



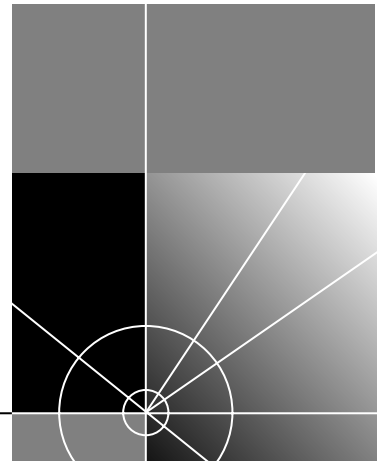
CoreBuilder® 9000 ATM Switch Fabric Module Getting Started Guide

For the CoreBuilder 9000 7-Slot Chassis and 16-Slot Chassis

Software Version 2.00

<http://www.3com.com/>

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3Com Corporation
5400 Bayfront Plaza
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95052-8145

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

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ABOUT THIS GUIDE

This guide gives a description and general overview of the ATM Switch Fabric Module. It describes how to install the Switch Fabric Module into the CoreBuilder® 9000 chassis, and how to power on and interpret the LEDs of the CoreBuilder 9000.

This guide is intended for the system administrator, network equipment technician, or network manager who is responsible for installing and managing interface modules designed for operation with the network hardware such as CoreBuilder 9000 ATM switches. It assumes a working knowledge of network operations and familiarity with communications protocols used in networks.

This guide is intended for *trained technical personnel* only. Do not attempt to remove or replace a CoreBuilder 9000 ATM Switch Fabric Module if you have not had the proper training from 3Com. For training information, call 1-800-NET-3COM.



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

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

<http://www.3com.com/>

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.
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
Words in <i>italics</i>	Italics are used to: <ul style="list-style-type: none"> ■ 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 <i>Help</i> menu, select <i>Contents</i>. Click <i>OK</i>.

Related Documents

This section provides information about supporting documentation, including:

- CoreBuilder 9000 Documents
- World Wide Web Site Documents
- 3Com FactsSM 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:

- *16-Slot Chassis Quick Installation Guide for the CoreBuilder 9000 Enterprise Switch*

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

- *7-Slot Chassis Quick Installation Guide for the CoreBuilder 9000 Enterprise Switch*

Instructions for installing the 7-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, 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.

- *16-Slot Chassis Power Supply Installation Guide for the CoreBuilder 9000 Enterprise Switch*

Instructions for installing and removing a power supply from the 16-slot chassis.

- *7-Slot Chassis Power Supply Installation Guide for the CoreBuilder 9000 Enterprise Switch*

Instructions for installing and removing a power supply from the 7-slot chassis.

- *CoreBuilder 9000 Documentation Overview*

A list of all CoreBuilder 9000 documents.

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

The commands for managing each module.

- *16-Slot Chassis Fan Tray Removal and Replacement Guide for the CoreBuilder 9000 Enterprise Switch*
Instructions for removing a faulty fan tray and installing a new one in the 16-slot chassis.
- *7-Slot Chassis Fan Tray Removal and Replacement Guide for the CoreBuilder 9000 Enterprise Switch*
Instructions for removing a faulty fan tray and installing a new one in the 7-slot chassis.
- *Chassis ID Printed Circuit Board for the CoreBuilder 9000 Enterprise Switch*
Information about a chassis ID printed circuit board (PCB).
- *16 MB Expansion Memory Card Installation Guide for the CoreBuilder 9000 Enterprise Switch*
Instructions for installing a 16 MB expansion memory card in the EME, and removing an existing 4 MB expansion memory card.
- *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 User Guide*
How to use, configure, and network the ATM Switch Fabric Module, as well as a detailed explanation of networking theory.
- *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 *Documents and Software*, select *CoreBuilder*.

3Com Facts Automated Fax Service Documents

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:

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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 describes the ATM Switch Fabric Module and explains the capabilities of the Switch Fabric Module after it is installed into the CoreBuilder® 9000 chassis. It contains the following topics:

- ATM Switch Fabric Module Description
- Switch Fabric Module Redundancy

ATM Switch Fabric Module Description

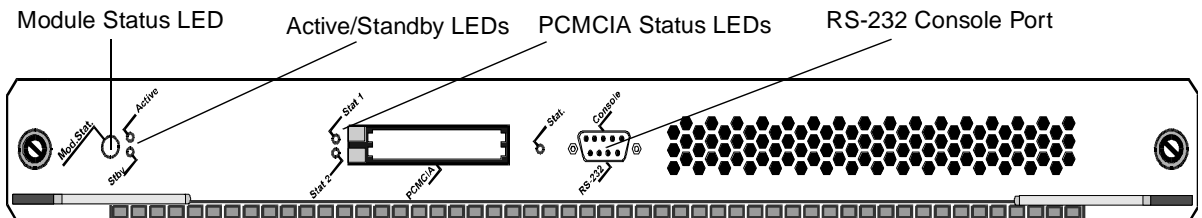
The ATM Switch Fabric Module has a switching capacity of 15 Gbps and it is used in both the 7-slot chassis and 16-slot chassis. The high-performance, line-rate non-blocking ATM Switch Fabric Module features highly integrated ASICs that account for its scalable, leading-edge performance and functionality. The module incorporates on-board ATM control hardware for scaling the performance of Switched Virtual Channel Connections (SVCs) and LAN Emulation (LANE) services performance.

Figure 1 shows the front panel of the ATM Switch Fabric Module.



In the figure, the module is shown on its side as installed in a 7-slot chassis; when installed into a 16-slot chassis, it stands vertically with the LEDs at the top.

Figure 1 The ATM Switch Fabric Module Front Panel



The Module Status LED indicates the ATM Switch Fabric Module's status. The dual PCMCIA slot has two indicator LEDs and the Console port has one indicator LED. The PCMCIA slot can hold a 10BASE-T Ethernet LAN PC card to support a management Ethernet connection should one be required.

Switch Fabric Module Redundancy

The design of the CoreBuilder 9000 switch allows for an optional hot standby switch fabric module that replaces the active module in case the active module fails.

Under normal operation of the switch, the standby switch fabric module automatically receives all the configuration updates that are made in the active switch. In the event of an active switch fabric module failure, the standby switch fabric module takes over immediately and the system resumes normal operation in 30 - 45 seconds (depending on the CoreBuilder 9000 switch configuration), exhibiting the resiliency required of a highly available network core service.

For more information on switch fabric module redundancy, see Chapter 18, "Switch Redundancy" in the *CoreBuilder 9000 ATM Enterprise Switch User Guide*.

2

SAFETY AND HANDLING PRECAUTIONS

This chapter contains safety warnings and precautions that you should strictly adhere to when using any of the CoreBuilder® 9000 system components. It contains the following topics:

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

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 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 this 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 Electrostatiques

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 uniquement.
- 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.
- 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-Moduls zur Gewährleistung der 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-Modul:

- Fassen Sie das Modul immer nur an der Frontplatte an.
- 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 Führungsschiene befindet.
- Achten Sie beim Einschieben des Moduls darauf, daß Sie es nicht verkannten. Schieben Sie das Module nicht mit Gewalt in das Gerät.

Unpacking Procedure

Use the following procedure when you unpack the ATM Switch Fabric Module:

- 1 Verify that the ATM Switch Fabric Module is the correct model. Compare the model number listed on the side of the shipping carton with the model number that you ordered.
- 2 Remove the module, in its antistatic bag, from the shipping carton.



All shipping cartons are reusable. After removing the contents, replace the packing materials and store the shipping carton for future use.

- 3 Remove the ATM Switch Fabric Module from the antistatic bag and inspect it for damage. If the module appears to be damaged, replace it in the antistatic bag, return it to the shipping carton, and contact your local supplier.

