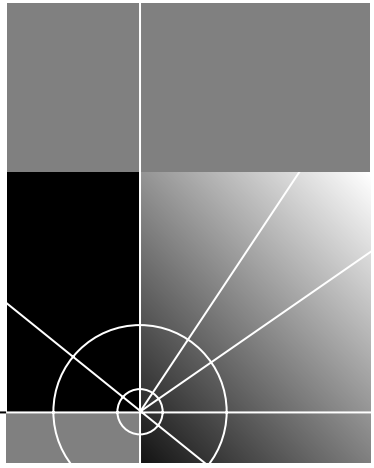
CoreBuilder® 9000 ATM Enterprise Switch Management Guide

Software Release 3.0



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Guide written by Laura Novich, Leah Hakim, and Lynne Wolfson. Edited by Benjamin Mann and Debbie Zioni. Illustrated by Pearl Goldberg.

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3COM CORPORATION LIMITED WARRANTY

ABOUT THIS GUIDE

The *CoreBuilder 9000 ATM Enterprise Switch User Management Guide* provides all the information that you need to configure and set up the CoreBuilder® 9000 ATM Enterprise Switch in ATM networking environments. It also provides information about how the CoreBuilder 9000 ATM Enterprise Switch operates in an ATM network.

This guide is intended for the system administrator, network equipment technician, or network manager who is responsible for installing, managing, and operating a network that is based on the CoreBuilder 9000 ATM Enterprise Switch. It assumes a working knowledge of network operations and familiarity with communications protocols that are used in networks. No prior knowledge of 3Com's CoreBuilder networking equipment is necessary to understand the information in this manual.

If release notes are shipped with your product and the information there differs from the information in this guide, follow the instructions in the release notes.

Conventions

Table 1 and Table 2 list conventions that are used throughout this guide.

Table 1 Notice Icons

Icon	Notice Type	Description
	Information note	Information that describes important features or instructions
	Caution	Information that alerts you to potential loss of data or potential damage to an application, system, or device
	Warning	Information that alerts you to potential personal injury

Table 2 Text Conventions

Convention	Description
`Screen displays`	This typeface represents information as it appears on the screen.
`Syntax`	The word "syntax" means that you must evaluate the syntax provided and then supply the appropriate values for the placeholders that appear in angle brackets. Example: To enable RIPIP, use the following syntax: `SETDefault !<port> -RIPIP CONTrol = Listen` In this example, you must supply a port number for <port>.
`Commands`	The word "command" means that you must enter the command exactly as shown and then press Return or Enter. Commands appear in bold. Example: To remove the IP address, enter the following command: **`SETDefault !0 -IP NETaddr = 0.0.0.0`**
The words "enter" and "type"	When you see the word "enter" in this guide, you must type something, and then press Return or Enter. Do not press Return or Enter when an instruction simply says "type."
Keyboard key names	If you must press two or more keys simultaneously, the key names are linked with a plus sign (+). Example: Press Ctrl+Alt+Del

Table 2 Text Conventions (continued)

Convention	Description
Words in *italics*	Italics are used to: ■ Emphasize a point. ■ Denote a new term at the place where it is defined in the text. ■ Identify menu names, menu commands, and software button names. Examples: From the *Help* menu, select *Contents*. Click *OK*.

Command Description

In Chapters 5 through 11 of this guide, all of the Local Management Application (LMA) commands are explained. For each command, a standard format describes the command. Following is a sample of command descriptions:

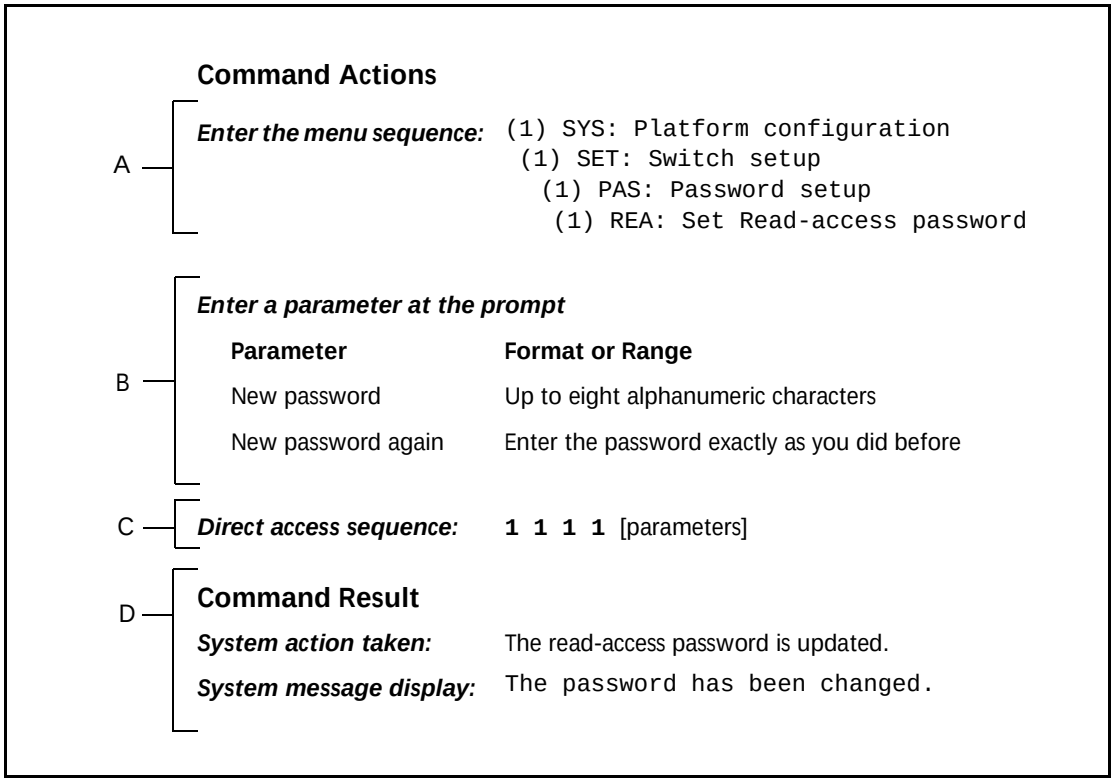


Table 3 explains the command descriptions.

Table 3 Command Description Sections

Key	Section	Description
A	Menu sequence	The menu options that you select to execute the command, including all the levels and sublevels.
B	Parameters	The parameters to enter after the menu sequence and the format to use. If no parameters are necessary, this section does not appear in the command description.
C	Direct Access Sequence	The command sequence to enter at the prompt to run the command without going through all the sublevels. The direct access sequence can also include the command parameters.
D	System Action	The action that the system takes after you enter the command.

Related Documents

This section provides information about supporting documentation, including:

- CoreBuilder 9000 Documents
- World Wide Web Site Documents
- 3Com Facts℠ Automated Fax Service Documents

CoreBuilder 9000 Documents

The following documents compose the CoreBuilder 9000 documentation set. Documents are available in three forms:

- Paper Documents

  The paper documents that are shipped with your system are listed on the next page.

- CD-ROM

  Additional documents are included in your CoreBuilder 9000 System Documentation CD-ROM. This CD-ROM contains on-line versions of the paper documents as well as additional documents not shipped with your system.

- World Wide Web and Fax Services

  Various types of documentation and information are available from the 3Com Web site and fax services.

To order a paper copy of a document that you see on the CD-ROM, or to order additional CDs, contact your sales representative.

For a complete list of all CoreBuilder 9000 documents, see the *CoreBuilder 9000 Documentation Overview*.

Paper Documents

These documents are shipped with the CoreBuilder 9000 chassis:

- *Chassis Quick Installation* Guides

  Instructions for installing the 7-slot chassis, 8-slot chassis, and 16-slot chassis in a rack, on a table, or on a shelf, including prerequisites.

- *CoreBuilder 9000 Enterprise Switch Getting Started Guide*

  An overview of the Switch and its components for a 7-slot chassis, 8-slot chassis, and 16-slot chassis; a description of the power management subsystem; information about what occurs when you start up your Switch; how to use the documentation CD-ROM; and important safety and preinstallation information.

- *Power Supply Installation* Guides

  Instructions for installing and removing a power supply for the 7-slot chassis, 8-slot chassis, and 16-slot chassis.

- *CoreBuilder 9000 Documentation Overview*

  A list of all CoreBuilder 9000 documents.

- *CoreBuilder 9000 Web Management User Guide*

  Overview, installation, and troubleshooting information for the Web Management suite of applications that help you manage your system with a Web browser.

These documents are shipped with their individual modules or field-replaceable units:

- Module *Quick Start* Guides or *Getting Started* Guides

  An overview, LED status information, and installation instructions for each interface module, switch fabric module, and management module.

- Module *Command Quick Reference* cards or booklets

  A list of the commands for managing each module.

- *Fan Tray Removal and Replacement* Guides

  Instructions for removing a faulty fan tray and installing a new one in the 7-slot chassis, 8-slot chassis, and 16-slot chassis.

- Module *Release Notes*

  An explanation of software issues and documentation issues in the current release.

Documents on CD-ROM

The Documentation CD-ROM contains online versions of the paper guides that are shipped with your chassis and other CoreBuilder 9000 documents in online format only, such as:

- *CoreBuilder 9000 Enterprise Management Engine User Guide*

  How to use the CoreBuilder 9000 Enterprise Management Engine (EME) to manage the chassis and the network modules in the chassis.

- *CoreBuilder 9000 ATM Enterprise Switch Management Guide*

  How to use, configure, and network the ATM Switch Fabric Module.

- *CoreBuilder 9000 ATM Enterprise Switch Operations Guide*

  A detailed explanation of networking theory, network interface management, and a description of the different protocols available in an ATM network.

- *CoreBuilder 9000 ATM Interface Module User Guide*

  How to use, configure, and manage the ATM Interface Module, an explanation of networking theory, and troubleshooting information.

- *CoreBuilder 9000 Implementation Guide*

  Information about using features of the CoreBuilder 9000 Enterprise Switch after you install it and attach it to your network.

- *Command Reference Guide*

  Information about the Administration Console commands that you use to configure the Switch. This is a multiplatform guide. It documents commands for the CoreBuilder 9000 as well as other 3Com systems.

World Wide Web Site Documents

Most user guides and release notes are available in Adobe Acrobat Reader Portable Document Format (PDF) or Hypertext markup Language (HTML) from the 3Com World Wide Web support site at:

`http://support.3com.com`

In the *Select Product by Name* list, under *Support Tools*, *Documents and Information*, select *CoreBuilder*.

3Com Facts Automated Fax Service Documents

The 3Com Facts[SM] automated fax service provides technical articles, diagrams, and troubleshooting instructions on 3Com products 24 hours a day, 7 days a week.

Call 3Com Facts using your Touch-Tone telephone:

1 408 727-7021

Year 2000 Compliance

For information on the Year 2000 compliance and 3Com products, visit the 3Com Year 2000 Web page:

`http://www.3com.com/products/yr2000.html`

1 OVERVIEW

This chapter provides an overview of the CoreBuilder® 9000 ATM Enterprise Switch. The following topics are covered:

- CoreBuilder 9000 ATM Enterprise Switch Characteristics
- Software Release 3.0 Key Features
- Standards and Protocols Supported

CoreBuilder 9000 ATM Enterprise Switch Characteristics

The CoreBuilder 9000 ATM Enterprise Switch has two components:

- The ATM Switch Fabric Module
- The ATM Interface Module

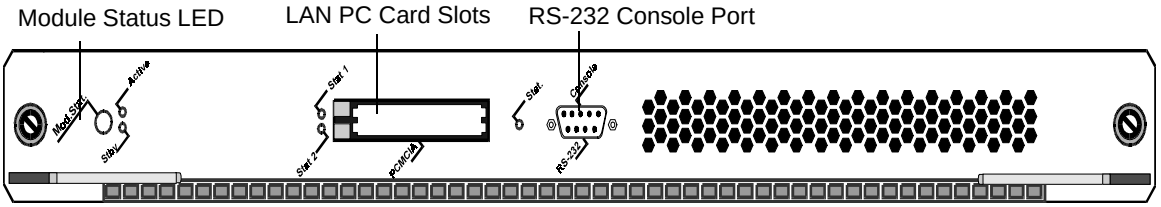
For information about the ATM Interface Module, see the *ATM Interface Module User Guide* and the *ATM Interface Module Getting Started Guide*.

The ATM Switch Fabric Module

The ATM Switch Fabric Module has a switching capacity of 15 Gbps. The high-performance, line-rate, non-blocking ATM Switch Fabric Module features highly integrated ASICs that account for its scalable, leading-edge performance and functionality. The module incorporates on-board ATM control hardware for scaling the performance of Switched Virtual Channel Connections (SVCs) and Switched Virtual Paths (SVPs).

Figure 1 shows the front panel of the ATM Switch Fabric Module. Note that, in the figure, the Module is shown on its side; in the 16-slot chassis or the 8-slot chassis you install it vertically with the LEDs on top.

Figure 1 ATM Switch Fabric Module Front Panel



The Module Status LED indicates the ATM Switch Fabric Module's status. The dual PCMCIA slots have two indicator LEDs (one for each slot), and the RS-232 console port has one indicator LED.

Interfaces to ATM

The CoreBuilder 9000 ATM Enterprise Switch provides wire-speed interfaces for ATM OC-3c/STM-1, ATM OC-12c/STM-4, and ATM 155 Mbps-over-UTP5 daughter cards, which are listed in Table 4.

Table 4 ATM Interfaces

Module Type	No. of Ports	Rate (Mbps)
OC-3c MMF[1]	4	155
OC-3c SMF[2]	4	155
OC-3c/STM-1 MM[1]	4	155
OC-3c/STM-1 SM[2]	4	155
OC-3c/STM-1 SM LR	2	155
OC-12c/STM-4 MM	1	622
OC12c/STM-4 SM IR	1	622
155 Mbps-over-UTP5	4	155

1 MM = multimode
2 SM = single mode

These cell-based daughter cards are designed to be installed into ATM Interface Modules that are inserted into CoreBuilder 9000 chassis slots. Each ATM Interface Module can accommodate two of the following daughter cards in any combination: OC-3c/STM-1, OC-12c/STM-4, and 155 Mbps-over-UTP5.

The OC-3c/STM-1 and OC-12c/STM-4 daughter cards are available in single-mode or multi-mode. An OC-3c/STM-1 card is available with three single-mode ports and one multi-mode port.

You can install up to 11 ATM Interface Modules in the 16-slot chassis and up to 5 ATM Interface Modules in the 7-slot chassis and the 8-slot chassis. You can order the ATM Interface Modules as a kit with daughter cards included or, you can order individual daughter cards separately.

Table 5 lists the available configurations of the ATM Interface Module and the daughter cards along with their part numbers.

Table 5 Daughter Cards Compatible with the ATM Interface Carrier Module

Card Type	3Com Part Number
OC-3c-MMF[1]	3CB9NAL4MC
OC-3c-SMF[2]	3CB9NAL4SC
OC-3c-SMLR[3]	3CB9NAL2SCLR
OC-12c-MMF	3CB9NAK1MC
OC-12c-SMF	3CB9NAK1SC
155 Mbps-over-UTP5	3CB9NAL4R

1 MMF=Multi-Mode Fiber
2 SMF=Single-Mode Fiber
3 SMLR=Single-Mode Long Reach

Processors An on-board i960 processor handles all advanced software features including SVC (Switched Virtual Circuit), signalling PNNI (Private Network Node Interface), and SNMP (Simple Network Management Protocol) management.

Device Management

You can use the CoreBuilder 9000 ATM Enterprise Switch Local Management Application (LMA) or Transcend® Enterprise Manager (or other SNMP-based network management application) to manage your CoreBuilder 9000 ATM Enterprise Switch.

The CoreBuilder 9000 ATM Enterprise Switch LMA is a character-oriented, menu-driven user interface for performing system-level administration. You operate this console from a terminal (or terminal emulation software) or through a remote terminal protocol, such as Telnet or Remote Login.

For more complete network management, use an external SNMP-based application such as Transcend Enterprise Manager. Transcend provides logical views and control for your network. In addition, it extends the SNMP capabilities of the ATM Enterprise Switch with a common user interface and easy-to-use administrative features that optimize network configuration, oversight, and troubleshooting.

Traffic Management

Traffic management in the CoreBuilder 9000 ATM Enterprise Switch is done at two levels:

- Preventing congestion
- Handling congestion

Mechanisms for Preventing Congestion

The following flow control mechanisms for automatic management in the CoreBuilder 9000 ATM Enterprise Switch Fabric Module work to prevent cell and frame loss under intense loads:

- Explicit Forward Congestion Indication (EFCI) Marking
- Call Admission Control
- Flow Control
- CLP bit tagging support
- Priorities
- Scheduling

Mechanisms for Handling Congestion

The following mechanisms are used to manage congestion in the CoreBuilder 9000 ATM Enterprise Switch Fabric Module:

- Back Pressure
- Partial Packet Drop (PPD) (Hardware ready)
- Early Packet Drop (EPD) (Hardware ready)
- Call Admission
- CLP-based Cell Discard.

ATM Networks

The CoreBuilder 9000 ATM Enterprise Switch supports the following types of ATM networks:

Classical IP (CLIP) ATM

The CoreBuilder 9000 ATM Enterprise Switch is transparent to CLIP and allows you to use CLIP over the ATM network. For a view of the CoreBuilder 9000 ATM Enterprise Switch when CLIP is used over ATM within a network, see Chapter 3, ATM Network Basics in the Operations Guide.

Virtual Networks

The CoreBuilder 9000 ATM Enterprise Switch handles virtual networks across the enterprise using ATM and LAN Emulation (LANE). Segments in a virtual network can incorporate legacy LANs and ATM devices using LANE, allowing you to organize network users into logical groups, regardless of their physical location. Using this feature, you can set up workgroups comprised of members from various departments or business units around the enterprise, and centralize servers into server *farms* for better administration. For more information about virtual networks, see Chapter 3, ATM Network Basics in the Operations Guide.

Software Release 3.0 Key Features

The CoreBuilder 9000 ATM Enterprise Switch has the following key features:

- Distributed output buffering
- An ATM switching engine that provides full-rate, non-blocking switching for up to 22 OC-12c/STM-4 ATM ports and up to 88 OC-3c/STM-1 155 Mbps SONET/SDH ports
- A self-routing switching architecture built on top of an 560 Gbps (full-duplex) passive backplane that meets demands for higher port density, faster data speeds, and scalability
- Seamless, full-rate multicast support
- Cell Loss Priority (CLP) support for congestion management. Dynamic threshold mechanism for CLP, EFCI marking ready, EPD hardware ready, PPD hardware ready
- A back pressure control mechanism
- Policy support VCI/VPI (Hardware ready)
- 4096 VCs for each OC-3c port; 4096x4 for each OC-12c port
- Two levels of priority, dynamic allocation of cell buffer priority and scheduling capability per priority per port
- Switch Management via PCMCIA card with terminal connection status indicator
- Management Features
  - SNMP, Telnet, and Transcend Enterprise Manager
  - Multiple agents with single management entry point
  - RMON and RMON2
  - Statistics Gathering and Reporting
- Management Interfaces
  - 10BASE-T (RJ-45) Ethernet
  - RS-232 (DB-9) control port
- Management Applications
  - TranscendWare management applications software
  - Terminal emulation (local)

- MIBs Supported — MIB II, AToM MIB, RMON MIB, Interface Evolution MIB, NCDCHASS MIB (private)
- ATM Forum Standards Compliance
- Electromagnetic Compatibility — FCC Part 15, EN50081-1 (EN55022 Class B); EN50082-1 (IEC 801-2, IEC 801-3, IEC 801-4)
- Safety — EN60950, UL1950, CSA22.2, TUV, IEEE 825-1, 852-2; PCB UL94V-O; PCB; ANSI/IEEE; RB-276 Class 2

Standards and Protocols Supported

This section describes the major standards and protocols used within the CoreBuilder 9000 ATM Enterprise Switch and the network applications and topologies that you can use.

ATM

The CoreBuilder 9000 ATM Enterprise Switch uses ATM technology, including connection protocols, user-to-network and network-to-network interfaces. You can directly control all features via device management. For more information about ATM, see Chapter 3, *ATM Network Basics* in the Operations Guide.

Protocols

The CoreBuilder 9000 ATM Enterprise Switch uses numerous protocols to connect to and communicate with other devices in the network. Among the protocols used is the Integrated Local Management Interface (ILMI), which is used to connect over the user-to-network interface (UNI) and network-to-network interface (NNI), as well as for address registration. Signalling (Q2931) for Switched Virtual Connection (SVC) is used for dynamically managing calls. IISP, E-IISP are implemented for multiple switch networks.

- Communications Protocols — RFC 826 ARP, RFC 791 IP, RFC 792 ICMP, RDC 768 UDP, RFC 793 TCP
- Ethernet Protocols — IEEE 802.1d, IEEE 802.3
- Management Protocols — RFC 1157 SNMP, RFC 1212 Concise, RFC 1213 MIB II, RFC 1212 Traps.

2 STARTING UP

This chapter contains a description of the system states of the CoreBuilder® 9000 ATM Switch Fabric Module and its daughter cards. Topics covered in this chapter include:

- Safety Precautions
- Handling Precautions
- Précautions de Sécurité
- Précautions de Manipulation
- Sicherheitsvorkehrungen
- Vorkehrungen beim Umgang mit dem Modul
- Installation

For information about installing the ATM Switch Fabric Module, see the *CoreBuilder 9000 ATM Switch Fabric Module Getting Started Guide*.

Safety Precautions

When you handle components in a CoreBuilder 9000 system, be sure that you follow all safety precautions. To avoid electric shocks, burns, fire or equipment damage, read and follow these warnings:

***WARNING**: Hazardous energy exists within the CoreBuilder 9000 system. Use extreme caution when you install, remove, or replace the ATM Switch Fabric Module.*

WARNING*: *The ATM Switch Fabric Module must be installed, removed, or replaced only by trained service personnel.

WARNING: *When the CoreBuilder 9000 system is on, never insert metal objects, such as a screwdriver into open module slots and be sure to remove all hand-worn jewelry (such as watches and rings). When the system is on, do not touch any connections within the chassis with your fingers. Do not insert metal objects into the backplane.*

WARNING: *Do not plug in, turn on, or attempt to operate an obviously damaged module.*

Laser and LED Safety Information

WARNING*: To ensure optical safety when you install the ATM Switch Fabric Module, comply with this precaution:*

Although the data communications LEDs and lasers that are used in this product meet the regulatory requirements for casual exposure to the eye, as with any bright source of bright light, 3Com recommends that you do not look into the light source (Class One Laser/LED Product).

ESD Safety Information

Electrostatic Discharge (ESD) can damage components on the module. ESD, which occurs when the module is handled improperly, can cause complete or intermittent failure.

CAUTION: *To prevent ESD-related damage:*

- *Make sure that you are properly grounded. Use a footstrap and a grounded mat, or wear a grounded wrist strap, ensuring that the strap makes good skin contact.*
- *Keep the module in its antistatic bag until you are ready to install it.*

Handling Precautions

Observe the following precautions when you handle the ATM Switch Fabric Module:

- Always handle the module by the front panel or as shown in the *ATM Switch Fabric Module Getting Started Guide*.
- Do not touch the components, pins, leads, or solder connections.
- Before you push the module into the chassis, make sure that the module ejector handles are open.
- When you insert the module into the chassis, match the upper and lower/left and right module guides.
- When you insert the module into the chassis module guides, do not twist or otherwise force the module into the chassis.

Précautions de Sécurité

Lorsque on manipule les éléments du système CoreBuilder 9000, il faut bien respecter les précautions de sécurité. Pour éviter des décharges électriques, des brûlures, des incendies ainsi que pour ne pas endommager l'équipement, veuillez bien lire et respecter les précautions suivantes:

AVERTISSEMENT: *Le système CoreBuilder 9000 contient énergie qui peut s'avérer dangereuse. Soyez très minutieux lorsque vous installez, enlevez ou remplacez un Module de Switch Fabric ATM.*

AVERTISSEMENT: *Le Module de Switch Fabric ATM ne doit être installé, enlevé ou remplacé que par personnel qualifié.*

AVERTISSEMENT: *Lorsque le système CoreBuilder 9000 est sous tension, ne jamais insérer des objets tels que tournevis ni même des doigts portant des bijoux dans l'emplacement d'un module ouvert. Lorsque le système est sous tension, ne touchez aucune connexion du châssis avec les mains ou les doigts. Ne pas insérer d'objets métalliques dans la face arrière.*

AVERTISSEMENT: *Ne pas brancher, allumer ou essayer de mettre en fonctionnement un module évidemment défectueux.*

AVERTISSEMENT: *Pour vous protéger les yeux lors de l'installation du Module de Switch Fabric ATM, respectez les précautions suivantes:*

Bien que les LEDs et lasers des communications de données utilisés dans ce produit soient conformes aux normes d'exposition oculaires éventuelle, 3Com vous recommande, comme pour toute lumière vive, de ne pas regarder directement la source de lumière.

Information sur la Prévention de Décharges Électrostatiques

Les décharges électrostatiques peuvent endommager des éléments du module. Ces décharges, qui surviennent lors d'une manipulation inadéquate du module, peuvent entraîner une défaillance temporaire ou permanente.

ATTENTION: *Pour éviter des dommages électrostatiques:*

- *Assurez-vous d'être bien branché à la terre. Utilisez un sous-pied et un tapis relié à la terre ou portez un bracelet mis à la terre, et veillez à ce que le contact dermique soit bon.*
- *Conservez le module dans un sac antistatique jusqu'à son installation.*

Précautions de Manipulation

Respectez les précautions suivantes lorsque vous manipulez le Module de Switch Fabric ATM:

- Tenez le module par son panneau avant ou comme indiqueé dans le *ATM Switch Fabric Module Getting Started Guide*.
- Ne touchez pas les éléments, broches, branchements ou soudures.
- Avant d'insérer le module dans le châssis, assurez-vous que les poignées d'insertion/d'éjection sont ouvertes.
- Lorsque vous faites glisser le module dans le châssis, faites coïncider les rails inférieurs et supérieurs/à gauche et à droite.
- Ne jamais forcer lorsque vous insérez le module dans les rails.

Sicherheitsvorkehrungen

Halten Sie beim Umgang mit Modulen des CoreBuilder-9000-Systems unbedingt alle Sicherheitsvorkehrungen ein. Lesen und befolgen Sie folgende Warnungen, um elektrische Schläge, Verbrennungen, Brände oder Materialschäden zu vermeiden:

WARNUNG: *Im CoreBuilder 9000-System existieren hohe elektrische Spannungen. Sie sollten deshalb das ATM-Modul nur mit äußerster Vorsicht installieren, entfernen oder tauschen.*

WARNUNG: *Das ATM-Modul darf nur von ausgebildetem Servicepersonal installiert, entfernt oder getauscht werden.*

WARNUNG: *Führen Sie bei eingeschaltetem CoreBuilder-9000-System niemals Metallgegenstände wie Schraubenzieher oder Schmuck an Fingern in offene Modulschlitze ein. Berühren Sie bei eingeschaltetem System keine Verbindungsstellen in Gerät mit Händen oder Fingern. Setzen Sie keine Metallgegenstände in die Rückwand ein.*

WARNUNG: *Versuchen Sie nicht, ein offensichtlich beschädigtes Modul zu installieren oder in Betrieb zu setzen.*

WARNUNG: *Halten Sie sich beim Installieren des ATM-Schnittstellen-Moduls zur Gewährleistung des optischen Sicherheit an folgende Vorkehrung: Obwohl die für die Datenkommunikation verwendeten LEDs und Laser-Dioden die Sicherheitsvorkehrungen für zufälligen Augenkontakt erfüllen, entsprechend wie bei anderen hellen Lichtquellen, empfiehlt 3Com nicht direkt in die Lichtquellen zu blicken.*

Sicherheitsinformationen für Elektrostatische Entladungen

Elektrostatische Entladungen (ESD) können einzelne Baugruppen oder das gesamte Modul beschädigen. ESD können vorkommen, wenn das Modul nicht richtig gehandhabt wird und können eine dauerhafte oder zeitweilige Fehlfunktion bewirken.

VORSICHT: *Zur Verhütung von Schäden durch ESD:*

- *Vergewissern Sie sich, daß Sie richtig geerdet sind. Benutzen Sie ein Fußband und eine geerdete Matte oder tragen Sie ein geerdetes Handgelenkband mit gutem Hautkontakt.*
- *Lassen Sie das Modul bis zur Installation in der Anti-Statik-Tasche.*

Vorkehrungen beim Umgang mit dem Modul

Beachten Sie folgende Vorkehrungen beim Umgang mit dem ATM-Schnittstellen-Modul:

- Fassen Sie das Modul immer nur an der Frontplatte an, oder wie in dem *ATM Switch Fabric Module Getting Started Guide* gezeigt.
- Berühren Sie nicht die Baugruppen, Stifte, Leitungen oder Lötverbindungen.
- Vergewissern Sie sich vor dem Einschieben des Moduls, daß die beiden Bügel zum Einschieben bzw. Entfernen offen stehen.
- Achten Sie beim Einschieben des Moduls darauf, daß es sich in der oberen und unteren/rechten und linken Führungsschiene befindet.
- Achten Sie beim Einschieben des Moduls darauf, daß Sie es nicht verkannten. Schieben Sie das Module nicht mit Gewalt in das Gerät.

Installation

This section describes installing the ATM Switch Fabric Module.

Installation Prerequisites

Before you install the ATM Switch Fabric Module, ensure that you have met all of the following prerequisite conditions:

1. Complete the chassis unpacking and installation procedure as described in the *Chassis Quick Installation* Guides. You can install the chassis in a rack, on a shelf, or on a tabletop.
2. Install the power supply as described in the *Power Supply Installation* Guides and install the power cable as described in the *Enterprise Management Engine Quick Start Guide for the CoreBuilder 9000 Enterprise Switch.*
3. Install the Enterprise Management Engine as described in the *Enterprise Management Engine Quick Start Guide for the CoreBuilder 9000 Enterprise Switch*.
4. Install the ATM Switch Fabric Module as described in the *CoreBuilder 9000 ATM Switch Fabric Module Getting Started Guide*
5. Read the *CoreBuilder 9000 ATM Interface Module Getting Started Guide* to make sure that you have all of the required components to get your system up and running and that you have completed all of the prerequisite work.
6. To manage the ATM Interface Module and CoreBuilder 9000 ATM Enterprise Switch through the Simple Network Management Protocol (SNMP), you must install the 3Com Transcend® Enterprise Manager for UNIX or for Windows NT.

Installing the Daughter Cards

For complete details on how to install the daughter cards into the ATM Interface Module, see the *CoreBuilder 9000 ATM Interface Module Getting Started Gu*ide.

Installing the ATM Interface Module into the Chassis

For complete details on how to install the ATM Interface Module into the CoreBuilder 9000 chassis, see the *CoreBuilder 9000 ATM Interface Module Getting Started Guide*.

3 INTEGRATED FAST SETUP

This chapter describes how to use the Integrated Fast Setup procedure to configure the CoreBuilder® 9000 ATM Enterprise Switch, allowing it to function in the network.

CoreBuilder 9000 ATM Enterprise Switch Integrated Fast Setup

After you have physically connected the CoreBuilder 9000 ATM Enterprise Switch to your site network devices and power has been applied, you must set some parameters to enable the CoreBuilder 9000 ATM Enterprise Switch with its attached ATM Interface Modules to function in the network.

The CoreBuilder 9000 ATM Enterprise Switch local management software features an Integrated Fast Setup procedure that configures the CoreBuilder 9000 ATM Enterprise Switch in one continuous process.

With Integrated Fast Setup, you can set up the most important system parameters that you need to start working right away. The remaining parameters are assigned default values.

If you are installing the ATM Switch Fabric Module and ATM Interface Modules at the same time, you need to perform the Integrated Fast Setup procedure only once; all modules will be configured.

Setup Procedure Sections

Table 6 lists the steps or sections of the Integrated Fast Setup.

Table 6 Integrated Fast Setup Procedure Sections

Setup Section	Description
1 Routing Mode	Set the Routing Mode (EIISP or PNNI) for the CoreBuilder® 9000 ATM Enterprise Switch
2 Network Prefix	Set Network Prefix for the CoreBuilder 9000 ATM Enterprise Switch
3 PNNI Parameters	Set PNNI parameters for the CoreBuilder 9000 ATM Enterprise Switch
4 LE Parameters	Set LE parameters for the CoreBuilder 9000 ATM Enterprise Switch
5 LECS Address	Set active LECS address for the CoreBuilder 9000 ATM Enterprise Switch
6 UNI/NNI parameters	Set UNI/NNI port parameters for ports in the ATM Interface Module
7 IP and Management Configuration	Set IP address of the switch, address of the NMS application, default gateway address, and subnet mask
8 Confirmation	Confirm setup operation

Entering Data

The Integrated Fast Setup procedure runs sequentially through the relevant data for all of the sections, displaying a prompt for each data item and a default value. If you want to change the default, enter a different value in place of the default. If you want to accept the default, press Enter.

Navigation Aids

Table 7 lists the shortcut characters that you can use to move between sections of the Integrated Fast Setup procedure:

Table 7 Integrated Fast Setup Procedure Navigation Aids

Type	To Go
<	Back to previous section
>	To next section
>S	To section indicated by double underlined ID letter S in section title
\	Back to beginning of setup
$	To end of setup

Integrated Fast Setup Operation

For step-by-step instructions, see the *CoreBuilder 9000 ATM Switch Fabric Module Getting Started Guide.*

4 USING THE LOCAL MANAGEMENT APPLICATION

This chapter describes how to use the CoreBuilder® 9000 ATM Enterprise Switch Local Management Application (LMA) to configure and administer the CoreBuilder 9000 ATM Enterprise Switch. A Menu Index shows the command structure of the LMA and refers to the command description for each menu command. You run the LMA from a terminal via a direct RS-232 connection or via Telnet.

Management Capabilities

Use the LMA to configure your CoreBuilder 9000 ATM Enterprise Switch. To augment network management, you can use an external application, such as 3Com's Transcend® Enterprise VLAN Manager.

LMA functions include:

- Platform administration
- LAN Emulation administration
- ATM Connections administration
- Statistics display
- Testing & Diagnostics administration

Starting Up

To log in to the LMA, you need:

- The desired access level
- Your password

LMA Access Level

The LMA has three levels of access: read access, write access, and administer access. Each level grants different access privileges and is suited to a different type of user. Table 8 lists the privileges granted for each access level.

Table 8 Access Levels

Access Level	Privileges
Read	Read-only privilege
Write	Right to make local changes to LMA. No right to change passwords or parameters that affect the global network.
Admin	All privileges

Logging In

When you boot the system, the following login screen appears:

```
------------------------------
-      CoreBuilder 9000       -
-                             -
-  ATM Enterprise Switch      -
------------------------------
Access level (read, write, admin):
Password:
```

When you log in for the first time, simply press Enter at the Password prompt.

***CAUTION**: 3Com strongly recommends that you change passwords for security reasons. For more information, see "Example — Changing a Password" on page 45.*

To log in to the LMA:

1. Enter your access level (default is `admin`).
2. Enter your password. After a successful login, the Main Menu is displayed as shown in Figure 2.

Figure 2 LMA Main Menu

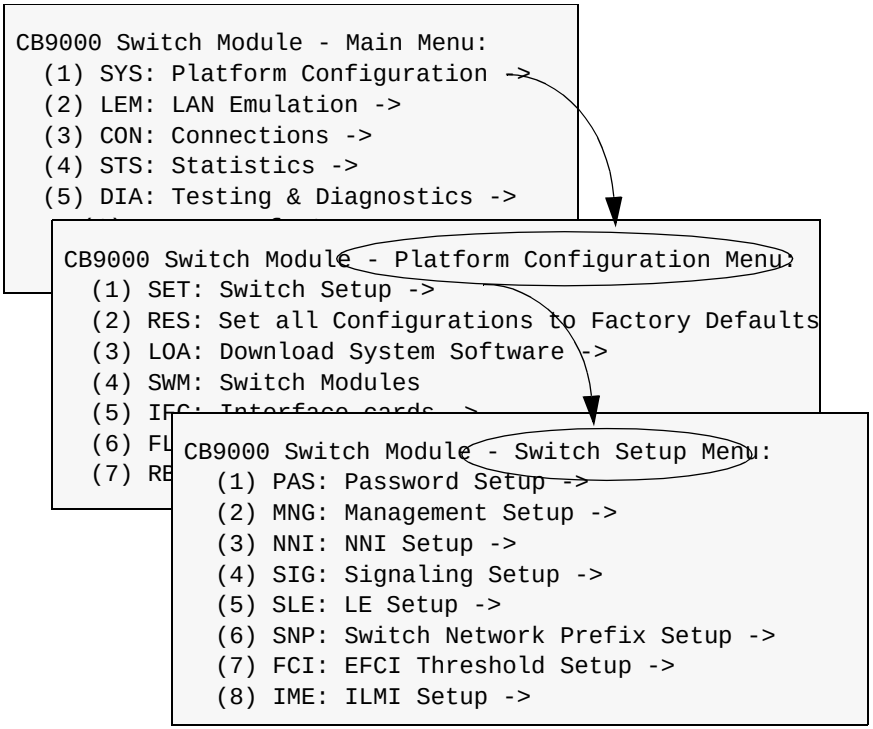
```
 CB9000 switch module - Main Menu:
(1) SYS: Platform Configuration ->
(2) LEM: LAN Emulation ->
(3) CON: Connections ->
(4) STS: Statistics ->
(5) DIA: Testing and Diagnostics ->
(6) FTR: ATM Features
(7) LOG: Logout
(8) VER: Version
(9) FST: Fast Setup
```

The LMA Menu System

The LMA menu system is a set of command menus that are organized in a hierarchical, top-down fashion. Figure 3 shows the menu structure. Each command menu contains a numbered list of menu items. Each menu item has a three-letter mnemonic identifier and a short description of the item. There are two kinds of menu items: commands that display another, lower-level, command menu (*submenu*) and commands that perform a specific administrative task. The submenu command is distinguished by the arrow (->) on the right.

The Main Menu is at the top of the hierarchy. Through it, you access the submenus for the main topics of management such as Platform Configuration, LAN Emulation, and Connections. Figure 3 shows the Main Menu and some of its successive submenus.

Figure 3 LMA Menu Structure



Selecting Menu Options

To select a menu option, you enter its number or its mnemonic identifier at the prompt symbol (>) that is displayed below the menu item list. You need to enter the first unique characters of the mnemonic identifier.

The hierarchical path from the Main Menu down to the currently displayed submenu option is displayed in front of the angle bracket prompt. This convention helps you orient yourself in the menu hierarchy.

Example — Changing a Password

To illustrate how to work with the menu system, the example in this section changes the read-access password. This example is shown in Figure 3. The following command description guides you through the execution of the command. It specifies the menu sequence to enter, the parameters to enter and their format, the command results, and any system messages. A similar command description format is provided for each command in this manual.

Entering the Menu Sequence

First, enter the menu sequence in the order shown in section A of the "Command Description" on page 18 in the About This Guide section. In this example, you enter the menu item numbers, but you can enter the three-letter mnemonic code instead.

1. At the Main Menu prompt, enter **1**.

   The Platform Configuration Menu is displayed (the second screen in Figure 3), followed by the path `(1) SYS:` and the (>) prompt.

2. At the Platform Configuration Menu prompt, enter **1**.

   The Switch Setup Menu submenu is displayed (the third screen in Figure 3), followed by the path `(1)SYS\(1)SET` and the (>) prompt.

3. At the Switch Setup Menu prompt, enter **1**.

The Password Setup Menu is displayed as follows, followed by the path `(1)SYS\(1)SET\(1)PAS` and the (>) prompt. These menu items are all configuration commands; none of them have arrows to the right.

```
  CB9000 switch module - Password Setup Menu:
  (1)  REA: Set Read-access Password
  (2)  WRI: Set Write-access Password
  (3)  ADM: Set Admin-access Password
  (4)  PAS: Set Password Config to factory defaults
[ '\' -Main,      '-' -Back in menus]
(1)SYS\(1)SET\(1)PAS>1
```

4 At the Password Setup Menu prompt, enter **`1.`**

The prompt for the new read password is displayed as follows:

`Enter the new read password:`

This completes the menu sequence.

Entering the Command Parameters

Now refer to section B in the "Command Description" on page 18. This section explains which parameters to enter and the format to use.

5 At the `Enter the new read password:` prompt, enter the new password in a format of up to eight alphanumeric characters.

6 At the `Enter the new read password again:` prompt, enter the new password again exactly as before.

Command Results

After the command executes successfully, a system message is displayed: `The password has been changed.`

The command results and systems messages are shown in section D in "Command Description" on page 18 in the About This Guide section.

Direct Access to Submenus

You can display a submenu or execute a command directly without having to step down through the hierarchy as in the previous example. At the Main Menu prompt, type the required sequence of menu item numbers or menu item mnemonic followed by the command parameters all on one line, separated by spacebar strokes. For example, to display the password prompt directly from the Main Menu, just enter **`1 1 1 1`** at the Main Menu prompt.

Entering Multiple Parameters

When a command has more than one parameter, you can enter them all on the same command line with blanks in between or you can enter some or all of them on separate command lines. If you do not enter them all on one line, you are repeatedly prompted for the remaining parameters.

If you enter an illegal character or string (such as an out-of-range parameter), the LMA display responds with an error message which is indicated by a three-asterisk (***) prefix.

Quick Key Functions

The following quick key functions are available when you work with the management menus. Table 9 lists functions for navigating in the menu system; Table 10 lists aids for editing parameters.

Table 9 Menu Navigation Functions

To go	Type or Press
To the Main Menu from any point	\
To the previous menu	-
Back and forth within the command line	Left/Right Arrows
To the beginning of the command line	Home
To the end of the command line	End

Table 10 Editing Aids

To perform this task	Type or Press
Clear the value of the parameter that you just entered	<
Clear the values of all the parameters in the list that you just entered	>
Retrieve a previous command	Up arrow
Get the next command	Down arrow
Delete the character that precedes the insertion point	Backspace
Delete the character that follows the insertion point	Del
Toggle between Insert and Overwrite modes	Ins
Clear the command line	5
Escape from prompt	$

Logging Out

To log out of the LMA, enter **7** at the Main Menu prompt.

Automatic Logout

The CoreBuilder 9000 ATM Enterprise Switch has an automatic logout feature. If you do not use the keyboard for 15 minutes, the ATM Switch Fabric Module automatically logs you out. You cannot adjust the length of time or disable this feature.

5 CONFIGURING THE PLATFORM

This chapter describes how you configure common management tasks for the CoreBuilder® 9000 ATM Enterprise Switch platform. For a description of the login procedure, see “Logging In” on page 42.

- Password Setup
- Setting Up for Management
- Setting the Port Network Connection Type
- Resetting All Parameters
- Downloading System Software
- Managing Switch Fabric Modules
- Configuring Interface Modules
- Logging Out and Rebooting
- ATM Features and Software Versions
- LECS ATM Address
- Setting Up the Switch Clock Source
- Setting Up for PNNI

Password Setup

You can set up the three levels of access passwords to the LMA, or reset all passwords to their factory defaults.

***CAUTION**: 3Com strongly recommends that you change passwords for security reasons.*

Three access passwords are provided: read-access, write-access and admin-access. For normal administrative operation, use the admin-access password. For more information on access levels, see "LMA Access Level" on page 42.

In the password setup submenu, you have the following options:

- Update Read-access Password
- Update Write-access Password
- Update Admin-access Password
- Set Password to Factory Default

Update Read-access Password

Update the read-access password. Enter the new password a second time.

To accept the default password, press Enter.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch Setup
  (1) PAS: Password Setup
   (1) REA: Set Read-access Password
```

Enter a parameter at the prompt

Parameter	Format or Range
New password	0 to 8 alphanumeric characters
New password confirmation	Enter the password exactly as you did before.

Direct access sequence: **1 1 1 1**

Command Result

System action taken: The read-access password is updated.

System message display: `The password has been changed.`

Example

Enter: **1 1 1 1**

The following dialog is displayed. Note that the passwords themselves are not displayed.

```
Enter the new read password: mypassw
Enter the new read password again: mypassw
The password has been changed.
```

The read-access password is updated.

Update Write-access Password

Update the write-access password. Enter the new password a second time to confirm your entry.

To accept the default password, press Enter.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch Setup
  (1) PAS: Password Setup
   (2) WRI: Set Write-access Password
```

Enter a parameter at the prompt

Parameter	Format or Range
New password	0 to 8 alphanumeric characters
New password confirmation	Enter the password exactly as you did before.

Direct access sequence: **1 1 1 2** [parameters]

Command Result

System action taken: The write-access password is updated.

System message display: `The password has been changed.`

Example

Enter: **1 1 1 2**

The following dialog is displayed. Note that the passwords themselves are not displayed.

```
Enter the new write password: mypassw
Enter the new write password again: mypassw
The password has been changed.
```

The write-access password is updated.

Update Admin-access Password

Update the admin-access password. Enter the new password a second time to confirm your entry. You are prompted for the existing password before you enter the new password.

To accept the default password, press Enter.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch Setup
   (1) PAS: Password Setup
    (3) ADM: Set Admin Password
```

Enter a parameter at the prompt

Parameter	Format or Range
Old password	Enter the old password.
New password	0 to 8 alphanumeric characters
New password confirmation	Enter the password exactly as you did before.

Direct access sequence: **1 1 1 3** [parameters]

Command Result

System action taken: The admin-access password is updated.

System message display: `The password has been changed.`

Example

Enter: **1 1 1 3**

The following dialog is displayed. Note that the passwords themselves are not displayed.

```
Enter the old admin password: oldpass
Enter the new admin password: newpass
Enter the new admin password again: newpass
The password has been changed.
```

The admin-access password is updated.

Set Password to Factory Default

Reset the passwords to their factory default settings for the CoreBuilder 9000 ATM Enterprise Switch. These are, for each type of user: read access, write access, and administer access. For more information on access levels, see the *CoreBuilder 9000 ATM Switch Fabric Module Getting Started Guide*.

To accept the default password, press Enter.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch Setup
  (1) PAS: Password Setup
   (4) PAS: Set Password configuration
        to factory defaults
```

Enter a parameter at the prompt

Parameter	Format or Range
Confirm reset	**y** or **n**

Direct access sequence: **1 1 1 4** [parameters]

Command Result

System action taken: The passwords are reset to their factory default values.

System message display:

```
Password configuration was set to
defaults.
```

Example

Enter: **1 1 1 4**

The following prompt is displayed:

```
Do you really want to reset config? [y/n]
```

Enter **y** to confirm. The following message appears:

```
Password configuration was set to defaults.
```

The passwords are reset to their factory values.

Setting Up for Management

You can set up and display parameters for remotely managing the CoreBuilder 9000 ATM Enterprise Switch. The CoreBuilder 9000 ATM Enterprise Switch needs these parameters to communicate via the network.

- Display Current IP Configuration
- Update IP Address
- Display Current NMS IP Address
- Update NMS Address
- Display Current Default Gateway IP Address
- Update Default Gateway IP Address
- Display Current IP Subnet Mask
- Update IP Subnet Mask
- Display Current Read Community String
- Update Read Community String
- Display Current Write Community String
- Update Write Community String
- Display Ethernet Encapsulation Type
- Update Ethernet Encapsulation Type
- Set Management Configuration to Factory Defaults

Display Current IP Configuration

Display the current IP address of the CoreBuilder 9000 ATM Enterprise Switch.

Command Actions

Enter the menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch Setup
  (2) MNG: Management Setup
   (1) SIP: IP Setup
    (1) GIP: Get IP Address
```

Direct access sequence: **`1 1 2 1 1`**

Command Result

System action taken: The current IP address is displayed.

System message display: `Current IP address:`

Example

Enter: **`1 1 2 1 1`**

The following message is displayed:

```
Current IP address: 151.104.78.86
```

The current IP address is displayed.

Update IP Address

Update the IP address of the CoreBuilder 9000 ATM Enterprise Switch. The default factory IP address is `0.0.0.0`.

The IP address is changed after the next reboot.

Command Actions

Enter the menu sequence:

```
(1) SYS: Platform configuration
 (1) SET: Switch setup
  (2) MNG: Management setup
   (1) SIP: IP Setup
    (2) SIP: Set IP Address
```

Enter a parameter at the prompt

Parameter	Format or Range
IP Address	Valid IP address

Direct access sequence: **`1 1 2 1 2`** [parameters]

Command Result

System action taken: The IP address is updated.

System message display:

```
IP address was successfully set for
next reboot.
```

Example

Enter: **`1 1 2 1 2 100.0.2.2`**

The following message is displayed:

```
IP address was successfully set for next reboot.
```

The IP address is updated to 100.0.2.2 and takes effect after the next reboot.

CAUTION: *Make sure to change the factory default IP address to a valid IP address that matches your network IP addresses.*

Display Current NMS IP Address

Display the current NMS IP address where the CoreBuilder 9000 ATM Enterprise Switch sends event traps.

Command Actions

Enter the menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch Setup
  (2) MNG: Management Setup
   (2) NMS: NMS Setup
    (1) GNS: Get NMS Address
```

Direct access sequence: **1 1 2 2 1**

Command Result

System action taken: Current NMS IP address is displayed.

System message display: `Current NMS address:`

Example

Enter: **1 1 2 2 1**

The following message is displayed:

```
Current NMS address: 151.104.78.75
```

The current NMS IP address is displayed.

Update NMS Address

Update the NMS IP address where the CoreBuilder 9000 ATM Enterprise Switch sends the event traps. The factory default NMS address is `255.255.255.255`.

