LOC	LINK	SLC	TYPE									
	1103	A	0	SS7IPGW									

Link set table is (13 of 1024) 1% full.

rtrv-ls:lsn=lsgw1105

This is an example of the possible output.

rlghncxa03w 08-04-20 13:34:40 GMT EAGLE5 38.0.0

LSN	APCA	(SS7)	SCRN	SET	SET	BEI	LST	LNKS	ACT	MES	DIS	SLSCI	NIS
lsgw1105	009-002-003		none	1	1	no	A	1	off	off	off	no	off
	SPCA		CLLI			TFATCABMLQ		MTPRSE	ASL8				
	-----		-----			1		---	no				
	IPSG	IPGWAPC	GTTMODE			CGGTMOD							
	no	yes	CdPA			no							


```

MATELSN      IPTPS      LSUSEALM      SLKUSEALM
----- 10000      100%          80%

LOC  LINK  SLC  TYPE
1105 A    0   SS7IPGW

```

Link set table is (13 of 1024) 1% full.

If IPGWx linksets (linksets whose **IPGWAPC** value is **yes**) are shown in this step, continue the procedure with [Step 3](#) to reduce the IP TPS values of some or all the IPGWx linksets by an amount to allow the addition of the new IPGWx linkset, or to allow the IPGWx linkset to be changed.

If all the linksets shown in this step are IPSG linksets (linksets whose **IPSG** value is **yes**), are shown in this step, continue the procedure with [Step 4](#) to reduce the SLK TPS values of some or all the IPSG linksets by an amount to allow the addition of the new IPGWx linkset, or to allow the IPGWx linkset to be changed.

3. 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 [Step 2](#) , and the new IPTPS value. For this example, enter these commands.

```
chg-ls:lsn=lsgw1101:iptps=6000
```

```
chg-ls:lsn=lsgw1103:iptps=6000
```

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

```

If no IPSG linksets are shown in [Step 2](#) , continue the procedure with [Step 5](#) .

If IPSG linksets are shown in [Step 2](#) , continue the procedure with one of these steps.

- If you wish to change the SLK TPS values of any of these linksets, continue the procedure with [Step 4](#) .
- If you do not wish to change the SLK TPS values of any of these linksets, continue the procedure with [Step 5](#) .

4. Reduce the SLKTPS values of some or all the IPSG linksets by entering the **chg-ls** command with the name of each IPSG linkset being changed, shown in [Step 2](#) , and the new SLKTPS value. For this example, enter these commands.

```
chg-ls:lsn=lsipsg1:slktps=1500
```

```
chg-ls:lsn=lsipsg2:slktps=1500
```

When the **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 ( 13 of 1024) 1% full
CHG-LS: MASP A - COMPLTD

```

5. Display the current linksets in the database using the **rtrv-ls** command.

This is an example of the possible output.

```

rlghncxa03w 08-04-10 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

```

e1e2	001-207-000	none	1	1	no	B	6	off	off	off	no	off
e1m1s1	001-001-001	none	1	1	no	A	7	off	off	off	no	off
e1m1s2	001-001-002	none	1	1	no	A	7	off	off	off	no	off
ls1305	001-005-000	none	1	1	no	A	1	off	off	off	no	off
ls1307	001-007-000	none	1	1	no	A	1	off	off	off	no	off
lsgw1101	008-012-003	none	1	1	no	A	1	off	off	off	no	off
lsgw1103	003-002-004	none	1	1	no	A	1	off	off	off	no	off
lsgw1105	009-002-003	none	1	1	no	A	1	off	off	off	no	off

LSN	APCI	(SS7)	SCRN	L3T SET	SLT SET	BEI	LST	LNKS	GWS ACT	GWS MES	GWS DIS	SLSCI	NIS
e1e2i	1-207-0		none	1	1	no	B	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	A	1	off	off	off	---	on
e1m2s1	1-011-1		none	1	1	no	A	7	off	off	off	---	off
e1m2s2	1-011-2		none	1	1	no	A	7	off	off	off	---	off

Link set table is (13 of 1024) 1% full.

- 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.

NOTE: If the **multgc** parameter is not being specified for the linkset, continue the procedure with [Step 10](#) . If the **multgc** parameter value is being changed to **no**, continue the procedure with [Step 8](#) . The **multgc** parameter can be specified only for linksets with either ITU-I or 14-bit ITU-N APCs, and linksets that contain signaling links running the IPGWI application.

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. In this example, both features are off.

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

- Turn the ITU Duplicate Point Code feature on, and the Multiple Point Code feature if necessary, by entering one of these commands.

NOTE: If the ITU Duplicate Point Code feature is on (**ITUDUPPC = on**), continue the procedure with [Step 8](#) .

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

NOTE: 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 Tekelec 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
```

8. 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 code. All 14-bit ITU-N 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.

NOTE: If the **multgc parameter value is not being changed, is being changed to **yes**, or if a new linkset is being added, continue the procedure with [Step 10](#) .**

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.

```
rlghncxa03w 06-10-07 11:43:04 GMT EAGLE5 37.5.0
DPCN          ALIASA          ALIASI  LSN      RC      APC
11213-de      -----          -----  lsn3      10      11213-de
                                     RTX:No  CLLI=-----
```

```
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      -----          -----  lsn3      10      12114-fr
                                     RTX:No  CLLI=-----
```

```
rtrv-rte:dpcn=12115-uk
```

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
12115-uk      -----          -----  lsn3      10      12115-uk
                                     RTX:No  CLLI=-----
```

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 Manual - SS7* to remove the route from the database.

9. Remove the secondary adjacent point codes specified in [Step 7](#) 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 **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 255) 5% full
CHG-LS: MASP A - COMPLTD
```

10. Display the point code and capability point code of the EAGLE 5 ISS by using the **rtrv-sid** command.

NOTE: If an existing linkset is being changed, and the adjacent point code of that linkset is not being changed, continue the procedure with [Step 17](#) .

NOTE: If a new linkset is being added, or an existing linkset is being changed and the adjacent point code of that linkset is being changed, continue this procedure with [Step 10](#) .The new adjacent point code of this linkset cannot be shown in the **rtrv-ls** output in [Step 5](#) .

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      002-002-003      002-002-004      002-002-005
002-002-006      002-002-007      002-002-008      002-002-009
004-002-001      004-003-003      144-212-003

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
```

11. Display the destination point codes in the database by entering the **rtrv-dstn** command. This is an example of the possible output.

```
rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 37.5.0

DPCA          CLLI          BEI  ELEI  ALIASI          ALIASN          DOMAIN
001-207-000   -----   no   ---   -----   -----   SS7
001-001-001   -----   no   ---   -----   -----   SS7
001-001-002   -----   no   ---   -----   -----   SS7
001-005-000   -----   no   ---   -----   -----   SS7
001-007-000   -----   no   ---   -----   -----   SS7
008-012-003   -----   no   ---   -----   -----   SS7
003-002-004   -----   no   ---   -----   -----   SS7
009-002-003   -----   no   ---   -----   -----   SS7
010-020-005   -----   no   ---   -----   -----   SS7

DPCI          CLLI          BEI  ELEI  ALIASI          ALIASN          DOMAIN
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

DPCN          CLLI          BEI  ELEI  ALIASA          ALIASI          DOMAIN
DPCN24        CLLI          BEI  ELEI  ALIASA          ALIASI          DOMAIN

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 the *Database Administration Manual - SS7* 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.

12. 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 06-10-10 11:43:04 GMT EAGLE5 37.5.0

DPCA	CLLI	BEI	ELEI	ALIASI	ALIASN	DOMAIN
010-020-005	-----	no	---	-----	-----	SS7
	SPC		NCAI			
	-----		----			

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 [Step 10](#).

13. 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.

NOTE: If the adjacent point code was added in [Step 12](#), continue the procedure with [Step 17](#).

NOTE: If the adjacent point code was added in [Step 12](#), and an existing linkset is being changed, continue the procedure with [Step 19](#).

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
FULL DPC(s): 15
EXCEPTION DPC(s): 5
NETWORK DPC(s): 0
CLUSTER DPC(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 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 [Step 10](#) , [Step 11](#) , [Step 12](#) , and [Step 13](#) .
- Remove all the entries displayed in this step by performing the “Removing a Route Exception Entry” procedure in the *Database Administration Manual - SS7* .

14. 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 06-10-10 11:43:04 GMT EAGLE5 37.5.0
```

```

DPCA      ALIASI      ALIASN/N24      LSN      RC      APCA
010-020-005 ----- lsn1      1      003-003-003
                                lsn2      2      003-003-004
                                RTX:No  CLLI=-----

```

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
```

```

DPCA      ALIASI      ALIASN/N24      LSN      RC      APCA
002-002-002 -----
                                RTX:No  CLLI=-----

```

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 [Step 10](#) through [Step 14](#) .
- Remove all the entries displayed in this step by performing the “Removing a Route” procedure in the *Database Administration Manual - SS7* .

15. 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.

NOTE: If you do not wish to use the IP Gateway ISUP routing feature, continue the procedure with [Step 16](#) .

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

16. 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 [Step 17](#).

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 **chg-feat** command. If you are not sure if you have purchased the IP Gateway ISUP routing feature, contact your Tekelec Sales Representative or Account Representative.

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

```
r1ghncxa03w 06-10-10 11:43:04 GMT EAGLE5 37.5.0
CHG-FEAT: MASP A - COMPLTD
```

17. 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 [Step 5](#).

The APC of the new linkset must be in the destination point code table, but cannot be either the EAGLE 5 ISS's point code or the EAGLE 5 ISS's capability point code – shown in the outputs of [Step 10](#), [Step 11](#), and [Step 12](#). 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 500,000.

- The **mtprse=yes** parameter cannot be specified for an IPGWx linkset.
- The optional parameters **lsusealm** (the linkset's IP TPS alarm threshold) and **slkusealm** (the signaling link IP TPS alarm threshold) can be specified with the **ent-ls** command. The default value for the **lsusealm** parameter is 100%, and the default value for the **slkusealm** parameters is 80%.

- The **multgc=yes** parameter can be specified only for IPGWx linksets that will contain signaling links running the IPGWI application.

NOTE: There are other optional parameters that can be specified with the **ent - ls** command, but are not required for an IPGWx linkset. These parameters and their usage are discussed in the Other Optional Parameters section of this procedure.

For this example, enter this command.

```
ent -
ls: lsn=lsgw1107:apca=010-020-005:lst=a:ipgwpc=yes:iptps=4000: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
ENT-LS: MASP A - COMPLTD
```

18. Display the signaling link alarm threshold for the linkset being changed by entering the **rept-stat-iptps** command with the name of the linkset being changed. For this example, enter this command.

NOTE: If you do not wish to change an existing IPGWx linkset, continue the procedure with [Step 20](#) .

NOTE: If the **slkusealm** parameter for the linkset is not being changed, continue the procedure with [Step 19](#) .

```
rept-stat-iptps: lsn=lsgw1105
```

This is an example of the possible output.

19. Change the existing linkset using the **chg-ls** command with the name of the linkset being changed, shown in the **rept-stat-iptps** output in [Step 1](#) , and with at least one of these parameters:

- The new adjacent point code of the linkset, 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 500,000.

- The **mtprse=yes** parameter cannot be specified for an IPGWx linkset.
- The optional parameters **lsusealm** (the linkset's IP TPS alarm threshold) and **slkusealm** (the signaling link IP TPS 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 running the IPGWI application.

NOTE: There are other optional parameters that can be specified with the **chg-ls** command, but are not required for an IPGWx linkset. These parameters and their usage are discussed in the Other Optional Parameters section of this procedure.

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

20. Verify the changes using the **rtrv-ls** command specifying the linkset name specified in either [Step 17](#) or [Step 19](#) 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

LSN	APCA	(SS7)	SCRN	L3T	SLT	SET	SET	BEI	LST	LNKS	GWS	GWS	GWS	ACT	MES	DIS	SLSCI	NIS
lsgw1105	009-002-003		none	1	1	no	A	1		1	off	off	off	no				off
CLLI				TFATCABMLQ		MTPRSE		ASL8										
-----				1		no		no										
IPGWAPC				MATELSN		IPTPS		LSUSEALM		SLKUSEALM		GTTMODE						
yes				-----		14000		70		% 70		% CdPA						
LOC				LINK		SLC		TYPE										
1105				A		0		SS7IPGW										

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

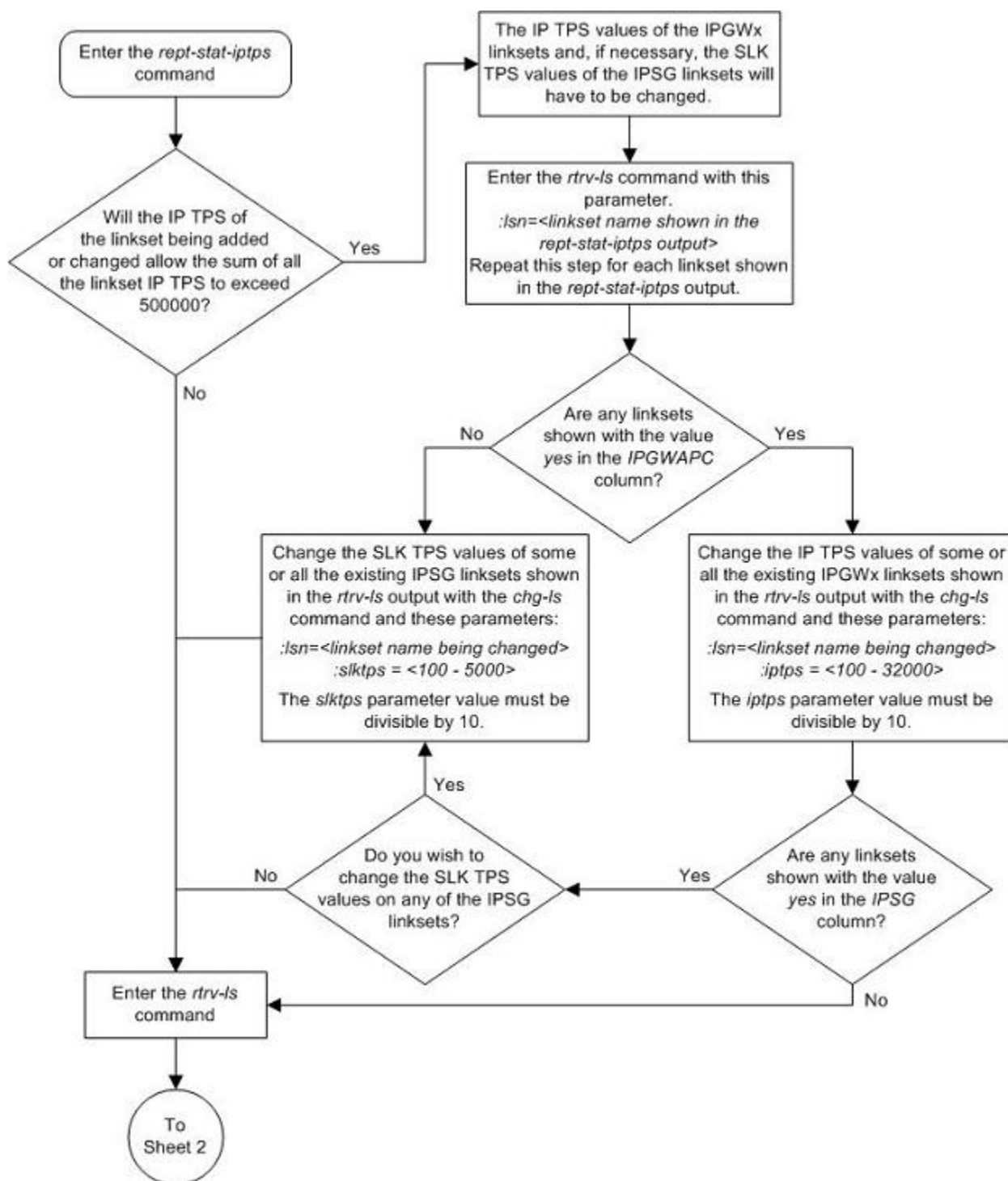
LSN	APCA	(SS7)	SCRN	L3T	SLT	SET	SET	BEI	LST	LNKS	GWS	GWS	GWS	ACT	MES	DIS	SLSCI	NIS
lsgw1107	010-020-005		none	1	1	no	A	0		0	off	off	off	no				off
CLLI				TFATCABMLQ		MTPRSE		ASL8										
-----				1		no		no										
IPGWAPC				MATELSN		IPTPS		LSUSEALM		SLKUSEALM		GTTMODE						
yes				-----		4000		70		% 70		% CdPA						

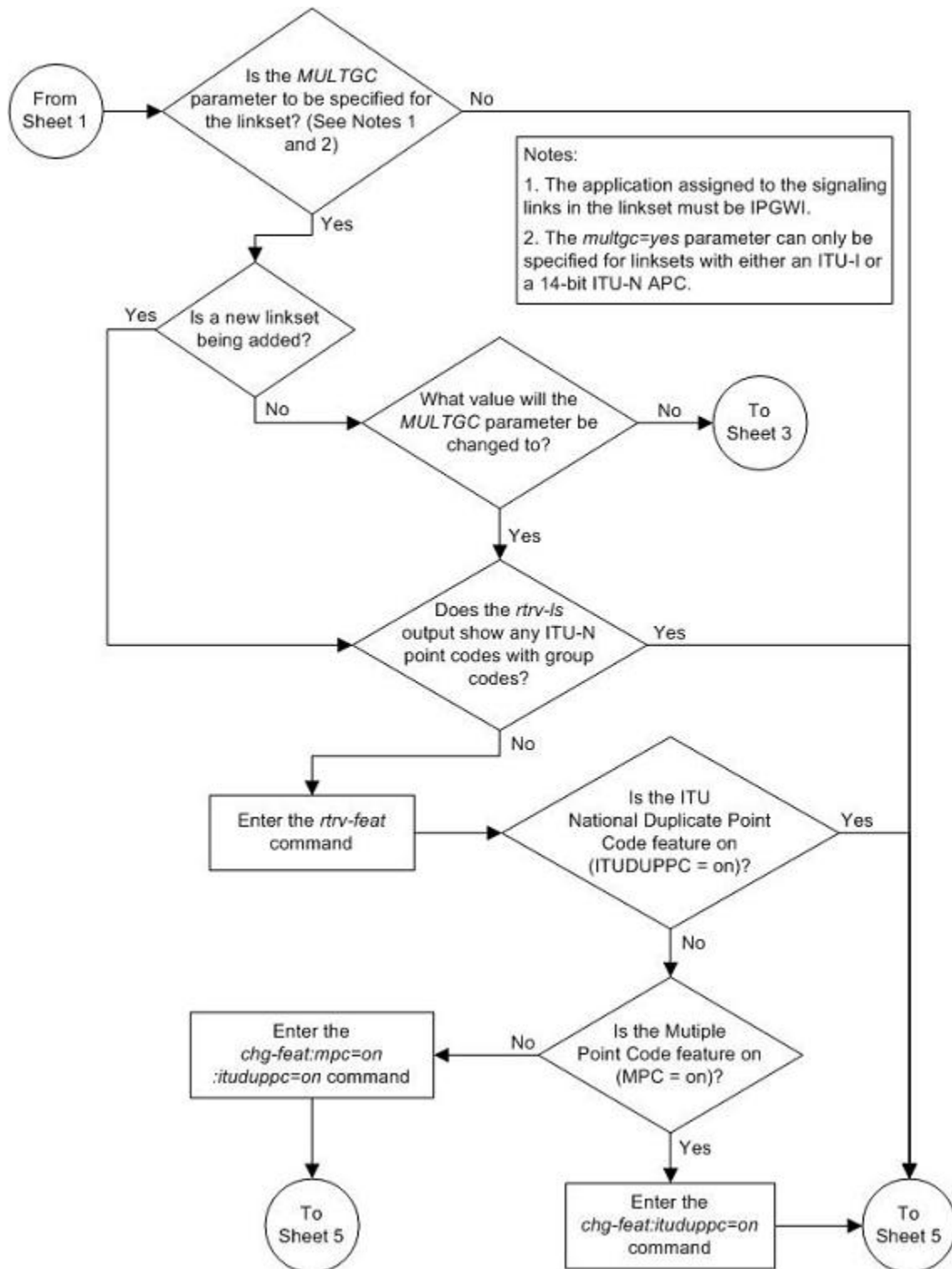
Link set table is (14 of 1024) 1% full

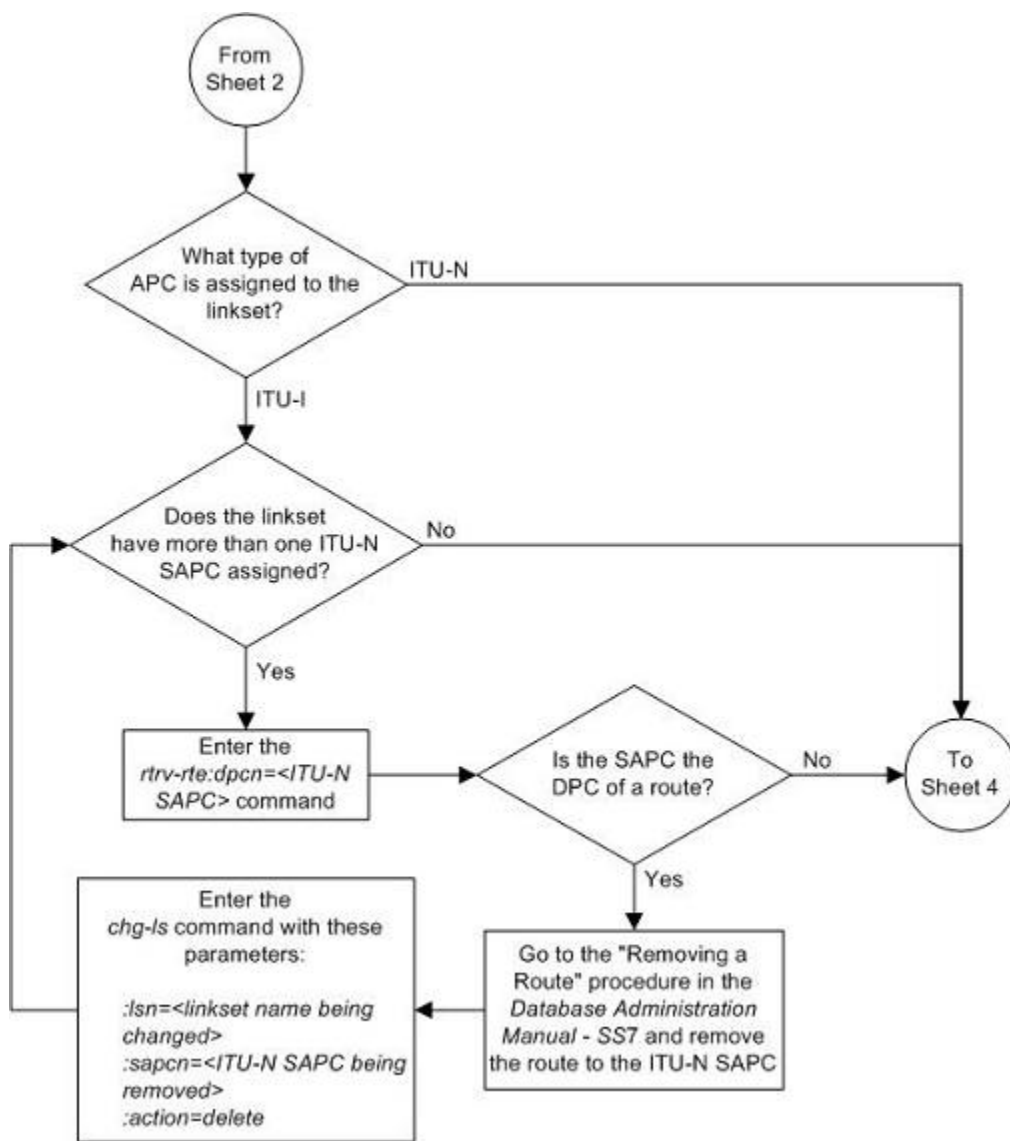
21. Back up the new changes using the **chg-db:action=backup:dest=fixed** command. These messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

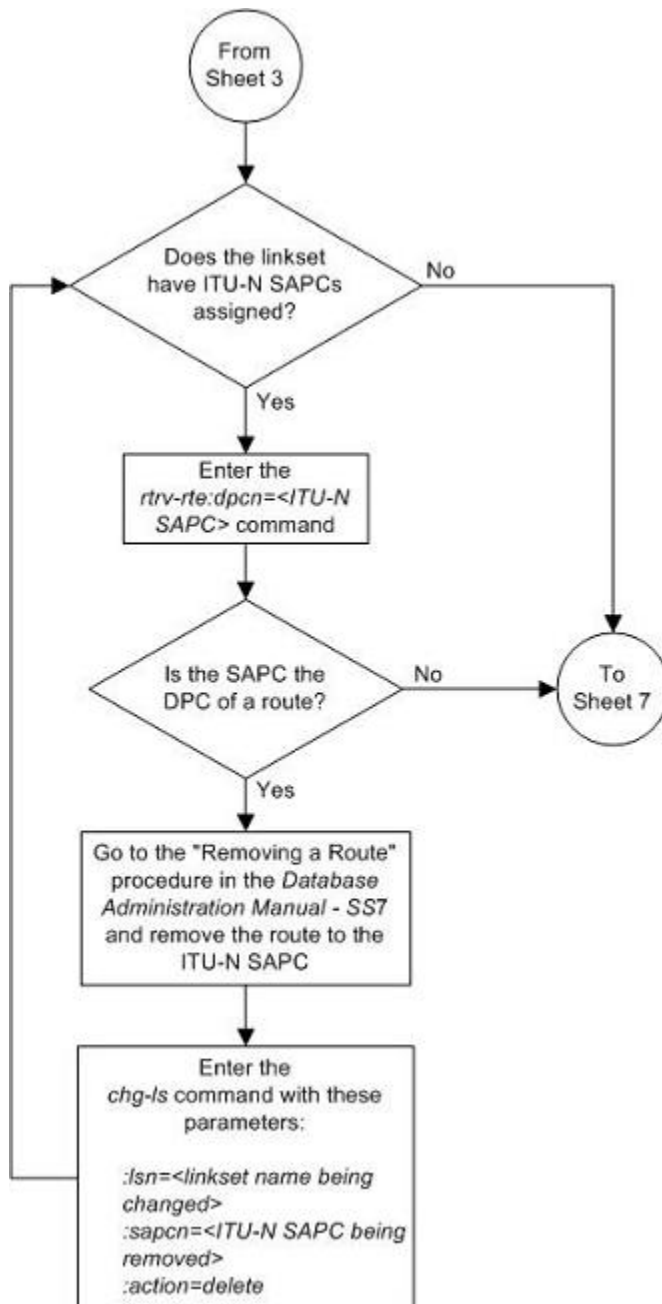
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.

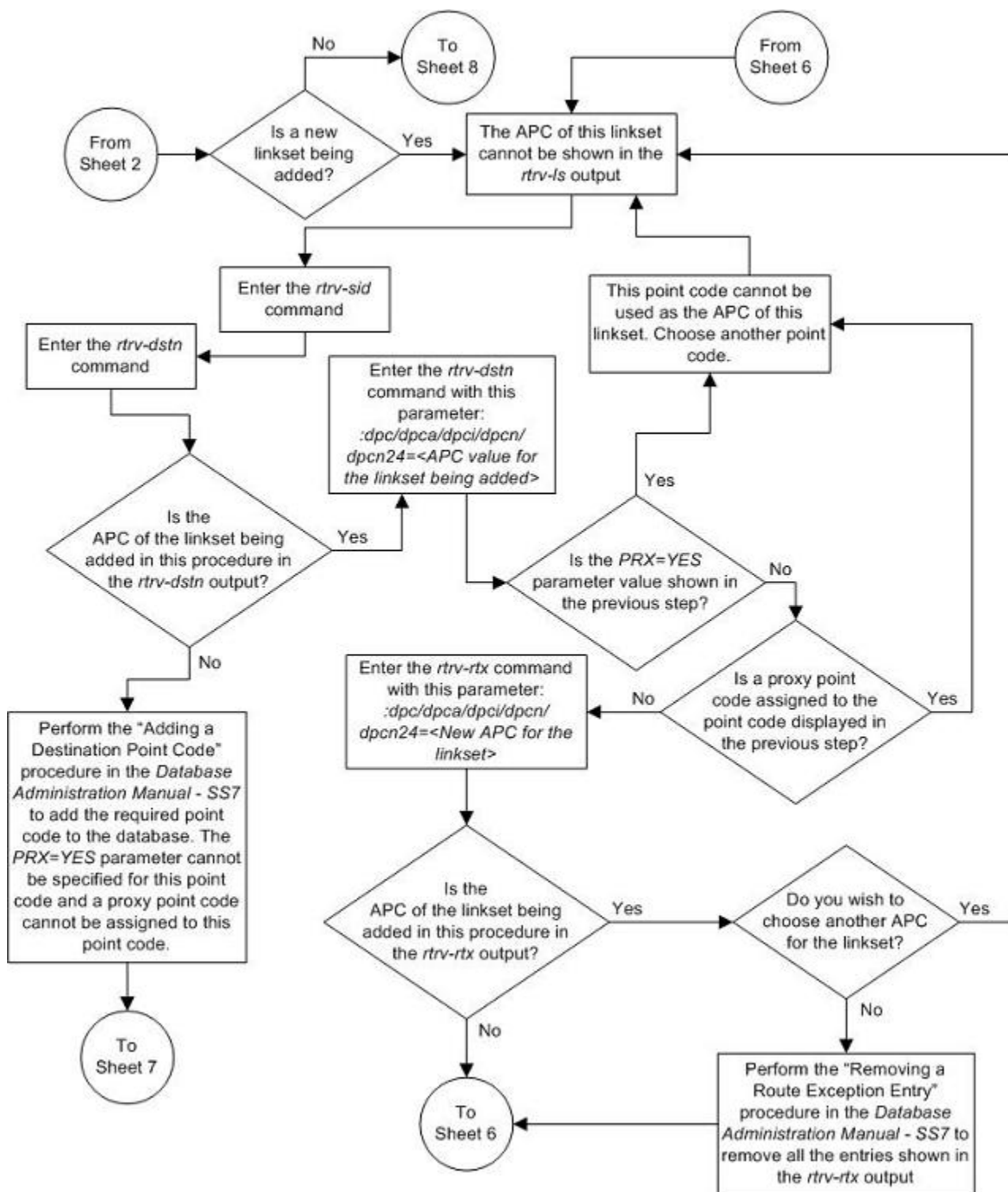
Flowchart 4-2. Configuring an IPGWx Linkset

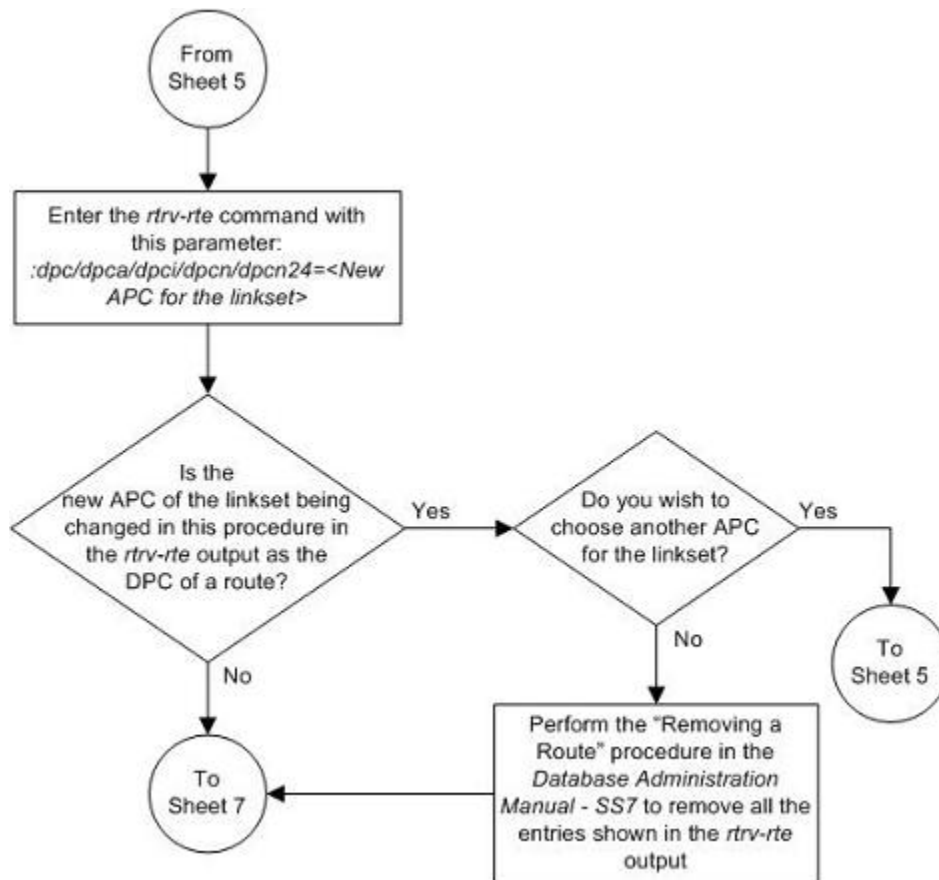


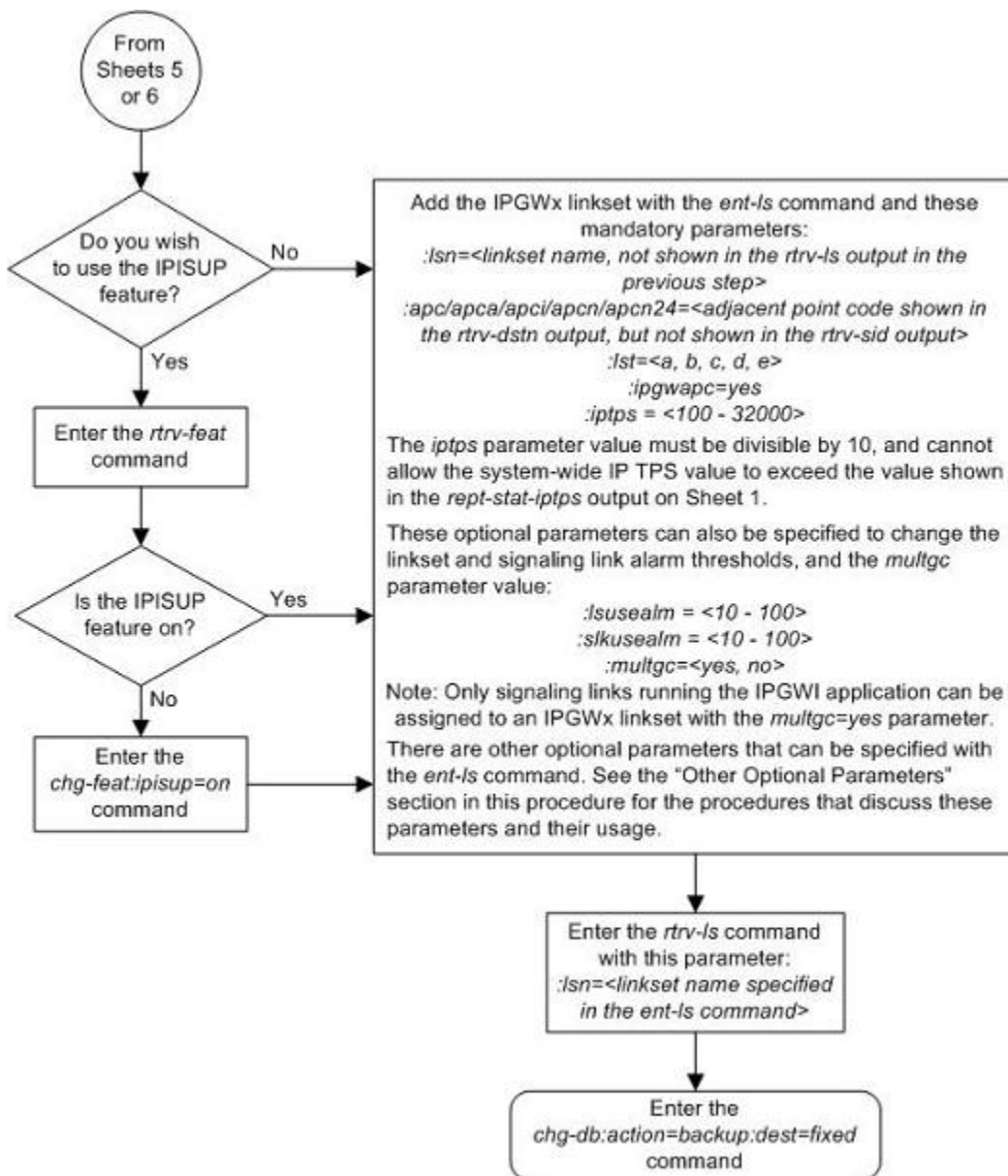


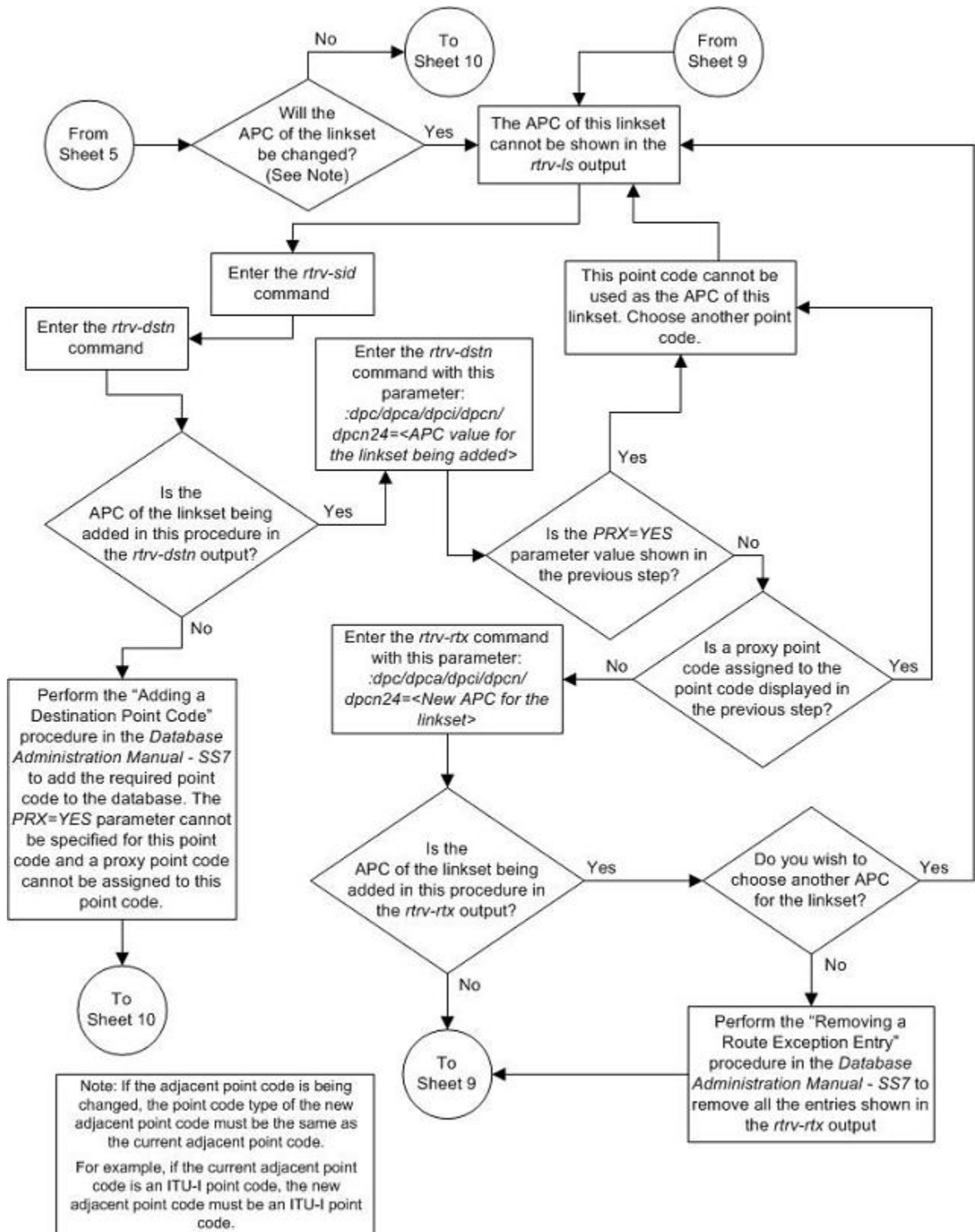


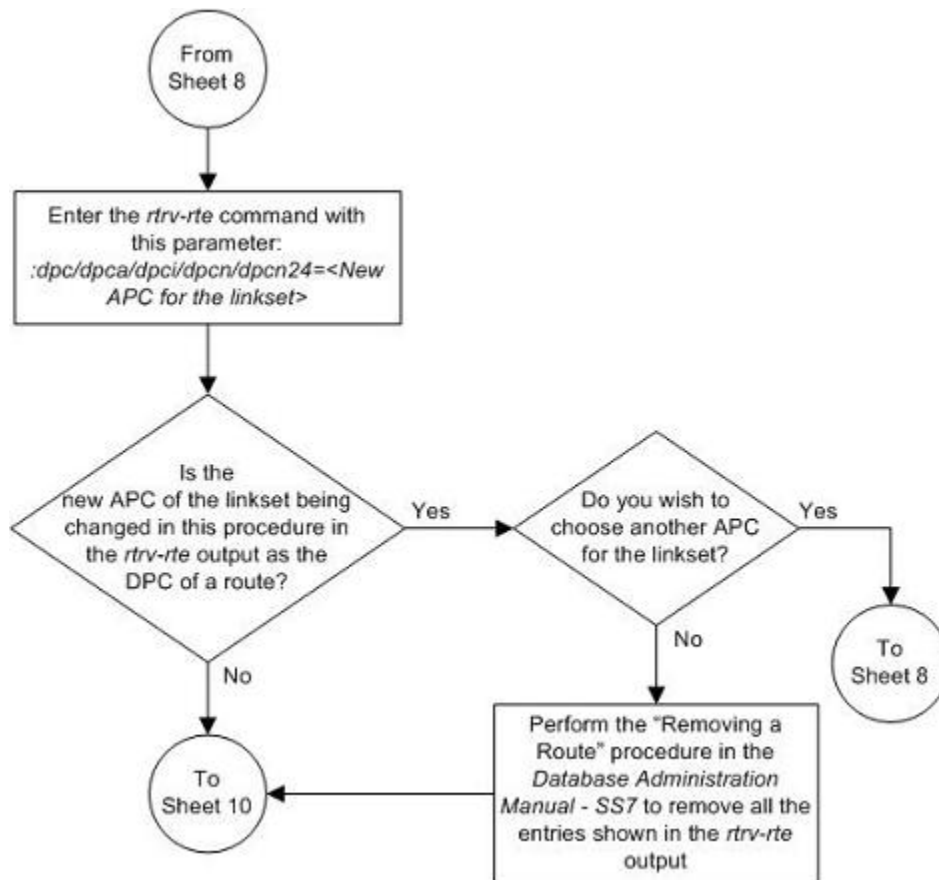


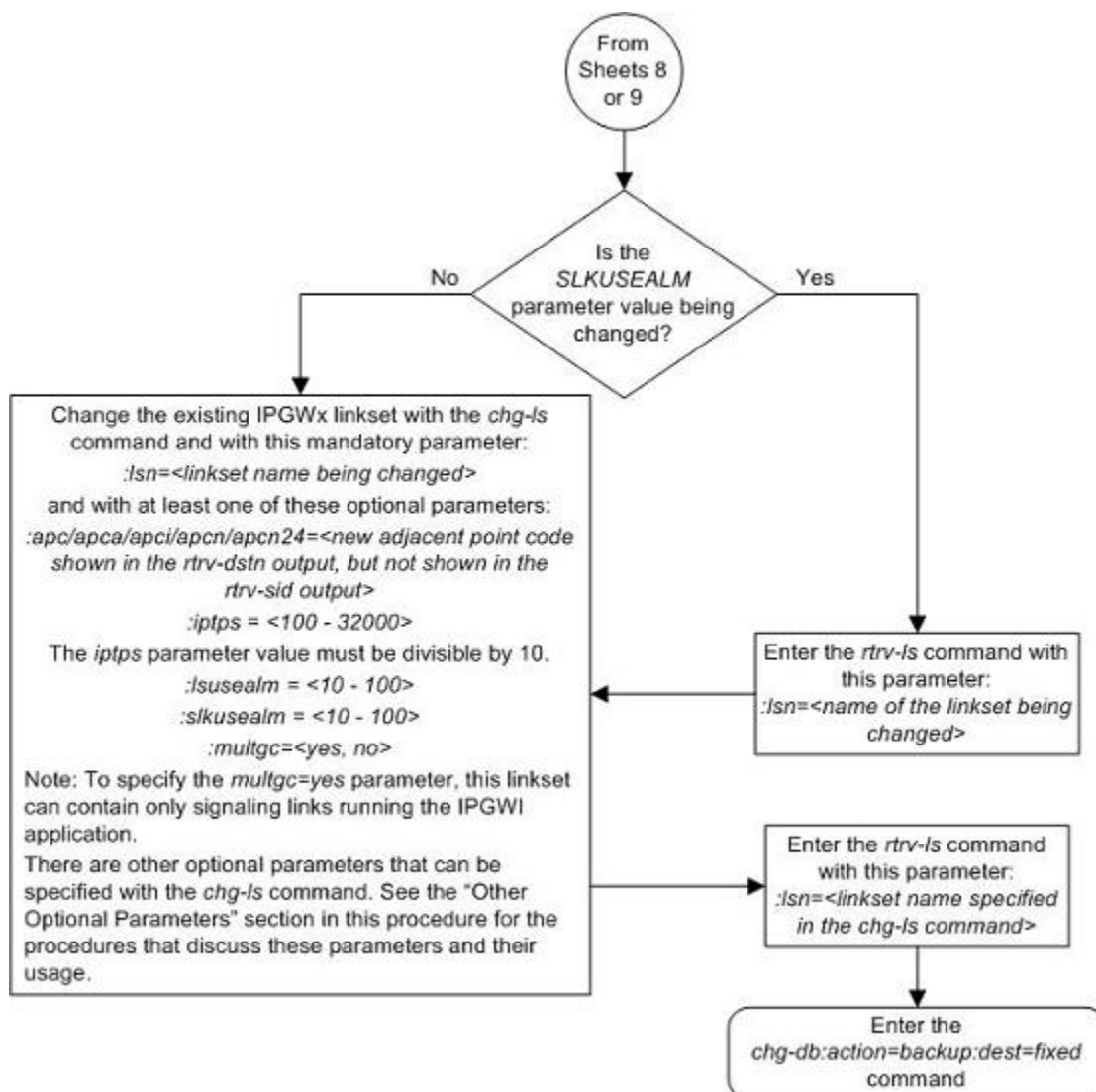












Adding a Mate IPGWx Linkset to another IPGWx Linkset

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 5 ISS 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 5 ISS also provides for a mate IPGWx linkset. A mate IPGWx linkset consists of one IPGWx linkset assigned to another IPGWx linkset using the **mate lsn** 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 Link](#) procedure 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 the *Commands Manual* 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 the *Database Administration Manual - SS7*
 - Adding an SS7 Linkset
 - Changing an SS7 Linkset
 - Configuring an ITU Linkset with a Secondary Adjacent Point Code (SAPC)
- These procedures in the *Database Administration Manual - Features*.
 - Adding an X.25 Signaling Link
 - Changing an X.25 Signaling Link

— Configuring a Linkset for the GSM MAP Screening Feature

Procedure

1. 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 08-04-10 11:43:04 GMT EAGLE5 38.0.0

IP TPS USAGE REPORT
```

	THRESH	CONFIG		TPS	PEAK	PEAKTIMESTAMP
LSN						
LSGW1101	80%	6000	TX:	5100	5500	05-02-10 11:40:04
			RCV:	5100	5500	05-02-10 11:40:04
LSGW1103	80%	6000	TX:	5200	5500	05-02-10 11:40:04
			RCV:	5200	5500	05-02-10 11:40:04
LSGW1105	80%	14000	TX:	7300	7450	05-02-10 11:40:04
			RCV:	7300	7450	05-02-10 11:40:04
LSGW1107	70%	4000	TX:	3200	3500	05-02-10 11:40:04
			RCV:	3200	3500	05-02-10 11:40:04

```
-----
Command Completed.
```

If linksets are displayed in this step, continue the procedure [Step 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 [Step 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 [Step 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
```

LSN	APCA	(SS7)	SCRN	L3T	SLT	BEI	LST	LNKS	GWS	GWS	GWS	ACT	MES	DIS	SLSCI	NIS
lsgw1103	003-002-004		none	1	1	no	A	1	off	off	off	no	off			

```

CLLI          TFATCABMLQ MTPRSE ASL8
----- 1          no      no

IPGWAPC MATELSN      IPTPS LSUSEALM SLKUSEALM GTTMODE
yes      ----- 10000 70      % 70      % CdPA

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 [Step 1](#) , continue the procedure with [Step 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 [Step 1](#) , continue the procedure with [Step 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 [Step 1](#) , continue the procedure with [Step 3](#) .
- If the linkset that will be the mate IPGWx linkset is not shown in the **rept-stat-iptps** output in [Step 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 [Step 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 [Step 1](#) , repeat this step with a linkset shown in the **rept-stat-iptps** output in [Step 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 [Step 1](#) , continue the procedure with [Step 3](#) . If the linkset that will be the mate IPGWx linkset is not shown in the **rept-stat-iptps** output in [Step 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 [Step 14](#)

3. Display the mate linkset from the IPGWx linksets shown in the **rept-stat-iptps** output in [Step 1](#) .

For this example, enter this command.

```
rtrv-ls:lsn=lsgw1107
```

This is an example of the possible output.

```
r1ghncxa03w 08-04-17 11:43:04 GMT EAGLE5 38.0.0

LSN          APCA  (SS7)  SCR N  L3T SLT          GWS GWS GWS
lsgw1107     003-002-004 none  1   1   no  A   1   off off off no  off

CLLI          TFATCABMLQ MTPRSE ASL8
----- 1          no      no

IPGWAPC MATLSN  IPTPS LSUSEALM SLKUSEALM GTTMODE
yes      ----- 10000 70      % 70      % CdPA

LOC  LINK SLC TYPE
1107 A   0   SS7IPGW
```

Link set table is (14 of 1024) 1% full

4. To use the linkset shown in [Step 3](#) as a mate, the network type of the adjacent point code of the linkset shown in [Step 3](#) must be the same as the network type of the linkset shown in [Step 2](#) . The linkset shown in [Step 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 [Step 1](#) , and

repeat [Step 3](#) , and [Step 4](#) if necessary, or perform the [Configuring an IPGWx Linkset](#) procedure and add a new linkset. Continue the procedure with [Step 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 [Step 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 [Step 2](#) . For this example, enter this command.

NOTE: If the linkset that the mate linkset is being added to has no signaling links (see the **rtrv-ls output in [Step 2](#)), continue the procedure with [Step 14](#) .**

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      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    lsgw1103  -----
Command Completed.
```

6. Display the status of the signaling link assigned to the card shown in [Step 5](#) by entering the **rept-stat-slk** command with the card location used in [Step 5](#) and the **link=a** parameter. For this example, enter this command.

NOTE: If the status of the card shown in **PST field in the **rept-stat-card** output in [Step 5](#) is OOS-MT-DSBLD, continue the procedure with [Step 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 [Step 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 [Step 12](#) .

- If you do not wish to have the far end node place these IP connections out of service, continue the procedure with [Step 7](#).
7. Display the IP link associated with the card that the signaling link shown in [Step 6](#) is assigned to by entering the **rtrv-ip-lnk** command with the card location shown in [Step 6](#). For this example, enter this command.

rtrv-ip-lnk:loc=1103

The following is an example of the possible output.

```
rlghncxa03w 08-04-28 21:14:37 GMT EAGLE5 38.0.0
LOC  PORT  IPADDR      SUBMASK      DUPLEX  SPEED  MACTYPE  AUTO  MCAST
1103  A      192.1.1.10    255.255.255.128  HALF    10     802.3    NO    NO
1103  B      -----      -----      HALF    10     DIX      NO    NO
```

8. Display the IP host information associated with the IP link by entering the **rtrv-ip-host** command with the IP address shown in [Step 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 08-04-28 21:17:37 GMT EAGLE5 38.0.0
```

```
LOCAL IPADDR  LOCAL HOST
192.1.1.10    IPNODE1_1103
```

IP Host table is (11 of 512) 2% full

9. Display the association associated with the local host name shown in [Step 8](#) by entering the **rtrv-assoc** command.

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 [Step 9](#) using the **chg-assoc** command with the **alw=no** parameters, as necessary.

NOTE: If the **open** and **alw** parameter values of the association shown in [Step 9](#) are **no**, continue the procedure with [Step 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 [Step 9](#) .

11. Change the **open** parameter values in the association shown in [Step 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 [Step 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 [Step 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 **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 [Step 14](#) 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

LSN          APCA  (SS7)  SCRNL3T SLT      GWS GWS GWS
lsgw1103      003-002-004  none  1   1   no  A   1   ACT MES DIS SLSCI NIS
                                     off off off no   off

CLLI          TFATCABMLQ MTPRSE ASL8
----- 1          no   no
```

```
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

If the linkset shown in this step does not have a signaling link assigned to it, or if the **dact -slk** command in [Step 12](#) was not performed, continue the procedure with [Step 20](#) .

16. Allow the IP card that was inhibited in [Step 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 [Step 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 [Step 10](#) and [Step 11](#) were not performed, continue the procedure with [Step 19](#) .

18. Change the **open** and **alw** parameter values for all the associations changed in [Step 10](#) or [Step 11](#) using the **chg-assoc** command with the **open=yes** and **alw=yes** parameters.

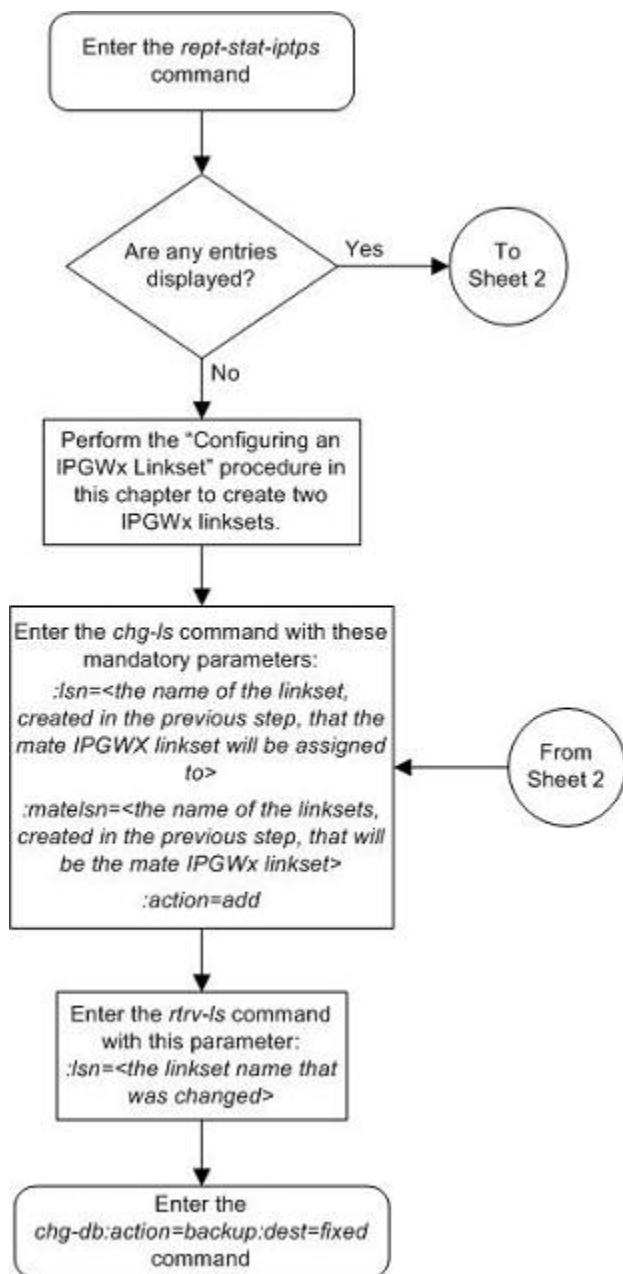
chg-assoc: aname=assoc1: open=yes: alw=yes

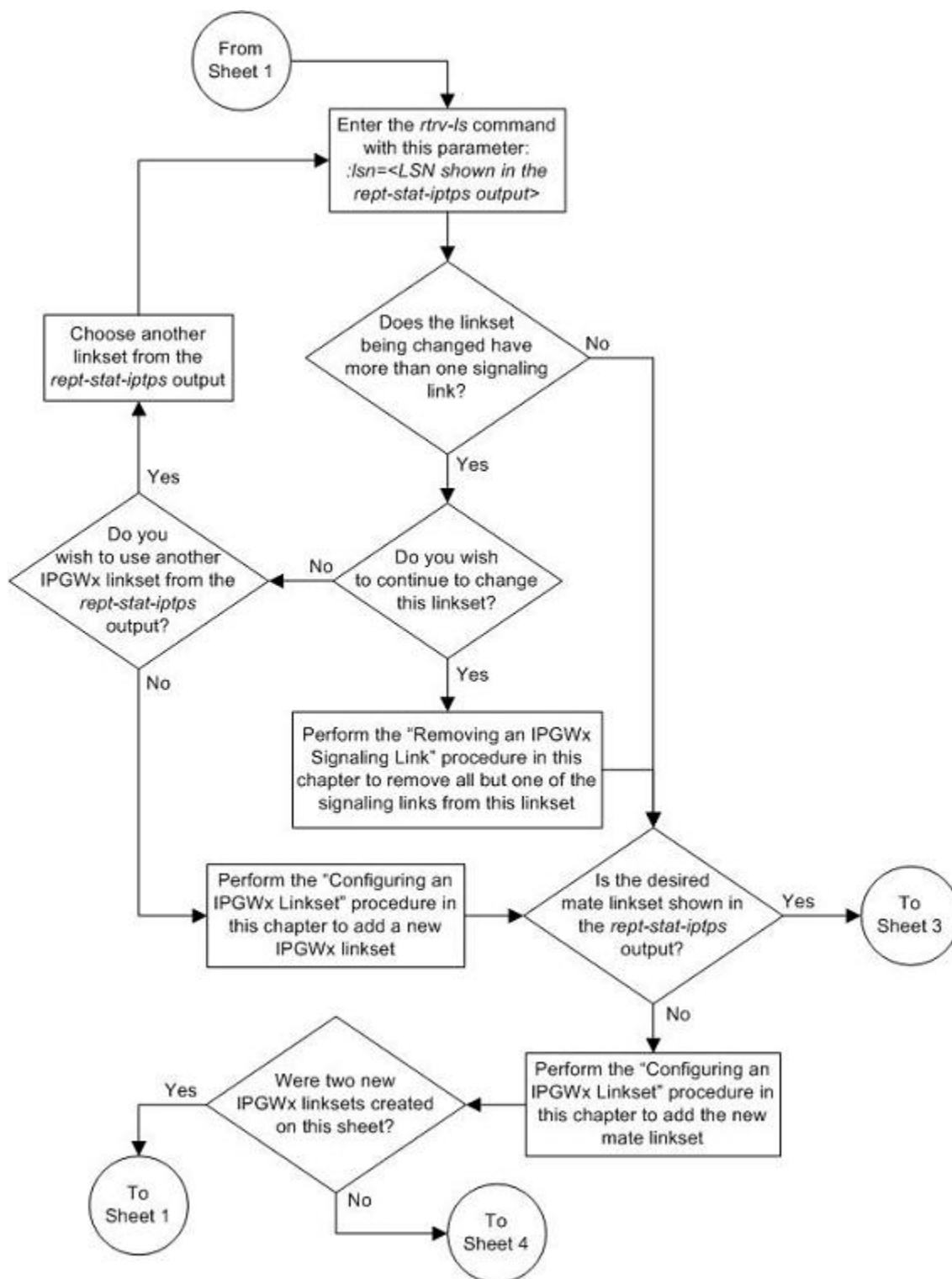
When this command has successfully completed, this message should appear.

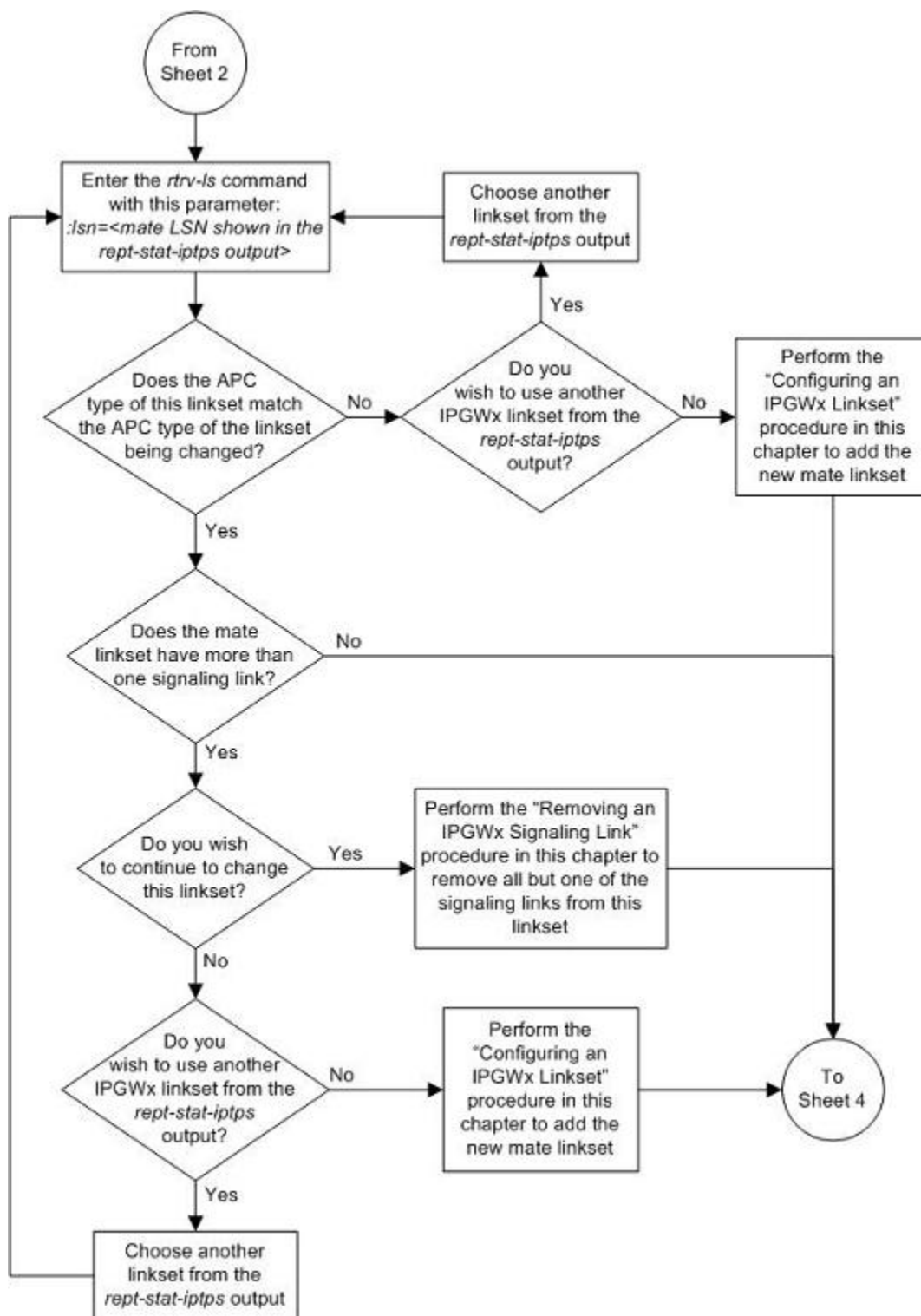
```
rlghncxa03w 08-04-28 09:12:36 GMT EAGLE5 38.0.0
CHG-ASSOC: MASP A - COMPLTD
```

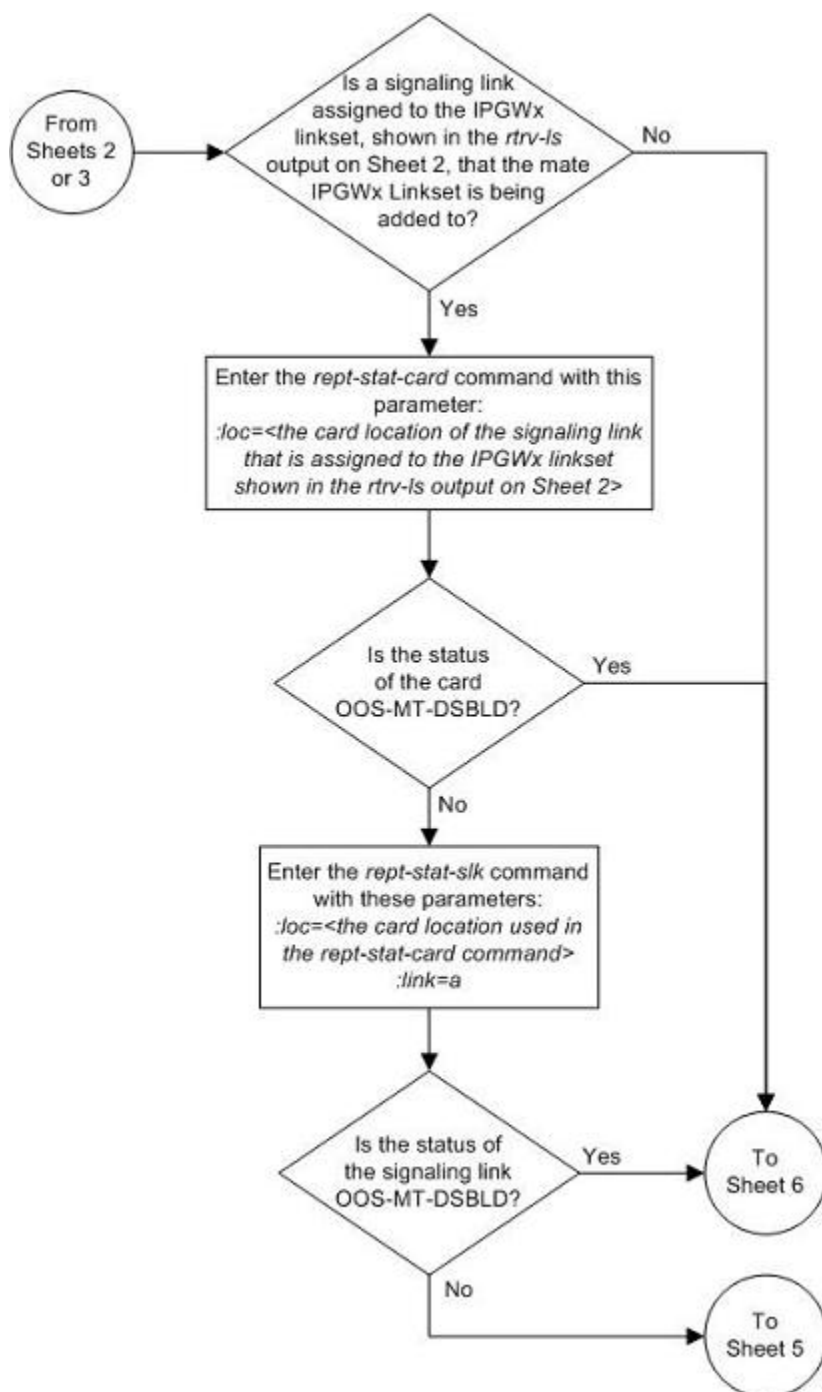
19. Have the far-end node for the signaling link shown in [Step 15](#) place the IP connections on the signaling link into service by placing the M3UA or SUA associations in the ASP-ACTIVE state.
20. Back up the new changes using the **chg-db: action=backup: dest=fixed** command. These messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

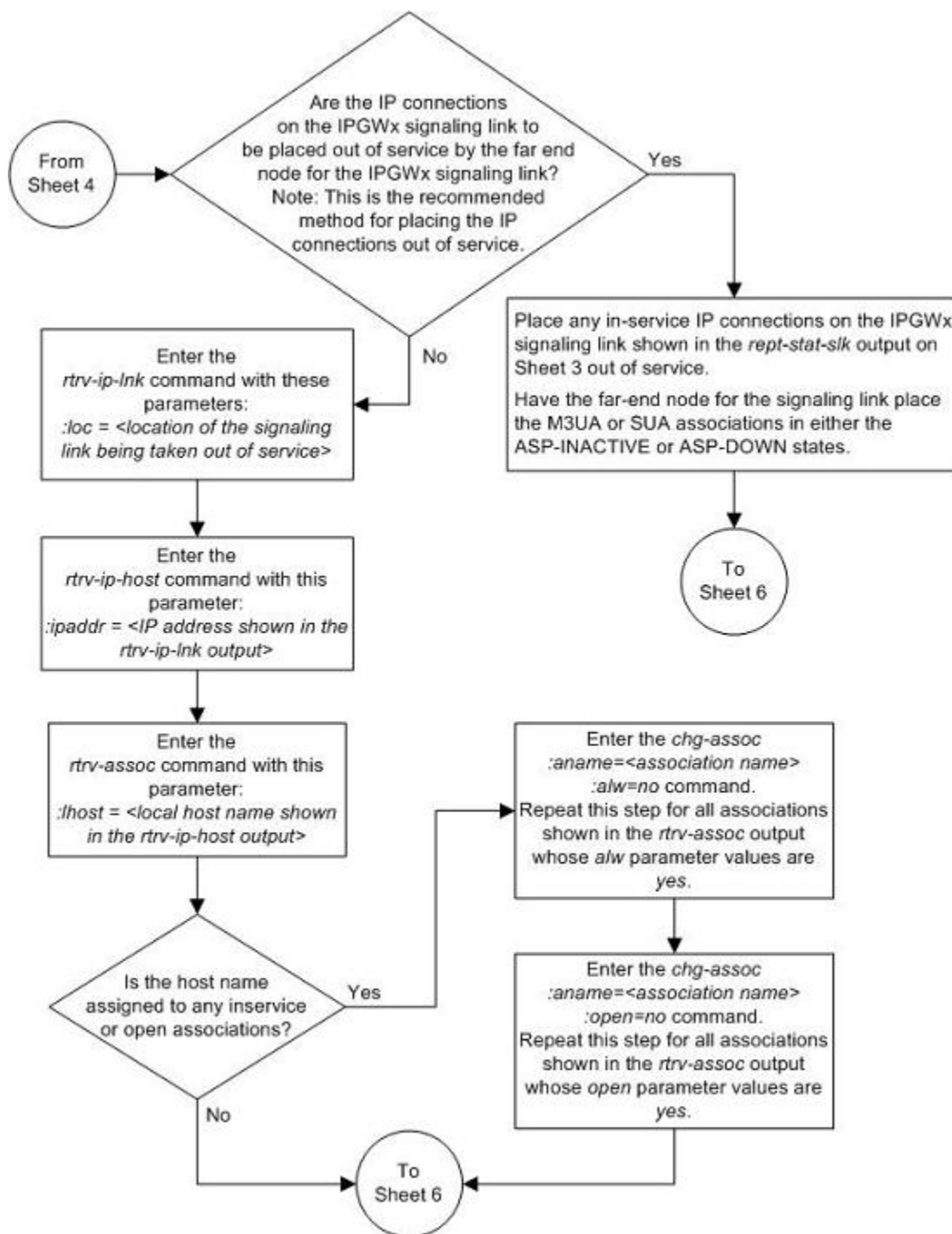
```
.
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

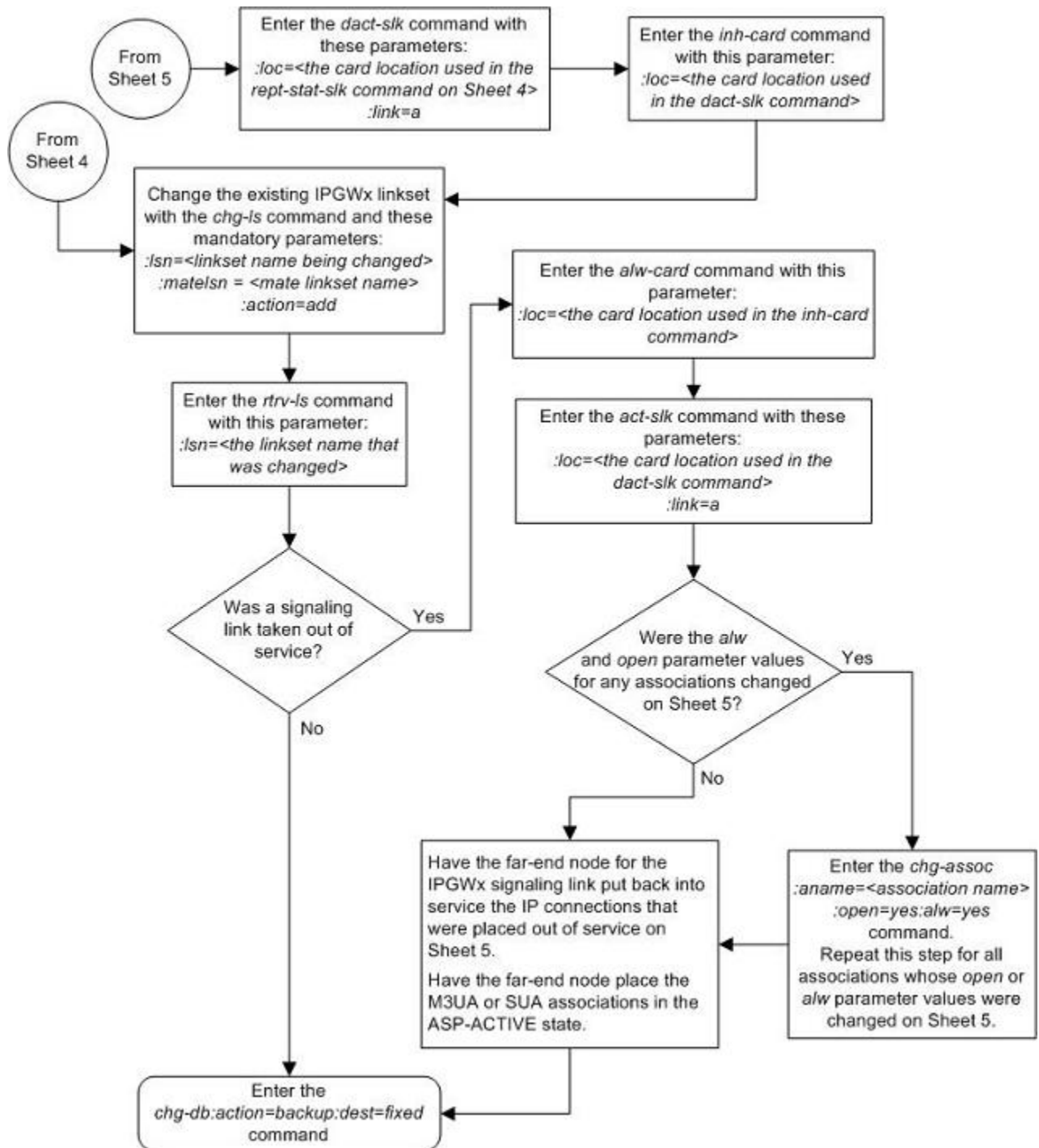
Flowchart 4-3. Adding a Mate IPGWx Linkset to another IPGWx Linkset











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.

: **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 5 ISS 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 the *Commands Manual* or in these sections.

- These procedures in this manual:
 - [Adding an IPLIMx Signaling Link](#)
 - Adding an IPSG M3UA Signaling Link
 - Adding an IPSG M2PA Signaling Link
- These procedures in the *Database Administration Manual - SS7*
 - Adding an SS7 Signaling Link
 - Adding an E1 Signaling Link
 - Adding a T1 Signaling Link
 - Adding an ATM High-Speed Signaling Link
- The "Adding an X.25 Signaling Link" procedure in the *Database Administration Manual - Features*.

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 Manual - System Management*.
- Card – see [Adding an IPGWx Card](#)
- Destination Point Code – see “Adding a Destination Point Code” in the *Database Administration Manual - SS7*.
- Linkset – see [Configuring an IPGWx Linkset](#).

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

To configure the EAGLE 5 ISS to perform circular routing detection test on the signaling links, “Configuring Circular Route Detection” procedure in the *Database Administration Manual - SS7*.

NOTE: Circular route detection is not supported in ITU networks.

To provision a EAGLE 5 ISS with more than 700 signaling links, the EAGLE 5 ISS must have certain levels of hardware installed. See the "Requirements for EAGLE 5 ISSs Containing more than 700 Signaling Links" for more information on these hardware requirements.

The EAGLE 5 ISS 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" on this page describes how to determine the quantities of the different types of signaling links the EAGLE 5 ISS can have.

Requirements for EAGLE 5 ISSs Containing more than 700 Signaling Links

To provision a EAGLE 5 ISS with more than 700 signaling links (currently the EAGLE 5 ISS can have maximum capacities of 1200, or 1500, or 2000 signaling links), the following additional requirements must be met:

- The Measurements Platform feature must be enabled. Perform these procedures in the *Database Administration Manual - System Management* to enable the Measurements Platform feature:
 - "Adding an MCPM"
 - "Configuring the IP Communications Link for the Measurements Platform"
 - "Adding an FTP Server"
- To provision more than 1200 signaling links, the Large System # Links controlled feature must be enabled for 1500 or 2000 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

An EAGLE 5 ISS containing either 1200, or 1500, or 2000 signaling links can contain the following quantities of signaling links:

- 180 high-speed ATM signaling links assigned to the ATMANSI application. If there are any high-speed ATM signaling links assigned to the ATMITU application, the maximum number of high-speed ATM signaling links is 115.
- 100 signaling links assigned to either the IPLIM or IPLIMI applications.
- 64 signaling links assigned to either the **ss7ipgw** or **ipgwi** application, or combinations of the **ss7ipgw** and **ipgwi** applications.
- 64 unchannelized E1 signaling links.

The following hardware and applications are the only signaling link hardware and applications supported for an EAGLE 5 ISS containing more than 1500 signaling links.

- E1/T1 MIM running the **ccs7itu** application.
- HC-MIM running the **ccs7itu** application.
- E5-E1T1 running the **ccs7itu** application.
- Single-slot EDCM running either the **iplimi** or **ipgwi** applications.
- E5-ENET running either the **iplimi** or **ipgwi** applications.
- ATM high-speed LIM running the **atmitu** application.

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 than 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 the *Commands Manual*.

Procedure

1. Display the current signaling link configuration using the **rtrv-sl** command.

This is an example of the possible output.

```
rlghncxa03w 08-04-19 21:16:37 GMT EAGLE5 38.0.0

      L2T      L1      PCR      PCR
LOC  LINK  LSN      SLC TYPE  SET  BPS  MODE TSET  ECM  N1  N2
1201 B    lsa1      0  LIMDS0  1   56000 --- --- BASIC --- -----
1203 B    lsa2      0  LIMDS0  1   56000 --- --- BASIC --- -----
1205 A    lsa3      0  LIMV35  3   64000 DCE  ON  BASIC --- -----
1207 A    lsn1207a  0  LIMDS0  1   56000 --- --- BASIC --- -----
1207 B    lsn1207b  0  LIMDS0  1   56000 --- --- BASIC --- -----
1214 A    lsn1214a  0  LIMV35  2   64000 DTE  --- PCR   76  3800
1214 B    lsa3      1  LIMV35  3   64000 DCE  ON  BASIC --- -----
```

SLK table is (7 of 1200) 1% full.

If the **rtrv-sl** output shows that the maximum number of signaling links is 2000, continue the procedure with [Step 2](#).

If the **rtrv-sl** output shows that the maximum number of signaling links is 1200, and the signaling link being added increases the number beyond 1200, perform the [Enabling the Large System # Links Controlled Feature](#) procedure and enable the Large System # Links controlled feature for either 1500 signaling links or 2000 signaling links. Then continue the procedure with [Step 2](#).

If the **rtrv-sl** output shows that the maximum number of signaling links is 1500, and the signaling link being added increases the number beyond 1500, perform the [Enabling the Large System # Links Controlled Feature](#) procedure and enable the Large System # Links controlled feature for 2000 signaling links. Then continue the procedure with [Step 2](#).

If the addition of the new signaling link will not exceed the maximum number of signaling links, continue the procedure with [Step 2](#).

2. Display the current linkset configuration using the **rtrv-ls** command.

This is an example of the possible output.

```
rlghncxa03w 08-04-10 11:43:04 GMT EAGLE5 38.0.0

      L3T SLT      GWS GWS GWS
LSN   APCA  (SS7)  SCR N SET SET BEI LST LNKS ACT MES DIS SLSCI NIS
e1e2  001-207-000 none 1 1 no B 6 off off off no off
ls1305 000-005-000 none 1 1 no A 1 off off off no off
ls1307 000-007-000 none 1 1 no A 1 off off off no off
e1m1s1 001-001-001 none 1 1 no A 7 off off off no off
e1m1s2 001-001-002 none 1 1 no A 7 off off off no off

      L3T SLT      GWS GWS GWS
LSN   APCI  (SS7)  SCR N SET SET BEI LST LNKS ACT MES DIS SLSCI NIS
e1e2i 1-207-0 none 1 1 no B 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 A 1 off off off --- on
e1m2s1 1-011-1 none 1 1 no A 7 off off off --- off
e1m2s2 1-011-2 none 1 1 no A 7 off off 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 [Step 3](#).

If a new linkset is being added in this step, continue the procedure with [Step 4](#).

3. 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

LSN	APCI	(SS7)	SCRN	L3T	SLT	SET	BEI	LST	LNKS	ACT	MES	DIS	SLSCI	NIS
lsnipgw	2968		none	1	1	no	A	1	1	off	off	off	---	off
	CLLI		TFATCABMLQ		MTPRSE		ASL8		SLSRSB		MULTGC		ITUTFR	
	-----	1			no		---	1			yes		off	
	IPGWAPC	MATELSN		IPTPS	LSUSEALM		SLKUSEALM		GTTMODE					
	yes	-----	10000	70	%	70	%	CdPA						
	LOC	LINK	SLC	TYPE										
	1317	A	0	IPGWI										
	SAPCI													
	1-10-1													
	SAPCN													
	1234-aa													
	1235-bb													
	1200-zz													

Link set table is (13 of 1024) 1% full.

Linksets containing IPGWx signaling links can contain only IPGWx signaling links.

4. Display the cards in the database using the **rtrv-card** command.

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
1102	TSM	GLS						
1103	DCM	VXWLAN						
1113	GSPM	EOAM						
1114	TDM-A							
1115	GSPM	EOAM						
1116	TDM-B							
1117	MDAL							
1201	LIMDS0	SS7ANSI	lsa1	B	0			
1202	LIMV35	SS7ANSI						
1203	LIMDS0	SS7ANSI	lsa2	B	0			
1204	LIMDS0	SS7ANSI						
1205	LIMV35	SS7ANSI	lsa3	A	0			
1206	LIMV35	SS7ANSI						
1207	LIMDS0	SS7ANSI	lsn1207a	A	0	lsn1207b	B	0
1208	LIMDS0	SS7ANSI						
1212	LIMV35	SS7ANSI						
1213	LIMDS0	SS7ANSI						

1214	LIMV35	SS7ANSI	lsn1214a	A	0	lsa3	B	1
1215	LIMDS0	SS7ANSI						
1301	LIMV35	ATMANSI						
1302	LIMATM	ATMANSI						
1304	LIMV35	SS7ANSI						
1305	LIMATM	ATMANSI						
1308	LIMV35	SS7ANSI						
1311	LIMDS0	SS7ANSI						
1313	LIMDS0	SS7ANSI						
1315	LIMV35	CCS7ITU						
1317	LIMV35	CCS7ITU						
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.

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 IPGWI.

NOTE: If the IPGWx linkset contains any IPGWx signaling links, continue the procedure with [Step 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 Manual - SS7* 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 [Step 9](#) .
- If the desired linkset, shown in the **rtrv-ls** output in [Step 3](#) , 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 [Step 8](#) .

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 [Step 9](#) .

- 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.

```
r1ghncxa03w 08-04-10 11:43:04 GMT EAGLE5 38.0.0
```

IP TPS USAGE REPORT

	THRESH	CONFIG		TPS	PEAK	PEAKTIMESTAMP

LSN						
LSGW1101	80%	6000	TX:	5100	5500	05-02-10 11:40:04
			RCV:	5100	5500	05-02-10 11:40:04
LSGW1103	80%	6000	TX:	5200	5500	05-02-10 11:40:04
			RCV:	5200	5500	05-02-10 11:40:04
LSGW1105	80%	14000	TX:	7300	7450	05-02-10 11:40:04

```

LSGW1107      70%      4000      RCV: 7300      7450 05-02-10 11:40:04
                                TX: 3200      3500 05-02-10 11:40:04
                                RCV: 3200      3500 05-02-10 11:40:04
-----

```

Command Completed.

8. 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.

```

r1ghncxa03w 08-04-17 11:43:04 GMT EAGLE5 38.0.0

LSN          APCA  (SS7)  SCRNL3T SLT          GWS GWS GWS
lsgw1103     003-002-004 none 1 1 no A 1 off off off no off

CLLI          TFATCABMLQ MTPRSE ASL8
----- 1 no no

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

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 [Step 9](#).

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 [Step 9](#).

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 [Step 9](#).

9. Add the signaling link to the database using the **ent-slk** command. [Table 4-4](#) shows the parameters and values that can be specified with the **ent-slk** command.

Table 4-4. 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. ⁶
:link = A
:lsn = linkset name ^{1, 2, 3, 4, 5}
:slc = 0 - 15 ^{4, 5}
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.

IPGWx Signaling Link

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.
6. If the signaling link is being assigned to a single-slot EDCM, to maximize the performance of the IPGWx cards assigned to the linkset, it is recommended that the all signaling links in the linkset are assigned to single-slot EDCMs with part number 870-2372-xx.

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
```

10. Verify the changes using the **rtrv-slk** command with the card location and **link** parameter values specified in [Step 9](#).

```
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
```

11. 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.
```

12. 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
```

13. Check the status of the signaling links added in [Step 9](#) using the **rept-stat-slk** command with the card location and **link** parameter values specified in [Step 9](#). 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

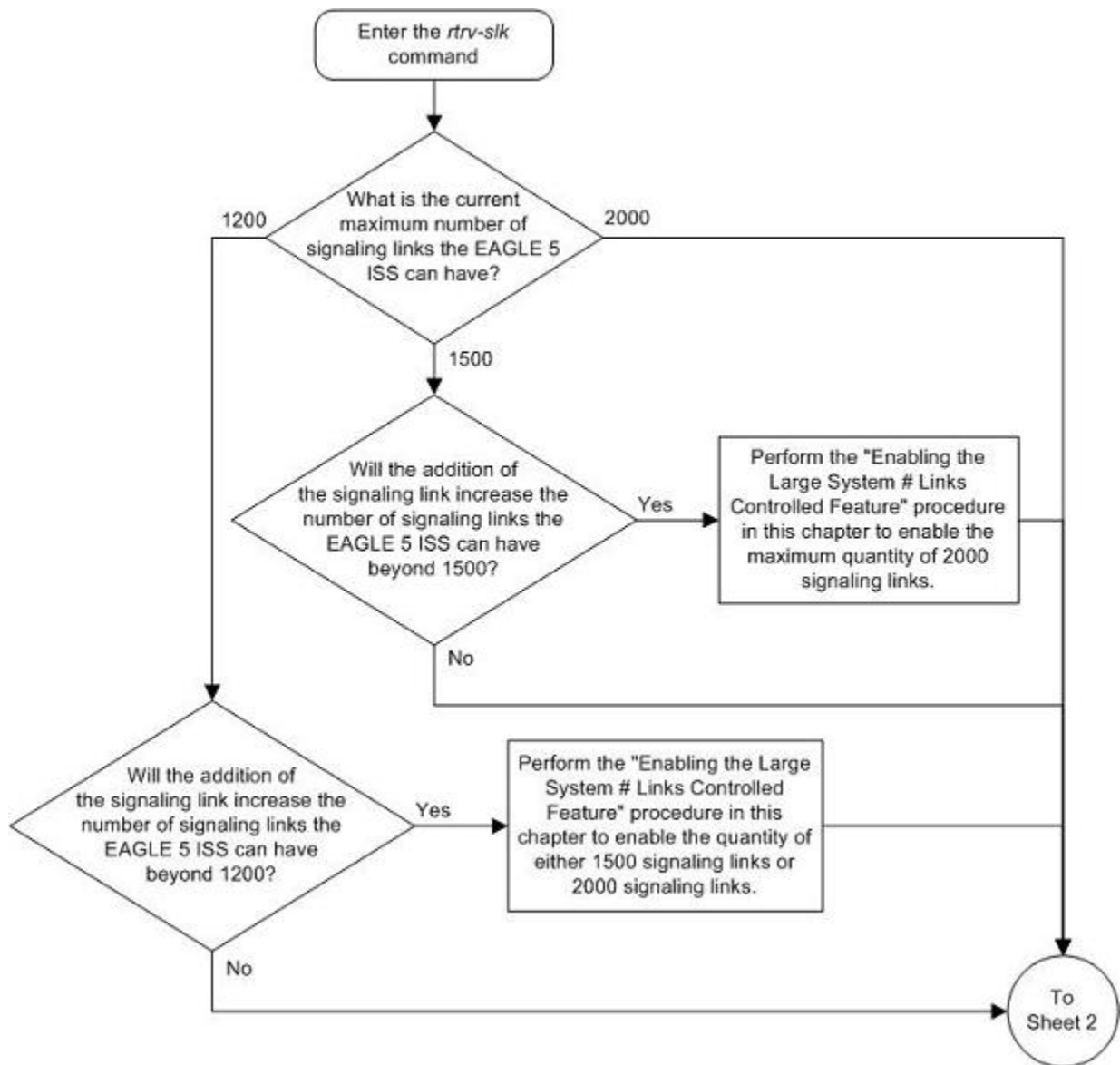
This is an example of the possible output.

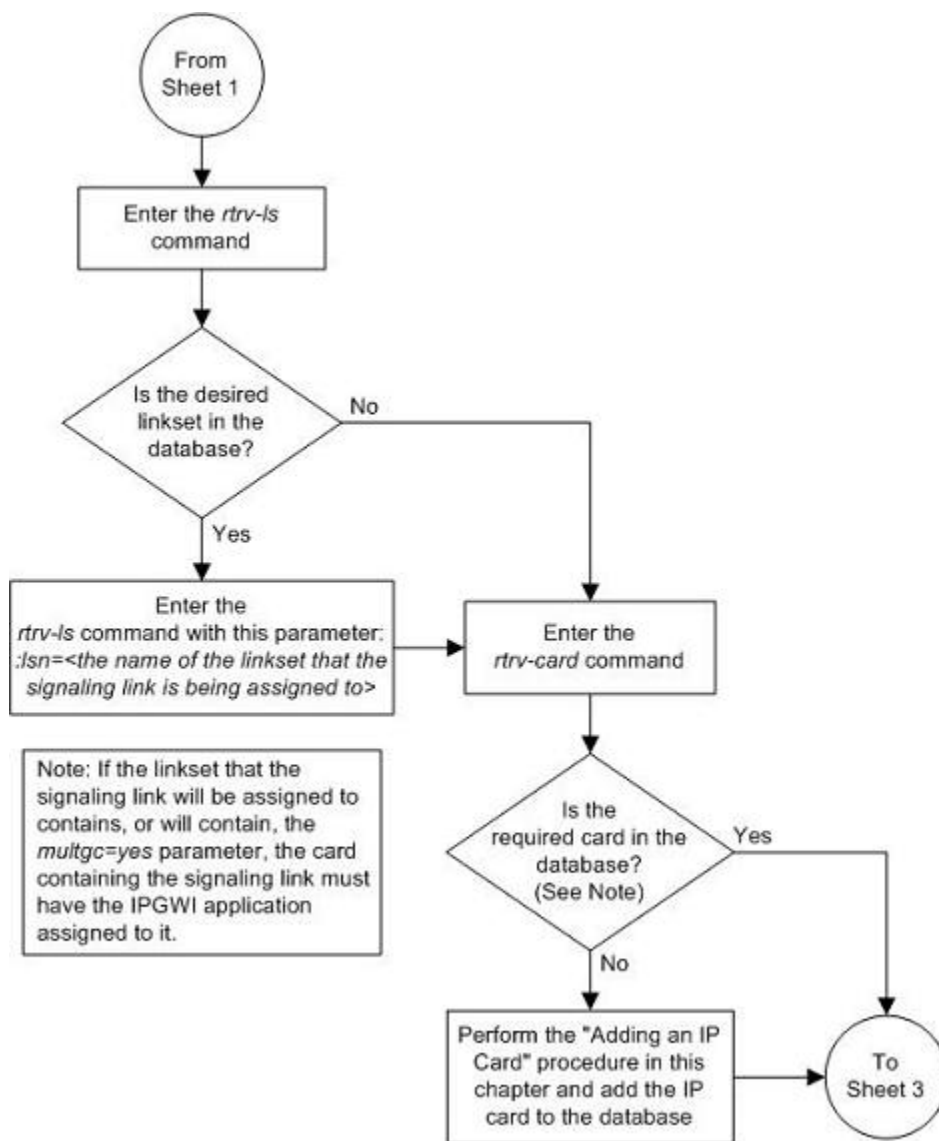
```
rlghncxa03w 07-05-23 13:06:25 GMT EAGLE5 37.0.0
SLK      LSN      CLLI      PST      SST      AST
2211,A   lsnlp4   -----  IS-NR      Avail    ----
  ALARM STATUS      =
  UNAVAIL REASON    =
```

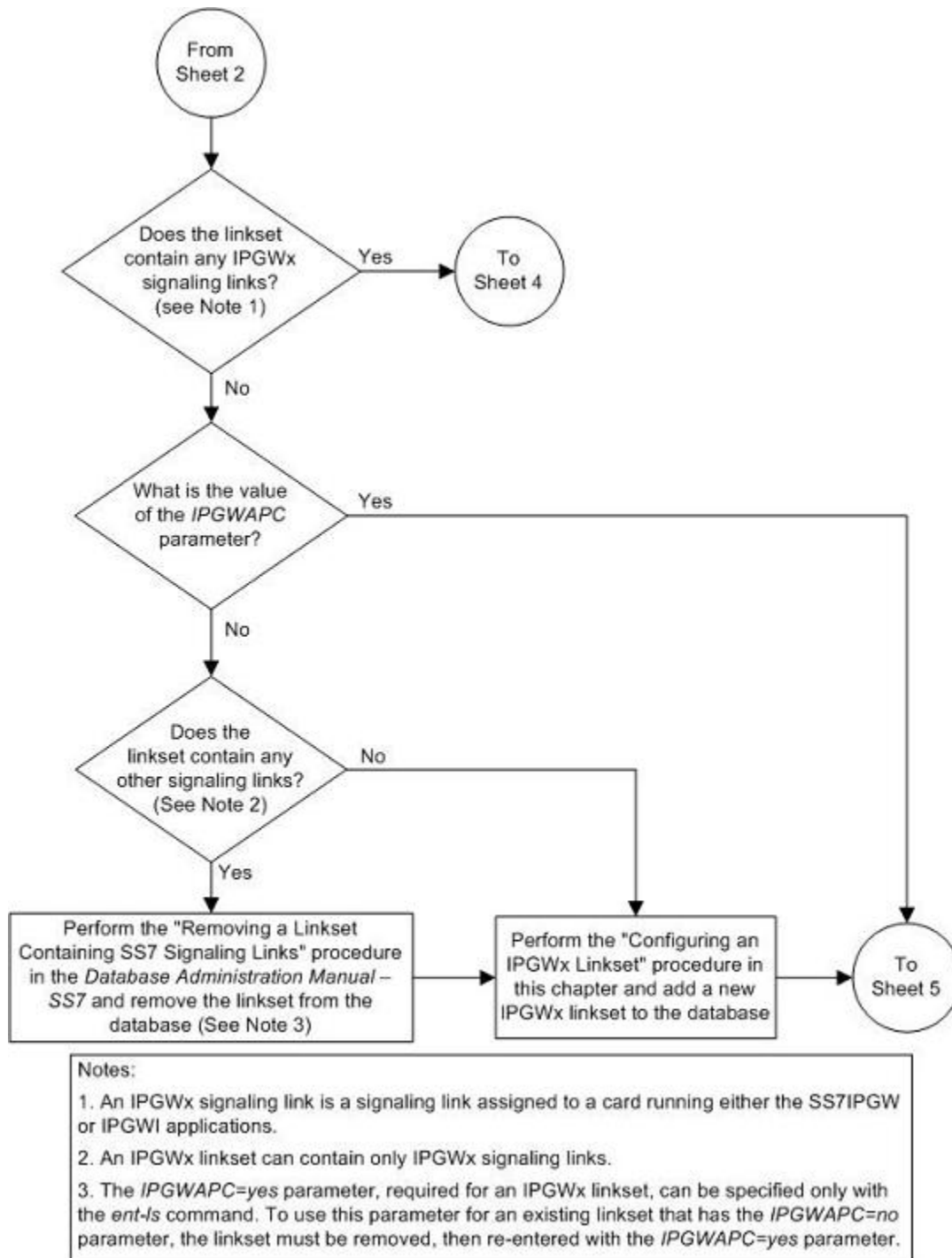
14. Back up the new changes using the **chg-db:action=backup:dest=fixed** command.

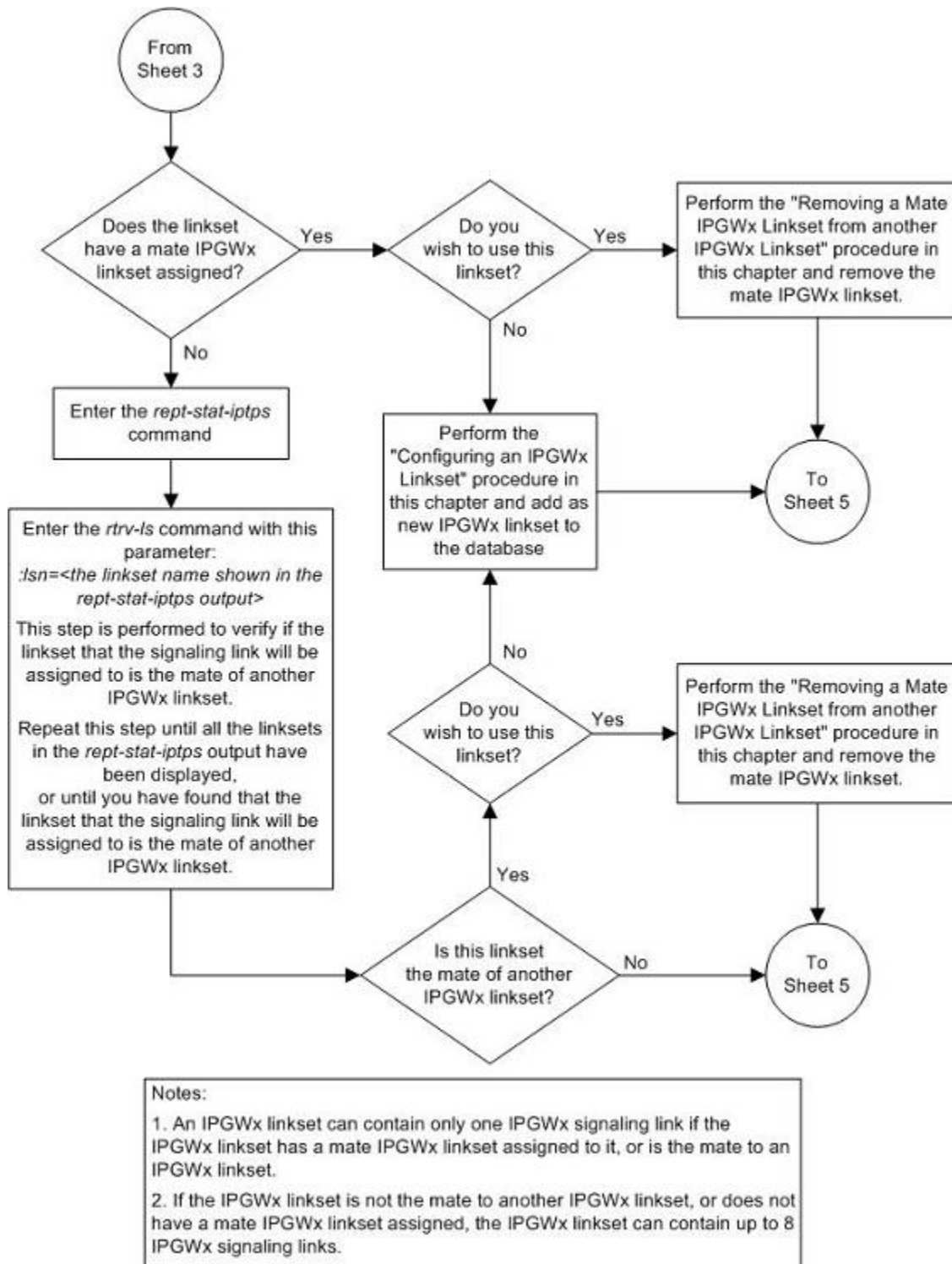
These messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

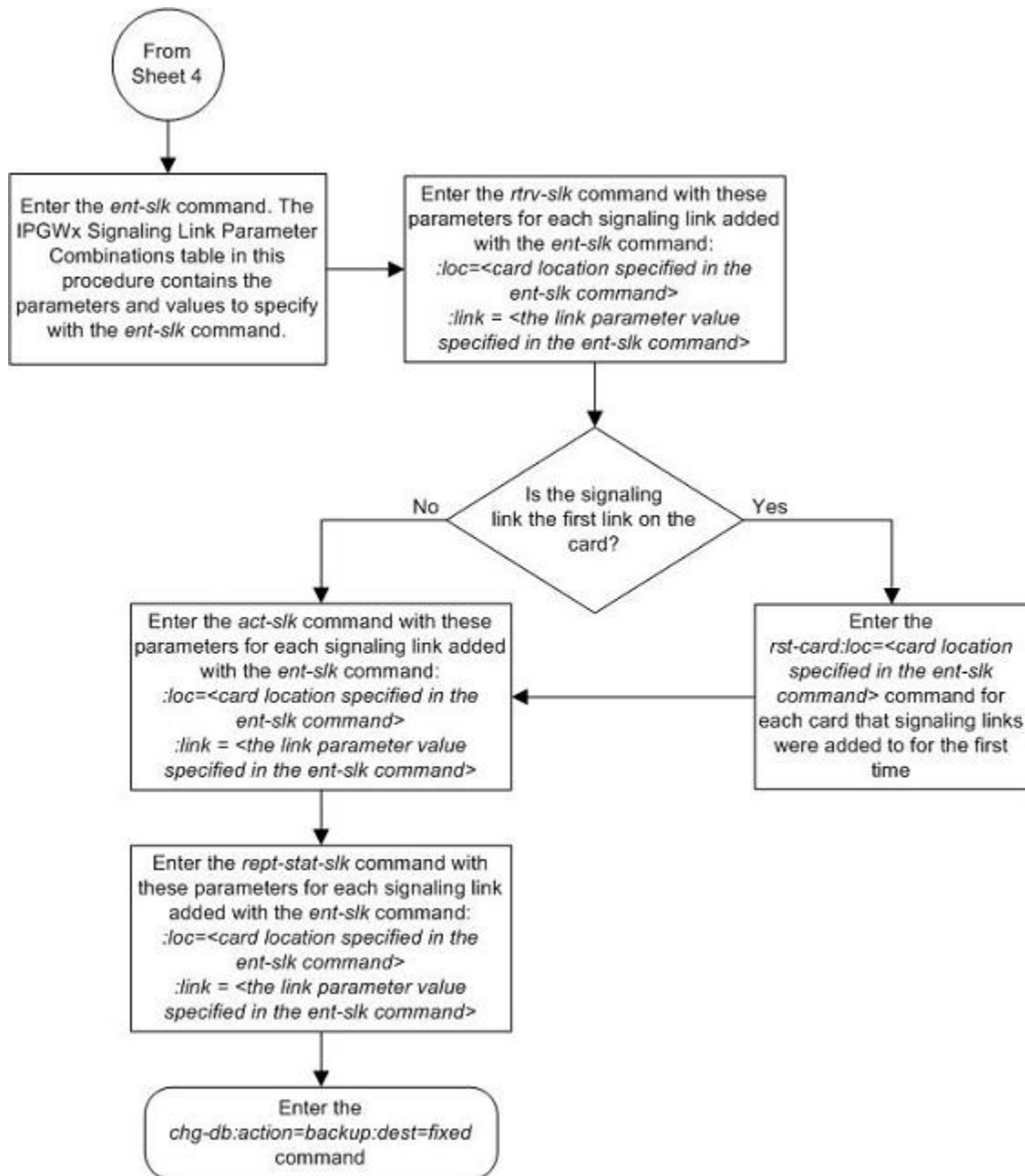
```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```


Flowchart 4-4. Adding an IPGWx Signaling Link









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 5 ISS, making the feature access key site-specific.

This feature allows the EAGLE 5 ISS to contain a maximum of either 1500 or 2000 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:

: fak – The feature access key provided by Tekelec. The feature access key contains 13 alphanumeric characters and is not case sensitive.

: partnum – The Tekelec-issued part number associated with the signaling link quantity being enabled:

- 893005901 for the 1500 signaling link quantity
- 893005910 for the 2000 signaling link quantity.

The **enable-ctrl-feat** command requires that the database contain a valid serial number for the EAGLE 5 ISS, and that this serial number is locked. This can be verified with the **rtrv-serial-num** command. The EAGLE 5 ISS is shipped with a serial number in the database, but the serial number is not locked. The serial number can be changed, if necessary, and locked once the EAGLE 5 ISS is on-site, by using the **ent-serial-num** command. The **ent-serial-num** command uses these parameters.

: serial – The serial number assigned to the EAGLE 5 ISS. The serial number is not case sensitive.

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

NOTE: To enter and lock the EAGLE 5 ISS's serial number, the ent-serial-num command must be entered twice, once to add the correct serial number to the database with the serial parameter, then again with the serial and the lock=yes parameters to lock the serial number. You should verify that the serial number in the database is correct before locking the serial number. The serial number can be found on a label affixed to the control shelf (shelf 1100).

This feature cannot be temporarily enabled (with the temporary feature access key).

Once this feature is enabled with the **enable-ctrl-feat** command, the feature is also activated. The **chg-ctrl-feat** command is not necessary to activate the feature.

This feature cannot be disabled with the **chg-ctrl-feat** command and the **status=off** parameter.

Hardware Supported for Signaling Link Quantities Greater than 1500

The following hardware and applications are the only signaling link hardware and applications supported for an EAGLE 5 ISS containing more than 1500 signaling links.

- E1/T1 MIM running the **ccs7itu** application.
- HC-MIM running the **ccs7itu** application.
- E5-E1T1 card running the **ccs7itu** application.
- Single-slot EDCM running either the **iplimi** or **ipgwi** applications.
- E5-ENET card running either the **iplimi** or **ipgwi** applications.
- ATM high-speed LIM card running the **atmitu** application.

To increase the signaling link quantity to more than 1500 signaling links, HIPR cards must be installed into card locations 9 and 10 in each shelf in the EAGLE 5 ISS. Enter the **rept-stat-gpl:gpl=hipr** command to verify whether or not HIPR cards are installed in the EAGLE 5 ISS shelves.

Procedure

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 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	----
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.

NOTE: If the **rtrv-ctrl-feat output in [Step 1](#) shows any controlled features, or if the Large System # Links controlled feature is enabled for a quantity that is less than the desired quantity, continue the procedure with [Step 6](#) .**

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 with [Step 6](#) . If the serial number is correct but not locked, continue the procedure with [Step 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 [Customer Care Center](#) 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 5 ISS'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 [Step 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 [Step 3](#) and [Step 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 [Step 2](#), if the serial number shown in [Step 2](#) is correct, or with the serial number shown in [Step 4](#), if the serial number was changed in [Step 3](#), and with the **lock=yes** parameter.

For this example, enter this command.

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

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

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
ENT-SERIAL-NUM: MASP A - COMPLTD
```

6. Verify that HIPR cards are installed in card locations 9 and 10 in each shelf of the EAGLE 5 ISS.

NOTE: If the 2000 signaling link quantity is not being enabled in this procedure, continue the procedure with [Step 7](#).

Enter this command.

rept-stat-gpl:gpl=hipr

This is an example of the possible output.

```
rlghncxa03w 06-10-01 11:40:26 GMT EAGLE5 36.0.0
GPL      CARD      RUNNING      APPROVED      TRIAL
HIPR     1109      126-002-000      126-002-000      126-003-000
HIPR     1110      126-002-000      126-002-000      126-003-000
HIPR     1209      126-002-000      126-002-000      126-003-000
HIPR     1210      126-002-000      126-002-000      126-003-000
HIPR     1309      126-002-000      126-002-000      126-003-000
HIPR     1310      126-002-000      126-002-000      126-003-000
HIPR     2109      126-002-000      126-002-000      126-003-000
HIPR     2110      126-002-000      126-002-000      126-003-000
Command Completed
```

If HIPR cards are installed in each the shelf in the EAGLE 5 ISS, continue the procedure with [Step 7](#).

If HIPR cards are not installed on each shelf in the EAGLE 5 ISS, go to the *Installation Manual - EAGLE 5 ISS* and install the HIPR cards. Once the HIPR cards have been installed, continue the procedure with [Step 7](#).

NOTE: Before the 2000 signaling link quantity is enabled, make sure the EAGLE 5 ISS is configured with the signaling link hardware shown in the Hardware Supported for Signaling Link Quantities Greater than 1500 section.

If signaling hardware other than the hardware shown in the Hardware Supported for Signaling Link Quantities Greater than 1500 section is installed and provisioned, contact the Customer Care Center before enabling the 2000 signaling link quantity. Refer to [Customer Care Center](#) for the contact information.

7. 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 5 ISS 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 5 ISS can contain to 2000, enter this command.

enable-ctrl-feat:partnum=893005910:fak=<feature access key>

NOTE: 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 Tekelec. If you do not have the feature access key for the feature you wish to enable, contact your Tekelec Sales Representative or Account Representative.

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

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
ENABLE-CTRL-FEAT: MASP B - COMPLTD
```

8. Verify the changes by entering the **rtrv-ctrl-feat** command with the part number specified in [Step 7](#).

If the 1500 signaling link quantity was enabled in [Step 7](#), 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 [Step 7](#), 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
```

Enabling the Large System # Links Controlled Feature Database Administration Manual - IP7 Secure Gateway

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:

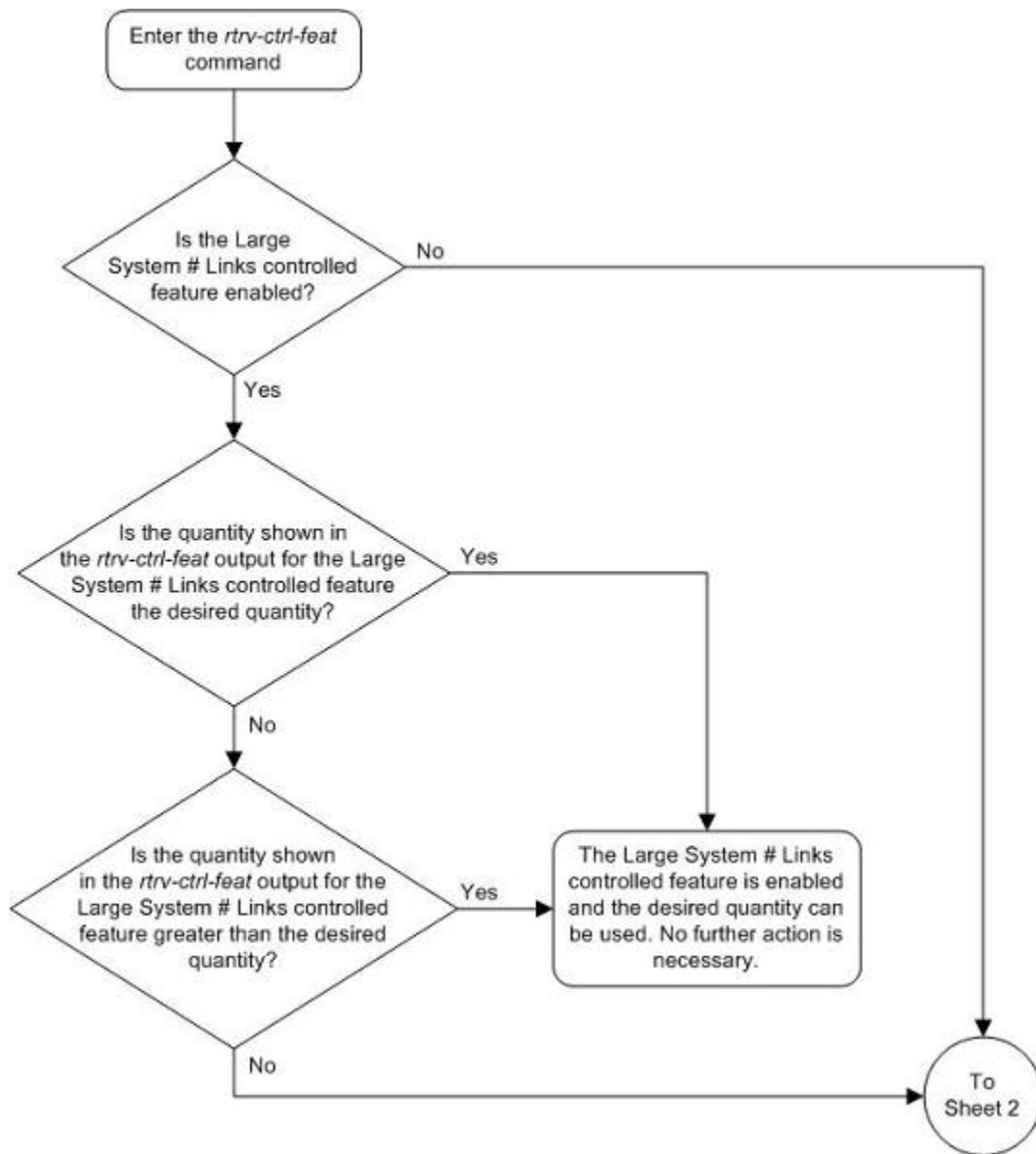
Feature Name	Partnum
Zero entries found.	

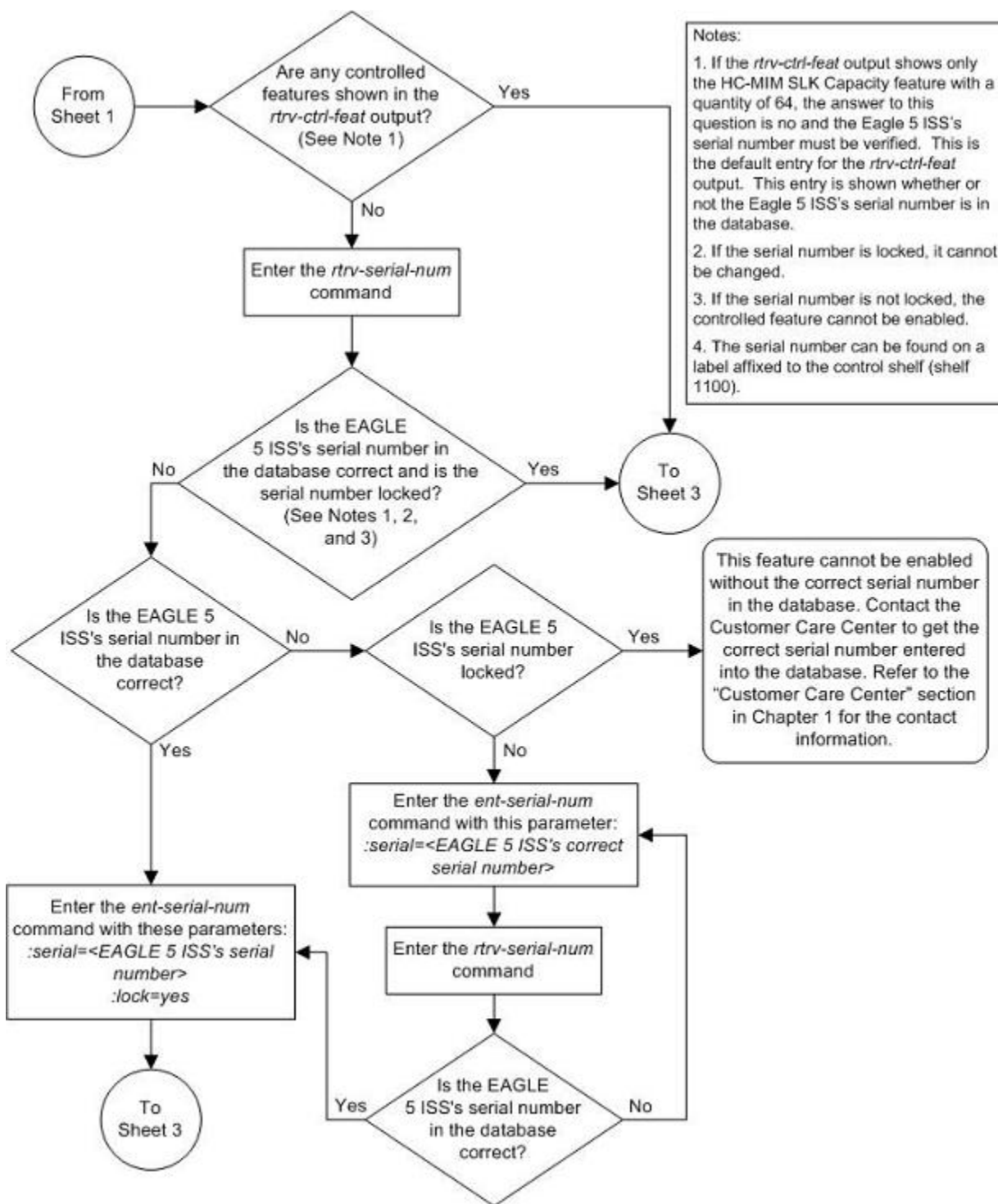
9. Back up the new changes using the **chg-db:action=backup:dest=fixed** command.

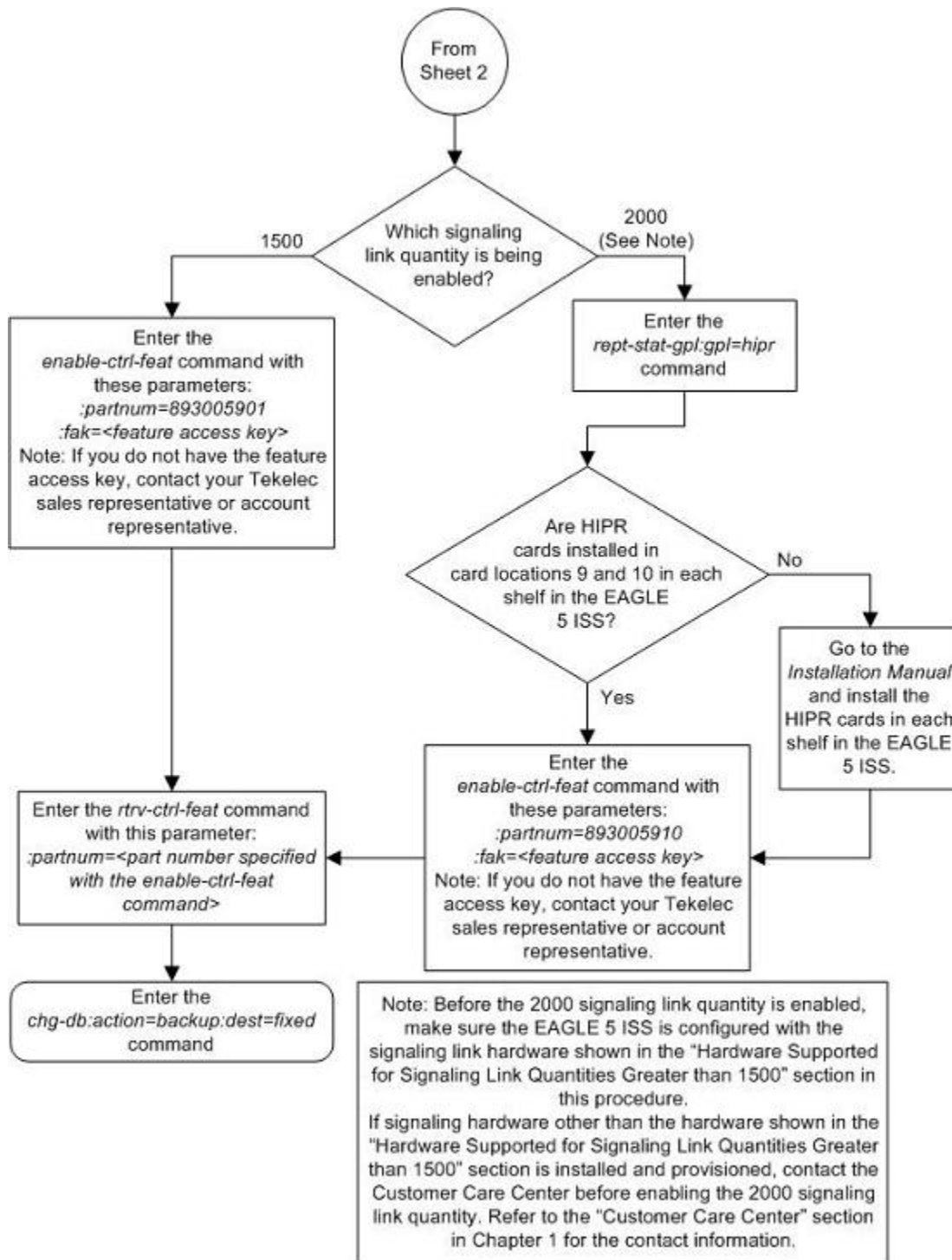
These messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
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.
```

Flowchart 4-5. Enabling the Large System # Links Controlled Feature







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 4-5](#) 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.

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 4-5](#)). 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, **dnsc**, 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 **ipaddr** setting. See [Table 4-5](#) for the valid input values for the **submask** and **ipaddr** parameter combinations.

Table 4-5. Valid Subnet Mask Parameter Values

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

If a Class B IP address is specified for the **ipaddr** parameter of the **chg-ip-lnk** command, the subnet address that results from the **ipaddr** and **submask** parameter values cannot be the same as the subnet address that results from the **pvn** and **pvnmask** parameter values of the **chg-netopts** command. The **pvn** and **pvnmask** parameter values can be verified by entering the **rtrv-netopts** command. 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** 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** 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 than 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 the *Commands Manual*.

Procedure

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 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     802.3    NO    NO
1201  B    -----     -----     HALF    10     DIX      NO    NO
1203  A    192.1.1.12   255.255.255.0   ----    ---    DIX      YES   NO
1203  B    -----     -----     HALF    10     DIX      NO    NO
1205  A    192.1.1.14   255.255.255.0   FULL    100    DIX      NO    NO
1205  B    -----     -----     HALF    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
2103  A    192.1.1.22   255.255.255.0   FULL    100    DIX      NO    NO
2103  B    -----     -----     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
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    -----     -----     HALF    10     DIX      NO    NO
```

NOTE: If the **ipaddr=0.0.0.0** is not being specified in this procedure, continue the procedure with [Step 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** command.

The following is an example of the possible output.

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0

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 512) 2% 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 [Adding an IP Host](#) 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 [Step 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
1201  A    nc001        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  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 [Step 5](#) to deactivate the signaling link. If the signaling link is out-of-service-maintenance disabled (OOS-MT-DSBLD), continue the procedure with [Step 7](#) to verify the IP card status.

5. 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.

```

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.
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.

If the IP card to be inhibited is in service-normal (IS-NR), continue the procedure with [Step 8](#) to inhibit the card. If the IP card is out-of-service-maintenance disabled (OOS-MT-DSBLD), continue the procedure with [Step 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 06-10-27 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
SLK   PST          LS          CLLI
```

```

      A      IS-NR      nc001      -----
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.

NOTE: If the **ipaddr** or **submask** parameter values are not being changed, continue the procedure with [Step 13](#) .

For this example, enter this command.

rtrv-ip-card:loc=1201

This is an example of the possible output.

```

rlghncxa03w 06-10-28 21:17:37 GMT EAGLE5 36.0.0
LOC 1201
  SRCHORDR  LOCAL
  DNSA      150.1.1.1
  DNSB      -----
  DEFROUTER -----
  DOMAIN    -----

```

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 128.252.10.5 255.255.255.255 140.188.13.33
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 1024) 1% 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** parameter values of the **chg-netopts** command.

NOTE: If a Class A or C IP address (see [Table 4-5](#)) will be specified for the **ipaddr** parameter in [Step 14](#) , continue the procedure with [Step 13](#) .

Display the **pvn** and **pvnmask** 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** and **pvnmask** parameters are not configured. Continue the procedure with [Step 13](#) .

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

```

rlghncxa03w 06-10-28 21:17:37 GMT EAGLE5 36.0.0
NETWORK OPTIONS
-----
PVN      = 128.20.30.40
PVNMASK  = 255.255.192.0

```

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** parameter values of the **chg-netopts** command. Continue the procedure with [Step 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 [Step 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    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 [Step 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 an 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:m
actype=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 [Step 14](#) by entering the **rtrv-ip-lnk** command with the card location specified in [Step 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 [Step 8](#) by using the **alw-card** command.

NOTE: If [Step 8](#) was not performed, continue the procedure with [Step 18](#) .

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
SLK   PST          LS          CLLI
A     IS-NR        nc001      -----
```

Command Completed.

18. Activate the signaling link from [Step 5](#) using the **act-slk** command.

NOTE: If [Step 5](#) was not performed, continue the procedure with [Step 20](#) .

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 [Step 22](#) .

NOTE: If the IP address of the default router was not changed to 0.0.0.0 in [Step 10](#) , continue the procedure with [Step 21](#) .

21. Perform the [Adding an IP Route](#) procedure and add the IP routes back into the database.

NOTE: If IP routes were not removed in [Step 11](#) , continue the procedure with [Step 22](#) .

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

NOTE: If the **open** parameter value for an association was not changed in [Step 13](#) , continue the procedure with [Step 23](#) .

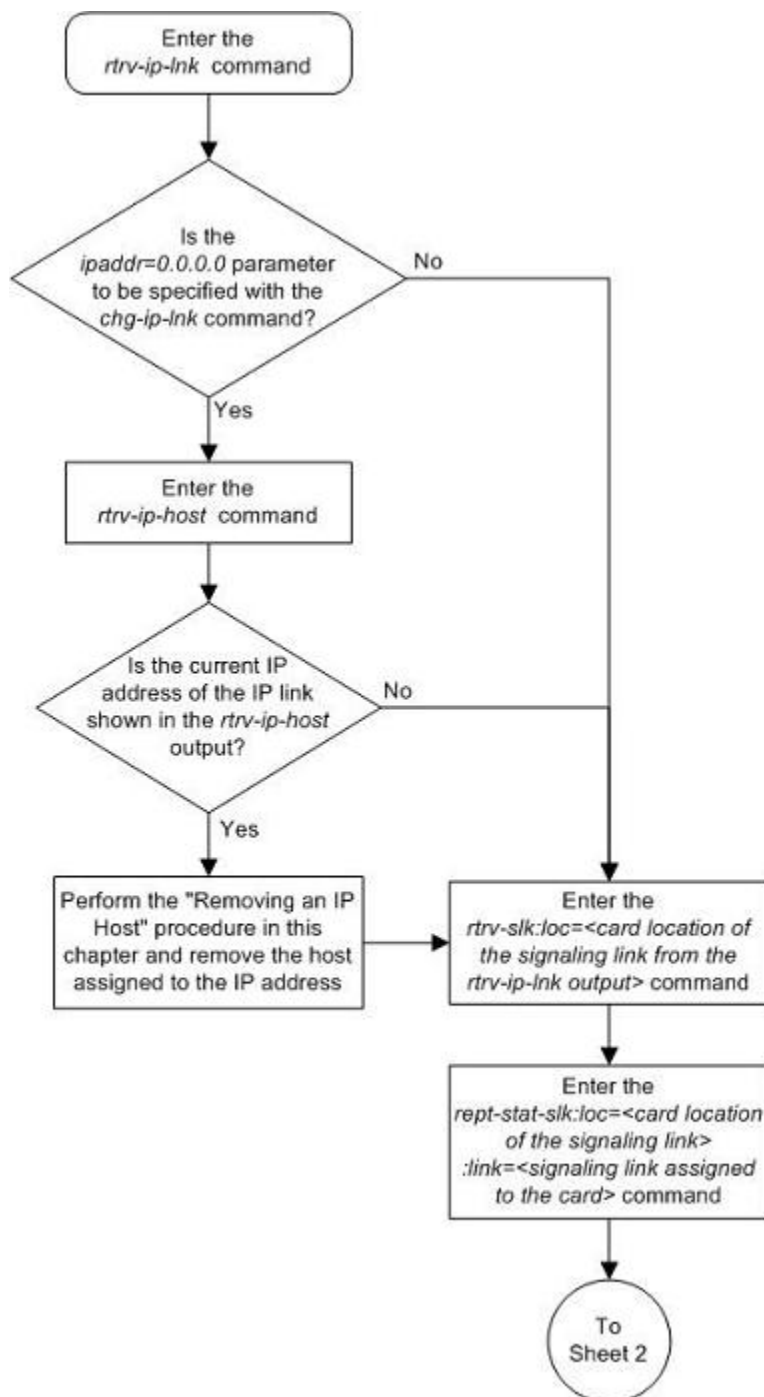
- [Changing the Attributes of an M2PA Association](#)
- [Changing the Attributes of an M3UA or SUA Association](#)

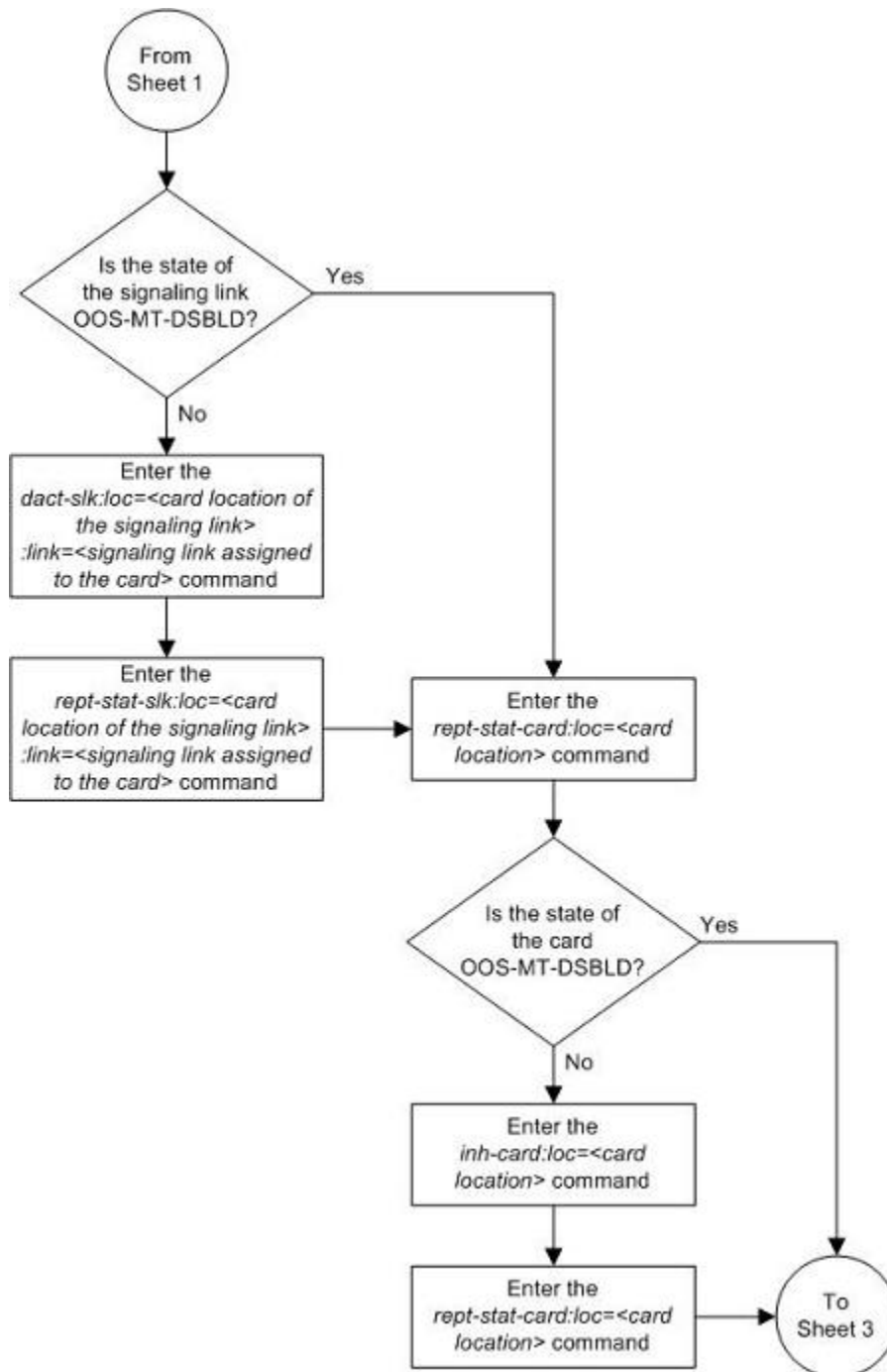
23. Back up the new changes using the **chg-db:action=backup:dest=fixed** command.

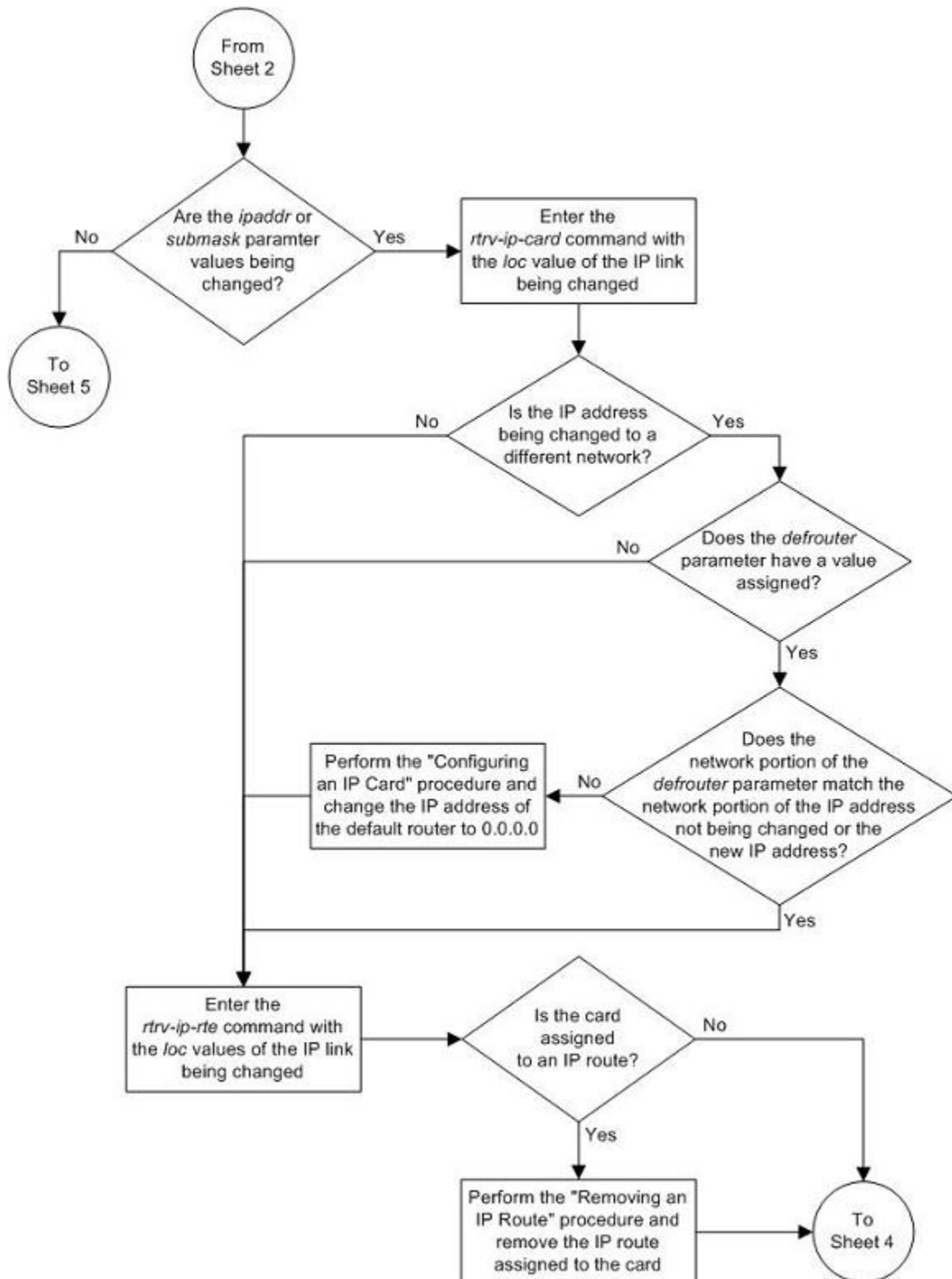
These messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

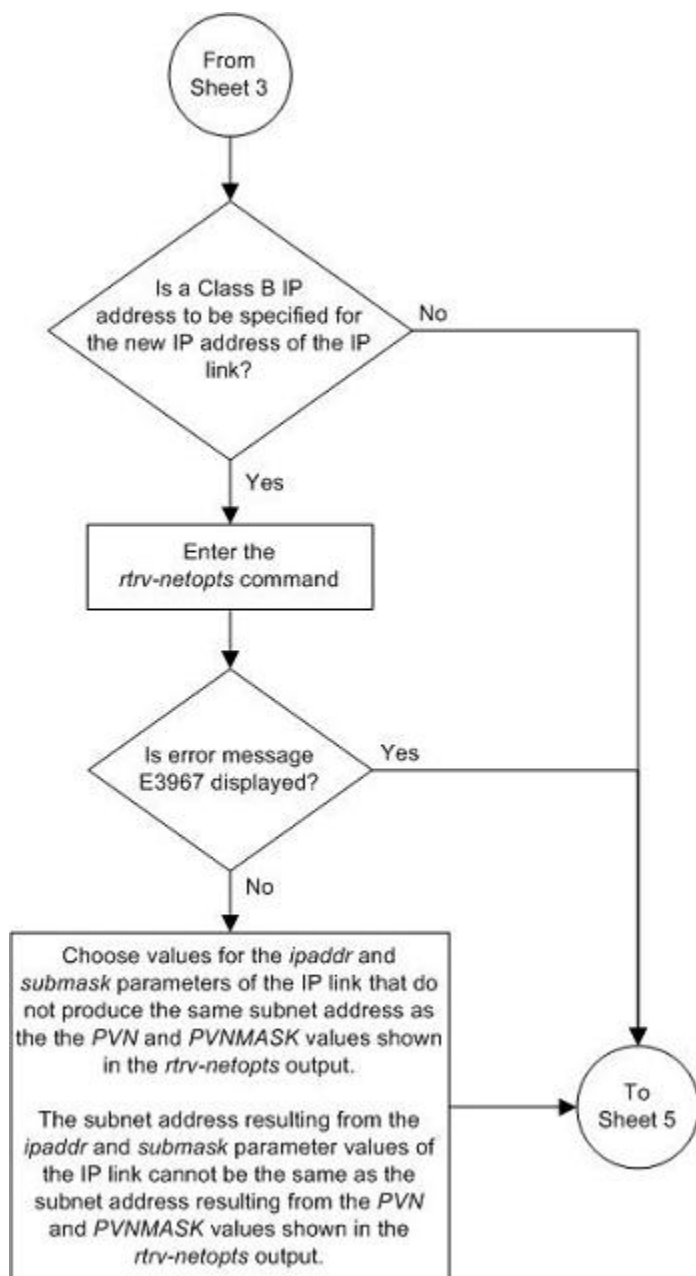
```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.  
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.  
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.  
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

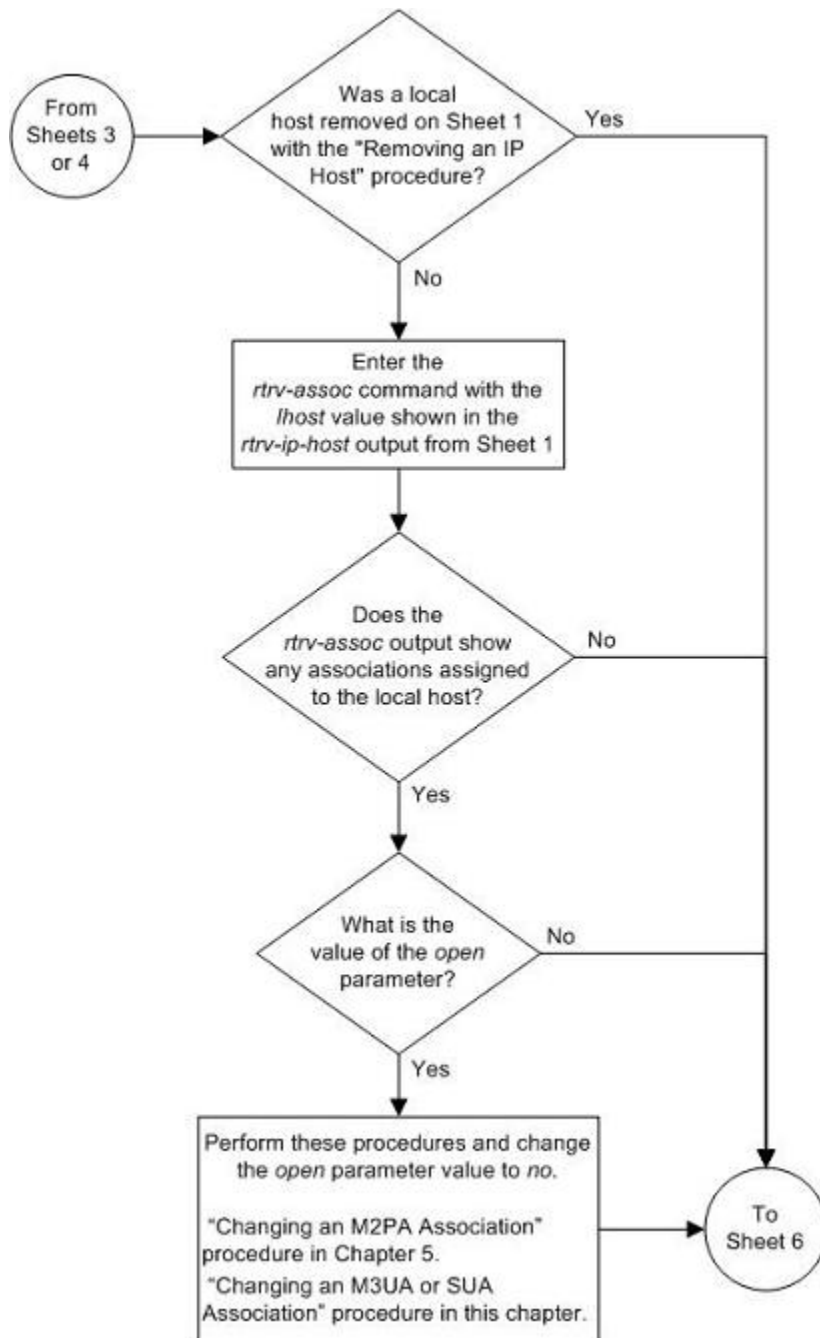
Flowchart 4-6. Configuring an IP Link

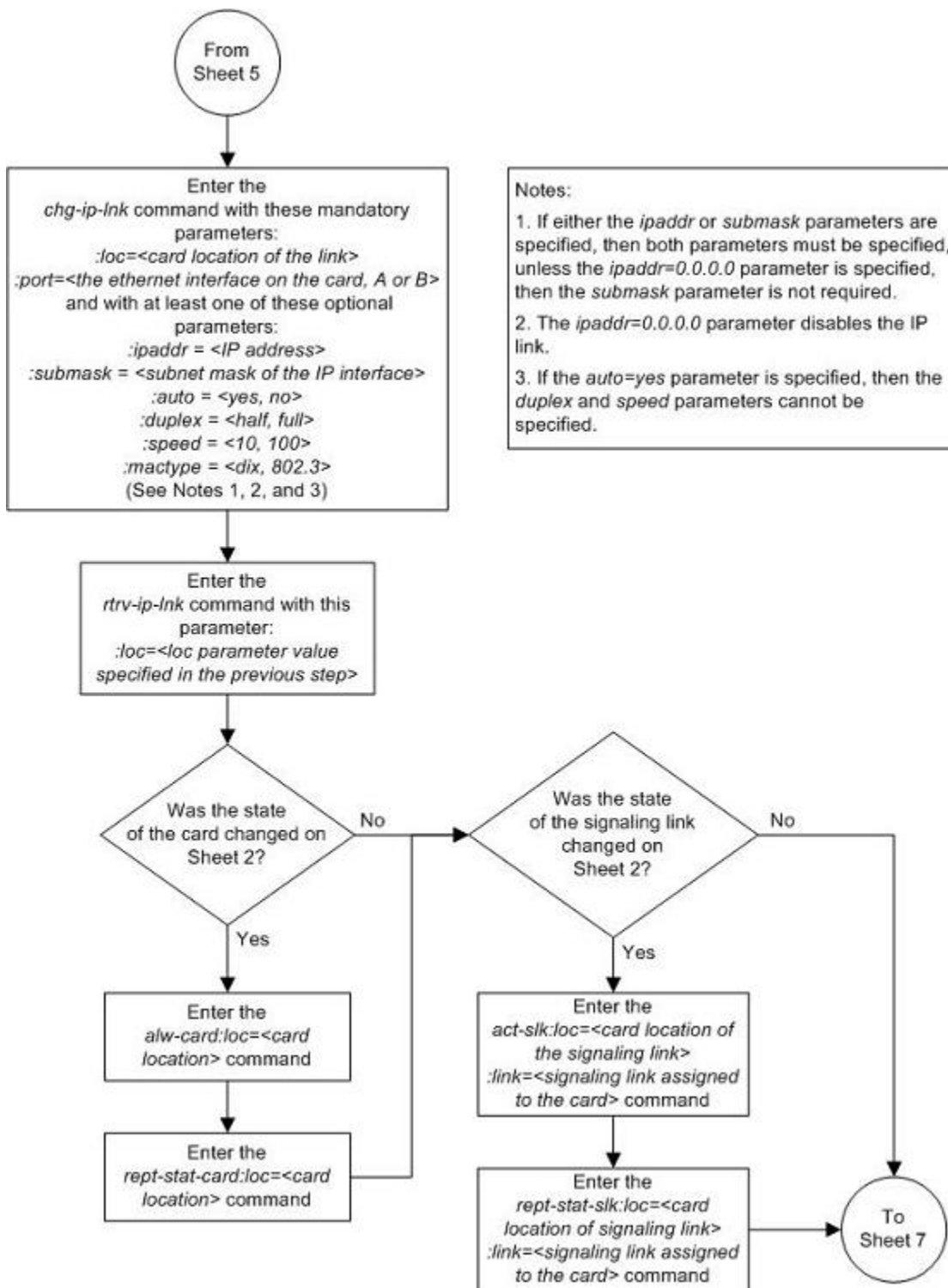


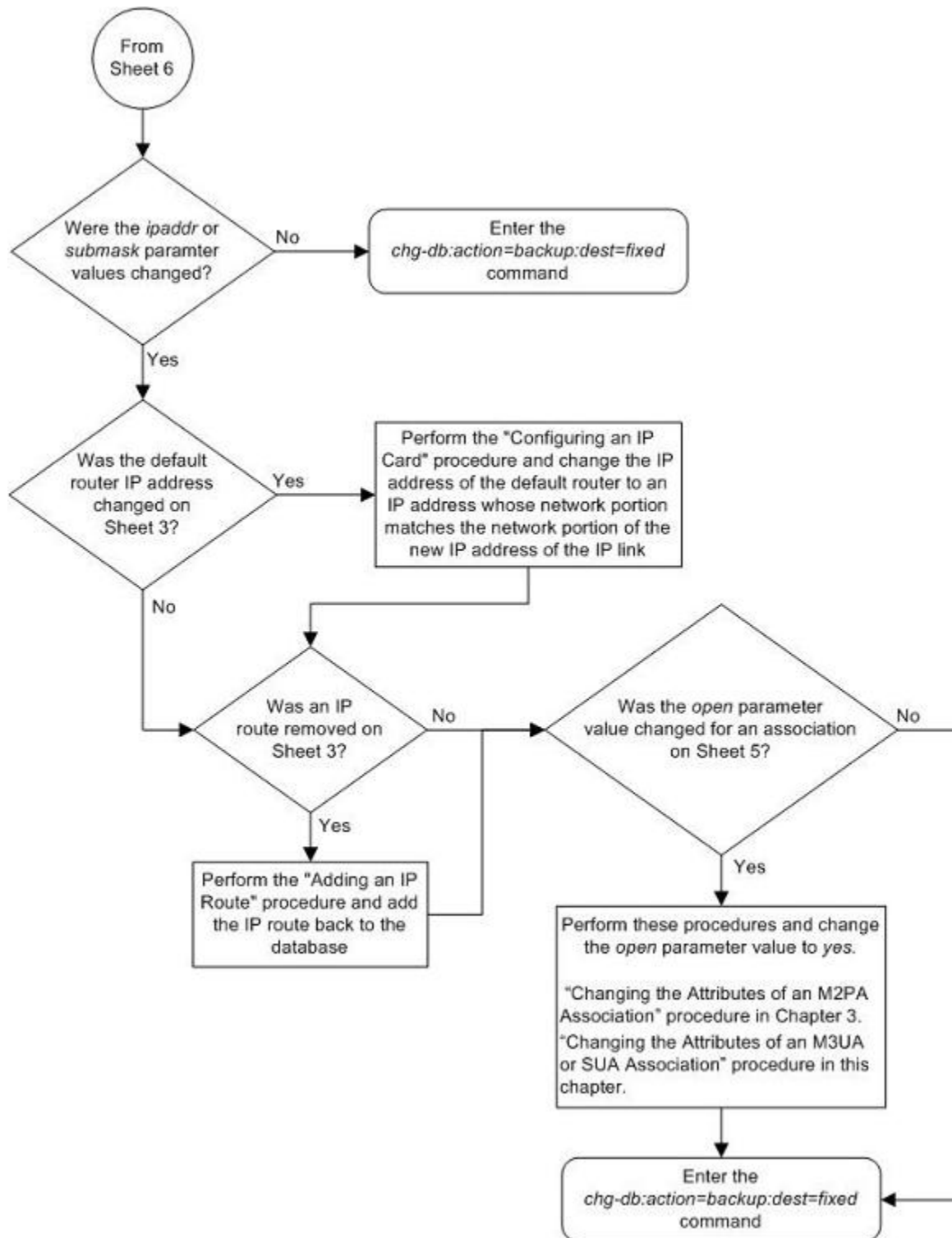












Adding an IP Host

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 ISS (**type=local**, the default value), or if the host resides on equipment that is not in the EAGLE 5 ISS (**type=remote**). This parameter is optional.

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.

Procedure

1. Display the current IP host information in the database by entering the **rtrv-ip-host** command.

The following is an example of the possible output.