3

INSTALLING AND REMOVING THE ATM SWITCH FABRIC MODULE

This chapter explains how to install and remove the ATM Switch Fabric Module from a CoreBuilder® 9000 16-slot chassis or 7-slot chassis. Do not attempt to install or remove the ATM Switch Fabric Module without reading Chapter 2 and complying with the safety procedures described within. This chapter contains the following topics:

- Installing an ATM Switch Fabric Module into the 16-Slot Chassis
- Removing an ATM Switch Fabric Module from the 16-Slot Chassis
- Installing an ATM Switch Fabric Module into the 7-Slot Chassis
- Removing an ATM Switch Fabric Module from the 7-Slot Chassis

Installing an ATM Switch Fabric Module into the 16-Slot Chassis

This section describes how to install an ATM Switch Fabric Module into the CoreBuilder 9000 16-slot chassis.

Installation Equipment

To install the ATM Switch Fabric Module you need:

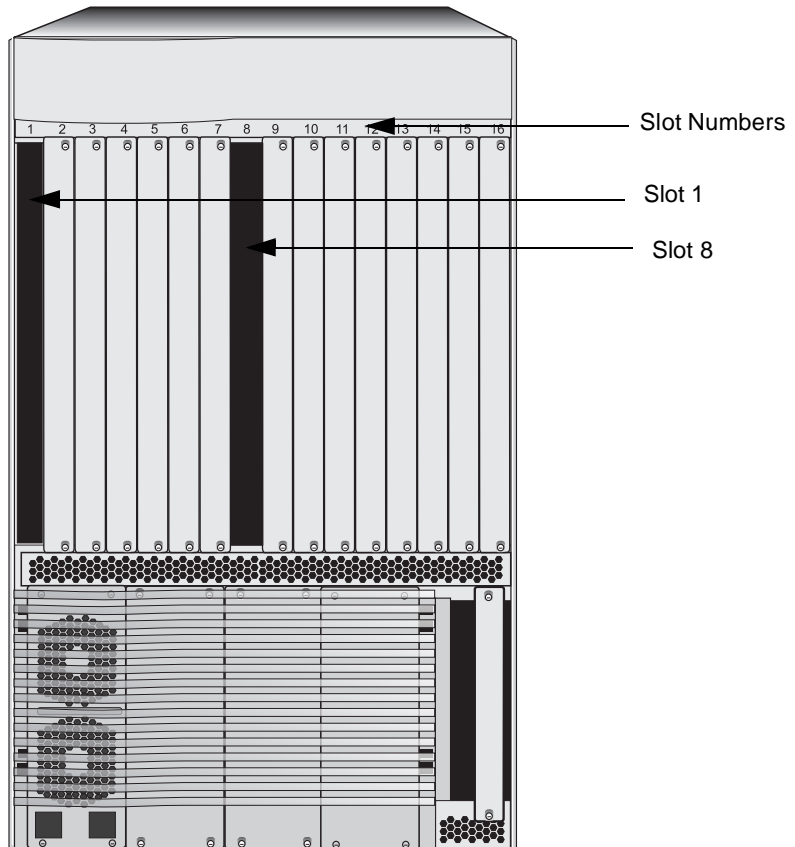
- The ATM Switch Fabric Module with its antistatic bag
- A #2 flatblade screwdriver

Preparing the Chassis

Slots 8 and 9 in the CoreBuilder 9000 16-slot chassis are available for installing the ATM Switch Fabric Module. Slot numbers are located on the top of the chassis for easy identification (Figure 2).

The CoreBuilder 9000 16-slot chassis is shipped with slot 8 open; slot 9 is covered with a protective faceplate. The active ATM Switch Fabric Module is installed in slot 8. A standby Switch Fabric Module is installed in slot 9 when two switch fabric modules are being used for switch redundancy purposes.

Figure 2 The CoreBuilder 16-Slot Chassis with Slots 1 and 8 Open



Removing the Protective Faceplate from the Chassis

If you want to install a standby ATM Switch Fabric Module in slot 9, you must remove the protective faceplate from slot 9 as follows:

- 1 With a #2 flatblade screwdriver, loosen the captive screws.
- 2 Slide the faceplate out of the chassis and place it aside for future use.



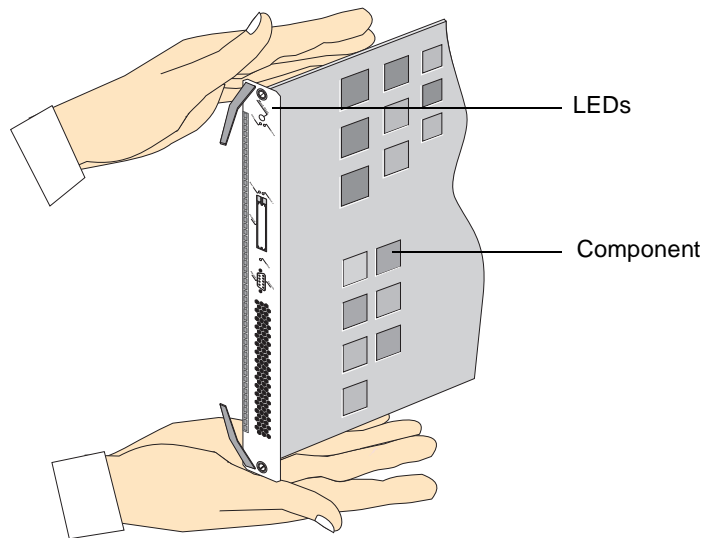
If you are not using a particular slot at this time, 3Com recommends that you leave its protective faceplate on.

Installation Procedure

To install the ATM Switch Fabric Module into the chassis:

- 1 Pick up the ATM Switch Fabric Module and hold it in a vertical position, with the faceplate facing you and the LEDs at the top, and the components facing to the right (Figure 3).

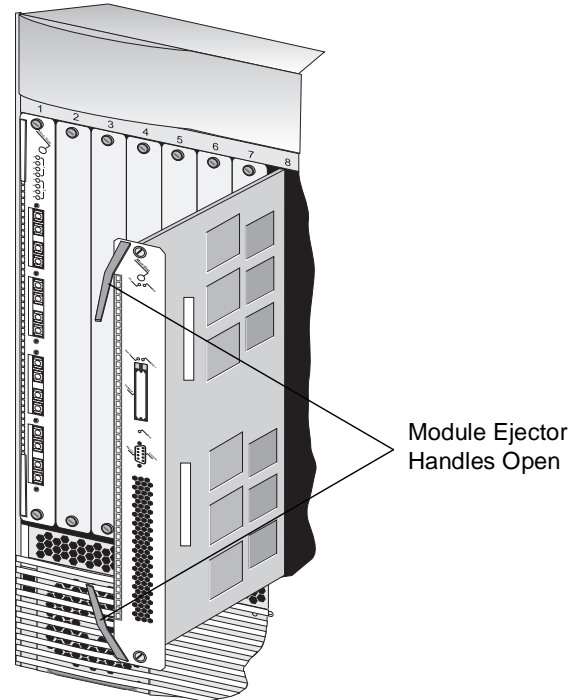
Figure 3 Holding the ATM Switch Fabric Module Vertically



CAUTION: *Be careful not to twist or bend the module as you insert it.*

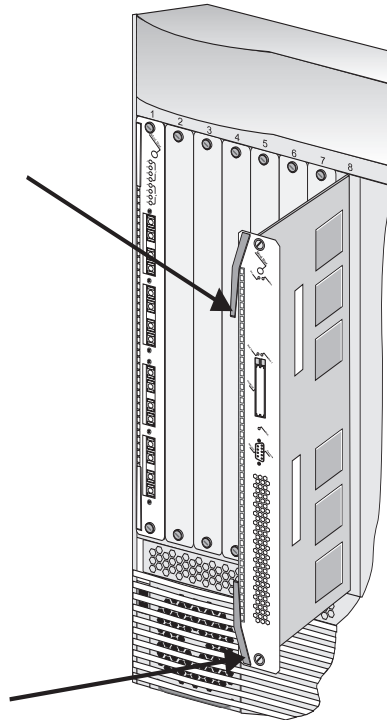
- 2 Align the module with the proper slot guides as described, and slide the module partially into the slot. Make sure that the top and bottom edges are in the same slot.
- 3 Open the module ejector handles completely (Figure 4).