The NMS IP address is changed after the next reboot

Command Actions

Enter the menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch Setup
  (2) MNG: Management Setup
   (2) NMS: NMS Setup
    (2) SNS: Set NMS Address
```

Enter a parameter at the prompt

Parameter	Format or Range
NMS address	Valid IP address

Direct access sequence: **`1 1 2 2 2`** [parameters]

Command Result

System action taken: The NMS address is updated.

System message display:

```
NMS address was successfully set for
the next reboot.
```

Example

Enter: **`1 1 2 2 2  100.1.0.131`**

The following message is displayed:

```
NMS address was successfully set for the next reboot.
```

The NMS address is updated to 100.1.0.131.

Display Current Default Gateway IP Address

Display the current Default Gateway IP address. The Default Gateway is used to locate the network management station (NMS) if the NMS is not found in the local IP subnetwork.

Command Actions

Enter the menu sequence:

```
(1) SYS: Platform configuration
 (1) SET: Switch setup
  (2) MNG: Management setup
   (3) GWY: Default Gateway Setup
    (1) GGW: Get Default Gateway
```

Direct access sequence: **1 1 2 3 1**

Command Result

System action taken: The current default gateway IP address is displayed.

System message display: `Current Default Gateway address:`

Example

Enter: **1 1 2 3 1**

The following message is displayed:

```
Current Default Gateway address: 151.104.78.20
```

The current default gateway IP address is displayed.

Update Default Gateway IP Address

Update the Default Gateway address. The default factory Default Gateway IP address is `151.104.78.20`.

The default gateway IP address is changed after the next reboot.

Command Actions

Enter the menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch Setup
  (2) MNG: Management Setup
   (3) GWY: Default Gateway Setup
    (2) SGW: Set Default Gateway
```

Enter a parameter at the prompt

Parameter	Format or Range
Default gateway address	Valid IP address

Direct access sequence: **1 1 2 3 2** [parameters]

Command Result

System action taken: The default gateway address is updated.

System message display:

```
Default Gateway address was
successfully set for the next reboot.
```

Example

Enter: **`1 1 2 3 2 100.1.0.254`**

The following message is displayed:

```
Default Gateway address was successfully set for the next
reboot.
```

The Default Gateway IP address is updated to 100.1.0.254 and takes effect after the next reboot.

Display Current IP Subnet Mask

Display the current IP subnet mask of the CoreBuilder 9000 ATM Enterprise Switch. The IP subnet mask is used in conjunction with the IP address.

Command Actions

Enter the menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch Setup
  (2) MNG: Management Setup
   (4) MSK: Subnet Mask Setup
    (1) GSM: Get Subnet Mask
```

Direct access sequence: **1 1 2 4 1**

Command Result

System action taken: The current IP subnet mask configuration is displayed.

System message display: `Current Subnet Mask address:`

Example

Enter: **1 1 2 4 1**

The following message is displayed:

```
Current Subnet Mask address: 255.255.255.0.
```

The current IP subnet mask configuration is displayed.

Update IP Subnet Mask

Update the IP subnet mask of the CoreBuilder 9000 ATM Enterprise Switch. The default factory IP subnet mask address is `255.255.255.0`.

Command Actions

Enter the menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch Setup
  (2) MNG: Management Setup
   (4) MSK: Subnet Mask Setup
    (2) SSM: Set Subnet Mask
```

Enter a parameter at the prompt

Parameter	Format or Range
Subnet mask address	Valid subnet mask

Direct access sequence: **`1 1 2 4 2`** [parameters]

Command Result

System action taken: The subnet mask address is updated.

System message display:

```
Subnet Mask address was successfully
set for the next reboot.
```

Example

Enter: **`1 1 2 4 2 255.255.0.0`**

The following message is displayed:

```
Subnet Mask address was successfully set for the next reboot.
```

The IP subnet mask is updated to 255.255.0.0, and takes effect after the next reboot.

Display Current Read Community String

Display the current Read Community String of the CoreBuilder 9000 ATM Enterprise Switch.

Command Actions

Enter the menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch Setup
  (2) MNG: Management Setup
   (5) GET: Read Community String Setup
    (1) GET: Get Read Community String
```

Direct access sequence: **1 1 2 5 1**

Command Result

System action taken: The current read community string is displayed.

System message display: `Current Read Community String:`

Example

Enter: **1 1 2 5 1**

The following message is displayed:

```
Current Read Community String: public.
```

The current read community string is displayed.

Update Read Community String

Update the Read Community String of the CoreBuilder 9000 ATM Enterprise Switch.

The read community string is updated after the next reboot.

Command Actions

Enter the menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch Setup
  (2) MNG: Management Setup
   (5) GET: Read Community String Setup
    (2) SET: Set Read Community String
```

Enter a parameter at the prompt

Parameter	Format or Range
Read community string	alphanumeric string up to 18 characters (normally set to `public` or `private`)

Direct access sequence: **`1 1 2 5 2`** [parameters]

Command Result

System action taken: The read community string is updated.

System message display:

```
Read Community String was successfully
set for the next reboot.
```

Example

Enter: **`1 1 2 5 2 public`**

The following message is displayed:

```
Read Community String was successfully set for the next
reboot.
```

The read community string is updated to `public` and takes effect after the next reboot.

Display Current Write Community String

Display the current Write Community String of the CoreBuilder 9000 ATM Enterprise Switch.

Command Actions

Enter the menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch Setup
  (2) MNG: Management Setup
   (6) SET: Write Community String Setup
    (1) GET: Get Write Community String
```

Direct access sequence: **1 1 2 6 1**

Command Result

System action taken: The current write community string is displayed.

System message display: `Current Write Community String:`

Example

Enter: **1 1 2 6 1**

The following message is displayed:

```
Current Write Community String: private
```

The current write community string is displayed.

Update Write Community String

Update the Write Community String of the CoreBuilder 9000 ATM Enterprise Switch.

The write community string is updated after the next reboot.

Command Actions

Enter the menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (2) MNG: Management setup
   (6) SET: Write Community String Setup
    (2) SET: Set Write Community String
```

Enter a parameter at the prompt

Parameter	Format or Range
Write community string	alphanumeric string up to 18 characters (normally set to `public` or `private`)

Direct access sequence: **`1 1 2 6 2`** [parameters]

Command Result

System action taken: The write community string is updated.

System message display:

```
Write Community String was successfully
set for the next reboot.
```

Example

Enter: **`1 1 2 6 2 private`**

The following message is displayed:

```
Write Community String was successfully set for the next
reboot.
```

The Write Community String is updated to `private` and takes effect after the next reboot.

Display Ethernet Encapsulation Type

Display the current Ethernet encapsulation type of the CoreBuilder 9000 ATM Enterprise Switch. The Ethernet encapsulation type parameter determines how the CoreBuilder 9000 ATM Enterprise Switch interprets Ethernet frames that enter through the Ethernet management port. For more information, see "Ethernet Encapsulation Type" on page 172 in the Operations Guide.

Command Actions

Enter the menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch Setup
  (2) MNG: Management Setup
   (7) ETH: Ethernet Type Setup
    (1) GET: Get Ethernet Type
```

Direct access sequence: **1 1 2 7 1**

Command Result

System action taken: The current Ethernet Type configuration is displayed.

System message display: `Current Eth Type is:`

Example

Enter: **1 1 2 7 1**

The following message is displayed:

```
Current Eth Type is: ETH.
```

The current Ethernet Type configuration is displayed.

Update Ethernet Encapsulation Type

Update the Ethernet encapsulation type of the CoreBuilder 9000 ATM Enterprise Switch. The options are:

- 1-ETH: Standard encapsulation — according to 802.3
- 0-LLC: Enhanced encapsulation

The default Ethernet encapsulation type is 1-ETH.

For more information, see "Ethernet Encapsulation Type" on page 172 in the Operations Guide.

The Ethernet encapsulation type is updated after the next reboot.

Command Actions

Enter the menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch Setup
  (2) MNG: Management Setup
   (7) ETH: Ethernet Type Setup
    (2) SET: Set Ethernet Type
```

Enter a parameter at the prompt

Parameter	Format or Range
Ethernet encapsulation type	**1** for type ETH **0** for type LLC

Direct access sequence: **1 1 2 7 2** [parameters]

Command Result

System action taken: The Ethernet encapsulation type is updated.

System message display:

```
Eth Type was successfully set for the
next reboot.
```

Example

Enter: **1 1 2 7 2 1**

The following message is displayed:

```
Eth Type was successfully set for the next reboot.
```

The Ethernet encapsulation type is updated to ETH and takes effect after the next reboot.

Set Management Configuration to Factory Defaults

Reset the management configuration to the factory defaults for the next reboot.

Command Actions

Enter the menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch Setup
  (2) MNG: Management Setup
   (8) MNG: Set management configuration
            to factory defaults
```

Direct access sequence: **1 1 2 8**

Command Result

System action taken: The management configuration is set to the factory defaults.

System message display:

```
Management configuration for next
reboot were set to defaults.
```

Example

Enter: **1 1 2 8**

The following prompt is displayed:

```
Do you really want to reset config? [y/n] y
```

The following message is displayed:

```
Management configuration for next reboot were set to
defaults.
```

The Management Configuration is set to the factory defaults.

Setting the Port Network Connection Type

You can set the network connection type for a specified port or a group of ports. To do this, you can use either the LMA or the integrated fast setup. If you want to use the fast setup, see the *CoreBuilder 9000 ATM Interface Module Getting Started Guide*. You can set the interface type to NNI, UNI, or PNNI.

- Display Network Connection Type
- Update Port Network Connection Type
- Reset NNI Configuration
- Reset All
- Reset All Except IP Addresses

PNNI is a feature available only in the extended software version. For details on obtaining the extended version, contact your 3Com representative.

Display Network Connection Type

Display the network connection type for each port of the CoreBuilder 9000 ATM Enterprise Switch. The network connection type may be Enhanced Interim InterSwitch Protocol (E-IISP), User to Network Interface (UNI), or Interim InterSwitch Protocol (IISP) or Private Network to Network Interface (PNNI).

Command Actions

Enter the menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch Setup
  (3) NNI: NNI Setup
   (3) GIF: NNI Get Interface Type
```

Direct access sequence: **1 1 3 3**

Command Result

System action taken: The interface type for each port of the CoreBuilder 9000 ATM Enterprise Switch is displayed.

System message display: Information is displayed as shown in the example.

Example

Enter: **`1 1 3 3`**

The following information is displayed for a 16-slot chassis:

```
Port:  < 1.1.1> < 1.1.2> < 1.1.3> < 1.1.4> < 1.2.1> < 1.2.2> < 1.2.3> < 1.2.4>
Value:   UNI      UNI      UNI      UNI      UNI      UNI      UNI      UNI
Port:  < 2.1.1> < 2.1.2> < 2.1.3> < 2.1.4> < 2.2.1> < 2.2.2> < 2.2.3> < 2.2.4>
Value:   UNI      UNI      UNI      UNI      UNI      UNI      UNI      UNI
Port:  < 3.1.1> < 3.1.2> < 3.1.3> < 3.1.4> < 3.2.1> < 3.2.2> < 3.2.3> < 3.2.4>
Value:   UNI      UNI      UNI      UNI      UNI      UNI      UNI      UNI
Port:  < 4.1.1> < 4.1.2> < 4.1.3> < 4.1.4> < 4.2.1> < 4.2.2> < 4.2.3> < 4.2.4>
Value:   UNI      UNI      UNI      UNI      UNI      UNI      UNI      UNI
Port:  < 5.1.1> < 5.1.2> < 5.1.3> < 5.1.4> < 5.2.1> < 5.2.2> < 5.2.3> < 5.2.4>
Value:   UNI      UNI      UNI      UNI      UNI      UNI      UNI      UNI
Port:  < 6.1.1> < 6.1.2> < 6.1.3> < 6.1.4> < 6.2.1> < 6.2.2> < 6.2.3> < 6.2.4>
Value:   UNI      UNI      UNI      UNI      UNI      UNI      UNI      UNI
Port:  < 7.1.1> < 7.1.2> < 7.1.3> < 7.1.4> < 7.2.1> < 7.2.2> < 7.2.3> < 7.2.4>
Value:   UNI      UNI      UNI      UNI      UNI      UNI      UNI      UNI
Port:  <10.1.1> <10.1.2> <10.1.3> <10.1.4> <10.2.1> <10.2.2> <10.2.3> <10.2.4>
Value:   UNI      UNI      UNI      UNI      UNI      UNI      UNI      UNI
Port:  <12.1.1> <12.1.2> <12.1.3> <12.1.4> <12.2.1> <12.2.2> <12.2.3> <12.2.4>
Value:   UNI      UNI      UNI      UNI      UNI      UNI      UNI      UNI
Port:  <14.1.1> <14.1.2> <14.1.3> <14.1.4> <14.2.1> <14.2.2> <14.2.3> <14.2.4>
Value:   UNI      UNI      UNI      UNI      UNI      UNI      UNI      UNI
Port:  <16.1.1> <16.1.2> <16.1.3> <16.1.4> <16.2.1> <16.2.2> <16.2.3> <16.2.4>
Value:   UNI      UNI      UNI      UNI      UNI      UNI      UNI      UNI
```

Example

Enter: **1 1 3 3**

The following information is displayed for a 7-slot chassis:

```
Port:  < 1.1.1> < 1.1.2> < 1.1.3> < 1.1.4> < 1.2.1> < 1.2.2> < 1.2.3> < 1.2.4>
Value:   UNI      UNI      UNI      UNI      UNI      UNI      UNI      UNI
Port:  < 2.1.1> < 2.1.2> < 2.1.3> < 2.1.4> < 2.2.1> < 2.2.2> < 2.2.3> < 2.2.4>
Value:   UNI      UNI      UNI      UNI      UNI      UNI      UNI      UNI
Port:  < 3.1.1> < 3.1.2> < 3.1.3> < 3.1.4> < 3.2.1> < 3.2.2> < 3.2.3> < 3.2.4>
Value:   UNI      UNI      UNI      UNI      UNI      UNI      UNI      UNI
Port:  < 4.1.1> < 4.1.2> < 4.1.3> < 4.1.4> < 4.2.1> < 4.2.2> < 4.2.3> < 4.2.4>
Value:   UNI      UNI      UNI      UNI      UNI      UNI      UNI      UNI
Port:  < 5.1.1> < 5.1.2> < 5.1.3> < 5.1.4> < 5.2.1> < 5.2.2> < 5.2.3> < 5.2.4>
Value:   UNI      UNI      UNI      UNI      UNI      UNI      UNI      UNI
Port:  < 6.1.1> < 6.1.2> < 6.1.3> < 6.1.4> < 6.2.1> < 6.2.2> < 6.2.3> < 6.2.4>
Value:   UNI      UNI      UNI      UNI      UNI      UNI      UNI      UNI
Port:  < 7.1.1> < 7.1.2> < 7.1.3> < 7.1.4> < 7.2.1> < 7.2.2> < 7.2.3> < 7.2.4>
```

Update Port Network Connection Type

Update the network connection type (EIISP, UNI, IISP or PNNI) for a specified port of the CoreBuilder 9000 ATM Enterprise Switch.

Command Actions

Enter the menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch Setup
  (3) NNI: NNI Setup
   (4) SIF: NNI Set Interface Type
```

Enter a parameter at the prompt

Parameter	Format or Range
Port number	slot.group.port (0.0 for all ports)
NNI interface type	**0** to set network connection type to EIISP **1** to set network connection type to UNI **2** to set network connection type to IISP **3** to set network connection type to PNNI

Direct access sequence: **1 1 3 4** [parameters]

Command Result

System action taken: The network connection type for the specified port is updated.

System message display:

```
EISP/UNI/IISP/PNNI type was set.
```

Example

Enter: **1 1 3 4 3.1.2 1**

The following message is displayed:

```
This operation will release all SVC connections of the
specified port(s)!
Are you sure (Y/N)?
```

Enter **y** to confirm. The following message is displayed:

```
UNI type was set.
```

The network connection type for port 3.1.2 is updated to UNI.

Reset NNI Configuration

Reset the NNI configuration parameters for the CoreBuilder 9000 ATM Enterprise Switch to their factory default settings. The default setting is UNI for all ports, and 7 for maximum number of hops.

Command Actions

Enter the menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch Setup
  (3) NNI: NNI Setup
   (5) NNI: Set NNI configuration to
            factory defaults
```

Direct access sequence: **1 1 3 5**

Command Result

System action taken: The NNI configuration parameters are reset to their factory default values.

System message display: `NNI configuration was set to defaults.`

Example

Enter: **1 1 3 5**

The following prompt is displayed:

```
Do you really want to reset config? [y/n]
```

Enter **y** to confirm. The following message is displayed:

```
NNI configuration was set to defaults.
```

The NNI configuration parameters are reset to UNI for all ports.

Resetting All Parameters

You can reset all parameters or all parameters except IP for the CoreBuilder 9000 ATM Enterprise Switch.

- Reset All
- Reset All Except IP Addresses

Reset All

Reset all configuration parameters for the CoreBuilder 9000 ATM Enterprise Switch to their factory default settings.

The new settings become active only after the next reboot.

The standby switch will remain in Suspended mode while the reboot is being performed.

Command Actions

Enter the menu sequence:

```
(1) SYS: Platform Configuration
  (2) FLS: Flash setup
    (1) RES: Reset Config to Defaults
```

Direct access sequence: **1 2 1**

Command Result

System action taken: All configuration parameters are reset to their factory default values.

System message display: Information is displayed as shown in the example.

Example

Enter: **1 2 1**

The following messages are displayed:

```
The new settings will become active after system reboot.
Note: It is suggested not to leave the system running for a long time
after reset to factory defaults as it may become unstable.

Do you really want to reset config? [y/n] y
Reset of all saved configuration was done.

Standby switch will remain in Suspended mode while reboot is performed.
This will reset and reboot the device!
Are you sure (Y/N)? y
```

All configuration parameters are reset to their factory values.

Reset All Except IP Addresses

Reset configuration parameters for the CoreBuilder 9000 ATM Enterprise Switch to their factory default settings with the exception of the IP parameters.

Some parameters are reset only after the next reboot. These parameters include ATM addresses, PVC, and NMS parameters.

Command Actions

Enter the menu sequence:

```
(1) SYS: Platform Configuration
 (2) FLS: Flash setup
  (2) RES: Reset All Except IP
           Addresses to Defaults
```

Direct access sequence: **1 2 2**

Command Result

System action taken: All configuration parameters except IP are reset to their factory default values.

System message display:

```
Reset of all saved configuration except
IP was done.
```

Example

Enter: **1 2**

The following message is displayed:

```
Reset of all saved configuration except IP was done.
```

All configuration parameters are reset to their factory values.

Downloading System Software

You can download the system software for the CoreBuilder 9000 ATM Enterprise Switch.

- Display Software Download Status
- Download System Software by TFTP
- Download System Software by Serial Port
- Upload Configuration
- Download Switch/LANE/PNNI Configuration

Display Software Download Status

Display the last TFTP software download status.

Command Actions

Enter the menu sequence:

```
(1) SYS: Platform Configuration
 (3) LOA: Load System Software
  (1) STS: Display TFTP Download Status
```

Direct access sequence: **1 3 1**

Command Result

System action taken: Last TFTP software download status is displayed.

System message display: See Table 11.

Messages Displayed

Table 11 describes the download system messages displayed by the command.

Table 11 Download Messages

Message	Meaning and Action
`System is loading from ip address, file. Received n%`	System is loading
`Completed successfully`	Download has completed
`Unknown`	No activity; nothing downloaded
`Error while downloading`	CRC error, download again. If the error persists, contact 3Com technical support.
`No response from server`	Bad connection ■ Check cable connection ■ Check if TFTP server is up ■ Check TFTP server IP address
`Checksum error`	Download again
`Image is incompatible with the device`	The downloaded file properties (for example, name) do not match the internal CoreBuilder® list of properties
`Image file not found`	Check if the file exists in the path
`System Loader cannot reach the server`	Check the following: ■ Cable connection ■ If TFTP server is up ■ TFTP server IP address
`Flash memory partially erased`	After downloading Switch Fabric Module software: Download software again via RS-232 port. After downloading ATM Interface Module software: Download software again via TFTP.

Example

Enter: **`1 3 1`**

The most recent TFTP software download status is displayed:

```
Completed successfully
```

Download System Software by TFTP

Perform TFTP software download. Specify the Server IP address and software file names. See the Release Notes for the full TFTP software download procedure.

The TFTP download procedure runs in the background. Therefore, no message is displayed at the end of the procedure. To check the status, use the Display Software Download Status option. For details, see "Display Software Download Status" on page 79.

Command Actions

Enter the menu sequence:

```
(1) SYS: Platform Configuration
 (3) LOA: Load System Software
  (2) FTP: Perform TFTP Software
           Download
```

Enter a parameter at the prompt

Parameter	Format or Range
Server IP address	<0.0.0.0>
File name	<file name>

Direct access sequence: **1 3 2** [parameters]

Command Result

System action taken: Software is downloaded by TFTP to the CoreBuilder 9000 ATM Enterprise Switch.

System message display: `Download process started . . .`

Example

Enter: **1 3 2**

The following prompts are displayed:

```
Server IP address: 100.1.0.131
Enter  file name: config1
Start download from 100.1.0.131, config1 (Y/N)? y
```

The following message is displayed:

```
Download process started...
```

Download System Software by Serial Port

Prepare for local software download via RS-232 serial port. There are two load modes: load and operational. See the Release Notes for the full RS-232 serial port software download procedure.

Table 12 describes the load modes that can be requested by the command.

Table 12 Load Modes

Load Mode	Description
Load	Prepares the CoreBuilder® 9000 ATM Enterprise Switch for the software download via the RS-232 port. After the reboot, the Switch changes to the waiting state for the download utilities via RS-232.
Operational	Returns the CoreBuilder 9000 ATM Enterprise Switch to run after any reboot.

Command Actions

Enter the menu sequence:

```
(1) SYS: Platform Configuration
 (3) LOA: Load System Software
  (3) LCL: Prepare for Local RS232
           Download
```

Enter a parameter at the prompt

Parameter	Format or Range
Load mode	**1** - Load Mode **0** - Operational Mode

Direct access sequence: **1 3 3** [parameters]

Command Result

System action taken: System is ready for RS-232 software download.

System message display:

```
Will be ready for software loading via
LMA port on the next reboot.
```

Example

Enter: **1 3 3 1**

The following message is displayed:

```
Will be ready for software loading via LMA port on the next
reboot.
```

The system software will be loaded from the LMA port upon reboot.

Upload Configuration

Upload the Switch configuration, LANE or LANE database configuration, or PNNI configuration from the CoreBuilder 9000 ATM Enterprise Switch to an external host. Specify the server IP address and the target configuration file name.

Command Actions.

Enter the menu sequence:

```
(1) SYS: Platform Configuration
 (3) LOA: Load System Software
  (4) TCU: Perform TFTP Configuration
           Upload
```

Enter a parameter at the prompt

Parameter	Format or Range
Configuration type	**1** - Switch Configuration **2** - LANE Configuration **3** - LANE Security Database **4** - PNNI Configuration
Server IP address	Valid IP address
Configuration file name	Name of the target configuration file

Direct access sequence: **1 3 4** [parameters]

Command Results

System action taken: The configuration is uploaded to the external host.

System message display:

```
Upload process started...
```

Example

Enter: **1 3 4 1 151.104.21.147 cfgtest.cfg**

The following prompt is displayed:

```
Start upload to 151.104.21.147, cfgtest.cfg (Y/N)? y
```

The following message is displayed:

```
Upload process started...
```

The configuration is uploaded to the host.

Download Switch/LANE/PNNI Configuration

Download the Switch configuration, LANE or LANE database configuration, or PNNI configuration from an external host to the CoreBuilder 9000 ATM Enterprise Switch. Specify the server IP address and the configuration file name.

After the configuration has been downloaded, the following operations are performed automatically:

1. The standby in-service switch (if it exists) changes to be the standby suspend switch.
2. The active switch is reset.

Command Actions.

Enter the menu sequence:

```
(1) SYS: Platform Configuration
 (3) LOA: Load System Software
  (5) TCD: Perform TFTP Configuration
           Download
```

Enter a parameter at the prompt

Parameter	Format or Range
Configuration type	**1** - Switch Configuration **2** - LANE Configuration **3** - LANE Security Database **4** - PNNI Configuration
Server IP address	Valid IP address
Configuration file name	Name of the source configuration file

Direct access sequence: **1 3 5** [parameters]

Command Results

System action taken: The configuration is downloaded from the external host.

System message display:

```
Download process started...
```

Example

Enter: **`1 3 5`**

The following message is displayed:

```
At the end of successful download of any configuration file,
the switch will be automatically rebooted.

No switch over to standby module (if present) will be
performed.
Do you really want to continue? y
```

The following prompts are displayed:

```
Server IP address: 151.104.21.147
Enter file name: cfgtest.cfg
Start download from 151.104.21.147, cfgtest.cfg (Y/N)? y
```

The following message is displayed:

```
Download process started...
```

The configuration is downloaded to the CoreBuilder 9000 ATM Enterprise Switch.

Managing Switch Fabric Modules

You can display Switch Fabric Module information for the CoreBuilder 9000 ATM Enterprise Switch.

- Display Switch Fabric Module Status
- Reset Switch
- Reset Standby Switch Fabric Module
- Set Standby Switch Fabric Module to Suspended/ In-service Mode
- Upgrade Software Files

Display Switch Fabric Module Status

Display information about each of the switch fabric modules present. If there are two switch fabric modules, one is used for standby. See the *CoreBuilder 9000 Switch Fabric Module Getting Started Guide* for more information about standby Switch Fabric Modules.

Command Actions

Enter the menu sequence:

```
(1) SYS: Platform configuration
 (4) SWM: Switch modules
  (1) DSS: Display Switch status
```

Direct access sequence: **1 4 1**

Command Result

System action taken: CoreBuilder 9000 ATM Switch Fabric Module information is displayed.

System message display: Information is displayed as shown in the example.

Example

Enter: **1 4 1**

ATM Switch Fabric Module information is displayed:

```
Slot id    Slot status     Switch type         Switch mode     Memory size
-------    ------------    ----------------    ------------    ------------
 *   8    Occupied         22x22 ATM switch    Active          64 MB
     9           Occupied   22x22 ATM switch    In-Srv STBY     64 MB

 Switch MAC address: 00.c0.da.7f.92.29
 Switch sys up time: 0 day(s), 00:38:11
```

Switch Fabric Module Parameters

Table 13 describes the switch fabric module parameters displayed by the command.

Table 13 Switch Fabric Module Parameters

Name	Description
Slot ID	Specifies the slot number in the chassis (slots 8 or 9). The asterisks (***) that appear before the Slot ID indicate to which Switch Fabric Module you are connected.
Slot Status	Specifies whether or not the slot contains a module, and whether or not the module is operational. There are three possible status values: ■ Occupied: Operational module in slot ■ Fail: Non-operational module in slot ■ Free: No module in slot.
Switch Type	Specifies the CoreBuilder® 9000 ATM Enterprise Switch Fabric Module type ■ 22 x 22 ATM Switch (Module)
Switch Mode	Can be: ■ Initialize ■ Active (online) ■ Standby: Inservice (In-Srv STBY) ■ Standby: Suspend (Suspend STBY)
Memory Size	Specifies the memory capacity of the switch: ■ 64MB (extendable to 128 MB or 192 MB)

Reset Switch Reset the active switch fabric module. After the switch has been reset, the system is rebooted.

While the system reboots (approx. 5 minutes), the standby switch automatically becomes active.

When the standby switch fabric module is active, a new main menu containing the following four options is displayed:

- `(1) Display Switch status`. For details, see "Display Switch Fabric Module Status" on page 86.
- `(2) Reset Standby Switch Fabric Module.` For details, see "Reset Standby Switch Fabric Module" on page 89.
- `(3) Logout.` For details, see "Logout" on page 100.
- `(4) Version.` For details, see "Display Software Versions" on page 104.

Command Actions

Enter the menu sequence:

```
(1) SYS: Platform configuration
 (4) SWM: Switch modules
  (2) RSM: Reset Switch
```

Direct access sequence: **`1 4 2`**

Command Result

System action taken: The active switch fabric module is reset.

System message display: Information is displayed as shown in the example.

Example

Enter: **`1 4 2`**

The following prompt is displayed:

```
Do you really want to reboot the switch? [y/n] y
```

The switch is rebooted and the following messages are displayed:

```
Bootstrap  V1.10  Jul  7 1998
                       CB9000  3Com NCD
                    ============================
Moving the file from FLASH to DRAM ....
Going to operational code ....
```

Reset Standby Switch Fabric Module

Reset the standby switch fabric module.

Command Actions

Enter the menu sequence:

```
(1) SYS: Platform configuration
 (4) SWM: Switch modules
  (3) SSM: Stand-by Switch Module
   (1) RSS: Reset Stand-by Switch
            Module
```

Direct access sequence: **1 4 3 1**

Command Result

System action taken: The standby switch fabric module is reset.

System message display: Information is displayed as shown in the example.

Example

Enter: **1 4 3 1**

The following prompt is displayed:

```
Do you really want to reboot the switch? [y/n] y
```

The switch is rebooted and the following messages are displayed:

```
Bootstrap  V1.10  Jul  7 1998
                      CB9000  3Com NCD
                    ============================
Moving the file from FLASH to DRAM ....
Going to operational code ....
```

Set Standby Switch Fabric Module to Suspended/ In-service Mode

Set the standby switch fabric module to suspended/in-service mode. When the standby switch fabric module is suspended, it cannot be used to replace the active switch fabric module.

Command Actions

Enter the menu sequence:

```
(1) SYS: Platform configuration
 (4) SWM: Switch modules
  (3) SSM: Stand-by Switch Module
   (2) SIS: Stand-by
                In-service/Suspended
```

Direct access sequence: **1 4 3 2**

Command Result

System action taken: The standby switch is set to suspended/in-service mode.

System message display:

```
Stand-by Switch mode changed to
Suspended/In-Service mode.
```

Example

Enter: **1 4 3 2**

The following prompt is displayed:

```
Put Stand-by Switch to Suspended mode!
Are you sure (Y/N)? y
```

The following message is displayed:

```
Stand-by Switch mode changed to Suspended mode.
```

Upgrade Software Files

Upgrade the software on the standby switch fabric module from the active switch fabric module. After upgrading, the standby switch fabric module must be reset. See "Reset Standby Switch Fabric Module" on page 89 for details on how to reset the standby switch fabric module.

Command Actions

Enter the menu sequence:

```
(1) SYS: Platform configuration
 (4) SWM: Switch modules
  (3) SSM: Stand-by Switch Module
   (3) SSU: Stand-by Software Upgrade
    (1) USF: Upgrade Software Files
```

Direct access sequence: **1 4 3 3 1**

Command Result

System action taken: The software on the standby switch fabric module is updated.

System message display:

```
The upgrading process will start
shortly and take about 5 minutes.

The upgraded files will be active only
after Stand-by SWM reset.
```

Example

Enter: **1 4 3 3**

The following prompt is displayed:

```
Upgrade software files!
Are you sure (Y/N)? y
```

The following messages are displayed:

```
The upgrading process will start shortly and take about 5
minutes.
The upgraded files will be active only after Stand-by SWM
reset.
```

Configuring Interface Modules

You can configure parameters for the interface modules of the CoreBuilder 9000 ATM Enterprise Switch.

- Display Interface Module Information and Parameters
- Set Port Frame Mode
- Set Port Clock Mode
- Set Loop Mode
- Reset Interface Card

Display Interface Module Information and Parameters

Display the slot ID, slot status, and card type of each of the 11 interface modules or display parameters of an installed interface module. You are prompted to specify an interface module for display.

Command Actions

Enter the menu sequence:

```
(1) SYS: Platform configuration
 (5) IFC: Interface cards
  (1) GIF: Get interface card info
```

Enter a parameter at the prompt

Parameter	Format or Range
Slot ID	1 through 6 in the 7-slot chassis and 8-slot chassis and 1 through 7, 10, 12, 14, and 16 in the 16-slot chassis for interface card information or 0 for general slot information.

Direct access sequence: **1 5 1** [parameters]

Command Result

System action taken: Interface Card parameters for a specific card or ATM Interface Module parameters for a specific slot "slot ID" or for all slots (for slot ID=0) are displayed.

System message display: Information is displayed as shown in the examples.

Interface Module Slot Occupancy Parameters

Table 14 describes the Interface Module slot occupancy parameters displayed by the command.

Table 14 Slot ID Parameters

Parameter	Description
Slot ID	The slot ID number.
Slot Status	The slot may be “Free” or “Occupied”.
Interface card type	The card type is displayed.
Interface card status	The port may be “Up” or “Doesn’t exist”.

Example (for the 16-slot chassis and 7-slot chassis)

Enter: **`1 5 1 0`**

Interface Module slot occupancy information for the 16-slot chassis is displayed as follows:

```
Slot id     Slot  status     Interface card type Interface card status
  -------     ------------     ------------------- --------------------
     1        Occupied          ATM I/F card        Up
     2        Free                                  Doesn’t exist
     3        Free                                  Doesn’t exist
     4        Free                                  Doesn’t exist
     5        Occupied ATM I/F card        Up
     6        Free                                  Doesn’t exist
     7        Free                                  Doesn’t exist
    10        Free                                  Doesn’t exist
    12        Free                                  Doesn’t exist
    14        Free                                  Doesn’t exist
    16        Free                                  Doesn’t exist
```

Interface Module slot occupancy information for the 7-slot chassis is displayed as follows:

```
Slot id     Slot  status     Interface card type Interface card status
  -------     ------------     ------------------- ---------------------
     1        Occupied          ATM I/F card        Up
     2        Free                                  Doesn't exist
     3        Free                                  Doesn't exist
     4        Free                                  Doesn't exist
     5        Occupied ATM I/F card        Up
     6        Free                                  Doesn't exist
     7        Free                                  Doesn't exist
```

Interface Card Parameters

Table 15 describes the interface parameters displayed by the command for a specific slot ID.

Table 15 Interface Parameters

Parameter	Description
Port ID	The port number for each of the module's ports in the format slot.group.port.
Interface Type	The port interface type (for example, OC3-SC). The type determines the interface, including the type of connector.
Media Type	The type of media used by the port (for example, coaxial cable, multi-mode fiber).
Operational Status	The port may be "up" or "down", "up & connect" , or "doesn't exist."
Port Status	Whether the port has been enabled or disabled by management. Can be either "enabled" or "disabled". If a port is disabled, the CoreBuilder® 9000 cannot connect to the other side via this port.
Frame Mode	The interface framing mode. Can be SDH or SONET.
Clock Src	This may be normal (Nrm) or Loop timing (Lpt).
Loop Mode	Indicate the loopback state of the ATM interface module port. May be "None", "Loop Forward" or "Loop Back".

Example

Enter: **1 5 1 5**

Parameters of the ports of the selected ATM Interface Module in slot 5 are displayed in the following example. The ATM Interface Module contains an OC-12c/STM-4 card, an OC-3c/STM-1 card and a 155 Mbps-over-UTP5 card.

```
Port   Interface  Media type           Operational  Port       Frame     Clk    Loop
id     type                            status       status     mode      mode    mode
------ ---------- --------------------- ------------ --------     -----     ---     ----
5.1.1   OC3-SC    MM fiber              Up & Connect  Disabled   SONET     Lpt    None
5.1.2   OC3-SC    MM fiber              Up & Connect  Enabled    SONET     Lpt    None
5.1.3   OC3-SC    MM fiber              Up            Enabled    SONET     Lpt    None
5.1.4   OC3-SC    MM fiber              Up            Enabled    SONET     Lpt    None
5.2.1   OC12-SC   MM fiber              Up            Enabled    SONET     Lpt    None
5.2.2   155-RJ45  UTP_5 Copper(User)    Up            Enabled    SONET     Lpt    None
5.2.3                                   Not exist     Enabled    SONET     Lpt    None
5.2.4                                   Not exist     Enabled    SONET     Lpt    None
```

Set Port Frame Mode

Set the interface mode of the selected port as SDH or SONET and save to flash memory. You are prompted to specify a port and a mode.

Command Actions

Enter the menu sequence:

```
(1) SYS: Platform Configuration
 (5) IFC: Interface Cards
  (3) SFM: Set Port Frame Mode
```

Enter a parameter at the prompt

Parameter	Format or Range
Port ID	slot.group.port (0.0 - For all)
Frame Mode	**0** - SDH **1** - SONET

Direct access sequence: **1 5 3** [parameters]

Command Result

System action taken: The frame mode of the selected port on the interface module is set and saved.

System message display:

```
Setting port frame mode has completed
successfully.
```

***CAUTION**: When setting the port frame mode on one of the ports of an OC-3c or 155 Mbps-over-UTP5 card, all four ports are automatically updated, even if only one port was selected.*

Example

Enter: **1 5 3 5.1.1 0**

The following messages are displayed:

```
The following settings will take place:
Changing port <5.1.1> setting from SONET mode to SDH mode.
Changing port <5.1.2> setting from SONET mode to SDH mode.
Changing port <5.1.3> setting from SONET mode to SDH mode.
Changing port <5.1.4> setting from SONET mode to SDH mode.
Do you really want to do these changes? (Y/N)? y
```

Enter **y** to confirm. The following message is displayed:

```
Setting port frame mode has completed successfully.
```

The selected port(s) are set and saved.

Set Port Clock Mode

Set the port clock command mode of a selected port as Normal or Loop Timing and save to flash memory. You are prompted to specify a port and a mode.

Command Actions

Enter the menu sequence:

```
(1) SYS: Platform Configuration
 (5) IFC: Interface Cards
  (4) PCK: Set Port Clock Mode
```

Enter a parameter at the prompt

Parameter	Format or Range
Port Number	slot.group.port (0.0 - For all)
Port Clock Mode	**0** for Normal **1** for Loop timing

Direct access sequence: **1 5 4** [parameters]

Command Result

System action taken: The clock operational mode of the selected port on the interface module is set and saved.

System message display:

```
Setting port clock mode command has
completed successfully.
```

Example

Enter: **1 5 4 1.1.2 1**

The following message is displayed:

```
Setting port clock mode command has completed successfully.
```

The clock operational mode of port 1.1.2 is set to loop timing.

Set Loop Mode

Set the loop mode of selected port as None, Loop Forward or Loop Back. You are prompted to specify a port and a mode. For details on loop mode, see the IFC User Guide.

Command Actions

Enter the menu sequence:

```
(1) SYS: Platform Configuration
 (5) IFC: Interface Cards
  (5) SLM: Set Loop Mode
```

Enter a parameter at the prompt

Parameter	Format or Range
Port Number	slot.group.port (0.0 - For all)
Loop Mode	**0** for No loop **1** for Loop back **2** for Loop forward

Direct access sequence: **1 5 5** [parameters]

Command Result

System action taken: The loop mode of the selected port on the interface module is set and saved.

System message display:

```
Setting loop mode has completed
successfully.
```

CAUTION: *When setting the loop mode on one of the ports of an OC-3c or 155 Mbps-over-UTP5 card to Loop back, all four ports are automatically updated, even if only one port was selected.*

Example

Enter: **1 5 5 1.1.2 1**

The following messages are displayed:

```
The following settings will take place:
Changing port <1.1.1> setting from no loop mode to loopback mode.
Changing port <1.1.2> setting from no loop mode to loopback mode.
Changing port <1.1.3> setting from no loop mode to loopback mode.
Changing port <1.1.4> setting from no loop mode to loopback mode.
Do you really want to do these changes ? (Y/N)? y
Setting port loop mode command has completed successfully.
```

The loop mode of port 1.1.2 is set to Loop back.

Reset Interface Card

Reset the interface module in a specific slot, or all the interface module.

Command Actions

Enter the menu sequence:

```
(1) SYS: Platform Configuration
 (5) IFC: Interface Cards
  (6) RST: Reset Interface Card
```

Enter a parameter at the prompt

Parameter	Format or Range
Slot Number	1 - 16 or 0 for all

Direct access sequence: **1 5 6** [parameters]

Command Result

System action taken: The selected interface module is reset.

System message display:

```
The interface card was reset.
```

Example

Enter: **1 5 6 0**

The following prompt is displayed:

```
Do you really want to reset all the interface cards (Y/N)?
```

Enter **y** to confirm. The following message is displayed:

```
All the interface cards were reset.
```

Logging Out and Rebooting

You can log out and reboot the CoreBuilder 9000 ATM Enterprise Switch.

- Logout
- Reboot
- Configuration Flash Status

Logout

Log out of the current session.

Command Actions

Enter the menu sequence: `(7) LOG: Logout`

Direct access sequence: **7**

Command Result

System action taken: Logs out the system.

Example

Enter: **7**

The system is logged out.

Reboot

Reboot the system.

Command Actions

Enter the menu sequence:

```
(1) SYS: Platform Configuration
 (7) RBO: Reboot
```

Enter a parameter at the prompt

Parameter	Format or Range
Confirm reboot	**y** or **n**

Direct access sequence: **`1 7`**

Command Result

System action taken: Reboots the ATM Enterprise Switch.

System message display:

```
Rebooting the system....
```

Example

Enter: **`1 7`**

The following prompt is displayed:

```
Do you really want to reboot the system? (y/n)?
```

Enter **`y`** to confirm. The following message is displayed:

```
Rebooting the system....
```

The reboot operation takes about 1 minute. After reboot, the login screen is displayed.

Configuration Flash Status

Show status of the configuration flash. When you change the configuration of the CoreBuilder 9000 ATM Enterprise Switch, the new configuration is stored in the configuration flash. This command indicates when the new configuration has been successfully stored.

Before you power cycle (turn off and on) the Switch, make sure that the configuration flash has been updated.

Command Actions

Enter the menu sequence:
```
(1) SYS: Platform Configuration
 (6) FLS: Configuration Flash Status
```

Direct access sequence: **`1 6`**

Command Result

System action taken: Displays configuration flash status

System message display:
```
Configuration flash is up-to-date.
```

Example

Enter: **`1 6`**

The following message is displayed:

```
Configuration flash is up-to-date.
```

ATM Features and Software Versions

You can display the following ATM features and the software version number:

- Display ATM Features
- Display Software Versions

Display ATM Features

Display the ATM features available on this CoreBuilder 9000 ATM Enterprise Switch.

Command Actions

Enter the menu sequence: `(6) FTR: ATM Features`

Direct access sequence: **6**

Command Result

System action taken: Displays ATM features.

System message display: Information is displayed as shown in the example.

Example

Enter: **6**

The following information is displayed:

```
- SVC signaling compliant with UNI 3.0/3.1
- PVC support via management
- P2P support
- P2M support
- ILMI address registration compliant with UNI 3.0/3.1
- LE services are not supported
- IISP support for NNI
- e-IISP support for NNI
- VPI/VCI per OC3
  <x.x.1> <x.x.2>  MAX VPI = 7  MAX VCI 511
  <x.x.3> <x.x.4>  MAX VPI = 3  MAX VCI 511
- VPI/VCI per OC12
                  MAX VPI = 7  MAX VCI 1023
```

Display Software Versions

Display the software versions currently installed in the LMA and in the CoreBuilder 9000 ATM Interface Modules. Consult your release notes for latest software version numbers.

Command Actions

Enter the menu sequence: `(8) VER: Version`

Direct access sequence: **8**

Command Result

System action taken: The software versions are displayed.

System message display: Information is displayed as shown in the example.

Example

Enter: **8**

The following information is displayed:

```
CoreBuilder 9000 ATM Enterprise Switch Version:
------------------------
Switch Management software version:     3.0
Interface Control Card 2 version:     V_1.29
Interface Control Card 5 version:     V_1.29

DATE Dec 23 1998:  TIME 08:19:21
```

LECS ATM Address

You can display and update the LAN Emulation Configuration Server (LECS) ATM address.

- Display LECS ATM Address
- Update LECS ATM Address

Display LECS ATM Address

Display the ATM address of the LECS in the CoreBuilder 9000 ATM Enterprise Switch unit.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch Setup
  (5) SLE: LE Setup
   (2) LCS: LECS Setup
    (4) GLA: Get Active LECS ATM Addr
```

Direct access sequence: **1 1 5 2 4**

Command Result

System action: The LECS ATM address is displayed.

System message display: `Active lecs atm addr: <address>`

Example

Enter: **1 1 5 2 4**

The following message is displayed:

```
Active lecs atm addr:
47.00.00.00.00.00.3c.00.00.a*.00.a0.3e.00.00.01.00
```

Update LECS ATM Address

Update the LECS ATM address in the CoreBuilder 9000 ATM Enterprise Switch.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch Setup
  (5) SLE: LE Setup
   (2) LCS: LECS Setup
    (5) SLA: Set Active LECS ATM Addr
```

Enter parameter at prompt

Parameter	Format or Range
ATM address	in Hex

Direct access sequence: **1 1 5 2 5** [parameters]

Command Result

System action: The LECS ATM address is updated.

System message display: `Active LECS addr:<address>`

Example

Enter: **1 1 5 2 5**

The latest saved LECS ATM address is displayed. To change it, use the backspace key and enter the new address.

```
Active LECS addr - net prefix: 47.00.00.00.00.00.3c.00.00.a*
Active LECS addr - user part: 00.a0.3e.00.00.01.00
```

Setting Up the Switch Clock Source

Using this option, you can set up all the parameters to configure and synchronize the data speed clocks on different ports of the CoreBuilder 9000 ATM Enterprise Switch to an external clock source.

- Get Clock Source Status
- Set External Clock Source 1
- Set External Clock Source 2
- Set Clock Source to Internal

Get Clock Source Status

Display the active clock status and the current status of the ports defined as the active and standby clock ports.

The active clock source may be Internal or External. If the active clock source is External, one of the source ports must be active and the other source port may be None, Standby or Failed (not connected). If the active clock source is Internal, that is, no source port has been defined as the active clock port, the source ports are both set to None.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (8) SCS: Switch Clock Synchronization
          Setup
   (1) GET: Get Clock Source Status
```

Direct access sequence: **1 8 1**

Command Result

System action: The current active clock source and current external clock port statuses are displayed.

System message display: Information is displayed as shown in the example.

Example

Enter: **1 8 1**

The clock source information is displayed:

```
Active Clock source is EXTERNAL
External Clock source port 1 is <1.2.4>    active
External Clock source port 2 is <5.1.2>    standby
```

Set External Clock Source 1

Set a port to be the first external clock source port. If the port does not exist, is disabled, is in loop timing mode, loopback or loop forward, it cannot be used as an external clock source port.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (8) SCS: Switch Clock Synchronization
          Setup
  (2) SP1: Set External Clock Source 1
```

Enter parameter at prompt

Parameter	Format or Range
Clock source	<slot.group.port> or **None**

Direct access sequence: **1 8 2** [parameter]

Command Result

System action: The port is set to be the active clock source port.

System message display:

```
External clock source port 1 was
successfully configured to port
<slot.group.port>.
```

If the port has already been set to be the first or second clock source, it is meaningless to set the port again. In this case, the command is ignored and the following message is displayed:

```
Clock source 2 is already set to this port.
It is meaningless to set the two sources to the same port,
operation ignored.
```

Example

Enter: **1 8 2 5.1.2**

The following message is displayed:

```
External clock source port 1 was successfully configured to
port 5.1.2.
```

Set External Clock Source 2

Set a port to be the second external clock source port. If the port does not exist, is disabled, is in loop timing mode, loopback or loop forward, it cannot be used as an external clock source port.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (8) SCS: Switch Clock Synchronization
          Setup
  (3) SP2: Set External Clock Source 2
```

Enter parameter at prompt

Parameter	Format or Range
Clock source	<slot.group.port> or **None**

Direct access sequence: **1 8 3** [parameter]

Command Result

System action: The port is set to be the active clock source port.

System message display:

```
External clock source port 2 was
successfully configured to port
<slot.group.port>.
```

If the port has already been set to be the first or second clock source, it is meaningless to set the port again. In this case, the command is ignored and the following message is displayed:

```
Clock source 1 is already set to this port.
It is meaningless to set the two sources to the same port,
operation ignored.
```

Example

Enter: **1 8 3 5.1.2**

The following prompt is displayed:

```
This operation will change the active clock source.
Do you really want to change it (Y/N)? Y
```

The following message is displayed:

```
External clock source port 2 was successfully configured to
port <5.1.2>.
```

Set Clock Source to Internal

Reset the clock source configuration to its default values.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (8) SCS: Switch Clock Synchronization
          Setup
  (4) RST: Set Clock Source to Internal
```

Direct access sequence: **1 8 4**

Command Result

System action: The clock source configuration is reset to its default values.

System message display:

```
Clock Source configuration was set to
default.
```

Example

Enter: **1 8 4**

The following prompt is displayed:

```
Do you really want to reset config? [y/n] y
```

The following message is displayed:

```
Clock Source configuration was set to default.
```

6 MANAGING NETWORK INTERFACES

This chapter describes how you view and define network interfaces with the CoreBuilder® 9000 ATM Enterprise Switch.

- ILMI Setup
- ATM Addresses Port Table
- Network Prefix

ILMI Setup

You can configure the Interim Local Management Interface (ILMI) with the following options:

- Display ILMI Version
- Update ILMI Version
- Display Auto-configuration Status
- Update Auto-configuration Status
- Display Auto-discovery Status
- Update Auto-discovery status
- Display LECS Access Options
- Update LEC/LECS Communication Channel
- Display ILMI Channel Polling Status
- Update ILMI Channel Polling Status
- Display ILMI Channel Polling Interval
- Update ILMI Channel Polling Interval

For more information about the ILMI, "Interim Local Management Interface (ILMI)" on page 50 in the Operations Guide.