```
rlghncxa03w 06-10-28 21:17:37 GMT EAGLE5 36.0.0
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-MS1
192.1.1.52      DN-MS2

REMOTE IPADDR    REMOTE HOST
150.1.1.5        NCDEPTECONOMIC_DEVELOPMENT. SOUTHEASTERN_COORIDOR_ASHVL. GOV

IP Host table is (10 of 512) 2% 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 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     802.3    NO    NO
1201  B      -----    -----    HALF    10     DIX      NO    NO
1203  A      192.1.1.12  255.255.255.0   ----    ---    DIX      YES   NO
1203  B      -----    -----    HALF    10     DIX      NO    NO
1205  A      192.1.1.14  255.255.255.0   FULL    100    DIX      NO    NO
1205  B      -----    -----    HALF    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
2103  A      192.1.1.22  255.255.255.0   FULL    100    DIX      NO    NO
2103  B      -----    -----    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
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	-----	-----	HALF	10	DIX	NO	NO

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 **ent-ip-host** command with the IP address from [Step 2](#), and the **type=local** parameter or without the **type** parameter. If the **type** parameter is not specified with the **ent-ip-host** command, the **type** parameter value defaults to **local**.

If a remote host is being configured, enter the **ent-ip-host** command with the IP address that is not shown in [Step 2](#), and the **type=remote** 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 [Step 3](#).

For this example, enter this command.

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

The following is an example of the possible output.

```
rlghncxa03w 06-10-28 21:19:37 GMT EAGLE5 36.0.0
LOCAL IPADDR      LOCAL HOST
192.1.1.30        KC-HLR1
```

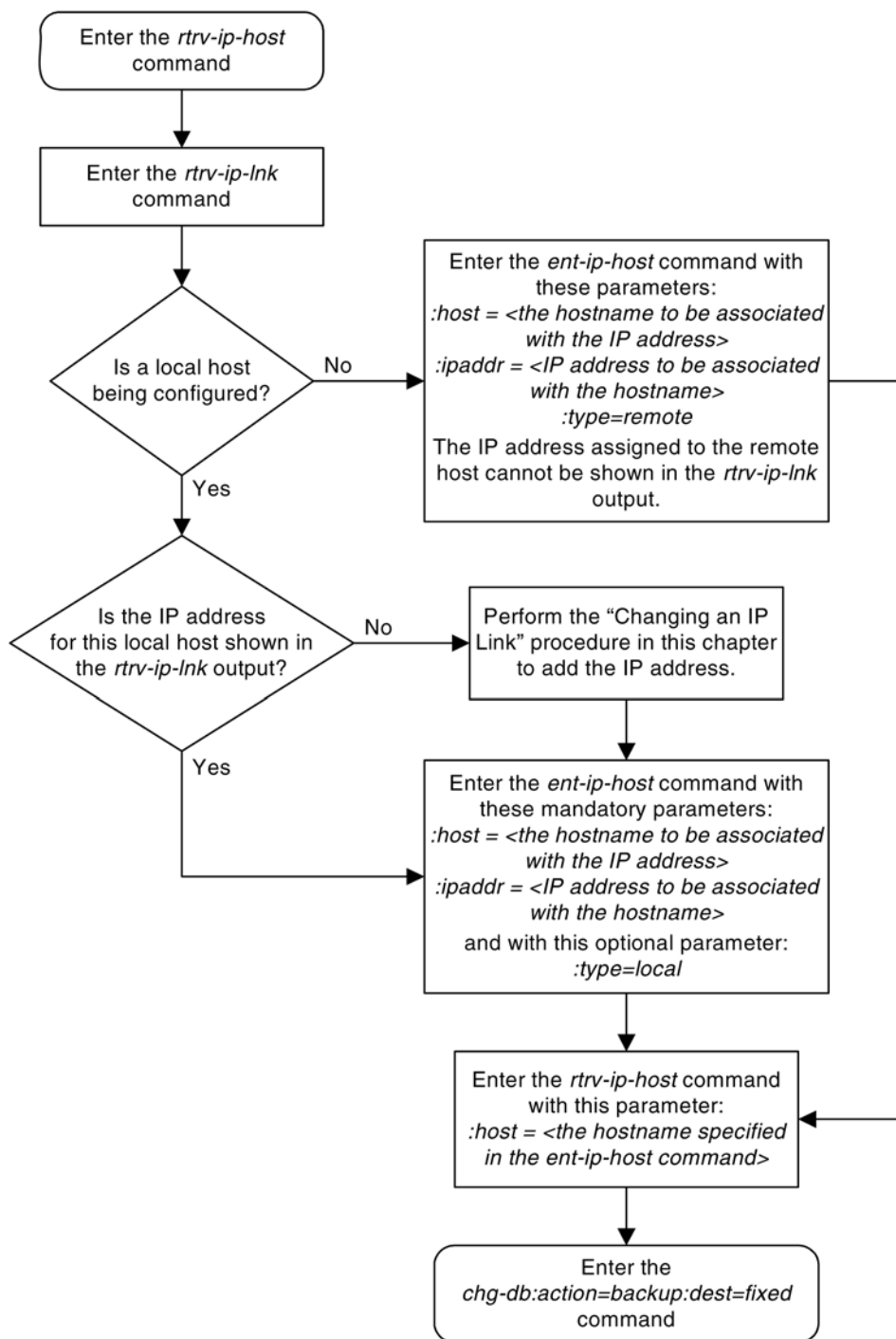
```
IP Host table is (11 of 512) 2% full
```

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.
```

Flowchart 4-7. 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

:dnسا – 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.

:dnسb – 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.

:sctpsum – The SCTP checksum algorithm that will be applied to the traffic on the IP card, either **adler32** or **crc32c**. The **sctpsum** 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 the *Commands Manual* 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 4-5](#)). 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 **dnسا** value for card 1101 is 150.1.1.10. The **dnسb** 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 **dnسا** parameter value), but not the Ethernet B IP address (the **dnسb** 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.

Procedure

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 08-04-28 21:17:37 GMT EAGLE5 38.0.0
LOC 1201
  SRCHORDR  SRVR
  DNSA      150.1.1.1
  DNSB      -----
  DEFROUTER -----
  DOMAIN    -----
  SCTPCSUM  crc32c
LOC 1203
  SRCHORDR  LOCAL
  DNSA      192.1.1.40
  DNSB      -----
  DEFROUTER -----
  DOMAIN    NC. TEKELEC. COM
  SCTPCSUM  crc32c
LOC 1205
  SRCHORDR  SRVRONLY
  DNSA      192.1.1.40
  DNSB      -----
  DEFROUTER -----
  DOMAIN    NC. TEKELEC. COM
  SCTPCSUM  crc32c
```

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 [Step 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
```

- Retrieve the status of the signaling link shown in [Step 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), go to [Step 4](#) to deactivate the signaling link. If the signaling link is out-of-service-maintenance disabled (OOS-MT-DSBLD), continue the procedure with [Step 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.
```

- 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.
```

- 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.
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.

If the IP card to be inhibited is in service-normal (IS-NR), go to [Step 7](#) to inhibit the card. If the IP card is out-of-service-maintenance disabled (OOS-MT-DSBLD), continue the procedure with [Step 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
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
SLK   PST          LS          CLLI
A     IS-NR        nc001      -----

```

Command Completed.

If the **defrouter** parameter will be specified in [Step 11](#), continue the procedure with [Step 11](#).

If the **defrouter** parameter will not be specified in [Step 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 [Step 11](#).
- If the **sctpcsum** parameter value for the card will be changed, continue the procedure with [Step 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 [Step 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 **sctpsum** parameter value for the card will not be changed, continue the procedure with [Step 11](#).
- If the **sctpsum** parameter value for the card will be changed, continue the procedure with [Step 10](#).

10. To change the **sctpsum** parameter value for the IP card, the **sctpsum** parameter value in the **rtrv-sg-opts** output must be **perc card**. Verify the **sctpsum** 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
SRKQ:      1500
SNMPCONT:   tekelec
GETCOMM:    public
SETCOMM:    private
TRAPCOMM:   public
SCTPCSUM:   adler32
IPGWABATE:  NO
UAMEASUSEDFTAS: NO
```

If the **sctpsum** parameter value in the **rtrv-sg-opts** output is **perc card**, continue the procedure with [Step 11](#).

If the **sctpsum** 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 **sctpsum** parameter value to **perc card**. After the [Changing the SCTP Checksum Algorithm Option for M3UA and SUA Associations](#) procedure has been performed, continue the procedure with [Step 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.com

chg-ip-
card: loc=1201:srchordr=local:dnsa=192.1.1.40:domain=nc.tekelec.com:sct
pcsum=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 [Step 11](#) by entering the **rtrv-ip-card** command, with the card location specified in [Step 11](#)

For this example, enter this command.

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

The following is an example of the possible output.

```
rlghncxa03w 08-04-28 21:17:37 GMT EAGLE5 38.0.0
LOC 1201
  SRCHORDR  LOCAL
  DNSA      192.1.1.40
  DNSB      -----
  DEFROUTER -----
  DOMAIN    NC. TEKELEC. COM
  SCTPCSUM  adler32
```

NOTE: If [Step 7](#) was not performed, continue the procedure with [Step 15](#) .

13. Allow the IP card that was inhibited in [Step 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.
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.

15. Activate the signaling link from [Step 4](#) using the **act-slk** command.

NOTE: If [Step 4](#) was not performed, continue the procedure with [Step 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.

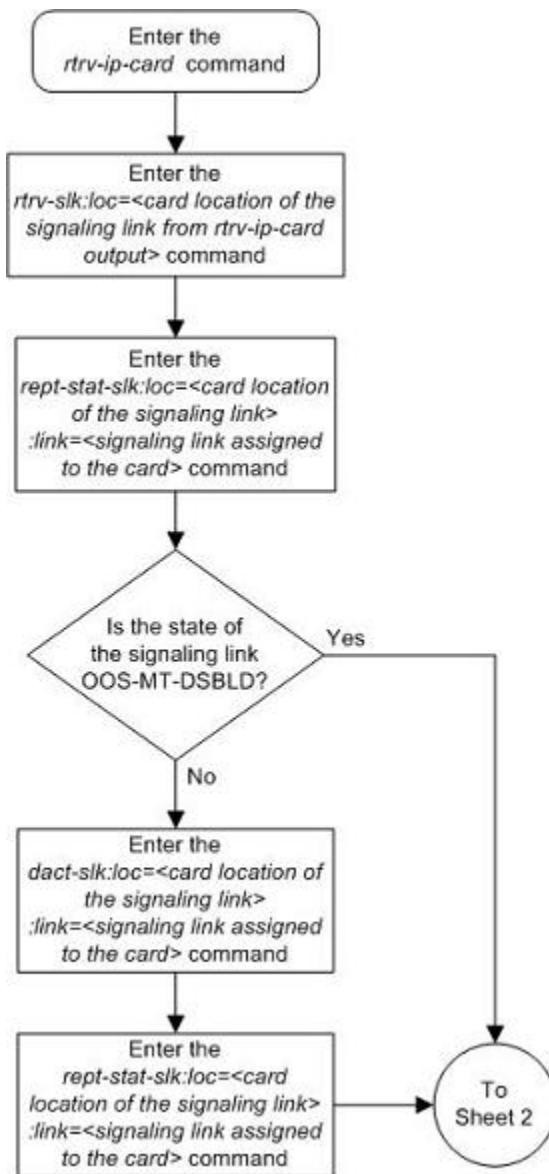
```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0
SLK      LSN      CLLI      PST      SST      AST
1201,A   nc001     -----   IS-NR
          Avail     ----
Command Completed.
```

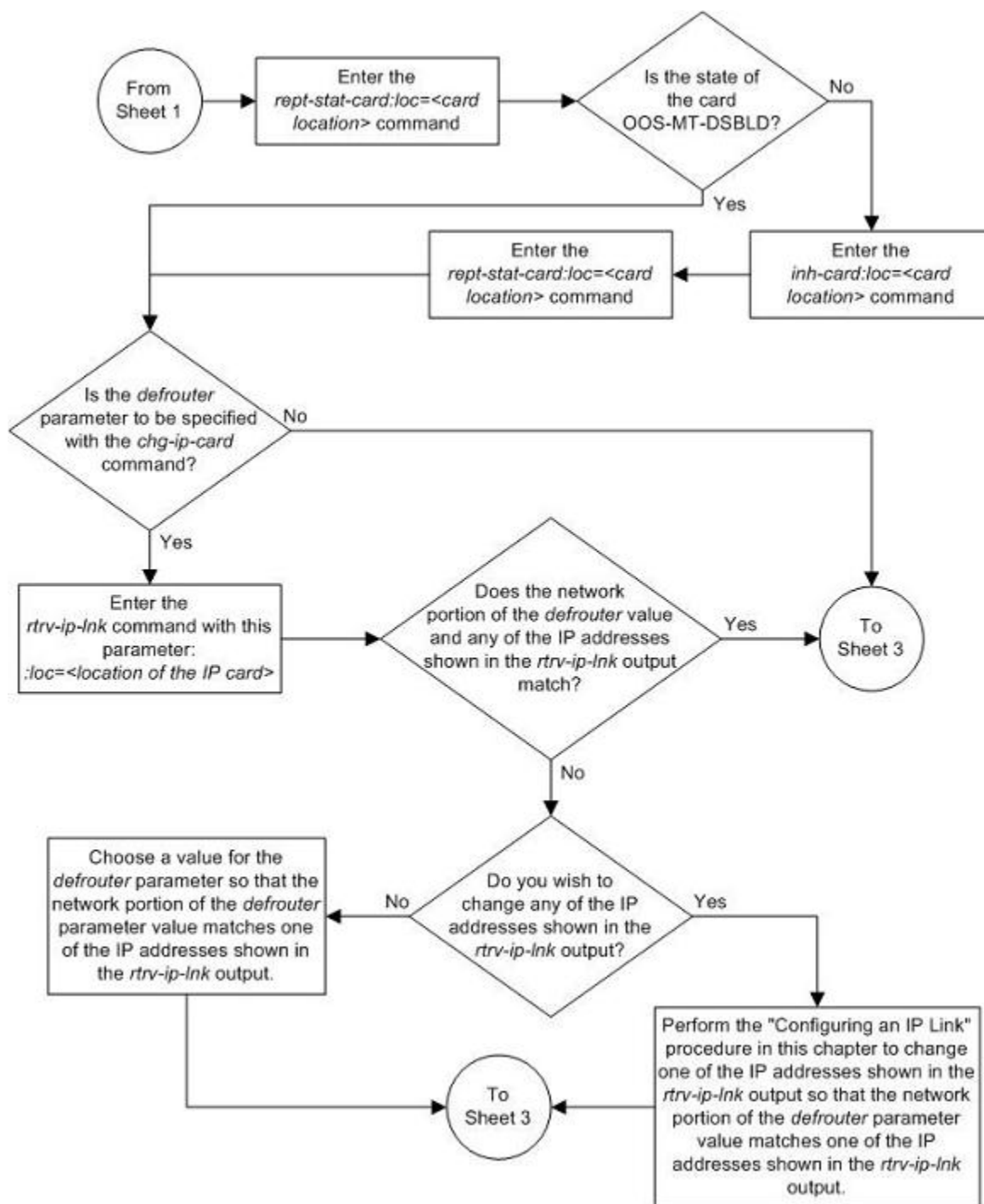
17. Back up the new changes using the **chg-db:action=backup:dest=fixed** command.

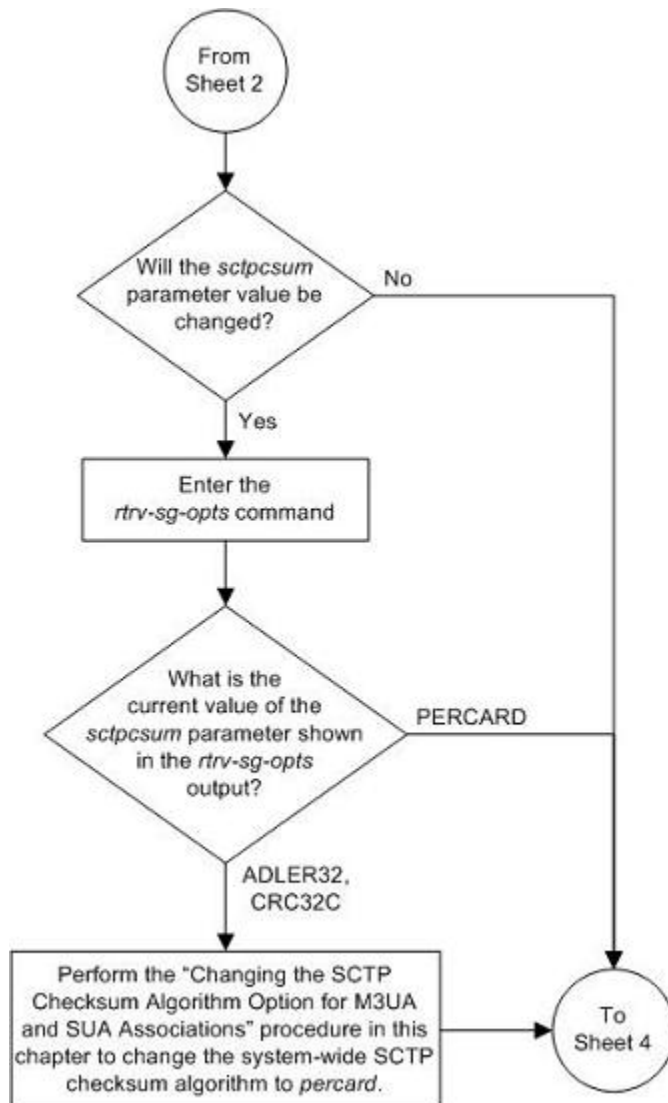
These messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

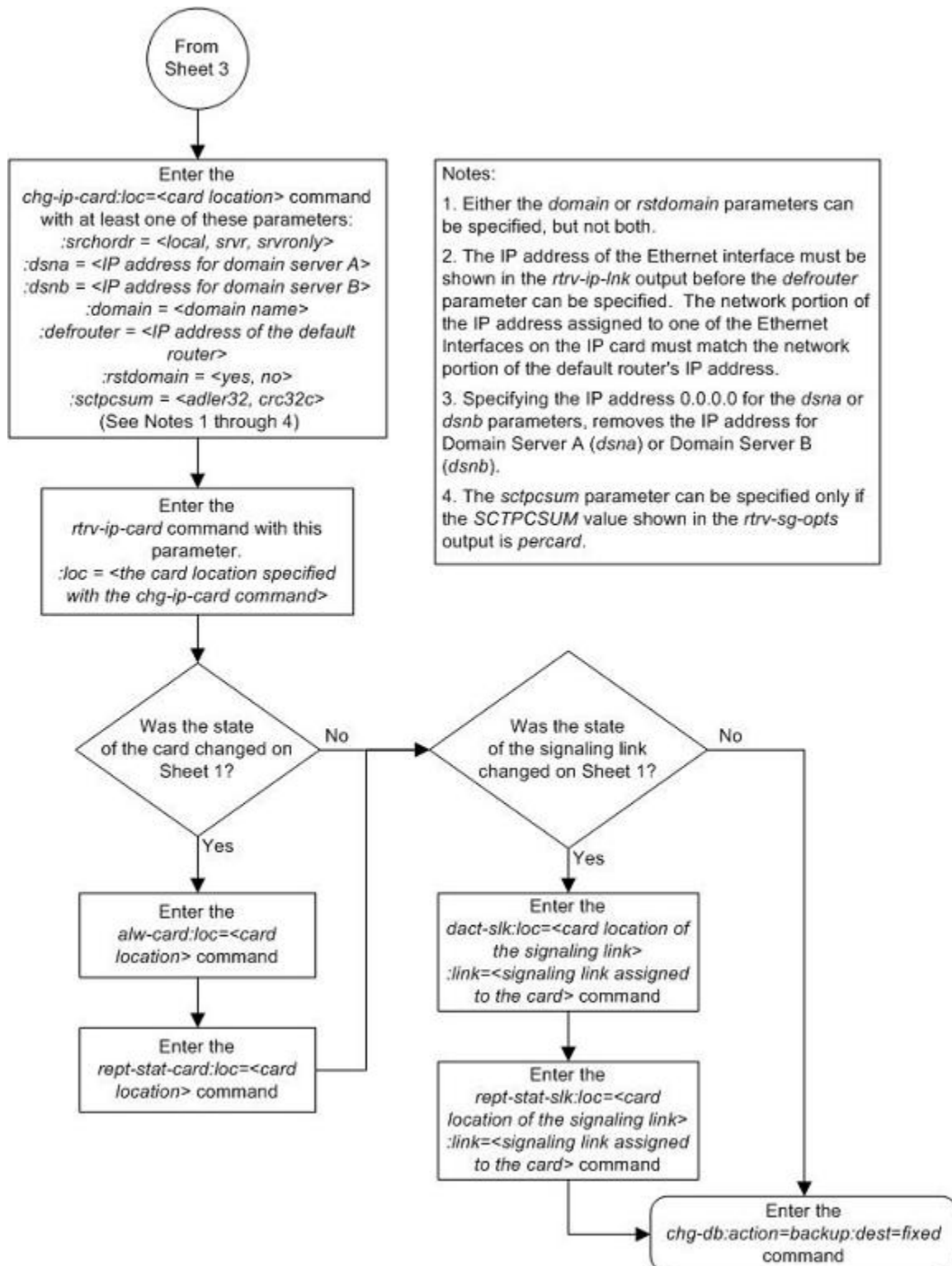
```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

Flowchart 4-8. Configuring an IP Card









Adding an IP Route

This procedure is used to add an IP route to the database using the **ent-ip-rte** 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 5 ISS can contain a maximum of 1024 IP routes.

Ethernet Interfaces A and B on the 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 **rtrv-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 **dest** parameter value represents a host IP address, the value for the **submask** parameter must be 255.255.255.255. Otherwise, the **submask** parameter value 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 4-6. 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 4-7](#) for the valid input values for the **submask** and **dest** parameter combinations.

Table 4-7. Valid Subnet Mask Parameter Values

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

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** parameter values of the **chg-netopts** command. The **pvn** and **pvnmask** 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.

Procedure

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
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 1024) 1% full

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

This is an example of the possible output.

```

rlghncxa03w 06-10-28 21:17:37 GMT EAGLE5 36.0.0
LOC 1212
  SRCHORDR  LOCAL
  DNSA      150.1.1.1
  DNSB      -----
  DEFROUTER 150.1.1.100
  DOMAIN     NC. TEKELEC. COM

LOC 1301
  SRCHORDR  SRVRONLY
  DNSA      140.188.13.10
  DNSB      140.190.15.28
  DEFROUTER -----
  DOMAIN     NC. TEKELEC. COM

LOC 1303
  SRCHORDR  LOCAL
  DNSA      150.190.15.1
  DNSB      -----
  DEFROUTER 150.190.15.25
  DOMAIN     NC. TEKELEC. COM

```

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

NOTE: If a Class A or C IP address (see [Table 4-7](#)) will be specified for the **dest** parameter in [Step 4](#) , continue the procedure with [Step 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** parameter values of the **chg-netopts** command.

Display the **pvn** and **pvnmask** 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** and **pvnmask** parameters are not configured. Continue the procedure with [Step 4](#) .

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

```

rlghncxa03w 06-10-28 21:17:37 GMT EAGLE5 36.0.0
NETWORK OPTIONS
-----
PVN      = 128.20.30.40
PVNMASK  = 255.255.192.0

```

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** parameter values of the **chg-netopts** command. Continue the procedure with [Step 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=150.1.1.5  
0
```

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 [Step 4](#) .

For this example, enter these commands.

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

This is an example of the possible output.

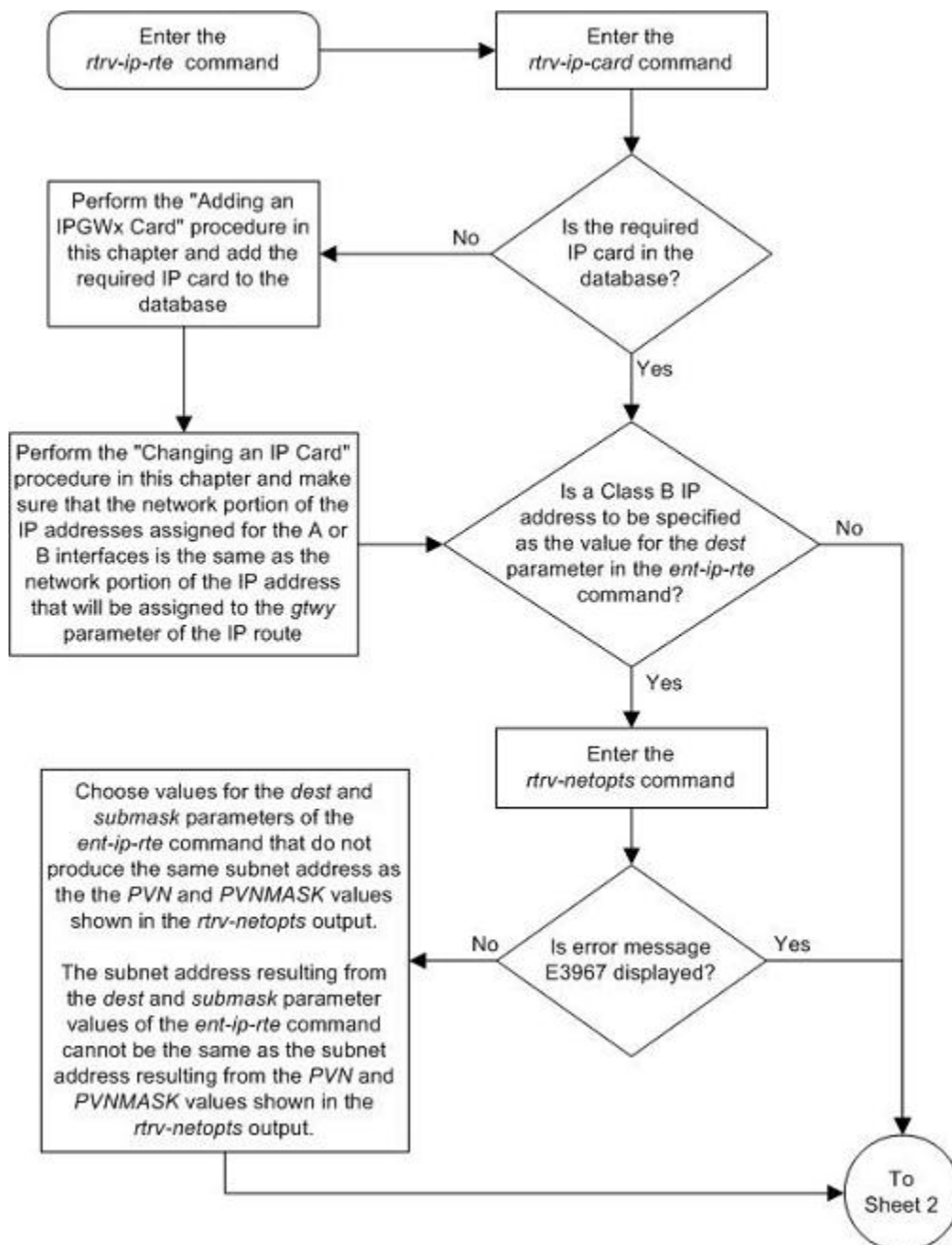
```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0  
LOC  DEST          SUBMASK          GTWY  
1212 132.10.175.20    255.255.255.255  150.1.1.50  
IP Route table is (6 of 1024) 1% full
```

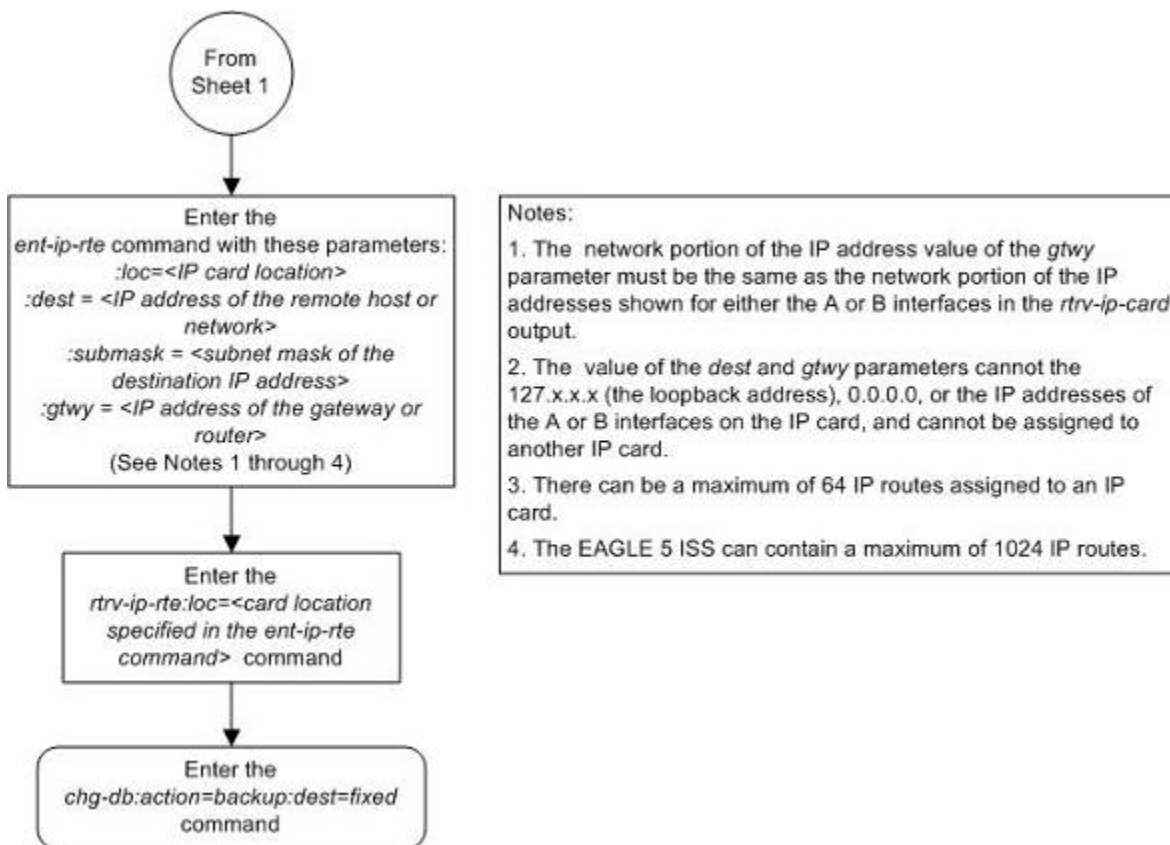
6. Back up the new changes using the **chg-db:action=backup:dest=fixed** command.

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.
```

Flowchart 4-9. Adding an IP Route





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.

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 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 **ent -assoc** command. When an association is added to the database, these fields receive their default values. If a different value is desired, the **chg -assoc** command must be used. To change these values perform the [Changing the Attributes of an M3UA or SUA Association](#) procedure.

These fields and their default values are shown in [Table 4-8](#) .

Table 4-8. 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
bufsize=16	rtxtthr=0			

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

- Single-Slot EDCM - 800 KB
- 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 an 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 **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.

The EAGLE 5 ISS 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 single-slot EDCM or 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 **lhost** parameter only. The **lhost** 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 **lhost** and **alhost** parameters. The **lhost** 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.

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 than 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 the *Commands Manual*.

Procedure

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
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 [Step 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 [Step 2](#).
 - If the desired IP link is not shown in the **rtrv-assoc** output, continue the procedure with [Step 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 [Step 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 **TYPE** column is either SS7IPGW or IPGWI, continue the procedure with [Step 5](#) .

If the value in the **TYPE** column is IPSCG, 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 IPSCG 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 [Step 1](#) and repeat this step.
- Continue the procedure with [Step 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.

```
r1ghncxa03w 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     802.3    NO    NO
1201  B    -----     -----     HALF    10     DIX      NO    NO
1203  A    192.1.1.12   255.255.255.0   ----    ---     DIX      YES   NO
1203  B    -----     -----     HALF    10     DIX      NO    NO
1205  A    192.1.1.14   255.255.255.0   FULL    100    DIX      NO    NO
1205  B    -----     -----     HALF    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
2103  A    192.1.1.22   255.255.255.0   FULL    100    DIX      NO    NO
2103  B    -----     -----     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
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    -----     -----     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** command. The following is an example of the possible output.

```
r1ghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0

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 512) 2% 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 **ahost** 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. 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.

NOTE: If a new IP host was added in [Step 4](#) , continue the procedure with [Step 6](#) .

rtrv-assoc: lhost="IPNODE2-1305"

This is an example of the possible output.

```
r1ghncxa03w 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 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**

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

NOTE: See [Flowchart 4-10](#) (Sheet 4) for the rules that apply to the **ent-assoc** command.

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

```
r1ghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
ENT-ASSOC: MASP A - COMPLTD
```

NOTE: 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 [Step 6](#) by entering the **chg-assoc** command with the association name specified in [Step 6](#) and the **open=yes** and **alw=yes** parameters. For example, enter this command.

chg-assoc: aname=assoc1: open=yes: alw=yes

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

```
r1ghncxa03w 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 [Step 6](#) and [Step 7](#) . For this example, enter these commands.

rtrv-assoc: aname=assoc1

This is an example of possible output.

```

r1ghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
ANAME assoc1
  LOC      1305          IPLNK PORT  A          LINK  A
  ADAPTER  M3UA          VER          M3UA RFC
  LHOST    gw105.nc.tekelec.com
  ALHOST    ---
  RHOST    gw100.nc.tekelec.com
  LPORT    1030          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  0

```

```

IP Appl Sock table is (5 of 4000) 1% full
Assoc Buffer Space Used (16 KB of 800 KB) on LOC = 1305

```

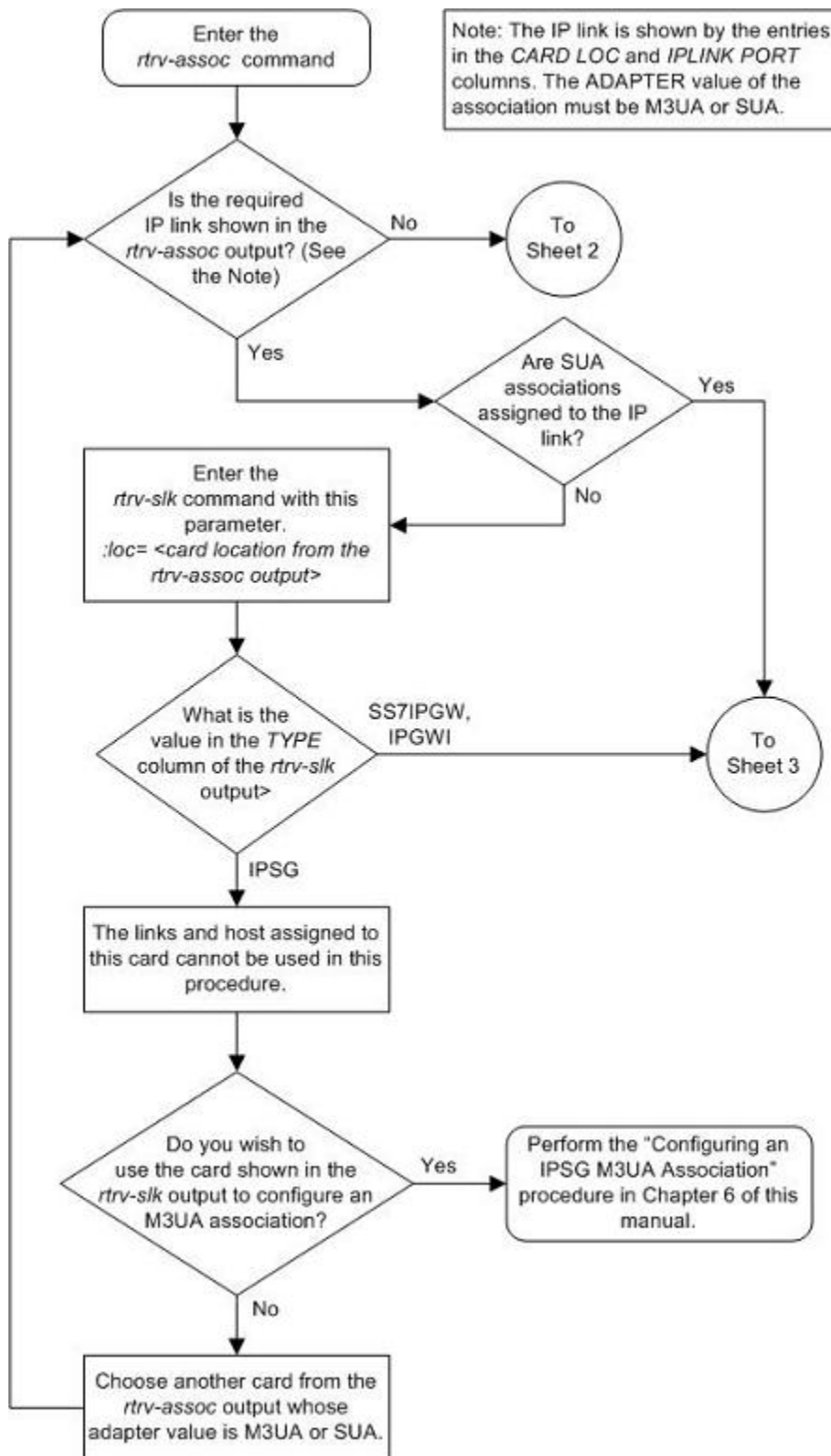
9. Back up the new changes, using the **chg-db:action=backup:dest=fixed** command. These messages should appear; the active Maintenance and Administration Subsystem Processor (MASP) appears first.

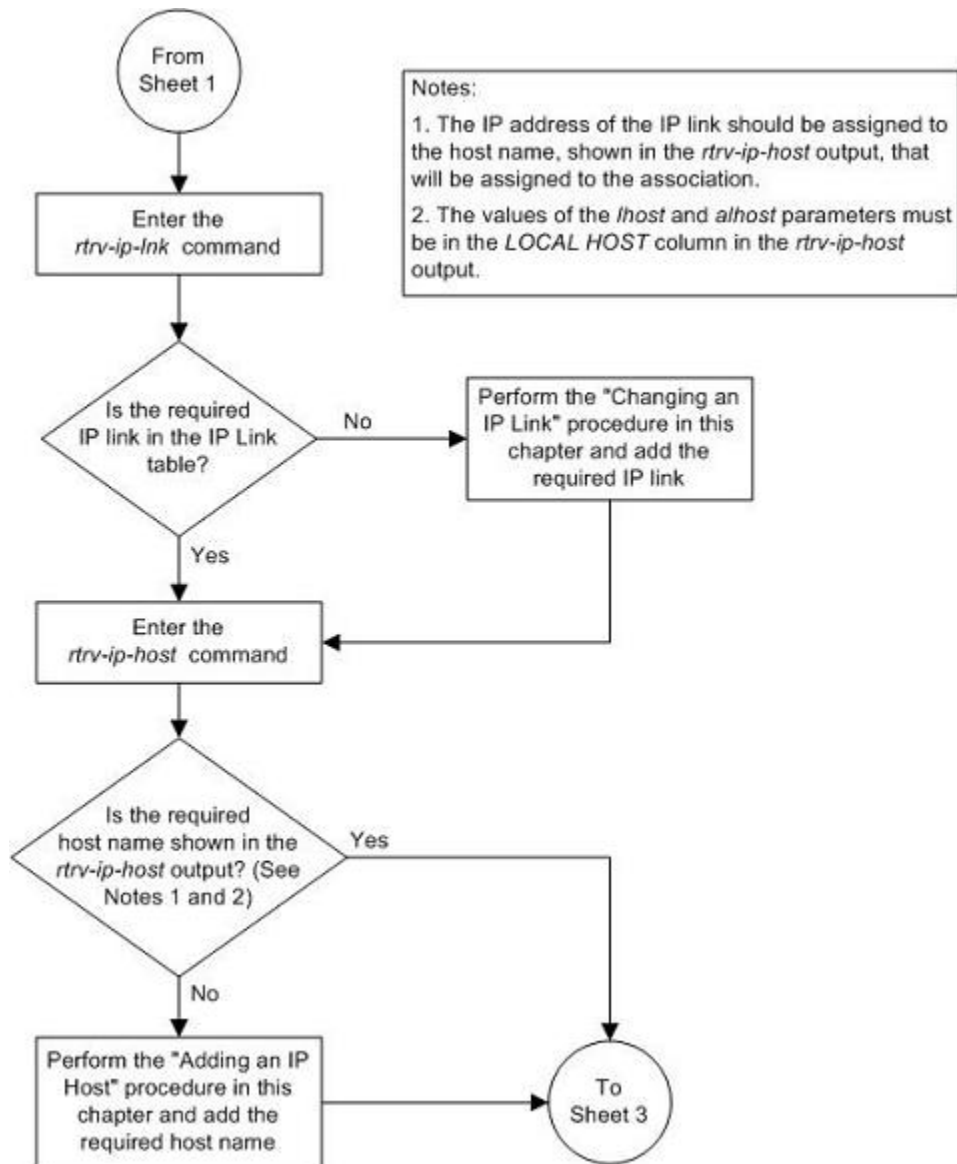
```

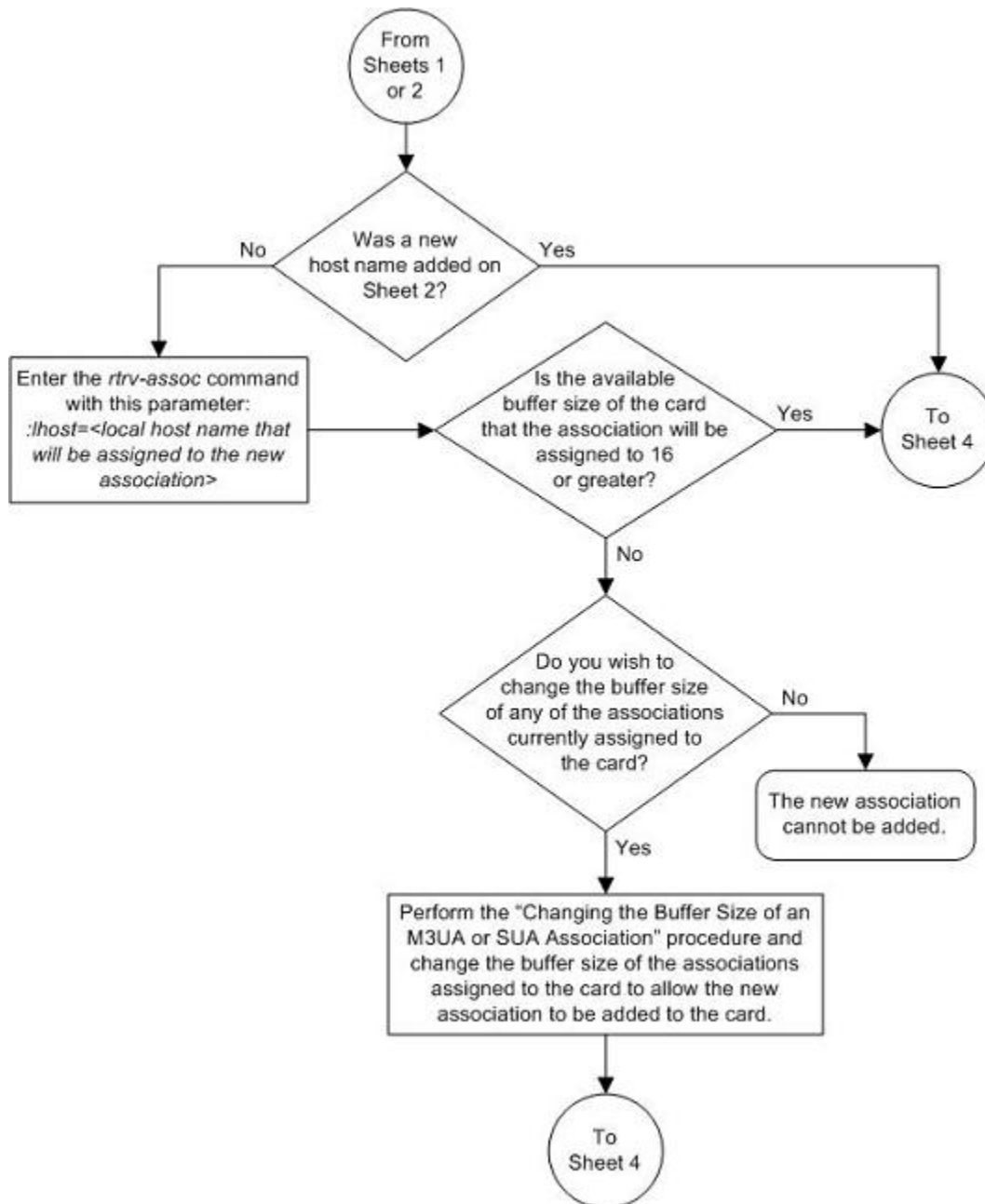
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.

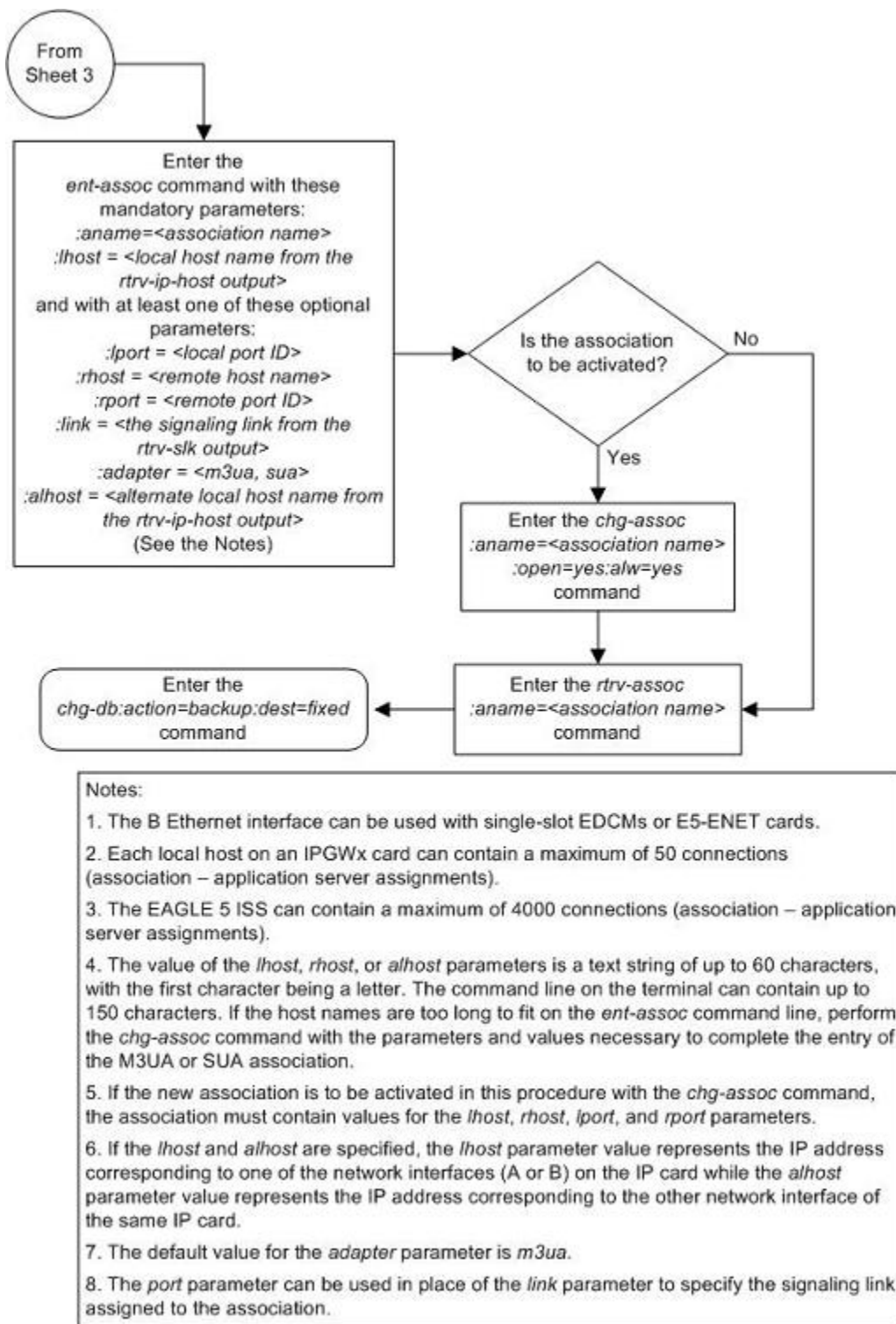
```

Flowchart 4-10. Adding an M3UA or SUA Association









Adding a New Association to a New Application Server

This procedure is used to 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 of SCTP associations 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 associations to application server assignments. The SCTP associations 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 associations to application server assignments can be verified with the **rtrv-assoc:lhost=<local host name>** and **rtrv-as:aname=<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 5 ISS 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 **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 than 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 the *Commands Manual*.

Procedure

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      Mode      Tr ms      Association Names
as1          LOADSHARE 10          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
LOC PORT LINK ADAPTER LPORT RPORT OPEN ALW
ANAME
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** command. The following is an example of the possible output.

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0

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-MS1
192.1.1.52      DN-MS2

REMOTE IPADDR  REMOTE HOST
150.1.1.5      NCDEPTECONOMIC_DEVELOPMENT. SOUTHEASTERN_COORIDOR_ASHVL. GOV

```

IP Host table is (11 of 512) 2% 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 [Step 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 [Step 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.

```

rlghncxa03w 08-04-28 21:14:37 GMT EAGLE5 38.0.0
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  B      -----      -----      HALF    10     DIX      NO    NO
1203  A      192.1.1.12   255.255.255.0   ----    ---     DIX      YES   NO
1203  B      -----      -----      HALF    10     DIX      NO    NO
1205  A      192.1.1.14   255.255.255.0   FULL    100    DIX      NO    NO
1205  B      -----      -----      HALF    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
2103  A      192.1.1.22   255.255.255.0   FULL    100    DIX      NO    NO
2103  B      -----      -----      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
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      -----      -----      HALF    10     DIX      NO    NO

```

5. Enter the **rtrv-card** command with the location of the card, from the **rtrv-ip-lnk** output in [Step 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 **APPL** column, continue the procedure with [Step 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 [Step 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
ANAME      LOC  PORT  LINK ADAPTER LPORT RPORT OPEN ALW
a2         1205 A      A    SUA      2000  2048  YES  YES
a3         1205 A      A    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 [Step 6](#) are assigned to by entering **rtrv-as** command with the names of the associations shown in [Step 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 [Step 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 [Step 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 [Step 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**.

NOTE: See [Flowchart 4-11](#) (Sheet 3) for the rules that apply to the new association and the new application server.

9. 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 [Step 9](#) . For this example, enter this command.

rtrv-as:asname=as4:aname=assoc10

This is an example of possible output.

```
r1ghncxa03w 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.

NOTE: If you do not wish to change the **open** parameter value of the association specified in [Step 9](#) , continue the procedure with [Step 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.

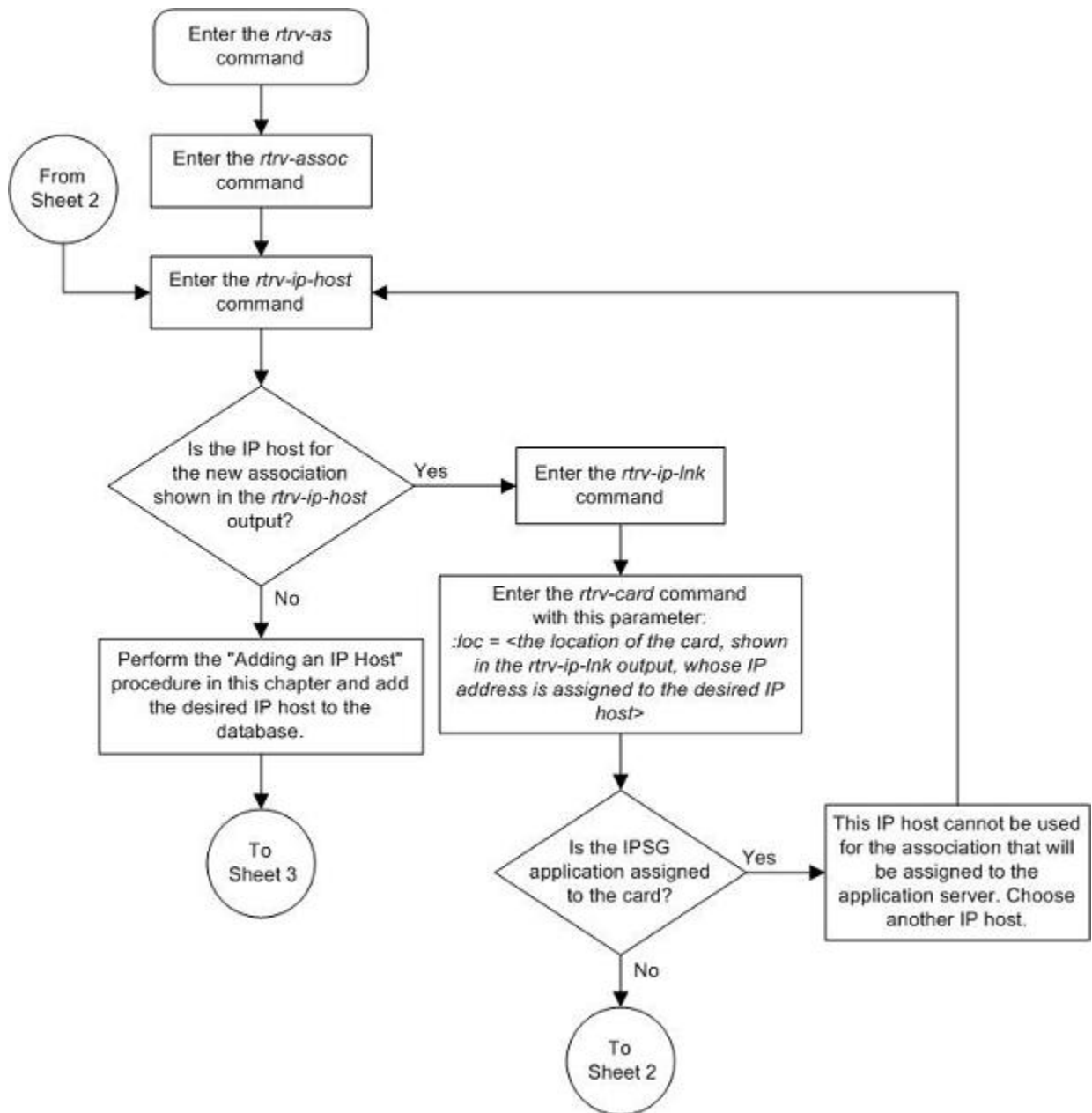
```
r1ghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
CHG-ASSOC: MASP A - COMPLTD;
```

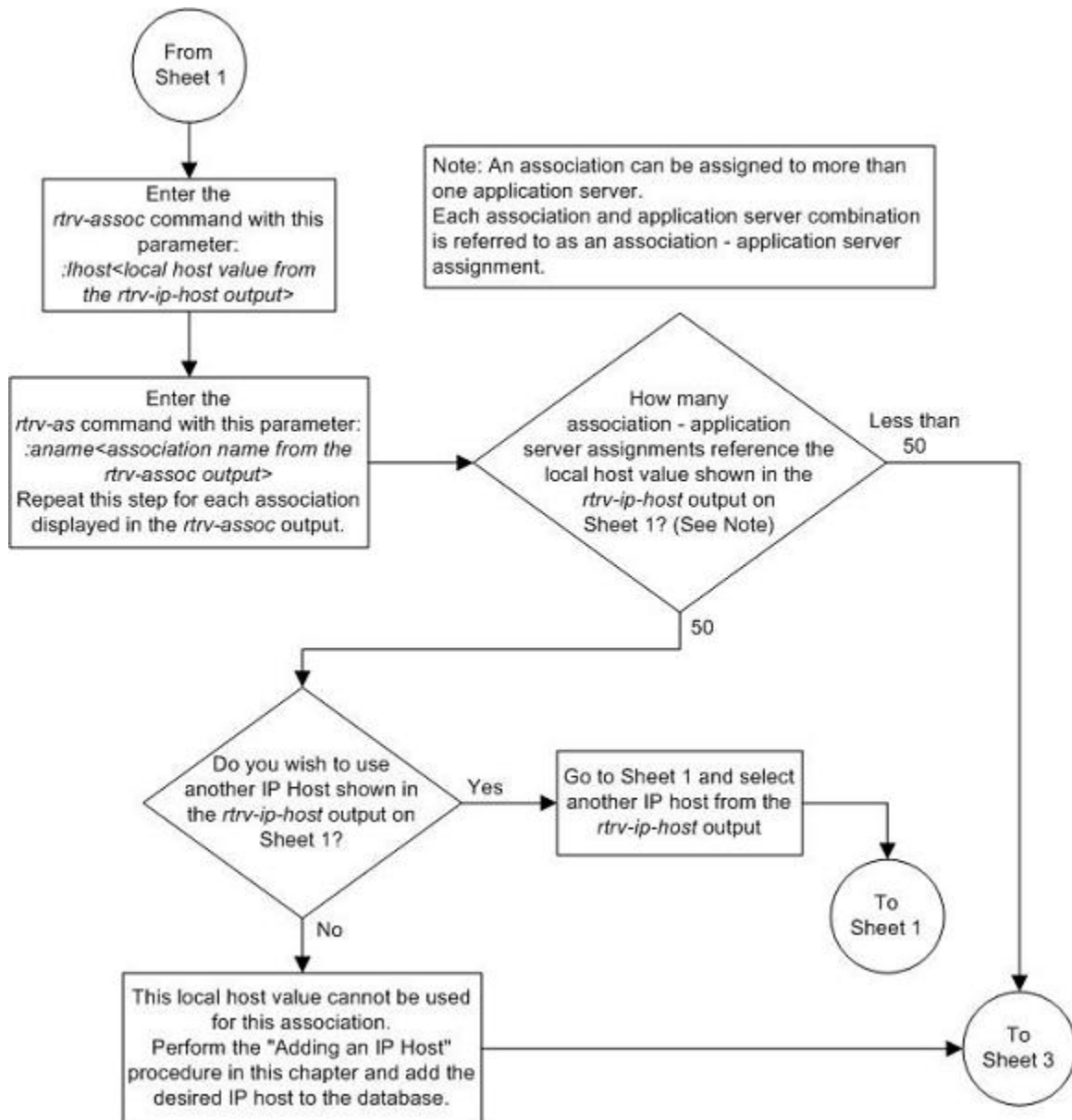
12. Back up the new changes, using the **chg-db:action=backup:dest=fixed** command.

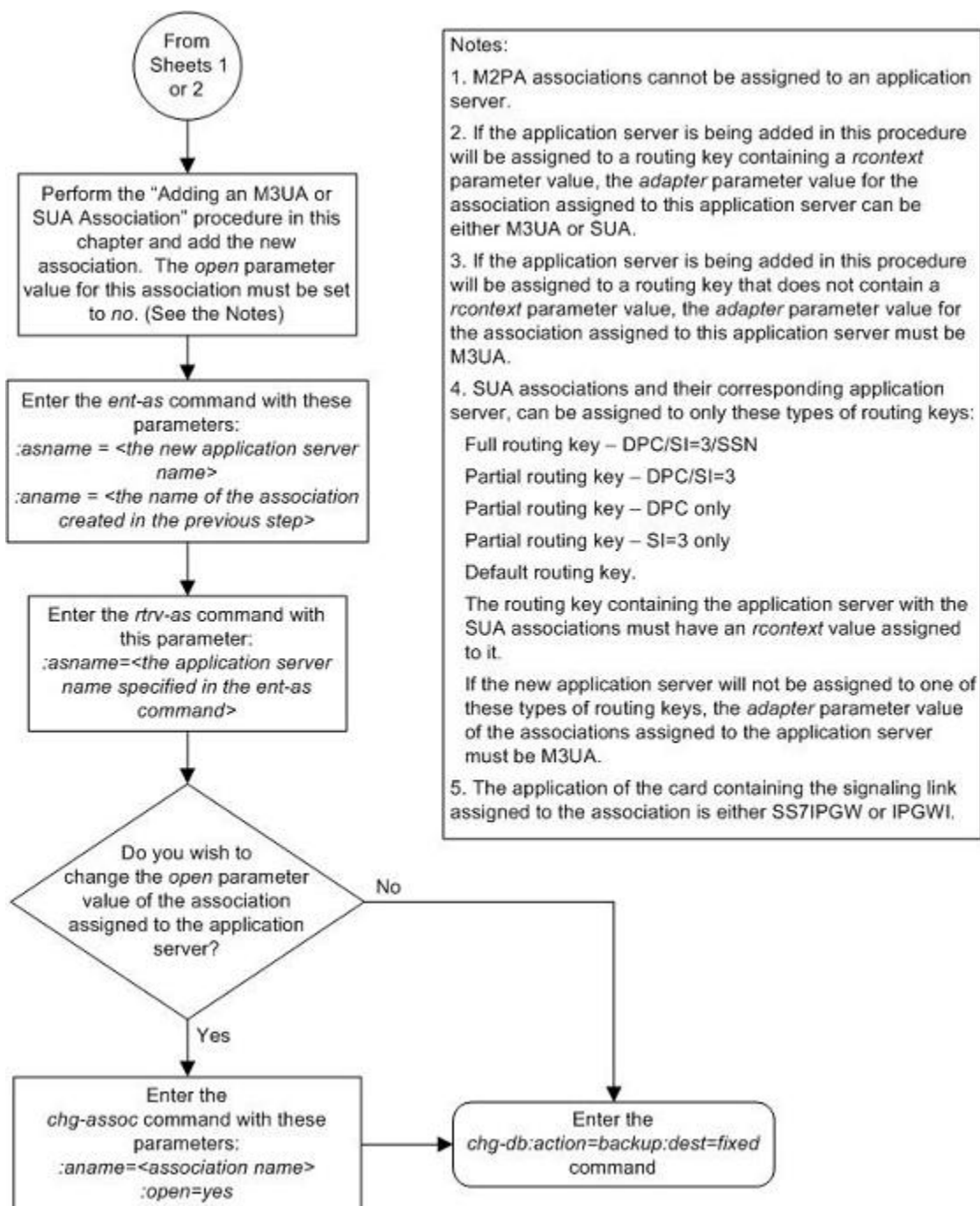
These messages should appear; the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
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.
```

Flowchart 4-11. Adding a New Association to a New Application Server







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-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 5 ISS 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 **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 than 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 the *Commands Manual*.

Procedure

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      Mode      Tr ms      Association Names
as1          LOADSHARE  10         a2
              a3
              assoc1

as2          OVERRIDE  10         assoc7
as3          OVERRIDE  10         swbel32

AS table is (3 of 250) 1% full.
```

NOTE: If the association being added to the application server is not shown in the **rtrv-as** output in [Step 1](#), continue the procedure with [Step 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 [Step 1](#).

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
ANAME assoc1
  LOC      1305      IPLNK PORT  A      LINK  A
  ADAPTER  SUA      VER      SUA RFC
  LHOST    gw102.nc.tekelec.com
  ALHOST    ---
  RHOST    gw100.nc.tekelec.com
  LPORT    4000      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

ASNAMES
as1
```

```
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 [Flowchart 4-12](#) (Sheet 4), repeat this step with another association shown in [Step 1](#), or continue the procedure with [Step 3](#).

If the association does meet the requirements shown in [Flowchart 4-12](#) (Sheet 4), continue the procedure with [Step 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 06-03-28 09:12:36 GMT EAGLE5 34.3.0
ANAME swbel32
  LOC      1201          IPLNK PORT  A          LINK  A
  ADAPTER  M3UA          VER        M3UA RFC
  LHOST    gw101.nc.tekelec.com
  ALHOST    ---
  RHOST    gw100.ncd-economic-development.southeastern-corridor-ash.gov
  LPORT    1030          RPORT      2345
  ISTRMS   2            OSTRMS     2            BUFSIZE  16
  RMODE    LIN          RMIN        120          RMAX     800
  RTIMES   10          CWMIN       3000         UAPS     10
  OPEN     YES          ALW         YES          RTXTHR  10000

  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
  LOC      1305          IPLNK PORT  A          LINK  A
  ADAPTER  SUA          VER        SUA RFC
  LHOST    gw102.nc.tekelec.com
  ALHOST    ---
  RHOST    gw100.nc.tekelec.com
  LPORT    2000          RPORT      2345
  ISTRMS   2            OSTRMS     2            BUFSIZE  16
  RMODE    LIN          RMIN        120          RMAX     800
  RTIMES   10          CWMIN       3000         UAPS     10
  OPEN     YES          ALW         YES          RTXTHR  10000

  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
  LOC      1307          IPLNK PORT  A          LINK  A
  ADAPTER  SUA          VER        SUA RFC
  LHOST    gw103.nc.tekelec.com
  ALHOST    ---
  RHOST    gw106.nc.tekelec.com
  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

  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 assoc1
  LOC      1305          IPLNK PORT  A          LINK  A
  ADAPTER  SUA          VER        SUA RFC
  LHOST    gw102.nc.tekelec.com
  ALHOST    ---
  RHOST    gw100.nc.tekelec.com
```

Adding an Existing Association to a New Application Database Administration Manual - IP7 Secure Gateway Server

```

LPORT    4000      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

```

```

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
LPORT    2500      RPORT    2000
ISTRMS    2        OSTRMS    2        BUFSIZE  16
RMODE     LIN      RMIN      120      RMAX      800
RTIMES    10       CWMIN     3000     UAPS      10
OPEN      YES      ALW       YES      RTXTHR   10000

```

```

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 [Flowchart 4-12](#) (Sheet 4) for the rules that apply to the association and the new application server, continue the procedure with [Step 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 [Step 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.

```

r1ghncxa03w 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 [Step 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 [Step 3](#) and choose another association.

5. Display the associations assigned to the local IP host value specified in [Step 2](#) or [Step 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.

```

r1ghncxa03w 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 [Step 5](#) are assigned to by entering **rtrv-as** command with the names of the associations shown in [Step 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 [Step 7](#).

If the number of SCTP association to application server assignments is 50, the association shown in either [Step 2](#) or [Step 3](#) cannot be used in this procedure. Go back to [Step 1](#) and choose another association to assign to the new application server.

NOTE: If the value of the open parameter of the association being assigned to the application server in [Step 5](#) is no, continue the procedure with [Step 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 [Step 2](#) or [Step 3](#) using the **ent-as** command.

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 [Step 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.

NOTE: If you do not wish to change the **open** parameter value of the association specified in [Step 8](#) , continue the procedure with [Step 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.

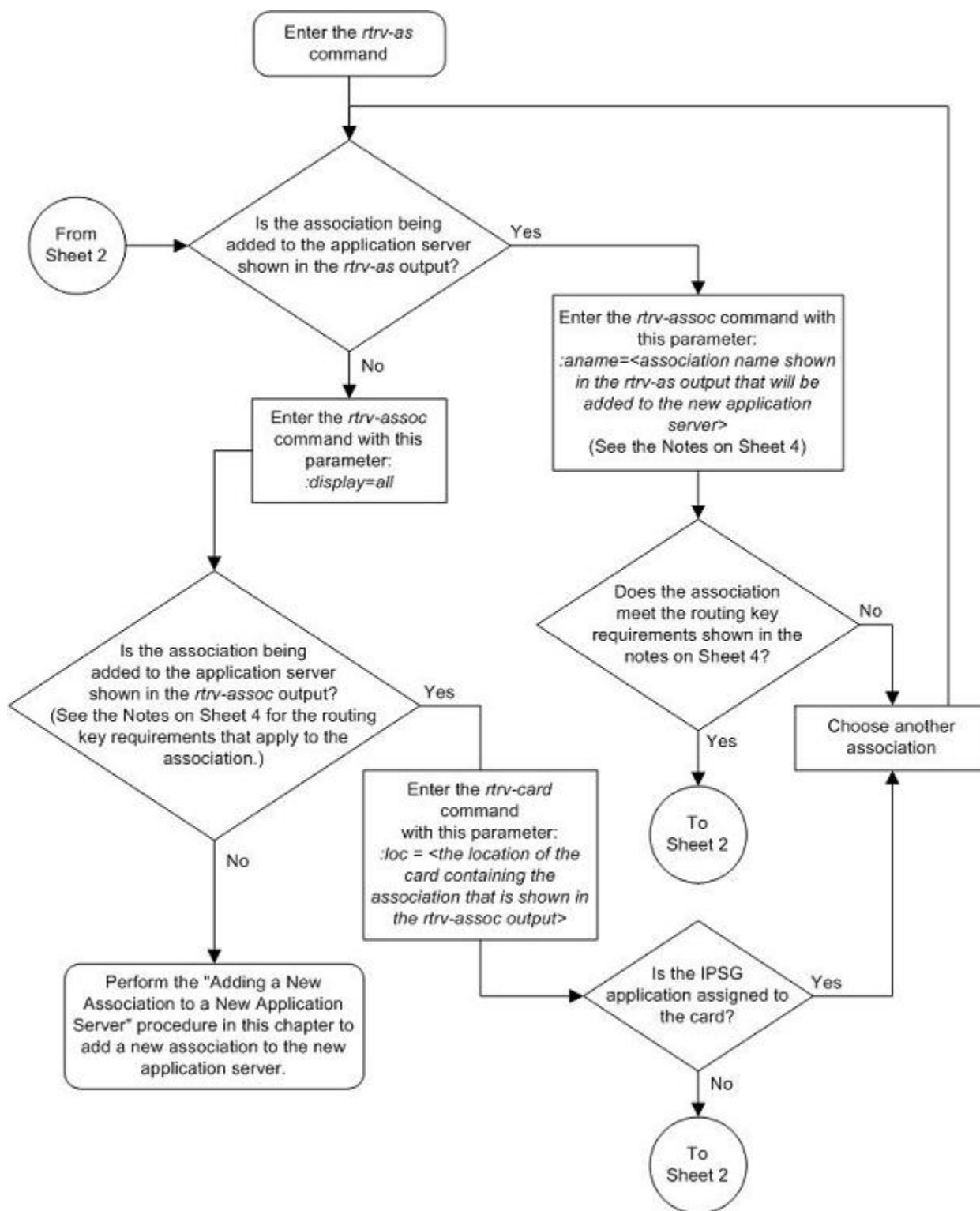
```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
CHG-ASSOC: MASP A - COMPLTD;
```

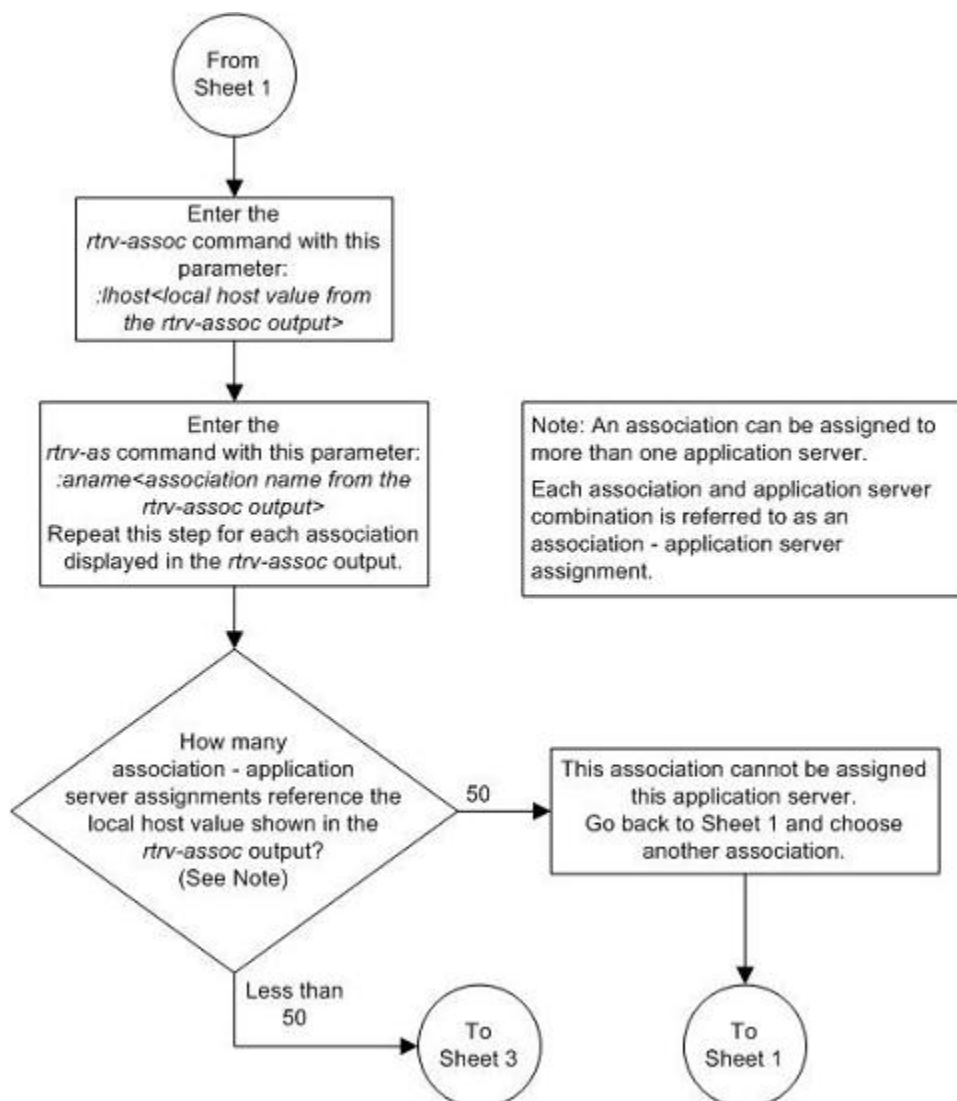
11. Back up the new changes, using the **chg-db:action=backup:dest=fixed** command.

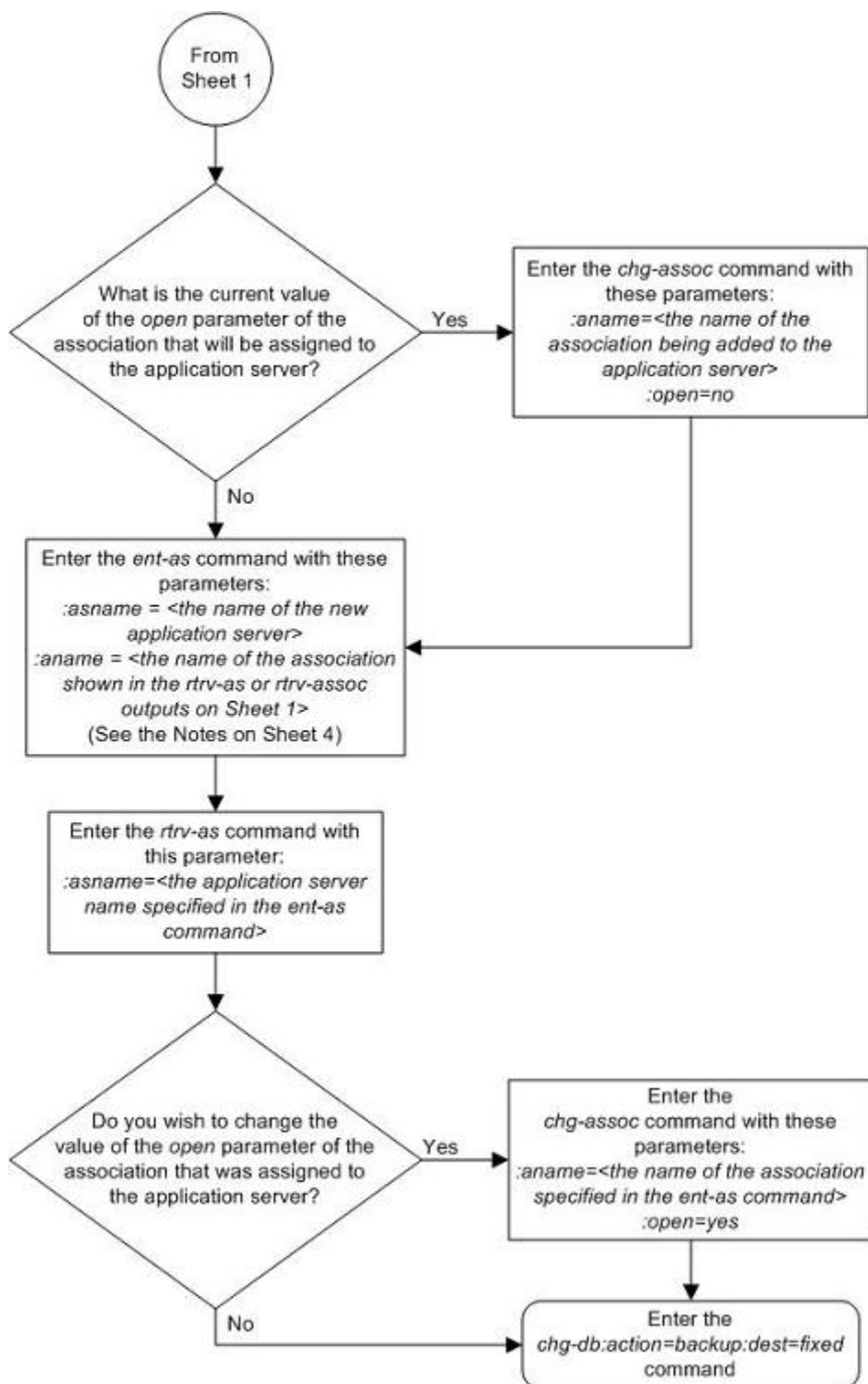
These messages should appear; the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
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.
```


Flowchart 4-12. Adding an Existing Association to a New Application Server







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 **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-as:aname=<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

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
0	0	50
38	1	38
19	2	38
* The EAGLE 5 ISS can contain a maximum 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 than 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 the *Commands Manual*.

Procedure

- 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
```

AS table is (2 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
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 [Step 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 [Step 2](#) using the **rtrv-assoc** command and specifying the association name shown in the **rtrv-as** output from [Step 2](#). For this example, enter this command.

rtrv-assoc:aname=assoc7

This is an example of possible output.

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

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						
LPORT	1030	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		

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 [Step 3](#) by entering the **rtrv-slk** command with the card location of the signaling link shown in [Step 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 **TYPE** column of the **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 [Step 3](#) will be assigned to the new association, continue the procedure with [Step 8](#) .

If another local host value will be assigned to the new association, perform [Step 5](#) .

5. Display the IP host names in the database by using the **rtrv-ip-host** command. The following is an example of the possible output.

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0

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-MS1
192.1.1.52      DN-MS2
```

```
REMOTE IPADDR    REMOTE HOST
150.1.1.5        NCDEPTECONOMIC_DEVELOPMENT. SOUTHEASTERN_COORIDOR_ASHVL. GOV
```

IP Host table is (11 of 512) 2% 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 [Step 4](#) .

After the new local IP host has been added, continue the procedure with [Step 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 [Step 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 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     802.3    NO    NO
1201  B     -----          -----          HALF     10     DIX      NO    NO
1203  A     192.1.1.12      255.255.255.0    ----     ---     DIX      YES   NO
1203  B     -----          -----          HALF     10     DIX      NO    NO
1205  A     192.1.1.14      255.255.255.0    FULL     100    DIX      NO    NO
1205  B     -----          -----          HALF     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
2103  A     192.1.1.22      255.255.255.0    FULL     100    DIX      NO    NO
2103  B     -----          -----          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
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 ----- HALF 10 DIX NO NO

```

7. Display the signaling link assigned to the card, shown in [Step 6](#) , whose IP address is assigned to the local host shown in [Step 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 **TYPE** column of the **rtrv-slk** output.

For this example, the new association must be assigned to a card running the **SS7IPGW** application.

If the card's application shown in this step and in [Step 4](#) are the same, continue the procedure with [Step 8](#) .

If the card's application shown in this step and in [Step 4](#) are not the same, either repeat this procedure from [Step 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 [Step 4](#) . After the new local IP host has been added, continue the procedure with [Step 9](#) .

8. Display the associations assigned to the local IP host value specified in [Step 3](#) or [Step 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 [Step 8](#) are assigned to by entering **rtrv-as** command with the names of the associations shown in [Step 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 [Step 10](#) .

If the number of SCTP association to application server assignments is 50, either repeat this procedure from [Step 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 [Step 4](#) and [Step 7](#) . After the new local IP host has been added, continue the procedure with [Step 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 [Step 3](#) .

NOTE: See [Flowchart 4-13](#) (Sheet 5) for the rules that apply to the new association and the application server.

11. Add the association to the application server using the **ent-as** command with the name of the application server specified in [Step 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 [Step 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 the **open** parameter value of the association specified in [Step 11](#) , continue the procedure with [Step 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=assoc10:open=yes

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

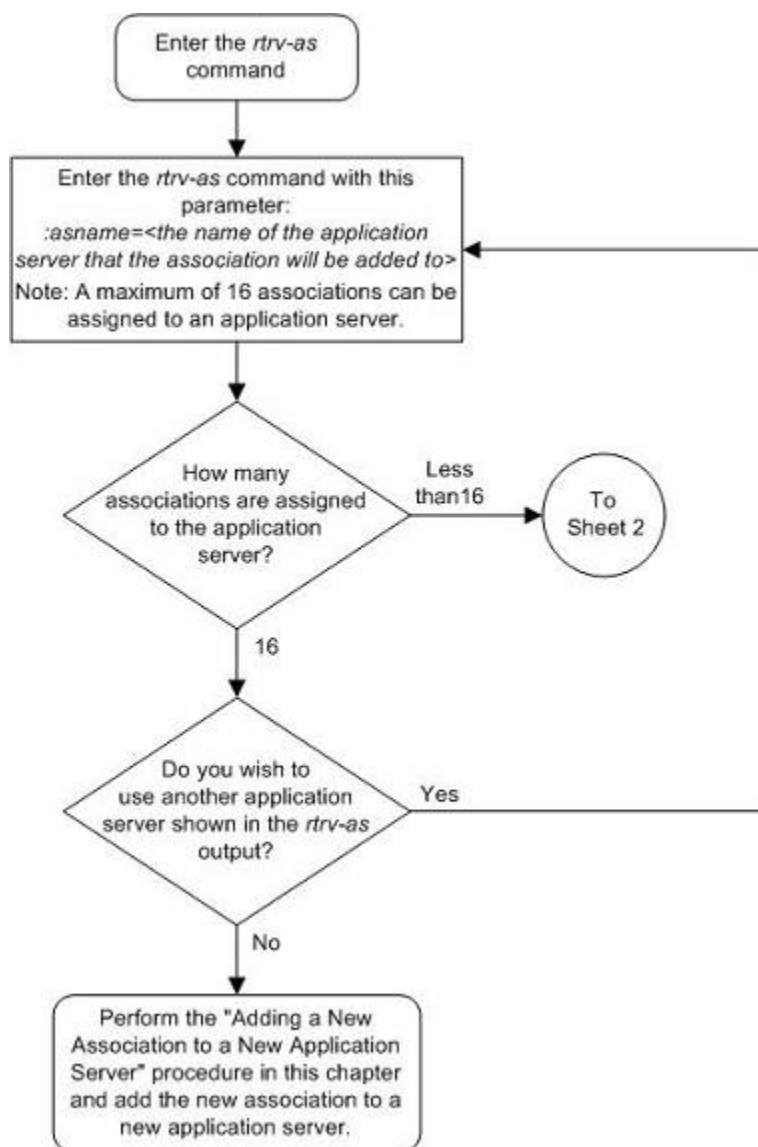
```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
CHG-ASSOC: MASP A - COMPLTD;
```

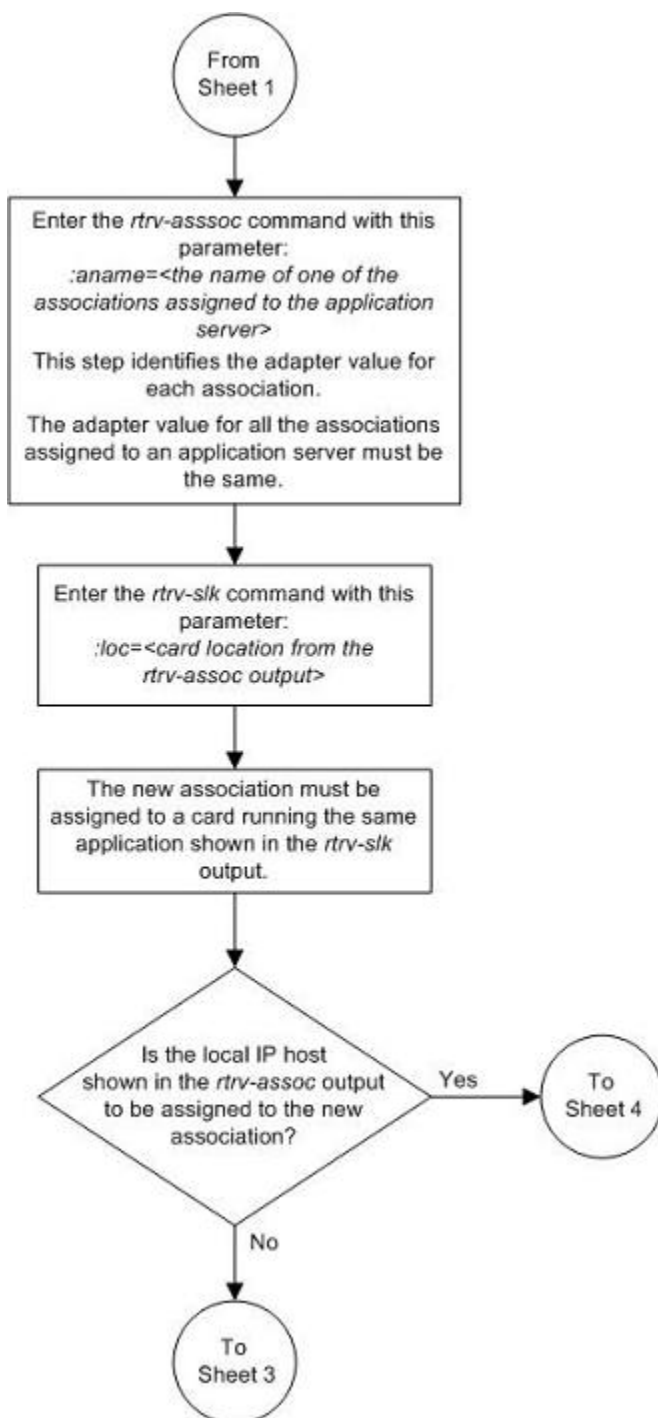
14. Back up the new changes, using the **chg-db:action=backup:dest=fixed** command.

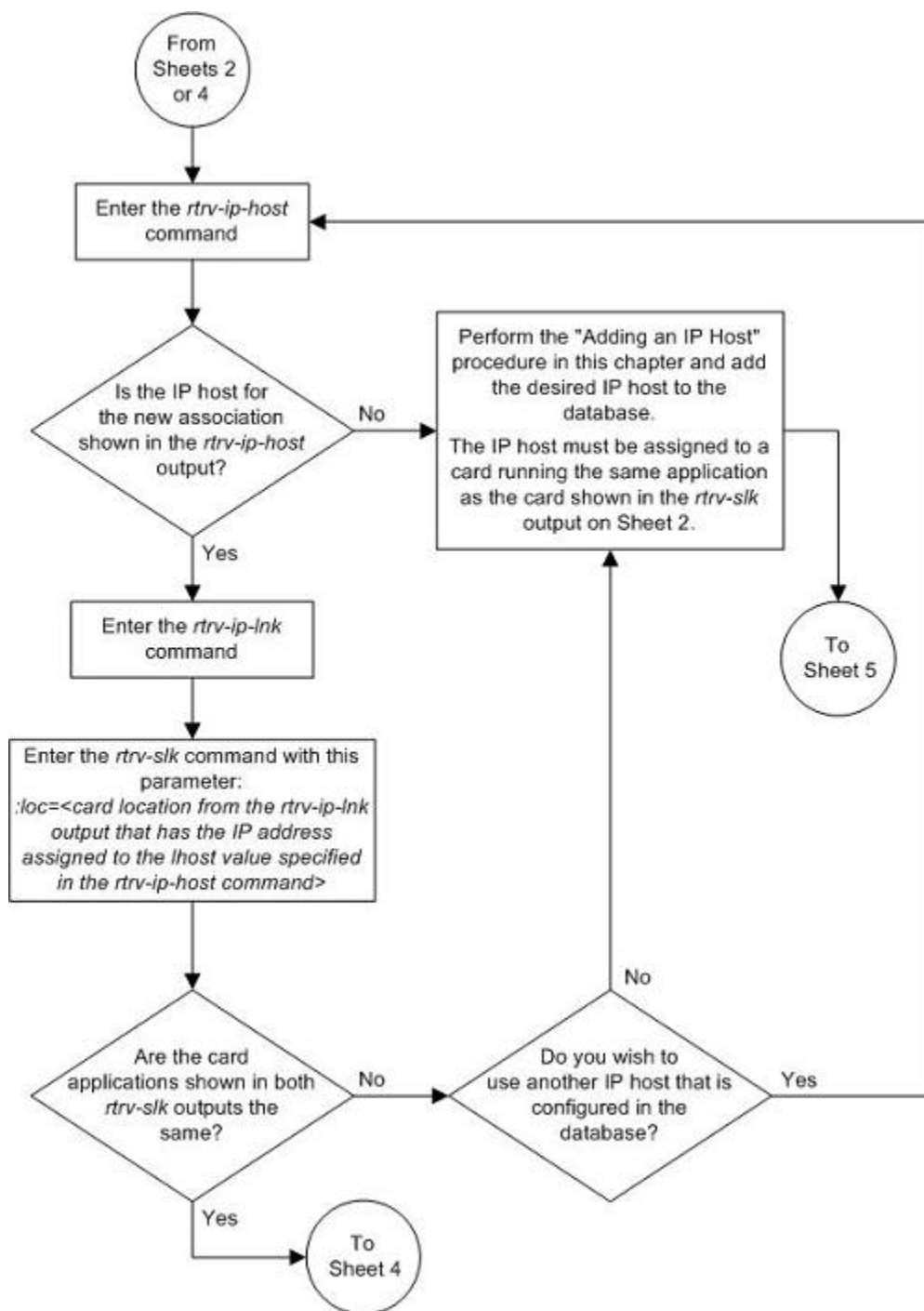
These messages should appear; the active Maintenance and Administration Subsystem Processor (MASP) appears first.

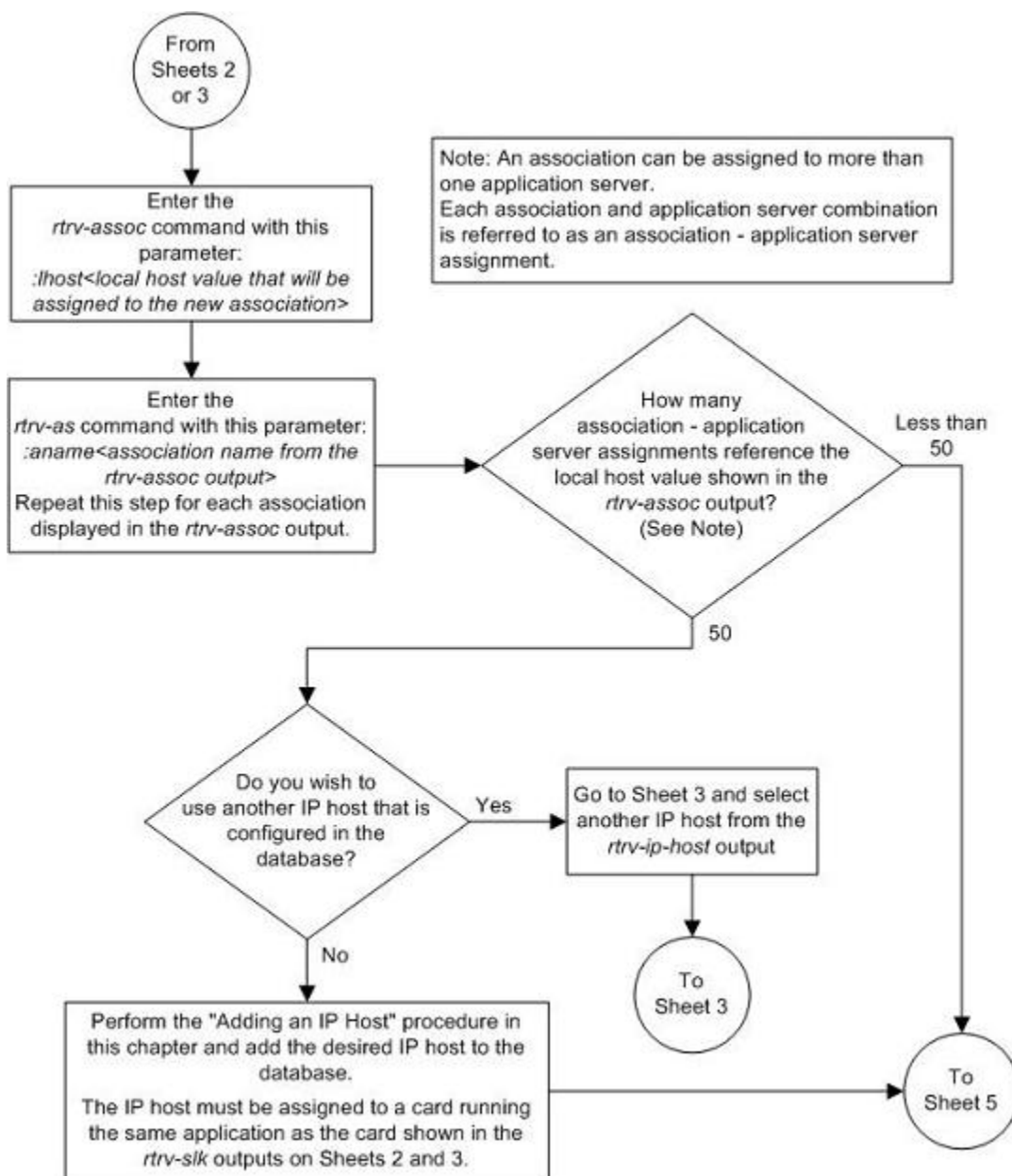
```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

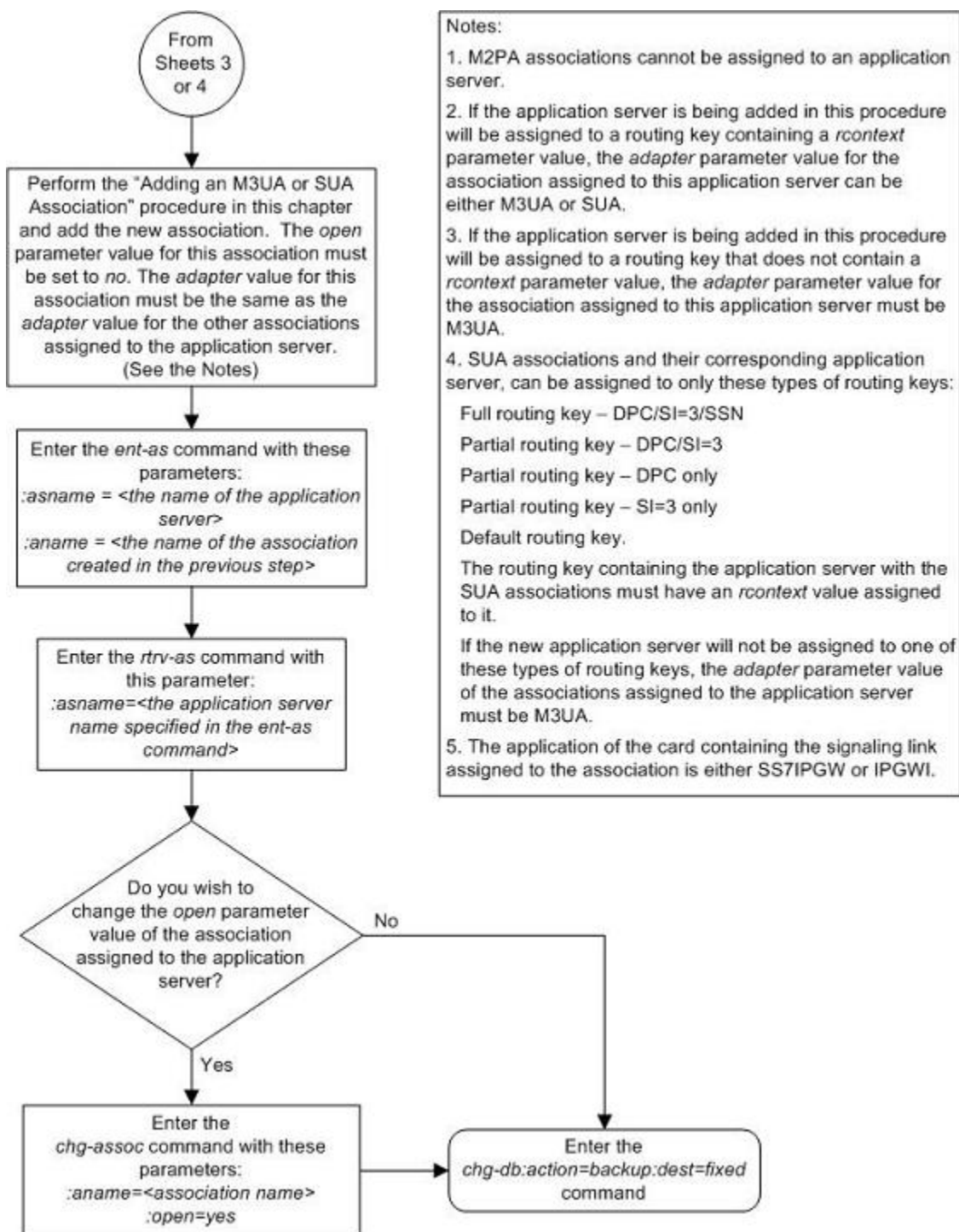
Flowchart 4-13. Adding a New Association to an Existing Application Server











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-as:aname=<association name>** commands.

Table 4-12. 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 5 ISS can contain a maximum 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 than 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 the *Commands Manual*.

Procedure

- 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          a2
              a3
              assoc1

as2          OVERRIDE 10          assoc7
as3          OVERRIDE 10          swbel32
```

AS table is (3 of 250) 1% full.

- 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 (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 [Step 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.

NOTE: If the association being added to the application server is shown in the **rtrv-as output in [Step 1](#), continue the procedure with [Step 4](#).**

- 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 [Step 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 [Step 2](#) using the **rtrv-
assoc** command and specifying the association name shown in the **rtrv-as** output from [Step 2](#) or in the **rtrv-
assoc** output in [Step 3](#) .

For this example, enter this command.

**rtrv-
assoc:aname=assoc7**

This is an example of possible output.

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

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 [Step 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 **TYPE** column of the **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 06-10-28 09:12:36 GMT EAGLE5 36.0.0
ANAME assoc1
  LOC      1203          IPLNK PORT  A          LINK  A
  ADAPTER  SUA          VER          SUA RFC
  LHOST    gw101.nc.tekelec.com
  ALHOST    ---
  RHOST    gw100.nc.tekelec.com
  LPORT    4000          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

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 [Step 4](#) , continue the procedure with [Step 8](#) .

If the **adapter** value shown in this step is not the same as the **adapter** value shown in [Step 4](#) , repeat this procedure from [Step 3](#) .

If the local host value shown in this step is not the same as the local host value shown in [Step 4](#) , but the **adapter** value shown in this step is the same as the **adapter** values shown in [Step 4](#) , continue the procedure with [Step 7](#) .

7. Display the signaling link assigned to the card, shown in [Step 6](#) by entering the **rtrv-sl** command with the card location of the signaling link.

For this example, enter this command.

rtrv-sl: 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-sl** 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 [Step 5](#) are the same, continue the procedure with [Step 8](#) .

If the card applications shown in this step and in [Step 5](#) are not the same, repeat this procedure from [Step 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
```

ANAME	CARD	IPLNK	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 [Step 8](#) are assigned to by entering **rtrv-as** command with the names of the associations shown in [Step 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 [Step 10](#).

If the number of SCTP association to application server assignments is 50, either repeat this procedure from [Step 3](#), or perform the [Adding a New Association to an Existing Application Server](#) procedure to add a new association to this application server.

NOTE: If the value of the open parameter shown in [Step 6](#) is no, continue the procedure with [Step 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=as2:aname=assoc1

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 [Step 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        assoc1
                                     assoc7

AS table is (3 of 250) 1% full.
```

NOTE: If you do not wish to change the **open** parameter value of the association specified in [Step 11](#) , continue the procedure with [Step 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

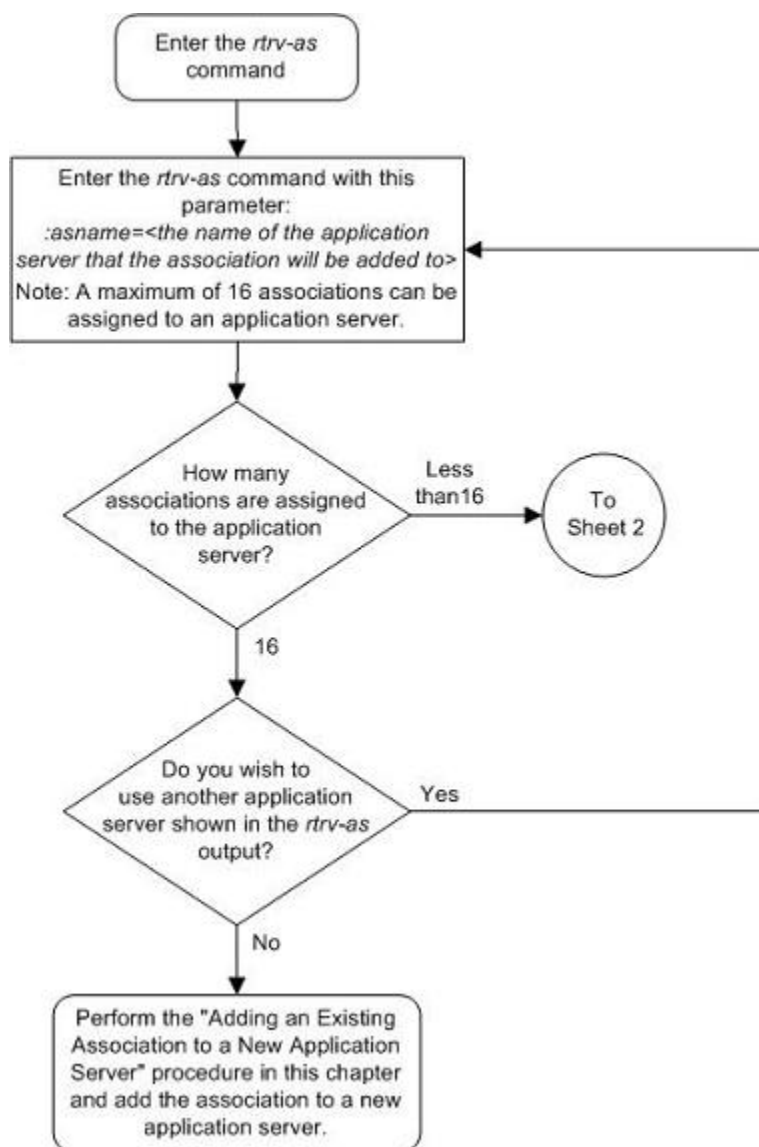
When this command has successfully completed, this message should appear.

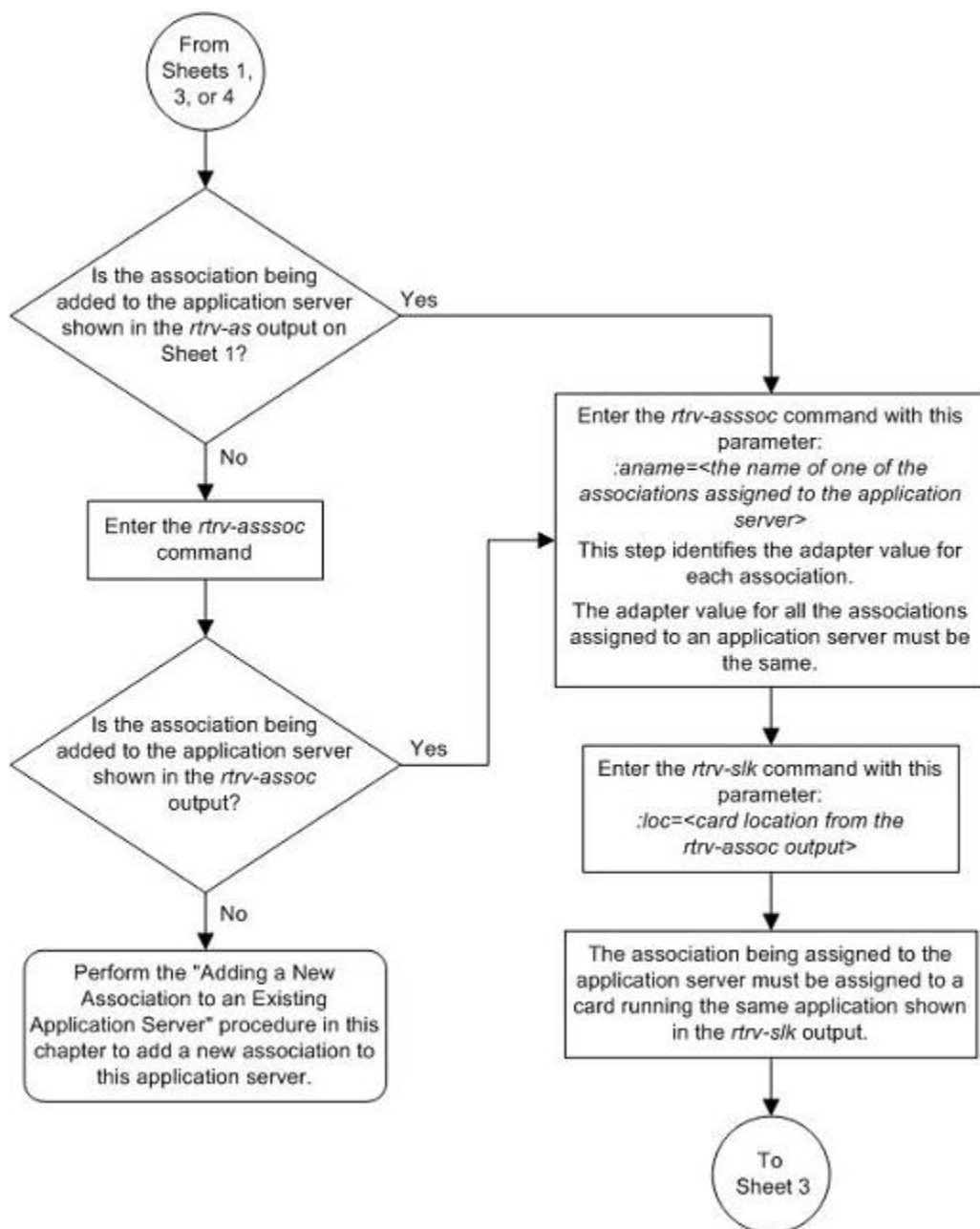
```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
CHG-ASSOC: MASP A - COMPLTD;
```

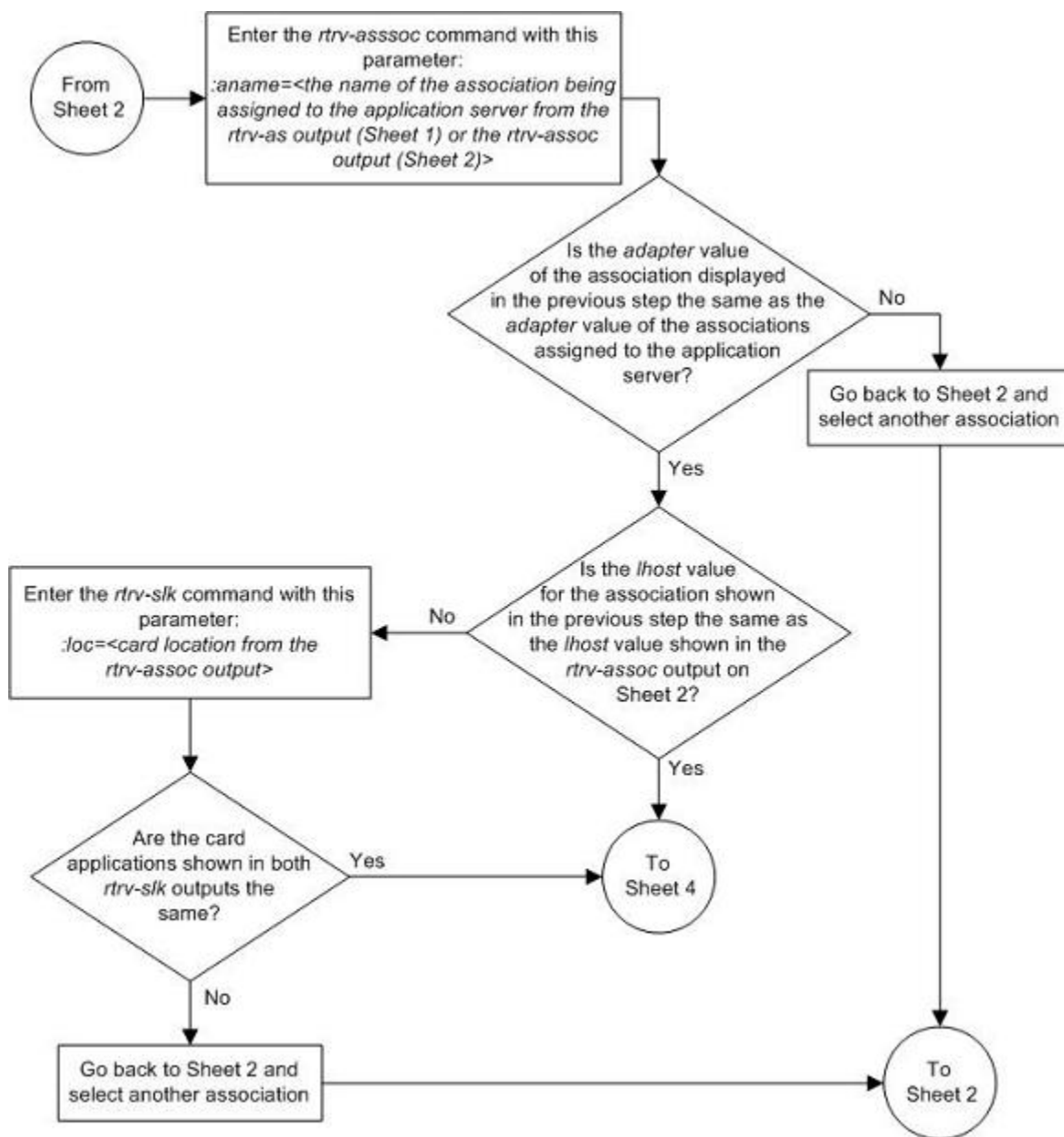
14. Back up the new changes, using the **chg-db:action=backup:dest=fixed** command.

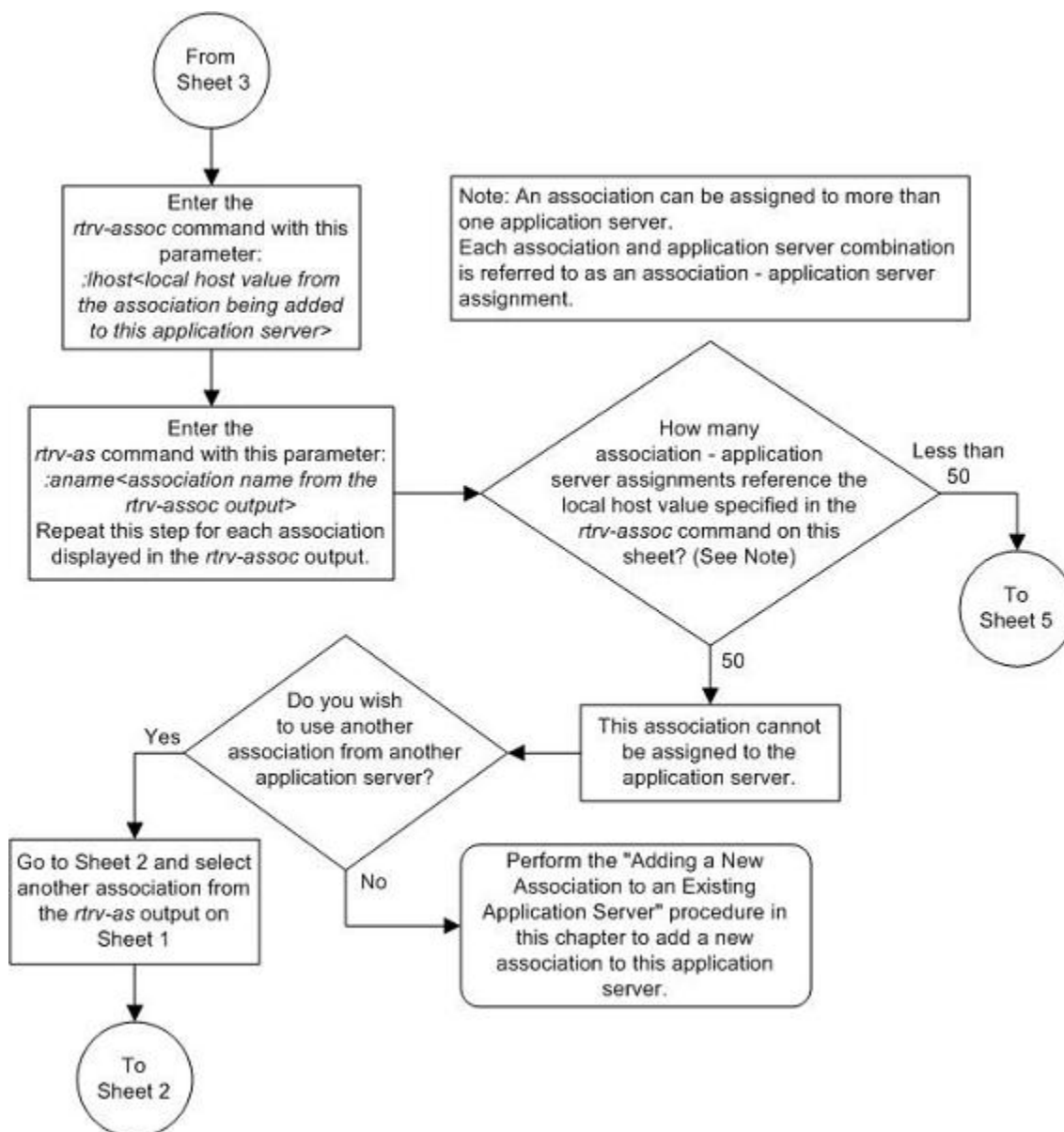
These messages should appear; the active Maintenance and Administration Subsystem Processor (MASP) appears first.

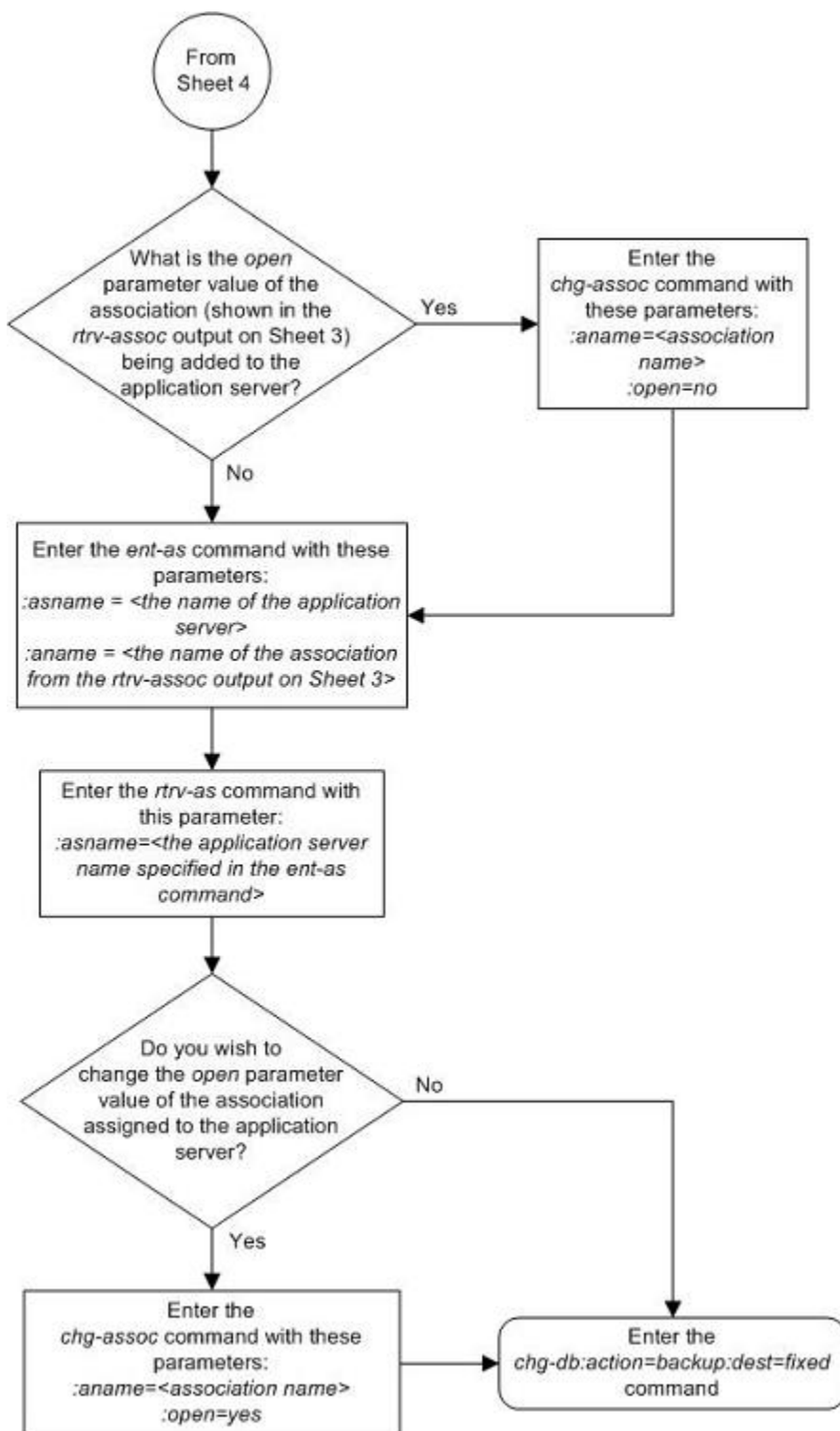
```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

Flowchart 4-14. Adding an Existing Association to an Existing Application Server









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 **ent-appl-rtkey** 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**.

NOTE: See the “Point Code Formats” section in the *Database Administration Manual - SS7* for a definition of the point code types that are used on the EAGLE 5 ISS 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 4-13](#) shows the text strings that can be used in place of numbers for the service indicator values.

Table 4-13. Service Indicator Text String Values

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 4-14](#)). 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 5 ISS. 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 **chg-sg-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 4-14](#) .

Table 4-14. 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 ^{1, 2, 11}	type=partial	dpc ^{1, 2}	type=partial	dpc ^{1, 2}	type=partial	type=default
si=3 ^{4, 11}	dpc ^{1, 2, 3}	si=4, 5, 13 ⁴	dpc ^{1, 2, 3}	si=value other than 3, 4, 5, 13 ⁴	dpc ^{1, 2, 3}	asname ¹⁰
ssn ¹¹	si=3 ^{3, 4}	opc ^{1, 2}	si=4, 5, 13 ^{3, 4, 10}	type=full	si=value other than 3, 4, 5, 13 ^{3, 4, 10}	rcontext ¹⁰
type=full	asname ¹⁰	cics ^{5, 6, 7, 8, 9}	opc ^{1, 2, 3}	asname ¹⁰	asname ¹⁰	
asname ¹⁰	rcontext ¹⁰	cice ^{5, 6, 7, 8, 9}	asname ¹⁰	rcontext ¹⁰	rcontext ¹⁰	

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
rcontext ¹⁰		type=full	rcontext ¹⁰			
		asname ¹⁰				
		rcontext ¹⁰				

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 4-13](#) 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.
 - 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.

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
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 the <i>Database Administration Manual - Global Title Translation</i> 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 than 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 the *Commands Manual*.

Procedure

- 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   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  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
```

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 [Step 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	Mode	Tr ms	Association Names
as1	LOADSHARE	10	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 assoc25

AS Table is (11 of 250) 4% full

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 [Step 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	CICS	CICE	
-----	6-024-7	5	---	1-057-4	150	175	
	ADPTR	TYPE	ASNAME				
	M3UA	FULL	as4				
	ANAMES						
	assoc11		assoc12				
RCONTEXT	DPCI	SI	SSN	OPCI	CICS	CICE	LOC
-----	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
```

RCONTEXT	DPCI	SI	SSN	OPCI	CICS	CICE
225	4-035-7	5	---	3-200-4	200	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 [Step 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 [Step 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 [Step 6](#) .

4. Display the associations assigned to the application server displayed in [Step 3](#) , to verify the **open** parameter value of the association, using the **rtrv-assoc** command with the association names shown in [Step 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          VER          M3UA RFC
  LHOST    gw110.nc.tekelec.com
  ALHOST    ---
  RHOST    gw100.nc.tekelec.com
  LPORT    1030          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

  ASNAMES
  as4
```

IP Appl Sock table is (10 of 4000) 1% full
Assoc Buffer Space Used (16 KB of 800 KB) on LOC = 1203

rtrv-assoc:aname=assoc12

This is an example of possible output.

```
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
  LPORT    2564          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

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
LOC      1207      IPLNK PORT  A      LINK  A
ADAPTER  SUA      VER      SUA RFC
LHOST    gw150.nc.tekelec.com
ALHOST    ---
RHOST    gw100.nc.tekelec.com
LPORT    1500      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

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      OSTRMS      2      BUFSIZE  16
RMODE    LIN      RMIN      120      RMAX      800
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 [Step 3](#) to verify the **open** parameter of each association assigned to the application server.

If a new application server was added in [Step 2](#) , continue the procedure with [Step 6](#) .

If the **rcontext** parameter is not being specified in this procedure, continue the procedure with [Step 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 [Step 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: 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**.

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 [Step 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 [Step 1](#), continue the procedure with [Step 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	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 the *Database Administration Manual - SS7* 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 06-10-10 11:43:04 GMT EAGLE5 36.0.0
```

IP TPS USAGE REPORT

THRESH	CONFIG	TPS	PEAK	PEAKTIMESTAMP

SYSTEM				
RLGHNCXA03W	100%	50000	TX: 7200	7600 05-02-10 11:40:04
			RCV: 7200	7600 05-02-10 11:40:04

LSN				
LSGW1201	80%	10000	TX: 7200	7600 05-02-10 11:40:04
			RCV: 7200	7600 05-02-10 11:40:04
LSGW1204	80%	10000	TX: 6700	7600 05-02-10 11:40:04
			RCV: 6500	7600 05-02-10 11:40:04
LSGW1207	80%	10000	TX: 7300	7450 05-02-10 11:40:04
			RCV: 7300	7450 05-02-10 11:40:04
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 [Step 7](#) using the **rtrv-ls** command and specifying the name of the linkset shown in [Step 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

LSN          APCA  (SS7)  SCRNL3T SLT          GWS GWS GWS
lsqw1201     240-020-000  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=lsqw1204

This is an example of the possible output.

```
rlghncxa03w 08-04-17 11:43:04 GMT EAGLE5 38.0.0

LSN          APCN  (SS7)  SCRNL3T SLT          GWS GWS GWS
lsqw1204     2968      none  1  1  no  A  1  off off off ---  off

CLLI          TFATCABMLQ  MTPRSE  ASL8  SLSRSB  MULTGC  ITUTFR
----- 1  ---  ---  1  no  off

IPGWAPC MATELSN  IPTPS LSUSEALM SLKUSEALM GTTMODE
yes      ----- 10000 70      % 70      % CdPA

LOC  LINK SLC TYPE
1204 A  0  IPGWI

SAPCI
1-010-1
```

Link set table is (14 of 1024) 1% full.

rtrv-ls:lsn=lsqw1207

This is an example of the possible output.

```
rlghncxa03w 08-04-17 11:43:04 GMT EAGLE5 38.0.0
```

```

      L3T SLT
LSN      APCI  (SS7)  SCR N SET SET BEI LST LNKS  GWS GWS GWS
lsqw1207  2-154-0      none 1  1  no  A   1   off off off  ---  off

      CLLI      TFATCABMLQ  MTPRSE  ASL8  SLSRSB  MULTGC  ITUTFR
      -----  1          ---      ---      1          no      off

      IPGWAPC MATELSN      IPTPS LSUSEALM SLKUSEALM GTTMODE
      yes      -----  10000 70      % 70      % CdPA

      LOC  LINK  SLC  TYPE
      1207 A    0    IPGWI

      SAPCN
      5823

```

Link set table is (14 of 1024) 1% full.

rtrv-ls:lsn=lsqw1211

This is an example of the possible output.

```
rlghncxa03w 08-04-28 16:31:35 GMT EAGLE5 38.0.0
```

```

      L3T SLT
LSN      APCA  (SS7)  SCR N SET SET BEI LST LNKS  GWS GWS GWS
lsqw1211  010-130-057 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
      1211 A    0    SS7IPGW

```

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.

NOTE: If the SI value of the routing key being added is a value other than 4, 5, or 13, continue the procedure with [Step 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.

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

If the ISUP Routing over IP feature is on, continue the procedure with [Step 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 **chg-feat** command. If you are not sure if you have purchased the ISUP Routing over IP feature, contact your Tekelec Sales Representative or Account Representative.

When the **chg-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 4-14](#) 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:asname=as3:type
=full
```

```
ent-appl-
rtkey:dpci=1-050-2:si=5:opci=6-077-7:cics=200 :cice=300:asname=as20:typ
e=full:rcontext=2000
```

NOTE: A routing key cannot be added with the application server **as4**, displayed in [Step 3](#), because application server **as4** 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 [Step 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:asname=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	SI	SSN	OPCI	CICS	CICE
-----	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:asname=as20:typ
e=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
```

NOTE: If the **open** parameter value of the associations assigned to the routing key added in this procedure was not changed ([Step 5](#) was not performed), continue the procedure with [Step 14](#) .

13. Change the value of the **open** parameter of the associations that were changed in [Step 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;
```

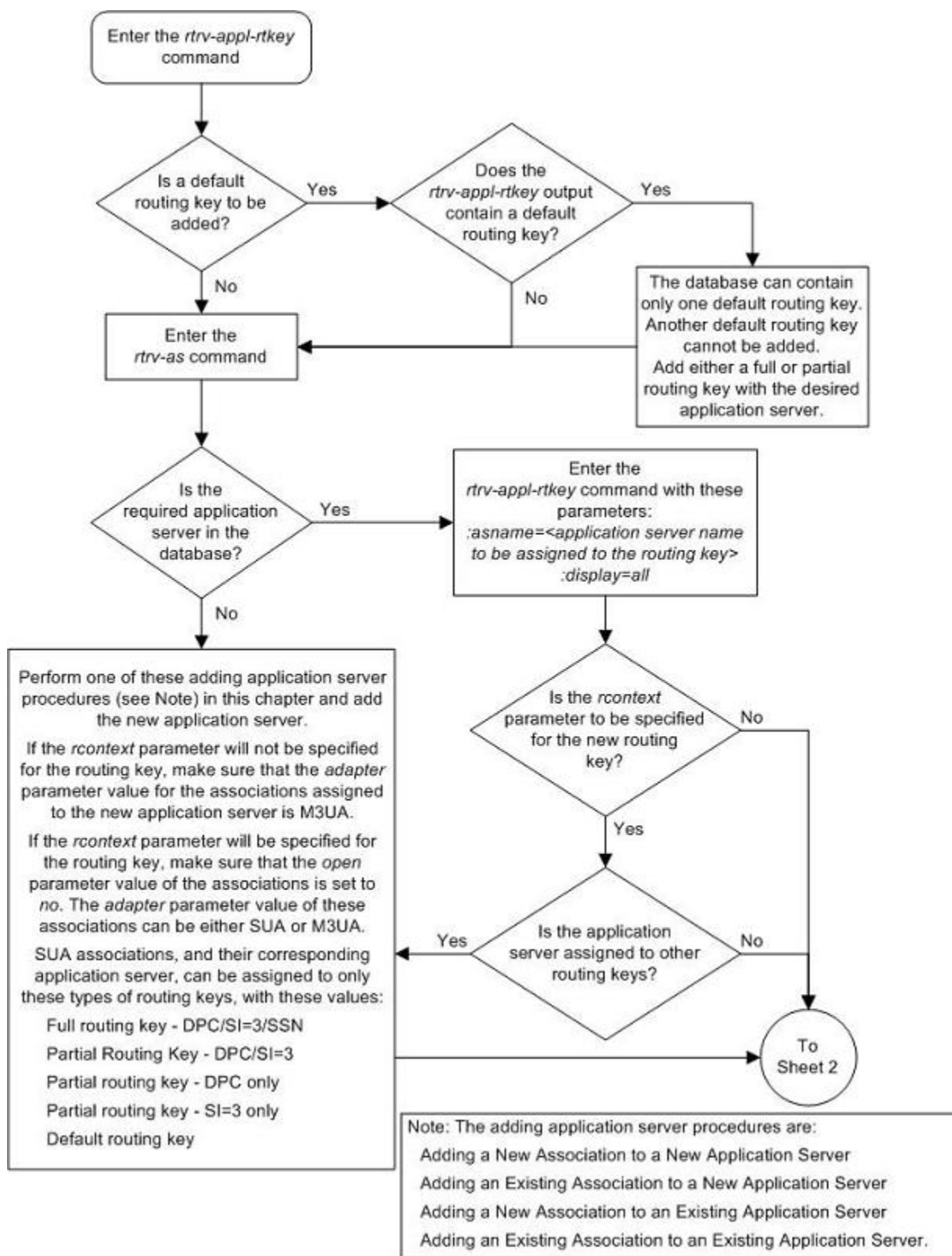
Repeat this step for all the associations that were changed in [Step 5](#) .

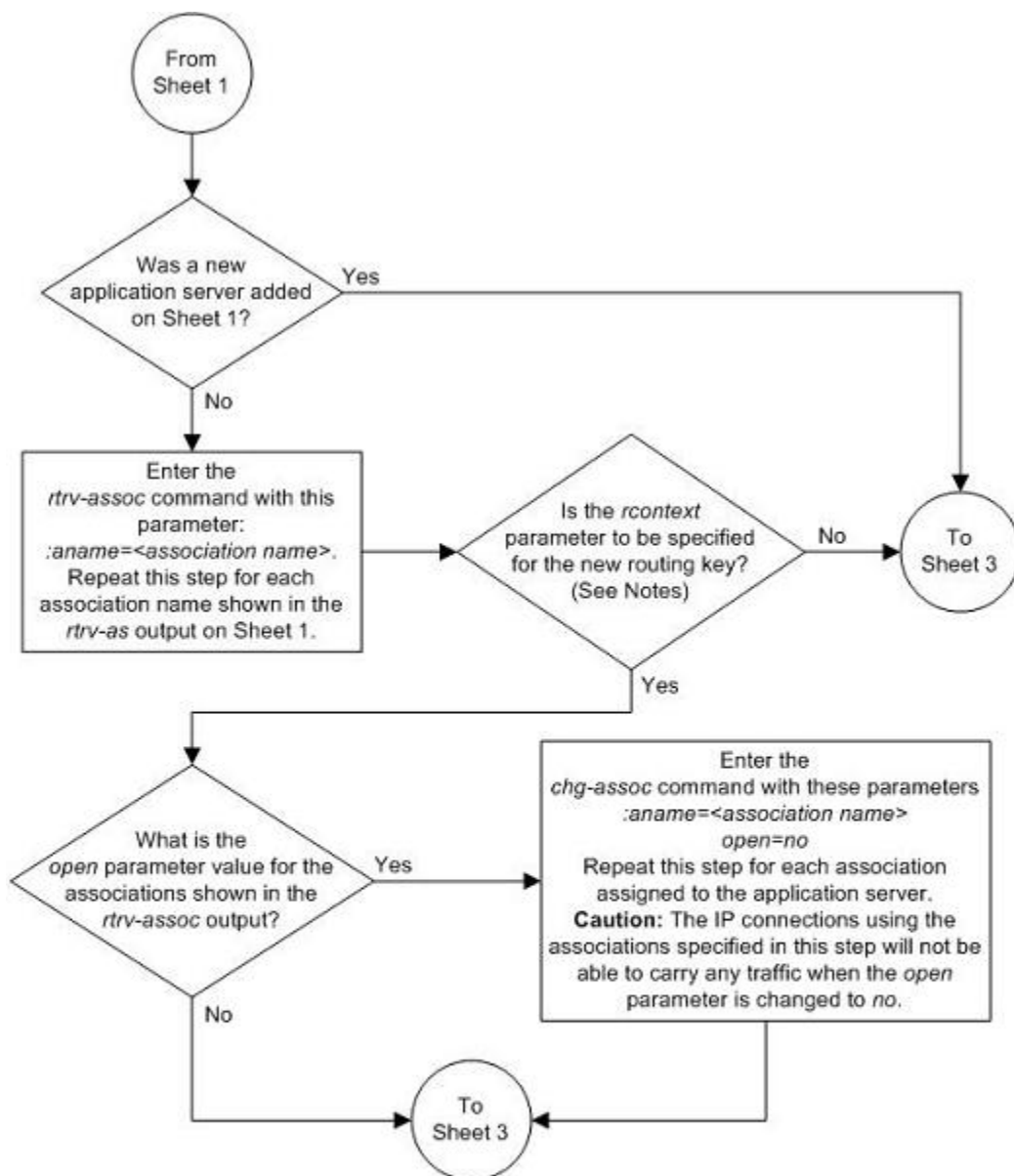
14. Back up the new changes using the **chg-db:action=backup:dest=fixed** command.

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.
```

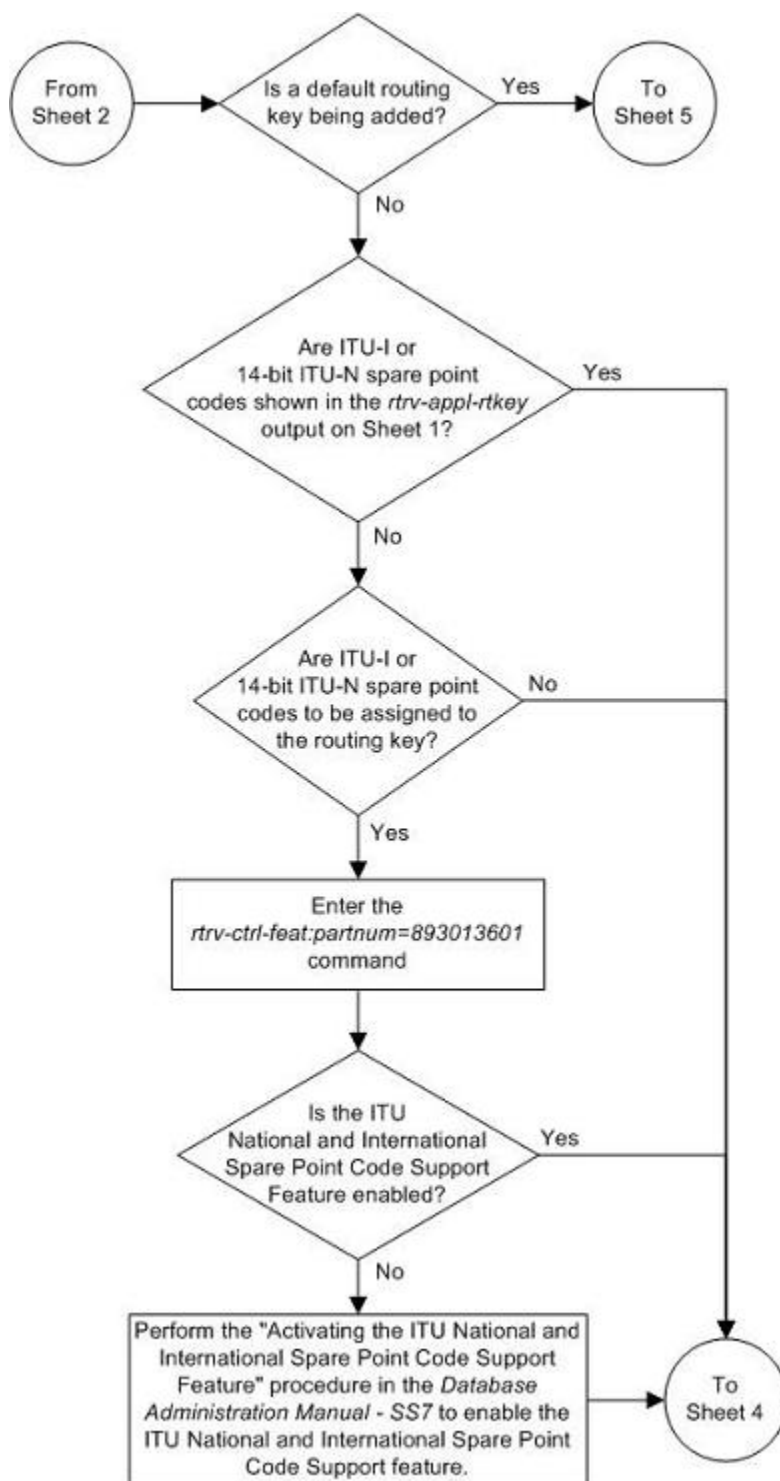
Flowchart 4-15. Adding a Routing Key Containing an Application Server

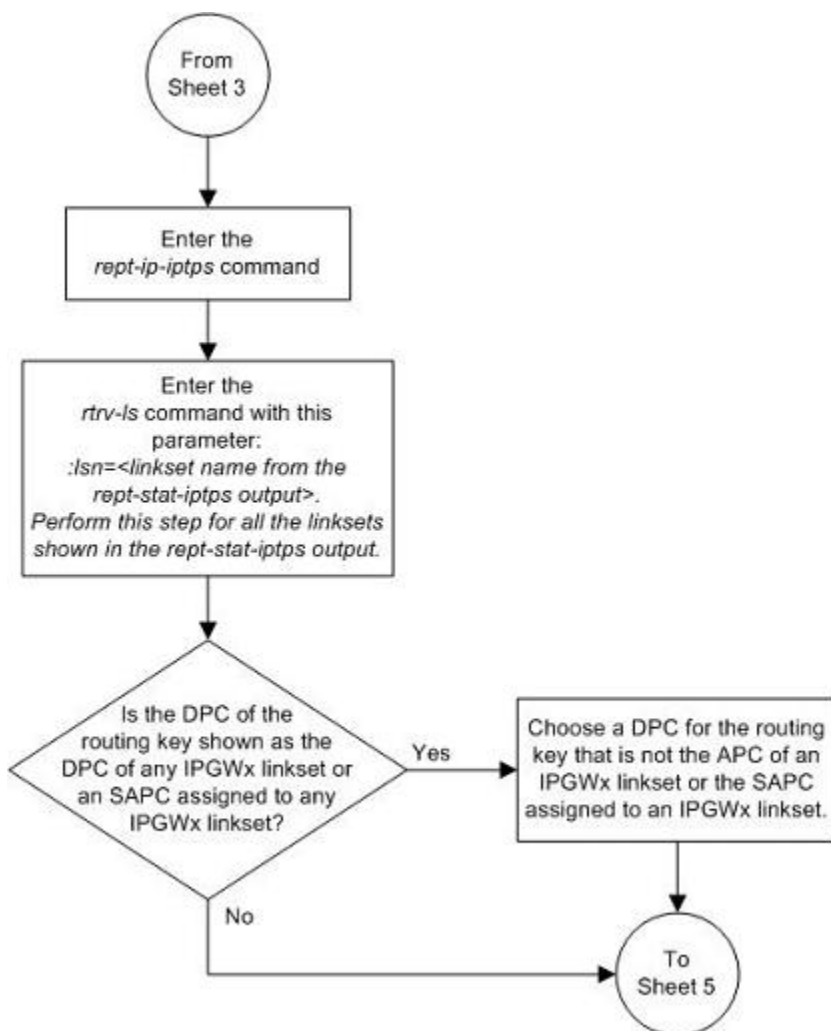


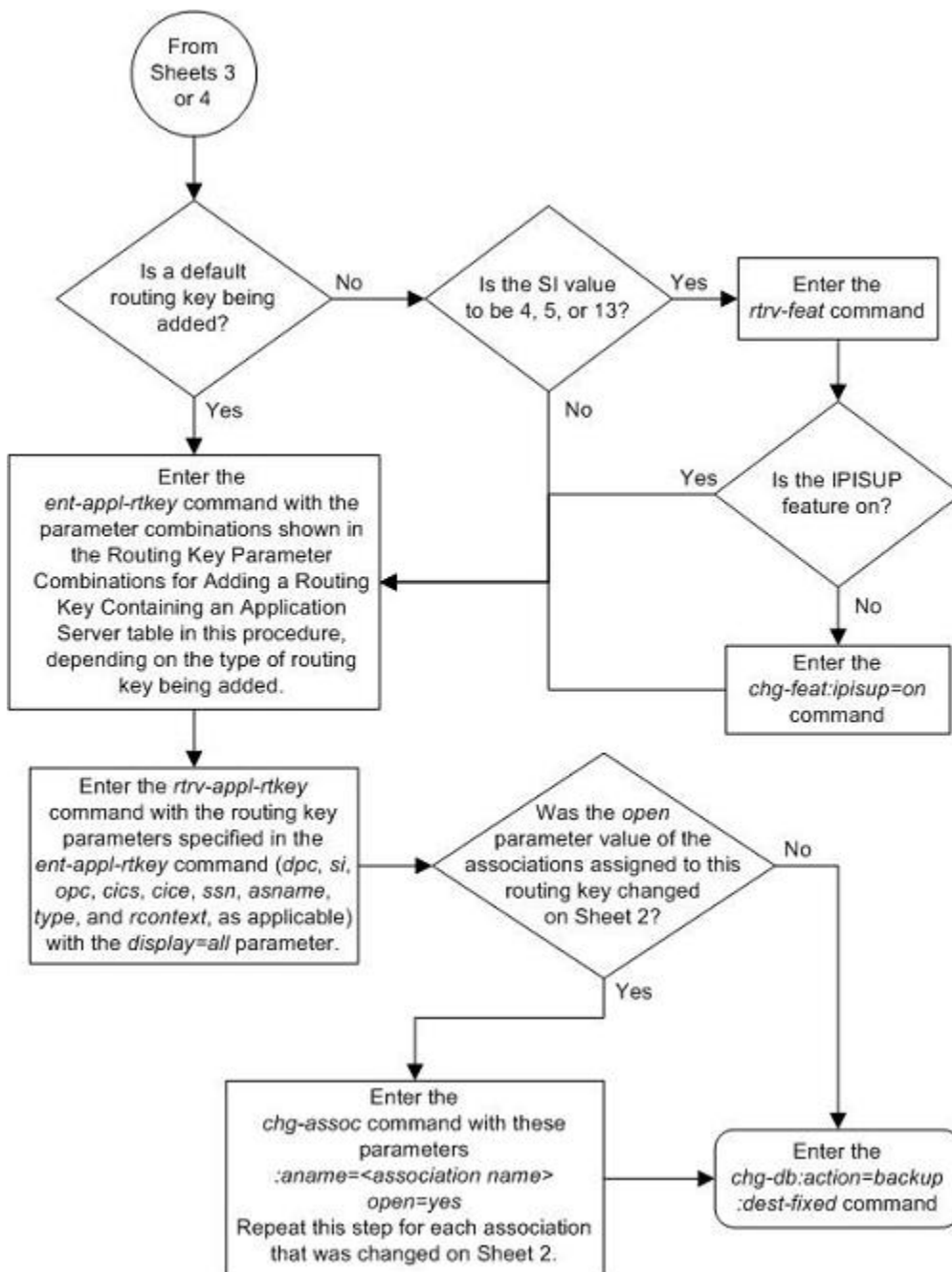


Notes:

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 *rcontext* 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.