Figure 4 Module Ejector Handles in the Open Position

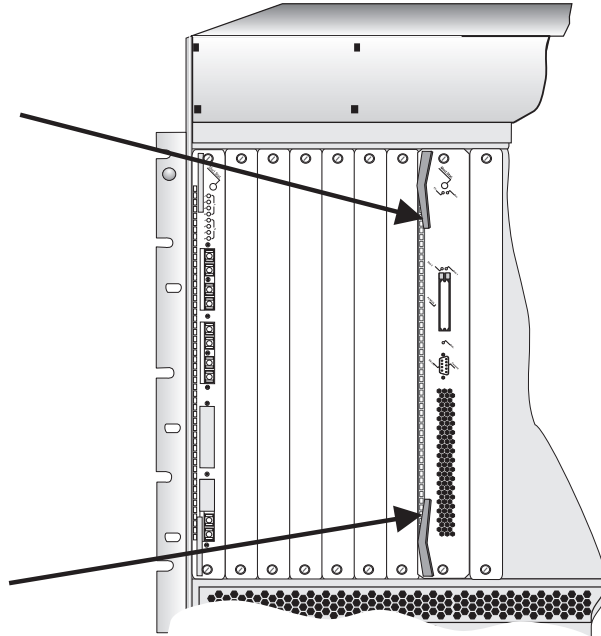


WARNING: Hazardous energy levels exist inside of the chassis. Do not place hands or objects into the chassis or touch components on an inserted module.

- 4 Push on the captive screws to further insert the module, until it is completely into the slot and the module ejector handles begin to close (Figure 5).

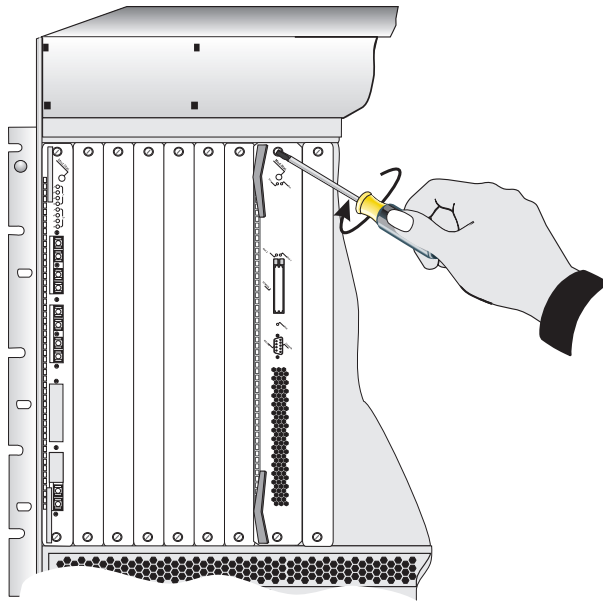
Figure 5 Pushing the ATM Switch Fabric Module into the Backplane

- 5 To engage the module connectors into the chassis backplane connectors, push both module ejector handles simultaneously inwards toward the front panel, locking the module (Figure 6). You feel a slight resistance as the connectors engage.

Figure 6 Locking the Module Ejector Handles

CAUTION: If the resistance is too great, the ATM Switch Fabric Module and backplane connectors may not be aligned. Forcing the ATM Switch Fabric Module inward can damage the module connectors or backplane connectors. If necessary, remove and reinsert the ATM Switch Fabric Module, ensuring that the connectors are properly aligned. Do not tighten the captive screws to seat the module.

- 6 Using the #2 flatblade screwdriver, tighten the two screws located on the top and bottom of the ATM Switch Fabric Module (Figure 7).

Figure 7 Tightening the Captive Screws

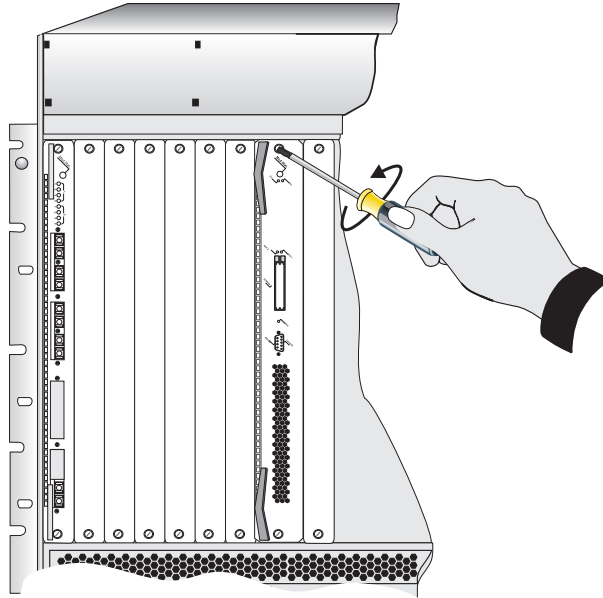
CAUTION: To ensure adequate cooling air flow in the chassis, make sure that protective faceplates cover all empty slots.

Removing an ATM Switch Fabric Module from the 16-Slot Chassis

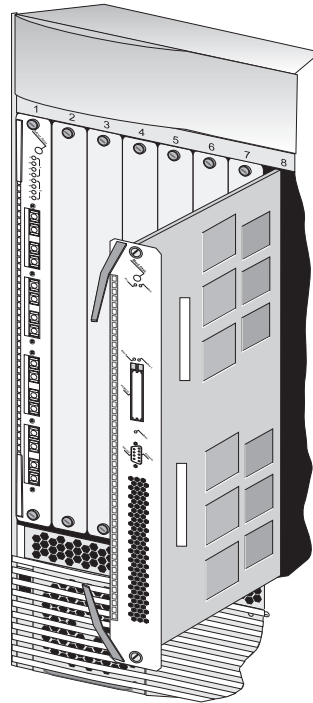
This section describes how to remove an ATM Switch Fabric Module.

To remove an ATM Switch Fabric Module:

- 1 Record the cabling scheme.
- 2 Disconnect all cables from the ATM Switch Fabric Module.
- 3 Loosen the two captive screws that secure the ATM Switch Fabric Module to the chassis (Figure 8).

Figure 8 Loosening the Captive Screws

- 4 Move the module ejector handles to the outward position (Figure 9).
- 5 Gently slide the ATM Switch Fabric Module out of the chassis.

Figure 9 Removing the ATM Switch Fabric Module from the Chassis

Installing an ATM Switch Fabric Module into the 7-Slot Chassis

This section describes how to install an ATM Switch Fabric Module into the CoreBuilder 9000 7-slot chassis.

Installation Equipment

To install the ATM Switch Fabric Module you need:

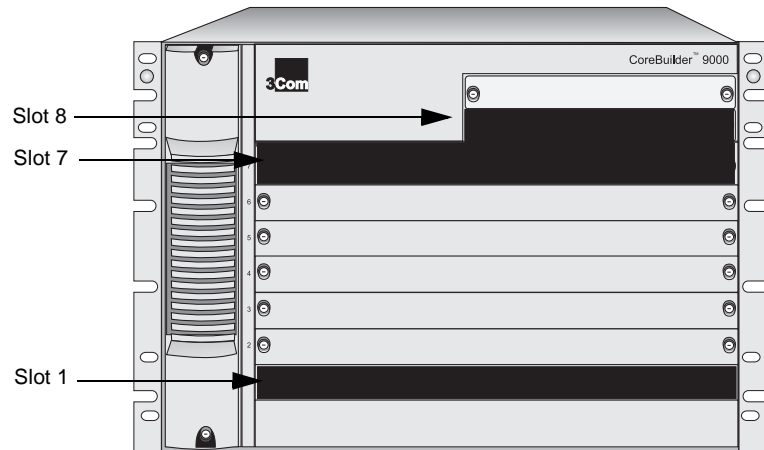
- The ATM Switch Fabric Module with its antistatic bag
- A #2 flatblade screwdriver

Preparing the Chassis

Slot 7 (the upper full-size slot) in the CoreBuilder 9000 7-slot chassis is available for installing the ATM Switch Fabric Module. Slot numbers are located on the left side of the chassis for easy identification (Figure 10).

The CoreBuilder 9000 7-slot chassis is shipped with slots 1, 7 and 8 open. In the 7-slot chassis, you can install only one Switch Fabric Module.