Display ILMI Version

Display the ILMI version for the specified port of the CoreBuilder 9000 ATM Enterprise Switch. For more information, see "Basic ILMI Functions" on page 51 in the Operations Guide.

Command Actions

Enter the menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch Setup
  (8) IME: ILMI Setup
   (1) VER: ILMI Version Setup
    (1) GET: Get ILMI Version
```

Enter a parameter at the prompt

Parameter	Format or Range
Port ID	<slot.group.port> or **0.0** for all ports

Direct access sequence: **1 1 8 1 1** [parameters]

Command Result

System action taken: The ILMI version for the specified port is displayed.

System message display: `ILMI version is <3.0/3.1/4.0>`

Example

Enter: **1 1 8 1 1 3.1.2**

The following message is displayed:

```
ILMI version is 3.1.
```

Update ILMI Version

Update the ILMI Version for the specified port in the CoreBuilder 9000 ATM Enterprise Switch.

Command Actions

Enter the menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch Setup
  (8) IME: ILMI Setup
   (1) VER: ILMI Version Setup
    (2) SET: Set & Save ILMI Version
```

Enter a parameter at the prompt

Parameter	Format or Range
Port ID	<slot.group.port>
IMLI version	**0** to update to version 3.0 **1** to update to version 3.1 **2** to update to version 4.0

Direct access sequence: **1 1 8 1 2** [parameters]

Command Result

System action taken: The ILMI Version is updated for the selected port.

System message display:

```
ILMI version is reconfigured.
```

Example

Enter: **1 1 8 1 2 3.1.2 1**

The following message is displayed:

```
ILMI version is reconfigured.
```

The ILMI version of port 3.1.2 is updated to 3.1.

Display Auto-configuration Status

Display the auto-configuration status for the specified port of the CoreBuilder 9000 ATM Enterprise Switch. Auto-configuration determines, by negotiation, the User-Network Interface (UNI) parameters for the specified port. The configuration options are enabled (auto-configured) or disabled (not auto-configured). For more information about auto-configuration, see "Auto-Configuration" on page 62 in the Operations Guide.

Command Actions

Enter the menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch Setup
  (8) IME: ILMI Setup
   (2) AUC: Auto-Configuration Setup
    (1) GET: Get Auto-Configuration
             ON/OFF Status
```

Enter a parameter at the prompt

Parameter	Format or Range
Port ID	<slot.group.port>

Direct access sequence: **1 1 8 2 1** [parameters]

Command Result

System action taken: The auto-configuration status for the specified port is displayed.

System message display:

```
Auto-Configuration is
<ENABLED/DISABLED>.
```

Example

Enter: **1 1 8 2 1 3.1.2**

The following message is displayed:

```
Auto-Configuration is ENABLED.
```

Update Auto-configuration Status

Update the Auto-configuration Status for the specified port in the CoreBuilder 9000 ATM Enterprise Switch. Enable the Auto-configuration Status only if both ATM Switch Fabric Modules have an auto-configuration capability. For more information about auto-configuration, see "Auto-Configuration" on page 62 in the Operations Guide.

Command Actions

Enter the menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch Setup
  (8) IME: ILMI Setup
   (2) AUC: Auto-Configuration Setup
    (2) SET: Set Auto-Configuration
             ON/OFF Status
```

Enter a parameter at the prompt

Parameter	Format or Range
Port ID	<slot.group.port>
Auto-configuration enable/disable	**0** to disable auto-configuration **1** to enable auto-configuration

Direct access sequence: **1 1 8 2 2** [parameters]

Command Result

System action taken: The Auto-configuration Status is updated for the selected port.

System message display:

```
Auto-Configuration is set to
<ENABLED/DISABLED>.
```

Example

Enter: **1 1 8 2 2 3.1.2 1**

The following message is displayed:

```
Auto-Configuration is set to ENABLED.
```

The auto-configuration status of port 3.1.2 is enabled.

Display Auto-discovery Status

Display the auto-discovery status for the specified port of the CoreBuilder 9000 ATM Enterprise Switch. Auto-discovery determines, by negotiation, the common protocol parameters, ATM interface type and IME type to be used by the ILMI channel. The status can be either enabled or disabled. For more information about auto-discovery, see "Auto-Discovery" on page 57 in the Operations Guide.

Command Actions

Enter the menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch Setup
  (8) IME: ILMI Setup
   (3) AUD: Auto-Discovery Setup
    (1) GET: Get Auto-Discovery
             ON/OFF Status
```

Enter a parameter at the prompt

Parameter	Format or Range
Port ID	<slot.group.port>

Direct access sequence: **1 1 8 2 1** [parameters]

Command Result

System action taken: The auto-configuration status for the specified port is displayed.

System message display:

```
Auto-Configuration is
<ENABLED/DISABLED>.
```

Example

Enter: **1 1 8 2 1 3.1.2**

The following message is displayed:

```
Auto-Configuration is ENABLED.
```

Update Auto-discovery status

Enable or disable the auto-discovery status for the specified port of the CoreBuilder 9000 ATM Enterprise Switch. Auto-discovery determines, by negotiation, the common protocol parameters, ATM interface type and IME type to be used by the ILMI channel. The status can be either enabled or disabled. For more information about auto-discovery, see "Auto-Discovery" on page 57 in the Operations Guide.

Command Actions

Enter the menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch Setup
  (8) IME: ILMI Setup
   (3) AUD: Auto-Discovery Setup
    (2) SET: Set & Save Auto-Discovery
             ON/OFF Status
```

Enter a parameter at the prompt

Parameter	Format or Range
Port ID	<slot.group.port> or **0.0** for all ports
Auto-discovery enable/disable	**0** to disable auto-discovery **1** to enable auto-discovery

Direct access sequence: **1 1 8 2 1** [parameters]

Command Result

System action taken: The auto-discovery status is updated for the selected port immediately and is saved in flash.

System message display:

```
Auto-Discovery is <ENABLED/DISABLED>.
```

Example

Enter: **1 1 8 2 1 3.1.2**

The following message is displayed:

```
Auto-Discovery is ENABLED.
```

Display LECS Access Options

Display the current communication channel between LEC and LECS for the specified port of the CoreBuilder 9000 ATM Enterprise Switch. The LECS-via-ILMI parameter determines whether the LEC that is attached to the port connects to the LECS by ILMI or by the *well-known* address.

Command Actions

Enter the menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch Setup
  (8) IME: ILMI Setup
   (4) MIB: ILMI MIB View Setup
    (1) GET: Get LECS via ILMI
             ON/OFF Status
```

Enter a parameter at the prompt

Parameter	Format or Range
Port ID	<slot.group.port>

Direct access sequence: **1 1 8 3 1** [parameters]

Command Result

System action taken: The LECS-via-ILMI status for the specified port is displayed.

System message display:

```
LECS via ILMI is <ENABLED/DISABLED>.
```

Example

Enter: **1 1 8 3 1 3.1.2**

The following message is displayed:

```
LECS via ILMI is ENABLED.
```

Update LEC/LECS Communication Channel

Update the LECS-via-ILMI parameter for the specified port in the CoreBuilder 9000 ATM Enterprise Switch. If this parameter is enabled, the LEC communicates on the channel VPI/VCI = (0/16) with the ILMI MIB. It submits an inquiry to obtain the LECS address. If this parameter is disabled, the LEC connects to the LECS using the well-known address or via the preconfigured LECS address in the LEC.

Command Actions

Enter the menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch Setup
  (8) IME: ILMI Setup
   (4) MIB: ILMI MIB View Setup
    (2) SET: Set LECS via ILMI
             ON/OFF Status
```

Enter a parameter at the prompt

Parameter	Format or Range
Port ID	<slot.group.port>
LECS-via-ILMI enable/disable	**0** to disable LECS-via-ILMI **1** to enable LECS-via-ILMI

Direct access sequence: **1 1 8 3 2** [parameters]

Command Result

System action taken: The LECS-via-ILMI status is updated for the selected port.

System message display:

```
LECS via ILMI is set to
<ENABLED/DISABLED>.
```

Example

Enter: **1 1 8 3 2 3.1.2 1**

The following message is displayed:

```
LECS via ILMI is set to ENABLED.
```

The LECS-via-ILMI status of port 3.1.2 is enabled.

Display ILMI Channel Polling Status

Display the ILMI channel polling facility status for the specified port of the CoreBuilder 9000 ATM Enterprise Switch. If enabled, the ILMI channel VPI/VCI = (0/16) is periodically polled for connectivity. For more information, see "Status Information" on page 52 in the Operations Guide.

Command Actions

Enter the menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch Setup
  (8) IME: ILMI Setup
   (5) POL: Polling Setup
    (1) GST: Get Polling Status
```

Enter a parameter at the prompt

Parameter	Format or Range
Port ID	<slot.group.port> or **0.0** for all ports

Direct access sequence: **1 1 8 4 1** [parameters]

Command Result

System action taken: The ILMI Polling status for the specified port is displayed.

System message display:

```
ILMI polling is <ENABLED/DISABLED>.
```

Example

Enter: **1 1 8 4 1 3.1.2**

The following message is displayed:

```
ILMI polling is ENABLED.
```

Update ILMI Channel Polling Status

Update and save the channel polling facility status for the specified port in the CoreBuilder 9000 ATM Enterprise Switch.

Command Actions

Enter the menu sequence:

```
(1) SYS: Platform Configuration
  (1) SET: Switch Setup
    (8) IME: ILMI Setup
      (5) POL: Polling Setup
        (2) SST: Set Polling Status
```

Enter a parameter at the prompt

Parameter	Format or Range
Port ID	<slot.group.port> or **0.0** for all ports
ILMI polling enable/disable	**0** to disable ILMI polling **1** to enable ILMI polling

Direct access sequence: **1 1 8 4 2** [parameters]

Command Result

System action taken: ILMI polling for the selected port is updated and saved.

System message display:

```
ILMI polling is set to
<ENABLED/DISABLED>.
```

Example

Enter: **1 1 8 4 2 3.1.2 1**

The following message is displayed:

```
ILMI polling is set to ENABLED.
```

The polling status of port 3.1.2 is enabled and is saved to flash.

Display ILMI Channel Polling Interval

Display the ILMI channel polling interval for the specified port of the CoreBuilder 9000 ATM Enterprise Switch. If enabled, the ILMI channel VPI/VCI = (0/16) is periodically polled for connectivity.

Command Actions

Enter the menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch Setup
  (8) IME: ILMI Setup
   (4) POL: Polling Setup
    (3) GTO: Get Polling Timeout
```

Enter a parameter at the prompt

Parameter	Format or Range
Port ID	<slot.group.port> or **`0.0`** for all ports

Direct access sequence: **`1 1 8 4 3`** [parameters]

Command Result

System action taken: The ILMI channel polling interval for the specified port is displayed.

System message display: `ILMI polling timeout is <n> sec.`

Example

Enter: **`1 1 8 4 3 3.1.2`**

The following message is displayed:

```
ILMI polling timeout is 30 sec.
```

Update ILMI Channel Polling Interval

Update and save the ILMI channel polling interval for the specified port in the CoreBuilder 9000 ATM Enterprise Switch. The minimum value of the polling interval is 30 seconds. The default ILMI polling value is 30 seconds.

Command Actions

Enter the menu sequence:

```
(1) SYS: Platform configuration
 (1) SET: Switch setup
  (8) IME: ILMI setup
   (4) POL: Polling setup
    (4) STO: Set Polling time-out
```

Enter a parameter at the prompt

Parameter	Format or Range
Port ID	<slot.group.port> or **0.0** for all ports
Polling interval	Range: 30-1800 seconds

Direct access sequence: **1 1 8 4 4** [parameters]

Command Result

System action taken: The polling interval for the specified port is updated and saved.

System message display:

```
ILMI polling timeout reconfigured.
```

Example

Enter: **1 1 8 4 4 3.1.2 30**

The following message is displayed:

```
ILMI polling timeout reconfigured.
```

The polling timeout of port 3.1.2 is set to 30 seconds and is saved to flash.

ATM Addresses Port Table

You can configure the ATM addresses as follows:

- Display User Management Entities (UME) ATM Addresses at Port
- Display Static ATM Addresses at Port
- Display De-registered ATM Addresses at Port
- Delete All ATM Addresses at Port
- Add ATM Address to Port
- Delete ATM Address by Member ID
- Get ATM Addresses at Port
- Delete All Inactive Addresses

Display User Management Entities (UME) ATM Addresses at Port

Display User Management Entities (UME) registered ATM addresses for specified ports of the CoreBuilder 9000 ATM Enterprise Switch. These ATM addresses were received from end stations or edge devices attached to the port and registered using ILMI in the MIB address table. (For more information, see "UNI Address Registration" on page 52 in the Operations Guide.)

Addresses defined through LMA are not displayed.

For easy reference, each ATM address registered at a port is assigned a *member ID*. The member ID is made up of the port number followed by a two-digit number of the form 0n, where 0 corresponds to the first ATM address registered. For example, the member ID for the first ATM address registered at port 3.1.3 is 31301.

The member ID is useful for displaying information about calls that are associated with the ATM address. For example, the switched virtual channels (SVC) are established to the LEC, whose ATM address is registered at the port. You can use the member ID to get information for the specific port attached to that ATM address.

Command Actions

Enter the menu sequence:

```
(3) CON: Connections
 (1) ADD: Get ATM Addresses
  (1) UME: Get UME Addresses at Port
```

Enter a parameter at the prompt

Parameter	Format or Range
Port ID	<slot.group.port> or **0.0** for all ports

Direct access sequence: **3 1 1** [parameters]

Command Result

System action taken: The UME addresses for the specified port or for all ports are displayed.

System message display: Information is displayed as shown in the example.

Example

Enter: **`3 1 1 0.0`**

The following information is displayed. Note that port 1 of slots 1 and 2 have multiple ATM addresses registered.

```
Port         ATM address: Network prefix        ATM address:user_part member man
ID                                                                      ID
------- ----------------------------------------- --------------------- ------ ---
<1.1.1>  47. 0. 0. 0. 0. 0.3c. 0. 0.a1. 0. 0. 0   8. 0.20.84.e8.31. *  11101  NO
<1.1.1>  47. 0. 0. 0. 0. 0.3c. 0. 0.a1. 0. 0. 0   8. 0.20.84.e8.37. *  11102  NO
<1.1.1>  47. 0. 0. 0. 0. 0.3c. 0. 0.a1. 0. 0. 0   8. 0.20.84.e8.38. *  11103  NO
<1.1.1>  47. 0. 0. 0. 0. 0.3c. 0. 0.a1. 0. 0. 0   8. 0.20.84.e8.34. *  11104  NO
<1.1.1>  47. 0. 0. 0. 0. 0.3c. 0. 0.a1. 0. 0. 0   8. 0.20.84.e8.36. *  11105  NO
<1.1.1>  47. 0. 0. 0. 0. 0.3c. 0. 0.a1. 0. 0. 0   8. 0.20.84.e8.32. *  11106  NO
<1.1.1>  47. 0. 0. 0. 0. 0.3c. 0. 0.a1. 0. 0. 0   8. 0.20.84.e8.3b. *  11107  NO
<1.1.1>  47. 0. 0. 0. 0. 0.3c. 0. 0.a1. 0. 0. 0   8. 0.20.84.e8.33. *  11108  NO
Press ENTER to continue or 'x'ENTER  to exit...
<1.1.1>  47. 0. 0. 0. 0. 0.3c. 0. 0.a1. 0. 0. 0   8. 0.20.84.e8.39. *  11109  NO
<1.1.1>  47. 0. 0. 0. 0. 0.3c. 0. 0.a1. 0. 0. 0   8. 0.20.84.e8.3a. *  11110  NO
<1.1.1>  47. 0. 0. 0. 0. 0.3c. 0. 0.a1. 0. 0. 0   8. 0.20.84.e8.3c. *  11111  NO
<1.1.1>  47. 0. 0. 0. 0. 0.3c. 0. 0.a1. 0. 0. 0   8. 0.20.84.e8.35. *  11112  NO
<2.1.1>  47. 0. 0. 0. 0. 0.3c. 0. 0.a1. 0. 0. 0   0.c0.da.19.91.d4. *  21101  NO
<2.1.1>  47. 0. 0. 0. 0. 0.3c. 0. 0.a1. 0. 0. 0   0.c0.da.19.91.cc. *  21102  NO
<2.1.1>  47. 0. 0. 0. 0. 0.3c. 0. 0.a1. 0. 0. 0   0.c0.da.19.91.d3. *  21103  NO
<2.1.1>  47. 0. 0. 0. 0. 0.3c. 0. 0.a1. 0. 0. 0   0.c0.da.19.91.d1. *  21104  NO
Press ENTER to continue or 'x'ENTER  to exit...
<2.1.1>  47. 0. 0. 0. 0. 0.3c. 0. 0.a1. 0. 0. 0   0.c0.da.19.91.cd. *  21105  NO
<2.1.1>  47. 0. 0. 0. 0. 0.3c. 0. 0.a1. 0. 0. 0   0.c0.da.19.91.cf. *  21106  NO
<2.1.1>  47. 0. 0. 0. 0. 0.3c. 0. 0.a1. 0. 0. 0   0.c0.da.19.91.d7. *  21107  NO
<2.1.1>  47. 0. 0. 0. 0. 0.3c. 0. 0.a1. 0. 0. 0   0.c0.da.19.91.d0. *  21108  NO
<2.1.1>  47. 0. 0. 0. 0. 0.3c. 0. 0.a1. 0. 0. 0   0.c0.da.19.91.d2. *  21109  NO
<2.1.1>  47. 0. 0. 0. 0. 0.3c. 0. 0.a1. 0. 0. 0   0.c0.da.19.91.d6. *  21110  NO
<2.1.1>  47. 0. 0. 0. 0. 0.3c. 0. 0.a1. 0. 0. 0   0.c0.da.19.91.d5. *  21111  NO
<2.1.1>  47. 0. 0. 0. 0. 0.3c. 0. 0.a1. 0. 0. 0   0.c0.da.19.91.ce. *  21112  NO
```

UME Parameters

Table 16 describes the UME parameters displayed by the command.

Table 16 UME Parameters

Name	Description
Port ID	ATM port id.
ATM address - Network prefix	Network prefix of ATM address.
ATM address - User part	User part of ATM address.
Member ID	The member ID is made up of the port ID concatenated with or followed by a sequential number. It provides a sequential numbering of ATM addresses registered at a port. It is used for Switched Virtual Connections only.
Manual entry	Always set to NO because it is a VME ATM address.

Display Static ATM Addresses at Port

Display static ATM addresses registered for the specified port. This command includes ATM addresses that have been entered manually via LMA or learned addresses over Network-to-Network Interface (NNI) connection (E-IISP). This command also displays member IDs for each ATM address registered at the port.

Note that, similar to ILMI registration, each port can have multiple ATM addresses.

For more information, see "Display User Management Entities (UME) ATM Addresses at Port" on page 124.

Command Actions

Enter the menu sequence:

```
(3) CON: Connections
 (1) ADD: Get ATM Addresses
  (2) STC: Get Static and NNI Addresses
           at Port
```

Enter a parameter at the prompt

Parameter	Format or Range
Port ID	<slot.group.port> or **0.0** for all ports

Direct access sequence: **3 1 2** [parameters]

Command Result

System action taken: All ATM addresses registered for the specified port are displayed.

System message display: Information is displayed as shown in the example.

Example

Enter: **3 1 2 0.0**

The following information is displayed:

```
Port         ATM address: Network prefix       ATM address:user_part member man
number                                                                 number
-------- ------------------------------------ -------------------- ------ ---
< 2.1.1> 47. *. *. *. *. *. *. *. *. *. *. *  *. *. *. *. *. *. *  21101 YES
< 4.1.2> 39.89.0*. *. *. *. *. *. *. *. *. *  *. *. *. *. *. *. *  41201 YES
```

Parameters

Table 17 describes the parameters displayed by the command.

Table 17 Parameters

Name	Description
Port number	ATM port id.
ATM address - Network prefix	Network prefix of ATM address.
ATM address - User part	User part of ATM address.
Member ID	The member ID is made up of the port ID concatenated with or followed by a sequential number. It provides a sequential numbering of ATM addresses registered at a port. It is used to specify the connection.
Manual entry	YES - address is static; NO - address is NNI.

Display De-registered ATM Addresses at Port

Display UME, static ATM or NNI addresses at the specified port that were de-registered via LMA or UME but whose connections are still active.

Command Actions

Enter the menu sequence:

```
(3) CON: Connections
 (1) ADD: Get ATM Addresses
  (3) ACT: Get Not Active Registered
      ATM Addresses at Port
```

Enter a parameter at the prompt

Parameter	Format or Range
Port ID	<slot.group.port> or **0.0** for all ports

Direct access sequence: **3 1 3** [parameters]

Command Result

System action taken: The de-registered UME, static ATM or NNI addresses for the specified port are displayed.

System message display: Information is displayed as shown in the example.

Example

Enter: **3 1 3 0.0**

The following information is displayed:

```
Port         ATM address: Network prefix       ATM address:user_part   Member
number                                                    number
------- ------------------------------------ ------------------------------
<3.1.1>  47. 0. 0. 0. 0. 0.3c. 0. 0.b*. *. *. *   *. *. *. *. *. *. *   31101
<3.1.2>  47. 0. 0. 0. 0. 0.3c. 0. 0.c*. *. *. *   *. *. *. *. *. *. *   31201
```

Parameters

Table 18 describes the parameters displayed by the command.

Table 18 Parameters

Name	Description
Port ID	ATM port id.
ATM address - Network prefix	Network prefix of ATM address.
ATM address - User part	User part of ATM address.
Member number	The member number is made up of the port ID concatenated with or followed by a sequential number. It provides a sequential numbering of ATM addresses registered at a port.

Delete All ATM Addresses at Port

Delete the ATM addresses registered at the specified port including those registered by ILMI and those that were created manually through the LMA. The addresses are deleted from the MIB at the port (they are de-registered).

When you delete addresses from a specific port, any existing connections associated with them are not deleted.

Command Actions

Enter the menu sequence:

```
(3) CON: Connections
 (4) S&C: Setup of Connections and ATM
          addresses
  (2) STP: Static ATM Addresses Setup
   (1) DAD: Delete all ATM Addresses of
            Port
```

Enter a parameter at the prompt

Parameter	Format or Range
Port ID	<slot.group.port> or **0.0** for all ports

Direct access sequence: **3 4 2 1** [parameters]

Command Result

System action taken: The ATM addresses at port are deleted.

System message display:

```
All ATM addresses for port <x.x.x> were
deleted.
```

Example

Enter: **3 4 2 1 3.1.2**

The following message is displayed:

```
All ATM addresses for port 3.1.2 were deleted.
```

Add ATM Address to Port

Add an ATM address to the list of registered ATM addresses at a port. Enter the port number and ATM address. Use this command, for example, with devices that do not support ILMI; you must add ATM addresses manually to interface with such devices.

Command Actions

Enter the menu sequence:

```
(3) CON: Connections
 (4) S&C: Setup of Connections and ATM
          addresses
  (2) STP: Static ATM Addresses Setup
   (2) ADD: Add ATM Address
```

Enter a parameter at the prompt

Parameter	Format or Range
Port ID	<slot.group.port>
ATM address	19 bytes - When fewer: end with '.*'

Direct access sequence: **3 4 2 2** [parameters]

Command Result

System action taken: Specified ATM address is added to specified port.

System message display:

```
ATM address was successfully set.
```

Example

Enter: **3 4 2 2 5.1.2 47.0.0.0.0.0.3c.0.0.b***

The following message is displayed.

```
ATM address was successfully set.
```

Delete ATM Address by Member ID

Delete the ATM address from the list of registered ATM addresses at a port. The address is deleted from the MIB at the port; in other words, it is de-registered. Specify the ATM address by its member ID. For a list of addresses registered by LMA together with their member IDs, see "Display Static ATM Addresses at Port" on page 128.

Only ATM addresses created via LMA can be deleted.

Command Actions

Enter the menu sequence:

```
(3) CON: Connections
 (4) S&C: Setup of Connections and ATM
          addresses
  (2) STP: Static ATM Addresses Setup
   (3) DEL: Delete ATM Address
```

Enter a parameter at the prompt

Parameter	Format or Range
ATM address member id	<slotgroupport0n>

Direct access sequence: **3 4 2 3** [parameters]

Command Result

System action taken: The specified ATM address is deleted from specified port.

System message display: `ATM address member <n> was deleted from port <x.x.x>`

Example

Enter: **`3 4 2 3 11101`**

The following message is displayed:

```
ATM address member 11101 was deleted from port 1.1.1.
```

The ATM address with member number 11101 is deleted from the MIB at port 1.1.1.

Get ATM Addresses at Port

Get the manual ATM addresses at a specific port.

Command Actions

Enter the menu sequence:

```
(3) CON: Connections
(4) S&C: Setup of Connections and ATM
         addresses
  (2) STP: Static ATM Addresses Setup
   (4) STC: Get ATM Addresses at Port
```

Enter a parameter at the prompt

Parameter	Format or Range
Port ID	<slot.group.port> (**0.0** for all ports)

Direct access sequence: **3 4 2 4**

Command Result

System action taken: The manual ATM addresses at the specified port or all ports are displayed.

System message display: Information is displayed as shown in the example.

Example

Enter: **3 4 2 4 0.0**

The following information is displayed:

```
Port         ATM address: Network prefix       ATM address:user_part member man
number                                                                 number
-------- ------------------------------------ -------------------- ------ ---
< 2.1.1> 47. 0. 0. 0. 0. 0.3c. 0. 0.b*. *. *. *  *. *. *. *. *. *. *  21101 YES
< 4.1.2> 39.89.0*. *. *. *. *. *. *. *. *. *. *  *. *. *. *. *. *. *  41201 YES
```

UME Parameters

Table 19 describes the parameters displayed by the command.

Table 19 Parameters

Name	Description
Port Number	ATM port number <slot.group.port>.
ATM address - Network prefix	Network prefix of ATM address.

Table 19 Parameters (continued)

Name	Description
ATM address - User part	User part of ATM address.
Member number	The member number provides a sequential numbering of ATM addresses registered at a port. It is used to specify the connection.
Man	Always set to YES.

Delete All Inactive Addresses

Delete all ATM addresses that do not exist for the port but are currently present in flash memory. These ports are not installed or failed.

Command Actions

Enter the menu sequence:

```
(3) CON: Connections
 (4) S&C: Setup of Connections and ATM
          addresses
  (2) STP: Static ATM Addresses Setup
   (5) DNA: Delete all inactive
            addresses
```

Direct access sequence: **3 4 2 5**

Command Result

System action taken: All inactive ATM addresses are erased.

System message display: `Delete inactive addresses successfully.`

Example

Enter: **3 4 2 5**

The following prompt is displayed:

```
Delete all inactive addresses from flash!
Are you sure (Y/N)?
```

Enter **y** to confirm. The following message is displayed:

```
Delete inactive addresses successfully.
```

Network Prefix

You can display the network prefix.

For more information about the use of Network Prefix, see "Hierarchic ATM Addressing" on page 70 in the Operations Guide.

Display Network Prefix

Display the Network Prefix of the CoreBuilder 9000 ATM Enterprise Switch.

Command Actions

Enter the menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch Setup
  (6) SNP: Switch Network Prefix Setup
   (1) GET: Get Network Prefix
```

Direct access sequence: **1 1 6 1**

Command Result

System action taken: The network prefix of the CoreBuilder 9000 ATM Enterprise Switch is displayed.

System message display: Information is displayed as shown in the example.

Example

Enter: **1 1 6 1**

The following information is displayed:

```
Current Switch Network Prefix:    47.0.0.0.0.0.3c.0.0.a0.0.0.0
The number of significant digits in the Switch Network
Prefix: 19
```

CONFIGURING VIRTUAL CHANNELS

This chapter describes how to configure ATM virtual channels.

- Display Call Routing
- Display Port Connections
- Create Permanent Virtual Channel (PVC)
- NNI Hops Setup
- Signaling Setup
- Signaling Timers

Display Call Routing

You can display call routing to an ATM address.

For information about routing, see "Routing — Internal Links" on page 109 in the Operations Guide.

Display Call Routed to ATM Address

Display information for a call routed through a port to a specified ATM address registered at the port. Use this command, for example, to get information about a call routed through a specific port of the CoreBuilder® 9000 ATM Enterprise Switch to the ATM address of a specific LEC in an edge device attached to another port of the CoreBuilder 9000 ATM Enterprise Switch.

To specify the ATM address at a port: for an SVC, specify the member number; for a PVC, specify the port number (slot.group.port).

Calls routed to an ATM address are differentiated by their *Call number.* The Call number is allocated by the CoreBuilder 9000 ATM Enterprise Switch during the time the call is initiated and uniquely identifies the call in the CoreBuilder 9000 ATM Enterprise Switch.

More than one call can be routed to a single ATM address at one time. For example, when a bridged Ethernet LAN is attached to a single LEC, all calls to the stations on the LAN are transmitted to that LEC's ATM address.

If you do not know the Call number of the call whose information you want to display, enter 0 for the Call number and a list of calls routed to the ATM address are displayed together with their Call IDs. You can read the desired Call number from this list according to the VPI/VCI number, for example.

Command Actions

Enter the menu sequence:

```
(3) CON: Connections
 (2) RTG: Routing
  (1) CLL: Calls
```

Enter a parameter at the prompt

Parameter	Format or Range
For SVC: ATM address member	<slot group port> sequential number For example: **11102**
For PVC: Port number	<slot.group.port>
Call number	Call number or **0** for all calls

Direct access sequence: **3 2 1** [parameters]

Command Result

System action taken: The information for the specified call is displayed.

System message display: Information is displayed as shown in the examples.

Example — Display all SVC Calls for an ATM address member

Enter: **3 2 1 11102 0**

Information for all calls with ATM address member 11102 (the second ATM address registered at port 1.1.1) are displayed. Note that both calls with the ATM address member as input connection and output connection are displayed.

For the P2M calls, all of the branches are shown.

```
Call   Call   Call     Num  Pri Cll In conn In     In     Out     Out    Out
number type   state    out          VPI/VCI conn   conn   conn    conn   conn
                      cons port   mbr    VPI/VCI  port   mbr
---- ------- -------- ----- -- --- ------- ------ ------ ------- ------ ------
 1    SVC,P2P   Active 1  L  50%   3/200 1.1.1  11102  5/ 202   1.1.2  11201
```

Example — Display Info for a Specific SVC Call

Enter: **3 2 1 11102 1321**

The details of the call with Call number 1 and ATM address member 11102 are displayed.

```
Call number:                                    1
Call type:                                  PVC,P2P
Call state:                                 Active
number of out connections:                      1
Priority:                                       L
Cll:                                          50%
Time of last change of operational state:   1177570 msec
In connection VPI:                              3
In connection VCI:                            200
In connection port:                         <1.1.1>
Out connection VPI:                             5
Out connection VCI:                           202
Out connection port:                        <1.1.2>

   Press ENTER to continue or 'x'ENTER  to exit...
```

Example — Display all PVC Calls for a Port

Enter: **`3 2 1 1.1.1  0`**

The list of all calls at port 1.1.1 is displayed. There is one P2M call with two additional destinations.

```
Call Call     Call   Num  Pri Cll In conn In    In    Out conn Out  Out
id   type    state   out         VPI/VCI conn conn VPI/VCI  conn conn
                      cons                                                port mbr
---- ------- -------- ---- --- --- ------- ------- ------ -------- -------
 1   PVC,P2M   Active   3        H        N   0/   40   <1.1.1> 1/  60 <1.1.4>
                                                        0/  50 <1.1.3>
                                                        0/  40 <1.1.2>
```

Example — Display Info for a Specific PVC Call

Enter: **`3 2 1 1.1.1 1`**

The details of call with Call number 1 are displayed. There is one P2M call with two additional destinations.

```
Call number:                                  1
Call type:                                PVC,P2M
Call state:                               Active
number of out connections:                   3
Priority:                                    H
Cll:                                         N
Time of last change of operational state:  1429560 msec
In connection VPI:                           0
In connection VCI:                          40
In connection port:                      <1.1.1>
Out connection VPI:                          1
Out connection VCI:                         60
Out connection port:                     <1.1.4>
Out connection VPI:                          0
Out connection VCI:                         50
Out connection port:                     <1.1.3>
Out connection VPI:                          0
Out connection VCI:                         40
Out connection port:                     <1.1.2>
```

Call Parameters

Table 20 shows the call parameters displayed by the command.

Table 20 Call Parameters

Name	Description
Call number	This is the unique number that identifies the call.
Call Type	Whether the call is SVC or PVC, and if it is a point-to-point or point-to-multipoint call.
	When showing a connection of LAN Emulation, point-to-point indicates use of the control direct VCC (for LES), or the multicast sent VCC (for BUS).
	When showing a connection of point-to-multipoint, it indicates use of the control distribute VCC (for LES) or Multicast forward VCC (for BUS).
Call State	Whether the call is active or not.
Number of Out Connections	The number of output destinations that the call is routed to. In a point-to-point call, this is always one; whereas in a point-to-multipoint call, this number may be greater than one.
Priority	Whether the call cells are transferred through the Switch using the high priority queue or low priority queue.
CLL (Cell Loss Level)	The queue saturation level at which cells with their CLP bit set are discarded. The possible values can be: "no discard at all"," 20%", "50%", "80%".
In Connection VPI	The Virtual Path Identifier (VPI) number of the input port.
In Connection VCI	The Virtual Channel Identifier (VCI) number of the input port.
In Connection Port	The port number of the input port.
In Connection ATM Address Member	The ATM address member of the source. (If the source is not SVC, this field does not appear.)
Out Connection VPI	The Virtual Path Identifier (VPI) number of the output port.
Out Connection VCI	The Virtual Channel Identifier (VCI) number of the output port.
Out Connection Port	The port number of the output port.
Out Connection ATM Address Member	The ATM address member of the destination. (If the source is not SVC, this field does not appear).

Display Port Connections

You can display the port ATM connections.

- Display UME Address Port Connection
- Display Static Address Port Connection
- Display Inactive Address Port Connections

For information about establishing port connections, see "External Links — ATM Connections" on page 85 in the Operations Guide.

Display UME Address Port Connection

Displays information about connections defined at a specific port. Specify the connection by specifying VPI/VCI values. The connections belong to virtual channels created dynamically between UME ATM addresses.

Command Actions

Enter the menu sequence:

```
(3) CON: Connections
  (3) PRT: ATM ports
    (1) UME: UME addresses
```

Enter a parameter at the prompt

Parameter	Format or Range
Port number	<slot.group.port>
VPI	Enter a VPI value or **A** for all VPI values
VCI	Enter a VCI value or **A** for all VCI values

Direct access sequence: **3 3 1** [parameters]

Command Result

System action taken: The connection information for the specified port is displayed.

System message display: Information is displayed as shown in the examples.

Example — Display all Connections at a Port

Enter: **`3 3 1 1.1.1 a 0`**

Multiple ATM addresses at the port 1.1.1 are displayed where each ATM address has multiple SVCs defined by their VPI/VCI values.

```
Conn Call  Port   Member Conn     Conn   Oper     Admin    Originator CLP
number   number     number      number   type    VPI/VCI status   status
---- ---- ------- ------    -------    -------    --------    --------    ---------
2697 1185 <1.1.1>    11102 SVC,P2P   0/ 46 Active   Active      Calling   N
2732  488 <1.1.1>    11102 SVC,P2M   0/ 60 Active   Active      Called    N
2743 1201 <1.1.1>    11102 SVC,P2P   0/ 69 Active   Active      Calling   N
2762  965 <1.1.1>    11102 SVC,P2M   0/ 80 Active   Active      Called    N
2831 1239 <1.1.1>    11102 SVC,P2P   0/109 Active   Active      Calling   N
2836 1241 <1.1.1>    11102 SVC,P2P   0/111 Active   Active      Called    N
2977 1312 <1.1.1>    11102 SVC,P2P   0/160 Active   Active      Calling   N
2983 1315 <1.1.1>    11102 SVC,P2P   0/162 Active   Active      Calling   N
2989 1318 <1.1.1>    11102 SVC,P2P   0/164 Active   Active      Calling   N
2995 1321 <1.1.1>    11102 SVC,P2P   0/166 Active   Active      Calling   N
2695 1184 <1.1.1>    11103 SVC,P2P   0/ 45 Active   Active      Calling   N
2731  522 <1.1.1>    11103 SVC,P2M   0/ 59 Active   Active      Called    N
2738 1200 <1.1.1>    11103 SVC,P2P   0/ 63 Active   Active      Calling   N
Press ENTER to continue or 'x'ENTER  to exit...
2761  966 <1.1.1>    11103 SVC,P2M   0/ 79 Active   Active      Called    N
2840 1243 <1.1.1>    11103 SVC,P2P   0/112 Active   Active      Called    N
2849 1248 <1.1.1>    11103 SVC,P2P   0/117 Active   Active      Calling   N
3001 1324 <1.1.1>    11103 SVC,P2P   0/168 Active   Active      Calling   N
3007 1327 <1.1.1>    11103 SVC,P2P   0/170 Active   Active      Calling   N
3013 1330 <1.1.1>    11103 SVC,P2P   0/172 Active   Active      Calling   N
3069 1358 <1.1.1>    11103 SVC,P2P   0/190 Active   Active      Calling   N
```

Example — Display Info for a Connection at a Port

Enter: **`3 3 1 1.1.1 3 200`**

The information for the connection 0/46 at port 1.1.1 is displayed.

```
Connection number:                                1
Call number:                                      1
Port:
Connection type:                                PVC,P2P
Connection VPI:                                   3
Connection VCI:                                 200
Operational status:                             Active
Administration status:                          Active
Time of last change of operational state:       655350 msec
Originator:                                     Calling
CLP:                                            N
```

Port SVC Connection Parameters

Table 21 shows the port SVC connection parameters displayed by the command.

Table 21 Port SVC Connection Parameters

Name	Description
Connection number	Number identifying the connection (VPI/VCI).
Call number	Number identifying the call.
Port number	Number identifying the port.
Member number	Sequential numbering of ATM addresses registered at a port. Used to specify SVC.
Connection Type	The connection type specifies whether the connection is using SVC or PVC, and if it is a point-to-point (P2P) or point-to-multipoint (P2M) call.
Connection VPI	The Virtual Path Identifier (VPI) value defined for the specific port.
Connection VCI	The Virtual Channel Identifier (VCI) value defined for the specific port.
Operational Status	Specifies the operational status of the connection, active or not.
Administration Status	Specifies the administration status of the connection (active or not).

Table 21 Port SVC Connection Parameters (continued)

Name	Description
Originator	Specifies if the connection is originated at the calling UNI or the called UNI.
CLP	Specifies the action which is to be performed on the CLP bit. The possible values are: clear bit (0), set bit (1), or no change (N).

Display Static Address Port Connection

Display a connection relating to a specific VPI/VCI of the port or all connections (all VPI/VCI) of the port. The connections involve virtual channels created between static addresses defined by LMA.

Command Actions

Enter the menu sequence:

```
(3) CON: Connections
 (3) PRT: ATM ports
  (2) STC: Static addresses
```

Enter a parameter at the prompt

Parameter	Format or Range
Port number	<slot.group.port>
VPI	Enter a VPI value or **A** for all VPI values
VCI	Enter a VCI value or **A** for all VCI values

Direct access sequence: **3 3 2** [parameters]

Command Result

System action taken: The connection information for the specified port is displayed.

System message display: Information is displayed as shown in the example.

Example

Enter: **`3 3 2 3.1.2 a 0`**

The following information is displayed:

```
Conn     Call    Port   Member    Conn    Conn      Oper     Admin    Originator  CLP
number number number  number type      VPI/VCI  status      status
-----  ----- -------- ------ -------  -------  --------  --------  ----------  ---
   1      1 <1.1.1>          PVC,P2P   3/200 Active   Active    Calling    N
```

Port Static Connection Parameters

Table 22 shows the port static connection parameters displayed by the command.

Table 22 Port Static Connection Parameters

Name	Description
Connection number	Number identifying the connection.
Call number	Number identifying the call.
Port number	Number identifying the port.
Member number	Sequential numbering of ATM addresses registered at a port. Used to specify SVC.
Connection Type	Whether the connection is using SVC or PVC, and if it is a point-to-point (P2P) or point-to-multipoint (P2M) call.
Connection VPI	The Virtual Path Identifier (VPI) value defined for the connection.
Connection VCI	The Virtual Channel Identifier (VCI) value defined for the connection.
Operational Status	The operational status of the connection, active or not.
Administration Status	The administration status of the connection, active or not.
Originator	Whether the connection originates at the calling UNI or the called UNI.
CLP	The action which is to be performed on the CLP bit. The possible values are: clear bit (0), set bit (1), or no change(N).

Display Inactive Address Port Connections

Display a connection relating to a specific VPI/VCI of the port or all connections related to de-registered addresses.

Command Actions

Enter the menu sequence:

```
(3) CON: Connections
 (3) PRT: ATM ports
  (3) ACT: Not active addresses
```

Enter a parameter at the prompt

Parameter	Format or Range
Port number	<slot.group.port>
VPI	Enter a VPI value or **A** for all VPI values
VCI	Enter a VCI value or **A** for all VCI values

Direct access sequence: **3 3 3** [parameters]

Command Result

System action taken: The connection information for the specified port is displayed.

Create Permanent Virtual Channel (PVC)

The following commands allow you to create a PVC:

- Display PVC VPI/VCI Limits
- Create PVC — Full Setup
- Create PVC — Quick Setup
- Add PVC Destination
- Release PVC
- Release PVC Destination
- Display PVCs
- Delete All Inactive PVCs
- Delete All PVC Connections of Port

For more information about PVC, see "Permanent Virtual Channels" on page 87 in the Operations Guide.

Display PVC VPI/VCI Limits

Displays the current and flash minimum and maximum VPI/VCI values allowed for PVCs.

Command Actions

Enter the menu sequence:

```
(3) CON: Connections
 (4) S&C: Setup of Connections and ATM
          Addresses
  (1) PVC: PVCs Setup
   (1) GET: Display VPI/VCI Limits
```

Direct access sequence: **3 4 1 1**

Command Result

System action taken: The VCI/VPI limit information for PVCs is displayed.

Example

Enter: **3 4 1 1**

The following information is displayed:

```
PVCs VPI/VCI limits:

        Port:     1.1.1  1.2.1
Current Min VPI:     0      0
  Flash Min VPI:     0      0
Current Max VPI:     7      7
  Flash Max VPI:     7      7
Current Min VCI:    32     32
  Flash Min VCI:    32     32
Current Max VCI:   511    511
  Flash Max VCI:   511    511

        Port:     2.1.1  2.2.1
Current Min VPI:     0      0
  Flash Min VPI:     0      0
Current Max VPI:     7      7
  Flash Max VPI:     7      7
Current Min VCI:    32     32
  Flash Min VCI:    32     32
Current Max VCI:   511    511
  Flash Max VCI:   511    511

Press ENTER to continue or 'x'ENTER  to exit...
```

Create PVC — Full Setup

Set up a PVC (permanent virtual connection). Requires all parameters for a PVC to be defined. You must create a PVC for each port-to-port connection in your ATM network. (For more information, see "Permanent Virtual Channels" on page 87 in the Operations Guide.)

PVC creation is subject to the following restrictions:

- *VPI/VCI should be in accordance with the PVC VPI/VCI limits. (For more information, see "Display PVC VPI/VCI Limits" on page 151.)*
- *Each call must have a unique port number, VPI, and VCI value.*

Command Actions

Enter the menu sequence:

```
(3) CON: Connections
 (4) S&C: Setup of Connections and ATM
          Addresses
  (1) PVC: PVCs Setup
   (2) CRF: Create full PVC call
```

Enter a parameter at the prompt

Parameter	Format or Range
Call type	**P2P** for point-to-point PVC **P2M** for point-to-multipoint PVC
Cell Loss Level	**0** for no discard **1** for 20% threshold **2** for 50% threshold **3** for 80% threshold
Priority	**0** for low priority **1** for high priority
First port CLP	**0** for clear **1** for set **n** for no change
First port number	<slot.group.port>
First port VPI	See "Display PVC VPI/VCI Limits" on page 151 for VPI/VCI limits.
First port VCI	See "Display PVC VPI/VCI Limits" on page 151 for VPI/VCI limits.
Second port CLP	**0** for clear **1** for set **n** for no change
Second port number	<slot.group.port>
Second port VPI	See "Display PVC VPI/VCI Limits" on page 151 for VPI/VCI limits.
Second port VCI	See "Display PVC VPI/VCI Limits" on page 151 for VPI/VCI limits.

Direct access sequence: **3 4 1 2** [parameters]

Command Result

System action taken: A full PVC with the required parameters is created.

System message display: `A new PVC was created with call number: <n>`

Example

Enter: **`3 4 1 2 p2p 0 0 0 5.1.2 1 55 1 5.1.4 0 60`**

The following message is displayed:

```
A new PVC was created with call number:  11
```

Port Static Connection Parameters

Table 23 shows the port static connection parameters that must be entered at the prompt.

Table 23 Full PVC Call Parameters

Name	Description
Call Type	Whether the call defined is point-to-point (P2P) or point-to-multipoint (P2M)
	No default
Cell Loss level	Threshold for cell based discard
Priority	Whether the call cells are transferred through the CoreBuilder® 9000 ATM Enterprise Switch to the high priority queue or low priority queue
	Default: Low priority
First CLP	The setting of the cell loss priority at the input port
First Port number	The input port slot.group.port
First VPI	The input port VPI value for the call
First VCI	The input port VCI value for the call
Second Port number	The output port slot.group.port
Second CLP	The setting of the cell loss priority at the output port
Second VPI	The output port VPI value for the call
Second VCI	The output port VCI value for the call

Create PVC — Quick Setup

Set up PVC using the default for parameters not explicitly set. Default values for Cell Loss Level, Priority, and Cell Loss Priority are used. (See Table 23.) The same limits as full PVC call setup apply. For more information, see "Permanent Virtual Channels" on page 87 in the Operations Guide.

Command Actions

Enter the menu sequence:

```
(3) CON: Connections
 (4) S&C: Setup of Connections and ATM
          Addresses
  (1) PVC: PVCs Setup
   (3) CRP: Create PVC call
```

Enter a parameter at the prompt

Parameter	Format or Range
Call type	**P2P** for point-to-point PVC **P2M** for point-to-multipoint PVC
First port number	<slot.group.port>
First port VPI	See "Display PVC VPI/VCI Limits" on page 151 for VPI/VCI limits.
First port VCI	See "Display PVC VPI/VCI Limits" on page 151 for VPI/VCI limits.
Second port number	<slot.group.port>
Second port VPI	See "Display PVC VPI/VCI Limits" on page 151 for VPI/VCI limits.
Second port VCI	See "Display PVC VPI/VCI Limits" on page 151 for VPI/VCI limits.

Direct access sequence: **3 4 1 1 3** [parameters]

Command Result

System action taken: A PVC with the required parameters is created.

System message display: `A new PVC was created with call number: <n>`

Example

Enter: **`3 4 1 3 p2p 5.1.1 0 37 5.1.2 0 381`**

The following message is displayed:

```
A new PVC was created with call number: 9.
```

Add PVC Destination

Create an additional destination connection (branch) for an existing point-to-multipoint PVC.

You can only create an additional destination if the existing PVC was predefined as a PLM PVC.

Enter the call number of the original PVC setup and the parameters: output port number, VPI/VCI and CLP, with the same permissible values. Default values for Cell Loss Level, Priority, and Cell Loss Priority are used. See Table 23. The same limits as full PVC call setup apply.

You cannot add an additional PVC destination to a P2P PVC.

Command Actions

Enter the menu sequence:

```
(3) CON: Connections
 (4) S&C: Setup of Connections and ATM
          Addresses
  (1) PVC: PVCs Setup
    (4) CRO: Create out VC in call
```

Enter a parameter at the prompt

Parameter	Format or Range
Call number	Integer
Output port number	<slot.group.port>
Output port VPI	See "Display PVC VPI/VCI Limits" on page 151 for VPI/VCI limits.
Output port VCI	See "Display PVC VPI/VCI Limits" on page 151 for VPI/VCI limits.
Output port CLP	**0** for clear **1** for set

Direct access sequence: **3 4 1 4** [parameters]

Command Result

System action taken: An additional PVC destination with parameters specified is created.

System message display:

```
A new output VC was created
with call number: <n>
out connection number: <n>
```

Example

Enter: **3 4 1 4 9 5.1.4 0 55 0**

The following message is displayed:

```
A new output VC was created with call number:   9
                        out connection number:  25
```

Release PVC Release a specified PVC. PVCs must be manually released. When a P2M PVC is released, all additional destination connections are also released.

You cannot release SVCs with this menu.

In a P2M (point-to-multi-point call), this option releases all of its branches that belong to the call number that you enter.

Command Actions

Enter the menu sequence:

```
(3) CON: Connections
 (4) S&C: Setup of Connections and ATM
          Addresses
  (1) PVC: PVCs Setup
   (5) REP: Release PVC call
```

Enter a parameter at the prompt

Parameter	Format or Range
Call number	Integer. See "Display Call Routed to ATM Address" on page 140 to get a call number for a port.

Direct access sequence: **3 4 1 5** [parameters]

Command Result

System action taken: The PVC with the specified call number is released.

System message display:

```
A PVC with call number <n> was
released.
```

Example

Enter: **3 4 1 5 10**

The following message is displayed:

```
A PVC with call number 10 was released.
```

Release PVC Destination

Release a single destination connection (branch) from a point-to-multipoint call. Specify the P2M call number and the output port number and VPI/VCI of the destination connection.

Command Actions

Enter the menu sequence:

```
(3) CON: Connections
 (4) S&C: Setup of Connections and ATM
          Addresses
  (1) PVC: PVCs Setup
   (6) REO: Release Out VC from call
```

Enter a parameter at the prompt

Parameter	Format or Range
Call number of the P2M connection	Integer. See "Display Call Routed to ATM Address" on page 140 to get a call number for a port.
Destination connection port number	<slot.group.port>
Destination connection VPI	See "Display PVC VPI/VCI Limits" on page 151 for VPI/VCI limits.
Destination connection VCI	See "Display PVC VPI/VCI Limits" on page 151 for VPI/VCI limits.

Direct access sequence: **3 4 1 6** [parameters]

Command Result

System action taken: A PVC call destination with parameters specified is released.

System message display: A message is displayed as shown in the example.

Example

Enter: **3 4 1 6 1 1.1.4 1 60**

The following message is displayed:

```
An Outgoing VC with call number:   1,
            VPI:                    1,
            VCI:                    60,
was released.
```

The additional connection with output port 1.1.4 and VPI/VCI values of 1/60, which was added to the P2M connection with call number 1, is released.

Display PVCs Display the PVCs for a specific port and call number.

Command Actions

Enter the menu sequence:

```
(3) CON: Connections
 (4) S&C: Setup of Connections and ATM
          Addresses
  (1) PVC: PVCs Setup
   (7) GEP: Display PVCs
```

Enter a parameter at the prompt

Parameter	Format or Range
Port number	<slot.group.port>
Call number	Call number or **0** for all calls

Direct access sequence: **3 4 1 7** [parameters]

Command Result

System action taken: The PVC information is displayed.

System message display: Information is displayed as shown in the example.

Example

Enter: **3 4 1 7 5.1.1 0**

The following information is displayed. See Table 23 for more information about the parameters shown.