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.

Procedure

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 the **gc** parameter is not being specified in this procedure, continue the procedure with [Step 4](#) .

2. Display the self-identification of the EAGLE 5 ISS 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      002-002-003      002-002-004      002-002-005
002-002-006      002-002-007      002-002-008      002-002-009
004-002-001      004-003-003      144-212-003

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 [Step 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 the *Database Administration Manual - SS7* 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 [Step 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 [Step 1](#), or ITU-I spare or 14-bit ITU-N spare point codes are shown in the **rtrv-sid** output in [Step 2](#), continue the procedure with [Step 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	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 the *Database Administration Manual - SS7* 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 [Step 2](#), or assigned to an ITU-N point code (SPC-N) shown in the **rtrv-spc** output in [Step 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
```

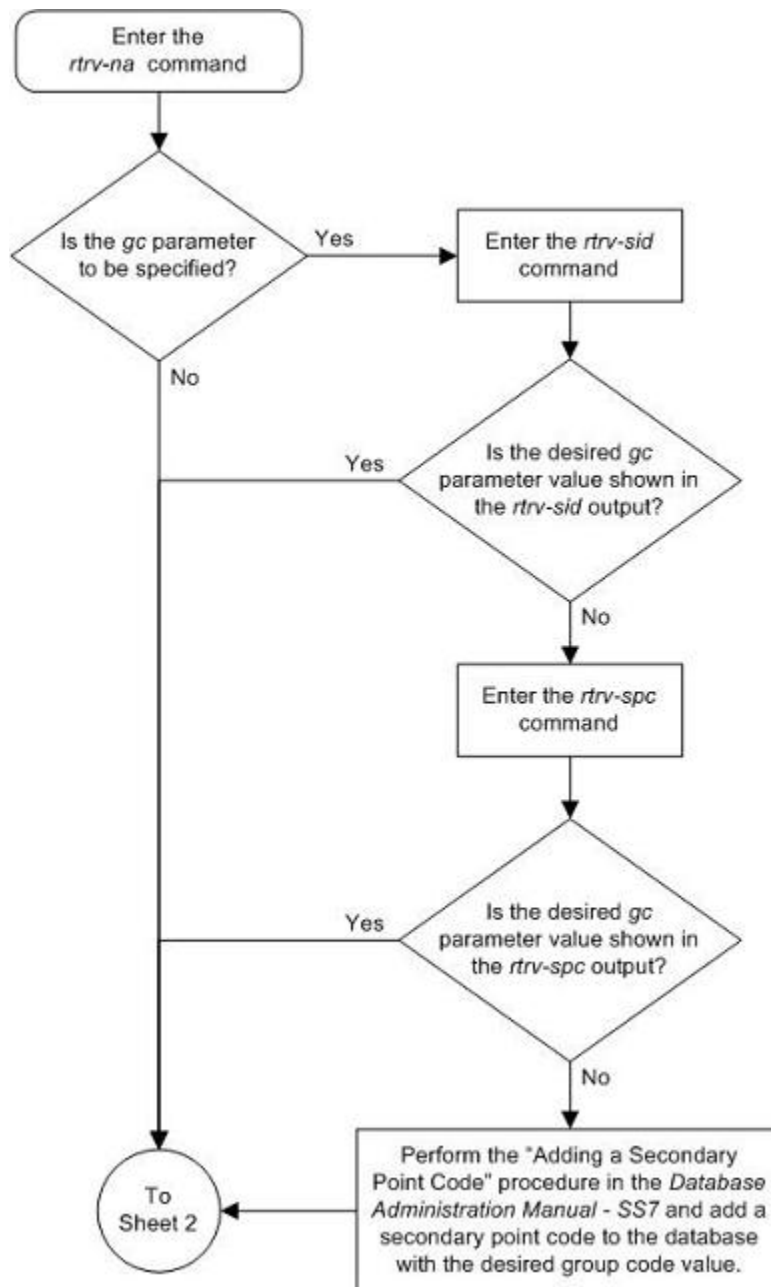
6. Verify the changes using the **rtrv-na** command. This is an example of the possible output.

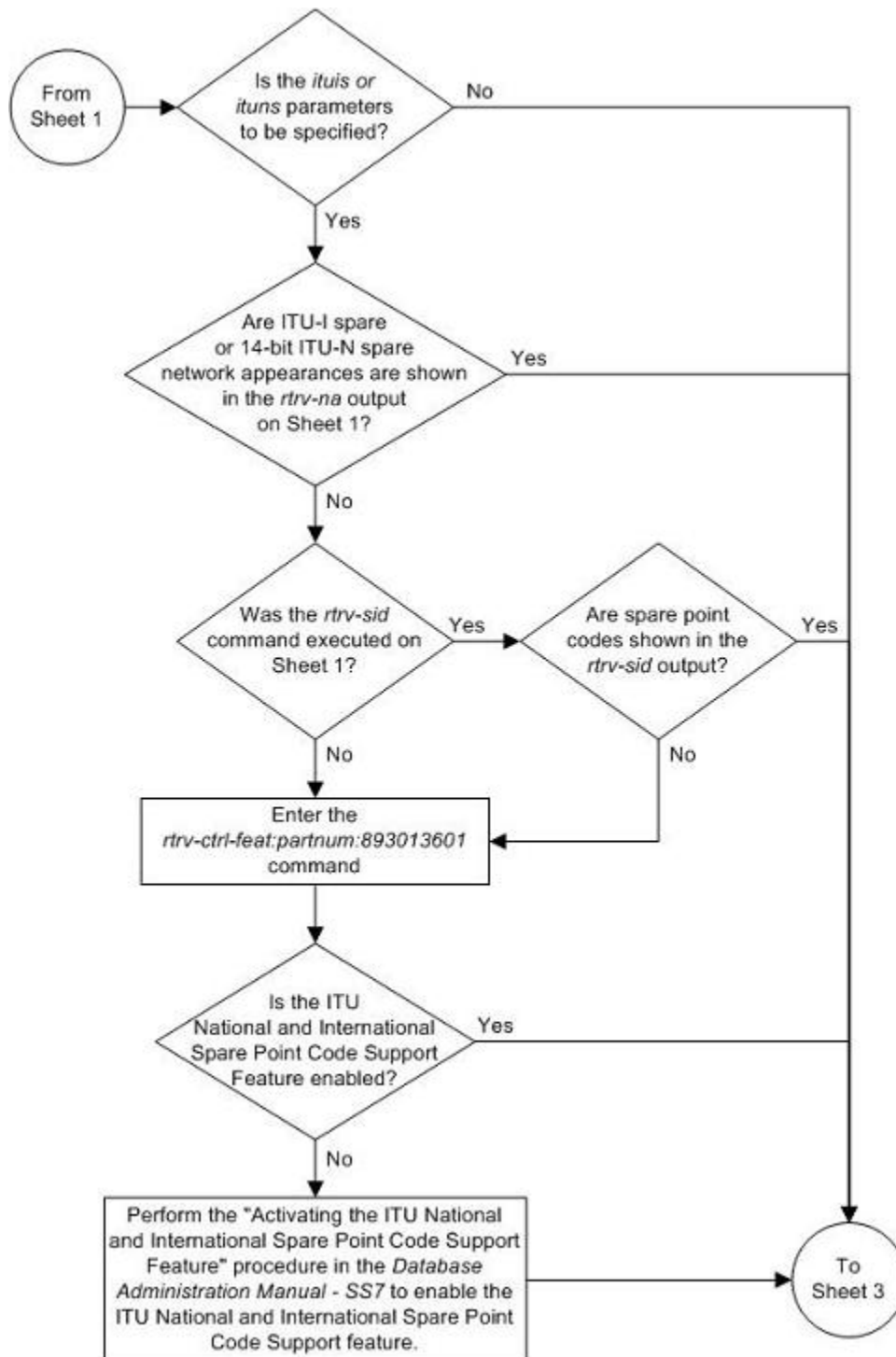
```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
TYPE      GC      NA
ANSI      --      100
ITUI      --      1000
ITUN      uk      150000
ITUN      fr      4000000000
ITUN      ge      10000000000
ITUN24    --      3
ITUIS     --      2000
ITUNS     sp      5000
```

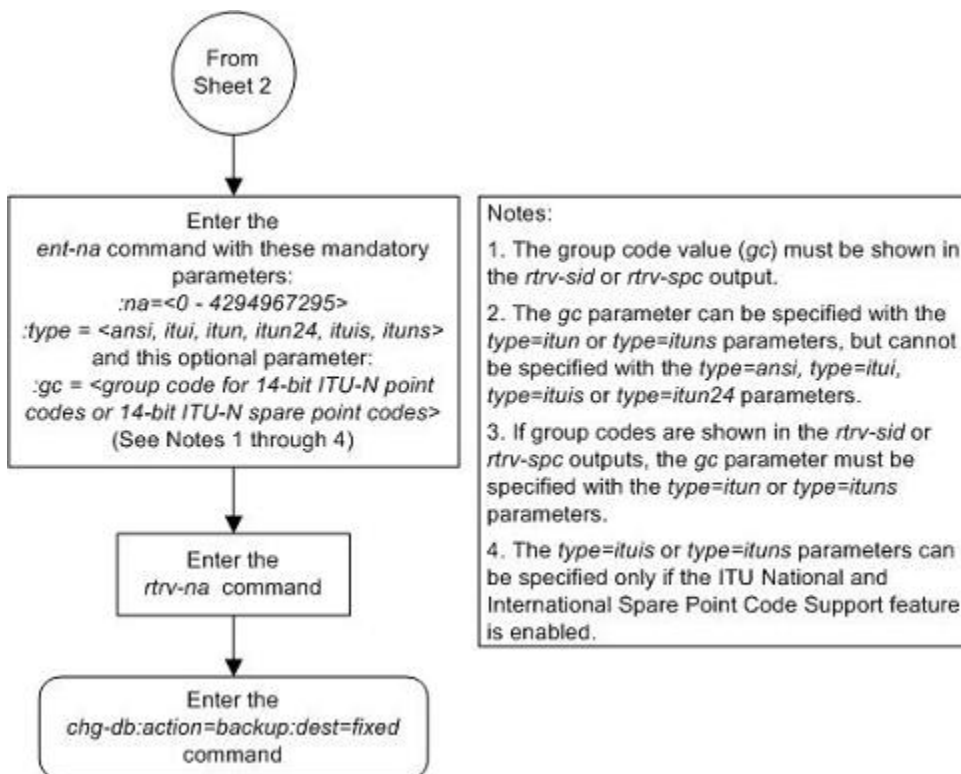
7. Back up the new changes, using the **chg-db:action=backup:dest=fixed** command.

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.
```

Flowchart 4-16. Adding a Network Appearance





Activating the Large BICC MSU Support for IP Signaling Feature

This procedure is used to enable and turn on the Large BICC (Bearer Independent Call Control) MSU Support for IP Signaling feature using the feature's part number and a feature access key.

The feature access key for the Large BICC (Bearer Independent Call Control) MSU Support for IP Signaling feature is based on the feature's part number and the serial number of the EAGLE 5 ISS, making the feature access key site-specific.

The **enable-ctrl-feat** command enables the controlled feature by inputting the controlled feature's access key and the controlled feature's part number with these parameters:

: fak – The feature access key provided by Tekelec. The feature access key contains 13 alphanumeric characters and is not case sensitive.

: partnum – The Tekelec-issued part number of the Large BICC MSU Support for IP Signaling feature, 893018401.

The **enable-ctrl-feat** command requires that the database contain a valid serial number for the EAGLE 5 ISS, and that this serial number is locked. This can be verified with the **rtrv-serial-num** command. The EAGLE 5 ISS is shipped with a serial number in the database, but the serial number is not locked. The serial number can be changed, if necessary, and locked once the EAGLE 5 ISS is on-site, by using the **ent-serial-num** command. The **ent-serial-num** command uses these parameters.

: serial – The serial number assigned to the EAGLE 5 ISS. The serial number is not case sensitive.

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

NOTE: To enter and lock the EAGLE 5 ISS's serial number, the `ent - serial - num` command must be entered twice, once to add the correct serial number to the database with the `serial` parameter, then again with the `serial` and the `lock=yes` parameters to lock the serial number. You should verify that the serial number in the database is correct before locking the serial number. The serial number can be found on a label affixed to the control shelf (shelf 1100).

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 Tekelec-issued part number of the Large BICC MSU Support for IP Signaling feature, 893018401.

: status=on – used to turn the Large BICC MSU Support for IP Signaling feature on.

Once the Large BICC MSU Support for IP Signaling feature has been turned on, it can be turned off. For more information about turning the Large BICC MSU Support for IP Signaling feature off, go to the [Turning the Large BICC MSU Support for IP Signaling Feature Off](#) procedure.

The status of the features in the EAGLE 5 ISS is shown with the **rtrv-ctrl-feat** command.

The Large BICC MSU Support for IP Signaling feature allows the EAGLE 5 ISS to process BICC messages with a service information field (SIF) that is larger than 272 bytes. The large BICC messages are processed only on single-slot EDCMs and E5-ENET cards. There are certain software components that if enabled or provisioned, that will not process large BICC messages even if the Large BICC 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 BICC message is received on an M3UA association and the Large BICC MSU Support for IP Signaling feature is not enabled or is enabled and turned off. The large BICC message is discarded.
- UIM 1350 – Displayed when a M2PA IP connection receives BICC message with an SIF greater than 272 bytes and the Large BICC MSU Support for IP Signaling feature is not enabled or is enabled and turned off. The large BICC message is discarded.
- UIM 1352 – Displayed when a BICC message with an SIF greater than 272 bytes is received; the Large BICC 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 BICC messages.
- UIM 1353 – Displayed when a large BICC message passes a gateway screening screenset that redirects messages for the Database Transport Access (DTA) feature. Large BICC messages are not redirected for the DTA feature.
- UIM 1354 – Displayed when a large BICC message passes a gateway screening screenset that copies messages for the STPLAN feature. Large BICC messages are not copied for the STPLAN feature.

For more information on these UIMs, refer to the *Maintenance Manual*.

NOTE: Large BICC messages are not monitored by the EAGLE 5 Integrated Monitoring Support feature and are not sent to the IMF. A UIM is not generated.

Procedure

1. Display the status of the controlled features by entering the **rtrv-ctrl-feat** command.

The following is an example of the possible output.

```
rlghncxa03w 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 BICC 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 BICC MSU Support for IP Signaling feature is enabled and but not turned on, continue the procedure with [Step 7](#).

If the Large BICC MSU Support for IP Signaling feature is not enabled, continue the procedure with [Step 2](#).

NOTE: If the `rtrv-ctrl-feat` output in [Step 1](#) shows any controlled features, continue this procedure with [Step 6](#). If the `rtrv-ctrl-feat` output shows only the HC-MIM SLK Capacity feature with a quantity of 64, [Step 2](#) through [Step 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
```

NOTE: If the serial number is correct and locked, continue the procedure with [Step 6](#). If the serial number is correct but not locked, continue the procedure with [Step 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 [Customer Care Center](#) 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 5 ISS'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 [Step 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 [Step 3](#) and [Step 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 [Step 2](#), if the serial number shown in [Step 2](#) is correct, or with the serial number shown in [Step 4](#), if the serial number was changed in [Step 3](#), and with the **lock=yes** parameter.

For this example, enter this command.

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

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

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
ENT-SERIAL-NUM: MASP A - COMPLTD
```

6. Enable the Large BICC MSU Support for IP Signaling feature with the **enable-ctrl-feat** command specifying the part number for the Large BICC MSU Support for IP Signaling feature and the feature access key. Enter this command.

enable-ctrl-feat:partnum=893018401:fak=<Large BICC MSU Support for IP Signaling feature access key>

NOTE: 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 Tekelec. If you do not have the feature access key for the feature you wish to enable, contact your Tekelec Sales Representative or Account Representative.

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

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
ENABLE-CTRL-FEAT: MASP B - COMPLTD
```

7. Turn the Large BICC MSU Support for IP Signaling feature on with the **chg-ctrl-feat** command specifying the part number for the Large BICC MSU Support for IP Signaling feature and the **status=on** parameter. Enter this command.

chg-ctrl-feat:partnum=893018401:status=on

When the **chg-ctrl-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-feat** command with the Large BICC 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 06-10-28 21:15:37 GMT EAGLE5 36.0.0
The following features have been permanently enabled:
```

Feature Name	Partnum	Status	Quantity
Large BICC MSU for IP Sig	893018401	on	----

The following features have been temporarily enabled:

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

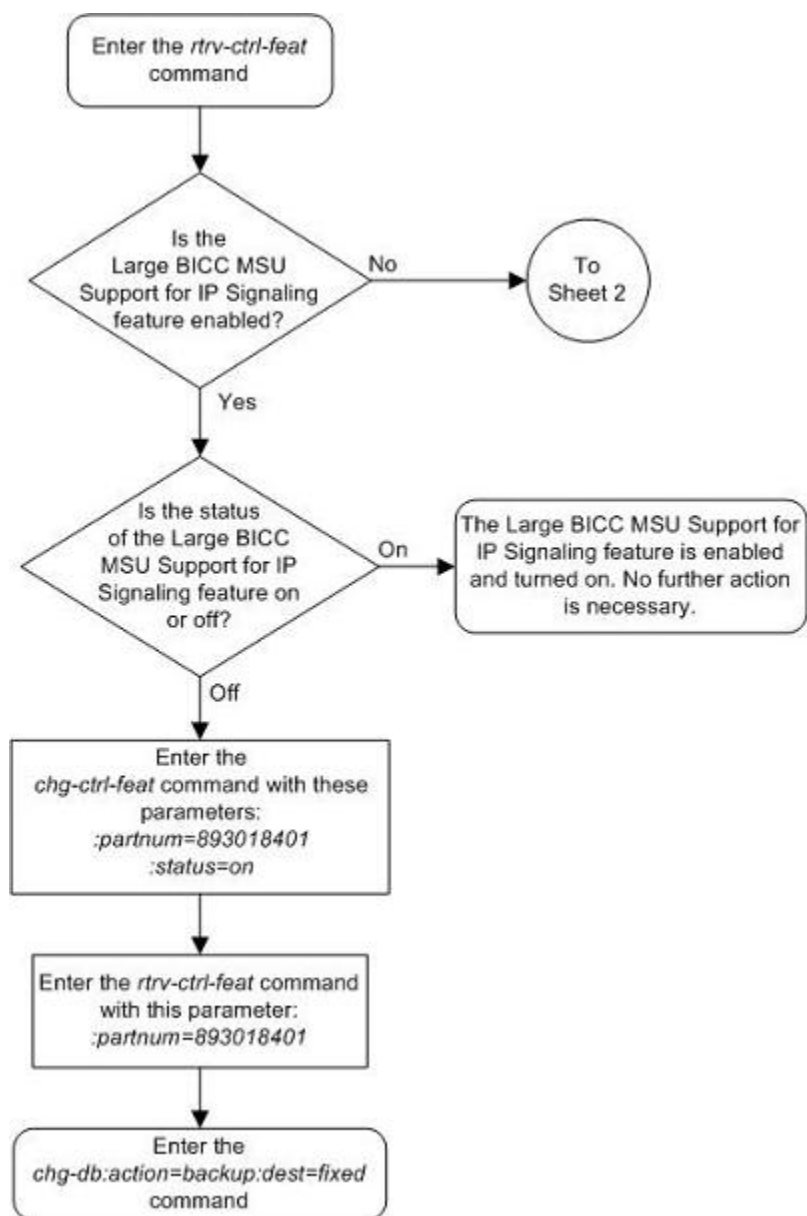
The following features have expired temporary keys:

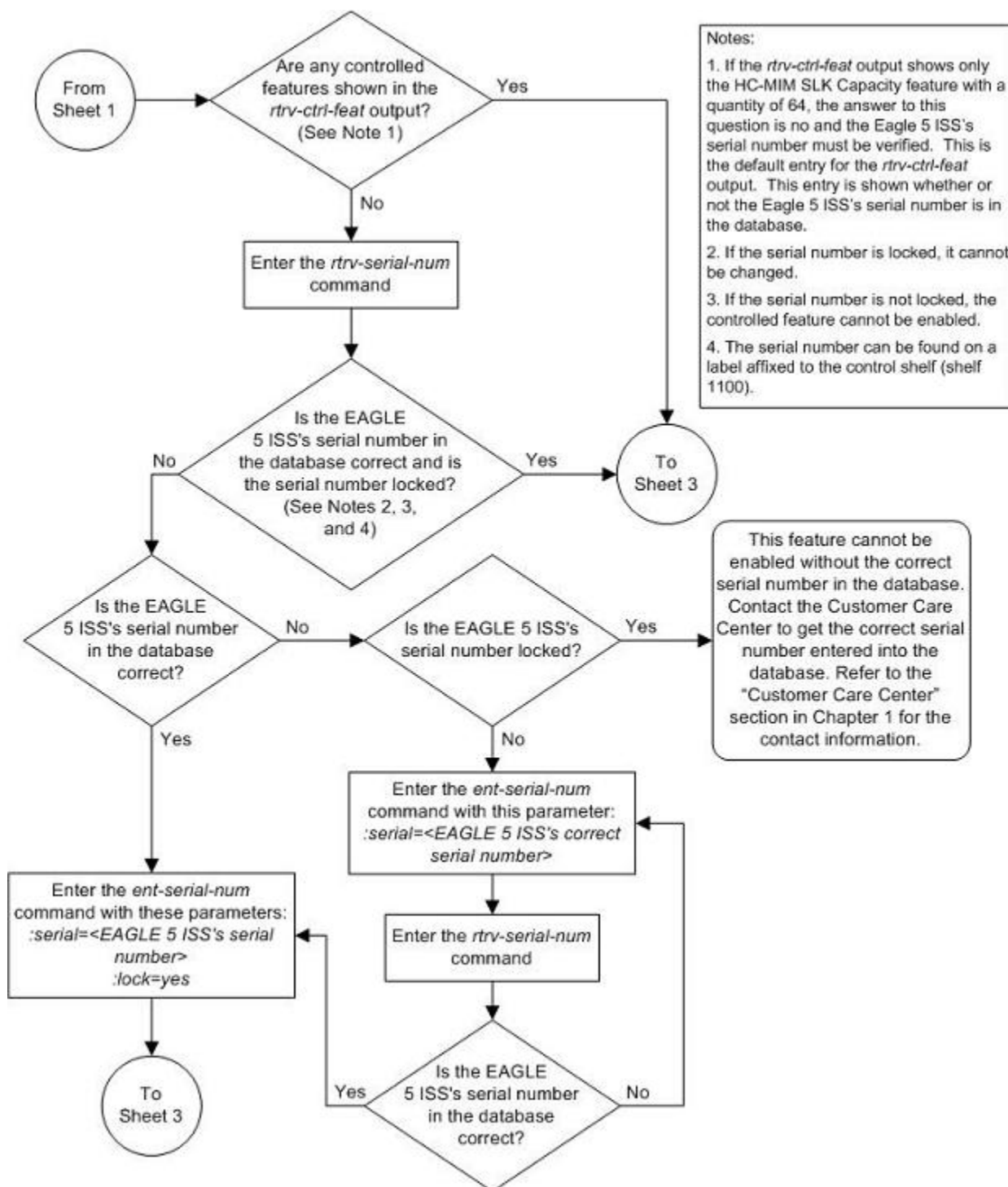
Feature Name	Partnum
Zero entries found.	

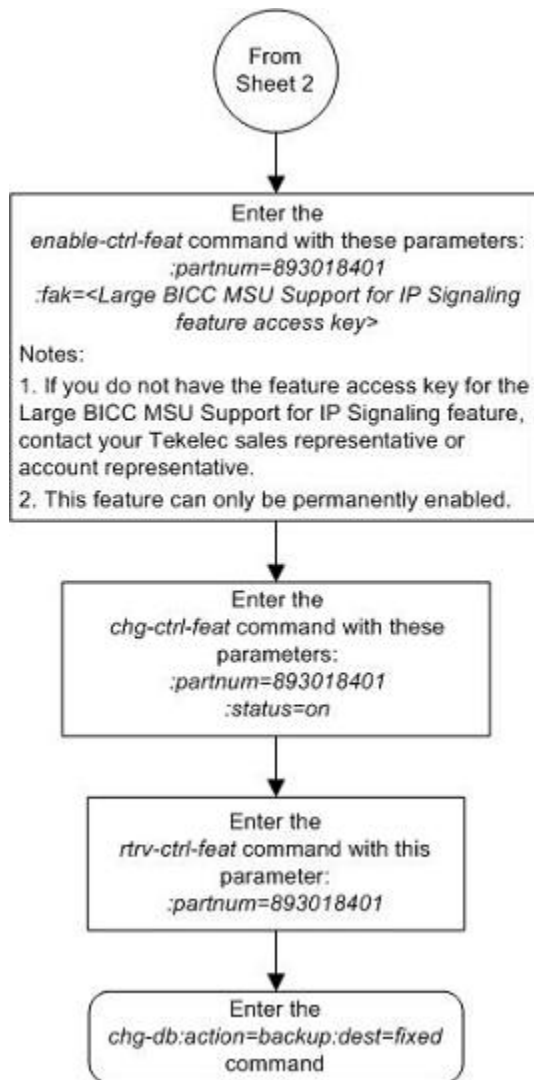
9. Back up the new changes using the **chg-db:action=backup:dest=fixed** command. These messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
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.
```

Flowchart 4-17. Activating the Large BICC MSU Support for IP Signaling Feature







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 an 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.

Procedure

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

This is an example of the possible output.

```
rlghncxa03w 06-10-15 16:34:56 GMT EAGLE5 36.0.0
CARD   TYPE      APPL      LSET NAME      LINK SLC LSET NAME      LINK SLC
1101    TSM          SCCP
1102    TSM          GLS
1104    ACMENET      STPLAN
1113    GSPM         EOAM
1114    TDM-A
1115    GSPM         EOAM
1116    TDM-B
1117    MDAL
1201    LIMDS0       SS7ANSI    lsn1            A      0      lsn2            B      1
1202    LIMV35       SS7GX25    lsngwy          A      0
1203    LIMV35       SS7ANSI    lsn2            A      0      lsn1            B      1
1204    LIMATM       ATMANSI    atmgyw          A      0
1205    DCM          IPLIM      ipnode1         A      0      ipnode3         B      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 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 **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 [Step 2](#) .
For this example, enter these commands.

```
rtrv-card:loc=1205
```

```
rtrv-card:loc=1207
```

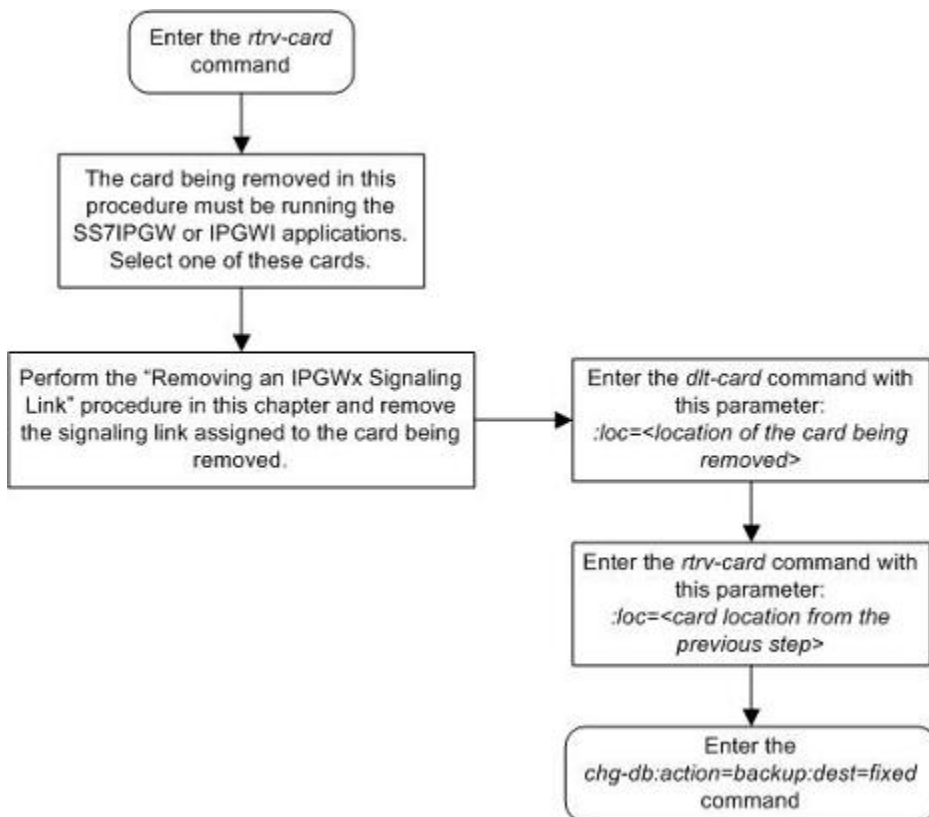
When these commands have successfully completed, this message appears.

```
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.
```

Flowchart 4-18. 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.

The **dlt-slk** command makes sure that the number of signaling links assigned to a linkset is greater than or equal to the value of the **tfatcabmlq** parameter. If the number of signaling links associated with a linkset drops below the value of the **tfatcabmlq** parameter for that linkset, the **tfatcabmlq** value for that linkset is automatically decremented. The value of the **tfatcabmlq** parameter for a specified linkset can be verified using the **rtrv-ls:lsn=<linkset name>** command specifying the name of the linkset. The **tfatcabmlq** parameter value is shown in the **tfatcabmlq** field of the **rtrv-ls** command output.

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 than 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 the *Commands Manual*.

Procedure

1. Display the current link configuration using the **rtrv-slk** command.

This is an example of the possible output.

```
rlghncxa03w 08-04-19 21:16:37 GMT EAGLE5 38.0.0
      L2T      L1      PCR      PCR
LOC  LINK  LSN      SLC TYPE  SET  BPS  MODE  TSET  ECM  N1  N2
1201  A    ls01      0  LIMDS0  1  56000  ---  ---  BASIC  ---  -----
1201  B    lsa1      0  LIMDS0  1  56000  ---  ---  BASIC  ---  -----
1202  B    ls02      0  LIMV35  2  64000  DTE  ---  BASIC  ---  -----
```

1203	A	ls03	0	LIMDS0	3	56000	---	---	BASIC	---	----
1203	B	lsa2	0	LIMDS0	1	56000	---	---	BASIC	---	----
1204	B	ls01	1	LIMDS0	1	56000	---	---	BASIC	---	----
1205	A	lsa3	0	LIMV35	4	64000	DCE	ON	BASIC	---	----
1206	A	ls02	1	LIMV35	2	64000	DTE	---	BASIC	---	----
1207	A	lsn1207a	0	LIMDS0	1	56000	---	---	BASIC	---	----
1207	B	lsn1207b	0	LIMDS0	1	56000	---	---	BASIC	---	----
1208	B	ls03	1	LIMDS0	3	56000	---	---	BASIC	---	----
1212	A	ls04	0	LIMV35	4	64000	DTE	---	BASIC	---	----
1213	B	ls05	0	LIMDS0	5	56000	---	---	BASIC	---	----
1214	A	lsn1214a	0	LIMV35	2	64000	DTE	---	PCR	76	3800
1214	B	lsa3	1	LIMV35	4	64000	DCE	ON	BASIC	---	----
1215	A	ls05	1	LIMDS0	5	56000	---	---	BASIC	---	----
1301	B	ls06	0	LIMV35	6	56000	DTE	---	BASIC	---	----
1304	B	ls06	1	LIMV35	6	56000	DTE	---	BASIC	---	----
1308	A	ls06	2	LIMV35	6	56000	DTE	---	BASIC	---	----
1311	A	ls01	2	LIMDS0	1	56000	---	---	BASIC	---	----
1311	A1	ls05	2	LIMDS0	5	56000	---	---	BASIC	---	----
1311	B	ls03	2	LIMDS0	3	56000	---	---	BASIC	---	----
1311	B1	ls07	1	LIMDS0	7	56000	---	---	BASIC	---	----
1313	A	ls07	0	LIMDS0	7	56000	---	---	BASIC	---	----
1315	A	lsn5	0	LIMV35	11	64000	DTE	OFF	BASIC	---	----
1317	A	lsi7	0	LIMV35	11	64000	DTE	OFF	BASIC	---	----

LOC	LINK	LSN	SLC	TYPE	LP SET	BPS	ATM TSEL	VCI	VPI	LL
1302	A	atmansio	0	LIMATM	3	1544000	EXTERNAL	35	15	0
1305	A	atmansii	0	LIMATM	4	1544000	INTERNAL	100	20	2
1318	A	atmansio	1	LIMATM	9	1544000	LINE	150	25	4

LOC	LINK	LSN	SLC	TYPE	LP SET	BPS	ATM TSEL	VCI	VPI	CRC4	SI	SN
2101	A	atmitu1	0	LIME1ATM	5	2.048M	LINE	150	2	ON	1	20
2105	A	atmitu1	1	LIME1ATM	5	2.048M	LINE	35	15	ON	2	15

LOC	LINK	LSN	SLC	TYPE	IPLIML2
2202	A	lsnlp1	0	IPLIM	M2PA
2205	A	lsnip1	1	IPLIM	M2PA
2204	B	lsnlp2	0	IPLIM	M2PA
2213	A	lsnip5	0	IPLIMI	M2PA
2215	A	lsnlp2	1	IPLIM	M2PA

LOC	LINK	LSN	SLC	TYPE
2207	A	lsnlp3	0	SS7IPGW
2211	A	lsnlp4	0	IPGWI

SLK table is (31 of 1200) 6% full

- 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.

- 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 [Step 1](#) . For this example, enter this command.

rtrv-ip-lnk: loc=2207

The following is an example of the possible output.

```
rlghncxa03w 06-10-28 21:14:37 GMT EAGLE5 36.0.0
LOC  PORT  IPADDR          SUBMASK          DUPLEX  SPEED  MACTYPE  AUTO  MCAST
2207  A     192.1.1.10       255.255.255.128  HALF    10     802.3    NO    NO
2207  B     -----          -----          HALF    10     DIX      NO    NO
```

- Display the IP host information associated with the IP link by entering the **rtrv-ip-host** command with the IP address shown in [Step 3](#) . For this example, enter these commands.

rtrv-ip-host:ipaddr=192.001.001.010

The following is an example of the possible output.

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

```
LOCAL IPADDR    LOCAL HOST
192.1.1.10      IPNODE1_2207
```

IP Host table is (11 of 512) 2% full

5. Display the associations associated with the local host name shown in [Step 4](#) 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

6. 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.

NOTE: If there is no association shown in [Step 4](#) , or the **open** and **alw** parameter values of the association shown in [Step 4](#) are **no**, continue the procedure with [Step 7](#) .

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 [Step 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
```

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 [Step 7](#) . 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  ls04  ls04clli  OOS-MT  Unavail  ----
```

```
ALARM STATUS      = *    0235 REPT-LNK-MGTINH: local inhibited
UNAVAIL REASON    = LI
```

9. Place the card that contains the signaling link shown in [Step 8](#) out of service by entering the **rmv-card** command specifying the card location shown in [Step 8](#). 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.
```

10. Verify that the card has been inhibited by entering the **rept-stat-card** command with the card location specified in [Step 9](#). 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
SLK   PST         LS      CLLI      E5IS
A     OOS-MT      lsnlp1  -----  INACTIVE
```

Command Completed.

11. Remove the signaling link from the EAGLE 5 ISS using the **dlr-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.

dlr-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
DLR-SLK: MASP A - COMPLTD
```

12. Verify the changes using the **rtrv-slk** command, with the card location and link values specified in [Step 11](#). For this example, enter this command.

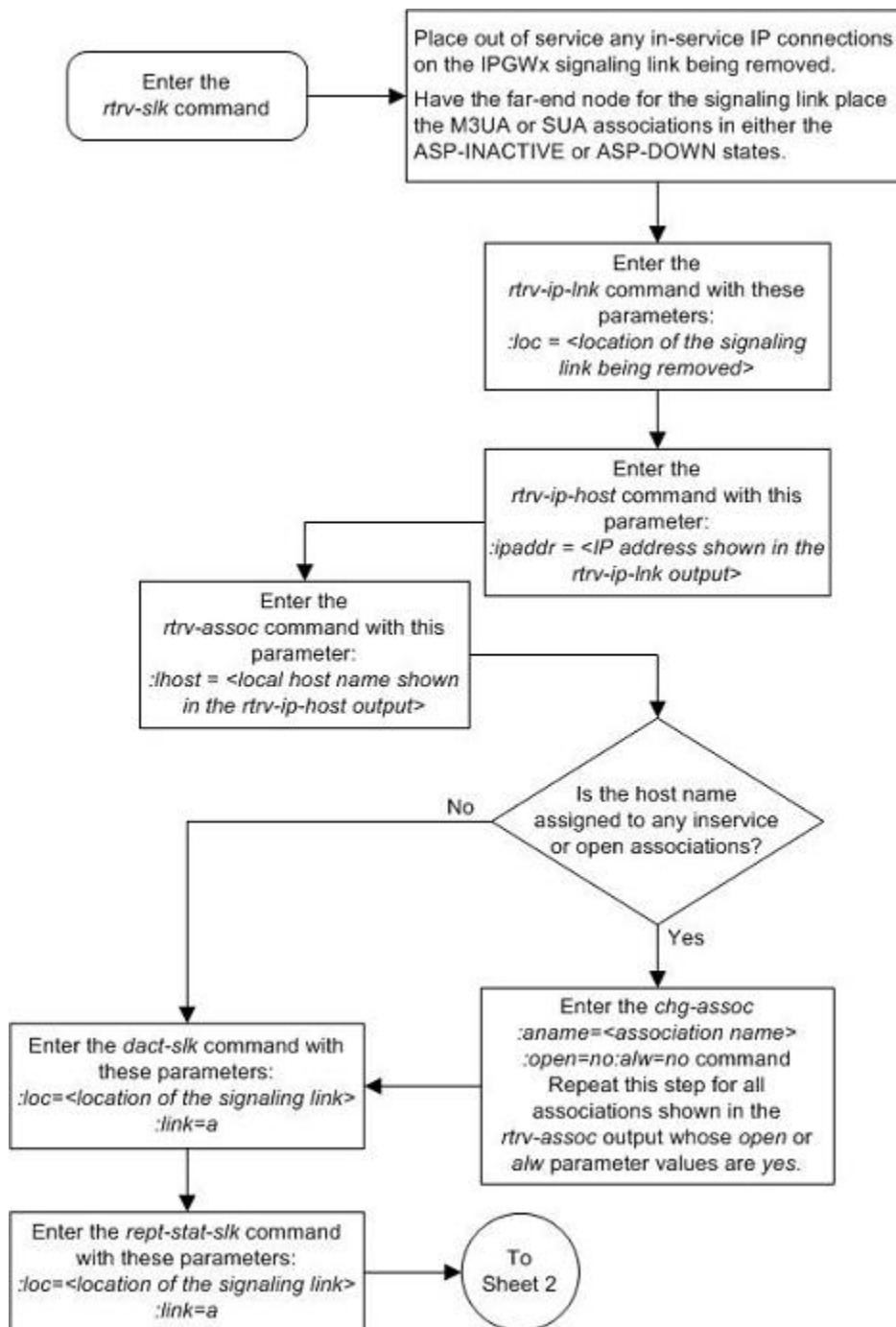
rtrv-slk: loc=2207: link=a

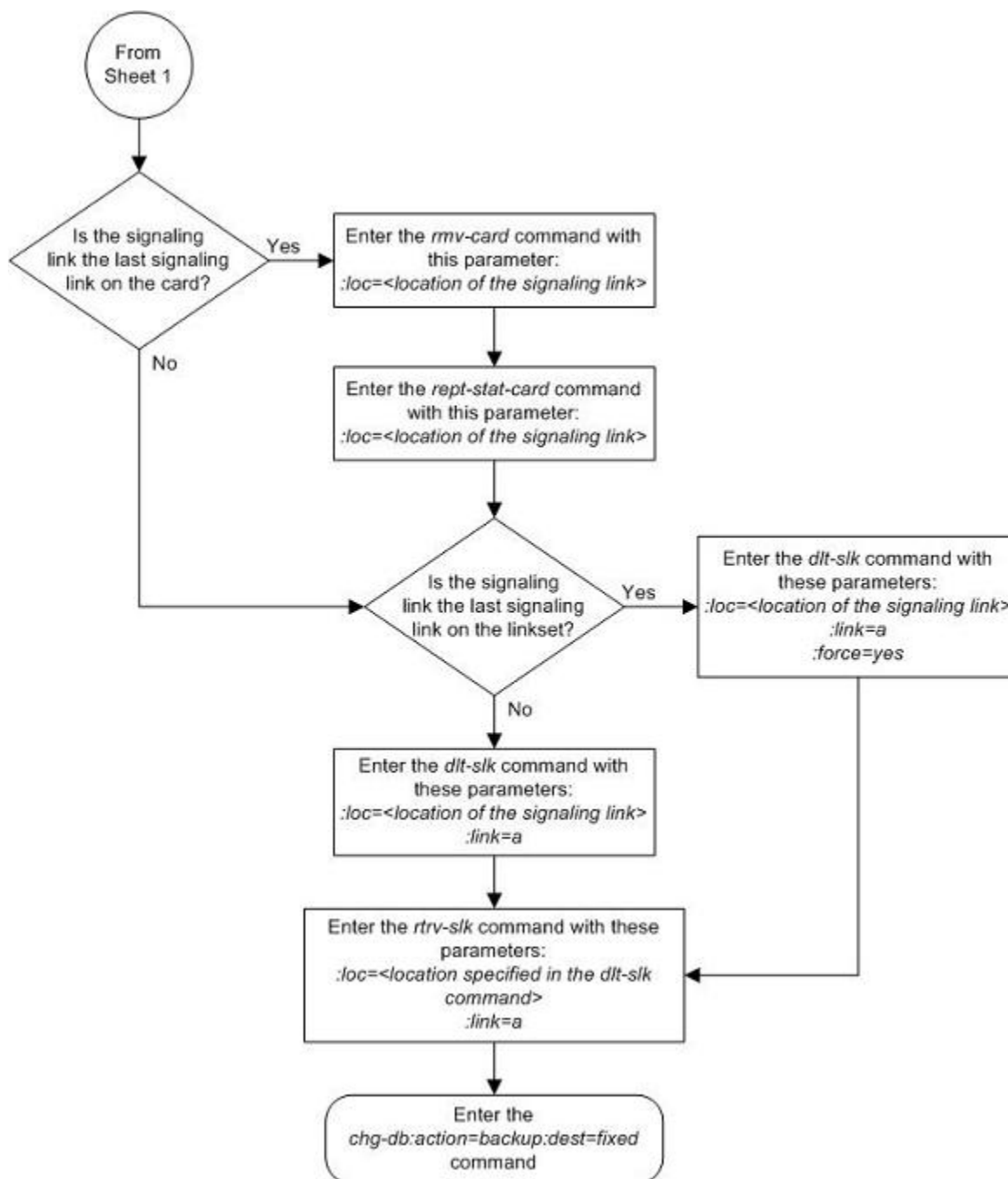
When the **rtrv-slk** command has completed, no entry is displayed showing that the signaling link has been removed.

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.
```

Flowchart 4-19. Removing an IPGWx Signaling Link





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.

:lsn – 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 the *Commands Manual* 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 Manual - SS7*
 - Adding an SS7 Linkset
 - Changing an SS7 Linkset
 - Configuring an ITU Linkset with a Secondary Adjacent Point Code (SAPC)
- These procedures in the *Database Administration Manual - Features*.
 - Adding an X.25 Signaling Link
 - Changing an X.25 Signaling Link
 - Configuring a Linkset for the GSM MAP Screening Feature

Procedure

1. 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 08-04-10 11:43:04 GMT EAGLE5 38.0.0

IP TPS USAGE REPORT
```

	THRESH	CONFIG		TPS	PEAK	PEAKTIMESTAMP
LSN						
LSGW1101	80%	6000	TX:	5100	5500	05-02-10 11:40:04

Removing a Mate IPGWx Linkset from another IPGWx Database Administration Manual - IP7 Secure Gateway Linkset

```

RCV: 5100 5500 05-02-10 11:40:04
LSGW1103 80% 6000 TX: 5200 5500 05-02-10 11:40:04
RCV: 5200 5500 05-02-10 11:40:04
LSGW1105 80% 14000 TX: 7300 7450 05-02-10 11:40:04
RCV: 7300 7450 05-02-10 11:40:04
LSGW1107 70% 4000 TX: 3200 3500 05-02-10 11:40:04
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 [Step 2](#).

2. Display the attributes of all the linksets shown in the **rept-stat-iptps** output in [Step 1](#) by entering the **rtrv-ls** command with the name of each linkset shown in the **rept-stat-iptps** output in [Step 1](#). For this example, enter these commands.

rtrv-ls: lsn=lsgw1101

This is an example of the possible output.

```

rlghncxa03w 08-04-17 11:43:04 GMT EAGLE5 38.0.0

LSN          APCA  (SS7)  SCRNL3T SLT          GWS GWS GWS
lsgw1101     008-012-003  none  SET SET BEI LST LNKS ACT MES DIS SLSCI NIS
                                     1  1  no  A  1  off off off no  off

CLLI          TFATCABMLQ MTPRSE ASL8
----- 1          no  no

IPGWAPC MATELSN  IPTPS LSUSEALM SLKUSEALM GTTMODE
yes      ----- 10000 70  % 70  % CdPA

LOC LINK SLC TYPE
1101 A  0  SS7IPGW

```

Link set table is (14 of 1024) 1% full

rtrv-ls: lsn=lsgw1103

This is an example of the possible output.

```

rlghncxa03w 08-04-17 11:43:04 GMT EAGLE5 38.0.0

LSN          APCA  (SS7)  SCRNL3T SLT          GWS GWS GWS
lsgw1103     003-002-004  none  SET SET BEI LST LNKS ACT MES DIS SLSCI NIS
                                     1  1  no  A  1  off off off no  off

CLLI          TFATCABMLQ MTPRSE ASL8
----- 1          no  no

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)  SCRNL3T SLT          GWS GWS GWS
lsgw1105     009-002-003  none  SET SET BEI LST LNKS ACT MES DIS SLSCI NIS
                                     1  1  no  A  1  off off off no  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    SS7IPGW

```

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)  SCRNL3T SLT          GWS GWS GWS
lsgw1107     010-020-005  none  SET SET BEI LST LNKS ACT MES DIS SLSCI NIS
                                     1  1  no  A  1  off off off no  off

CLLI          TFATCABMLQ MTPRSE ASL8
----- 1          no      no

IPGWAPC MATELSN  IPTPS LSUSEALM SLKUSEALM GTTMODE
yes      ----- 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 [Step 3](#) .
- If a signaling link is not assigned to the mate linkset, continue the procedure with [Step 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 **LOC** column for the mate IPGWx linkset shown in [Step 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.
BPDCM GPL       = 002-102-000
IMT BUS A       = Conn
IMT BUS B       = Conn
SIGNALING LINK STATUS
SLK  PST      LS      CLLI
A    IS-NR    lsgw1107  -----
Command Completed.

```

If the status of the card is out-of-service maintenance disabled (OOS-MT-DSBLD), continue the procedure with [Step 12](#) .

If the status of the card is not out-of-service maintenance disabled (OOS-MT-DSBLD), continue the procedure with [Step 4](#) .

4. Display the status of the signaling link assigned to the card shown in [Step 3](#) by entering the **rept-stat-slk** command with the card location used in [Step 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 [Step 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 [Step 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 [Step 10](#) .
- If you do not wish to have the far end node place these IPconnections out of service, continue the procedure with [Step 5](#) .

5. Display the IP link associated with the card that the signaling link shown in [Step 4](#) is assigned to by entering the **rtrv-ip-lnk** command with the card location shown in [Step 4](#) . For this example, enter this command.

rtrv-ip-lnk:loc=1107

The following is an example of the possible output.

```
rlghncxa03w 08-04-28 21:14:37 GMT EAGLE5 38.0.0
LOC  PORT  IPADDR      SUBMASK      DUPLEX  SPEED  MACTYPE  AUTO  MCAST
1107  A    192.3.1.10    255.255.255.128  HALF    10     802.3    NO    NO
1107  B    -----      -----      HALF    10     DIX      NO    NO
```

6. Display the IP host information associated with the IP link by entering the **rtrv-ip-host** command with the IP address shown in [Step 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 08-04-28 21:17:37 GMT EAGLE5 38.0.0

LOCAL IPADDR  LOCAL HOST
192.3.1.10    IPNODE1_1107

IP Host table is (11 of 512) 2% full
```

7. Display the association associated with the local host name shown in [Step 6](#) by entering the **rtrv-assoc** command.

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 [Step 7](#) using the **chg-assoc** command with the **alw=no** parameters, as necessary.

NOTE: If the **open** and **alw** parameter values of the association shown in [Step 7](#) are **no**, continue the procedure with [Step 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 [Step 7](#) .

9. Change the **open** parameter values in the association shown in [Step 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 [Step 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.

Removing a Mate IPGWx Linkset from another IPGWx Database Administration Manual - IP7 Secure Gateway Linkset

```
rlghncxa03w 08-04-28 21:18:37 GMT EAGLE5 38.0.0
Card has been inhibited.
```

12. Change the linkset shown in [Step 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 **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 [Step 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

LSN          APCA  (SS7)  SCRNL3T SLT          GWS GWS GWS
lsgw1103      003-002-004  none  1   1   no  A   1   ACT MES DIS SLSCI NIS
                                     off off off no   off

CLLI          TFATCABMLQ MTPRSE ASL8
----- 1          no      no

IPGWAPC  MATELSN  IPTPS LSUSEALM SLKUSEALM GTTMODE
yes      ----- 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 [Step 18](#) .

If the linkset shown in this step has a signaling link assigned to it, continue the procedure with [Step 14](#) .

14. Allow the IP card that was inhibited in [Step 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 [Step 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 [Step 8](#) or [Step 9](#) using the **chg-assoc** command with the **open=yes** and **alw=yes** parameters.

NOTE: If [Step 8](#) and [Step 9](#) were not performed, continue the procedure with [Step 17](#).

chg-assoc:aname=assoc1:open=yes:alw=yes

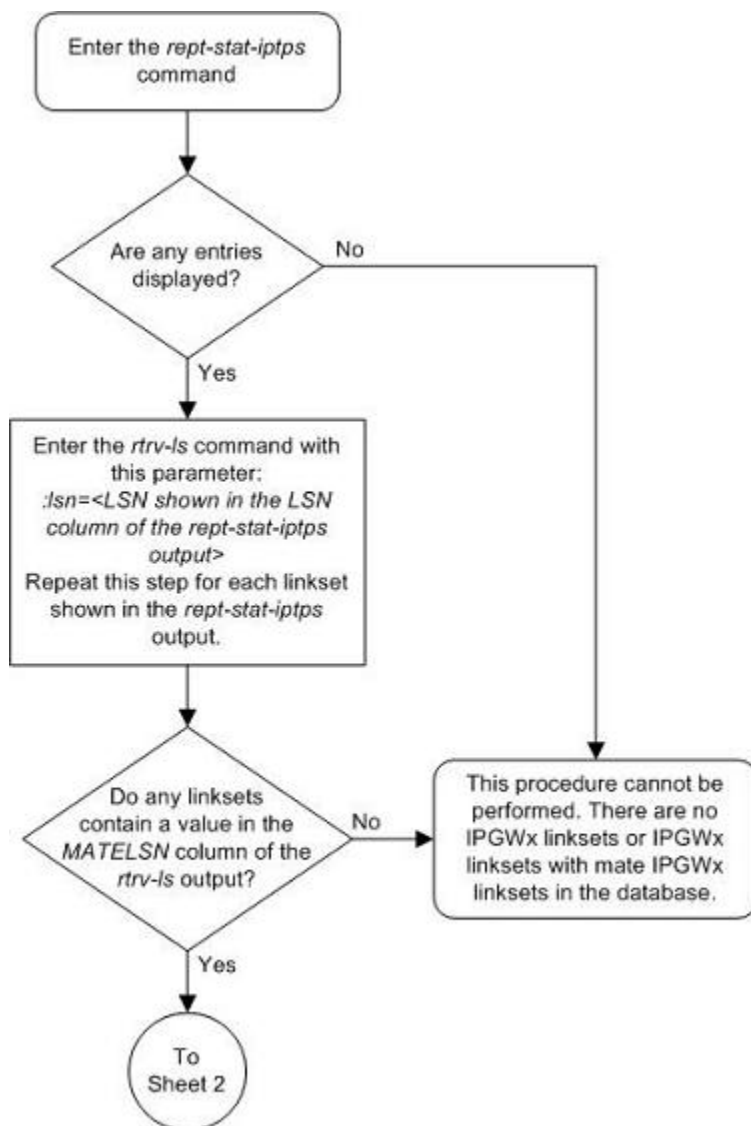
When this command has successfully completed, this message should appear.

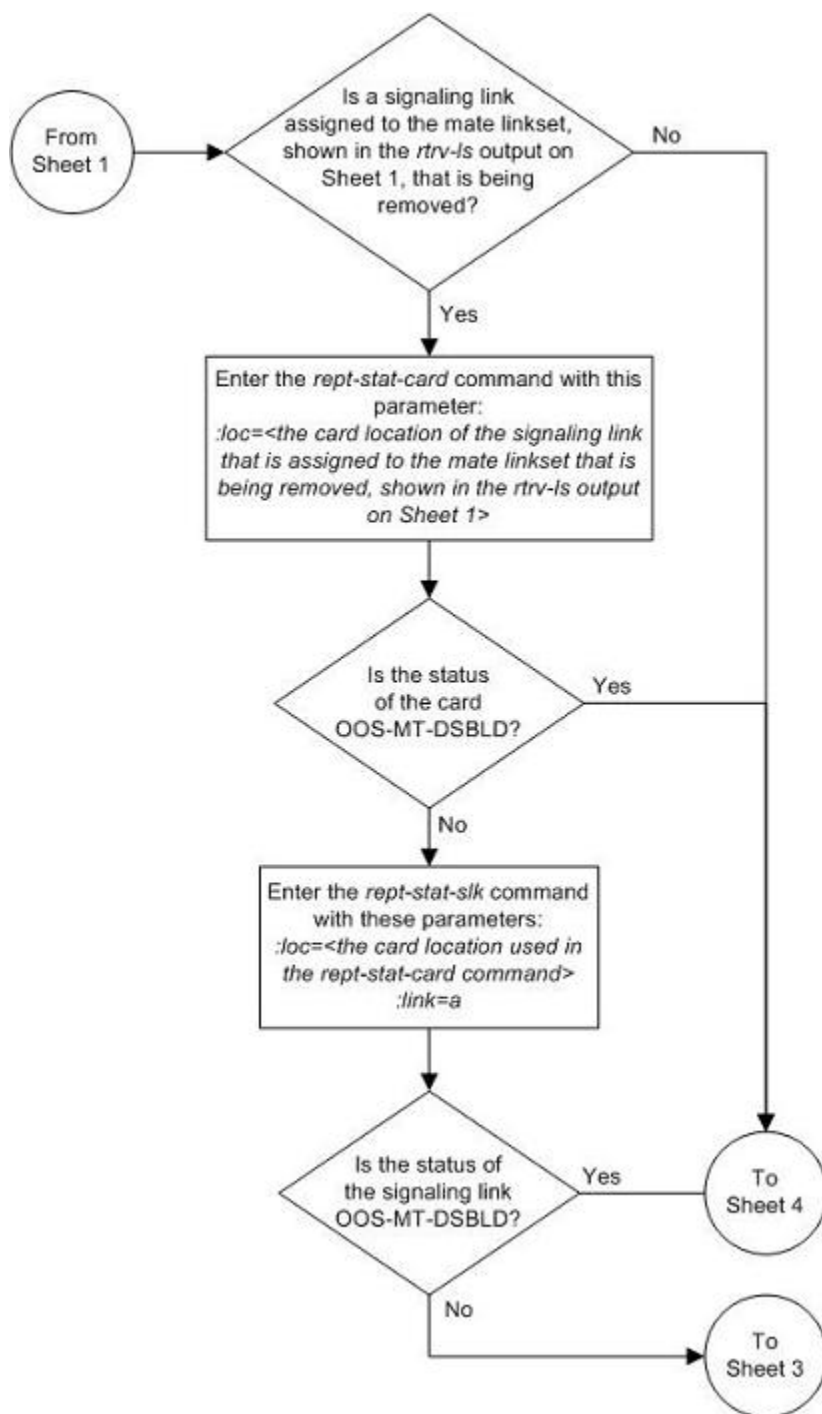
```
rlghncxa03w 08-04-28 09:12:36 GMT EAGLE5 38.0.0
CHG-ASSOC: MASP A - COMPLTD
```

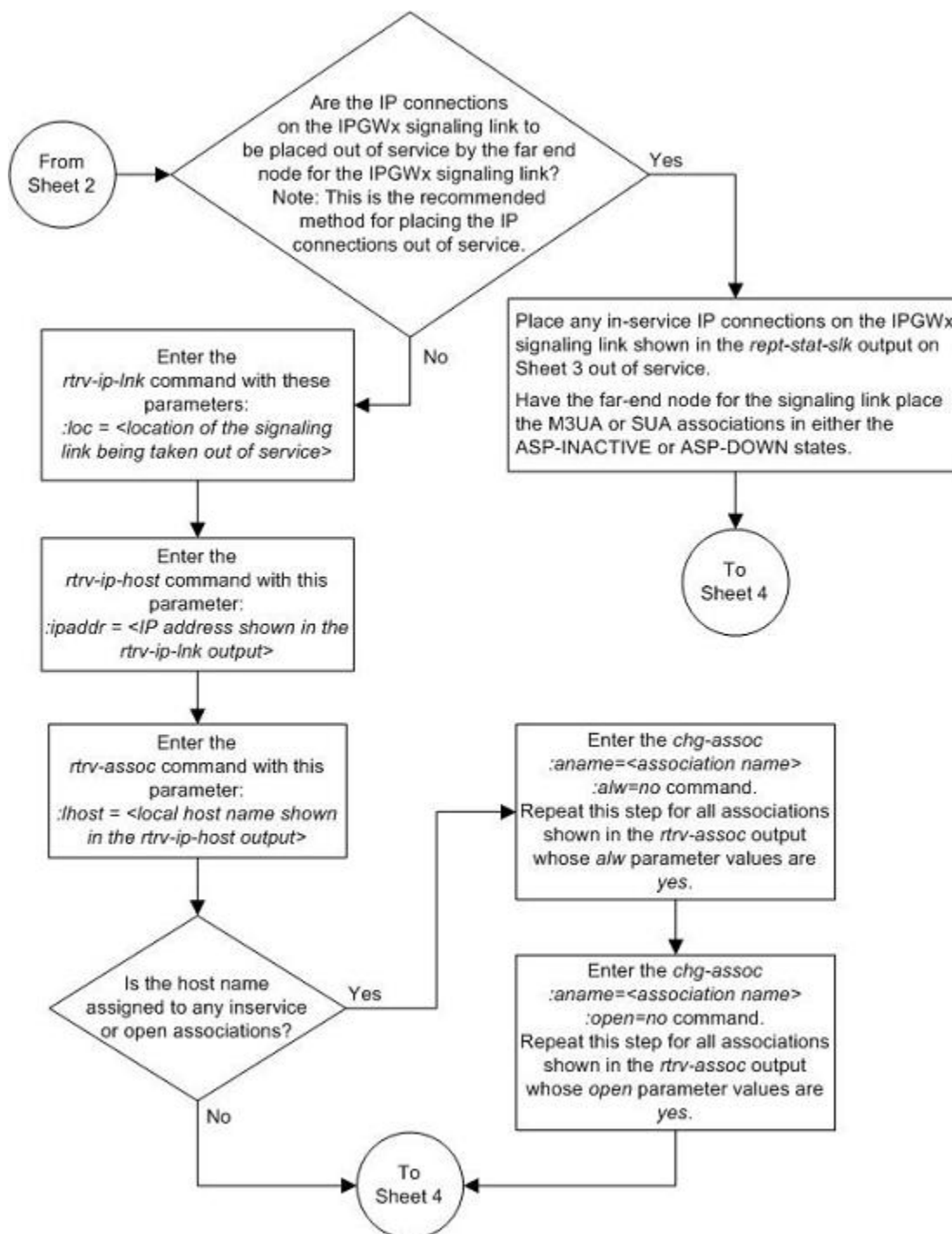
17. Have the far-end node for the signaling link shown in [Step 13](#) place the M3UA or SUA associations in the ASP-ACTIVE state to place the IP connections on the signaling link into service.
18. Back up the new changes using the **chg-db:action=backup:dest=fixed** command. These messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

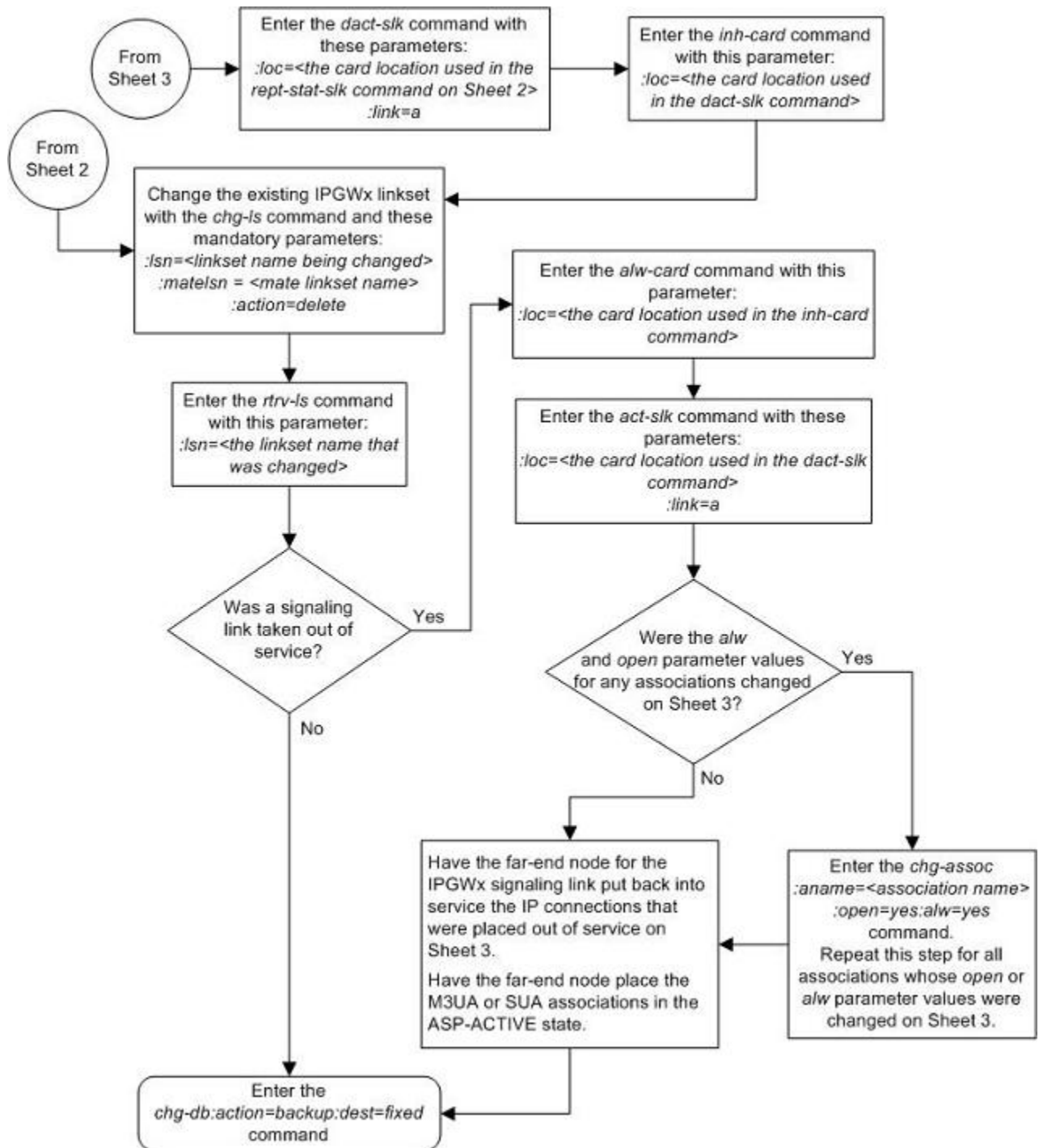
```
.
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

Flowchart 4-20. Removing a Mate IPGWx Linkset from another IPGWx Linkset









Removing an IP Host Assigned to an IPGWx Card

This procedure removes an IP host that is assigned to an IPGWx 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 M3UA or SUA Association](#) procedure or the host name in these associations can be changed by performing the [Changing the Host Values of an M3UA or SUA Association](#) procedure. The host name assigned to associations is displayed in the **rtrv-assoc** outputs.

Procedure

1. Display the current IP host information in the database by entering the **rtrv-ip-host** command.

The following is an example of the possible output.

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

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
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 512) 2% full

If the IP host that is being removed is a remote host, continue the procedure with [Step 5](#) .

If the IP host that is being removed is a local host, continue the procedure with [Step 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 07-05-28 21:14:37 GMT EAGLE5 37.0.0
```

LOC	PORT	IPADDR	SUBMASK	DUPLEX	SPEED	MACTYPE	AUTO	MCAST
1303	A	192.1.1.10	255.255.255.128	HALF	10	802.3	NO	NO
1303	B	-----	-----	HALF	10	DIX	NO	NO
1305	A	192.1.1.12	255.255.255.0	----	---	DIX	YES	NO
1305	B	-----	-----	HALF	10	DIX	NO	NO
1313	A	192.1.1.14	255.255.255.0	FULL	100	DIX	NO	NO
1313	B	-----	-----	HALF	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
2103	A	192.1.1.22	255.255.255.0	FULL	100	DIX	NO	NO
2103	B	-----	-----	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
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	-----	-----	HALF	10	DIX	NO	NO
2305	A	192.3.3.33	255.255.255.0	FULL	100	DIX	NO	NO
2305	B	-----	-----	HALF	10	DIX	NO	NO

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

```

r1ghncxa03w 07-05-28 09:12:36 GMT EAGLE5 37.0.0
CARD   TYPE      APPL      LSET NAME      LINK SLC LSET NAME      LINK SLC
1101   TSM        SCCP
1102   TSM        GLS
1113   GSPM        EOAM
1114   TDM-A
1115   GSPM        EOAM
1116   TDM-B
1117   MDAL
1201   LIMDS0     SS7ANSI    sp2            A    0    sp1            B    0
1203   LIMDS0     SS7ANSI    sp3            A    0
1204   LIMDS0     SS7ANSI    sp3            A    1
1206   LIMDS0     SS7ANSI    nsp3           A    1    nsp4           B    1
1207   LIMV35     SS7GX25    nsp1           A    0
1208   LIMV35     SS7GX25    nsp1           A    1
1216   ACMENET     STPLAN
1301   LIMDS0     SS7ANSI    sp6            A    1    sp7            B    0
1302   LIMDS0     SS7ANSI    sp7            A    1    sp5            B    1
1303   DCM         IPLIM      ipnode1        A    0    ipnode3        B    1
1305   DCM         IPLIM      ipnode4        A    0
1307   ACMENET     STPLAN
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        B    2
2205   DCM         IPLIM      ipnode3        A2   0    ipnode6        B1   2
2207   DCM         IPLIM      ipnode5        A    0    ipnode4        B3   1
2213   DCM         IPLIM      ipnode5        A3   1    ipnode3        B2   2
2301   DCM         IPLIM      ipnode6        A    0    ipnode1        B    2
2305   DCM         IPLIM      ipnode6        A1   1    ipnode1        B1   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.

```

r1ghncxa03w 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 [Step 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 M3UA or SUA Association](#) procedure.

Continue the procedure with [Step 5](#) after the associations have been removed.

To change the host name assigned to the associations, perform the [Changing the Host Values of an M3UA or SUA Association](#) procedure.

Continue the procedure with [Step 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.

dl t-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 [Step 5](#) .

For this example, enter this command.

rtrv-ip-host:host="IPNODE1-1205"

The following is an example of the possible output.

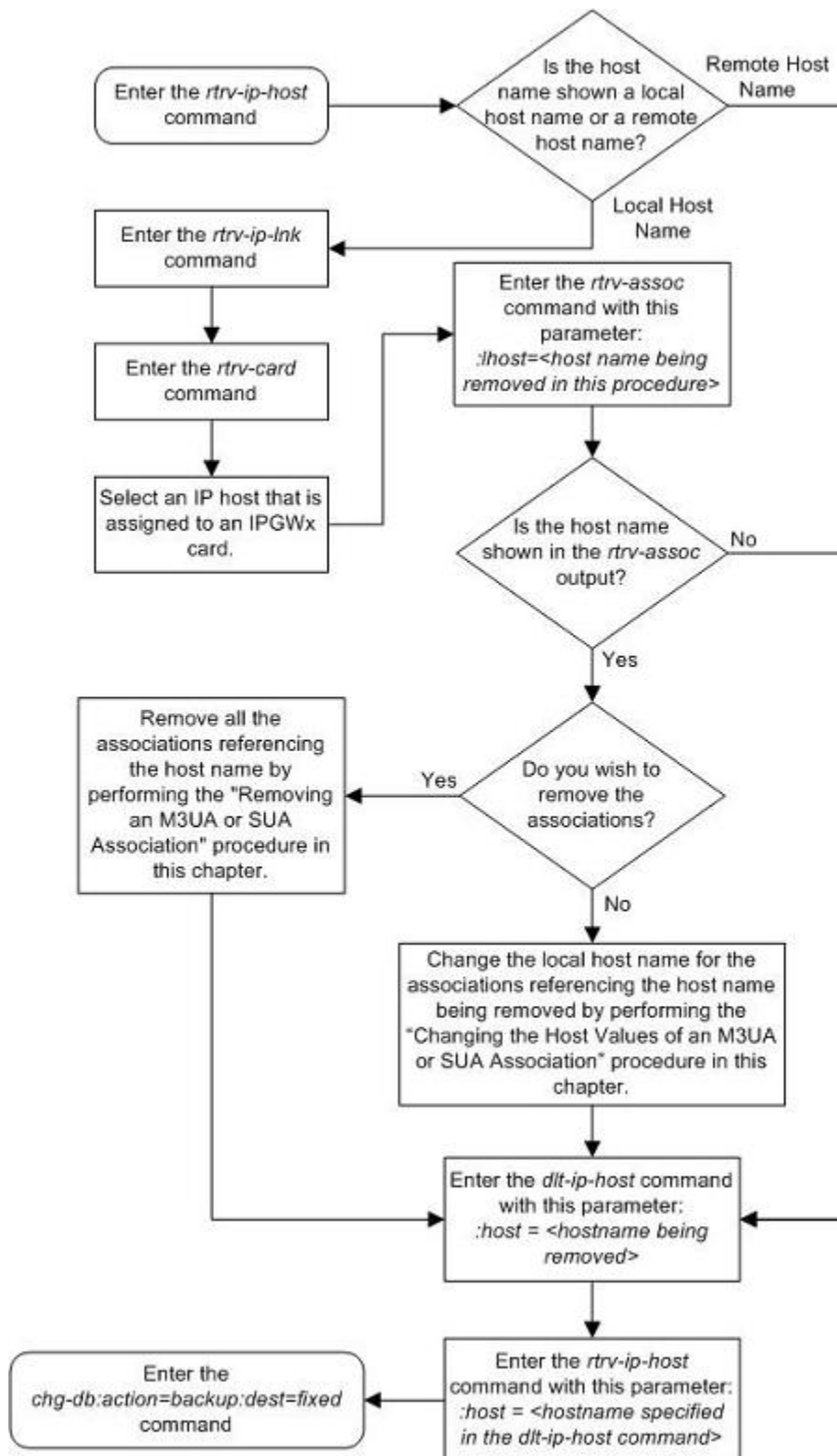
```
rlghncxa03w 06-10-28 21:20:37 GMT EAGLE5 36.0.0
LOCAL IPADDR      LOCAL HOST
IP Host table is (10 of 512) 2% full
```

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.
```

Flowchart 4-21. 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.

Procedure

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     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 (6 of 1024) 1% 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
IMT BUS A         = Conn
IMT BUS B         = Conn
SIGNALING LINK STATUS
SLK   PST        LS      CLLI
A     IS-NR      nc001  -----
```

Command Completed.

NOTE: If the output of [Step 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 [Step 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     255.255.255.255  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 1024) 1% full

6. Place the IP card back into service by using the **alw-card** command.

NOTE: If the IP card containing the IP route that was removed from the database does not contain other IP routes, continue the procedure with [Step 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.
```

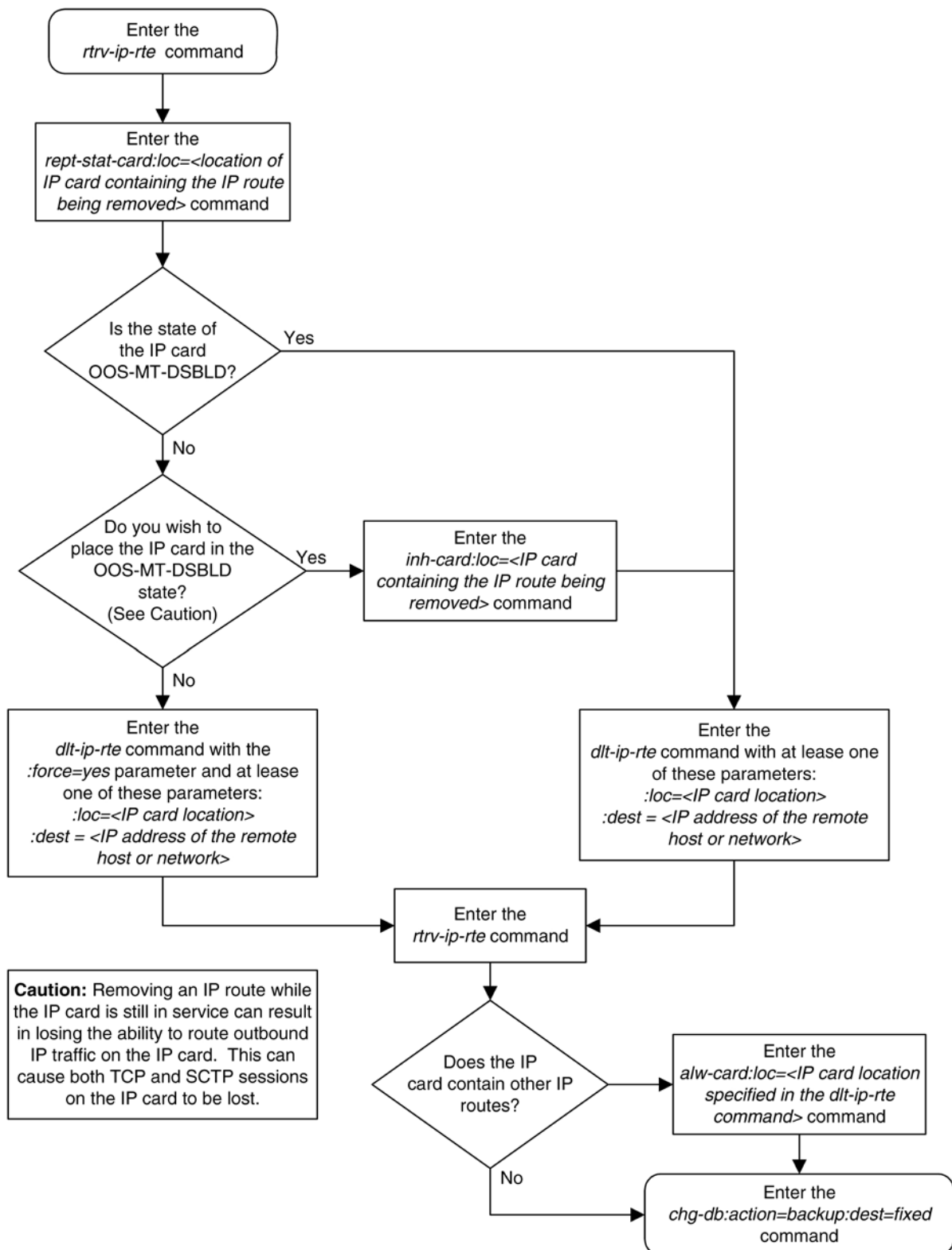
7. Back up the new changes using the **chg-db:action=backup:dest=fixed** command.

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.

Flowchart 4-22. Removing an IP Route



Removing an M3UA or SUA Association

This procedure is used to remove an SUA association from the database or to remove an M3UA association that is assigned to a card running either the SS7IPGW or IPGWI applications. Perform the [Removing an IPSG Association](#) procedure to remove an M3UA association that is assigned to a card running the IPSP 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 than 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 the *Commands Manual*.

Procedure

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
```

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 [Step 3](#).

If the association that is being removed in this procedure is an M3UA association, continue the procedure with [Step 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 [Step 3](#).

If the application assigned to the card is IPSPG, perform the [Removing an IPSPG 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.

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

AS Name           Mode           Tr ms   Association Names
as1                LOADSHARE      2000    swbel32
as2                OVERRIDE       10      swbel32
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.

NOTE: If the value of the **open** parameter for the association being removed from the database (shown in [Step 1](#)) is **no**, continue this procedure with [Step 5](#).

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 [Step 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
```

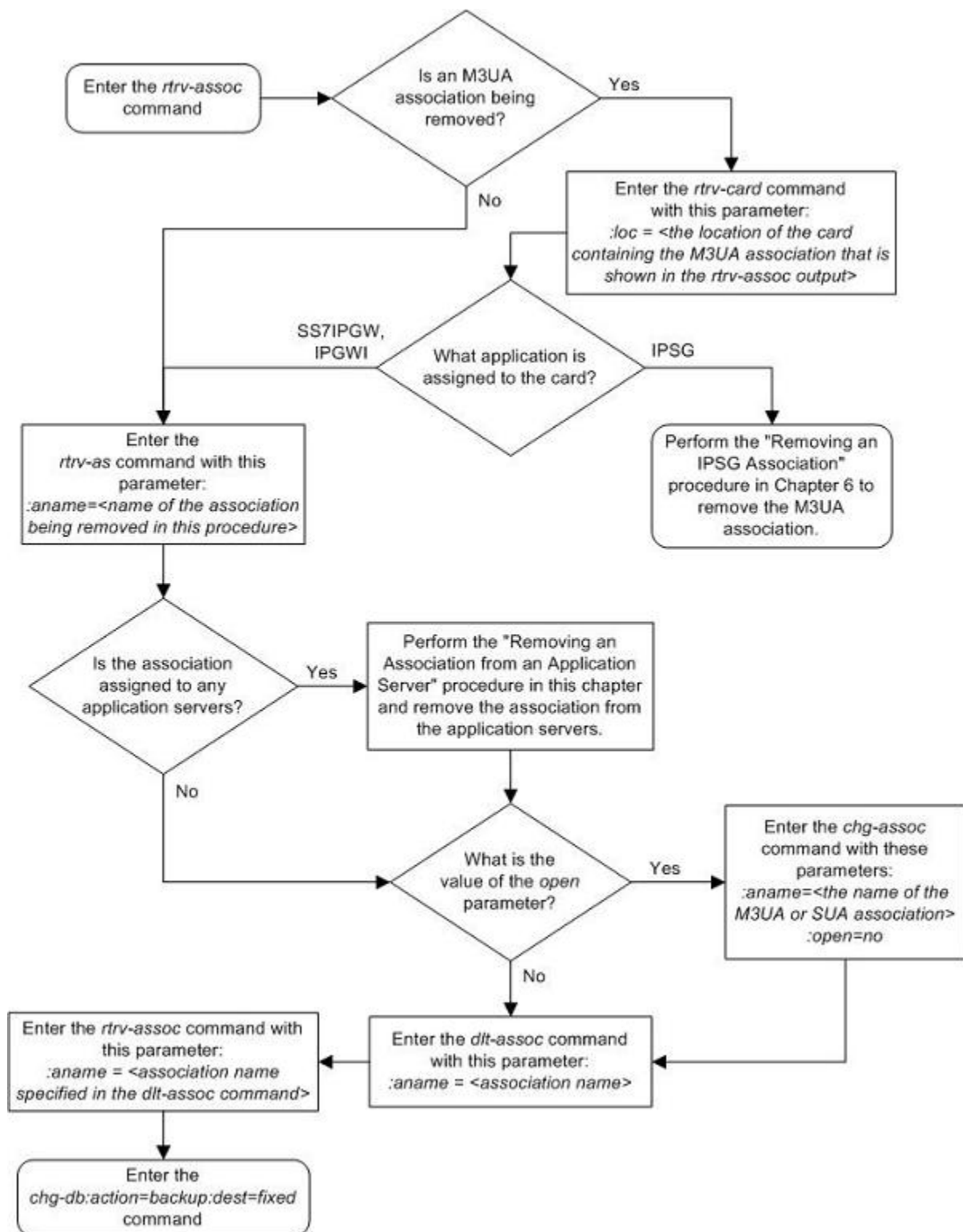
No matching entries found

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.
```

Flowchart 4-23. Removing an M3UA or SUA Association



Removing an Association from an Application Server

This procedure is used to remove an association from an application server using the **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 **dlt-as** command must be **no**. This can be verified with the **rtrv-assoc** command. Use the **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 **canc-cmd:trm=<xx>**, where **<xx>** is the terminal where the **rtrv-as**, **rtrv-assoc**, or **rtrv-appl-rtkey** commands were entered, from another terminal other than the terminal where the **rtrv-as**, **rtrv-assoc**, 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 the *Commands Manual*.

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      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 [Step 1](#).

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
ANAME assoc1
LOC 1203 IPLNK PORT A LINK A
ADAPTER M3UA VER M3UA RFC
LHOST gw105.nc.tekelec.com
ALHOST ---
RHOST gw100.nc.tekelec.com
LPORT 1030 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

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.

NOTE: If the value of the **open** parameter shown in [Step 2](#) is **no**, continue the procedure with [Step 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.

NOTE: If the application server specified in this procedure contains more than one association, continue this procedure with [Step 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 [Step 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

RCONTEXT  DPCI      SI SSN OPCI      CICS      CICE      LOC
-----  -
6-024-7    5 ---  1-057-4    150       175      STATIC

ADPTR TYPE  ASNAME
M3UA  FULL  as1
```

```

      ANAMES
      assoc1
      assoc6
      assoc2
      assoc3
      assoc5

RCONTEXT  DPCI      SI SSN OPCI      CICS      CICE      LOC
-----  -2-100-7  6 --- -----  -----  -----  -----
      ADPTR  TYPE      ASNAME
      M3UA   FULL      as1

      ANAMES
      assoc1
      assoc6
      assoc2
      assoc3
      assoc5

```

STATIC Route Key table is (7 of 2000) 1% full
 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

NOTE: 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 [Step 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
              LOADSHARE  10         assoc3
              LOADSHARE  10         assoc5
              LOADSHARE  10         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.

NOTE: If the value of the open parameter was not changed in [Step 3](#) , continue this procedure with [Step 8](#) .

For this example, enter this command.

chg-assoc:aname=assoc1:open=yes

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

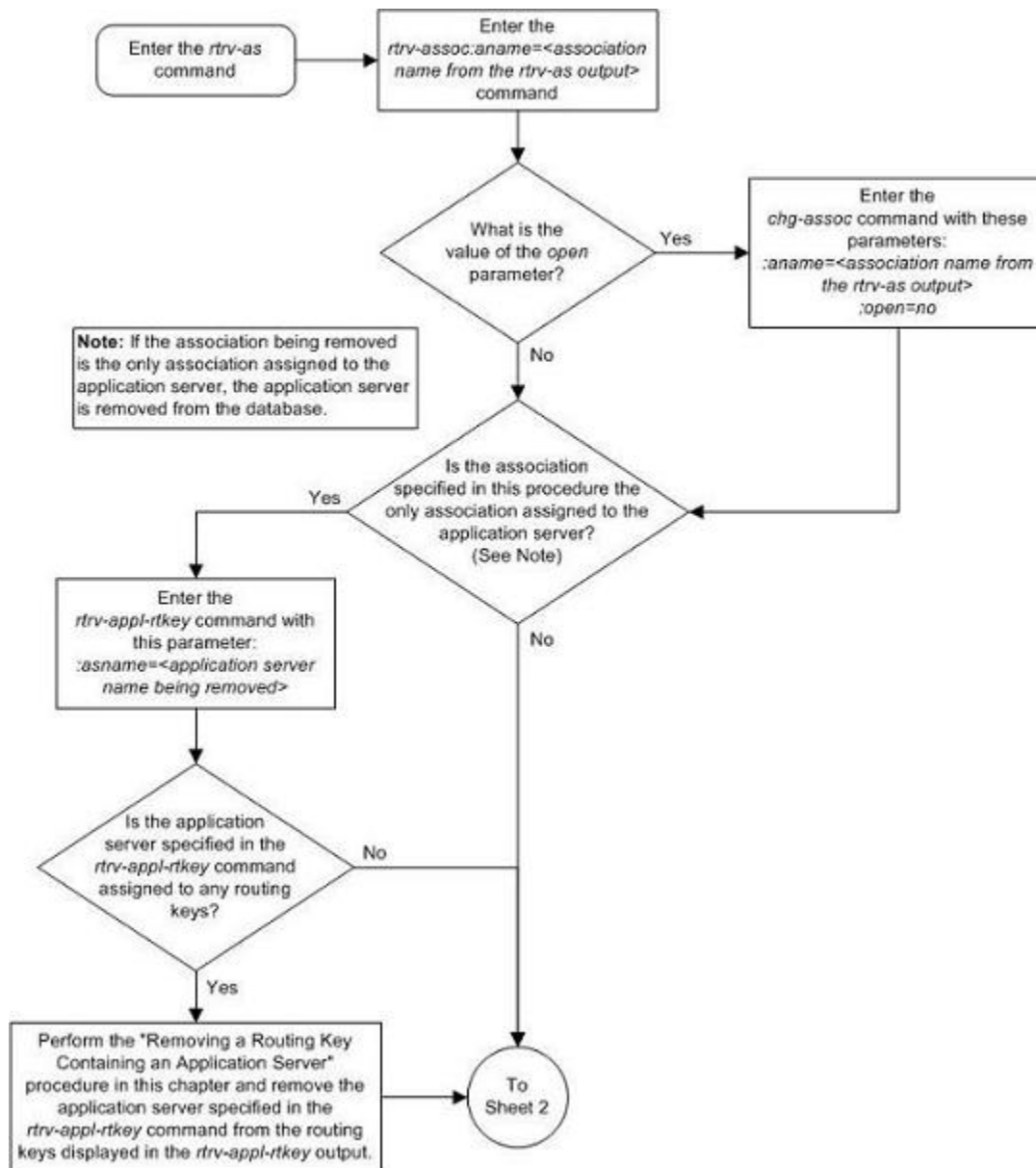
```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
CHG-ASSOC: MASP A - COMPLTD;
```

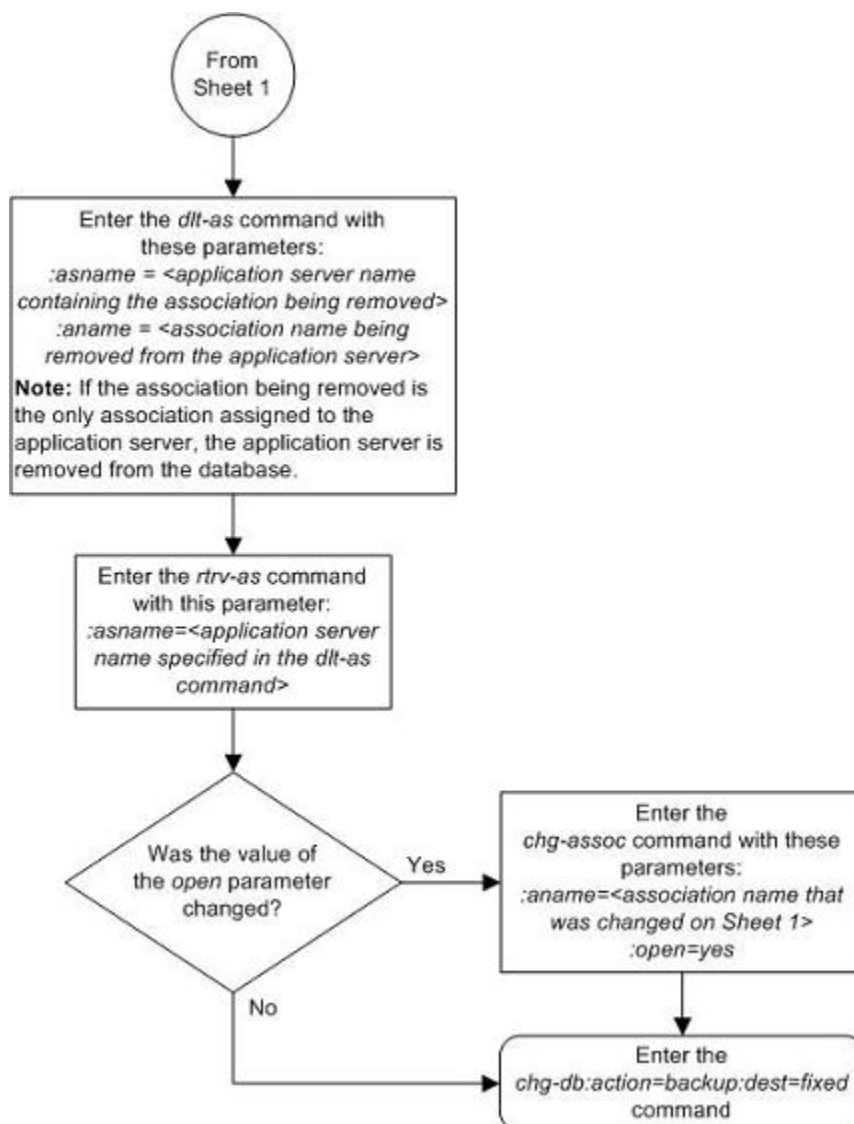
8. Back up the new changes, using the **chg-db:action=backup:dest=fixed** command.

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.
```

Flowchart 4-24. Removing an Association from an Application Server





Removing a Routing Key Containing an Application Server

This procedure is used to 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 IPGW 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 the *Database Administration Manual - SS7* for a definition of the point code types that are used on the EAGLE 5 ISS 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 4-15](#) shows the text strings that can be used in place of numbers for the service indicator values.

Table 4-15. 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 4-16](#) .

Table 4-16. Routing Key Parameter Combinations for Removing Routing Keys

Full Routing Key ^{1, 3, 4} SI=3 (SCCP)	Partial Routing Key ^{1, 3, 4} SI=3 (SCCP)	Full Routing Key ^{1, 3, 4} SI=4 (TUP), 5 (ISUP), 13 (QBICC)	Partial Routing Key ^{1, 3, 4} SI=4 (TUP), 5 (ISUP), 13 (QBICC)	Full Routing Key ^{1, 3, 4} Other SI Values	Partial Routing Key ^{1, 3, 4} Other SI Values	Default Routing Key ^{1, 3, 4}
dpc	type=partial	dpc	type=partial	dpc	type=partial	type=default
si=3 ¹	dpc ²	si=4, 5, 13 ¹	dpc ²	si=value other than 3, 4, 5, 13 ¹	dpc ²	asname
ssn	si=3 ^{1, 2}	opc	si=4, 5, 13 ^{1, 2}	type=full	si=value other than 3, 4, 5, 13 ^{1, 2}	rcontext ^{3, 4}

Full Routing Key 1, 3, 4 SI=3 (SCCP)	Partial Routing Key 1, 3, 4 SI=3 (SCCP)	Full Routing Key 1, 3, 4 SI=4 (TUP), 5 (ISUP), 13 (QBICC)	Partial Routing Key 1, 3, 4 SI=4 (TUP), 5 (ISUP), 13 (QBICC)	Full Routing Key 1, 3, 4 Other SI Values	Partial Routing Key 1, 3, 4 Other SI Values	Default Routing Key 1, 3, 4
type=full	asname	cics	opc ²	asname	asname	
asname	rcontext 3, 4	cice	asname	rcontext 3, 4	rcontext 3, 4	
rcontext 3, 4		type=full	rcontext 3, 4			
		asname				
		rcontext 3, 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 4-15 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 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 **canc-cmd:trm=<xx>**, where **<xx>** is the terminal where the **rtrv-appl-rtkey** commands were entered, from another terminal other than 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 the *Commands Manual*.

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
----- 2-100-7 6 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 [Step 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 [Step 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 [Step 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**, and **TYPE** values shown in the **rtrv-appl-rtkey** output in [Step 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.

```

rlghncxa03w 08-04-28 09:12:36 GMT EAGLE5 38.0.0

RCONTEXT DPCI SI SSN OPCI CICS CICE

```

```

----- 6-006-6      3 170 -----
ADPTR  TYPE      ASNAME
M3UA   FULL      as2

ANAMES
assoc1

```

STATIC Route Key table is (15 of 2000) 1% full
 STATIC Route Key Socket Association table is (15 of 32000) 1% full

4. Display the associations assigned to the routing key by entering the **rtrv-assoc** parameter with the association name shown in either [Step 2](#) or [Step 3](#) . For this example, enter these commands.

rtrv-assoc:aname=assoc1

This is an example of possible output.

```

rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
ANAME assoc1
  LOC      1203      IPLNK PORT  A      LINK  A
  ADAPTER  M3UA      VER      M3UA RFC
  LHOST    gw105.nc.tekelec.com
  ALHOST    ---
  RHOST    gw100.nc.tekelec.com
  LPORT    1030      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

  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 06-10-28 09:12:36 GMT EAGLE5 36.0.0
ANAME assoc15
  LOC      1205      IPLNK PORT  A      LINK  A
  ADAPTER  M3UA      VER      M3UA RFC
  LHOST    gw115.nc.tekelec.com
  ALHOST    ---
  RHOST    gw100.nc.tekelec.com
  LPORT    2000      RPORT      2000
  ISTRMS    2      OSTRMS      2      BUFSIZE  16
  RMODE    LIN      RMIN      120      RMAX      800
  RTIMES    10      CWMIN      3000     UAPS      10
  OPEN     YES      ALW      YES      RTXTHR   10000

  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 [Step 2](#) or [Step 3](#) .

5. Change the **open** parameter value of the association to **no** by using the **chg-assoc** command.

NOTE: If the **open** parameter value of all the associations shown in [Step 4](#) is **no**, continue the procedure with [Step 6](#) .

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 to **no**.

Repeat this step for all the associations shown in [Step 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 4-16](#) 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 [Step 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
```

NOTE: If [Step 5](#) was not performed, continue the procedure with [Step 9](#).

8. Change the **open** parameter value of the associations that were changed in [Step 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
```

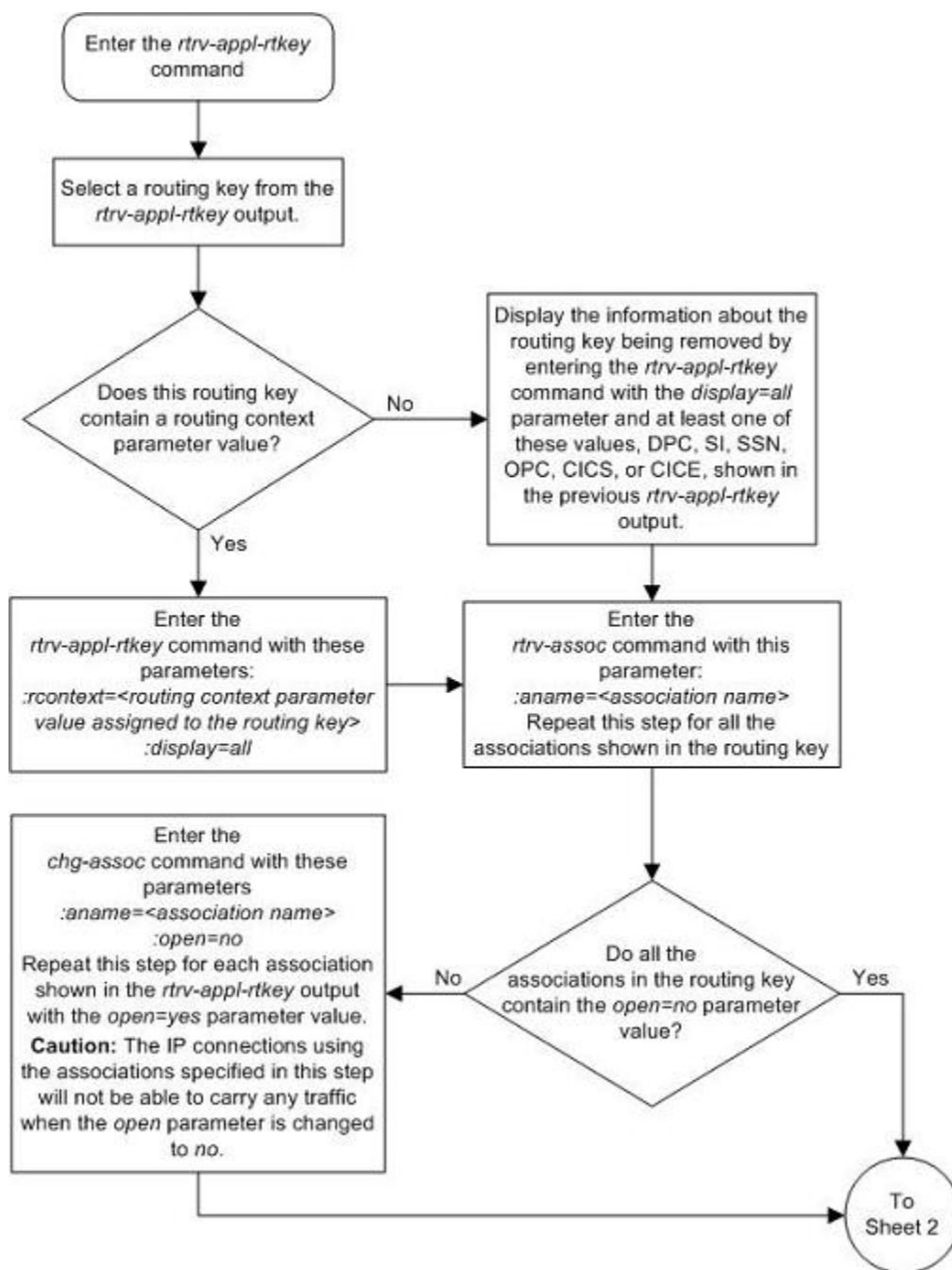
Repeat this step for all the associations that were changed in [Step 9](#) .

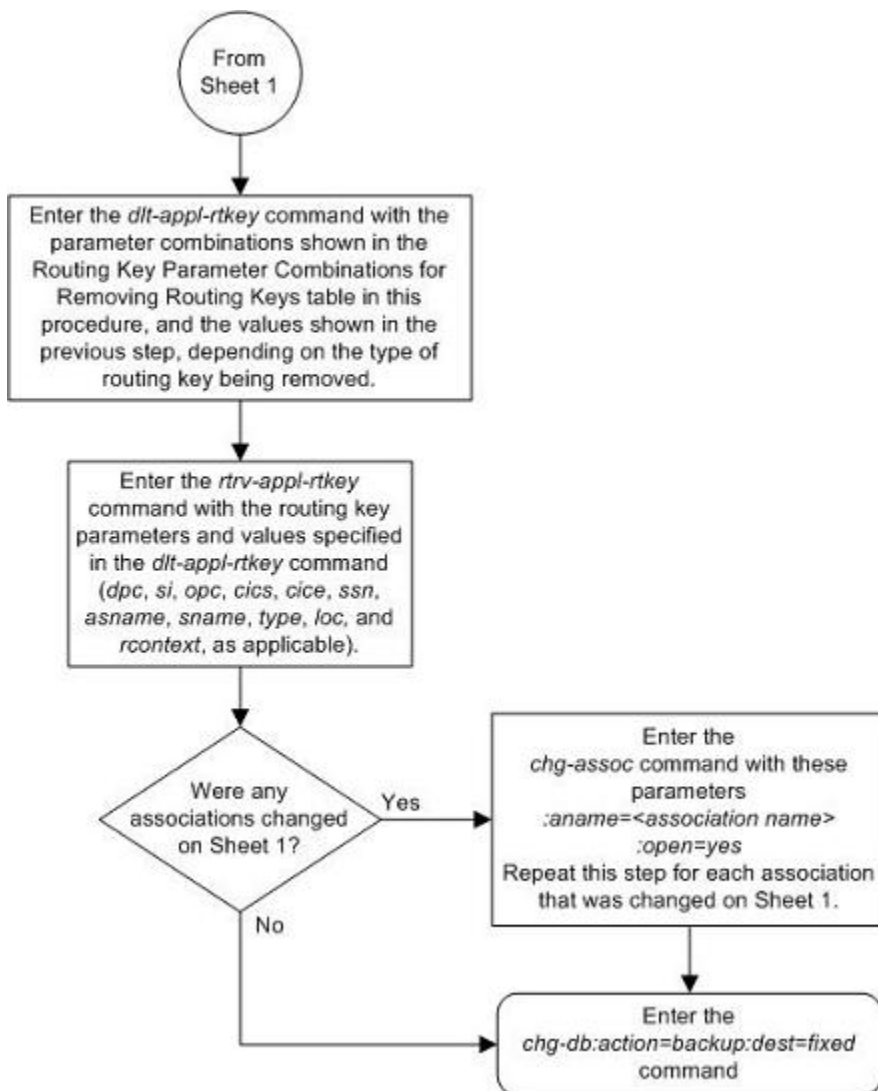
9. Back up the new changes using the **chg-db : action=backup : dest=fixed** command.

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.
```

Flowchart 4-25. Removing a Routing Key Containing an Application Server





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.

Procedure

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
ITUN      uk      150000
ITUN      fr      40000000000
ITUN      ge      10000000000
ITUN24    --      3
ITUIS     --      2000
ITUNS     sp      5000
```

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.

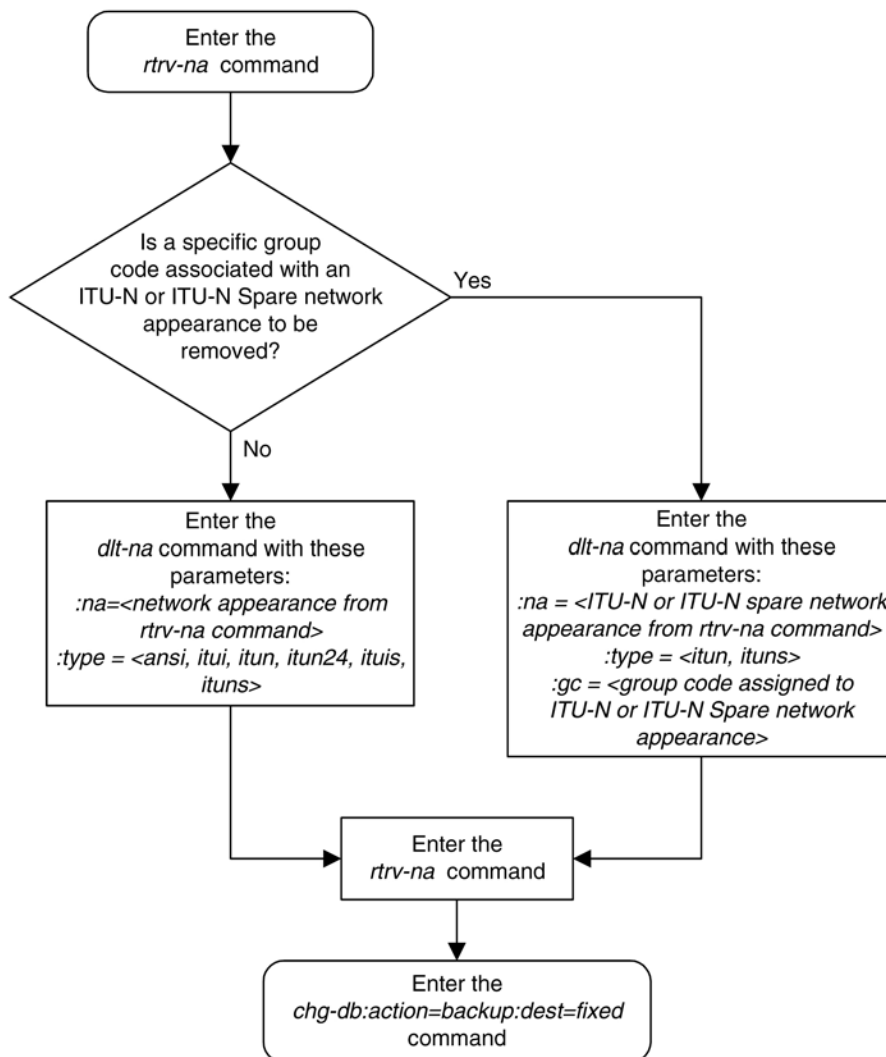
This is an example of possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
TYPE      GC      NA
ITUI      --      1000
ITUN      uk      150000
ITUN      ge      10000000000
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.
```

Flowchart 4-26. 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 an M3UA or SUA Association](#)
 - [Changing the Buffer Size of an M3UA or SUA Association](#)
 - [Changing the Host Values of an 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 BICC MSU Support for IP Signaling feature – Perform the [Turning the Large BICC MSU Support for IP Signaling Feature Off](#) procedure.

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 the **scnpcsum** parameter. Perform the one of these procedures to change the **scnpcsum** 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.

: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 **srkq** 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 **rtrv-appl-rtkey** or **rtrv-tbl-capacity** 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.

Procedure

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 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 [Step 3](#) .

If the **srkq** parameter value will be changed, verify the number of routing keys that are currently provisioned by performing [Step 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

DSTN    table is (    5940 of    6000) 99% full
RS       table is (      0 of    512)  0% full
X25-DSTN table is (      0 of   1024)  0% full
SPC      table is (      4 of    40) 10% full
LS       table is (    738 of   1024) 72% full
SLK      table is (    360 of   2000) 18% full
X25-SLK  table is (      0 of    256)  0% full
IP-LNK   table is (    55 of    512) 11% full
MAP      table is (    336 of   1024) 33% full
GTA      table is (  201750 of 269999) 75% full
SSNSELID table is (      0 of  10000)  0% full
SCRSET   table is (    40 of    255) 16% full
RTEKEY   table is (    53 of   2500)  2% full
APPLSOCK table is (    62 of   4000)  2% full
AS       table is (    20 of    250)  8% full
MRN      table is (   768 of   5988) 13% full
SCCPSRV  table is (    12 of    96) 13% full
```

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-PTS: MASP A - COMPLTD
```

4. Verify the new IP options in the database by entering the **rtrv-sg-opts** command.

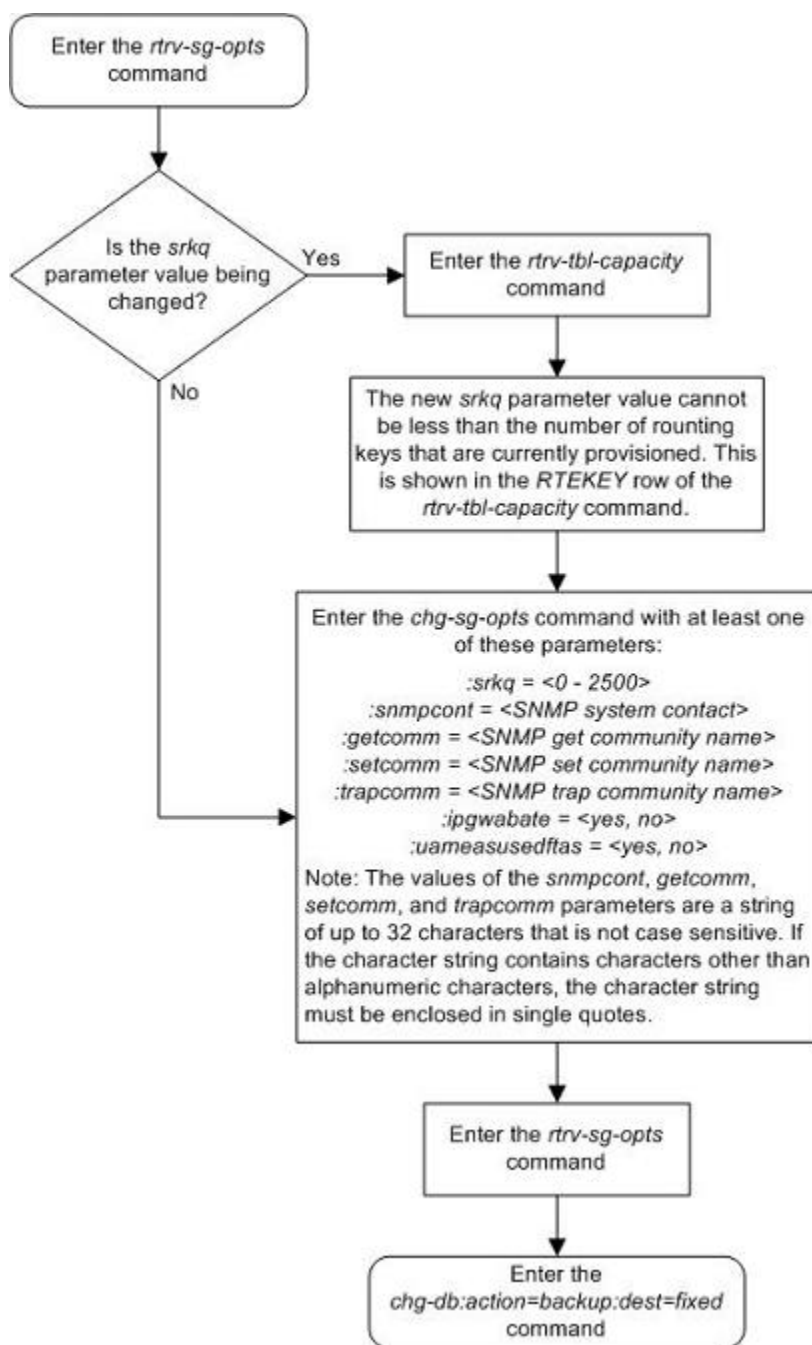
The following is an example of the possible output.

```
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.
```

Flowchart 4-27. Changing IP Options



Changing the Attributes of an M3UA or SUA Association

This procedure is used to change the values of the attributes of an 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 4-17. Change M3UA and SUA Association Parameters

aname	lport	rhost	rport	open	alw
rmode	rmin	rmax	rtimes	cwmin	istrms
ostrms	uaps	rtxthr			

If you wish to change the attributes of M3UA associations assigned to cards that are running the IPSP application, perform the [Changing the Attributes of an IPSP Association](#) procedure.

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 an M3UA or SUA Association](#)
- **bufsize** - [Changing the Buffer Size of an 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** – Tekelec'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 the [Changing the Buffer Size of an M3UA or SUA Association](#) procedure.

The **rmode**, **rmin**, **rmax**, **rtimes**, and **cwmin** parameters are used to configure the SCTP retransmission controls for an association, in addition to other commands. Go to the [Configuring SCTP Retransmission Control for an M3UA or SUA Association](#) procedure 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**.

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, go to the [Removing an Association from an Application Server](#) procedure and 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 than 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 the *Commands Manual*.

Procedure

1. Display the associations in the database using the **rtrv-assoc** command.

This is an example of possible output.

```
r1ghncxa03w 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 [Step 3](#) . If the card contains only M3UA associations, continue the procedure with [Step 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.

```
r1ghncxa03w 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 IPSP, perform the [Changing the Attributes of an IPSP Association](#) procedure.

If the application assigned to the card is SS7IPGW or IPGWI, continue the procedure with [Step 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 [Step 5](#) .
- If the **open** parameter value for the association is **no**, continue the procedure with [Step 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 [Step 10](#) .
- If the value of the **rtxthr** parameter is being changed, continue the procedure with [Step 6](#) .
- 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 [Step 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 [Step 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 [Step 10](#) .
 - ◆ If the value of the **rtxtthr** parameter is being changed, continue the procedure with [Step 6](#) .
 - If the value of the **open** parameter value is being changed to **yes** and a signaling link is not assigned to the card, perform the [Adding an IPGWx Signaling Link](#) procedure 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 [Step 10](#) .
 - ◆ If the value of the **rtxtthr** parameter is being changed, continue the procedure with [Step 6](#) .
 - If the value of the **open** parameter value is being changed to **yes**, and [Step 2](#) was not performed, continue the procedure with [Step 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 [Step 10](#) .
- If the value of the **rtxtthr** parameter is being changed, continue the procedure with [Step 6](#) .

If a signaling link is not shown in this step, perform the [Adding an IPGWx Signaling Link](#) procedure 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 [Step 10](#) .
- If the value of the **rtxtthr** parameter is being changed, continue the procedure with [Step 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 [Step 5](#) or selected in [Step 1](#).

For this example, enter this command.

rtrv-assoc:aname=assoc2

This is an example of the possible output.

```
rlghncxa03w 08-04-28 21:14:37 GMT EAGLE5 38.0.0
ANAME assoc2
  LOC      1205      IPLNK PORT  A      LINK  A
  ADAPTER  M3UA      VER        M3UA RFC
  LHOST    IPNODE2-1205
  ALHOST    ---
  RHOST    remotehost1
  LPORT    2048      RPORT      2048
  ISTRMS   2         OSTRMS     2         BUFSIZE  200
  RMODE    LIN       RMIN       120      RMAX     800
  RTIMES   10        CWMIN      3000     UAPS     10
  OPEN     No        ALW        YES      RTXTHR   2000

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
```

Continue the procedure by performing one of these steps.

- If only the **rtxtthr** parameter value are being changed, continue the procedure with [Step 10](#).
- If the **adapter**, **uaps**, or **cwmin** parameter values are not being changed, continue the procedure with [Step 10](#).
- If the **adapter** parameter value is being changed, continue the procedure with [Step 7](#).
- If the **uaps** parameter value is being changed, but the **adapter** parameter value is not being changed, continue the procedure with [Step 8](#).
- If the **cwmin** parameter value is being changed, but the **adapter** and **uaps** parameter values are not being changed, continue the procedure with [Step 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, go to the [Removing an Association from an Application Server](#) procedure and 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 [Step 10](#).
- If the **uaps** parameter value is being changed, continue the procedure with [Step 8](#).
- If the **cwmin** parameter value is being changed, but the **uaps** parameter value is not being changed, continue the procedure with [Step 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 uaps parameter will not be specified with the chg-assoc command, and the adapter parameter value is being changed to either m3ua or sua, the UA 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.

```
rlghncxa03w 08-04-28 09:12:36 GMT EAGLE5 38.0.0
SET  TIMER      TVALUE  PARM      PVALUE
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).

TVALUE : Valid range = 32-bits

TIMER 3: UA Heartbeat Period Timer T(beat), time (ms) between sending of BEAT msgs by NE, 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, 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.

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 an enabled/disabled flag for a particular ASP/AS

Notification option.
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.
PVALUE : Valid range = 32-bits

BIT	BIT VALUE
0=UA Heartbeats	0=Disabled , 1=Enabled
1-31=Reserved	

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.



CAUTION: Changing a UA 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 [Step 10](#) .
- If the **cwmin** parameter value is being changed, continue the procedure with [Step 9](#) .

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 of 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 [Step 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 the [Changing the Buffer Size of an 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 **cwmin** value has been chosen or the **bufsize** value has been changed, continue the procedure with [Step 10](#) .

10. Change the association using the **chg-assoc** command.

For this example, enter this command.

```
chg-assoc:aname=assoc2:rhost="gw200.nc-tekelec.com":rport=3000:rtxthr=10000
```

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
```

NOTE: See [Flowchart 4-28](#) (Sheet 5) for the rules that apply to the **chg-assoc** command.

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;
```

NOTE: If the value of the **open** parameter was not changed in [Step 3](#) , continue the procedure with [Step 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=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 [Step 10](#) and [Step 11](#) .

For this example, enter this command.

rtrv-assoc : aname=assoc2

This is an example of possible output.

```
rlghncxa03w 08-04-28 09:12:36 GMT EAGLE5 38.0.0
ANAME assoc2
  LOC      1205      IPLNK PORT  A      LINK  A
  ADAPTER  M3UA      VER      M3UA RFC
  LHOST    IPNODE2-1205
  ALHOST    ---
  RHOST    gw200.nc-tekelec.com
  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        NO       RTXTHR  10000

  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
```

NOTE: If the [Removing an Association from an Application Server](#) procedure in [Step 7](#) was not performed, continue the procedure with [Step 14](#) .

13. Assign the association changed in [Step 10](#) 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](#)

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.

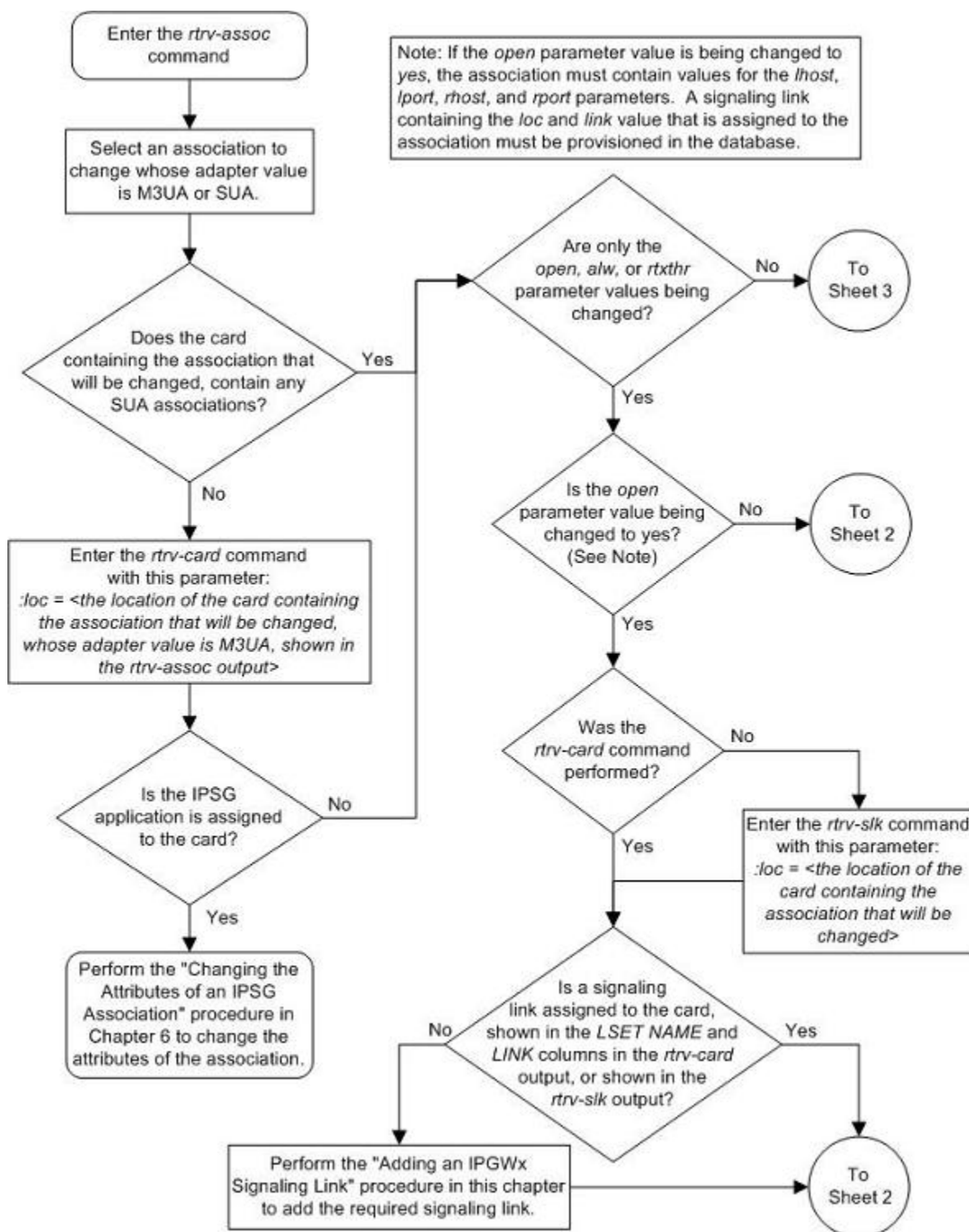
```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

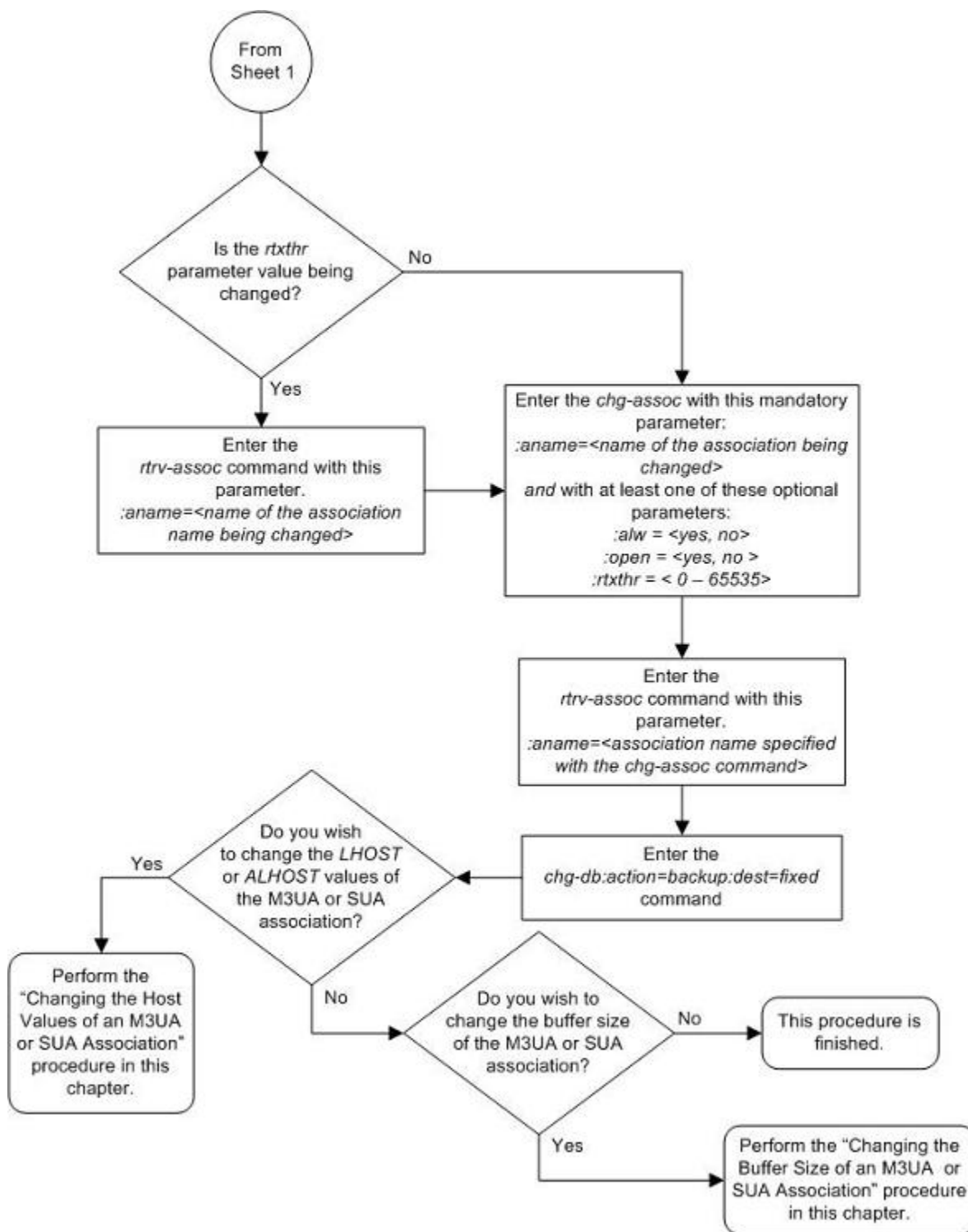
If you wish to change the **lhost**, **alhost**, or **bufsize** values of the M3UA or SUA association, perform one of these procedures.

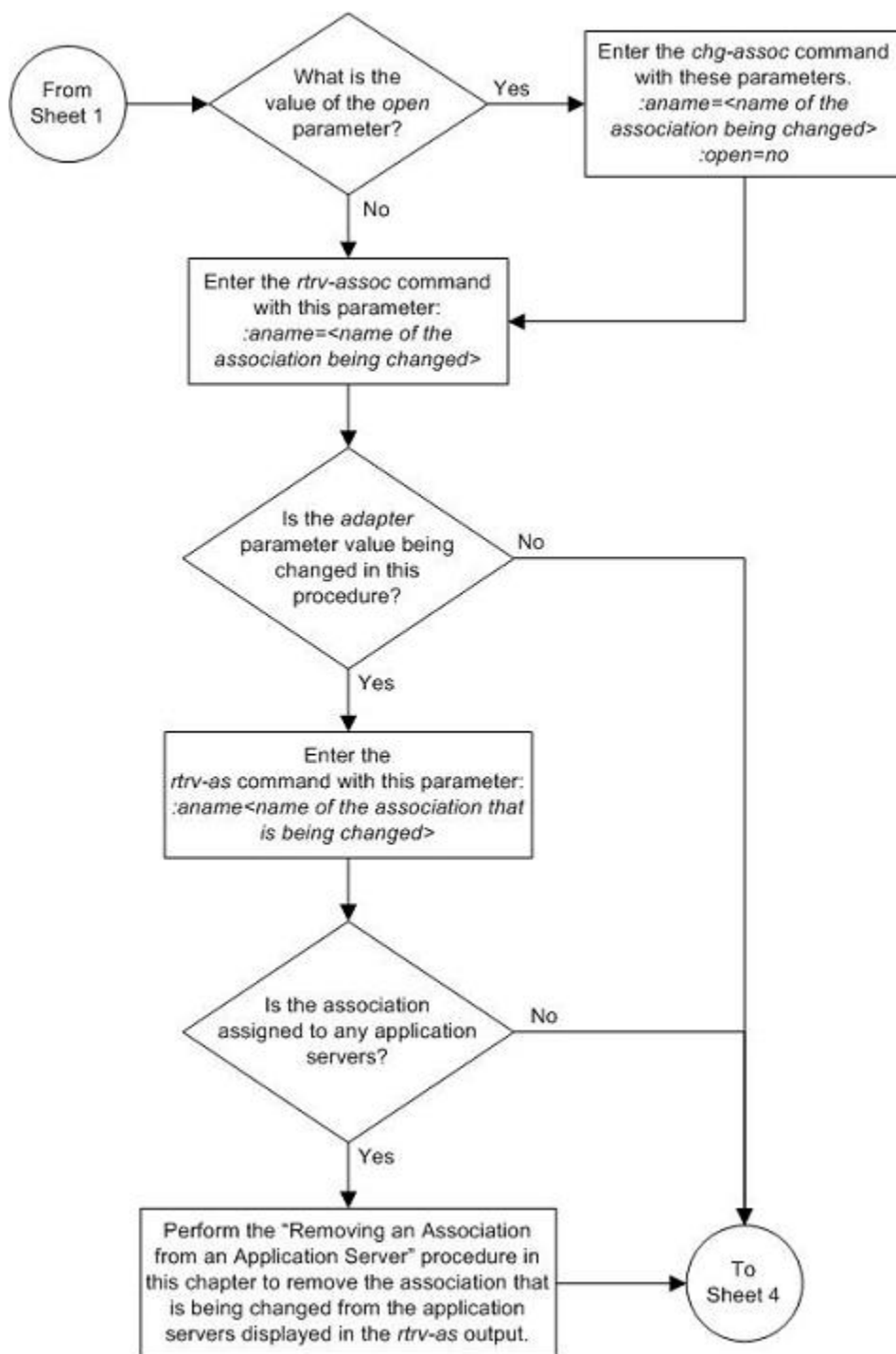
- **lhost** and **alhost** - [Changing the Host Values of an M3UA or SUA Association](#)
- **bufsize** - [Changing the Buffer Size of an M3UA or SUA Association](#)

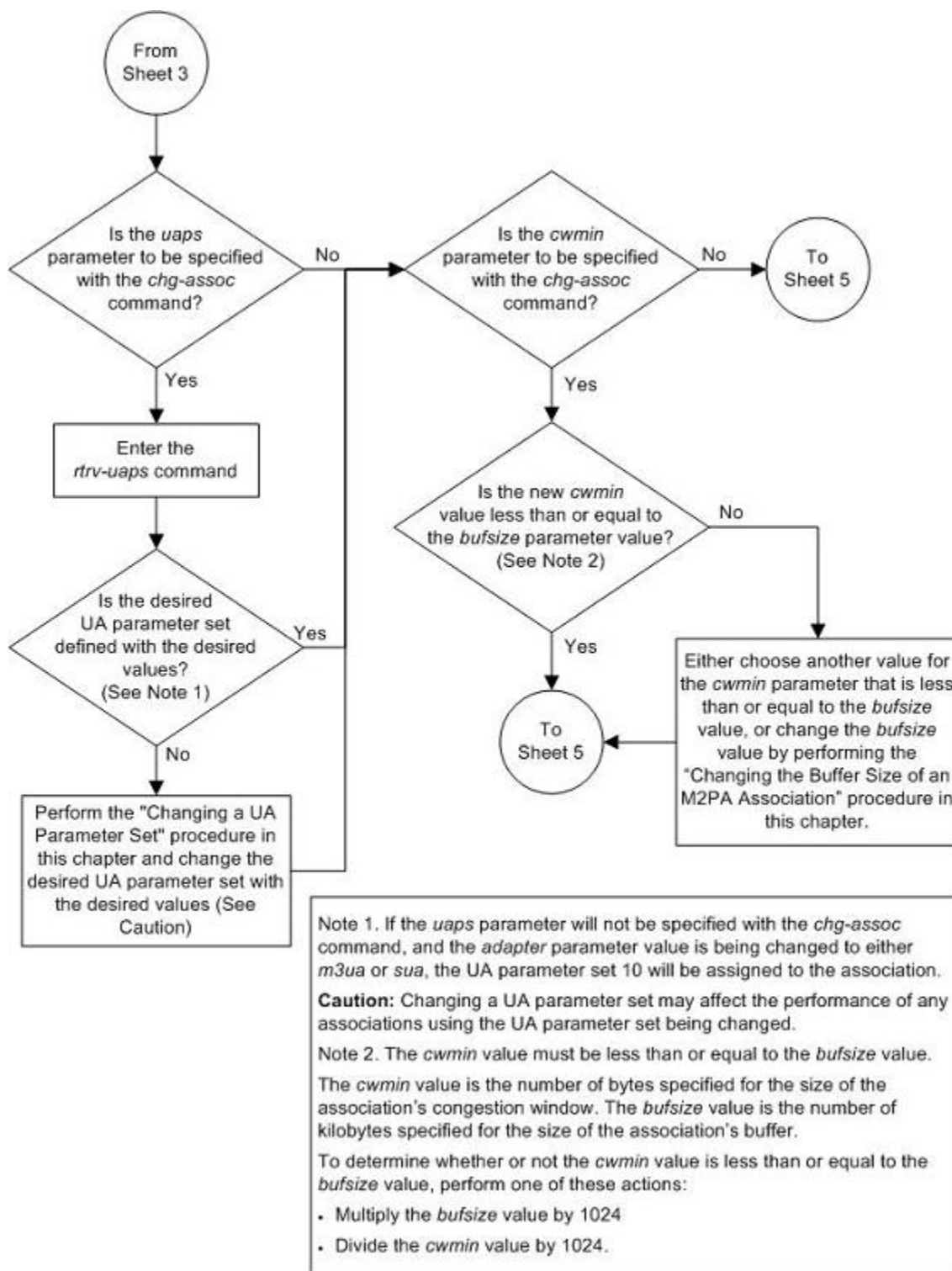
If you do not wish to change the **lhost**, **alhost**, or **bufsize** values of the M3UA or SUA association, this procedure is finished.

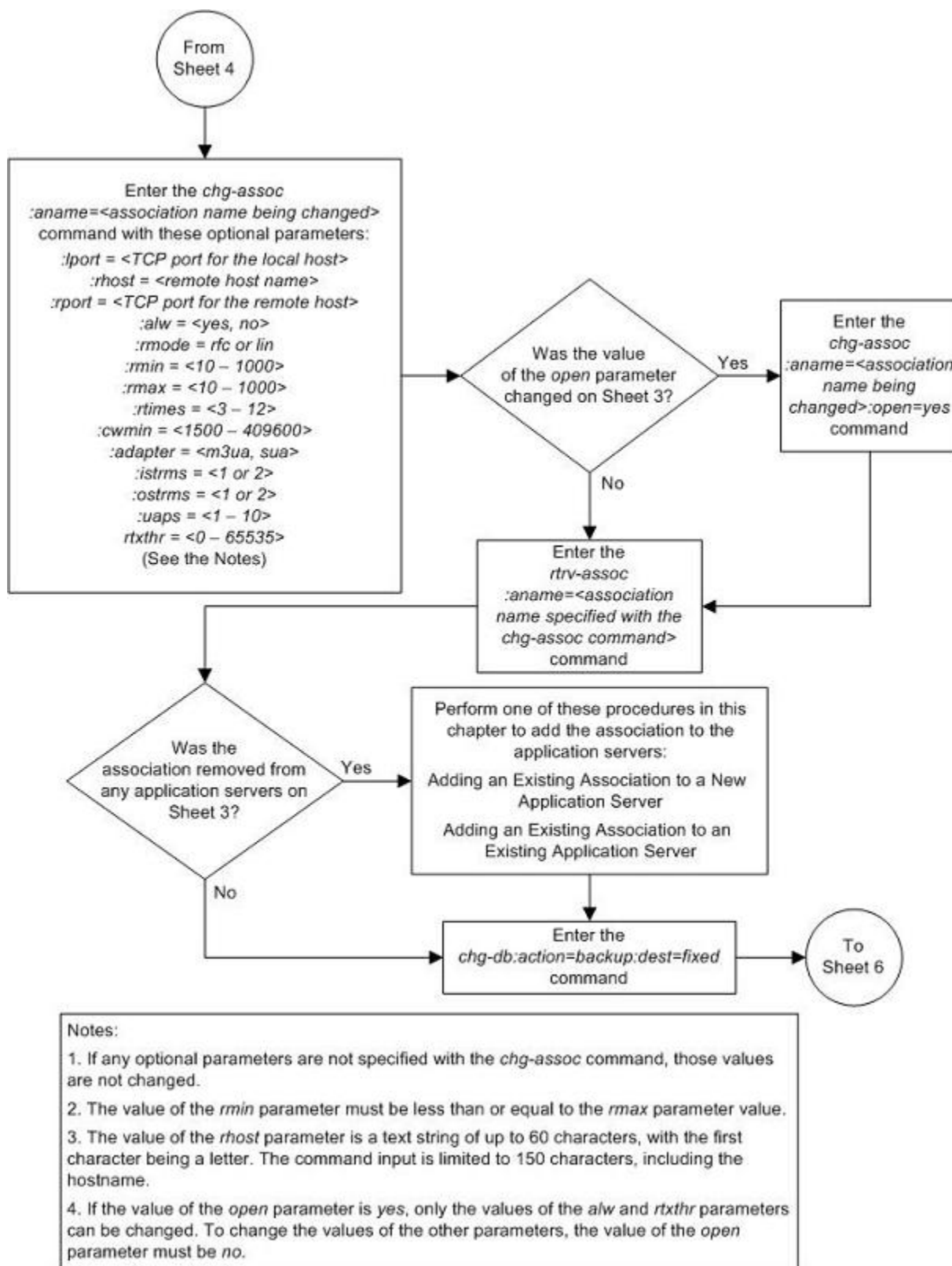
Flowchart 4-28. Changing the Attributes of an M3UA or SUA Association

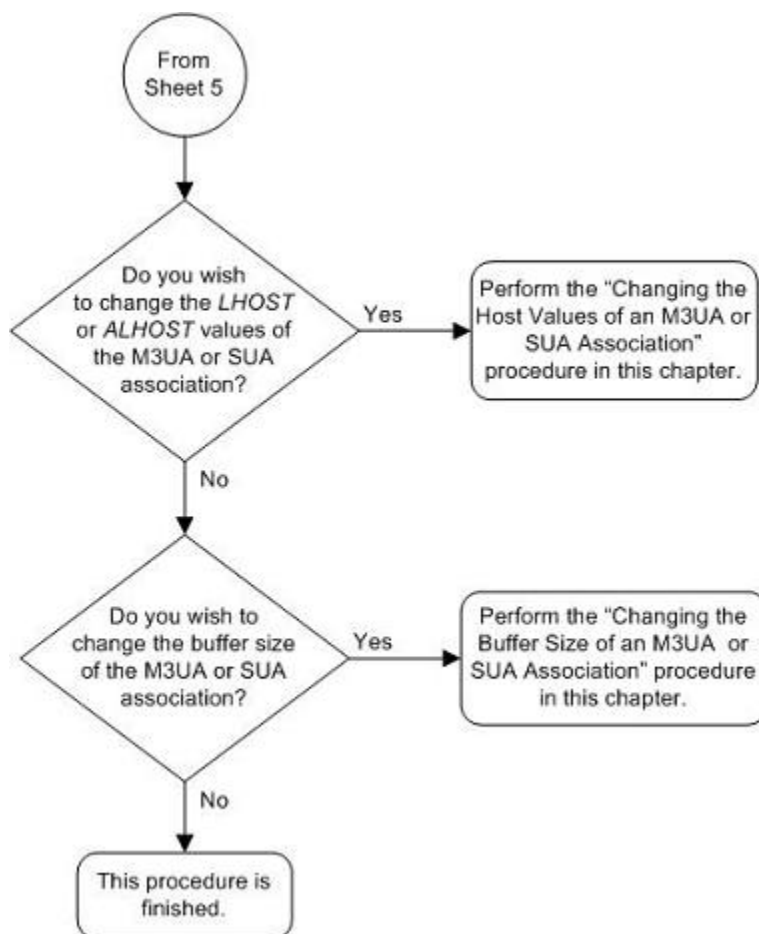












Changing the Buffer Size of an M3UA or SUA Association

This procedure is used to change the buffer size of an M3UA or an 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 IPSP application, perform the [Changing the Buffer Size of an IPSP 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:

- Single-Slot EDCM - 800 KB
- 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 an M3UA or SUA Association](#)
- Other attributes of the M3UA or SUA Association - [Changing the Attributes of an 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 than 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 the *Commands Manual*.

Procedure

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
```

ANAME	CARD	IPLNK	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 **open** parameter value of the association is **no**, continue the procedure with [Step 4](#) . If the **open** parameter value of the association is **yes**, continue the procedure with [Step 3](#) .

If the card contains only M3UA associations, continue the procedure with [Step 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 [Step 3](#) .
- If the **open** parameter value for the association being changed is **no**, continue the procedure with [Step 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;
```

4. Display the association being changed by entering the **rtrv-assoc** command with the **aname** parameter specified in [Step 3](#) or the association selected in [Step 1](#) .

For this example, enter this command.

rtrv-assoc:aname=assoc2

This is an example of the possible output.

```
rlghncxa03w 08-04-28 21:14:37 GMT EAGLE5 38.0.0
ANAME assoc2
LOC      1205      IPLNK PORT  A      LINK  A
ADAPTER  M3UA      VER      M3UA RFC
LHOST    IPNODE2-1205
ALHOST    ---
RHOST    remotehost1
LPORT    2048      RPORT    2048
ISTRMS   2      OSTRMS   2      BUFSIZE 200
RMODE    LIN      RMIN     120      RMAX     800
RTIMES   10      CWMIN    3000     UAPS     10
OPEN     No      ALW      YES      RTXTHR  2000
```

```
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

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 [Step 6](#) , [Step 7](#) , and [Step 8](#) .

If the buffers on the other associations assigned to the card do not need to be changed, continue the procedure with [Step 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
assoc3     1205 A    A    M3UA   3000   3000  YES  YES
assoc5     1205 A    A    M3UA   1500   3000  YES  YES
```

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 [Step 5](#) by entering the **rtrv-assoc** command with the name of each association shown in [Step 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
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

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

```
rtrv-assoc: aname=assoc3
```

This is an example of the possible output.

```
ANAME assoc3
```

```

LOC      1205      IPLNK PORT  A      LINK  A
ADAPTER  M3UA      VER      M3UA RFC
LHOST    IPNODE2-1205
ALHOST    ---
RHOST     remotehost3
LPORT     3000      RPORT     3000
ISTRMS    2         OSTRMS    2         BUFSIZE  400
RMODE     LIN       RMIN      120      RMAX     800
RTIMES    10        CWMIN     3000     UAPS     10
OPEN      YES       ALW       YES      RTXTHR   10000

ASNAMES
as2              as3              as5

```

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 PORT  A      LINK  A
ADAPTER  M3UA      VER      M3UA RFC
LHOST    IPNODE2-1205
ALHOST    ---
RHOST     remotehost3
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   10000

ASNAMES
as2              as3              as5

```

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 [Step 6](#) , the new **bufsize** parameter value must be greater than or equal to the **cwmin** parameter value.

The **cwmin** parameter is the number of 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 [Step 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 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 [Step 8](#) .

8. Change the size of the buffers for one or more of the associations displayed in [Step 6](#) to allow the buffer of the association displayed in [Step 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 [Step 4](#), the new **bufsize** parameter value must be greater than or equal to the **cwmin** parameter value.

The **cwmin** parameter is the number of 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 [Step 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 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 [Step 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 [Step 3](#), continue the procedure with [Step 12](#).

If the value of the **open** parameter was changed in [Step 3](#), continue the procedure with [Step 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 [Step 10](#) and [Step 11](#).

For this example, enter this command.

rtrv-assoc:aname=assoc2

This is an example of possible output.

```

rlghncxa03w 08-04-28 09:12:36 GMT EAGLE5 38.0.0
ANAME assoc2
  LOC      1205      IPLNK PORT  A      LINK  A
  ADAPTER  M3UA      VER      M3UA RFC
  LHOST    IPNODE2-1205
  ALHOST    ---
  RHOST    gw200.nc-tekelec.com
  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

  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.

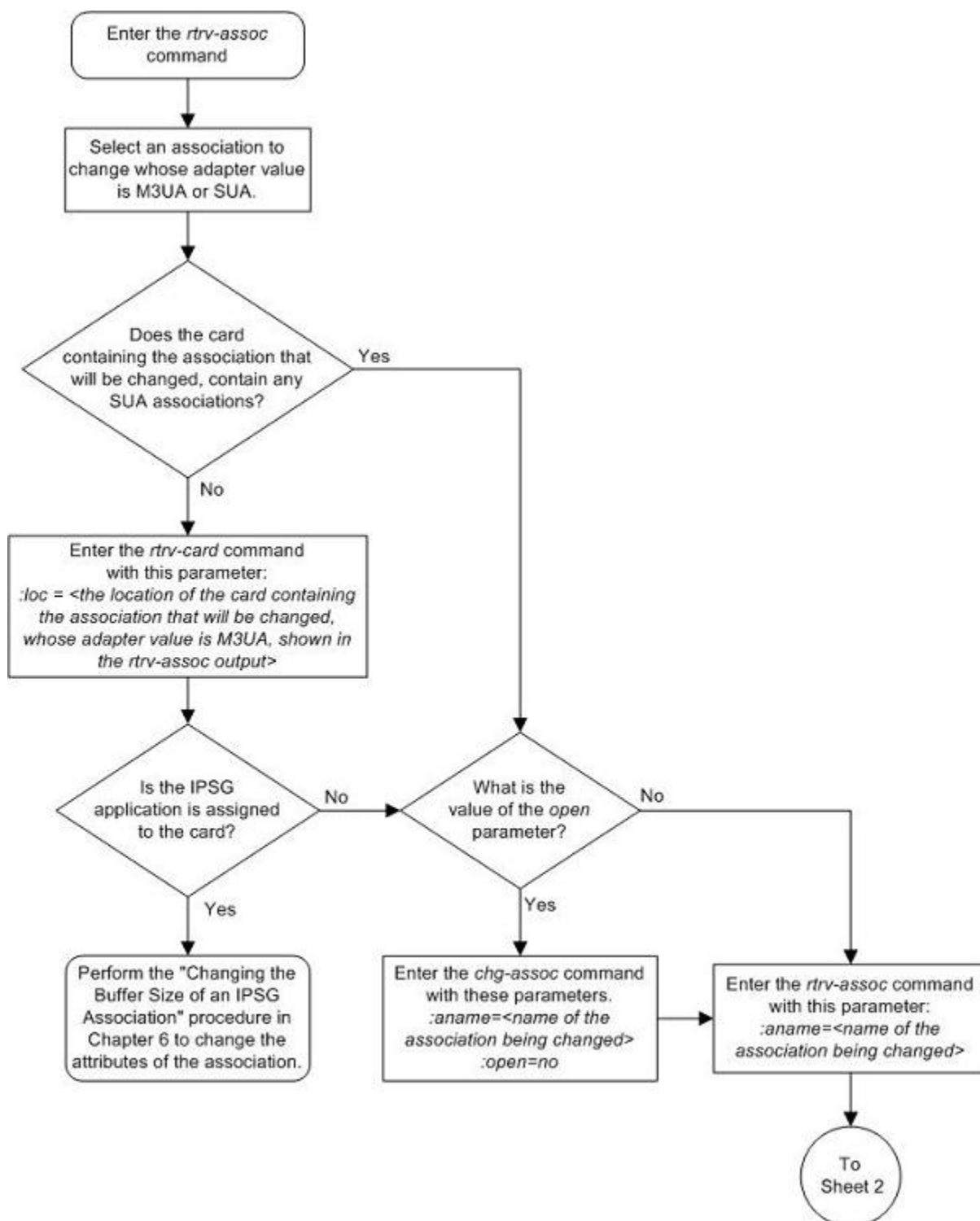
```

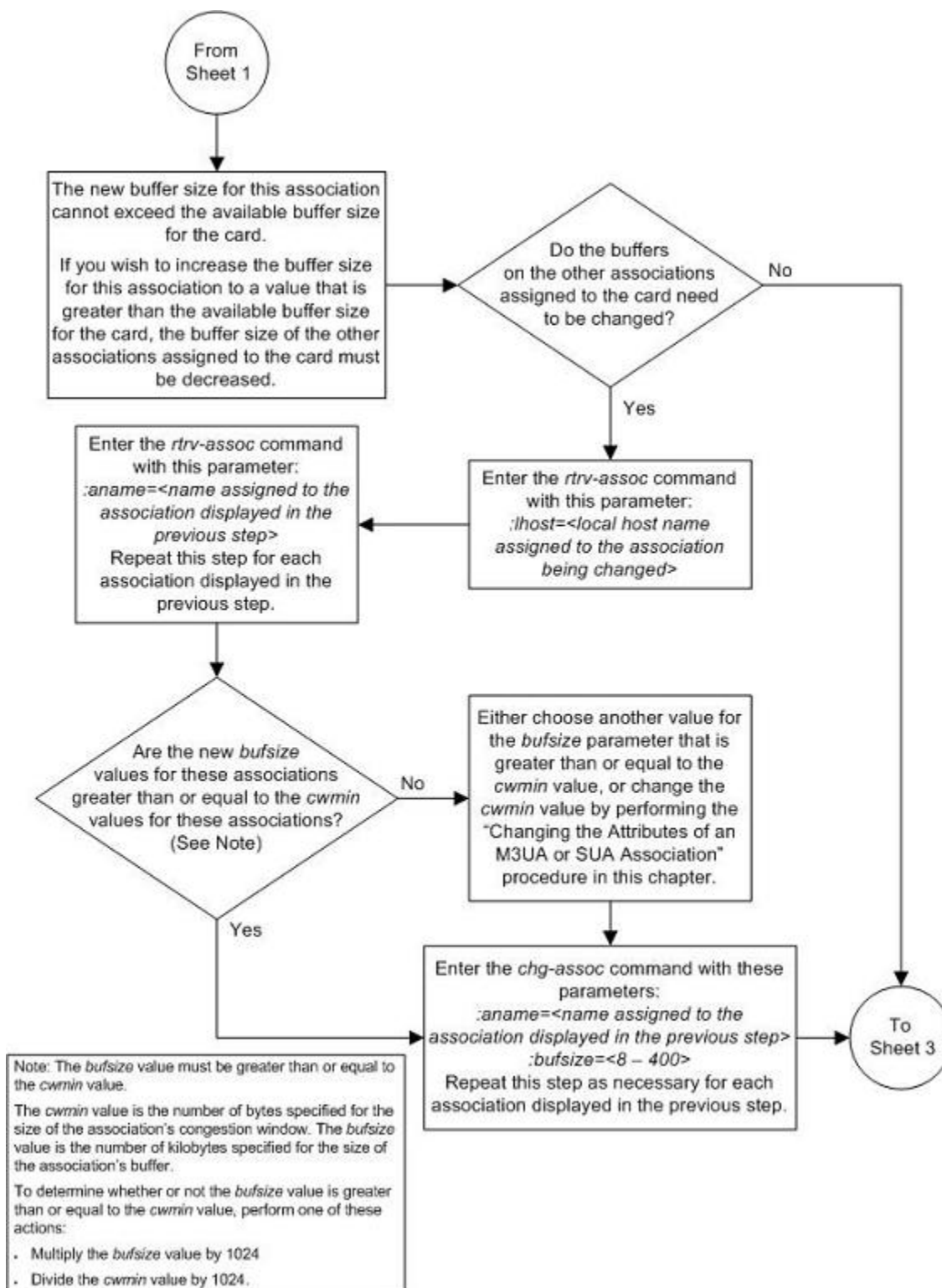
If you wish to change other attributes of the M3UA or SUA association, perform one of these procedures.