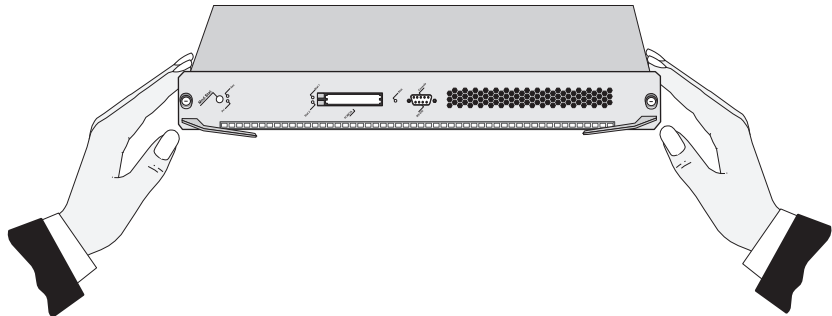
Figure 10 The CoreBuilder 7-Slot Chassis with Slots 1, 7 and 8 Open



Installation Procedure To install the ATM Switch Fabric Module into the chassis:

- 1 Pick up the ATM Switch Fabric Module and hold it in a horizontal position, with the front panel facing you and the LEDs at the left, and the components facing on top (Figure 11).

Figure 11 Holding the ATM Switch Fabric Module Horizontally



CAUTION: Be careful not to twist or bend the module as you insert it.

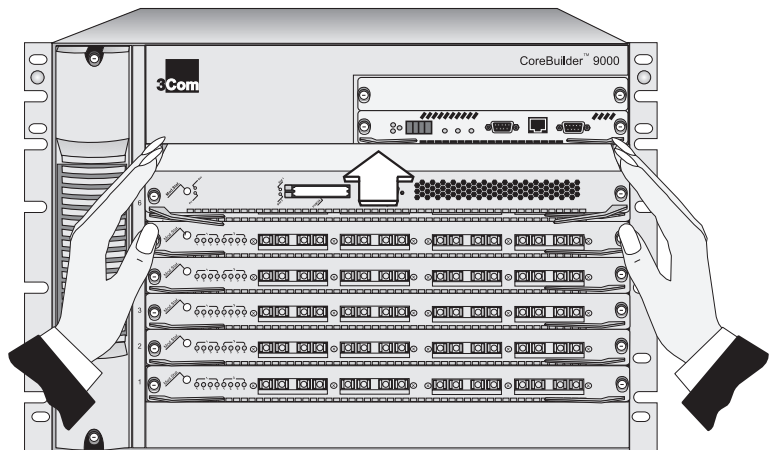
- 2 Align the module with the proper slot guides as described, and slide the module partially into the slot. Make sure that the both edges are in the same slot.
- 3 Open the module ejector handles completely.



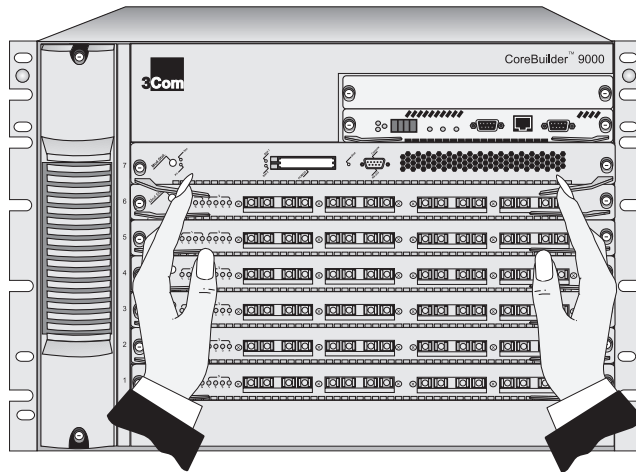
WARNING: Hazardous energy levels exist inside of the chassis. Do not place hands or objects into the chassis or touch components on an inserted module.

- 4 Push on the captive screws to further insert the module, until it is completely into the slot and the module ejector handles begin to close (Figure 12).

Figure 12 Pushing the ATM Switch Fabric Module into the Backplane

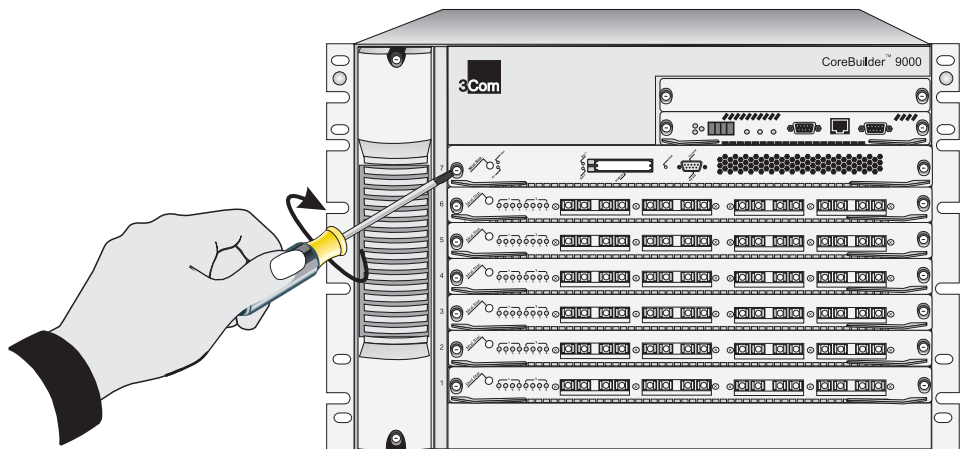


- 5 To engage the module connectors into the chassis backplane connectors, push both module ejector handles simultaneously inwards toward the front panel, locking the module (Figure 13). You feel a slight resistance as the connectors engage.

Figure 13 Locking the Module Ejector Handles

CAUTION: If the resistance is too great, the ATM Switch Fabric Module connectors and backplane connectors may not be aligned. Forcing the ATM Switch Fabric Module inward can damage the module connectors or backplane connectors. If necessary, remove and reinsert the ATM Switch Fabric Module, ensuring that the connectors are properly aligned. Do not tighten the captive screws to seat the module.

- 6 Using the #2 flatblade screwdriver, tighten the two captive screws located on the left and right of the ATM Switch Fabric Module.

Figure 14 Tightening the Captive Screws



CAUTION: To ensure adequate cooling air flow in the chassis, make sure that blank panels cover all empty slots.

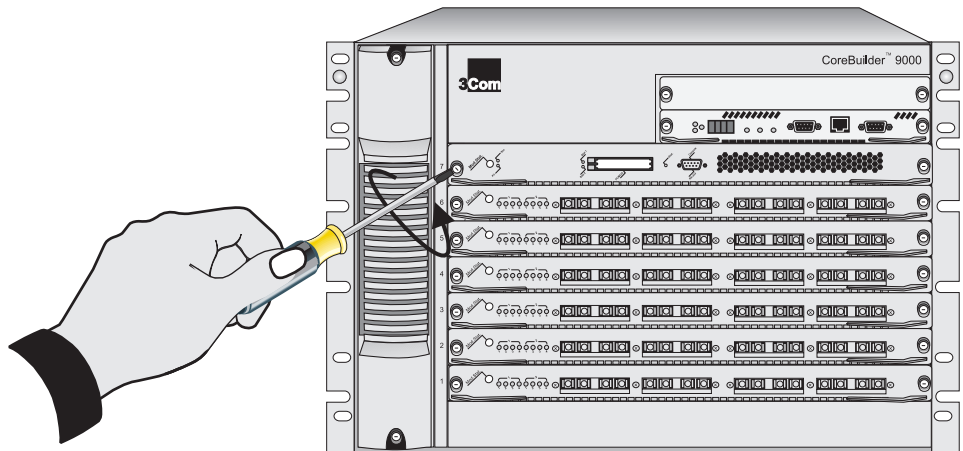
Removing an ATM Switch Fabric Module from the 7-Slot Chassis

This section describes how to remove an ATM Switch Fabric Module from the 7-slot chassis.