```
Call   Call   Call     Num  Pri Cll In conn In     In     Out     Out    Out
number type   state    out          VPI/VCI conn   conn   conn    conn   conn
                      cons                 port   mbr    VPI/VCI port   mbr
----- ------- -------- ----- -- --- ------- ------ ------ ------- ------ ------
   2 PVC,P2P Active       1  H   N   5/200  5.1.1         6/ 300  5.2.1
```

Delete All Inactive PVCs

Delete all PVCs that are inactive. A PVC that does not contain a card is inactive.

Command Actions

Enter the menu sequence:

```
(3) CON: Connections
 (4) S&C: Setup of Connections and ATM
          Addresses
  (1) PVC: PVCs Setup
   (8) DNA: Delete All inactive PVCs
```

Enter a parameter at the prompt

Parameter	Format or Range
Confirm Delete	**y** or **n**

Direct access sequence: **3 4 1 8**

Command Result

System action taken: Delete all inactive PVCs.

System message display:

```
Delete inactive PVCs completed
successfully
```

Example

Enter: **3 4 1 1 8**

The following prompt appears:

```
Delete all inactive PVCs from flash!
Are you sure (Y/N)?
```

Enter **y** to confirm, **n** to cancel.

The following message appears:

```
Delete inactive PVCs completed successfully
```

All inactive PVCs are deleted from the flash memory.

Delete All PVC Connections of Port

Delete all the PVC connections for a specific port.

Command Actions

Enter the menu sequence:

```
(3) CON: Connections
 (4) S&C: Setup of Connections and ATM
          Addresses
  (1) PVC: PVCs Setup
   (9) RES: Delete all PVCs of port
```

Enter a parameter at the prompt

Parameter	Format or Range
Port number	<slot.group.port> or **0.0** for all
Confirm erase	**y** or **n**

Direct access sequence: **3 4 1 9**

Command Result

System action taken: All PVCs for the specified port are released.

System message display:

```
All PVC at port <n> were released.
```

Example

Enter: **3 4 1 1 9**

The following prompt is displayed:

```
Delete all PVCs of port <5.1.1>!
Are you sure?
```

Enter **y** to confirm, **n** to cancel.

The following message appears:

```
A PVC with call number 2 was released.
All PVCs at port 5.1.1 were released.
```

All PVCs of the specific port are deleted.

NNI Hops Setup

The following commands allow you to configure the NNI hops parameter:

- Display Maximum NNI Hops
- Update Maximum NNI Hops

For more information about hops, see "Hop Limit — Avoiding loops" on page 111 in the Operations Guide.

Display Maximum NNI Hops

Display the maximum number of hops permissible for NNI routing. This parameter limits the number of times a setup message can be transferred between switches on NNI connections in search of a destination, thereby avoiding an infinite loop.

Command Actions

Enter the menu sequence:

```
(1) SYS: Platform configuration
  (1) SET: Switch setup
    (3) NNI: NNI setup
      (1) GMD: NNI Get maximum number of
               hops
```

Direct access sequence: **`1 1 3 1`**

Command Result

System action taken: The maximum number of hops permissible for NNI routing is displayed.

System message display: `NNI max hops: <n>`

Example

Enter: **`1 1 3 1`**

The following message is displayed:

```
NNI max hops: 7
```

The actual number of hops is max_hops+1.

Update Maximum NNI Hops

Enter the new Maximum NNI Hops parameter to update the Maximum NNI Hops parameter of the CoreBuilder 9000 ATM Enterprise Switch. The choice of parameter value depends on the size and topology of the network. For a hierarchically designed network, it is normally chosen to be 7. For more information, see "Hop Limit — Avoiding loops" on page 111 in the Operations Guide.

Command Actions

Enter the menu sequence:

```
(1) SYS: Platform configuration
 (1) SET: Switch setup
  (3) NNI: NNI setup
   (2) SMD: NNI Set maximum number
             hops
```

Enter a parameter at the prompt

Parameter	Format or Range
Number of hops	0-120

Direct access sequence: **1 1 3 2** [parameters]

Command Result

System action taken: The maximum number of hops permissible for NNI routing is displayed.

System message display: `NNI max hops was set.`

Example

Enter: **1 1 3 2 9**

The following message appears:

```
NNI max hops was set.
```

The Maximum NNI Hops parameter is updated to 9.

Signaling Setup

The following commands allow you to configure the ILMI signaling parameters:

- Display VPI/VCI Range
- Update VPI/VCI Range
- Display Signaling Protocol Profile
- Update Signaling Protocol Profile
- Display Signaling Protocol Version
- Update Signaling Protocol Version
- Display Call-Proceeding Enable Value
- Update Call-Proceeding Enable Value
- Reset Signaling Configuration

For information about signaling setup, see "Signaling — External Links" on page 88 in the Operations Guide.

Display VPI/VCI Range

Display the current signaling protocol VPI/VCI configuration parameters for a specified port. Maximum and minimum VPI/VCI values are displayed for each port.

These parameters are set to match the VPI/VCI capabilities of the device attached to the specified port. If an end station or edge device is attached to the port, it frequently has limits on the VPI/VCI channels it can handle; you must set the CoreBuilder 9000 ATM Enterprise Switch port to match these limits.

You can set these parameters independently for each port.

Command Actions

Enter the menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch Setup
  (4) SIG: Signaling Setup
   (3) VCC: VPI/VCI range setup
    (1) GET: Get VPI/VCI range
```

Enter a parameter at the prompt

Parameter	Format or Range
Port number	<slot.group.port> or **0.0** for all ports

Direct access sequence: **1 1 4 3 1** [parameters]

Command Result

System action taken: The current VPI/VCI Configuration Parameters for the specified port are displayed.

System message display: Information is displayed as shown in the example.

Example

Enter: **1 1 4 3 1 3.1.2**

The following information is displayed for an OC-3c port:

```
      Port:     1.1.1  1.2.1
Current Min VPI:     0      0
  Flash Min VPI:     0      0
Current Max VPI:     7      7
  Flash Max VPI:     7      7
Current Min VCI:    32     32
  Flash Min VCI:    32     32
Current Max VCI:   511    511
  Flash Max VCI:   511    511
```

The following information is displayed for an OC-12c port:

```
      Port:     2.1.1  2.2.1
Current Min VPI:     0      0
  Flash Min VPI:     0      0
Current Max VPI:     7      7
  Flash Max VPI:     7      7
Current Min VCI:    32     32
  Flash Min VCI:    32     32
 Current  Max  VCI:  1023   1023
  Flash Max VCI:   511    511
```

Update VPI/VCI Range

Update the VPI/VCI configuration parameters of the specified port. You set maximum and minimum VPI/VCI values for each port. For more information, see "Display VPI/VCI Range" on page 167.

Note that when the ILMI auto-configuration procedure is enabled, the VPI/VCI limits are determined automatically and override any settings made by this command. (For more information, see "Display Current IP Configuration" on page 56.)

Command Actions

Enter the menu sequence:

```
(1) SYS: Platform configuration
 (1) SET: Switch setup
  (4) SIG: Signaling setup
   (3) VCC: VPI/VCI range setup
    (2) SET: Set VPI/VCI range
```

Enter a parameter at the prompt

Parameter	Format or Range
Port number	<slot.group.port> or **0.0** for all
Parameter number	**1** for Min VPI **2** for Max VPI **3** for Min VCI **4** for Max VCI
Parameter value	The VPI/VCI value.

Direct access sequence: **1 1 4 3 2** [parameters]
Only one parameter can be defined per command.

Command Result

System action taken: The selected VPI/VCI configuration parameters are updated for the specified port.

System message display:

```
Parameter was successfully set.
```

Example

Enter: **1 1 4 3 2 3.1.2 1 0**

The following message appears:

```
This operation will release all connections of the specified
port(s)!
Are you sure (Y/N)?
```

Enter **Y** to confirm, **N** to cancel.

The following message is displayed:

```
Parameter was successfully set.
```

The maximum VPI for port 3.1.2 is updated to 10.

Display Signaling Protocol Profile

Display the current signaling protocol profile for the specified port.

The signaling protocol profile of a port defines the role that the port plays in the signaling dialog with its attached device. It can be Network or User.

When the port is connected to an end station or edge device, the port is normally defined as Network; when it is connected to another switch, it is defined automatically as User or Network depending on their network prefixes. (For more information, see "Signaling Protocol Profile" on page 92 in the Operations Guide.)

The Network port is the one that defines the VPI/VCI pair for the ATM connection.

Command Actions

Enter the menu sequence:

```
(1) SYS: Platform configuration
 (1) SET: Switch setup
  (4) SIG: Signaling setup
   (5) SPS: Signaling protocol
            configuration setup
    (1) GPR: Get profiles of ports
```

Direct access sequence: **1 1 4 5 1**

Command Result

System action taken: The current signaling protocol profile is displayed for all ports.

System message display: Information is displayed as shown in the example

Example

Enter: **1 1 4 5 1**

The following message is displayed. Note that Net refers to a Network side; Usr refers to a User side. Slots 1-5 are displayed.

```
Profile:
Port number:      <1.1.1> <1.1.2> <1.1.3> <1.1.4> <1.2.1> <1.2.2> <1.2.3> <1.2.4>
Current val:    Net     Net     Net     Net     Net     Net     Net     Net
Val for   save:   Net     Net     Net     Net     Net     Net     Net     Net
Next   reb   val:   Net     Net     Net     Net     Net     Net     Net     Net
Port number:      <2.1.1> <2.1.2> <2.1.3> <2.1.4> <2.2.1> <2.2.2> <2.2.3> <2.2.4>
Current val:    Net     Net     Net     Net     Net     Net     Net     Net
Val for save:   Net     Net     Net     Net     Net     Net     Net     Net
Next reb val:   Net     Net     Net     Net     Net     Net     Net     Net
Port number:      <3.1.1> <3.1.2> <3.1.3> <3.1.4> <3.2.1> <3.2.2> <3.2.3> <3.2.4>
Current val:    Net     Net     Net     Net     Net     Net     Net     Net
Val for save:   Net     Net     Net     Net     Net     Net     Net     Net
Next reb val:   Net     Net     Net     Net     Net     Net     Net     Net
Port number:      <4.1.1> <4.1.2> <4.1.3> <4.1.4> <4.2.1> <4.2.2> <4.2.3> <4.2.4>
Current val:    Net     Net     Net     Net     Net     Net     Net     Net
Val for save:   Net     Net     Net     Net     Net     Net     Net     Net
Next reb val:   Net     Net     Net     Net     Net     Net     Net     Net
Port number:      <5.1.1> <5.1.2> <5.1.3> <5.1.4> <5.2.1> <5.2.2> <5.2.3> <5.2.4>
Current val:    Usr     Net     Net     Net     Net     Net     Net     Net
Val for save:   Usr     Net     Net     Net     Net     Net     Net     Net
Next reb val:   Net     Net     Net     Net     Net     Net     Net     Net
```

Update Signaling Protocol Profile

Update the signaling protocol profile for the selected port. See the previous section for details. This command causes the new Signaling Protocol Parameters to be activated in the current session, and the new value is stored in flash. If a new value is not entered and stored in flash, the ATM Enterprise Switch reverts to the previous value of the Signaling Protocol Parameters the next time that it reboots.

Command Actions

Enter the menu sequence:

```
(1) SYS: Platform configuration
  (1) SET: Switch setup
   (4) SIG: Signaling setup
    (5) SPS: Signaling protocol
             configuration setup
     (2) SPR: Set profile of port
```

Enter a parameter at the prompt

Parameter	Format or Range
Port number	<slot.group.port>; Enter **0.0** for all ports
Signaling profile	**0** for user profile **1** for network profile

Direct access sequence: **1 1 4 5 2** [parameters]

Command Result

System action taken: The signaling protocol profile is updated. for the specified port.

System message display:

```
Parameter was successfully set
```

Example

Enter: **1 1 4 5 2 3.1.2 1**

The following message is displayed:

```
This operation will release all SVC connections!
Are you sure (Y/N)?
```

Enter **Y** to confirm, **N** to cancel.

The following message is displayed:

```
The profile was set successfully.
```

The signaling protocol for port 3.1.2 is updated to Network and saved.

Display Signaling Protocol Version

Display the current signaling protocol version for the specified port. It can be either version 3.0 or version 3.1.

Command Actions

Enter the menu sequence:

```
(1) SYS: Platform configuration
  (1) SET: Switch setup
   (4) SIG: Signaling setup
    (5) SPS: Signaling protocol
             configuration setup
     (3) GVP: Get protocol version
```

Direct access sequence: **1 1 4 5 3**

Command Result

System action taken: The current signaling protocol version for each port is displayed.

System message display: Information is displayed as shown in the example.

Example

Enter: **1 1 4 5 3**

The following information is displayed:

```
Port :  < 1.1.1> < 1.1.2> < 1.1.3> < 1.1.4> < 1.2.1> < 1.2.2> < 1.2.3> < 1.2.4>
Val:      4.0      4.0      4.0      4.0      4.0      4.0      4.0      4.0
Flash:    4.0      4.0      4.0      4.0      4.0      4.0      4.0      4.0
Port :  < 2.1.1> < 2.1.2> < 2.1.3> < 2.1.4> < 2.2.1> < 2.2.2> < 2.2.3> < 2.2.4>
Val:      4.0      4.0      4.0      4.0      4.0      4.0      4.0      4.0
Flash:    4.0      4.0      4.0      4.0      4.0      4.0      4.0      4.0
Port :  < 3.1.1> < 3.1.2> < 3.1.3> < 3.1.4> < 3.2.1> < 3.2.2> < 3.2.3> < 3.2.4>
Val:      4.0      4.0      4.0      4.0      4.0      4.0      4.0      4.0
Flash:    4.0      4.0      4.0      4.0      4.0      4.0      4.0      4.0
Port :  < 4.1.1> < 4.1.2> < 4.1.3> < 4.1.4> < 4.2.1> < 4.2.2> < 4.2.3> < 4.2.4>
Val:      4.0      4.0      4.0      4.0      4.0      4.0      4.0      4.0
Flash:    4.0      4.0      4.0      4.0      4.0      4.0      4.0      4.0
Port :  < 5.1.1> < 5.1.2> < 5.1.3> < 5.1.4> < 5.2.1> < 5.2.2> < 5.2.3> < 5.2.4>
Val:      4.0      4.0      4.0      4.0      4.0      4.0      4.0      4.0
Flash:    4.0      4.0      4.0      4.0      4.0      4.0      4.0      4.0
Port :  < 6.1.1> < 6.1.2> < 6.1.3> < 6.1.4> < 6.2.1> < 6.2.2> < 6.2.3> < 6.2.4>
Val:      4.0      4.0      4.0      4.0      4.0      4.0      4.0      4.0
Flash:    4.0      4.0      4.0      4.0      4.0      4.0      4.0      4.0
```

Protocol Version Parameters

Table 24 shows the protocol version parameters displayed by the command.

Table 24 Protocol Version Parameters

Name	Description
Port number	Number of port on which the protocol version is being set.
Val	The active protocol version: 3.0, 3.1 or 4.0.
Flash	The protocol version stored in the flash memory: 3.0, 3.1 or 4.0.

Update Signaling Protocol Version

Update the signaling protocol version of the ports of the CoreBuilder 9000 ATM Enterprise Switch and save it to flash.

Command Actions

Enter the menu sequence:

```
(1) SYS: Platform configuration
  (1) SET: Switch setup
    (4) SIG: Signaling setup
      (5) SPS: Signaling protocol
               configuration setup
        (4) SPV: Set protocol version
```

Enter a parameter at the prompt

Parameter	Format or Range
Port number	<slot.group.port>; Enter **0.0** for all ports
Protocol version	**0** for version 3.0 **1** for version 3.1 **2** for version 4.0
Confirmation	**Y** or **N**

Direct access sequence: **1 1 4 5 4** [parameters]

Command Result

System action taken: The signaling protocol version is updated for the specified port.

System message display:

```
Signaling Protocol Version was
successfully set.
```

Example

Enter: **1 1 4 5 4 3.1.2 2**

The following prompt is displayed:

```
This operation will release all connections of the specified
port(s)!
Are you sure (Y/N)? Y
```

Enter **Y** to confirm, **N** to cancel.

The following message is displayed:

```
Signaling Protocol Version was successfully set.
```

The signaling protocol version for port 3.1.2 is updated to 4.0 and saved.

Display Call-Proceeding Enable Value

Display the value of the call-proceeding enable value.

With the call-proceeding enable value, the user can suppress the call-proceeding message that is returned to the edge device or end user that has sent a signaling SETUP message. For more information, see "CALL PROCEEDING Message" on page 91 in the Operations Guide.

When the call-proceeding value is ON, the call-proceeding message is sent. When the call-proceeding value is OFF, the call-proceeding message is suppressed.

Command Actions

Enter the menu sequence:

```
(1) SYS: Platform configuration
 (1) SET: Switch setup
  (4) SIG: Signaling setup
   (6) CCL: Signaling call control
            setup
    (1) GET: Get call proceeding value
```

Direct access sequence: **1 1 4 6 1**

Command Result

System action taken: The call-proceeding enable flag is displayed.

System message display: `Call proceeding value is <ON/OFF>.`

Example

Enter: **1 1 4 6 1**

The following message is displayed:

```
Call proceeding value is ON.
```

Update Call-Proceeding Enable Value

Update the signaling call-proceeding enable flag and save it to flash memory. See the previous section for more details.

Command Actions

Enter the menu sequence:

```
(1) SYS: Platform configuration
 (1) SET: Switch setup
  (4) SIG: Signaling setup
   (6) CCL: Signaling call
            control setup
     (2) SET: Set call proceeding value
```

Enter a parameter at the prompt

Parameter	Format or Range
Call-proceeding message enable/disable value	**0** to suppress call-proceeding messages (off) **1** to send call-proceeding messages (on)

Direct access sequence: **1 1 4 6 2** [parameters]

Command Result

System action taken: The call-proceeding enable flag is updated.

System message display:

```
Call proceeding flag was successfully
set to: <ON/OFF>
```

Example

Enter: **1 1 4 6 2 1**

The following message appears:

```
Call proceeding flag was successfully set to ON.
```

The call-proceeding enable flag is updated to on and saved to flash.

Reset Signaling Configuration

Reset the signaling configuration parameters for the CoreBuilder 9000 ATM Enterprise Switch to their factory default settings. All signaling timers are set to default as UNI and the UNI version is set to 3.0. The reset takes effect immediately.

Command Actions

Enter the menu sequence:

```
(1) SYS: Platform configuration
 (1) SET: Switch setup
  (4) SIG: Signaling Setup
   (7) SIG: Set signaling configuration
            to factory defaults
```

Enter a parameter at the prompt

Parameter	Format or Range
Confirm Reset	**Y** or **N**

Direct access sequence: **1 1 4 7**

Command Result

System action taken: The signaling configuration parameters are reset to their factory default values.

System message display:

```
Signaling Configuration was set to
defaults.
```

Example

Enter: **1 1 4 7**

The following prompt appears:

```
Do you really want to reset config? (Y/N) Y
```

Enter **Y** to confirm, **N** to cancel.

```
Signaling Configuration was set to defaults.
```

The signaling configuration parameters are set to their factory values.

Signaling Timers

You can configure the ILMI signaling timers.

- Display Protocol Timer Resolution
- Update Protocol Timer Resolution
- Display UNI Signaling Timers
- Display QSAAL Signaling Timers and Protocol Configuration

For information about signaling timers, see "Signaling Timers" on page 96 in the Operations Guide.

Display Protocol Timer Resolution

Display the current timer resolution in milliseconds for the signaling protocol timers.

Each signaling protocol comes with a set of timers, one for each type of message in the protocol. These timers determine when an expected response to a message is overdue. They are set to the expected response time when the message is sent and decrement towards zero. If they reach zero before the response is received the system is notified that the response is overdue.

All the timers in the Q93B and QSAAL protocol are based on a common timer tick-length called the timer resolution*. When the timer resolution is changed, all of the signaling timers are affected.*

The CoreBuilder 9000 ATM Enterprise Switch is shipped with a default timer resolution of 500 msec (0.5 secs). To change the value of an individual timer, change the timer resolution proportionally. For example, if you want to lower the "no response" timer from 50 secs to 25 secs, reduce the timer resolution from 500 msec to 250 msec. Then the "no response" timer, together with all the other timers, are reduced by one half. For more information, see "Timer Resolution" on page 98 in the Operations Guide.

Command Actions

Enter the menu sequence:

```
(1) SYS: Platform configuration
  (1) SET: Switch setup
    (4) SIG: Signaling setup
      (1) RES: Timer Resolution setup
        (1) GET: Get Timer Resolution
```

Direct access sequence: **1 1 4 1 1**

Command Result

System action taken: The current timer resolution for the signaling protocol timers is displayed in msecs.

System message display: `Timer resolution (msec): <n>msec.`

Example

Enter: **1 1 4 1 1**

The following information is displayed:

```
Timer resolution (msec): 500msec
```

Update Protocol Timer Resolution

Update the timer resolution of the CoreBuilder 9000 ATM Enterprise Switch. The default timer resolution is 500 msec (0.5 secs); the minimum timer resolution is 100 msec and there is no upper limit. For more information, see the previous section and see "Timer Resolution" on page 98 in the Operations Guide.

This command causes the new timer resolution to be activated in the current session. The new value is stored in flash.

Command Actions

Enter the menu sequence:

```
(1) SYS: Platform configuration
  (1) SET: Switch setup
    (4) SIG: Signaling setup
      (1) RES: Timer Resolution setup
        (2) SET: Set Timer Resolution
```

Enter a parameter at the prompt

Parameter	Format or Range
Timer Resolution	in millisec; Range: >=100

Direct access sequence: **`1 1 4 1 2`** [parameters]

Command Result

System action taken: The timer resolution is updated.

System message display:

```
Timer resolution was successfully set.
```

Example

Enter: **`1 1 4 1 2 250`**

The following message appears:

```
Timer resolution was successfully set.
```

The timer resolution is updated to 250 msec and saved to flash.

Display UNI Signaling Timers

Display the current Q93B signaling timer values in seconds. These values are the same for all ports because they all work on a common timer. Enter any port identifier. To alter these values, update the timer resolution. For more information, see "Update Protocol Timer Resolution" on page 182.

Command Actions

Enter the menu sequence:

```
(1) SYS: Platform configuration
  (1) SET: Switch setup
    (4) SIG: Signaling setup
      (2) TMR: Get Signaling Q93B timers
```

Enter a parameter at the prompt

Parameter	Format or Range
Port number	<slot.group.port>

Direct access sequence: **1 1 4 2** [parameters]

Command Result

System action taken: The current Q93B Signaling timers for all ports are displayed in seconds.

System message display: Information is displayed as shown in the example.

Example

Enter: **`1 1 4 2 3.1.2`**

The following information is displayed, showing each message/timer name and its value in seconds:

```
Timers(sec):

Param id  Param name                      Param
                                         value
--------  ------------------------------ -------
      1  q93b_t303                         16
      2  q93b_t308                        120
      3  q93b_t310                         40
      4  q93b_t313                         16
      5  q93b_t316                        480
      7  q93b_t317                        360
      8  q93b_t322                          3
      9  q93b_t398                         16
     10  q93b_t399                         56
     11  q93b_t309                         40
     12  q93b_tdisc                       360
```

Display QSAAL Signaling Timers and Protocol Configuration

Display the current QSAAL signaling protocol timer values and Service Specific Connection-Oriented Protocol (SSCOP) configuration parameters for the specified port. The timer values are displayed in tenths of a second.

You can update the timer values by changing the timer resolution. For more information, see "Update Protocol Timer Resolution" on page 182. The configuration parameters can be altered.

Command Actions

Enter the menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch Setup
  (4) SIG: Signaling Setup
   (4) QSA: Get Signaling QSAAL
                Configuration setup
```

Enter a parameter at the prompt

Parameter	Format or Range
Port number	<slot.group.port>

Direct access sequence: **1 1 4 4** [parameters]

Command Result

System action taken: The current QSAAL signaling protocol timer values and SSCOP configuration parameters for the specified port are displayed.

System message display: Information is displayed as shown in the example.

SSCOP Timers

Table 25 shows the SSCOP Timers displayed by the command.

Table 25 SSCOP Timers

SSCOP Timer	Description
Poll	The maximum time between transmission of a POLL PDU, when SD or SDP PDUs are queued for transmission or are outstanding pending acknowledgment.
Keep-Alive	Maximum time between transmission of POLL PDUs, when no SD or SDP PDUs are queued for transmission or are outstanding pending acknowledgment.

Table 25 SSCOP Timers (continued)

SSCOP Timer	Description
No-Response	Maximum time between receipt of a STAT PDU in an active connection.
CC	The connection control timer determines the time between transmission of BGN, END, or RS PDUs, as long as an acknowledgment PDU has not been received.

For stability, make the timer No-Response greater than timer Keep-Alive, and make timer No-Response greater than timer Poll. Also, make timer No-Response and timer CC greater than the round trip delay.

SSCOP Configuration Parameters

Table 26 shows the SSCOP Configuration Parameters displayed by the command.

Table 26 SSCOP Configuration Parameters

SSCOP Parameter	Description
MaxCC	Maximum value for the state variable VT(CC), corresponding to the maximum number of transmissions of a BGN, END, or RS PDU.
MaxPD	Maximum acceptable value for the state variable VT(PD) before sending a POLL PDU and resetting VT(PD) to zero.
MaxSTAT	Maximum number of list elements permissible in a STAT PDU.
Window	Sequence number of the first SD or SDP PDU not allowed by the receiver.

Example

Enter: **`1 1 4 4 3.1.2`**

The following information is displayed (1-9 are timers, 10-13 are configuration parameters):

```
Signaling QSAAL Timers (Tenths of second):
for port <3.1.2>

Param number          Param name          Current
                                           value
-------- ------------------------------ -------
       1             Poll UNI 3.0             1
       2             Keep alive UNI 3.0      10
       3             No response UNI 3.0     100
       4             CC UNI 3.0               10
       5             Poll UNI 3.1              9
       6             Keep alive UNI 3.1       10
       7             No response UNI 3.1      70
       8             CC UNI 3.1               10
       9             Idle UNI 3.1            150
      10             Sscop max CC              5
      11             Sscop max PD             10
      12             Sscop max stat           67
      13             Sscop window             16
```

8 VIEWING STATISTICS

This chapter contains detailed descriptions of common management tasks for viewing statistics of traffic flow in the CoreBuilder® 9000 ATM Enterprise Switch platform.

- Physical Layer Statistics
- ATM-Layer Statistics
- AAL5-Layer Statistics
- AAL5 Control Frame Port Statistics
- Signaling Protocol Statistics

Physical Layer Statistics

You can:

- Display Physical Layer Statistics
- Reset Physical Layer Statistics

For more information on physical statistics, see “Traffic Statistics” on page 117 in the Operations Guide.

Display Physical Layer Statistics

Display the physical layer statistics for a specified port. See Table 27 for an explanation of the different statistics displayed.

Command Actions

Enter the menu sequence:

```
(4) STS: Statistics
 (1) PHY: Physical Layer
  (1) GET: Get physical layer counters
```

Enter a parameter at the prompt

Parameter	Format or Range
Port ID	<slot.group.port>

Direct access sequence: **`4 1 1`** [parameters]

Example

Enter: **`4 1 1 1.1.1`**

The following information is displayed:

```
SONET section level BIP errors (B1):                      0
SONET line level BIP errors (B2):                         0
SONET path level BIP errors (B3):                         0
SONET loss of signal state (LOS):                        ON
SONET loss of frame state (LOF):                        OFF
SONET loss of pointer state (LOP):                      OFF
SONET out of cell delineation state (OCD):               ON
SONET line alarm indication signal state (Line AIS):     ON
SONET path alarm indication signal state (Path AIS):    OFF
SONET line remote defect indication state (Line RDI):   OFF
SONET path remote defect indication state (Path RDI):    ON
```

Table 27 Physical Layer Statistics

Statistic	Description
SONET section level BIP errors (B1)	Section BIP-8 - bit-interleaved parity code 8 - even parity for error monitoring
SONET section level BIP errors (B2)	Line BIP-8 - line error monitoring
SONET section level BIP errors (B3)	Path BIP-8 - path error monitoring
SONET loss of signal state (LOS)	Loss of signal. The loss of signal defect is declared when no transitions are detected on the incoming signal (before descrambling). The LOS defect is detected upon observing 2.3 to 100 microseconds of no transitions. The defect is cleared after a 125 microsecond interval (one frame) during which no LOS defect is detected.
SONET loss of frame state (LOF)	Loss of frame. A loss of frame defect is declared when an OOF/SEF defect persists for a period of 3 milliseconds. The LOF defect is terminated when the incoming signal remains continuously in-frame for a period of 1 ms to 3 ms.
SONET loss of pointer state (LOP)	Loss of pointer. A loss of pointer defect is declared when either a valid pointer is not detected in eight consecutive frames, or when eight consecutive frames are detected with the New Data Flag (NDF) set to "1001" without a valid concatenation indicator. A LOP defect is terminated when either a valid pointer with a normal NDF set to "0110", or a valid concatenation indicator is detected for three contiguous frames.
SONET out of cell delineation state (OCD)	
SONET path alarm indication signal state (Path AIS) SONET line alarm indication signal state (Line AIS)	The AIS is an all-ONES characteristic or adapted information signal. It is generated to replace the normal traffic signal when it contains a defect condition in order to prevent consequential downstream failures being declared or alarms being raised. AIS can also be identified as: - AIS-L (Line Alarm Indication Signal) - SP-AIS (STS Path Alarm Indication Signal) - VP-AIS (VT Path Alarm Indication Signal)
SONET line remote defect indication state (Line RDI) SONET path remote defect indication state (Path RDI)	A signal returned to the transmitting Terminating Equipment upon detecting a Loss of Signal, Loss of Frame, or AIS defect. RDI was previously known as FERF. RDI can also be identified as: - RDI-L (Line Remote Defect Indication) - RDI-P (STS Path Remote Defect Indication) - RDI-V (VT Path Remote Defect Indication)

Reset Physical Layer Statistics

Reset physical layer statistics for a specified port.

Command Actions

Enter the menu sequence:

```
(4) STS: Statistics
 (1) PHY: Physical Layer
  (2) RST: Reset phys layer counters
```

Enter a parameter at the prompt

Parameter	Format or Range
Port ID	<slot.group.port> or Enter **0.0** - For all ports

Direct access sequence: **4 1 2** [parameters]

Command Result

System action taken: Physical statistics for the switch are reset.

System message display:

```
Reset physical counters completed
successfully.
```

Example

Enter: **4 1 2 1.1.1**

The following message is displayed:

```
Reset physical counters completed successfully.
```

The physical statistics are reset for port 1.1.1.

ATM-Layer Statistics

You can display the following ATM-layer statistics:

- Display Total Calls in Switch
- Display Counters Per Port
- Display Counters Per VPI/VCI
- Reset Counters Per Port
- Reset Counters Per VPI/VCI

For more information on ATM statistics, see "Traffic Statistics" on page 117 in the Operations Guide.

Display Total Calls in Switch

Display the total number of calls existing in the CoreBuilder 9000 ATM Enterprise Switch presented according to type of channel, SVC or PVC, and type of call, P2P or P2M.

Command Actions

Enter the menu sequence:

```
(4) STS: Statistics
  (2) ATM: ATM layer
    (1) GEN: Get SVC/PVC total calls
```

Direct access sequence: **4 2 1**

Command Result

System action taken: The total number of calls existing in the switch is displayed according to channel type and call type.

System message display: Information is displayed as shown in the example.

Example

Enter: **4 2 1**

The following information is displayed:

```
Calls summary:
--------------
Total number of PVC P2P calls:      1
Total number of PVC P2M calls:      2
Total number of SVC P2P calls:      8
Total number of SVC P2M calls:      4
```

Display Counters Per Port

Display counters for a specified port or for all ports.

Command Actions

Enter the menu sequence:

```
(4) STS: Statistics
  (2) ATM: ATM Layer
   (2) GPR: Get Counters Per Port
```

Direct access sequence: **4 2 2**

Command Result

System action taken: Calls summary information is displayed.

System message display: Information is displayed as shown in the example.

Example:

Enter: **4 2 2**

The following information is displayed:

```
Received total cells from port:                  2
Transmitted total cells on port:                 3
Received cells with correctable hec:             5
```

Display Counters Per VPI/VCI

Display total cells through a connection specified by its VPI/VCI, presented according to the setting of the CLP bit. If the call is P2M (Point to Multipoint), the transmit or receive information is not always applicable.

Command Actions

Enter the menu sequence:

```
(4) STS: Statistics
  (2) ATM: ATM layer
    (3) GVP: Get counters per vpi/vci
```

Enter a parameter at the prompt

Parameter	Format or Range
Port ID	<slot.group.port>
VPI VCI	Perform menu item `(3)CON\(2)RTG\(1)CLL` to get the VPI/VCI values for a call. See "Display Call Routed to ATM Address" on page 140 for details.

Direct access sequence: **4 2 3** [parameters]

Command Result

System action taken: The total number of cells through a connection is displayed according to the setting of the CLP bit.

System message display: Information is displayed as shown in the example.

Example

Enter: **4 2 3 1.1.1 3 200**

The following message is displayed:

```
ATM Statistics per VPI/VCI:
---------------------------
Ingress cells with clp0 set:                  2
Ingress cells with clp1 set:                  1
Egress cells with clp0 set:                   2
Egress cells with clp1 set:                  3
```

Reset Counters Per Port

Reset the statistics counter for total cells through a port. For more information, see "Display Total Calls in Switch" on page 193.

Command Actions

Enter the menu sequence:

```
(4) STS: Statistics
  (2) ATM: ATM layer
    (4) RPR: Reset counters per port
```

Enter a parameter at the prompt

Parameter	Format or Range
Port ID	<slot.group.port> or **`0.0`** for all ports

Direct access sequence: **`4 2 4`** [parameters]

Command Result

System action taken: The statistics counter for cells through a port is reset.

System message display:

```
Reset ATM counters completed
successfully.
```

Example

Enter: **`4 2 4 1.1.1`**

The following message is displayed:

```
Reset ATM counters completed successfully.
```

ATM Counters for the specified port are reset to 0.

Reset Counters Per VPI/VCI

Resets the statistics counter for total cells through a connection. For more information, see "ATM-Layer Statistics" on page 193.

Command Actions

Enter the menu sequence:

```
(4) STS: Statistics
  (2) ATM: ATM layer
    (5) RVP: Reset counters per vpi/vci
```

Enter a parameter at the prompt

Parameter	Format or Range
Port number	<slot.group.port>
VPI	Perform menu item `(3)CON\(2)RTG\(1)CLL` to get the VPI/VCI values for a call, or enter **A** for all values.
VCI	Perform menu item `(3)CON\(2)RTG\(1)CLL` to get the VPI/VCI values for a call, or enter **A** for all values.

Direct access sequence: **4 2 5** [parameters]

Command Result

System action taken: The statistics counter for cells through a connection is reset

System message display:

```
Reset VPI/VCI counters completed
successfully.
```

Example

Enter: **4 2 5 1.1.1 a a**

The following messages are displayed:

```
Reset all VPI/VCI counters may take a few seconds....
Reset VPI/VCI counters completed successfully.
```

The counters are reset.

AAL5-Layer Statistics

You can display the following AAL5-layer statistics:

- Display AAL-Layer Statistics
- Reset AAL-Layer Statistics

For more information on AAL5 statistics, see "Traffic Statistics" on page 117 in the Operations Guide.

Display AAL-Layer Statistics

Display AAL-Layer statistics for the CoreBuilder 9000 ATM Enterprise Switch. AAL connections and SAR frame statistics are presented.

Command Actions

Enter the menu sequence:

```
(4) STS: Statistics
  (3) AAL: AAL5 layer
    (1) GET: Get AAL & SAR counters
```

Direct access sequence: **4 3 1**

Command Result

System action taken: The total number of AAL connections and SAR frames at the switch are displayed.

System message display: Information is displayed as shown in the example.

Example

Enter: **4 3 1**

The following information is displayed:

```
AAL COUNTERS:
=============
Max connections:             5316   Active connections:           42

SAR MEMORY SIZE:
================
SSRAM size:      512Kb
SDRAM size:        8Mb

SAR COUNTERS:
=============
RX correct frames:              0   TX correct frames:             0
RX CRC-32 ERR frames:           0   RX Length ERR frames:          0
RX Zero Length ERR frames:      0   RX Timeout ERR frames:         0
RX No Free Buffers ERR:         0   RX Oversize ERR frames:        0
```

Reset AAL-Layer Statistics

Reset the AAL-Layer statistics for the CoreBuilder 9000 ATM Enterprise Switch.

Command Actions

Enter the menu sequence:

```
(4) STS: Statistics
  (3) AAL: AAL5 layer
    (2) RST: Reset AAL & SAR counters
```

Direct access sequence: **4 3 2**

Command Result

System action taken: The AAL-Layer statistics for the CoreBuilder 9000 ATM Enterprise Switch is reset.

System message display: `AAL counters were reset successfully.`

Example

Enter: **4 3 2**

The following message is displayed:

```
AAL counters were reset successfully.
```

The counters are reset.

AAL5 Control Frame Port Statistics

You can display the following AAL5 control statistics:

- Display Control Frame Port Statistics
- Reset Control Frame Port Statistics

For information about AAL5-layer control, see "Signaling AAL" on page 99 in the Operations Guide.

Display Control Frame Port Statistics

Display control frame statistics for a specified port. PDU and SDU statistics are presented. Both signaling and ILMI control frame statistics are shown.

Command Actions

Enter the menu sequence:

```
(4) STS: Statistics
 (4) CTL: Control frames
  (1) GET: Get Control frames counters
```

Enter a parameter at the prompt

Parameter	Format or Range
Port number	<slot.group.port> or **0.0** - For all ports

Direct access sequence: **4 4 1** [parameters]

Command Result

System action taken: AAL5-layer control frame statistics for the specified port are displayed.

System message display: Information is displayed as shown in the example.

Example

Enter: **`4 4 1  1.1.1`**

The following information is displayed:

```
Port number:     <1.1.1>                    SIGNALING         ILMI
                                            -----------      ------
 Max transmit SDU size in bytes:                      0           0
 Number of transmitted SDUs:                          0           0
 Max received SDU size in bytes:                      0           0
 Number of SDUs received without errors:              0           0
 Number of PDUs received with CRC-32 errors:          0           0
 Number of oversized PDUs:                            0           0
 Number of buffers shortage errors:                   0           0
```

Reset Control Frame Port Statistics

Resets control frame statistics for a specified port.

Command Actions

Enter the menu sequence:

```
(4) STS: Statistics
 (4) CTL: Control Frames
  (2) RST: Reset Control Frames
           Counters
```

Enter a parameter at the prompt

Parameter	Format or Range
Port ID	<slot.group.port> or **0.0** - For all ports

Direct access sequence: **4 4 2**

Command Result

System action taken: The AAL-Layer control statistics for the CoreBuilder 9000 ATM Enterprise Switch are reset.

System message display:

```
Reset counters completed successfully.
```

Example

Enter: **4 4 2 1.1.1**

The following message appears:

```
Reset counters completed successfully.
```

The AAL5-layer control statistics are reset for port 1.1.1.

Signaling Protocol Statistics

You can display the following signaling statistics:

- Display Signaling Protocol Statistics
- Reset Signaling Counters

For information about signaling protocol, see "Signaling Protocol" on page 89 in the Operations Guide.

Display Signaling Protocol Statistics

Display the signaling protocol statistics for a specified port. The number of signaling messages is presented according to transmitted and received messages.

Command Actions

Enter the menu sequence:

```
(4) STS: Statistics
  (5) SIG: Signaling
    (1) GET: Get signaling counters
```

Enter a parameter at the prompt

Parameter	Format or Range
Port Number	<slot.group.port>

Direct access sequence: **4 5 1** [parameters]

Command Result

System action taken: Signaling protocol statistics for the specified port are displayed.

System message display: Information is displayed as shown in the example.

Example

Enter: **4 5 1 1.1.1**

The following information is displayed:

```
                       Number of                    Number of
                     messages transmitted         messages received
                     --------------------         -----------------
Call proceeding                  0                          0
Connect                          0                          0
Connect acknowledge              0                          0
Setup                            0                          0
Release                          0                          0
Release complete                 0                          0
Restart                          0                          0
Restart acknowledge              0                          0
Status                           0                          0
Status inquiry                   0                          0
Add party                        0                          0
Add party acknowledge            0                          0
Add party reject                 0                          0
Drop party                       0                          0
Drop party acknowledge           0                          0

Total connections established so far:         0
Number of currently active connections:       0
```

Reset Signaling Counters

Resets the signaling counters for a specified port.

Command Actions

Enter the menu sequence:

```
(4) STS: Statistics
  (5) SIG: Signaling
    (2) RST: Reset signaling counters
```

Enter a parameter at the prompt

Parameter	Format or Range
Port ID	<slot.group.port>

Direct access sequence: **4 5 2** [parameters]

Command Result

System action taken: Signaling statistics are reset for the specified port.

System message display:

```
Reset Q93B statistics completed
successfully.
```

Example

Enter: **4 5 2 1.1.1**

The following message is displayed:

```
Reset Q93B statistics completed successfully.
```

The signaling statistics are reset for port <1.1.1>.

9 MANAGING LAN EMULATION

This chapter describes how to configure LAN Emulation (LANE) in the CoreBuilder® 9000 ATM Enterprise Switch.

- LAN Emulation Setups
  - LAN Emulation Services Setup
  - LAN Emulation Redundancy Setup
  - LANE Version of Switch
  - MPOA Devices Configuration
- LAN Emulation Configuration Service (LECS) Operations
  - LECS Address
  - LECS Search Policy
  - LECS ELAN Database Operations
  - LAN Emulation Redundancy
- LAN Emulation Service (LES) Operations
  - LES Address
  - ELAN Parameters
  - LE_ARP Policy Configuration
  - LEC Operations

LAN EMULATION SETUPS

LAN Emulation Services Setup

You can set up the LAN Emulation services, as follows:

- Display LAN Emulation Services Status
- Enable LAN Emulation Services
- Disable LAN Emulation Services
- Display LECS Status
- Enable LECS
- Disable LECS

CAUTION: *Before you reboot the Switch, wait for one minute after each LECS update operation to allow the new parameter values to be stored in flash.*

Display LAN Emulation Services Status

Display the status of the LAN Emulation services in the CoreBuilder 9000 ATM Enterprise Switch. The status is either enabled or disabled.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform config
 (1) SET: Switch setup
  (5) SLE: LE setup
   (1) LES: LE services setup
    (1) STA: Show LE services status
```

Direct access sequence: **`1 1 5 1 1`**

Command Result

System action taken: The LE services status is displayed.

System message display:

```
LE services status is <ENABLED/
DISABLED>.
```

Example

Enter: **`1 1 5 1 1`**

The following message is displayed:

```
LE services status is ENABLED.
```

Enable LAN Emulation Services

Enable the LAN Emulation services in the CoreBuilder 9000 ATM Enterprise Switch. The enable takes place after the next reboot.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform config
 (1) SET: Switch setup
  (5) SLE: LE setup
   (1) LES: LE services setup
    (2) ELS: Enable services
```

Direct access sequence: **1 1 5 1 2**

Command Result

System action taken: The LE services status is enabled after the next reboot.

System message display:

```
LE services status will be ENABLED on
the next reboot.
```

Example

Enter: **1 1 5 1 2**

The following message is displayed:

```
LE services status will be ENABLED on the next reboot.
```

Disable LAN Emulation Services

Disable the LAN Emulation services in the CoreBuilder 9000 ATM Enterprise Switch. The disable takes place after the next reboot.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch Setup
  (5) SLE: LE setup
   (1) LES: LE Services setup
    (3) DLS: Disable LE services
```

Direct access sequence: **1 1 5 1 3**

Command Result

System action taken: The LE services are disabled after the next reboot.

System message display:

```
LE service status will be DISABLED on
the next reboot.
```

Example

Enter: **1 1 5 1 3**

The following message is displayed:

```
LE service status will be DISABLED on the next reboot.
```

Display LECS Status

Display the status of the LECS in the CoreBuilder 9000 ATM Enterprise Switch. The status is either enabled or disabled.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch Setup
  (5) SLE: LE Setup
   (2) LCS: LECS setup
     (1) STA: Show LECS status
```

Direct access sequence: **1 1 5 2 1**

Command Result

System action taken: The LECS status is displayed.

System message display:

```
LECS service status is <ENABLED/
DISABLED>.
```

Example

Enter: **1 1 5 2 1**

The following message is displayed:

```
LECS service status is ENABLED.
```

Enable LECS Enable the LECS in the CoreBuilder 9000 ATM Enterprise Switch after the next reboot. This command also enables the resident LESs.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Setup
 (1) SET: Switch Setup
  (5) SLE: LE Setup
   (2) LCS: LECS Setup
     (2) ELS: Enable LECS services
```

Direct access sequence: **1 1 5 2 2**

Command Result

System action taken: The LECS is enabled after the next reboot. The LES is also enabled.

System message display:

```
LECS service status is set for the next
reboot.
```

Example

Enter: **1 1 5 2 2**

The following message is displayed:

```
LECS service status is set for the next reboot.
```

Disable LECS Disable the LECS in the CoreBuilder 9000 ATM Enterprise Switch.

Command Actions

Enter menu sequence:

```
(1) SYS: PLatform Setup
 (1) SET: Switch Setup
  (5) SLE: LE Services Setup
   (2) LCS: LECS setup
    (3) DLS: Disable LECS services
```

Direct access sequence: **1 1 5 2 3**

Command Result

System action taken: The LECS is disabled.

System message display:

```
LECS service status is set for the next
reboot.
```

Example

Enter: **1 1 5 2 3**

The following message is displayed:

```
LECS service status is set for the next reboot.
```

LAN Emulation Redundancy Setup

You can set up the LAN Emulation redundancy services as follows:

- Display LECS Redundancy
- Add LECS to LECS-Order Database
- Delete LECS from LECS-Order Database
- Display LE Service Redundancy
- Enable or Disable LE Servers Redundancy
- Update Startup Delay

Display LECS Redundancy

Display the LECS-order database in the CoreBuilder 9000 ATM Enterprise Switch. The LECS-order database has up to five entries. The first entry is the active LECS and the others are redundant backup LECS, which are activated according to order.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform config
 (1) SET: Switch setup
  (5) SLE: LE setup
   (3) LOL: LECS ordered list
    (1) GLA: Display LECSs ordered list
```

Direct access sequence: **1 1 5 3 1**

Command Result

System action taken: The LECS-order database is displayed.

System message display: Information is displayed as shown in the example.

Example

Enter: **1 1 5 3 1**

The following information is displayed:

```
Index                        LECS address
-----  ------------------------------------------------------
  0    47.00.00.00.00.00.3c.00.00.a0.00.00.00.00.a0.3e.00.00.01.00
  1    47.00.00.00.00.00.3c.00.00.b0.00.00.00.00.a0.3e.00.00.01.00
```

Add LECS to LECS-Order Database

Add a LECS to the LECS-order database in the CoreBuilder 9000 ATM Enterprise Switch as the last element. If you want to change the order of the LECS in the LECS-order database, delete the entries and reenter them. You can add a LECS from any switch in which the LECS has been enabled. Enter the ATM address of the LECS.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform config
 (1) SET: Switch setup
  (5) SLE: LE setup
   (3) LOL: LECS ordered list
    (2) AOL: Add to LECS ordered list
```

Enter a parameter at the prompt

Parameter	Format or Range
LECS ATM Address	ATM address

Direct access sequence: **1 1 5 3 2** [parameter]

Command Result

System action taken: The LECS is added to the LECS-order database.

System message display: `Redundant LECS added.`

Example

Enter: **1 1 5 3 2**
47.00.00.00.00.00.3c.00.00.a0.00.00.00.00.a0.3e.00.00.01.00

```
Redundant LECS added.
```

The LECS is entered into the LECS-order database.