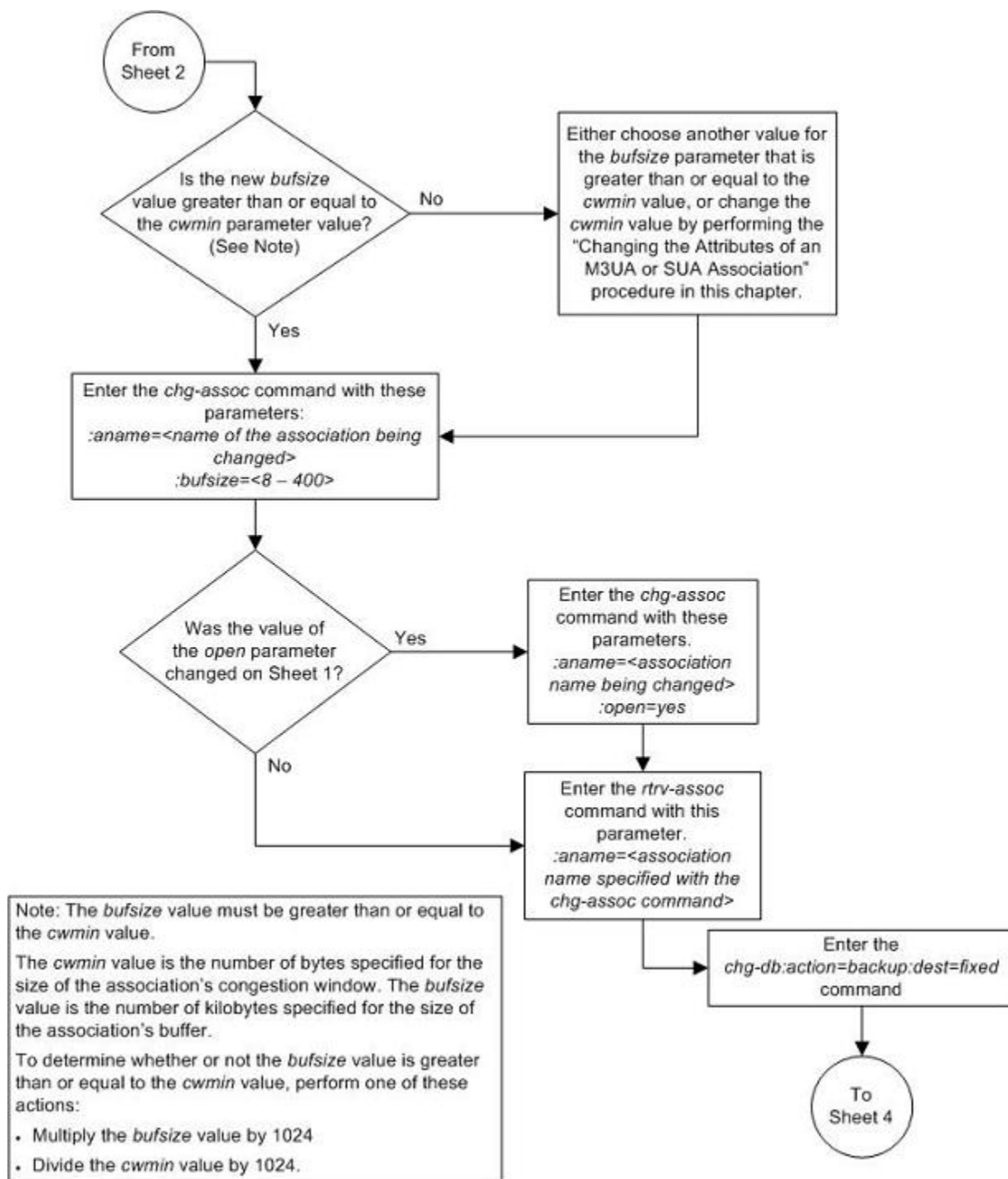
- **lhost** and **alhost** - [Changing the Host Values of an M3UA or SUA Association](#)
- Other attributes of the M3UA or SUA Association - [Changing the Attributes of an M3UA or SUA Association](#)

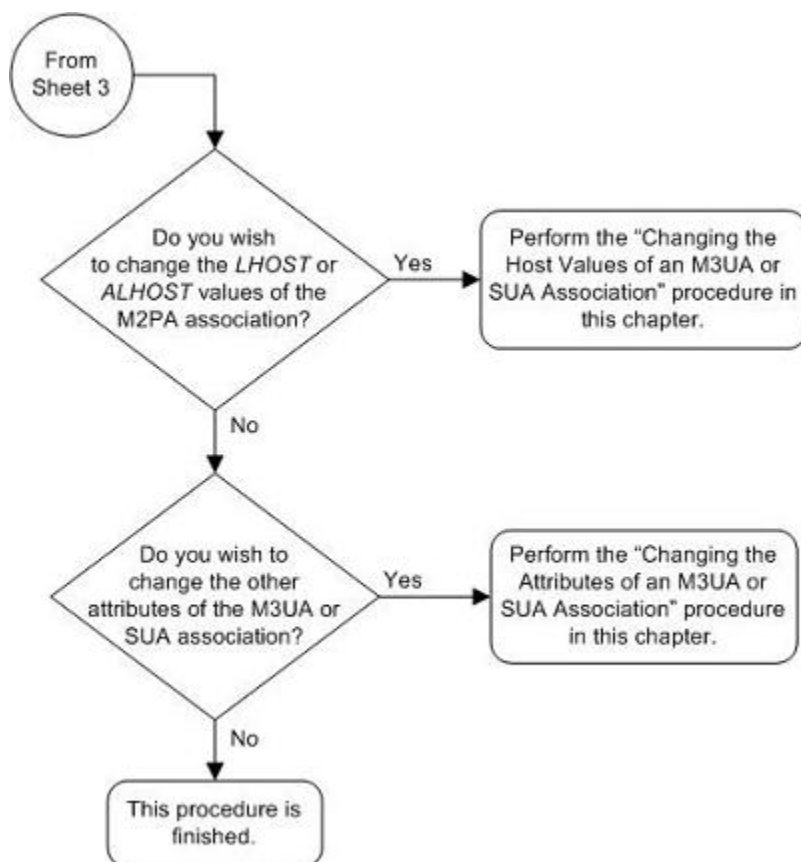
If you do not wish to change other attributes of the M3UA or SUA association, this procedure is finished.

Flowchart 4-29. Changing the Buffer Size of an M3UA or SUA Association









Changing the Host Values of an M3UA or SUA Association

This procedure is used to change the host values of an 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-as:aname=<association name>** commands.

Table 4-18. 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 5 ISS can contain a maximum of 250 application servers.		

The EAGLE 5 ISS can contain a maximum of 4000 connections.

The B Ethernet interface of the IP card can be used on the single-slot EDCMs or 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 **lhost** parameter only. The **lhost** 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 **lhost** and **alhost** parameters. The **lhost** 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.

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 than 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 the *Commands Manual*.

Procedure

1. Display the associations in the database using the **rtrv-assoc** command.

This is an example of possible output.

```
r1ghncxa03w 08-04-28 09:12:36 GMT EAGLE5 38.0.0
```

ANAME	CARD	IPLNK	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 by performing one of these steps.

- If the **open** parameter value for the association being changed is **yes**, continue the procedure with [Step 3](#).
- If the **open** parameter value for the association being changed is **no**, continue the procedure with [Step 4](#).

If the card contains only M3UA associations, continue the procedure with [Step 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 IPSPG, perform the [Changing the Host Values of an IPSPG Association](#) procedure.

If the application assigned to the card is SS7IPGW or IPGW, 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 [Step 3](#) .
- If the **open** parameter value for the association being changed is **no**, continue the procedure with [Step 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 [Step 3](#) or the association selected in [Step 1](#) .

For this example, enter this command.

rtrv-assoc : aname=assoc2

This is an example of the possible output.

```
rlghncxa03w 08-04-28 21:14:37 GMT EAGLE5 38.0.0
ANAME assoc2
  LOC      1205      IPLNK PORT  A      LINK  A
  ADAPTER  M3UA      VER      M3UA RFC
  LHOST    IPNODE2-1205
  ALHOST    ---
  RHOST     remotesite1
  LPORT     2048      RPORT      2048
  ISTRMS    2         OSTRMS     2         BUFSIZE  200
  RMODE     LIN       RMIN       120      RMAX     800
  RTIME     10        CWMIN      3000     UAPS     10
  OPEN      No        ALW        YES      RTXTHR   2000

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 [Step 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 [Step 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 [Step 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 [Step 12](#).

5. Verify that the local host name to be assigned to the association is in the database by using the **rtrv-ip-host** command.

The following is an example of the possible output.

```
rlghncxa03w 08-04-28 21:15:37 GMT EAGLE5 38.0.0
```

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-MS1
192.1.1.52	DN-MS2

REMOTE IPADDR	REMOTE HOST
150.1.1.5	NCDEPTECONOMIC_DEVELOPMENT. SOUTHEASTERN_COORIDOR_ASHVL. GOV

IP Host table is (11 of 512) 2% 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.

```
rlghncxa03w 07-05-28 21:14:37 GMT EAGLE5 37.0.0
```

LOC	PORT	IPADDR	SUBMASK	DUPLEX	SPEED	MACTYPE	AUTO	MCAST
1303	A	192.1.1.10	255.255.255.128	HALF	10	802.3	NO	NO
1303	B	-----	-----	HALF	10	DIX	NO	NO
1305	A	192.1.1.12	255.255.255.0	----	---	DIX	YES	NO
1305	B	-----	-----	HALF	10	DIX	NO	NO
1313	A	192.1.1.14	255.255.255.0	FULL	100	DIX	NO	NO
1313	B	-----	-----	HALF	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
2103	A	192.1.1.22	255.255.255.0	FULL	100	DIX	NO	NO
2103	B	-----	-----	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
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	-----	-----	HALF	10	DIX	NO	NO
2305	A	192.3.3.33	255.255.255.0	FULL	100	DIX	NO	NO
2305	B	-----	-----	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, then continue the procedure with [Step 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 [Step 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 [Step 11](#).

If the required IP host was shown in [Step 5](#), the required IP link is shown in the **rtrv-ip-lnk** output in this step. Perform [Step 7](#) to verify the application running on the card whose IP address is assigned to the IP host.

NOTE: The **rtrv-ip-host** output must contain a host name for the association's **lhost** parameter and a host name for the association's **ahost** parameter, if the **ahost** parameter will be specified for the association. 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 **ahost** 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 **ahost** parameter value. The IP links associated with the association's **lhost** and **ahost** values must be assigned to the same card.

7. Display the application running on the IP card shown in [Step 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
SLK   PST          LS          CLLI
A     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
LOC  PORT  LINK ADAPTER LPORT RPORT OPEN ALW
aname
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/Assoc table is (8 of 4000) 1% full
Assoc Buffer Space Used (600 KB of 3200 KB) on LOC = 1205

9. Display the application servers that the associations shown in [Step 8](#) are assigned to by entering **rtrv-as** command with the names of the associations shown in [Step 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	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

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      Mode      Tr ms      Association Names
as2          LOADSHARE 2000       assoc3

as3          LOADSHARE 2000       assoc3

as5          LOADSHARE 2000       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 [Step 7](#) , continue the procedure with [Step 10](#) .
- If the **rept-stat-card** command was performed in [Step 7](#) , and the **link** value will not be changed, continue the procedure with [Step 12](#) .
- If the **rept-stat-card** command was performed in [Step 7](#) , and the **link** value will be changed, continue the procedure with [Step 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 [Step 5](#) and [Step 6](#) and select another IP link and IP.

10. Display the application running on the IP card shown in [Step 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.

```

r1ghncxa03w 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
SLK   PST          LS          CLLI
A     IS-NR        nc001      -----

```

Command Completed.

- If the **link** value will not be changed, continue the procedure with [Step 12](#) .
- If the **link** value will be changed, continue the procedure with [Step 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.

```

r1ghncxa03w 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 [Step 12](#) .

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 [Step 12](#) .

12. Change the association using the **chg-assoc** command.

For this example, enter this command.

chg-assoc:aname=assoc2:lhost=m2pa2:alhost=m2pa3:rhost="gw200.nc-tekelec.com"

chg-assoc:aname=assoc2:lhost=m3ua1:alhost=m3ua2:rhost="gw200.nc-tekelec.com"

NOTE: See [Flowchart 4-30](#) (Sheet 6) for the rules that apply to the **chg-assoc** command.

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

```

r1ghncxa03w 08-04-28 09:12:36 GMT EAGLE5 38.0.0
CHG-ASSOC: MASP A - COMPLTD;

```

NOTE: If the value of the **open** parameter was not changed in [Step 3](#) , continue the procedure with [Step 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=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 [Step 12](#) and [Step 13](#).

For this example, enter this command.

rtrv-assoc:aname=assoc2

This is an example of possible output.

```
rlghncxa03w 08-04-28 09:12:36 GMT EAGLE5 38.0.0
ANAME assoc2
  LOC      1205      IPLNK PORT  A      LINK  A
  ADAPTER  M3UA      VER      M3UA RFC
  LHOST    m3ua1
  ALHOST    m3ua2
  RHOST    gw200.nc-tekelec.com
  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

  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
```

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.

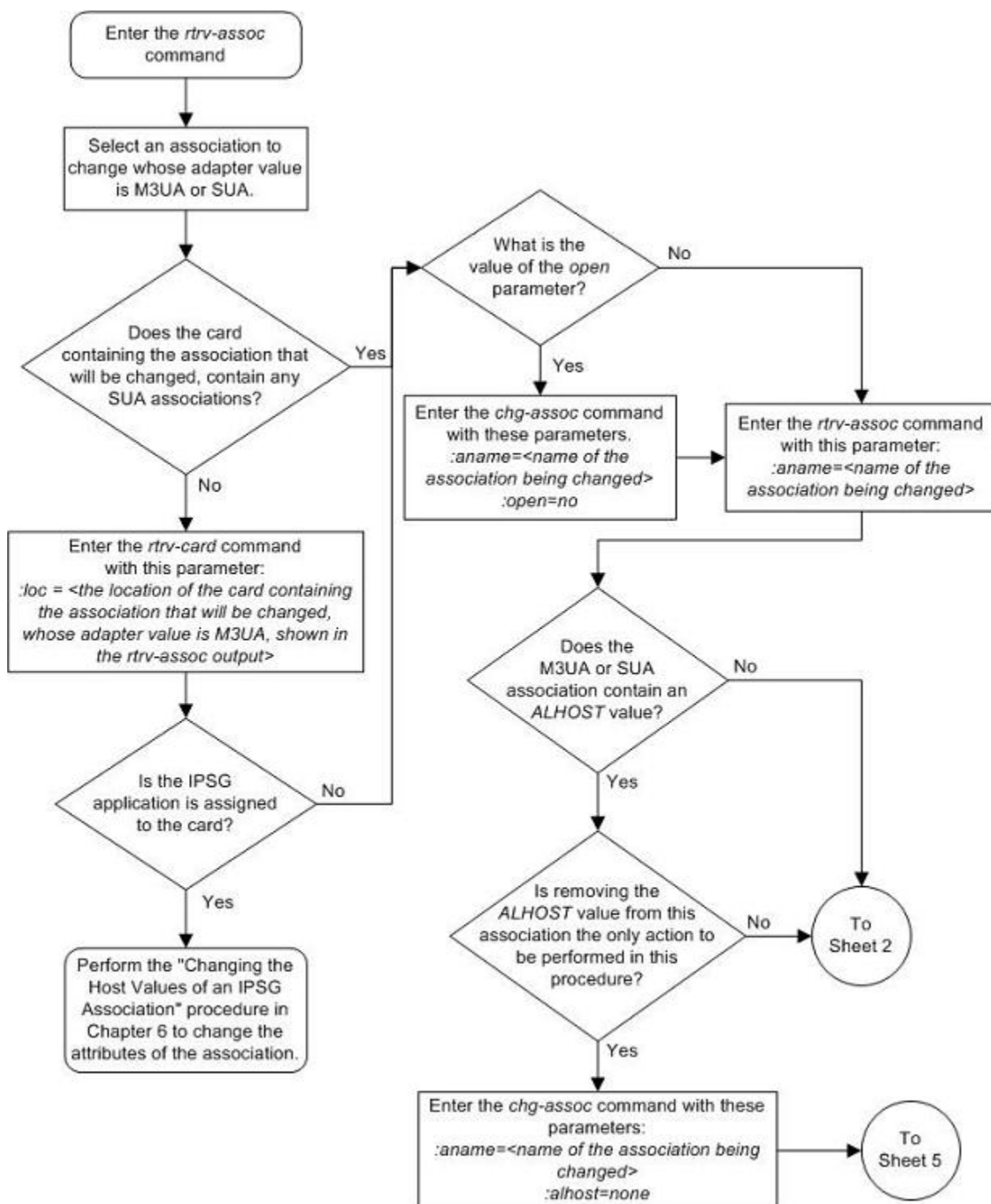
```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

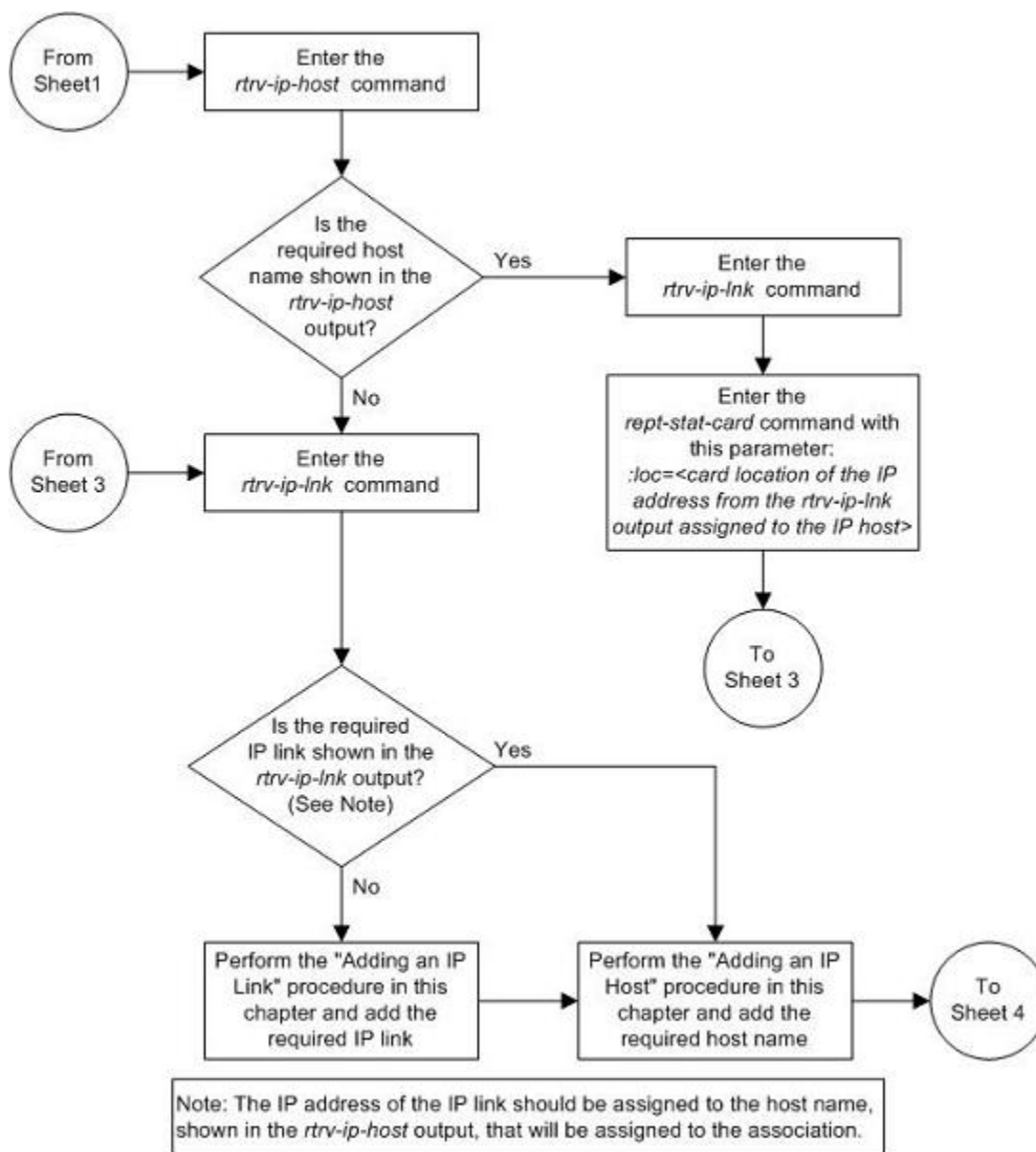
If you wish to change other attributes of the M3UA or SUA association, perform one of these procedures.

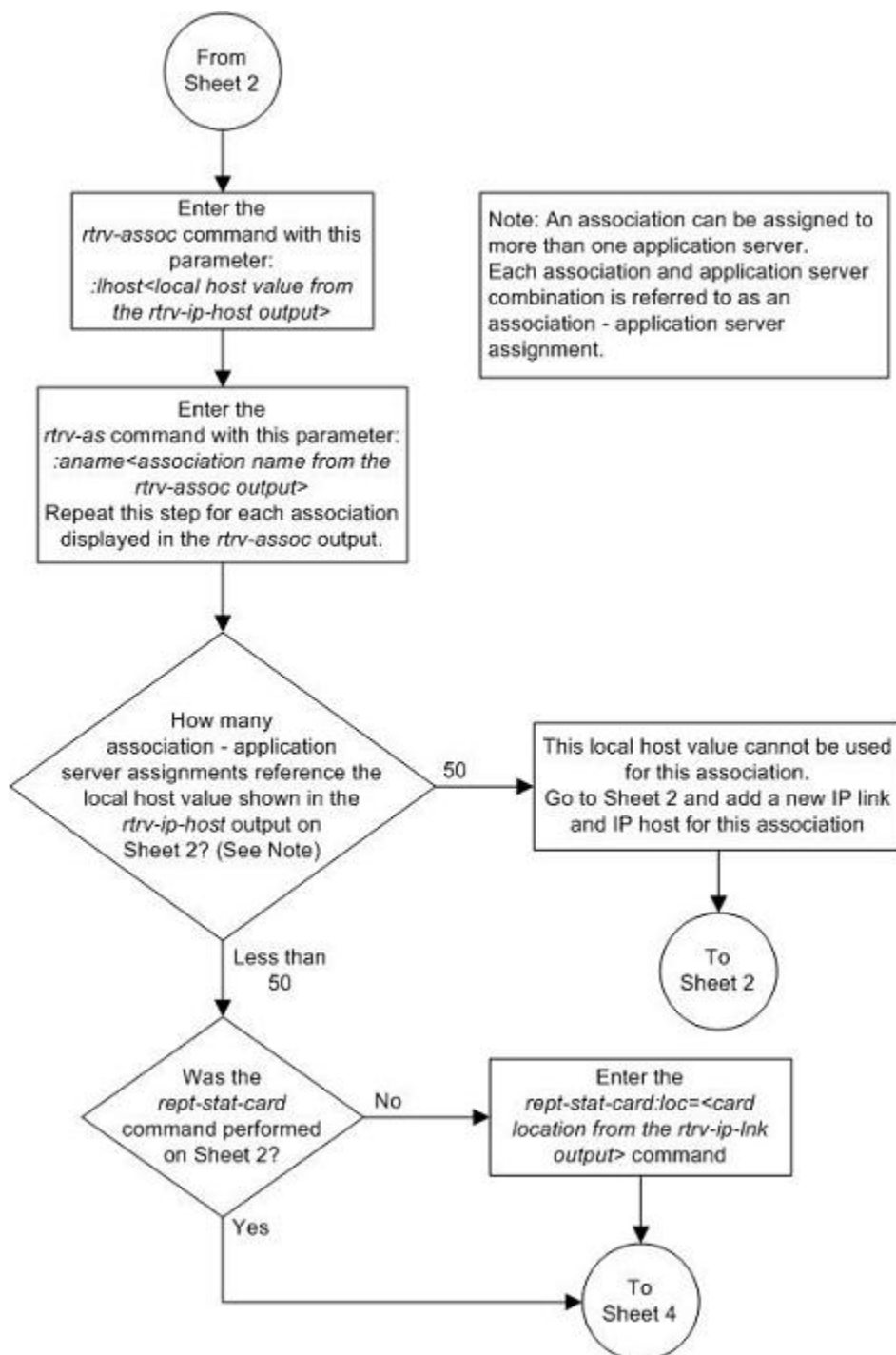
- **bufsize** - [Changing the Buffer Size of an M3UA or SUA Association](#)
- Other attributes of the M3UA or SUA association - [Changing the Attributes of an M3UA or SUA Association](#)

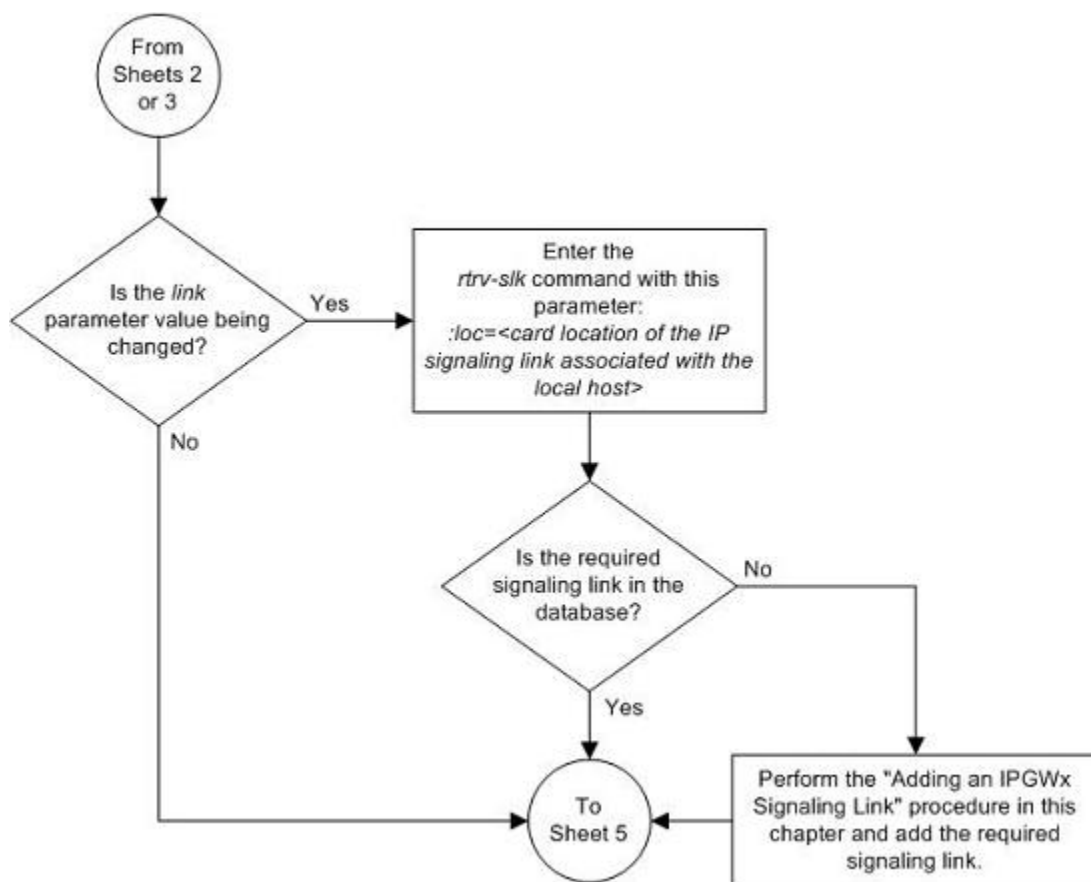
If you do not wish to change the other attributes of the M3UA or SUA association, this procedure is finished.

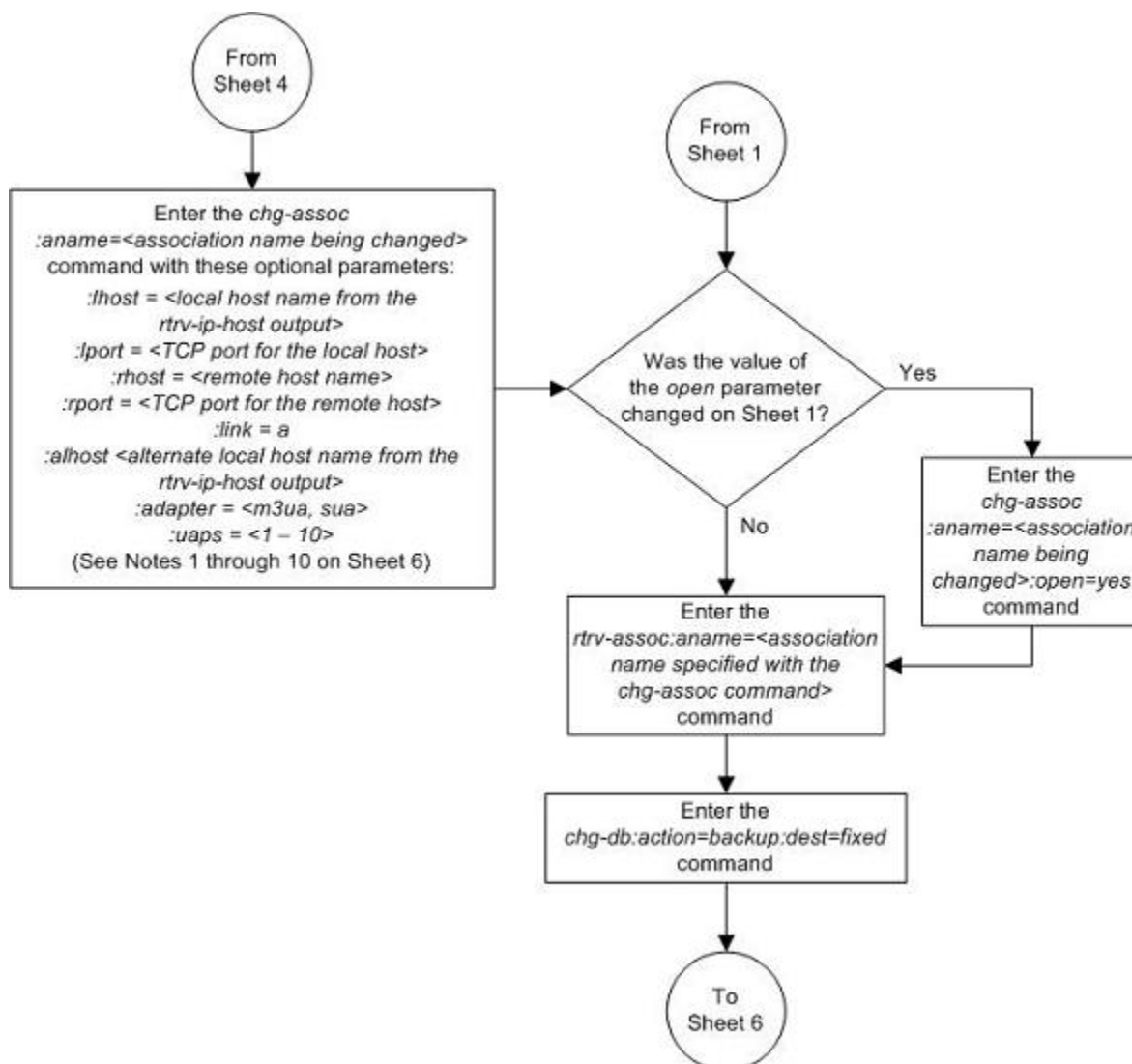
Flowchart 4-30. Changing the Host Values of an M3UA or SUA Association

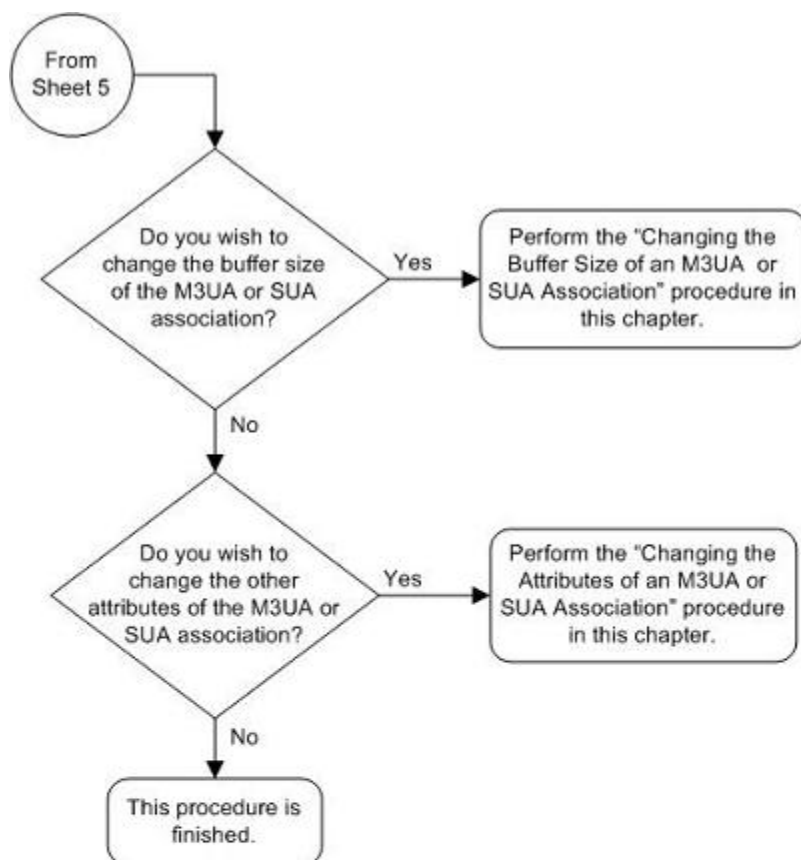










**Notes:**

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 sum of the number of sockets and 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 *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.

Configuring SCTP Retransmission Control for an 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 IPGW Association for SCTP Retransmission Control](#) procedure to configure the retransmission parameters for M3UA associations assigned to IPGW cards. If any assistance is needed to configure the retransmission parameters for associations, contact the Customer Care Center. Refer to [Customer Care Center](#) 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** – Tekelec'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.

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 an M3UA or SUA Association](#) procedure is used to change the values of these parameters. In addition to using the [Changing the Attributes of an 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.

For more information on the **pass** commands, see the *Commands Manual*.

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 M3UA or SUA Association](#) procedure, or in the and **chg-assoc** command description in the *Commands Manual*.

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 than 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 the *Commands Manual*.

Procedure

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
```

ANAME	CARD	IPLNK	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		

If the association that is being removed in this procedure is an SUA association, continue the procedure with [Step 3](#).

If the association that is being removed in this procedure is an M3UA association, continue the procedure with [Step 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  lsn1      A      0
```

If the application assigned to the card is SS7IPGW or IPGWI, shown in the **APPL** column, continue the procedure with [Step 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 08-04-28 21:14:37 GMT EAGLE5 38.0.0
ANAME assoc1
  LOC      1201          IPLNK PORT  A      LINK  A
  ADAPTER  M3UA          VER          M3UA RFC
  LHOST    IPNODE2-1205
  ALHOST    ---
  RHOST    gw100.nc.tekelec.com
  LPORT    2000          RPORT      1030
  ISTRMS    2            OSTRMS     2            BUFSIZE  200
  RMODE     LIN          RMIN        120          RMAX     800
  RTIMES    10           CWMIN       3000         UAPS     10
  OPEN      YES          ALW         YES          RTXTHR  2000

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 = 1201

4. Display the IP address assigned to the IPLINK assigned to the association being changed in this procedure by entering the **rtrv-ip-lnk** command with the card location and IPLINK port shown in [Step 1](#).

For this example, enter this command.

rtrv-ip-lnk:loc=1201:port=a

The following is an example of the possible output.

```
rlghncxa03w 06-10-28 21:19:37 GMT EAGLE5 36.0.0
LOC  PORT IPADDR      SUBMASK      DUPLEX  SPEED  MACTYPE  AUTO  MCAST
1201 A    192.1.1.30      255.255.255.0  ----   ---   DIX      YES  NO
```

5. Enter the **ping** pass command specifying the card location of the local host, shown in [Step 3](#), and the name of the remote host assigned to the association being changed, shown in [Step 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
```

6. Perform the [Changing the Attributes of an M3UA or SUA Association](#) procedure to change the retransmission parameters of the association based on the results of pinging the remote host.

NOTE: If the SCTP retransmission parameters are not to be changed, do not perform [Step 6](#) through [Step 8](#) . This procedure is finished.

7. 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 acknowledgement is received.

The **assocrtt** command is entered with the card location from [Step 5](#) (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 [Step 5](#) . 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 RT0: 120
  Maximum RT0: 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
```

8. Enter the **sctp -a <association name>** pass command to determine if retransmissions have occurred.

The association name is the association name specified in [Step 7](#) . Specify the card location used in [Step 7](#) . For this example, enter this command.

pass:loc=1201:cmd="sctp -a assoc1"

The following is an example of the possible output

```
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 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

Nets Data

IP Address	192.168.112.4	State	Reachable
Port	7777	Primary	YES
MTU	1500	cwnd	16384
ssthresh	16384	RT0	120
IP Address	192.168.113.5	State	Reachable
Port	7777	Primary	NO
MTU	1500	cwnd	16384
ssthresh	16384	RT0	120

```

Last Net Sent To = 192.168.112.4
Last Net Rcvd From = 192.168.112.4
Over All Error 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

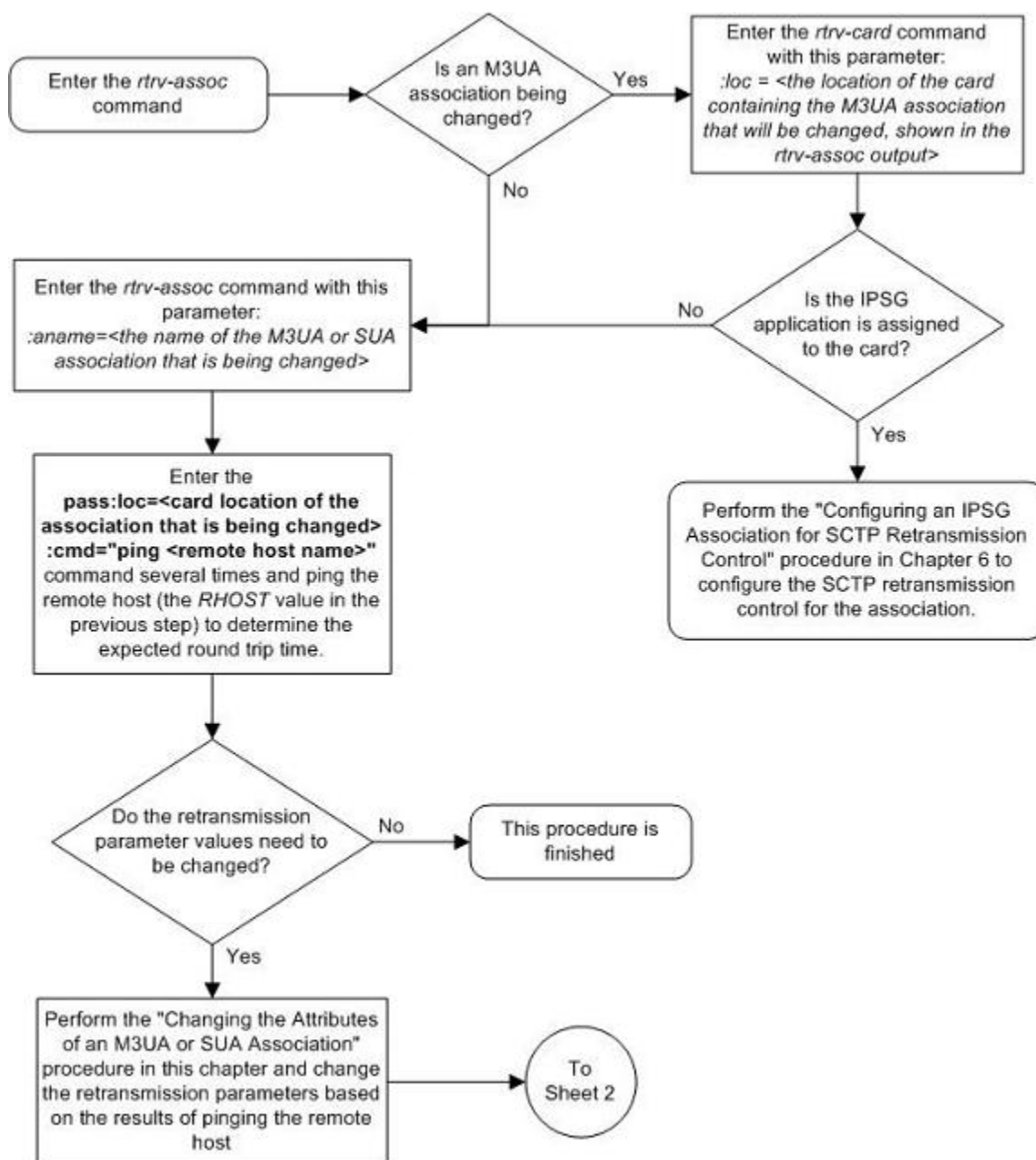
ip datagrams rcvd = 155402
ip datagrams with data chunks rcvd = 120844
data chunks rcvd = 367908
data chunks read = 367900
dup tsns rcvd = 8
sacks rcvd = 38734
gap ack blocks rcvd = 3
heartbeat requests rcvd = 135
heartbeat acks rcvd = 52
heartbeat requests sent = 52
ip datagrams sent = 129254
ip datagrams 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

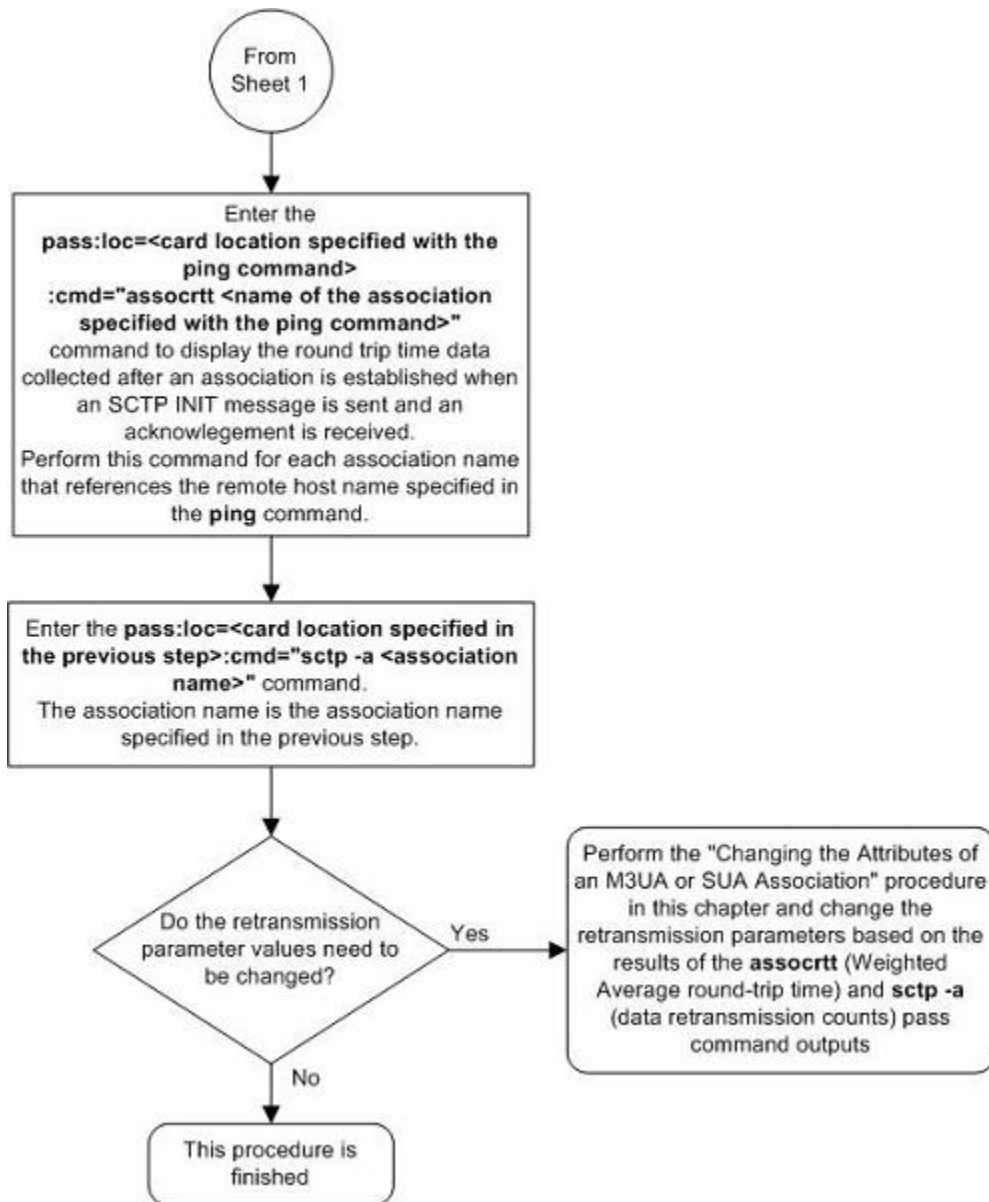
```

SCTP command complete

9. Perform the [Changing the Attributes of an M3UA or SUA Association](#) procedure to change the retransmission parameters of the association based on the results of the outputs of [Step 7](#) and [Step 8](#).

NOTE: The **Weighted Average round-trip time** shown in the `assocrtt` pass command output in [Step 6](#), and the data retransmission counts shown in the `sctp -a` pass command output in [Step 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.

Flowchart 4-31. Configuring an M3UA or SUA Association for SCTP Retransmission Control



Changing an Application Server

This procedure is used change the characteristics of an existing application server using the **chg-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 **rtrv-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 than 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 the *Commands Manual*.

Procedure

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           Mode           Tr ms  Association Names
as1                LOADSHARE      10     assoc1
                  LOADSHARE      10     assoc2
                  LOADSHARE      10     assoc3
                  LOADSHARE      10     assoc5
                  LOADSHARE      10     assoc6

as2                OVERRIDE       10     assoc7
as3                LOADSHARE      10     assoc4

AS table is (2 of 250) 1% full.
```

NOTE: If the **mode** parameter will not be specified with the **chg-as** command in [Step 5](#) , continue the procedure with [Step 5](#) .

2. Display one of the associations assigned to the application server shown in [Step 1](#) using the **rtrv-assoc** command and specifying the association name shown in the **rtrv-as** output in [Step 1](#) .

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
ANAME assoc1
  LOC      1203          IPLNK PORT  A          LINK  A
  ADAPTER  M3UA          VER        M3UA RFC
  LHOST    gw105.nc.tekelec.com
  ALHOST    ---
  RHOST    gw100.ncd-economic-development.southeastern-cooridor-ash.gov
  LPORT    1030          RPORT      2345
  ISTRMS   2            OSTRMS     2          BUFSIZE  16
  RMODE    LIN           RMIN       120        RMAX     800
  RTIMES   10           CWMIN      3000       UAPS      10
  OPEN     YES          ALW         YES        RTXTHR  10000

ASNAMES
as1

```

IP Appl Sock table is (4 of 4000) 1% full
 Assoc Buffer Space Used (16 KB of 800 KB) on LOC = 1203

NOTE: If the value of the **open** parameter shown in this step is **no**, continue the procedure with [Step 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

```

NOTE: If all the associations assigned to the application server been displayed, continue the procedure with [Step 5](#) .

4. Repeat [Step 2](#) and [Step 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
as1          OVERRIDE  1000   assoc1
              OVERVERRIDE  1000   assoc2
              OVERVERRIDE  1000   assoc3
              OVERVERRIDE  1000   assoc5
              OVERVERRIDE  1000   assoc6

as2          OVERRIDE  10     assoc7
as3          LOADSHARE  10     assoc4

AS table is (2 of 250) 1% full

```

NOTE: If the value of the **open** parameter was not changed in [Step 3](#) , continue the procedure with [Step 8](#) .

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
```

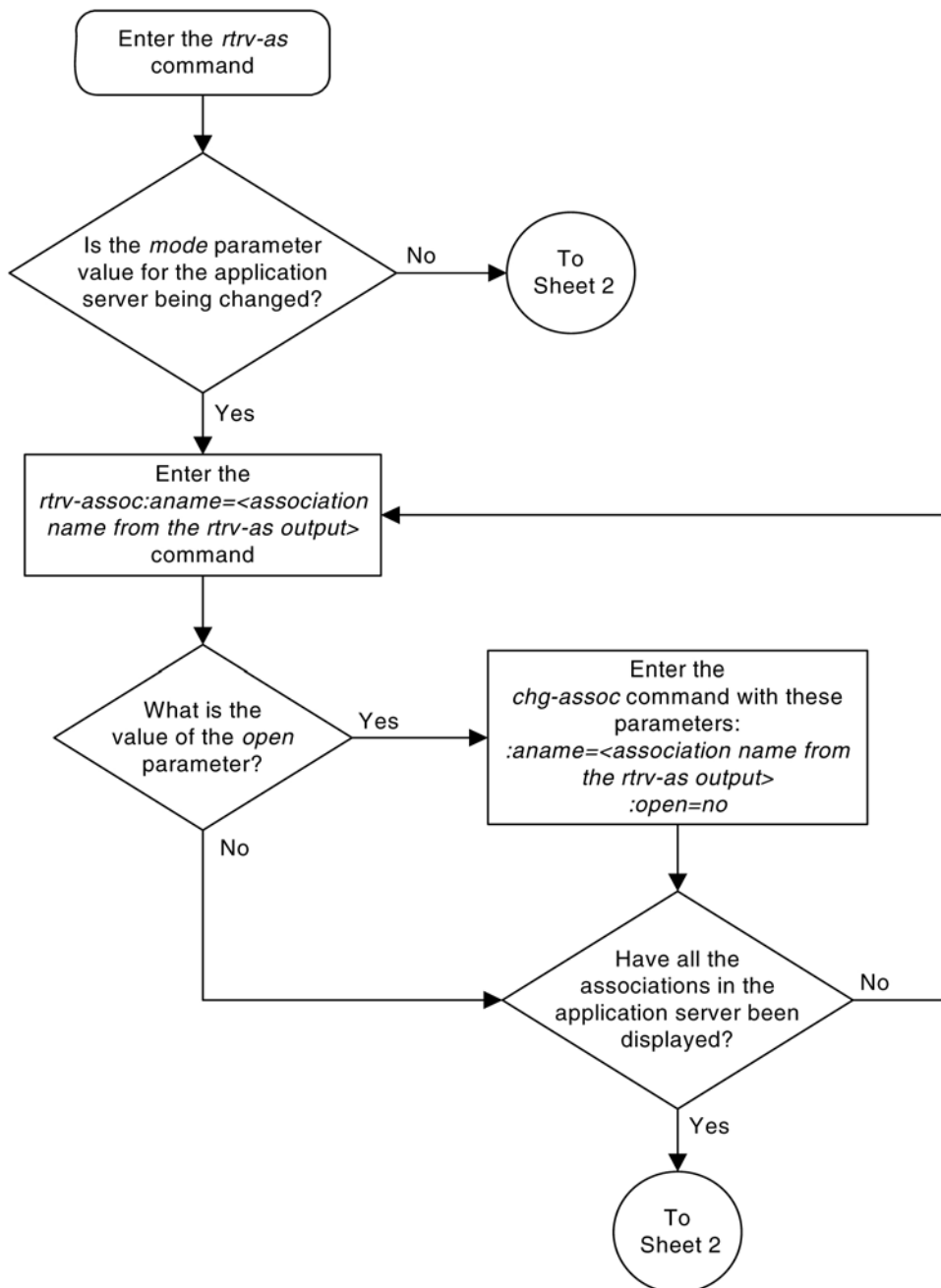
Repeat this step for all associations that were changed in [Step 3](#) .

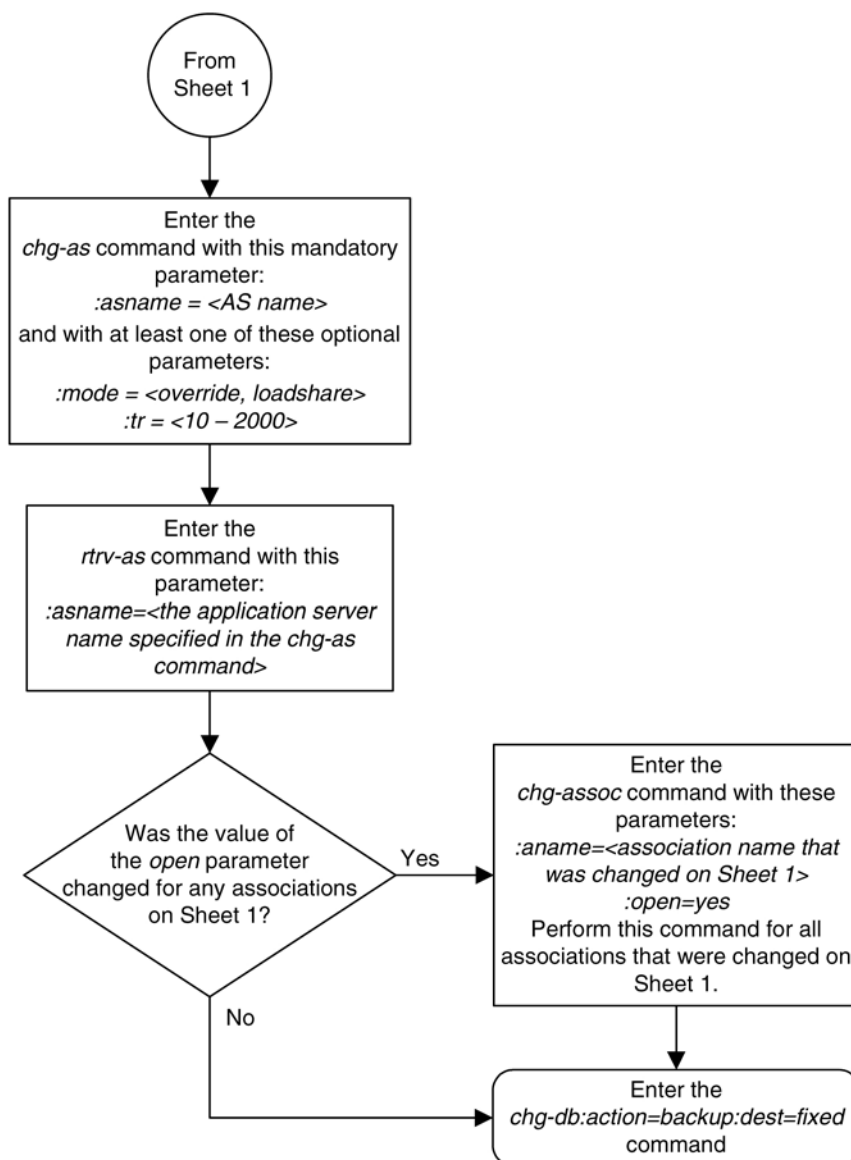
8. Back up the new changes, using the **chg-db:action=backup:dest=fixed** command.

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.
```

Flowchart 4-32. Changing an Application Server





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 **chg-appl-rtkey** 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.

NOTE: See the “Point Code Formats” section in the *Database Administration Manual - SS7* for a definition of the point code types that are used on the EAGLE 5 ISS 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 4-19](#) shows the text strings that can be used in place of numbers for the service indicator values.

Table 4-19. Service Indicator Text String Values

Service Indicator Value	Text String
4	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 **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 **chg-appl-rtkey** command to change the range of CIC values in the routing key are shown in [Table 4-20](#) .

Table 4-20. 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/dpcn24=<the DPC assigned to the routing key> ¹	dpc/dpca=<the DPC assigned to the routing key> ¹	dpci/dpcn/dpcn24=<the DPC assigned to the routing key> ¹	dpc/dpca/dpci/dpcn/dpcn24=<the DPC assigned to the routing key> ¹
si=4 ¹	si=5 ¹	si=5 ¹	si=13 ¹
opci/opcn/opcn24=<the OPC assigned to the routing key> ¹	opc/opca=<the OPC assigned to the routing key> ¹	opci/opcn/opcn24=<the OPC assigned to the routing key> ¹	opc/opca/opci/opcn/opcn24=<the OPC assigned to the routing key> ¹
cics=<the CICS value assigned to the routing key> ^{1, 2}	cics=<the CICS value assigned to the routing key> ^{1, 2}	cics=<the CICS value assigned to the routing key> ^{1, 2}	cics=<the CICS value assigned to the routing key> ^{1, 2}
cice=<the CICE value assigned to the routing key> ^{1, 2}	cice=<the CICE value assigned to the routing key> ^{1, 2}	cice=<the CICE value assigned to the routing key> ^{1, 2}	cice=<the CICE value assigned to the routing key> ^{1, 2}
type=full	type=full	type=full	type=full
ncics=<0 to 4095> ^{2, 3}	ncics=<0 to 16383> ^{2, 3}	ncics=<0 to 4095> ^{2, 3}	ncics=<0 to 4294967295> ^{2, 3}
ncice=<0 to 4095> ^{2, 3}	ncice=<0 to 16383> ^{2, 3}	ncice=<0 to 4095> ^{2, 3}	ncice=<0 to 4294967295> ^{2, 3}
rcontext=<the current routing context value assigned to the routing key> ^{4, 5}	rcontext=<the current routing context value assigned to the routing key> ^{4, 5}	rcontext=<the current routing context value assigned to the routing key> ^{4, 5}	rcontext=<the current routing context value assigned to the routing key> ^{4, 5}
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 4-19 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 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 4-21](#) .

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 4-21. 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/dpcn24=<the DPC assigned to the routing key> ¹	dpc/dpca=<the DPC assigned to the routing key> ¹	dpci/dpcn/dpcn24=<the DPC assigned to the routing key> ¹	dpc/dpca/dpci/dpcn/dpcn24=<the DPC assigned to the routing key> ¹
si=4 ¹	si=5 ¹	si=5 ¹	si=13 ¹
opci/opcn/opcn24=<the OPC assigned to the routing key> ¹	opc/opca=<the OPC assigned to the routing key> ¹	opci/opcn/opcn24=<the OPC assigned to the routing key> ¹	opc/opca/opci/opcn/opcn24=<the OPC assigned to the routing key> ¹
cics=<the CICS value assigned to the routing key> ¹	cics=<the CICS value assigned to the routing key> ¹	cics=<the CICS value assigned to the routing key> ¹	cics=<the CICS value assigned to the routing key> ¹
cice=<the CICE value assigned to the routing key> ¹	cice=<the CICE value assigned to the routing key> ¹	cice=<the CICE value assigned to the routing key> ¹	cice=<the CICE value assigned to the routing key> ¹
type=full	type=full	type=full	type=full
split=<0 to 4095> ²	split=<0 to 16383> ²	split=<0 to 4095> ²	split=<0 to 4294967295> 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 4-19 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 than 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 the *Commands Manual*.

Procedure

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	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	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

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.

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 [Step 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 [Step 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.

Changing the CIC Values in an Existing Routing Key Database Administration Manual - IP7 Secure Gateway Containing an Application Server

```
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 **chg-appl-rtkey** 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=1000:ncice=20
00
```

```
chg-appl-
rtkey:dpci=4-035-7:si=5:opci=2-007-3:cics=2000:cice=3000:ncice=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:split=50
0
```

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 [Step 3](#). The **DPC**, **SI**, **CICS**, and **CICE** parameters and values used in [Step 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 [Step 3](#). If the **ncics** or

ncice parameters were specified in [Step 3](#) , the **NCICS** or **NCICE** values specified in [Step 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 OPC          CICS      CICE
225        4-035-7      5 --- 2-007-3      2000      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

RCONTEXT  DPC          SI SSN OPC          CICS      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

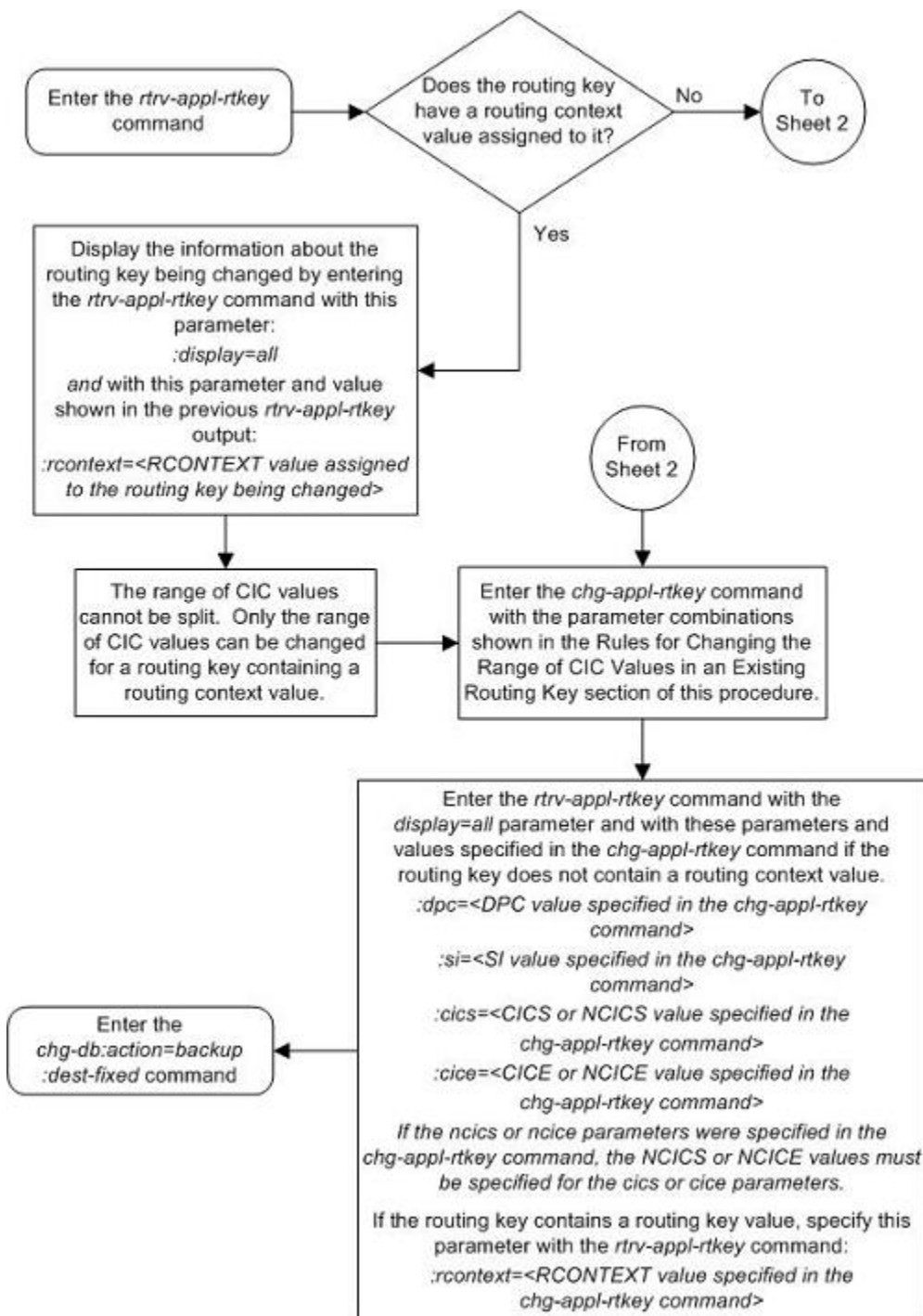
5. Back up the new changes using the **chg-db:action=backup:dest=fixed** command.

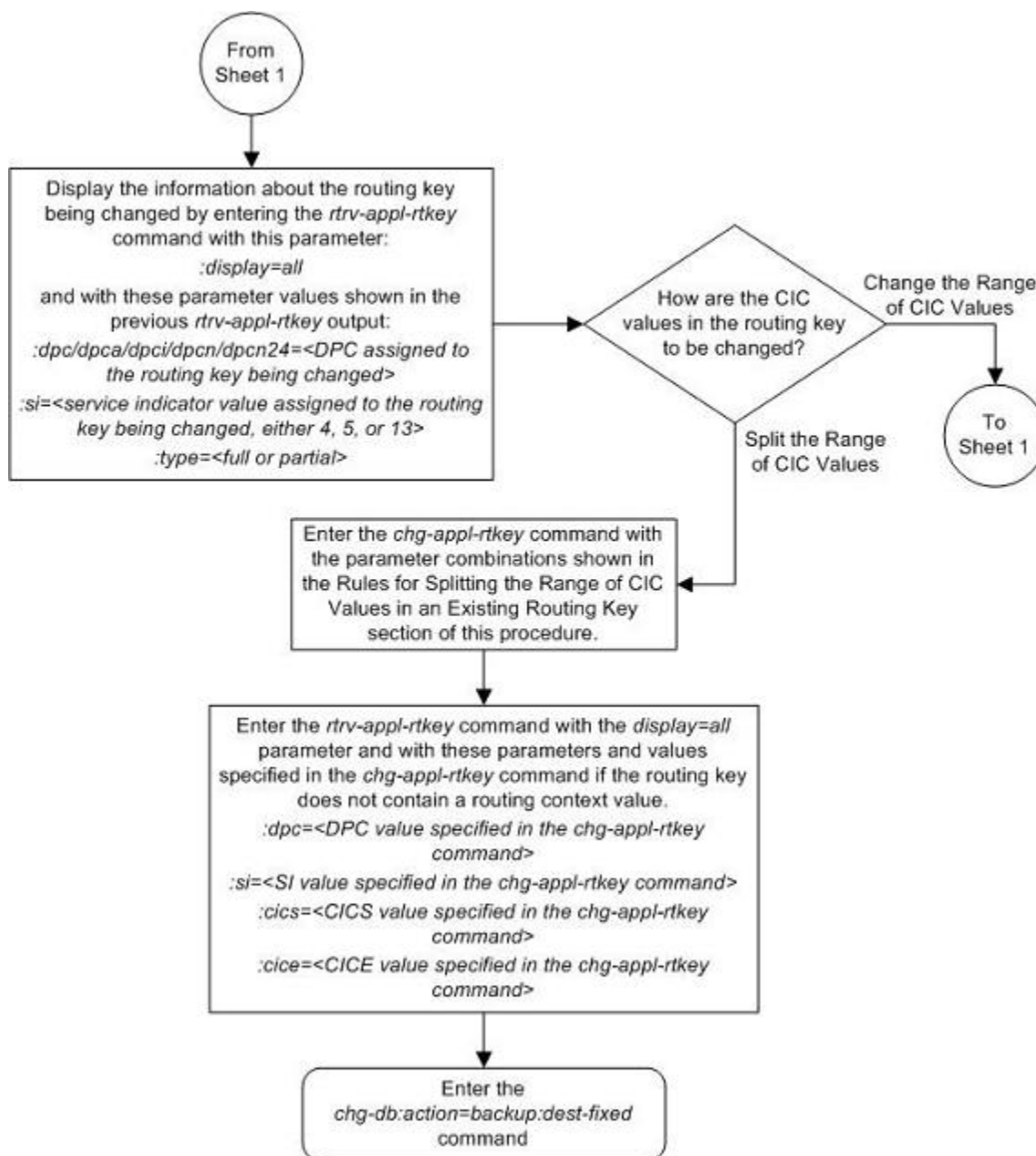
Changing the CIC Values in an Existing Routing Key Database Administration Manual - IP7 Secure Gateway Containing an Application Server

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

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

Flowchart 4-33. Changing the CIC Values in an Existing Routing Key Containing an Application Server





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 **chg-appl-rtkey** 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 4-22](#) shows the text strings that can be used in place of numbers for the service indicator values.

Table 4-22. 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.

: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-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 than 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 the *Commands Manual*.

Procedure

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.

```
r1ghncxa03w 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 [Step 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.

```
r1ghncxa03w 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 Key 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 [Step 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 [Step 3](#) .

3. Display the association displayed in the **rtrv-appl-rtkey** output in [Step 2](#) , using the **rtrv-
assoc** command with the association name shown in [Step 2](#) .

**rtrv-
assoc : aname=assoc1**

This is an example of possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
ANAME assoc1
  LOC      1203      IPLNK PORT  A      LINK  A
  ADAPTER  SUA      VER      SUA RFC
  LHOST    gw105.nc.tekelec.com
  ALHOST    ---
  RHOST    gw100.nc.tekelec.com
  LPORT    1030      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

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 [Step 2](#) .

NOTE: If the open parameter value for all the associations assigned to the application server is no (shown in [Step 3](#)), continue the procedure with [Step 5](#) .

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 to **no**.

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-appl-rtkey** 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 [Step 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: If [Step 4](#) was not performed in this procedure, continue the procedure with [Step 8](#) .

7. Change the value of the **open** parameter of the associations that were changed in [Step 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.

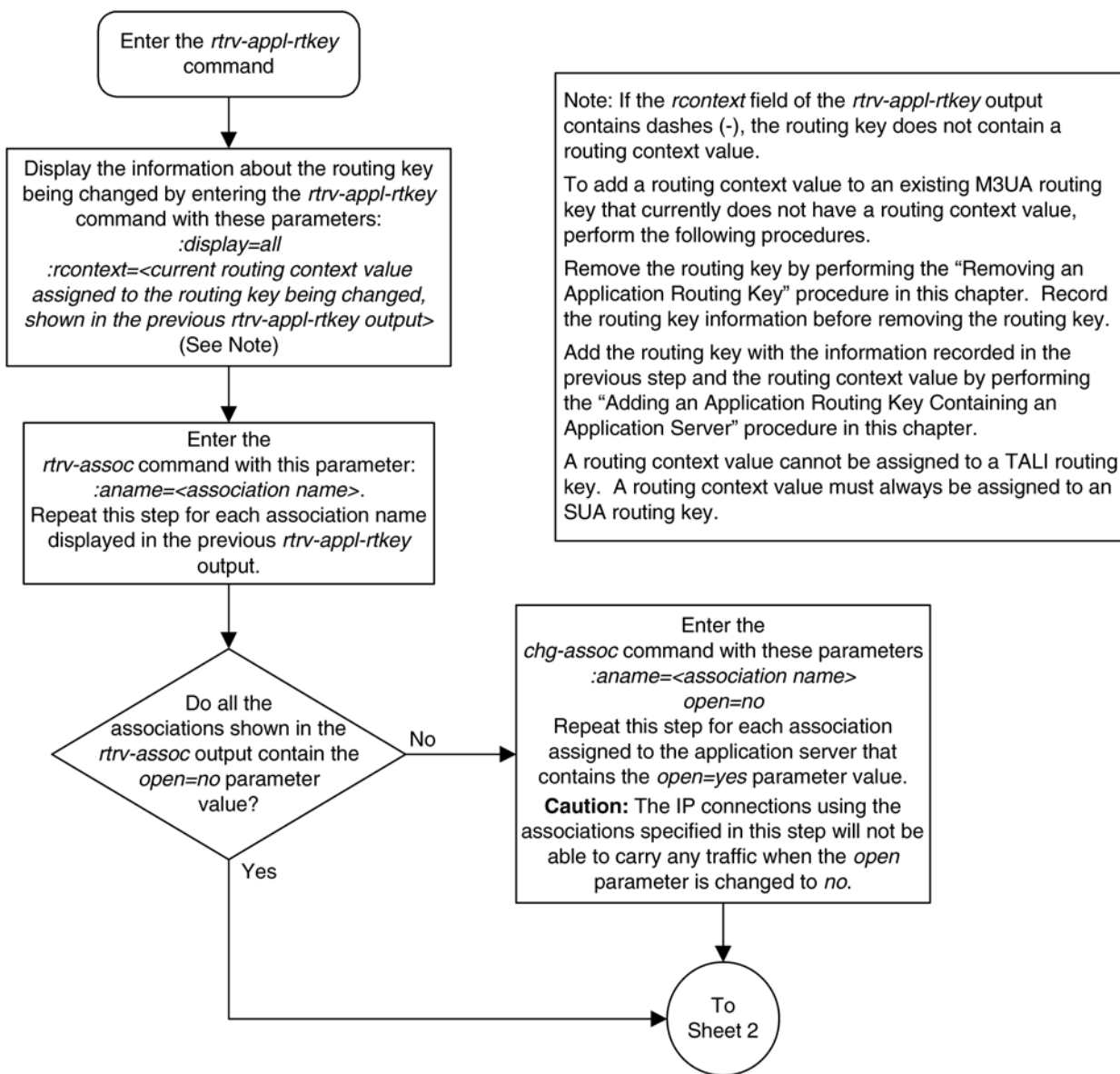
```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
CHG-ASSOC: MASP A - COMPLTD;
```

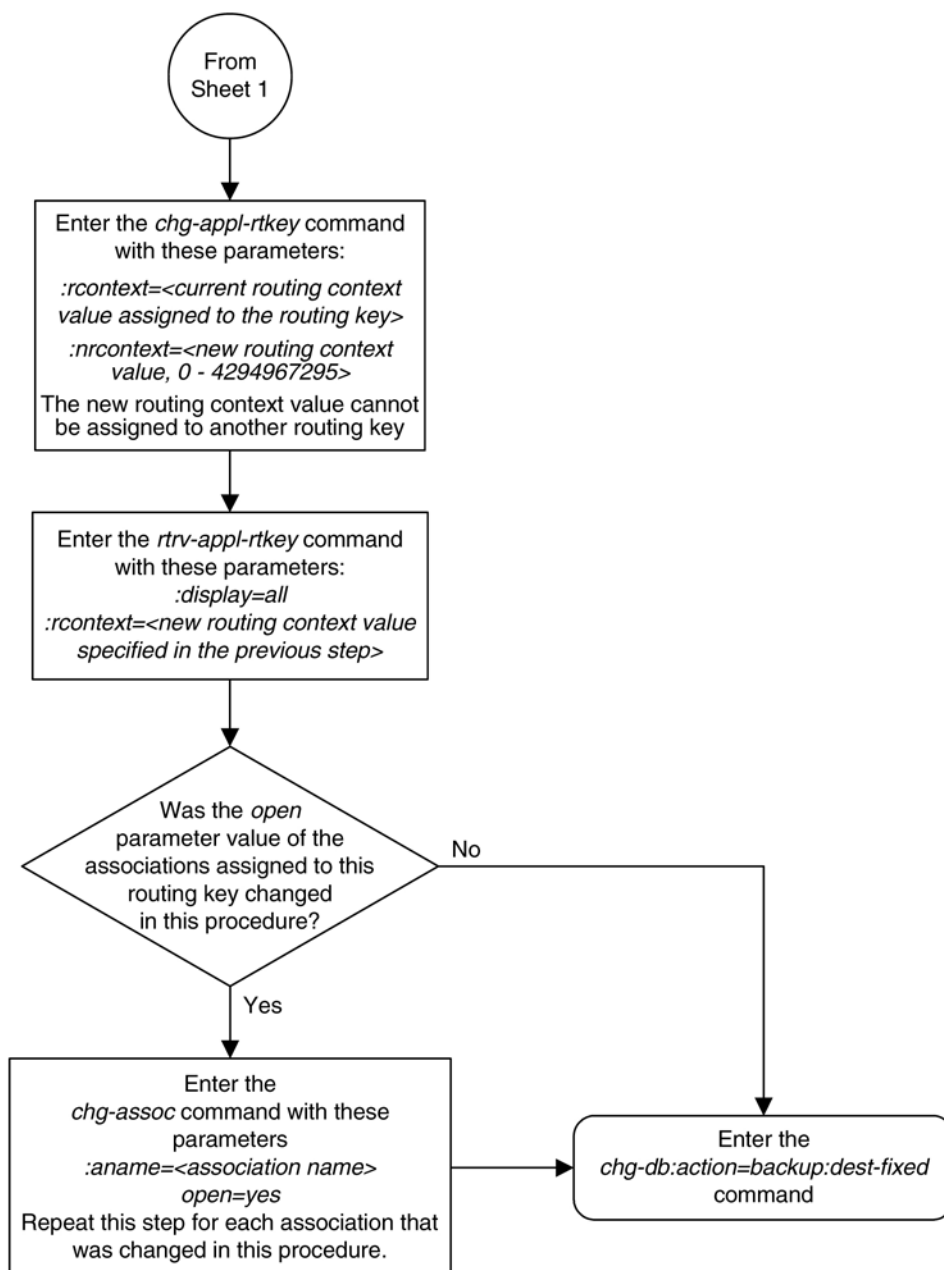
Repeat this step for all the associations that were changed in [Step 4](#) .

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.
```

Flowchart 4-34. Changing the Routing Context Value in an Existing Routing Key





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 **sctpchecksum** 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 **sctpsum** 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 **sctpsum** 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 than 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 the *Commands Manual*.

Procedure

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
```

NOTE: 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 the *Commands Manual*.

2. Display the cards in the EAGLE 5 ISS by entering the **rtrv-card** command. This is an example of the possible output.

```
rlghncxa03w 06-10-15 16:34:56 GMT EAGLE5 36.0.0
CARD  TYPE      APPL      LSET NAME      LINK SLC      LSET NAME      LINK SLC
1101   TSM        SCCP
1102   TSM        GLS
1104   ACMENET    STPLAN
1113   GSPM        EOAM
```

```

1114 TDM-A
1115 GSPM      EOAM
1116 TDM-B
1117 MDAL
1201 LIMDS0   SS7ANSI   lsn1      A      0      lsn2      B      1
1202 DCM      IPLIM     ipnode2   A      1
1203 LIMV35   SS7ANSI   lsn2      A      0      lsn1      B      1
1204 LIMATM   ATMANSI   atmgyw    A      0
1205 DCM      IPLIM     ipnode1   A      0      ipnode3   B      1
1207 DCM      IPLIM     ipnode2   A      0
1303 DCM      IPLIM     ipnode3   A      0      ipnode1   B      1
1305 DCM      IPLIM     ipnode4   A      0
1308 DCM      IPLIM     ipnode3   B      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 5 ISS.
4. At the EAGLE 5 ISS, enter the **msucount -l** pass command with the card location of the IP card selected in [Step 3](#) . For this example, enter this command.

pass: loc=1315:cmd="msucount -l"

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	

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.

```

rlghncxa03w 06-10-28 21:17:37 GMT EAGLE5 36.0.0
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      NO    NO
1205  B      -----    -----    HALF    10     DIX      NO    NO
1207  A      192.1.1.14  255.255.255.0  HALF    10     DIX      NO    NO
1207  B      -----    -----    HALF    10     DIX      NO    NO
1303  A      192.1.1.20  255.255.255.0  HALF    10     DIX      NO    NO
1303  B      -----    -----    HALF    10     DIX      NO    NO
1305  A      192.1.1.22  255.255.255.0  HALF    10     DIX      NO    NO
1305  B      -----    -----    HALF    10     DIX      NO    NO
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 NO NO
1315 B ----- HALF 10 DIX NO NO
1317 A 192.1.1.52 255.255.255.0 HALF 10 DIX NO NO
1317 B ----- HALF 10 DIX NO NO

```

IP-LNK table is (16 of 512) 3% full.

6. Display the current IP host information in the database by entering the **rtrv-ip-host** command. The following is an example of the possible output.

```

rlghncxa03w 06-10-28 21:17:37 GMT EAGLE5 36.0.0
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-MS1
192.1.1.52 DN-MS2
REMOTE IPADDR REMOTE HOST
150.1.1.5 NCDEPTECONOMIC_DEVELOPMENT. SOUTHEASTERN_COORIDOR_ASHVL. GOV

```

IP Host table is (10 of 512) 2% full

7. Display the associations assigned to the IP card specified in [Step 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-link** 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 [Step 4](#)) is DN-MS1. Enter this command.

rtrv-assoc: lhost=dn-msc1

The following is an example of the possible output.

```

rlghncxa03w 06-10-28 21:17:37 GMT EAGLE5 36.0.0
CARD IPLNK
ANAME LOC PORT LINK ADAPTER LPORT RPORT OPEN ALW
assoc3 1315 A A SUA 2345 1025 YES YES
assoc6 1315 A A SUA 4156 1025 YES YES

```

IP Appl Sock/Assoc table is (9 of 4000) 1% full

Assoc Buffer Space Used (32 KB of 3200 KB) on LOC = 1315

8. At the EAGLE 5 ISS, enter the **msucount -a** pass command with the card location specified in [Step 4](#) and the association names shown in [Step 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
-----

```

Database Administration Manual - IP7 Secure Gateway Changing the SCTP Checksum Algorithm Option for M3UA and SUA Associations

```

Receive Counts
-----
msus          bytes
-----
4294967295    4294967295
Receive Discard Counts
-----
reason        count
-----
link state    4294967295
sccp msg type 4294967295
sccp class    4294967295
sccp called party 4294967295
sccp calling party 4294967295
isup sio      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

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
-----
msus          bytes
-----
4294967295    4294967295
Receive Discard Counts
-----
reason        count
-----
link state    4294967295
sccp msg type 4294967295
sccp class    4294967295
sccp called party 4294967295
sccp calling party 4294967295
isup sio      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
-----
Transmit Counts
-----
msus          bytes
-----
4294967295    4294967295
Transmit Discard Counts
-----
reason        count
-----
sccp msg type 4294967295
sccp class    4294967295
normalization error 4294967295
invalid traffic type 4294967295
M3UA conversion error 4294967295
SUA conversion error 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

9. At the IP near end node, disconnect all the associations attached to the IP card specified in [Step 8](#) .
10. At the EAGLE 5 ISS, 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 **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 [Step 12](#) .
- If the **sctpcsum** parameter value was changed to **perc card**, 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 [Step 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
```

NOTE: 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 the Commands Manual.

13. Change the value of the **open** parameter of the associations shown in [Step 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 [Step 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 [Step 14](#) by entering the **sctp -a** pass command with the card location of the IP card specified in [Step 10](#) and the name of the associations specified in [Step 14](#) . For this example, enter this command.

pass:loc=1315:cmd="sctp -a assoc3 "

The following is an example of the possible output.

```
rlghncxa03w 08-04-28 21:16:37 GMT EAGLE5 38.0.0
Aname      Local      Local      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 = 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
sssthresh   16384                               RTO  120

IP Address  192.168.112.5    State  Reachable
Port        7777                   Primary NO
MTU         1500                               cwnd 16384
sssthresh   16384                               RTO  120
```

```
Last Net Sent To = 192.168.112.4
Last Net Rcvd From = 192.168.112.4
Over All Error 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
```

Changing the SCTP Checksum Algorithm Option for Database Administration Manual - IP7 Secure Gateway M3UA and SUA Associations

```

        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
;

    rlgncxa03w 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.

```

    rlgncxa03w 08-04-28 21:16:37 GMT EAGLE5 38.0.0
    Aname          Local          Local Primary      Remote
                   IP Address      Port   Address      Port
    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

```

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 Rcvd From = 192.168.112.4
    Over All Error 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 [Step 11](#) , contact the Customer Care Center. Refer to [Customer Care Center](#) for the contact information.

If the checksum algorithm shown in all of the associations displayed in this step match the checksum algorithm specified in [Step 11](#) , continue the procedure with [Step 16](#) .

16. At the IP near end node, configure all the associations attached to the IP card specified in [Step 14](#) to use the SCTP checksum algorithm.
17. Put the signaling link that was placed out of service in [Step 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 [Step 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 [Step 13](#).
20. At the EAGLE 5 ISS, enter the **rept-stat-assoc** command specifying the association names specified with the **chg-assoc** command in [Step 13](#) and [Step 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

          CARD IPLNK
ANAME     LOC  PORT  LINK  PST          SST          ASPID
as1       1315 A     A     IS-NR        ESTABLISHED  4294967295

ASNAME     ANAME          ASP-STATE
assoc3     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     ANAME          ASP-STATE
assoc6     as6           ASP-ACTIVE
```

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
  sacks sent..... 496302
  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
  duplicate tsns received..... 0
  sacks received..... 153763
  gap ack blocks received..... 0
  out of the blue..... 4
  with invalid checksum..... 0
connections established..... 2954
  by upper layer..... 0
  by remote endpoint..... 2958
```

```

connections terminated..... 4
    ungracefully..... 2952
    gracefully..... 0
associations dropped due to retransmits..... 0
consecutive retransmit timeouts..... 4
retransmit timer count..... 6
fast retransmit count..... 0
heartbeat requests received..... 330275
heartbeat acks received..... 340239
heartbeat requests sent..... 340258
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 [Customer Care Center](#) for the contact information.

22. At the IP near end node, connect all the other associations attached to the IP card specified in [Step 21](#).
23. At the IP near end node, activate one of the associations attached to the IP card specified in [Step 21](#).
24. At the EAGLE 5 ISS, enter the **msucount -l** pass command with the card location of the IP card specified in [Step 21](#). For this example, enter this command.

pass: loc=1315:cmd="msucount -l"

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

END of Report

25. At the EAGLE 5 ISS, enter the **msucount -a** pass command with the card location specified in [Step 24](#) and the association names specified in [Step 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
```

Changing the SCTP Checksum Algorithm Option for Database Administration Manual - IP7 Secure Gateway M3UA and SUA Associations

```
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	
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		
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
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	
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
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

```

If the outputs of the pass commands in [Step 24](#) and [Step 25](#) show that traffic is not flowing over the association, contact the Customer Care Center. Refer to [Customer Care Center](#) for the contact information.

26. At the IP near end node, activate all the other associations attached to the IP card specified in [Step 25](#).
27. Repeat [Step 3](#) through [Step 26](#) to update the other IP cards in the EAGLE 5 ISS running the SS7IPGW and IPGWI applications with the new SCTP checksum algorithm.
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.

```

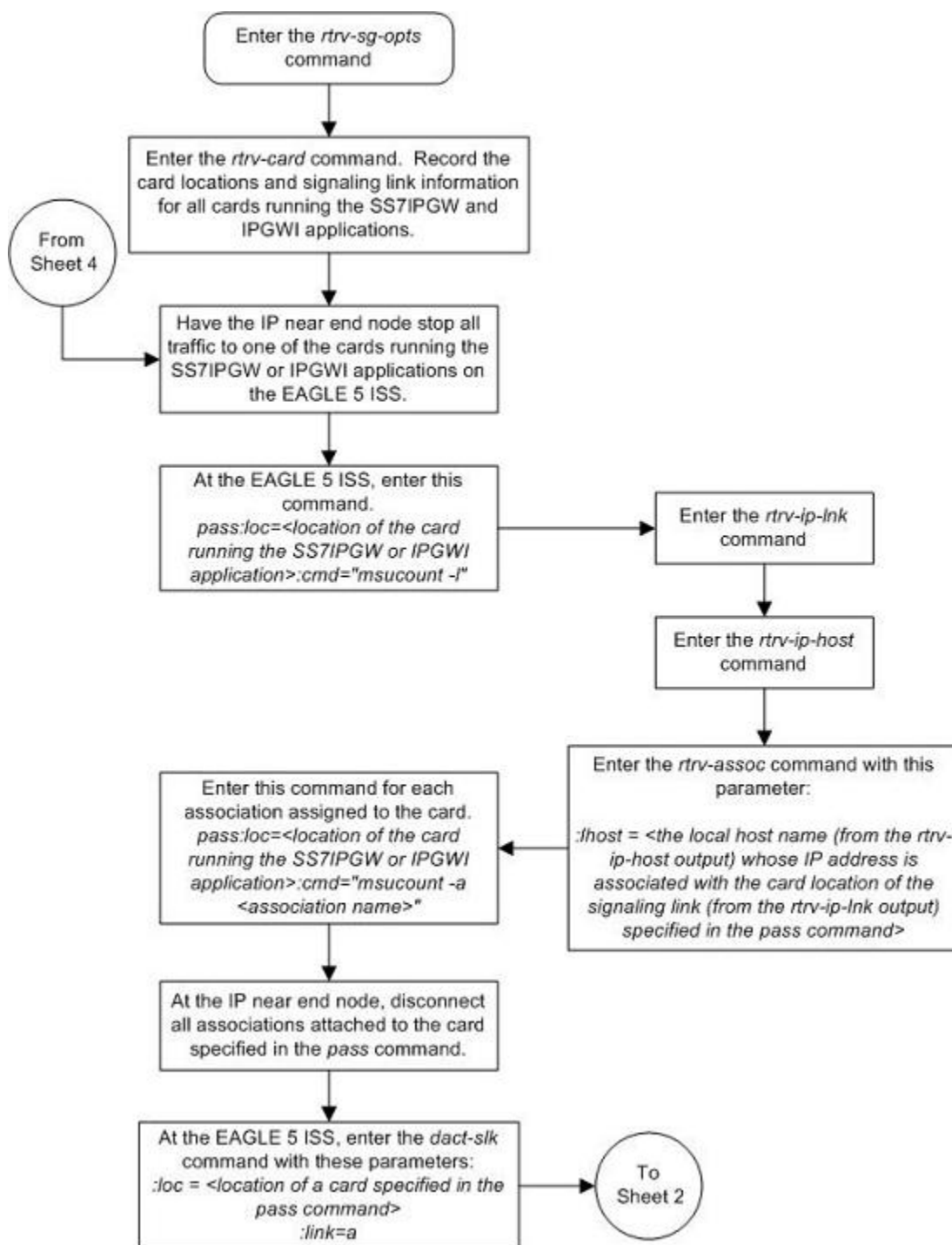
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.

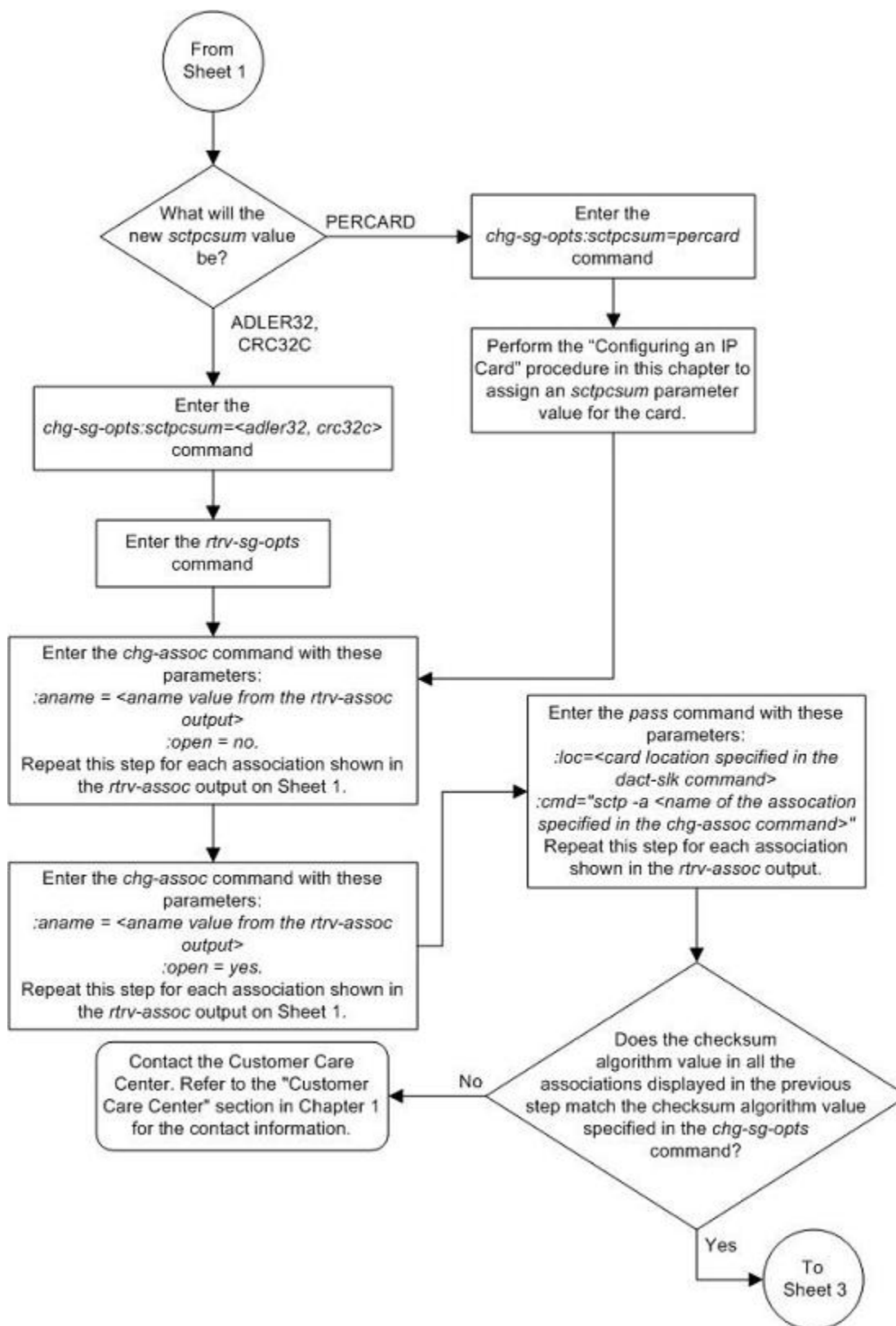
```

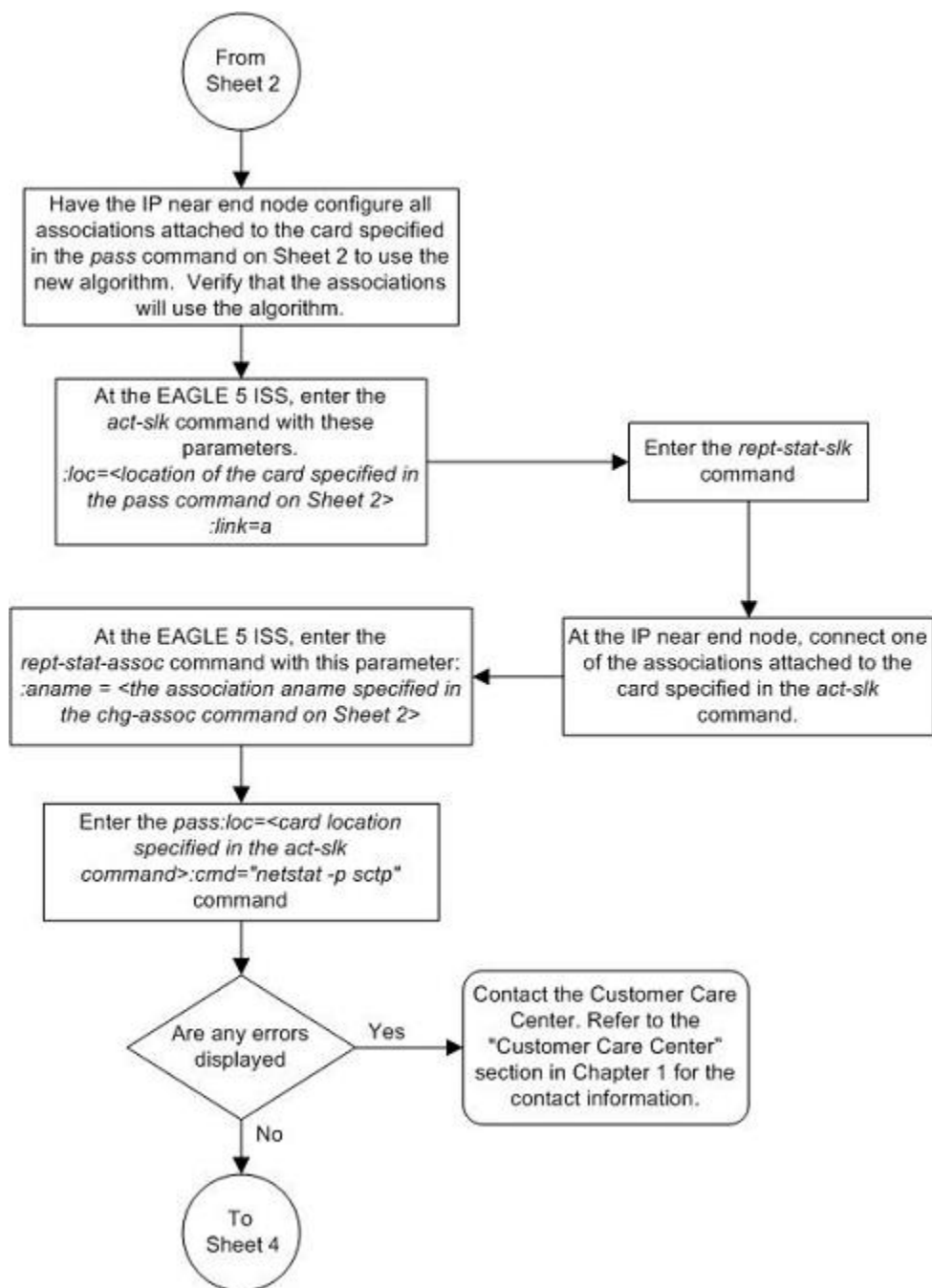
29. If the **rtrv-card** output in [Step 2](#) shows cards running the IPLIM or IPLIMI applications, perform the [Changing the SCTP Checksum Algorithm Option for M2PA Associations](#) procedure.
- If the **rtrv-card** output in [Step 2](#) shows cards running the IPSP application, perform these procedures.
- [Changing the SCTP Checksum Algorithm Option for IPSP M3UA Associations](#)
 - [Changing the SCTP Checksum Algorithm Option for IPSP M2PA Associations](#)

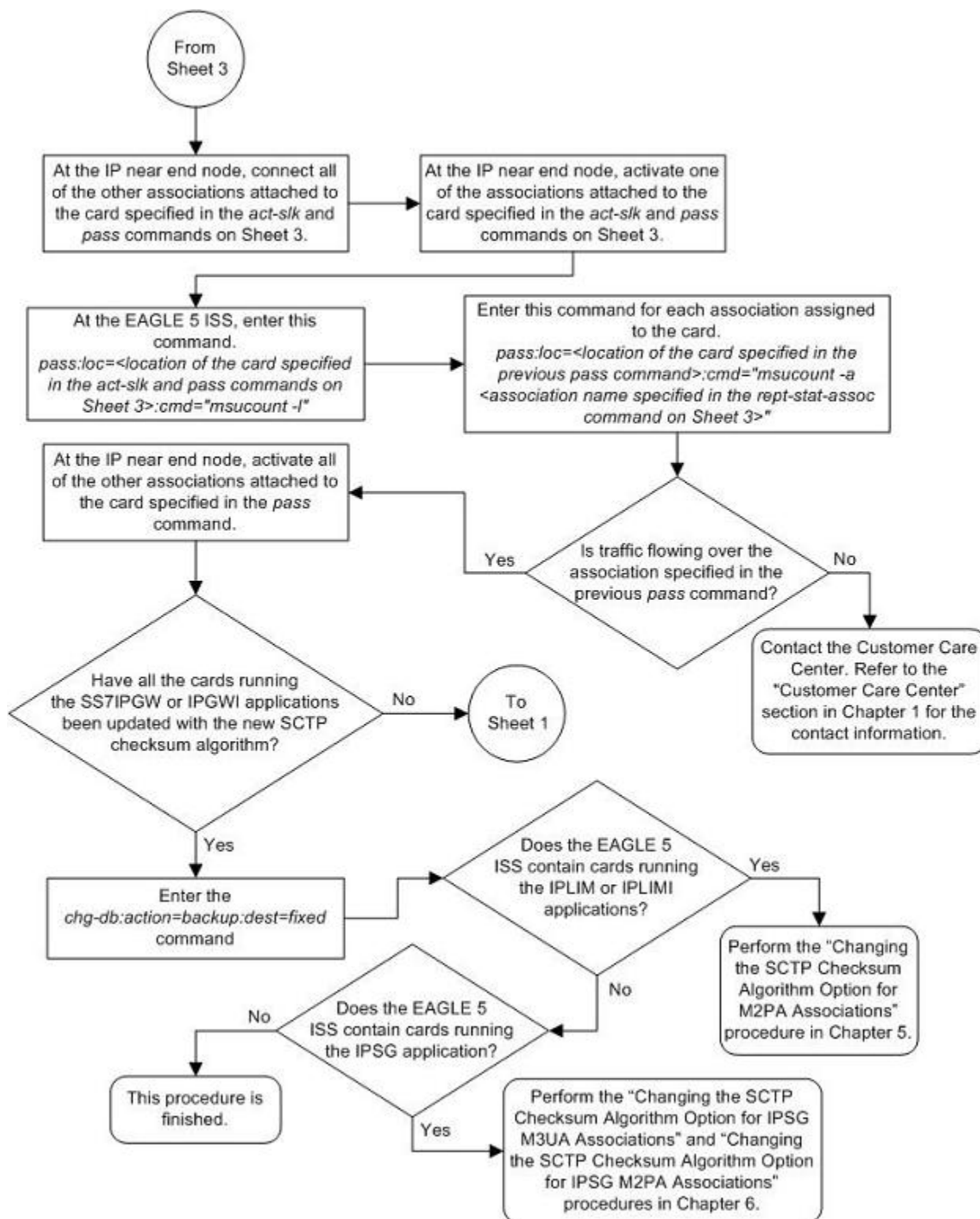
If the **rtrv-card** output in [Step 2](#) shows that there are no cards running the IPLIM, IPLIMI, or IPSP applications, this procedure is finished.

Flowchart 4-35. Changing the SCTP Checksum Algorithm Option for M3UA and SUA Associations









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 5 ISS 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 two UA parameters are defined:

- 1 – Controlling ASP SNM Behavior
- 2 – Controlling ASP/Application Server State Notification Behavior
- 3 – UA Serviceability Options

: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 enable 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 SNM TFPs, TFRs and TFAs that are sent when a destination's status changes. If this flag is set, SNM TFPs/TFRs/TFAs are replicated to all associations 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 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 4-23](#) 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 4-23. 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 4-24](#) .

- 2 – ASP AS State Query – controls the sending of ASP/AS State notifications on request by an ASP. If this value is specified, the EAGLE 5 ISS 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 4-24 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 4-24. Valid PVALUE Parameter Values if PARM=2

Bits Enabled	Bits Disabled	Hexadecimal 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 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
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, only bit 0 (UA heartbeats) is the only bit used by the **pvalue** parameter. If the value of this bit is 1 (h'1), heartbeat messages are transmitted in the ASP-Down, ASP-Active, and ASP-Inactive states on connections from the Eagle 5 ISS to the far-end node. If the value of this bit is 0, the heartbeat messages are not transmitted.

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 than 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 the *Commands Manual*.

Procedure

1. Display the values in the UA parameter set being changed by entering the **rtrv-uaps** 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.

```
rlghncxa03w 08-04-28 09:12:36 GMT EAGLE5 38.0.0
SET  TIMER      TVALUE  PARM      PVALUE
3    1           0       1           3
3    2          5000     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 IPSP application.

TVALUE : Valid range = 32-bits

TIMER 3: UA HeartBeat Period Timer T(beat), time (ms) between sending of BEAT msgs by NE. IPSP, 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. IPSP, 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 IPSP application.

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 IPSP 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 IPSP, SS7IPGW, and IPGWI applications.

BIT	BIT VALUE
0=UA Heartbeats	0=Disabled , 1=Enabled
1-31=Reserved	

If the new values of the UA parameter set are being copied from another UA parameter set, continue the procedure with [Step 2](#) .

If the new values of the UA parameter set are not being copied from another UA parameter set, continue the procedure with [Step 3](#) .

2. Display the values in the UA parameter set that will be copied to the UA parameter set displayed in [Step 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 08-04-28 09:12:36 GMT EAGLE5 38.0.0

SET	TIMER	TVALUE	PARM	PVALUE
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 IPSP application.

TVALUE : Valid range = 32-bits

TIMER 3: UA HeartBeat Period Timer T(beat), time (ms) between sending of BEAT msgs by NE. IPSP, 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. IPSP, 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 IPSP application.

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 IPSP 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 IPGWl applications.

BIT	BIT VALUE
0=UA Heartbeats	0=Disabled , 1=Enabled
1-31=Reserved	

3. Change the UA parameter set values using the **chg-uaps** command with the UA parameter set value used in [Step 1](#) . If the **parm** and **pvalue** parameters are being specified, see [Table 4-23](#) , [Table 4-24](#) , or the description of the **parm=3** parameter for the valid values of the **pvalue** parameter. For this example, enter this command.

chg-uaps:set=3:timer=2:tvalue=2000:parm=2:pvalue=1

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-uups** command being entered as a decimal value. To specify the value of the **pvalue** parameter in the example used in this step as a hexadecimal value, specify the **pvalue=h'1** parameter.

```
chg-uaps:set=3:timer=2:tvalue=2000:parm=2:pvalue=h'1
```

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 [Step 3](#) . For this example, enter this command.

```
rtrv-uaps:set=3
```

This is an example of possible output.

SET	TIMER	TVALUE	PARAM	PVALUE
3	1	0	1	3
3	2	2000	2	1
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.
         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                                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.
         BIT                                BIT VALUE
         0=UA Heartbeats                    0=Disabled , 1=Enabled
         1-31=Reserved

```

If [Step 2](#) was performed, for this example, enter this command.

```
rtrv-uaps:set=5
```

This is an example of possible output.

```

rlghncxa03w 08-04-28 09:12:36 GMT EAGLE5 38.0.0
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(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.

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	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	

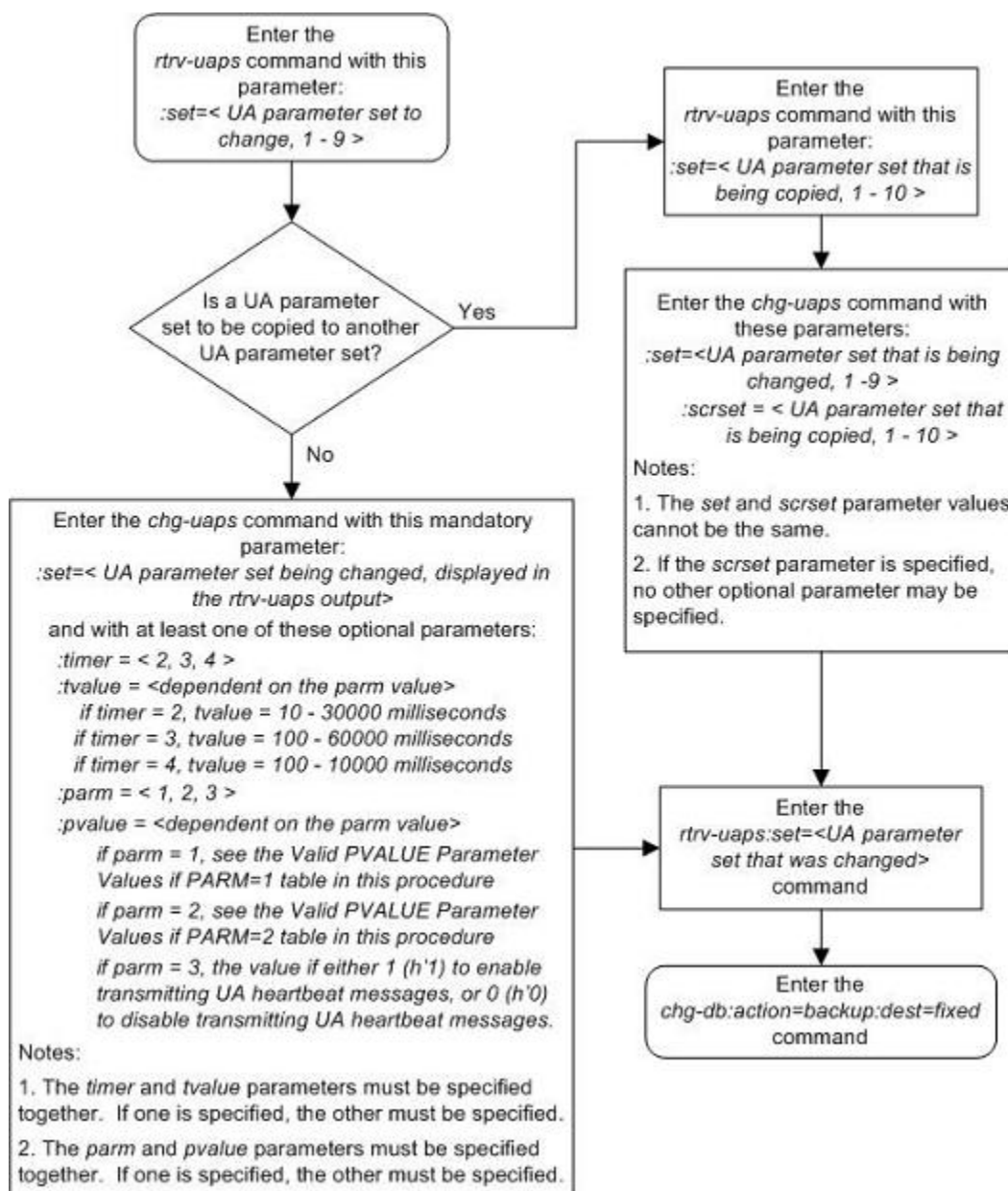
PARM 3: UA Serviceability Options. Each bit is used as an enabled/disabled flag for a particular UA Serviceability option. Supported on IPSG, SS7IPGW, and IPGWI applications.

BIT	BIT VALUE
0=UA Heartbeats	0=Disabled , 1=Enabled
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.
```

Flowchart 4-36. Changing a UA Parameter Set



Turning the Large BICC MSU Support for IP Signaling Feature Off

This procedure is used to turn off the Large BICC (Bearer Independent Call Control) 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 BICC MSU Support for IP Signaling feature, 893018401.

:status=off – used to turn off the Large BICC MSU Support for IP Signaling feature.

The status of the Large BICC MSU Support for IP Signaling controlled feature must be on and is shown with the **rtrv-ctrl-feat** command.



CAUTION: If the Large BICC MSU Support for IP Signaling feature is turned off, the EAGLE 5 ISS will not process BICC messages with a signaling information field (SIF) that is larger than 272 bytes.

Procedure

1. Display the status of the Large BICC 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 06-10-28 21:15:37 GMT EAGLE5 36.0.0
The following features have been permanently enabled:
```

Feature Name	Partnum	Status	Quantity
Large BICC 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 BICC MSU Support for IP Signaling feature is off, or if the Large BICC MSU Support for IP Signaling feature is not enabled, this procedure cannot be performed.

2. Turn off the Large BICC 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 BICC 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 06-10-28 21:15:37 GMT EAGLE5 36.0.0
The following features have been permanently enabled:
```

Feature Name	Partnum	Status	Quantity
Large BICC 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:

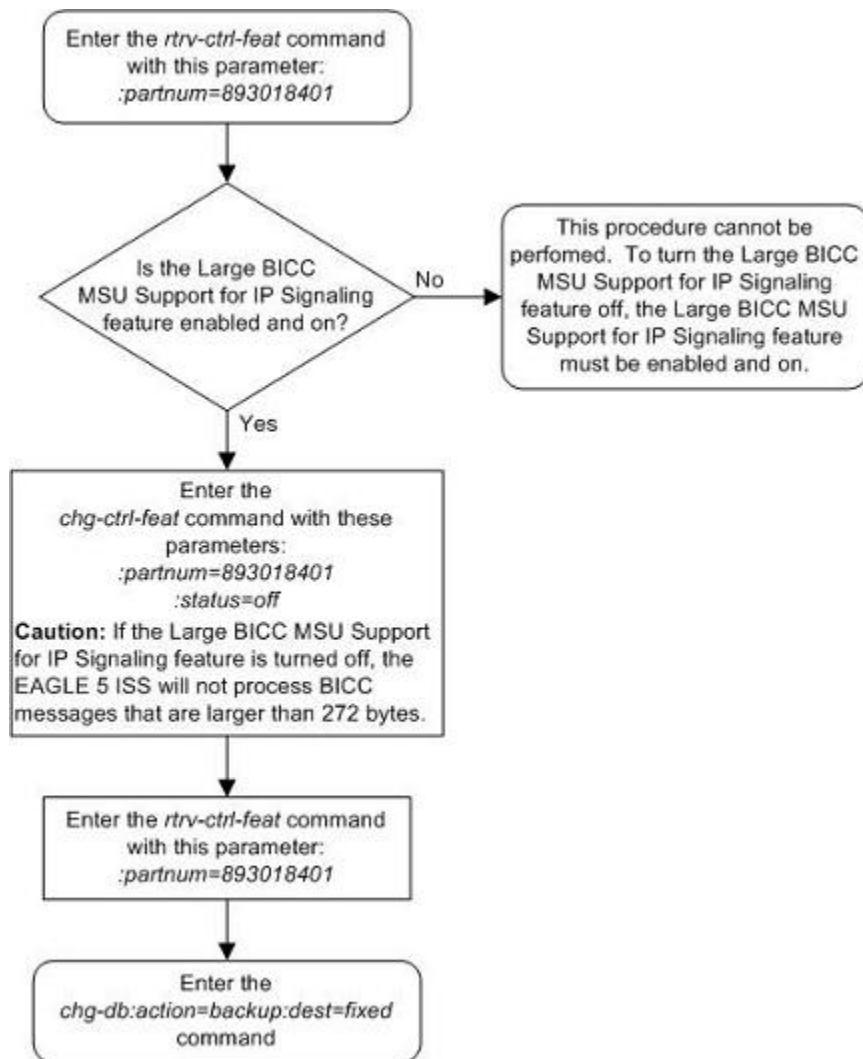
Feature Name	Partnum
Zero entries found.	

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.

Turning the Large BICC MSU Support for IP Signaling Database Administration Manual - IP7 Secure Gateway Feature Off

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

Flowchart 4-37. Turning the Large BICC MSU Support for IP Signaling Feature Off



End Office Support

Overview	5-1
Internal Point Code	5-2
New Installation of VXI Behind a EAGLE 5 ISS with End Office Support	5-4
One Node Migrates from PSTN to IP	5-4
A Signaling End Point is Added to a Deployed EAGLE 5 ISS Using End Office	5-5
Two Signaling End Points Move from PSTN to IP Using End Office	5-6
The EAGLE 5 ISS Simultaneously Acts as STP and End Office	5-7
The EAGLE 5 ISS Supports Multiple Network Types and Multiple Hosts as an End Node	5-8
Mated Pair Supports Two End Office Nodes	5-9
End Office Support Configuration	5-10
Adding an End Node Internal Point Code	5-11
Removing an End Node Internal Point Code	5-15

Overview

End Office Support enables the EAGLE 5 ISS 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 5 ISS shares a point code for up to three network types with attached IP network elements.

The EAGLE 5 ISS 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 5 ISS 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 5 ISS and an IP end office node.

Characteristics of this feature include:

- The EAGLE 5 ISS allows a set of IP network elements to share its true point code.
- The EAGLE 5 ISS allows messages destined to its true point code and having SI $\geq$ 3 to be forwarded to an IP network element.
- The EAGLE 5 ISS enables IP networks elements sharing its true point code to participate in network management.
- The EAGLE 5 ISS supports ANSI, ITU national and international end office nodes.

- The EAGLE 5 ISS implements the MTP procedures required for an end office node.
- The End Office Support feature does not reduce the rated TPS of any EAGLE 5 ISS 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 user-part 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 UPU's may be forwarded, even though SI=0 cannot be assigned to a remote application. All other SNMs are processed as destined to the EAGLE 5 ISS rather than the end office node. This often results in a multicast throughout the EAGLE 5 ISS 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 5 ISS.

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 5 ISS, not the end office node, should be sent to the EAGLE 5 ISS'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 5 ISS, and if SSN=1 has a remote application assigned, the MSU is also replicated and forwarded to the end office node.
- Received SCCP 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 5 ISS. If the end office node assigns a given subsystem, such as LNP, then the subsystem local to the EAGLE 5 ISS 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 5 ISS, 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 5 ISS in order to route inbound messages to the outbound IPGWx card. The EAGLE 5 ISS 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

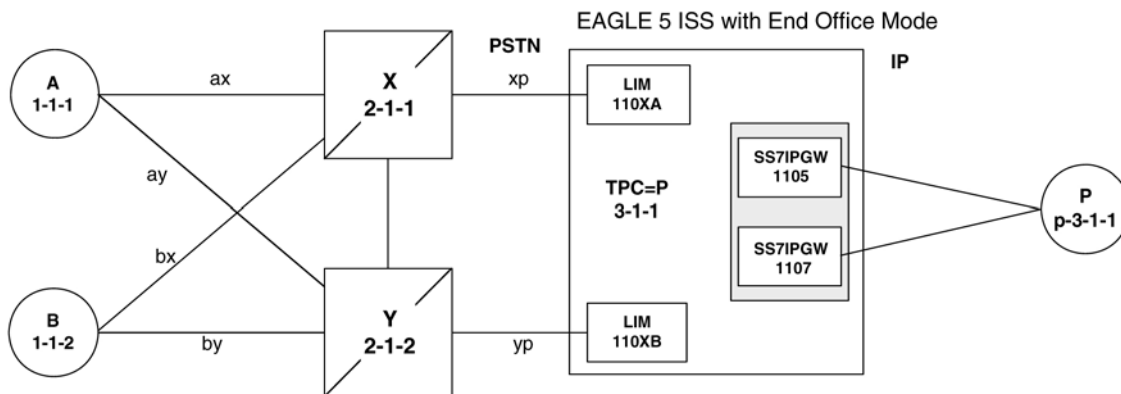
IPC	Assigned to End Office Node	Assigned SSNs	Network Type	User-Part (SI)	Action taken when MSU is received for the TPC
p-0-1-0	FALSE	n/a	ANSI	0	No application can be assigned for SI=0. Note that TFCs are processed, replicated and sent to an end office node, if an application is assigned to any other 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 5 ISS (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.

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 5 ISS with End Office Support

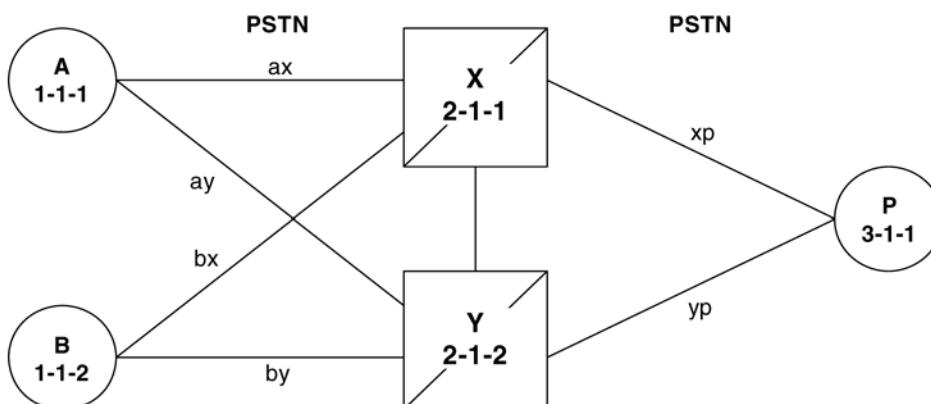
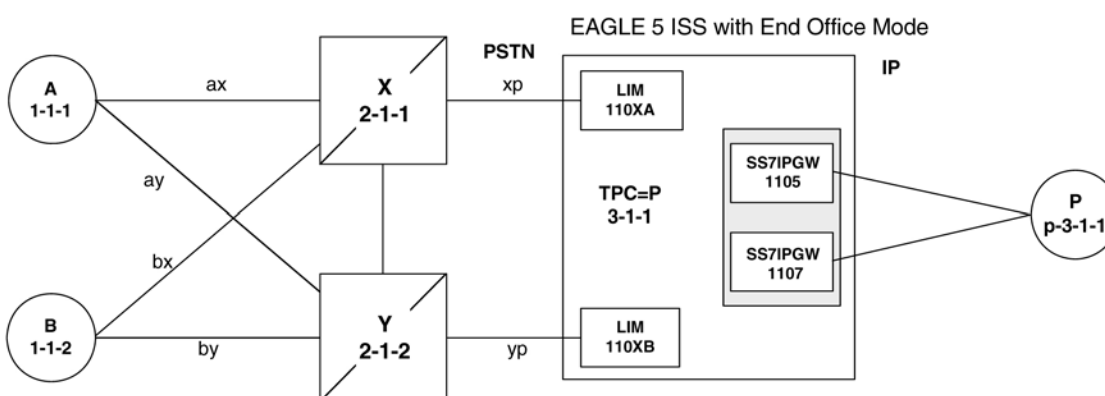
[Figure 5-1](#) depicts a network in which a VXI node is deployed behind a EAGLE 5 ISS with End Office Support. Note that the VXI node resides in the IP network and shares the EAGLE 5 ISS's true point code. The PSTN views the EAGLE 5 ISS and VXI as one network element (one point code).

Figure 5-1. An EAGLE 5 ISS with End Office Support and VXI Node



One Node Migrates from PSTN to IP

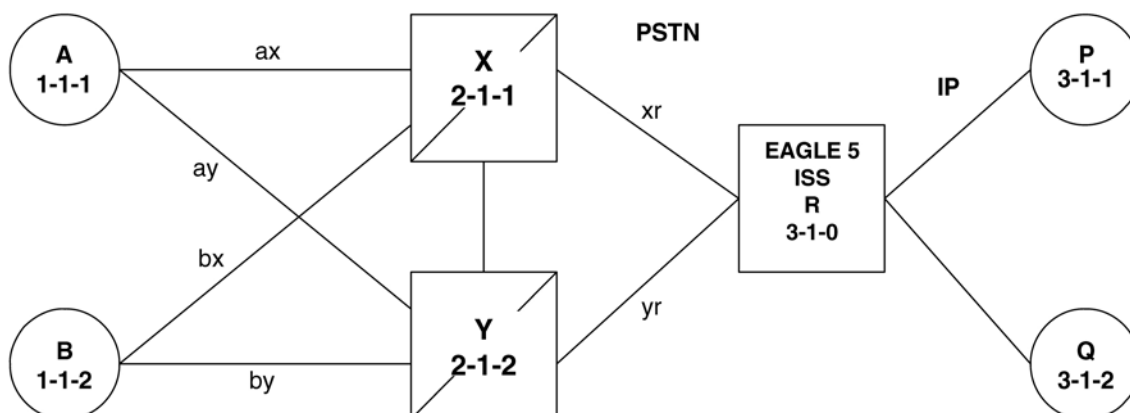
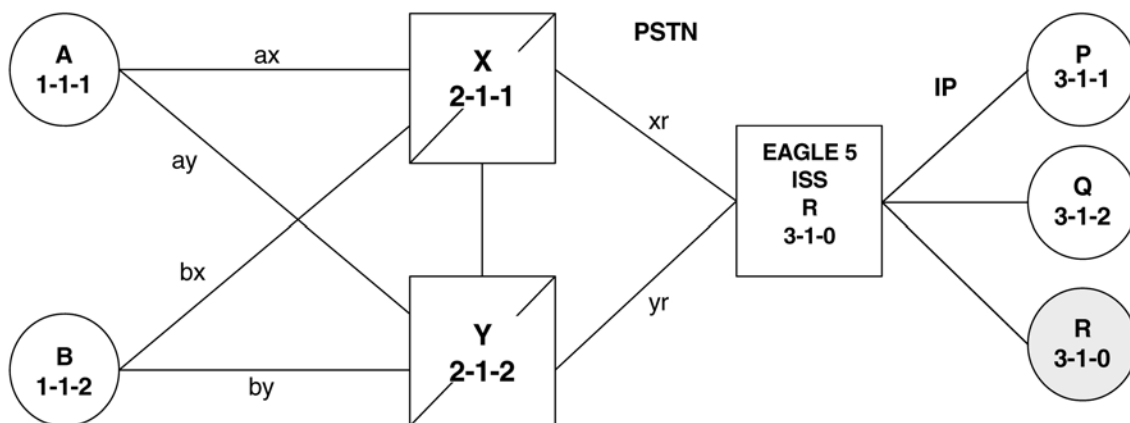
[Figure 5-2](#) and [Figure 5-3](#) depict the migration of a signaling end point from the PSTN to an IP network using the EAGLE 5 ISS with the End Office Support feature.

Figure 5-2. Network Before an EAGLE 5 ISS with End Office, Node P is to Migrate**Figure 5-3.** Network After an EAGLE 5 ISS with End Office, Node P has Migrated

In [Figure 5-3](#) the EAGLE 5 ISS 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 5 ISS and the IP network element share the point code P. All messages received by the EAGLE 5 ISS should be destined to P and all messages sent to the PSTN from the EAGLE 5 ISS have an OPC of P.

A Signaling End Point is Added to a Deployed EAGLE 5 ISS Using End Office

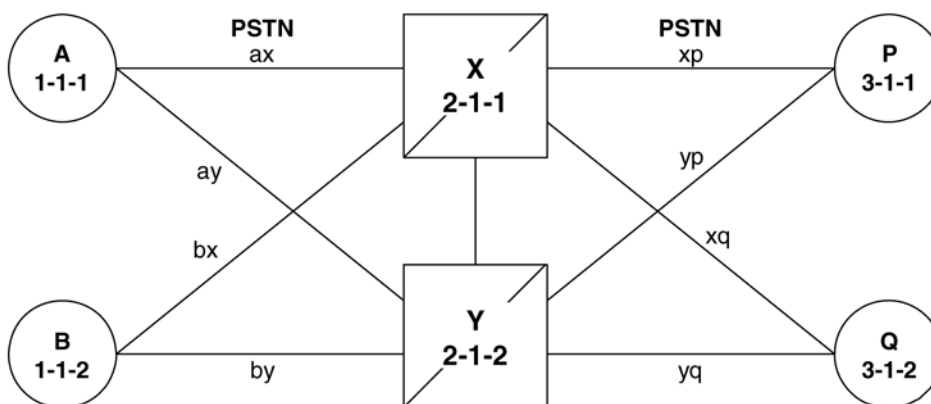
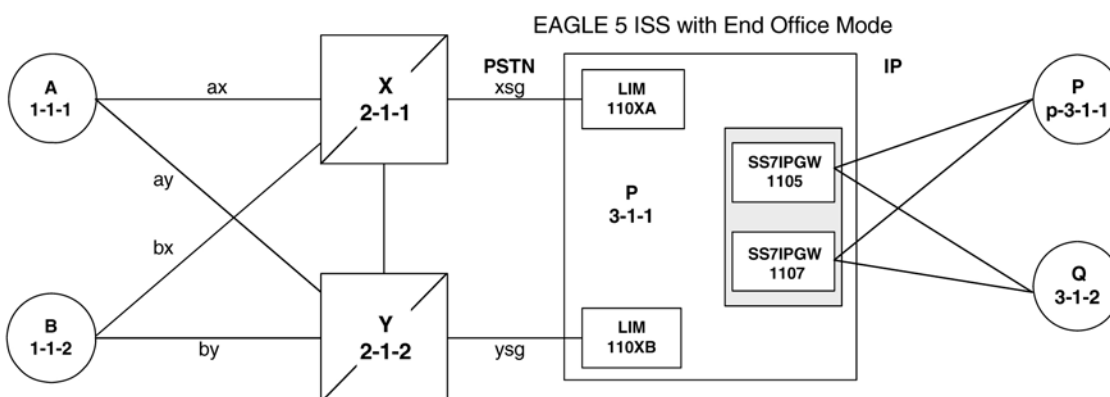
Another possible scenario for the End Office feature is that a customer has a deployed EAGLE 5 ISS with attached IP nodes, and wants to make use of the End Office feature to add a new IP node. Consider the following network diagrams, [Figure 5-4](#) and [Figure 5-5](#) .

Figure 5-4. Original Network with Deployed EAGLE 5 ISS**Figure 5-5.** New Network with an EAGLE 5 ISS 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 5 ISS.

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](#).

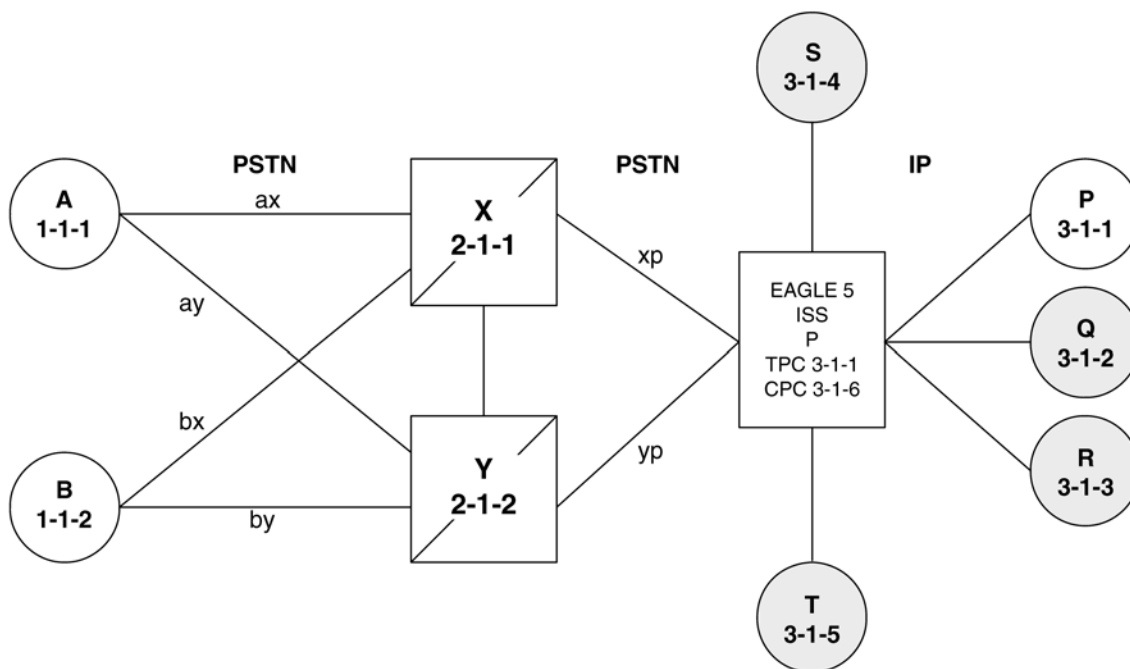
Figure 5-6. Network before Two Signaling End Points Migrate from PSTN to IP**Figure 5-7.** Network after Two Signaling End Points Migrate from PSTN to IP

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 5 ISS 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 5 ISS.

The EAGLE 5 ISS Simultaneously Acts as STP and End Office

[Figure 5-8](#) depicts the EAGLE 5 ISS 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 5 ISS, thereby allowing the use of GTT.

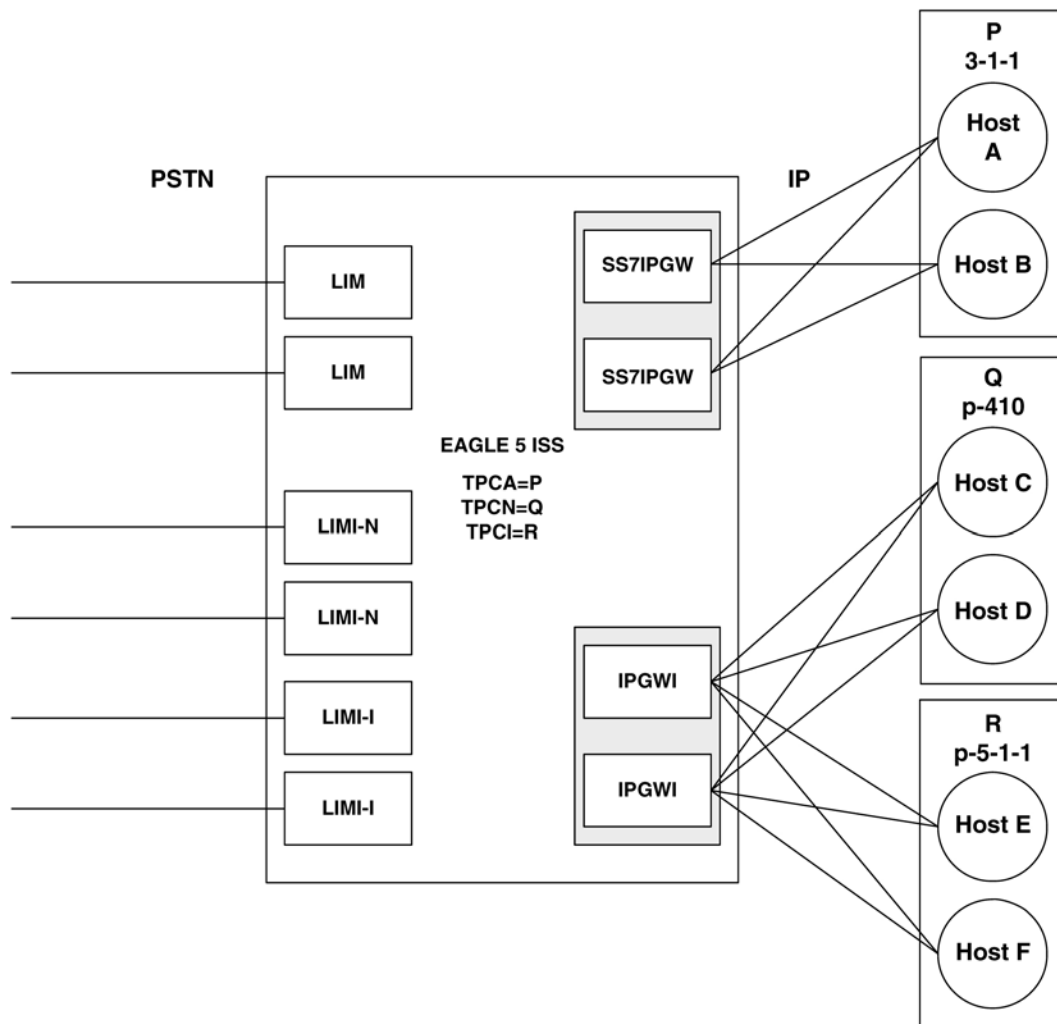
Figure 5-8. The EAGLE 5 ISS Simultaneously Acts as STP and End Office

Notes regarding [Figure 5-8](#) :

- P is the end office node, and so the EAGLE 5 ISS TPC=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 5 ISS's local SCCP application (e.g. GTT).
- Network elements Q, R, S, and T are not end office nodes, and so the EAGLE 5 ISS generates TFX network management concerning them.
- IP Network element P is an end office node, and so the EAGLE 5 ISS generates only UPU/SSP concerning it.

The EAGLE 5 ISS Supports Multiple Network Types and Multiple Hosts as an End Node

In [Figure 5-9](#) the EAGLE 5 ISS 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 5 ISSs with each EAGLE 5 ISS supporting an End Office Node. Note that EAGLE 5 ISS P lacks IP links to IPNE-Q and EAGLE 5 ISS Q lacks IP links to IPNE-P, since such links would conflict with the C-links of linkset pq.

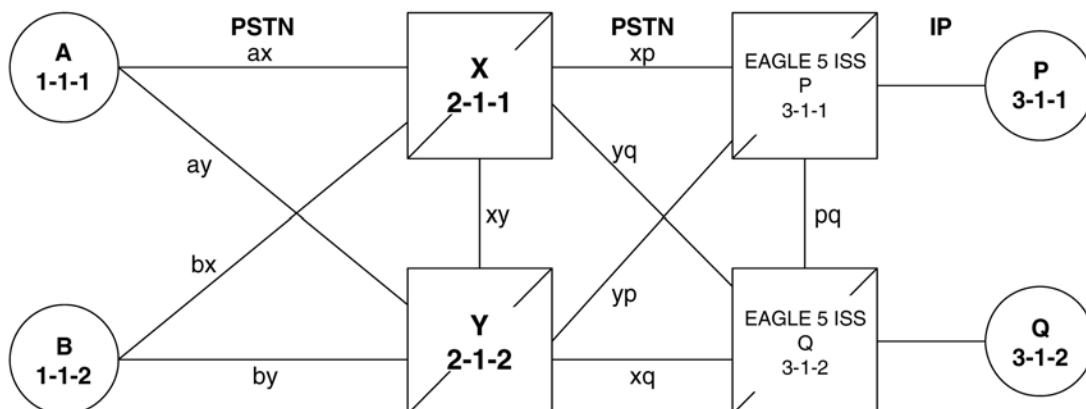
Figure 5-10. Mated Pair Supports Two End Office Nodes

Figure 5-10 shows that a mated pair of EAGLE 5 ISSs cannot share an End Office Node. Each EAGLE 5 ISS 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 5 ISS P and EAGLE 5 ISS Q). This configuration, however, would not provide true redundancy. Messages destined to P are terminated either at EAGLE 5 ISS P or IPNE-P, and message destined to Q are terminated either at EAGLE 5 ISS Q or IPNE-Q. Should the IP link between EAGLE 5 ISS P and IPNE-P fail, this feature provides no way for EAGLE 5 ISS 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 the *Database Administration Manual - SS7*.
- An SS7 route to the internal point code - go to either the “Adding a Route containing an SS7 DPC” or “Adding a Route Containing an IPGWx Linkset” procedure in the *Database Administration Manual - SS7*.
- Signaling links assigned to the cards running either the SS7IPGW or IPGWI applications - [Adding an IPGWx Signaling Link](#) in [Chapter 4 IETF IPGWx M3UA and SUA Configuration Procedures](#)
- IPGWx associations (with the corresponding application servers):
 - [Adding an M3UA or SUA Association](#) procedure in [Chapter 4 IETF IPGWx M3UA and SUA Configuration Procedures](#)
 - [Adding a New Association to a New Application Server](#) procedure in [Chapter 4 IETF IPGWx M3UA and SUA Configuration Procedures](#)
 - [Adding an Existing Association to a New Application Server](#) procedure in [Chapter 4 IETF IPGWx M3UA and SUA Configuration Procedures](#)
 - [Adding a New Association to an Existing Application Server](#) procedure in [Chapter 4 IETF IPGWx M3UA and SUA Configuration Procedures](#)

- [Adding an Existing Association to an Existing Application Server](#) procedure in [Chapter 4 IETF IPGWx 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 5 ISS (shown in the **rtrv-sid** output) - See the [Adding a Routing Key Containing an Application Server](#) procedure in [Chapter 4 IETF IPGWx 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 the *Database Administration Manual - SS7* .
- An SS7 route to the internal point code - perform the “Adding a Route containing an SS7 DPC” procedure in the *Database Administration Manual - SS7* .
- M3UA Linksets - [Adding an IPSG M3UA Linkset](#) procedure in Chapter 6
- M3UA associations - [Adding an IPSG M3UA Association](#) procedure in Chapter 6
- Signaling links assigned to the IPSG cards - [Adding an IPSG M3UA Signaling Link](#) procedure in Chapter 6

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 5 ISS 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.

Procedure

1. Display a report listing the remote application assignments 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 3 100, 110-119, 200
                  5

  IPCI          SI SSN
    p-3-003-3   3 5, 50-100, 250
                  5

  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 06-10-17 16:02:05 GMT EAGLE5 36.0.0

DPCA          CLLI          BEI ELEI  ALIASI          ALIASN          DOMAIN
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       SS7
240-012-005   rlghncbb002 yes ---   1-112-2   1357       SS7
240-012-006   rlghncbb003 yes ---   1-112-3   4257       SS7
240-012-008   -----   yes ---   1-113-5   6939       SS7
244-020-004   ls06clli    yes ---   -----   -----   X25
244-020-005   ls07clli    yes ---   -----   -----   X25
244-020-006   ls08clli    yes ---   -----   -----   X25
244-020-007   -----   yes ---   -----   -----   X25
244-020-008   -----   yes ---   -----   -----   X25
p-003-003-003 -----   yes ---   -----   -----   SS7

DPCI          CLLI          BEI ELEI  ALIASA          ALIASN/N24      DOMAIN
2-131-1       rlghncbb023 no  ---   222-210-000  10789         SS7
2-131-2       -----   no  ---   222-211-001  1138          SS7
2-131-3       -----   no  ---   222-211-002  1298          SS7
p-3-003-3     -----   no  ---   -----      -----      SS7

DPCN          CLLI          BEI ELEI  ALIASA          ALIASI          DOMAIN
7701          rlghncbb013 no  ---   222-200-200  2-121-1       SS7
11038         rlghncbb013 no  ---   222-200-201  2-121-2       SS7
p-16380       -----   no  ---   -----      -----      SS7

DPCN24        CLLI          BEI ELEI  ALIASA          ALIASI          DOMAIN

DESTINATION ENTRIES ALLOCATED: 2000
  FULL DPC(s):                  17
  EXCEPTION DPC(s):              0
  NETWORK DPC(s):                0
  CLUSTER DPC(s):                2
  TOTAL DPC(s):                  19
  CAPACITY (% FULL):             1%
ALIASES ALLOCATED:              12000
  ALIASES USED:                  18
  CAPACITY (% FULL):             1%
X-LIST ENTRIES ALLOCATED:       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 the *Database Administration Manual - SS7* and add the IPC to the DPC table.

3. Add the remote application assignments using the **ent-rmt-appl** 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

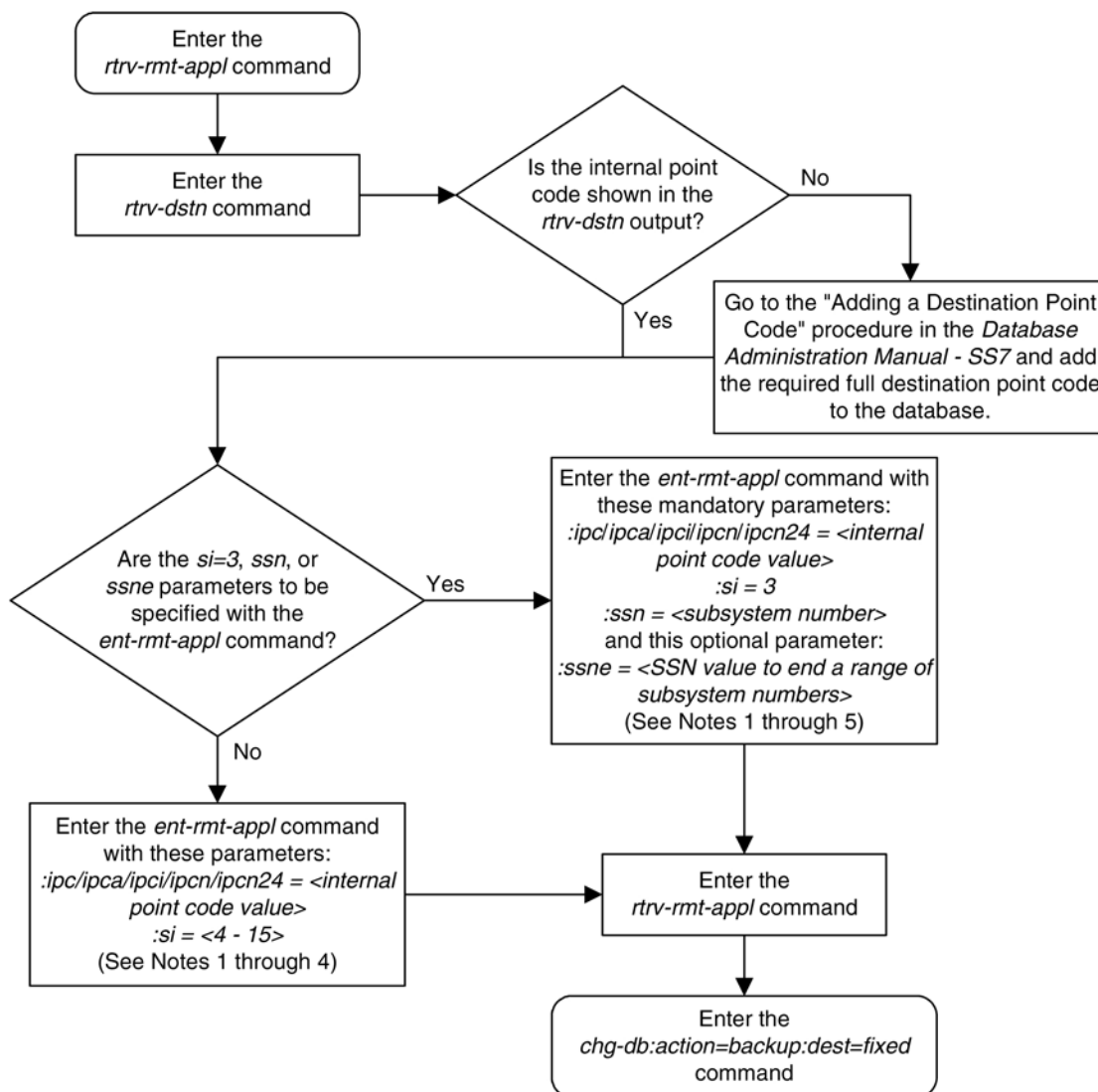
  IPCN          SI SSN
p-16380          3 250
                   5

  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.
```

Flowchart 5-1. Adding 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 same time.
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 *rtrv-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-rmt-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.