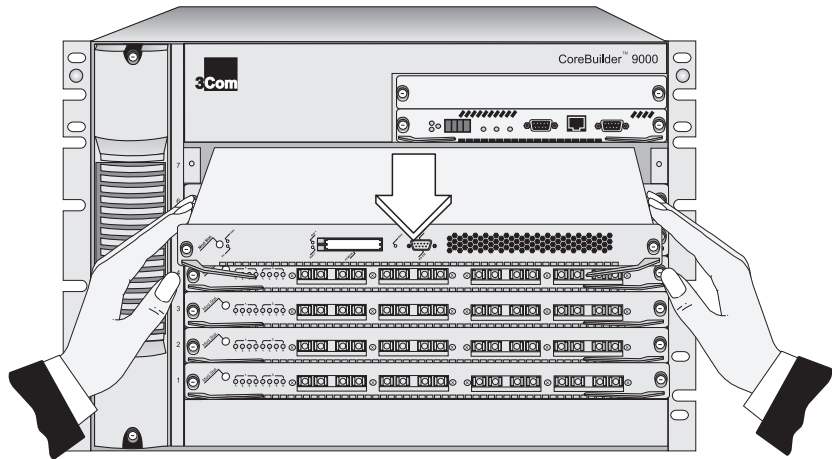
To remove the ATM Switch Fabric Module:

- 1 Record the cabling scheme.
- 2 Disconnect all cables from the ATM Switch Fabric Module.
- 3 Loosen the two captive screws that secure the ATM Switch Fabric Module to the chassis (Figure 15).

Figure 15 Loosening the Captive Screws



- 4 Move the module ejector handles to the outward position.
- 5 Gently slide the ATM Switch Fabric Module out of the chassis (Figure 16).

Figure 16 Removing the ATM Switch Fabric Module from the Chassis

4

INSTALLING AND REMOVING THE PCMCIA LAN PC CARD

This chapter describes how to install and remove the PCMCIA LAN PC Card, which is included with the ATM Switch Fabric Module. You can install this card in the 7-slot chassis or 16-slot chassis. In the 16-slot chassis, you can use one PCMCIA card in each ATM Switch Fabric Module.

Installing the PCMCIA LAN PC Card

The ATM Switch Fabric Module has two slots for PCMCIA cards. One 10BASE-T Ethernet LAN PC card is packaged with the ATM Switch Fabric Module. You install the PCMCIA Card into slot 1 (the right-hand slot) in the ATM Switch Fabric Module following the instructions written on the label affixed to the card.



The PCMCIA Card is optional; the system functions without the card. In Release 2.00, you can use only one PCMCIA card in the ATM Switch Fabric Module. The other slot remains empty.



CAUTION: Do not attempt to install a PCMCIA card other than the one supplied with the CoreBuilder 9000.

Installation Equipment

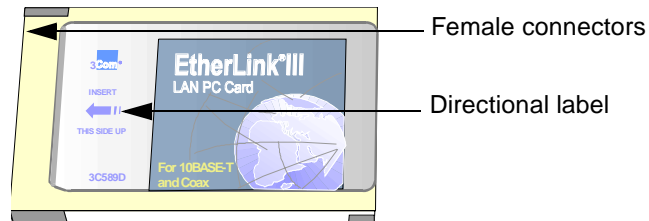
To install the ATM Switch Fabric Module PCMCIA LAN PC card, you need:

- The ATM Switch Fabric Module
- A PCMCIA LAN PC card (included with the ATM Switch Fabric Module)

Installation Procedure

To install the PCMCIA LAN PC card into the ATM Switch Fabric Module:

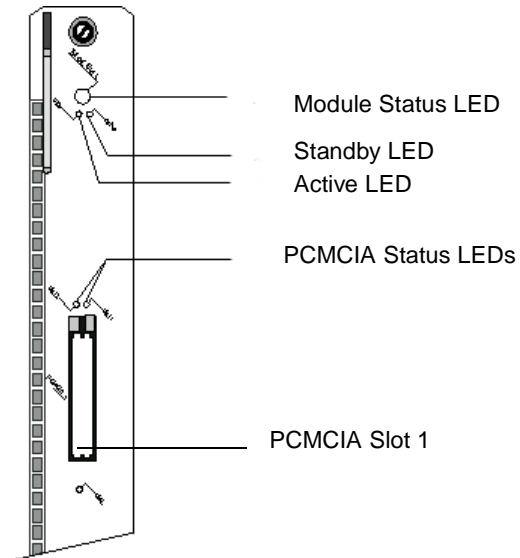
- 1 Hold the card with the female connector facing away from you (Figure 17).
- 2 Insert the card into slot 1 (Figure 18).

Figure 17 Installing a PCMCIA Card

CAUTION: Do not force the card into the slot.



Only the EtherLink® III LAN/PC #3C589D-COMBO card may be used.

Figure 18 PCMCIA Slot 1

5

POWER-ON AND SYSTEM STATES

This chapter describes how to power on the ATM Switch Fabric Module and how to interpret the LEDs on the front panel. It contains the following topics:

- Connecting the LMA to the Console Port
- System States

Connecting the LMA to the Console Port

To locally manage the ATM Switch Fabric Module using the Local Management Application (LMA), connect an RS-232 cross cable with a DB-9 Female Pin to the console port on the front panel of the module (Figure 19).

System States

This section describes the different system states of the ATM Switch Fabric Module and how they are indicated on the LED panel. The system states are:

- Power-on
- Normal Operation
- Failure

Power-On

The power-on phase of the ATM Switch Fabric Module consists of the following steps:

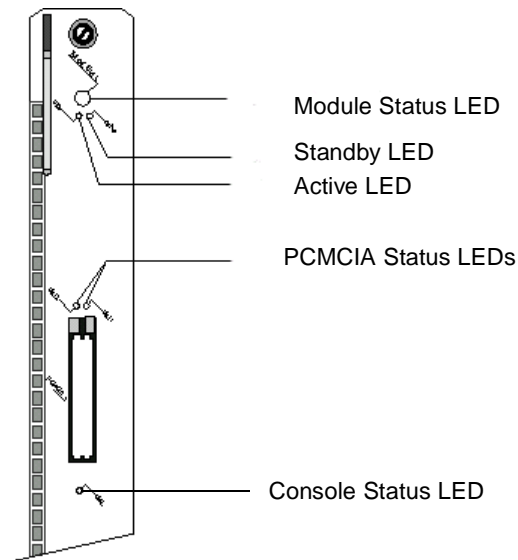
- 1 Diagnostics
- 2 Hardware and software initialization
- 3 Execution of operational software
- 4 Turning on appropriate LEDs

This section describes the behavior of the ATM Switch Fabric Module LEDs during power-on.

Module Status LED

The Module Status LED indicates the system state of the ATM Switch Fabric Module. This LED is located on the top of the ATM Switch Fabric Module (Figure 17).

Figure 19 ATM Switch Fabric Module LEDs



During the power-on phase, the Module Status LED blinks green. When the power-on phase has completed successfully, normal operation begins and the Module Status LED stops blinking and remains a steady green. If one of the power-on diagnostic tests fails, the Module Status LED turns to steady yellow. The entire power up phase takes about 30 seconds. Table 3 shows the Module Status LED indications.

Table 3 Module Status LED Indications

LED Indication	Blinking?	System Event
Off	No	Incomplete insertion of the ATM Switch Fabric Module, or no power to unit.
Green	Yes	Power-on sequence in process.

(continued)

Table 3 Module Status LED Indications (continued)

LED Indication	Blinking?	System Event
Green	No	Power-on sequence completed with no errors and operational software executing normally.
Yellow	No	Failure

Active and Standby LEDs

The Active and Standby LEDs (Figure 19) indicate the ATM Switch Fabric Module operative status. Usually, the switch module in slot 8 has only the active LED lighted. The standby switch in slot 9 has only the standby LED lighted. These LEDs are turned on during power-on. In the event of a configuration or software update, the standby LED may turn yellow.

Console Status LED

The Console Status LED (Figure 19) is green when the console function has been enabled and the ATM Switch Fabric Module can be managed through the console port; otherwise it is yellow. This LED is turned on during power-on.

PCMCIA Status LEDs



The PCMCIA slot 2 is permanently disabled; its LED does not light when a PCMCIA LAN PC Card is inserted into the slot.