Delete LECS from LECS-Order Database

Delete a LECS from the LECS-order database in the CoreBuilder 9000 ATM Enterprise Switch. Enter the index of the LECS address as it appears in the LECS-order database. To display the database, see "Display LECS Redundancy" on page 218.

If the last LECS is deleted from the LECS-order database, a warning message is displayed, informing you that the database is empty.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform config
 (1) SET: Switch setup
  (5) SLE: LE setup
   (3) LOL: LECS ordered list
    (3) DOL: Del from LECS ordered list
```

Enter a parameter at the prompt

Parameter	Format or Range
LECS index	**0-4**

Direct access sequence: **1 1 5 3 3** [parameter]

Command Result

System action taken: The LECS is deleted from the LECS-order database.

System message display: `Redundant LECS deleted`

Example

Enter: **1 1 5 3 3 2**

The following message appears:

```
Redundant LECS deleted
```

The LECS with index 2 is removed from the LECS-order database.

Display LE Service Redundancy

Display parameters of the LES redundancy facility in the CoreBuilder 9000 ATM Enterprise Switch. For more information, see "LAN Emulation Redundancy" on page 136 in the Operations Guide.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform config
 (1) SET: Switch setup
  (5) SLE: LE setup
   (4) RDN: LE Service redundancy setup
    (1) DLR: Show LES redundancy params
```

Direct access sequence: **1 1 5 4 1**

Command Result

System action taken: The LES redundancy parameters are displayed.

System message display: Information is displayed as shown in the example.

Example

Enter: **1 1 5 4 1**

The following information is displayed:

```
LANE Service redundancy mechanism  : Enabled
Startup Delay (Sec)                : 600
```

LES Redundancy Parameters

Table 28 shows the LES Redundancy Parameters displayed by the command.

Table 28 LES Redundancy Parameters

Name	Description
LANE Service Redundancy Status	Whether LANE service redundancy is enabled or disabled.
Startup Delay	Time elapsed between switch startup and startup of LANE redundancy facility — in seconds. Default is 600.

Enable or Disable LE Servers Redundancy

Enable and disable the LECS-based LANE redundancy facility in the CoreBuilder 9000 ATM Enterprise Switch. For more information, see "Redundant LANE Services" on page 137 in the Operations Guide.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform config
 (1) SET: Switch setup
  (5) SLE: LE setup
   (4) RDN: LE Service redundancy setup
    (2) LRM: Change LE Service
             redundancy Mode
```

Enter a parameter at the prompt

Parameter	Format or Range
Enable/disable	**0** to disable **1** to enable

Direct access sequence: **1 1 5 4 2** [parameters]

Command Result

System action taken: The LECS-based LANE redundancy facility in the CoreBuilder 9000 ATM Enterprise Switch is enabled or disabled.

System message display: `Redundancy mode changed.`

Example

Enter: **1 1 5 4 2 0**

The following message is displayed:

```
Redundancy mode changed.
```

The LECS-based LANE redundancy facility in the CoreBuilder 9000 ATM Enterprise Switch is disabled.

Update Startup Delay

Update the startup delay parameter for LANE redundancy facility in the CoreBuilder 9000 ATM Enterprise Switch. The startup delay is the time elapsed between the switch startup and the startup of the LANE redundancy facility.

To display the current value of the parameter, see "Display LE Service Redundancy" on page 221. This parameter is in the range 1–15 minutes and defaults to 10 minutes. For more information about the startup delay, see "LANE Redundancy Start-up Delay" on page 143 in the Operations Guide.

The startup delay takes effect at the next reboot.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform config
 (1) SET: Switch setup
  (5) SLE: LE setup
   (4) RDN: LE Service redundancy setup
    (3) LRD: Set LE Service redundancy
             startup delay
```

Enter a parameter at the prompt

Parameter	Format or Range
Startup Delay	Seconds Default is 600 seconds.

Direct access sequence: **`1 1 5 4 3`** [parameters]

Command Result

System action taken: The startup delay for the LANE redundancy facility is set for the next reboot.

System message display: `Startup Delay Changed.`

Example

Enter: **`1 1 5 4 3 600`**

The following message is displayed:

```
Startup Delay Changed.
```

The startup delay for the LANE redundancy facility in the CoreBuilder 9000 ATM Enterprise Switch is set to 600 seconds.

LANE Version of Switch

By default, the switch comes up as LANE 2.0, but it is possible to toggle between the two versions - 1.0 and 2.0. The changes relate to the switch not to a specific ELAN.

Get Switch LANE Version

Displays the current LANE version of the switch. The possibilities are 1.0 and 2.0.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
 (4) LVR: Lane Version of Switch
  (1) GLV: Get switch lane version
```

Direct access sequence: **2 4 1**

Command Result

System action taken: The LANE version of the switch is displayed.

System message display:

```
Lane version of switch is: 2.0
```

Set Switch LANE Version

Sets the LANE version of the switch. If currently there are LECs joined in ELANs, they remain joined and the version change affects only new LECs that join after the change.

After setting the LANE version, reset the ELANs that have LECs connected to them. This should be done very carefully: reset the first ELAN, wait until all the LECs have connected, then reset the next ELAN and so on.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
 (4) LVR: Lane Version of Switch
  (2) SLV: Set switch lane version
```

Enter a parameter at the prompt

Parameter	Format or Range
LANE version	**1** for v1.0 **2** for v2.0

Direct access sequence: **2 4 2**

Command Result

System action taken: The LANE version of the switch is changed.

System message display:

```
Version has been changed successfully.
Currently joined v2.0 LECs remain as
such.
```

MPOA Devices Configuration

The switch allows configuration of MPOA entities: MPS and MPC. The configuration is general so that all MPSs and MPCs that request configuration receive the same parameters.

Display Current MPS Configuration

Displays all the current settings of the MPS variables.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
 (5) MPA: MPOA Devices Configuration
  (1) MPS: MPOA Server Configuration
   (1) DIS: Display current config
```

Direct access sequence: **2 5 1 1**

Command Result

System action taken: All the current settings of the MPS variables are displayed.

System message display: Information is displayed as shown in the example below.

Example

Enter: **2 5 1 1**

The following information is displayed:

```
MPOA Server Configuration
-------------------------
MPS-p1     keep-alive time:                    10 (seconds)
MPS-p2     keep-alive lifetime:                35 (seconds)
MPS-p3     internetwork-layer protocols:       IP
MPS-p4     MPS initial retry time:              5 (seconds)
MPS-p5     MPS retry time maximum:             40 (seconds)
MPS-p6     MPS give up time:                   40 (seconds)
MPS-p7     default holding time:               20 (minutes)
```

MPOA Server Configuration Parameters

Table 29 describes the MPOA Server configuration parameters.

Table 29 MPOA Server Configuration Parameters

Variable	Name	Description
MPS-p1	keep-alive time	The MPS must transmit MPOA keep-alives every MPS-p1 seconds. (Minimum = 1 sec., default = 10 sec., maximum = 100 sec.)
MPS-p2	keep-alive lifetime	The length of time (in seconds) an MPC may consider a keep-alive valid. (Minimum = 3 sec., default = 35 sec., maximum = 1000 sec.)
MPS-p3	internetwork-layer protocols	The set of protocols for which MPOA resolution is supported. Default = ().
MPS-p4	MPS initial retry time	Initial retry time used by the MPOA retry mechanism. (Minimum = 1 sec., default = 5 sec., maximum = 300 sec.)
MPS-p5	MPS retry time maximum	Maximum retry time used by MPOA retry mechanism. (Minimum = 10 sec., default = 40 sec., maximum = 300 sec.)
MPS-p6	MPS give up time	Minimum time to wait before giving up on a pending resolution request. (Minimum = 5 sec., default = 40 sec., maximum = 300 sec.)
MPS-p7	default holding time	Default holding time used in NHRP resolution replies. An egress MPS may use local information to determine a more appropriate Holding Time. (Minimum = 1 minute., default = 20 minutes, maximum = 120 minutes.)

Set Keep-Alive Time Sets the MPS-p1 keep-alive time parameter.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
 (5) MPA: MPOA Devices Configuration
  (1) MPS: MPOA Server Configuration
   (2) MP1: Set keep-alive time
```

Enter a parameter at the prompt

Parameter	Format or Range
keep-alive time	**1 - 300** (seconds)

Direct access sequence: **2 5 1 2**

Command Result

System action taken: The keep-alive time parameter is set.

System message display: `Parameter changed successfully`

Example

Enter: **2 5 1 2 100**

The following message is displayed:

```
Parameter changed successfully
```

Set Keep-Alive Lifetime

Sets the MPS-p2 keep-alive lifetime parameter.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
 (5) MPA: MPOA Devices Configuration
  (1) MPS: MPOA Server Configuration
   (3) MP2: Set keep-alive lifetime
```

Enter a parameter at the prompt

Parameter	Format or Range
keep-alive lifetime	**3 - 1000** (seconds)

Direct access sequence: **2 5 1 3**

Command Result

System action taken: The keep-alive lifetime parameter is set.

System message display: `Parameter changed successfully.`

Example

Enter: **2 5 1 3 400**

The following message is displayed:

```
Parameter changed successfully
```

Set Internetwork Layer Protocols

Sets the MPS-p3 protocols parameter.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
 (5) MPA: MPOA Devices Configuration
  (1) MPS: MPOA Server Configuration
   (4) MP3: Set internetwork-layer prots
```

Enter a parameter at the prompt

Parameter	Format or Range
internetwork-layer protocols	**1 - NONE** **2 - IP** **3 - IPX** **4 - IP+IPX**

Direct access sequence: **2 5 1 4**

Command Result

System action taken: The internetwork-layer protocols parameter is set.

System message display:

```
Parameter changed successfully
```

Example

Enter: **2 5 1 4 2**

The following message is displayed:

```
Parameter changed successfully
```

Set Initial Retry Time

Sets the MPS-p4 initial retry time parameter.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
 (5) MPA: MPOA Devices Configuration
  (1) MPS: MPOA Server Configuration
   (5) MP4: Set initial retry time
```

Enter a parameter at the prompt

Parameter	Format or Range
initial retry time	**1 - 300** (seconds)

Direct access sequence: **2 5 1 5**

Command Result

System action taken: The initial retry time parameter is set.

System message display: `Parameter changed successfully`

Example

Enter: **2 5 1 5 100**

The following message is displayed:

```
Parameter changed successfully
```

Set Retry Time Maximum

Sets the MPS-p5 retry time maximum parameter.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
 (5) MPA: MPOA Devices Configuration
  (1) MPS: MPOA Server Configuration
   (6) MP5: Set retry time maximum
```

Enter a parameter at the prompt

Parameter	Format or Range
retry time maximum	**10 - 300** (seconds)

Direct access sequence: **2 5 1 6**

Command Result

System action taken: The retry time maximum parameter is set.

System message display: `Parameter changed successfully`

Example

Enter: **2 5 1 6 200**

The following message is displayed:

```
Parameter changed successfully
```

Set Give Up Time Sets the MPS-p6 give-up time parameter.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
 (5) MPA: MPOA Devices Configuration
  (1) MPS: MPOA Server Configuration
   (7) MP6: Set give-up time
```

Enter a parameter at the prompt

Parameter	Format or Range
give-up time	**5 - 300** (seconds)

Direct access sequence: **2 5 1 7**

Command Result

System action taken: The give-up time parameter is set.

System message display: `Parameter changed successfully`

Example

Enter: **2 5 1 7 250**

The following message is displayed:

```
Parameter changed successfully
```

Set Default Holding Time

Sets the MPS-p7 default holding time parameter.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
 (5) MPA: MPOA Devices Configuration
  (1) MPS: MPOA Server Configuration
   (8) MP7: Set default holding time
```

Enter a parameter at the prompt

Parameter	Format or Range
default holding time	**1 - 120** (minutes)

Direct access sequence: **2 5 1 8**

Command Result

System action taken: The default holding time parameter is set.

System message display: `Parameter changed successfully`

Example

Enter: **2 5 1 8 60**

The following message is displayed:

```
Parameter changed successfully
```

Display Current MPC Configuration

Displays all the current settings of the MPC variables.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
 (5) MPA: MPOA Devices Configuration
  (2) MPC: MPOA Client Configuration
   (1) DIS: Display current config
```

Direct access sequence: **2 5 2 1**

Command Result

System action taken: All the current settings of the MPC variables are displayed.

System message display: Information is displayed as shown in the example below.

Example

Enter: **2 5 2 1**

The following information is displayed:

```
MPOA Client Configuration
-------------------------
MPC-p1     shortcut-setup frame count:            10 (a number)
MPC-p2     shortcut-setup frame time:              1 (seconds)
MPC-p3     flow detection protocols:              IP
MPC-p4     MPC initial retry time:                 5 (seconds)
MPC-p5     MPC retry time maximum:                40 (seconds)
MPC-p6     hold down time:                       160 (seconds)
```

MPOA Client Configuration Parameters

Table 30 describes the MPOA Client configuration parameters.

Table 30 MPOA Client Configuration Parameters

Variable	Name	Description
MPC-p1	shortcut-setup frame time	If an MPC forwards at least MPC-p2 frames to the same target within any period MPC-p1 via the default forwarding path, it should initiate the procedure to establish a shortcut. The MPC-p1 and MPC-p2 parameters specify a default mechanism for automatically detecting flows in the absence of other information. Other mechanisms (e.g. RSVP) may be used in specific cases to override this default. (Minimum = 1 sec., default = 1 sec., maximum = 60 sec.)
MPC-p2	shortcut-setup frame count	See MPC-p1. (Minimum = 1 sec., default = 10 sec., maximum = 65535 sec.)
MPC-p3	flow detection protocols	A set of protocols on which to perform flow detection. Default = ().
MPC-p4	MPC initial retry time	Initial retry time used by the MPOA retry mechanism. (Minimum = 1 sec., default = 5sec., maximum = 300 sec.)
MPC-p5	MPC retry time maximum	Maximum retry time used by the MPOA retry mechanism. (Minimum = 10 sec., default = 40 sec., maximum = 300 sec.)
MPC-p6	hold down time	Minimum time to wait before reinitiating a failed resolution attempt. This is usually set to a value greater than MPC-p5. (Minimum = 30 sec., default = MPC-p%*4, maximum = 120 sec.)

Set Shortcut Setup Frame Count

Sets the MPC-p1 shortcut-setup frame count parameter.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
 (5) MPA: MPOA Devices Configuration
  (2) MPC: MPOA Client Configuration
   (2) MP1: Set shortcut-setup frame count
```

Enter a parameter at the prompt

Parameter	Format or Range
shortcut-setup frame count	**1 - 65535**

Direct access sequence: **2 5 2 2**

Command Result

System action taken: The shortcut-setup frame count parameter is set.

System message display: `Parameter changed successfully`

Set Shortcut Setup Frame Time

Sets the MPC-p2 shortcut-setup frame time parameter.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
 (5) MPA: MPOA Devices Configuration
  (2) MPC: MPOA Client Configuration
   (3) MP2: Set shortcut-setup frame time
```

Enter a parameter at the prompt

Parameter	Format or Range
shortcut-setup frame time	**1 - 60** (seconds)

Direct access sequence: **2 5 2 3**

Command Result

System action taken: The shortcut-setup frame time parameter is set.

System message display: `Parameter changed successfully`

Set Flow Detection Protocols

Sets the MPC-p3 flow detection protocols parameter.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
 (5) MPA: MPOA Devices Configuration
  (2) MPC: MPOA Client Configuration
   (4) MP3: Set flow detection protocols
```

Enter a parameter at the prompt

Parameter	Format or Range
flow detection protocols	**1 - NONE** **2 - IP** **3 - IPX** **4 - IP+IPX**

Direct access sequence: **2 5 2 4**

Command Result

System action taken: The flow detection protocols parameter is set.

System message display: `Parameter changed successfully`

Set Initial Retry Time

Sets the MPC-p4 initial retry time parameter.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
 (5) MPA: MPOA Devices Configuration
  (2) MPC: MPOA Client Configuration
   (5) MP4: Set initial retry time
```

Enter a parameter at the prompt

Parameter	Format or Range
initial retry time	**1 - 300** (seconds)

Direct access sequence: **2 5 2 5**

Command Result

System action taken: The initial retry time parameter is set.

System message display: `Parameter changed successfully.`

Set Retry Time Maximum

Sets the MPC-p5 retry time maximum parameter.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
 (5) MPA: MPOA Devices Configuration
  (2) MPC: MPOA Client Configuration
   (6) MP5: Set retry time maximum
```

Enter a parameter at the prompt

Parameter	Format or Range
retry time maximum	**10 - 300** (seconds)

Direct access sequence: **2 5 2 6**

Command Result

System action taken: The retry time maximum parameter is set.

System message display: `Parameter changed successfully`

Set Hold Down Time Sets the MPS-p6 hold down time parameter.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
 (5) MPA: MPOA Devices Configuration
  (2) MPC: MPOA Client Configuration
   (7) MP6: Set hold down time
```

Enter a parameter at the prompt

Parameter	Format or Range
hold down time	**30 - 1200** (seconds)

Direct access sequence: **2 5 2 7**

Command Result

System action taken: The hold down time parameter is set.

System message display: `Parameter changed successfully`

LAN EMULATION CONFIGURATION SERVICE (LECS) OPERATIONS

This section describes how to configure LAN Emulation Configuration Service (LECS) Operations in the CoreBuilder 9000 ATM Enterprise Switch.

- LECS Address
- LECS Search Policy
- LECS ELAN Database Operations
- LAN Emulation Redundancy

For more information about configuring the LAN Emulation Configuration Services (LECS), see Chapter 8, LAN Emulation in the Operations Guide.

LECS Address

You can configure the resident LECS address as follows:

- Display Resident LECS Address
- Update Resident LECS Address

CAUTION: *Before you reboot the switch, wait three minutes after each LECS update operation to allow the change to be stored in flash.*

Display Resident LECS Address

Display the address of the resident LECS.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
 (1) LCS: LE Config Service
  (1) LGA: Get resident LECS address
```

Direct access sequence: **2 1 1**

Command Result

System action taken: The address of the resident LECS is displayed.

System message display: Information is displayed as shown in the example.

Example

Enter: **2 1 1**

The following information is displayed. The first 13 bytes represent the network prefix of the CoreBuilder 9000 ATM Enterprise Switch and the last 7 bytes represent the user part.

```
LECS ADDR is:   47.0.0.0.0.0.3c.0.0.a0.0.0.0.0.a0.3e.0.0.1.0
```

Update Resident LECS Address

Update the address of the resident LECS. Enter the user part of the address (last 7 hex bytes). The switch network prefix is used for the first 13 bytes. The update takes place immediately.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
  (1) LCS: LE Config Service
    (2) LSP: Set resident LECS addr
```

Enter a parameter at the prompt

Parameter	Format or Range
User part of LECS address	7 Hex bytes separated with dots

Direct access sequence: **`2 1 2`** [parameter]

Command Result

System action taken: The address of the resident LECS is updated. The update takes place immediately.

System message display: `FLASH action completed successfully.`

Example

Enter: **`2 1 2 0.a0.3e.0.0.1.0`**

The following message is displayed:

```
FLASH action completed successfully.
```

The resident LECS address is updated.

LECS Search Policy

You can configure the LECS search policy.

Display LECS Search Policy

Display the search policy of the resident LECS, according to which a LES address is assigned to a LEC that requests to join an ELAN.

When a LEC applies to the LECS to join an ELAN, it can supply the following information to assist the LECS:

- The ATM address of the LES with which it wants to communicate over an ELAN
- The MAC address of the LES with which it wants to communicate over an ELAN
- The name of the ELAN it wants to join

Accordingly, there are three possible search policies that the LECS can execute:

1. The LECS searches for an ELAN whose LES has the required ATM address.
2. The LECS searches for an ELAN that contains the LES with the required MAC address.
3. The LECS searches for an ELAN with the required name.

These three policies are tried by the LECS in order. If one does not succeed, the next is tried.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
  (1) LCS: LE Config Service
    (3) LGP: LECS Get policy
```

Direct access sequence: **2 1 3**

Command Result

System action taken: The search policy of the resident LECS is displayed.

System message display: Information is displayed as shown in the example.

Example

Enter: **2 1 3**

The search policy of the resident LECS is displayed:

```
First lecs search policy is  by ATM address
Second lecs search policy is  by Mac Address
Third lecs search policy is  by Elan name
```

LECS ELAN Database Operations

You can configure the ELAN database as follows:

- Display ELANs
- Display ELAN Parameters in LECS Database
- Update ELAN Parameters in LECS Database
- Display ELAN MAC Addresses
- Delete ELAN MAC Address
- Add ELAN MAC Address
- Display ELAN ATM Addresses
- Delete ELAN ATM Address
- Add ELAN ATM Address
- Add ELAN
- Delete ELAN
- Configure Segment ID
- LECS Database Statistics
- Reset LECS

CAUTION: *Before you reboot the switch, wait three minutes after each LECS update operation to allow the change to be stored in flash.*

Display ELANs Display all the ELANs that are defined in the LECS database along with their LES addresses. The active LESs are indicated.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
  (1) LCS: LE Configuration Service
    (5) LNT: LECS network topology
      (1) DAL: Display all ELANs
```

Direct access sequence: **2 1 5 1**

Command Result

System action taken: The ELANs defined in the resident LECS are displayed.

System message display: Information is displayed as shown in the example below.

Example

Enter: **2 1 5 1**

The following information is displayed. To scroll to the next displayable portion of the table press Enter; to return to the LNT Menu, press x, then press Enter.

```
  ELAN name                    LES address                          Status
--------------  ------------------------------------------------  ------
  default       47.0.0.0.0.0.3c.0.0.a0.0.0.0.0.c0.da.60.21.d5.0
  admin         47.0.0.0.0.0.3c.0.0.a0.0.0.0.0.c0.da.60.21.d5.0    ACTIVE
  elan_8661_2   47.0.0.0.0.0.3c.0.0.a0.0.0.0.0.c0.da.60.21.d5.2    ACTIVE
                47.0.0.0.0.0.3c.0.0.b0.0.0.0.0.c0.da.60.18.f.2
  elan_6159_2   47.0.0.0.0.0.3c.0.0.b0.0.0.0.0.c0.da.60.18.f.2
                47.0.0.0.0.0.3c.0.0.a0.0.0.0.0.c0.da.60.21.d5.2    ACTIVE
  elan_8661_5   47.0.0.0.0.0.3c.0.0.a0.0.0.0.0.c0.da.60.21.d5.5    ACTIVE
                47.0.0.0.0.0.3c.0.0.c0.0.0.0.0.c0.da.60.22.ba.2
```

ELAN LES Parameters

Table 31 describes the ELAN LES parameters.

Table 31 ELAN LES Parameters

Name	Description
ELAN Name	Name of ELAN.
LES Address	ATM address of ELAN LES.
Status	Active status of LES: Active or Backup.

Display ELAN Parameters in LECS Database

Display the ELAN type and maximum frame size for a specified ELAN. The information is taken from the LECS database.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
 (1) LCS: LE Configuration Service
  (5) LNT: LECS network topology
   (2) LEP: Display ELAN type & params
```

Enter a parameter at the prompt

Parameter	Format or Range
ELAN name	Up to 32 characters. For more information, see "Add ELAN" on page 259.

Direct access sequence: **2 1 5 2** [parameters]

Command Result

System action taken: The ELAN type and parameters are displayed as shown in Table 32.

System message display: Information is displayed as shown in the example.

Example

Enter: **2 1 5 2 elan_73_9**

The following information is displayed:

```
elan_type = 802.3  max_f_size = 1516
```

ELAN Parameters in LECS Database

Table 32 describes the ELAN parameters in the LECS database.

Table 32 ELAN Parameters in LECS Database

Name	Description
ELAN Type	The type of frames that the ELAN recognizes: ■ 802.3 Ethernet type ■ 802.5 Token Ring type ■ VLT
Max Frame Size	LAN Type — Frame Length (Bytes) Ethernet/Fast Ethernet: 1516 Token Ring 4560(4Mb) / 18240(16Mb) FDDI 4544

Update ELAN Parameters in LECS Database

Update the parameters for the specified ELAN in the LECS database. (For more information, see Table 32 for a description of the ELAN parameters that you can update.)

CAUTION: *After you update the parameters of an ELAN in the LECS database, you must use the LMA to update the parameters of the ELAN in the LES database in exactly the same way.*

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
  (1) LCS: LE Configuration Service
    (5) LNT: LECS Network topology
      (3) EET: Edit ELAN type & params
```

Enter a parameter at the prompt

Parameter	Format or Range
ELAN name	Up to 32 characters. For more information, see "Add ELAN" on page 259.
ELAN type	**1** – Ethernet **2** – Token ring
ELAN max frame size	**1** – 1516 **2** – 4544 **3** – 9234 **5** – 1580

Direct access sequence: **2 1 5 3** [parameters]

Command Result

System action taken: The parameters for the specified ELAN are updated. The update takes place immediately.

System message display:

```
elan type is <n>, max frame size is
<n>:
```

Example

Enter: **2 1 5 3 elan69_14 1 1**

The following prompt appears:

```
elan type is 1, max frame size is: 1
Are you sure (y/n): y
```

Enter **Y** to confirm, **N** to cancel reset. The parameters of the ELAN elan69_14 are updated.

Display ELAN MAC Addresses

Display the MAC address inserted by a specified ELAN.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
 (1) LCS: LE Configuration Service
  (5) LNT: LECS Network topology
   (4) MAC: MAC Addresses Info
     (1) MAD: Display all MAC addresses
```

Enter a parameter at the prompt

Parameter	Format or Range
ELAN name	Up to 32 characters. For more information, see "Add ELAN" on page 259.

Direct access sequence: **2 1 5 4 1** [parameters]

Command Result

System action taken: The MAC addresses for the selected ELAN are displayed.

System message display: Information is displayed as shown in the example.

Example

Enter: **2 1 5 4 1 elan_73_9**

The following information is displayed:

```
elan:  admin  les_addr: 47.0.0.0.0.0.3c.0.0.a0.0.0.0.0.c0.da.60.1.a5.0
-------------------------------------------------------------------------------------------
   1   12.23.45.67.89.12
```

Delete ELAN MAC Address

Delete a MAC address inserted from an ELAN.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
  (1) LCS: LE Configuration Service
    (5) LNT: LECS Network topology
      (4) MAC: MAC Address Info
        (2) DEL: Delete MAC Address
```

Enter a parameter at the prompt

Parameter	Format or Range
ELAN name	Up to 32 characters. For more information, see "Add ELAN" on page 259.
MAC Address	6 Hex bytes separated by dots

Direct access sequence: **2 1 5 4 2** [parameters]

Command Result

System action taken: The MAC address inserted for the selected ELAN is deleted.

System message display:

```
Mac address was deleted for this elan.
```

Example

Enter: **2 1 5 4 2 elan_73_9 12.23.45.67.89.12**

The following message is displayed:

```
Mac address was deleted for this elan.
```

The specified MAC address is deleted from the ELAN.

Add ELAN MAC Address

Add a MAC address to an ELAN MAC address database. This database is selected from the real database.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
  (1) LCS: LE Configuration Service
    (5) LNT: LECS Network topology
      (4) MAC: MAC Address Info
         (3) ADD: Add new MAC address
```

Enter a parameter at the prompt

Parameter	Format or Range
ELAN name	Up to 32 characters. For more information, see "Add ELAN" on page 259.
MAC Address	6 Hex bytes separated by dots

Direct access sequence: **2 1 5 4 3** [parameters]

Command Result

System action taken: The new MAC address for the specified ELAN database is added.

System message display: `Mac address was added to this elan.`

Example

Enter: **`2 1 5 4 3 elan_73_9 12.23.45.67.89.12`**

The console responds with the confirmation:

```
Mac address was added to this elan.
```

Display ELAN ATM Addresses

Display ATM addresses inserted for a specified ELAN.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
 (1) LCS: LE Configuration Service
  (5) LNT: LECS Network topology
   (5) ATM: ATM Address Info
     (1) AAD: Display all ATM addresses
```

Enter a parameter at the prompt

Parameter	Format or Range
ELAN name	Up to 32 characters. For more information, see "Add ELAN" on page 259.

Direct access sequence: **2 1 5 5 1** [parameters]

Command Result

System action taken: The ATM addresses inserted for the specified ELAN are displayed.

System message display: Information is displayed as shown in the example.

Example

Enter: **2 1 5 5 1 admin**

The following information is displayed:

```
elan:  admin  les_addr: 47.0.0.0.0.0.3c.0.0.a0.0.0.0.0.c0.da.60.1.a5.0
-------------------------------------------------------------------------------------------
   1                  47.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0
```

Delete ELAN ATM Address

Delete an ATM address inserted by a specified ELAN.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
  (1) LCS: LE Configuration Service
    (5) LNT: LECS Network topology
      (5) ATM: ATM Addresses Info
         (2) DEL: Delete ATM address
```

Enter a parameter at the prompt

Parameter	Format or Range
ELAN name	Up to 32 characters. For more information, see "Add ELAN" on page 259.
ATM Address	20 Hex bytes separated by dots

Direct access sequence: **2 1 5 5 2** [parameters]

Command Result

System action taken: The ATM address inserted for the selected ELAN is deleted.

System message display:

```
ATM address was deleted for this elan.
```

Example

Enter: **2 1 5 5 2**
elan_73_947.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0

The following message is displayed:

```
Mac address was deleted for this elan.
```

The specified ATM address is deleted from the ELAN.

Add ELAN ATM Address

Add an ELAN ATM address for a specified ELAN ATM address database. This database is disconnected from the real database.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
  (1) LCS: LE Configuration Service
    (5) LNT: LECS Network topology
      (5) ATM: ATM Address Info
        (3) ADD: Add new ATM address
```

Enter a parameter at the prompt

Parameter	Format or Range
ELAN name	Up to 32 characters. For more information, see "Add ELAN" on page 259.
ATM Address	20 Hex bytes separated by dots

Direct access sequence: **2 1 5 5 3** [parameters]

Command Result

System action taken: The ATM address for the selected ELAN is added to the debug mode ATM address database.

System message display:

```
ATM address was added to this elan.
```

Example

Enter: **2 1 5 5 3**
elan_73_9 47.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0

The system responds with the confirmation:

```
ATM address was added to this elan.
```

Add ELAN Add an ELAN to the LECS database, that is, add a new LES. Specify the ELAN name and LES ATM address.

You can use any legal ELAN name. The names of the ELANs on a particular switch all have the form `elan_<XXXX>_<n>` where <XXXX> is a number unique to the switch and <n> is the sequential number of the ELAN between 0 and 15. This is the form to use for ELANs that you enter in this section.

If the requested LES ATM address already exists in the LECS database, this command defines a new *alias* ELAN with the same LAN type and frame size. If the LES ATM address does not match any ATM address in the LECS database, a new ELAN is created with the LAN type and max frame size set to the default values (Ethernet, 1516).

You can define up to 380 ELANs in the LECS database of a CoreBuilder 9000 ATM Enterprise Switch. Each CoreBuilder 9000 ATM Enterprise Switch LECS database has 16 default ELAN names and default ATM addresses corresponding to the LESs in the same switch.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
  (1) LCS: LE Configuration Service
    (5) LNT: LECS Network topology
      (6) ANE: Add new ELAN record
```

Enter a parameter at the prompt

Parameter	Format or Range
ELAN name	Up to 32 characters. For more information, see "Add ELAN" on page 259.
ATM Address	20 Hex bytes separated by dots

Direct access sequence: **2 1 5 6** [parameters]

Command Result

System action taken: The specified ELAN is added to the LECS database.

System message display: `New elan was added.`

Example

Enter: **2 1 5 6**
elan_73_9 47.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0

The console responds with the confirmation:

```
New elan was added.
LAN type: 1, max frame size: 1
```

Delete ELAN

Delete an ELAN from the LECS database. Specify the ELAN name.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
  (1) LCS: LE Configuration Service
    (5) LNT: LECS Network topology
      (7) DEL: Delete ELAN record
```

Enter a parameter at the prompt

Parameter	Format or Range
ELAN name	Up to 32 characters. For more information, see "Add ELAN" on page 259.

Direct access sequence: **2 1 5 7** [parameters]

Command Result

System action taken: The specified ELAN is deleted from the LECS database.

System message display:

```
Elan record was deleted.
```

Example

Enter: **2 1 5 7 elan_73_9**

A confirmation message is displayed:

```
Elan record was deleted.
```

Configure Segment ID

Configure a local segment ID for a token ring ELAN in the LECS database. Specify the ELAN name.

Each token ring segment in a token ring network that uses source routing must be assigned a unique segment ID by the network administrator. You assign the segment ID to the ATM ELAN, which simulates the token ring, by this command. Then, when a LEC joins the ELAN, it gets the segment ID from the LECS. Alternatively, instead of using this command, you can configure the segment ID manually in each individual LEC in the ELAN.

You cannot assign a segment ID to a non-token ring ELAN.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
  (1) LCS: LE Configuration Service
    (5) LNT: LECS Network topology
      (8) SEG: Edit segment id (C23, for
               TR only)
```

Enter a parameter at the prompt

Parameter	Format or Range
ELAN name	Up to 32 characters. For more information, see "Add ELAN" on page 259.
Segment ID	**1**-**4096** (12 bit number)

Direct access sequence: **2 1 5 8** [parameters]

Command Result

System action taken: The segment ID is added to the LECS database.

System message display:

```
Segment id has been updated.
```

Example

Enter: **2 1 5 8 elan_73_9 133**

The following message is displayed:

```
Segment id has been updated.
```

The segment ID is added to the LECS database.

LECS Database Statistics

Show different statistics on the LECS database.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
  (1) LCS: LE Config Service
    (6) LST: LECS Statistics
```

Direct access sequence: **2 1 6**

Command Result

System action taken: Displays different statistics about the LECS.

System message display: Information is displayed as shown in the example.

LECS Statistics Parameters

Table 33 describes the LECS statistics parameters.

Table 33 LECS Statistics Parameters

Parameter	Description
Total LECS client no	The number of clients currently connected to the LECS. When all LE clients are up, this parameter is 0.
Max LECS client no	The maximum number of clients that may be connected to the LECS.
Total reject requests	The number of clients whose request to join the LECS was rejected.
Total config req. responded with OK	The number of requests that received an OK response.
Total config req. responded with ERR	The number of requests that received an ERR response.

Signaling Statistics Parameters

Table 34 describes the signaling statistics parameters.

Table 34 LECS Signaling Statistics

Parameter	Description
CONNECT	The number of transmitted/received CONNECT messages from/to LECS/LES/BUS.
SETUP	The number of transmitted/received SETUP messages from/to LECS/LES/BUS.

Table 34 LECS Signaling Statistics (continued)

Parameter	Description
RELEASE	The number of transmitted/received RELEASE messages from/to LECS/LES/BUS.
ADD PARTY	The number of transmitted/received ADD PARTY messages from/to LECS/LES/BUS.
ADD PARTY ACK	The number of transmitted/received ADD PARTY ACK messages from/to LECS/LES/BUS.
ADD PARTY REJ	The number of transmitted/received ADD PARTY REJ messages from/to LECS/LES/BUS.
DROP PARTY	The number of transmitted/received DROP PARTY messages from/to LECS/LES/BUS.

Example

Enter: **2 1 6**

The LECS database statistics are displayed:

```
LECS statistics:
total LECS clients no:    0
Max. LECS clients no : 300
total Reject Requests:    0
total Config Req. responded with OK :    0
total Config Req. responded with ERR:    0

Press ENTER to continue or 'x'ENTER  to exit...

 OPERATION          TX          RX
-----------     --------     -------
CONNECT           0           0
SETUP             0           0
RELEASE           0           0
ADD PARTY         0           0
ADD PARTY ACK     0           0
ADD PARTY REJ     0           0
DROP PARTY        0           0
```

Reset LECS Release configuration of direct VCCs that were used in the configuration phase of a LEC and are no longer needed.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
  (1) LCS: LE Configuration Service
    (7) RST: Reset LECS
```

Direct access sequence: **2 1 7**

Command Result

System action taken: The LECS is reset.

System message display:

```
LECS is reset.
```

Example

Enter: **2 1 7**

The following prompt is displayed:

```
Are you sure? (Y/N) Y
```

Enter **y** to confirm or **n** to cancel. The following message is displayed:

```
LECS is reset.
```

Display LECS Maximum Connection Number

Shows how many LECs the LECS database may contain.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
  (1) LCS: LE Config Service
    (8) LCS: LECS maximum connection
             number
      (1) LCG: Get LECS Maximum
               connection number
```

Direct access sequence: **2 1 8 1**

Command Result

System action taken: Displays the total number of LECS connections.

System message display: `Number of LECS connections is <number>.`

Example

Enter: **2 1 8 1**

The following message is displayed:

```
Number of LECS connections is 300.
```

Update LECS Maximum Connection Number

Sets the number of LECs the LECS database may contain.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
  (1) LCS: LE Config Services
    (8) LCS: LECS maximum connection
             number
      (2) LCS: Set Maximum connection
               number
```

Direct access sequence: **2 1 8 2**

Enter a parameter at the prompt

Parameter	Format or Range
Number of LECS connections	**1 - 800**

Command Result

System action taken: Sets the total number of LECS connections.

System message display: `Number of LECS connections is now <number>.`

Example

Enter: **2 1 8 2 500**

The following message is displayed:

```
Number of LECS connections is now 500.
```

LAN Emulation Redundancy

You can configure the LAN emulation redundancy facility as follows:

- Assign Redundant LES to ELAN
- Deassign Redundant LES from ELAN
- Make Primary LES Active
- Display Redundant ELANs General Information
- Display Redundant ELANs Specific Information
- Display Redundant LES General Information
- Display Redundant LES Specific Information

Assign Redundant LES to ELAN

Assign a LES to be the redundant (secondary) LES of a specified ELAN in the LECS database. Specify the ELAN name and the ATM address of the LES. The secondary LES should reside on a different switch than the primary LES. For more information, see "LES Redundancy Facility — Configuring the ELAN Topology Database" on page 139 in the Operations Guide.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
  (1) LCS: LE Configuration Service
    (5) LNT: LECS Network topology
      (9) RDN: LE Service redundancy
        (1) ALS: Add redundant LES to
                 elan
```

Enter a parameter at the prompt

Parameter	Format or Range
ELAN name	Up to 32 characters. For more information, see "Add ELAN" on page 259.
LES ATM address	20 Hex bytes separated by periods

Direct access sequence: **2 1 5 9 1** [parameters]

Command Result

System action taken: The specified LES is assigned to be the secondary LES for the specified ELAN in the LECS database.

System message display: `Redundant LES successfully added.`

Example

Enter: **`2 1 5 9 1 elan73_9`**
`47.0.0.0.0.0.3c.0.0.d0.0.0.0.0.1.2.3.4.5.6`

The following message is displayed:

```
Redundant LES successfully added.
```

The specified LES is assigned to be the secondary LES for the specified ELAN in the LECS database.

Deassign Redundant LES from ELAN

Deassign a redundant (secondary) LES from a specified ELAN in the LECS database. Specify the ELAN name associated with the LES.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
  (1) LCS: LE Configuration Service
    (5) LNT: LECS Network topology
      (9) RDN: LE Service redundancy
        (2) DLS: Delete Redundant LES
```

Enter a parameter at the prompt

Parameter	Format or Range
ELAN name	Up to 32 characters. For more information, see "Add ELAN" on page 259.

Direct access sequence: **2 1 5 9 2** [parameters]

Command Result

System action taken: The specified LES is deassigned as the secondary LES for the specified ELAN in the LECS database.

System message display:

```
Redundant LES removed.
```

Example

Enter: **2 1 5 9 2 elan73_9**

The following message is displayed:

```
Redundant LES removed.
```

The specified LES is deassigned as the secondary LES for the specified ELAN in the LECS database.

Make Primary LES Active

Reestablish the primary LES of the ELAN as the active LES. When the secondary LES of an ELAN is active instead of the primary LES, this command causes LECs to be released from the secondary LES to join the primary LES. Specify the ELAN name of the primary LES.

A secondary LES becomes the active LES on the failure of the primary LES and it remains active even when the primary LES recovers.

To perform this command, the ELAN must be in secondary state and it must be redundant.

You need to perform this command on all CoreBuilder 9000 ATM Enterprise Switches with active LECS and verify the result.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
  (1) LCS: LE Configuration Service
    (5) LNT: LECS Network topology
      (9) RDN: LE Service redundancy
        (3) FEP: Force Elan to Primary
```

Enter a parameter at the prompt

Parameter	Format or Range
ELAN name	Up to 32 characters. For more information, see "Add ELAN" on page 259.

Direct access sequence: **2 1 5 9 3** [parameter]

Command Result

System action taken: The primary LES of the specified ELAN becomes the active LES.

System message display:

```
Force to Primary message sent to LECS
```

Example

Enter: **`2 1 5 9 3 elan_73_9`**

The following message is displayed:

```
Force to Primary message sent to LECS
```

The active LES of the specified ELAN is forced to become the primary LES.

Display Redundant ELANs General Information

Display general information about redundant ELANs.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
  (1) LCS: LE Configuration Service
    (5) LNT: LECS Network topology
      (9) RDN: LE Service redundancy
       (4) REG: Display Redundant ELANs
                 general info
```

Direct access sequence: **2 1 5 9 4**

Command Result

System action taken: The general Redundant ELANs information is displayed.

System message display: Information is displayed as shown in the example.

Example

Enter: **2 1 5 9 4**

The following information is displayed:

```
Id  NAME  STATE  LES Id & State(PRM) LES Id & State(SCN)
------------------------------------------------------------
0 elan1  PRIMARY 0 (ESTABLISH      )  1 (ESTABLISH      )
```

Redundant ELANs General Parameters

Table 35 describes the ELANs general parameters.

Table 35 Redundant ELANs General Parameters

Parameter	Description	
Id	The ELAN Id number.	
Name	The ELAN name.	
State	The state of the ELAN. This can be Primary, Secondary, In Check (when the ELAN is in transient state) or No LES.	
LES Id & State (PRM)	The primary LES Id number and its state. This can be:	
	Establish	There is a connection between the LECS and the LES.
	Being Established	A connection is being established between the LECS and the LES.
	No connection	There is no connection between the LECS and the LES.
LES Id & State (SCN)	The secondary LES Id number and its state. This can be Establish, Being Established and No connection (see above).	

Display Redundant ELANs Specific Information

Display specific information about Redundant ELANs.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
  (1) LCS: LE Configuration Service
    (5) LNT: LECS Network topology
      (9) RDN: LE Service redundancy
       (5) RLG: Display Redundant ELANs
                 specific info
```

Direct access sequence: **2 1 5 9 5** [parameter]

Enter a parameter at the prompt

Parameter	Format or Range
Redundant ELAN id	The internal ELAN id number. (For more information, see "Display Redundant ELANs General Information" on page 273.)

Command Result

System action taken: The specific redundant ELAN information is displayed.

System message display: Information is displayed as shown in the example.

Example

Enter: **2 1 5 9 5 0**

The following information is displayed:

```
ELAN name               : elan1
ELAN status             : Operational
ELAN state              : PRIMARY
State start time (Sec)  : 1122
Number config requests O.K    : 0
Number config requests failed : 0
PRIMARY LES Id   : 0
SECONDARY LES Id : 1
```

Redundant ELANs Specific Parameters

Table 36 describes the ELANs specific parameters.

Table 36 Redundant ELANs Specific Parameters

Parameter	Description	
ELAN name	The ELAN name.	
ELAN status	The status of the ELAN. This can be:	
	Operational	The ELAN is operating normally.
	New	A newly created ELAN that has not yet been processed by the LECS.
	Init	A newly created ELAN that is in the process of becoming operational.
	Old	The ELAN is in the process of becoming inoperable.
ELAN State	The state of the ELAN. This can be Primary, Secondary, In Check (when the ELAN is in transient state) or No LES.	
State start time (Sec)	The absolute time the CoreBuilder® 9000 ATM Enterprise Switch was started (in seconds).	
Number config requests O.K.	The number of configuration requests for this ELAN that were okayed.	
Number config requests failed	The number of configuration requests for this ELAN that were failed. A request can fail if the ELAN State is 'NO LES', meaning no LES is connected.	
Primary LES Id	The Id of the primary LES.	
Secondary LES Id	The Id of the secondary LES.	

Display Redundant LES General Information

Display general information on a redundant LES.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
  (1) LCS: LE Configuration Service
    (5) LNT: LECS Network topology
      (9) RDN: LE Service redundancy
       (6) RLG: Display Redundant LESs
                 general info
```

Direct access sequence: **2 1 5 9 6**

Command Result

System action taken: The general redundant LES information is displayed.

System message display: Information is displayed as shown in the example.

Example

Enter: **2 1 5 9 6**

The following information is displayed.

```
  Id     STATE          Internal / External
  ----------------------------------------
  0    ESTABLISH              INTERNAL
1  ESTABLISH              INTERNAL
```

Redundant LES General Parameters

Table 37 describes the redundant LES general parameters.

Table 37 Redundant LES General Parameters

Parameter	Description	
Id	The LES Id number.	
State	The state of the LES. This can be Establish, Being Established or No Connection.	
Internal/External	The location of the LES. This can be:	
	Internal	The LES is on the same switch as the LECS.
	External	The LES is not on the same switch as the LECS.

Display Redundant LES Specific Information

Display specific information on a redundant LES.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
  (1) LCS: LE Configuration Service
    (5) LNT: LECS Network topology
      (9) RDN: LE Service redundancy
        (7) RLS: Display Redundant LES
                 specific info.
```

Enter a parameter at the prompt

Parameter	Format or Range
Redundant LES id	The internal LES id number. (For more information, see ""Display Redundant LES General Information" on page 277.)

Direct access sequence: **2 1 5 9 7** [parameter]

Command Result

System action taken: The specific redundant LES information is displayed.

System message display: Information is displayed as shown in the example.

Example

Enter: **2 1 5 9 7 0**

The following information is displayed:

```
LES ATM Address   :
4700000000003c0000a000000000c0da7f920901
Connection State  : ESTABLISH
LES Location      : INTERNAL
Local LES instance: 1
Number of Active Clients           : 1
Time since Last Active msg (Sec)   : 6
Number of RESET messages sent to LES: 0
Number of RESET messages rcvd by LES: 0
Reset LES Allowed: 1
Number of ELANs attached to LES    : 1
```

Redundant LES General Parameters

Table 38 describes the redundant LES general parameters.

Table 38 Redundant LES General Parameters

Parameter	Description	
LES ATM Address	The LES ATM address.	
Connection State	The LES connection state. This can be:	
	Establish	There is a connection between the LECS and the LES.
	Being Established	A connection is being established between the LECS and the LES.
	No Connection	There is no connection between the LECS and the LES.
LES Location	The location of the LES. This can be: Internal or External.	
	Internal	The LES is on the same switch as the LECS.
	External	The LES is not on the same switch as the LECS.
Local LES Instance	The Id of the LES on an Internal switch (this is not relevant for an External switch location).	
Number of Active Clients	The number of current active clients (as reported by the LES).	
Time since Last Active Msg	The time elapsed since the LES stopped being active (in minutes).	
Number of RESET messages sent to LES	The number of Reset messages sent to the LES by the LECS. A Reset is attempted to solve split situations	
Number of RESET messages rcvd to LES	The number of Reset messages actually received by the LES from the LECS (see above).	
Reset LES Allowed	The number of Resets to the LES that are allowed (relevant only for a shared LES).	
Number of ELANs attached to LES	The number of ELANs that are attached to the LES.	

LAN EMULATION SERVICE (LES) OPERATIONS

LES Address

You can configure the LES address, as follows:

- Display LES-BUS Addresses
- Update ELAN LES-BUS Address

Display LES-BUS Addresses

Display LES ATM addresses for all 16 LESs that are defined in the CoreBuilder 9000 ATM Enterprise Switch.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
  (2) LES: LE Service
    (1) ADR: LES-BUS Address
```

Direct access sequence: **2 2 1**

Command Result

System action taken: The LES-BUS ATM addresses are displayed.

System message display: Information is displayed as shown in the example.