Procedure

1. Display a report listing the remote application assignments 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
```

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

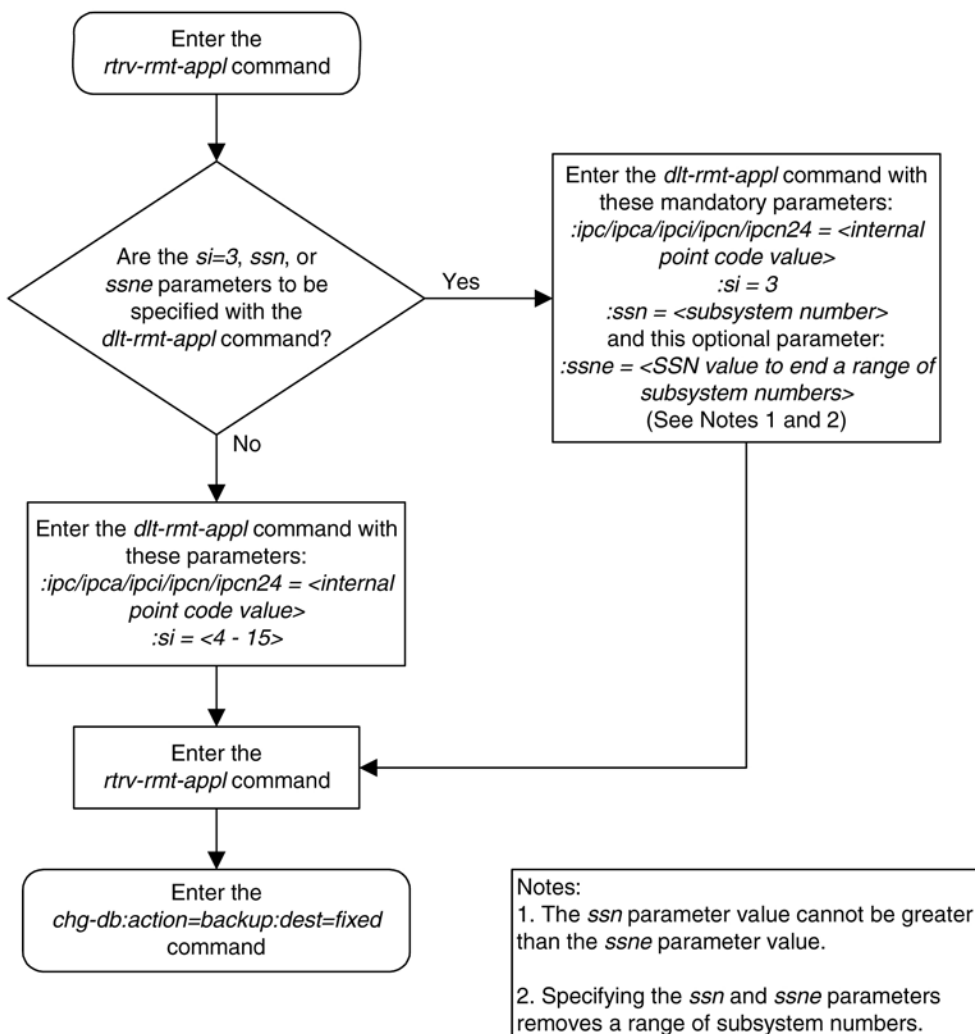
IPCN24	SI SSN

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.
```

Flowchart 5-2. Removing an End Node Internal Point Code



IPSG M2PA and M3UA Configuration Procedures

Adding IPSG Components	6-2
Adding an IPSG Card	6-3
Adding an IPSG M2PA Linkset	6-12
Adding an IPSG M3UA Linkset	6-22
Configuring an IP Link	6-32
Adding an IP Host	6-48
Configuring an IP Card	6-52
Adding an IP Route	6-63
Adding an IPSG M2PA Association	6-68
Adding an IPSG M3UA Association	6-79
Adding an IPSG M2PA Signaling Link	6-88
Adding an IPSG M3UA Signaling Link	6-100
Enabling the Large System # Links Controlled Feature	6-117
Adding a Network Appearance	6-124
Activating the Large BICC MSU Support for IP Signaling Feature	6-130
Removing IPSG Components	6-137
Removing an IPSG Card	6-138
Removing an IPSG Linkset	6-140
Removing an IP Host Assigned to an IPSG Card	6-148
Removing an IP Route	6-153
Removing an IPSG Association	6-157
Removing an IPSG M2PA Signaling Link	6-161
Removing an IPSG M3UA Signaling Link	6-168
Removing a Network Appearance	6-175
Changing IPSG Components	6-177
Configuring IP Options	6-178
Configuring IPSG M3UA Linkset Options	6-181
Changing an IPSG M2PA Linkset	6-186
Changing an IPSG M3UA Linkset	6-194
Changing the Attributes of an IPSG Association	6-209
Changing the Buffer Size of an IPSG Association	6-227
Changing the Host Values of an IPSG Association	6-239

Configuring an IPSG Association for SCTP Retransmission Control	6-257
Changing the SCTP Checksum Algorithm Option for IPSG M2PA Associations	6-263
Changing the SCTP Checksum Algorithm Option for IPSG M3UA Associations	6-276
Changing an M2PA Timer Set	6-289
Changing a UA Parameter Set	6-295
Turning the Large BICC MSU Support for IP Signaling Feature Off	6-303

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.
2. Configure the required destination point codes - see Chapter 2, “Configuring Destination Tables,” in the *Database Administration Manual - SS7*.
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 [Item 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 [Item 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 [Item 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 RFC M2PA 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 5 ISS 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 the *Database Administration Manual - SS7*.
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 Code](#) procedure.
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 5 ISS processes messages with a service information field (SIF) that is 272 bytes or smaller. The Large BICC (Bearer Independent Call Control) MSU Support for IP Signaling feature allows the EAGLE 5 ISS to process BICC messages with a SIF that is larger than 272 bytes. Perform the [Activating the Large BICC MSU Support for IP Signaling Feature](#) procedure to enable and turn on the Large BICC 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 card, part number 870-2212-xx, that is running the IPSG application. A maximum of 100 IPSG cards can be provisioned in the database.

The EAGLE 5 ISS can support a mixture of single-slot EDCMs and E5-ENET cards. The EAGLE 5 ISS supports the combinations of the E5-ENET cards and single-slot EDCMs shown in [Table 6-1](#).

Table 6-1. E5-ENET and Single-Slot EDCMs Provisioning Combinations

Number of Provisioned E5-ENET Cards	Number of Provisioned Single-Slot EDCMs
100	0
90	20
80	40
70	60
60	80
50	100
40	120
30	140
20	160
18	164

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**.

:appl – The application software or GPL that is assigned to the card. For this procedure, the value of this parameter is **ipsg**.

: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 HIPR cards installed in slots 9 and 10 in that shelf. If HIPR 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=hipr** command to verify whether or not HIPR cards are installed in the same shelf as the E5-ENET card being provisioned in this procedure.

Procedure

1. The EAGLE 5 ISS can contain a maximum of 100 E5-ENET cards. If the EAGLE 5 ISS contains 100 E5-ENET cards, no IPSG cards can be provisioned (see [Table 6-1](#)). E5-ENET cards can run one of these GPLs: IPSG, IPLHC, and IPGHC. Verify the number of E5-ENET cards running the IPSG GPL by entering this command.

rept-stat-gpl:gpl=ipsg

```
rlghncxa03w 08-03-05 08:12:53 GMT 38.0.0
GPL Auditing ON
```

GPL	CARD	RUNNING	APPROVED	TRIAL
IPSG	2101	130-003-000	130-003-000	130-002-000
IPSG	2103	130-003-000	130-003-000	130-002-000
IPSG	2105	130-003-000	130-003-000	130-002-000
IPSG	2107	130-003-000	130-003-000	130-002-000

Command Completed.

If 100 entries are shown in the **rept-stat-gpl** output, this procedure cannot be performed. The EAGLE 5 ISS contains the maximum number of E5-ENET cards.

If less than 100 entries are shown in this step, continue the procedure with [Step 2](#) and [Step 3](#) to verify the number of E5-ENET cards that are running the IPLHC and IPGHC GPLs.

2. Verify the number of E5-ENET cards running the IPLHC GPL by entering this command.

rept-stat-gpl:gpl=iplhc

```
rlghncxa03w 08-03-05 08:12:53 GMT 38.0.0
GPL Auditing ON
```

GPL	CARD	RUNNING	APPROVED	TRIAL
IPLHC	2201	130-003-000	130-003-000	130-002-000
IPLHC	2203	130-003-000	130-003-000	130-002-000
IPLHC	2205	130-003-000	130-003-000	130-002-000
IPLHC	2207	130-003-000	130-003-000	130-002-000

Command Completed.

3. Verify the number of E5-ENET cards running the IPGHC GPL by entering this command.

rept-stat-gpl:gpl=ipghc

```
rlghncxa03w 08-03-05 08:12:53 GMT 38.0.0
GPL Auditing ON
```

GPL	CARD	RUNNING	APPROVED	TRIAL
IPGHC	2301	130-003-000	130-003-000	130-002-000
IPGHC	2303	130-003-000	130-003-000	130-002-000
IPGHC	2305	130-003-000	130-003-000	130-002-000
IPGHC	2307	130-003-000	130-003-000	130-002-000

Command Completed.

If 100 entries are shown in the outputs of [Step 1](#) , [Step 2](#) , and [Step 3](#) , the remainder of this procedure cannot be performed. The EAGLE 5 ISS contains the maximum number of E5-ENET cards.

If less than 100 entries are shown in the outputs of [Step 1](#) , [Step 2](#) , and [Step 3](#) , continue the procedure with [Step 4](#) , [Step 5](#) , [Step 6](#) , and [Step 7](#) to verify the number of single-slot EDCMs that are provisioned in the EAGLE 5 ISS.

4. Verify the number of single-slot EDCMs running the SS7IPGW GPL by entering this command.

rept-stat-gpl:gpl=ss7ipgw

```
rlghncxa03w 08-03-05 08:12:53 GMT 38.0.0
GPL Auditing ON
```

GPL	CARD	RUNNING	APPROVED	TRIAL
SS7IPGW	2211	130-003-000	130-003-000	130-002-000
SS7IPGW	2213	130-003-000	130-003-000	130-002-000

Command Completed.

5. Verify the number of single-slot EDCMs running the IPGWI GPL by entering this command.

rept-stat-gpl:gpl=ipgwi

```
rlghncxa03w 08-03-05 08:12:53 GMT 38.0.0
GPL Auditing ON
```

GPL	CARD	RUNNING	APPROVED	TRIAL
IPGWI	2215	130-003-000	130-003-000	130-002-000
IPGWI	2217	130-003-000	130-003-000	130-002-000

Command Completed.

6. Verify the number of single-slot EDCMs running the IPLIM GPL by entering this command.

rept-stat-gpl:gpl=iplim

```
rlghncxa03w 08-03-05 08:12:53 GMT 38.0.0
GPL Auditing ON
```

GPL	CARD	RUNNING	APPROVED	TRIAL
IPLIM	1303	130-003-000	130-003-000	130-002-000
IPLIM	1305	130-003-000	130-003-000	130-002-000

Command Completed.

7. Verify the number of single-slot EDCMs running the IPLIMI GPL by entering this command.

rept-stat-gpl:gpl=iplimi

```
rlghncxa03w 08-03-05 08:12:53 GMT 38.0.0
GPL Auditing ON
```

GPL	CARD	RUNNING	APPROVED	TRIAL
IPLIMI	2311	130-003-000	130-003-000	130-002-000
IPLIMI	2313	130-003-000	130-003-000	130-002-000

Command Completed.

[Table 6-1](#) shows the combinations of E5-ENET cards and single-slot EDCMs that the EAGLE 5 ISS will support. If adding the new IPSG card will exceed the limits shown in [Table 6-1](#), the new IPSG card cannot be provisioned in the database and the remainder of this procedure cannot be performed.

If adding the new IPSG card will not exceed the limits shown in [Table 6-1](#), continue the procedure with [Step 8](#).

8. 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 5 ISS for proper power distribution. Refer to the *Installation Manual - EAGLE 5 ISS* for the shelf power distribution.

```
rlghncxa03w 08-03-05 08:12:53 GMT 38.0.0
CARD  TYPE      APPL      LSET NAME      LINK SLC LSET NAME      LINK SLC
1101  TSM          SCCP
1102  TSM          GLS
1113  GSPM          EOAM
1114  TDM-A
1115  GSPM          EOAM
1116  TDM-B
1117  MDAL
1201  LIMDS0       SS7ANSI    sp2           A      0      sp1           B      0
1203  LIMDS0       SS7ANSI    sp3           A      0
1204  LIMDS0       SS7ANSI    sp3           A      1
1206  LIMDS0       SS7ANSI    nsp3          A      1      nsp4          B      1
1207  LIMV35       SS7GX25    nsp1          A      0
1208  LIMV35       SS7GX25    nsp1          A      1
1216  ACMENET      STPLAN
1301  LIMDS0       SS7ANSI    sp6           A      1      sp7           B      0
1302  LIMDS0       SS7ANSI    sp7           A      1      sp5           B      1
1303  DCM          IPLIM      ipnode1       A      0      ipnode3       B      1
1305  DCM          IPLIM      ipnode4       A      0
1307  ACMENET      STPLAN
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

```

If the required unprovisioned card slots (see the Card Slot Selection section) are shown in the **rtrv-card** output, continue the procedure with [Step 11](#) .

If the required unprovisioned card slots are not shown in the **rtrv-card** output, [Step 9](#) must be performed.

9. 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 IPSG card.

If all the shelves have not been provisioned in the database, continue the procedure with [Step 10](#) .

10. 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

```

11. Verify that the card to be entered has been physically installed into the proper location (see 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 the *Maintenance Manual* before proceeding with this procedure.

12. Verify that HIPR 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=hipr

This is an example of the possible output.

```

rlghncxa03w 08-03-05 08:12:53 GMT 38.0.0
GPL CARD RUNNING APPROVED TRIAL
HIPR 1109 125-002-000 125-002-000 125-003-000
HIPR 1110 125-002-000 125-002-000 125-003-000
HIPR 1209 125-002-000 125-002-000 125-003-000
HIPR 1210 125-002-000 125-002-000 125-003-000
HIPR 1309 125-002-000 125-002-000 125-003-000
HIPR 1310 125-002-000 125-002-000 125-003-000
HIPR 2109 125-002-000 125-002-000 125-003-000
HIPR 2110 125-002-000 125-002-000 125-003-000

```

HIPR	2209	125-002-000	125-002-000	125-003-000
HIPR	2210	125-002-000	125-002-000	125-003-000
HIPR	2309	125-002-000	125-002-000	125-003-000
HIPR	2310	125-002-000	125-002-000	125-003-000

Command Completed

If HIPR cards are installed in the shelf containing the E5-ENET card, continue the procedure with [Step 13](#).

If HIPR cards are not installed on the shelf containing the E5-ENET card, go to the *Installation Manual - EAGLE 5 ISS* and install the HIPR cards. Once the HIPR cards have been installed, continue the procedure with [Step 13](#).

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

ent-card:loc=1311:type=enet:appl=ipsg

ent-card:loc=1313:type=enet: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
```

14. Verify the changes using the **rtrv-card** command with the card location specified in [Step 13](#). 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  ENET       IPSG
```

rtrv-card:loc=1313

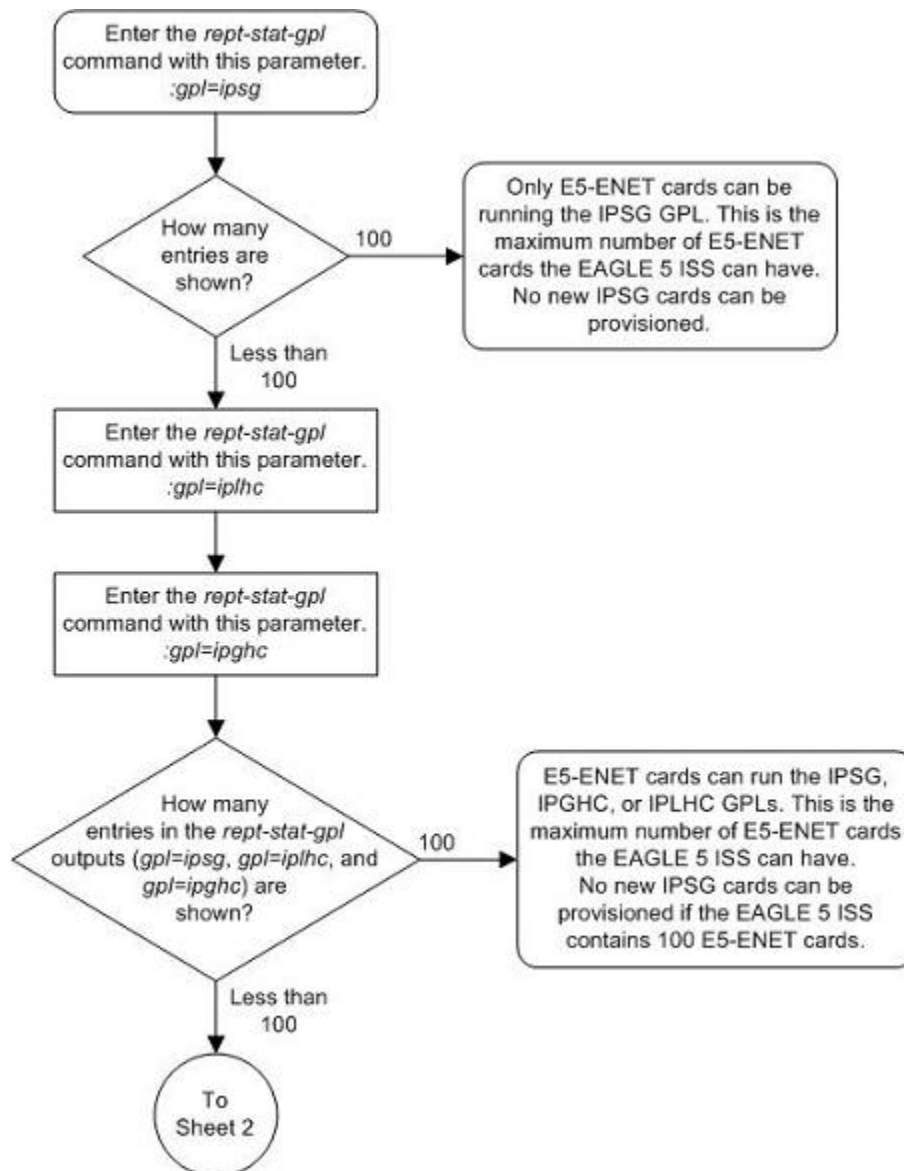
This is an example of the possible output.

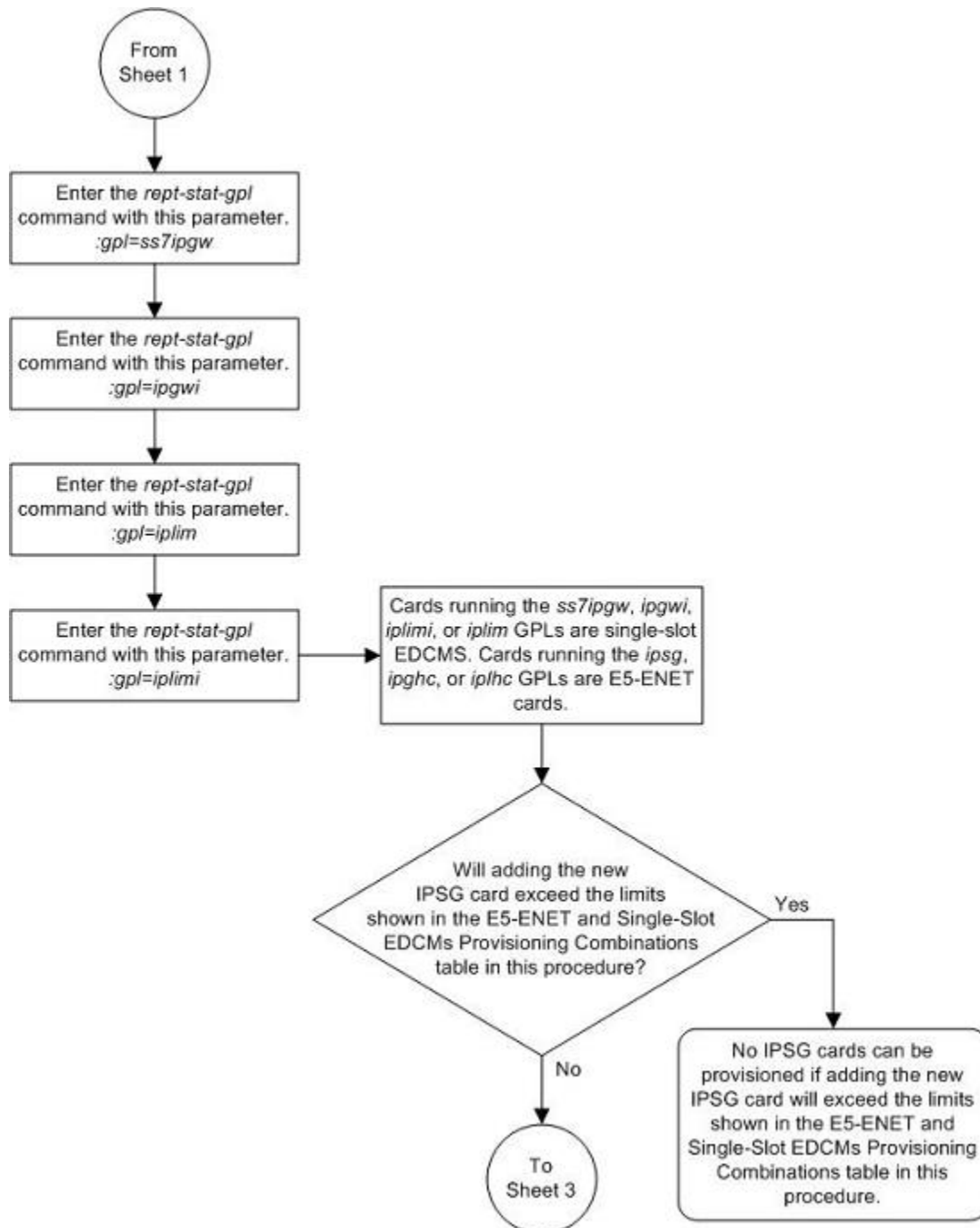
```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
CARD  TYPE      APPL      LSET NAME      LINK SLC LSET NAME      LINK SLC
1313  ENET       IPSG
```

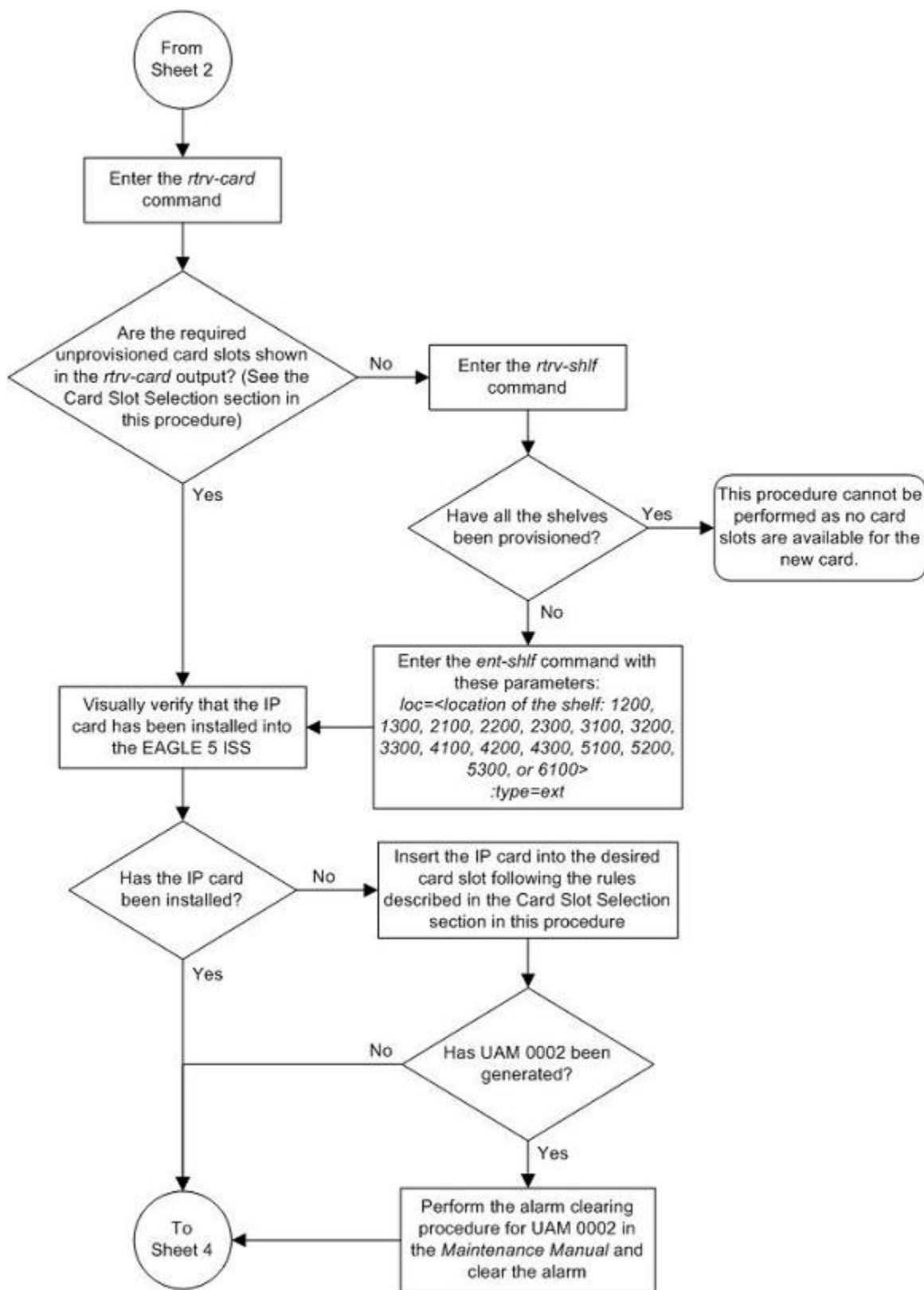
15. Back up the new changes using the **chg-db:action=backup:dest=fixed** command. These messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

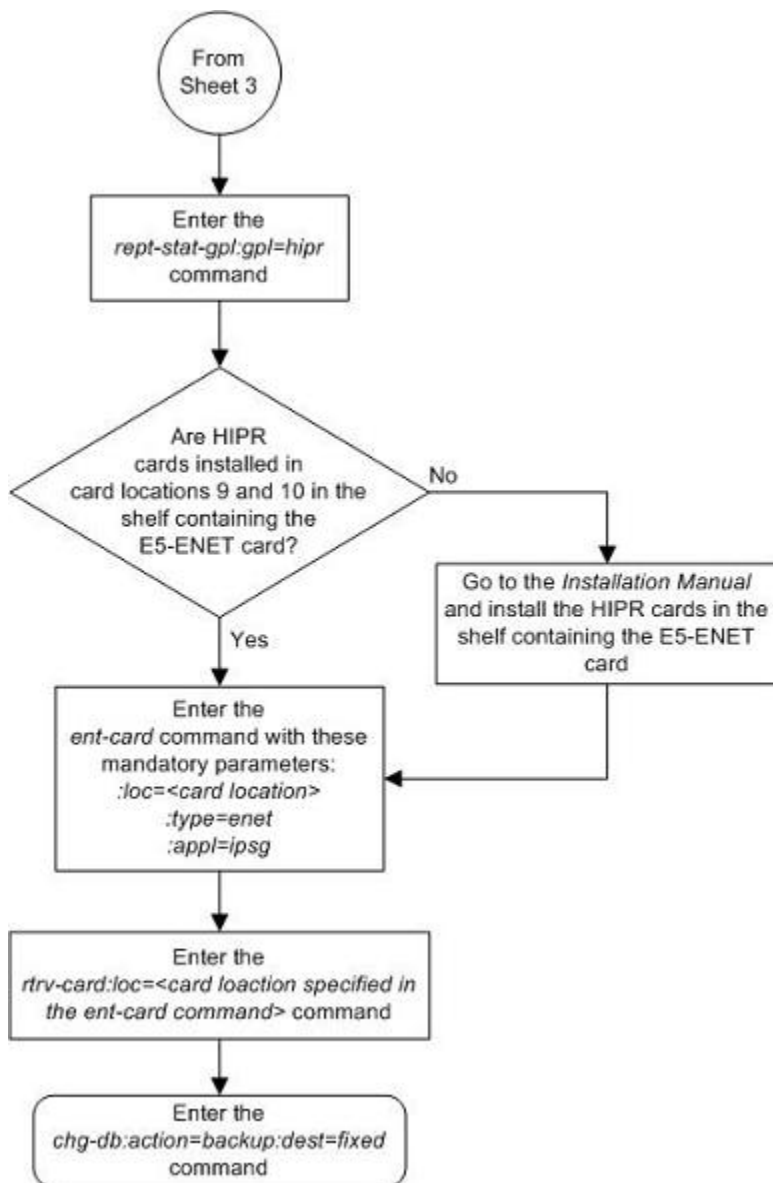
```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

Flowchart 6-1. Adding an IPSG Card









Adding an IPSG M2PA Linkset

This procedure is used to configure IPSG M2PA linksets in the EAGLE 5 ISS using the **ent - ls** commands 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 5 ISS. 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 the *Database Administration Manual - SS7* for a definition of the point code types that are used on the EAGLE 5 ISS and for a definition of the different formats that can be used for ITU national point codes.

:lst – The linkset type of the specified linkset, a, b, c, d, e. The linkset type **prx** can also be specified for an IPSP M2PA linkset. For more information on using the **prx** linkset type, refer to the "Adding an SS7 Linkset" procedure in the *Database Administration Manual - SS7*.

:ipsg – This parameter specifies whether or not the linkset is an IPSP linkset. This parameter has two values, **yes** (if the linkset is an IPSP linkset) or **no** (if the linkset is not an IPSP linkset). For this procedure, the **ipsg** parameter value must be **yes**.

:slktps – The number of transactions per second (TPS) that is assigned to each IPSP signaling link that will be in the linkset, from 100 to 5,000.

: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 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 IPSP 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 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 6-2](#) shows this calculation for a linkset with 1, 2, 3 and 4 in-service signaling links.

Table 6-2. 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 IPSP 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 5 ISS. The domain of the point code is shown in the **DOMAIN** field in the output of the **rtrv-dstn** command. The point code of the EAGLE 5 ISS is shown in the **PCA**, **PCN**, **PCN24**, or **PCI** fields and the capability point code of the EAGLE 5 ISS 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 the *Database Administration Manual - SS7* and add the APC to the destination point code table.

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 the *Commands Manual* 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 the *Database Administration Manual - SS7*
 - Adding an SS7 Linkset
 - Changing an SS7 Linkset
 - Configuring an ITU Linkset with a Secondary Adjacent Point Code (SAPC)
- These procedures in the *Database Administration Manual - Features*.
 - Adding an X.25 Signaling Link
 - Changing an X.25 Signaling Link
 - Configuring a Linkset for the GSM MAP Screening Feature

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 than 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 the *Commands Manual*.

Procedure

1. Display the current linksets in the database using the **rtrv-ls** command.

This is an example of the possible output.

```

r lghncxa03w 08-04-10 11:43:04 GMT EAGLE5 38.0.0
                                L3T SLT
LSN      APCA  (SS7)  SCR N SET SET BEI LST LNKS ACT MES DIS SLSCI NIS
e1e2     001-207-000 none 1 1 no B 6 off off off no off
e1m1s1   001-001-001 none 1 1 no A 7 off off off no off
e1m1s2   001-001-002 none 1 1 no A 7 off off off no off
ls1305   001-005-000 none 1 1 no A 1 off off off no off
ls1307   001-007-000 none 1 1 no A 1 off off off no off
lsgw1101 008-012-003 none 1 1 no A 1 off off off no off
lsgw1103 003-002-004 none 1 1 no A 1 off off off no off
lsgw1105 009-002-003 none 1 1 no A 1 off off off no off

                                L3T SLT
LSN      APCI  (SS7)  SCR N SET SET BEI LST LNKS ACT MES DIS SLSCI NIS
e1e2i    1-207-0 none 1 1 no B 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 A 1 off off off --- on
e1m2s1   1-011-1 none 1 1 no A 7 off off off --- off
e1m2s2   1-011-2 none 1 1 no A 7 off off off --- off

```

Link set table is (13 of 1024) 1% full.

2. Display the point code and capability point code of the EAGLE 5 ISS by using the **rtrv-sid** command.

This is an example of the possible output.

```

r lghncxa03w 06-10-10 11:43:04 GMT EAGLE5 37.5.0
PCA      PCI      PCN      CLLI      PCTYPE
001-001-001 1-200-6      13482      r lghncxa03w  OTHER

CPCA
002-002-002      002-002-003      002-002-004      002-002-005
002-002-006      002-002-007      002-002-008      002-002-009
004-002-001      004-003-003      144-212-003

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

```

3. Display the destination point codes in the database by entering the **rtrv-dstn** command. This is an example of the possible output.

```

r lghncxa03w 06-10-10 11:43:04 GMT EAGLE5 37.5.0

DPCA      CLLI      BEI ELEI  ALIASI      ALIASN      DOMAIN
001-207-000 ----- no --- ----- ----- SS7
001-001-001 ----- no --- ----- ----- SS7
001-001-002 ----- no --- ----- ----- SS7
001-005-000 ----- no --- ----- ----- SS7

```

```

001-007-000 ----- no --- ----- SS7
008-012-003 ----- no --- ----- SS7
003-002-004 ----- no --- ----- SS7
009-002-003 ----- no --- ----- SS7
010-020-005 ----- no --- ----- SS7

DPCI      CLLI      BEI ELEI  ALIASI      ALIASN      DOMAIN
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

DPCN      CLLI      BEI ELEI  ALIASA      ALIASI      DOMAIN
DPCN24    CLLI      BEI ELEI  ALIASA      ALIASI      DOMAIN

```

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 the *Database Administration Manual - SS7* to add the required point code.

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:dpc=010-020-005

This is an example of the possible output.

rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 37.5.0

```

DPCA      CLLI      BEI ELEI  ALIASI      ALIASN      DOMAIN
010-020-005 ----- no --- ----- SS7

      SPC      NCAI
      -----

```

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.

NOTE: If the adjacent point code was added in [Step 3](#) , continue the procedure with [Step 7](#) .

For this example, enter this command.

rtrv-rtx:dpc=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.

```
r1ghncxa03w 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):                 0
CLUSTER DPC(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 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 [Step 2](#) .
- Remove all the entries displayed in this step by performing the “Removing a Route Exception Entry” procedure in the *Database Administration Manual - SS7* . After the entries have been removed, continue the procedure with [Step 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.

```
r1ghncxa03w 06-10-10 11:43:04 GMT EAGLE5 37.5.0
```

```

DPCA      ALIASI      ALIASN/N24      LSN      RC      APCA
010-020-005 -----
                                lsn1      1      003-003-003
                                lsn2      2      003-003-004
                                RTX:No  CLLI=-----

```

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.

```
r1ghncxa03w 06-10-10 11:43:04 GMT EAGLE5 37.5.0
```

```

DPCA      ALIASI      ALIASN/N24      LSN      RC      APCA
002-002-002 -----
                                -----
                                RTX:No  CLLI=-----

```

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 [Step 2](#) .
 - Remove all the entries displayed in this step by performing the “Removing a Route” procedure in the *Database Administration Manual - SS7* . After the entries have been removed, continue the procedure with [Step 7](#)
7. 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 [Step 1](#) .

The APC of the new linkset must be in the destination point code table, but cannot be either the EAGLE 5 ISS’s point code or the EAGLE 5 ISS’s capability point code – shown in the outputs of [Step 2](#) , [Step 3](#) , and [Step 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>**
- **slktps=<100 - 5000>**
- The **ipgwapc**, **iptps**, **rcontext**, and **asnotif** parameters cannot be specified for an IPSG M2PA linkset.
- The optional parameters **lsusealm** (the linkset’s IP TPS alarm threshold) and **slkusealm** (the signaling link IP TPS alarm threshold) can be specified with the **ent - ls** command. The default value for the **lsusealm** parameter is 100%, and the default value for the **slkusealm** parameters is 80%.

For this example, enter this command.

```
ent -
ls: lsn=lsgw1107:apca=010-020-005:lst=a:ipsg=yes:slktps=200: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
```

8. Verify the changes using the **rtrv - ls** command specifying the linkset name specified in [Step 7](#) with the **lsn** parameter. For this example, enter these commands.

```
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)  SCRNL3T SLT          GWS GWS GWS
lsgw1107     010-020-005  none  SET SET BEI LST LNKS ACT MES DIS SLSCI NIS
                                     no  A  0   off off off no   off

          SPCA          CLLI          TFATCABMLQ MTPRSE ASL8
          -----
          IP7G IP7GAPC GTTMODE          CGGTMOD
          yes  no      CdPA          no

          ADAPTER      SLKTPS  LSUSEALM  SLKUSEALM  RCONTEXT  ASNOTIF
          m2pa         200      70%        70%        250        yes

```

Link set table is (14 of 1024) 1% full

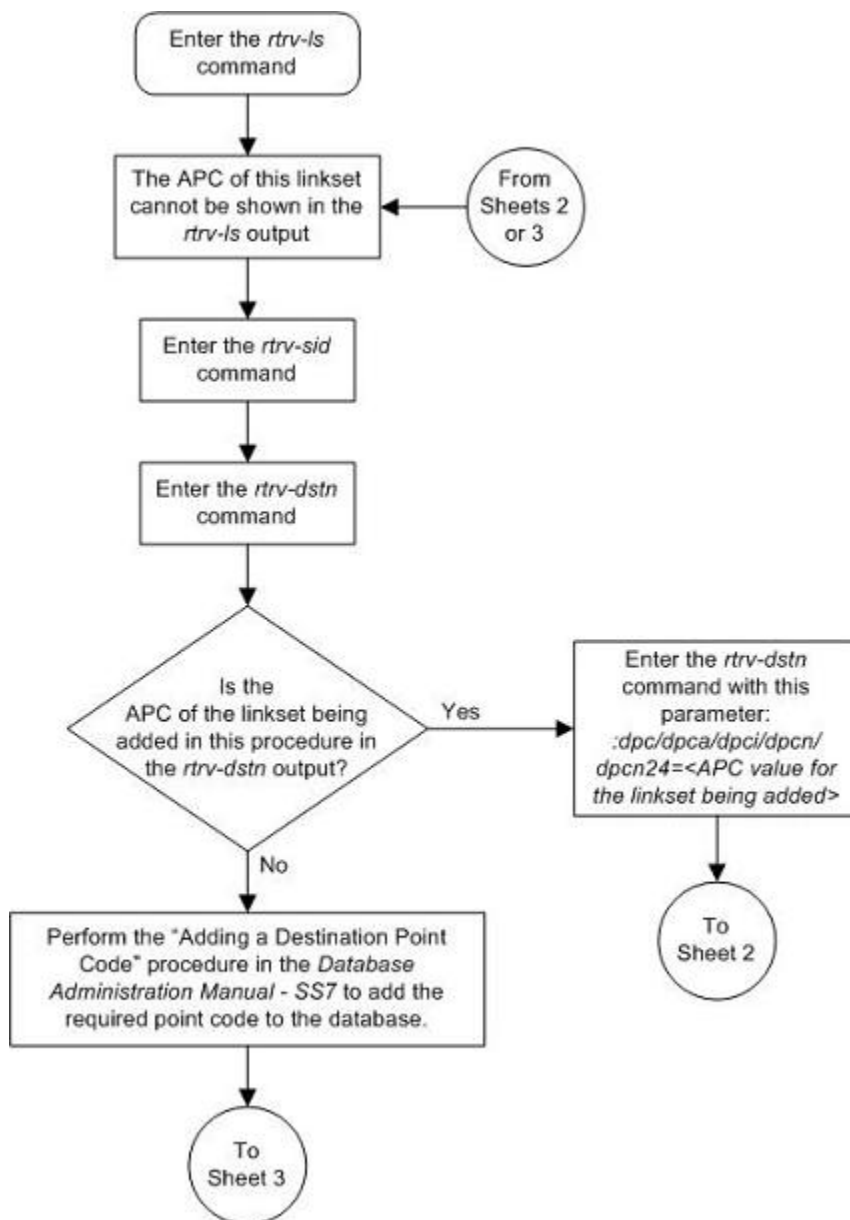
9. Back up the new changes using the **chg-db:action=backup:dest=fixed** command. These messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

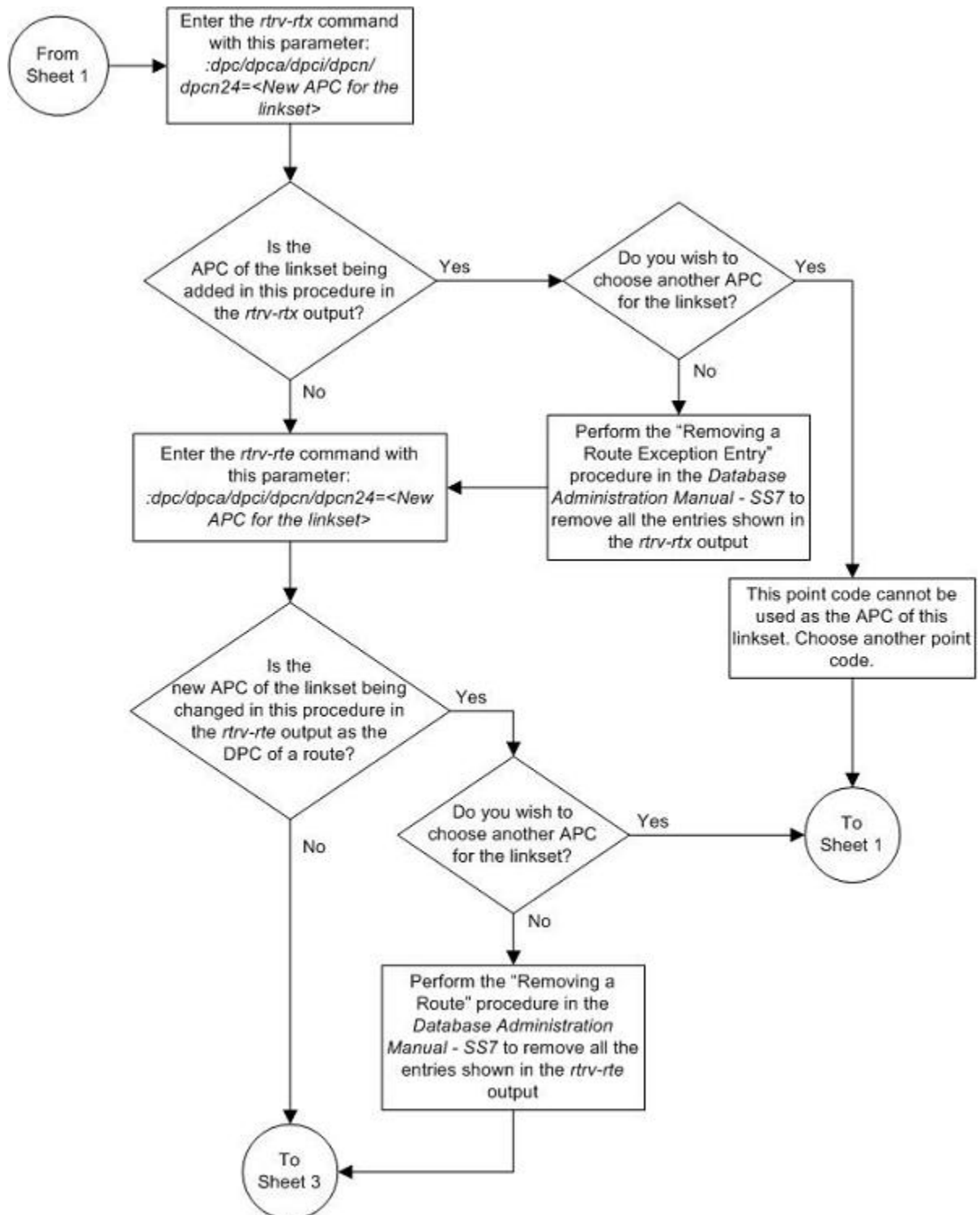
```

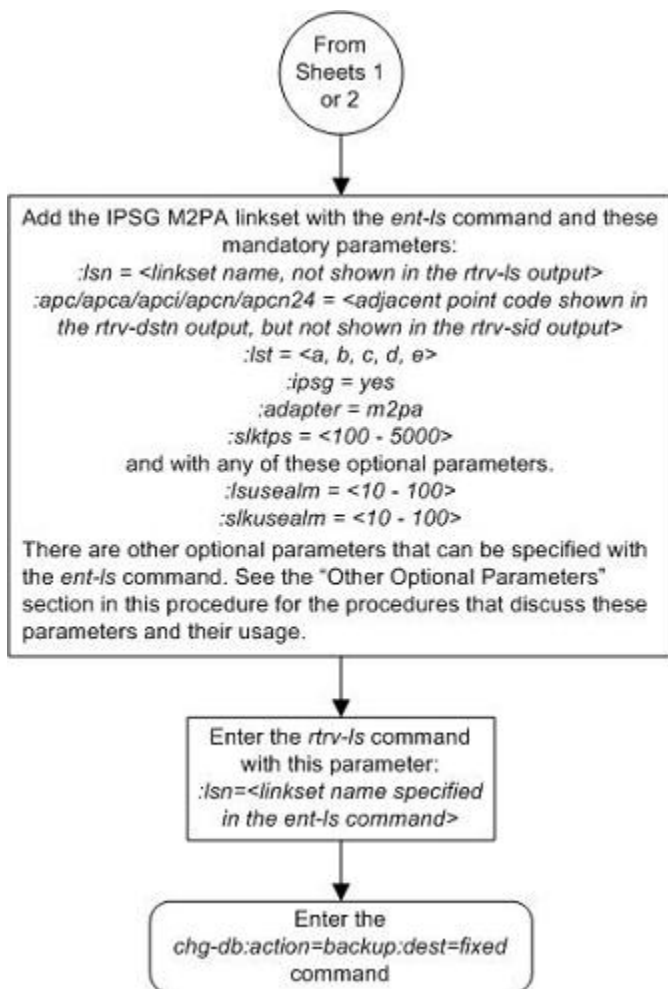
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.

```

Flowchart 6-2. Adding an IPSG M2PA Linkset







Adding an IPSG M3UA Linkset

This procedure is used to configure IPSG M3UA linksets in the EAGLE 5 ISS 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 5 ISS. 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 the *Database Administration Manual - SS7* for a definition of the point code types that are used on the EAGLE 5 ISS and for a definition of the different formats that can be used for ITU national point codes.

:**lst** – The linkset type of the linkset. For an IPSP M3UA linkset, only one value can be specified, A.

:**ipsg** – This parameter specifies whether or not the linkset is an IPSP linkset. This parameter has two values, **yes** (if the linkset is an IPSP linkset) or **no** (if the linkset is not an IPSP linkset). For this procedure, the **ipsg** parameter value must be **yes**.

:**slktps** – The number of transactions per second (TPS) that is assigned to each IPSP signaling link that will be in the linkset, from 100 to 5,000.

:**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 IPSP 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 IPSP card’s capacity.

A signaling link’s fair share of linkset’s TPS is the linkset’s IPTPS 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 IPTPS ($4000/4=1000$). [Table 6-3](#) shows this calculation for a linkset with 1, 2, 3 and 4 in-service signaling links.

Table 6-3. 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 IPTPS is set too low for the linkset or that the IPSP 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 IPSP M3UA linkset. This parameter has two values, **m2pa** and **m3ua**. For an IPSP M3UA linkset, the **adapter** parameter value must be **m3ua**.

:**rcontext** - This parameter specifies the routing context value that is assigned to the IPSP 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 5 ISS. The domain of the point code is shown in the **DOMAIN** field in the output of the **rtrv-dstn** command. The point code of the EAGLE 5 ISS is shown in the **PCA**, **PCN**, **PCN24**, or **PCI** fields and the capability point code of the EAGLE 5 ISS 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 the *Database Administration Manual - SS7* and add the APC to the destination point code table.

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 the *Commands Manual* 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 the *Database Administration Manual - SS7*
 - Adding an SS7 Linkset
 - Changing an SS7 Linkset
 - Configuring an ITU Linkset with a Secondary Adjacent Point Code (SAPC)
- These procedures in the *Database Administration Manual - Features*.
 - Adding an X.25 Signaling Link
 - Changing an X.25 Signaling Link
 - Configuring a Linkset for the GSM MAP Screening Feature

NOTE: 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 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 than 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 the *Commands Manual*.

Procedure

- Display the current linksets in the database using the **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)  SCRNL3T  SLT          GWS  GWS  GWS
e1e2         001-207-000 none  1  1  no  B  6  off off off no  off
e1m1s1       001-001-001 none  1  1  no  A  7  off off off no  off
e1m1s2       001-001-002 none  1  1  no  A  7  off off off no  off
ls1305       001-005-000 none  1  1  no  A  1  off off off no  off
ls1307       001-007-000 none  1  1  no  A  1  off off off no  off
lsgw1101     008-012-003 none  1  1  no  A  1  off off off no  off
lsgw1103     003-002-004 none  1  1  no  A  1  off off off no  off
lsgw1105     009-002-003 none  1  1  no  A  1  off off off no  off

LSN          APCI  (SS7)  SCRNL3T  SLT          GWS  GWS  GWS
e1e2i        1-207-0  none  1  1  no  B  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  A  1  off off off --- on
e1m2s1       1-011-1  none  1  1  no  A  7  off off off --- off
e1m2s2       1-011-2  none  1  1  no  A  7  off off off --- off
```

Link set table is (13 of 1024) 1% full.

- Display the point code and capability point code of the EAGLE 5 ISS 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  002-002-003      002-002-004      002-002-005
002-002-006  002-002-007      002-002-008      002-002-009
004-002-001  004-003-003      144-212-003

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
```

- Display the destination point codes in the database by entering the **rtrv-dstn** command. This is an example of the possible output.

```
rlghncxa03w 06-10-10 11:43:04 GMT EAGLE5 37.5.0
DPCA          CLLI          BEI  ELEI  ALIASI          ALIASN          DOMAIN
```

```

001-207-000 ----- no --- ----- SS7
001-001-001 ----- no --- ----- SS7
001-001-002 ----- no --- ----- SS7
001-005-000 ----- no --- ----- SS7
001-007-000 ----- no --- ----- SS7
008-012-003 ----- no --- ----- SS7
003-002-004 ----- no --- ----- SS7
009-002-003 ----- no --- ----- SS7
010-020-005 ----- no --- ----- SS7

DPCI      CLLI      BEI ELEI  ALIASI      ALIASN      DOMAIN
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

DPCN      CLLI      BEI ELEI  ALIASA      ALIASI      DOMAIN
DPCN24    CLLI      BEI ELEI  ALIASA      ALIASI      DOMAIN

```

Destination table is (14 of 2000) 1% 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 the *Database Administration Manual - SS7* 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.

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:dpc=010-020-005

This is an example of the possible output.

```

r lghncxa03w 06-10-10 11:43:04 GMT EAGLE5 37.5.0

DPCA      CLLI      BEI ELEI  ALIASI      ALIASN      DOMAIN
010-020-005 ----- no --- ----- SS7

          SPC          NCAI
          -----
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 [Step 2](#).

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.

NOTE: If the adjacent point code was added in [Step 3](#), continue the procedure with [Step 7](#).

For this example, enter this command.

rtrv-rtx:dpc=010-020-005

This is an example of the possible output.

```

r lghncxa03w 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
 FULL DPC(s): 15
 EXCEPTION DPC(s): 5
 NETWORK DPC(s): 0
 CLUSTER DPC(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 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 [Step 2](#) .
- Remove all the entries displayed in this step by performing the “Removing a Route Exception Entry” procedure in the *Database Administration Manual - SS7* . After the entries have been removed, continue the procedure with [Step 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 06-10-10 11:43:04 GMT EAGLE5 37.5.0
```

DPCA	ALIASI	ALIASN/N24	LSN	RC	APCA
010-020-005	-----	-----	lsn1	1	003-003-003
			lsn2	2	003-003-004

RTX:No CLLI=-----

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
```

DPCA	ALIASI	ALIASN/N24	LSN	RC	APCA
002-002-002	-----	-----	-----	---	-----
			RTX:No	CLLI=	-----

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 [Step 2](#) .
- Remove all the entries displayed in this step by performing the “Removing a Route” procedure in the *Database Administration Manual - SS7* . After the entries have been removed, continue the procedure with [Step 7](#) .

7. 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 [Step 1](#) .

The APC of the new linkset must be in the destination point code table, but cannot be either the EAGLE 5 ISS’s point code or the EAGLE 5 ISS’s capability point code – shown in the outputs of [Step 2](#) , [Step 3](#) , and [Step 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:

- **ipsg=yes**
- **adapter=m3ua**
- **lst=a**
- **slktps=<100 - 5000>**
- The **ipgwpc**, **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.
- The optional parameters **lsusealm** (the linkset’s TPS alarm threshold), **slkusealm** (the signaling link TPS alarm threshold), **rcontext** (routing context value) and **asnotif** (send AS notifications for the linkset) can be specified with the **ent - ls** command. The default values for these parameters are:
 - **lsusealm** - 100
 - **slkusealm** - 80
 - **rcontext** - none
 - **asnotif** - yes.

NOTE: There are other optional parameters that can be specified with the **ent - ls** command, but are not required for an IPSP M3UA linkset. These parameters and their usage are discussed in the Other Optional Parameters section of this procedure.

For this example, enter this command.

ent -

ls: lsn=lsgw1107:apca=010-020-005:lsta=a:ipsg=yes:slktps=300: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
```

8. Verify the changes using the **rtrv-ls** command specifying the linkset name specified in [Step 7](#) with the **lsn** parameter. For this example, enter these commands.

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  L3T  SLT  BEI  LST  LNKS  GWS  GWS  GWS
lsgw1107         010-020-005  none  1    1    no  A    0    off  off  off  no  off

              SPCA          CLLI          TFATCABMLQ  MTPRSE  ASL8
              -----
              IPSP  IPGWAPC  GTTMODE          CGGTMOD
              yes   no      CdPA          no

              ADAPTER  SLKTPS  LSUSEALM  SLKUSEALM  RCONTEXT  ASNOTIF
              m3ua     300     70%       70%       250       yes

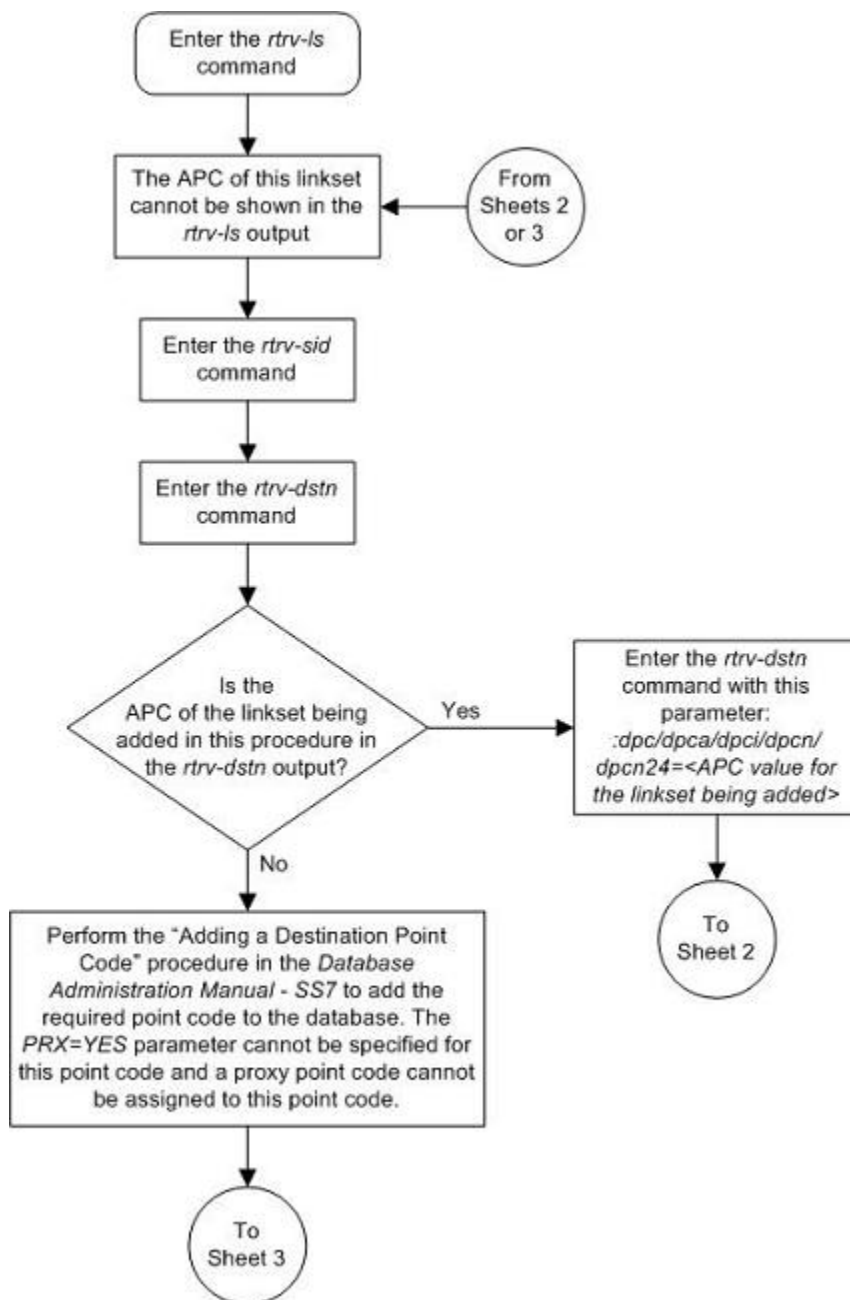
              NUMSLKALW  NUMSLKRSTR  NUMSLKPROH
              1          1          1
```

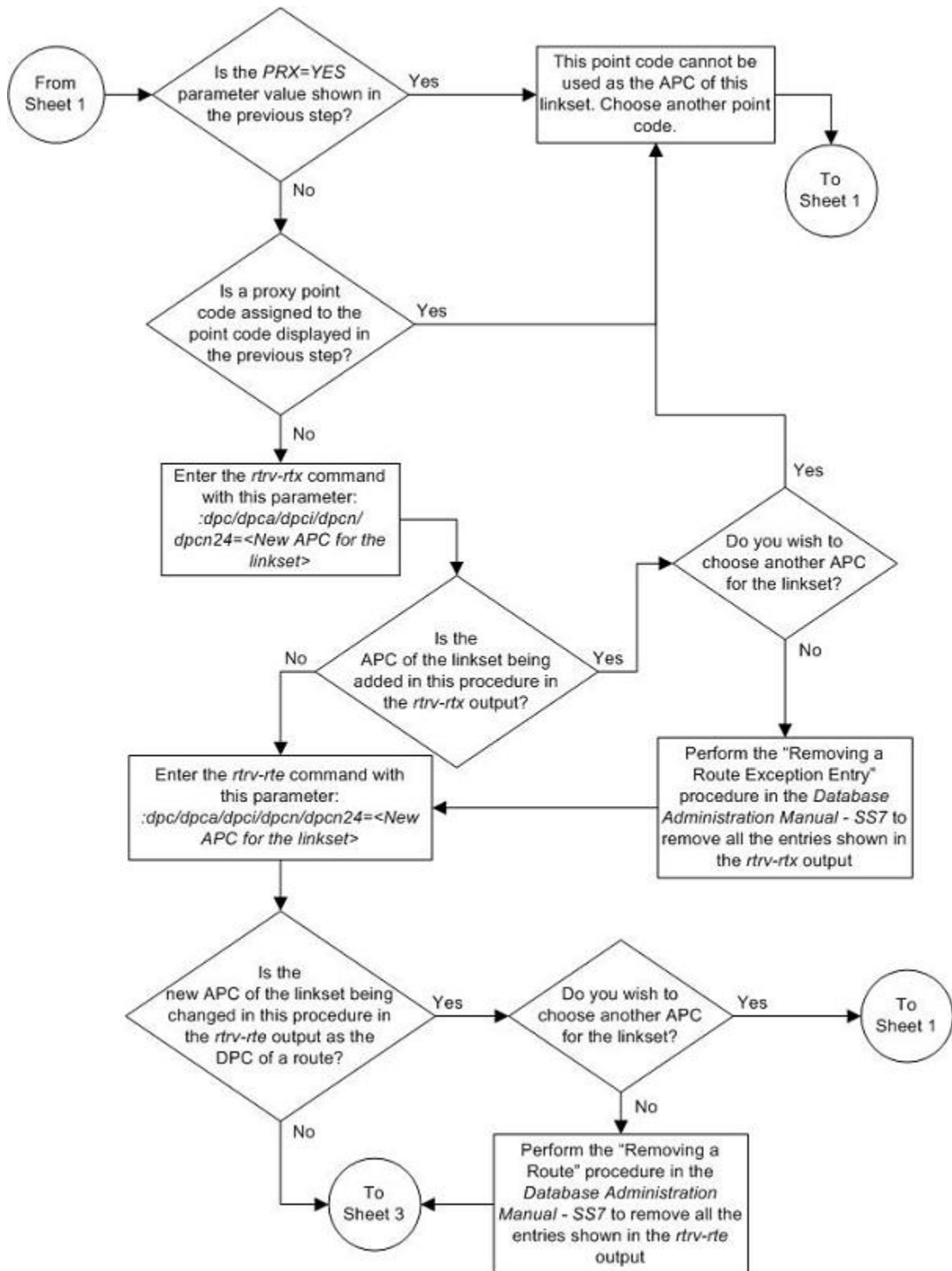
```
Link set table is ( 14 of 1024) 1% full
```

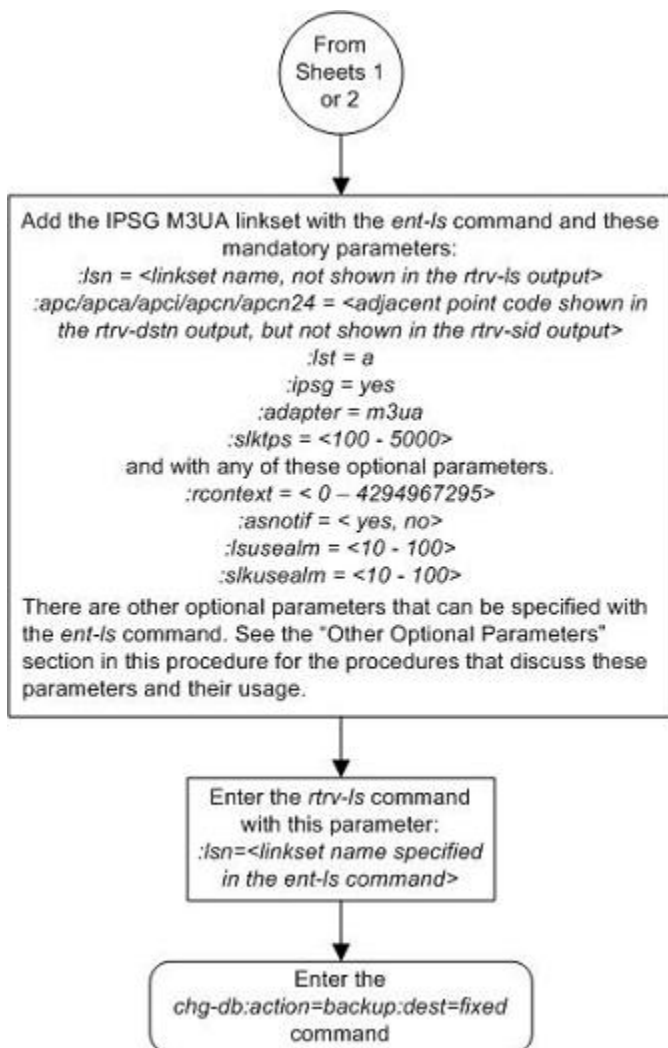
9. Back up the new changes using the **chg-db:action=backup:dest=fixed** command. These messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
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.
```

Flowchart 6-3. Adding an IPSG M3UA Linkset







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 6-4](#) 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.

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 6-4](#)). 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 **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 **ipaddr** setting. See [Table 6-4](#) for the valid input values for the **submask** and **ipaddr** parameter combinations.

Table 6-4. Valid Subnet Mask Parameter Values

Network Class	IP Network Address Range	Valid Subnet Mask Values
A	1.0.0.0 to 127.0.0.0	255.0.0.0 (the default value for a class A IP address) 255.192.0.0 255.224.0.0 255.240.0.0 255.248.0.0

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

If a Class B IP address is specified for the **ipaddr** parameter of the **chg-ip-lnk** command, the subnet address that results from the **ipaddr** and **submask** parameter values cannot be the same as the subnet address that results from the **pvn** and **pvnmask** parameter values of the **chg-netopts** command. The **pvn** and **pvnmask** parameter values can be verified by entering the **rtrv-netopts** command. 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** 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** command was were 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 the *Commands Manual*.

Procedure

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 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     802.3    NO    NO
1201  B      -----      -----      HALF    10     DIX      NO    NO
1203  A      192.1.1.12    255.255.255.0   ----    ---    DIX      YES   NO
1203  B      -----      -----      HALF    10     DIX      NO    NO
1205  A      192.1.1.14    255.255.255.0   FULL    100    DIX      NO    NO
1205  B      -----      -----      HALF    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
2103  A      192.1.1.22    255.255.255.0   FULL    100    DIX      NO    NO
2103  B      -----      -----      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
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      -----      -----      HALF    10     DIX      NO    NO
```

NOTE: If the **ipaddr=0.0.0.0** is not being specified in this procedure, continue the procedure with [Step 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** command.

The following is an example of the possible output.

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0

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-MS1
192.1.1.52      DN-MS2

REMOTE IPADDR    REMOTE HOST
150.1.1.5        NCDEPTECONOMIC_DEVELOPMENT. SOUTHEASTERN_COORIDOR_ASHVL. GOV

IP Host table is (11 of 512) 2% 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 [Adding an IP Host](#) 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 [Step 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 [Step 5](#) to deactivate the signaling link. If the signaling link is out-of-service-maintenance disabled (OOS-MT-DSBLD), continue the procedure with [Step 7](#) to verify the IP card status.

5. Deactivate the signaling links 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.
```

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 06-10-01 09:12:36 GMT EAGLE5 36.0.0
CARD  VERSION      TYPE      GPL      PST      SST      AST
1201  126-003-000  E5ENET  IPSP      IS-NR      Active  -----
ALARM STATUS      = No Alarms.
IMTPCI  GPL version = 126-003-000
BLCPLD  GPL version = 126-003-000
BLDIAG6 GPL version = 126-003-000
BLBEPM  GPL version = 126-003-000
PLDPMC1 GPL version = 126-003-000
BLVXW6  GPL version = 126-003-000
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
A      IS-NR      nc001      -----

```

Command Completed.

If the IP card to be inhibited is in service-normal (IS-NR), continue the procedure with [Step 8](#) to inhibit the card. If the IP card is out-of-service-maintenance disabled (OOS-MT-DSBLD), continue the procedure with [Step 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  126-003-000  E5ENET  IPSP      OOS-MT-DSBLD  Manual  -----
ALARM STATUS      = No Alarms.
IMTPCI  GPL version = 126-003-000
BLCPLD  GPL version = 126-003-000
BLDIAG6 GPL version = 126-003-000
BLBEPM  GPL version = 126-003-000
PLDPMC1 GPL version = 126-003-000
BLVXW6  GPL version = 126-003-000
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
A      IS-NR      nc001      -----

```

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.

NOTE: If the **ipaddr** or **submask** parameter values are not being changed, continue the procedure with [Step 13](#) .

For this example, enter this command.

rtrv-ip-card:loc=1201

This is an example of the possible output.

```
rlghncxa03w 06-10-28 21:17:37 GMT EAGLE5 36.0.0
LOC 1201
  SRCHORDR  LOCAL
  DNSA      150.1.1.1
  DNSB      -----
  DEFROUTER -----
  DOMAIN    -----
```

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   255.255.255.255  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 1024) 1% 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 **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** parameter values of the **chg-netopts** command.

NOTE: If a Class A or C IP address (see [Table 6-4](#)) will be specified for the **ipaddr** parameter in [Step 14](#) , continue the procedure with [Step 13](#) .

Display the **pvn** and **pvnmask** 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** and **pvnmask** parameters are not configured. Continue the procedure with [Step 13](#) .

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

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

```

NETWORK OPTIONS
-----
PVN      = 128.20.30.40
PVNMASK  = 255.255.192.0

```

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** parameter values of the **chg-netopts** command. Continue the procedure with [Step 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 [Step 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 [Step 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:m  
actype=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 [Step 14](#) by entering the **rtrv-ip-lnk** command with the card location specified in [Step 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 [Step 8](#) by using by using the **alw-card** command.

NOTE: If [Step 8](#) was not performed, continue the procedure with [Step 18](#) .

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 06-10-01 09:12:36 GMT EAGLE5 36.0.0
CARD  VERSION      TYPE      GPL      PST      SST      AST
1201  126-003-000  E5ENET  IPSG     IS-NR     Active   -----
ALARM STATUS      = No Alarms.
IMTPCI  GPL version = 126-003-000
BLCPLD  GPL version = 126-003-000
BLDIAG6 GPL version = 126-003-000
BLBEPM  GPL version = 126-003-000
PLDPMC1 GPL version = 126-003-000
BLVXW6  GPL version = 126-003-000
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
A        IS-NR     nc001   -----
```

Command Completed.

18. Activate the signaling link from [Step 5](#) using the **act-slk** command.

NOTE: If [Step 5](#) was not performed, continue the procedure with [Step 20](#) .

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 [Step 22](#) .

NOTE: If the IP address of the default router was not changed to 0.0.0.0 in [Step 10](#) , continue the procedure with [Step 21](#) .

21. Perform the [Adding an IP Route](#) procedure and add the IP routes back into the database.

NOTE: If IP routes were not removed in [Step 11](#) , continue the procedure with [Step 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**.

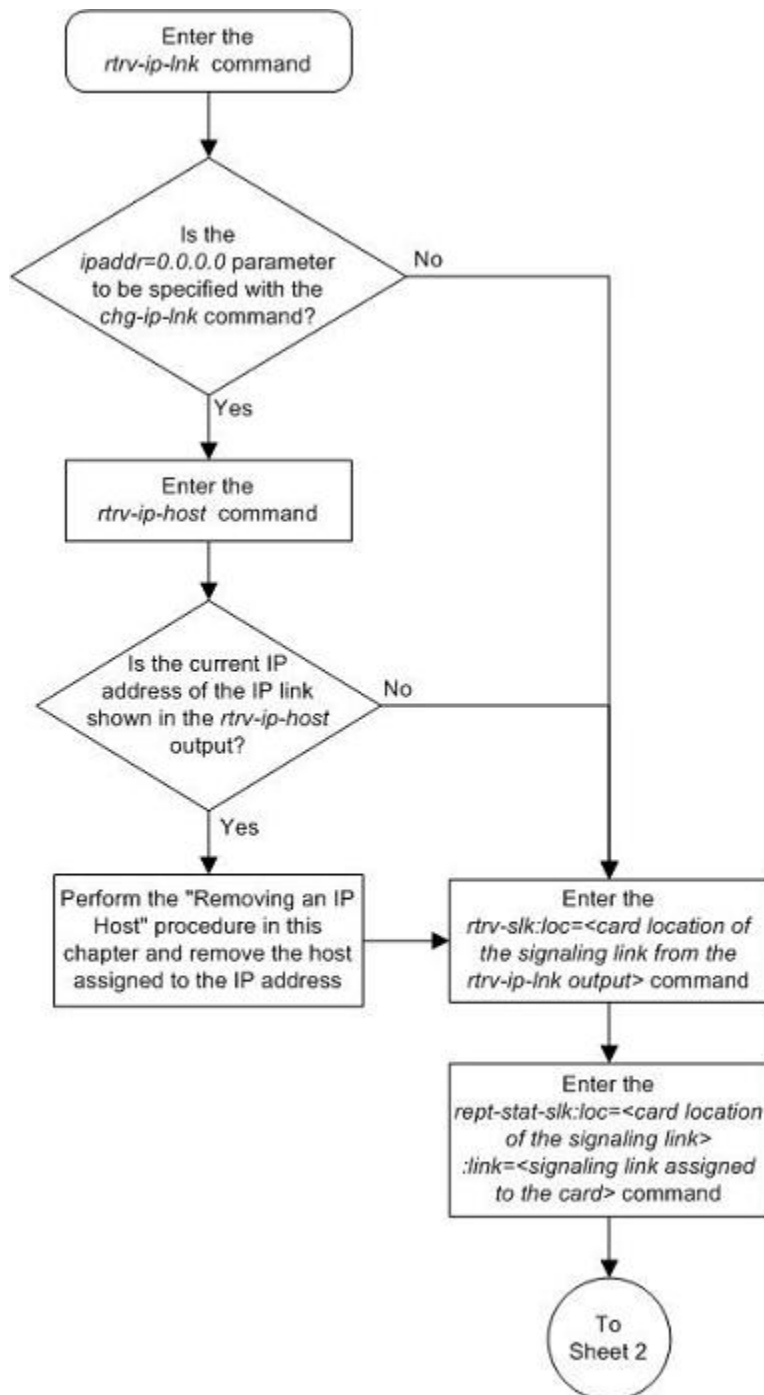
NOTE: If the **open** parameter value for an association was not changed in [Step 13](#) , continue the procedure with [Step 23](#) .

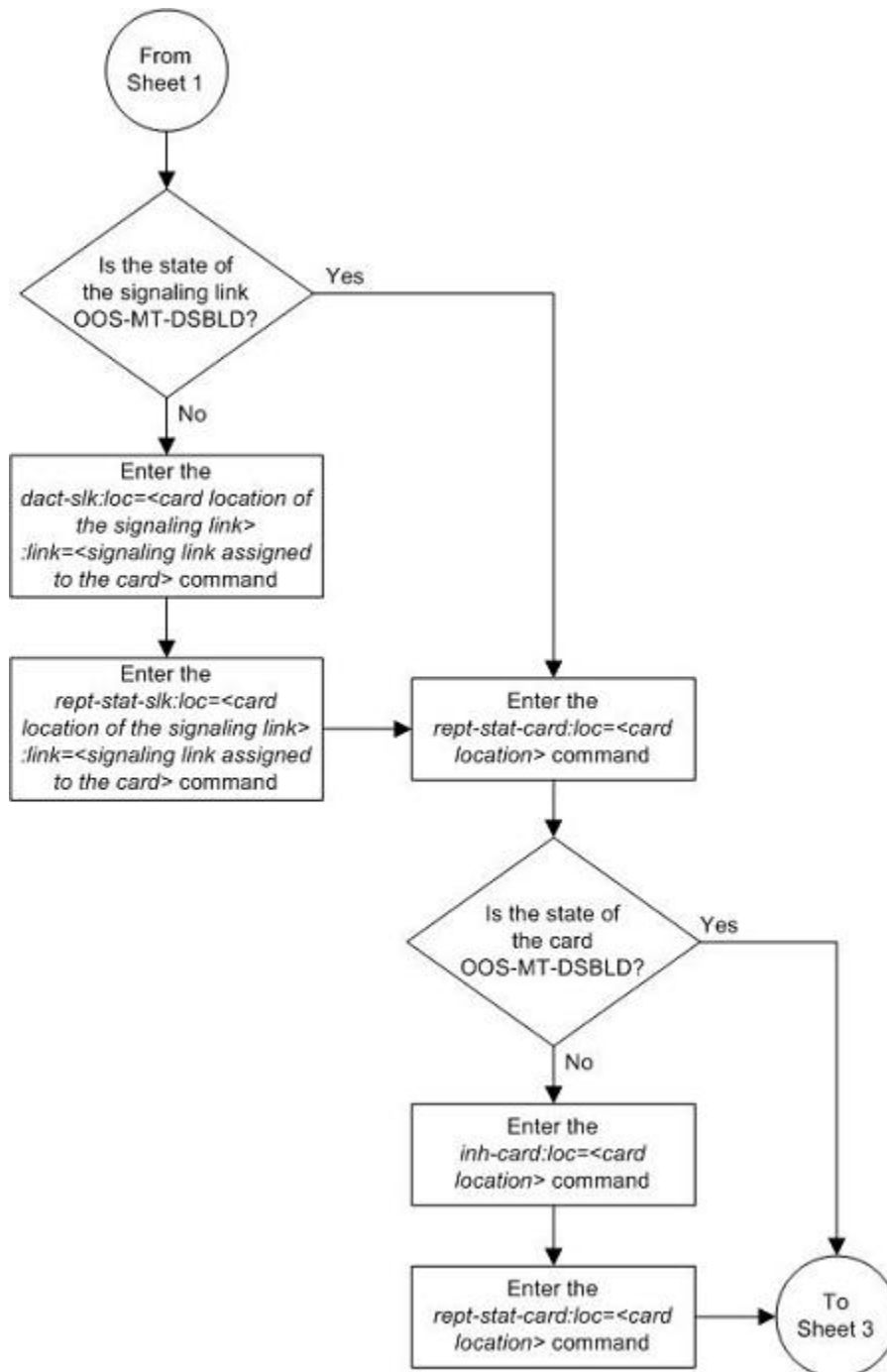
23. Back up the new changes using the **chg-db:action=backup:dest=fixed** command.

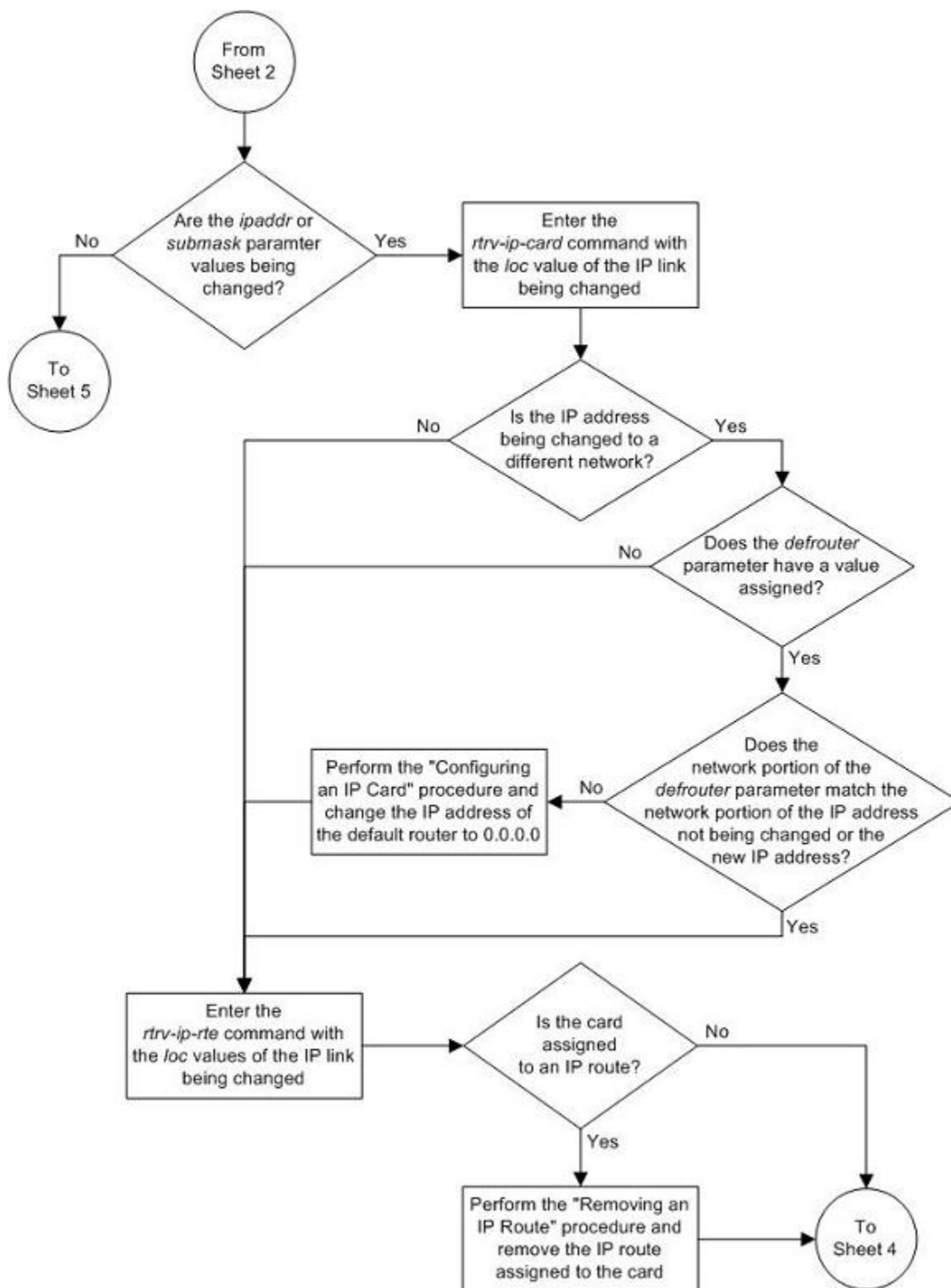
These messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

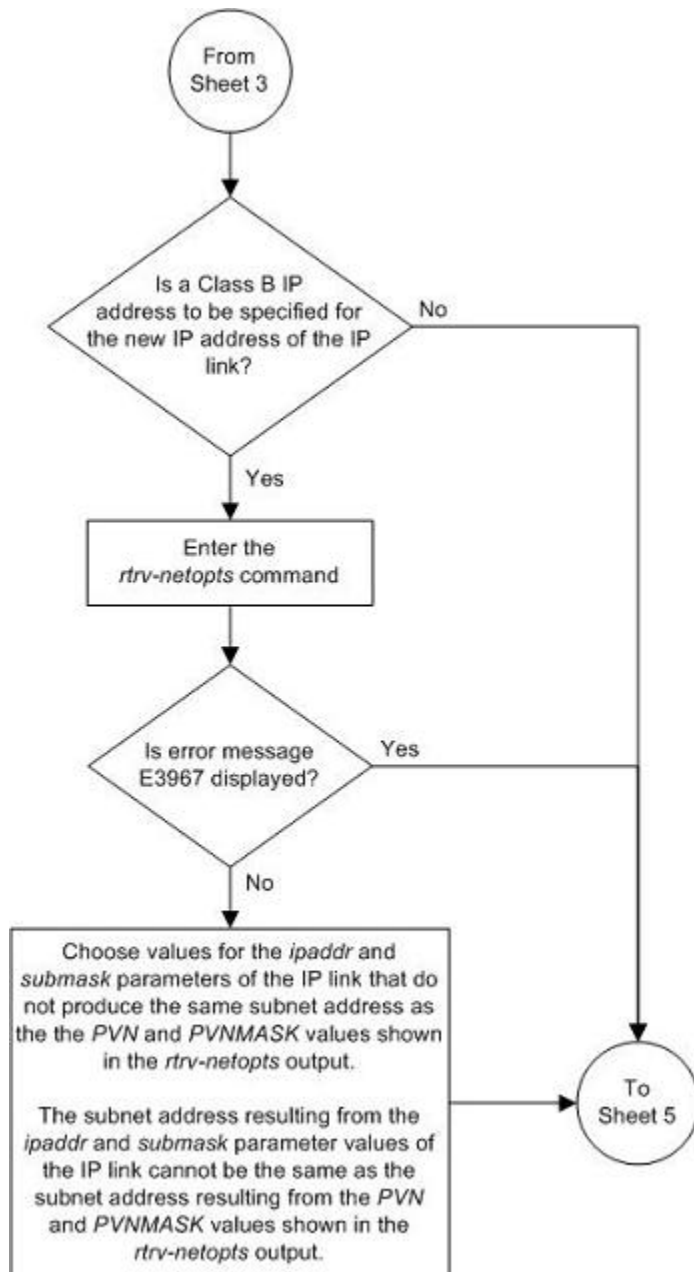
```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

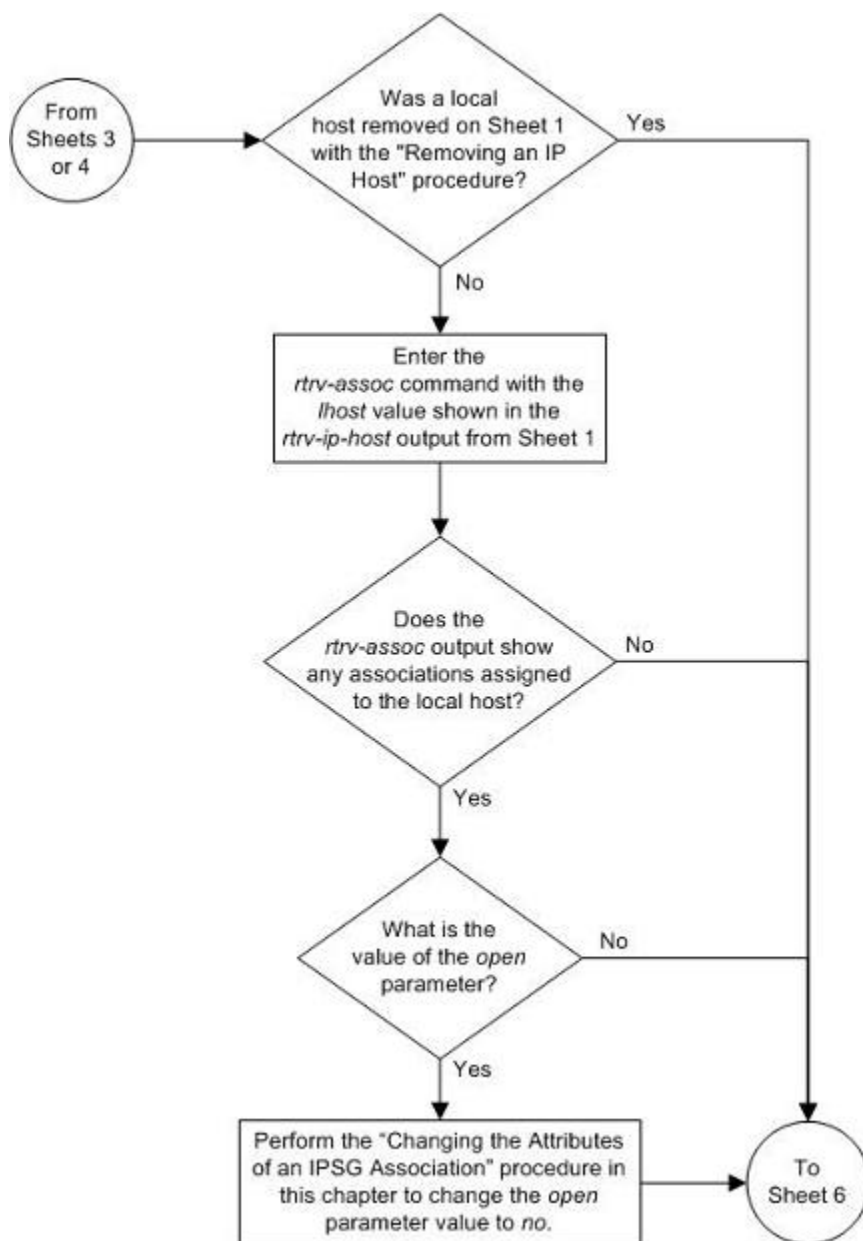
Flowchart 6-4. Configuring an IP Link

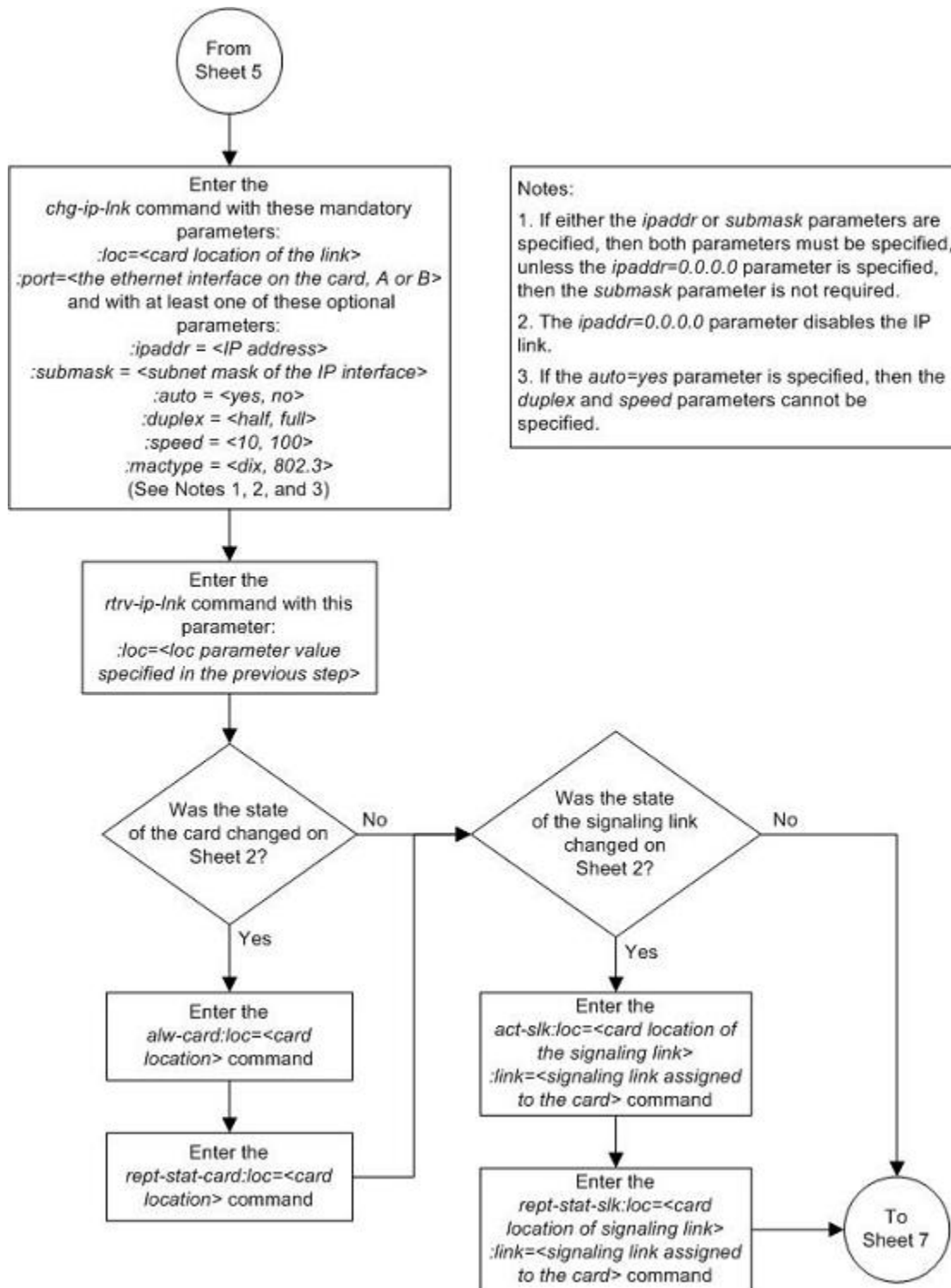


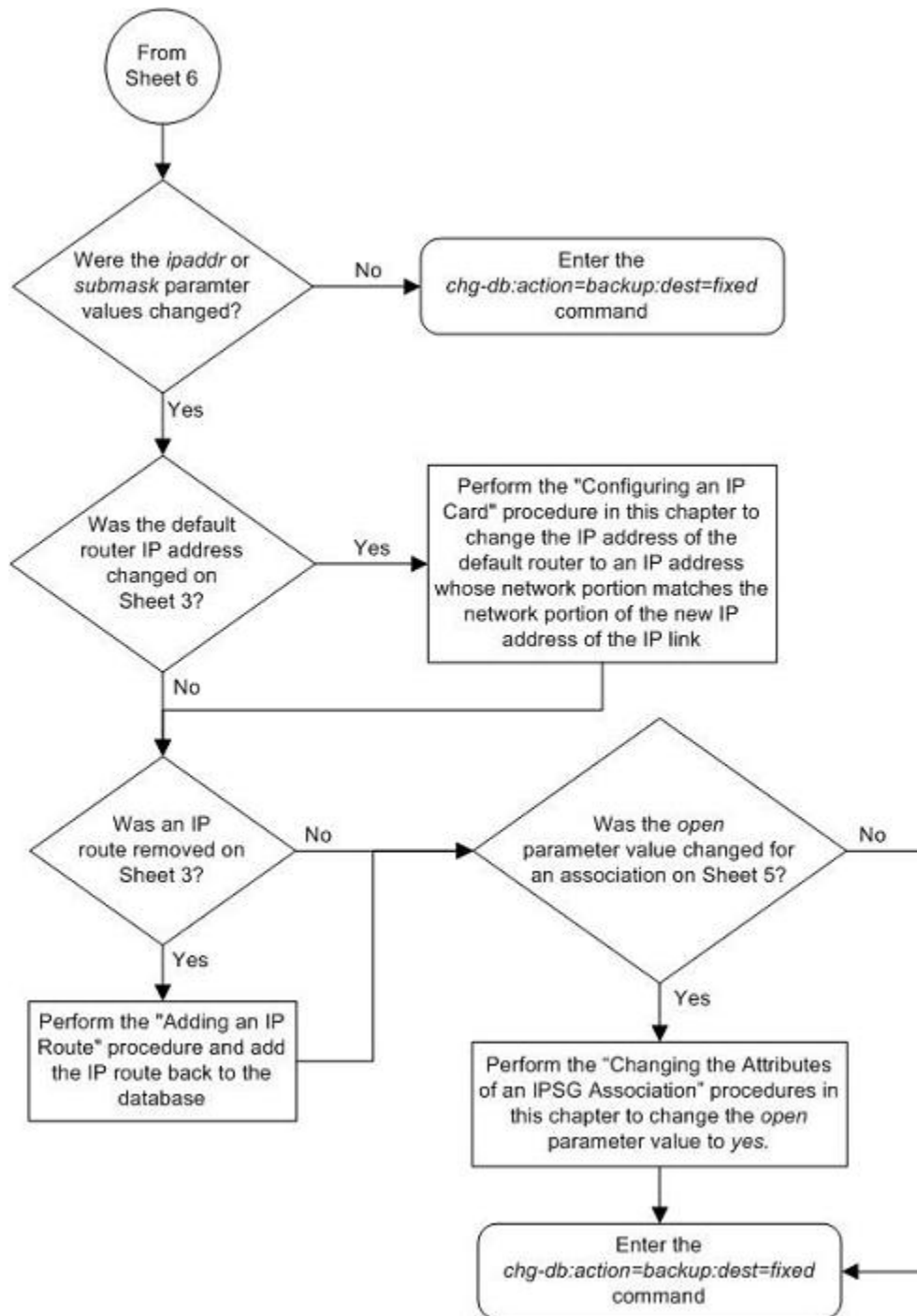












Adding an IP Host

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 ISS (**type=local**, the default value), or if the host resides on equipment that is not in the EAGLE 5 ISS (**type=remote**). This parameter is optional.

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.

Procedure

1. Display the current IP host information in the database by entering the **rtrv-ip-host** command.

The following is an example of the possible output.

```
rlghncxa03w 06-10-28 21:17:37 GMT EAGLE5 36.0.0
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 512) 2% 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 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     802.3    NO    NO
1201  B    -----     -----     HALF    10     DIX      NO    NO
1203  A    192.1.1.12   255.255.255.0   ----    ---     DIX      YES   NO
1203  B    -----     -----     HALF    10     DIX      NO    NO
1205  A    192.1.1.14   255.255.255.0   FULL    100    DIX      NO    NO
1205  B    -----     -----     HALF    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
2103  A    192.1.1.22   255.255.255.0   FULL    100    DIX      NO    NO
2103  B    -----     -----     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
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    -----     -----     HALF    10     DIX      NO    NO
```

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 **ent-ip-host** command with the IP address from [Step 2](#) , and the **type=local** parameter or without the **type** parameter. If the **type** parameter is not specified with the **ent-ip-host** command, the **type** parameter value defaults to **local**.

If a remote host is being configured, enter the **ent-ip-host** command with the IP address that is not shown in [Step 2](#) , and the **type=remote** 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 [Step 3](#) .

For this example, enter this command.

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

The following is an example of the possible output.

```
rlghncxa03w 06-10-28 21:19:37 GMT EAGLE5 36.0.0
LOCAL IPADDR      LOCAL HOST
192.1.1.30        KC-HLR1
```

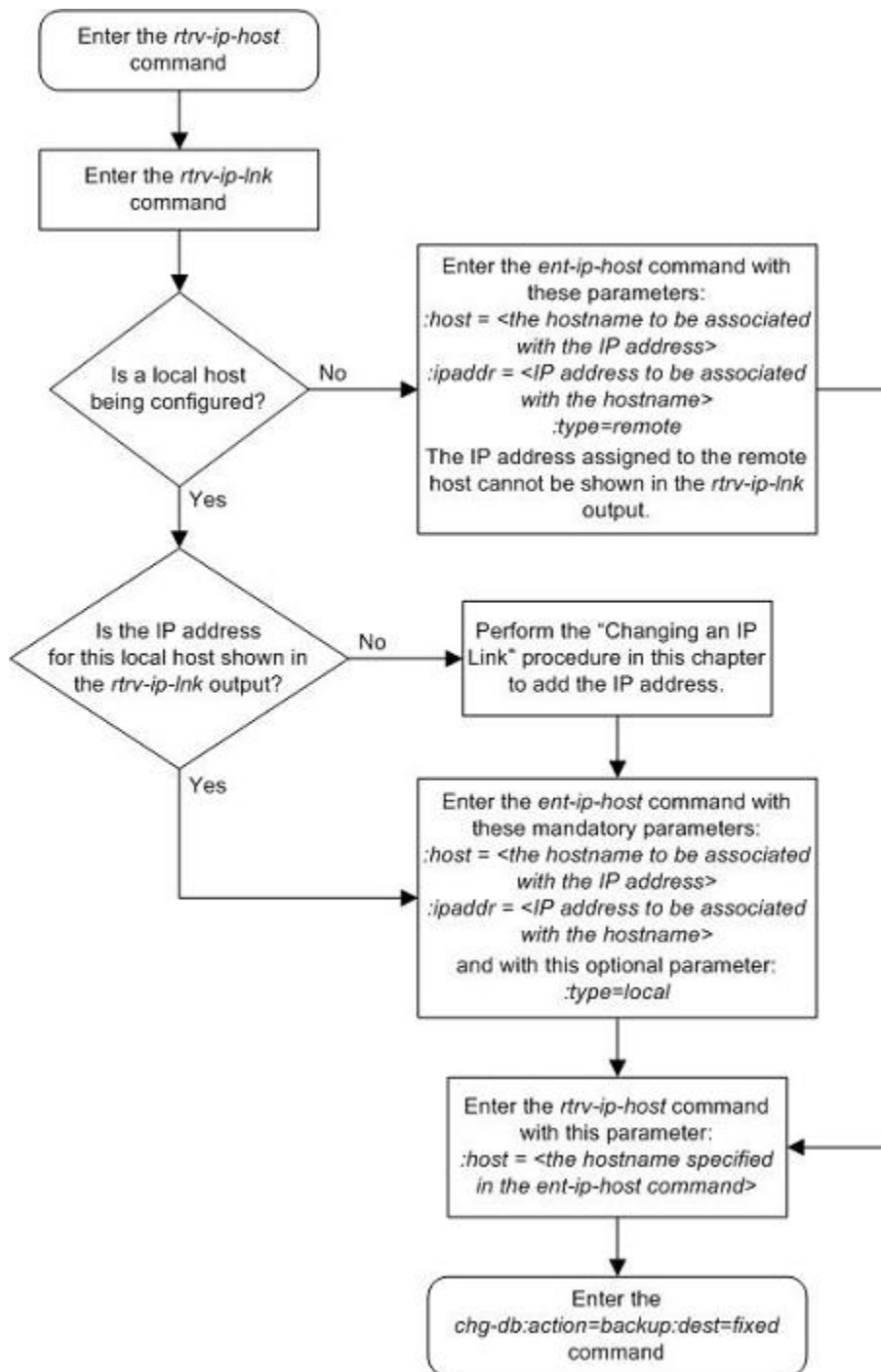
```
IP Host table is (11 of 512) 2% full
```

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.
```


Flowchart 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

:dnrsa – 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.

:dnrsb – 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.

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

The **chg-ip-card** command contains other parameters that cannot be used in this procedure. Refer to the *Commands Manual* 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 6-4](#)). 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 **dnrsa** value for card 1101 is 150.1.1.10. The **dnrsb** 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 **dnrsa** parameter value), but not the Ethernet B IP address (the **dnrsb** 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.

Procedure

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.

```
r1ghncxa03w 08-04-28 21:17:37 GMT EAGLE5 38.0.0
LOC 1201
  SRCHORDR  SRVR
  DNSA      150.1.1.1
  DNSB      -----
  DEFROUTER -----
  DOMAIN    -----
  SCTPCSUM  crc32c
LOC 1203
  SRCHORDR  LOCAL
  DNSA      192.1.1.40
  DNSB      -----
  DEFROUTER -----
  DOMAIN    NC. TEKELEC. COM
  SCTPCSUM  crc32c
LOC 1205
  SRCHORDR  SRVRONLY
  DNSA      192.1.1.40
  DNSB      -----
  DEFROUTER -----
  DOMAIN    NC. TEKELEC. COM
  SCTPCSUM  crc32c
```

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 [Step 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%
```

- Retrieve the status of the signaling link shown in [Step 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 [Step 4](#) to deactivate the signaling link. If the signaling link is out-of-service-maintenance disabled (OOS-MT-DSBLD), continue the procedure with [Step 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.
```

- 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.
```

- 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 06-10-01 09:12:36 GMT EAGLE5 36.0.0
CARD  VERSION      TYPE      GPL      PST      SST      AST
1201  126-003-000  E5ENET  IPSEG    IS-NR     Active   -----
ALARM STATUS      = No Alarms.
IMTPCI  GPL version = 126-003-000
BLCPLD  GPL version = 126-003-000
BLDIAG6 GPL version = 126-003-000
BLBEPM  GPL version = 126-003-000
PLDPMC1 GPL version = 126-003-000
BLVXW6  GPL version = 126-003-000
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
A        IS-NR     nc001  -----

```

Command Completed.

If the IP card to be inhibited is in service-normal (IS-NR), continue the procedure with [Step 7](#) to inhibit the card. If the IP card is out-of-service-maintenance disabled (OOS-MT-DSBLD), continue the procedure with [Step 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 06-10-01 09:12:36 GMT EAGLE5 36.0.0
CARD  VERSION      TYPE      GPL      PST      SST      AST
1201  126-003-000  E5ENET  IPSEG    OOS-MT-DSBLD  Manual   -----
ALARM STATUS      = No Alarms.
IMTPCI  GPL version = 126-003-000
BLCPLD  GPL version = 126-003-000
BLDIAG6 GPL version = 126-003-000
BLBEPM  GPL version = 126-003-000
PLDPMC1 GPL version = 126-003-000
BLVXW6  GPL version = 126-003-000
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
A        IS-NR     nc001  -----

```

Command Completed

If the **defrouter** parameter will be specified in [Step 11](#) , continue the procedure with [Step 11](#) .

If the **defrouter** parameter will not be specified in [Step 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 [Step 11](#) .
- If the **sctpcsum** parameter value for the card will be changed, continue the procedure with [Step 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 [Step 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 [Step 11](#) .
- If the **sctpcsum** parameter value for the card will be changed, continue the procedure with [Step 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
SRKQ:          1500
SNMPCONT:      tekelec
GETCOMM:       public
SETCOMM:       private
TRAPCOMM:      public
SCTPCSUM:      adler32
IPGWABATE:     NO
UAMEASUSEDFTAS: NO
```

If the **sctpcsum** parameter value in the **rtrv-sg-opts** output is **perc card**, continue the procedure with [Step 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 **perc card**, 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 [Step 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.com: 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 [Step 11](#) by entering the **rtrv-ip-card** command with the card location specified in [Step 11](#) .

For this example, enter this command.

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

The following is an example of the possible output.

```
rlghncxa03w 08-04-28 21:17:37 GMT EAGLE5 38.0.0
LOC 1201
  SRCHORDR  LOCAL
  DNSA      192.1.1.40
  DNSB      -----
  DEFROUTER -----
  DOMAIN    NC. TEKELEC. COM
  SCTPCSUM  adler32
```

NOTE: If [Step 7](#) was not performed, continue the procedure with [Step 15](#) .

13. Allow the IP card that was inhibited in [Step 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 06-10-01 09:12:36 GMT EAGLE5 36.0.0
CARD  VERSION      TYPE      GPL      PST      SST      AST
1201  126-003-000  E5ENET  IPG      IS-NR     Active   -----
ALARM STATUS      = No Alarms.
IMTPCI  GPL version = 126-003-000
BLCPLD  GPL version = 126-003-000
BLDIAG6 GPL version = 126-003-000
BLBEPM  GPL version = 126-003-000
PLDPMC1 GPL version = 126-003-000
BLVXW6  GPL version = 126-003-000
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
  A    IS-NR     nc001   -----
```

Command Completed.

15. Activate the signaling link from [Step 4](#) using the **act-slk** command.

NOTE: If [Step 4](#) was not performed, continue the procedure with [Step 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

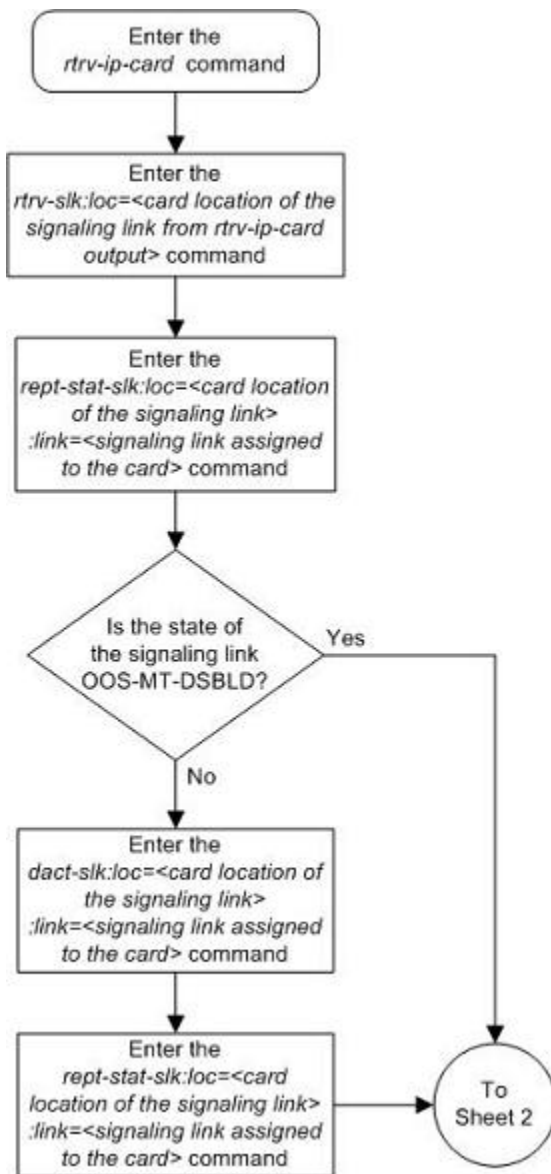
This message should appear.

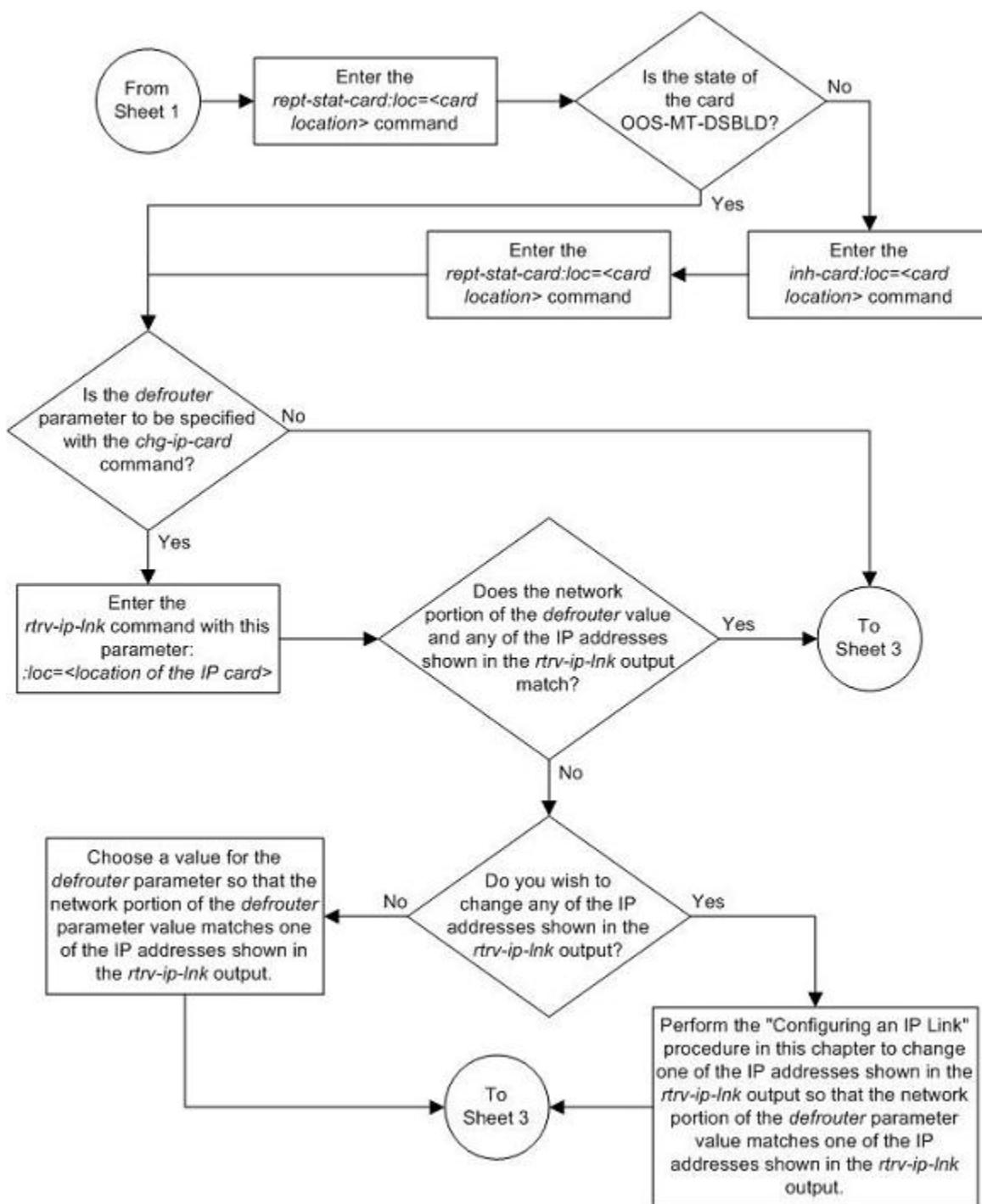
```
rlghncxa03w 06-10-28 21:16:37 GMT EAGLE5 36.0.0
SLK  LSN      CLLI      PST      SST      AST
1201,A  nc001   -----   IS-NR
      Avail   ----
Command Completed.
```

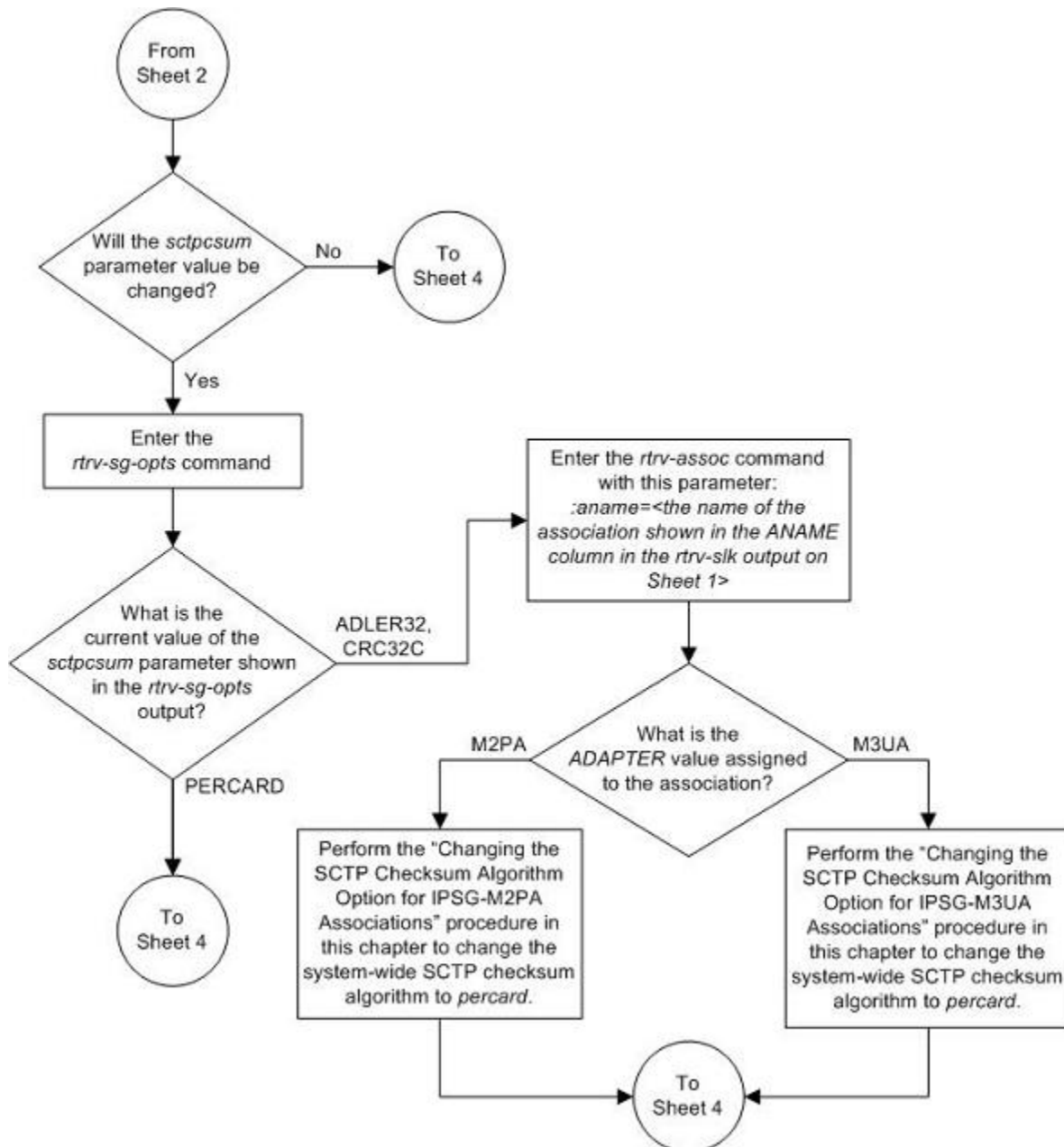
17. Back up the new changes using the **chg-db:action=backup:dest=fixed** command.

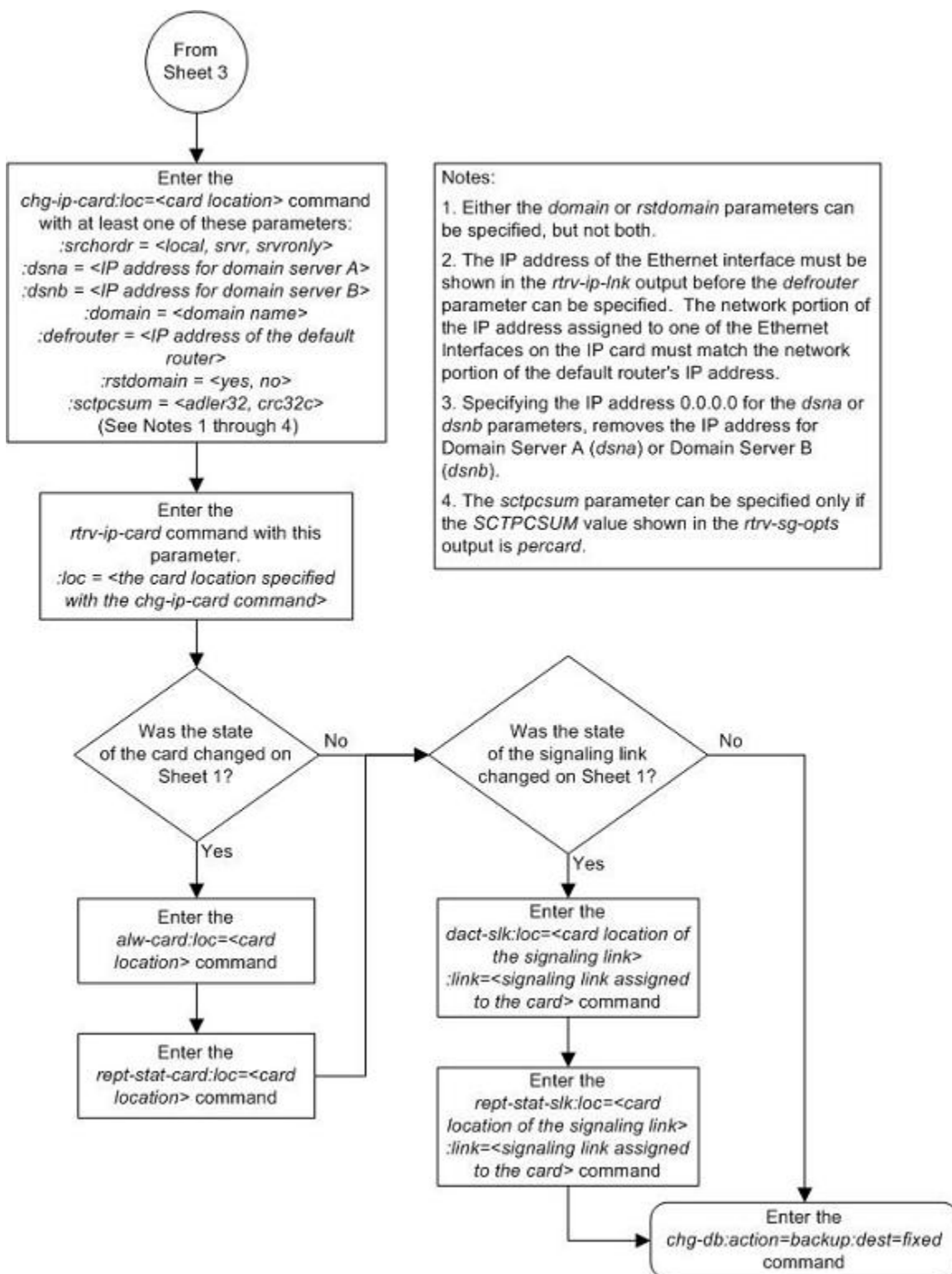
These messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
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.
```


Flowchart 6-6. Configuring an IP Card







Adding an IP Route

This procedure is used to add an IP route to the database using the **ent-ip-rte** 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 5 ISS can contain a maximum of 1024 IP routes.

Ethernet Interfaces A and B on the 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 **rtrv-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 **dest** parameter value represents a host IP address, the value for the **submask** parameter must be 255.255.255.255. Otherwise, the **submask** parameter value 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 6-5. 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 6-6](#) for the valid input values for the **submask** and **dest** parameter combinations.

Table 6-6. Valid Subnet Mask Parameter Values

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

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** parameter values of the **chg-netopts** command. The **pvn** and **pvnmask** 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.

Procedure

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
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 1024) 1% full

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

This is an example of the possible output.

```

rlghncxa03w 06-10-28 21:17:37 GMT EAGLE5 36.0.0
LOC 1212
  SRCHORDR  LOCAL
  DNSA      150.1.1.1
  DNSB      -----
  DEFROUTER 150.1.1.100
  DOMAIN    NC. TEKELEC. COM

LOC 1301
  SRCHORDR  SRVRONLY
  DNSA      140.188.13.10
  DNSB      140.190.15.28
  DEFROUTER -----
  DOMAIN    NC. TEKELEC. COM

LOC 1303
  SRCHORDR  LOCAL
  DNSA      150.190.15.1
  DNSB      -----
  DEFROUTER 150.190.15.25
  DOMAIN    NC. TEKELEC. COM

```

If the required IP card is not shown in the **rtrv-ip-card** output, perform the [Adding an IPSC 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 6-6](#)) will be specified for the **dest** parameter in [Step 4](#) , continue the procedure with [Step 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** parameter values of the **chg-netopts** command.

Display the **pvn** and **pvnmask** 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** and **pvnmask** parameters are not configured. Continue the procedure with [Step 4](#) .

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

```

rlghncxa03w 06-10-28 21:17:37 GMT EAGLE5 36.0.0
NETWORK OPTIONS
-----
PVN      = 128.20.30.40
PVMASK   = 255.255.192.0

```

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** parameter values of the **chg-netopts** command. Continue the procedure with [Step 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=150.1.1.5  
0
```

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 [Step 4](#) .

For this example, enter these commands.

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

This is an example of the possible output.

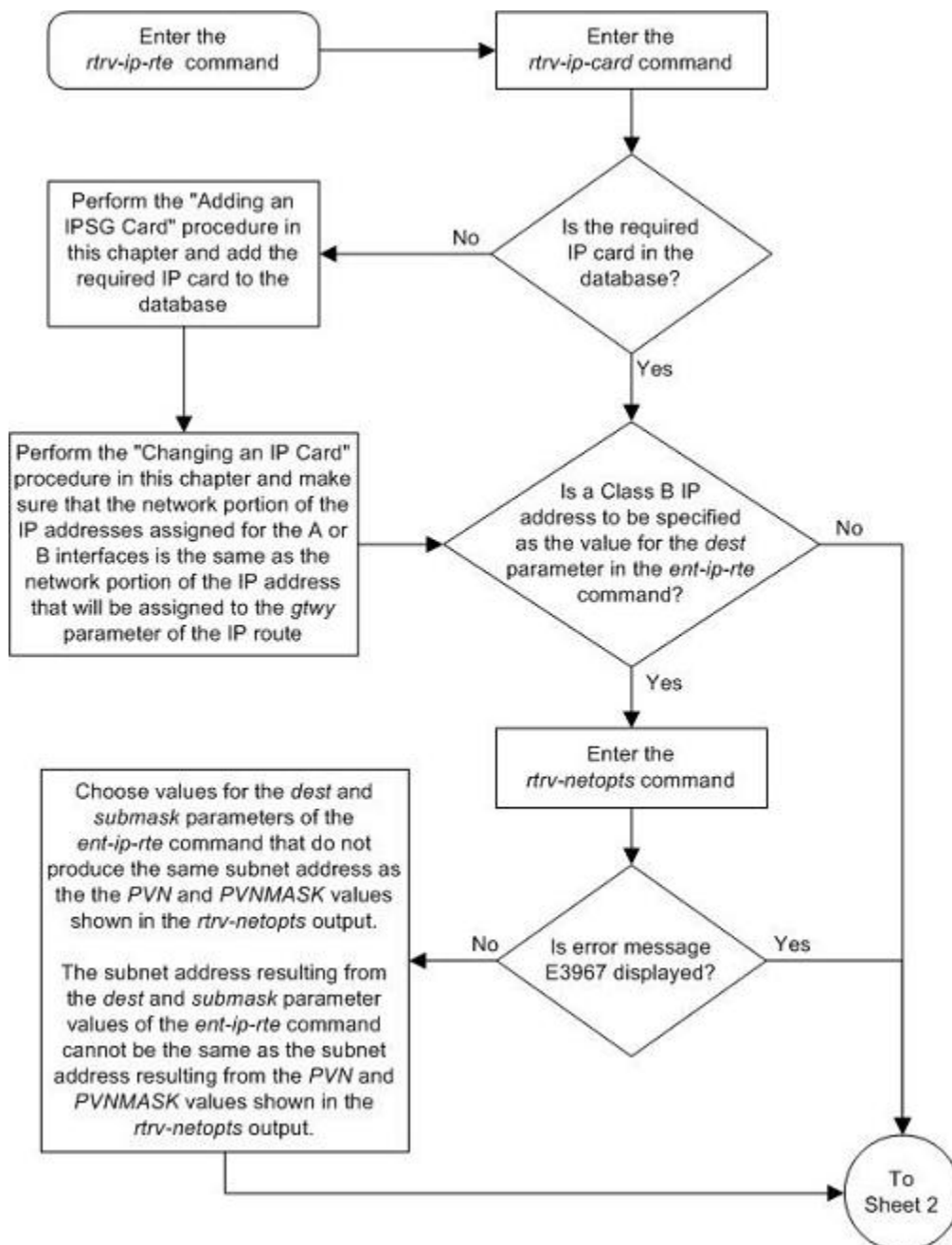
```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0  
LOC  DEST          SUBMASK          GTWY  
1212 132.10.175.20   255.255.255.255 150.1.1.50  
IP Route table is (6 of 1024) 1% full
```

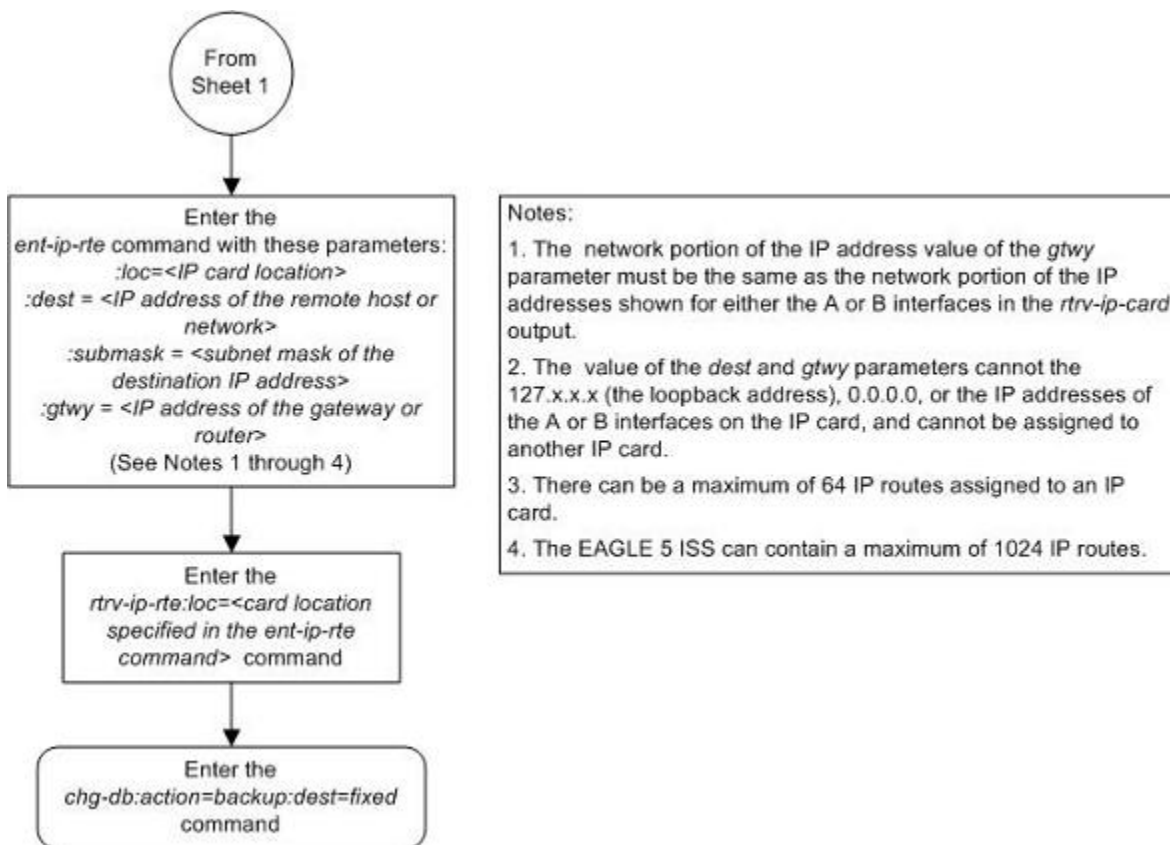
6. Back up the new changes using the **chg-db:action=backup:dest=fixed** command.

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.
```


Flowchart 6-7. Adding an IP Route





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.

: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, **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 **ent -assoc** command. When an association is added to the database, these fields receive their default values. If a different value is desired, the **chg -assoc** 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 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		

The **link** parameter cannot be specified for an IPSG M2PA 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 **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.

The EAGLE 5 ISS 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 **lhost**, **lport**, **rhost**, **rport** parameters.

Uni-homed endpoints are associations configured with the **lhost** parameter only. The **lhost** parameter value represents an IP address that corresponds to either the A or B network interface of the IPSG card. Multi-homed endpoints are associations configured with both the **lhost** and **alhost** parameters. The **lhost** 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 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 than 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 the *Commands Manual*.

Procedure

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
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 **M2PA**) is shown in the **rtrv-assoc** output, continue the procedure with [Step 2](#).
 - If the desired IP link is not shown in the **rtrv-assoc** output, continue the procedure with [Step 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 [Step 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 [Step 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 **rtrv-assoc** output in [Step 1](#) and repeat this step.

- Continue the procedure with [Step 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 [Step 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. 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 [Step 1](#) .

If less than 32 associations are shown in the **rtrv-assoc** output, continue the procedure with [Step 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 08-04-28 21:14:37 GMT EAGLE5 38.0.0
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 B ----- HALF 10 DIX NO NO
1203 A 192.1.1.12 255.255.255.0 ---- --- DIX YES NO
1203 B ----- HALF 10 DIX NO NO
1205 A 192.1.1.14 255.255.255.0 FULL 100 DIX NO NO
1205 B ----- HALF 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
2103 A 192.1.1.22 255.255.255.0 FULL 100 DIX NO NO
2103 B ----- 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
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 ----- 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.

5. Verify that the local host name to be assigned to the association is in the database by using the **rtrv-ip-host** command. The following is an example of the possible output.

```
rlghncxa03w 08-04-28 21:15:37 GMT EAGLE5 38.0.0
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-MS1
192.1.1.52      DN-MS2

REMOTE IPADDR  REMOTE HOST
150.1.1.5      NCDEPTECONOMIC_DEVELOPMENT. SOUTHEASTERN_COORIDOR_ASHVL. GOV

```

IP Host table is (11 of 512) 2% 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 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.

NOTE: If the m2patset 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    T2    T3    T4N  T4E  T5    T6    T7    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

```

To display the M2PA RFC 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	T2	T3	T4N	T4E	T5	T6	T7	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
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
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
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 (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	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	T2	T3	T4N	T4E	T5	T6	T7	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
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
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
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 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.

- 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.

NOTE: If a new host was added in [Step 5](#) , continue the procedure with [Step 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 **ent-assoc** 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.

- 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**

NOTE: See [Flowchart 6-8](#) (Sheet 4) for the rules that apply to the **ent-assoc** command.

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
```

- Verify the changes using the **rtrv-assoc** command specifying the association name specified in [Step 8](#) . For this example, enter this command.

rtrv-assoc: aname=assoc2

This is an example of possible output.


```

rlghncxa03w 08-04-28 09:12:36 GMT EAGLE5 38.0.0
ANAME assoc2
  LOC      1203          IPLNK PORT  A          LINK  --
  ADAPTER  M2PA          VER          M2PA RFC
  LHOST    gw105.nc.tekelec.com
  ALHOST    ---
  RHOST    gw100.nc.tekelec.com
  LPORT    1030          RPORT      1030
  ISTRMS    2            OSTRMS     2            BUFSIZE  200
  RMODE     LIN          RMIN       120          RMAX     800
  RTIMES    10          CWMIN      3000         M2PATSET  1
  OPEN      NO          ALW         NO          RTXTHR   0

```

```

IP Appl Sock table is (5 of 4000) 1% full
Assoc Buffer Space Used (400 KB of 1600 KB) on LOC = 1203

```

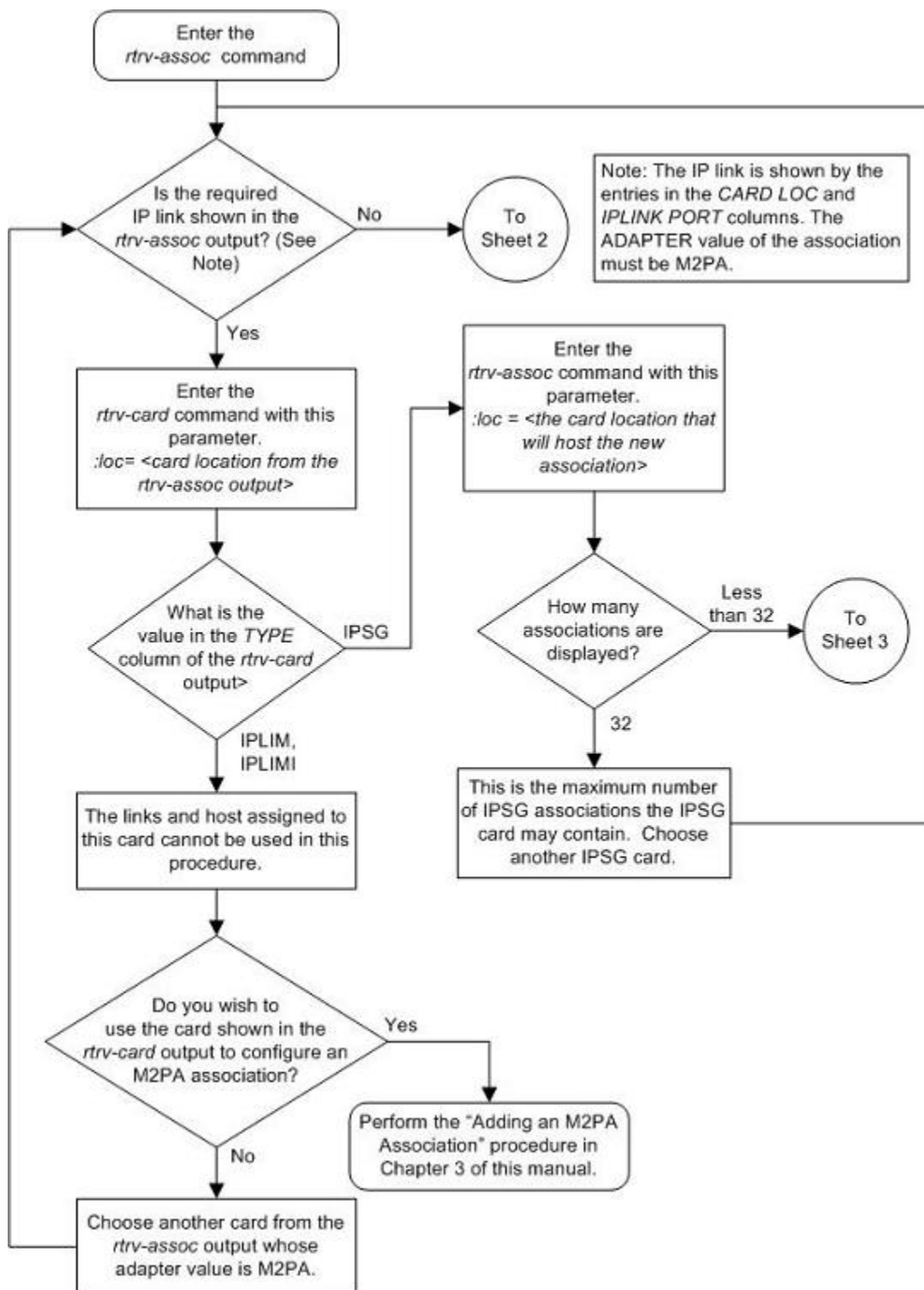
10. Back up the new changes, using the **chg-db:action=backup:dest=fixed** command. These messages should appear; the active Maintenance and Administration Subsystem Processor (MASP) appears first.

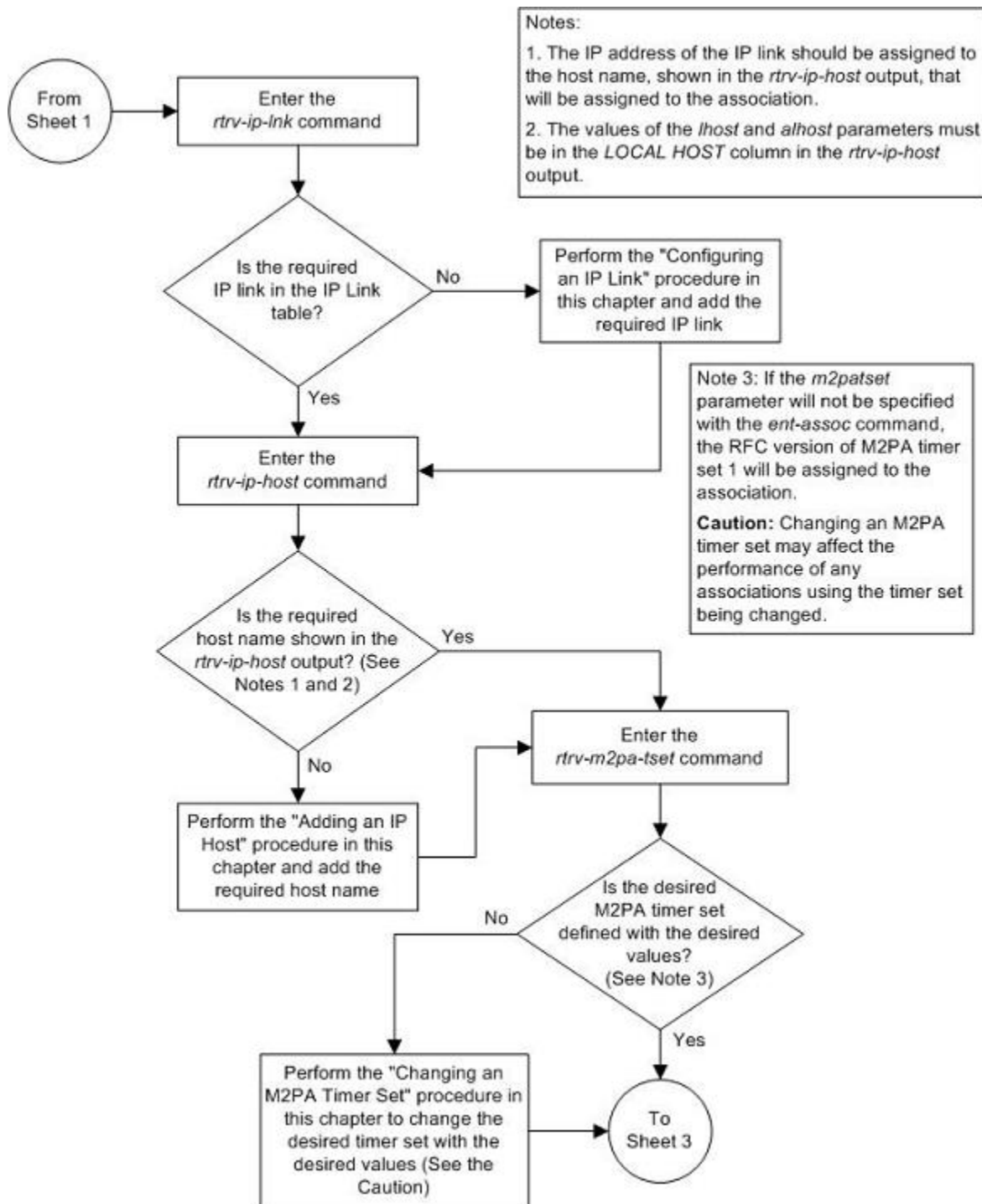
```

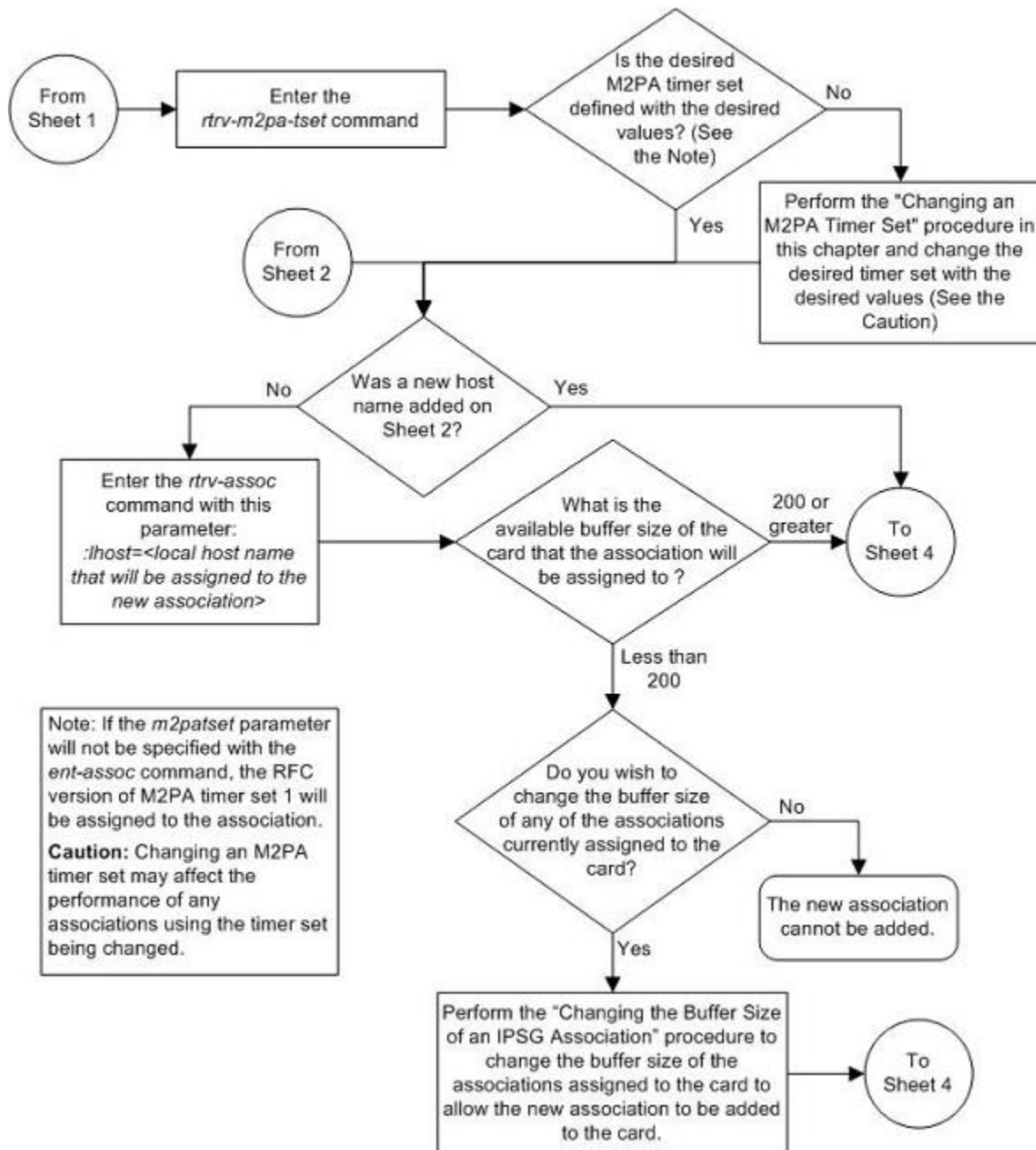
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.

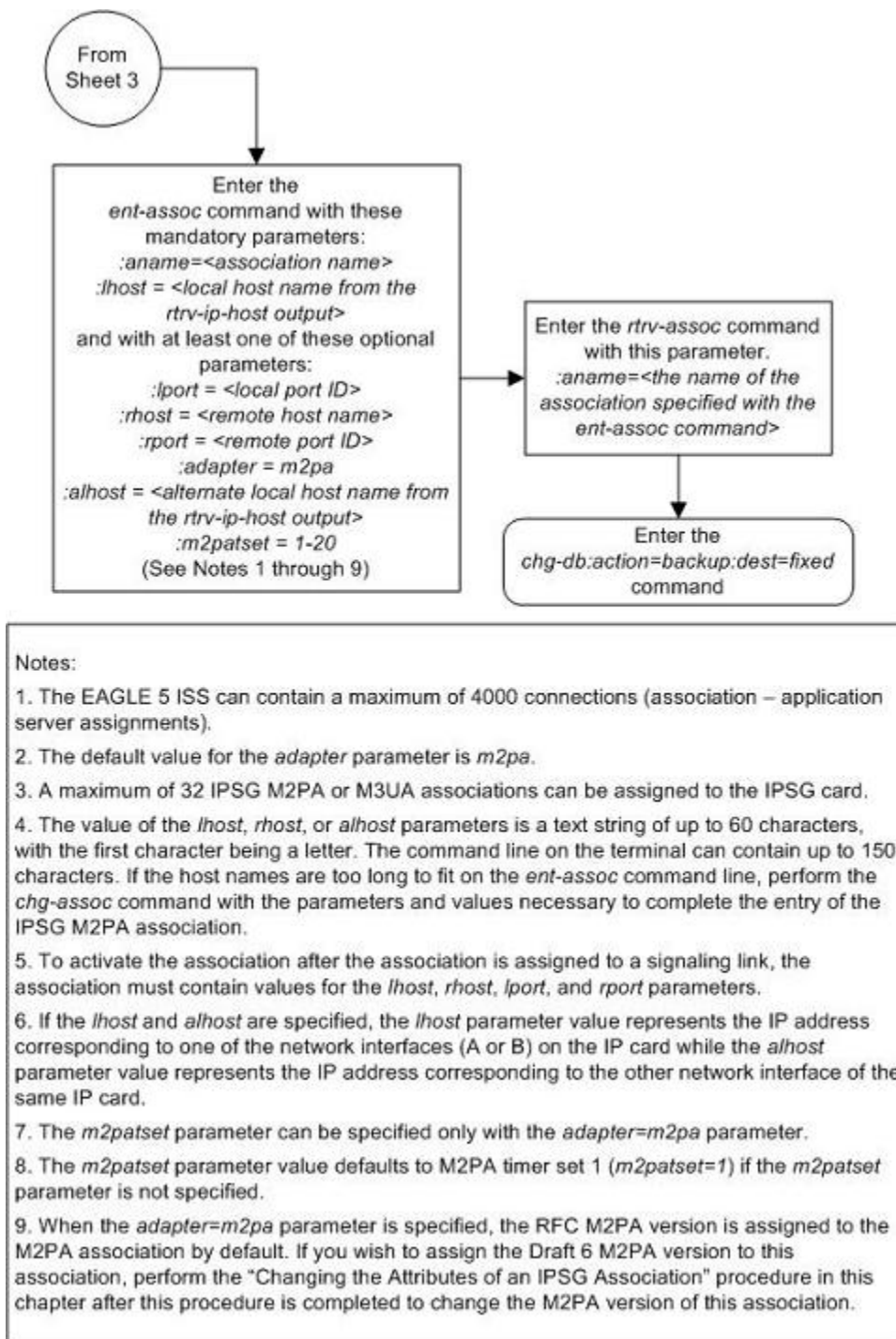
```

Flowchart 6-8. Adding an IPSG M2PA Association









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 **chg -assoc** 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 6-8](#) .

Table 6-8. IPSG M3UA 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
bufsize=16	rtxthr=0			

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 **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 association.

The EAGLE 5 ISS 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 **lhost** parameter only. The **lhost** parameter value represents an IP address that corresponds to either the A or B network interface of the IPSG card. Multi-homed endpoints are associations configured with both the **lhost** and **alhost** parameters. The **lhost** parameter value represents an IP address corresponding to one of the network interfaces (A or B) of the IPSG card while the **alhost** parameter value represents an IP address corresponding to the other network interface of the same 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 than 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 the *Commands Manual*.

Procedure

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
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 [Step 2](#).
 - If the desired IP link is not shown in the **rtrv-assoc** output, continue the procedure with [Step 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 [Step 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 [Step 3](#).

If the value in the **TYPE** column is either SS7IPGW or IPGW1, 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 [Step 1](#) and repeat this step.
- Continue the procedure with [Step 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 [Step 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. 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 [Step 1](#).

If less than 32 associations are shown in the **rtrv-assoc** output, continue the procedure with [Step 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 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 10 802.3 NO NO
1201 B ----- HALF 10 DIX NO NO
1203 A 192.1.1.12 255.255.255.0 ---- DIX YES NO
1203 B ----- HALF 10 DIX NO NO
1205 A 192.1.1.14 255.255.255.0 FULL 100 DIX NO NO
1205 B ----- HALF 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
2103 A 192.1.1.22 255.255.255.0 FULL 100 DIX NO NO
2103 B ----- 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
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	-----	-----	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.

5. Verify that the local host name to be assigned to the association is in the database by using the **rtrv-ip-host** command. The following is an example of the possible output.

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
```

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 512) 2% 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.

NOTE: If a new IP host was added in [Step 5](#), continue the procedure with [Step 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
```

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.

7. 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
```

NOTE: See [Flowchart 6-9](#) (Sheet 4) for the rules that apply to the **ent -assoc** command.

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 [Step 7](#). For this example, enter these commands.

rtrv-assoc:aname=assoc1

This is an example of possible output.