The PCMCIA card, is installed into slot 1. When the card is installed into the slot, the slot 1 LED is lit. If there is no card in the slot, the LED does not light.

During normal operation, the PCMCIA Status LED indicates the state of the LAN PC card Ethernet interface installed in its slot. Table 4 summarizes the three states of the LAN PC card.

Table 4 LAN PC Card States

PCMCIA State	Blinking?	LED Color
LAN PC card is in slot #1 and is initialized.	No	Green
A frame is being received.	Yes	Green
LAN PC card failure.	No	Yellow

Normal Operation After successful completion of the power-on phase, the ATM Switch Fabric Module begins to function in the normal state. Under normal operation, the Module Status LED is steady green. If a failure in the ATM Switch Fabric Module occurs, the Module Status LED turns a steady yellow.

Failure A failure state in the ATM Switch Fabric Module is indicated in two ways:

- The Module Status LED turns yellow.
- The Module Status LED blinks green for more than 30 seconds.

6

DOWNLOADING THE SOFTWARE

This chapter describes the procedure to download the software for the ATM Switch Fabric Module, the ATM Interface Module, and the Monitor. It covers the following topics:

- Software Download/Upgrade Facility
- RS-232 Upgrade Instructions
- TFTP Upgrade Instructions
- Downloading the Software to the Standby Switch Fabric Module
- Verifying TFTP Download Status

Software Download/Upgrade Facility

You can use the software upgrade facility to download the software that you need to get the CoreBuilder® 9000 ATM Enterprise Switch functioning normally. You can upgrade this software as needed. Consult your local 3Com representative for information about upgrading the software.

You can download three CoreBuilder 9000 software units:

- ATM Switch Fabric Module Software
- ATM Interface Module Software
- Monitor Software

See the *Release Notes* to determine which software units to download for the current upgrade.

You can download the software using one of the following methods:

- Download by RS-232 serial port using a local PC terminal
- Download by TFTP (Trivial File Transfer Protocol)



CAUTION: Make sure that the CoreBuilder 9000 ATM Enterprise Switch is properly grounded before you begin.

Hardware and Software Requirements

The following items are required for loading the software:

- PC 486 or higher, running MS-Windows 3.1 or higher with MS-Terminal emulator software such as PCPlus.
- RS-232 port and cable
- 3Com's CoreBuilder 9000 current software release

Connecting to the Control Port

Set your PC terminal emulation to the following parameters:

- 8 data bit
- 1 stop bit
- No parity
- No XON/XOFF
- 9600 Baud
- Binary transfer set to Xmodem/CRC. (that is, Setting > binary transfer > Xmodem/CRC)

RS-232 Upgrade Instructions

Connect your PC to the RS-232 Control Port of the ATM Switch Fabric Module.

Putting the Standby Switch Fabric Module into Suspend Mode

If you have two Switch Fabric Modules installed in your CoreBuilder 9000 chassis, you must put the standby Switch Fabric Module into Suspend Mode using the following procedure:

- 1 Enter the LMA command **1 4 3 2** at the main menu prompt. The following prompt is displayed:

```
Put standby switch to suspend mode?
```

- 2 Enter **y**.

Preparations Before you begin the download procedure, log into the CoreBuilder 9000 Enterprise ATM Switch Local Management Access (LMA) .

Downloading the Software Files To use the RS-232 download, the switch must be put in a special state, in which the operational software does not take control. To put the switch into the special state, follow the steps described below:

- 1 Enter the LMA command **1 3 3** at the main menu prompt.
- 2 At the prompt, enter **1**.
- 3 Reboot the switch by entering the LMA command **1 7**.
- 4 Answer **y** to the prompt.



All the above commands may be issued either from the direct connection to the switch (via the RS-232 port) or from the Telnet session to the switch.

- 5 Open the Windows Explorer.
- 6 Double-click on the down_all.bat icon on the CD. All the software files are downloaded to the switch. After a successful download, the switch is automatically rebooted and the new software becomes operational.
- 7 After the switch has rebooted, you see the following message in your DOS window:

```
EXEX960.EXE: Communication failure
```

This is normal behavior that indicates that communication with the switch has failed. This is expected as the switch was rebooted.

- 8 Close the DOS window.

Upgrading the Standby Switch Fabric Module After you successfully upgrade the Switch Fabric Module software, you should also upgrade the standby Switch Fabric Module software.

To upgrade the standby Switch Fabric Module software:

- 1 Enter the LMA command **1 4 3 3 1**. The following prompt is displayed:

```
Upgrade software files!
```

- 2 Enter **y**.
- 3 Reboot the redundant Switch Fabric Module by entering the LMA command **1 4 3 1**. The following prompt is displayed:

```
Resetting stand-by switch module!
```

- 4 Answer **y** to the prompt.

TFTP Upgrade Instructions

This section describes the procedure to download software via TFTP.

ATM Interface Module, Switch Fabric Module and Monitor Module Software Download

To download software for the CoreBuilder 9000 ATM Interface Module or for the ATM Switch Fabric Module, use the following procedure.

- 1 Log in to the CoreBuilder 9000 ATM Enterprise Switch Local Management Access (LMA). See “Starting Up” on page 50 for complete login instructions.
- 2 To perform a TFTP download of the SWM Application (Cb9swm.cel), enter the command **1 3 2** at the Main Menu prompt.
- 3 To change the standby switch to standby mode, enter the command **1 4 3 2** (Standby In-Service/Suspended) at the Main Menu prompt.
- 4 To reboot the CoreBuilder 9000, switch the power off and then back on or enter the command **1 7** at the Main Menu prompt.



If you have rebooted the CoreBuilder 9000 and still need to download another software unit, repeat the entire procedure for the next software unit.

After the upgrade is complete, the reboot process can take up to 5 minutes.

Downloading the Software to the Standby Switch Fabric Module

After you download the software to the active ATM switch module, to download the software to the standby switch fabric module, follow the steps described below:

- 1 Log into the CoreBuilder 9000 LMA. See “Starting Up” on page 50 for complete login instructions.
- 2 Reset the active switch fabric module.
- 3 If the active switch fabric module loads with the new software, copy all the software to the standby switch fabric module by entering the command **1 4 3 3 1**.
- 4 After approximately 5 minutes, reset the standby switch fabric module by entering the command **1 4 3 1**.



If the TFTP download does not succeed, try using the RS-232 upgrade instructions.

Putting the Standby Switch Fabric Module in In-Service Mode

After upgrading the standby Switch Fabric Module software, you should return the standby Switch Fabric Module to in-service mode.

To return the standby Switch Fabric Module to in-service mode:

- 1 Enter the LMA command **1 4 3 2**. The following prompt is displayed:

```
Put stand-by switch in In-service mode!
```
- 2 Answer **y** to the prompt.

Verifying TFTP Download Status

After you have downloaded your software, verify the success status of the download as follows:

- 1 Log in to the CoreBuilder 9000 LMA. See “Starting Up” on page 50 for complete login instructions.
- 2 To display the Software Download Status, enter the command **1 3 1** at the Main Menu prompt.
- 3 Examine the system message and, if necessary, take action according to the information in Table 5.

Table 5 Download Messages

Message	Meaning and Action
System is loading from ip address, file. Received n%	System loading
Completed successfully	Download 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 <ul style="list-style-type: none"> ■ Check cable connection ■ Check if TFTP server is up ■ Check TFTP server IP address
Checksum error	Download again
Image file not found	Check if the file exists in the path

(continued)

Table 5 Download Messages (continued)

Message	Meaning and Action
System Loader cannot reach the server	Check the following: <ul style="list-style-type: none">■ 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.
Image is incompatible with the device	The downloaded file properties [e.g. name] does not match the internal CoreBuilder® list of properties

7

CONFIGURATION AND FAST SETUP

This chapter describes how to configure the Switch Fabric Module and to setup the CoreBuilder 9000. It contains the following topics:

- Configuring the ATM Switch Fabric Module
- Starting Up
- Integrated Fast Setup Operation

Configuring the ATM Switch Fabric Module

After you have physically connected the ATM Interface Module to your site network devices and power has been applied, you must define some parameters that enable the ATM Switch Fabric Module to function within the network.