Example

Enter: **2 2 1**

The following information is displayed:

```
ELAN     LES-BUS ATM address:                  LES-BUS ATM address:
id         Network prefix                       User part
----- ---------------------------------------- --------------------
   1  47. 0. 0. 0. 0. 0.3c. 0. 0.a0. 0. 0. 0   0.c0.da.60. 0.49. 0
   2  47. 0. 0. 0. 0. 0.3c. 0. 0.a0. 0. 0. 0   0.c0.da.60. 0.49. 1
   3  47. 0. 0. 0. 0. 0.3c. 0. 0.a0. 0. 0. 0   0.c0.da.60. 0.49. 2
   4  47. 0. 0. 0. 0. 0.3c. 0. 0.a0. 0. 0. 0   0.c0.da.60. 0.49. 3
   5  47. 0. 0. 0. 0. 0.3c. 0. 0.a0. 0. 0. 0   0.c0.da.60. 0.49. 4
   6  47. 0. 0. 0. 0. 0.3c. 0. 0.a0. 0. 0. 0   0.c0.da.60. 0.49. 5
   7  47. 0. 0. 0. 0. 0.3c. 0. 0.a0. 0. 0. 0   0.c0.da.60. 0.49. 6
   8  47. 0. 0. 0. 0. 0.3c. 0. 0.a0. 0. 0. 0   0.c0.da.60. 0.49. 7
   9  47. 0. 0. 0. 0. 0.3c. 0. 0.a0. 0. 0. 0   0.c0.da.60. 0.49. 8
  10  47. 0. 0. 0. 0. 0.3c. 0. 0.a0. 0. 0. 0   0.c0.da.60. 0.49. 9
  11  47. 0. 0. 0. 0. 0.3c. 0. 0.a0. 0. 0. 0   0.c0.da.60. 0.49. a
  12  47. 0. 0. 0. 0. 0.3c. 0. 0.a0. 0. 0. 0   0.c0.da.60. 0.49. b
  13  47. 0. 0. 0. 0. 0.3c. 0. 0.a0. 0. 0. 0   0.c0.da.60. 0.49. c
  14  47. 0. 0. 0. 0. 0.3c. 0. 0.a0. 0. 0. 0   0.c0.da.60. 0.49. d
  15  47. 0. 0. 0. 0. 0.3c. 0. 0.a0. 0. 0. 0   0.c0.da.60. 0.49. e
  16  47. 0. 0. 0. 0. 0.3c. 0. 0.a0. 0. 0. 0   0.c0.da.60. 0.49. f
```

Update ELAN LES-BUS Address

Update the LES address of the specified ELAN. Enter the LES address user part, which consists of 6 bytes separated by dots. The last byte is a selector byte (0-F) that signifies the sequential identifier of the LES in the CoreBuilder 9000 ATM Enterprise Switch.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
 (2) LES: LE Services
  (3) ELN: ELANs Info
   (1) LSU: LES Setup
     (1) ADR: Set & save LES-BUS address
```

Enter a parameter at the prompt

Parameter	Format or Range
ELAN ID	The ELAN ID number, 1–16
ATM Address	6 bytes of user part, separated with dots

Direct access sequence: **2 2 3 1 1** [parameters]

Command Result

System action taken: The LES-BUS ATM addresses for the specified ELAN are updated. The update takes place immediately.

Example

Enter: **2 2 3 1 1 2 c0.da.60. 0.49. 0**

The LES-BUS ATM addresses for the ELAN with ELAN ID #2 are updated.

ELAN Parameters

You can configure the ELAN parameters, as follows:

- Display ELAN Parameters in LES Database
- Update ELAN Parameters in LES Database

Display ELAN Parameters in LES Database

Display general information about the 16 ELANs in the CoreBuilder 9000 ATM Enterprise Switch. The information is taken from the LES database. (For more information about parameters in the LECS database, see "Display ELAN Parameters in LECS Database" on page 250.)

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
  (2) LES: LE Service
    (2) GEN: ELANs General Info
```

Direct access sequence: **2 2 2**

Command Result

System action taken: The ELAN information specified in Table 39 is displayed.

System message display: Information is displayed as shown in the example.

Example

Enter: **2 2 2**

The following information is displayed:

```
ELAN     ELAN      ELAN   Max    Control    Mcast
id       name      type   frame  distrib    forward
                          size   mem_id/    mem_id/
                                 Call_id    Call_id
---- -------------- ------ ------ -------  -------
 1     elan_69_0  802.3  1516   1701/ 11 1701/ 13
 2     elan_69_1  802.3  1516   No Val  No Val
 3     elan_69_2  802.3  1516   No Val  No Val
 4     elan_69_3  802.5  4544   1704/  5 1704/  7
 5     elan_69_4  802.3  1516   No Val  No Val
 6     elan_69_5  802.3  1516   No Val  No Val
 7     elan_69_6  802.3  1516   No Val  No Val
 8     elan_69_7  802.3  1516   No Val  No Val
 9     elan_69_8  802.3  1516   No Val  No Val
 10    elan_69_9  802.3  1516   No Val  No Val
 11    elan_69_10 802.3  1516   No Val  No Val
 12    elan_69_11 802.3  1516   No Val  No Val
 13    elan_69_12 802.3  1516   No Val  No Val
 14    elan_69_13 802.3  1516   No Val  No Val
 15    elan_69_14 802.3  1516   No Val  No Val
```

ELAN Parameters for Resident LESs

Table 39 describes the ELAN parameters for resident LESs.

Table 39 ELAN Parameters for Resident LESs

Name	Description
ELAN ID	ELAN ID number.
ELAN Names	ELAN name.
ELAN Type	The type of frames that the ELAN recognizes: ■ 802.3 Ethernet type ■ 802.5 Token Ring type
Max Frame Size	LAN Type — Frame Length (Bytes) Ethernet/Fast Ethernet: 1516 Token Ring 1516*/4544 FDDI 4544
Control	Specifies the point-to-multipoint connection id between the ELAN's BUS and the LECs, and the BUS member id. If no LECs are connected, "no val" is displayed.
Mcast	Specifies the point-to-multipoint connection between the ELAN's BUS and the LECs, and the BUS member id. If no LECs are connected, "no val" is displayed.

* not typical

ELAN #4 is of Token Ring type.

Update ELAN Parameters in LES Database

Update the parameters for the specified ELAN in the LES database. Table 40 describes the ELAN parameters you can update.

CAUTION: *After you use this command to update the parameters of an ELAN in the LES database, you must use the LMA to update the parameters of the ELAN in the LECS database in exactly the same way. (For more information, see "Update ELAN Parameters in LECS Database" on page 251.)*

After updating the parameters, the ELAN is reset, that is, the control distribute channel to all LECs that are attached to the ELAN is disconnected.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
  (2) LES: LE Services
    (4) EFP: LES Edit ELANs Parameters
```

Enter a parameter at the prompt

Parameter	Format or Range
ELAN ID	**1**–**16** For more information, see "Display ELAN Parameters in LES Database" on page 283.
ELAN type	**1**-Ethernet **2**-Token ring **3**-VLT
Elan max frame size	**1**-1516 **2**-4544

Direct access sequence: **2 2 4** [parameters]

Command Result

System action taken: The parameters for the specified ELAN are updated. The update takes place immediately.

System message display:

```
ELAN is reset.
```

Example

Enter: **`2 2 4 14 1 1`**

The following message appears:

```
ELAN is reset.
```

The parameters of the ELAN with ID 14 are updated.

ELAN Parameters for a LES

Table 40 describes the ELAN parameters that can be updated.

Table 40 ELAN Parameters for a LES

Name	Description
ELAN Type	The type of frames that the ELAN recognizes: ■ 802.3 Ethernet type ■ 802.5 Token Ring type ■ VLT
Max Frame Size	LAN Type — Frame Length (Bytes) Ethernet/Fast Ethernet: 1516 Token Ring: 1516 *4544 FDDI 4544

* not typical

LE_ARP Policy Configuration

You can configure the LE_ARP policy as follows:

- Display ELAN Response Policy
- Update ELAN Response Policy
- Display LE_ARP Response Policy
- Update LE_ARP Response Policy
- Display LE_ARP Response Policy for Route Descriptor
- Update LE_ARP Response Policy for Route Descriptor
- Reset LES Configurations
- Display LANE Multicast Forward Delay
- Update LANE Multicast Forward Delay

Display ELAN Response Policy

Display the ELAN's response policy. The ELAN response policy pertains to the possible recipients of a response from a LES to an LE_ARP request by a LEC. See Table 41 for the possible response policies.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
  (2) LES: LE Service
    (3) ELN: ELANs Info
      (1) LSU: LES Setup
        (2) GRE: Get response policy
```

Enter a parameter at the prompt

Parameter	Format or Range
ELAN ID	For more information, see " "Display ELAN Parameters in LES Database" on page 283.

Direct access sequence: **2 2 3 1 2** [parameters]

Command Result

System action taken: The response policy for the specified ELAN is displayed.

System message display: `Response policy is...`

Example

Enter: **`2 2 3 1 2 2`**

The response policy of the ELAN with ELAN ID #2 is displayed as follows:

```
Response policy is DIRECT VCC.
```

ELAN Response Policies

Table 41 describes the ELAN response policies.

Table 41 ELAN Response Policies

Name	Description
DIRECT VCC	The LES sends the response to the requesting LEC only.
DISTRIB ALL	The LES sends the response to all LECs in the ELAN.

Update ELAN Response Policy

Update the response policy for an ELAN: direct VCC or distributed connection. The new response policy takes effect immediately. This is a global setting for all the clients in that ELAN. The factory default value is direct connection. See Table 41 for the possible response policies.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
 (2) LES: LE Services
  (3) ELN: ELANs Information
   (1) LSU: LES Setup
    (3) SRE: Set & Save response policy
```

Enter a parameter at the prompt

Parameter	Format or Range
ELAN ID	**1**–**16** For more information, see "Display ELAN Parameters in LES Database" on page 283.
Response policy	**1** – Direct VCC **2** – Distrib all

Direct access sequence: **2 2 3 1 3** [parameters]

Command Result

System action taken: The response policy for the specified ELAN is updated. The update takes place immediately.

System message display:

```
Response policy was set
Response policy was successfully saved
on flash.
```

Example

Enter: **2 2 3 1 3 2 1**

The following messages are displayed:

```
Response policy was set.
Response policy was successfully saved on flash.
```

The response policy of the ELAN with ELAN ID 2 is updated to Direct VCC.

Display LE_ARP Response Policy

Display the policy for handling LAN Emulation Address Resolution Protocol (LE_ARP) requests for a specified ELAN. See Table 42 for the possible LE_ARP policies.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
 (2) LES: LE Services
  (3) ELN: ELANs Information
   (1) LSU: LES Setup
    (4) GAR: Get LE arp policy
```

Enter a parameter at the prompt

Parameter	Format or Range
ELAN ID	**1–16** For more information, see "Display ELAN Parameters in LES Database" on page 283.

Direct access sequence: **2 2 3 1 4** [parameters]

Command Result

System action taken: The response policy for the specified ELAN is updated. The update takes place immediately.

System message display:

```
Response policy is:
<RESPOND/FORWARD REQUEST>
```

Example

Enter: **2 2 3 1 4 2**

The LE_ARP policy of the ELAN with ELAN ID 2 is displayed as follows:

```
Response policy is FORWARD REQUEST
```

LE_ARP Verification Policies

Table 42 describes the LE_ARP verification policies.

Table 42 LE_ARP Verification Policies

Name	Description
Respond	Checks the address table of the LES in the CoreBuilder® 9000 ATM Enterprise Switch. If the LAN destination is not found, it sends the LE_ARP request to all LECs in the ELAN. If the LAN destination is found, it sends the LE_ARP response to recipients selected according to the ELAN response policy. (For more information, see "Display ELAN Response Policy" on page 288.)
Forward Request	Does not check the address table of the LES in the CoreBuilder 9000 ATM Enterprise Switch but instead immediately sends the LE_ARP request to all LECs in the ELAN.

Update LE_ARP Response Policy

Update the policy for handling LE_ARP requests for an ELAN: Respond or Forward Request. The new response policy takes effect immediately. The factory default value is "forward request". See Table 42 for a description of LE_ARP policies.

This is a global setting for all the clients in the specified ELAN.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
 (2) LES: LE Services
  (3) ELN: ELANs Information
   (1) LSU: LES Setup
    (5) SAR: Set & Save LE arp policy
```

Enter a parameter at the prompt

Parameter	Format or Range
ELAN ID	**1**–**16** For more information, see "Display ELAN Parameters in LES Database" on page 283.
Response policy	**1**-Respond **2**-Forward Request (For more information, see Table 42.)

Direct access sequence: **2 2 3 1 5** [parameters]

Command Result

System action taken: The response policy for the specified ELAN is updated. The update takes place immediately.

System message display:

```
LE arp policy was set.
LE arp policy was successfully saved on
flash.
```

Example

Enter: **2 2 3 1 5 2 1**

The following messages are displayed:

```
LE arp policy was set.
LE arp policy was successfully saved on flash.
```

The LE_ARP policy of the ELAN with ELAN ID 2 is updated to Respond.

Display LE_ARP Response Policy for Route Descriptor

Display the additional policy for handling LE_ARP requests for a specified ELAN when the LAN destination is a route descriptor (Token Ring ELAN). This policy is used in conjunction with the LE_ARP response policy. (For more information, see "Display LE_ARP Response Policy" on page 291.) The policy is applicable only when the "Respond" option is selected in that policy. (See Table 43.)

When the Respond policy is selected, the address table of the LES in the CoreBuilder 9000 ATM Enterprise Switch is searched for the LAN destination. If the LAN destination is not found and is a Route Descriptor, this policy gives the you the option of rejecting the LE_ARP request. You can select between the options:

- Reject the LE_ARP request
- Forward the LE_ARP request to all LECs in accordance with the LE_ARP response policy

All route descriptors are required by the LANE specification to be registered at the LES. (No proxy LECs are allowed for route descriptors.) This command essentially handles those cases for which the LAN destination exists but was not registered at the LES – in contradiction to the LANE specification.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
 (2) LES: LE Services
  (3) ELN: ELANs Information
   (1) LSU: LES Setup
    (6) GRD: Get ARP pol. for non reg RD
```

Enter a parameter at the prompt

Parameter	Format or Range
ELAN ID	**1–16** For more information, see "Display ELAN Parameters in LES Database" on page 283.

Direct access sequence: **2 2 3 1 6** [parameters]

Command Result

System action taken: The response policy for the specified ELAN is displayed.

System message display: `Response policy is....`

Example

Enter: **2 2 3 1 6 2**

The LE_ARP policy of the ELAN with ELAN ID 2 is displayed as follows:

```
Response policy is FORWARD non reg
```

LE_ARP Policies for Route Descriptor

Table 43 describes the LE_ARP policies for the route descriptor.

Table 43 LE_ARP Policies for Route Descriptor

Name	Description
Reject Request	If the address is not found, it rejects the LE_ARP request.
Forward Request	Sends the LE_ARP request to all LECs in the ELAN.

Update LE_ARP Response Policy for Route Descriptor

Update the additional policy for handling LE_ARP requests for a Token Ring ELAN: Reject Request or Forward Request. The new response policy goes into effect immediately. This is a global setting for all the clients in that ELAN. The factory default value is Forward Request. See Table 43 for a description of LE_ARP route descriptor policies.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
 (2) LES: LE Services
  (3) ELN: ELANs Information
   (1) LSU: LES Setup
    (7) SRD: Set ARP Pol. for non-reg RD
```

Enter a parameter at the prompt

Parameter	Format or Range
ELAN ID	**1**–**16** For more information, see "Display ELAN Parameters in LES Database" on page 283.
Response policy	**1**-Reject **2**-Forward Request For more information, see Table 43.

Direct access sequence: **2 2 3 1 7** [parameters]

Command Result

System action taken: The LE_ARP response policy for Route Descriptors in the specified ELAN is updated. The update takes place immediately.

System message display:

```
Policy was successfully saved on flash.
```

Example

Enter: **2 2 3 1 7 2 1**

The following message is displayed:

```
Policy was successfully saved on flash.
```

The LE_ARP response policy for Route Descriptors of the ELAN with ELAN ID 2 is updated to Reject.

Reset LES Configurations

Reset all LES configurations in the CoreBuilder 9000 ATM Enterprise Switch to factory-default values including LES-BUS address, ELAN response policy, and LE_ARP response policies.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
 (2) LES: LE Services
  (3) ELN: ELANs Information
   (1) LSU: LES Setup
    (8) RES: Reset Saved Configuration
```

Direct access sequence: **2 2 3 1 8**

Command Result

System action taken: All LES configurations for the CoreBuilder 9000 ATM Enterprise Switch are reset.

System message display:

```
Reset of saved configuration was done.
```

Example

Enter: **2 2 3 1 8**

The following prompt appear:

```
Do you really want to reset config? [y/n] y
Reset of saved configuration was done.
```

The LES configurations of the CoreBuilder 9000 ATM Enterprise Switch are restored to their factory default values.

Display LANE Multicast Forward Delay

Display the LANE multicast forward delay. For certain switches and bridges that connect to the CoreBuilder 9000 ATM Enterprise Switch, you must configure a delay between a multicast send and a multicast forward.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
 (2) LES: LE Services
  (3) ELN: ELANs Information
   (1) LSU: LES Setup
    (9) GDL: Get LANE multicast fwd
        delay
```

Direct access sequence: **2 2 3 1 9**

Command Result

System action taken: The LANE multicast forward delay is displayed in unit of 10 msecs.

System message display:

```
mcst delay in 10msec units: <n>
```

Example

Enter: **2 2 3 1 9**

The LANE multicast forward delay parameter is displayed as follows:

```
mcst delay in 10msec units:   50
```

Update LANE Multicast Forward Delay

Update the LANE multicast forward delay parameter.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
 (2) LES: LE Services
  (3) ELN: ELANs Information
   (1) LSU: LES Setup
    (10) SDL: Set LANE Multicast Fwd
         Delay
```

Enter a parameter at the prompt

Parameter	Format or Range
LANE multicast forward delay	**0.1** – **4** secs, in10 msec units **0**–no LANE multicast forward delay

Direct access sequence: **2 2 3 1 10** [parameters]

Command Result

System action taken: The LANE multicast forward delay is updated.

System message display: `mcst delay was set`

Example

Enter: **2 2 3 1 10 2**

The following message appears:

```
mcst delay was set
```

The LANE multicast forward delay time is updated.

LEC Operations

You can configure the LEC operations as follows:

- Display LEC Connection Info
- Display LEC Address Info

Display LEC Connection Info

Display LAN emulation clients (LEC) connection information for a specified ELAN and specified LEC.

A LEC is specified by its ID. To determine the ID of a specific LEC, first perform this command with a value of 0 for LEC ID (as in the example). All LEC IDs are displayed. Select the ID of the LEC for which you want information and perform the command again with the desired LEC ID.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
 (2) LES: LE Services
  (3) ELN: ELANs Info
   (2) INF: Clients Info
```

Enter a parameter at the prompt

Parameter	Format or Range
ELAN ID	**1**–**16** For more information, see "Display ELAN Parameters in LES Database" on page 283.
LEC ID	**0**- For all

Direct access sequence: **2 2 3 2** [parameters]

Command Result

System action taken: The LEC connection information for the specified ELAN and LEC ID is displayed.

System message display: Information is displayed as shown in the example.

LEC Connection Information Parameters

Table 44 shows the LEC Connection Information parameters displayed by the command.

Table 44 LEC Connection Information

Name	Description
LEC ID	LEC ID number.
State	Current LEC state: ■ Joining—the LEC is performing Point-to-Point direct connection to the LES, or the LEC is sending the "join" request. ■ ADD Party—the LES is adding the LEC to its Point-to-Multipoint distribute connection ■ Operational—the client is now ready to operate.
CTRL Direct mem_id/call_id	LES member_id and the point-to-point call_id between the LES and the LEC
MCAST send mem_id/call_id	BUS member_id and the point-to-point call id between the ELAN's BUS and the LEC
ATM Addresses	User part of the LEC ATM address.
Is Proxy	Whether the LEC is a proxy or not.

Example

Enter: **`2 2 3 2 1 0`**

The LEC information for all LECs of the specified ELAN is displayed as follows:

```
LEC    State       Ctrl     Mcast      ATM addresses:      Is
id                 Direct   send       User part           proxy
                  mem_id/  mem_id/
                  Call_id  Call_id
--- -----------  --------- ---------- ------------------- --------
 22 Operational  1701/7766 1701/7767  8.0.4e.b.db.53.0    YES
  1 Operational  1701/ 10  1701/ 43   0.c0.da.3.4e.d1.0   YES
```

Display LEC Address Info

Display all MAC addresses, ATM addresses, and Route Descriptors of a specified LEC that are registered in the LES ARP-cache of a specified ELAN. A LEC is specified by its ID. If you do not know a LEC's ID, specify a value of 0 to display information for all LECs.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
 (2) LES: LE Services
  (3) ELN: ELANs Information
   (3) ADD: Clients MAC Addresses
```

Enter a parameter at the prompt

Parameter	Format or Range
ELAN ID	**1**–**16** For more information, see "Display ELAN Parameters in LES Database" on page 283.
LEC ID	**0**- For all

Direct access sequence: **2 2 3 3** [parameters]

Command Result

System action taken: The Primary ATM Address, MAC address, and ATM addresses for the specified ELAN and LEC ID are displayed.

System message display: Information is displayed as shown in the example.

Example

Enter: **2 2 3 2 1 0**

The MAC and ATM addresses for all LECs of the ELAN with ELAN ID 1 are displayed as follows:

```
LECID:                2
Primary ATM Addr: 47.0.0.0.0.0.0.0.0.0.0.0 0.c0.da.18.1.c.0

MAC address         ATM address
--------------   ---------------------------------------
0.c0.da.18.1.0   47.0.0.0.0.0.0.0.0.0.0.0 0.c0.da.18.1.c.0
*********************************************************

LECID:                1
Primary ATM Addr: 47.0.0.0.9.0.0.0.0.0.0.0 0.c0.da.18.4.c.0

MAC address         ATM address
--------------   ---------------------------------------
0.c0.da.18.4.0   47.0.0.0.9.0.0.0.0.0.0.0 0.c0.da.18.4.c.0
*********************************************************
```

LAN Emulation Statistics

You can view and perform operations on the LAN Emulation statistics, as follows:

- Display LAN Emulation Statistics
- Display LEC Statistics
- Reset LAN Emulation Statistics
- Display Multicast Addresses
- Destroy Specific LEC
- Restart ELAN

Display LAN Emulation Statistics

Displays statistics for the LES and BUS in a specified ELAN.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
 (2) LES: LE Services
  (3) ELN: ELANs Info
   (4) STS: Statistics
     (1) GEN: General LE Statistics
```

Enter a parameter at the prompt

Parameter	Format or Range
ELAN ID	**1–16** For more information, see "Display ELAN Parameters in LES Database" on page 283.

Direct access sequence: **2 2 3 4 1** [parameters]

Command Result

System action taken: LES and BUS statistics for the specified ELAN are displayed.

System message display: Information is displayed as shown in the example.

Example

Enter: **2 2 3 4 1 2**

LES and BUS statistics for the ELAN with ELAN ID 2 are displayed as follows:

```
LES global counters
-------------------
Total number of active clients:                          2
Total number of active MAC addresses for all clients:   2
Total number of active ATM addresses for all clients:   2
Total number of messages accepted by LES:             291
Total number of messages rejected by LES:               0
of the above, total rejected because of security:       0

BUS global counters
-------------------
Number of received frames by BUS:                    194605
Number of transmitted frames from BUS:               194605

Operation          Tx    Rx
---------          --    --
CONNECT            44    10
SETUP              10    44
RELEASE            26    18
ADD PARTY          32     0
ADD PARTY ACK       0    32
ADD PARTY RES       0     0
DROP PARTY         24     1
```

Display LEC Statistics Display statistics for a LEC in a specified ELAN.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
 (2) LES: LE Services
  (3) ELN: ELANs Information
   (4) STS: Statistics
     (2) LEC: LEC statistics
```

Enter a parameter at the prompt

Parameter	Format or Range
ELAN ID	**1–16** For more information, see "Display ELAN Parameters in LES Database" on page 283.
LEC ID	**0 –** For all

Direct access sequence: **2 2 3 4 2** [parameters]

Command Result

System action taken: LEC statistics for the specified ELAN and LEC is displayed.

System message display: Information is displayed as shown in the example.

Example

Enter: **2 2 3 4 2 2 0**

LEC statistics for all LECs of the ELAN with ELAN ID 2 are displayed as follows:

```
Lec  Num reg   Num reg   Num msg sent  Num reject   Num LE    Num LE
id   MAC addr  ATM addr   by client    join req    arp fwrd  arp resp
---- ---------  ---------  ----------    ----------  --------- ------
 2     1        1            1             0              1       0
 1     1        1          290             0            290       0
```

LEC Statistics

Table 45 describes the LEC statistics parameters.

Table 45 LEC Statistics

Name	Description
LEC ID	LEC ID number.
Num Reg MAC addr	Number of MAC addresses registered by that LEC.
Num Reg ATM addr	Number of ATM addresses registered by that client.
Num msg Sent by Client	Number of messages sent by that client.
Num Reject Join Req	Number of LEC join requests rejected by the ELAN.
Num LE arp Fwrd	Number of LE_ARP requests that were sent by the LEC and forwarded to all clients in the ELAN.
Num LE arp Resp	Number of LE_ARP responses sent by the ELAN.

Reset LAN Emulation Statistics

Reset general LAN Emulation statistics for a specified ELAN to zero.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
 (2) LES: LE Services
  (3) ELN: ELANs Information
   (4) STS: Statistics
    (3) RES: Reset General LE
             Statistics
```

Enter a parameter at the prompt

Parameter	Format or Range
ELAN ID	**1–16** For more information, see "Display ELAN Parameters in LES Database" on page 283.

Direct access sequence: **2 2 3 4 3** [parameters]

Command Result

System action taken: LES and BUS statistics for the specified ELAN are reset.

System message display:

Example

Enter: **2 2 3 4 3 2**

LES and BUS statistics for the ELAN with ELAN ID 2 are reset.

Display Multicast Addresses

Displays multicast addresses registered by the LECs.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
 (2) LES: LE Services
  (3) ELN: ELANs Information
   (5) MCT: Multicast addresses
```

Enter a parameter at the prompt

Parameter	Format or Range
ELAN ID	**1–16** see "Display ELAN Parameters in LES Database" on page 283.
mcast address	6 hex bytes separated by a dot * for all addresses.

Direct access sequence: **2 2 3 5**

Command Result

System action taken: Multicast addresses registered by the LECs are displayed.

System message display: `The address was set to multicast`

Example

Enter: **2 2 3 5**

The following message is displayed:

```
The address was set to multicast
```

Destroy Specific LEC Deletes the specified LEC from the LES database.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
 (2) LES: LE Services
  (3) ELN: ELANs Information
   (6) DSL: Destroy specific LEC
```

Enter a parameter at the prompt

Parameter	Format or Range
ELAN ID	**1–16** see "Display ELAN Parameters in LES Database" on page 283
LEC id	

Direct access sequence: **2 2 3 6**

Command Result

System action taken: The specified LEC is removed.

System message display: `LEC destroy request was sent to LES.`

Example

Enter: **2 2 3 6**

The following message is displayed:

```
LEC destroy request was sent to LES.
```

Restart ELAN Disconnect the control distribute channel to all LECs that are attached to the specified ELAN.

This feature enables the user to reset the LANE Services without rebooting the CoreBuilder 9000 for the following purposes:

- Shutdown of the redundant LANE Services to force all LECs to return to the primary LANE Services after a failure has occurred.
- Achieving a new LES configuration when updated (invoked by the switch software automatically), for example, frame size change.
- Troubleshooting, when there are problems with the connections of LECs to the LES.

Resets general LAN Emulation statistics for a specified ELAN to zero.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
 (2) LES: LE Services
  (5) RST: LES Restart ELAN
```

Enter a parameter at the prompt

Parameter	Format or Range
ELAN ID	**1–16** For more information, see "Display ELAN Parameters in LES Database" on page 283.

Direct access sequence: **2 2 5** [parameters]

Command Result

System action taken: Specified ELAN is reset.

System message display:

```
ELAN is reset.
```

Example

Enter: **2 2 5 2**

The following prompt appears:

```
Are you sure (y/n): y
```

Enter **Y** to confirm, **N** to cancel the reset request.

```
ELAN with ELAN ID 2 is reset.
```

10 LEC ELAN ADMISSION SECURITY

This chapter describes LEC ELAN admission security in the CoreBuilder® 9000 ATM Enterprise Switch.

- LEC Not in ELAN Security List
- LECs in ELAN Security List
- Switch Security
- Save Security Configuration

For more information about LEC ELAN admission security, see Chapter 8, "LAN Emulation" in the Operations Guide.

LEC Not in ELAN Security List

The following commands let you configure the LEC ELAN admission security for LECs which are not in the ELAN security list. For more information, see "LANE Security" on page 145 in the Operations Guide.

- Display LEC ELAN Join Privilege
- Update LEC ELAN Join Privilege for Current Session

Display LEC ELAN Join Privilege

Displays the default ELAN join privilege for LECs which are not in the ELAN security list. The default join privilege can be Accept or Reject. To change the default join privilege, "Update LEC ELAN Join Privilege for Current Session" on page 315.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
 (3) SEC: LE Security Configuration
  (1) EDB: Elan default behavior
    (1) GDF: Get elan default behavior
```

Enter a parameter at the prompt

Parameter	Format or Range
ELAN ID	**1–16** See "Display ELAN Parameters in LES Database" on page 283.

Direct access sequence: **2 3 1 1** [parameters]

Command Result

System action taken: The ELAN join privilege for LECs which are not in the ELAN security list is displayed.

System message display:

```
Default behavior is: ACCEPT
```

Example

Enter: **2 3 1 1 1**

The following message is displayed:

```
Default behavior is: ACCEPT.
```

The ELAN join privilege for LECs which are not in the ELAN security list is displayed for the ELAN with ID 1.

Update LEC ELAN Join Privilege for Current Session

Updates the default ELAN join privilege for LECs which are not in the ELAN security list for the current session. The default join privilege can be Accept or Reject.

You need to save to flash to maintain this parameter after the next reboot.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
 (3) SEC: LE Security Configuration
  (1) EDB: Elan default behavior
    (2) SDF: Set elan default behavior
```

Enter a parameter at the prompt

Parameter	Format or Range
ELAN ID	**1**–**16** See "Display ELAN Parameters in LES Database" on page 283.
Join Privilege	**1**–Accept **2**–Reject

Direct access sequence: **2 3 1 2** [parameters]

Command Result

System action taken: The ELAN join privilege for LECs which are not in the ELAN security list is changed for the current session.

System message display:

```
Default behavior changed successfully.
Any LEC currently in operational state
will remain so unless it is restarted.
```

Example

Enter: **2 3 1 2 1 1**

The following message is displayed:

```
Default behavior changed successfully.
Any LEC currently in operational state will remain so unless
it is restarted.
```

The default ELAN join privilege for LECs which are not in the ELAN security list is changed to Accept for the ELAN with ID 1.

LECs in ELAN Security List

The following commands let you configure the LEC admission security for LECs in an ELAN security list. For more information, "LANE Security" on page 145 in the Operations Guide.

- Display LECs in ELAN Security List
- Delete All LECs from Security List
- Add All Joined LECs to Security List
- Add a LEC to Security List
- Change the Join Privilege of a LEC
- Delete a LEC from the Security List
- Perform a Security Check on a LEC

Display LECs in ELAN Security List

Displays the LECs in the security list of the specified ELAN. The join privilege (accept or reject) of each LEC or group of LECs is shown. For more information about interpreting the display, see "Best Match Verification—Admitting Individual LECs in a Group" on page 146 in the Operations Guide.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
 (3) SEC: LE Security Configuration
  (2) STB: Security tables entries
   (1) DIT: Display elan security table
```

Enter a parameter at the prompt

Parameter	Format or Range
ELAN ID	**1–16** See "Display ELAN Parameters in LES Database" on page 283.

Direct access sequence: **2 3 2 1** [parameters]

Command Result

System action taken: The ELAN security list is displayed.

System message display: Information is displayed as shown in the example below.

Example

Enter: **2 3 2 1 1**

The ELAN security list is displayed for the ELAN with ID 1. The first line means that all LECs with the designated prefix are not allowed to join the ELAN. The second line means that the LEC with the designated ATM address is allowed to join the ELAN.

```
Table for ELAN: "elan2684_0"

     Permission  Address
     ----------  ----------------------------------------
1.   REJECT      47.0.0.0.0.0.3c.0.0.a0.*
2.   ACCEPT      47.00.00.00.00.00.3c.00.00.a0.00.00.00.00.c0.da.34.55.0c.00
```

Delete All LECs from Security List

Delete all LECs from the security list of the specified ELAN for the current session.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
 (3) SEC: LE Security Configuration
  (2) STB: Security tables entries
   (2) DET: Delete elan security table
```

Enter a parameter at the prompt

Parameter	Format or Range
ELAN ID	**1–16** See "Display ELAN Parameters in LES Database" on page 283.

Direct access sequence: **2 3 2 2** [parameters]

Command Result

System action taken: The LECs are removed from the ELAN security list.

System message display:

```
ELAN: elan 6591-12 successfully
deleted.
```

Example

Enter: **2 3 2 2 1**

All LECs are removed from the ELAN security list of the ELAN with ID 1.

Add All Joined LECs to Security List

Adds all currently–connected LECs to the security list of the specified ELAN for the current session with the Accept join privilege. Use this command to initialize the ELAN security list.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
 (3) SEC: LE Security Configuration
  (2) STB: Security tables entries
   (3) CUR: Add curr. conn. LECs
```

Enter a parameter at the prompt

Parameter	Format or Range
ELAN ID	**1–16** See "Display ELAN Parameters in LES Database" on page 283.

Direct access sequence: **2 3 2 3** [parameters]

Command Result

System action taken: The currently–connected LECs are added to the ELAN security list.

System message display:

```
Active LECs added into security table
successfully
```

Example

Enter: **2 3 2 3 1**

The following message is displayed:

```
Active LECs added into security table successfully
```

The currently connected LECs are added to the ELAN security list for the ELAN with ID 1.

Add a LEC to Security List

Adds a LEC or group of LECs to the security list of the specified ELAN for the current session. You specify the join privilege.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
 (3) SEC: LE Security Configuration
  (2) STB: Security tables entries
   (4) ADR: Add a new security entry
```

Enter a parameter at the prompt

Parameter	Format or Range
ELAN ID	**1**–**16** See "Display ELAN Parameters in LES Database" on page 283.
LEC ATM address or	A full ATM address of a LEC, in the format of 20 bytes, separated with dots
Network Prefix	A prefix of the network part (1 to 13 bytes) of an ATM address for a section of the network (that is, prefix and "wildcard"): The format is: 47.0.0.0.0.0.3c.0.0.a0.* — between 1-12 bytes, with ".*" at the end, or 47.0.0.0.0.0.3c.0.0.a0.0.0.0* — exactly 13 bytes long, with "*" at the end (no ".")
Join Privilege	**1**–Accept **2**–Reject

Direct access sequence: **2 3 2 4** [parameters]

Command Result

System action taken: The specified LECs are added to the ELAN security list.

System message display:

```
Entry added successfully
```

Example

Enter: **2 3 2 4 1 47.0.0.0.0.0.3c.0.0.a0.* 2**

The following message is displayed:

```
Entry added successfully
```

The LECs with the specified network prefix are added to the ELAN security list for the ELAN with ID 1 with join privilege Reject.

Change the Join Privilege of a LEC

Changes the join privilege of a LEC or group of LECs for the specified ELAN for the current session.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
 (3) SEC: LE Security Configuration
  (2) STB: Security tables entries
   (5) EDR: Edit a security entry
```

Enter a parameter at the prompt

Parameter	Format or Range
ELAN ID	**1**–**16** See "Display ELAN Parameters in LES Database" on page 283.
Index of LEC	**1**–**n** See "Display LECs in ELAN Security List" on page 316.
Join Privilege	**1**–Accept **2**–Reject
Continue prompt	**Y** or **N**

Direct access sequence: **2 3 2 5** [parameters]

Command Result

System action taken: The join privilege for the specified LEC is changed for the ELAN.

System message display:

```
Entry updated successfully
```

Example

Enter: **2 3 2 5 1 3 2**

The join privilege of the LEC with index 3 in the security list for the ELAN with ID 1 is changed to Reject.

The following prompt is displayed:

```
Entry is:
47.00.00.00.00.00.3c.00.00.a0.00.00.00.00.c0.da.34.55.0c.00
OK? (Y/N)?
```

Enter **Y** to continue, **N** to cancel.

Delete a LEC from the Security List

Deletes a LEC or group of LECs from the security list for the specified ELAN for the current session.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
 (3) SEC: LE Security Configuration
  (2) STB: Security tables entries
   (6) DER: Delete a security entry
```

Enter a parameter at the prompt

Parameter	Format or Range
ELAN ID	**1**–**16** See "Display ELAN Parameters in LES Database" on page 283.
Index of LEC	**1**–**n** See "Display LECs in ELAN Security List" on page 316.
Continue prompt	**Y** or **N**

Direct access sequence: **2 3 2 6** [parameters]

Command Result

System action taken: The specified LEC is removed from the security table for the ELAN.

System message display:

```
Entry updated successfully
```

Example

Enter: **2 3 2 6 1 3**

The LEC with index 3 in the security list for the ELAN with ID 1 is removed.

The following prompt is displayed:

```
Entry is:
47.00.00.00.00.00.3c.00.00.a0.00.00.00.00.c0.da.34.55.0c.00
Delete? (Y/N)?
```

Enter **Y** to continue, **N** to cancel.

Perform a Security Check on a LEC

Performs a security check on a LEC or group of LECs for the specified ELAN for the current session. The candidate LEC is searched for in the security list of the ELAN. If it is found, its join privilege is displayed. If it is not found then the ELAN default behavior is displayed.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
 (3) SEC: LE Security Configuration
  (2) STB: Security tables entries
   (7) CHK: Perform a security check
```

Enter a parameter at the prompt

Parameter	Format or Range
ELAN ID	**1–16** See "Display ELAN Parameters in LES Database" on page 283.
ATM address or network prefix of LEC	ATM address

Direct access sequence: **2 3 2 7** [parameters]

Command Result

System action taken: The specified LEC is checked in the security table for the ELAN.

System message display:

Example

Enter: **2 3 2 7 1**
47.00.00.00.00.00.3c.00.00.a0.00.00.00.00.c0.da.34.55.0c.00

The LEC with the specified ATM address is checked in the security list for the ELAN with ID 1.

Switch Security

The following commands allow you to enable or disable the LEC admission security for the entire switch. For more information, see "LANE Security" on page 145 in the Operations Guide.

- Display Switch Security Status
- Enable/Disable Switch Security

Display Switch Security Status

Displays the LEC admission security status for the switch.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
 (3) SEC: LE Security Configuration
  (3) SWS: Switch security
   (1) GST: Get switch security state
```

Direct access sequence: **2 3 3 1**

Command Result

System action taken: The LEC admission security status for the switch is displayed.

System message display: `Security on switch is ENABLED/DISABLED`

Example

Enter: **2 3 3 1**

The LEC admission security status for the switch is displayed as follows:

```
Security on switch is DISABLED
```

Enable/Disable Switch Security

Enables or disables the LEC admission security status for the switch for the current session.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
 (3) SEC: LE Security Configuration
  (3) SWS: Switch security
   (2) SST: Set switch security state
```

Enter a parameter at the prompt

Parameter	Format or Range
Enable/disable state	**1** to enable **2** to disable

Direct access sequence: **2 3 3 2** [parameters]

Command Result

System action taken: The LEC admission security status for the switch is enabled or disabled.

System message display:

```
Security on switch now ENABLED
Any LEC currently in operational state
will remain so unless it is restarted.
```

Example

Enter: **2 3 3 2 2**

The new LEC admission security status for the switch is displayed as follows.

```
Security on switch now ENABLED
Any LEC currently in operational state will remain so unless
it is restarted.
```

Save Security Configuration

The following commands allow you to save and restore the security lists for all ELANs in the switch. For more information, see "LANE Security" on page 145 in the Operations Guide.

- Save Security Configuration
- Restore Security Configuration

Save Security Configuration

Saves the security lists for all ELANs in the switch to flash memory.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
 (3) SEC: LE Security Configuration
  (4) SAV: Save security configuration
```

Direct access sequence: **2 3 4**

Command Result

System action taken: The security lists for all ELANs in the switch are saved to flash memory.

System message display: `Saved on flash successfully`

Example

Enter: **2 3 4**

The security lists for all ELANs in the switch are saved to flash memory. The following message is displayed.

```
Saved on flash successfully
```

Restore Security Configuration

Restores the security lists for all ELANs in the switch from flash memory.

Command Actions

Enter menu sequence:

```
(2) LEM: LAN Emulation
 (3) SEC: LE Security Configuration
  (5) RES: Restore security config
```

Enter a parameter at the prompt

Parameter	Format or Range
Continue prompt	**Y** or **N**

Direct access sequence: **2 3 5**

Command Result

System action taken: The security lists for all ELANs in the switch are restored from flash memory.

System message display:

```
Restored from flash successfully
```

Example

Enter: **2 3 5**

The security lists for all ELANs in the switch are restored from flash memory. The current contents of the security lists are overwritten, including any LECs you entered or removed but did not save to flash memory.

The following prompt is displayed:

```
Unsaved changes will be lost, some new LECs may enter the
system
Do you still want to restore? (Y/N)?
```

Enter **Y** or continue, or **N** to cancel.

If you enter Y, the following message is displayed:

```
Restored from flash successfully
```

11 CONFIGURING AND MANAGING PNNI

This chapter describes the commands that allow you to configure and manage the PNNI nodes of the network. It includes the following topics:

- Viewing the Current PNNI State
- Configuring PNNI Nodes
- Setting the Timers
- Setting Optimization Metrics
- Setting Interface Parameters
- Managing the Scope Mapping Table
- Configuring the Route Cache
- Showing PNNI Information

PNNI is available in version 3.0 extended only. For more information on obtaining software version 3.0 extended, contact your 3Com representative.

Viewing the Current PNNI State

The following command allows you to view the current PNNI state:
Display PNNI/E-IISP State

Display PNNI/E-IISP State

Displays the PNNI/E-IISP status and the next reboot state. The status is either PNNI or E-IISP.

To change the current state, use the Fast Setup. For details on the Fast Setup, see the CoreBuilder 9000 ATM Switch Module Getting Started Guide*.*

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
    (1) VPS: View PNNI/E-IISP State
```

Direct access sequence: **`1 1 10 1`**

Command Result

System action taken: The PNNI/E-IISP status and the next reboot value are displayed.

System message display:

```
PNNI/E-IISP State: <state>
Next reboot value: <state>
```

Example

Enter: **`1 1 9 1`**

The following message is displayed:

```
PNNI/E-IISP State: PNNI
Next reboot value: PNNI
```

Configuring PNNI Nodes

The following commands allow you to configure the PNNI nodes of the network:

- Get Number of Nodes
- Get Enhanced 164 Address Support State
- Set & Save Enhanced E.164 Address Support State
- Get Node Index
- Get Node Administrative Status
- Set Node Administrative Status to UP
- Set Node Administrative Status to DOWN
- Get Node Level
- Set Node Level
- Get ATM Address
- Set Default ATM Address
- Set ATM Address
- Get Peer Group ID
- Set Peer Group ID
- Get Node ID
- Set Default Node ID
- Set Node ID
- Get Node Name
- Set Node Name
- Get PGL Priority
- Set PGL Priority

Get Number of Nodes

Displays the number of defined PNNI nodes in the switch.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
    (4) CFP: Configure PNNI
     (1) NNO: Number of Nodes
      (1) GNN: Get Number of Nodes
```

Direct access sequence: **1 1 9 4 1 1**

Command Result

System action taken: The number of PNNI nodes defined in the switch is displayed.

System message display: `The number of PNNI nodes in switch is <n>.`

Example

Enter: **1 1 9 4 1 1**

The following message is displayed:

```
The number of PNNI nodes in switch is 1.
```

Get Enhanced 164 Address Support State

Displays the status of the E.164 (enhanced 164) address support state: ENABLED or DISABLED. See "ATM Address Format" on page 196 in the Operations Guide for more information on E.164.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (2) EEA: Enhanced E164 Address
              Support
      (1) GET: Get Enhanced E.164
               Address Support State
```

Direct access sequence: **1 1 9 4 2 1**

Command Result

System action taken: The status of the enhanced E.164 address support state is displayed.

System message display:

```
Enhanced E.164 Address Support is
ENABLED/DISABLED.
```

Example

Enter: **1 1 9 4 2 1**

The following message is displayed:

```
Enhanced E.164 Address Support is ENABLED.
```

Set & Save Enhanced E.164 Address Support State

Updates the status of the enhanced E.164 address support state to ENABLED or DISABLED and saves it in flash memory. A change to the status takes place after the next reboot. See "ATM Address Format" on page 196 in the Operations Guide for more information on E.164.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
    (4) CFP: Configure PNNI
     (2) EEA: Enhanced E164 Address
              Support
      (2) SET: Set & Save Enhanced
               E.164 Addr Support State
```

Enter a parameter at the prompt

Parameter	Format or Range
E.164 address support state	**0** to disable enhanced E.164 address support **1** to enable enhanced E.164 address support

Direct access sequence: **1 1 9 4 2 2** [parameters]

Command Result

System action taken: The status of the enhanced E.164 address support state is updated to ENABLED or DISABLED.

System message display:

```
Enhanced E.164 Address Support is
DISABLED/ENABLED.
```

Example

Enter: **1 1 9 4 2 2 1**

The following message is displayed:

```
Enhanced E.164 Address Support is ENABLED.
```

The status of the enhanced E.164 address support is set to ENABLED and is saved in flash memory.

Get Node Index

Displays the number of PNNI nodes defined in the switch and the current PNNI node index. The default node index value is 1 and cannot be changed for this version.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (3) NCF: Node Configuration
     (1) SEN: Select Node
       (1) GNI: Get Node Index
```

Direct access sequence: **1 1 9 4 3 1 1**

Command Result

System action taken: The number of PNNI nodes defined in the switch, and the number of the current PNNI node index is displayed.

System message display:

```
Number of PNNI nodes is <n>. Current
PNNI node index is <i>.
```

Example

Enter: **1 1 9 4 3 1 1**

The following message is displayed:

```
Number of PNNI nodes is 1. Current PNNI node index is 1.
```

Get Node Administrative Status

Displays the administrative status of the PNNI node. The administrative status of the node may be UP or DOWN.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
    (4) CFP: Configure PNNI
     (3) NCF: Node Configuration
      (2) ADM: Admin Status
       (1) GAS: Get Node Admin Status
```

Direct access sequence: **1 1 9 4 3 2 1**

Command Result

System action taken: The number and administrative status of the PNNI node are displayed.

System message display:

```
Node <m> of <n>. PNNI Node
Administrative Status is UP/DOWN.
```

Example

Enter: **1 1 9 4 3 2 1**

The following message is displayed:

```
Node 1 of 1. PNNI Node Administrative Status is UP.
```

Set Node Administrative Status to UP

Updates the administrative status of the PNNI node to UP. The change takes place immediately and is saved in flash memory for the next reboot.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
    (4) CFP: Configure PNNI
     (3) NCF: Node Configuration
      (2) ADM: Admin Status
       (2) SSU: Set Node Admin Status to
                UP
```

Direct access sequence: **1 1 9 4 3 2 2**

Command Result

System action taken: The PNNI node administrative status is set to UP. The change takes place immediately. The number and administrative status of the PNNI node are displayed.

System message display:

```
Node <m> of <n>. PNNI Node
Administrative Status is set to UP.
```

Example

Enter: **1 1 9 4 3 2 2**

The following message is displayed:

```
Node 1 of 1. PNNI Node Administrative Status is set to UP.
```

The PNNI node administrative status is set to UP.

Set Node Administrative Status to DOWN

Updates the administrative status of the PNNI node to DOWN. The change takes place immediately and is saved in flash memory for the next reboot.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (3) NCF: Node Configuration
     (2) ADM: Admin Status
      (3) SSD: Set Node Admin Status to
               DOWN
```

Direct access sequence: **1 1 9 4 3 2 3**

Command Result

System action taken: The PNNI node administrative status is set to DOWN. The change takes place immediately. The number and administrative status of the PNNI node are displayed.

System message display:

```
Node <m> of <n>. PNNI Node
Administrative Status is set to DOWN.
```

Example

Enter: **1 1 9 4 3 2 3**

The following message is displayed:

```
Node 1 of 1. PNNI Node Administrative Status is set to DOWN.
```

The PNNI node administrative status is set to DOWN.

If the status of the PNNI node is set to DOWN and the switch is rebooted, the status remains DOWN. The PNNI node will only be operative after setting the administrative status to UP. For details, see "Set Node Administrative Status to UP" on page 337.

Purge PNNI Database

Clear the entire PNNI database. All entries in the PNNI database will be deleted.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (3) NCF: Node Configuration
     (2) ADM: Admin Status
      (4) PDB: Purge whole PNNI
               Database
```

Direct access sequence: **1 1 9 4 3 2 4**

Command Result

System action taken: The PNNI database is cleared.

System message display:

```
Node <m> of <n>. PNNI Database size =
<xxxxxx> was CLEARED.
```

Example

Enter: **1 1 9 4 3 2 4**

The following prompt is displayed:

```
Node 1 of 1. Whole PNNI Database will be CLEARED !!!
Are you sure ? (Y/N)?
```

The following message is displayed:

```
Node 1 of 1. PNNI Database size = 1589876 was CLEARED.
```

Get Node Level

Displays the current node level. The node level is the hierarchy level of the peer group to which it belongs. For more information, see "Organizing a Network Hierarchy" on page 183 in the Operations Guide.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
    (4) CFP: Configure PNNI
     (3) NCF: Node Configuration
      (3) CHR: Characteristics
       (1) LEV: Level
        (1) GNL: Get Node Level
```

Direct access sequence: **1 1 9 4 3 1 1**

Command Result

System action taken: The node number and current node level are displayed.

System message display:

```
Node <m> of <n>. Current Node Level
is: <x>.
```

Example

Enter: **1 1 9 4 3 3 1 1**

The following message is displayed:

```
Node 1 of 1. Current Node Level is: 72.
```

Set Node Level

Updates the current node level. The node level is the hierarchy level of the peer group to which it belongs. For more information, see "Organizing a Network Hierarchy" on page 183 in the Operations Guide. A change to the node level takes place after the next reboot.

It is important not to split ELANs between groups when constructing the network hierarchy.

There are several PNNI operations in the LMA that can only be performed when the node administrative status is set to DOWN, and that take effect immediately after the status is reset to UP. These include updating the ATM address, updating the PNNI node id and updating the node level.For more information, see "Set Node Administrative Status to DOWN" on page 338.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
    (4) CFP: Configure PNNI
     (3) NCF: Node Configuration
      (3) CHR: Characteristics
       (1) LEV: Level
        (2) SNL: Set Node Level
```

Enter a parameter at the prompt

Parameter	Format or Range
PNNI node level	0 to 104

Direct access sequence: **1 1 9 4 3 3 1 2**

Command Result

System action taken: The current node level is updated.

System message display: `Node <x> of <y>. Current node level is set to <n>.`

Example

Enter: **1 1 9 4 3 3 1 2 80**

The following message is 7displayed:

```
Node 1 of 1. Current Node Level is set to 80.
```

The node level of node 1 is set to 80.

Get ATM Address Displays the ATM address of the current PNNI node.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
    (4) CFP: Configure PNNI
     (3) NCF: Node Configuration
      (3) CHR: Characteristics
       (2) ADD: ATM Address
        (1) GAD: Get ATM Address
```

Direct access sequence: **1 1 9 4 3 3 2 1**

Command Result

System action taken: The current PNNI node and its ATM address are displayed.