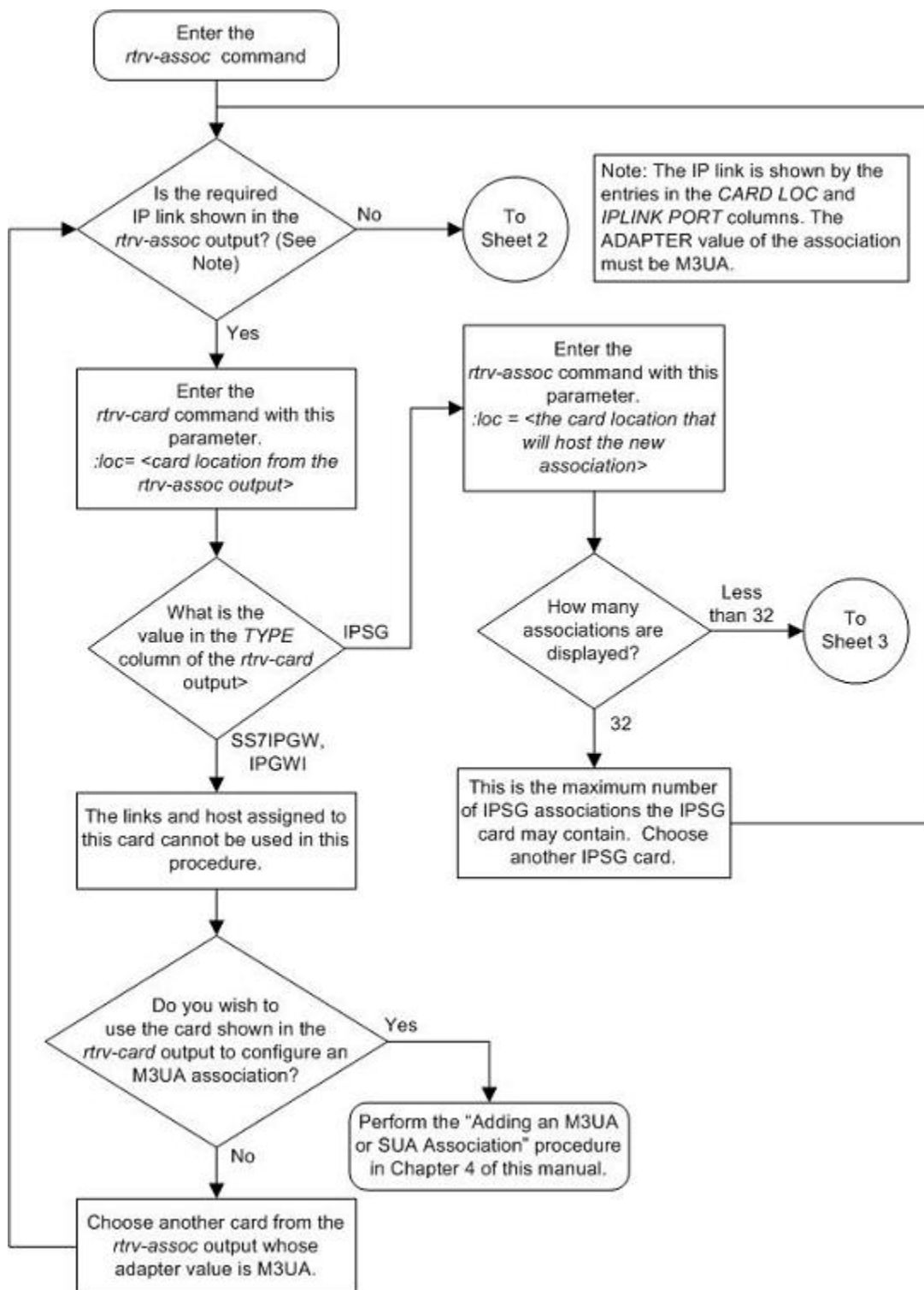
```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
ANAME assoc1
LOC      1305          IPLNK PORT  A          LINK  A
ADAPTER  M3UA          VER          M3UA RFC
LHOST    gw105.nc.tekelec.com
ALHOST    ---
RHOST    gw100.nc.tekelec.com
LPORT    1030          RPORT      1030
ISTRMS   2             OSTRMS    2           BUFSIZE 16
RMODE    LIN           RMIN       120          RMAX     800
RTIMES    10           CWMIN      3000         UAPS     10
OPEN      YES          ALW         YES          RTXTHR  0
```

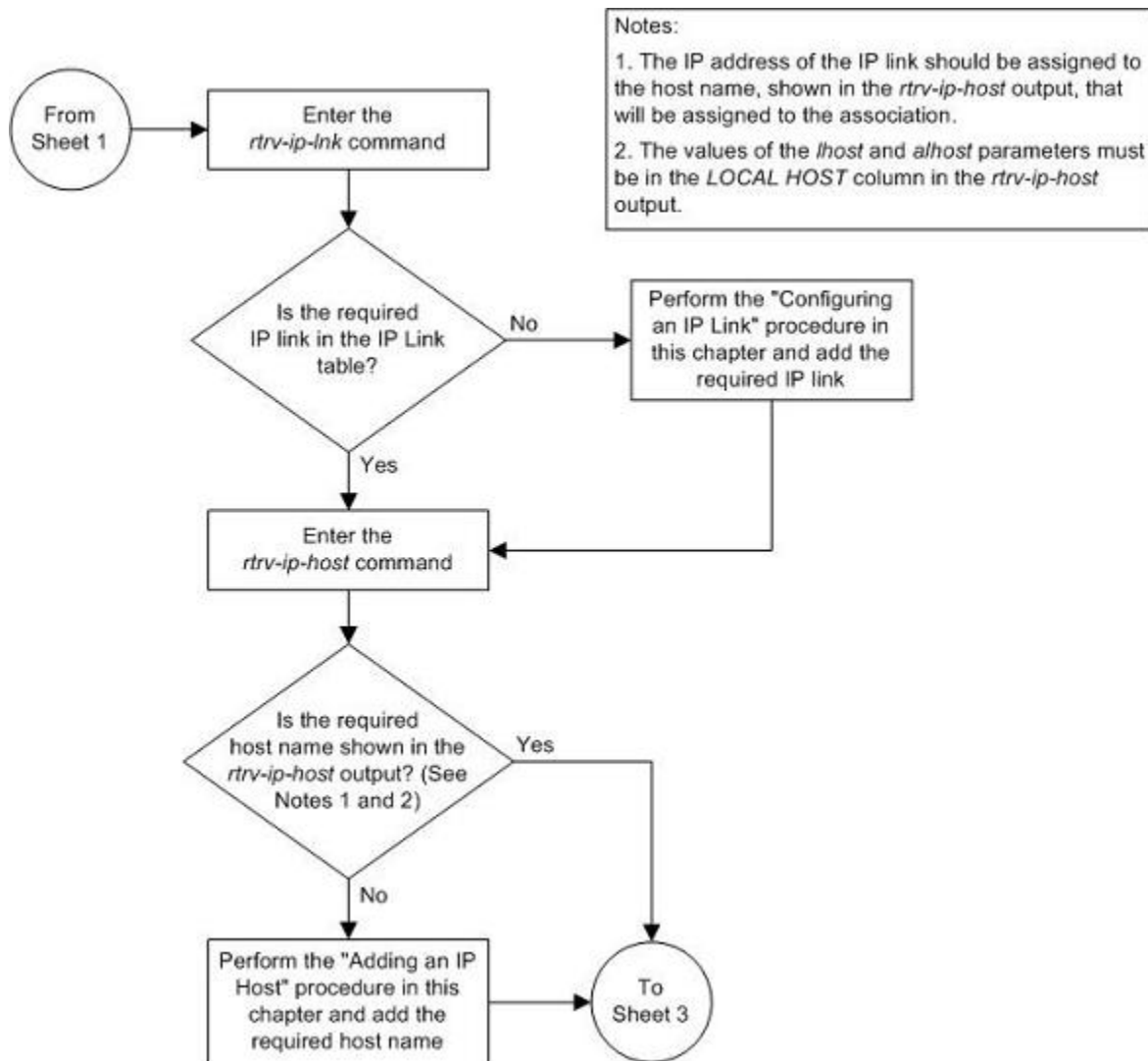
```
IP Appl Sock table is (5 of 4000) 1% full
Assoc Buffer Space Used (16 KB of 800 KB) on LOC = 1305
```

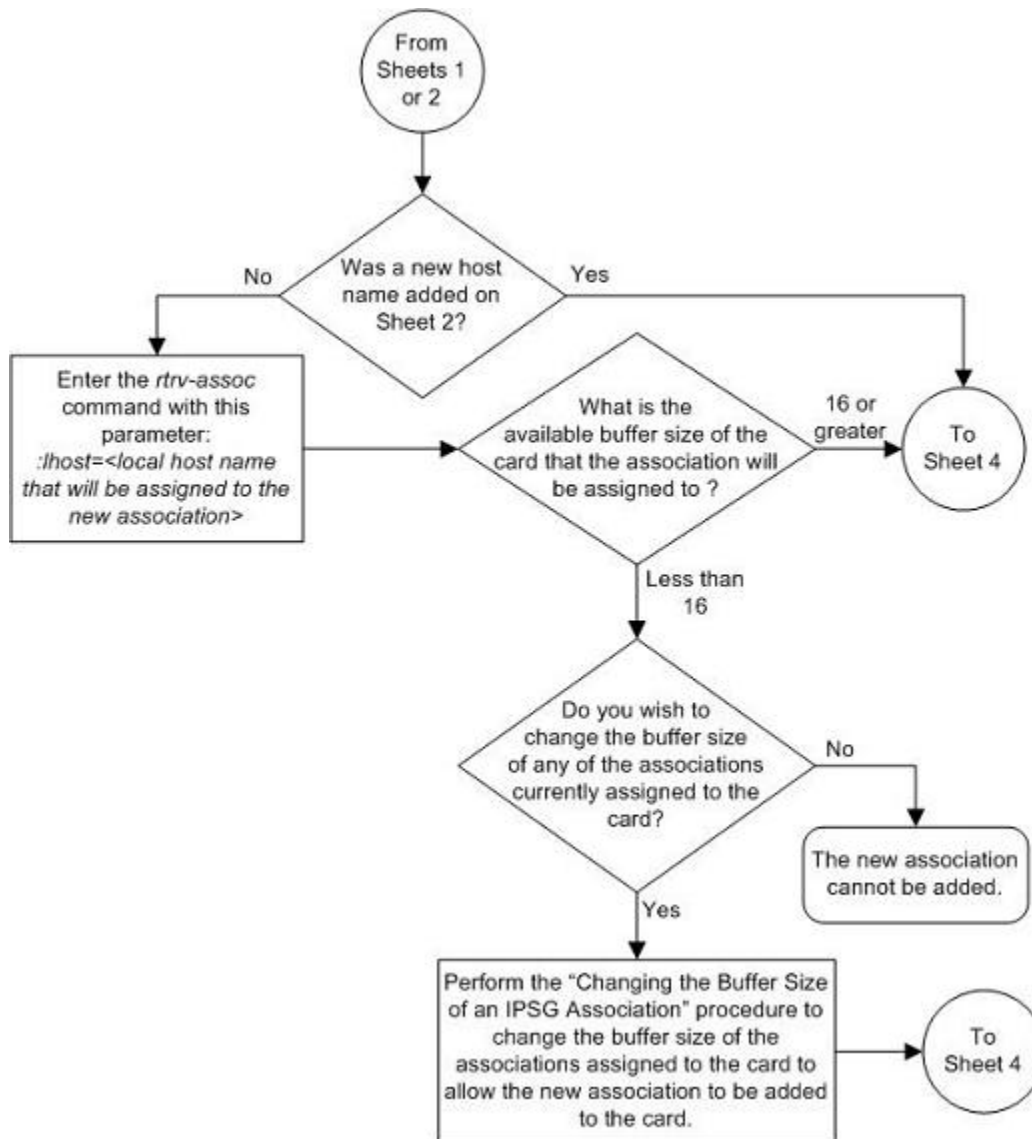
9. Back up the new changes, using the **chg-db:action=backup:dest=fixed** command. These messages should appear; the active Maintenance and Administration Subsystem Processor (MASP) appears first.

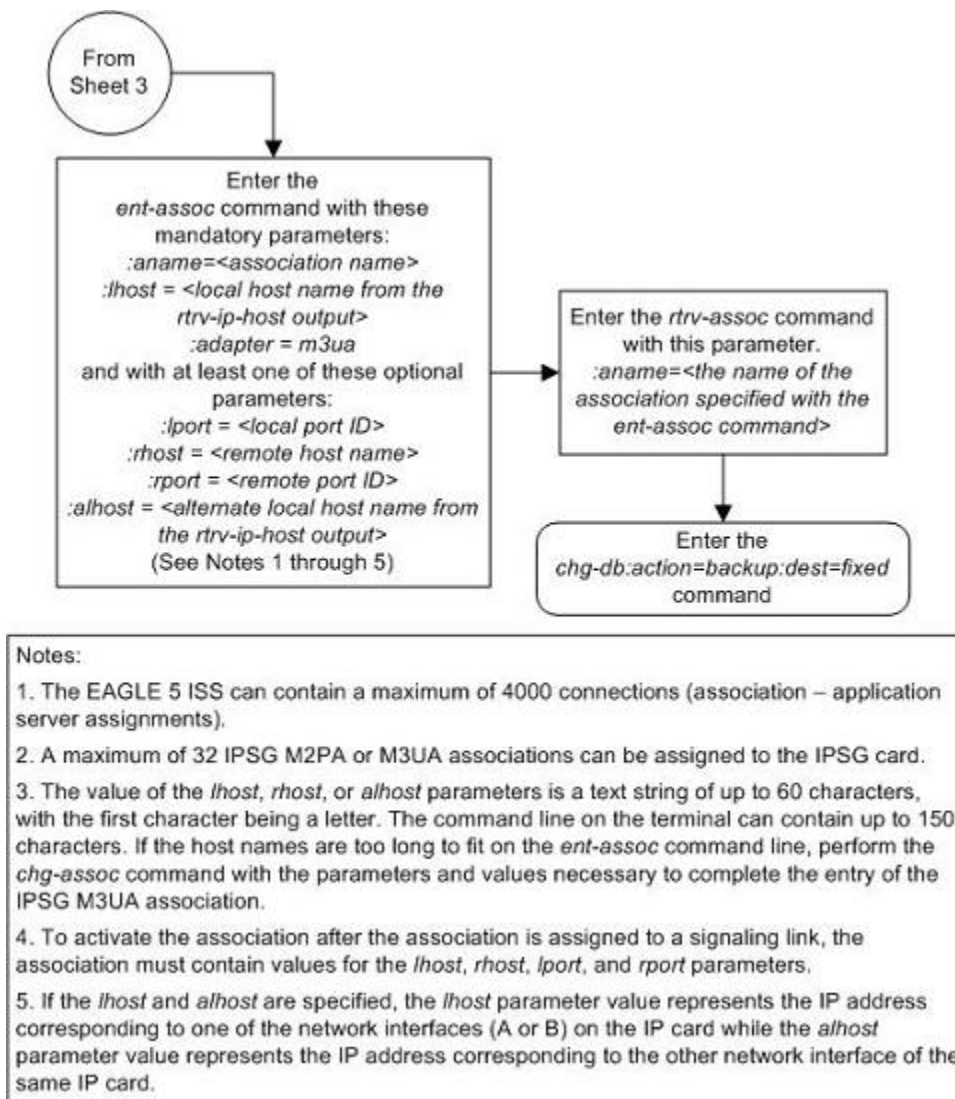
```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

Flowchart 6-9. Adding an IPSG M3UA Association









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-ENETcards running the IPSG application.

: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 5 ISS 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 the *Commands Manual* or in these sections.

- These procedures in this manual:
 - [Adding an IPLIMx Signaling Link](#)
 - [Adding an IPGWx Signaling Link](#)
- These procedures in the *Database Administration Manual - SS7*
 - Adding an SS7 Signaling Link
 - Adding an E1 Signaling Link
 - Adding a T1 Signaling Link
 - Adding an ATM High-Speed Signaling Link
- The "Adding an X.25 Signaling Link" procedure in the *Database Administration Manual - Features*.

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 the *Database Administration Manual - System Management*.
- IPSG Card – perform the [Adding an IPSG Card](#) procedure.
- Destination Point Code – perform the "Adding a Destination Point Code" procedure in the *Database Administration Manual - SS7*.
- 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 5 ISS to perform circular routing detection test on the signaling links, "Configuring Circular Route Detection" procedure in the *Database Administration Manual - SS7*.

NOTE: Circular route detection is not supported in ITU networks.

To provision a EAGLE 5 ISS with more than 700 signaling links, the EAGLE 5 ISS must have certain levels of hardware installed. See the "Requirements for EAGLE 5 ISSs Containing more than 700 Signaling Links" section for more information on these hardware requirements.

The EAGLE 5 ISS 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 5 ISS can have.

Requirements for EAGLE 5 ISSs Containing more than 700 Signaling Links

To provision an EAGLE 5 ISS with more than 700 signaling links (currently the EAGLE 5 ISS can have maximum capacities of 1200, or 1500, or 2000 signaling links), the following additional requirements must be met:

- The Measurements Platform feature must be enabled. Perform these procedures in the *Database Administration Manual - System Management* 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 or 2000 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

An EAGLE 5 ISS containing either 1200, or 1500, or 2000 signaling links can contain the following quantities of signaling links:

- 180 high-speed ATM signaling links assigned to the ATMANSI application. If there are any high-speed ATM signaling links assigned to the ATMITU application, the maximum number of high-speed ATM signaling links is 115.
- 100 signaling links assigned to either the IPLIM or IPLIMI applications.
- 64 signaling links assigned to either the **ss7ipgw** or **ipgwi** application, or combinations of the **ss7ipgw** and **ipgwi** applications.
- 64 unchannelized E1 signaling links.

The following hardware and applications are the only signaling link hardware and applications supported for an EAGLE 5 ISS containing more than 1500 signaling links.

- E1/T1MIM running the **ccs7itu** application.
- HC-MIM running the **ccs7itu** application.
- E5-E1T1 running the **ccs7itu** application.
- Single-slot EDCM running either the **iplimi** or **ipgwi** applications.
- E5-ENET running either the **iplimi** or **ipgwi** applications.
- ATM high-speed LIM running the **atmitu** application.

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 than the terminal where the **rept-stat-slk**, **rtrv-ls**, or **rtrv-slk** 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 the *Commands Manual*.

Procedure

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

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      L2T  L1      PCR PCR
      SET  BPS  MODE TSET  ECM  N1  N2
1201 B   lsa1      0 LIMDS0    1  56000 --- --- BASIC --- -----
1203 B   lsa2      0 LIMDS0    1  56000 --- --- BASIC --- -----
1205 A   lsa3      0 LIMV35    3  64000 DCE  ON  BASIC --- -----
1207 A   lsn1207a  0 LIMDS0    1  56000 --- --- BASIC --- -----
1207 B   lsn1207b  0 LIMDS0    1  56000 --- --- BASIC --- -----
1214 A   lsn1214a  0 LIMV35    2  64000 DTE  --- PCR  76  3800
1214 B   lsa3      1 LIMV35    3  64000 DCE  ON  BASIC --- -----

LOC LINK LSN      SLC TYPE      ANAME      SLKTPS
2204 B   lsnlp2    0 IPSG      m2pa      500
```

SLK table is (8 of 1200) 1% full.

If the **rtrv-slk** output shows that the maximum number of signaling links is 2000, continue the procedure with [Step 2](#).

If the **rtrv-slk** output shows that the maximum number of signaling links is 1200, and the signaling link being added increases the number beyond 1200, perform the [Enabling the Large System # Links Controlled Feature](#) procedure and enable the Large System # Links controlled feature for either 1500 signaling links or 2000 signaling links. Then continue the procedure with [Step 2](#).

If the **rtrv-slk** output shows that the maximum number of signaling links is 1500, and the signaling link being added increases the number beyond 1500, perform the [Enabling the Large System # Links Controlled Feature](#) procedure and enable the Large System # Links controlled feature for 2000 signaling links. Then continue the procedure with [Step 2](#).

If the addition of the new signaling link will not exceed the maximum number of signaling links, continue the procedure with [Step 2](#).

2. Display the cards in the database using the **rtrv-card** command.

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
1102  TSM          GLS
1103  DCM          VXWSLAN
1113  GSPM          EOAM
1114  TDM-A
1115  GSPM          EOAM
1116  TDM-B
1117  MDAL
1201  LIMDS0      SS7ANSI   lsa1          B    0
1202  LIMV35      SS7ANSI
1203  LIMDS0      SS7ANSI   lsa2          B    0
1204  LIMDS0      SS7ANSI
1205  LIMV35      SS7ANSI   lsa3          A    0
1206  LIMV35      SS7ANSI
1207  LIMDS0      SS7ANSI   lsn1207a      A    0   lsn1207b      B    0
1208  LIMDS0      SS7ANSI
1212  LIMV35      SS7ANSI
1213  LIMDS0      SS7ANSI
1214  LIMV35      SS7ANSI   lsn1214a      A    0   lsa3          B    1
```

```

1215 LIMDS0 SS7ANSI
1301 LIMV35 ATMANSI
1302 LIMATM ATMANSI
1304 LIMV35 SS7ANSI
1305 LIMATM ATMANSI
1308 LIMV35 SS7ANSI
1311 LIMDS0 SS7ANSI
1313 LIMDS0 SS7ANSI
1315 LIMV35 CCS7ITU
1317 LIMV35 CCS7ITU
1318 LIMATM ATMANSI
2204 ENET IPSG lsnlp2 B 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 [Step 4](#).

If the required IPSG card is in the database, continue the procedure with [Step 3](#).

3. 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 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 [Step 2](#).

If less 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 5000, continue the procedure with [Step 4](#).
- If the **IPTPS** value shown in the **rtrv-slk** output is 5000, the new signaling link cannot be added to this card. Choose another IPSG card and repeat this procedure from [Step 2](#).

4. Display the IPSG and IPGWx linksets by entering the **rept-stat-iptps** command.

This is an example of the possible output.

```
rlghncxa03w 08-04-10 11:43:04 GMT EAGLE5 38.0.0
```

IP TPS USAGE REPORT

	THRESH	CONFIG		TPS	PEAK	PEAKTIMESTAMP

LSN						
LSGW1101	80%	10000	TX:	7200	7600	08-04-10 11:40:04
			RCV:	7200	7600	08-04-10 11:40:04
LSGW1103	80%	10000	TX:	6700	7600	08-04-10 11:40:04
			RCV:	6500	7600	08-04-10 11:40:04
LSGW1105	80%	10000	TX:	7300	7450	08-04-10 11:40:04
			RCV:	7300	7450	08-04-10 11:40:04

Command Completed.

If the total number of TPS for all the linksets shown in the **rept-stat-iptps** output is less than 500,000, and the desired linkset is shown in the **rept-stat-iptps** output, continue the procedure with [Step 5](#).

. If the desired linkset is not shown in the **rept-stat-iptps** output, perform the [Adding an IPSG M2PA Linkset](#) procedure to add the linkset. After the linkset has been added, continue the procedure with [Step 7](#).

If the total number of TPS for all the linksets shown in the **rept-stat-iptps** output is 500,000, the new signaling cannot be added unless enough linkset TPS is changed to allow the new signaling link to be added. Perform the following procedures as necessary to change the linkset TPS values to allow the addition of the new signaling link.

- [Changing an IPSG M2PA Linkset](#)
- [Changing an IPSG M3UA Linkset](#)
- [Configuring an IPGWx Linkset](#)

After the linkset TPS has been changed, continue the procedure with [Step 5](#).

5. 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 06-10-17 11:43:04 GMT EAGLE5 36.0.0
                                L3T SLT
LSN      APCN  (SS7)  SCRIN  SET  SET  BEI  LST  LNKS  ACT  MES  DIS  SLSCI  NIS
lsipgw   2968             none   1   1   no   A   1   off off off  ---  off

                                SPCN      CLLI      TFATCABMLQ  MTPRSE  ASL8
                                -----  -----  ---  ---

SLSRSB  RANDSLS  ITUTFR
1         off      off

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
1317 A    0    IPSG  m2pa2

```

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 [Step 4](#).

If the **IPSG** value of the linkset is **yes** and the **ADAPTER** value is **m3ua**, choose another linkset and repeat this procedure from [Step 4](#).

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 adding the new signaling link will exceed 5000 TPS, the new signaling link cannot be added to this card. Choose another IPSG card and repeat this procedure from [Step 2](#).
- If adding the new signaling link will not exceed 5000 TPS, continue the procedure by performing one of these actions.
 - If adding the new signaling link will not exceed 500,000 TPS for all IPSG and IPGWx linksets, continue the procedure with [Step 6](#).

- If adding the new signaling link will exceed 500,000 TPS for all IPSP and IPGWx linksets, the new signaling cannot be added unless enough linkset TPS is changed to allow the new signaling link to be added. Perform the following procedures as necessary to change the linkset TPS values to allow the addition of the new signaling link. After the linkset TPS has been changed, continue the procedure with [Step 6](#).

- ◆ [Changing an IPSP M2PA Linkset](#)
- ◆ [Changing an IPSP M3UA Linkset](#)
- ◆ [Configuring an IPGWx Linkset](#)

6. Display the associations that are assigned to the card that will be assigned to the signaling link by entering `rtv-assoc` command with the location of the card. For this example, enter this command.

rtv-assoc:loc=2204

This is an example of the possible output.

r1ghncxa03w 08-04-22 19:24:18 EST 38.0.0

	CARD	IPLNK							
ANAME	LOC	PORT	LINK	ADAPTER	LPORT	RPORT	OPEN	ALW	
m2pa2	2204	A	B	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 IPSP 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 IPSP M2PA association by performing the [Adding an IPSP M2PA Association](#) procedure. After the association has been added, continue the procedure with [Step 7](#).

If the associations displayed in this step meet these requirements, continue the procedure with [Step 7](#).

7. 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. IPSP M2PA Signaling Link Parameter Combinations

IPSP M2PA Signaling Link
Mandatory Parameters
:loc = location of the IPSP card
:link = a - a15, b - b15
:lsn = linkset name
:slc = 0 - 15
:aname = the name of the IPSP 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
```

8. Verify the changes using the **rtrv-slk** command with the card location and **link** parameter values specified in [Step 7](#) . 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
```

9. 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.
```

10. 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
```

11. Check the status of the signaling links added in [Step 7](#) using the **rept-stat-slk** command with the card location and link parameter values specified in [Step 7](#) .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    =
```

12. 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
```

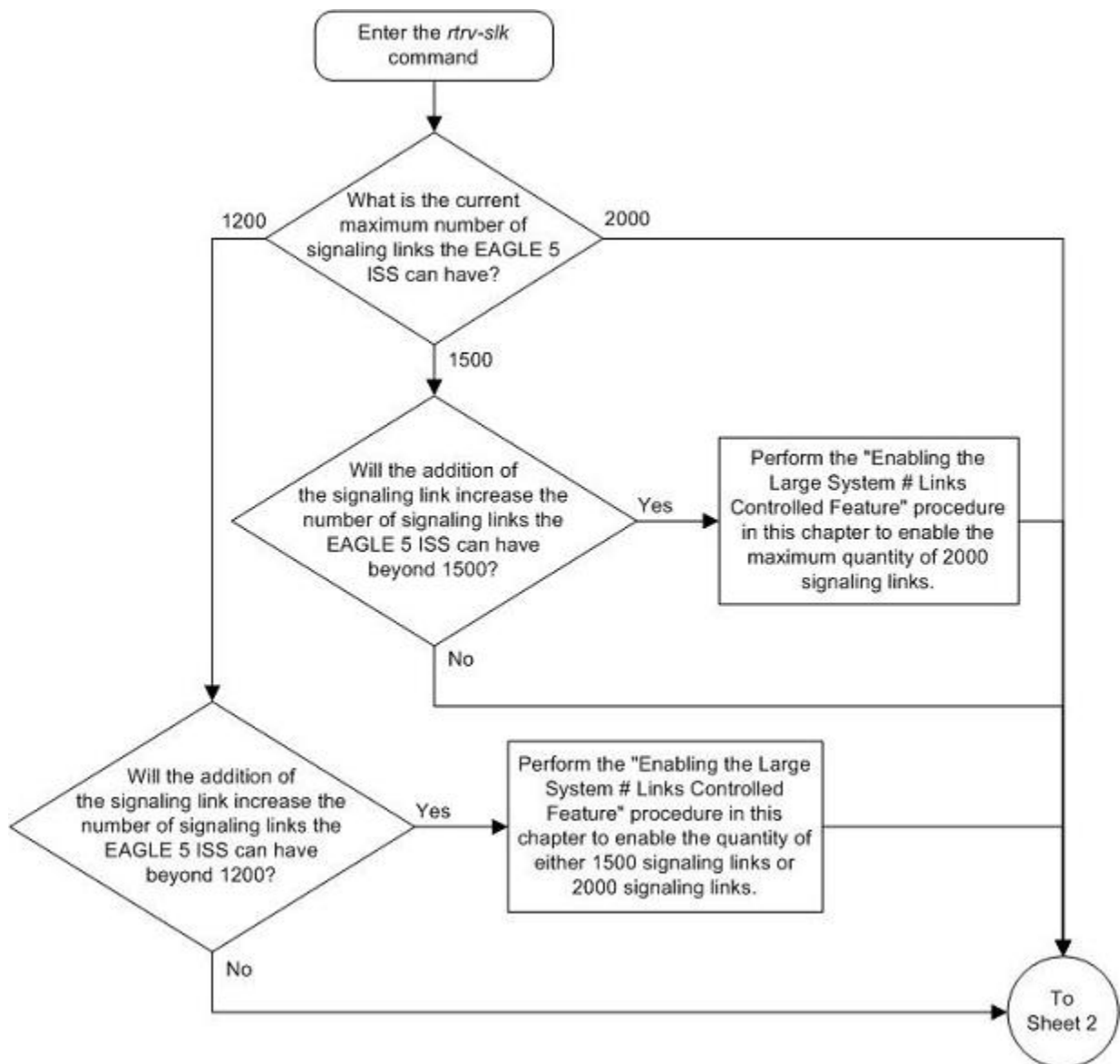
When this command has successfully completed, this message should appear.

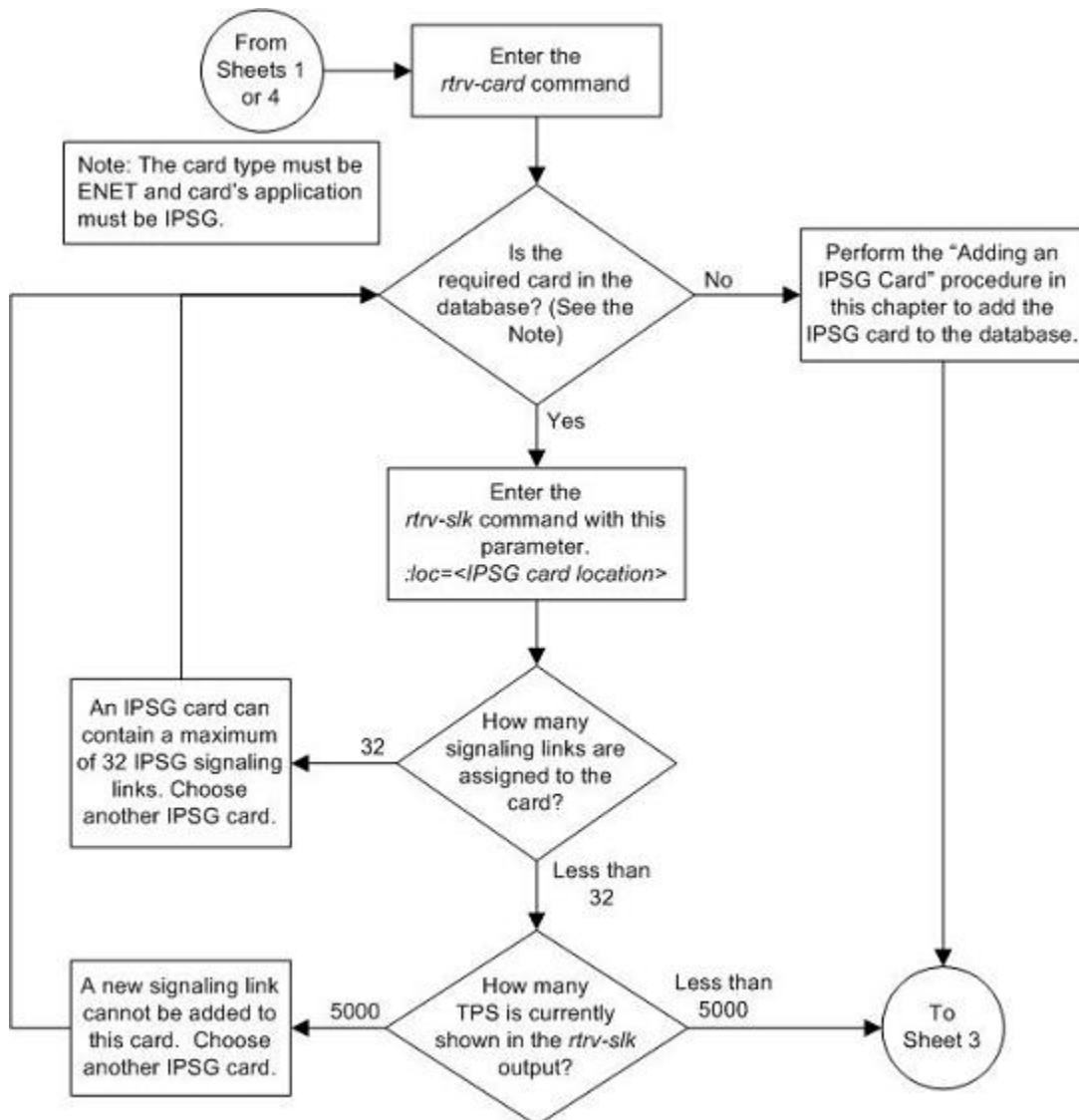
```
rlghncxa03w 06-10-07 08:29:03 GMT EAGLE5 36.0.0
CHG-ASSOC: MASP A - COMPLTD
```

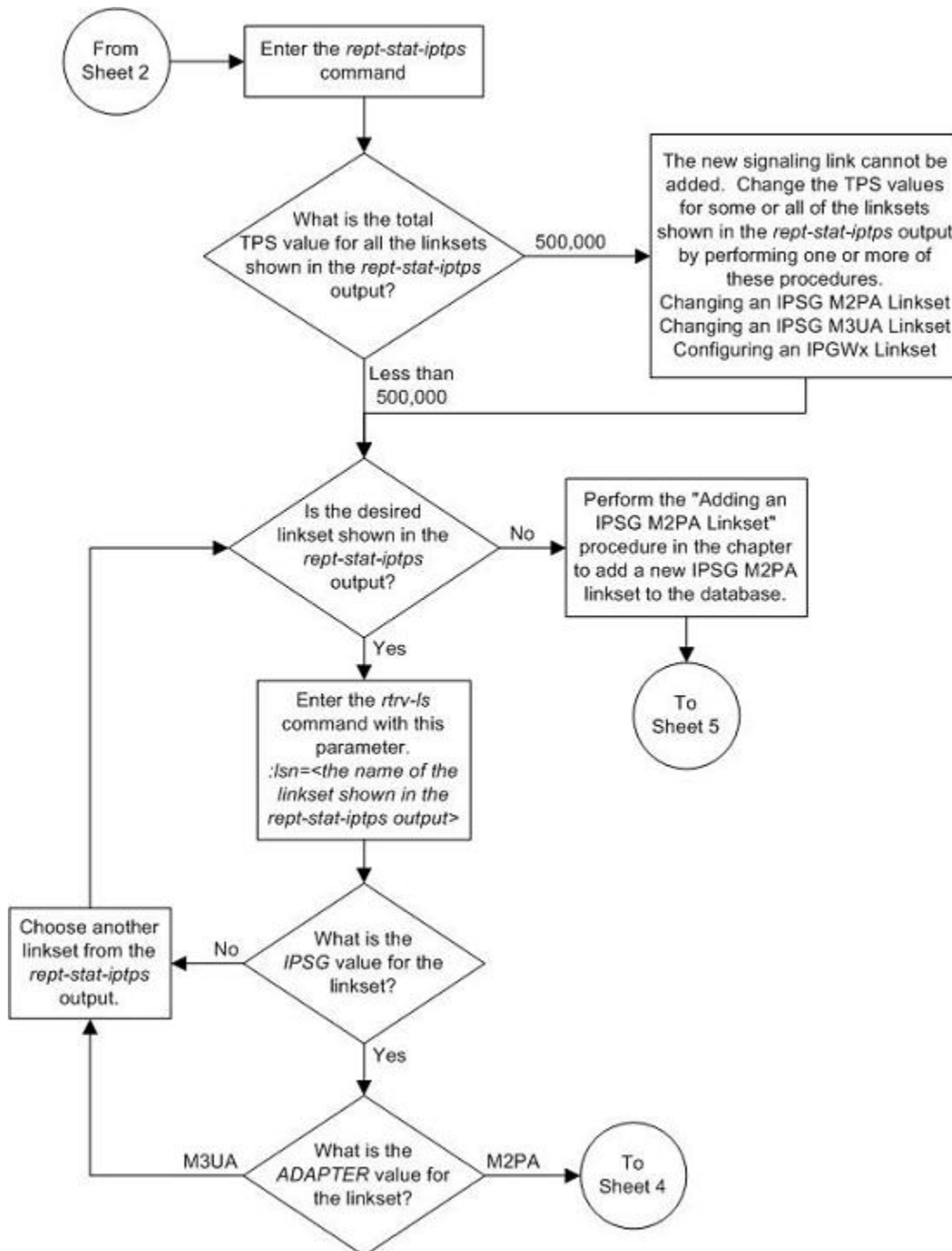
13. Back up the new changes using the **chg-db:action=backup:dest=fixed** command. These messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

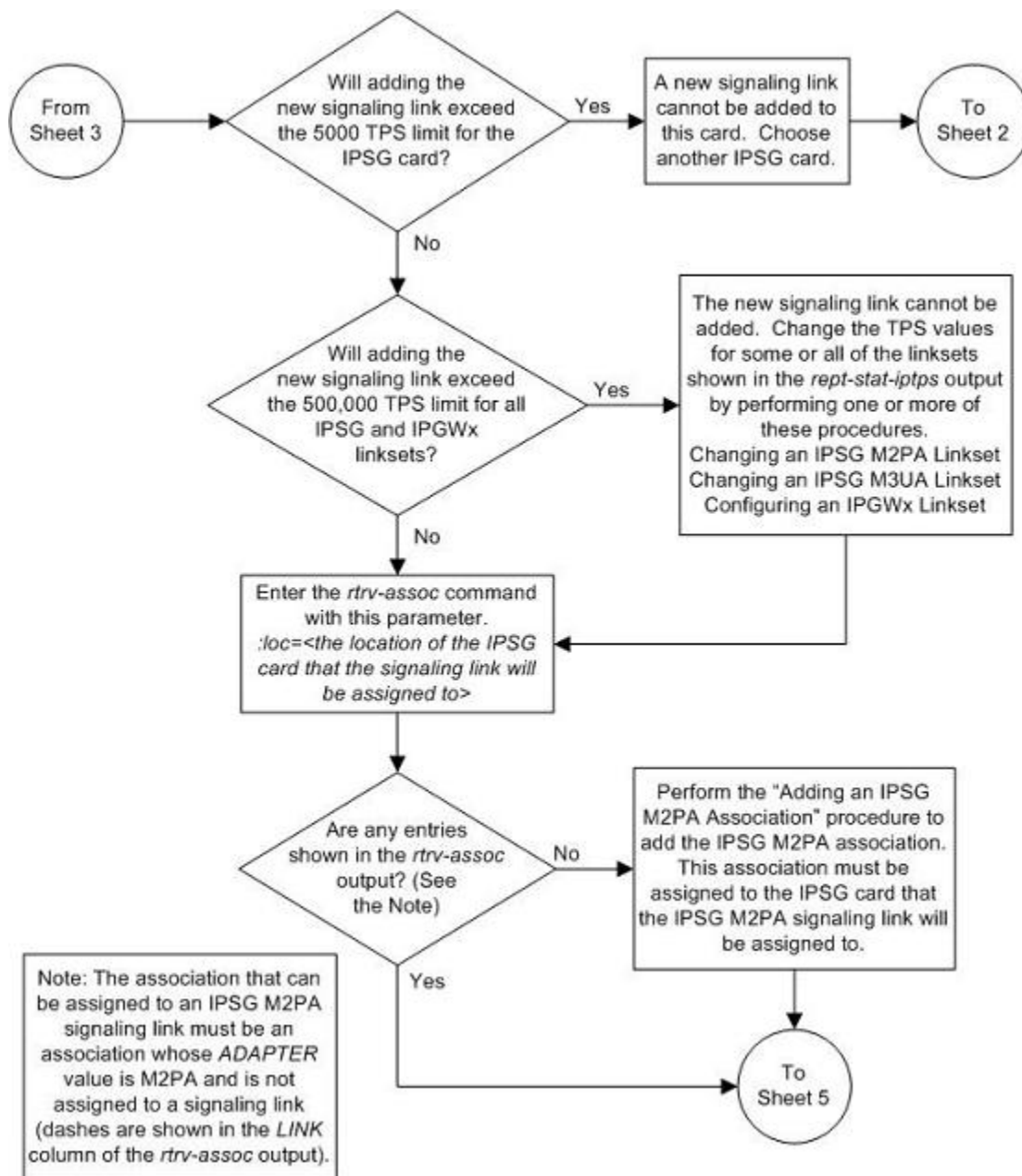
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
 BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
 BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
 BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.

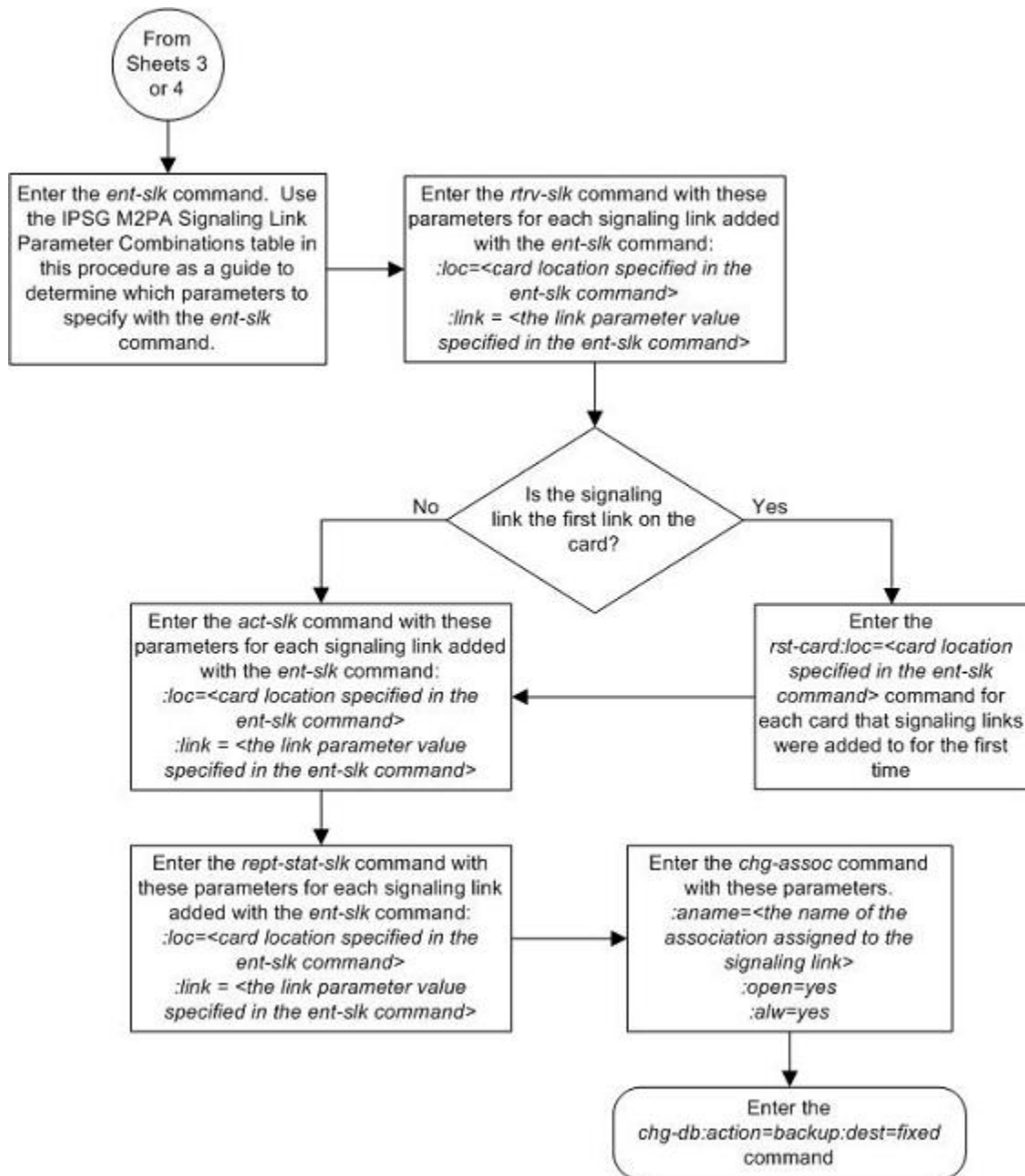
Flowchart 6-10. Adding an IPSG M2PA Signaling Link











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-ENETcards running the IPSG application.

: **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 5 ISS 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 the *Commands Manual* or in these sections.

- These procedures in this manual:
 - [Adding an IPLIMx Signaling Link](#)
 - [Adding an IPGWx Signaling Link](#)
- These procedures in the *Database Administration Manual - SS7*
 - Adding an SS7 Signaling Link
 - Adding an E1 Signaling Link
 - Adding a T1 Signaling Link
 - Adding an ATM High-Speed Signaling Link
- The "Adding an X.25 Signaling Link" procedure in the *Database Administration Manual - Features*.

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 the *Database Administration Manual - System Management*.
- IPSG Card – perform the [Adding an IPSG Card](#) procedure.
- Destination Point Code – perform the "Adding a Destination Point Code" procedure in the *Database Administration Manual - SS7*.
- 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 5 ISS to perform circular routing detection test on the signaling links, "Configuring Circular Route Detection" procedure in the *Database Administration Manual - SS7*.

NOTE: Circular route detection is not supported in ITU networks.

To provision a EAGLE 5 ISS with more than 700 signaling links, the EAGLE 5 ISS must have certain levels of hardware installed. See the "Requirements for EAGLE 5 ISSs Containing more than 700 Signaling Links" section for more information on these hardware requirements.

The EAGLE 5 ISS 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 5 ISS can have.

Requirements for EAGLE 5 ISSs Containing more than 700 Signaling Links

To provision an EAGLE 5 ISS with more than 700 signaling links (currently the EAGLE 5 ISS can have maximum capacities of 1200, or 1500, or 2000 signaling links), the following additional requirements must be met:

- The Measurements Platform feature must be enabled. Perform these procedures in the *Database Administration Manual - System Management* 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 or 2000 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

An EAGLE 5 ISS containing either 1200, or 1500, or 2000 signaling links can contain the following quantities of signaling links:

- 180 high-speed ATM signaling links assigned to the ATMANSI application. If there are any high-speed ATM signaling links assigned to the ATMITU application, the maximum number of high-speed ATM signaling links is 115.
- 100 signaling links assigned to either the IPLIM or IPLIMI applications.
- 64 signaling links assigned to either the **ss7ipgw** or **ipgwi** application, or combinations of the **ss7ipgw** and **ipgwi** applications.
- 64 unchannelized E1 signaling links.

The following hardware and applications are the only signaling link hardware and applications supported for an EAGLE 5 ISS containing more than 1500 signaling links.

- E1/T1MIM running the **ccs7itu** application.
- HC-MIM running the **ccs7itu** application.
- E5-E1T1 running the **ccs7itu** application.
- Single-slot EDCM running either the **iplimi** or **ipgwi** applications.
- E5-ENET running either the **iplimi** or **ipgwi** applications.
- ATM high-speed LIM running the **atmitu** application.

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 than 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 the *Commands Manual*.

Procedure

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

This is an example of the possible output.

```
rlghncxa03w 06-10-19 21:16:37 GMT EAGLE5 36.0.0
                                L2T      L1
LOC LINK LSN      SLC TYPE  SET  BPS  MODE TSET  ECM  N1  N2
1201 B   lsa1      0  LIMDS0  1   56000 --- --- BASIC --- ----
1203 B   lsa2      0  LIMDS0  1   56000 --- --- BASIC --- ----
1205 A   lsa3      0  LIMV35  3   64000 DCE  ON  BASIC --- ----
1207 A   lsn1207a  0  LIMDS0  1   56000 --- --- BASIC --- ----
1207 B   lsn1207b  0  LIMDS0  1   56000 --- --- BASIC --- ----
1214 A   lsn1214a  0  LIMV35  2   64000 DTE  --- PCR  76  3800
1214 B   lsa3      1  LIMV35  3   64000 DCE  ON  BASIC --- ----

LOC LINK LSN      SLC TYPE  ANAME      SLKTPS
2204 B   lsnlp2    0  IPSG      m3ua       500
```

SLK table is (8 of 1200) 1% full.

If the **rtrv-slk** output shows that the maximum number of signaling links is 2000, continue the procedure with [Step 2](#).

If the **rtrv-slk** output shows that the maximum number of signaling links is 1200, and the signaling link being added increases the number beyond 1200, perform the [Enabling the Large System # Links Controlled Feature](#) procedure and enable the Large System # Links controlled feature for either 1500 signaling links or 2000 signaling links. Then continue the procedure with [Step 2](#).

If the **rtrv-slk** output shows that the maximum number of signaling links is 1500, and the signaling link being added increases the number beyond 1500, perform the [Enabling the Large System # Links Controlled Feature](#) procedure and enable the Large System # Links controlled feature for 2000 signaling links. Then continue the procedure with [Step 2](#).

If the addition of the new signaling link will not exceed the maximum number of signaling links, continue the procedure with [Step 2](#).

2. Display the cards in the database using the **rtrv-card** command.

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
1102  TSM    GLS
1103  DCM    VXWSLAN
1113  GSPM    EOAM
1114  TDM-A
1115  GSPM    EOAM
1116  TDM-B
1117  MDAL
1201  LIMDS0  SS7ANSI  lsa1      B    0
1202  LIMV35  SS7ANSI
1203  LIMDS0  SS7ANSI  lsa2      B    0
1204  LIMDS0  SS7ANSI
1205  LIMV35  SS7ANSI  lsa3      A    0
1206  LIMV35  SS7ANSI
1207  LIMDS0  SS7ANSI  lsn1207a  A    0  lsn1207b  B    0
1208  LIMDS0  SS7ANSI
```

```

1212 LIMV35 SS7ANSI
1213 LIMDS0 SS7ANSI
1214 LIMV35 SS7ANSI lsn1214a A 0 lsa3 B 1
1215 LIMDS0 SS7ANSI
1301 LIMV35 ATMANSI
1302 LIMATM ATMANSI
1304 LIMV35 SS7ANSI
1305 LIMATM ATMANSI
1308 LIMV35 SS7ANSI
1311 LIMDS0 SS7ANSI
1313 LIMDS0 SS7ANSI
1315 LIMV35 CCS7ITU
1317 LIMV35 CCS7ITU
1318 LIMATM ATMANSI
2204 ENET IPSG lsnlp2 B 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 [Step 4](#).

If the required IPSG card is in the database, continue the procedure with [Step 3](#).

3. Display the signaling links assigned to the IPSG card by entering the **rtrv-slks** command with the card location of the IPSG card. For this example, enter this command.

```
rtrv-slks: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 IPSG signaling links. If 32 signaling links are shown in the **rtrv-slks** output, the new signaling link cannot be added to this card. Choose another IPSG card and repeat this procedure from [Step 2](#).

If less than 32 signaling links are shown in the **rtrv-slks** output, continue the procedure by performing one of these actions.

- If the **IPTPS** value shown in the **rtrv-slks** output is less than 5000, continue the procedure with [Step 4](#).
- If the **IPTPS** value shown in the **rtrv-slks** output is 5000, the new signaling link cannot be added to this card. Choose another IPSG card and repeat this procedure from [Step 2](#).

4. Display the IPSG and IPGWx linksets by entering the **rept-stat-iptps** command.

This is an example of the possible output.

```
rlghncxa03w 08-04-10 11:43:04 GMT EAGLE5 38.0.0
```

```
IP TPS USAGE REPORT
```

```

          THRESH  CONFIG      TPS      PEAK      PEAKTIMESTAMP
-----
LSN
LSGW1101      80%    10000  TX:    7200      7600  08-04-10 11:40:04
                  RCV:    7200      7600  08-04-10 11:40:04
LSGW1103      80%    10000  TX:    6700      7600  08-04-10 11:40:04
                  RCV:    6500      7600  08-04-10 11:40:04
LSGW1105      80%    10000  TX:    7300      7450  08-04-10 11:40:04
                  RCV:    7300      7450  08-04-10 11:40:04

```

Command Completed.

If the total number of TPS for all the linksets shown in the **rept-stat-iptps** output is less than 500,000, and the desired linkset is shown in the **rept-stat-iptps** output, continue the procedure with [Step 5](#). If the desired linkset is not shown in the **rept-stat-iptps** output, perform the [Adding an IPSP M3UA Linkset](#) procedure to add the linkset. After the linkset has been added, continue the procedure with [Step 7](#).

If the total number of TPS for all the linksets shown in the **rept-stat-iptps** output is 500,000, the new signaling cannot be added unless enough linkset TPS is changed to allow the new signaling link to be added. Perform the following procedures as necessary to change the linkset TPS values to allow the addition of the new signaling link.

- [Changing an IPSP M2PA Linkset](#)
- [Changing an IPSP M3UA Linkset](#)
- [Configuring an IPGWx Linkset](#)

After the linkset TPS has been changed, continue the procedure with [Step 5](#).

5. 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=lsipgw

This is an example of the possible output.

rlghncxa03w 06-10-17 11:43:04 GMT EAGLE5 36.0.0

LSN	APCA	(SS7)	SCRN	L3T	SLT	SET	BEI	LST	LNKS	GWS	GWS	GWS	SLSCI	NIS
lsipgw	010-010-101		none	1	1	no	A	1		off	off	off	---	off
	SPCN		CLLI					TFATCABMLQ	MTPRSE	ASL8				
	IPSP	IPGWAPC	GTTMODE					CGGTMOD						
	yes	no	CdPA					no						
	ADAPTER	SLKTPS	LSUSEALM	SLKUSEALM	RCONTEXT	ASNOTIF								
	m3ua	500	100%	80%	none	yes								
	NUMSLKALW	NUMSLKRSTR	NUMSLKPROH											
	1	1	1											
	LOC	LINK	SLC	TYPE	ANAME									
	1317	A	0	IPSP	m3ua20									

Link set table is (13 of 1024) 1% full.

If the **IPSP** value of the linkset is **no**, choose another linkset and repeat this procedure from [Step 4](#).

If the **IPSP** value of the linkset is **yes** and the **ADAPTER** value is **m2pa**, choose another linkset and repeat this procedure from [Step 4](#).

If the **IPSP** value of the linkset is **yes**, and the **ADAPTER** value is **m3ua**, continue the procedure by performing one of these actions.

- If adding the new signaling link will exceed 5000 TPS, the new signaling link cannot be added to this card. Choose another IPSG card and repeat this procedure from [Step 2](#).
- If adding the new signaling link will not exceed 5000 TPS, continue the procedure by performing one of these actions.
 - If adding the new signaling link will not exceed 500,000 TPS for all IPSG and IPGWx linksets, continue the procedure with [Step 6](#).
 - If adding the new signaling link will exceed 500,000 TPS for all IPSG and IPGWx linksets, the new signaling cannot be added unless enough linkset TPS is changed to allow the new signaling link to be added. Perform the following procedures as necessary to change the linkset TPS values to allow the addition of the new signaling link. After the linkset TPS has been changed, continue the procedure with [Step 6](#).
 - ◆ [Changing an IPSG M2PA Linkset](#)
 - ◆ [Changing an IPSG M3UA Linkset](#)
 - ◆ [Configuring an IPGWx Linkset](#)

6. 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.

r1ghncxa03w 06-10-17 11:43:04 GMT EAGLE5 36.0.0

ANAME	CARD LOC	IPLNK PORT	LINK	ADAPTER	LPORT	RPORT	OPEN	ALW
m3ua2	2204	A	B	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 [Step 10](#).

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 [Step 10](#).

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 [Step 7](#).

7. 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.

r1ghncxa03w 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 IP7 m3ua4 300
2204 A12 m3ua3 1 IP7 m3ua4 300

```

An IP7 M3UA association can be assigned to a maximum of 16 IP7 M3UA signaling links. If 16 signaling links are shown in this step, choose another IP7 card and repeat this procedure from [Step 2](#).

If 15 or less signaling links are shown in this step, continue the procedure from [Step 8](#).

8. Display all the linksets that contain the signaling links shown in [Step 7](#) by entering the **rtrv-ls** command with the linkset name shown in [Step 7](#). For this example, enter this command.

rtrv-ls:lsn=m3ua1

This is an example of the possible output.

```
r1ghncxa03w 06-10-17 11:43:04 GMT EAGLE5 36.0.0
```

LSN	APCA	(SS7)	SCRN	SET	SET	BEI	LST	LNKS	ACT	MES	DIS	SLSCI	NIS
m3ua1	002-002-003		none	1	1	no	A	1	off	off	off	no	off
SPCA		CLLI		TFATCABMLQ		MTPRSE		ASL8					
-----		-----		---		---		no					
IPSG	IPGWAPC	GTTMODE		CGGTMOD									
yes	no	CdPA		no									
ADAPTER	SLKTPS	LSUSEALM	SLKUSEALM	RCONTEXT	ASNOTIF								
m3ua	300	100%	80%	25	yes								
NUMSLKALW	NUMSLKRSTR	NUMSLKPROH											
1	1	1											
LOC	LINK	SLC	TYPE	ANAME									
2204	A	0	IP7	m3ua4									

Link set table is (13 of 1024) 1% full.

rtrv-ls:lsn=m3ua2

This is an example of the possible output.

```
r1ghncxa03w 06-10-17 11:43:04 GMT EAGLE5 36.0.0
```

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					
-----		-----		---		---		no					
IPSG	IPGWAPC	GTTMODE		CGGTMOD									
yes	no	CdPA		no									
ADAPTER	SLKTPS	LSUSEALM	SLKUSEALM	RCONTEXT	ASNOTIF								
m3ua	300	100%	80%	50	yes								
NUMSLKALW	NUMSLKRSTR	NUMSLKPROH											
1	1	1											
LOC	LINK	SLC	TYPE	ANAME									
2204	A2	0	IP7	m3ua4									

Link set table is (13 of 1024) 1% full.

rtrv-ls:lsn=m3ua3

This is an example of the possible output.

```

r1ghncxa03w 06-10-17 11:43:04 GMT EAGLE5 36.0.0

LSN              APCA  (SS7)  SCRNL3T SLT          GWS GWS GWS
m3ua3            002-002-005 none 1  1  BEI LST LNKS ACT MES DIS SLSCI NIS
                                no  A  1  off off off no  off

                                SPCA          CLLI          TFATCABMLQ MTPRSE ASL8
                                -----
                                IPG IPGWAPC GTTMODE          CGGTMOD
                                yes  no      CdPA              no

                                ADAPTER  SLKTPS  LSUSEALM  SLKUSEALM  RCONTEXT  ASNOTIF
                                m3ua      300     100%      80%         75         yes

                                NUMSLKALW  NUMSLKRSTR  NUMSLKPROH
                                1            1            1

                                LOC  LINK  SLC  TYPE  ANAME
                                2204 A12  0    IPSG  m3ua4

```

Link set table is (13 of 1024) 1% full.

9. 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.

```

r1ghncxa03w 06-10-17 11:43:04 GMT EAGLE5 36.0.0

LSN              APCA  (SS7)  SCRNL3T SLT          GWS GWS GWS
lsipgw           010-010-101 none 1  1  BEI LST LNKS ACT MES DIS SLSCI NIS
                                no  A  1  off off off --- off

                                SPCN          CLLI          TFATCABMLQ MTPRSE ASL8
                                -----
                                IPG IPGWAPC GTTMODE          CGGTMOD
                                yes  no      CdPA              no

                                ADAPTER  SLKTPS  LSUSEALM  SLKUSEALM  RCONTEXT  ASNOTIF
                                m3ua      500     100%      80%         none       yes

                                NUMSLKALW  NUMSLKRSTR  NUMSLKPROH
                                1            1            1

                                LOC  LINK  SLC  TYPE  ANAME
                                1317 A    0    IPSG  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 [Step 8](#) , continue the procedure with [Step 10](#) .

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 [Step 8](#) . After the [Changing an IPSG M3UA Linkset](#) procedure has been performed, continue the procedure with [Step 10](#) .

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

[Table 6-10](#) shows the parameters and values that can be specified with the **ent-slk** command.

Table 6-10. 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=lsipgw: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
```

11. Verify the changes using the **rtrv-slk** command with the card location and **link** parameter values specified in [Step 10](#) . 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     m3ua4      500
```

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 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.
```

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 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
```

14. Check the status of the signaling links added in [Step 10](#) using the **rept-stat-slk** command with the card location and link parameter values specified in [Step 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=2204:link=a10
```

This is an example of the possible output.

```
r1ghncxa03w 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 [Step 16](#) .

If the **OPEN** value of the association that was assigned to the signaling link is **nos**, continue the procedure with [Step 15](#) .

15. 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.

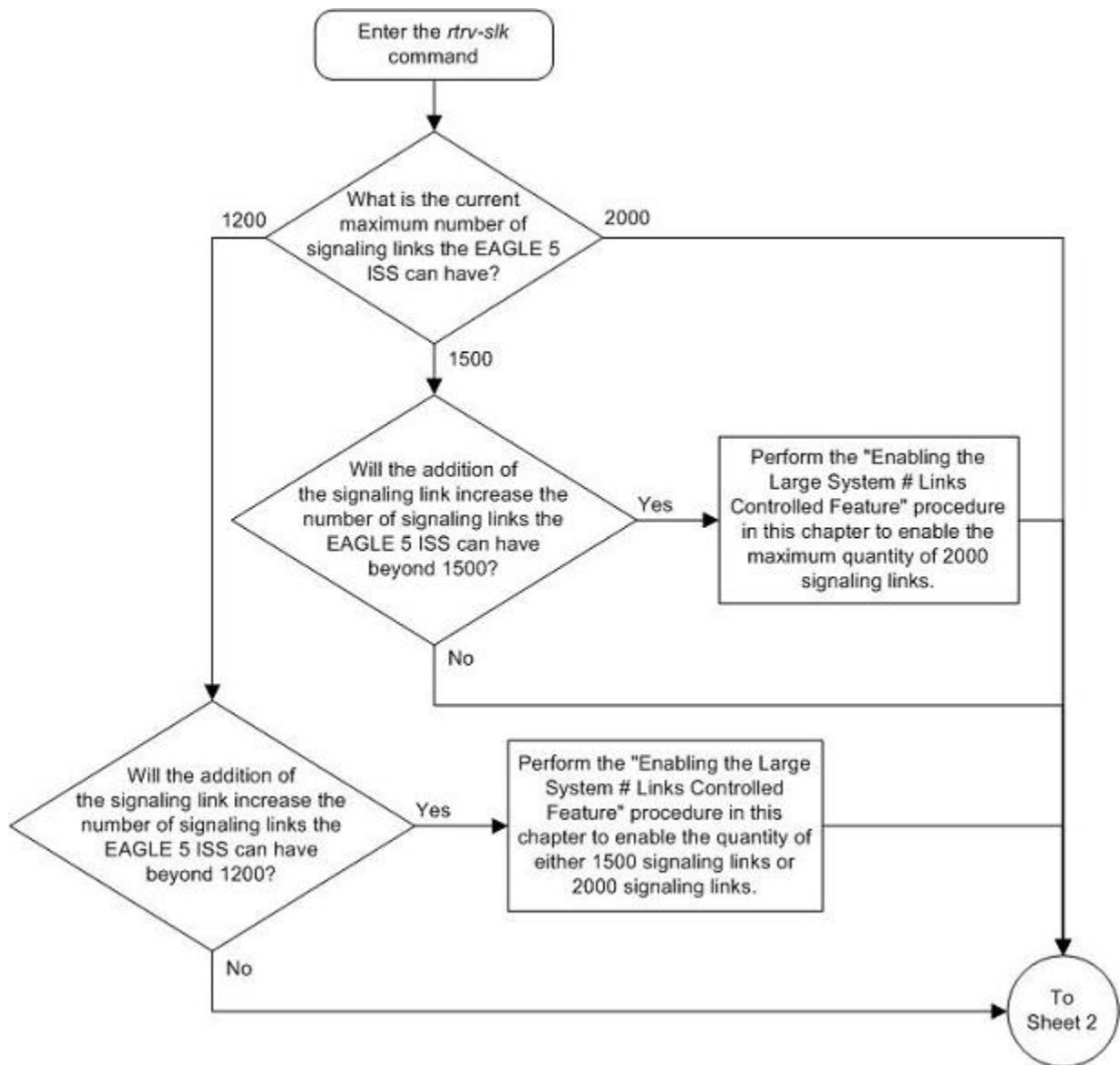
chg-assoc : aname=m3ua4 : open=yes

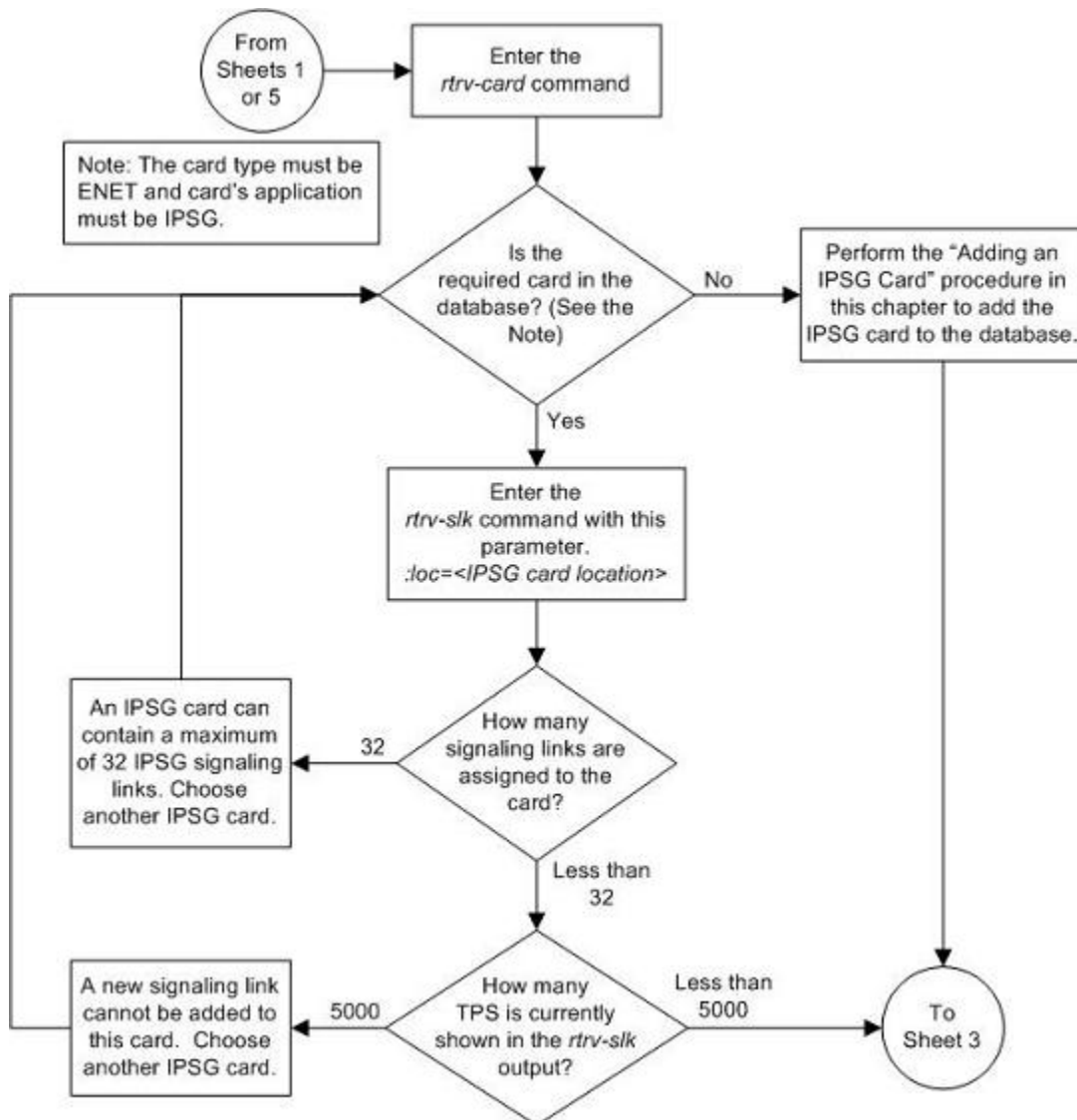
When this command has successfully completed, this message should appear.

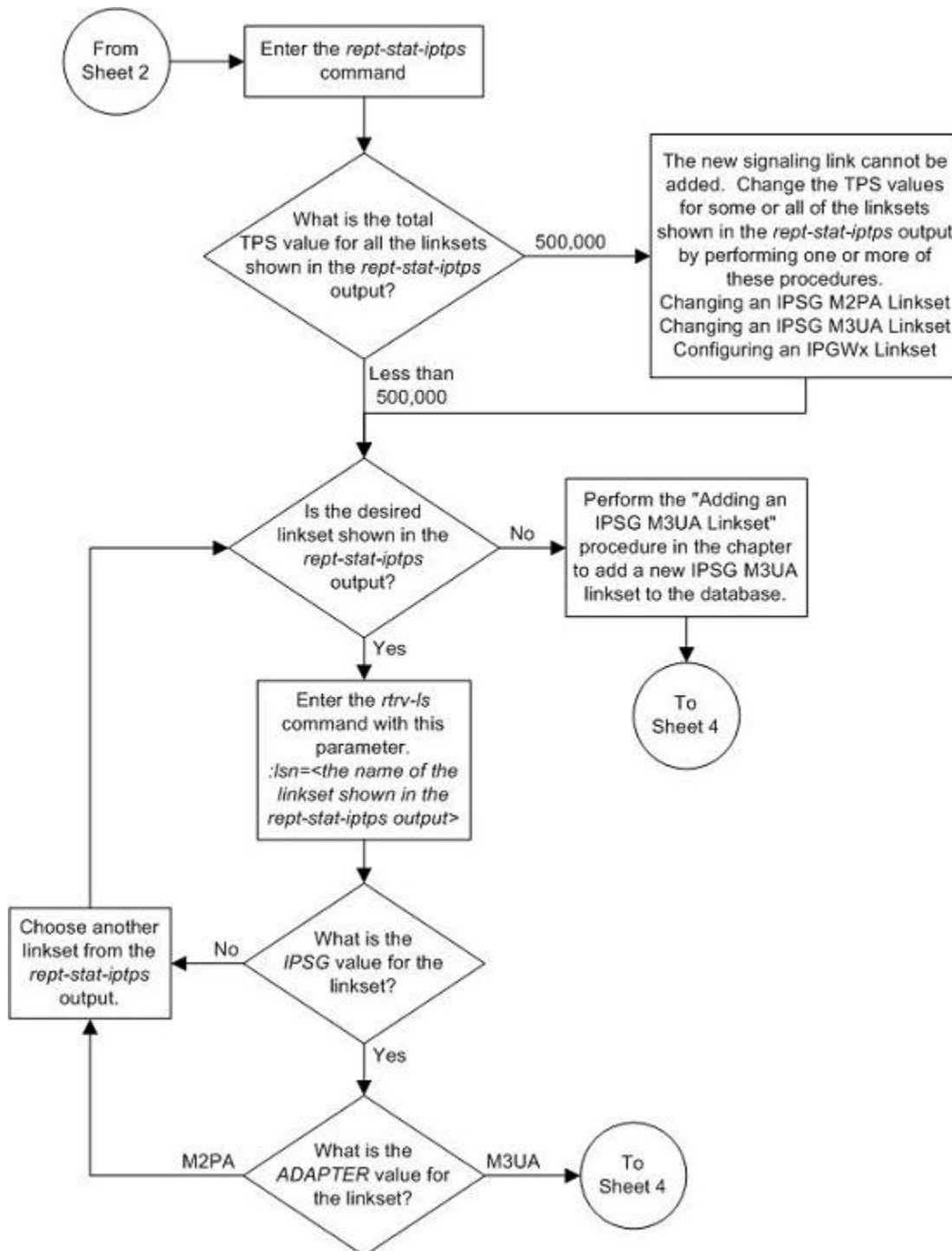
```
r1ghncxa03w 06-10-07 08:29:03 GMT EAGLE5 36.0.0
CHG-ASSOC: MASP A - COMPLTD
```

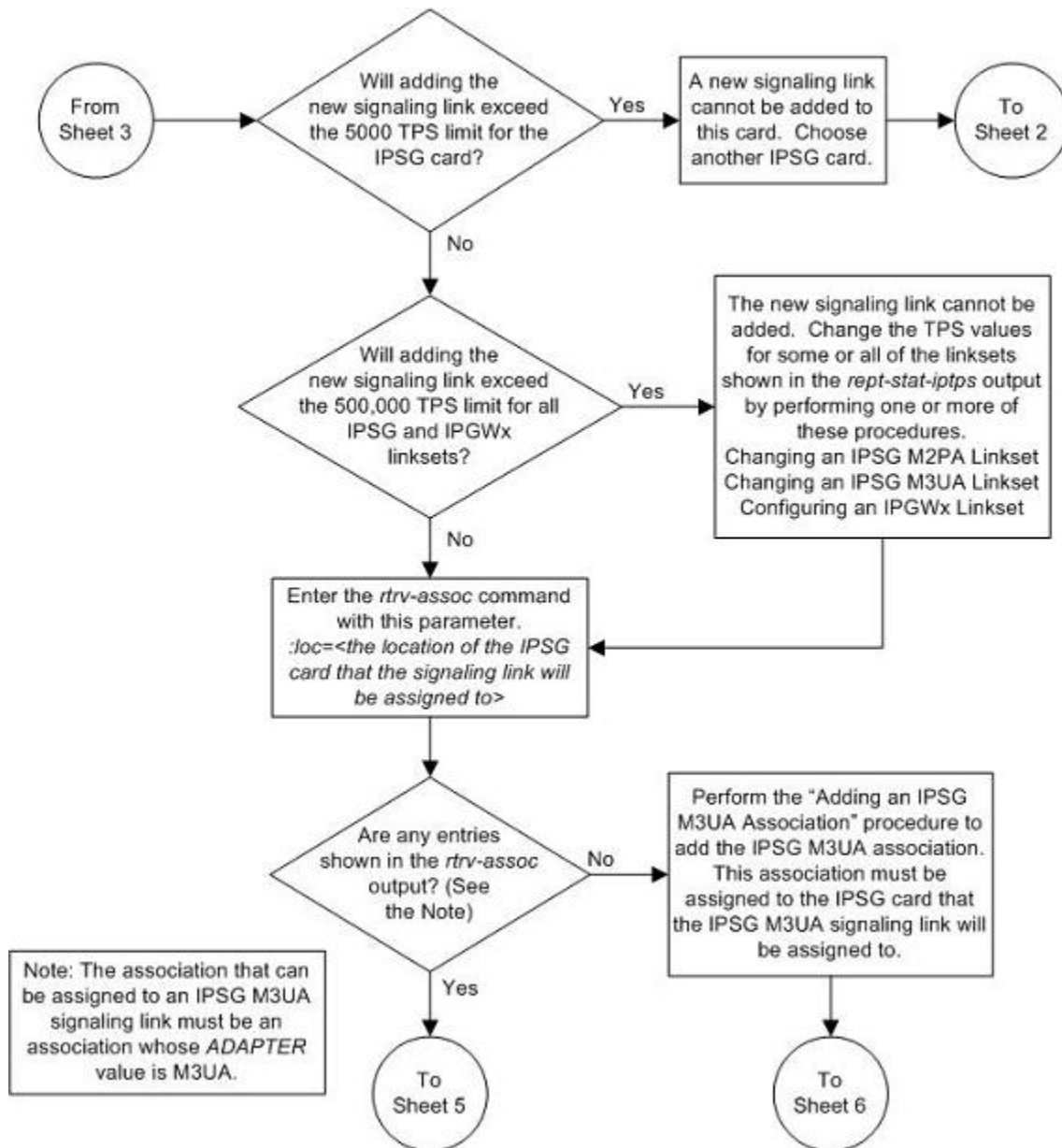
16. Back up the new changes using the **chg-db:action=backup:dest=fixed** command. These messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

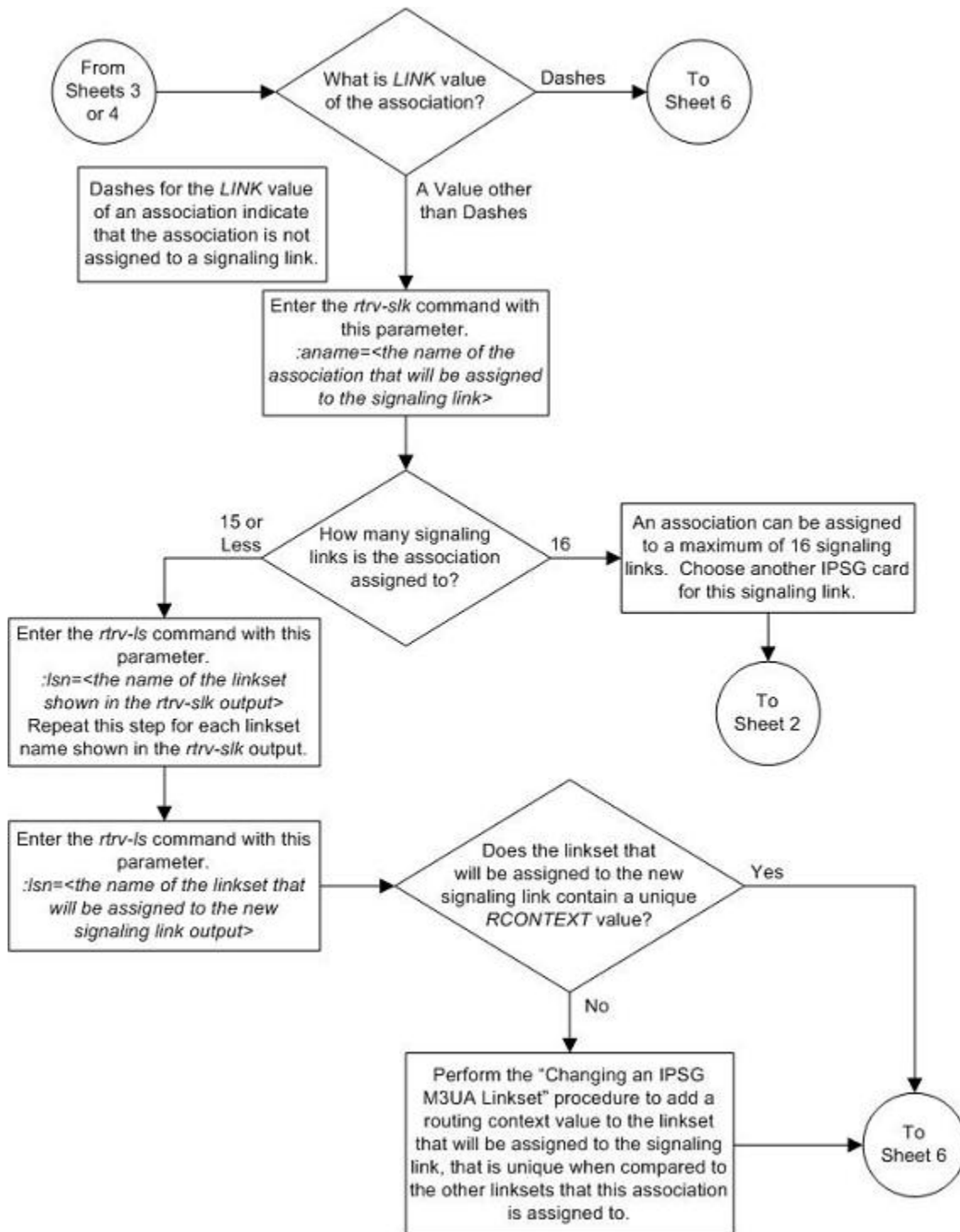
```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

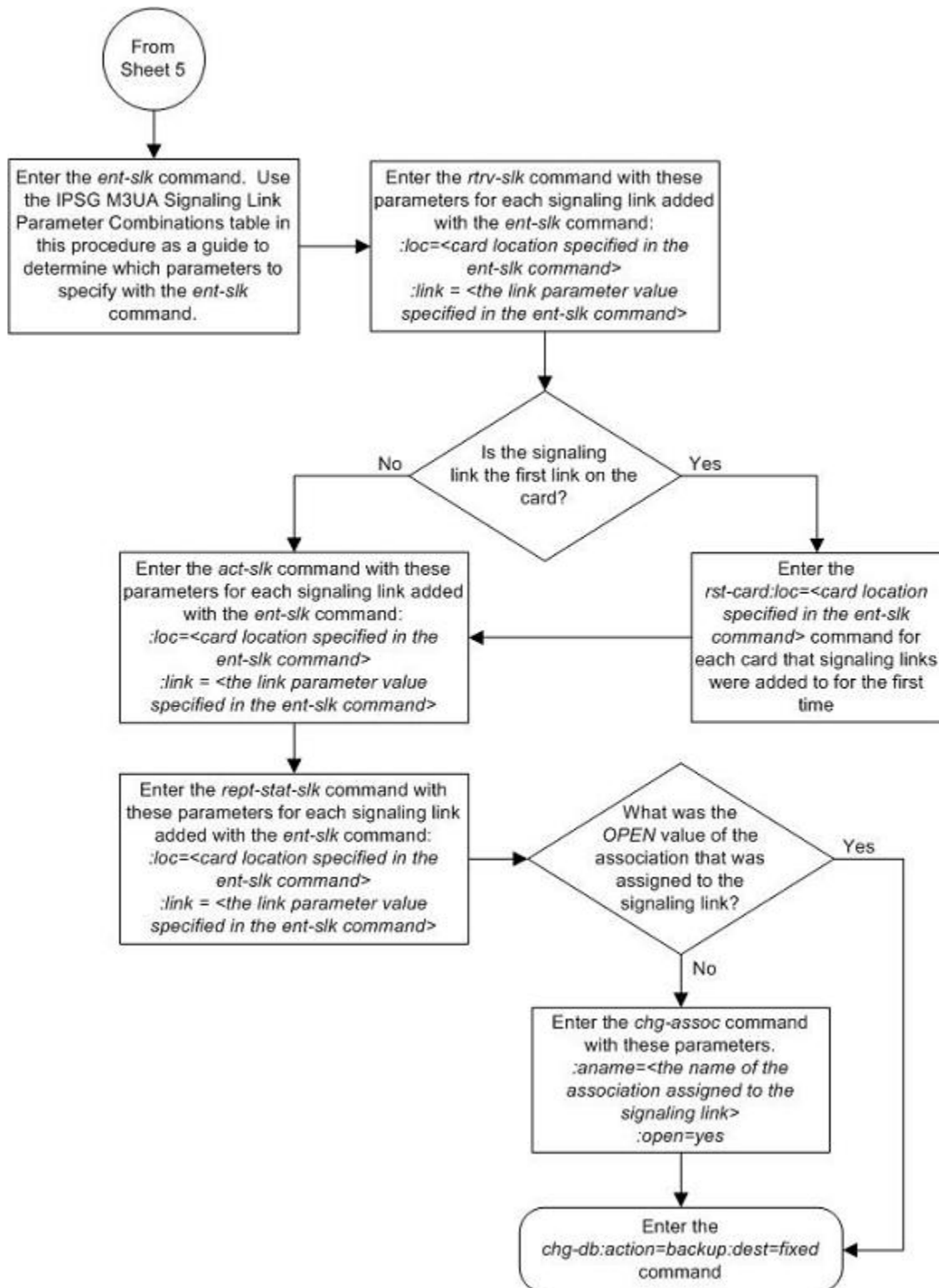
Flowchart 6-11. Adding an IPSG M3UA Signaling Link











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 5 ISS, making the feature access key site-specific.

This feature allows the EAGLE 5 ISS to contain a maximum of either 1500 or 2000 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:

: fak – The feature access key provided by Tekelec. The feature access key contains 13 alphanumeric characters and is not case sensitive.

: partnum – The Tekelec-issued part number associated with the signaling link quantity being enabled:

- 893005901 for the 1500 signaling link quantity
- 893005910 for the 2000 signaling link quantity.

The **enable-ctrl-feat** command requires that the database contain a valid serial number for the EAGLE 5 ISS, and that this serial number is locked. This can be verified with the **rtrv-serial-num** command. The EAGLE 5 ISS is shipped with a serial number in the database, but the serial number is not locked. The serial number can be changed, if necessary, and locked once the EAGLE 5 ISS is on-site, by using the **ent-serial-num** command. The **ent-serial-num** command uses these parameters.

: serial – The serial number assigned to the EAGLE 5 ISS. The serial number is not case sensitive.

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

NOTE: To enter and lock the EAGLE 5 ISS's serial number, the ent-serial-num command must be entered twice, once to add the correct serial number to the database with the serial parameter, then again with the serial and the lock=yes parameters to lock the serial number. You should verify that the serial number in the database is correct before locking the serial number. The serial number can be found on a label affixed to the control shelf (shelf 1100).

This feature cannot be temporarily enabled (with the temporary feature access key).

Once this feature is enabled with the **enable-ctrl-feat** command, the feature is also activated. The **chg-ctrl-feat** command is not necessary to activate the feature.

This feature cannot be disabled with the **chg-ctrl-feat** command and the **status=off** parameter.

Hardware Supported for Signaling Link Quantities Greater than 1500

The following hardware and applications are the only signaling link hardware and applications supported for an EAGLE 5 ISS containing more than 1500 signaling links.

- E1/T1 MIM running the **ccs7itu** application.
- HC-MIM running the **ccs7itu** application.
- E5-E1T1 card running the **ccs7itu** application.
- Single-slot EDCM running either the **iplimi** or **ipgwi** applications.

- E5-ENET card running either the **iplimi** or **ipgwi** applications.
- ATM high-speed LIM card running the **atmitu** application.

To increase the signaling link quantity to more than 1500 signaling links, HIPR cards must be installed into card locations 9 and 10 in each shelf in the EAGLE 5 ISS. Enter the **rept-stat-gpl:gpl=hipr** command to verify whether or not HIPR cards are installed in the EAGLE 5 ISS shelves.

Procedure

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.

NOTE: If the **rtrv-ctrl-feat** output in [Step 1](#) shows any controlled features, or if the Large System # Links controlled feature is enabled for a quantity that is less than the desired quantity, continue the procedure with [Step 6](#) .

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 with [Step 6](#) . If the serial number is correct but not locked, continue the procedure with [Step 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 [Customer Care Center](#)

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 5 ISS'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 [Step 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 [Step 3](#) and [Step 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 [Step 2](#), if the serial number shown in [Step 2](#) is correct, or with the serial number shown in [Step 4](#), if the serial number was changed in [Step 3](#), and with the **lock=yes** parameter.

For this example, enter this command.

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

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

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
ENT-SERIAL-NUM: MASP A - COMPLTD
```

6. Verify that HIPR cards are installed in card locations 9 and 10 in each shelf of the EAGLE 5 ISS.

NOTE: If the 2000 signaling link quantity is not being enabled in this procedure, continue the procedure with [Step 7](#).

Enter this command.

rept-stat-gpl:gpl=hipr

This is an example of the possible output.

```
rlghncxa03w 06-10-01 11:40:26 GMT EAGLE5 36.0.0
GPL      CARD      RUNNING      APPROVED      TRIAL
HIPR     1109      126-002-000  126-002-000  126-003-000
HIPR     1110      126-002-000  126-002-000  126-003-000
HIPR     1209      126-002-000  126-002-000  126-003-000
HIPR     1210      126-002-000  126-002-000  126-003-000
HIPR     1309      126-002-000  126-002-000  126-003-000
HIPR     1310      126-002-000  126-002-000  126-003-000
HIPR     2109      126-002-000  126-002-000  126-003-000
```

HIPR 2110 126-002-000 126-002-000 126-003-000
Command Completed

If HIPR cards are installed in each the shelf in the EAGLE 5 ISS, continue the procedure with [Step 7](#) .

If HIPR cards are not installed on each shelf in the EAGLE 5 ISS, go to the *Installation Manual - EAGLE 5 ISS* and install the HIPR cards. Once the HIPR cards have been installed, continue the procedure with [Step 7](#) .

NOTE: Before the 2000 signaling link quantity is enabled, make sure the EAGLE 5 ISS is configured with the signaling link hardware shown in the Hardware Supported for Signaling Link Quantities Greater than 1500 section.

If signaling hardware other than the hardware shown in the Hardware Supported for Signaling Link Quantities Greater than 1500 section is installed and provisioned, contact the Customer Care Center before enabling the 2000 signaling link quantity. Refer to [Customer Care Center](#) for the contact information.

7. 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 5 ISS 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 5 ISS can contain to 2000, enter this command.

enable-ctrl-feat:partnum=893005910:fak=<feature access key>

NOTE: 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 Tekelec. If you do not have the feature access key for the feature you wish to enable, contact your Tekelec Sales Representative or Account Representative.

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

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
ENABLE-CTRL-FEAT: MASP B - COMPLTD
```

8. Verify the changes by entering the **rtrv-ctrl-feat** command with the part number specified in [Step 7](#) .

If the 1500 signaling link quantity was enabled in [Step 7](#) , 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 [Step 7](#) , 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:

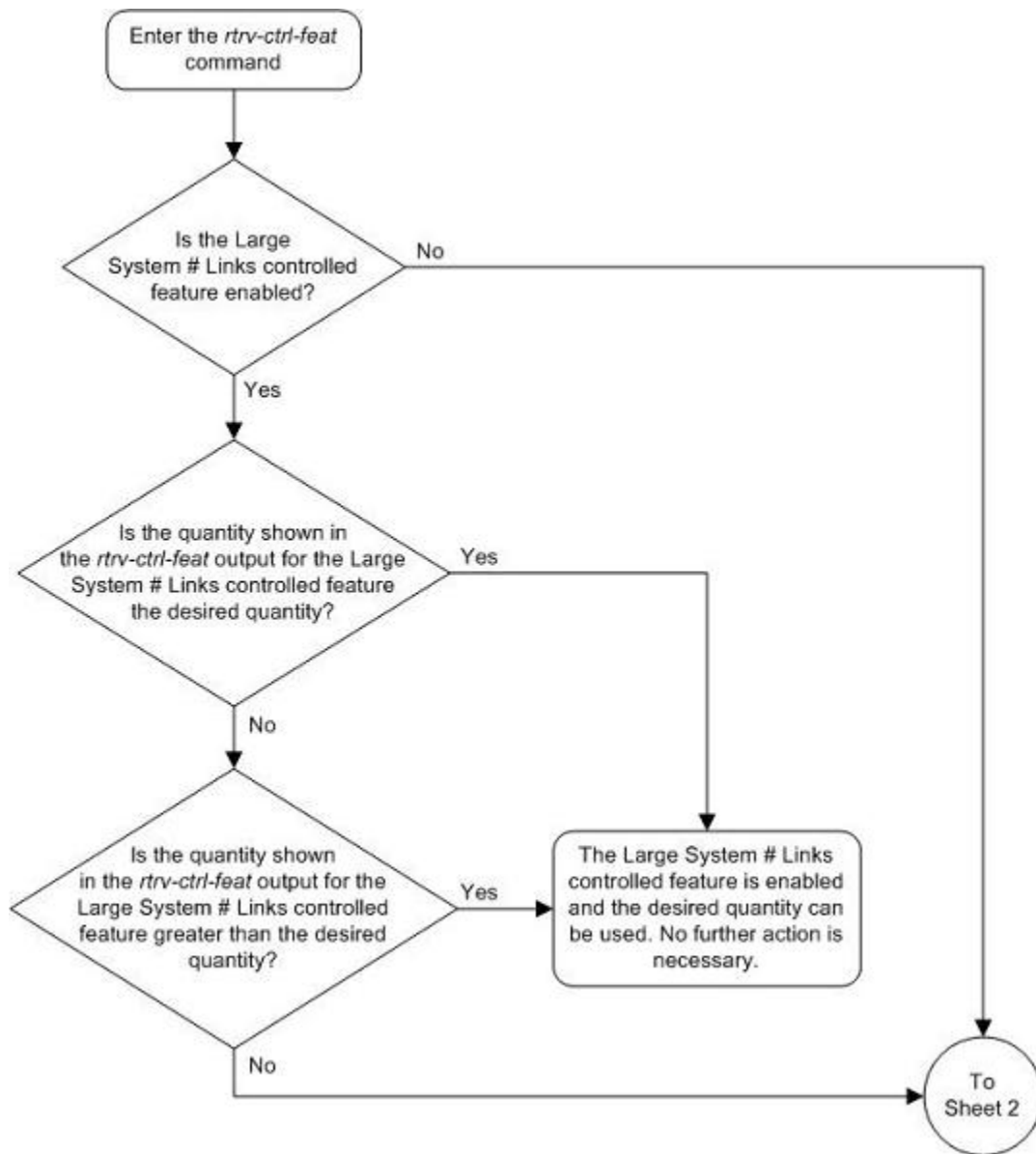
```
Feature Name          Partnum
Zero entries found.
```

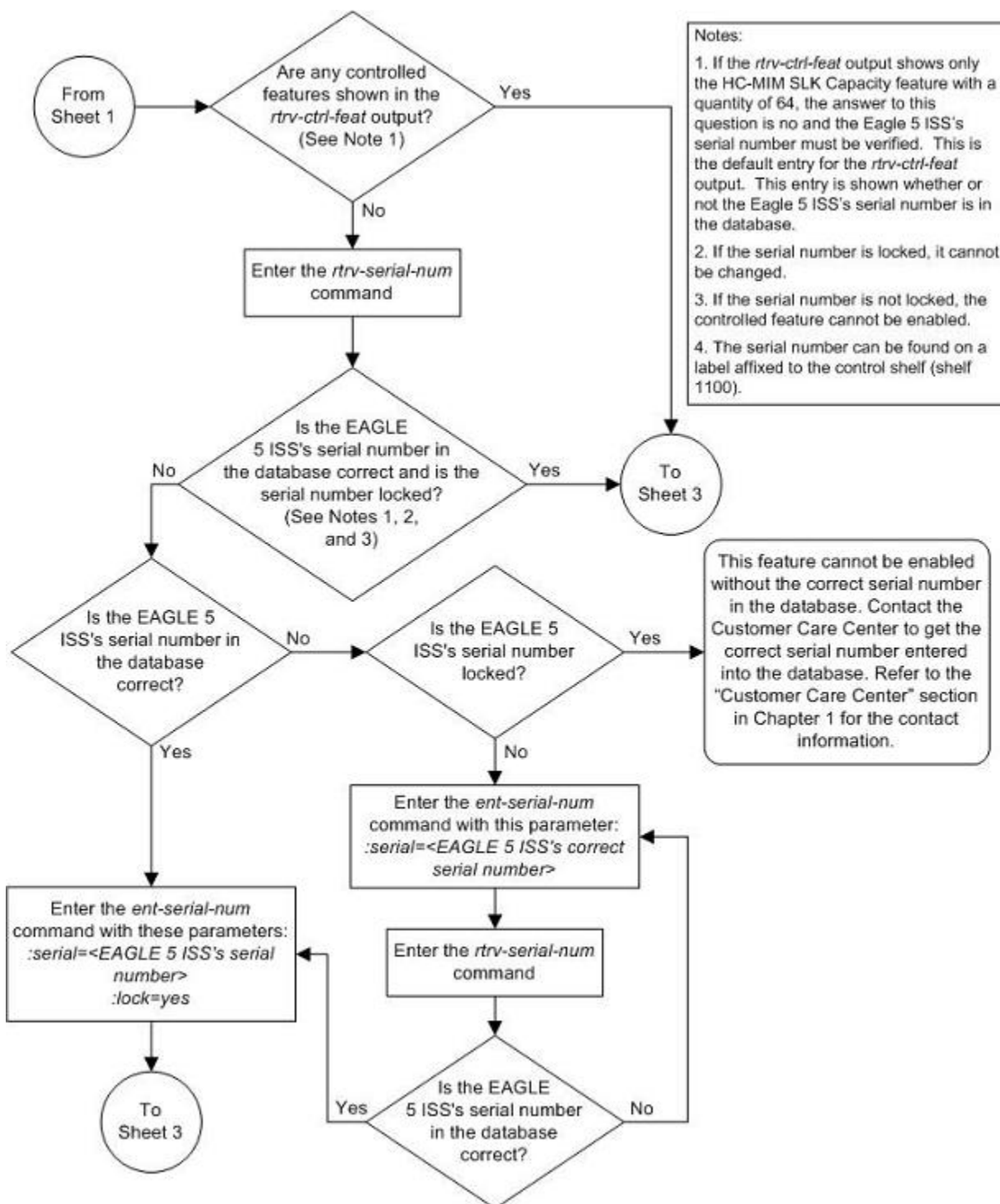
9. Back up the new changes using the **chg-db:action=backup:dest=fixed** command.

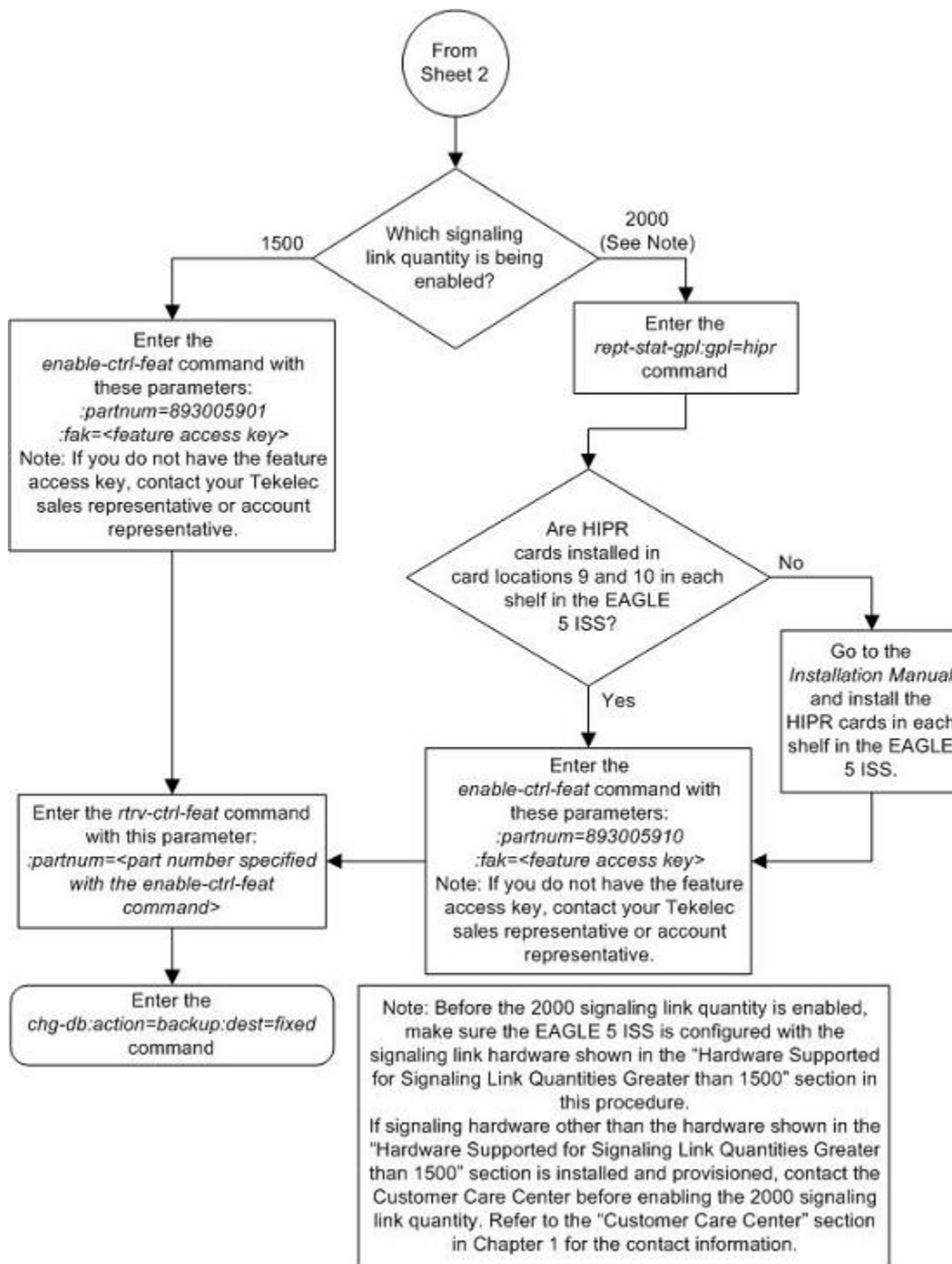
These messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
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.
```

Flowchart 6-12. Enabling the Large System # Links Controlled Feature







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.

Procedure

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 the **gc** parameter is not being specified in this procedure, continue the procedure with [Step 4](#).

2. Display the self-identification of the EAGLE 5 ISS 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      002-002-003      002-002-004      002-002-005
002-002-006      002-002-007      002-002-008      002-002-009
004-002-001      004-003-003      144-212-003

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 [Step 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 the *Database Administration Manual - SS7* 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 **ituiss** or **ituns** parameters will not be specified in this procedure, continue the procedure with [Step 5](#).

If the **ituiss** 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 [Step 1](#), or ITU-I spare or 14-bit ITU-N spare point codes are shown in the **rtrv-sid** output in [Step 2](#), continue the procedure with [Step 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	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 the *Database Administration Manual - SS7* 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 [Step 2](#), or assigned to an ITU-N point code (SPC-N) shown in the **rtrv-spc** output in [Step 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
```

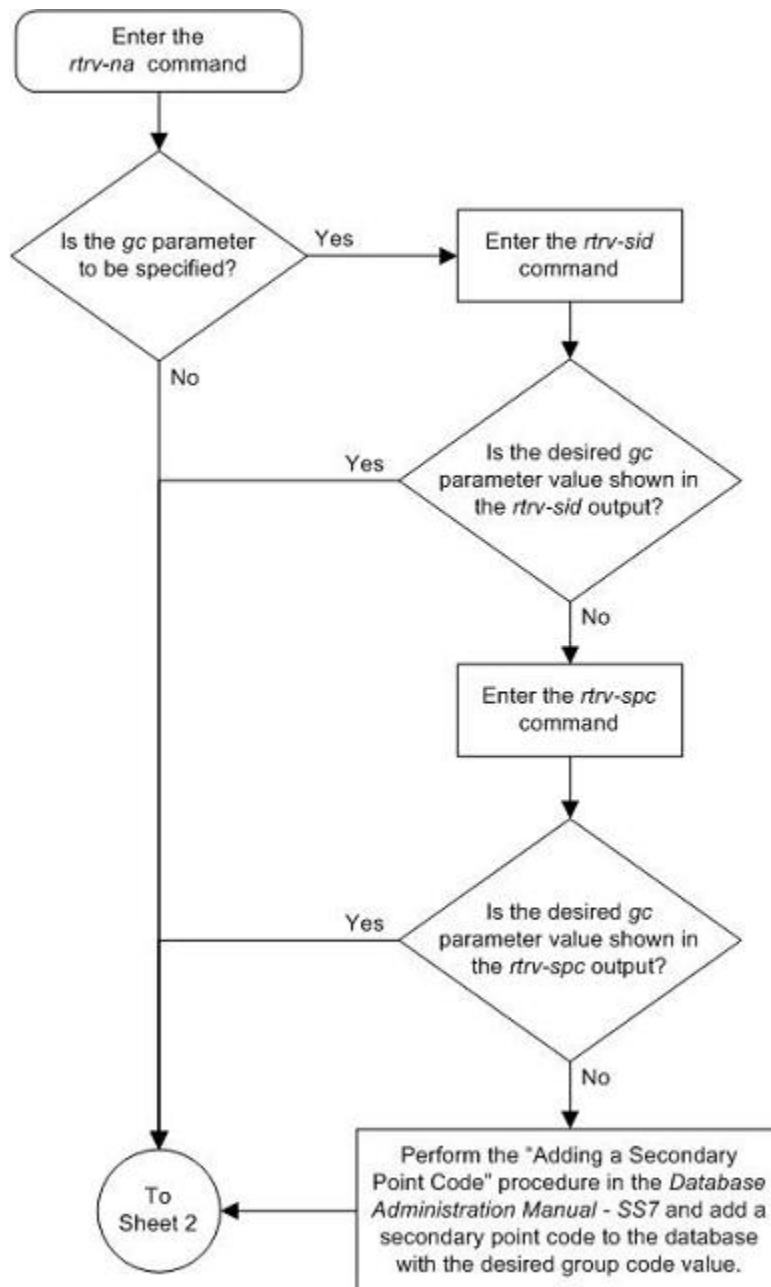
6. Verify the changes using the **rtrv-na** command. This is an example of the possible output.

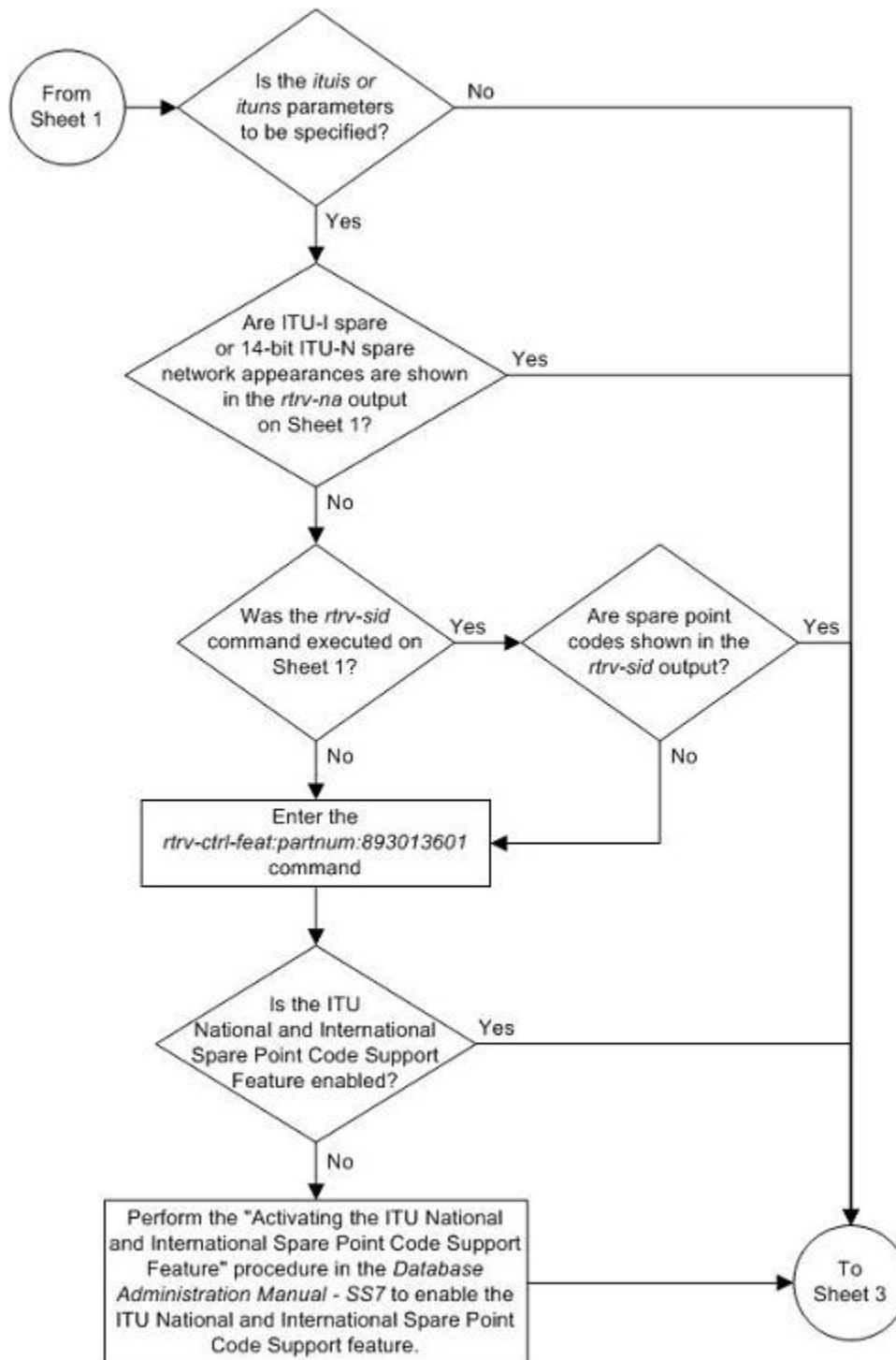
```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
TYPE      GC      NA
ANSI      --      100
ITUI      --      1000
ITUN      uk      150000
ITUN      fr      40000000000
ITUN      ge      10000000000
ITUN24    --      3
ITUIS     --      2000
ITUNS     sp      5000
```

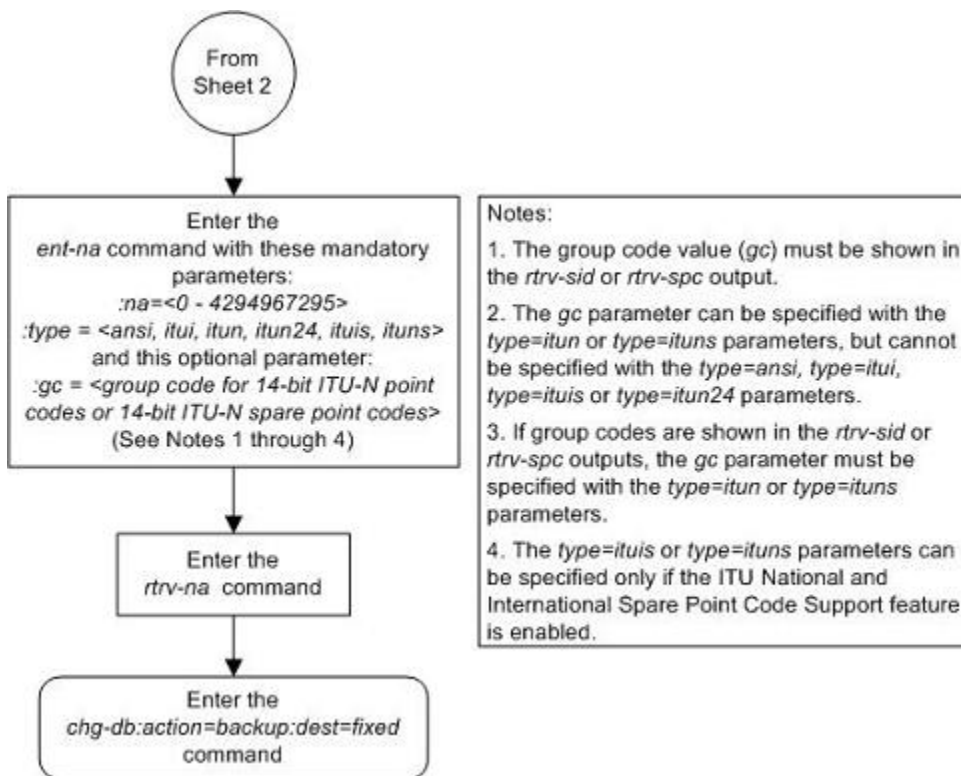
7. Back up the new changes, using the **chg-db:action=backup:dest=fixed** command.

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.
```

Flowchart 6-13. Adding a Network Appearance





Activating the Large BICC MSU Support for IP Signaling Feature

This procedure is used to enable and turn on the Large BICC (Bearer Independent Call Control) MSU Support for IP Signaling feature using the feature's part number and a feature access key.

The feature access key for the Large BICC (Bearer Independent Call Control) MSU Support for IP Signaling feature is based on the feature's part number and the serial number of the EAGLE 5 ISS, making the feature access key site-specific.

The **enable-ctrl-feat** command enables the controlled feature by inputting the controlled feature's access key and the controlled feature's part number with these parameters:

: fak – The feature access key provided by Tekelec. The feature access key contains 13 alphanumeric characters and is not case sensitive.

: partnum – The Tekelec-issued part number of the Large BICC MSU Support for IP Signaling feature, 893018401.

The **enable-ctrl-feat** command requires that the database contain a valid serial number for the EAGLE 5 ISS, and that this serial number is locked. This can be verified with the **rtrv-serial-num** command. The EAGLE 5 ISS is shipped with a serial number in the database, but the serial number is not locked. The serial number can be changed, if necessary, and locked once the EAGLE 5 ISS is on-site, by using the **ent-serial-num** command. The **ent-serial-num** command uses these parameters.

: serial – The serial number assigned to the EAGLE 5 ISS. The serial number is not case sensitive.

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

NOTE: To enter and lock the EAGLE 5 ISS's serial number, the `ent - serial - num` command must be entered twice, once to add the correct serial number to the database with the `serial` parameter, then again with the `serial` and the `lock=yes` parameters to lock the serial number. You should verify that the serial number in the database is correct before locking the serial number. The serial number can be found on a label affixed to the control shelf (shelf 1100).

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 Tekelec-issued part number of the Large BICC MSU Support for IP Signaling feature, 893018401.

: status=on – used to turn the Large BICC MSU Support for IP Signaling feature on.

Once the Large BICC MSU Support for IP Signaling feature has been turned on, it can be turned off. For more information about turning the Large BICC MSU Support for IP Signaling feature off, go to the [Turning the Large BICC MSU Support for IP Signaling Feature Off](#) procedure.

The status of the features in the EAGLE 5 ISS is shown with the **rtrv-ctrl-feat** command.

The Large BICC MSU Support for IP Signaling feature allows the EAGLE 5 ISS to process BICC messages with a service information field (SIF) that is larger than 272 bytes. The large BICC messages are processed only on single-slot EDCMs and E5-ENET cards. There are certain software components that if enabled or provisioned, that will not process large BICC messages even if the Large BICC 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 BICC message is received on an M3UA association and the Large BICC MSU Support for IP Signaling feature is not enabled or is enabled and turned off. The large BICC message is discarded.
- UIM 1350 – Displayed when a M2PA IP connection receives BICC message with an SIF greater than 272 bytes and the Large BICC MSU Support for IP Signaling feature is not enabled or is enabled and turned off. The large BICC message is discarded.
- UIM 1352 – Displayed when a BICC message with an SIF greater than 272 bytes is received; the Large BICC 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 BICC messages.
- UIM 1353 – Displayed when a large BICC message passes a gateway screening screenset that redirects messages for the Database Transport Access (DTA) feature. Large BICC messages are not redirected for the DTA feature.
- UIM 1354 – Displayed when a large BICC message passes a gateway screening screenset that copies messages for the STPLAN feature. Large BICC messages are not copied for the STPLAN feature.

For more information on these UIMs, refer to the *Maintenance Manual*.

NOTE: Large BICC messages are not monitored by the EAGLE 5 Integrated Monitoring Support feature and are not sent to the IMF. A UIM is not generated.

Procedure

1. Display the status of the controlled features by entering the **rtrv-ctrl-feat** command.

The following is an example of the possible output.

```
rlghncxa03w 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 BICC 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 BICC MSU Support for IP Signaling feature is enabled and but not turned on, continue this procedure with [Step 7](#) .

If the Large BICC MSU Support for IP Signaling feature is not enabled, continue this procedure with [Step 2](#) .

NOTE: If the **rtrv-ctrl-feat** output in [Step 1](#) shows any controlled features, continue this procedure with [Step 6](#) . If the **rtrv-ctrl-feat** output shows only the HC-MIM SLK Capacity feature with a quantity of 64, [Step 2](#) through [Step 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
```

NOTE: If the serial number is correct and locked, continue the procedure with [Step 6](#) . If the serial number is correct but not locked, continue the procedure with [Step 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 [Customer Care Center](#) 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 5 ISS'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 [Step 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 [Step 3](#) and [Step 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 [Step 2](#), if the serial number shown in [Step 2](#) is correct, or with the serial number shown in [Step 4](#), if the serial number was changed in [Step 3](#), and with the **lock=yes** parameter.

For this example, enter this command.

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

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

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
ENT-SERIAL-NUM: MASP A - COMPLTD
```

6. Enable the Large BICC MSU Support for IP Signaling feature with the **enable-ctrl-feat** command specifying the part number for the Large BICC MSU Support for IP Signaling feature and the feature access key. Enter this command.

enable-ctrl-feat:partnum=893018401:fak=<Large BICC MSU Support for IP Signaling feature access key>

NOTE: 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 Tekelec. If you do not have the feature access key for the feature you wish to enable, contact your Tekelec Sales Representative or Account Representative.

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

```
rlghncxa03w 06-10-28 21:15:37 GMT EAGLE5 36.0.0
ENABLE-CTRL-FEAT: MASP B - COMPLTD
```

7. Turn the Large BICC MSU Support for IP Signaling feature on with the **chg-ctrl-feat** command specifying the part number for the Large BICC 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-feat** command with the Large BICC 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 06-10-28 21:15:37 GMT EAGLE5 36.0.0
The following features have been permanently enabled:
```

Feature Name	Partnum	Status	Quantity
Large BICC MSU for IP Sig	893018401	on	----

The following features have been temporarily enabled:

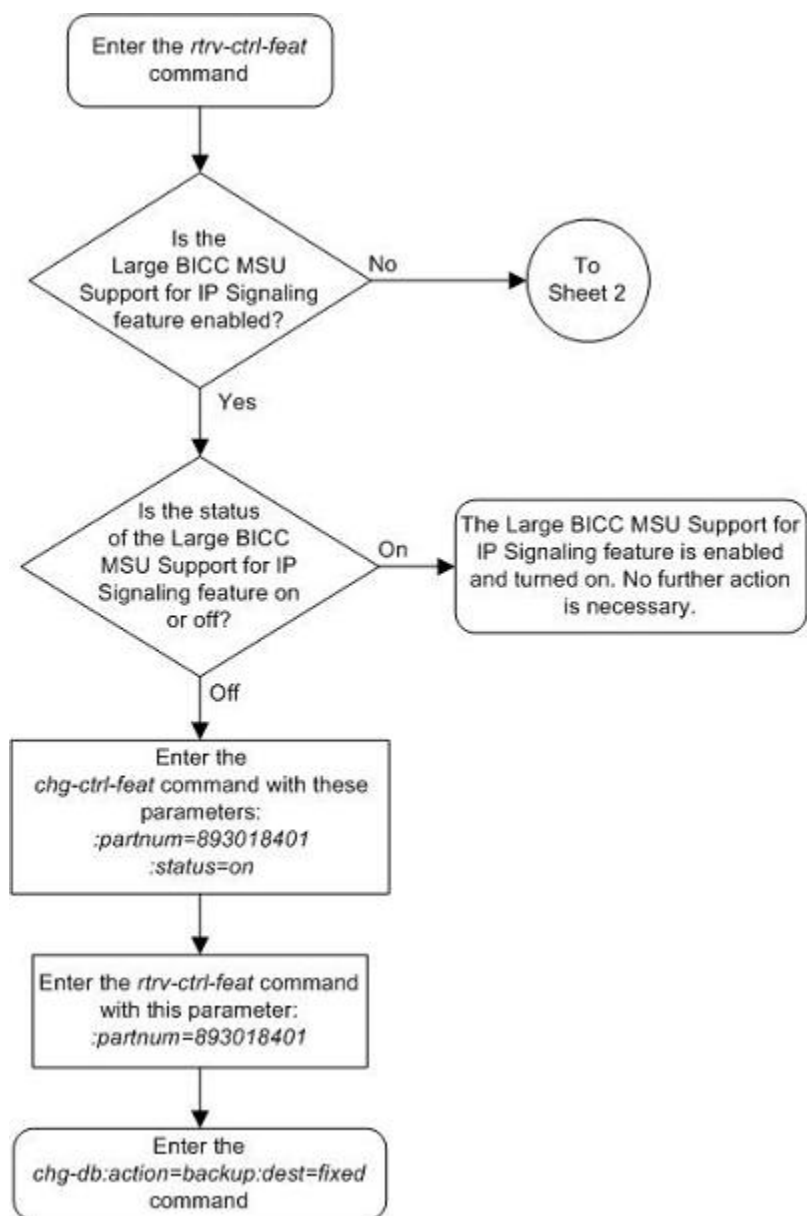
Feature Name	Partnum	Status	Quantity	Trial Period Left
Zero entries found.				

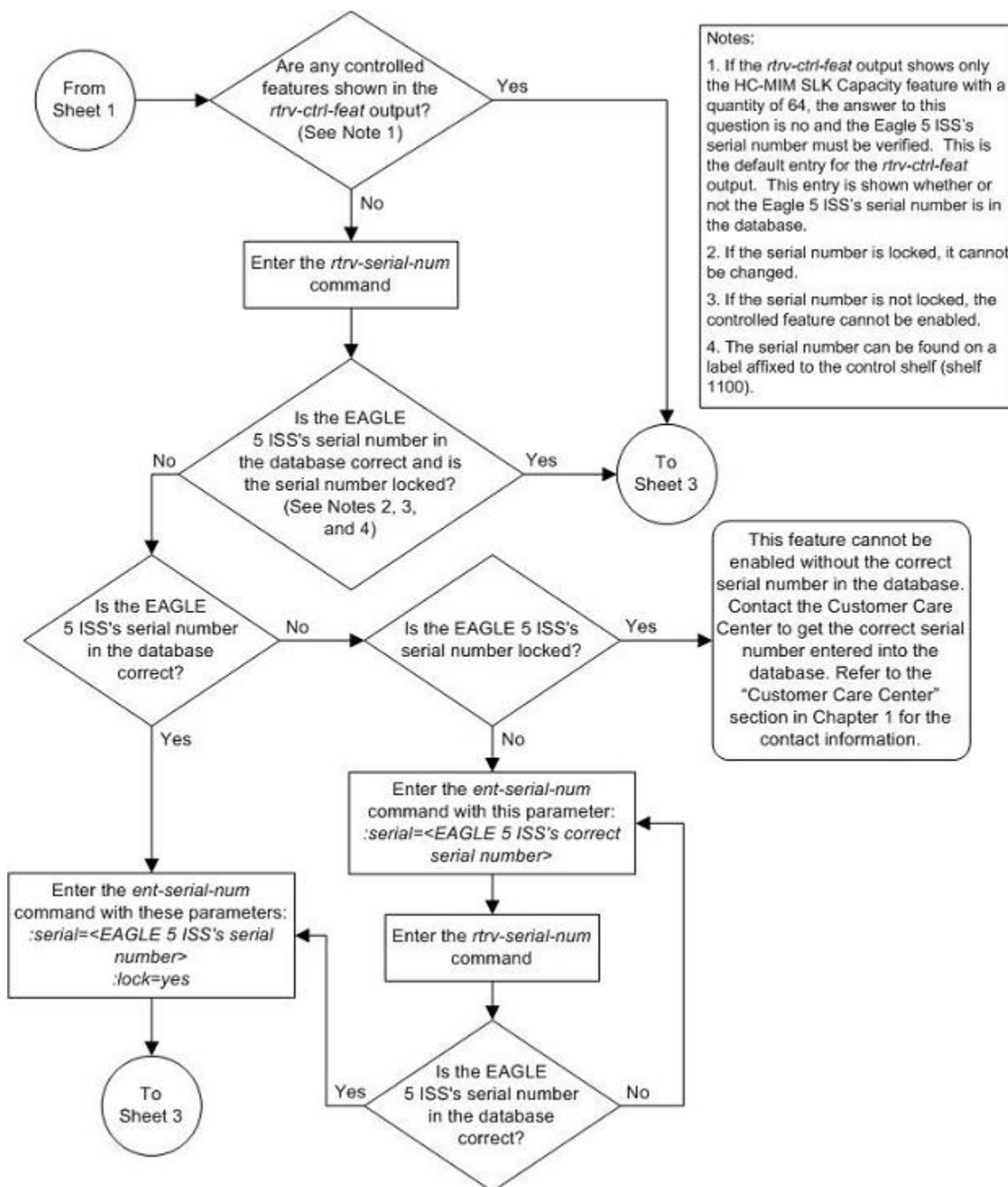
The following features have expired temporary keys:

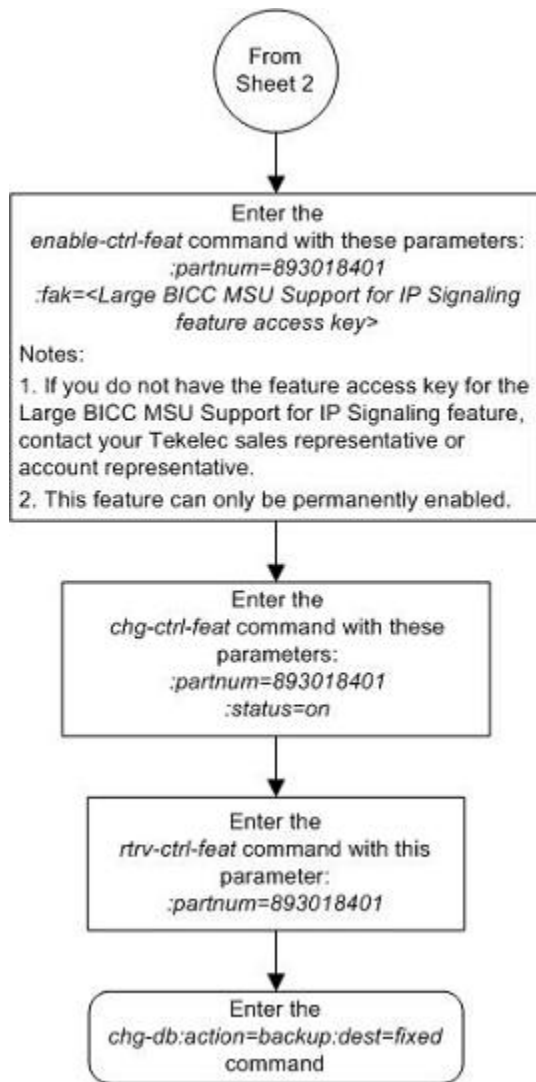
Feature Name	Partnum
Zero entries found.	

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.
```

Flowchart 6-14. Activating the Large BICC MSU Support for IP Signaling Feature





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.

Procedure

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

This is an example of the possible output.

```
rlghncxa03w 08-04-13 17:00:02 GMT EAGLE5 36.0.0
CARD  TYPE      APPL      LSET NAME      LINK SLC LSET NAME      LINK SLC
1101   TSM        SCCP
1102   TSM        GLS
1104   ACMENET     STPLAN
1113   GSPM        EOAM
1114   TDM-A
1115   GSPM        EOAM
1116   TDM-B
1117   MDAL
1201   LIMDS0     SS7ANSI   lsn1           A    0    lsn2           B    1
1202   LIMV35     SS7GX25   lsngwy         A    0
1203   LIMV35     SS7ANSI   lsn2           A    0    lsn1           B    1
1204   LIMATM     ATMANSI   atmgyw         A    0
1205   ENET        IPGS      ipsgnode1      A    0    ipsgnode1      B    1
1207   ENET        IPGS      ipsgnode2      A    0
1303   DCM         IPLIM     ipnode1        A    0    ipnode3        B    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 [Step 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

LSN              APCA  (SS7)  SCRNL3T SLT  BEI  LST  LNKS  GWS  GWS  GWS
ipsgnode1        001-001-003  none  1    1    no   A    2    off off off no  off

              SPCA          CLLI          TFATCABMLQ  MTPRSE  ASL8
              -----
              IPGS  IPGWAPC  GTTMODE          CGGTMOD
              yes   no      CdPA          no

ADAPTER  SLKTPS  LSUSEALM  SLKUSEALM  RCONTEXT  ASNOTIF
m2pa     1015   100%     80%        none      no

LOC  LINK  SLC  TYPE  ANAME
1205 A    0    IPGS  m2pa1
1205 B    1    IPGS  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

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				TFATCABMLQ	MTPRSE	ASL8				
	IPSG	IPGWAPC	GTTMODE				CGGTMOD						
	yes	no	CdPA				no						
	ADAPTER	SLKTPS	LSUSEALM	SLKUSEALM			RCONTEXT		ASNOTIF				
	m3ua	2000	100%	80%			none		yes				
	NUMSLKALW	NUMSLKRSTR	NUMSLKPROH										
	1	1	1										
	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 [Step 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 [Step 3](#). For this example, enter these commands.

rtrv-card:loc=1205

rtrv-card:loc=1207

When these commands have successfully completed, this message appears.

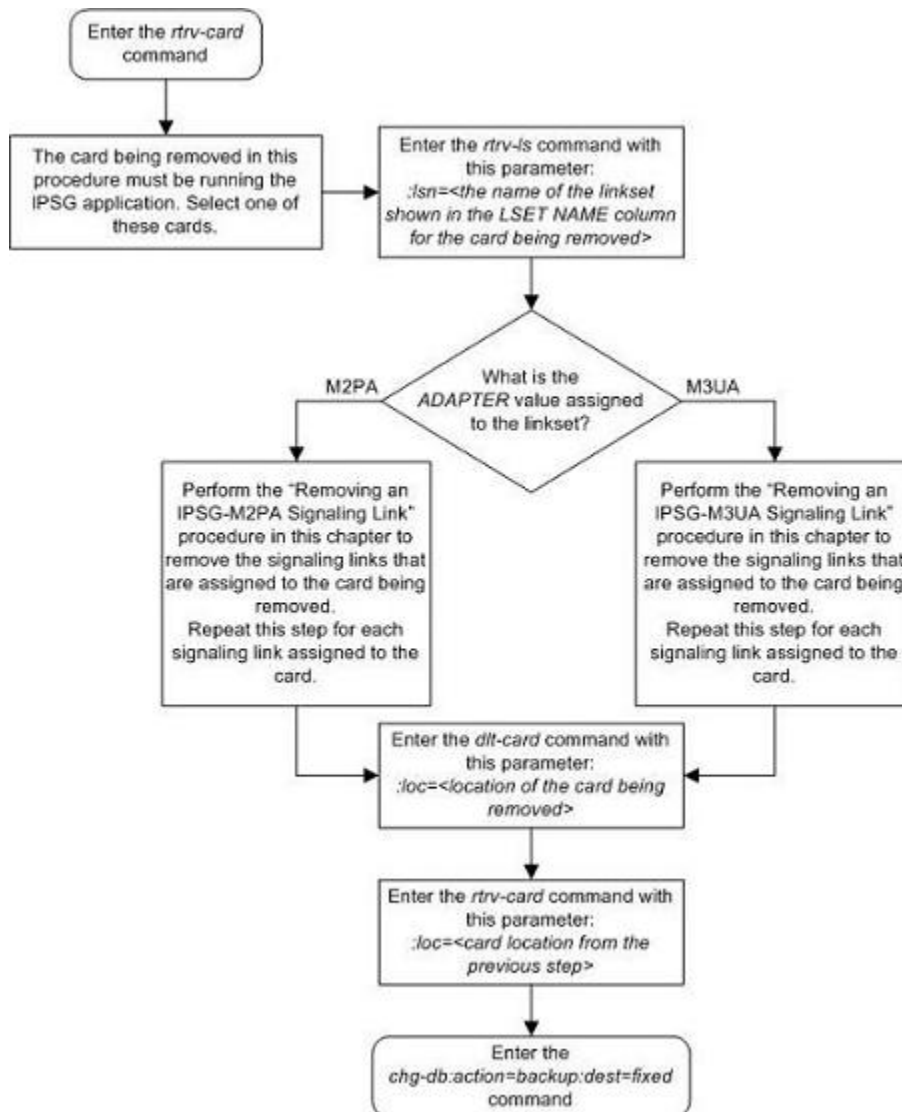
```
E2144 Cmd Rej: Location invalid for hardware configuration
```

5. 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.

Flowchart 6-15. 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.

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

For more information about the **canc-cmd** command, go to the *Commands Manual*.

Procedure

1. Display the IPSG linksets by entering the **rept-stat-iptps** command. This is an example of the possible output.

```
r1ghncxa03w 08-04-28 21:17:37 GMT EAGLE5 38.0.0
IP TPS USAGE REPORT
```

	THRESH	CONFIG		TPS	PEAK	PEAKTIMESTAMP
LSN						
ls1	100%	0	TX:	0	0	00-00-00 00:00:00
			RCV:	0	0	00-00-00 00:00:00

Command Completed.

2. Display the linkset that will be removed by entering the **rtrv-ls** command with the name of the linkset shown in [Step 1](#). This is an example of the possible output.

rtrv-ls:lsn=ls1

This is an example of the possible output.

```
r1ghncxa03w 07-05-17 11:43:04 GMT EAGLE5 37.0.0
```

			L3T	SLT		GWS	GWS	GWS
LSN	APCA	(SS7)	SCRN	SET	SET	BEI	LST	LNKS
							ACT	MES
								DIS
								SLSCI
								NIS

```

ls1          240-012-004  scr1 1 1 no a 4 off off off yes off
          SPCA          CLLI          TFATCABMLQ MTPRSE ASL8
          -----
          2          --- 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
1101 B    1   IPSG  m2pa2
1101 B3   2   IPSG  m2pa3
1101 B4   3   IPSG  m2pa4
1103 B15  4   IPSG  m2pa1

```

Link set table is (14 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 [Step 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 [Step 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

This is an example of the possible output.

```
rlghncxa03w 07-08-23 11:09:57 EST 37.0.0
```

```
APCA = 150-001-002
```

```

          L3T SLT          GWS GWS GWS
LSN      PPCA      SCRIN 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 07-08-15 09:22:39 EST 37.0.0
```

```

DPCA      CLLI      BEI ELEI  ALIASI          ALIASN/N24  DOMAIN
150-001-002 ----- no  --- -----
                                     SS7

PPC      NCAI      PRX
150-001-001 ---- no

```

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 [Step 3](#)) that is also assigned to the APC of the linkset (shown in [Step 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
ls1          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 Manual - SS7*.

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 [Step 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 [Step 2](#) , perform the [Removing an IPSG M3UA Signaling Link](#) procedure.

7. Display any entries 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 ENTRIES ALLOCATED: 2000
FULL DPC(s):                  15
EXCEPTION DPC(s):              5
NETWORK DPC(s):                0
CLUSTER DPC(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 quantities is displayed.

If the name of the linkset being removed in this procedure shown in the **LSN** column in this step, perform one of these procedures:

- 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 Manual - SS7*.
- Remove all the entries displayed in this step by performing the "Removing a Route Exception Entry" procedure in the *Database Administration Manual - SS7*.

8. 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
```

9. Verify the changes using the **rtrv -ls** command with the linkset name used in [Step 8](#).

For this example, enter this command.

rtrv -ls: lsn=lsn1

If the removal of the linkset was successful, the following message is displayed.

```
E2346 Cmd Rej: Linkset not defined
```

Continue the procedure with [Step 10](#) if the linkset that was removed in [Step 8](#) has any of these attributes:

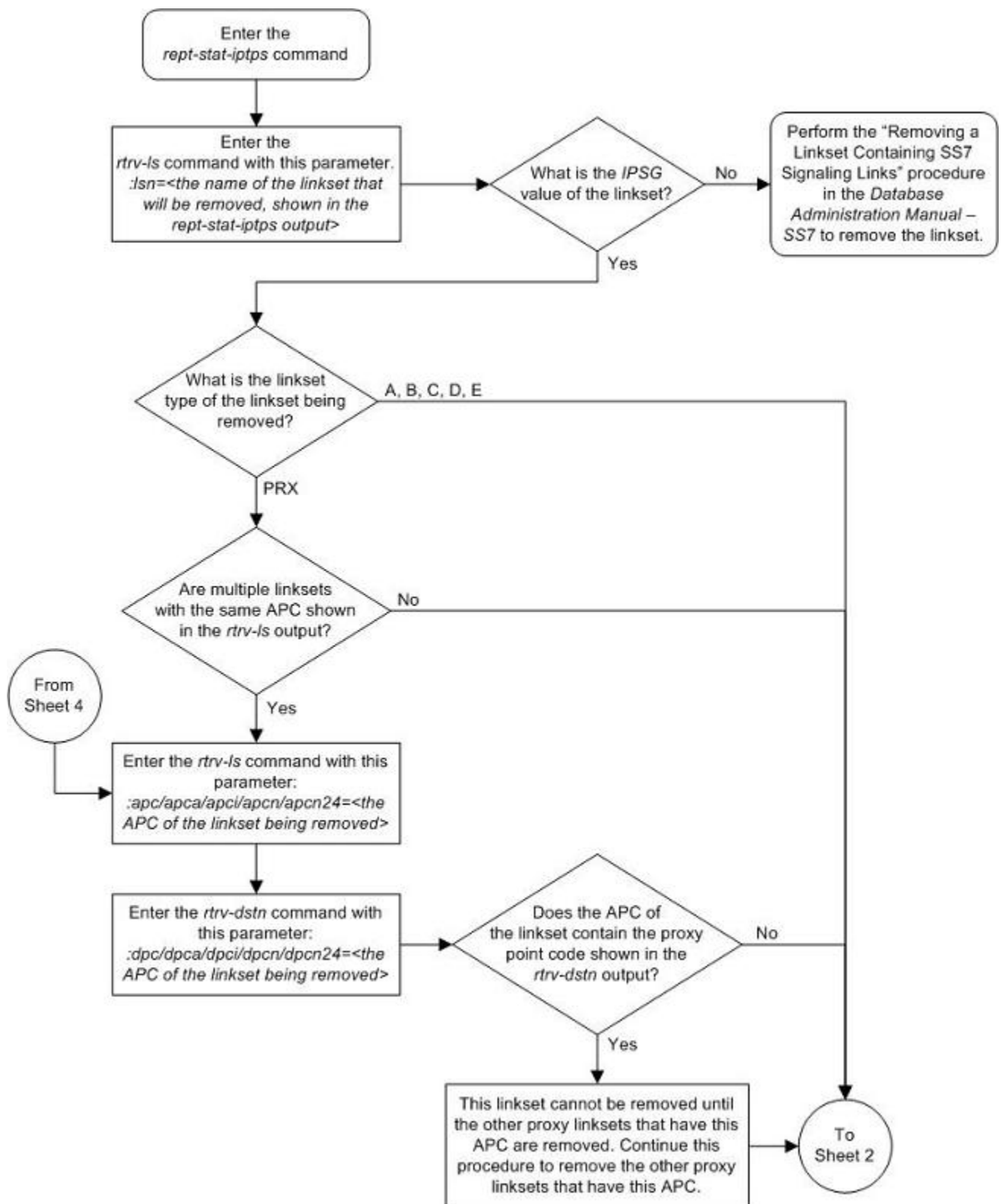
- The linkset was not a proxy linkset.
- The linkset was a proxy linkset whose APC was assigned to only the proxy linkset that was removed in [Step 8](#).
- The linkset was a proxy linkset and:
 - The APC of this linkset is assigned to more than one linkset.
 - The linkset did not contain the proxy point 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.

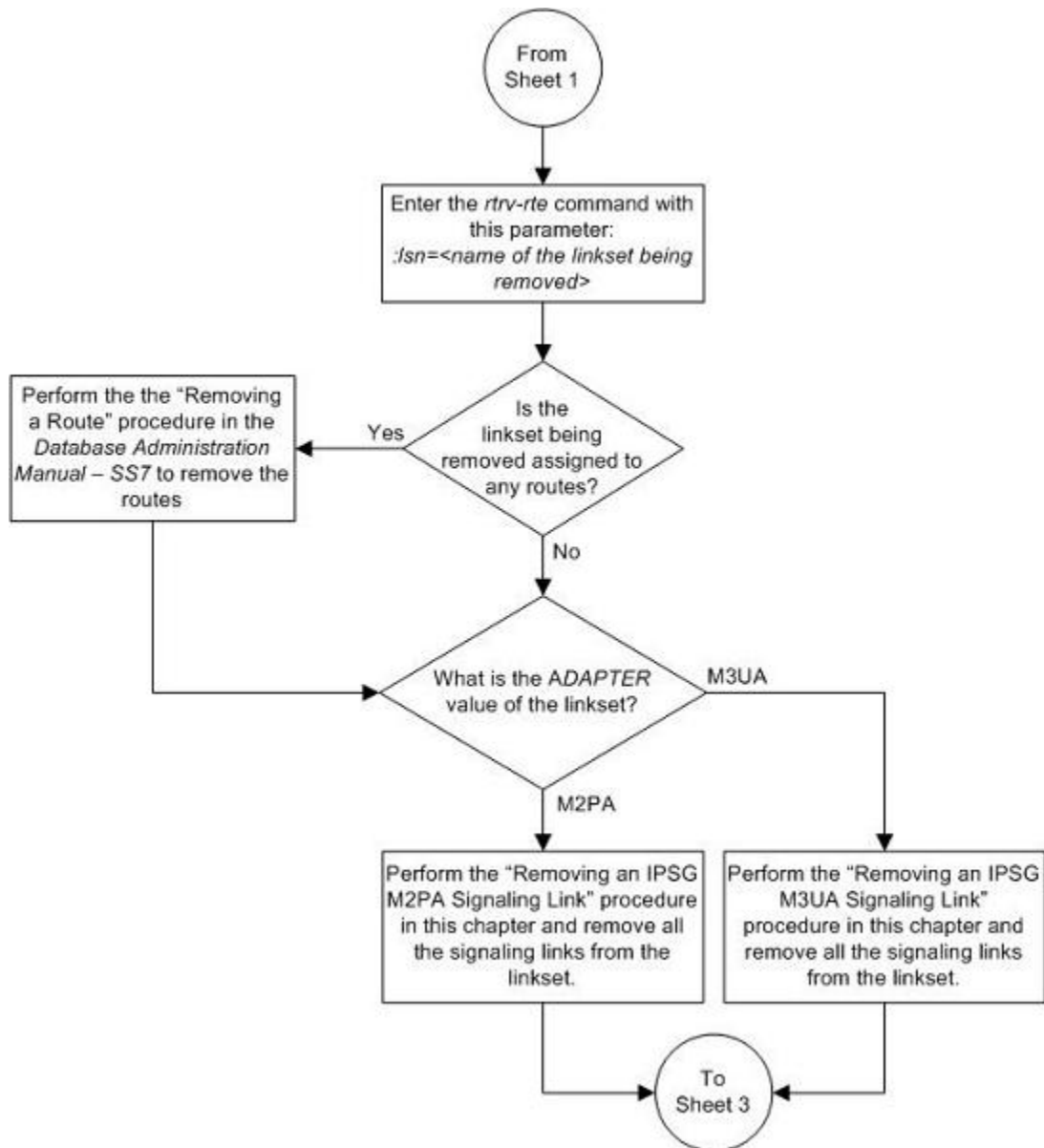
If you wish to remove the proxy linkset that contains the proxy point code that is also assigned to the APC of the linkset, and the database contains other linksets that are assigned to this APC, these other linksets must be removed before the proxy linkset that contains the proxy point code that is also assigned to the APC of the linkset can be removed. Repeat this procedure from [Step 4](#) to remove these linksets. After these linksets have been removed, perform this procedure again from [Step 4](#) to remove the proxy linkset that contains the proxy point code that is also assigned to the APC of the linkset.

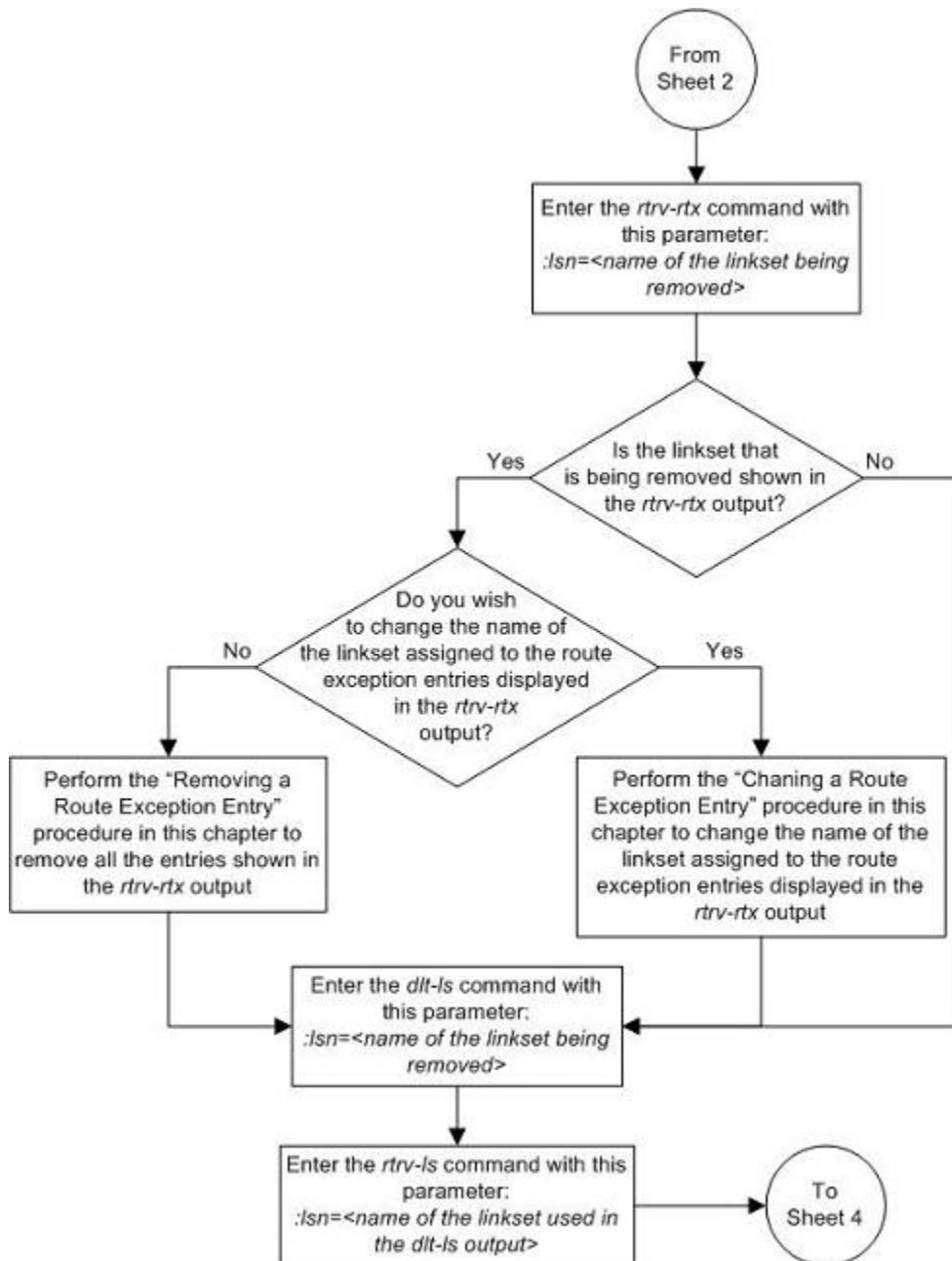
10. Back up the new changes using the **chg-db:action=backup:dest=fixed** command. These messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

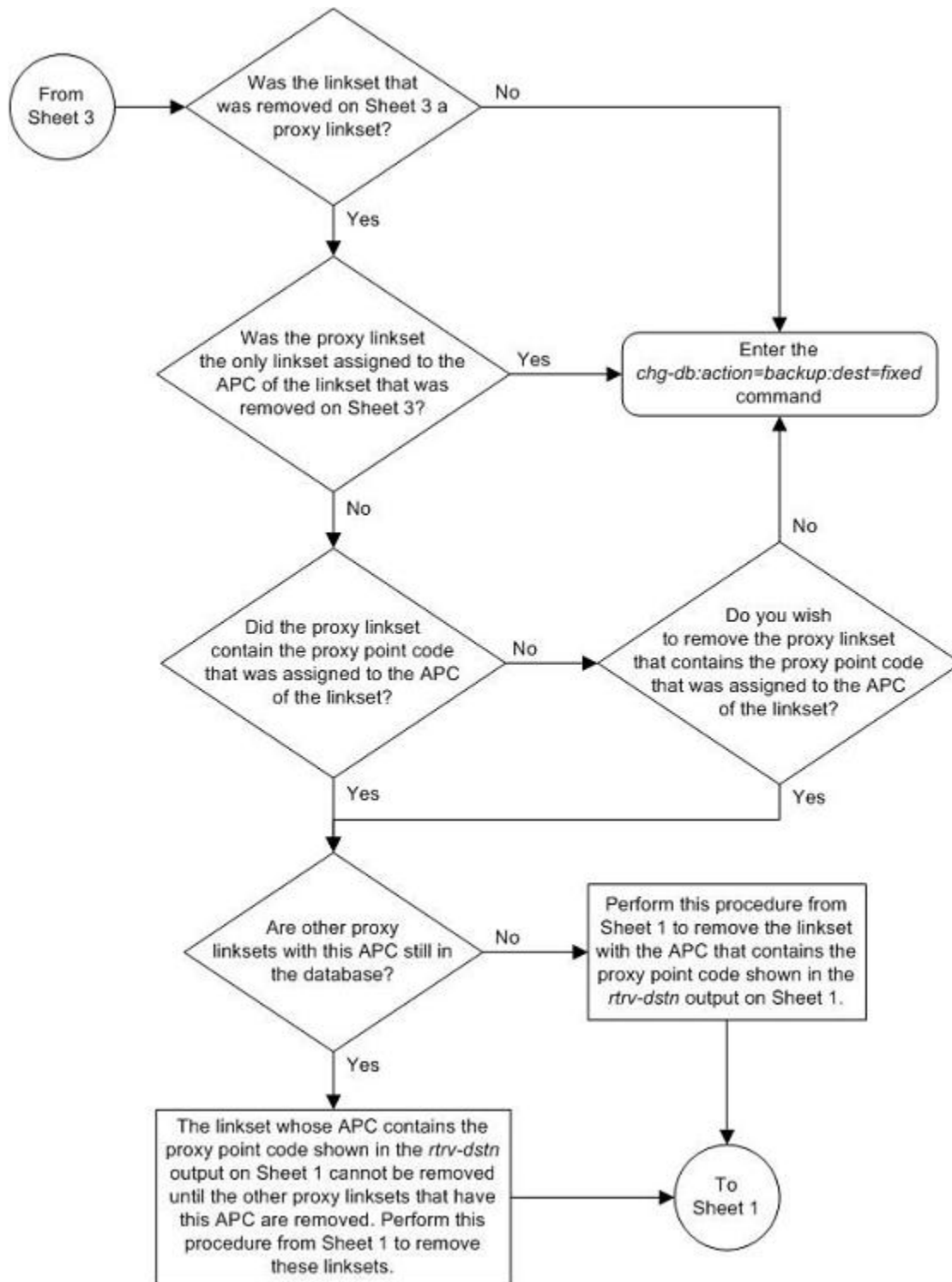
```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

Flowchart 6-16. Removing an IPSG Linkset









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.