The CoreBuilder® 9000 ATM Enterprise Switch local management software features an Integrated Fast Setup procedure that configures the CoreBuilder 9000 Enterprise Switch and all ATM Interface Modules that are installed in the CoreBuilder 9000 in one process.

Although you can use other methods to define the parameters (discussed in the *CoreBuilder 9000 ATM Enterprise Switch User Guide*), the Fast Setup is the fastest and easiest method of defining the essential parameters that are needed to get your network running.

3Com recommends that you run the Fast Setup program after you have installed the ATM Interface Modules and ATM Switch Fabric Modules.

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

If you have already installed and configured the CoreBuilder 9000 ATM Enterprise Switch and you now want to add a new ATM Interface Module, perform the Integrated Fast Setup procedure again, but now you configure only the UNI/NNI parameters section for the ports of the new ATM Interface Module.

Starting Up

In order 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 administrator access. Each level grants different access privileges and is suited to a different type of user. Table 6 lists the privileges granted for each access level.

Table 6 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           -  
-                                       -  
-   Enterprise ATM Switch             -  
-----  
Access level (read, write, admin):admin  
Password:
```

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 20:

Figure 20 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

```

For further explanation of the LMA menus and menu structure, see the *CoreBuilder 9000 ATM Enterprise Switch User Guide*. The next section takes you through a step-by-step process of the Integrated Fast Setup.

Setup Procedure Sections

Table 7 lists the steps or sections of the Integrated Fast Setup.

Table 7 Integrated Fast Setup Procedure Sections

Setup Section	Description
1 Network Prefix	Set Network Prefix for the CoreBuilder® 9000 ATM Enterprise Switch
2 LE Parameters	Set LE parameters for the CoreBuilder® 9000 ATM Enterprise Switch
3 LECS Address	Set active LECS address for the CoreBuilder® 9000 ATM Enterprise Switch
4 UNI/NNI parameters	Set UNI/NNI port parameters for ports in the ATM Interface Module
5 IP and Management Configuration	Set IP address of the switch, address of the NMS application, default gateway address, and subnet mask
6 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 the desired value in place of the default. If you want to accept the default, press Enter.

Navigation Aids Table 8 lists the short-cut characters that you can use to move between sections of the Integrated Fast Setup procedure:

Table 8 Integrated Fast Setup Procedure Navigation Aids

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

Integrated Fast Setup Operation

You initiate the Integrated Fast Setup from the LMA Main Menu of the CoreBuilder 9000 ATM Enterprise Switch, which appears immediately after power-on. After the system is powered on, access the LMA and log in to the system.

```

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

```

After you successfully enter the access level and password, the Main Menu appears:

```
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
[ '\ ' -Main,      '-' -Back in menus]

>9
```

To begin the Integrated Fast Setup process, select the menu item: (9) *FST: Fast Setup* by entering **9** at the prompt.

The following message appears on the screen:

```
Fast Setup Utility
=====

The current configuration will be displayed below;
Update if needed, and then hit Enter.

To move between sections, enter the following characters at end of line:
< > - Back and forth in sections      \   - Back to beginning of setup
$    - To end of setup
```



Changes made to the configuration are implemented only after the system is rebooted.

Network Prefix Section This section prompts you for the Switch Network Prefix. Enter the appropriate value in hexadecimal. The following example shows a typical network prefix:

```
Network Prefix
-----
Current Switch Network Prefix : N/A

*** The following is an example for a legal Network Prefix
                                : 47.00.00.00.00.00.3c.00.00.a*
Next reboot Switch Network Prefix
                                : 47.00.00.00.00.00.3c.00.0b.*
```

LE Parameters Section In this section you are prompted to enable or disable the resident LECS and LES of the switch. Enter values as follows:

- 1 At the `Resident LECS state` prompt, enter **1** to enable the resident LECS or enter **0** to disable the resident LECS.

If you enter **1**, the resident LES will be enabled automatically and no further prompt will be displayed. If you enter **0**, the `LES state` prompt will be displayed.

- 2 At the `LES state` prompt, enter **1** to enable the resident LES or enter **0** to disable the resident LES.

The following example shows a typical LAN Emulation configuration.

```
LE parameters
=-----
Resident LECS state (1-Enable, 0-Disable): 0
LES state (1-Enable, 0-Disable): 1
```

LECS Address Section

This section prompts you for the ATM address of the LECS. Enter the appropriate values. If you changed the network prefix in the previous section (Network Prefix), you must also change the network prefix in this section. The following example shows a typical LECS Address:

```
LECS Address
-----
Active LECS Net Prefix (In HEX): 47.00.00.00.00.00.3c.00.00.a*
Active LECS user part  (In HEX): 00.a0.3e.00.00.01.00
```

UNI/NNI Parameters Section

This section prompts you for the UNI/NNI/GWY configuration of the ports on the ATM Interface Module and includes all ports on all installed daughter cards.



*By default the port type is set to UNI unless configured otherwise. At the Use single step configuration prompt, enter **Y** to go through the steps without making changes, or enter **N** to get more detailed information and to make changes.*

To enter the UNI/NNI configuration:

- 1 At the `NNI max hops` prompt, enter the maximum number of hops (0-120).
- 2 At the `Use single step configuration` prompt, enter **Y** to go through each existing port, or **N** to enter a specific port. If you enter **Y**, the `Enter port ID` prompt is displayed automatically for each existing port.



*If your CoreBuilder 9000 includes many ports, use the single-step configuration option by entering **Y** at the Use single step configuration prompt. If you want to configure a specific port, enter **N** at the prompt, and then enter the port number at the Enter port ID prompt.*

- 3 At the `Enter port ID` prompt, enter or accept the Port ID for each port (1-4), including the slot number (1-7, 10,12,14,16), the group number (1 or 2) and the port number (1-4).
- 4 At the `NNI type of port` prompt, enter or accept the NNI type for the port you just specified. The port can be UNI (enter **U**), NNI (enter **N**), or Gateway (enter **G**).

- 5 Repeat steps 3 and 4 until you have specified the NNI type for all of the ports that are in the CoreBuilder 9000 ATM Enterprise Switch chassis. When you are finished, enter **0**.
- 6 The LMA automatically prompts you for the NNI type of the ports that you have specified as Gateway. Specify the NNI type as User or Network.
- 7 Repeat until you have specified all of the Gateway ports.

The following prompt appears:

```
*** The following is a profile of ports you have defined as
Gateway: Profile of port <1.1.1>(U<ser>,N<etwork>):
```

```
UNI/NNI configuration
-----
NNI max hops (0 - 120): 7

Ports' type is set to UNI unless configured otherwise
Use single step configuration (Y/N)? Y
NNI type of port <1.1.1> (U<NI>, N<NI>, G<ateway>): U
NNI type of port <1.1.2> (U<NI>, N<NI>, G<ateway>): U
NNI type of port <1.1.3> (U<NI>, N<NI>, G<ateway>): U
NNI type of port <1.1.4> (U<NI>, N<NI>, G<ateway>): U
NNI type of port <1.2.1> (U<NI>, N<NI>, G<ateway>): U
NNI type of port <1.2.2> (U<NI>, N<NI>, G<ateway>): U
NNI type of port <1.2.3> (U<NI>, N<NI>, G<ateway>): U
NNI type of port <1.2.4> (U<NI>, N<NI>, G<ateway>): U
```

IP and Management Configuration Section

In this section you are prompted for the IP and Management Configuration parameters: IP address, NMS address, default gateway, and subnet mask. Enter values as appropriate. These parameters support an NMS (Network Management Station) that is connected to the ATM Switch Fabric Module through the PCMCIA Ethernet port.

Confirmation Section This section prompts you to save all changed parameters and whether you want to reboot.

```
Accept changes
-----

*** Note: Change of some parameters will take effect now!!

Save changes (Y/N)? Y
Saving Network Prefix for next reboot...
Saving NNI parameters (effective from now on)...

The new configuration has been saved.

Reboot the system (Y/N)? n

The changes will take effect only after next reboot.
```

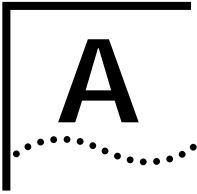
To save the changes, enter **Y**, otherwise enter **N**.