System message display: `PNNI Node <x> of <y>. PNNI Node ATM Address: <address>`

Example

Enter: **1 1 9 4 3 3 2 1**

The following message is displayed:

```
PNNI Node 1 of 1. PNNI Node ATM Address:
47.00.00.00.00.00.3C.00.00.03.00.00.00.00.C0.DA.60.1B.9F.FF
```

Set Default ATM Address

Sets the last six bytes (ESI — End System Identifier) of the ATM address of the current node to the default ATM address value. A change to the default ATM address takes place after the next reboot.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (3) NCF: Node Configuration
     (3) CHR: Characteristics
      (2) ADD: ATM Address
       (2) SDF: Set default ATM Address
```

Direct access sequence: **1 1 9 4 3 3 2 2**

Command Result

System action taken: The default ATM address is displayed.

System message display:

```
ESI (6 bytes) of ATM ADDRESS was set to
DEFAULT: <default address>
```

Example

Enter: **1 1 9 4 3 3 2 2**

The following message is displayed:

```
ESI (6 bytes) of ATM ADDRESS was set to DEFAULT:
47.00.00.00.00.00.3C.00.00.00.00.00.00.00.C0.DA.60.27.F6.FF
```

The last six bytes of the ATM address are set to their default values.

In the example, for clarity, the ESI of the ATM address is underlined.

Set ATM Address Updates the last six bytes (ESI - End System Identifier) of the ATM address of the current node. A change to the ATM address takes place after the next reboot. For more information on ATM addressing in PNNI, see "ATM Address Format" on page 196 in the Operations Guide.

There are several PNNI operations in the LMA that can only be performed when the node administrative status is set to DOWN, and that take effect immediately after the status is reset to UP. These include updating the ATM address, updating the PNNI node id and updating the node level.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (3) NCF: Node Configuration
     (3) CHR: Characteristics
      (2) ADD: ATM Address
        (3) SAD: Set ATM Address
```

Enter a parameter at the prompt

Parameter	Format or Range
ESI address	xx.xx.xx.xx.xx.xx where xx are two hex digits representing a single byte.

Direct access sequence: **1 1 9 4 3 3 2 3** [parameters]

Command Result

System action taken: The ESI of the ATM address of the current node is displayed and updated to its new value.

System message display:

```
New ESI of PNNI Node ATM Address was
set, New ATM address is: <address>
```

Example

Enter: **`1 1 9 4 3 3 2 3 00.C0.DA.60.00.27`**

The following message is displayed:

```
New ESI of PNNI Node ATM Address was set, New ATM address is:
47.00.00.00.00.00.3C.00.00.00.00.00.00.00.C0.DA.60.00.27.FF
```

The address is updated to its new value.

The ESI of the ATM address displayed can also be changed by editing the existing address. This is done by pressing the BackSpace, left and/or right arrow keys at the prompt and overwriting any of the last six bytes of the address.

The hex value 'FF' in the example above is a selector (byte number 20). It has local significance only, is ignored by PNNI routing and cannot be changed.

Get Peer Group ID Displays the Peer Group ID of the PNNI node. For more information of peer groups, see "Organizing a Network Hierarchy" on page 183 in the Operations Guide. A change to the peer group id takes place after the next reboot.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (3) NCF: Node Configuration
     (3) CHR: Characteristics
      (3) PID: Peer Group ID
       (1) GPI: Get Peer Group ID
```

Direct access sequence: **1 1 9 4 3 3 3 1**

Command Result

System action taken: The peer group id of the PNNI node is displayed.

System message display:

```
PNNI Node 1 of 1. Node Peer Group Id:
<address>
```

Example

Enter: **1 1 9 4 3 3 3 1**

The following message is displayed:

```
PNNI Node 1 of 1. Node Peer Group Id:
48.47.00.00.00.00.00.3C.00.00.00.00.00.00
```

Set Peer Group ID Sets the Peer Group ID of the PNNI node. For more information on peer groups, see "Organizing a Network Hierarchy" on page 183 in the Operations Guide.

Currently the peer group ID cannot be changed via this option. To change the peer group ID, the ATM address network prefix and node level should be changed. See "Set ATM Address" on page 344 and "Set Node Level" on page 341 in this chapter for details on how to change these.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (3) NCF: Node Configuration
     (3) CHR: Characteristics
      (3) PID: Peer Group ID
        (2) SPI: Set Peer Group ID
```

Direct access sequence: **1 1 9 4 3 3 3 2**

Command Result

System action taken: None.

System message display:

```
Peer Group ID can only be changed via
the Node Level and ATM address network
prefix.
```

Example

Enter: **1 1 9 4 3 3 3 2**

The following message is displayed:

```
Peer Group ID can only be changed via the Node Level and ATM
address network prefix.
```

Get Node ID Displays the ID (ATM address) of the PNNI node (22 bytes).

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (3) NCF: Node Configuration
     (3) CHR: Characteristics
      (4) NID: Node ID
        (1) GID: Get Node ID
```

Direct access sequence: **1 1 9 4 3 3 4 1**

Command Result

System action taken: The current PNNI node id is displayed.

System message display:

```
PNNI Node x of y.
Node ID: <address>
```

Example

Enter: **1 1 9 4 3 3 4 1**

The following message is displayed:

```
PNNI Node 1 of 1.
NodeID:48.A0.47.00.00.00.00.4C.00.00.03.00.00.00.00.C0.DA.60
.1B.9F.FF
```

Set Default Node ID

Updates the ID of the PNNI node to the default address. A change to the default node ID takes place after the next reboot.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (3) NCF: Node Configuration
     (3) CHR: Characteristics
      (4) NID: Node ID
       (2) SDF: Set Default Node ID
```

Direct access sequence: **1 1 9 4 3 3 4 2**

Command Result

System action taken: The current PNNI node id is set to the default address.

System message display:

```
PNNI Node 1 of 1. Node ID was set to
DEFAULT: <address>
```

Example

Enter: **1 1 9 4 3 3 4 2**

The following message is displayed:

```
PNNI Node 1 of 1. Node ID was set to DEFAULT:
48.A0.47.00.00.00.00.00.3C.00.00.00.00.00.00.00.C0.DA.60.27.
F6.FF
```

Set Node ID Updates the ID of the PNNI node to a new address. A change to the node ID takes place after the administrative status is set to UP or after the next reboot. For more information, see "Set Node Administrative Status to UP" on page 337.

There are several PNNI operations in the LMA that can only be performed when the node administrative status is set to DOWN, and that take effect immediately after the status is reset to UP. These include updating the ATM address, updating the PNNI node id and updating the node level.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (3) NCF: Node Configuration
     (3) CHR: Characteristics
      (4) NID: Node ID
       (3) SID: Set Node ID
```

Enter a parameter at the prompt

Parameter	Format or Range
node id	20 bytes

Direct access sequence: **1 1 9 4 3 3 4 3**

Command Result

System action taken: The current PNNI node id is set to the new address.

System message display: `New Node ID was set. Node Id:`

Example

Enter: **1 1 9 4 3 3 4 3**
47.00.00.00.00.00.3C.00.00.00.00.00.00.00.C0.DA.60.27.F6.F6

The following message is displayed:

```
New Node ID was set. Node Id:
47.00.00.00.00.00.3C.00.00.00.00.00.00.00.C0.DA.60.27.F6.F6
```

The node ID is updated to its new value.

The node ID displayed can also be changed by editing the existing node ID. This is done by pressing the BackSpace, left and/or right arrow keys at the prompt and overwriting any of the 20 bytes of the address.

Get Node Name Displays the name assigned to the current PNNI node.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (3) NCF: Node Configuration
     (3) CHR: Characteristics
      (5) NAM: Node Name
        (1) GNA: Get Node Name
```

Direct access sequence: **1 1 9 4 3 3 5 1**

Command Result

System action taken: The current PNNI node number and name are displayed.

System message display: `PNNI Node <x> of <y>. Node Name: <name>`

Example

Enter: **1 1 9 4 3 3 5 1**

The following message is displayed:

```
PNNI Node 1 of 1. Node Name: 3Com World
```

Set Node Name

Updates the name assigned to the current PNNI node. A change the node name takes place immediately.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (3) NCF: Node Configuration
     (3) CHR: Characteristics
      (5) NAM: Node Name
        (2) SNA: Set Node Name
```

Enter a parameter at the prompt

Parameter	Format or Range
PNNI node name	Up to 30 alphanumeric characters

Direct access sequence: **1 1 9 4 3 3 5 2** [parameters]

Command Result

System action taken: The name of the current PNNI node is updated.

System message display: `Node Name was SET to: <name>`

Example

Enter: **`1 1 9 4 3 3 5 2 3Com World`**

The following message is displayed:

```
Node Name was SET to: 3Com World
```

The name of the node is updated to 3Com World.

Get PGL Priority Displays the node peer group leader priority.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (3) NCF: Node Configuration
     (3) CHR: Characteristics
      (6) PRI: PGL Priority
        (1) GPR: Get PGL Priority
```

Direct access sequence: **1 1 9 4 3 3 6 1**

Command Result

System action taken: The node peer group leader priority is displayed.

System message display: `Node <x> of <y>. Node PGL Priority is: 0`

Example

Enter: **1 1 9 4 3 3 6 1**

The following message is displayed:

```
Node 1 of 1. Node PGL Priority is: 0
```

Set PGL Priority

Updates the node peer group priority. Currently, the peer group priority is set to 0 and cannot be changed.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (3) NCF: Node Configuration
     (3) CHR: Characteristics
      (6) PRI: PGL Priority
       (2) SPR: Set PGL Priority
```

Direct access sequence: **1 1 9 4 3 3 6 2** [parameters]

Command Result

System action taken: The node peer group priority is displayed.

System message display: `Node <x> of <y>. Node PGL Priority is: 0`

Example

Enter: **1 1 9 4 3 3 6 2**

The following message is displayed:

```
Node 1 of 1. Node PGL Priority is: 0
```

Setting the Timers

The following commands allow you to set values for the different PNNI timers and intervals. These parameters are part of the Quality of Service (QoS) metrics that are used in establishing a signal.

- Set PTSE Holddown Timer
- Set Hello Holddown Timer
- Set Hello Interval
- Set Hello Inactivity Factor
- Set PTSE Refresh Interval
- Set PTSE Lifetime Factor
- Set Retransmit Interval
- Set Peer Delayed ACK Interval
- Set AvCR Proportional Multiplier (%)
- Set AvCR Minimum Threshold (%)
- Set CDV Proportional Multiplier (%)
- Set CTD Proportional Multiplier (%)
- Set SVCC Initiation Time
- Set SVCC Retry Time
- Set SVCC Calling Integrity Time
- Set SVCC Called Integrity Time
- Set All Timers to Their Default Values

Set PTSE Holddown Timer

Sets the PTSE holddown timer value. The PTSE holddown timer value is the value (expressed in milliseconds) used by the specified node to limit the rate at which it can send PTSEs. A change to the PTSE holddown timer value takes place after the next reboot. For more information on PTSEs, see "PTSE" on page 190 in the Operations Guide.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (3) NCF: Node Configuration
     (4) TIM: Timers
      (1) PHD: PTSE Holddown Timer
```

Enter a parameter at the prompt

Parameter	Format or Range
interval	1 - 30000 milliseconds

Direct access sequence: **1 1 9 4 3 4 1** [parameters]

Command Result

System action taken: The PTSE holddown timer values is displayed and is updated to its new value.

System message display:

```
Default value is <x>, new value is <y>
```

Example

Enter: **1 1 9 4 3 4 1 5**

The following message is displayed:

```
Default Value is 10 (1 sec), new value is 5
Press ENTER to continue...
```

Set Hello Holddown Timer

Sets the Hello holddown timer value. The Hello holddown timer value is the value (expressed in milliseconds) used by the specified node to limit the rate at which it sends Hello packets. A change to the Hello holddown timer value takes place after the next reboot. For more information on Hello packets, see "Information Exchange in PNNI" on page 189 in the Operations Guide.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (3) NCF: Node Configuration
     (4) TIM: Timers
      (2) HHD: Hello Holddown Timer
```

Enter a parameter at the prompt

Parameter	Format or Range
interval	1 - 30000 milliseconds

Direct access sequence: **1 1 9 4 3 4 2** [parameters]

Command Result

System action taken: The Hello holddown timer values is displayed and is updated to its new value.

System message display: `Default value is <x>, new value is <y>`

Example

Enter: **1 1 9 4 3 4 1 5**

The following message is displayed:

```
Default Value is 10 (1 sec), new value is 5
Press ENTER to continue...
```

Set Hello Interval

Sets the Hello interval value. In the absence of triggered Hellos, the specified node will send one Hello packet on each of its ports every "interval" seconds. A change to the Hello interval value takes place after the next reboot.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (3) NCF: Node Configuration
     (4) TIM: Timers
       (3) HIN: Hello Interval
```

Enter a parameter at the prompt

Parameter	Format or Range
interval	1 - 30000 seconds

Direct access sequence: **1 1 9 4 3 4 3** [parameters]

Command Result

System action taken: The Hello holddown timer values is displayed and is updated to its new value.

System message display: `Default value is <x>, new value is <y>`

Example

Enter: **1 1 9 4 3 4 3 5**

The following message is displayed:

```
Default Value is 15 (15 sec), new value is 5
Press ENTER to continue...
```

Set Hello Inactivity Factor

Sets the Hello inactivity factor. The Hello inactivity factor is the amount of time (expressed in Hello intervals) after which the sending node will consider a link to its neighbor down, if the neighbor does not respond. For more information on Hello intervals, see "Set Hello Interval" on page 359. A change to the Hello inactivity factor takes place after the next reboot.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (3) NCF: Node Configuration
     (4) TIM: Timers
      (4) INF: Hello Inactivity Factor
```

Enter a parameter at the prompt

Parameter	Format or Range
interval	1 - 100 Hello intervals

Direct access sequence: **1 1 9 4 3 4 4** [parameters]

Command Result

System action taken: The Hello inactivity factor is displayed and is updated to its new value.

System message display:

```
Default value is <x>, new value is <y>
```

Example

Enter: **1 1 9 4 3 4 4 10**

The following message is displayed:

```
Default Value is 5, new value is 10
Press ENTER to continue...
```

Set PTSE Refresh Interval

Sets the PTSE refresh interval value. The PTSE refresh interval is the amount of time (in seconds) that passes before the next PTSE is flooded to all the nodes in the current peer group. A change to the PTSE refresh interval value takes place after the next reboot.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (3) NCF: Node Configuration
     (4) TIM: Timers
      (5) PRI: PTSE Refresh Interval
```

Enter a parameter at the prompt

Parameter	Format or Range
interval	1 - 60000 seconds

Direct access sequence: **1 1 9 4 3 4 5** [parameters]

Command Result

System action taken: The Hello inactivity factor is displayed and is updated to its new value.

System message display: `Default value is <x>, new value is <y>`

Example

Enter: **1 1 9 4 3 4 5 1500**

The following message is displayed:

```
Default Value is 1800, new value is 1500
Press ENTER to continue...
```

Set PTSE Lifetime Factor

Sets the PTSE lifetime factor value. The PTSE lifetime factor is the value used to calculate the initial lifetime of a PTSE. The PTSE refresh interval is multiplied by this percentage to obtain the initial lifetime factor. A change to the PTSE lifetime factor value takes place after the next reboot.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (3) NCF: Node Configuration
     (4) TIM: Timers
      (6) PLT: PTSE Lifetime Factor
```

Enter a parameter at the prompt

Parameter	Format or Range
lifetime factor	101% - 1000%

Direct access sequence: **1 1 9 4 3 4 6** [parameters]

Command Result

System action taken: The Hello inactivity factor is displayed and is updated to its new value.

System message display: `Default value is <x>, new value is <y>`

Example

Enter: **1 1 9 4 3 4 6 150**

The following message is displayed:

```
Default Value is 200, new value is 150
Press ENTER to continue...
```

Set Retransmit Interval

Sets the retransmit interval. The retransmit interval is the time after which unacknowledged PTSEs will be retransmitted. A change to the retransmit interval takes place after the next reboot.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (3) NCF: Node Configuration
     (4) TIM: Timers
      (7) RTI: Retransmit Interval
```

Enter a parameter at the prompt

Parameter	Format or Range
interval	1 - 60000 seconds

Direct access sequence: **1 1 9 4 3 4 7** [parameters]

Command Result

System action taken: The retransmit interval is displayed and is updated to its new value.

System message display: `Default value is <x>, new value is <y>`

Example

Enter: **1 1 9 4 3 4 7 1**

The following message is displayed:

```
Default Value is 5, new value is 1
Press ENTER to continue...
```

Set Peer Delayed ACK Interval

Sets the peer delayed acknowledge interval. The peer delayed acknowledge interval is the minimum time period (expressed in milliseconds) between transmissions of delayed PTSE acknowledgment packets. A change to the peer delayed ACK interval value takes place after the next reboot.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (3) NCF: Node Configuration
     (4) TIM: Timers
      (8) PDA: Peer Delayed ACK
               Interval
```

Enter a parameter at the prompt

Parameter	Format or Range
interval	1 - 300 milliseconds

Direct access sequence: **1 1 9 4 3 4 8** [parameters]

Command Result

System action taken: The retransmit interval is displayed and is updated to its new value.

System message display: `Default value is <x>, New value is <y>`

Example

Enter: **1 1 9 4 3 4 8 15**

The following message is displayed:

```
Default value is 10, new value is 15
Press ENTER to continue...
```

Set AvCR Proportional Multiplier (%)

Sets the AvCR (Available Capacity for Minimum Cell Rate) proportional multiplier percentage. The AvCR proportional multiplier percentage is the proportional multiplier used in the algorithms that determine significant changes for AvCR parameters, expressed as a percentage. A change to the AvCR proportional multiplier percentage takes place after the next reboot.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (3) NCF: Node Configuration
     (4) TIM: Timers
      (9) APM: AvCR Proportional
                Multiplier(%)
```

Enter a parameter at the prompt

Parameter	Format or Range
percentage	1 - 99%

Direct access sequence: **1 1 9 4 3 4 9** [parameters]

Command Result

System action taken: The AvCR proportional multiplier is displayed and is updated to its new value.

System message display: `Default value is <x>, new value is <y>`

Example

Enter: **1 1 9 4 3 4 9 15**

The following message is displayed:

```
Default Value is 50, new value is 15
Press ENTER to continue...
```

Set AvCR Minimum Threshold (%)

Sets the AvCR minimum threshold percentage. The AvCR minimum threshold percentage is the minimum percentage change in bandwidth, after which a node will inform its neighbors of a significant change via a PTSE. For more information on PTSE regeneration, see "PTSE" on page 190 in the Operations Guide. A change to the AvCR minimum threshold percentage value takes place after the next reboot.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (3) NCF: Node Configuration
     (4) TIM: Timers
      (10) AMT: AvCR Minimum
                Threshold(%)
```

Enter a parameter at the prompt

Parameter	Format or Range
percentage	1 - 99%

Direct access sequence: **1 1 9 4 3 4 10** [parameters]

Command Result

System action taken: The AvCR minimum threshold is displayed and is updated to its new value.

System message display: `Default value is <x>, new value is <y>`

Example

Enter: **1 1 9 4 3 4 10 15**

The following message is displayed:

```
Default Value is 3, new value is 15
Press ENTER to continue...
```

Set CDV Proportional Multiplier (%)

Sets the CDV proportional multiplier percentage. The CDV proportional multiplier percentage is the percentage difference in the Cell Delay Variation metrics from the last value advertised. A change to the CDV proportional multiplier percentage value takes place after the next reboot.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (3) NCF: Node Configuration
     (4) TIM: Timers
      (11) CDV: CDV Proportional
                Multiplier(%)
```

Enter a parameter at the prompt

Parameter	Format or Range
percentage	1 - 99%

Direct access sequence: **1 1 9 4 3 4 11** [parameters]

Command Result

System action taken: The CDV proportional multiplier is displayed and is updated to its new value.

System message display: `Default value is <x>, new value is <y>`

Example

Enter: **1 1 9 4 3 4 11 15**

The following message is displayed:

```
Default Value is 25, new value is 15
Press ENTER to continue...
```

Set CTD Proportional Multiplier (%)

Sets the CTD proportional multiplier percentage. The CTD proportional multiplier percentage is a percentage of the last advertised Maximum Cell Transfer Delay. A change to the CTD proportional multiplier percentage value takes place after the next reboot.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (3) NCF: Node Configuration
     (4) TIM: Timers
      (12) CTD: CTD Proportional
                Multiplier(%)
```

Enter a parameter at the prompt

Parameter	Format or Range
percentage	1 - 99%

Direct access sequence: **1 1 9 4 3 4 12** [parameters]

Command Result

System action taken: The CTD proportional multiplier is displayed and is updated to its new value.

System message display: `Default value is <x>. New value is <y>`

Example

Enter: **1 1 9 4 3 4 12 25**

The following message is displayed:

```
Default Value is 50, new value is 25
Press ENTER to continue...
```

Set SVCC Initiation Time

Sets the SVCC initiation time. The SVCC initiation time is the time it takes to reinitiate a Switched Virtual Channel Connection after it has been taken down. For more information on virtual channel connections, see "Virtual Channels" on page 84 in the Operations Guide. A change to the SVCC initiation time takes place after the next reboot.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (3) NCF: Node Configuration
     (4) TIM: Timers
      (13) SIT: SVCC Initiation Time
```

Enter a parameter at the prompt

Parameter	Format or Range
initiation time	1 - 60000 seconds

Direct access sequence: **1 1 9 4 3 4 13** [parameters]

Command Result

System action taken: The SVCC initiation time is displayed and is updated to its new value.

System message display:

```
Default value is <x>. New value is <y>
```

Example

Enter: **1 1 9 4 3 4 13 20**

The following message is displayed:

```
Default Value is 4, new value is 20
Press ENTER to continue...
```

Set SVCC Retry Time

Sets the SVCC (Switch Virtual Channel Connection) retry time. The SVCC retry time is the time that the specified node will delay after a viable SVCC-based RCC is unexpectedly taken down, before attempting to reestablish it. A change to the SVCC retry time takes place after the next reboot.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (3) NCF: Node Configuration
     (4) TIM: Timers
      (14) SRT: SVCC Retry Time
```

Enter a parameter at the prompt

Parameter	Format or Range
initiation time	1 - 60000 seconds

Direct access sequence: **1 1 9 4 3 4 14** [parameters]

Command Result

System action taken: The SVCC retry time is displayed and is updated to its new value.

System message display: `Default value is <x>. New value is <y>`

Example

Enter: **1 1 9 4 3 4 14 20**

The following message is displayed:

```
Default Value is 30, new value is 20
Press ENTER to continue...
```

Set SVCC Calling Integrity Time

Sets the SVCC calling integrity time. The SVCC calling integrity time is the default value used to initiate the SVCC integrity timer at the node that initiates a switched virtual circuit at a logical group node. A change to the SVCC calling integrity time takes place after the next reboot.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (3) NCF: Node Configuration
     (4) TIM: Timers
      (15) SCI: SVCC Calling Integrity
                Time
```

Enter a parameter at the prompt

Parameter	Format or Range
integrity time	1 - 60000 seconds

Direct access sequence: **`1 1 9 4 3 4 15`** [parameters]

Command Result

System action taken: The SVCC calling integrity time is displayed and is updated to its new value.

System message display: `Default value is <x>, new value is <y>`

Example

Enter: **`1 1 9 4 3 4 15 20`**

The following message is displayed:

```
Default Value is 35, new value is 20
Press ENTER to continue...
```

Set SVCC Called Integrity Time

Sets the SVCC called integrity time. The SVCC called integrity time is the default value used to initialize the SVCC integrity timer at the node that accepts a switched virtual circuit at a logical group node originated by a neighbor node. A change to the SVCC called integrity time takes place after the next reboot.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (3) NCF: Node Configuration
     (4) TIM: Timers
      (16) SCD: SVCC Called Integrity
                Time
```

Enter a parameter at the prompt

Parameter	Format or Range
integrity time	1 - 60000 seconds

Direct access sequence: **1 1 9 4 3 4 16** [parameters]

Command Result

System action taken: The SVCC called integrity time is displayed and is updated to its new value.

System message display: `Default value is <x>. New value is <y>`

Example

Enter: **1 1 9 4 3 4 16 30**

The following message is displayed:

```
Default Value is 50 (50 sec), new value is 30
Press ENTER to continue...
```

Set All Timers to Their Default Values

Resets all the timers in the timers menu to their default values.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
    (4) CFP: Configure PNNI
     (3) NCF: Node Configuration
      (4) TIM: Timers
       (18) STD: Set All Timers to their
                 Default Values
```

Enter a parameter at the prompt

Parameter	Format or Range
Confirm reset	**y** or **n**

Direct access sequence: **1 1 9 4 3 4 18**

Command Result

System action taken: All the timers are reset to their default values.

System message display:

```
All timers were set to their defaults.
```

Example

Enter: **1 1 9 4 3 4 18 y**

The following message is displayed:

```
PNNI Node 1 of 1.
All Timers were set to their defaults
Press ENTER to continue...
```

All the timers are set to the default values.

Setting Optimization Metrics

The following commands allow you to set up the optimization metrics for the network.

- Get Optimization Metrics
- Set Optimization for CBR
- Set Optimization for RealTime-VBR
- Set Optimization for NonRealTime-VBR
- Set Optimization for ABR
- Set Optimization for UBR
- Set Optimization for All Classes to Default

Get Optimization Metrics

Displays the PNNI optimization metrics table. This table contains the current values of all the optimization metrics for each class of service. For more information on QoS optimization metrics, see "Path Selection" on page 197 in the Operations Guide.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
    (4) CFP: Configure PNNI
     (3) NCF: Node Configuration
      (5) OPT: Optimization Metrics
       (1) GOP: Get Optimization
                Metrics
```

Direct access sequence: **1 1 9 4 3 5 1**

Command Result

System action taken: The PNNI optimization metrics table is displayed.

System message display: Information is displayed as shown in the example.

Optimization Metrics Table Parameters

Table 46 describes the parameters that may be displayed in the optimization metrics table.

Table 46 Classes of Service

Parameter	Description
CBR	Constant Bit Rate
RT-VBR	Real Time Variable Bit Rate
NRT-VBR	Non-Real Time Variable Bit Rate
ABR	Available Bit Rate
UBR	Unspecified Bit Rate

Table 47 describes the values that may be assigned to the optimization parameters. These parameters are used to determine the path in the network for each Quality of Service.

Table 47 Optimization Values

Value	Description
0 - opt_admin_weight	Optimized Administrative Weight (assigned to each path in the network)
1 - opt_max_cr	Optimized Maximum Cell Rate
2 - opt_av_cr	Optimized Average Cell Rate
3 - opt_ctd	Optimized Cell Transfer Delay
4 - opt_ctv	Optimized Cell Transfer Variation
5 - opt_clr_clp0	Optimized Cell Loss Ratio objective for CLP=0 traffic.
6 - opt_clr_clp0+1	Optimized Cell Loss Ratio objective for CLP=0+1 traffic.

Example

Enter: **1 1 9 4 3 5 1**

The following information is displayed:

```
PNNI Optimization Metrics Table
 1.CBR    - 3 opt_ctd
 2.RT-VBR - 3 opt_ctd
 3.NRT-VBR- 3 opt_ctd
 4.ABR    - 2 opt_av_cr
 5.UBR    - 0 opt_admin_weight
Press ENTER to continue...
```

Set Optimization for CBR

Updates the Constant Bit Rate (CBR) optimization parameter. A change to the CBR optimization parameter takes place immediately.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (3) NCF: Node Configuration
     (5) OPT: Optimization Metrics
      (2) SOP: Set Optimization
               Metrics
        (1) OCR: Optimization for CBR
```

Enter a parameter at the prompt

Parameter	Format or Range
constant bit rate	0 - 6

Direct access sequence: **1 1 9 4 3 5 2 1** [parameters]

Command Result

System action taken: The CBR optimization parameter is displayed and is updated to its new value.

System message display: `Default value is <x>, new value is <y>.`

Example

Enter: **1 1 9 4 3 5 2 1 2**

The following message is displayed:

```
Default Value is ‘3 - opt_ctd’, New value is ‘2 - opt_av_cr’
Press ENTER to continue...
```

The value of the CBR optimization parameter is updated.

Set Optimization for RealTime-VBR

Updates the Real Time Variable Bit Rate (VBR) optimization parameter. A change to the RtVBR optimization parameter takes place immediately.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (3) NCF: Node Configuration
     (5) OPT: Optimization Metrics
      (2) SOP: Set Optimization
               Metrics
       (2) ORV: Optimization for
                RealTime-VBR
```

Enter a parameter at the prompt

Parameter	Format or Range
constant bit rate	0 - 6

Direct access sequence: **1 1 9 4 3 5 2 2** [parameters]

Command Result

System action taken: The real time VBR optimization parameter is displayed and is updated to its new value.

System message display:

```
Default value is <x>, new value is
<y>.
```

Example

Enter: **1 1 9 4 3 5 2 2 2**

The following message is displayed:

```
Default Value is ‘3 - opt_ctd’, New value is ‘2 - opt_av_cr’
Press ENTER to continue...
```

The value of the RealTime-VBR optimization parameter is updated.

Set Optimization for NonRealTime-VBR

Sets the Non Real Time Variable Bit Rate (VBR) optimization parameter. A change to the NrtVBR optimization parameter takes place immediately.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (3) NCF: Node Configuration
     (5) OPT: Optimization Metrics
      (2) SOP: Set Optimization
               Metrics
       (3) ONV: Optimization for
                 NonRealTime-VBR
```

Enter a parameter at the prompt

Parameter	Format or Range
constant bit rate	0 - 6

Direct access sequence: **1 1 9 4 3 5 2 3** [parameters]

Command Result

System action taken: The non real time VBR optimization parameter is displayed and is updated to its new value.

System message display: `Default value is <x>. New value is <y>.`

Example

Enter: **1 1 9 4 3 5 2 3 2**

The following message is displayed:

```
Default Value is '3 - opt_ctd', New value is '2 - opt_av_cr'
Press ENTER to continue...
```

The value of the NonRealTime-VBR optimization parameter is updated to 2.

Set Optimization for ABR

Updates the Available Bit Rate (ABR) optimization parameter. A change to the ABR optimization parameter takes place immediately.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (3) NCF: Node Configuration
     (5) OPT: Optimization Metrics
      (2) SOP: Set Optimization
               Metrics
       (4) OAR: Optimization for ABR
```

Enter a parameter at the prompt

Parameter	Format or Range
constant bit rate	0 - 6

Direct access sequence: **1 1 9 4 3 5 2 4** [parameters]

Command Result

System action taken: The ABR optimization parameter is displayed and is updated to its new value.

System message display: `Default value is <x>. New value is <y>.`

Example

Enter: **1 1 9 4 3 5 2 4 4**

The following message is displayed:

```
Default Value is ‘3 - opt_ctd’, New value is ‘4 - opt_ctv’
Press ENTER to continue...

The value of the ABR optimization parameter is updated to 4.
```

Set Optimization for UBR

Updates the Unspecified Bit Rate (UBR) optimization parameter. A change to the UBR optimization parameter takes place immediately.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (3) NCF: Node Configuration
     (5) OPT: Optimization Metrics
      (2) SOP: Set Optimization
               Metrics
       (5) OUR: Optimization for UBR
```

Enter a parameter at the prompt

Parameter	Format or Range
constant bit rate	0 - 6

Direct access sequence: **1 1 9 4 3 5 2 5** [parameters]

Command Result

System action taken: The UBR optimization parameter is displayed and is updated to its new value.

System message display: `Default value is <x>. New value is <y>.`

Example

Enter: **1 1 9 4 3 5 2 5 5**

The following message is displayed:

```
Default Value is ‘0 - opt_admin_weight’, New value is ‘5 -
opt_clr_clp0’
Press ENTER to continue...
```

The value of the UBR optimization parameter is updated to 5.

Set Optimization for All Classes to Default

Resets all the optimization parameters to their default values.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (3) NCF: Node Configuration
     (5) OPT: Optimization Metrics
      (2) SOP: Set Optimization
               Metrics
       (6) ODF: Set Optimization for
                 All Classes to Default
```

Enter a parameter at the prompt

Parameter	Format or Range
Confirm reset	**y** or **n**

Direct access sequence: **1 1 9 4 3 5 2 6**

Command Result

System action taken: All the optimization parameters are reset to their default values.

System message display:

```
All optimization metrics were set to
their defaults.
```

Example

Enter: **1 1 9 4 3 5 2 6 y**

The following message is displayed:

```
PNNI Node 1 of 1.
All optimization metrics were set to their defaults.
Press ENTER to continue...
```

Select Port for Interface Parameter Setting

Selects the port for which the interface parameters will be set.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (4) ICF: Interface Configuration
      (1) SPT: Select Port
```

Enter a parameter at the prompt

Parameter	Format or Range
port number	slot.subslot.port

Direct access sequence: **1 1 9 4 4 1** [parameters]

Command Result

System action taken: The specified port is set to the active port, ready for configuration

System message display:

```
Current port number is
<slot.subslot.port>
```

Example

Enter: **1 1 9 4 4 1 4.2.1**

The following message is displayed:

```
Current port number is 4.2.1
```

Setting Interface Parameters

The following commands allow you to set the different interface parameters in the network.

- Set Aggregation Token
- Set CBR Administrative Weight
- Set RtVBR Administrative Weight
- Set NrtVBR Administrative Weight
- Set ABR Administrative Weight
- Set UBR Administrative Weight
- Reset PNNI Interface Parameters to Default Values
- Reset All PNNI Interface Parameters to Default Values

Set Aggregation Token

Sets the aggregation token. The aggregation token is a number assigned to an outside link by the border nodes.

This option is currently not supported in this version.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (4) ICF: Interface Configuration
     (2) IPR: Interface Parameters
       (1) AGT: Aggregation Token
```

Enter a parameter at the prompt

Parameter	Format or Range
aggregation token	1 - 2147483647

Direct access sequence: **1 1 9 4 4 2 1** [parameters]

Command Result

System action taken: The aggregation token is updated to its new value.

System message display: `Default value is 0, new value is set to <n>`

Example

Enter: **1 1 9 4 4 2 1 50**

The following message is displayed:

```
Default value is 0, new value is set to 50
Press ENTER to continue...
```

Set CBR Administrative Weight

Sets the CBR Administrative Weight parameter. The CBR administrative weight is the administrative weight of this interface port for the constant bit rate service category.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (4) ICF: Interface Configuration
     (2) IPR: Interface Parameters
       (2) CBR: CBR Admin Weight
```

Enter a parameter at the prompt

Parameter	Format or Range
CBR admin weight	1 - 2147483647

Direct access sequence: **1 1 9 4 4 2 2** [parameters]

Command Result

System action taken: The CBR admin weight parameter is updated to its new value.

System message display:

```
Default value is 5040, new value is
set to <n>
```

Example

Enter: **1 1 9 4 4 2 2 6000**

The following message is displayed:

```
Default value is 5040, new value is set to 6000
Press ENTER to continue...
```

Set RtVBR Administrative Weight

Sets the RtVBR Administrative Weight parameter. The RtVBR administrative weight is the administrative weight of this interface port for the real-time variable bit rate service category.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (4) ICF: Interface Configuration
     (2) IPR: Interface Parameters
      (3) RVW: RtVBR Admin Weight
```

Enter a parameter at the prompt

Parameter	Format or Range
RtVBR admin weight	1 - 2147483647

Direct access sequence: **1 1 9 4 4 2 3** [parameters]

Command Result

System action taken: The RtVBR admin weight parameter is updated to its new value.

System message display: Default value is 5040, new value is set to <n>

Example

Enter: **1 1 9 4 4 2 3 10500**

The following message is displayed:

```
Default value is 5040, new value is set to 10500
Press ENTER to continue...
```

Set NrtVBR Administrative Weight

Sets the NrtVBR Administrative Weight parameter. The NrtVBR administrative weight is the administrative weight of this interface port for the non-real-time variable bit rate service category.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (4) ICF: Interface Configuration
     (2) IPR: Interface Parameters
      (4) NVW: NrtVBR Admin Weight
```

Enter a parameter at the prompt

Parameter	Format or Range
NrtVBR admin weight	1 - 2147483647

Direct access sequence: **1 1 9 4 4 2 4** [parameters]

Command Result

System action taken: The NrtVBR admin weight parameter is updated to its new value.

System message display:

```
Default Value is 5040, New value is
set to <n>.
```

Example

Enter: **1 1 9 4 4 2 4 6000**

The following message is displayed:

```
Default value is 5040, new value is set to 6000
Press ENTER to continue...
```

Set ABR Administrative Weight

Sets the ABR Administrative Weight parameter. The ABR administrative weight is the administrative weight of this interface port for the available bit rate service category.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (4) ICF: Interface Configuration
     (2) IPR: Interface Parameters
      (5) ABW: ABR Admin Weight
```

Enter a parameter at the prompt

Parameter	Format or Range
ABR admin weight	1 - 2147483647

Direct access sequence: **1 1 9 4 4 2 5** [parameters]

Command Result

System action taken: .The ABR admin weight parameter is updated to its new value.

System message display:

```
Default Value is 5040, New value is
set to <n>.
```

Example

Enter: **1 1 9 4 4 2 5 19000**

The following message is displayed:

```
Default value is 5040, new value is set to 19000
Press ENTER to continue...
```

Set UBR Administrative Weight

Sets the UBR Administrative Weight parameter. The UBR administrative weight is the administrative weight of this interface port for the unspecified bit rate service category.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (4) ICF: Interface Configuration
     (2) IPR: Interface Parameters
      (6) UBW: UBR Admin Weight
```

Enter a parameter at the prompt

Parameter	Format or Range
UBR admin weight	1 - 2147483647

Direct access sequence: **1 1 9 4 4 2 6** [parameters]

Command Result

System action taken: .The UBR admin weight parameter is updated to its new value.

System message display: `Default Value is 5040, New value is set to <n>.`

Example

Enter: **1 1 9 4 4 2 6 18000**

The following message is displayed:

```
Default value is 5040, new value is set to 19000
Press ENTER to continue...
```

Reset PNNI Interface Parameters to Default Values

Resets all the PNNI interface parameters for the specified interface port (as selected in the Select Port option) to their default values. The parameter reset takes place immediately. See "Select Port for Interface Parameter Setting" on page 383 for details.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (4) ICF: Interface Configuration
     (2) IPR: Interface Parameters
      (8) SDF: Set to Defaults
```

Enter a parameter at the prompt

Parameter	Format or Range
Confirm reset	**y** or **n**

Direct access sequence: **1 1 9 4 4 2 8**

Command Result

System action taken: The interface parameters for the specified port are set to their default values.

System message display:

```
Interface parameters were set to their
defaults.
```

Example

Enter: **1 1 9 4 4 2 7 y**

The following message is displayed:

```
Interface parameters were set to their defaults
Press ENTER to continue...
```

Reset All PNNI Interface Parameters to Default Values

Resets all the PNNI parameters for all interface ports to their default values. The parameter reset takes place immediately.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (4) ICF: Interface Configuration
     (3) SDF: Set all interface
              parameters to defaults
```

Enter a parameter at the prompt

Parameter	Format or Range
Confirm reset	**y** or **n**

Direct access sequence: **1 1 9 4 4 3**

Command Result

System action taken: All the parameters for all the interface ports are set to their default values.

System message display:

```
All PNNI interface parameters were set
to their defaults
```

Example

Enter: **1 1 9 4 4 3 y**

The following message is displayed:

```
All PNNI interface parameters were set to their defaults
```

Managing the Scope Mapping Table

The following commands allow you to manage the scope mapping table.

- View Scope Mapping Table
- Modify Scope Mapping Table
- Set Scope Mapping Table to Defaults

View Scope Mapping Table

Displays the scope mapping table on the screen.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (4) ICF: Interface Configuration
     (5) SMT: Scope Mapping Table
              Configuration
      (1) VST: View Scope Mapping
               Table
```

Direct access sequence: **1 1 9 4 4 5 1**

Command Result

System action taken: The scope mapping table is displayed on the screen.

System message display: Information is displayed as shown in the example.

Scope Mapping Table Parameters

Table 48 describes the parameters displayed in the scope mapping table.

Table 48 Scope Mapping Table Parameters

Parameter	Description	PNNI Scope Table Index Number
pnniScopeLocalNetwork	The highest level of PNNI hierarchy (i.e., smallest PNNI routing level) that lies within the organizational scope value localNetwork.	1
pnniScopeLocalNetworkPlusOne	The highest level of PNNI hierarchy (i.e. smallest PNNI routing level) that lies within the organizational scope value localNetworkPlusOne.	2

Table 48 Scope Mapping Table Parameters (continued)

Parameter	Description	PNNI Scope Table Index Number
pnniScopeLocalNetworkPlusTwo	The highest level of PNNI hierarchy (i.e. smallest PNNI routing level) that lies within the organizational scope value localNetworkPlusTwo.	3
pnniScopeSiteMinusOne	The highest level of PNNI hierarchy (i.e. smallest PNNI routing level) that lies within the organizational scope value siteMinusOne.	4
pnniScopeIntraSite	The highest level of PNNI hierarchy (i.e. smallest PNNI routing level) that lies within the organizational scope value intraSite.	5
pnniScopeSitePlusOne	The highest level of PNNI hierarchy (i.e. smallest PNNI routing level) that lies within the organizational scope value sitePlusOne.	6
pnniScopeOrganizationMinusOne	The highest level of PNNI hierarchy (i.e. smallest PNNI routing level) that lies within the organizational scope value organizationMinusOne.	7
pnniScopeIntraOrganization	The highest level of PNNI hierarchy (i.e. smallest PNNI routing level) that lies within the organizational scope value intraOrganization.	8
pnniScopeOrganizationPlusOne	The highest level of PNNI hierarchy (i.e. smallest PNNI routing level) that lies within the organizational scope value organizationPlusOne.	9
pnniScopeCommunityMinusOne	The highest level of PNNI hierarchy (i.e. smallest PNNI routing level) that lies within the organizational scope value communityMinusOne.	10
pnniScopeIntraCommunity	The highest level of PNNI hierarchy (i.e. smallest PNNI routing level) that lies within the organizational scope value intraCommunity.	11
pnniScopeCommunityPlusOne	The highest level of PNNI hierarchy (i.e. smallest PNNI routing level) that lies within the organizational scope value communityPlusOne.	12
pnniScopeRegional	The highest level of PNNI hierarchy (i.e. smallest PNNI routing level) that lies within the organizational scope value regional.	13
pnniScopeInterRegional	The highest level of PNNI hierarchy (i.e. smallest PNNI routing level) that lies within the organizational scope value interRegional.	14
pnniScopeGlobal	The highest level of PNNI hierarchy (i.e. smallest PNNI routing level) that lies within the organizational scope value global.	15

Example

Enter: **1 1 9 4 4 5 1**

The following information is displayed:

```
PNNI Scope Table
Index               Name              Pnni Level
  1     pnniScopeLocalNetwork             96
  2     pnniScopeLocalNetworkPlusOne      96
  3     pnniScopeLocalNetworkPlusTwo      96
  4     pnniScopeSiteMinusOne             80
  5     pnniScopeIntraSite                80
  6     pnniScopeSitePlusOne              72
  7     pnniScopeOrganizationMinusOne     72
  8     pnniScopeIntraOrganization        64
  9     pnniScopeOrganizationPlusOne      64
 10     pnniScopeCommunityMinusOne        64
 11     pnniScopeIntraCommunity           48
 12     pnniScopeCommunityPlusOne         48
 13     pnniScopeRegional                 32
 14     pnniScopeInterRegional            32
 15     pnniScopeGlobal                    0
Press ENTER to continue.....
```

Modify Scope Mapping Table

Modifies parameters in the scope mapping table. A change to the scope mapping table parameters takes place after the next reboot.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (4) ICF: Interface Configuration
     (5) SMT: Scope Mapping Table
              Configuration
       (2) MST: Modify Scope Mapping
                Table
```

Enter a parameter at the prompt

Parameter	Format or Range
Table index	1 to 15
PNNI level	0 to 104

Direct access sequence: **1 1 9 4 4 5 2**

Command Result

System action taken: The specified parameters are updated with the new values.

System message display: `PNNI Scope Mapping Table ROW NEW value`

Scope Mapping Table Parameters

Table 49 shows the scope mapping table parameters required by the command.

Table 49 Scope Mapping Table Parameters

Name	Description
Table Index #	The row number in the scope mapping table.
PNNI Level	The hierarchical level in the network structure.

Example

Enter: **1 1 9 4 4 5 2 15 32**

The following message is displayed:

```
PNNI Scope Mapping Table ROW new value
Index         Name              Pnni Level
 15     pnniScopeGlobal           32

Press ENTER to continue...
```

The hierarchical level of pnniScopeGlobal is updated to 32.

Set Scope Mapping Table to Defaults

Resets all the parameters of the scope mapping table to their default values. A change to the scope mapping table parameters takes place after the next reboot.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (4) ICF: Interface Configuration
     (5) SMT: Scope Mapping Table
              Configuration
       (3) SST: Set Scope Mapping Table
                to defaults
```

Enter a parameter at the prompt

Parameter	Format or Range
Confirm reset	**y** or **n**

Direct access sequence: **1 1 9 4 4 5 3**

Command Result

System action taken: The scope mapping table parameters are reset to their default values as defined in the PNNI specification af-pnni-0080_000.

System message display:

```
PNNI Scope Mapping Table is set to
default values
```

Example

Enter: **1 1 9 4 4 5 3**

The following prompt is displayed:

```
Set PNNI Scope Mapping Table to defaults (y/n)
Enter 'y' or 'Y', all other input keeps the old values
Y
```

The following message is displayed:

```
PNNI Scope Mapping Table is set to default values
Press ENTER to continue...
```

Configuring the Route Cache

The following commands allow you to set up the route cache parameters.

- Get Cache State
- Set Cache State
- Get Cache Refresh for ADD PARTY
- Set Cache State for ADD PARTY
- Get Max Number of Routes per Cache
- Set Max Number of Routes per Cache

Get Cache State

Display the current DTL cache state. The DTL cache state may be ENABLED or DISABLED. The default cache state is ENABLED.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (6) SCR: Set Route Cache (UBR)
              Configuration
      (1) GCS: Get Cache State
```

Direct access sequence: **1 1 9 4 6 1**

Command Result

System action taken: The current DTL cache state is displayed.

System message display:

```
PNNI Cache (for UBR) is
ENABLED/DISABLED.
Press ENTER to continue....
```

Example

Enter: **1 1 9 4 6 1**

The following message is displayed:

```
PNNI Cache (for UBR) is ENABLED.
Press ENTER to continue....
```

Set Cache State

Set the DTL cache state to ENABLED/DISABLED. The default cache state is ENABLED. If the cache is disabled, it is not refreshed and calls are not added to it. This means that for each incoming call, a new path will be recalculated. A change to the DTL cache state takes place immediately.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (6) SCR: Set Route Cache (UBR)
              Configuration
      (2) SCS: Set Cache State
```

Enter a parameter at the prompt

Parameter	Format or Range
Cache state	**0** - enable **1** - disable

Direct access sequence: **1 1 9 4 6 2**

Command Result

System action taken: The DTL cache state is updated to disabled/enabled.

System message display: `PNNI cache DISABLED/ENABLED.`

Example

Enter: **1 1 9 4 6 2 1**

The following message is displayed:

```
PNNI  cache ENABLED.
Press ENTER to continue...
```

Get Cache Refresh for ADD PARTY

Displays whether or not the last cache accumulated for a route (between the same source and any destination that has previously been accessed) will continue to be used when an ADD PARTY route is added.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (6) SCR: Set Route Cache (UBR)
              Configuration
     (3) GCS: Get Cache Refresh for
               ADD PARTY
```

Direct access sequence: **1 1 9 4 6 3**

Command Result

System action taken: The PNNI cache is updated/not updated when an ADD PARTY route is calculated.

System message display:

```
Save/Drop PNNI cache - when ADD PARTY
route is calculated.
```

Example

Enter: **1 1 9 4 6 3**

The following message is displayed:

```
Save PNNI cache - when ADD PARTY route is calculated.
```

Set Cache State for ADD PARTY

Determines whether or not the last cache accumulated for a route (between a specific source and any destination that has previously been accessed) will continue to be used when an ADD PARTY route is added (Save) or will be reinitialized (Drop). The default cache state for ADD PARTY is Save. If the cache refresh is dropped, all caches for recently calculated routes will be reinitialized. A change to the cache refresh status takes place immediately.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (6) SCR: Set Route Cache (UBR)
              Configuration
     (4) GCS: Set Cache Refresh for
               ADD PARTY
```

Enter a parameter at the prompt

Parameter	Format or Range
Include Add Party Route	**0** - save **1** - drop

Direct access sequence: **1 11 1 9 10 4 6 4**

Command Result

System action taken: The PNNI cache is updated/not updated when an ADD PARTY route is calculated.

System message display:

```
Save/Drop PNNI cache - when ADD PARTY
route is calculated.
```

Example

Enter: **1 1 9 4 6 4 1**

The following message is displayed:

```
Drop Cache after ADD PARTY route calculation.
Press ENTER to continue...
```

Get Max Number of Routes per Cache

Displays the number of calls that can pass between a specific source and any destination that has previously been accessed using the same route. After this number of calls, the cache will be refreshed.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (6) SCR: Set Route Cache (UBR)
              Configuration
     (5) GMN: Get Max Number of Routes
               per Cache
```

Direct access sequence: **1 1 9 4 6 5**

Command Result

System action taken: The number of calls that can pass between a specific source and any destination node using the same route is displayed.