Procedure

1. Display the current IP host information in the database by entering the **rtrv-ip-host** command.

The following is an example of the possible output.

```
r1ghncxa03w 06-10-28 21:17:37 GMT EAGLE5 36.0.0

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
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 512) 2% full
```

If the IP host that is being removed is a remote host, continue the procedure with [Step 5](#) .

If the IP host that is being removed is a local host, continue the procedure with [Step 2](#) .

2. Display the current link parameters associated with the IP card in the database by entering the **rtrv-ip-link** command. The following is an example of the possible output.

```
r1ghncxa03w 07-05-28 21:14:37 GMT EAGLE5 37.0.0
LOC  PORT  IPADDR      SUBMASK      DUPLEX  SPEED  MACTYPE  AUTO  MCAST
1303  A    192.1.1.10   255.255.255.128  HALF    10     802.3    NO    NO
1303  B    -----      -----      HALF    10     DIX      NO    NO
1305  A    192.1.1.12   255.255.255.0   ---     ---     DIX      YES   NO
1305  B    -----      -----      HALF    10     DIX      NO    NO
1313  A    192.1.1.14   255.255.255.0   FULL    100    DIX      NO    NO
1313  B    -----      -----      HALF    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
2103  A    192.1.1.22   255.255.255.0   FULL    100    DIX      NO    NO
2103  B    -----      -----      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
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    -----      -----      HALF    10     DIX      NO    NO
```

```

2305 A 192.3.3.33 255.255.255.0 FULL 100 DIX NO NO
2305 B ----- HALF 10 DIX NO NO

```

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

```

rlghncxa03w 07-05-28 09:12:36 GMT EAGLE5 37.0.0
CARD TYPE APPL LSET NAME LINK SLC LSET NAME LINK SLC
1101 TSM SCCP
1102 TSM GLS
1113 GSPM EOAM
1114 TDM-A
1115 GSPM EOAM
1116 TDM-B
1117 MDAL
1201 LIMDS0 SS7ANSI sp2 A 0 sp1 B 0
1203 LIMDS0 SS7ANSI sp3 A 0
1204 LIMDS0 SS7ANSI sp3 A 1
1206 LIMDS0 SS7ANSI nsp3 A 1 nsp4 B 1
1207 LIMV35 SS7GX25 nsp1 A 0
1208 LIMV35 SS7GX25 nsp1 A 1
1216 ACMENET STPLAN
1301 LIMDS0 SS7ANSI sp6 A 1 sp7 B 0
1302 LIMDS0 SS7ANSI sp7 A 1 sp5 B 1
1303 DCM IPLIM ipnode1 A 0 ipnode3 B 1
1305 DCM IPLIM ipnode4 A 0
1307 ACMENET STPLAN
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 B 2
2205 DCM IPLIM ipnode3 A2 0 ipnode6 B1 2
2207 DCM IPLIM ipnode5 A 0 ipnode4 B3 1
2213 DCM IPLIM ipnode5 A3 1 ipnode3 B2 2
2301 DCM IPLIM ipnode6 A 0 ipnode1 B 2
2305 ENET IPSG ipnode6 A1 1 ipnode1 B1 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
m3ua1 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 [Step 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 [Step 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 [Step 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 [Step 5](#).

For this example, enter this command.

```
rtrv-ip-host:host=gw100.nc.tekelec.com
```

```
rtrv-ip-host:host=ipnode2-1201
```

The following is an example of the possible output.

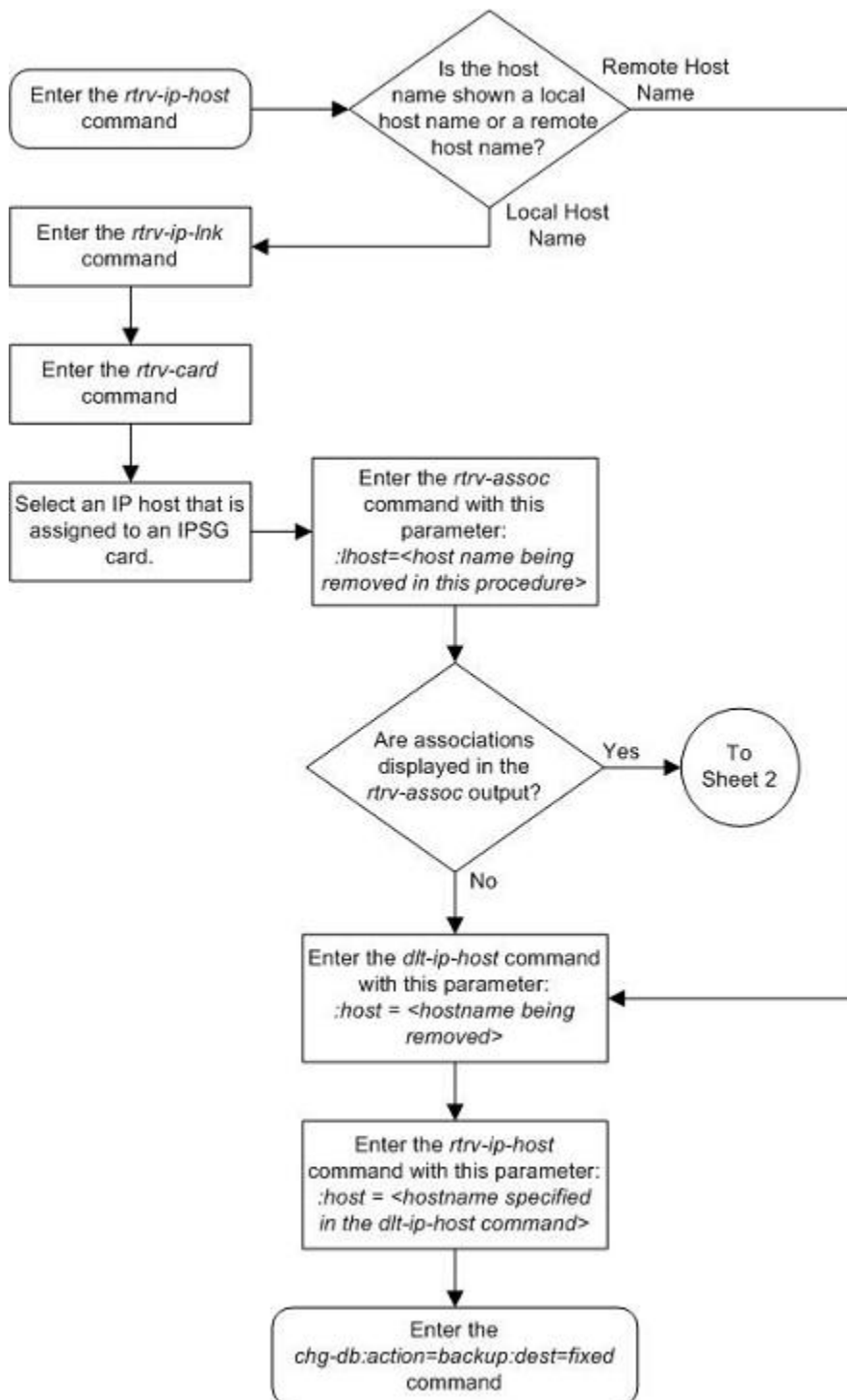
```
rlghncxa03w 06-10-28 21:20:37 GMT EAGLE5 36.0.0
LOCAL IPADDR    LOCAL HOST
IP Host table is (10 of 512) 2% full
```

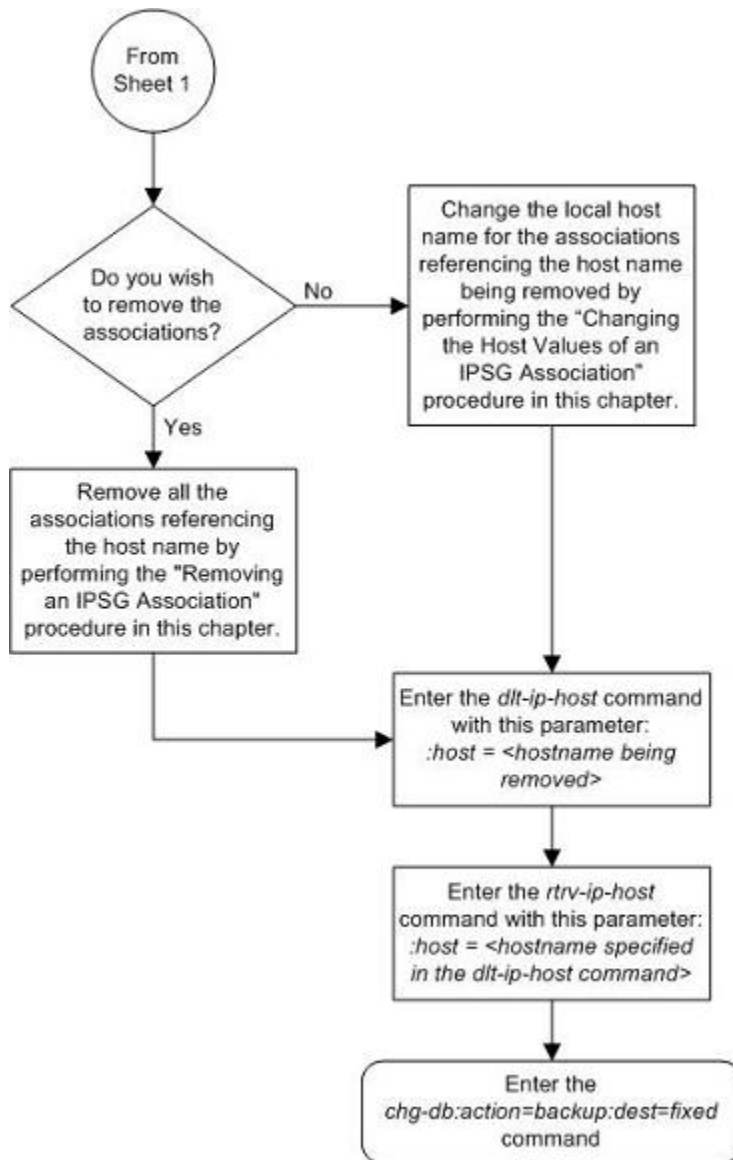
7. Back up the new changes using the **chg-db:action=backup:dest=fixed** command.

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.
```

Flowchart 6-17. Removing an IP Host Assigned to an IPSG 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.

Procedure

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     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 (6 of 1024) 1% 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 08-10-01 09:12:36 GMT EAGLE5 38.0.0
CARD  VERSION      TYPE      GPL      PST      SST      AST
1301  126-003-000    E5ENET    IPSG      IS-NR      Active    -----
ALARM STATUS      = No Alarms.
IMTPCI  GPL version = 126-003-000
BLCPLD  GPL version = 126-003-000
BLDIAG6 GPL version = 126-003-000
BLBEPM  GPL version = 126-003-000
PLDPMC1 GPL version = 126-003-000
BLVXW6  GPL version = 126-003-000
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
A        IS-NR      nc001    -----
```

Command Completed.

NOTE: If the output of [Step 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 [Step 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     255.255.255.255  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 1024) 1% full

6. Place the IP card back into service by using the **alw-card** command.

NOTE: If the IP card containing the IP route that was removed from the database does not contain other IP routes, continue the procedure with [Step 7](#) .

For example, enter this command.

```
alw-card:loc=1301
```

This message should appear.

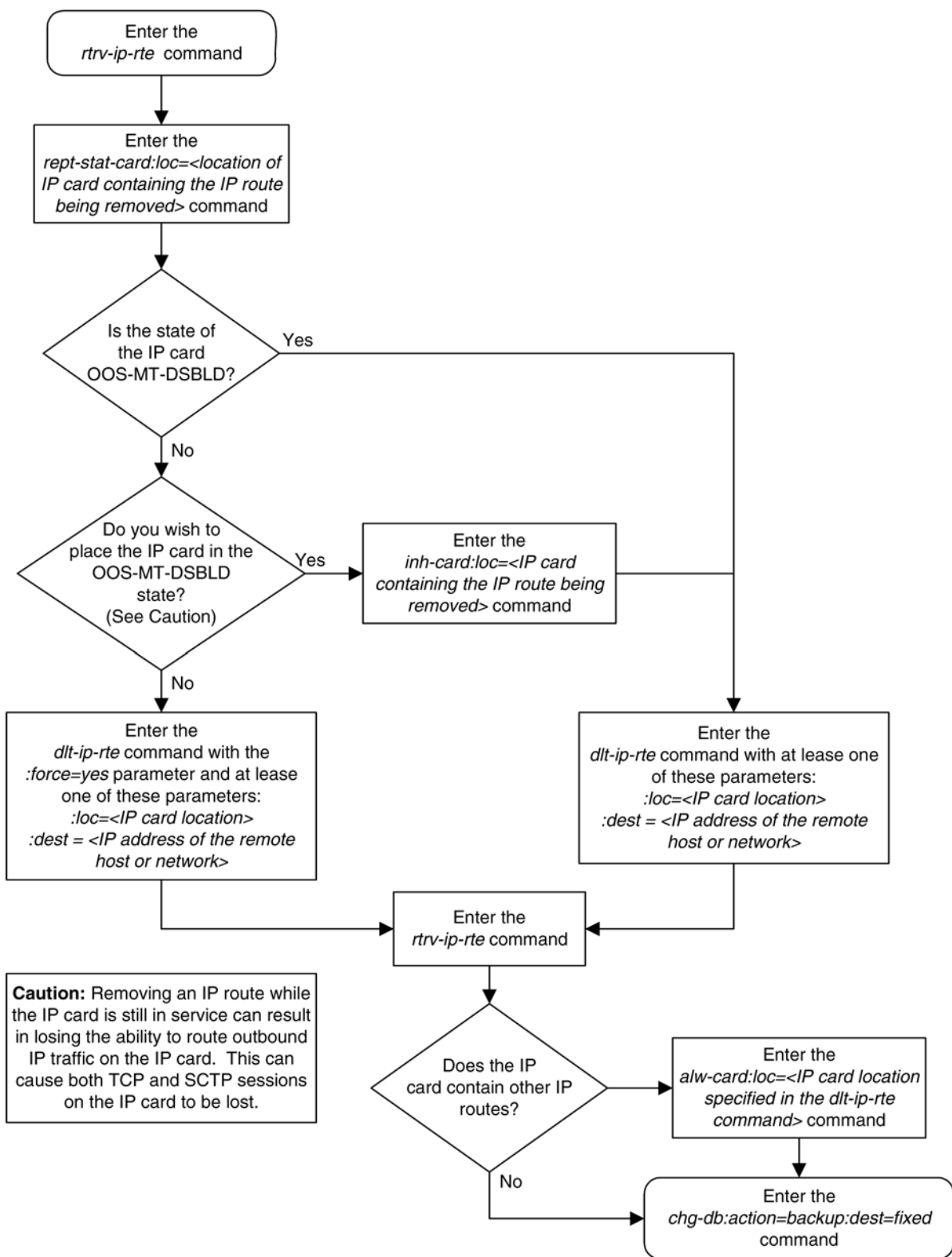
```
rlghncxa03w 06-10-28 21:22:37 GMT EAGLE5 36.0.0
Card has been allowed.
```

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.
```

Flowchart 6-18. 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 an 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 than 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 the *Commands Manual*.

Procedure

1. Display the associations in the database using the **rtrv-assoc** command.

This is an example of possible output.

```
r1ghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
```

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      lsn2        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 [Step 3](#).

If the application assigned to the card is IPSG, shown in the **APPL** column, and signaling links are assigned to the card, perform one of these procedures depending on the **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 [Step 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 an 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.

NOTE: If the value of the **open** parameter for the association being removed from the database (shown in [Step 1](#)) is **no**, continue this procedure with [Step 4](#).

For this example, enter these commands.

chg-assoc:aname=assoc1:open=no

chg-assoc:aname=swbel32:open=no

When the **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

dl t- assoc : a name = swbel 32

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 [Step 4](#).

For this example, enter these commands.

rtrv- assoc : a name = assoc1

rtrv- assoc : a name = swbel 32

This is an example of possible output.

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

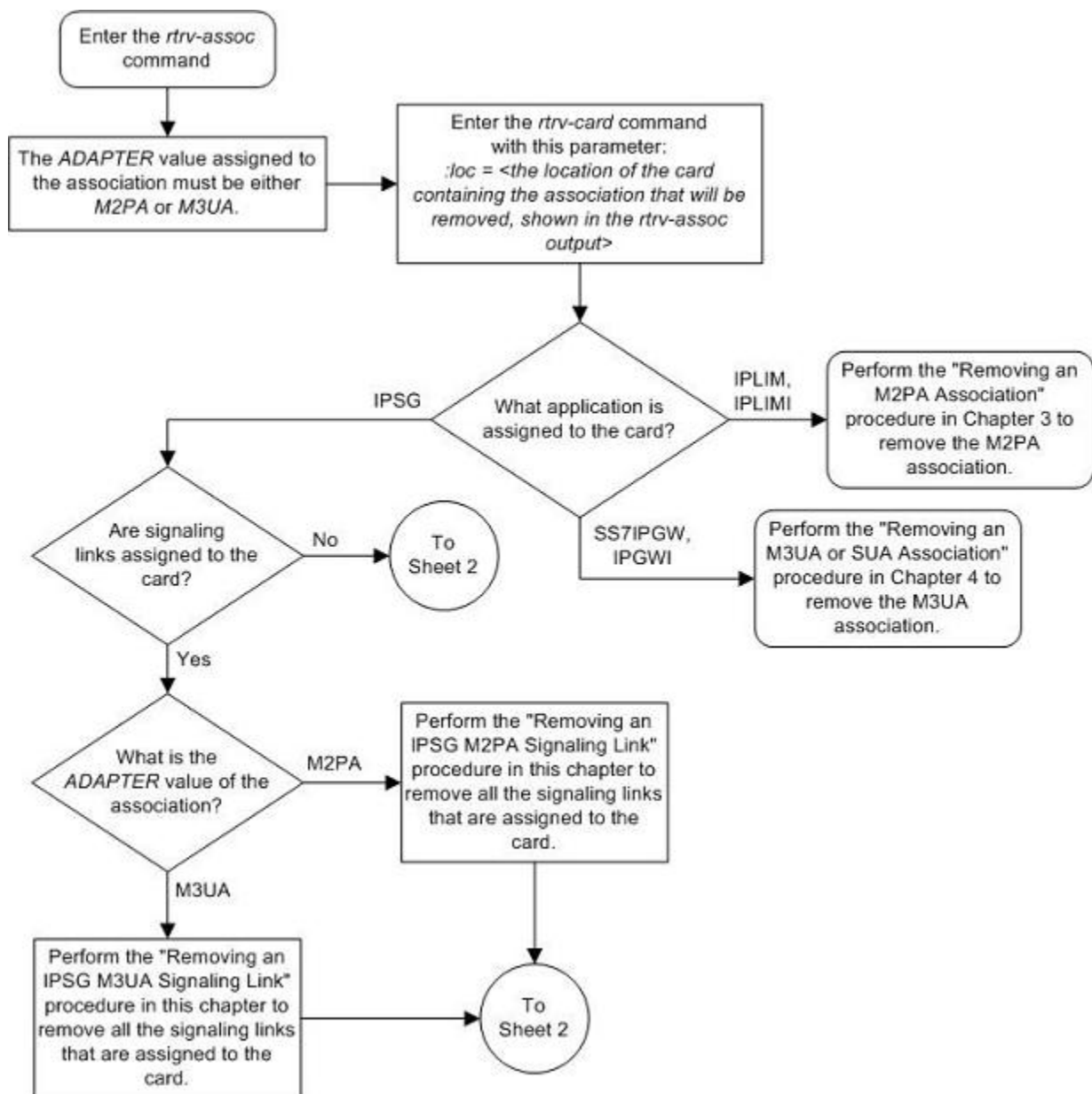
No matching entries found

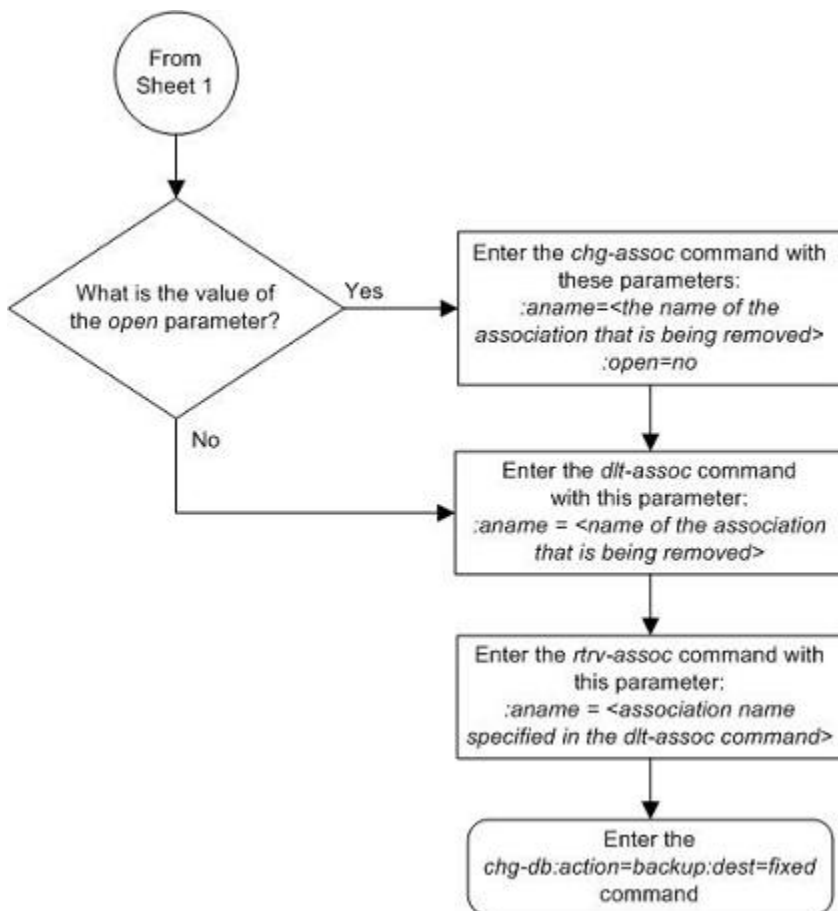
IP Appl Sock table is (2 of 4000) 1% full
```

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.
```

Flowchart 6-19. Removing an IPSG Association





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.

The **dlt-slk** command makes sure that the number of signaling links assigned to a linkset is greater than or equal to the value of the **tfatcabmlq** parameter. If the number of signaling links associated with a linkset drops below the value of the **tfatcabmlq** parameter for that linkset, the **tfatcabmlq** value for that linkset is automatically decremented. The value of the **tfatcabmlq** parameter for a specified linkset can be verified using

the **rtrv-ls:lsn=<linkset name>** command specifying the name of the linkset. The **tfatcabmlq** parameter value is shown in the **tfatcabmlq** field of the **rtrv-ls** command output.

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 than 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 the *Commands Manual*.

Procedure

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
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=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 one of these actions.

- If the **OPEN** or **ALW** values for the associations is **YES**, continue the procedure with [Step 3](#) .
- If the **OPEN** and **ALW** values for the associations is **NO**, continue the procedure with [Step 4](#) .

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 IPSP M3UA Signaling Link](#) .
- If you do not wish to remove the signaling link assigned to this card, select another card from [Step 1](#) and repeat this step.

3. 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=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;
```

4. Deactivate the link to be removed using the **dact-slk** command, using the output from [Step 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
```

5. 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 [Step 4](#) .

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  ls04      ls04clli  OOS-MT    Unavail  ----
  ALARM STATUS    = *    0235 REPT-LNK-MGTINH: local inhibited
  UNAVAIL REASON  = LI
```

6. 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.

NOTE: If the signaling link being removed is not the last signaling link on the card, continue the procedure with [Step 8](#) .

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 [Step 5](#) .

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.
```

7. Verify that the card has been inhibited by entering the **rept-stat-card** command with the card location specified in [Step 6](#) . For this example, enter this command.

rept-stat-card: loc=2204

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
2204  126-003-000  E5ENET  IPSG      OOS-MT-DSBLD  Isolated  -----
ALARM STATUS      = No Alarms.
IMTPCI  GPL version = 126-003-000
BLCPLD  GPL version = 126-003-000
BLDIAG6 GPL version = 126-003-000
BLBEPM  GPL version = 126-003-000
PLDPMC1 GPL version = 126-003-000
BLVXW6  GPL version = 126-003-000
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
  SLK  PST      LS      CLLI
  A      OOS-MT      lsnlp2      -----
```

Command Completed.

8. 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 [Step 7](#) . 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

LSN          APCA  (SS7)  SCRNL3T SLT  BEI  LST  LNKS  GWS  GWS  GWS
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.

9. Remove the signaling link from the EAGLE 5 ISS using the **dlt-slk** command.

If there is only one signaling link in the linkset, shown in [Step 8](#) , 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
```

10. Verify the changes using the **rtrv-slk** command with the card location and link values specified in [Step 9](#) . For this example, enter this command.

rtrv-slk:loc=2204:link=a

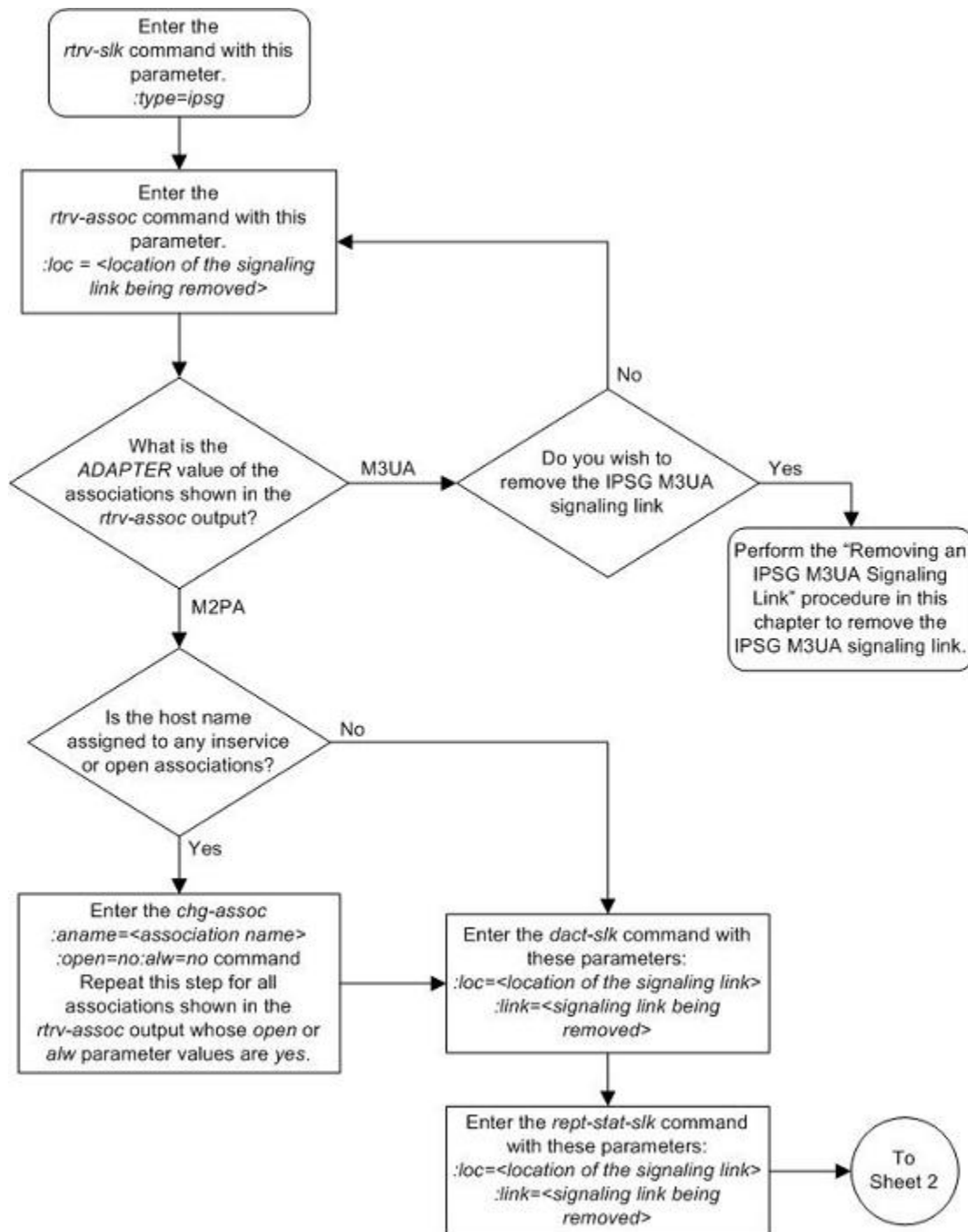
When the **rtrv-slk** command has completed, the specified signaling link is not shown in the **rtrv-slk** output, as shown in this example.

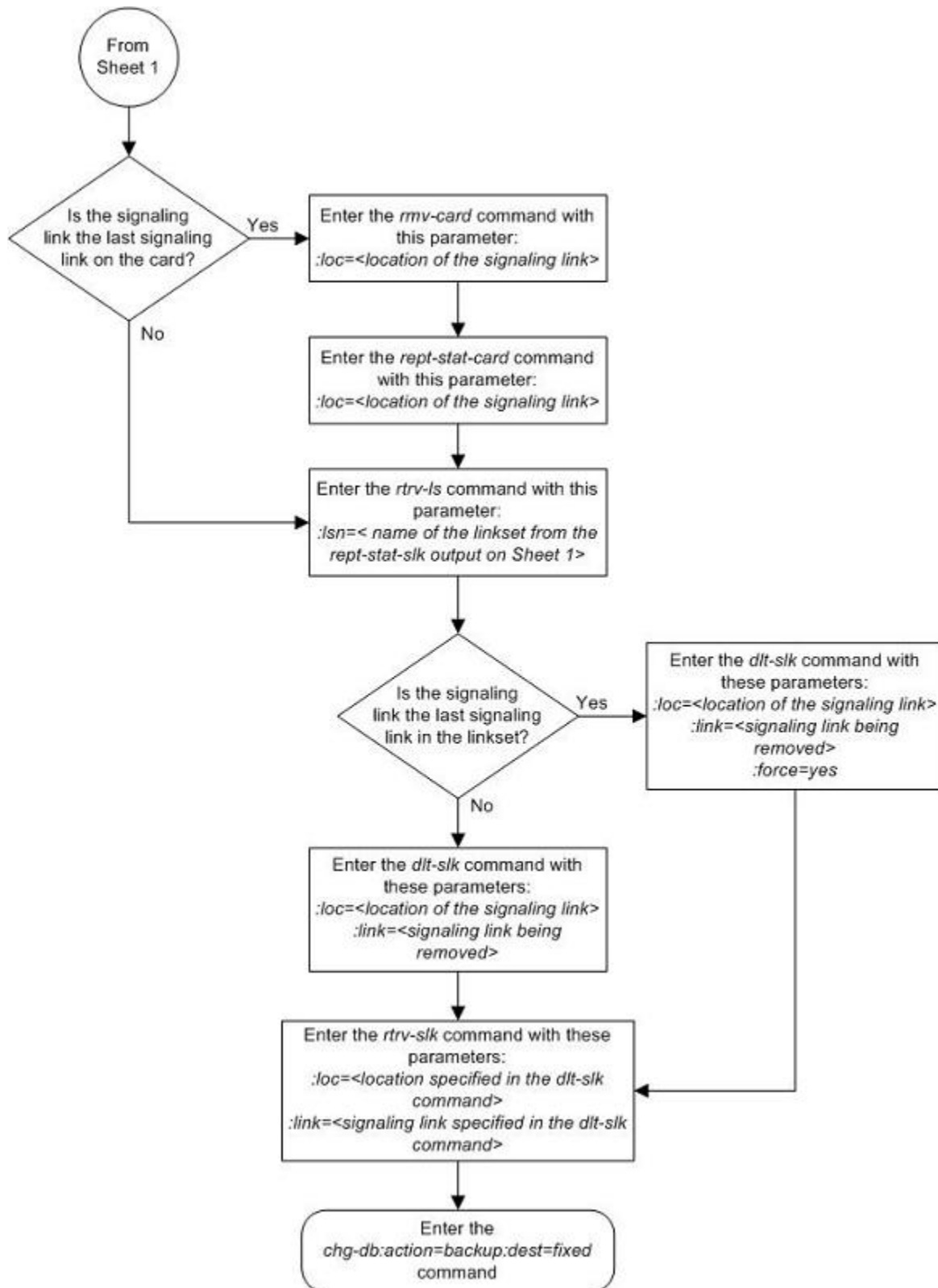
```
rlghncxa03w 07-05-19 21:16:37 GMT EAGLE5 37.0.0
```

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.
```

Flowchart 6-20. Removing an IPSG M2PA Signaling Link





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 **NUMSLKALW**, **NUMSLKRSTR**, or **NUMSLKPROH** values shown in the **rtrv-ls** output. The **NUMSLKALW**, **NUMSLKRSTR**, and **NUMSLKPROH** 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 than 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 the *Commands Manual*.

Procedure

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 [Step 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 [Step 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 [Step 1](#). For this example, enter this command.

rtrv-ls: lsn=lsnlp3

This is an example of the possible output.

```
rlghncxa03w 08-05-27 16:43:42 GMT EAGLE5 38.0.0

LSN          APCA  (SS7)  SCRNL3T SLT  BEI  LST  LNKS  GWS  GWS  GWS  SLSCI  NIS
lsnlp3      001-001-003  none  1    1    no  A    1    off  off  off  no    off

          SPCA          CLLI          TFATCABMLQ  MTPRSE  ASL8
          -----          ---          ---          ---
          IPG  IPGWAPC  GTTMODE          CGGTMOD
          yes  no      CdPA          no

          ADAPTER  SLKTPS  LSUSEALM  SLKUSEALM  RCONTEXT  ASNOTIF
          m3ua     500     100%     80%       none      yes

          NUMSLKALW  NUMSLKRSTR  NUMSLKPROH
          1          1          1
```

LOC	LINK	SLC	TYPE	ANAME
2207	A	0	IPSG	assoc11

Link set table is (22 of 1024) 2% full.

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 **NUMSLKALW**, **NUMSLKRSTR**, and **NUMSLKPROH** values shown in the **rtrv-ls** output. 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 (*) is displayed in the **rtrv-ls** 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 wish 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 [Step 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 [Step 5](#).
- If the **OPEN** and **ALW** values for the associations is **NO**, continue the procedure with [Step 6](#).

- 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;
```

- Deactivate the link to be removed using the **dact-slk** command, using the output from [Step 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
```

- 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 [Step 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 [Step 7](#) out of service by entering the **rmv-card** command specifying the card location shown in [Step 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 [Step 8](#). For this example, enter this command.

rept-stat-card: loc=2207

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
2207  126-003-000    E5ENET    IPSG      OOS-MT-DSBLD  Isolated  -----
ALARM STATUS      = No Alarms.
IMTPCI  GPL version = 126-003-000
BLCPLD  GPL version = 126-003-000
BLDIAG6 GPL version = 126-003-000
BLBEPM  GPL version = 126-003-000
PLDPMC1 GPL version = 126-003-000
BLVXW6  GPL version = 126-003-000
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
  SLK  PST      LS      CLLI
  A    OOS-MT    lsnlp2  -----
```

Command Completed.

10. Remove the signaling link from the EAGLE 5 ISS 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
```

11. Verify the changes using the **rtrv-slk** command, with the card location and link values specified in [Step 10](#). For this example, enter this command.

rtrv-slk: loc=2207: link=a

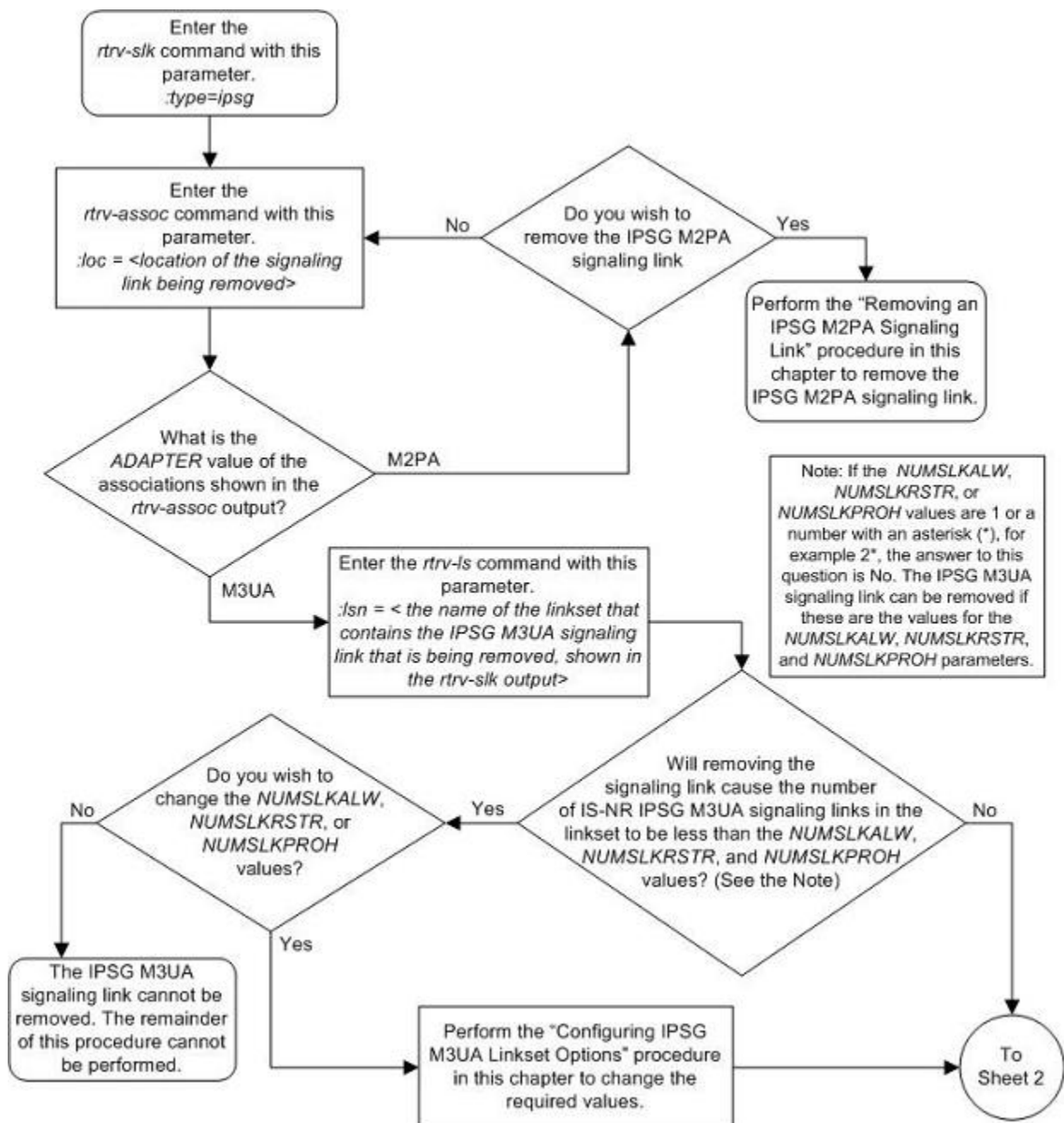
When the **rtrv-slk** command has completed, no entry is displayed showing that the signaling link has been removed.

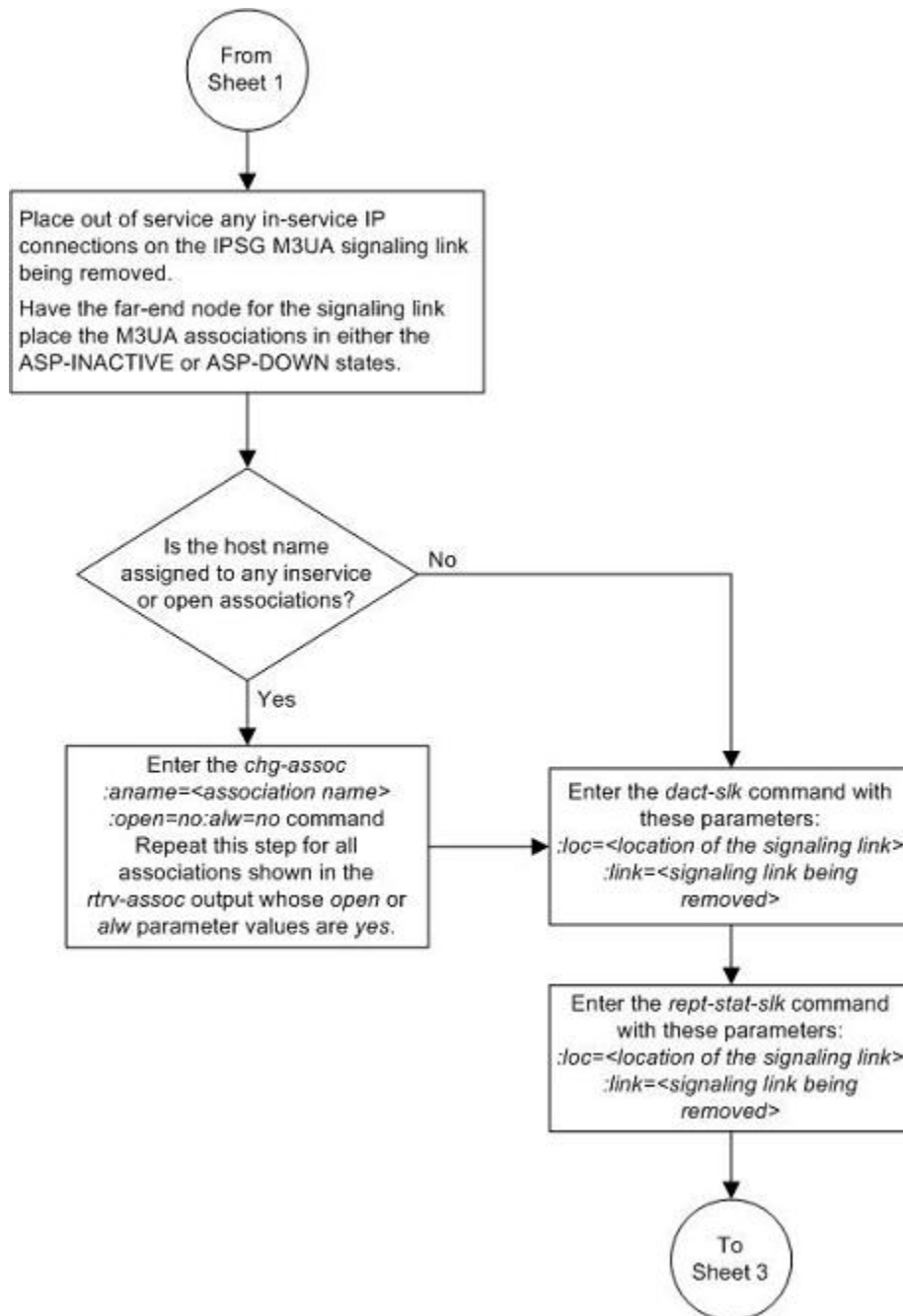
```
rlghncxa03w 07-05-19 21:16:37 GMT EAGLE5 37.0.0
```

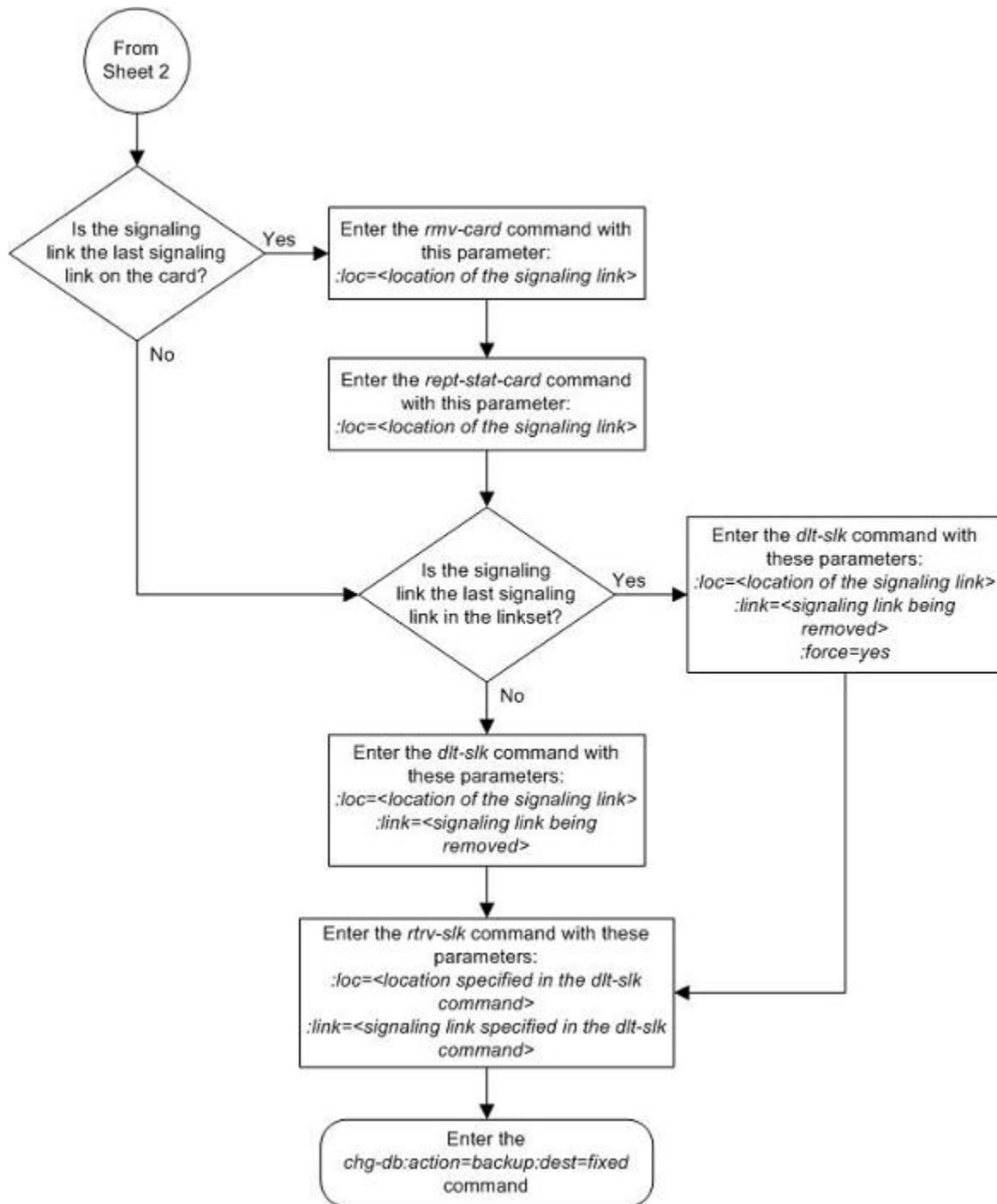
12. Back up the new changes using the **chg-db:action=backup:dest=fixed** command. These messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

```
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.
```

Flowchart 6-21. Removing an IPSP M3UA Signaling Link







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.

Procedure

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
ITUN      uk      150000
ITUN      fr      4000000000
ITUN      ge      1000000000
ITUN24    --      3
ITUIS     --      2000
ITUNS     sp      5000
```

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=4000000000: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.

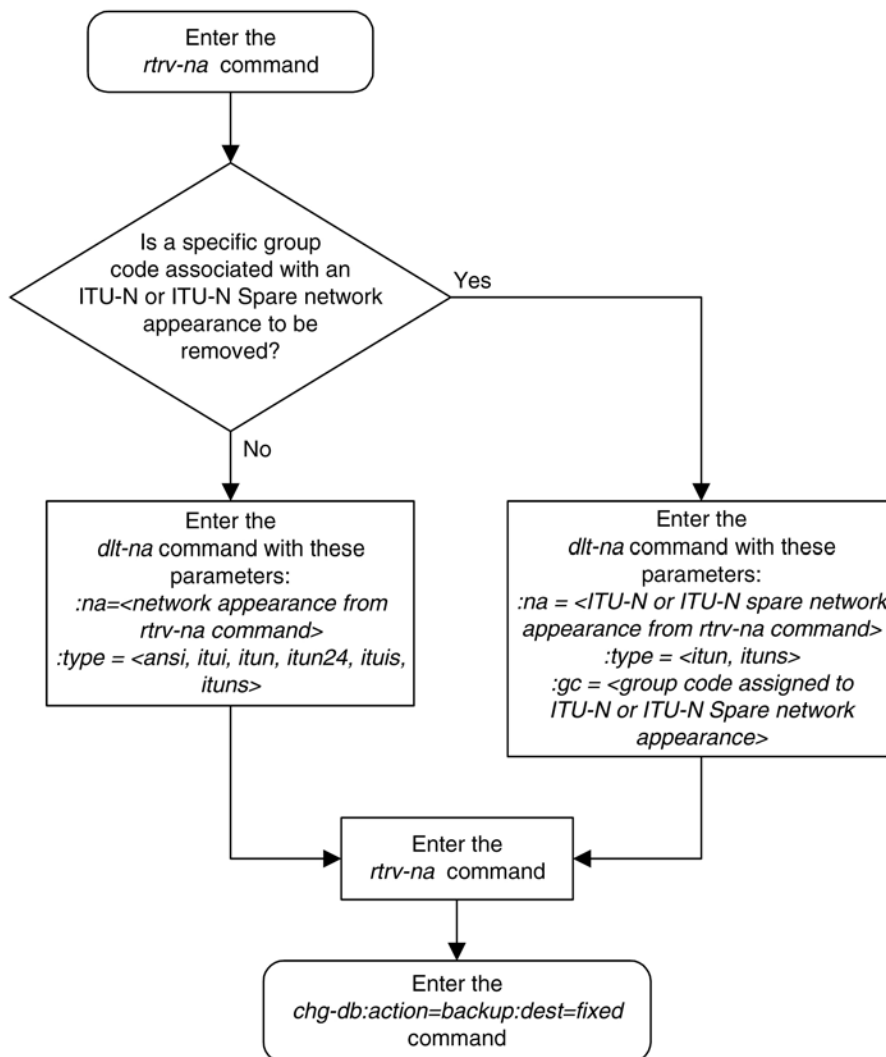
This is an example of possible output.

```
rlghncxa03w 06-10-28 09:12:36 GMT EAGLE5 36.0.0
TYPE      GC      NA
ITUI      --      1000
ITUN      uk      150000
ITUN      ge      1000000000
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.
```

Flowchart 6-22. Removing a Network Appearance

Changing IPSG Components

This section describes how to change the attributes of the following components in the database.

- 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 BICC MSU Support for IP Signaling feature – Perform the [Turning the Large BICC MSU Support for IP Signaling Feature Off](#) procedure.

Configuring 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 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.

: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 **srkq** 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 **rtrv-appl-rtkey** or **rtrv-tbl-capacity** 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.

Procedure

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 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 [Step 3](#).

If the **srkq** parameter value will be changed, verify the number of routing keys that are currently provisioned by performing [Step 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

DSTN    table is (    5940 of    6000) 99% full
RS       table is (      0 of    512)  0% full
X25-DSTN table is (      0 of   1024)  0% full
SPC      table is (      4 of    40) 10% full
LS       table is (     738 of   1024) 72% full
SLK      table is (     360 of   2000) 18% full
X25-SLK  table is (      0 of    256)  0% full
IP-LNK   table is (     55 of    512) 11% full
MAP      table is (     336 of   1024) 33% full
GTA      table is (  201750 of 269999) 75% full
SSNSELID table is (      0 of  10000)  0% full
SCRSET   table is (     40 of    255) 16% full
RTEKEY   table is (     53 of   2500)  2% full
APPLSOCK table is (     62 of   4000)  2% full
AS       table is (     20 of    250)  8% full
MRN      table is (    768 of   5988) 13% full
SCCPSRV  table is (     12 of     96) 13% full
```

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-PTS: MASP A - COMPLTD
```

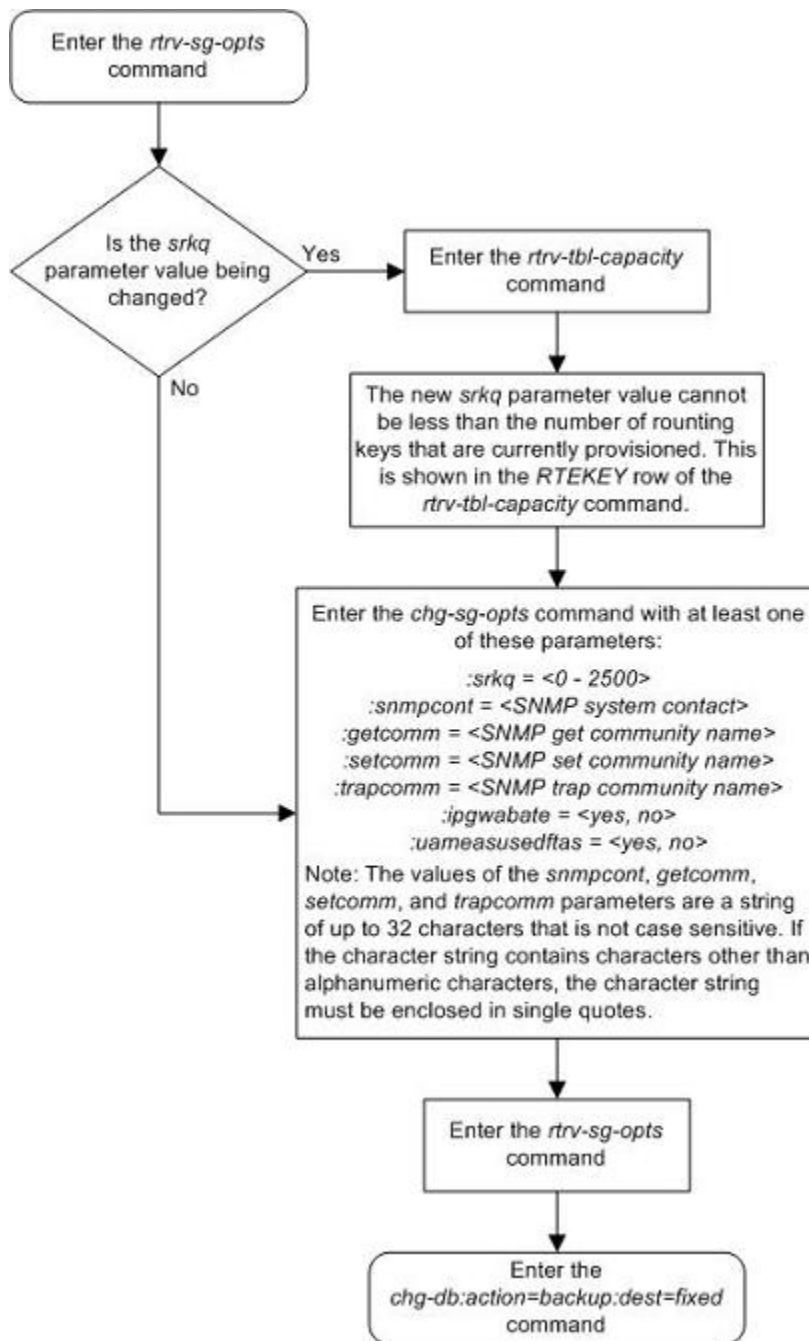
4. Verify the new IP options in the database by entering the **rtrv-sg-opts** command.

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.
```

Flowchart 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 **chg-lsopts** command and these parameters.

: lsn - 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.

Procedure

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 08-04-28 21:17:37 GMT EAGLE5 38.0.0
IP TPS USAGE REPORT
```

	THRESH	CONFIG	TPS	PEAK	PEAKTIMESTAMP

LSN					
m3ua1	100%	0 TX:	0	0	00-00-00 00:00:00
		RCV:	0	0	00-00-00 00:00:00
m2pa1	100%	0 TX:	0	0	00-00-00 00:00:00
		RCV:	0	0	00-00-00 00:00:00
m3ua2	100%	0 TX:	0	0	00-00-00 00:00:00
		RCV:	0	0	00-00-00 00:00:00
m3ua3	100%	0 TX:	0	0	00-00-00 00:00:00
		RCV:	0	0	00-00-00 00:00:00
ipgwi1	100%	200 TX:	0	0	00-00-00 00:00:00
		RCV:	0	0	00-00-00 00:00:00
m2pa2	100%	0 TX:	0	0	00-00-00 00:00:00

```

RCV:      0      0 00-00-00 00:00:00
m2pa10    100%    0 TX:      0      0 00-00-00 00:00:00
RCV:      0      0 00-00-00 00:00:00
m2pa20    100%    0 TX:      0      0 00-00-00 00:00:00
RCV:      0      0 00-00-00 00:00:00
m3ua20    100%    0 TX:      0      0 00-00-00 00:00:00
RCV:      0      0 00-00-00 00:00:00
ipsgm2pa   100%    0 TX:      0      0 00-00-00 00:00:00
RCV:      0      0 00-00-00 00:00:00
ipsgm3ua   100%    0 TX:      0      0 00-00-00 00:00:00
RCV:      0      0 00-00-00 00:00:00
m3ua102    100%    0 TX:      0      0 00-00-00 00:00:00
RCV:      0      0 00-00-00 00:00:00
-----

```

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 [Step 2](#).

2. Display one of the linksets shown in [Step 1](#) by entering the **rtrv-ls** command with the name of one of the linksets shown in [Step 1](#). For this example, enter this command.

rtrv-ls:lsn=ipsgm3ua

The following is an example of the possible output.

rlghncxa03w 08-04-28 21:17:37 GMT EAGLE5 38.0.0

```

          L3T SLT          GWS GWS GWS
LSN      APCA  (SS7)  SCR N SET SET BEI LST LNKS ACT MES DIS SLSCI NIS
ipsgm3ua 008-008-004 none 1  1  no  A  3  off off off no  off

          SPCA          CLLI          TFATCABMLQ MTPRSE ASL8
          -----          ---          ---
          IPGWAPC  GTTMODE          CGGTMOD
yes      no      CdPA          no

ADAPTER    SLKTPS  LSUSEALM  SLKUSEALM  RCONTEXT  ASNOTIF
m3ua       100     100%      80%        1234567890 yes

NUMSLKALW  NUMSLKRSTR  NUMSLKPROH
1*          1          1

LOC  LINK  SLC  TYPE  ANAME
1102 A    0    IPSG  ipsgm3ua1102
1202 A    1    IPSG  ipsgm3ua1202
1302 A    2    IPSG  ipsgm3ua1302
1303 A    3    IPSG  ipsgm3ua1303
1305 A    4    IPSG  ipsgm3ua1305

```

Link set table is (13 of 1024) 1% full.

IPSG M3UA linksets are shown by the entry **m3ua** in the **ADAPTER** column of the **rtrv-ls** output. If the linkset is an IPSG M3UA linkset, continue the procedure with [Step 3](#).

If the linkset is not an IPSG M3UA linkset, perform one of these actions.

- Choose another linkset from [Step 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.

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
```

- Verify the changes by entering the **rtrv-ls** command with the name of the linkset specified in [Step 3](#) . For this example, enter this command.

rtrv-ls: lsn=ipsgm3ua

The following is an example of the possible output.

```
rlghncxa03w 08-04-28 21:17:37 GMT EAGLE5 38.0.0

LSN              APCA   (SS7)  L3T SLT  GWS GWS GWS
ipsgm3ua         008-008-004 none 1    1    no  A   3   off off off no  off

                SPCA          CLLI          TFATCABMLQ MTPRSE ASL8
                -----          ---          ---      ---
                IPGWAPC      GTTMODE          CGGTMOD
                yes   no      CdPA              no

ADAPTER          SLKTPS   LSUSEALM   SLKUSEALM   RCONTEXT   ASNOTIF
m3ua             100      100%      80%         1234567890 yes

NUMSLKALW        NUMSLKRSTR  NUMSLKPROH
3                2          2

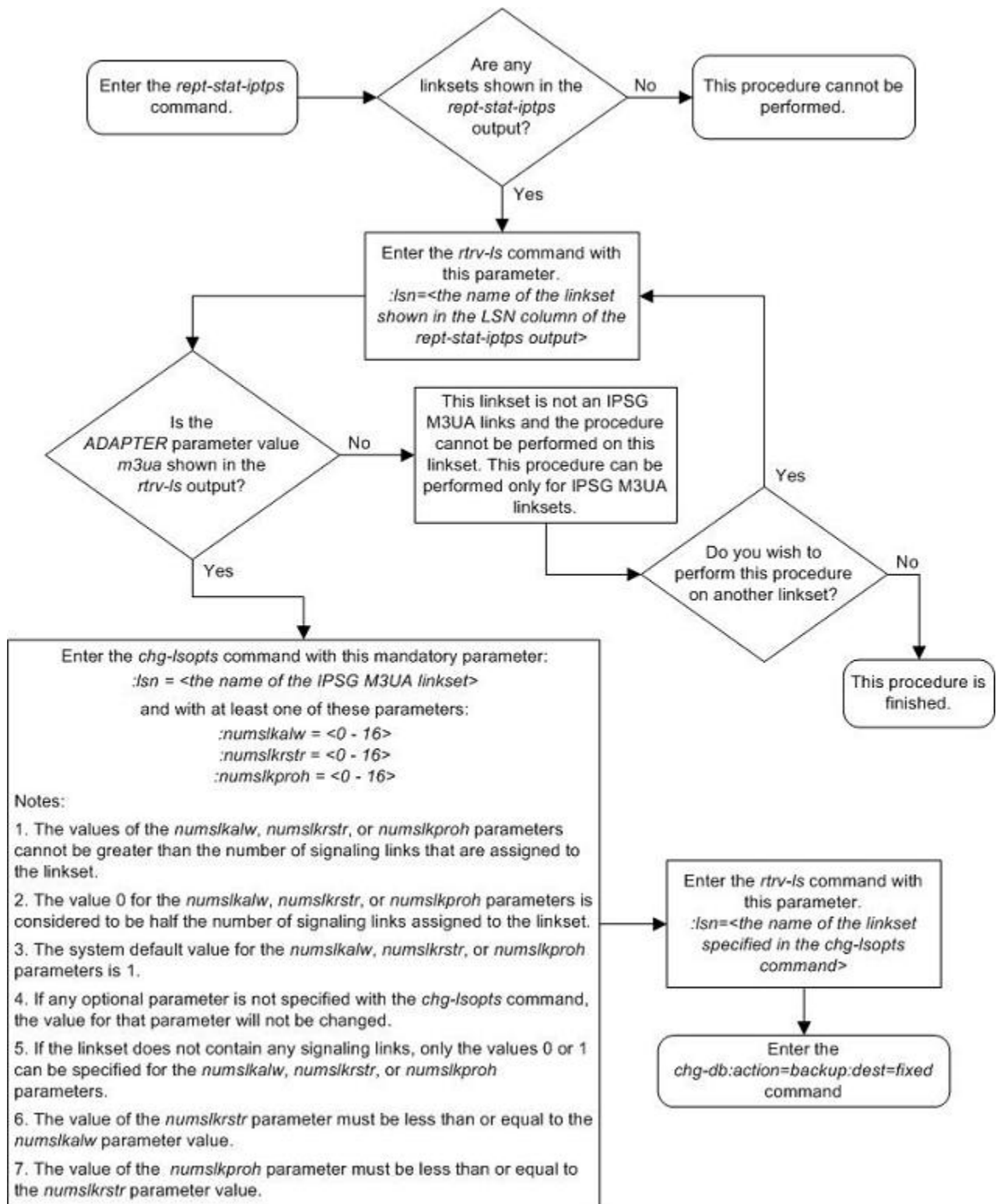
LOC  LINK  SLC  TYPE  ANAME
1102 A    0   IPSE  ipsgm3ua1102
1202 A    1   IPSE  ipsgm3ua1202
1302 A    2   IPSE  ipsgm3ua1302
1303 A    3   IPSE  ipsgm3ua1303
1305 A    4   IPSE  ipsgm3ua1305
```

Link set table is (13 of 1024) 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.
```

Flowchart 6-24. Configuring IPSP M3UA Linkset Options



Changing an IPSP M2PA Linkset

This procedure is used to change an IPSP M2PA linkset, a linkset that contains the **IPSP** value **yes** and whose **ADAPTER** value is **m2pa**, in the EAGLE 5 ISS 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 IPSP linkset. This parameter has two values, **yes** (if the linkset is an IPSP linkset) or **no** (if the linkset is not an IPSP linkset). For this procedure, the **ipsg** parameter value must be **yes**.

:slktps – The number of transactions per second (TPS) that is assigned to each IPSP signaling link that is in the linkset, from 100 to 5,000.

:adapter - This parameter specifies the adapter layer for the signaling links that will be assigned to the IPSP M2PA linkset. This parameter has two values, **m2pa** and **m3ua**. For an IPSP M2PA linkset, the **adapter** parameter value must be **m2pa**.

: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 IPSP 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 IPTPS or the percentage of the IPSP 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 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 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 IPSP 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.

This procedure can also be used to change an IPSP M3UA linkset or a non-IPSP linkset to an IPSP 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 the *Commands Manual* or in these sections.

- These procedures in the *Database Administration Manual - SS7*
 - Adding an SS7 Linkset
 - Changing an SS7 Linkset
 - Configuring an ITU Linkset with a Secondary Adjacent Point Code (SAPC)
- These procedures in the *Database Administration Manual - Features*.
 - Adding an X.25 Signaling Link
 - Changing an X.25 Signaling Link
 - Configuring a Linkset for the GSM MAP Screening Feature

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 Command

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

- Press the **F9** function key on the keyboard at the terminal where the **rtrv-ls** command was entered.
- Enter the **canc-cmd** without the **trm** parameter at the terminal where the **rtrv-ls** command was entered.
- Enter the **canc-cmd:trm=<xx>**, where **<xx>** is the terminal where the **rtrv-ls** command was entered, from another terminal other than the terminal where the **rtrv-ls** command was entered. To enter the **canc-cmd:trm=<xx>** command, the terminal must allow Security Administration commands to be entered from it and the user must be allowed to enter Security Administration commands. The terminal's permissions can be verified with the **rtrv-secu-trm** command. The user's permissions can be verified with the **rtrv-user** or **rtrv-secu-user** commands.

For more information about the **canc-cmd** command, go to the *Commands Manual*.

Procedure

1. Display the current linksets in the database using the **rtrv-ls** command.

This is an example of the possible output.

```
rlghncxa03w 08-04-10 11:43:04 GMT EAGLE5 38.0.0
                                L3T SLT
LSN      APCA  (SS7)  SCRN  SET  SET  BEI  LST  LNKS  ACT  MES  DIS  SLSCI  NIS
e1e2     001-207-000  none  1   1   no  B   6   off  off  off  no   off
e1m1s1   001-001-001  none  1   1   no  A   7   off  off  off  no   off
e1m1s2   001-001-002  none  1   1   no  A   7   off  off  off  no   off
ls1305   001-005-000  none  1   1   no  A   1   off  off  off  no   off
ls1307   001-007-000  none  1   1   no  A   1   off  off  off  no   off
lsgw1101 008-012-003  none  1   1   no  A   1   off  off  off  no   off
lsgw1103 003-002-004  none  1   1   no  A   1   off  off  off  no   off
lsgw1105 009-002-003  none  1   1   no  A   1   off  off  off  no   off

                                L3T SLT
LSN      APCI  (SS7)  SCRN  SET  SET  BEI  LST  LNKS  ACT  MES  DIS  SLSCI  NIS
```

```

e1e2i      1-207-0      none 1 1 no B 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 A 1 off off off --- on
e1m2s1     1-011-1      none 1 1 no A 7 off off off --- off
e1m2s2     1-011-2      none 1 1 no A 7 off off off --- off

```

Link set table is (13 of 1024) 1% full.

2. Display a linkset shown in [Step 1](#) by entering the **rtrv-ls** command with the name of the linkset shown in [Step 1](#) . For this example, enter these commands.

```
rtrv-ls:lsn=ls1101
```

This is an example of the possible output.

```

r1ghncxa03w 08-04-20 13:34:40 GMT EAGLE5 38.0.0

      L3T SLT      GWS GWS GWS
LSN   APCA  (SS7)  SCR N SET SET BEI LST LNKS ACT MES DIS SLSCI NIS
ls1101 008-012-003 none 1 1 no A 2 off off off no off

      SPCA      CLLI      TFATCABMLQ MTPRSE ASL8
-----
      yes no      CdPA      no

      ADAPTER      SLKTPS      LSUSEALM      SLKUSEALM      RCONTEXT      ASNOTIF
m2pa      1000      100%      80%      none      no

      LOC  LINK  SLC  TYPE      ANAME
1101 A2  0  IPSP      m2pa2
1105:A7  1  IPSP      m2pa3

```

Link set table is (13 of 1024) 1% full.

If you do not wish to change this linkset, choose another linkset from [Step 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 IPSP M2PA linkset must be added. Perform the "Removing a Linkset Containing SS7 Signaling Links" procedure in the *Database Administration Manual - SS7* to remove the linkset. After the linkset has been removed, perform the [Adding an IPSP M2PA Linkset](#) procedure to add the IPSP M2PA linkset. After the IPSP M2PA linkset has been added, perform the [Adding an IPSP M2PA Signaling Link](#) procedure to add IPSP M2PA signaling links to the new IPSP M2PA linkset. This procedure is finished.
- If the **IPSP** and **IPGWAPC** values of the linkset are **no**, continue the procedure with [Step 3](#) .
- If the **IPSP** 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 IPSP M3UA Signaling Link](#) procedure to remove the IPSP M3UA signaling links from the linkset. After the IPSP M3UA linksets have been removed from the linkset, continue the procedure with [Step 4](#) .
 - If the **ADAPTER** value of the linkset is M2PA, continue the procedure with one of these steps.
 - ◆ If the **SLKTPS** value of the linkset will not be changed, continue the procedure with [Step 7](#) .
 - ◆ If the **SLKTPS** value of the linkset will be changed, continue the procedure with [Step 5](#) .

3. Change the IPSP value of the linkset by entering the **chg-ls** command with the **ipsp=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 **IPSP** value of the linkset has been changed, continue the procedure with [Step 5](#).

When the **IPSP** value is changed to **yes**, the **ADAPTER** value of the linkset is set to **m2pa** and the **SLKTPS** value of the linkset is set to 5000.

4. 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.

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 with [Step 5](#).

5. The new **SLKTPS** value for the linkset cannot allow the TPS for the IPSP cards containing the IPSP signaling links in the linkset to exceed 5000 and the TPS for all IPSP and IPGWx linksets to exceed 500,000.

If you do not wish to change the **SLKTPS** value of the linkset, continue the procedure with [Step 7](#).

If you wish to change the **SLKTPS** value of the linkset, enter the **rtrv-sl** command with the card location of each signaling link that is assigned to the linkset. For this example, enter this command.

rtrv-sl:loc=1101

This is an example of the possible output.

```
rlghncxa03w 08-04-24 14:02:40 EST 38.0.0
```

```
rtrv-sl:loc=1101
```

```
Command entered at terminal #4.
```

LOC	LINK	LSN	SLC	TYPE	ANAME	SLKTPS
1101	A2	lssg1101	0	IPSP	m2pa2	1000

```
IPTPS for LOC = 1101 is (1000 of 5000) 20%
```

rtrv-sl:loc=1105

This is an example of the possible output.

```
rlghncxa03w 08-04-24 14:02:40 EST 38.0.0
```

```
rtrv-sl:loc=1101
```

```
Command entered at terminal #4.
```

LOC	LINK	LSN	SLC	TYPE	ANAME	SLKTPS
1105	A7	lssg1101	0	IPSP	m2pa2	1000

IPTPS for LOC = 1105 is (1000 of 5000) 20%

6. Display the system-wide IPTPS usage report, and the IPSG and IPGWx linksets, by entering the **rept-stat-iptps** command. This is an example of the possible output.

```
rlghncxa03w 08-04-10 11:43:04 GMT EAGLE5 38.0.0
```

IP TPS USAGE REPORT

	THRESH	CONFIG		TPS	PEAK	PEAKTIMESTAMP

LSN						
LSSG1101	80%	2000	TX:	1200	1600	08-04-10 11:40:04
			RCV:	1200	1600	08-04-10 11:40:04
LSGW1103	80%	10000	TX:	6700	7600	08-04-10 11:40:04
			RCV:	6500	7600	08-04-10 11:40:04
LSGW1105	80%	10000	TX:	7300	7450	08-04-10 11:40:04
			RCV:	7300	7450	08-04-10 11:40:04

Command Completed.

Choose a new **SLKTPS** value for the linkset that does not allow allow the TPS for the IPSG cards containing the IPSG signaling links in the linkset to exceed 5000 and the TPS for all IPSG and IPGWx linksets to exceed 500,000.

7. 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.

- **slktps** = 100 - 5000
- **lsusealm** = 10 - 100
- **slkusealm** = 10 - 100

For this example, enter this command.

chg-ls: lsn=lssg1101:slktps=500:lsusealm=60: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 (13 of 1024) 1% full

CHG-LS: MASP A - COMPLTD

NOTE: There are other optional parameters that can be specified with the **chg-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.

8. Verify the changes using the **rtrv-ls** command specifying the linkset name specified in [Step 7](#) . For this example, enter this command.

rtrv-ls: lsn=lssg1101

This is an example of the possible output.

```
rlghncxa03w 08-04-20 13:34:40 GMT EAGLE5 38.0.0
```

LSN	APCA	(SS7)	SCRN	L3T	SLT	SET	SET	BEI	LST	LNKS	GWS	GWS	GWS	ACT	MES	DIS	SLSCI	NIS
lssg1101	008-012-003		none	1	1			no	A	2	off	off	off	no				off
	SPCA		CLLI					TFATCABMLQ		2	MTPRSE	ASL8						no
	-----		-----					---			---							

```

IPSP  IPGWAPC  GTTMODE          CGGTMOD
yes   no      CdPA          no

ADAPTER  SLKTPS  LSUSEALM  SLKUSEALM  RCONTEXT  ASNOTIF
m2pa     500    60%       70%       none     no

LOC  LINK  SLC  TYPE      ANAME
1101 A2   0   IPSP      m2pa2
1105:A7  1   IPSP      m2pa3

```

Link set table is (13 of 1024) 1% full.

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.

```

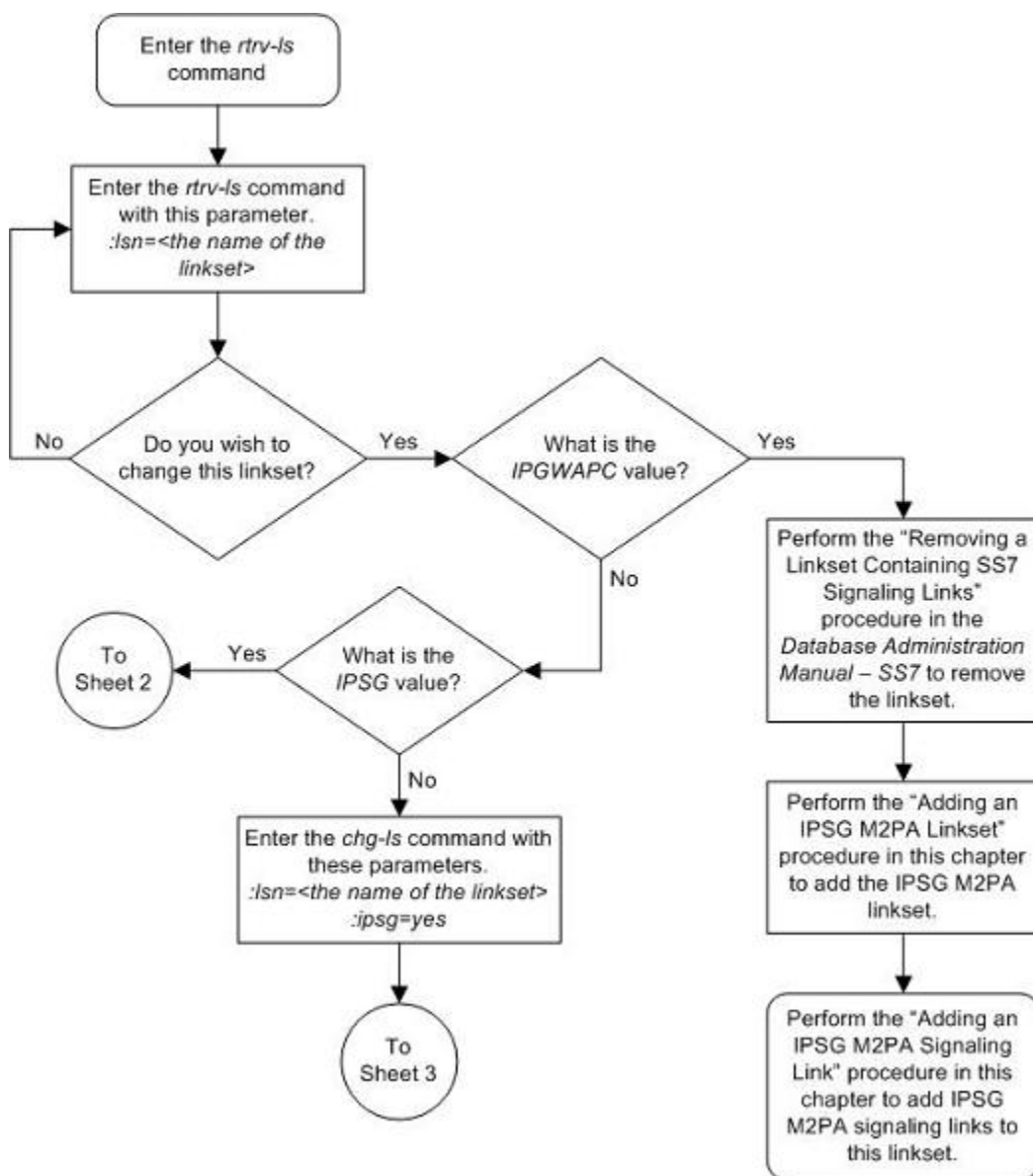
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.

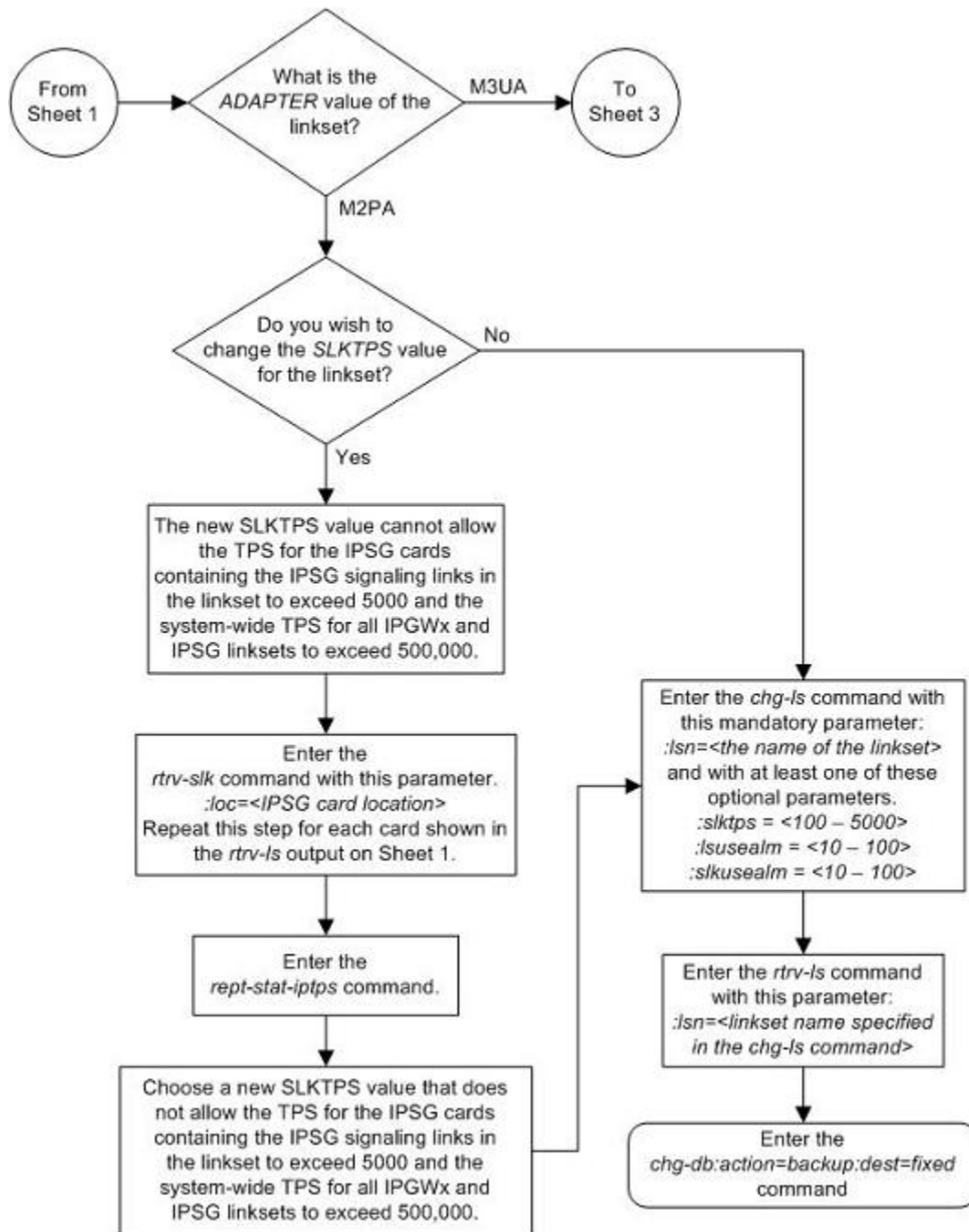
```

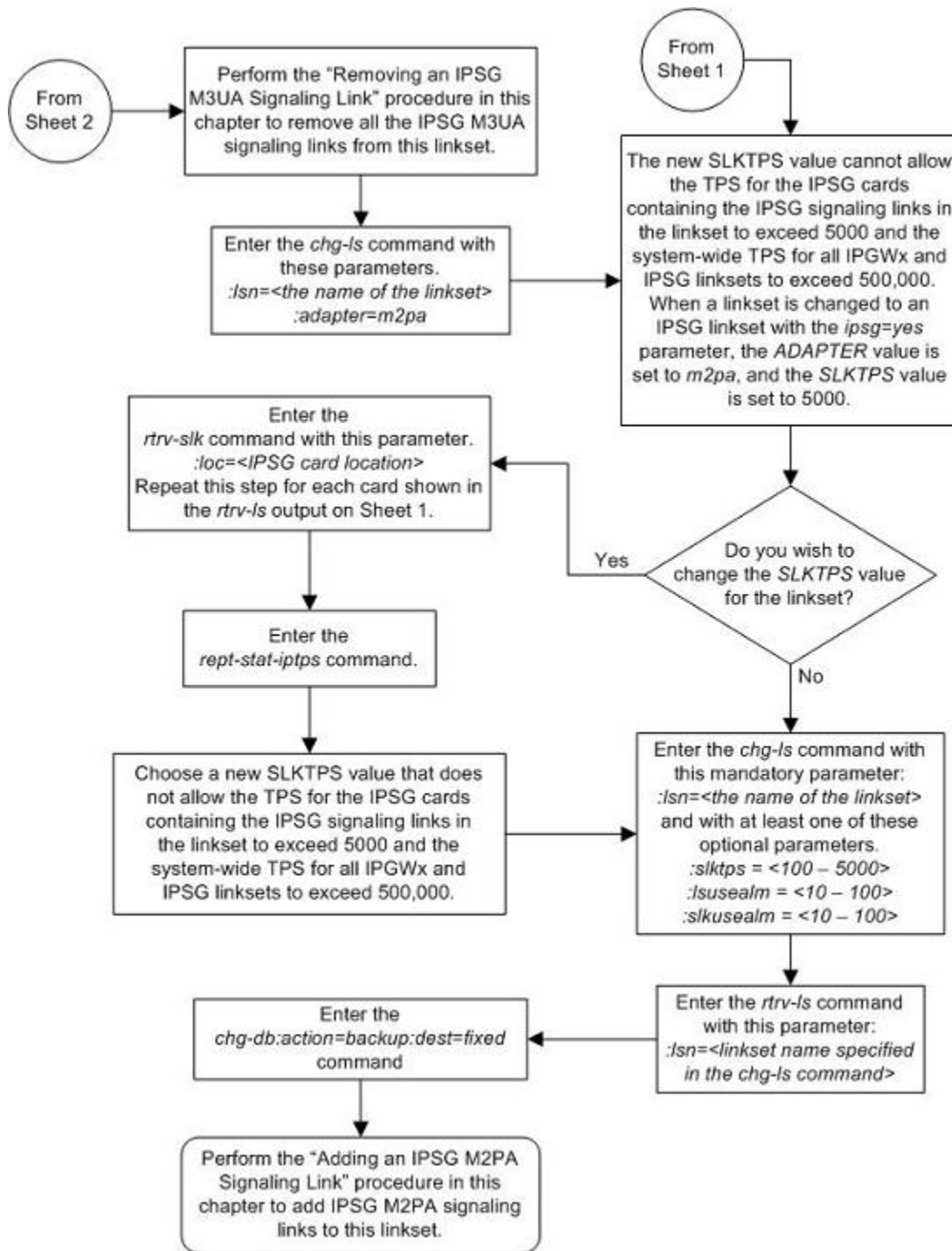
If the linkset that was changed in this procedure was an IPSP M2PA linkset when this procedure was started, this procedure is finished.

If the linkset that was changed in this procedure was either a non-IPSP linkset or an IPSP M3UA linkset when this procedure was started, perform the [Adding an IPSP M2PA Signaling Link](#) procedure to add IPSP M2PA signaling links to the linkset.

Flowchart 6-25. Changing an IPSG M2PA Linkset







Changing an IPSP M3UA Linkset

This procedure is used to change an IPSP M3UA linkset, a linkset that contains the **IPSP** value **yes** and whose **ADAPTER** value is **m3ua**, in the EAGLE 5 ISS 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 IPSP linkset. This parameter has two values, **yes** (if the linkset is an IPSP linkset) or **no** (if the linkset is not an IPSP linkset). For this procedure, the **ipsg** parameter value must be **yes**.

:slktps – The number of transactions per second (TPS) that is assigned to each IPSP signaling link that is in the linkset, from 100 to 5,000.

:adapter - This parameter specifies the adapter layer for the signaling links that will be assigned to the IPSP M3UA linkset. This parameter has two values, **m2pa** and **m3ua**. For an IPSP M3UA linkset, the **adapter** parameter value must be **m3ua**.

:rcontext - This parameter specifies the routing context value that is assigned to the IPSP 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 IPSP M3UA linkset. If the rcontext value for the IPSP 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 IPSP 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 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 IPSP 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 IPTPS or the percentage of the IPSP 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 6-12](#) shows this calculation for a linkset with 1, 2, 3 and 4 in-service signaling links.

Table 6-12. 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 IPSP 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.

This procedure can also be used to change an IPSP M2PA linkset or a non-IPSP linkset to an IPSP M3UA linkset.

Other Optional Parameters

There are other optional parameters for an IPSP M3UA that can be changed. These parameters are not required for IPSP M3UA linkset. These parameters are discussed in more detail in the *Commands Manual* or in these sections.

- The [Configuring IPSP M3UA Linkset Options](#) procedure in this manual.
- These procedures in the *Database Administration Manual - SS7*
 - Adding an SS7 Linkset
 - Changing an SS7 Linkset
 - Configuring an ITU Linkset with a Secondary Adjacent Point Code (SAPC)
- These procedures in the *Database Administration Manual - Features*.
 - Adding an X.25 Signaling Link
 - Changing an X.25 Signaling Link
 - Configuring a Linkset for the GSM MAP Screening Feature

NOTE: The **mtprse**, **spc/spca/spci/spcn/spcn24**, **sapci/sapcn/sapcn24**, and **ppc/ppca/ppci/ppcn/ppcn24** parameters cannot be specified for an IPSP 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 than the terminal where the **rtrv-ls** command was entered. To enter the **canc-cmd:trm=<xx>** command, the terminal must allow Security Administration commands to be entered from it and the user must be allowed to enter Security Administration commands. The terminal's permissions can be verified with the **rtrv-secu-trm** command. The user's permissions can be verified with the **rtrv-user** or **rtrv-secu-user** commands.

For more information about the **canc-cmd** command, go to the *Commands Manual*.

Procedure

1. Display the current linksets in the database using the **rtrv-ls** command.

This is an example of the possible output.

```
rlghncxa03w 08-04-10 11:43:04 GMT EAGLE5 38.0.0
                                L3T SLT
LSN      APCA  (SS7)  SCRNL3T SLT  BEI  LST  LNKS  GWS  GWS  GWS
e1e2      001-207-000  none  1    1    no  B    6    off  off  off  no  off
e1m1s1    001-001-001  none  1    1    no  A    7    off  off  off  no  off
e1m1s2    001-001-002  none  1    1    no  A    7    off  off  off  no  off
ls1305    001-005-000  none  1    1    no  A    1    off  off  off  no  off
ls1307    001-007-000  none  1    1    no  A    1    off  off  off  no  off
```

```

lsgw1101    008-012-003    none 1 1 no A 1 off off off no off
lsgw1103    003-002-004    none 1 1 no A 1 off off off no off
lsgw1105    009-002-003    none 1 1 no A 1 off off off no off

```

```

                L3T SLT                GWS GWS GWS
LSN          APCI  (SS7)  SCRNI SET SET BEI LST LNKS ACT MES DIS SLSCI NIS
e1e2i        1-207-0      none 1 1 no B 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 A 1 off off off --- on
e1m2s1       1-011-1      none 1 1 no A 7 off off off --- off
e1m2s2       1-011-2      none 1 1 no A 7 off off off --- off

```

Link set table is (13 of 1024) 1% full.

2. Display a linkset shown in [Step 1](#) by entering the **rtrv-ls** command with the name of the linkset shown in [Step 1](#) . For this example, enter these commands.

```
rtrv-ls:lsn=lsgw1101
```

This is an example of the possible output.

```
rlghncxa03w 08-04-20 13:34:40 GMT EAGLE5 38.0.0
```

```

                L3T SLT                GWS GWS GWS
LSN          APCA  (SS7)  SCRNI 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
                -----
                2          ---          no

IPSG  IPGWAPC  GTTMODE          CGGTMOD
yes   no      CdPA          no

ADAPTER  SLKTPS  LSUSEALM  SLKUSEALM  RCONTEXT  ASNOTIF
m3ua     1000    100%      80%        100        no

NUMSLKALW  NUMSLKRSTR  NUMSLKPROH
1          1          1

LOC  LINK  SLC  TYPE  ANAME
1101 A2  0    IPSP  mu3a2
1105 A7  1    IPSP  m3ua3

```

Link set table is (13 of 1024) 1% full.

If you do not wish to change this linkset, choose another linkset from [Step 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 IPSP M3UA linkset must be added. Perform the "Removing a Linkset Containing SS7 Signaling Links" procedure in the *Database Administration Manual - SS7* to remove the linkset. After the linkset has been removed, perform the [Adding an IPSP M3UA Linkset](#) procedure to add the IPSP M3UA linkset. After the IPSP M3UA linkset has been added, perform the [Adding an IPSP M3UA Signaling Link](#) procedure to add IPSP M3UA signaling links to the new IPSP 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 IPSP M3UA linkset must be added. Perform the "Removing a Linkset Containing SS7 Signaling Links" procedure in the *Database Administration Manual - SS7* to remove the linkset. After the linkset has been removed, perform the [Adding an IPSP M3UA Linkset](#) procedure to add the IPSP M3UA linkset. After the IPSP M3UA linkset has been added, perform the [Adding an IPSP M3UA Signaling Link](#) procedure to add IPSP M3UA signaling links to the new IPSP 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 the *Database Administration Manual - SS7*.
 - ◆ Removing an X.25 Signaling Link in the *Database Administration Manual - Features*.
 - ◆ [Removing an IPLIMx Signaling Link](#)
After the signaling links have been removed from the linkset, continue the procedure with [Step 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 Manual - SS7*.
 - ◆ Removing an X.25 Signaling Link in the *Database Administration Manual - Features*.
 - ◆ [Removing an IPLIMx Signaling Link](#)
 - ◆ [Removing an IPSP M2PA Signaling Link](#)
After the signaling links have been removed from the linkset, continue the procedure with [Step 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 [Step 5](#) .
 - If the **ADAPTER** value of the linkset is **M3UA**, continue the procedure with one of these steps.
 - ◆ If the **SLKTPS** value of the linkset will not be changed, continue the procedure with [Step 7](#) .
 - ◆ If the **SLKTPS** value of the linkset will be changed, continue the procedure with [Step 5](#) .
3. Change the IPSP 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 [Step 5](#) .

When the **IPSG** value is changed to **yes**, the **ADAPTER** value of the linkset is set to **m2pa**, the **SLKTPS** value of the linkset is set to 5000, the **RCONTEXT** value of the linkset is set to **none**, and the **ASNOTIF** value for the linkset is set to **no**.

4. The linkset type of an IPSP 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 [Step 5](#) .

chg-ls:lsn=lssg1101:lst=a

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
```

5. The new **SLKTPS** value for the linkset cannot allow the TPS for the IPSG cards containing the IPSG signaling links in the linkset to exceed 5000 and the TPS for all IPSG and IPGWx linksets to exceed 500,000.

If you do not wish to change the **SLKTPS** value of the linkset, continue the procedure with [Step 7](#).

If you wish to change the **SLKTPS** value of the linkset, enter the **rtrv-sl** command with the card location of each signaling link that is assigned to the linkset. For this example, enter this command.

rtrv-sl: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-sl: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%
```

6. Display the system-wide IPTPS usage report, and the IPSG and IPGWx linksets, by entering the **rept-stat-iptps** command. This is an example of the possible output.

```
rlghncxa03w 08-04-10 11:43:04 GMT EAGLE5 38.0.0
```

```
IP TPS USAGE REPORT
```

	THRESH	CONFIG		TPS	PEAK	PEAKTIMESTAMP

LSN						
LSSG1101	80%	2000	TX:	1200	1600	08-04-10 11:40:04
			RCV:	1200	1600	08-04-10 11:40:04
LSGW1103	80%	10000	TX:	6700	7600	08-04-10 11:40:04
			RCV:	6500	7600	08-04-10 11:40:04
LSGW1105	80%	10000	TX:	7300	7450	08-04-10 11:40:04
			RCV:	7300	7450	08-04-10 11:40:04

```
Command Completed.
```

Choose a new **SLKTPS** value for the linkset that does not allow allow the TPS for the IPSG cards containing the IPSG signaling links in the linkset to exceed 5000 and the TPS for all IPSG and IPGWx linksets to exceed 500,000.

7. 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 [Step 11](#) .

- **adapter** = m3ua
- **slktps** = 100 - 5000
- **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

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 the **chg-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 [Step 12](#) .

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 [Step 7](#) continue the procedure with [Step 11](#) .
- If the **ADAPTER** value of the linkset was **m3ua** when this procedure was started, and the linkset contains signaling links, continue the procedure with [Step 8](#) .
- 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 [Step 11](#) .
- 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 [Step 11](#) . 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 [Step 11](#) .

8. 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.

9. Display the signaling links that the association, shown in the **rtrv-ls** output in [Step 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	m3ua1	1	IPSG	m3ua3	300

10. Display all the linksets that contain the signaling links shown in [Step 9](#), other than the linkset that is being changed in this procedure (this linkset has been displayed in [Step 2](#)), by entering the **rtrv-ls** command with the linkset name shown in [Step 9](#). For this example, enter this command.

rtrv-ls:lsn=m3ua1

This is an example of the possible output.

rlghncxa03w 06-10-17 11:43:04 GMT EAGLE5 36.0.0

LSN	APCA	(SS7)	SCRN	L3T	SLT	SET	BEI	LST	LNKS	GWS	GWS	GWS	ACT	MES	DIS	SLSCI	NIS
m3ua1	002-002-003		none	1	1		no	A	2	off	off	off	no				off
	SPCA		CLLI				TFATCABMLQ		MTPRSE	ASL8							no
	IPSG	IPGWAPC	GTTMODE				CGGTMOD										
	yes	no	CdPA				no										
	ADAPTER	SLKTPS	LSUSEALM	SLKUSEALM	RCONTEXT	ASNOTIF											
	m3ua	300	100%	80%	25	yes											
	NUMSLKALW	NUMSLKRSTR	NUMSLKPROH														
	1	1	1														
	LOC	LINK	SLC	TYPE	ANAME												
	2204	A	0	IPSG	m3ua2												
	2204	B6	1	IPSG	m3ua3												

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.

11. 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
```

12. Verify the changes using the **rtrv-ls** command specifying the linkset name specified in [Step 7](#) and [Step 11](#) . For this example, enter this command.

rtrv-ls:lsn=lssg1101

This is an example of the possible output.

```
rlghncxa03w 08-04-20 13:34:40 GMT EAGLE5 38.0.0
```

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						
	-----		-----		2	---	no						
	IPSG	IPGWAPC	GTTMODE		CGGTMOD								
	yes	no	CdPA		no								
	ADAPTER	SLKTPS	LSUSEALM	SLKUSEALM	RCONTEXT	ASNOTIF							
	m3ua	500	60%	70%	200	yes							
	NUMSLKALW	NUMSLKRSTR	NUMSLKPROH										
	1	1	1										
	LOC	LINK	SLC	TYPE	ANAME								
	1101	A2	0	IPSG	m2pa2								
	1105:A7	1	1	IPSG	m2pa3								

```
Link set table is (13 of 1024) 1% full.
```

If signaling links were deactivated in [Step 8](#) , continue the procedure with [Step 13](#) .

If signaling links were not deactivated in [Step 8](#) , continue the procedure with [Step 14](#) .

13. Activate all signaling links that were deactivated in [Step 8](#) 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
```

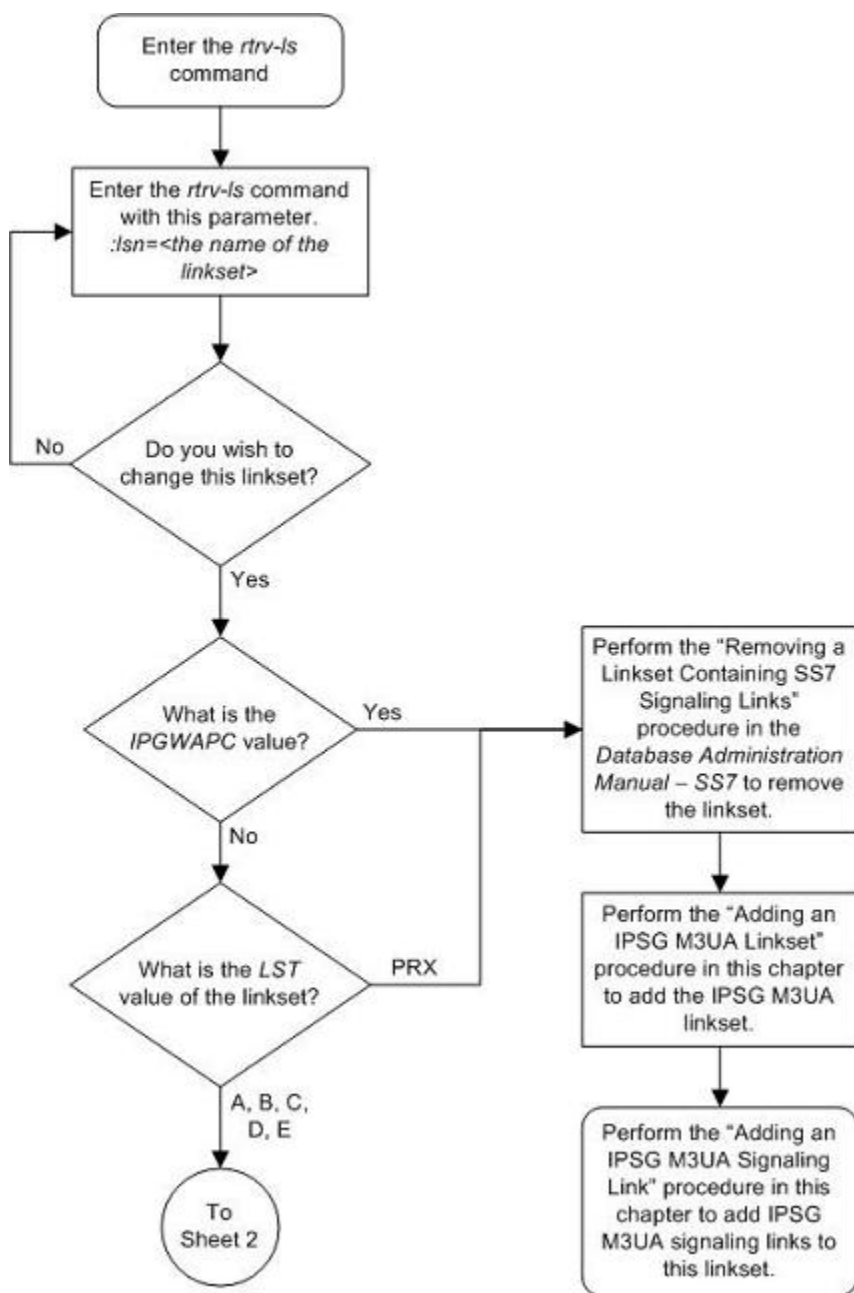

14. Back up the new changes using the **chg-db:action=backup:dest=fixed** command. These messages should appear, the active Maintenance and Administration Subsystem Processor (MASP) appears first.

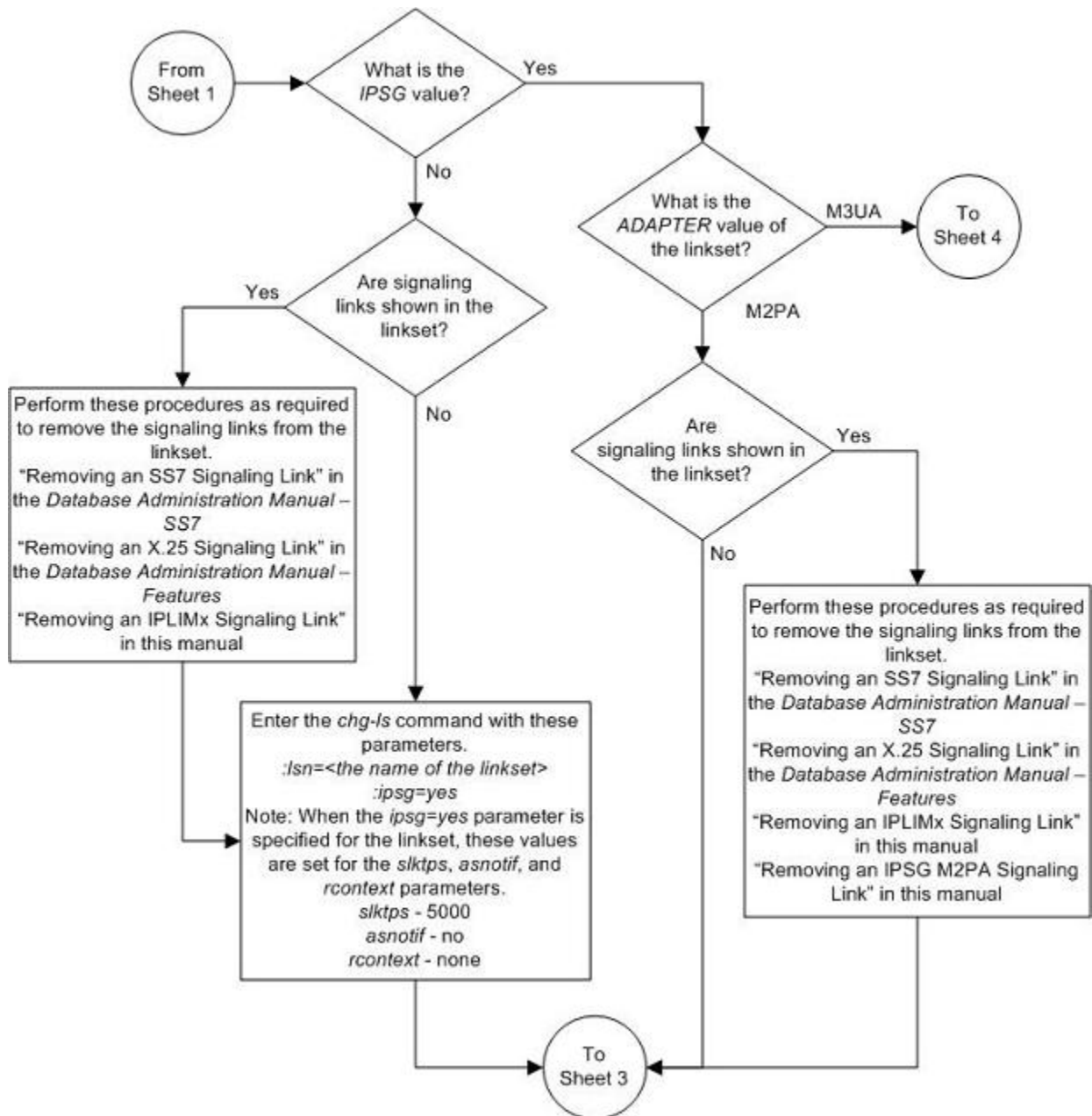
```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.  
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.  
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.  
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

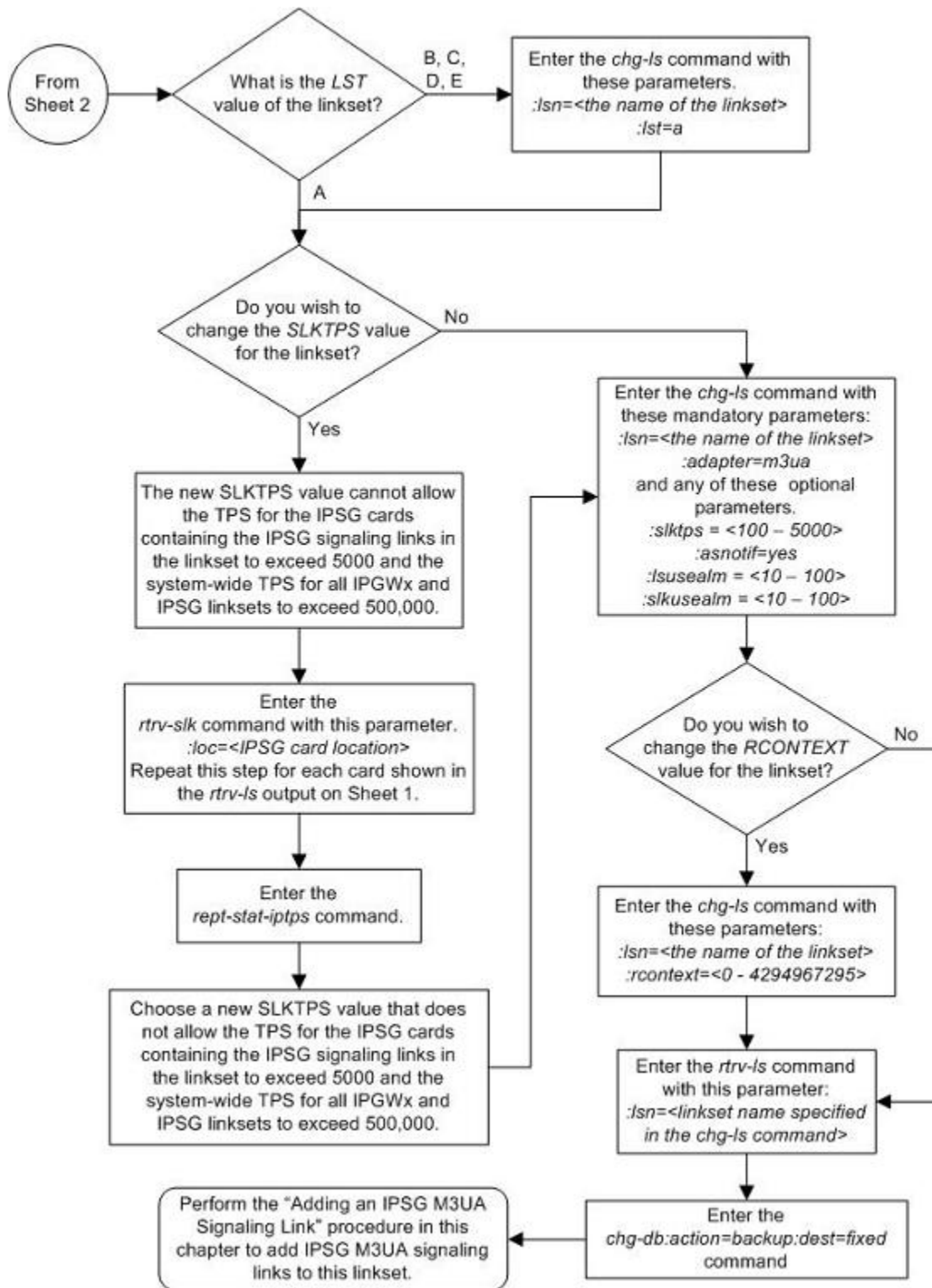
If the linkset that was changed in this procedure contained signaling links that were deactivated when [Step 11](#) was performed, this procedure is finished.

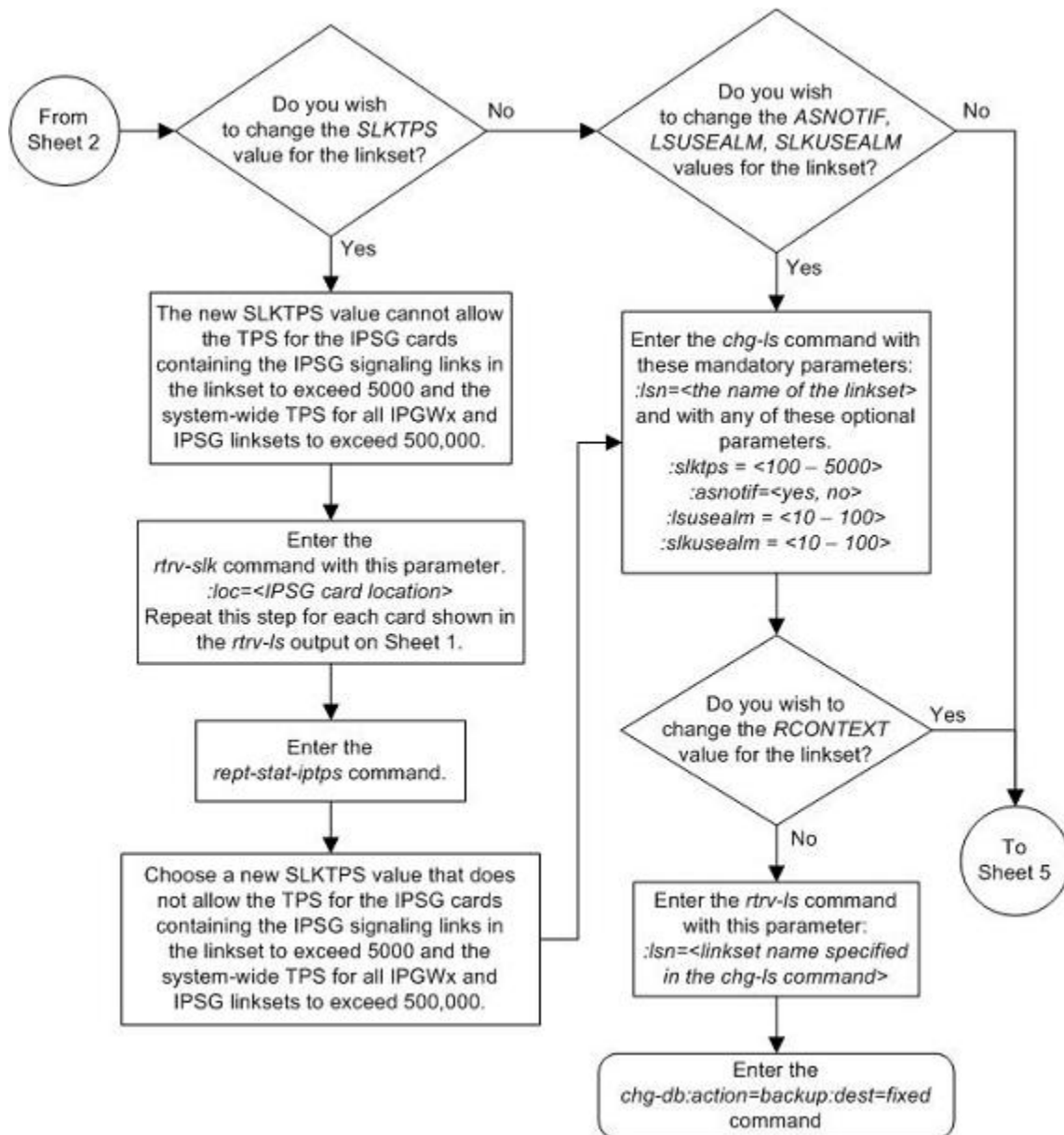
If the linkset that was changed in this procedure contained no signaling links when [Step 7](#) or [Step 11](#) were performed, perform the [Adding an IPSP M3UA Signaling Link](#) procedure to add IPSP M3UA signaling links to the linkset.

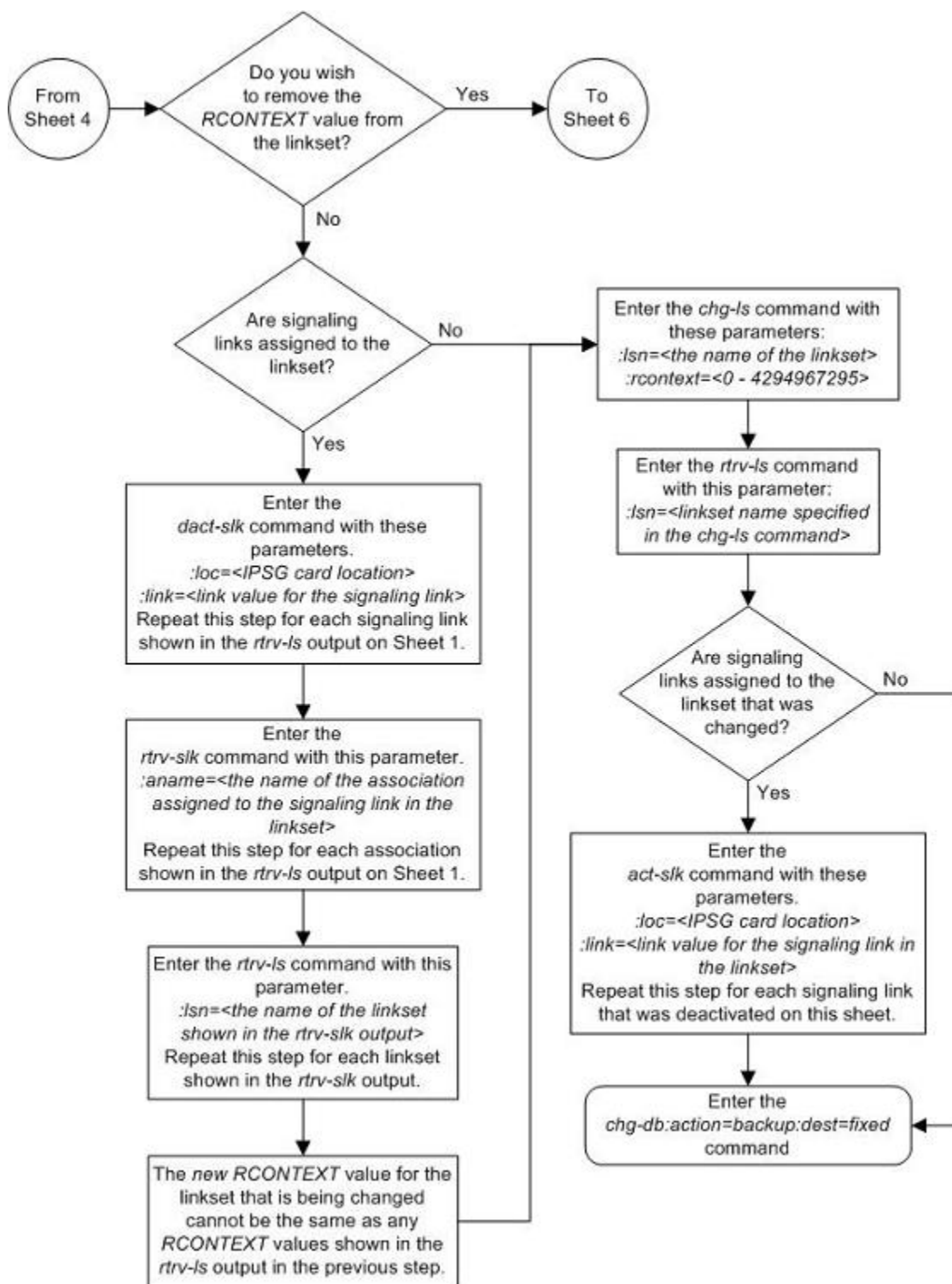
Flowchart 6-26. Changing an IPSG M3UA Linkset

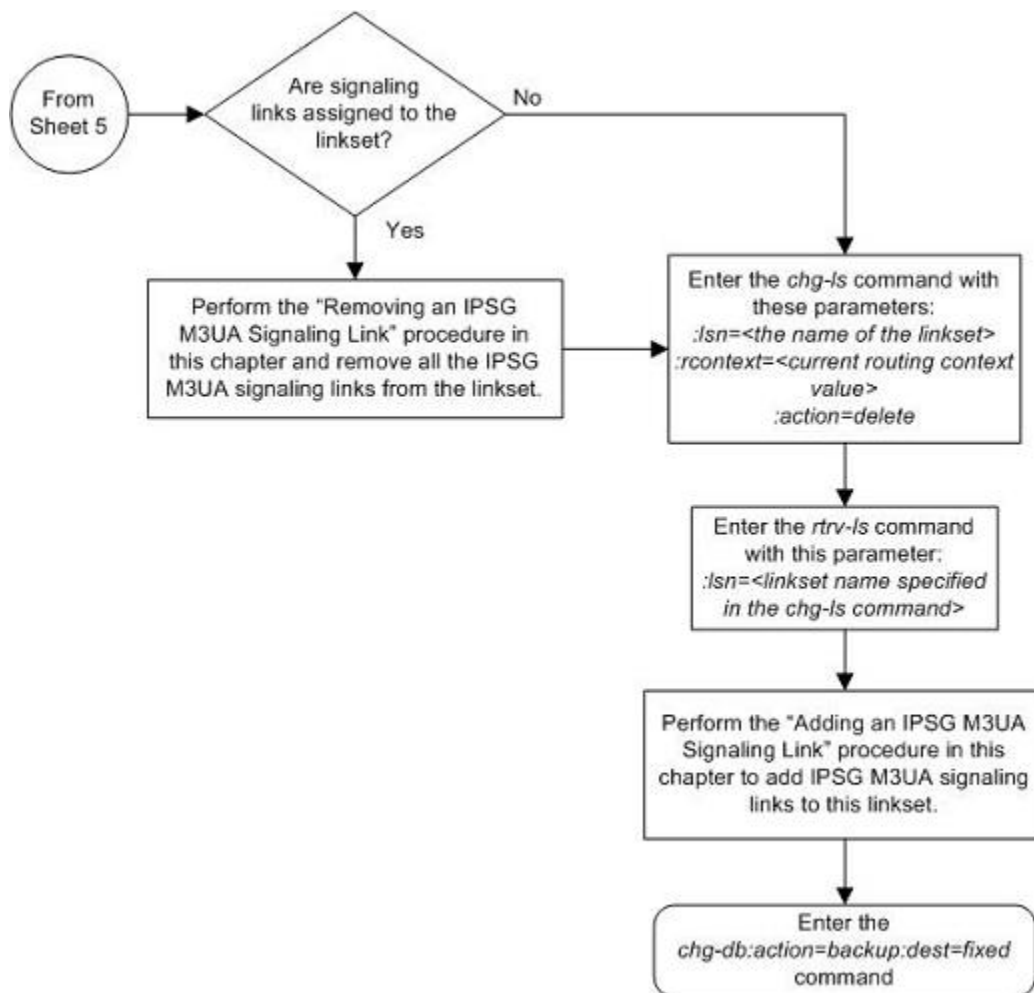












Changing the Attributes of an IPSG Association

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 **chg-assoc** command and the following parameters.

Table 6-13. Change IPSG Association Parameters

aname	lport	rhost	rport	open	alw
rmode	rmin	rmax	rtimes	cwmin	istrms
ostrms	m2patset	ver	rtxthr	uaps	

If you wish to change the attributes of M2PA associations assigned to cards that are running the IPLIM or IPLIMI applications, perform the [Changing the Attributes of an M2PA Association](#) procedure.

If you wish to change the attributes of M3UA associations assigned to cards that are running the SS7IPGW or IPGWI applications, perform the [Changing the Attributes of an M3UA or SUA Association](#) procedure.

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 an IPSG Association](#) .
- **bufsize** - [Changing the Buffer Size of an IPSG 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.

: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** – Tekelec'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.

:cwmn – 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 **cwmn** 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 the [Changing the Buffer Size of an M2PA Association](#) procedure.

The **rmode**, **rmin**, **rmax**, **rtimes**, and **cwmn** parameters are used to configure the SCTP retransmission controls for an association, in addition to other commands. Go to the [Configuring SCTP Retransmission Control for an M2PA Association](#) procedure 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 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**.

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. The **uaps** parameter can be specified only for IPSG M3UA 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 than 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 the *Commands Manual*.

Procedure

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	B2	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 [Step 3](#).
- If the **open** parameter value for the association is **no**, continue the procedure with [Step 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 only the values of the **alw** parameter is being changed, or the **open** parameter value is being changed to **no**, continue the procedure with [Step 8](#).
- If the value of the **rtxthr** parameter is being changed, continue the procedure with [Step 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 [Step 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 [Step 8](#).
 - If the value of the **rtxthr** parameter is being changed, continue the procedure with [Step 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 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, perform one of these actions.
 - If only the **alw** parameter is being specified with the **open=yes** parameter, continue the procedure with [Step 8](#) .
 - If the value of the **rtxtthr** parameter is being changed, continue the procedure with [Step 4](#) .

If the application assigned to the card is IPLIM or IPLIMI, perform the [Changing the Attributes of an M2PA Association](#) procedure.

If the application assigned to the card is SS7IPGW or IPGWI, perform the [Changing the Attributes of an 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.

```
r1ghncxa03w 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 [Step 3](#) or selected in [Step 1](#) .

For this example, enter these commands.

```
rtrv-assoc : aname=assoc2
```

This is an example of the possible output.

```
r1ghncxa03w 08-04-28 21:14:37 GMT EAGLE5 38.0.0
ANAME assoc2
  LOC      1205          IPLNK PORT  A          LINK  A
  ADAPTER  M2PA          VER          M2PA RFC
  LHOST    IPNODE2-1205
  ALHOST    ---
  RHOST     remotehost1
  LPORT     2048          RPORT      2048
  ISTRMS    2            OSTRMS     2           BUFSIZE  400
  RMODE     LIN          RMIN        120          RMAX     800
  RTIMES    10           CWMIN       3000         M2PATSET  1
  OPEN      NO           ALW          YES          RTXTHR   2000

  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
```

```
rtrv-assoc : aname=assoc1
```

This is an example of the possible output.

```
r1ghncxa03w 08-04-28 21:14:37 GMT EAGLE5 38.0.0
ANAME assoc1
  LOC      1201          IPLNK PORT  A          LINK  A
  ADAPTER  M3UA          VER          M3UA RFC
```

```

LHOST      m3ua1
ALHOST      ---
RHOST      remote1
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

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

Continue the procedure by performing one of these actions.

- If the **cwmin** parameter will be specified in this procedure, continue the procedure with [Step 5](#) .
- If the **cwmin** parameter will not be specified in this procedure, 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 [Step 6](#) . If the **m2patset** parameter will not be specified for an M2PA association, continue the procedure with [Step 8](#) .
 - If the **uaps** parameter will be specified for an M3UA association, continue the procedure with [Step 7](#) . If the **uaps** parameter will not be specified for an M3UA association, continue the procedure with [Step 8](#) .

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 of 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 [Step 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 [Step 8](#) .
- If the new **cwmin** value is less than or equal to the **bufsize** value, and the **uaps** parameter will be specified in this procedure, continue the procedure with [Step 7](#) .
- If the new **cwmin** value is less than or equal to the **bufsize** value, and the **uaps** parameter will not be specified in this procedure, continue the procedure with [Step 8](#) .
- 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 the [Changing the Buffer Size 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 **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 [Step 6](#) .
- If the **m2patset** parameter will not be specified in this procedure, continue the procedure with [Step 8](#) .
- If the **uaps** parameter will be specified in this procedure, continue the procedure with [Step 7](#) .
- If the **uaps** parameter will not be specified in this procedure, continue the procedure with [Step 8](#) .

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 RFC M2PA 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)

TSET	T1	T2	T3	T4N	T4E	T5	T6	T7	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

To display the M2PA RFC 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	T3	T4N	T4E	T5	T6	T7	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
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
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
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 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
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	T2	T3	T4N	T4E	T5	T6	T7	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
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
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
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 you do not wish to change the M2PA timer set values, continue the procedure with [Step 8](#) .

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, continue the procedure with [Step 8](#) .



CAUTION: Changing an M2PA timer set may affect the performance of any associations using the timer set being changed.

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.

```
rlghncxa03w 08-04-28 09:12:36 GMT EAGLE5 38.0.0
SET  TIMER      TVALUE  PARM      PVALUE
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).

TVALUE : Valid range = 32-bits

TIMER 3: UA Heartbeat Period Timer T(beat), time (ms) between sending of BEAT msgs by NE, 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, 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.

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.

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.
 PVALUE : Valid range = 32-bits
 BIT
 0=UA Heartbeats
 1-31=Reserved

BIT VALUE
 0=Disabled , 1=Enabled

If you do not wish to change the UA parameter set values, continue the procedure with [Step 8](#) .

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 [Step 8](#) .



CAUTION: Changing a UA parameter set may affect the performance of any associations using the parameter set being changed.

8. Change the association using the **chg-assoc** command.

For this example, enter these commands.

```
chg-assoc:aname=assoc2:rhost="gw200.nc-
tekelec.com":rport=3000 :rtxthr=10000
```

```
chg-assoc:aname=assoc1:rport=3000 :rtxthr=10000:uaps=3
```

NOTE: The **m2patset** and **ver** parameters can be specified only for M2PA associations. The **uaps** parameter can be specified only for M3UA associations.

If only the **alw**, **open**, **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
```

NOTE: See [Flowchart 6-27](#) (Sheet 8) for the rules that apply to the **chg-assoc** command.

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 [Step 3](#) , continue the procedure with [Step 10](#) .

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 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;
```

10. Verify the changes using the **rtrv-assoc** command specifying the association name specified in [Step 8](#) and [Step 9](#) .

For this example, enter these commands.

```
rtrv-assoc:aname=assoc2
```

This is an example of possible output.


```

rlghncxa03w 08-04-28 21:14:37 GMT EAGLE5 38.0.0
ANAME assoc2
  LOC      1205          IPLNK PORT A          LINK  A
  ADAPTER  M2PA          VER           M2PA RFC
  LHOST    IPNODE2-1205
  ALHOST   ---
  RHOST     gw200.nc-tekelec.com
  LPORT     2048          RPORT          2048
  ISTRMS    2            OSTRMS          2        BUFSIZE  400
  RMODE     LIN           RMIN           120       RMAX     800
  RTIMES    10           CWMIN          3000      M2PATSET 1
  OPEN      YES          ALW            NO        RTXTHR  10000

  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

rtrv-assoc:aname=assoc1

This is an example of the possible output.

```

rlghncxa03w 08-04-28 21:14:37 GMT EAGLE5 38.0.0
ANAME assoc1
  LOC      1201          IPLNK PORT A          LINK  A
  ADAPTER  M3UA          VER           M3UA RFC
  LHOST     m3ua1
  ALHOST   ---
  RHOST     remote1
  LPORT     2000          RPORT          3000
  ISTRMS    2            OSTRMS          2        BUFSIZE  200
  RMODE     LIN           RMIN           120       RMAX     800
  RTIMES    10           CWMIN          3000      UAPS      3
  OPEN      YES          ALW            YES       RTXTHR  10000

  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

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.

```

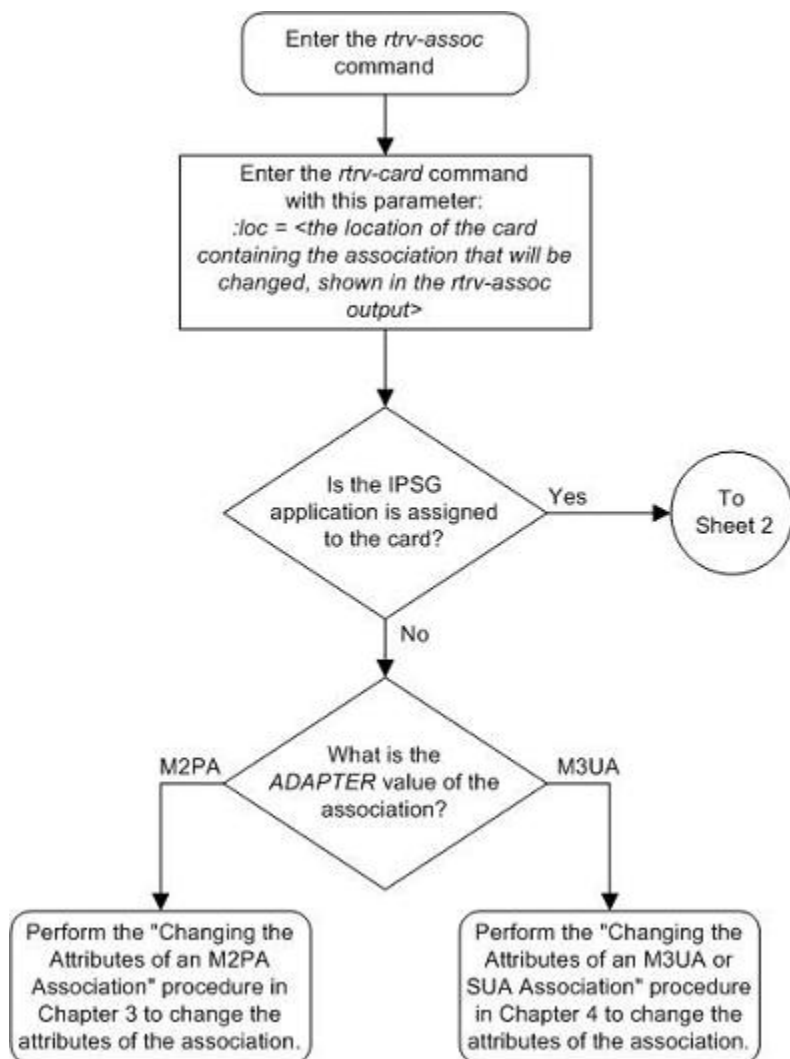
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.

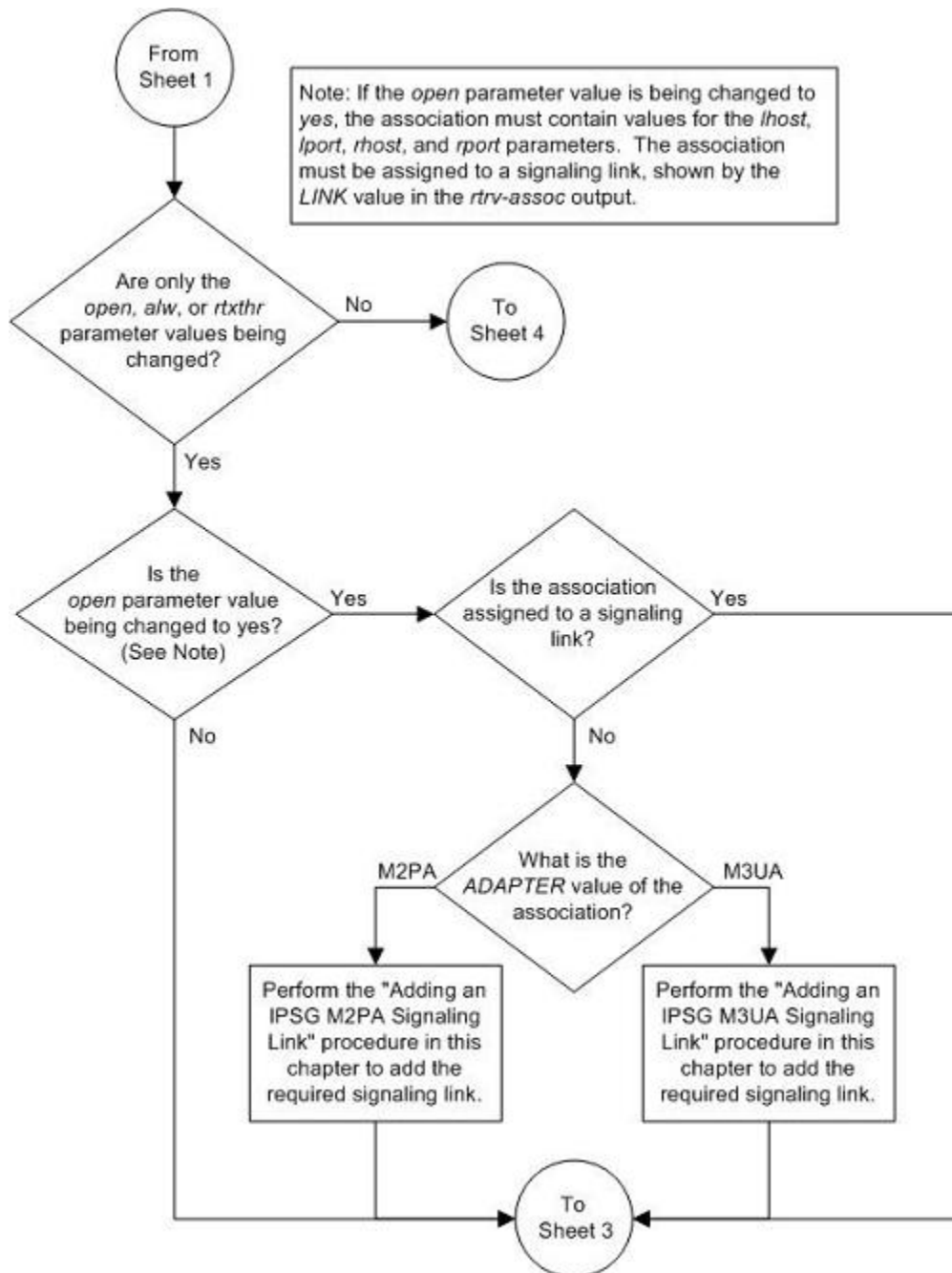
```

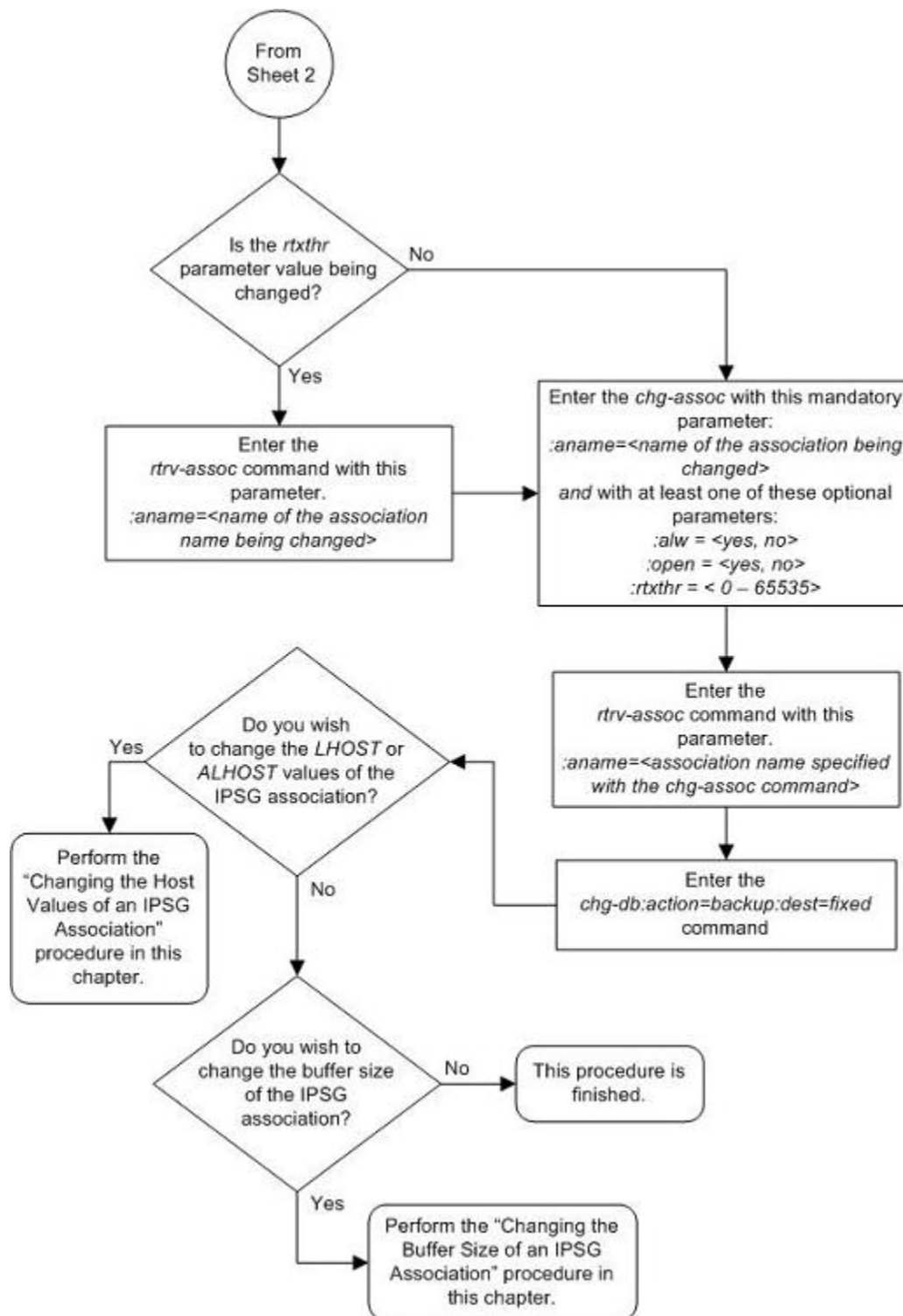
If you wish to change the **lhost**, **alhost**, or **bufsize** values of the IPSG association, perform one of these procedures.

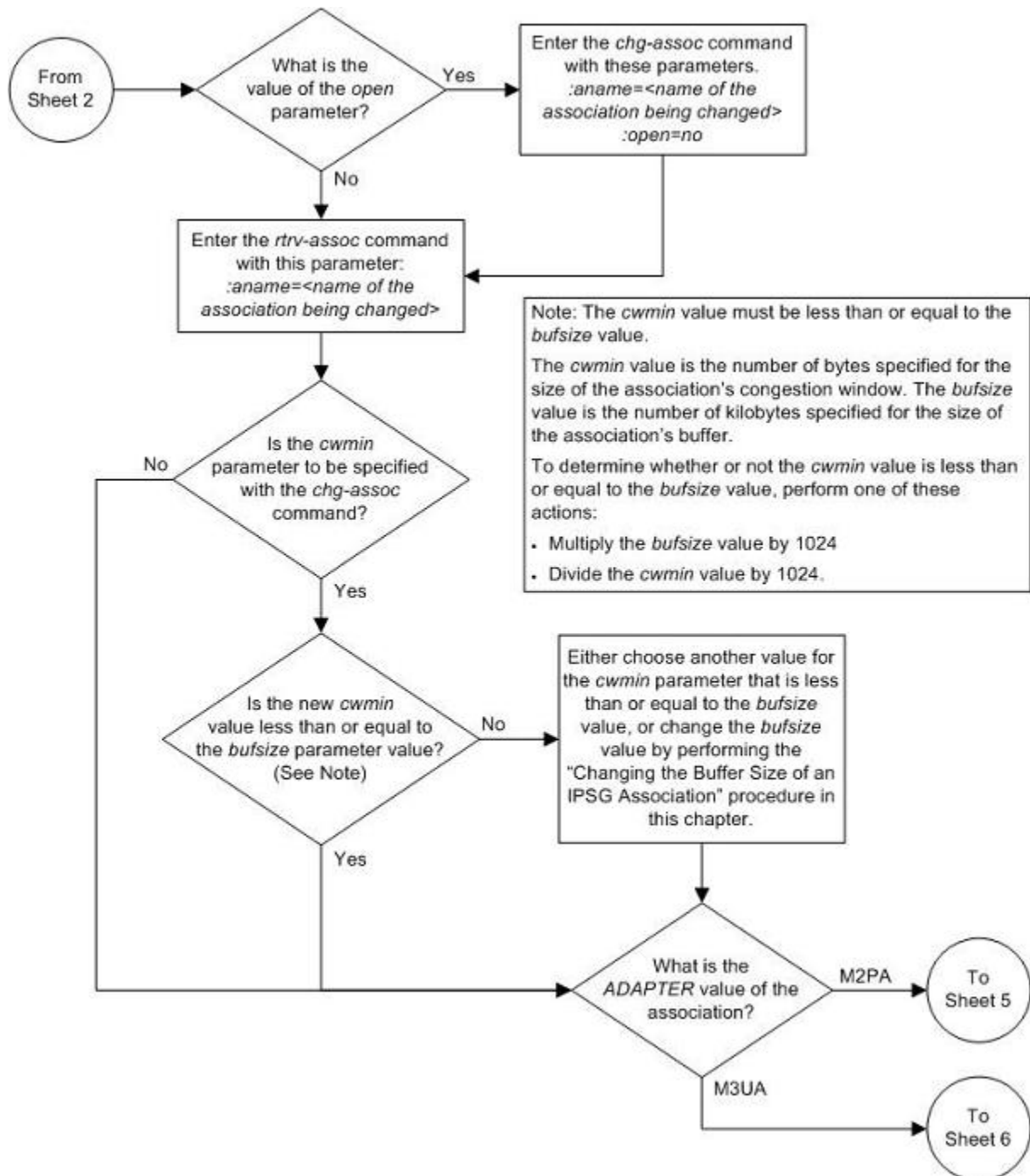
- **lhost** and **alhost** - [Changing the Host Values of an IPSG Association](#)
- **bufsize** - [Changing the Buffer Size of an IPSG Association](#)

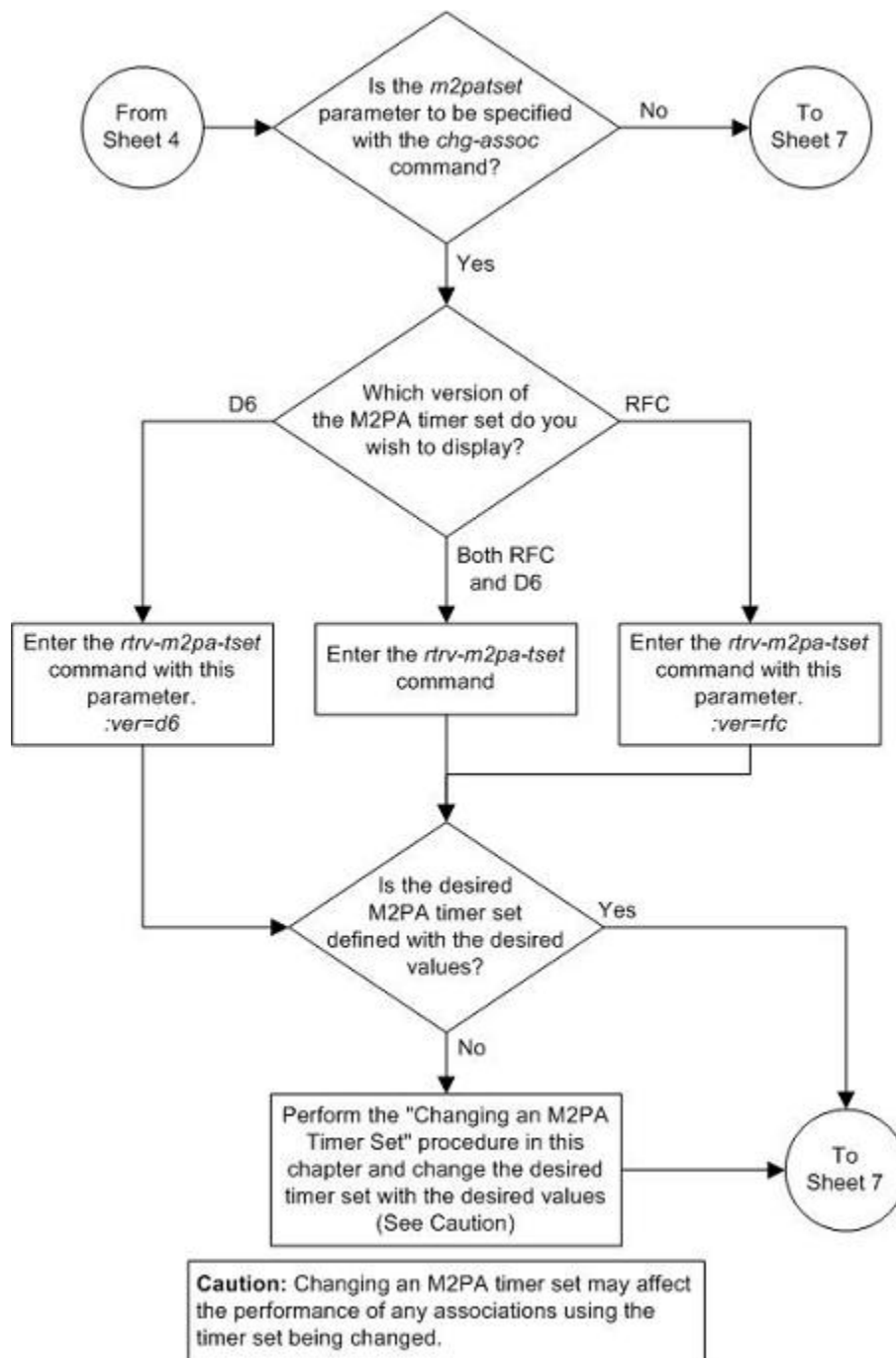
If you do not wish to change the **lhost**, **alhost**, **bufsize**, or **link** values of the IPSG association, this procedure is finished.