To reboot, enter **Y**, otherwise enter **N**. The main menu appears.

The Integrated Fast Setup of the ATM Switch Fabric Module and the ATM Interface Module is now complete.



All the configuration settings are automatically transferred to the standby switch fabric module.



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 very latest, 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 FTP site
- 3Com Bulletin Board Service (3Com BBS)
- 3Com FactsSM automated fax service

World Wide Web Site

Access the latest networking information on the 3Com Corporation World Wide Web site by entering the URL into your Internet browser:

<http://www.3com.com/>

This service provides access to online support information such as technical documentation and software library, as well as support options ranging from technical education to maintenance and professional services.

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** (or **192.156.136.12**)
- Username: **anonymous**
- Password: **<your Internet e-mail address>**



A user name and password are not needed 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 14,400 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 3345 7266
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, use 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 additional assistance is required, 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, please 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

Below 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 021 6350 1590
Hong Kong	800 933 486	Singapore	800 6161 463
India	61 2 9937 5085	S. Korea	
Indonesia	001 800 61 009	From anywhere in S. Korea:	82 2 3455 6455
Japan	0031 61 6439	From Seoul:	00798 611 2230
Malaysia	1800 801 777	Taiwan, R.O.C.	0080 611 261
New Zealand	0800 446 398	Thailand	001 800 611 2000
Pakistan	61 2 9937 5085		
Philippines	1235 61 266 2602		
Europe			
From anywhere in Europe, call: +31 (0)30 6029900 phone +31 (0)30 6029999 fax			
From the following European countries, you may use the toll-free numbers:			
Austria	06 607468	Netherlands	0800 0227788
Belgium	0800 71429	Norway	800 11376
Denmark	800 17309	Poland	0800 3111206
Finland	0800 113153	Portugal	05 05313416
France	0800 917959	South Africa	0800 995014
Germany	0130 821502	Spain	900 983125
Hungary	00800 12813	Sweden	020 795482
Ireland	1 800 553117	Switzerland	0800 55 3072
Israel	177 3103794	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)		

Returning Products for Repair

Before you send a product directly to 3Com for repair, you must first obtain a Return Materials Authorization (RMA) number. Products sent to 3Com without RMA numbers will be returned to the sender unopened, at the sender's expense.

To obtain an RMA number, call or fax:

Country	Telephone Number	Fax Number
Asia, Pacific Rim	65 543 6500	65 543 6348
Europe, South Africa, and Middle East	+ 44 1442 435860	+ 44 1442 435718
From the following European countries, you may call the toll-free numbers; select option 2 and then option 2:		
Austria	06 607468	
Belgium	0800 71429	
Denmark	800 17309	
Finland	0800 113153	
France	0800 917959	
Germany	0130 821502	
Hungary	00800 12813	
Ireland	1800553117	
Israel	177 3103794	
Italy	1678 79489	
Netherlands	0800 0227788	
Norway	800 11376	
Poland	00800 3111206	
Portugal	05 05313416	
South Africa	0800 995014	
Spain	900 983125	
Sweden	020 795482	
Switzerland	0800 55 3072	
U.K.	0800 966197	
Latin America	1 408 326 2927	1 408 326 3355
U.S.A. and Canada	1 800 NET 3Com (1 800 638 3266)	1 408 326 7120

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3Com Corporation LIMITED WARRANTY

CoreBuilder® 9000 ATM Enterprise Switch Fabric Module

HARDWARE

3Com warrants this hardware product to be free from defects in workmanship and materials, under normal use and service, for the following length of time from the date of purchase from 3Com or its authorized reseller:

Network Interface Cards One (1) year

Other hardware products One (1) year

Spare Parts and Spares Kits 90 days

3Com's sole obligation under this express warranty shall be, at 3Com's option and expense, to repair the defective product or part, deliver to Customer an equivalent product or part to replace the defective item, or if neither of the two foregoing options is reasonably available, 3Com may, in its sole discretion, refund to Customer the purchase price paid for the defective product. All products that are replaced will become the property of 3Com. Replacement products may be new or reconditioned. 3Com warrants any replaced or repaired product or part for ninety (90) days from shipment, or the remainder of the initial warranty period, whichever is longer.

SOFTWARE

3Com warrants that each software program licensed from it will perform in substantial conformance to its program specifications, for a period of ninety (90) days from the date of purchase from 3Com or its authorized reseller. 3Com warrants the media containing software against failure during the warranty period. No updates are provided. 3Com's sole obligation under this express warranty shall be, at 3Com's option and expense, to refund the purchase price paid by Customer for any defective software product, or to replace any defective media with software which substantially conforms to applicable 3Com published specifications. Customer assumes responsibility for the selection of the appropriate applications program and associated reference materials. 3Com makes no warranty or representation that its software products will meet Customer's requirements or work in combination with any hardware or applications software products provided by third parties, that the operation of the software products will be uninterrupted or error free, or that all defects in the software products will be corrected. For any third party products listed in the 3Com software product documentation or specifications as being compatible, 3Com will make reasonable efforts to provide compatibility, except where the non-compatibility is caused by a "bug" or defect in the third party's product or from use of the software product not in accordance with 3Com's published specifications or user manual.

YEAR 2000 WARRANTY

In addition to the Hardware Warranty and Software Warranty stated above, 3Com warrants that each product sold or licensed to Customer on and after January 1, 1998 that is date sensitive will continue performing properly with regard to such date data on and after January 1, 2000, provided that all other products used by Customer in connection or combination with the 3Com product, including hardware, software, and firmware, accurately exchange date data with the 3Com product, with the exception of those products identified at 3Com's Web site, <http://www.3com.com/products/yr2000.html>, as not meeting this standard. If it appears that any product that is stated to meet this standard does not perform properly with regard to such date data on and after January 1, 2000, and Customer notifies 3Com before the later of April 1, 2000, or ninety (90) days after purchase of the product from 3Com or its authorized reseller, 3Com shall, at its option and expense, provide a software update which would effect the proper performance of such product, repair such product, deliver to Customer an equivalent product to replace such product, or if none of the foregoing is feasible, refund to Customer the purchase price paid for such product.

Any software update or replaced or repaired product will carry a Year 2000 Warranty for ninety (90) days after purchase or until April 1, 2000, whichever is later.

OBTAINING WARRANTY SERVICE

Customer must contact a 3Com Corporate Service Center or an Authorized 3Com Service Center within the applicable warranty period to obtain warranty service authorization. Dated proof of purchase from 3Com or its authorized reseller may be required. Products returned to 3Com's Corporate Service Center must be pre-authorized by 3Com with a Return Material Authorization (RMA) number marked on the outside of the package, and sent prepaid and packaged appropriately for safe shipment, and it is recommended that they be insured or sent by a method that provides for tracking of the package. The repaired or replaced item will be shipped to Customer, at 3Com's expense, not later than thirty (30) days after 3Com receives the defective product.

Dead- or Defective-on-Arrival. In the event a product completely fails to function or exhibits a defect in materials or workmanship within the first forty-eight (48) hours of installation but no later than thirty (30) days after the date of purchase, and this is verified by 3Com, it will be considered dead- or defective-on-arrival (DOA) and a replacement shall be provided by advance replacement. The replacement product will normally be shipped not later than three (3) business days after 3Com's verification of the DOA product, but may be delayed due to export or import procedures. When an advance replacement is provided and Customer fails to return the original product to 3Com within fifteen (15) days after shipment of the replacement, 3Com will charge Customer for the replacement product, at list price.

3Com shall not be responsible for any software, firmware, information, or memory data of Customer contained in, stored on, or integrated with any products returned to 3Com for repair, whether under warranty or not.

ADDITIONAL SERVICES

3Com's Web and Bulletin Board Service are available at no charge, and provide software and firmware upgrades, a bug list, and technical information about 3Com products.

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GOVERNING LAW

This Limited Warranty shall be governed by the laws of the State of California, U.S.A. excluding its conflicts of laws principles and excluding the United Nations Convention on Contracts for the International Sale of Goods.

3Com Corporation
5400 Bayfront Plaza
Santa Clara, CA 95054
(408) 326-5000