System message display:

```
Num of calls to refresh the DTL cache
is <n>
```

Example

Enter: **1 1 9 4 6 5**

The following message is displayed:

```
Num of calls to refresh the DTL cache is 40
Press ENTER to continue...
```

Set Max Number of Routes per Cache

Sets the number of calls that can pass between a specific source and any destination node that has previously been accessed using the same route. After this number of calls, the cache will be refreshed. The default number of calls is 40. A change to the number of calls takes place immediately.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (6) SCR: Set Route Cache (UBR)
             Configuration
      (6) SMN: Set Max Number of Routes
               per Cache
```

Enter a parameter at the prompt

Parameter	Format or Range
Num of Calls	`1 - 1000`

Direct access sequence: **`1 1 9 4 6 6`** [parameters]

Command Result

System action taken: The number of calls that can pass between a specific source and any destination node using the same route is updated.

System message display:

```
Num of calls to refresh the DTL cache
is <n>
```

Example

Enter: **`1 1 9 4 6 6 50`**

The following message is displayed:

```
Num of calls to refresh the DTL cache is 50
Press ENTER to continue...
```

Showing PNNI Information

The following commands allow you to display PTSE and other PNNI information.

- Display All PTSEs in Database
- Display PTSE Node Information
- Display Topology Link Information
- Display Summary Address Table
- Display Node Address Information
- Display Peer Group Neighbor Information
- Display Statistics Information

Display All PTSEs in Database

Displays all types of PTSE messages stored in the topology database. For more information on topology databases, see "Organizing a Network Hierarchy" on page 183 in the Operations Guide.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (7) SHO: Show PNNI information
      (1) ALL: All PTSEs in database
```

Direct access sequence: **1 1 9 4 7 1**

Command Result

System action taken: All PTSE messages in the database are displayed.

System message display: Information is displayed as shown in the example.

PTSE Table Parameters

Table 50 through Table 56 describe the parameters displayed in the PTSE table. For clarity, the information has been divided into different sections:

Table 50 PTSE Table Parameters - PTSE Section

Parameter	Description
Level #	Hierarchical level.
Node #	The number of the node.
Node Id	The node id in hex (22 bytes).
ATM Address	The ATM address of the node (19 bytes).
MAC Address	The MAC address of the node (6 bytes)
PTSE Id.	The PTSE id.
Length	The length of the PTSE in bytes.
Type	PTSE type. This may be one of the following: 96 - Nodal state parameters 97 - Nodal information group 224 - Internal reachable ATM addresses 256 - Exterior reachable ATM addresses 288 - Horizontal links 289 - Uplinks 640 - System Capabilities
Seq. no.	PTSE sequence number.
CkSum	Checksum. The PTSE checksum includes the logical node ID and the Originating Node's Peer Group ID from the PTSP header as well as the entire contents of the PTSE (including the PTSE header), and excludes the PTSE remaining lifetime.
Lifetime	The remaining lifetime of the PTSE (in tenths of a second)
Description	A brief description of the type of PTSE. See the Type parameter above for the full list of types.

Table 51 PTSE Table Parameters - Node Topology Link Section

Parameter	Description
Node #	The number of the node.
Node Id	The node id in hex.
ATM Address	The ATM address of the node.
MAC Address	The MAC address of the node.

Table 51 PTSE Table Parameters - Node Topology Link Section (continued)

Parameter	Description
Local Port	The number of the local port that connects to the remote port.
Remote Port	The number of the remote port that connects to the local port.
Remote Node	The node ID of the remote port.

Table 52 PTSE Table Parameters - Node Address Section

Parameter	Description
Address prefix	The address of node within the peer group.
Length	The number of significant bits of the ATM address that are used for route calculation.
Node	The address of the node that originated the PTSE.

Table 53 PTSE Table Parameters - Peer Group Neighbor Table Section

Parameter	Description
Remote Node Id	The node ID of the remote port.
State	The operational status of the link between the two neighbor nodes. The state may be: Full, Up, Down, Negotiating, Exchanging, Loading or Unknown.
Port Count	The number of ports via which two neighbors connect.

Table 54 PTSE Table Parameters - Summary Address Table Section

Parameter	Description
SNMP Node Index	The node index.
Internal Summaries Address	The reachable address prefix for all nodes in a specified peer group.
Length	The number of significant bits of the specific summary ATM address that are used for route calculation.
Supp	Indicates whether or not to suppress the address. No propagates the address to the peer group, Yes does not advertise the address.
State	Indicates whether or not the summary address is currently being advertised to the peer group. The state may be: Advertising, Suppressing or Inactive.

Table 55 PTSE Table Parameters - Statistics Section

Parameter	Description
DTL Count Originator	The total number of DTL stacks that this switching system has originated and placed into signaling messages. This value includes the number of alternate route DTL stacks (see Alternate DTL Count Originator below).
Crankback Count Originator	The total number of connection setup messages including DTL stacks originated by this switching system that have cranked back to this switching system at all levels of the hierarchy.
Alternate DTL Count Originator	The number of alternate route DTL stacks computed by this switching system in response to crankbacks.
Route Fail Count Originator	The total number of times that the switching system failed to compute a viable partial DTL stack as an entry border node for some call. It indicates the number of times a call was either cleared or cranked back from this switching system due to border routing failure.
Route Fail Unreachable Originator	The total number of times where the switching system failed to compute a viable DTL stack as the destination was unreachable.

Example

Enter: **1 1 9 4 7 1**

The following information is displayed:

```
Level: 72 ---------------------->

Node #   1 Id= 48a0:47:00000000003c000000000000.00c0da600047.ff
PTSE_Id  Length Type Seq. no. CkSum Lifetime Description
1        68     97   1        95ae  35780    Nodal Inform.
4        92     288  1        39a7  35850    Horizont.Link
34       76     224  2        c05d  35790    Int.Reach.Addr

Topology :

Node #   1 Id= 48a0:47:00000000003c000000000000.00c0da600047.ff
  LocPort  RemPort  Remote node
       3        1  48a0:47:00000000003c000002000000.00c0da000004.ff

Address prefixes:
Address                                  Length  Node
47:00000000003c000000000000.               104  48a0:47:00000000003c0000000
47:00000000003c00000000eeee.               104  48a0:47:00000000003c0000000
47:00000000003c000002000000.               104  48a0:47:00000000003c0000020
47:00000000003c000003000000.               104  48a0:47:00000000003c0000030

NeighbourPeerTable:
RemoteNodeId                                        State       PortCount
48a0:47:00000000003c00000000eeee.00c0da000001.ff Full        2
48a0:47:00000000003c000002000000.00c0da000004.ff Full        1

Summary Address Table
Enter X<Enter> -> Exit, C<Enter> -> Continuous print, <Enter> -> Next scre
 SNMP Node Index = 1
 Internal Summaries
   Address                                  Len Supp State
   4700000000003c000000000000..... 104 No   Advertise
End of Summary Address Table

Statistics:

DTL     Count       Originator =        0
CrankBack   Count   Originator =        0
Alternate DTL Count Originator =        0
Route  Fail  Count  Originator =        0
RouteFail UnreachabeOriginator =        0
```

Display PTSE Node Information

Displays PTSE information for each node stored in the topology database.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (7) SHO: Show PNNI information
     (2) NOD: Node PTSEs
```

Direct access sequence: **1 1 9 4 7 2**

Command Result

System action taken: All PTSE information for each node stored in the database is displayed.

System message display: Information is displayed as shown in the example.

Node PTSE Table Parameters

For a full description of all the parameters displayed in the node information table, see Table 50: PTSE Table Parameters - PTSE Section.

Example

Enter: **1 1 9 4 7 2**

The following information is displayed:

```
Level: 72 ---------------------->
Node #   1 Id= 48a0:47:00000000003c000000000000.00c0da600047.ff
 PTSE_Id  Length Type Seq. no. CkSum Lifetime Description
 1        68     97   2        95ad  35780    Nodal Inform.
 2        92     288  1        4dbe  35914    Horizont.Link
 3        92     288  1        4dbb  35914    Horizont.Link
 4        92     288  1        39a7  35612    Horizont.Link
 34       76     224  2        c05d  35552    Int.Reach.Addr

Node #   2 Id= 48a0:47:00000000003c00000000eeee.00c0da000001.ff
 PTSE_Id  Length Type Seq. no. CkSum Lifetime Description
 1        68     97   2        03d1  35771    Nodal Inform.
 2        92     288  1        4dbe  35861    Horizont.Link
 3        92     288  1        4dbb  35861    Horizont.Link
 4        92     288  1        f2b7  35759    Horizont.Link
 5        92     288  1        f1b4  35584    Horizont.Link
 34       76     224  2        8880  35513    Int.Reach.Addr

Node #   3 Id= 48a0:47:00000000003c000002000000.00c0da000004.ff
 PTSE_Id  Length Type Seq. no. CkSum Lifetime Description
 1        68     97   2        dbaa  35721    Nodal Inform.
 2        92     288  1        39a9  35550    Horizont.Link
 3        92     288  1        dea5  35648    Horizont.Link
 34       76     224  2        615c  35528    Int.Reach.Addr

Node #   4 Id= 48a0:47:00000000003c000003000000.00c0da000002.ff
 PTSE_Id  Length Type Seq. no. CkSum Lifetime Description
 1        68     97   2        dfa8  35791    Nodal Inform.
 2        92     288  1        f2b9  35624    Horizont.Link
 3        92     288  1        dea5  35671    Horizont.Link
 34       76     224  2        625b  35514    Int.Reach.Addr

Node #   5 Id= 48a0:47:00000000003c000004000000.00c0da000003.ff
 PTSE_Id  Length Type Seq. no. CkSum Lifetime Description
 1        68     97   2        dda6  35850    Nodal Inform.
 2        92     288  1        f1b7  35665    Horizont.Link
 34       52     224  1        37f4  35514    Int.Reach.Addr
```

Display Topology Link Information

Displays all links for each node whose information is stored in the topology database.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (7) SHO: Show PNNI information
     (3) TOP: Topology (Link) PTSEs
```

Direct access sequence: **1 1 9 4 7 3**

Command Result

System action taken: All links for each node whose information is stored in the database are displayed.

System message display: Information is displayed as shown in the example.

Topology Link PTSE Table Parameters

For a full description of all the parameters displayed in the node information table, see Table 51: PTSE Table Parameters - Node Topology Link Section.

Example

Enter: **1 1 9 4 7 3**

The following information is displayed:

```
Level: 72 ---------------------->
Topology :

Node #   1 Id= 48a0:47:00000000003c000000000000.00c0da600047.ff
  LocPort  RemPort  Remote node
       1        1  48a0:47:00000000003c00000000eeee.00c0da000001.ff
       2        2  48a0:47:00000000003c00000000eeee.00c0da000001.ff
       3        1  48a0:47:00000000003c000002000000.00c0da000004.ff

Node #   2 Id= 48a0:47:00000000003c00000000eeee.00c0da000001.ff
  LocPort  RemPort  Remote node
       1        1  48a0:47:00000000003c000000000000.00c0da600047.ff
       2        2  48a0:47:00000000003c000000000000.00c0da600047.ff
       3        1  48a0:47:00000000003c000003000000.00c0da000002.ff
       4        1  48a0:47:00000000003c000004000000.00c0da000003.ff

Node #   3 Id= 48a0:47:00000000003c000002000000.00c0da000004.ff
  LocPort  RemPort  Remote node
       1        3  48a0:47:00000000003c000000000000.00c0da600047.ff
       2        2  48a0:47:00000000003c000003000000.00c0da000002.ff

Node #   4 Id= 48a0:47:00000000003c000003000000.00c0da000002.ff
 LocPort  RemPort  Remote node
       1        3  48a0:47:00000000003c00000000eeee.00c0da000001.ff
       2        2  48a0:47:00000000003c000002000000.00c0da000004.ff

Node #   5 Id= 48a0:47:00000000003c000004000000.00c0da000003.ff
  LocPort  RemPort  Remote node
  1        4  48a0:47:00000000003c00000000eeee.00c0da000001.ff
```

Display Summary Address Table

Displays the summary address table stored in the topology database.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (7) SHO: Show PNNI information
     (4) SAT: Summary Address Table
```

Direct access sequence: **1 1 9 4 7 4**

Command Result

System action taken: The summary address table stored in the database is displayed.

System message display: Information is displayed as shown in the example.

Summary Address Table Parameters

For a full description of all the parameters displayed in the node information table, see Table 54: PTSE Table Parameters - Summary Address Table Section.

Example

Enter: **1 1 9 4 7 4**

The following information is displayed:

```
Level: 72 ---------------------->
Summary Address Table
SNMP Node Index = 1
 Internal Summaries
  Address                                 Len Supp State
  4700000000003c000000000000............. 104 No   Advertise
End of Summary Address Table
```

Display Node Address Information

Displays all ATM addresses that are used for route calculation of each node about which information is stored in the topology database.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (7) SHO: Show PNNI information
     (5) ADD: Address PTSEs
```

Direct access sequence: **1 1 9 4 7 5**

Command Result

System action taken: The address information for each node in the database is displayed.

System message display: Information is displayed as shown in the example.

Node Address PTSE Table Parameters

For a full description of all the parameters displayed in the node address information table, see Table 52: PTSE Table Parameters - Node Address Section.

Example

Enter: **1 1 9 4 7 5**

The following information is displayed:

```
Address prefixes:
Address                                      Length  Node
47:00000000003c000000000000.                   104  48a0:47:00000000003c0000000
47:00000000003c00000000eeee.                   104  48a0:47:00000000003c0000000
47:00000000003c000002000000.                   104  48a0:47:00000000003c0000020
47:00000000003c000003000000.                   104  48a0:47:00000000003c0000030
47:00000000003c000004000000.                   104  48a0:47:00000000003c0000040
47:00790000000000000000000.00a03e000001  152  48a0:47:00000000003c00000

47:00790000000000000000000.00a03e000001   152  48a0:47:00000000003c00000
47:00790000000000000000000.00a03e000001   152  48a0:47:00000000003c00000
47:00790000000000000000000.00a03e000001   152  48a0:47:00000000003c00000
```

Display PGL Election Information

Displays information on the peer group leader election. The default peer group leadership priority is 0 and cannot be changed for this version. Therefore, in this version, a node cannot be defined as a Peer Group Leader.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (7) SHO: Show PNNI information
     (6) PGL: PGL Election
```

Direct access sequence: **1 1 9 4 7 6**

Command Result

System action taken: Peer Group Leader information is displayed.

System message display: Information is displayed as shown in the example.

Peer Group Leader Table Parameters

Table 56 describes the parameters displayed in the Peer Group Leader table.

Table 56 Peer Group Leader Table Parameters

Parameter	Description
PGL Leadership Priority	The priority of the local node.
Peer Group Leader	The node ID of the peer group leader.
Preferred PGL	The node ID of the preferred PGL.

Example

Enter: **1 1 9 4 7 6**

The following information is displayed:

```
Level: 72 ---------------------->
PGL Information:
PGL Leadership Priority = 0
PeerGroupLeader = 0000:00:000000000000000000000000.000000000000.00
Preferred   PGL = 0000:00:000000000000000000000000.000000000000.00
```

Display Peer Group Neighbor Information

Displays information on the peer group neighbors.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (7) SHO: Show PNNI information
     (7) NBR: Neighbors
```

Direct access sequence: **1 1 9 4 7 7**

Command Result

System action taken: Peer Group Neighbor information is displayed.

System message display: Information is displayed as shown in the example.

Peer Group Neighbor Table Parameters

For a full description of all the parameters displayed in the peer group neighbor table, see Table 53: PTSE Table Parameters - Peer Group Neighbor Table Section.

Example

Enter: **1 1 9 4 7 7**

The following information is displayed:

```
NeighbourPeerTable:
RemoteNodeId                                      State       PortCount
48a0:47:00000000003c00000000eeee.00c0da000001.ff Full        2
48a0:47:00000000003c000002000000.00c0da000004.ff Full        1
```

Display Statistics Information

Displays statistical information about network events that occur when the node is up.

Command Actions

Enter menu sequence:

```
(1) SYS: Platform Configuration
 (1) SET: Switch setup
  (9) PNI: PNNI Setup
   (4) CFP: Configure PNNI
    (7) SHO: Show PNNI information
     (8) STA: Statistics
```

Direct access sequence: **1 1 9 4 7 8**

Command Result

System action taken: Statistical information is displayed.

System message display: Information is displayed as shown in the example.

Statistics Table Parameters

For a full description of all the parameters displayed in the statistics table, see Table 55: PTSE Table Parameters - Statistics Section.

Example

Enter: **1 1 9 4 7 8**

The following information is displayed:

```
Level: 72 ---------------------->
Statistics:

DTL     Count       Originator =        0
CrankBack   Count   Originator =        0
Alternate DTL Count Originator =        0
Route  Fail  Count  Originator =        0
RouteFail UnreachabeOriginator =        0
```

A ATM SWITCH FABRIC MODULE SPECIFICATIONS

Physical

Table 57 ATM Switch Fabric Module Specifications

Specification	Metric	Imperial
Height	38.8 cm	15.3 in.
Width	3.81 cm	1.5 in.
Depth	32.7 cm	12.8 in.
Weight	1700 g	3.74 lb

Environmental

Table 58 Environmental Specifications

Specification	Metric	Imperial
Operating Temperature	0 °C to 40 °C	32 to 104 °F
Operating Humidity	10% to 90% noncondensing	
Storage Temperature	-20 °C to 70 °C	-4 to 163 °F
Storage Humidity	95% maximum relative humidity noncondensing	

Safety

Table 59 Safety Specifications

Specification	Standard
Agency Certifications	■ UL 1950, CSA 22.2 No. 1950, EN 60950, IEC 825-1 825-2, PCB UL 94V-0, ANSI / IPC-RB-276 class 2
Designed to Comply with	■ VDE 0871 part 2 class A, EN 55022
AC Protection	■ 20 amp circuit breaker

Electromagnetic Compatibility

Table 60 Electromagnetic Compatibility

Specification	Standard
■ Meets FCC part 15 Subparagraph B, Class A limits.	
■ Directive complied with: EMC 89/336/EEC as amended by 92/31/EEC and 93/68/EEC.	
■ Emission	EN50081-1 (EN55022)
■ Immunity	EM50082-1 (IEC801-2,-3,-4)

Standards Supported

Table 61 Standards Supported

SNMP	ATM
■ MIB II (RFC 1213)	■ Signalling - UNI 3.0/3.1
■ AToM MIB (RFC 1695)	■ ILMI - UNI 3.0/3.1
■ AToM 2 (Circuit Statistics)	■ PNNI - IISP
■ Private chassis MIB	■ LE 1.0

CoreBuilder Management and Interface LEDs

Table 62 CoreBuilder Management and Interface LEDs

Switch Fabric Module
■ Module Status indication (Green/Yellow)
■ Primary/Secondary SWM indication (Green)
■ PCMCIA Card status (Green)
■ Control port status - RS-232 (Green/Yellow)

CoreBuilder Management and Interface Connectors

Table 63 CoreBuilder Management and Interface Connectors

Management
■ Management - PCMCIA
■ Control - RS-232 - 9-pin D-type standard DTE

B

MENU INDEX

The following table shows where to find the description of each menu action in the following chapters. The index has the same structure as the menu hierarchy. Clicking on the page number in the "Mgmt Guide" column takes you to the command description. Clicking on the page number in the "Ops Guide" column takes you to a theoretical description of topics related to the command. Not every command has a corresponding theoretical description.

Table 64 Menu Index

Command Title	Direct Access Sequence	Mgmt Guide (page #)	Ops Guide (chapter #)
Password Setup			
Update read access password	1 1 1 1	51	10
Set write access password	1 1 1 2	52	10
Set admin. password	1 1 1 3	53	10
Set password configuration to factory defaults	1 1 1 4	54	10
Management Setup			
Get IP address	1 1 2 1 1	56	10
Set & save IP address	1 1 2 1 2	57	10
Get NMS address	1 1 2 2 1	58	10
Set & save NMS address	1 1 2 2 2	60	10
Get default gateway	1 1 2 3 1	60	10
Set default gateway	1 1 2 3 2	61	10

Table 64 Menu Index (continued)

Command Title	Direct Access Sequence	Mgmt Guide (page #)	Ops Guide (chapter #)
Get subnet mask	1 1 2 4 1	62	10
Set subnet mask	1 1 2 4 2	63	10
Get read community string	1 1 2 5 1	64	10
Set read community string	1 1 2 5 2	65	10
Get write community string	1 1 2 6 1	66	10
Set write community string	1 1 2 6 2	67	10
Get Ethernet type	1 1 2 7 1	68	10
Set Ethernet type	1 1 2 7 2	69	10
Set management configuration to factory default	1 1 2 8	70	10
NNI Setup			
NNI Get maximum number of hops	1 1 3 1	164	6
NNI Set maximum number of hops	1 1 3 2	165	6
NNI Get interface type	1 1 3 3	72	4
NNI Set interface type	1 1 3 4	75	4
Set NNI configuration to factory defaults	1 1 3 5	76	4
Timer Resolution Setup			
Get timer resolution	1 1 4 1 1	180	6
Set timer resolution	1 1 4 1 2	182	6
Signaling Setup			
Get Signaling Q93B timers	1 1 4 2	183	6
Get VPI/VCI range	1 1 4 3 1	167	6
Set VPI/VCI range	1 1 4 3 2	169	6
Get Signaling QSAAL Configuration setup	1 1 4 4	185	6

Table 64 Menu Index (continued)

Command Title	Direct Access Sequence	Mgmt Guide (page #)	Ops Guide (chapter #)
Get profiles of ports	1 1 4 5 1	171	10
Set profile of port	1 1 4 5 2	173	10
Get protocol version	1 1 4 5 3	174	6
Set protocol version	1 1 4 5 4	176	6
Get call proceeding value	1 1 4 6 1	177	6
Set call proceeding value	1 1 4 6 2	178	6
Set signaling configuration to factory defaults	1 1 4 7	179	6
LANE commands			
Show LE services status	1 1 5 1 1	211	8
Enable services	1 1 5 1 2	212	8
Disable LE services	1 1 5 1 3	213	8
Show LECS status	1 1 5 2 1	214	8
Enable LECS services	1 1 5 2 2	215	8
Disable and save LECS services	1 1 5 2 3	216	8
Get active LECS ATM addr	1 1 5 2 4	105	8
Set active LECS ATM addr	1 1 5 2 5	106	8
Display LECS ordered list	1 1 5 3 1	218	8
Add to LECS ordered list	1 1 5 3 2	219	8
Delete from LECS ordered list	1 1 5 3 3	220	8
Show LES redundancy params	1 1 5 4 1	221	8
Change LE service redundancy mode	1 1 5 4 2	222	8
Set LE service redundancy startup delay	1 1 5 4 3	223	8

Table 64 Menu Index (continued)

Command Title	Direct Access Sequence	Mgmt Guide (page #)	Ops Guide (chapter #)
Switch Network Prefix Setup			
Get network prefix	1 1 6 1	137	5
ILMI Setup			
Get ILMI version	1 1 8 1 1	112	4
Set & save ILMI version	1 1 8 1 2	113	4
Get auto-configuration ON/OFF status	1 1 8 2 1	114	4
Set auto-configuration ON/OFF status	1 1 8 2 2	115	4
Get auto-discovery ON/OFF status	1 1 8 3 1	116	4
Set & save auto-discovery ON/OFF status	1 1 8 3 2	117	4
Get LECS via ILMI ON/OFF status	1 1 8 4 1	118	4
Set LECS via ILMI ON/OFF status	1 1 8 4 2	119	4
Get polling status	1 1 8 5 1	120	4
Set & save polling status	1 1 8 5 2	121	4
Get polling timeout	1 1 8 5 3	122	4
Set polling timeout	1 1 8 5 4	123	4
Flash Setup			
Reset config to default	1 2 1	77	
Reset all except IP addresses to default	1 2 2	78	
Display TFTP download status	1 3 1	79	*
Perform TFTP software download	1 3 2	81	*
Prepare for local RS232 download	1 3 3	82	*
Perform TFTP configuration upload	1 3 4	83	*
Perform TFTP configuration download	1 3 5	84	*

Table 64 Menu Index (continued)

Command Title	Direct Access Sequence	Mgmt Guide (page #)	Ops Guide (chapter #)
Switch Module Setup			
Display switch status	1 4 1	86	11
Reset switch	1 4 2	88	11
Reset standby switch module	1 4 3 1	89	11
Standby in-service/suspended	1 4 3 2	90	11
Upgrade software files	1 4 3 3 1	91	*
Interface Cards			
Get interface card info	1 5 1	92	
Set port frame mode	1 5 3	96	
Set port clock mode	1 5 4	97	
Set loop mode	1 5 5	98	
Reset interface card	1 5 6	99	
Configuration flash status	1 6	102	
Reboot	1 7	101	
Switch Clock Synchronization Setup			
Get clock source status	1 8 1	107	
Set external clock source 1	1 8 2	108	
Set external clock source 2	1 8 3	109	
Set clock source to internal	1 8 4	110	
LECS Operations			
Get resident LECS address	2 1 1	244	8
Set resident LECS address	2 1 2	245	8
LECS get policy	2 1 3	246	8

Table 64 Menu Index (continued)

Command Title	Direct Access Sequence	Mgmt Guide (page #)	Ops Guide (chapter #)
LECS ELAN Database Operations			
Display all ELANs	2 1 5 1	249	8
Display elan type & params	2 1 5 2	250	8
Edit elan type & params	2 1 5 3	251	8
Display all mac addresses	2 1 5 4 1	253	8
Delete mac address	2 1 5 4 2	254	8
Add new MAC address	2 1 5 4 3	255	8
Display all ATM addresses	2 1 5 5 1	256	8
Delete ATM address	2 1 5 5 2	257	8
Add new ATM address	2 1 5 5 3	258	8
Add new elan record	2 1 5 6	259	8
Delete elan record	2 1 5 7	261	8
Edit segment id (C23, for TR only)	2 1 5 8	262	8
LAN Emulation Service Redundancy			
Add redundant LES to ELAN	2 1 5 9 1	269	8
Delete redundant LES	2 1 5 9 2	270	8
Force ELAN to primary	2 1 5 9 3	271	8
Display redundant ELANs general info	2 1 5 9 4	273	8
Display redundant ELANs specific info	2 1 5 9 5	275	8
Display redundant LES general info	2 1 5 9 6	277	8
Display redundant LES specific info	2 1 5 9 7	278	8
LECS Operations			
LECS statistics	2 1 6	263	8
Reset LECS	2 1 7	265	8

Table 64 Menu Index (continued)

Command Title	Direct Access Sequence	Mgmt Guide (page #)	Ops Guide (chapter #)
Get LECS maximum connection number	2 1 8 1	266	8
Set maximum connection number	2 1 8 2	267	8
LAN Emulation Services			
LES-BUS address	2 2 1	280	8
ELANs general info	2 2 2	283	8
LES Setup			
Set & save LES-BUS address	2 2 3 1 1	282	8
Get response policy	2 2 3 1 2	288	8
Set & save response policy	2 2 3 1 3	290	8
Get LE arp policy	2 2 3 1 4	291	8
Set & save LE arp policy	2 2 3 1 5	292	8
Get arp policy for non reg RD	2 2 3 1 6	294	8
Set arp policy for non reg RD	2 2 3 1 7	296	8
Reset saved configuration	2 2 3 1 8	297	8
Get LANE multicast fwd delay	2 2 3 1 9	298	8
Set LANE multicast fwd delay	2 2 3 1 10	299	8
Clients info	2 2 3 2	300	8
Clients MAC addresses	2 2 3 3	302	8
LANE Statistics			
General LE statistics	2 2 3 4 1	304	8
LEC statistics	2 2 3 4 2	306	8
Reset general LE statistics	2 2 3 4 3	308	8
Multicast addresses	2 2 3 5	309	8

Table 64 Menu Index (continued)

Command Title	Direct Access Sequence	Mgmt Guide (page #)	Ops Guide (chapter #)
Destroy specific LEC	2 2 3 6	310	8
LES edit elans parameters	2 2 4	286	8
LES restart ELAN	2 2 5	311	8
LANE Security Configuration			
Get elan default behavior	2 3 1 1	314	8
Set elan default behavior	2 3 1 2	315	8
Display elan security table	2 3 2 1	316	8
Delete elan security table	2 3 2 2	318	8
Add currently connected LECs	2 3 2 3	319	8
Add a new security entry	2 3 2 4	320	8
Edit a security entry	2 3 2 5	321	8
Delete a security entry	2 3 2 6	322	8
Perform a security check	2 3 2 7	323	8
Get switch security state	2 3 3 1	324	8
Set switch security state	2 3 3 2	325	8
Save security configuration	2 3 4	326	8
Restore security configuration	2 3 5	327	8
LANE Version of Switch			
Get switch lane version	2 4 1	224	8
Set switch lane version	2 4 2	225	8
MPOA Devices Configuration			
Display current config	2 5 1 1	226	8

Table 64 Menu Index (continued)

Command Title	Direct Access Sequence	Mgmt Guide (page #)	Ops Guide (chapter #)
Set keep-alive time	2 5 1 2	228	8
Set keep-alive lifetime	2 5 1 3	229	8
Set internetwork-layer protocols	2 5 1 4	230	8
Set initial retry time	2 5 1 5	231	8
Set retry time maximum	2 5 1 6	232	8
Set give-up time	2 5 1 7	233	8
Set default holding time	2 5 1 8	234	8
Display current configuration	2 5 2 1	235	8
Set shortcut-setup frame count	2 5 2 2	237	8
Set shortcut-setup frame time	2 5 2 3	238	8
Set flow detection protocols	2 5 2 4	239	8
Set initial retry time	2 5 2 5	240	8
Set retry time maximum	2 5 2 6	241	8
Set hold down time	2 5 2 7	242	8
Connections			
Get UME addresses at port	3 1 1	124	4
Get static and NNI addresses at port	3 1 2	128	4
Get not active registered ATM addresses at port	3 1 3	130	4
Calls	3 2 1	140	6
UME addresses	3 3 1	145	6
Static addresses	3 3 2	148	6
Not active addresses	3 3 3	150	6

Table 64 Menu Index (continued)

Command Title	Direct Access Sequence	Mgmt Guide (page #)	Ops Guide (chapter #)
PVC Operations			
Display VPI/VCI limits	3 4 1 1	151	6
Create full PVC call	3 4 1 2	153	6
Create PVC call	3 4 1 3	156	6
Create out VC in call	3 4 1 4	157	6
Release PVC call	3 4 1 5	158	6
Release out VC from call	3 4 1 6	159	6
Display PVCs	3 4 1 7	161	6
Delete all inactive PVCs	3 4 1 8	162	6
Delete all PVCs of port	3 4 1 9	163	6
Delete all ATM addresses of port	3 4 2 1	132	6
Add ATM address	3 4 2 2	133	6
Delete ATM address	3 4 2 3	134	6
Get ATM addresses at port	3 4 2 4	135	6
Delete all inactive addresses	3 4 2 5	136	6
Statistics			
Get physical layer counters	4 1 1	190	7
Reset phys layer counters	4 1 2	192	7
Get SVC/PVC total calls	4 2 1	193	7
Get counters per port	4 2 2	195	7
Get counters per VPI/VCI	4 2 3	196	7
Reset counters per port	4 2 4	197	7
Reset counters per VPI/VCI	4 2 5	198	7

Table 64 Menu Index (continued)

Command Title	Direct Access Sequence	Mgmt Guide (page #)	Ops Guide (chapter #)
AAL5 Layer			
Get AAL & SAR counters	4 3 1	199	7
Reset AAL & SAR counters	4 3 2	201	7
Control Frames			
Get control frames counters	4 4 1	202	7
Reset control frames counters	4 4 2	204	7
Get signaling counters	4 5 1	205	7
Reset signaling counters	4 5 2	207	7
General Operations			
Display ATM features	6	103	
Logout	7	100	
Version	8	104	
Fast setup	9		
Debug	10		

* See the CoreBuilder 9000 ATM Switch Fabric Module Getting Started Guide

Table 65 PNNI Commands (Extended Version Only)

Command Title	Direct Access Sequence	Mgmt Guide (page #)	Ops Guide (chapter #)
PNNI Commands			
View PNNI/EIISP state	1 1 9 1	330	13
Node Configuration			
Get number of nodes	1 1 9 4 1 1	332	13
Get enh. E.164 address support state	1 1 9 4 2 1	333	13
Set & save enhanced E.164 addr support state	1 1 9 4 2 2	334	13
Node Characteristics			
Get node index	1 1 9 4 3 1 1	335	13
Get node admin. status	1 1 9 4 3 2 1	336	13
Set node admin. status to UP	1 1 9 4 3 2 2	337	13
Set node admin. status to DOWN	1 1 9 4 3 2 3	338	13
Purge whole PNNI database	1 1 9 4 3 2 4	339	13
Get node level	1 1 9 4 3 3 1 1	340	13
Set node level	1 1 9 4 3 3 1 2	341	13
Get ATM address	1 1 9 4 3 3 2 1	342	13
Set default ATM address	1 1 9 4 3 3 2 2	343	13
Set ATM address	1 1 9 4 3 3 2 3	344	13
Get peer group ID	1 1 9 4 3 3 3 1	346	13
Set peer group ID	1 1 9 4 3 3 3 2	347	13
Get node ID	1 1 9 4 3 3 4 1	348	13
Set default node ID	1 1 9 4 3 3 4 2	349	13
Set node ID	1 1 9 4 3 3 4 3	350	13

Table 65 PNNI Commands (Extended Version Only) (continued)

Command Title	Direct Access Sequence	Mgmt Guide (page #)	Ops Guide (chapter #)
Get node name	1 1 9 4 3 3 5 1	352	13
Set node name	1 1 9 4 3 3 5 2	353	13
Get PGL priority	1 1 9 4 3 3 6 1	354	13
Set PGL priority	1 1 9 4 3 3 6 2	355	13
Timers			
PTSE holddown timer	1 1 9 4 3 4 1	357	13
Hello holddown timer	1 1 9 4 3 4 2	358	13
Hello interval	1 1 9 4 3 4 3	359	13
Hello inactivity factor	1 1 9 4 3 4 4	360	13
PTSE refresh interval	1 1 9 4 3 4 5	361	13
PTSE lifetime factor	1 1 9 4 3 4 6	362	13
Retransmit interval	1 1 9 4 3 4 7	363	13
Peer delayed ACK interval	1 1 9 4 3 4 8	364	13
AvCR proportional multiplier (%)	1 1 9 4 3 4 9	365	13
AvCR minimum threshold (%)	1 1 9 4 3 4 10	366	13
CDV proportional multiplier (%)	1 1 9 4 3 4 11	367	13
CTD proportional multiplier (%)	1 1 9 4 3 4 12	368	13
SVCC Initiation Time	1 1 9 4 3 4 13	369	13
SVCC Retry Time	1 1 9 4 3 4 14	370	13
SVCC Calling Integrity Time	1 1 9 4 3 4 15	371	13
SVCC Called Integrity Time	1 1 9 4 3 4 16	372	13
Set all timers to the default values	1 1 9 4 3 4 18	373	13

Table 65 PNNI Commands (Extended Version Only) (continued)

Command Title	Direct Access Sequence	Mgmt Guide (page #)	Ops Guide (chapter #)
Optimization Metrics			
Get optimization metrics	1 1 9 4 3 5 1	375	13
Optimization for CBR	1 1 9 4 3 5 2 1	377	13
Optimization for RealTime-VBR	1 1 9 4 3 5 2 2	378	13
Optimization for NonRealTime-VBR	1 1 9 4 3 5 2 3	379	13
Optimization for ABR	1 1 9 4 3 5 2 4	380	13
Optimization for UBR	1 1 9 4 3 5 2 5	381	13
Set optimization for all classes to default	1 1 9 4 3 5 2 6	382	13
Interface Configuration			
Select port	1 1 9 4 4 1	383	13
Interface Parameters			
Aggregation token	1 1 9 4 4 2 1	385	13
CBR admin. weight	1 1 9 4 4 2 2	386	13
rt-VBR admin. weight	1 1 9 4 4 2 3	387	13
nrt-VBR admin. weight	1 1 9 4 4 2 4	388	13
ABR admin. weight	1 1 9 4 4 2 5	389	13
UBR admin. weight	1 1 9 4 4 2 6	390	13
Set to defaults	1 1 9 4 4 2 8	391	13
Set all int. param. to defaults	1 1 9 4 4 3	392	13
Scope Mapping Table Configuration			
View scope mapping table	1 1 9 4 4 5 1	393	13
Modify scope mapping table	1 1 9 4 4 5 2	396	13

Table 65 PNNI Commands (Extended Version Only) (continued)

Command Title	Direct Access Sequence	Mgmt Guide (page #)	Ops Guide (chapter #)
Set scope mapping table to defaults	1 1 9 4 4 5 3	398	13
Route Cache (UBR) Configuration			
Get cache state	1 1 9 4 6 1	399	13
Set cache state	1 1 9 4 6 2	400	13
Get cache state for ADD PARTY	1 1 9 4 6 3	401	13
Set cache state for ADD PARTY	1 1 9 4 6 4	402	13
Get max. number of routes per cache	1 1 9 4 6 5	403	13
Set max. number of routes per cache	1 1 9 4 6 6	404	13
PNNI Information			
All PTSEs in database	1 1 9 4 7 1	405	13
Node PTSEs	1 1 9 4 7 2	410	13
Topology (Link) PTSEs	1 1 9 4 7 3	412	13
Summary address table	1 1 9 4 7 4	414	13
Address PTSEs	1 1 9 4 7 5	415	13
PGL election	1 1 9 4 7 6	417	13
Neighbors	1 1 9 4 7 7	419	13
Statistics	1 1 9 4 7 8	420	13

C

TECHNICAL SUPPORT

3Com provides easy access to technical support information through a variety of services. This appendix describes these services.

Information contained in this appendix is correct at time of publication. For the most recent information, 3Com recommends that you access the 3Com Corporation World Wide Web site.

Online Technical Services

3Com offers worldwide product support 24 hours a day, 7 days a week, through the following online systems:

- World Wide Web site
- 3Com Knowledgebase Web Services
- 3Com FTP site
- 3Com Bulletin Board Service (3Com BBS)
- 3Com Facts℠ Automated Fax Service

World Wide Web Site

To access the latest networking information on the 3Com Corporation World Wide Web site, enter this URL into your Internet browser:

`http://www.3com.com/`

This service provides access to online support information such as technical documentation and software, as well as support options that range from technical education to maintenance and professional services.

3Com Knowledgebase Web Services

This interactive tool contains technical product information compiled by 3Com expert technical engineers around the globe. Located on the World Wide Web at **`http://knowledgebase.3com.com`**, this service gives all 3Com customers and partners complementary, round-the-clock access to technical information on most 3Com products.

3Com FTP Site

Download drivers, patches, software, and MIBs across the Internet from the 3Com public FTP site. This service is available 24 hours a day, 7 days a week.

To connect to the 3Com FTP site, enter the following information into your FTP client:

- Hostname: **`ftp.3com.com`**
- Username: **`anonymous`**
- Password: **`<your Internet e-mail address>`**

You do not need a user name and password with Web browser software such as Netscape Navigator and Internet Explorer.

3Com Bulletin Board Service

The 3Com BBS contains patches, software, and drivers for 3Com products. This service is available through analog modem or digital modem (ISDN) 24 hours a day, 7 days a week.

Access by Analog Modem

To reach the service by modem, set your modem to 8 data bits, no parity, and 1 stop bit. Call the telephone number nearest you:

Country	Data Rate	Telephone Number
Australia	Up to 14,400 bps	61 2 9955 2073
Brazil	Up to 28,800 bps	55 11 5181 9666
France	Up to 14,400 bps	33 1 6986 6954
Germany	Up to 28,800 bps	4989 62732 188
Hong Kong	Up to 14,400 bps	852 2537 5601
Italy	Up to 14,400 bps	39 2 27300680
Japan	Up to 14,400 bps	81 3 5977 7977
Mexico	Up to 28,800 bps	52 5 520 7835
P.R. of China	Up to 14,400 bps	86 10 684 92351
Taiwan, R.O.C.	Up to 14,400 bps	886 2 377 5840
U.K.	Up to 28,800 bps	44 1442 438278
U.S.A.	Up to 53,333 bps	1 847 262 6000

Access by Digital Modem

ISDN users can dial in to the 3Com BBS using a digital modem for fast access up to 64 Kbps. To access the 3Com BBS using ISDN, call the following number:

1 847 262 6000

3Com Facts Automated Fax Service

The 3Com Facts automated fax service provides technical articles, diagrams, and troubleshooting instructions on 3Com products 24 hours a day, 7 days a week.

Call 3Com Facts using your Touch-Tone telephone:

1 408 727 7021

Support from Your Network Supplier

If you require additional assistance, contact your network supplier. Many suppliers are authorized 3Com service partners who are qualified to provide a variety of services, including network planning, installation, hardware maintenance, application training, and support services.

When you contact your network supplier for assistance, have the following information ready:

- Product model name, part number, and serial number
- A list of system hardware and software, including revision levels
- Diagnostic error messages
- Details about recent configuration changes, if applicable

If you are unable to contact your network supplier, see the following section on how to contact 3Com.

Support from 3Com

If you are unable to obtain assistance from the 3Com online technical resources or from your network supplier, 3Com offers technical telephone support services. To find out more about your support options, call the 3Com technical telephone support phone number at the location nearest you.

When you contact 3Com for assistance, have the following information ready:

- Product model name, part number, and serial number
- A list of system hardware and software, including revision levels
- Diagnostic error messages
- Details about recent configuration changes, if applicable

Here is a list of worldwide technical telephone support numbers:

Country	Telephone Number	Country	Telephone Number
Asia, Pacific Rim			
Australia	1 800 678 515	P.R. of China	10800 61 00137 or
Hong Kong	800 933 486		021 6350 1590
India	+61 2 9937 5085	Singapore	800 6161 463
Indonesia	001 800 61 009	S. Korea	
Japan	0031 61 6439	From anywhere in S. Korea:	00798 611 2230
Malaysia	1800 801 777	From Seoul:	(0)2 3455 6455
New Zealand	0800 446 398	Taiwan, R.O.C.	0080 611 261
Pakistan	+61 2 9937 5085	Thailand	001 800 611 2000
Philippines	1235 61 266 2602		
Europe			
From anywhere in Europe, call:	+31 (0)30 6029900 phone +31 (0)30 6029999 fax		
Europe, South Africa, and Middle East			
From the following countries, you may use the toll-free numbers:			
Austria	0800 297468	Netherlands	0800 0227788
Belgium	0800 71429	Norway	800 11376
Denmark	800 17309	Poland	00800 3111206
Finland	0800 113153	Portugal	0800 831416
France	0800 917959	South Africa	0800 995014
Germany	0800 1821502	Spain	900 983125
Hungary	00800 12813	Sweden	020 795482
Ireland	1800 553117	Switzerland	0800 55 3072
Israel	1800 9453794	U.K.	0800 966197
Italy	1678 79489		
Latin America			
Argentina	AT&T +800 666 5065	Mexico	01 800 CARE (01 800 2273)
Brazil	0800 13 3266	Peru	AT&T +800 666 5065
Chile	1230 020 0645	Puerto Rico	800 666 5065
Colombia	98012 2127	Venezuela	AT&T +800 666 5065
North America	1 800 NET 3Com (1 800 638 3266) Enterprise Customers: 1 800 876-3266		

Returning Products for Repair

Before you send a product directly to 3Com for repair, you must first obtain an authorization number. Products sent to 3Com without authorization numbers will be returned to the sender unopened, at the sender's expense.

To obtain an authorization number, call or fax:

Country	Telephone Number	Fax Number
Asia, Pacific Rim	+ 65 543 6500	+ 65 543 6348
Europe, South Africa, and Middle East	+ 31 30 6029900	+ 31 30 6029999
Latin America	1 408 326 2927	1 408 326 3355
From the following countries, you may call the toll-free numbers; select option 2 and then option 2:		
Austria	0800 297468	
Belgium	0800 71429	
Denmark	800 17309	
Finland	0800 113153	
France	0800 917959	
Germany	0800 1821502	
Hungary	00800 12813	
Ireland	1800553117	
Israel	1800 9453794	
Italy	1678 79489	
Netherlands	0800 0227788	
Norway	800 11376	
Poland	00800 3111206	
Portugal	0800 831416	
South Africa	0800 995014	
Spain	900 983125	
Sweden	020 795482	
Switzerland	0800 55 3072	
U.K.	0800 966197	
U.S.A. and Canada	1 800 NET 3Com (1 800 638 3266) Enterprise Customers: 1 800 876 3266	1 408 326 7120 (not toll-free)

GLOSSARY

ASIC Application Specific Integrated Circuit, a chip designed for a particular application. ASICs are built by connecting existing circuit building blocks in new ways. Because the building blocks already exist in a library, it is much easier to produce a new ASIC than to design a new chip from scratch.

ATM Asynchronous Transfer Mode. A transfer method used for LAN and WAN. ATM carries voice, video and data at speeds up to 2.2 Gbps and can integrate geographically distant disparate networks. Also called cell relay.

ATM Interface Module An ATM Interface Carrier Module with one or two daughter cards.

ATM Layer Processor The ATM Layer Processor prepares cell header information and manages temporary cell storage.

backplane The main bus that carries data within a device.

cell An ATM Layer protocol data unit (PDU) characterized by fixed, rather than variable, length payloads. The standard ATM cell is 48 bytes of payload with 5 bytes of header.

Cell Loss Priority (CLP) A 1-bit field in the ATM cell header that corresponds to the loss priority of a cell. Lower priority (CLP = 1) cells can be discarded under a congestion situation.

chassis The hardware housing unit for the CoreBuilder® 9000.

CoreBuilder 9000 A high performance modular switching family which runs on an ATM or Ethernet backplane.

daughter card Can be either OC-3c, OC-3c Single Mode Long Reach, OC-12c, Single Mode or Multi-Mode or 155 Mbps-over-UTP5. These cards are attached to the ATM Interface Carrier Module to make the Interface Module complete.

Early Packet Discard (EPD) A procedure for discarding cells related to one user frame to minimize the impact of congestion.

EFCI Explicit Forward Congestion Indication. A 1-bit field in the PTI that contains information about whether congestion at an intermediate node has been experienced.

E-IISP Extended Interim Interswitch Protocol. A signaling protocol that uses network-to-network (NNI-based) signaling for communication.

Enterprise Engine (EME) The management engine for the CoreBuilder 9000 ATM Enterprise Switch.

Enterprise Network A network structure that is similar to a campus network.

Flash/Operational Software LED An LED that indicates in which software unit the error occurred.

Framer An ATM Interface Module component that processes the SONET/SDH frames, extracts the ATM cells from the incoming serial data, verifies cell header validity and transfers cells to the ATM Layer Processor.

IISP (Interim Interswitch Protocol) A signaling protocol that uses user-to-network (UNI)-based signaling for switch-to-switch communication.

Local Management Application (LMA) The graphic interface used to manage the Enterprise Switch locally.

loopback test A test used to diagnose faulty cables as well as faults in the framer or other components of a daughter card.

LAN Local Area Network. A data communications network spanning a limited geographical area, such as a single building or campus. It provides communication between computers and peripherals. LANs are distinguished by their small geographical size, high data rate, and low error rate.

loopback test The loopback test is used to diagnose faulty cables as well as faults in the framer or other components of a daughter card.

Module Status LED An LED that indicates the system state of the ATM Interface Module.

multiplexing A function within a layer that interleaves the information from multiple connections into one connection.

Network to Network Interface (NNI) ITU-T-specified standard interface between nodes, typically ATM switches within the same network. The network uses E-IISP as its signaling protocol.

Partial Packet Drop (PPD) A procedure for discarding cells related to one user frame to minimize the impact of congestion.

peer group A set of logical nodes which are grouped for purposes of creating a routing hierarchy. PTSEs are exchanged among all members of the group.

peer group leader A node which has been elected to perform some of the functions associated with a logical group node.

physical link Any connection between two nodes in the lowest level hierarchy.

PNNI Routing Control Channel VCCs used for the exchange of PNNI routing protocol messages.

PNNI Private Network to Network Interface. A routing information protocol that enables extremely scalable, full function, dynamic multi-vendor ATM switches to be integrated in the same network.

Port Status LED LEDs that indicate the status of each ATM port.

Serial Link The serial link handles the parallel-to-serial conversion for data transmission over the backplane.

Software State Indicator LED LEDs that pinpoint the stage of the software execution at which the failure occurred.

Software Error LED LEDs that light up in a binary pattern when a software error occurs.

traffic management A mechanism for preventing congestion or other traffic flow problems in a network, by means of performing a set of actions for managing the traffic.

User Network Interface (UNI) The interface, defined as a set of protocols and traffic characteristics, between the CPE (user) and the ATM network (ATM switch).

VCI Virtual Channel Identifier. Part of the identifier of a particular virtual circuit in the ATM fabric.

VPI Virtual Path Identifier. Part of the identifier of a particular virtual circuit in the ATM fabric.

WAN Wide Area Network. Data communications network spanning very large geographical areas.

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CoreBuilder® 9000 ATM Enterprise Switch Fabric Module

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3Com Corporation
5400 Bayfront Plaza
Santa Clara, CA 95054
(408) 326-5000