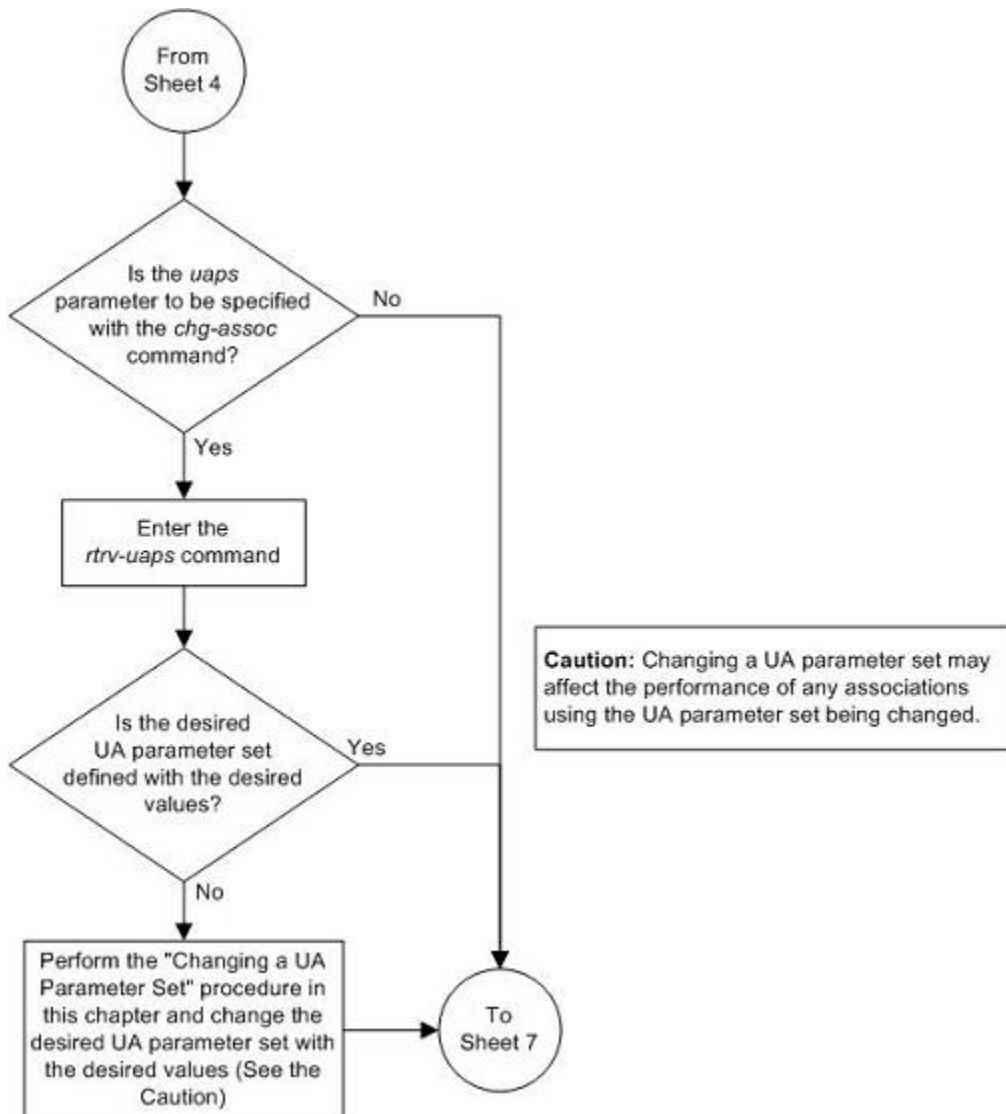
Flowchart 6-27. Changing the Attributes of an IPSG Association

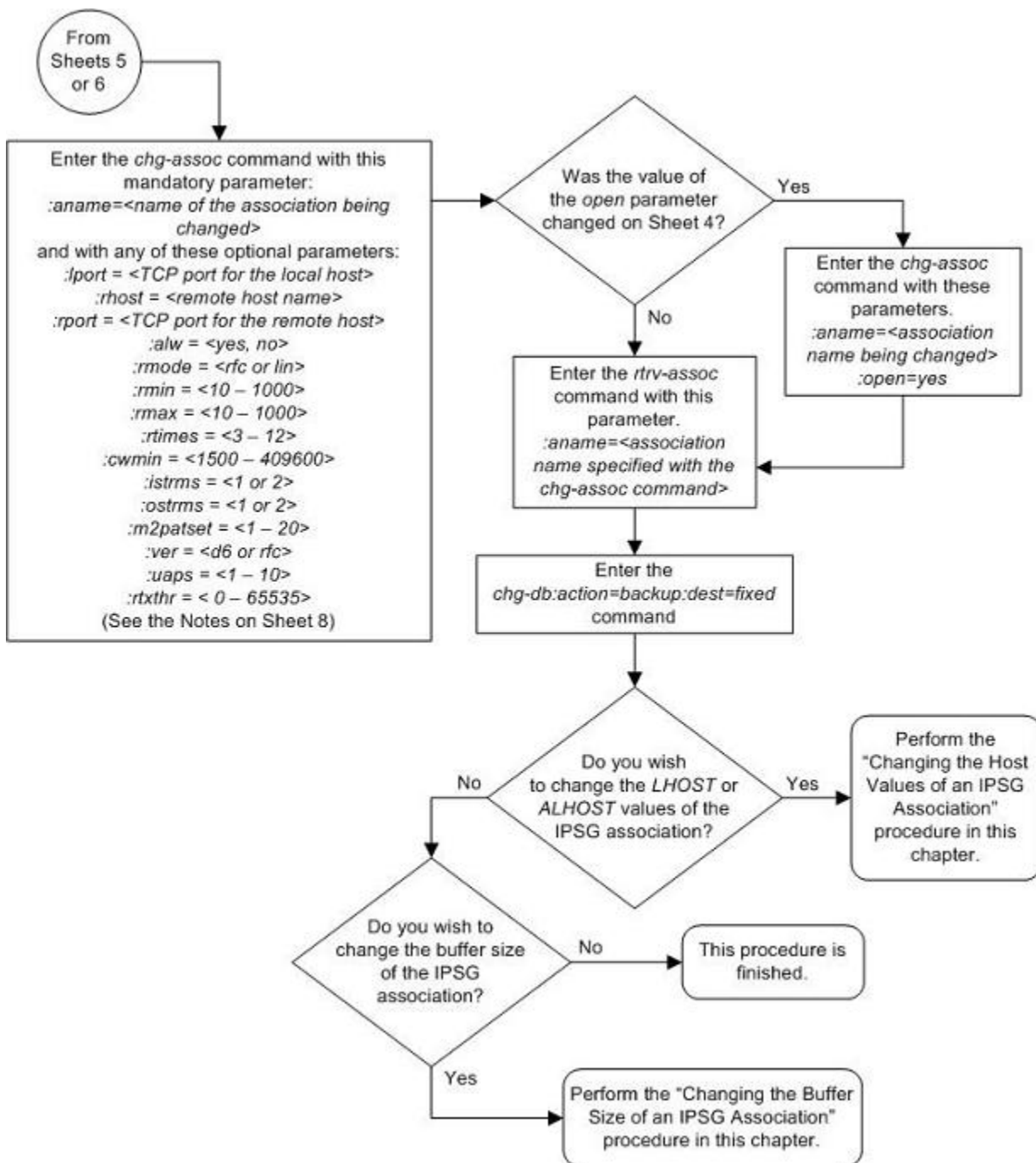












Notes:

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. 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 **rtxthr** 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 **rmin** parameter must be less than or equal to the **rmax** 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.
6. The **m2patset** and **ver** parameters can be specified only for IPSG M2PA associations. The **uaps** parameter can be specified only for IPSG M3UA associations.

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 **chg-assoc** 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 an 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 an 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.

: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 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 than 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 the *Commands Manual*.

Procedure

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
```

ANAME	CARD	IPLNK	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	B2	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 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 [Step 3](#).
- If the **open** parameter value for the association being changed is **no**, continue the procedure with [Step 4](#).

If the application assigned to the card is IPLIM or IPLIMI, perform the [Changing the Buffer Size of an M2PA Association](#) procedure.

If the application assigned to the card is SS7IPGW or IPGWI, perform the [Changing the Buffer Size of an 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 [Step 3](#).

For this example, enter this command.

```
rtrv-assoc : aname=assoc2
```

This is an example of the possible output.

```
rlghncxa03w 06-10-28 21:14:37 GMT EAGLE5 36.0.0
ANAME assoc2
LOC      1205          IPLNK PORT   A          LINK   A
ADAPTER  M2PA          VER          M2PA RFC
LHOST    IPNODE2-1205
ALHOST    ---
RHOST     remotehost1
LPORT     2048          RPORT      2048
ISTRMS    2            OSTRMS      2          BUFSIZE  300
RMODE     LIN          RMIN        120          RMAX     800
RTIMES    10           CWMIN       3000         M2PATSET 1
OPEN      NO           ALW         YES          RTXTHR   2000

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 08-04-28 21:14:37 GMT EAGLE5 38.0.0

ANAME assoc1
LOC 1201          IPLNK PORT A          LINK      A
ADAPTER M3UA      VER          M3UA RFC
LHOST m3ua1
ALHOST ---
RHOST remote1
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

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 **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, [Step 6](#) , [Step 7](#) , and [Step 8](#) .

If the buffers on the other associations assigned to the card do not need to be changed, continue the procedure with [Step 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
assoc3 1205 A B2 M2PA 3000 3000 YES YES
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 [Step 5](#) by entering the **rtrv-assoc** command with the name of each association shown in [Step 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  M2PA          VER          M2PA RFC
  LHOST    IPNODE2-1205
  ALHOST    ---
  RHOST    remotehost1
  LPORT    2048          RPORT      2048
  ISTRMS   2            OSTRMS     2          BUFSIZE  300
  RMODE    LIN          RMIN        120        RMAX      800
  RTIMES   10          CWMIN       3000       M2PATSET  1
  OPEN     NO          ALW          YES        RTXTHR   2000

  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=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
  LPORT    3000          RPORT      3000
  ISTRMS   2            OSTRMS     2          BUFSIZE  200
  RMODE    LIN          RMIN        120        RMAX      800
  RTIMES   10          CWMIN       3000       M2PATSET  1
  OPEN     YES          ALW          YES        RTXTHR   2000

  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
  LPORT    1500          RPORT      3000
  ISTRMS   2            OSTRMS     2          BUFSIZE  200
  RMODE    LIN          RMIN        120        RMAX      800
  RTIMES   10          CWMIN       3000       M2PATSET  1
  OPEN     YES          ALW          YES        RTXTHR   2000

  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.

r1ghncxa03w 08-04-28 21:14:37 GMT EAGLE5 38.0.0

```

ANAME assoc1
LOC      1201          IPLNK PORT A          LINK      A
ADAPTER  M3UA          VER           M3UA RFC
LHOST    m3ua1
ALHOST    ---
RHOST     remote1
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

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

rtrv-assoc:aname=swbel32

This is an example of the possible output.

r1ghncxa03w 08-04-28 21:14:37 GMT EAGLE5 38.0.0

```

ANAME swbel32
LOC      1201          IPLNK PORT A          LINK      A
ADAPTER  M3UA          VER           M3UA RFC
LHOST    m3ua1
ALHOST    ---
RHOST     remote1
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

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

7. To change the **bufsize** value for the associations shown in [Step 6](#) , the new **bufsize** parameter value must be greater than or equal to the **cwmin** parameter value.

The **cwmin** parameter is the number of 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 [Step 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 [Step 8](#) .

8. Change the size of the buffers for one or more of the associations displayed in [Step 6](#) to allow the buffer of the association displayed in [Step 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.

```
r1ghncxa03w 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 [Step 4](#) , the new **bufsize** parameter value must be greater than or equal to the **cwmin** parameter value.

The **cwmin** parameter is the number of 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 [Step 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 [Step 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.

```
r1ghncxa03w 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 [Step 3](#) , continue the procedure with [Step 12](#) .

If the value of the **open** parameter was changed in [Step 3](#) , continue the procedure with [Step 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 [Step 10](#) and [Step 11](#).

For this example, enter these commands.

rtrv-assoc:aname=assoc2

This is an example of possible output.

```
ANAME assoc2
LOC      1205          IPLNK PORT  A          LINK  A
ADAPTER  M2PA          VER          M2PA RFC
LHOST    IPNODE2-1205
ALHOST    ---
RHOST    remotehost1
LPORT    2048          RPORT      2048
ISTRMS   2            OSTRMS     2          BUFSIZE  400
RMODE    LIN          RMIN        120         RMAX     800
RTIMES   10           CWMIN       3000        M2PATSET 1
OPEN     YES          ALW         YES         RTXTHR  2000

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 08-04-28 21:14:37 GMT EAGLE5 38.0.0
```

```
ANAME assoc1
LOC      1201          IPLNK PORT  A          LINK  A
ADAPTER  M3UA          VER          M3UA RFC
LHOST    m3ua1
ALHOST    ---
RHOST    remote1
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

LSN
ipsgm3ua1
```

```
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.

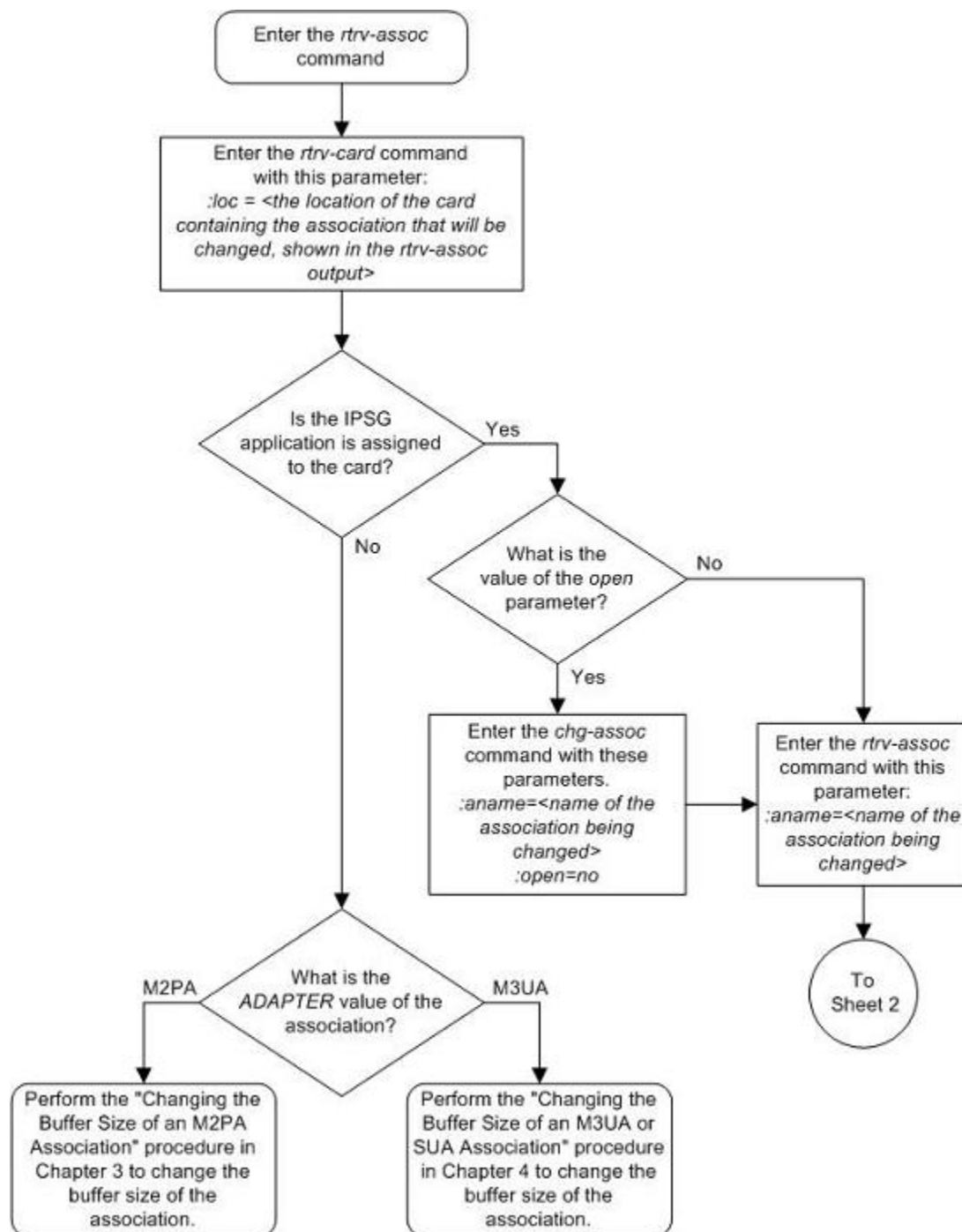
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.

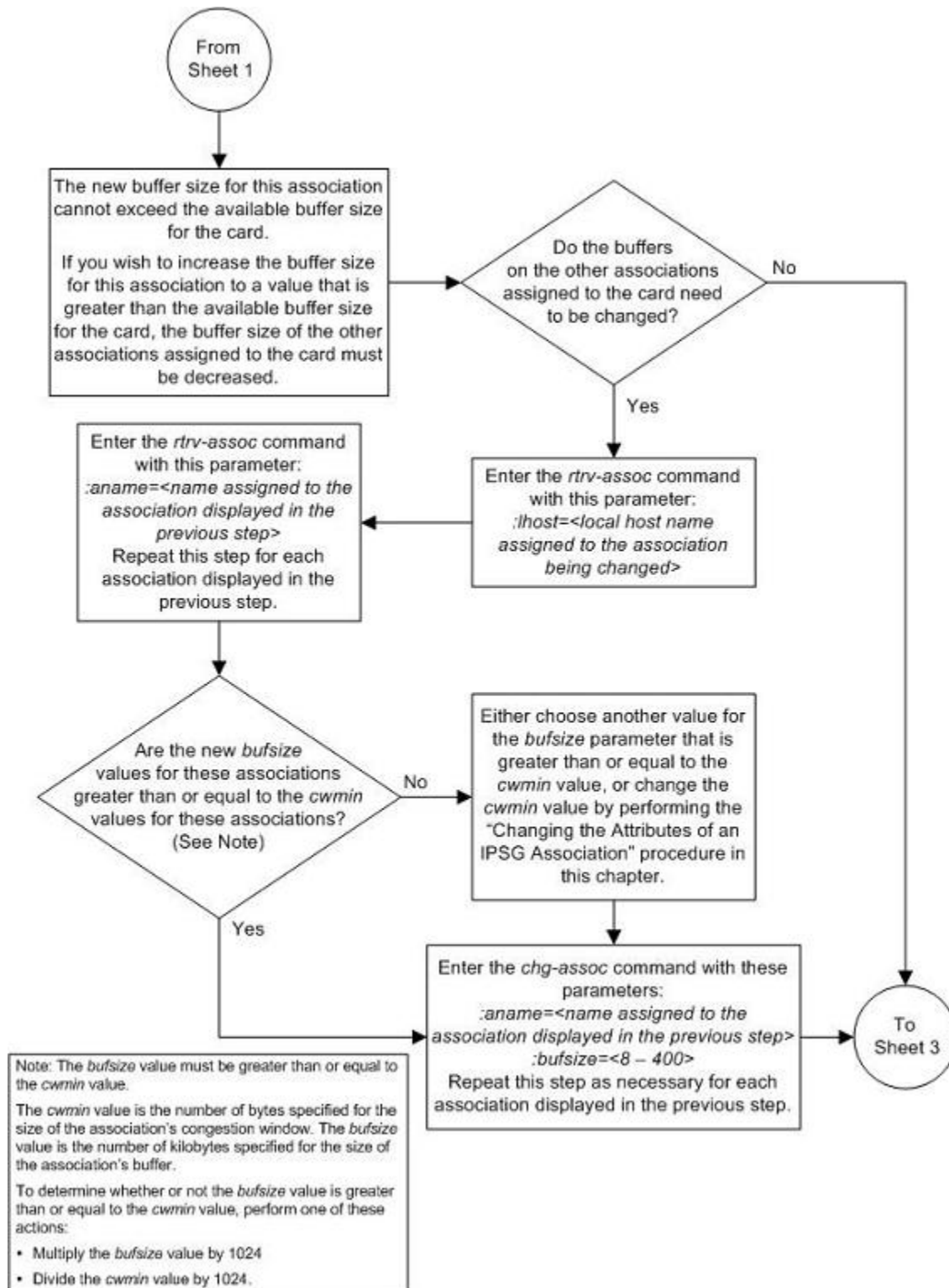
If you wish to change the other attributes of the IPSG association, perform one of these procedures.

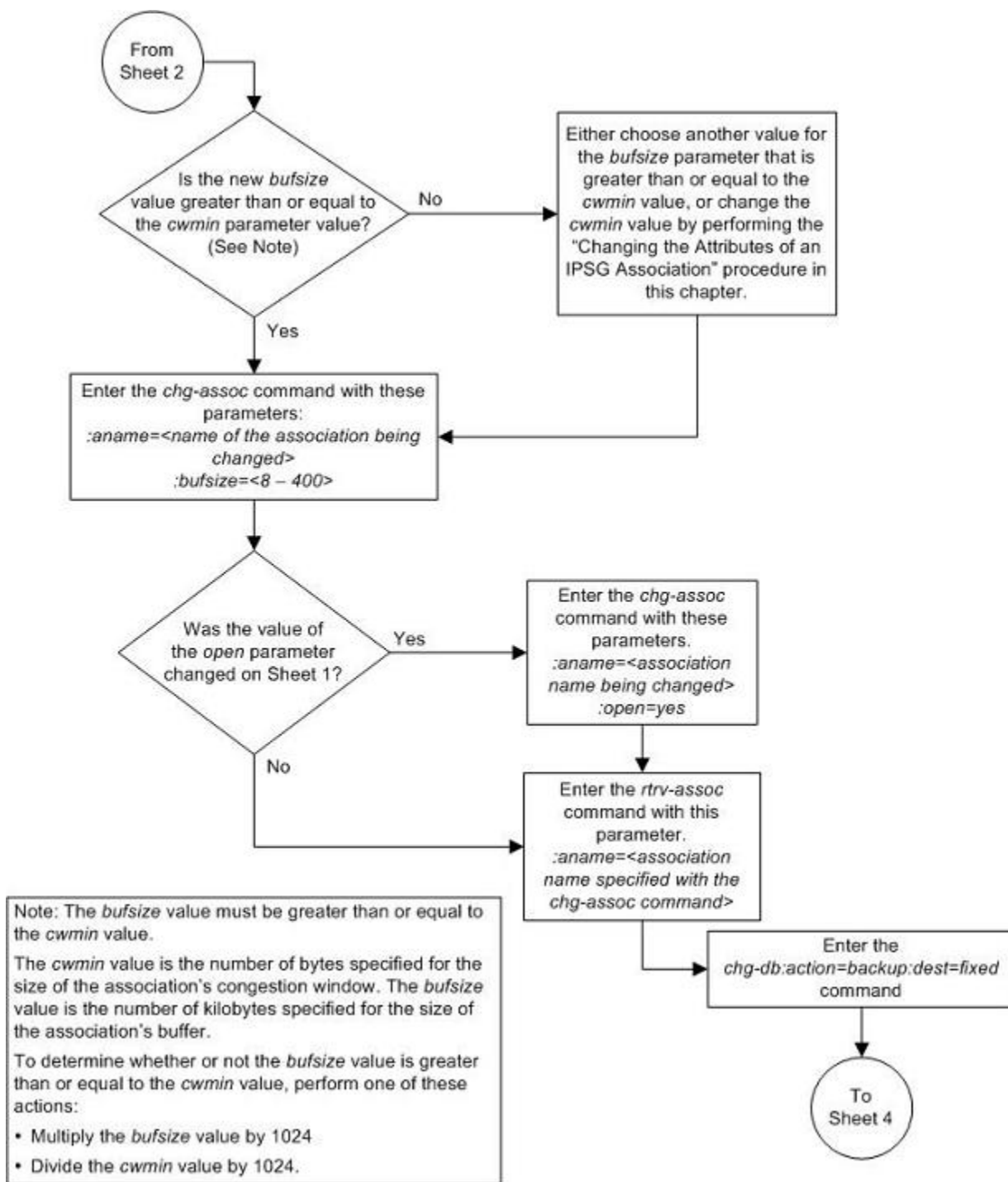
- **lhost** and **alhost** - [Changing the Host Values of an IPSG Association](#)
- Other attributes of the IPSG Association - [Changing the Attributes of an IPSG Association](#)

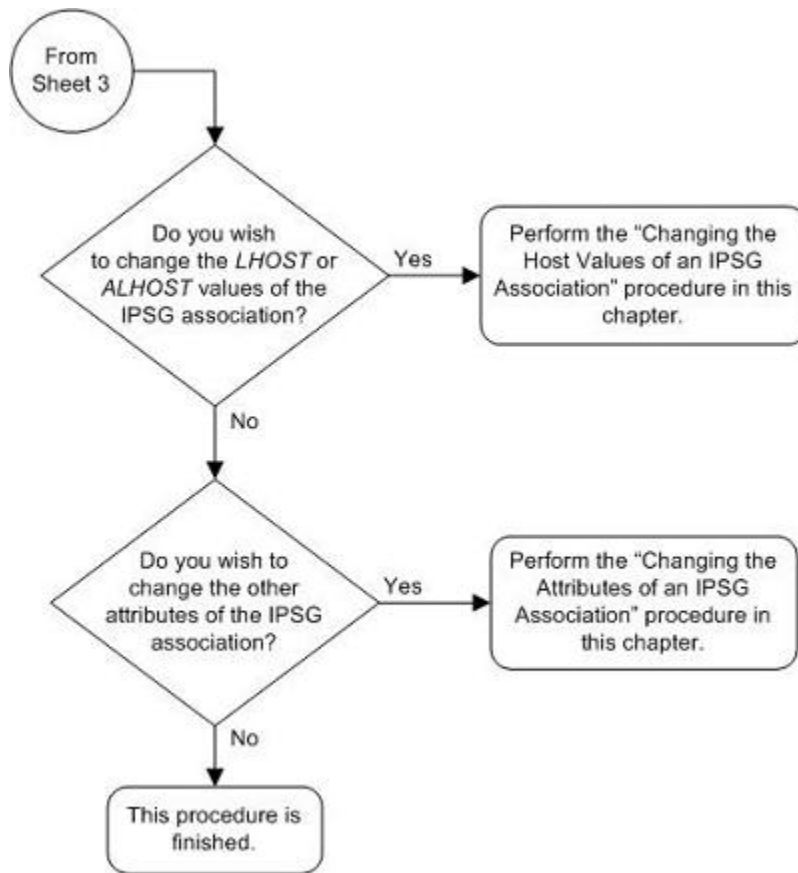
If you do not wish to change the other attributes of the IPSG association, this procedure is finished.

Flowchart 6-28. Changing the Buffer Size of an IPSG Association









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 **chg-assoc** 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 an 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 an 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.

: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.

: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 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 5 ISS can contain a maximum of 4000 connections.

A maximum of 32 associations can be assigned to an IPSG card.

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

Procedure

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
ANAME
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    B2   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 [Step 3](#).
- If the **open** parameter value for the association being changed is **no**, continue the procedure with [Step 4](#).

If the application assigned to the card is IPLIM or IPLIMI, perform the [Changing the Host Values of an M2PA Association](#) procedure.

If the application assigned to the card is SS7IPGW or IPGWI, perform the [Changing the Host Values of an 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 [Step 3](#).

For this example, enter this command.

rtrv-assoc : aname=assoc2

This is an example of the possible output.

```
rlghncxa03w 08-04-28 21:14:37 GMT EAGLE5 38.0.0
ANAME assoc2
  LOC      2105          IPLNK PORT  A, B      LINK  A
  ADAPTER  M2PA          VER          M2PA RFC
  LHOST    IPNODE2-1205
  ALHOST    M2PA1
  RHOST    remotehost1
  LPORT    2048          RPORT      2048
  ISTRMS    2            OSTRMS     2          BUFSIZE  400
  RMODE     LIN          RMIN        120        RMAX     800
  RTIMES    10           CWMIN       3000       M2PATSET 1
  OPEN      NO           ALW         YES        RTXTHR   2000

  LSN
  e5e6a
```

```
IP Appl Sock/Assoc table is (8 of 4000) 1% full
Assoc Buffer Space Used (800 KB of 6400 KB) on LOC = 2105
```

Continue the procedure by performing one of these actions.

- If the association does not have an **ALHOST** value, continue the procedure with [Step 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 [Step 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 [Step 11](#).

5. Verify that the local host name to be assigned to the association is in the database by entering the **rtrv-ip-host** command.

The following is an example of the possible output.

```
rlghncxa03w 08-04-28 21:15:37 GMT EAGLE5 38.0.0

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-MS1
192.1.1.52      DN-MS2
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 512) 2% 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.

```

rlghncxa03w 07-05-28 21:14:37 GMT EAGLE5 37.0.0
LOC  PORT  IPADDR      SUBMASK      DUPLEX  SPEED  MACTYPE  AUTO  MCAST
1201  A      192.1.1.20    255.255.255.0  FULL    100    DIX      NO    NO
1201  B      -----      -----      HALF    10     DIX      NO    NO
1303  A      192.1.1.10    255.255.255.128  HALF    10     802.3    NO    NO
1303  B      -----      -----      HALF    10     DIX      NO    NO
1305  A      192.1.1.12    255.255.255.0    ---     ---     DIX      YES   NO
1305  B      -----      -----      HALF    10     DIX      NO    NO
1313  A      192.1.1.14    255.255.255.0    FULL    100    DIX      NO    NO
1313  B      -----      -----      HALF    10     DIX      NO    NO
2103  A      192.1.1.22    255.255.255.0    FULL    100    DIX      NO    NO
2103  B      -----      -----      HALF    10     DIX      NO    NO
2105  A      192.1.1.24    255.255.255.0    FULL    100    DIX      NO    NO
2105  B      192.1.1.54    255.255.255.0    FULL    100    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      -----      -----      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 [Step 5](#), assign the IP address of the IP link to the IP host name using the [Adding an IP Host](#) procedure.

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 [Step 11](#).
- If the **ADAPTER** value of the association is being changed to M2PA, and the **m2patset** and **ver** parameters will not be specified for the association, continue the procedure with [Step 11](#).
- If the **ADAPTER** value of the association is being changed to M2PA, and the **m2patset** or **ver** parameters will be specified for the association, continue the procedure with [Step 9](#).
- If the **ADAPTER** value of the association is being changed to M3UA, and the **uaps** parameter will not be specified for the association, continue the procedure with [Step 11](#).
- If the **ADAPTER** value of the association is being changed to M3UA, and the **uaps** parameter will be specified for the association, continue the procedure with [Step 10](#).

If the required IP host was shown in [Step 5](#), the required IP link is shown in the **rtrv-ip-lnk** output in this step.

NOTE: The **rtrv-ip-host** output must contain a host name for the association's **lhost** parameter and a host name for the association's **ahost** parameter, if the **ahost** parameter will be specified for the association. 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 **ahost** 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 **ahost** parameter value. The IP links associated with the association's **lhost** and **ahost** values must be assigned to the same card.

7. 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 [Step 5](#) and choose another local host.

If the number of associations shown in this step is less than 32, continue the procedure with [Step 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 [Step 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 [Step 11](#).
- If the **ADAPTER** value of the association is being changed to M2PA, and the **m2patset** and **ver** parameters will not be specified for the association, continue the procedure with [Step 11](#).
- If the **ADAPTER** value of the association is being changed to M2PA, and the **m2patset** or **ver** parameters will be specified for the association, continue the procedure with [Step 9](#).
- If the **ADAPTER** value of the association is being changed to M3UA, and the **uaps** parameter will not be specified for the association, continue the procedure with [Step 11](#).

- If the **ADAPTER** value of the association is being changed to M3UA, and the **uaps** parameter will be specified for the association, continue the procedure with [Step 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 RFC M2PA 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)

TSET	T1	T2	T3	T4N	T4E	T5	T6	T7	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

To display the M2PA RFC 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	T3	T4N	T4E	T5	T6	T7	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
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

```

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
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 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
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	T2	T3	T4N	T4E	T5	T6	T7	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
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
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
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 you do not wish to change the M2PA timer set values, continue the procedure with [Step 11](#) .

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, continue the procedure with [Step 11](#) .



CAUTION: Changing an M2PA timer set may affect the performance of any associations using the timer set being changed.

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 08-04-28 09:12:36 GMT EAGLE5 38.0.0
SET  TIMER      TVALUE  PARM      PVALUE
 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).

TVALUE : Valid range = 32-bits

TIMER 3: UA Heartbeat Period Timer T(beat), time (ms) between sending of BEAT msgs by NE, 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, 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.

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 an enabled/disabled flag for a particular ASP/AS Notification option.

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.

PVALUE : Valid range = 32-bits

BIT	BIT VALUE
0=UA Heartbeats	0=Disabled , 1=Enabled
1-31=Reserved	

If you do not wish to change the UA parameter set values, continue the procedure with [Step 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 [Step 11](#).



CAUTION: Changing a UA 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:rhost="gw200.nc-  
tekelec.com"
```

NOTE: See [Flowchart 6-29](#) (Sheet 7) for the rules that apply to the **chg-assoc** command.

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

```
r1ghncxa03w 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 [Step 3](#), continue the procedure with [Step 14](#).
- If the association was not assigned to a signaling link when this procedure was started, and the **open** parameter value was changed in [Step 3](#), continue the procedure with [Step 12](#).
- If the association was assigned to a signaling link when this procedure was started, continue the procedure with [Step 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 [Step 3](#), continue the procedure with [Step 14](#).
- If the **open** parameter value was changed in [Step 3](#), continue the procedure with [Step 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.

```
r1ghncxa03w 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 [Step 11](#) and [Step 13](#).

For this example, enter this command.

rtrv-assoc:aname=assoc2

This is an example of possible output.

```
rlghncxa03w 08-04-28 21:14:37 GMT EAGLE5 38.0.0
ANAME assoc2
  LOC      2107      IPLNK PORT  A,B      LINK  --
  ADAPTER  M2PA      VER      M2PA RFC
  LHOST    M2PA2
  ALHOST    M2PA3
  RHOST    gw200.nc-tekelec.com
  LPORT    2048      RPORT      2048
  ISTRMS   2          OSTRMS    2          BUFSIZE  400
  RMODE    LIN        RMIN      120        RMAX      800
  RTIMES   10         CWMIN     3000       M2PATSET  1
  OPEN     NO         ALW       YES        RTXTHR   2000

  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
```

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.

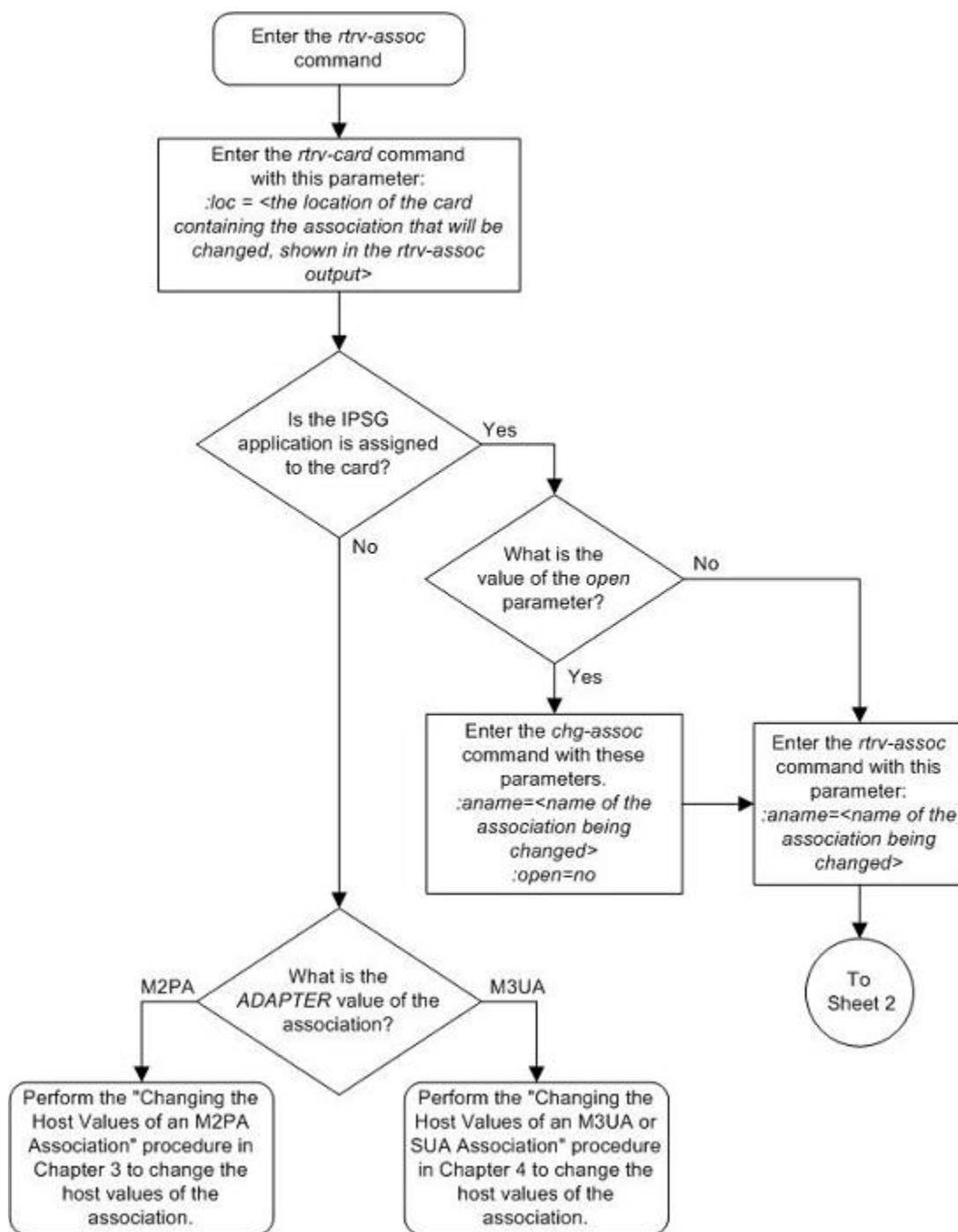
```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

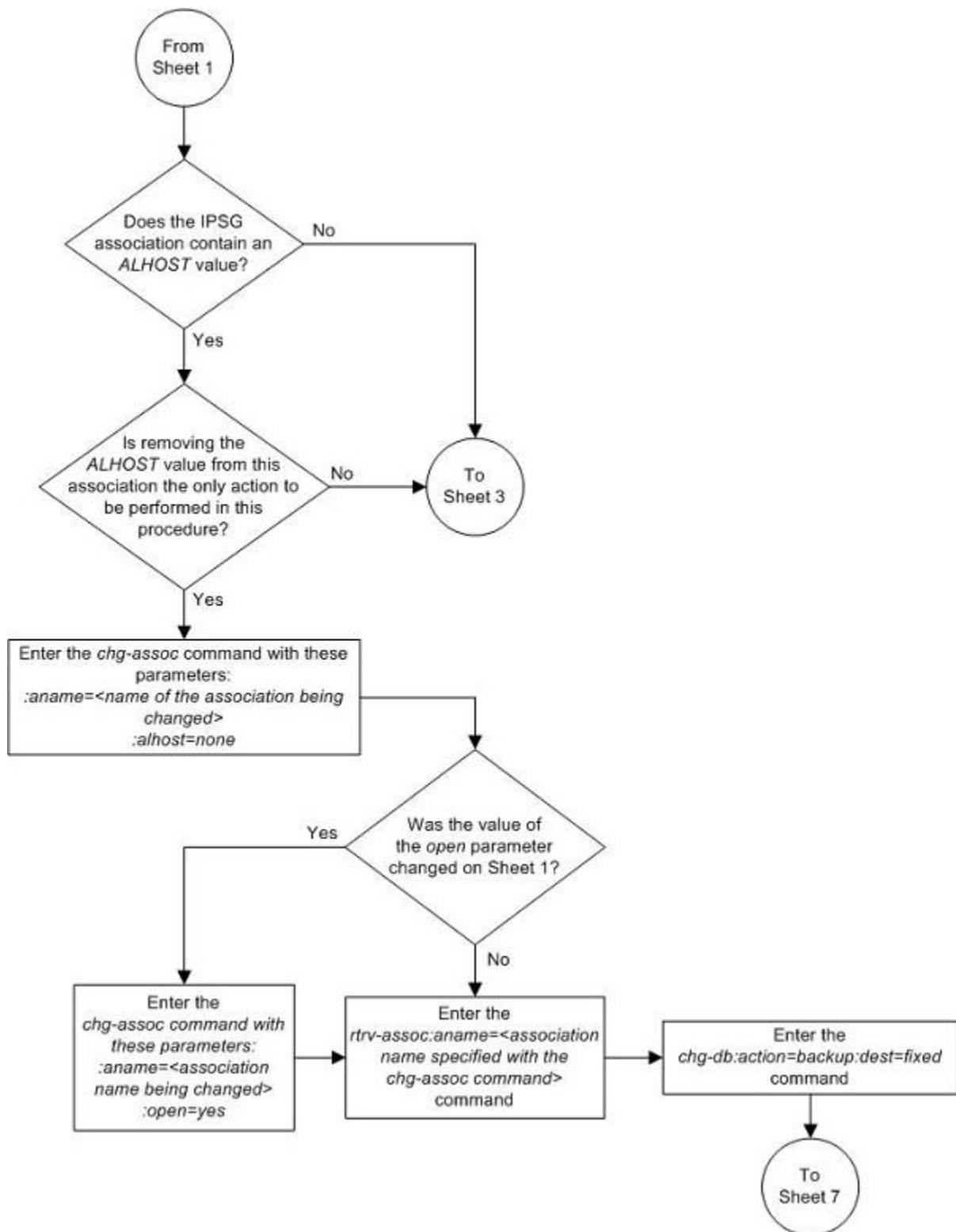
If you wish to change the other attributes of the IPSG association, perform one of these procedures.

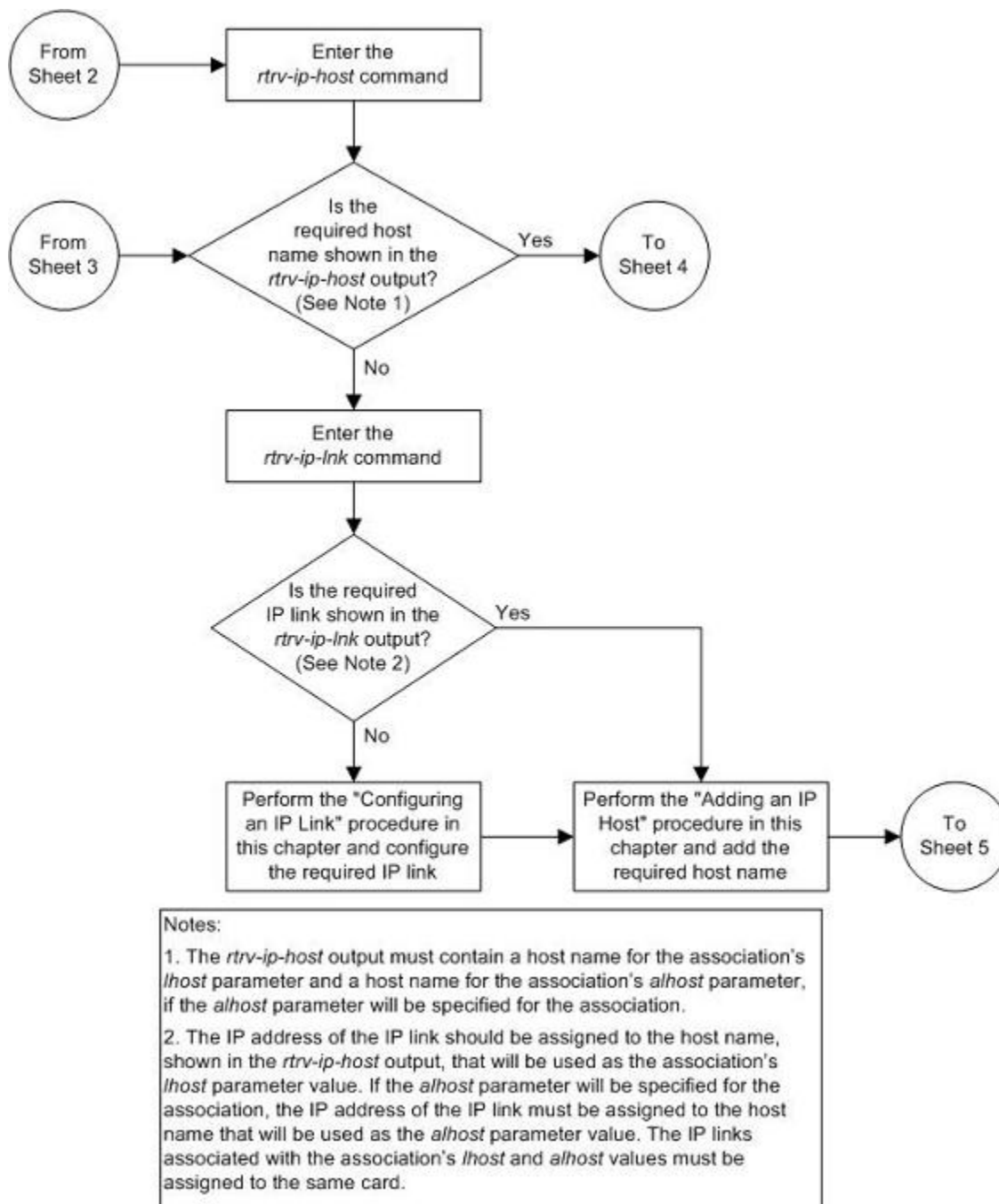
- **bufsize** - [Changing the Buffer Size of an IPSG Association](#)
- Other attributes of the IPSG Association - [Changing the Attributes of an IPSG Association](#)

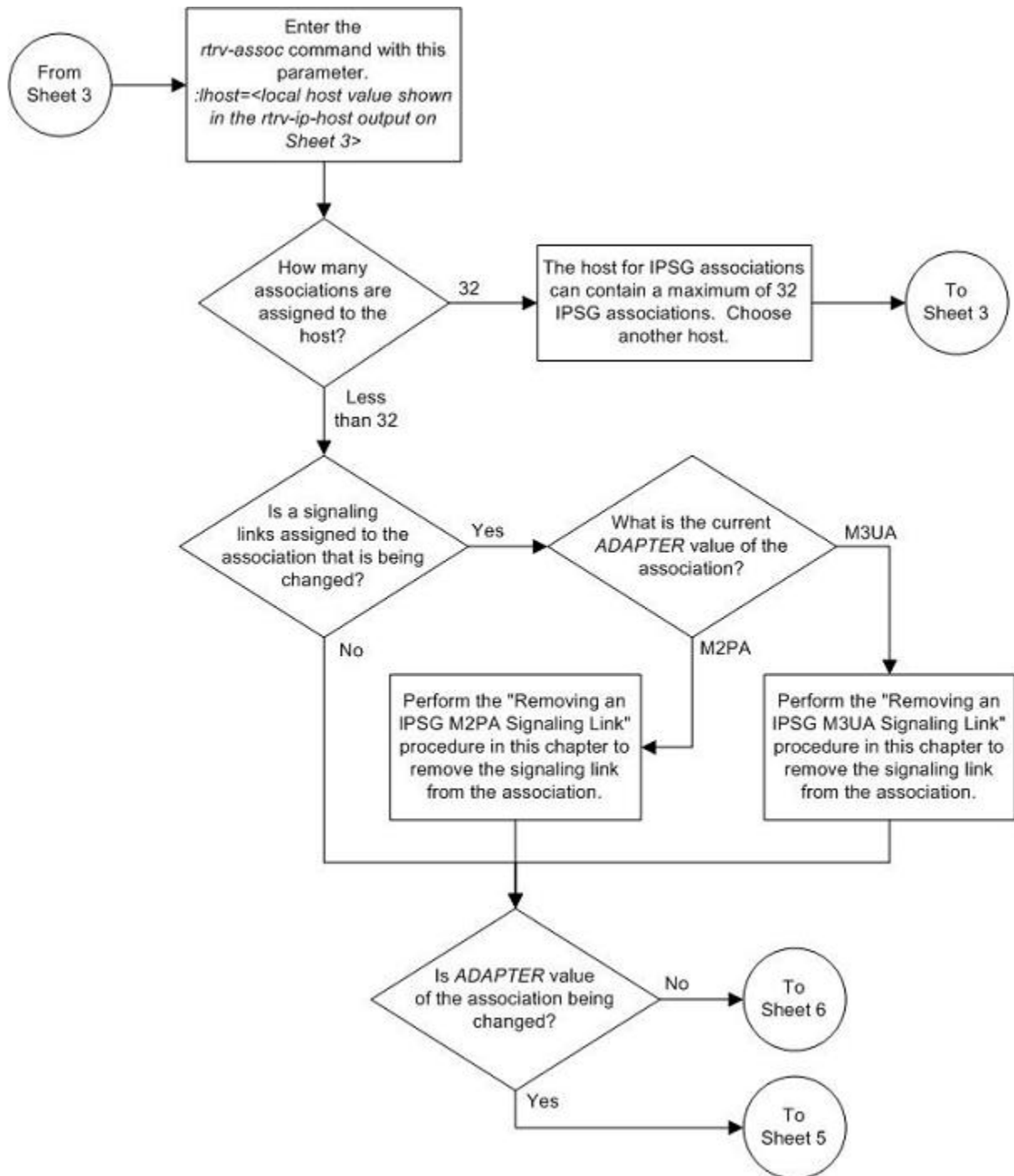
If you do not wish to change the other attributes of the IPSG association, this procedure is finished.

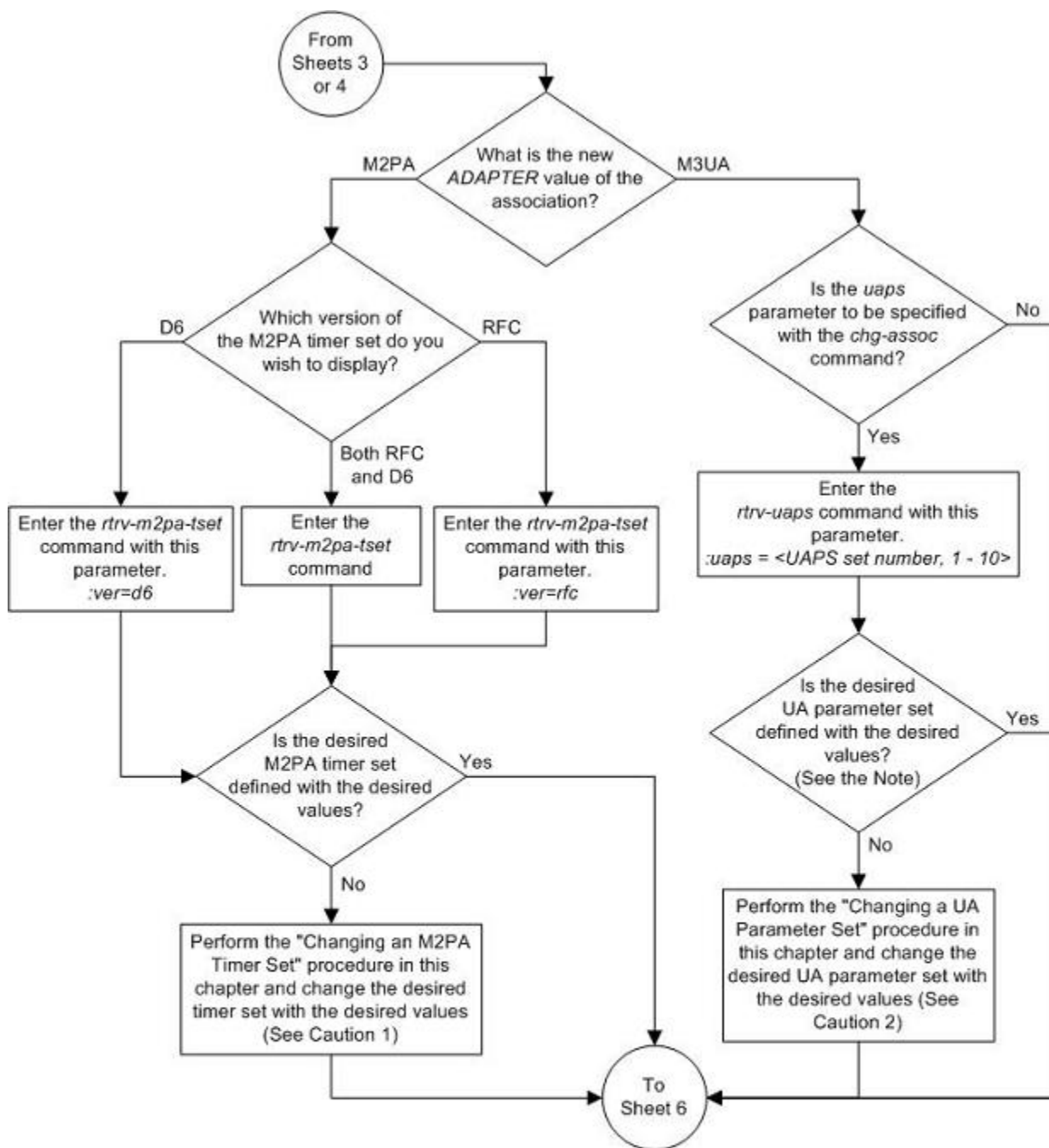
Flowchart 6-29. Changing the Host Values of an IPSG Association







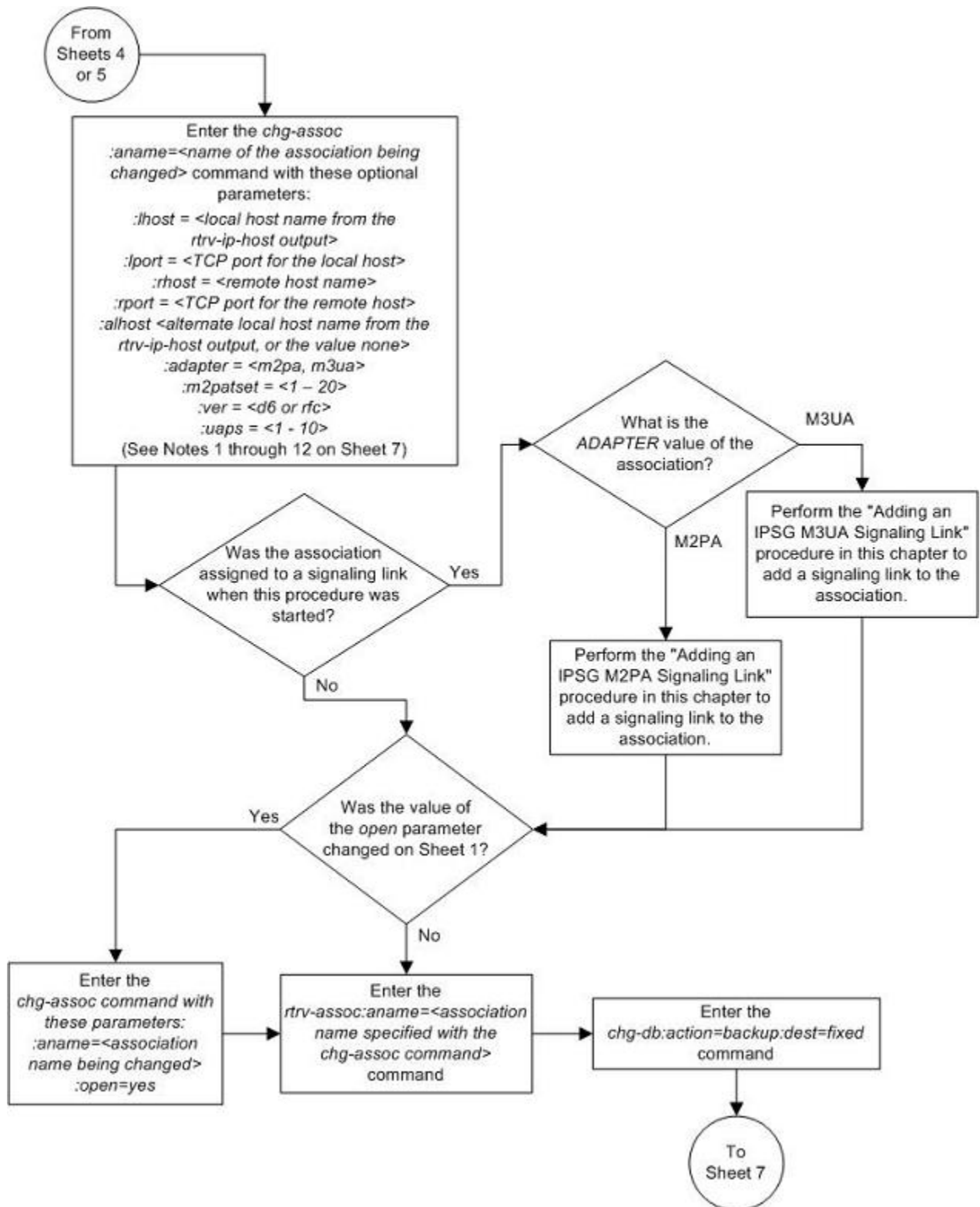


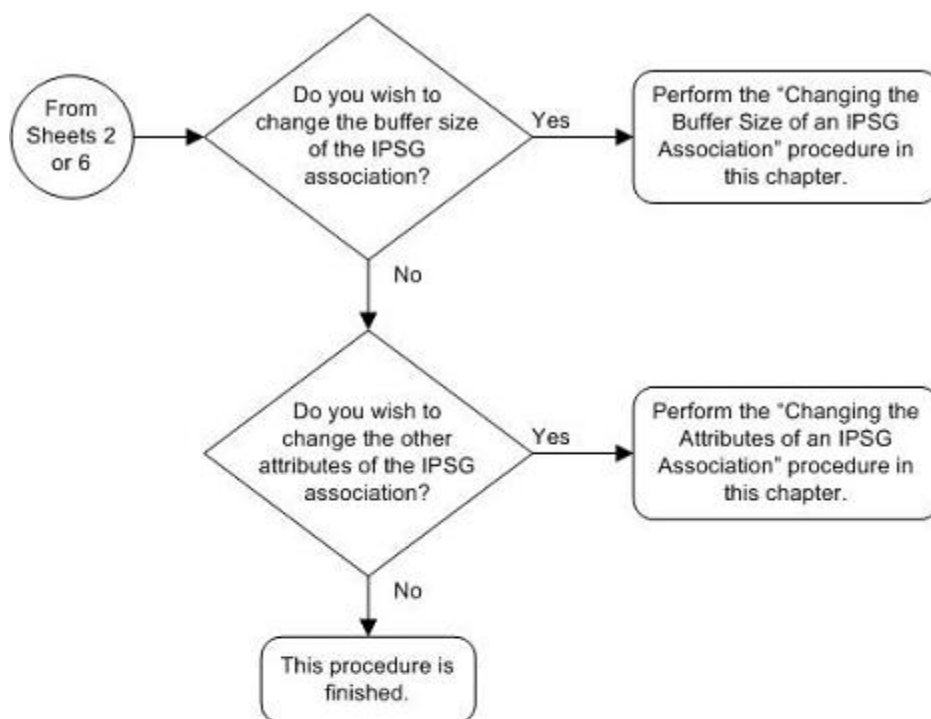


Note. If the *uaps* parameter will not be specified with the *chg-assoc* command, and the *adapter* parameter value is being changed to either *m3ua* or *sua*, the UA parameter set 10 will be assigned to the association.

Caution 1: Changing an M2PA timer set may affect the performance of any associations using the timer set being changed.

Caution 2: Changing a UA parameter set may affect the performance of any associations using the UA parameter set being changed.



**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 contain 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 letter. 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 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.
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 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.
7. The *alhost=none* parameter removes the alternate local host from the specified association, which also removes the multi-homed endpoint capability.
8. The *m2patset* and *ver* parameters can be specified only for IPSG M2PA associations. The *uaps* parameter can be specified only for IPSG M3UA 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, 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.
11. 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.
12. If the *uaps* parameter is not specified with the *chg-assoc* command, and the *adapter* parameter value is being changed to *m3ua*, the *uaps* parameter value defaults to UA parameter set 10 (*uaps=10*).

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 an M2PA Association](#) procedure to configure the retransmission parameters for M2PA associations assigned to IPLIMx cards. Perform the [Configuring SCTP Retransmission Control for an 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 the Customer Care Center. Refer to [Customer Care Center](#) 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** – Tekelec'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.

For more information on the **pass** commands, see the *Commands Manual*.

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 **chg-assoc** command description in the *Commands Manual*.

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 than 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 the *Commands Manual*.

Procedure

1. Display the associations in the database using the **rtrv-assoc** command.

This is an example of possible output.

```
r1ghncxa03w 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.

```
r1ghncxa03w 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 [Step 3](#).

If the application assigned to the card is IPLIM or IPLIMI, perform the [Configuring SCTP Retransmission Control for an M2PA Association](#) procedure.

If the application assigned to the card is SS7IPGW or IPGWI, perform the [Configuring SCTP Retransmission Control for an 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.

```
r1ghncxa03w 08-04-28 21:14:37 GMT EAGLE5 38.0.0
```



```

ANAME assoc1
  LOC      1201      IPLNK PORT  A      LINK  A
  ADAPTER  M2PA      VER      M2PA RFC
  LHOST    IPNODE2-1205
  ALHOST    ---
  RHOST    gw100.nc.tekelec.com
  LPORT    2000      RPORT      1030
  ISTRMS   2      OSTRMS      2      BUFSIZE  400
  RMODE    LIN      RMIN      120      RMAX     800
  RTIMES   10      CWMIN     3000     M2PATSET 1
  OPEN     YES      ALW      YES      RTXTHR   2000

```

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 [Step 3](#) , and the name of the remote host assigned to the association being changed, shown in [Step 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

```

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.

NOTE: If the SCTP retransmission parameters are not to be changed, do not perform [Step 6](#) through [Step 8](#) . This procedure is finished.

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 acknowledgement is received.

The **assocrtt** command is entered with the card location from [Step 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 [Step 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 RT0: 120
Maximum RT0: 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 [Step 6](#) . Specify the card location used in [Step 6](#) . For this example, enter this command.

pass:loc=1201:cmd="sctp -a assoc1"

The following is an example of the possible output

```
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    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

Nets Data

IP Address      192.168.112.4    State  Reachable
Port            7777          Primary YES
MTU             1500          cwnd  16384
sssthresh       16384          RTO   120

IP Address      192.168.113.5    State  Reachable
Port            7777          Primary NO
MTU             1500          cwnd  16384
sssthresh       16384          RTO   120

Last Net Sent To = 192.168.112.4
Last Net Rcvd From = 192.168.112.4
Over All Error 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

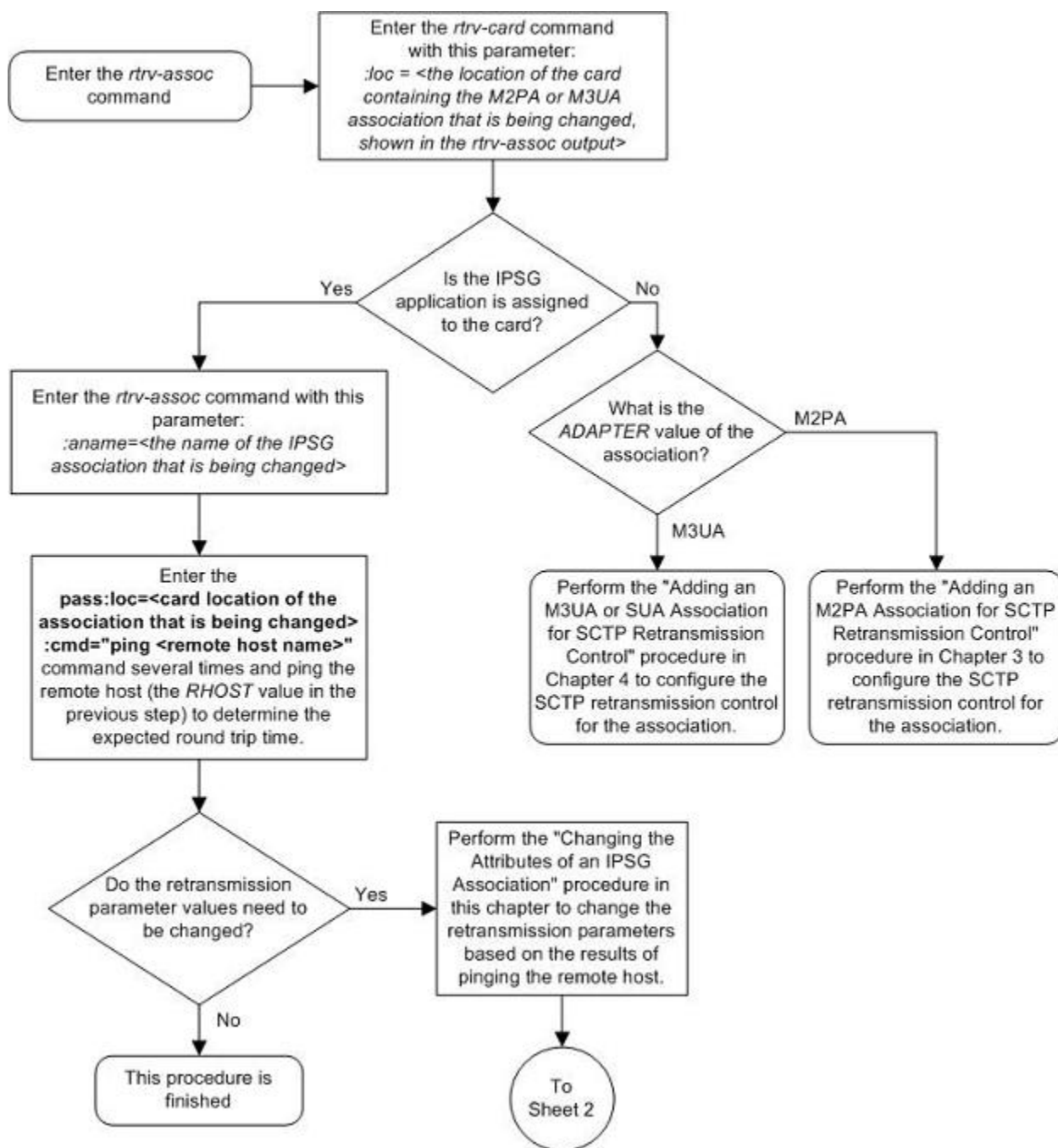
```

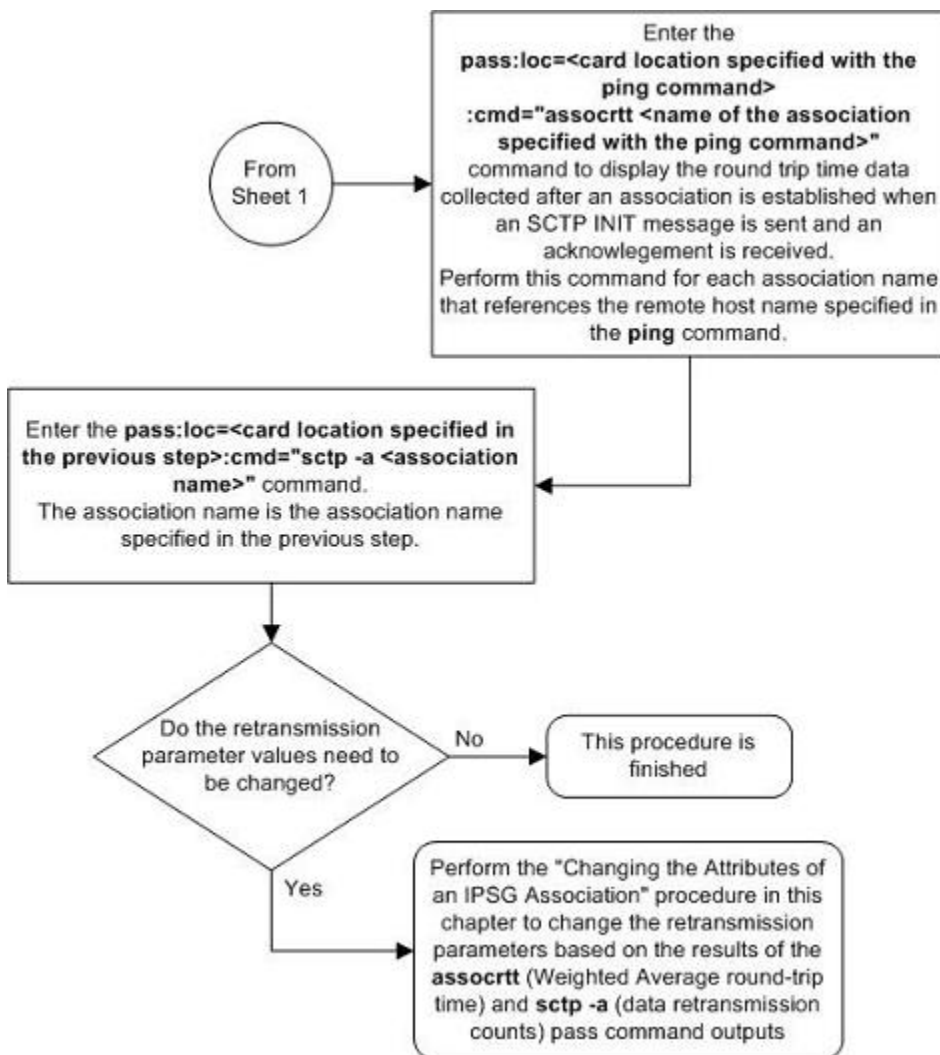
SCTP command complete

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 [Step 6](#) and [Step 7](#).

NOTE: The Weighted Average round-trip time shown in the `assocrtt pass` command output in [Step 6](#), and the data retransmission counts shown in the `sctp -a pass` command output in [Step 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.

Flowchart 6-30. Configuring an IPSG Association for SCTP Retransmission Control





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, **perc card**, that allows either the Adler-32 or CRC-32c SCTP checksum algorithm to be specified for 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 **perc card** 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 than 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 the *Commands Manual*.

Procedure

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
```

NOTE: 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 the *Commands Manual*.

2. Display the cards in the EAGLE 5 ISS by entering the **rtrv-card** command. This is an example of the possible output.

```
rlghncxa03w 06-10-15 16:34:56 GMT EAGLE5 36.0.0
CARD   TYPE      APPL      LSET NAME      LINK SLC      LSET NAME      LINK SLC
1101    TSM          SCCP
1102    TSM          GLS
1104    ACMENET      STPLAN
1113    GSPM         EOAM
1114    TDM-A
1115    GSPM         EOAM
1116    TDM-B
1117    MDAL
1201    LIMDS0       SS7ANSI    lsn1           A      0      lsn2           B      1
1202    DCM          IPLIM      ipnode2        A      1
1203    LIMV35       SS7ANSI    lsn2           A      0      lsn1           B      1
```

1204	LIMATM	ATMANSI	atmgwy	A	0			
1205	DCM	IPLIM	ipnode1	A	0	ipnode3	B	1
1207	DCM	IPLIM	ipnode2	A	0			
1303	DCM	IPLIM	ipnode3	A	0	ipnode1	B	1
1305	DCM	IPLIM	ipnode4	A	0			
1308	ENET	IPSG	ipnode3	B	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 IPSG application.

3. Select one one of the IPSG cards shown in [Step 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.

rrtrv-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 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

If the **ADAPTER** value of the associations shown in the **rrtrv-assoc** output is **M2PA**, continue the procedure with [Step 4](#) .

If the **ADAPTER** value of the associations shown in the **rrtrv-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 **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 [Step 5](#) .
- If the **sctpcsum** parameter value was changed to **perccard**, 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 [Step 6](#) .

5. Verify that the SCTP checksum algorithm was changed using the **rrtrv-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
```

NOTE: 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 the *Commands Manual*.

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 [Step 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 [Step 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 [Step 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 [Step 8](#) by entering the **sctp-a** pass command with the card location of the IP card specified in [Step 6](#) and the name of the associations specified in [Step 8](#) . For this example, enter this command.

```
pass:loc=1308:cmd="sctp -a assoc2 "
```

The following is an example of the possible output.

```
rlghncxa03w 08-04-28 21:16:37 GMT EAGLE5 38.0.0
```

Aname	Local IP Address	Local Port	Primary Address	Remote Port
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
Max. Number of Retries = 10	Inbound Streams = 1

Database Administration Manual - IP7 Secure Gateway Changing the SCTP Checksum Algorithm Option for IPSG M2PA Associations

```
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	RT0	120

IP Address	192.168.112.5	State	Reachable
Port	7777	Primary	NO
MTU	1500	cwnd	16384
ssthresh	16384	RT0	120

```
      Last Net Sent To = 192.168.112.4
      Last Net Rcvd From = 192.168.112.4
      Over All Error 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 "
```

Changing the SCTP Checksum Algorithm Option for Database Administration Manual - IP7 Secure Gateway IPSG M2PA Associations

The following is an example of the possible output.

```

rlghncxa03w 08-04-28 21:16:37 GMT EAGLE5 38.0.0
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 = 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
sssthresh       16384          RTO        120

IP Address      192.168.112.5      State      Reachable
Port            7777          Primary    NO
MTU             1500          cwnd       16384
sssthresh       16384          RTO        120

Last Net Sent To = 192.168.112.4
Last Net Rcvd From = 192.168.112.4
Over All Error 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 assoc5 "

The following is an example of the possible output.

```
rlghncxa03w 08-04-28 21:16:37 GMT EAGLE5 38.0.0
```

Aname	Local IP Address	Local Port	Primary Address	Remote Port
assoc5	192.1.1.24	1057	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	RT0	120

IP Address	192.168.112.5	State	Reachable
Port	7777	Primary	NO
MTU	1500	cwnd	16384
ssthresh	16384	RT0	120

```
Last Net Sent To = 192.168.112.4
Last Net Rcvd From = 192.168.112.4
Over All Error 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 [Step 4](#) , contact the Customer Care Center. Refer to [Customer Care Center](#) for the contact information.

If the checksum algorithm shown in all of the associations displayed in this step match the checksum algorithm specified in [Step 4](#) , continue the procedure with [Step 10](#) .

10. Put the signaling links that were placed out of service in [Step 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

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 [Step 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      ----
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      ----
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"

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
  sacks sent..... 496302
  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
  duplicate tsns received..... 0
  sacks received..... 153763
  gap ack blocks received..... 0
  out of the blue..... 4
  with invalid checksum..... 0
connections established..... 2954
  by upper layer..... 0
  by remote endpoint..... 2958
connections terminated..... 4
  ungracefully..... 2952
  gracefully..... 0
associations dropped due to retransmits..... 0
consecutive retransmit timeouts..... 4
retransmit timer count..... 6
fast retransmit count..... 0
heartbeat requests received..... 330275
heartbeat acks received..... 340239
heartbeat requests sent..... 340258
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 [Customer Care Center](#) for the contact information.

13. Repeat [Step 6](#) through [Step 12](#) to update the other IPSG cards in the EAGLE 5 ISS 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.

Changing the SCTP Checksum Algorithm Option for Database Administration Manual - IP7 Secure Gateway IPSG M2PA Associations

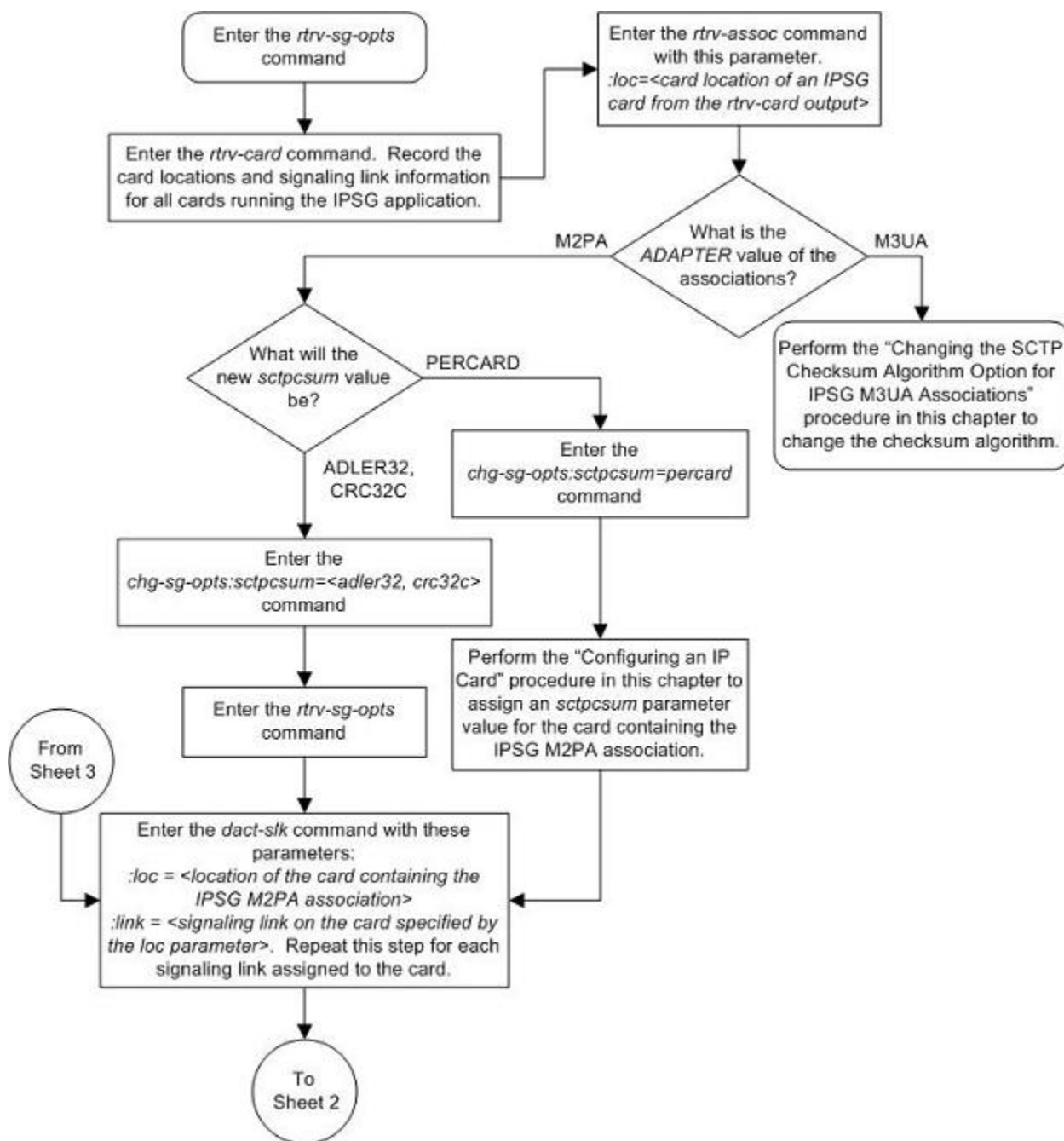
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.

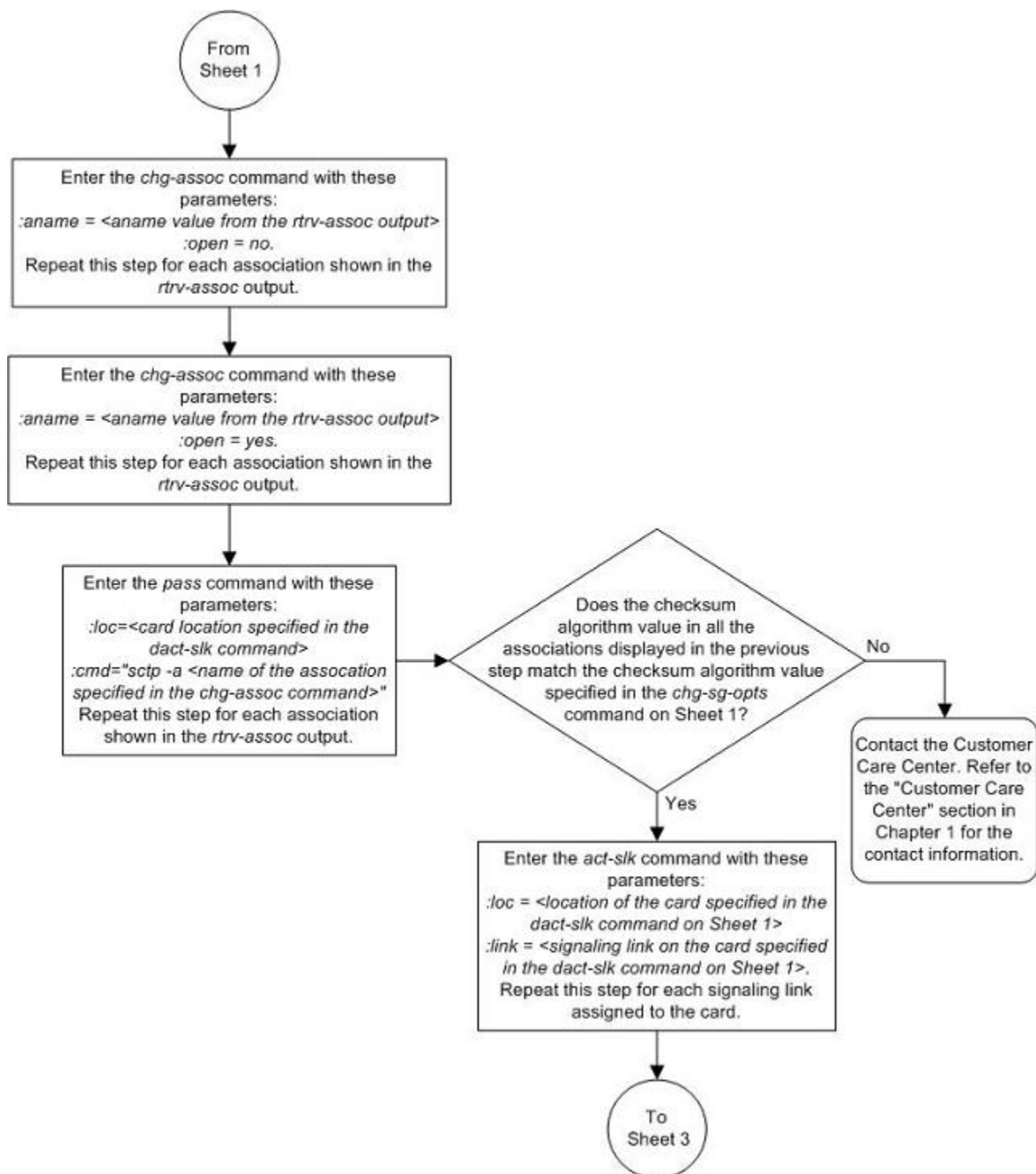
15. If the **rtrv-card** output in [Step 2](#) shows cards running the SS7IPGW or IPGWI applications, perform the [Changing the SCTP Checksum Algorithm Option for M3UA and SUA Associations](#) procedure.

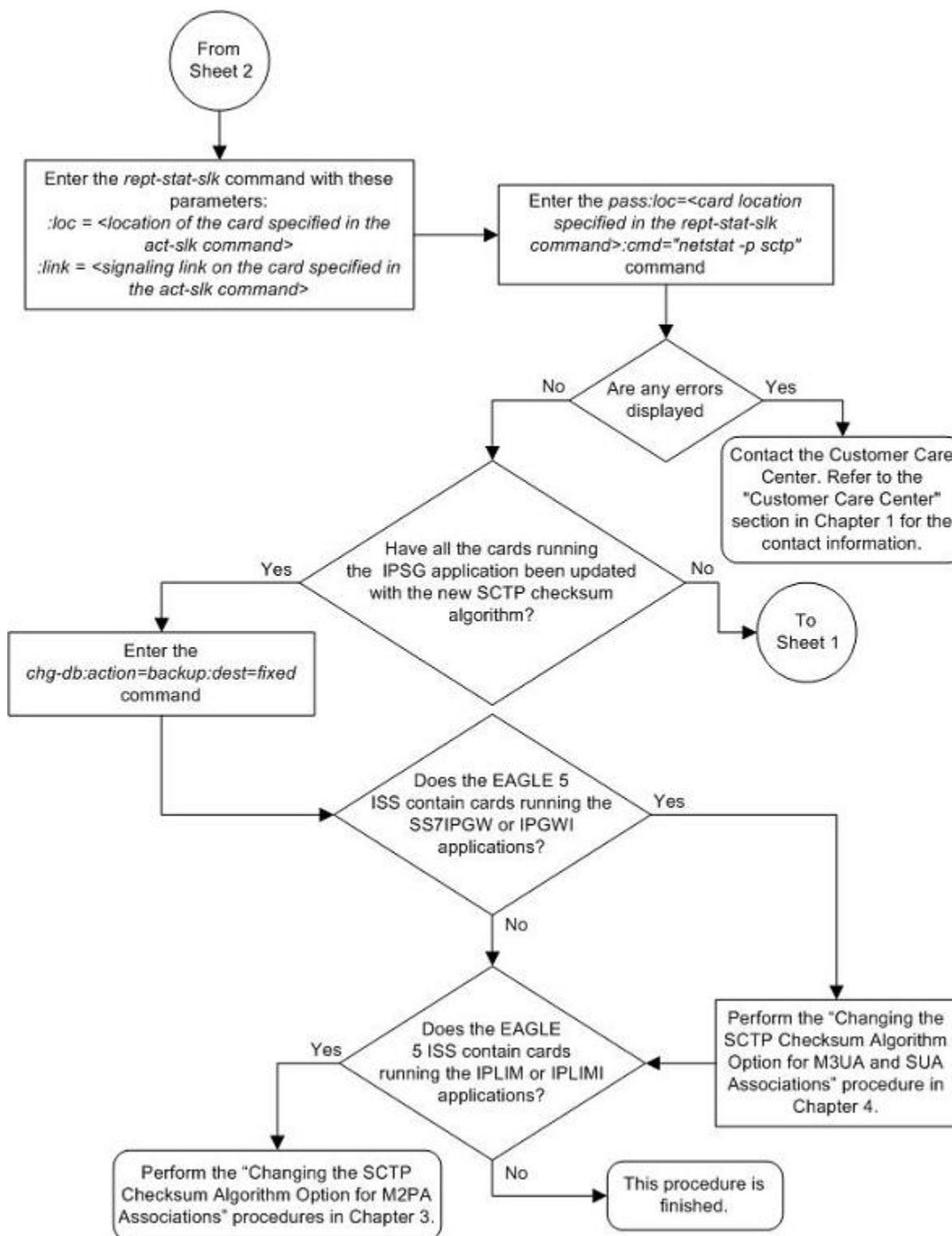
If the **rtrv-card** output in [Step 2](#) shows cards running the IPLIM or IPLIMI applications, perform the [Changing the SCTP Checksum Algorithm Option for M2PA Associations](#) procedure.

If the **rtrv-card** output in [Step 2](#) shows that there are no cards running the **SS7IPGW**, **IPGWI**, **IPLIM**, or **IPLIMI** applications, this procedure is finished.

Flowchart 6-31. Changing the SCTP Checksum Algorithm Option for IPSG M2PA Associations







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 **sctpchecksum** 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 **sctpchecksum** parameter contains another value, **perc card**, 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 **sctpchecksum** parameter to **perc card** 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 than 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 the *Commands Manual*.

Procedure

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
```

NOTE: 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 the *Commands Manual*.

2. Display the cards in the EAGLE 5 ISS by entering the **rtrv-card** command. This is an example of the possible output.

```
rlghncxa03w 06-10-15 16:34:56 GMT EAGLE5 36.0.0
CARD   TYPE      APPL      LSET NAME      LINK SLC      LSET NAME      LINK SLC
1101    TSM          SCCP
1102    TSM          GLS
1104    ACMENET      STPLAN
1113    GSPM          EOAM
1114    TDM-A
1115    GSPM          EOAM
1116    TDM-B
1117    MDAL
1201    LIMDS0       SS7ANSI   lsn1           A      0      lsn2           B      1
1202    DCM          IPLIM     ipnode2        A      1
1203    LIMV35       SS7ANSI   lsn2           A      0      lsn1           B      1
1204    LIMATM       ATMANSI   atmgyw         A      0
1205    DCM          IPLIM     ipnode1        A      0      ipnode3        B      1
1207    DCM          IPLIM     ipnode2        A      0
1303    DCM          IPLIM     ipnode3        A      0      ipnode1        B      1
1305    DCM          IPLIM     ipnode4        A      0
1308    DCM          IPLIM     ipnode3        B      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 one of the IPSG cards shown in [Step 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 [Step 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 [Step 3](#) on the EAGLE 5 ISS.
5. At the EAGLE 5 ISS, enter the **msucount -l** pass command with the card location of the IP card selected in [Step 3](#) . For this example, enter this command.

pass:loc=1315:cmd="msucount -l"

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
```

Changing the SCTP Checksum Algorithm Option for Database Administration Manual - IP7 Secure Gateway IPSG M3UA Associations

```
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	

```
END of Report
```

- At the EAGLE 5 ISS, enter the **msucount -a** pass command with the card location specified in [Step 5](#) and the association names shown in [Step 3](#) . 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	
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		
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 [Step 6](#) .
8. At the EAGLE 5 ISS, 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 [Step 10](#) .
- If the **sctpcsum** parameter value was changed to **perc card**, 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 [Step 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
```

NOTE: 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 the *Commands Manual*.**

11. Change the value of the **open** parameter of the associations shown in [Step 3](#) 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

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 [Step 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 [Step 12](#) by entering the **sctp -a** pass command with the card location of the IP card specified in [Step 8](#) and the name of the associations specified in [Step 12](#) . For this example, enter this command.

pass:loc=1315:cmd="sctp -a assoc3 "

The following is an example of the possible output.

```
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
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
sssthresh       16384                RTO        120

IP Address      192.168.112.5      State      Reachable
Port            7777                Primary    NO
MTU             1500                cwnd       16384
sssthresh       16384                RTO        120

Last Net Sent To = 192.168.112.4
Last Net Rcvd From = 192.168.112.4
Over All Error 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 [Step 9](#) , contact the Customer Care Center. Refer to [Customer Care Center](#) for the contact information.

If the checksum algorithm shown in all of the associations displayed in this step match the checksum algorithm specified in [Step 9](#) , continue the procedure with [Step 14](#) .

14. At the IP near end node, configure all the associations attached to the IP card specified in [Step 12](#) to use the SCTP checksum algorithm.
15. Put the signaling link that was placed out of service in [Step 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 [Step 15](#) . 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.

```

17. At the IP near end node, connect one of the associations attached to the IP card specified in [Step 11](#) .
18. At the EAGLE 5 ISS, enter the **rept-stat-assoc** command specifying the association names specified with the **chg-assoc** command in [Step 11](#) and [Step 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      A      IS-NR          ESTABLISHED      undefined

LSN          ANAME          ASP STATE
lpgtwy1      assoc3        ACTIVE

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"

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
  sacks sent..... 496302
  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
  duplicate tsns received..... 0
  sacks received..... 153763
  gap ack blocks received..... 0
  out of the blue..... 4
  with invalid checksum..... 0
connections established..... 2954
  by upper layer..... 0
  by remote endpoint..... 2958
connections terminated..... 4
  ungracefully..... 2952
  gracefully..... 0
associations dropped due to retransmits..... 0
consecutive retransmit timeouts..... 4
retransmit timer count..... 6
fast retransmit count..... 0
heartbeat requests received..... 330275
heartbeat acks received..... 340239
heartbeat requests sent..... 340258
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 [Customer Care Center](#) for the contact information.

20. At the IP near end node, connect all the other associations attached to the IP card specified in [Step 19](#) .
21. At the IP near end node, activate one of the associations attached to the IP card specified in [Step 19](#) .
22. At the EAGLE 5 ISS, enter the **msucount -l** pass command with the card location of the IP card specified in [Step 19](#) . For this example, enter this command.

pass:loc=1315:cmd="msucount -l"

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

END of Report

23. At the EAGLE 5 ISS, enter the **msucount -a** pass command with the card location specified in [Step 22](#) [Step 18](#) and the association names specified in [Step 18](#) . 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	
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		
invalid rcontext	4294967295		

Stored Transmit Discard Data

Changing the SCTP Checksum Algorithm Option for Database Administration Manual - IP7 Secure Gateway IPSG M3UA Associations

```
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

If the outputs of the pass commands in [Step 22](#) and [Step 23](#) show that traffic is not flowing over the association, contact the Customer Care Center. Refer to [Customer Care Center](#) for the contact information.

24. At the IP near end node, activate all the other associations attached to the IP card specified in [Step 23](#).
25. Repeat [Step 4](#) through [Step 24](#) to update the other IPSG cards in the EAGLE 5 ISS 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.

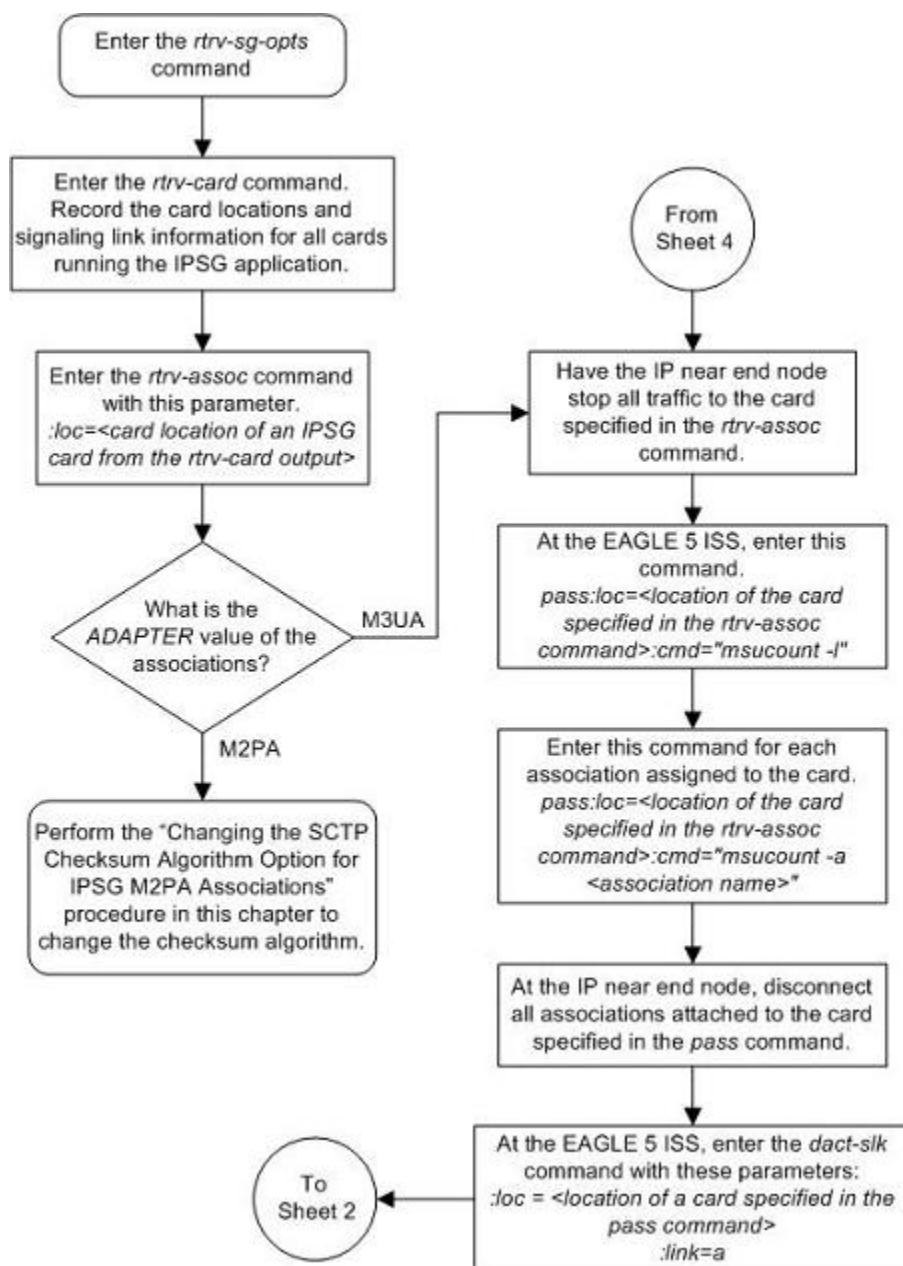
```
BACKUP (FIXED) : MASP A - Backup starts on active MASP.
BACKUP (FIXED) : MASP A - Backup on active MASP to fixed disk complete.
BACKUP (FIXED) : MASP A - Backup starts on standby MASP.
BACKUP (FIXED) : MASP A - Backup on standby MASP to fixed disk complete.
```

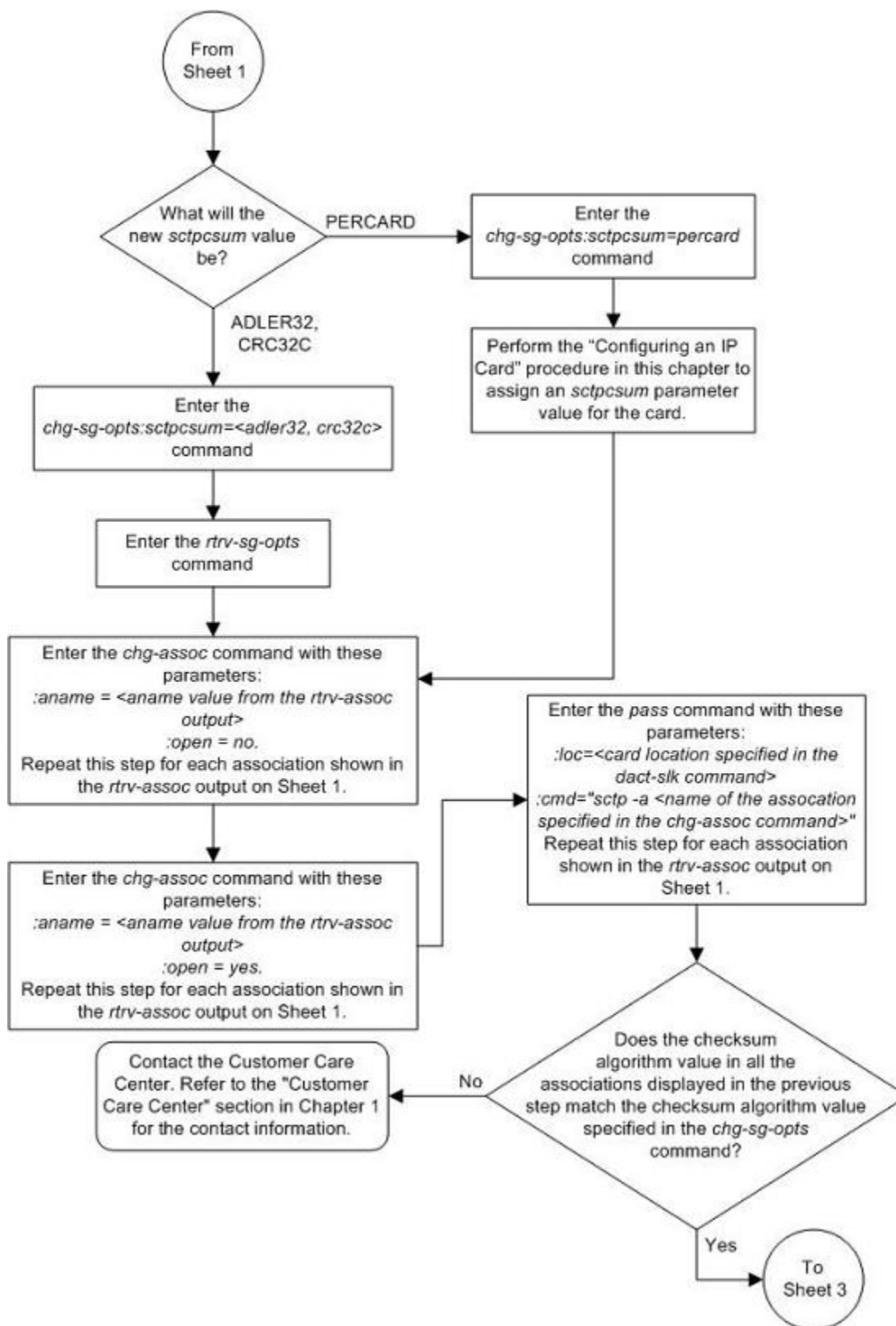
27. If the **rtrv-card** output in [Step 2](#) shows cards running the IPLIM or IPLIMI applications, perform the [Changing the SCTP Checksum Algorithm Option for M2PA Associations](#) procedure.

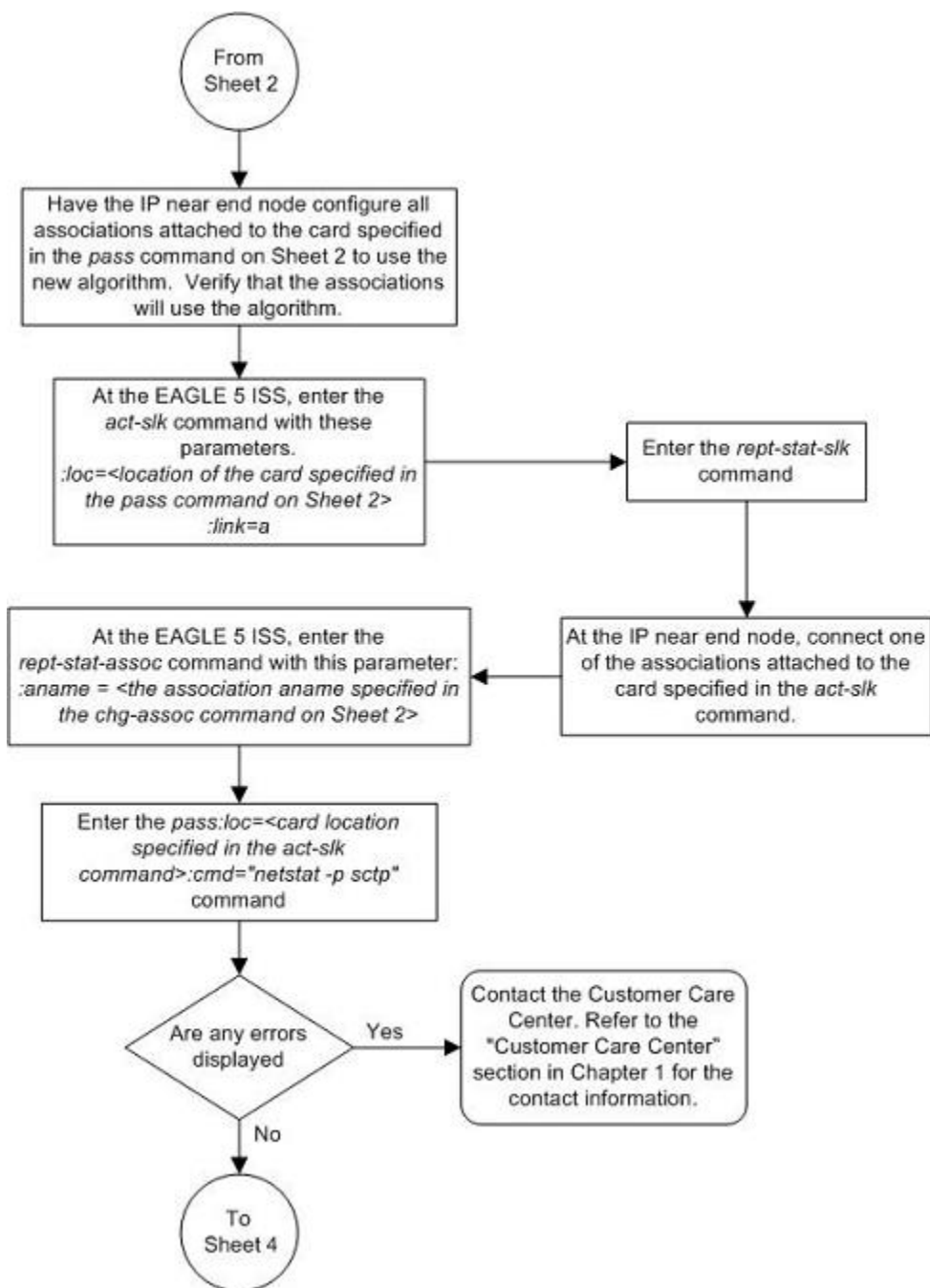
If the **rtrv-card** output in [Step 2](#) shows cards running the SS7IPGW or **IPGWI** applications, perform the [Changing the SCTP Checksum Algorithm Option for M3UA and SUA Associations](#) procedure.

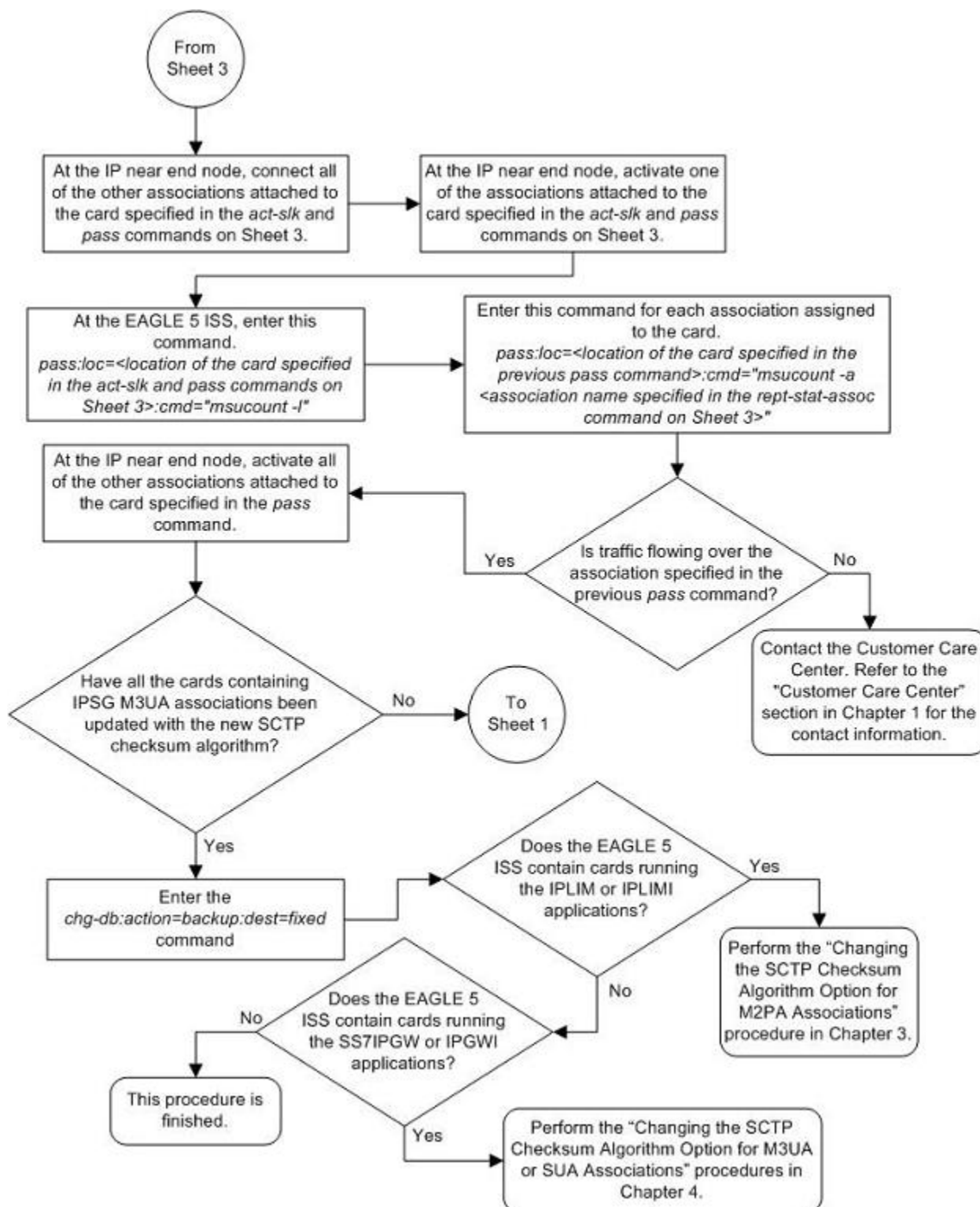
If the **rtrv-card** output in [Step 2](#) shows that there are no cards running the **IPLIM**, **IPLIMI**, **SS7IPGW**, or **IPGWI** applications, this procedure is finished.

Flowchart 6-32. Changing the SCTP Checksum Algorithm Option for IPSG M3UA Associations









Changing an M2PA Timer Set

This procedure is used to change the values of the M2PA timers in an 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 5 ISS 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 6-14](#) .

Table 6-14. M2PA Timers

Timer	Draft 6 Timer Name	RFC Timer Name	Definition	Value (in milliseconds)	DRAFT 6 System Default Value (in milliseconds)	RFC System Default Value (in milliseconds)
: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

Timer	Draft 6 Timer Name	RFC Timer Name	Definition	Value (in milliseconds)	DRAFT 6 System Default Value (in milliseconds)	RFC System Default Value (in milliseconds)
:t3	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
	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 Timer (Normal)		The amount of time the M2PA adapter layer generates Link Status Proving messages during normal proving.	1000 - 70000	10000	30000
:t4e	Proving Timer (Emergency)		The amount of time the M2PA adapter layer generates Link Status Proving messages during emergency proving.	400 - 5000	500	500
:t5	Busy Rate Timer		The amount of time between sending Link Status Busy messages while the link is in-service.	80 - 10000	1000	100
:t6	Remote Congestion Timer		The amount of time that a congested link will remain in service.	1000 - 6000	3000	3000
:t7	Excess Delay in Acknowledgement Timer		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 Rate 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 Rate Timer		The amount of time between sending Link Status Ready messages while the T3 timer is running.	100 - 500	250	250
:t18	Processor Outage Rate Timer		The amount of time between sending Link Status Processor Outage messages while the link is in-service.	100 - 10000	1000	1000
* The T2 Timer can be specified only for the M2PA RFC version.						
** The value of the T16 Timer is in microseconds.						

The value of any timer parameter not specified with the **chg-m2pa-tset** command is not changed.

Procedure

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 **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	T1	T2	T3	T4N	T4E	T5	T6	T7	T16	T17	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
8	10000	-----	10000	10000	500	1000	3000	1200	200000	250	1000
9	27500	-----	3850	4859	450	5700	3750	1150	250	375	8750
10	10000	-----	10000	10000	500	1000	3000	1200	200000	250	1000
11	10000	-----	10000	10000	500	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
15	10000	-----	10000	10000	500	1000	3000	1200	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
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 M2PA RFC 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	T2	T3	T4N	T4E	T5	T6	T7	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	T1	T2	T3	T4N	T4E	T5	T6	T7	T16	T17	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
8	10000	-----	10000	10000	500	1000	3000	1200	200000	250	1000
9	27500	-----	3850	4859	450	5700	3750	1150	250	375	8750
10	10000	-----	10000	10000	500	1000	3000	1200	200000	250	1000
11	10000	-----	10000	10000	500	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
15	10000	-----	10000	10000	500	1000	3000	1200	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
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

```
M2PA RFC Timers (in msec, T16 in microsec)
```

TSET	T1	T2	T3	T4N	T4E	T5	T6	T7	T16	T17	T18
1	6000	20000	5000	20000	500	5000	3000	1000	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

- Change the desired timer set with the **chg-m2pa-tset** command. To change a specific timer set, enter the **chg-m2pa-tset** command with the **tset** and **ver** 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=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:t7=1150:t16=250000:t17=375:t18=8750:ver=d6
```

NOTE: The values for the M2PA timers are shown in [Table 6-14](#) .

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: The **ver** parameter is optional and does not have to be specified to change the M2PA RFC timer values. The default value for the **ver** parameter is **rfc**. If you wish to change the M2PA Draft 6 timer values, the **ver=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 [Step 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	T2	T3	T4N	T4E	T5	T6	T7	T16	T17	T18
1	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	T3	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	T3	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
```

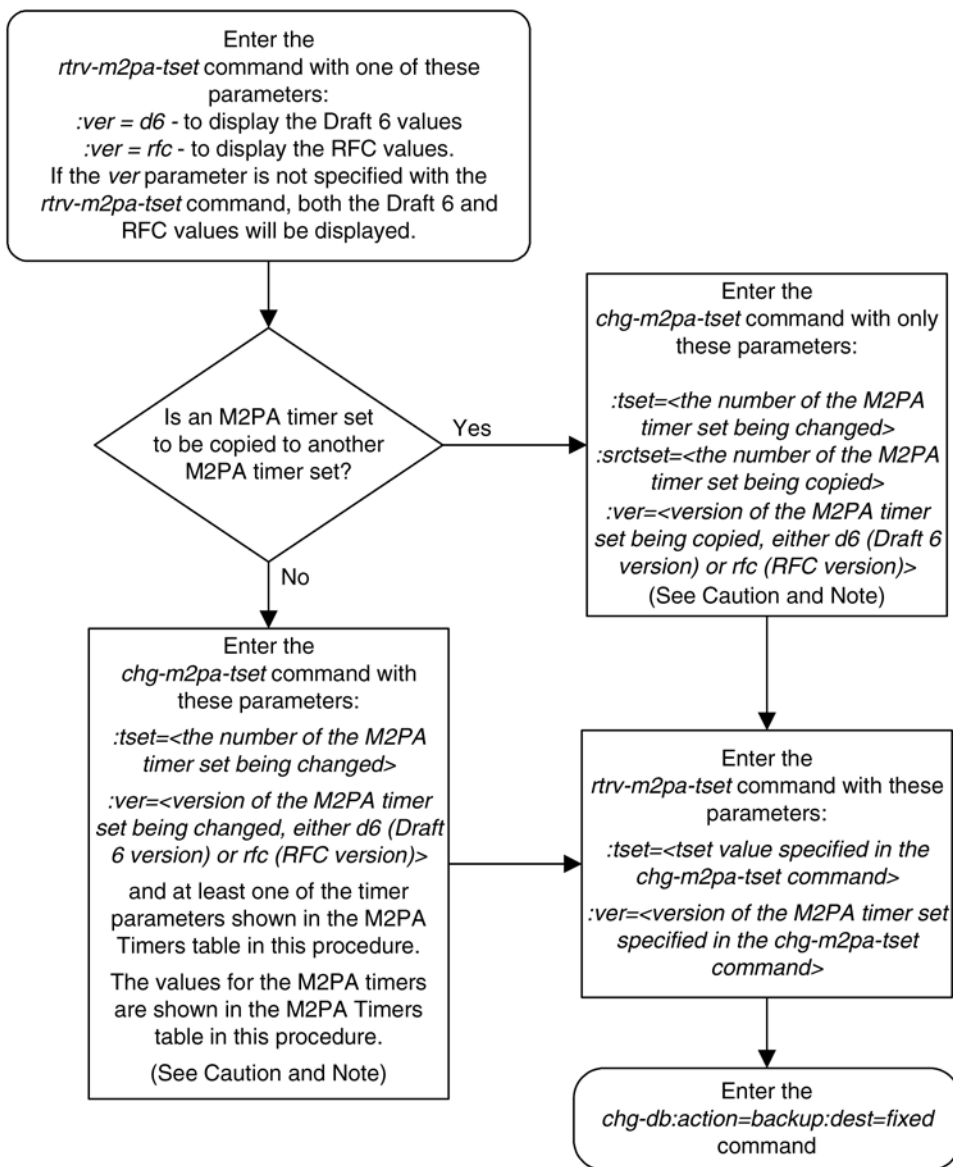
M2PA Draft 6 Timers (in msec, T16 in microsec)

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.

Flowchart 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 5 ISS 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 two UA parameters are defined:

- 1 – Controlling ASP SNM Behavior
- 2 – Controlling ASP/Application Server State Notification Behavior
- 3 – UA Serviceability Options

: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 enable 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 SNM TFPs, TFRs and TFAs that are sent when a destination's status changes. If this flag is set, SNM TFPs/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 SNM TFC/UPU as a reply to a message received on an association/socket for an unavailable destination. The SNM TFC/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 6-15](#) 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 6-15. 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 6-16](#) .

- 2 – ASP AS State Query – controls the sending of ASP/AS State notifications on request by an ASP. If this value is specified, the EAGLE 5 ISS 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 6-16 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 6-16. Valid PVALUE Parameter Values if PARM=2

Bits Enabled	Bits Disabled	Hexadecimal 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 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
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, only bit 0 (UA heartbeats) is the only bit used by the **pvalue** parameter. If the value of this bit is 1 (h'1), heartbeat messages are transmitted in the ASP-Down, ASP-Active, and ASP-Inactive states on connections from the Eagle 5 ISS to the far-end node. If the value of this bit is 0, the heartbeat messages are not transmitted.

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 than 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 the *Commands Manual*.

Procedure

1. Display the values in the UA parameter set being changed by entering the **rtrv-uaps** 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.

```
rlghncxa03w 08-04-28 09:12:36 GMT EAGLE5 38.0.0
SET  TIMER      TVALUE  PARM      PVALUE
 3      1          0       1          3
 3      2        5000       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 IPSP application.

TVALUE : Valid range = 32-bits

TIMER 3: UA HeartBeat Period Timer T(beat), time (ms) between sending of BEAT msgs by NE. IPSP, 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. IPSP, 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 IPSP application.

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	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.

BIT	BIT VALUE
0=UA Heartbeats	0=Disabled , 1=Enabled
1-31=Reserved	

If the new values of the UA parameter set are being copied from another UA parameter set, continue the procedure with [Step 2](#) .

If the new values of the UA parameter set are not being copied from another UA parameter set, continue the procedure with [Step 3](#) .

2. Display the values in the UA parameter set that will be copied to the UA parameter set displayed in [Step 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 08-04-28 09:12:36 GMT EAGLE5 38.0.0
SET  TIMER      TVALUE  PARM      PVALUE
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(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.

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	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 IPGW applications.

BIT	BIT VALUE
0=UA Heartbeats	0=Disabled , 1=Enabled
1-31=Reserved	

3. Change the UA parameter set values using the **chg-uaps** command with the UA parameter set value used in [Step 1](#) . If the **parm** and **pvalue** parameters are being specified, see [Table 6-15](#) , [Table 6-16](#) , or the description of the **parm=3** parameter for the valid values of the **pvalue** parameter. For this example, enter this command.

chg-uaps:set=3:timer=2:tvalue=2000:parm=2:pvalue=1

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. To specify the value of the **pvalue** parameter in the example used in this step as a hexadecimal value, specify the **pvalue=h'1** parameter.

chg-uaps:set=3:timer=2:tvalue=2000:parm=2:pvalue=h'1

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 [Step 3](#) . For this example, enter this command.

rtrv-uaps:set=3

This is an example of possible output.

```
rlghncxa03w 08-04-28 09:12:36 GMT EAGLE5 38.0.0
SET  TIMER      TVALUE  PARM      PVALUE
3      1          0        1          3
3      2         2000        2          1
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 IPSP application.
TVALUE : Valid range = 32-bits

TIMER 3: UA HeartBeat Period Timer T(beat), time (ms) between sending of BEAT msgs by NE. IPSP, 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. IPSP, 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 IPSP application.

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 IPSP 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 IPSP, SS7IPGW, and IPGWI applications.

BIT	BIT VALUE
0=UA Heartbeats	0=Disabled , 1=Enabled
1-31=Reserved	

If [Step 2](#) was performed, for this example, enter this command.

rtrv-uaps:set=5

This is an example of possible output.

```
rlghncxa03w 08-04-28 09:12:36 GMT EAGLE5 38.0.0
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 IPSP 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.

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	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	

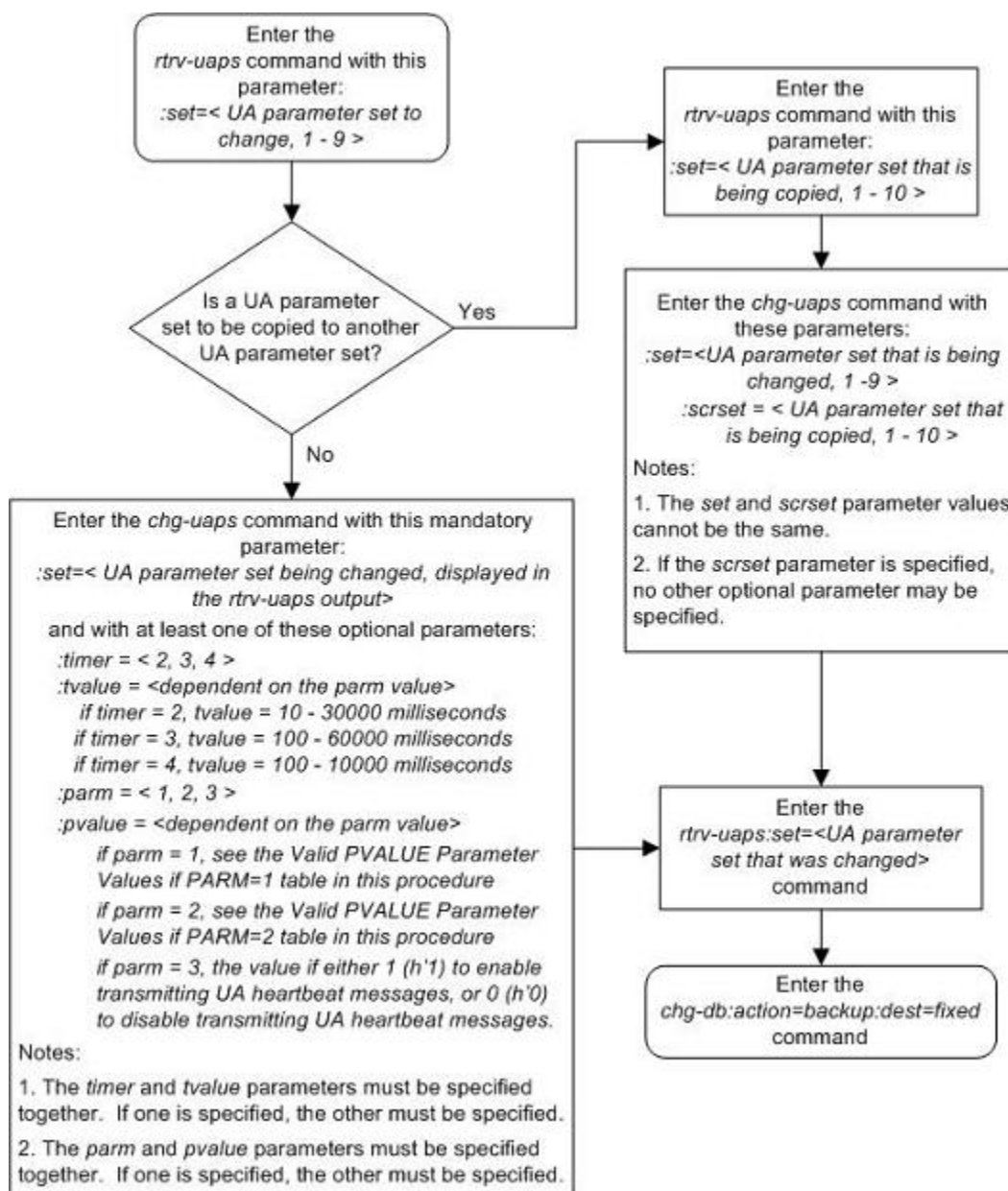
PARM 3: UA Serviceability Options. Each bit is used as an enabled/disabled flag for a particular UA Serviceability option. Supported on IPSG, SS7IPGW, and IPGWI applications.

BIT	BIT VALUE
0=UA Heartbeats	0=Disabled , 1=Enabled
1-31=Reserved	

- 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.
```

Flowchart 6-34. Changing a UA Parameter Set



Turning the Large BICC MSU Support for IP Signaling Feature Off

This procedure is used to turn off the Large BICC (Bearer Independent Call Control) 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 BICC MSU Support for IP Signaling feature, 893018401.

:status=off – used to turn off the Large BICC MSU Support for IP Signaling feature.

The status of the Large BICC MSU Support for IP Signaling controlled feature must be on and is shown with the **rtrv-ctrl-feat** command.



CAUTION: If the Large BICC MSU Support for IP Signaling feature is turned off, the EAGLE 5 ISS will not process BICC messages with a signaling information field (SIF) that is larger than 272 bytes.

Procedure

1. Display the status of the Large BICC 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 06-10-28 21:15:37 GMT EAGLE5 36.0.0
The following features have been permanently enabled:
```

Feature Name	Partnum	Status	Quantity
Large BICC 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 BICC MSU Support for IP Signaling feature is off, or if the Large BICC MSU Support for IP Signaling feature is not enabled, this procedure cannot be performed.

2. Turn off the Large BICC 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 BICC 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 06-10-28 21:15:37 GMT EAGLE5 36.0.0
The following features have been permanently enabled:
```

Feature Name	Partnum	Status	Quantity
Large BICC MSU for IP Sig	893018401	off	----

The following features have been temporarily enabled:

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

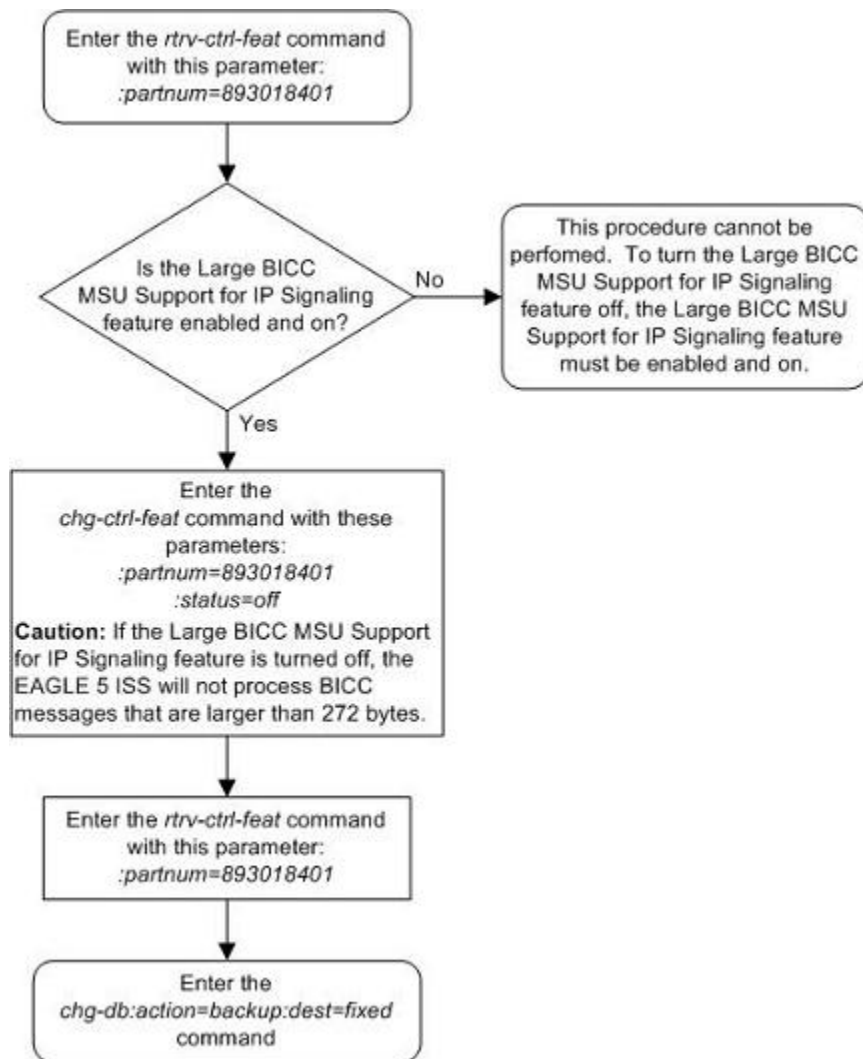
The following features have expired temporary keys:

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.

Flowchart 6-35. Turning the Large BICC MSU Support for IP Signaling Feature Off



Glossary

A

ANSI	American National Standards Institute
APC	Adjacent Point Code
	Application Processing Chassis
AS	Application Server
ASP	Abstract Service Primitive
	Application Server Process
	Application Service Part
Association	An association refers to an SCTP association. The association provides the transport for protocol data units and adaptation layer peer messages.
ATM	Asynchronous Transfer Mode
ATMANSI	The application used for high-speed ANSI ATM signaling links.
ATMITU	The application used for high-speed E1 ATM signaling links.

B

BICC	Bearer Independent Call Control

C

CAP	Communication & Application Processor
Changeover	A network management event that routes traffic from a failed signaling link to another signaling link that can carry the traffic.
CIC	Carrier Identification Code
	A 4-digit code that controls the routing applied to a message.
	Circuit Identification Code
CICE	Ending Circuit Identification Code
CICS	Starting Circuit Identification Code
CLLI	Common Language Location Identifier
CPC	Capability Point Code
CRC	CAM Redundancy Controller
	Cyclic Redundancy Check
CSR	Customer Service Request

D

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

Destination	The node to which the signaling link traffic is routed. This destination is identified by a point code, either a full point code or a cluster point code.
DIX	Digital/Intel/Xerox Digital/Intel/Xerox de facto standard for Ethernet Media Access Control Type.
DN	Directory number A DN can refer to any mobile or wireline subscriber number, and can include MSISDN, MDN, MIN, or the wireline Dialed Number.
Domain	A group of computers and devices on a network that are administered as a unit with common rules and procedures. The network in which the destination entity or node exists, X.25 or SS7.
DPC	Destination Point Code The point code of the signaling point to which the MSU is routed. This point code can be adjacent to the EAGLE 5 ISS, but does not have to be.
DPCN	Destination Point Code National
DTA	Database Transport Access A feature in the EAGLE 5 ISS that encapsulates specific MSUs into the data portion of SCCP within a new SS7 MSU and sends the new MSU to the destination using global title translation. The EAGLE 5 ISS uses gateway screening to determine which MSUs are used by the DTA feature.

E

E1	The European equivalent of T1 that transmits digital data over a telephone network at 2.048 Mbps.
E5-E1T1	EPM-based E1/T1 Multi-Channel Interface Module An EPM-based card that provides E1 and T1 connectivity. The E5 indicates the card is for existing EAGLE 5 control and extension shelves. E1T1 is an abbreviation for the ITU E1 and ANSI T1 interfaces. Thus the nomenclature defines the shelves where the card can be used and the physical interface that it provides.
E5-ENET	EPM-based Ethernet card A high capacity single-slot IP signaling card (EPM card plus Gig Ethernet PMC cards).
E5IS	EAGLE 5 Integrated Monitoring Support The EAGLE 5 Integrated Monitoring Support feature allows the network traffic on the EAGLE 5 ISS's signaling links to be monitored by an ESP (extended services platform) or IMP (integrated message feeder) without additional intrusive cabling. Message Signaling Units (MSUs), alarms, and events are copied to the Sentinel/IMF to provide the network traffic monitoring. The monitored traffic is delivered to the Sentinel/IMF using the EAGLE'S STCs (Signaling Transport Cards) which are connected to the ESP/IMF subsystem by Ethernet links. The ESP/IMF subsystem delivers the monitored traffic to the Sentinel/IMF.
EDCM	Enhanced DCM Enhanced Database Communication Module
ENET	Ethernet Can refer to a generic hardware type that supports one or more Ethernet interfaces.

G

GPL	Generic Program Load

GPSSM-II	General Purpose Service Module
GTT	Global Title Translation.

H

HC-MIM	High Capacity Multi-Channel Interface Module
HIPR	High-Speed IMT Packet Router

I

ICMP	Internet Control Message Protocol
ID	Identity, identifier
IEEE	Institute of Electrical and Electronic Engineers
IETF	Internet Engineering Task Force
IMF	Integrated Message Feeder
	A data acquisition system similar to Sentinel.
IMT	Inter-Module-Transport
	The communication software that operates the inter-module-transport bus on all cards except the LIMATM, DCM, DSM, and HMUX.
IP	Intelligent Peripheral
	Internet Protocol
IP7	Tekelec's Internet Protocol to SS7 Interface
IP Address	The location of a device on a TCP/IP network. The IP Address is a number in dotted decimal notation which looks something like [192.168.1.1].
IPC	Internal Point Code
IPGWI	An application that is used by the SSEDCEM/E5-ENET card for IP point-to-multi-point connectivity within an ITU-I or ITU-N network. The system allows a maximum of 64 cards to be assigned the IPGWI application.
IPGWx	Point-to-multipoint MTP-User signaling (e.g. ISUP, TCAP) over IP capability. Typically used for A link connectivity which require routing keys. Far End not required to support MTP3. The IPGWx GPL (IPGWI, SS7IPGW) run on the SSEDCEM/E5-ENET hardware.
IPLIM	The application used by the SSEDCEM/E5-ENET card for IP point-to-point connectivity for ANSI point codes.
IPLIMI	The application used by the SSEDCEM/E5-ENET card for IP point-to-point connectivity for ITU point codes.
IPLIMx	Point-to-point MTP3 and MTP3-User signaling over IP capability. Typically used for B-C-D links but can be used for A links but does not have routing key functionality. Far End required to support MTP3. The IPLIMx GPL (IPLIMI, IPLIM) run on the SSEDCEM/E5-ENET hardware.
IPNE	Internet Protocol Network Element
IPSP	IP Server Process
	A process instance of an IP-based application. An IPSP is essentially the same as an ASP, except that it uses MU3A in a peer-to-peer fashion. Conceptually, an IPSP does not use the services of a signaling gateway.
IS-NR	In Service - Normal
ISS	Integrated Signaling System

ISUP	ISDN User Part
ITU	International Telecommunications Union

K

Key	For the ICNP feature, a unique DS value used to access a table entry, consisting of a number length and number type.

L

LAN	Local Area Network See also STP LAN.
LIM	Link Interface Module
Link	Signaling Link
LNP	Local Number Portability
LSN	Link Set Name

M

M2PA	SS7 MTP2-User Peer-to-Peer Adaptation Layer
M3UA	SS7 MTP3-User Adaptation Layer
MAP	Mated Application Part Mobile Application Part
MASP	Maintenance and Administration Subsystem Processor
MDAL	Maintenance Disk and Alarm Card
MGC	Media Gateway Controller
MIB	Management Information Database
MIM	Multi-Channel Interface Module
MSU	Message Signaling Unit
MTP	Message Transfer Part Module Test Plan
MTP2	Message Transfer Part, Level 2
MTPP	MTP Primitives Messages that the IPGWx application generates to communicate SS7 network management events (SNMs) to IP-attached network elements.
Multiple Point Code	The MPC (Multiple Point Code) feature enables the user to use SPCs (Secondary Point Codes) in addition to the true point codes that the EAGLE 5 ISS uses. The SPCs are used for provisioning and routing as if they were the true point code of the EAGLE 5 ISS. SPCs can be provisioned in any of the three domains (ANSI, ITU-N, and ITU-I). SPCs are supported for any type of link.

N

NI	Network Indicator
NMS	Network Management System

O

OAM	Operations, Administration, and Maintenance
OOS-MT	Out of Service - Maintenance
OOS-MT-DSBLD	Out of Service - Maintenance Disabled
OPC	Originating Point Code

P

PST	Primary State
PSTN	Public Switched Telephone Network.

R

RC	Relative Cost Restriction Criteria
RFC	Request for Comment
Route	A path to another signaling point.
Routing Key	A set of SS7 parameter and parameter values that uniquely define the range of signaling traffic to be handled by a particular Application Server. For example, where all traffic directed to an SS7 DPC, OPC and ISUP CIC_range(s) or SCCP SSN is to be sent to a particular Application Server, that SS7 data defines the associated Routing Key.

S

SAPC	Secondary Adjacent Point Code
SCCP	Signaling Connection Control Part
SCN	Switched Circuit Network A network that carries traffic within channelized bearers of predefined sizes. Examples include Public Switched Telephone Networks (PSTNs) and Public Land Mobile Networks (PLMNs). Examples of signaling protocols used in SCN include Q.931, SS7 MTP Level 3 and SS7 Application/User parts.
SCP	Service Control Point.
SCTP	Stream Control Transmission Protocol
SEAS	Signaling Engineering and Administration System An interface defined by Bellcore and used by the Regional Bell Operating Companies (RBOCs), as well as other Bellcore Client Companies (BCCs), to remotely administer and monitor the signaling points in their network from a central location.
SEP	Signaling End Point A node in an SS7 network that originates or terminates signaling messages. One example is a central office switch.
SCTP	Stream Control Transmission Protocol The transport layer for all standard IETF-Sigtran protocols. SCTP is a reliable transport protocol that operates on top of a connectionless packet network such as IP and is functionally equivalent to TCP. It establishes a connection between two endpoints (called an association; in TCP, these are sockets) for transmission of user messages (RFC 2960).
SGP	Signaling Gateway Process
SIF	Service Information Field
SG	Secure Gateway
SI	Service Indicator

Signaling Link	The transmission path connecting the EAGLE 5 ISS to other signaling points in the network and providing access to ANSI SS7, ITU SS7, and X.25 network elements. The signaling link is connected to the EAGLE 5 ISS at the link interface module (LIM). A generic program load application that is loaded on the LIM to allow the LIM to access a particular network element.
SIO	Service Information Octet
SIO	Service Information Octet.
SLC	Signaling Link Code
SLS	Signaling Link Selector
SNM	Signaling Network Management.
SNMP	Simple Network Management Protocol.
Spare Point Code	The EAGLE ITU International/National Spare Point Code feature allows a network operator to use the same Point Codes across two networks (either ITU-I or ITU-N). The feature also enables National and National Spare traffic to be routed over the same linkset. The EAGLE uses the MSU Network Indicator (NI) to differentiate the same point code of one network from the other. In accordance with the SS7 standard, unique Network Indicator values are defined for Point Code types ITU-I, ITU-N, ITU-I Spare, and ITU-N Spare.
SPC	Secondary Point Code
	Signaling Point Code
	Spare Point Code
	Stored Program Control
SS	Subsystem
SS7	Signaling System #7
SS7IPGW	SS7 IP Gateway An application used by the DCM/SSEDCM card for IP point-to-multipoint capability within an ANSI network.
SSEDCM	Single Slot Enhanced Data Communications Module
SSN	SS7 Subsystem Number
	Subsystem Number
SSP	Subsystem Prohibited network management message.
	Subsystem Prohibited SCCP (SCMG) management message. (CER)
	Service Switching Point (SS7 Network)
SST	Secondary State
	Subsystem Status Test
	Subsystem Status Test network management message.
	Subsystem Status Test SCCP (SCMG) management message. (CER)
STP	Signal Transfer Point
STPLAN	Signaling Transfer Point Local Area Network
	The generic program load and application used by the ACM card to support the STP LAN application. This GPL does not support 24-bit ITU-N point codes.
SUA	SCCP User Adaptation Layer
	SS7 SCCP-User Adaptation Layer
	A protocol for the transport of any SCCP-User signaling over IP using the SCTP. The protocol is designed to be modular and symmetric, to allow it to work in diverse architectures

Subsystem Number The subsystem number of a given point code. The subsystem number identifies the SCP application that should receive the message or the subsystem number of the destination point code to be assigned to an X.25 address or the LNP subsystem of the EAGLE 5 ISS. A value of the routing indicator portion of the global title translation data commands indicating that no further global title translation is required for the specified entry.

T

T1 Transmission Level 1
A T1 interface terminates or distributes T1 facility signals for the purpose of processing the SS7 signaling links carried by the E1 carrier.
A leased-line connection capable of carrying data at 1,544,000 bits-per-second.

TCA Transfer Cluster Allowed

TCAP Transaction Capabilities Application Part

TCP Transfer-Cluster-Prohibited
Transfer Control Protocol
Transmission Control Protocol

TDM Terminal Disk Module.
Time Division Multiplexing.

TFA TransFer Allowed (Msg)

TFC Transfer Control
TransFer Controlled (Msg)

TPC True Point Code

TPS Transactions Per Second
A method of measuring how quickly a network can transmit and receive data. Capacities listed with “TPS” units involve the maximum of the receive rate and the transmit rate, and the worst-case assumption is that the transmit and receive rates are the same. Under the TU model, transaction units per second are calculated with the total transaction unit value and the advertised card capacity.

TSPC True or Secondary Point Code

TUP Telephone User Part

U

UA ETF User Adaptation Layers

UAM Unsolicited Alarm Message.

UDP User Datagram Protocol

UIM Unsolicited Information Message

UPU User Part Unavailable

UPU User Part Unavailable

X

XCA Extended Changeover Acknowledgment (Msg)

XCO Extended Changeover Order (Msg)

Index

1500 Signaling Links 3-22 , 4-65 , 6-117
2000 Signaling Links 3-22 , 4-65 , 6-117

A

activate signaling link, act-slk

IPGWI 3-38 , 3-55 , 3-138 , 3-139 ,
3-150 , 3-151 , 4-46 , 4-81 , 4-99 ,
4-202

IPLIM 3-38 , 3-74

IPLIMI 3-74

IPSG 6-40 , 6-58

SS7IPGW 3-38 , 3-55 , 3-138 , 3-139
, 3-139 , 3-150 , 3-151 , 4-46 , 4-81
, 4-81 , 4-99 , 4-202

admonishments, documentation 1-3

Applications 2-2

C

cice 4-158 , 4-159 , 4-225 , 4-290 ,
4-298

cics 4-158 , 4-225 , 4-290 , 4-298

D

deactivate signaling link, dact-slk

IPLIM 3-71

IPLIMI 3-71

Default Routing Keys 2-17

display card status, rept-stat-card

IPGWI 3-35 , 3-53 , 4-78 , 4-96

IPLIM 3-35 , 3-53 , 4-96

IPSG 6-37 , 6-55

SS7IPGW 3-35 , 3-53 , 4-78 , 4-96

display signaling link status, rept-stat-slk

IPGWI 3-34 , 3-38 , 3-52 , 3-56 ,
3-138 , 3-149 , 4-77 , 4-81 , 4-95 ,
4-99 , 4-311

IPLIM 3-34 , 3-38 , 3-52 , 3-70 ,
3-71 , 3-74 , 3-175 , 4-77 , 4-95 ,
4-311

IPLIMI 3-70 , 3-71 , 3-74 , 3-175

IPSG 6-36 , 6-40 , 6-54 , 6-58 ,
6-270 , 6-281

SS7IPGW 3-34 , 3-38 , 3-52 , 3-56 ,
3-138 , 3-139 , 3-150 , 3-151 , 4-77
, 4-81 , 4-95 , 4-99 , 4-311

documentation

admonishments 1-3

dpc 4-224

F

Full Routing Keys 2-16

G

getcomm 4-235 , 6-178

I

ipgwabate 4-235 , 6-178

ipgwi 2-2 , 2-13

activate signaling link, act-slk 3-38 , 3-55
, 3-138 , 3-139 , 3-150 , 3-151 ,
4-46 , 4-81 , 4-99 , 4-202

display card status, rept-stat-card 3-35 ,
3-53 , 4-78 , 4-96

display signaling link status, rept-stat-slk
3-34 , 3-38 , 3-52 , 3-56 , 3-138 ,
3-149 , 4-77 , 4-81 , 4-95 , 4-99 ,
4-311

iplim 2-2

activate signaling link, act-slk 3-38 , 3-74
, 3-74

deactivate signaling link, dact-slk 3-71

display card status, rept-stat-card 3-35 ,
3-53 , 4-96

display signaling link status, rept-stat-slk
3-34 , 3-38 , 3-52 , 3-70 , 3-71 ,
3-74 , 3-175 , 4-77 , 4-95 , 4-311

iplimi 2-2

activate signaling link, act-slk 3-74

deactivate signaling link, dact-slk 3-71

display signaling link status, rept-stat-slk
3-70 , 3-71 , 3-74 , 3-175

IP options

getcomm 4-235 , 6-178
ipgwabate 4-235 , 6-178
setcomm 4-235 , 6-178
snmpcont 4-235 , 6-178
srkq 4-235 , 6-178
trapcomm 4-235 , 6-178
uameasusedftas 4-235 , 6-178

IPSG

activate signaling link, act-slk 6-40 , 6-58
display card status, rept-stat-card 6-37 ,
6-55
display signaling link status, rept-stat-slk
6-36 , 6-40 , 6-54 , 6-58 , 6-270 ,
6-281

IPSG M3UA options

numslkalw 6-182
numslkproh 6-182
numslkrstr 6-182

L

Large BICC MSU Support for IP Signaling

feature 3-82 , 3-83 , 3-84 , 3-181 ,
4-182 , 4-183 , 4-184 , 4-329 ,
6-131 , 6-132 , 6-133 , 6-304
Activate 3-3 , 3-81 , 4-3 , 4-181 ,
6-3 , 6-130
Turn Off 3-109 , 3-180 , 4-235 ,
4-328 , 6-178 , 6-303

N

ncice 4-290 , 4-298
ncics 4-290 , 4-298
numslkalw 6-168 , 6-182
numslkproh 6-168 , 6-182
numslkrstr 6-168 , 6-182

O

opc/opca 4-158 , 4-224 , 4-225 , 4-289
, 4-298

P

Partial Routing Keys 2-16

R

Routing Key Lookup Hierarchy 2-18
Routing Key Tables 2-17

S

setcomm 4-235 , 6-178
si 4-225
signaling links, 1500 3-22 , 4-65 , 6-117
signaling links, 2000 3-22 , 4-65 , 6-117
snmpcont 4-235 , 6-178
split 4-290 , 4-298
srkq 4-235 , 6-178
ss7ipgw 2-2 , 2-13
activate signaling link, act-slk 3-38 , 3-55
, 3-55 , 3-138 , 3-139 , 3-150 ,
3-151 , 4-46 , 4-81 , 4-99 , 4-202
display card status, rept-stat-card 3-35 ,
3-53 , 4-78 , 4-96
display signaling link status, rept-stat-slk
3-34 , 3-38 , 3-52 , 3-56 , 3-138 ,
3-139 , 3-150 , 3-151 , 4-77 , 4-81
, 4-95 , 4-99 , 4-311
ssn 4-225

T

trapcomm 4-235 , 6-178
type 4-225 , 4-290 , 4-298

U

uameasusedftas 4-235 , 6-178