

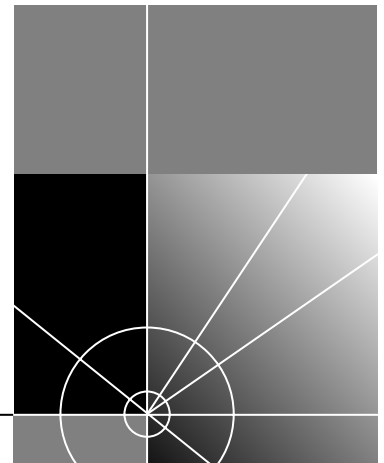


CoreBuilder[®] 2500 Software Installation and Release Notes

Intelligent Switching Software
Version 8.1.2

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

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COREBUILDER 2500 INTELLIGENT SWITCHING SOFTWARE VERSION 8.1.2

Overview

These release notes describe CoreBuilder® 2500 Intelligent Switching software, version 8.1.2, from 3Com Corporation, dated February 19, 1999. This release supersedes LANplex® 2500 Intelligent Switching software, version 8.1.1, dated December 20, 1996.



In mid-1997, 3Com changed the name of the LANplex 2500 switch to the CoreBuilder 2500 switch. In version 8.1.2, however, the LANplex name and related abbreviations, such as `lpx` and `lpxx`, remain in the filenames and displays on the Administration Console.



These release notes use the CoreBuilder name. If applicable for your system, substitute LANplex for CoreBuilder throughout these release notes.

Before You Start

Before you install Intelligent Switching software version 8.1.2 on your system, be sure to read this document in its entirety so that you understand the release features, system issues, known problems, supported configurations, and the software installation procedure.

Upgrade Considerations

You can load Intelligent Switching software version 8.1.2 on any LANplex 2500 or CoreBuilder 2500 system. Before you upgrade a system, read "Upgrade Considerations" on page 11 for important information and cautions.

About Software Version 8.1.2

Intelligent Switching software version 8.1.2 is a maintenance release that includes several patches (bug fixes). Table 1 lists the patch numbers and descriptions.

Table 1 Patch Descriptions

Patch No.	Descriptions of Fixed Problems
5	Added the ability to save nonvolatile configuration data from one system and restore it to another system. Fixed a problem with the <code>nvdata save</code> process and <code>.nvd</code> file extensions.
6	Fixed a buffer leak problem with IPX NetBIOS in configurations that have no outgoing interfaces. Fixed a problem in which IPX NetBIOS network numbers were corrupted when using FDDI 802.2 encapsulation on an IPX interface. This problem affected the processing of an IPX NetBIOS frame and potentially caused it to be dropped.
10	Fixed a problem with Fast Ethernet port lockups.
13	Fixed the FDDI Source Route frame problem with Panic 3 errors. Errors were caused by frames with unicast DA, known DA, source route SA, known SA, and frames in error. Fixed a problem with multibuffer FDDI and ATM Panic 3 errors. Fixed an error with the max VLAN condition that occurred while adding VLANs.
15	Fixed the corruption problem with frames that required fragmentation between FDDI and Ethernet.
17	Fixed filtering problems with ATM LECs.
18	Fixed a problem in which, if an IP VLAN was removed, then the remaining IP VLANs could no longer communicate with each other through the system.
19	Fixed a problem in which AUI and BNC ports hung when a certain amount of collision activity occurred.
22	Revised the fix that dealt with frame corruption during FDDI-to-Fast Ethernet or FDDI-to-Ethernet fragmentation. Fixed a problem with the initialization and timing of ATM LECs.
23	Fixed a problem that occurred if an ATM multicast limit was set. If that limit value was reached on an ATM interface, all future traffic through that interface was dropped.
24	Fixed the Panic78 frame buffer overreturn problem that was caused by Source Route frames in error. This fix is only for Transparent Bridge Mode.

Table 1 Patch Descriptions (continued)

Patch No.	Descriptions of Fixed Problems
25	<p>Added functionality to disable ATM throttling to the Broadcast and Unknown Server (BUS). A value indicates the number of unknown addresses that can be sent to the BUS. A new value of "0" disables this function.</p> <p>Fixed a problem with console lockup that can occur after you enter a Ctrl+C command at the Administration Console.</p>
27	<p>Fixed performance problems (slow responses, lost connections, and so on) that occurred when the system accessed the ARP table via SNMP.</p> <p>Fixed a memory leak that was caused by ARP frames.</p> <p>Fixed an ARP-related problem that resulted in buffer loss.</p>
28	<p>Added support for LEC IDs of zero.</p>
30	<p>Fixed the cause of various <code>cp panic</code> messages when the system is interoperating in an ATM environment.</p>
31	<p>Fixed a buffer leak that was caused by receiving packets that were larger than legal Ethernet sizes.</p>
32	<p>Changed how passwords are handled in the system.</p> <p>Changed the system response for certain MIB requests. When the MIB objects <code>swSysSystemConsoleWritePwd</code> and <code>swSysSystemConsoleAdminPwd</code> are requested by a management entity, the system now returns the message <code>NoSuchName</code>, regardless of the access level of the community string that you use to request these objects.</p>
33	<p>Fixed a problem with Rlogin so that customers can use Rlogin instead of Telnet. The use of Telnet causes small memory leaks of about 40 bytes per session. If you Telnet to a system with a Rev 7 motherboard every 15 minutes on a 7x24 basis, then it would take approximately 24 days to start receiving <code>memPartAlloc</code> error messages when you access the system for information. This time would be longer than 24 days for systems with Rev 8 motherboards and shorter for systems with Rev 6 motherboards, because they have different amounts of memory. A system reboot or power cycle returns all memory that is lost through the leaking process.</p>
34	<p>Provided a software fix for a flash memory issue. In certain circumstances, if the system was rebooted, the system indicated unrecoverable checksum errors. This fix incorporates a new expander file to be used during the software installation process.</p>

System Issues

The following system issues have been identified for software version 8.1.2:

- When a ping is initiated from the CoreBuilder 2500 system and is destined to an ATM device that has a specific ATM adapter card, multiple pings are required before communication is initiated. This situation arises because of the amount of time required for the adapter card to resolve ATM ARP.
- An ATM LEC cannot be configured as the backbone port in Express Switching mode.
- After you set a system baseline, ATM LEC bridge statistics are incorrect.
- You cannot set the `ipDefaultTTL` MIB variable.
- When the ILMI autoconfiguration option is enabled on a CoreBuilder 7000 switch, it could take several minutes for a LEC configured on a CoreBuilder 2500 to join an emulated LAN.
- Packet filters can access data only through byte 64 in the packet.
- Roving Analysis frames that are sent over a remote Fast Ethernet connection are truncated if greater than 1495 bytes.
- Roving analysis is not supported on a system that has an ATM module installed in the chassis.
- Remote roving analysis is not supported over a Fast Ethernet connection that has the Spanning Tree Protocol enabled.
- Before you enable Express Switching mode, disable the backbone port. Then, after you enable Express Switching mode, reenable the backbone port.
- The system cannot route FDDI multicast frames that are larger than 1500 bytes (that is, frames that require fragmentation).
- The FCS error statistics field reports inaccurate values for Fast Ethernet ports.

Upgrade Considerations

There are three primary upgrade considerations:

- Once you install software version 7.0.0 or higher in a system that uses a revision 8.0 motherboard, you can never install software versions previous to version 7.0.0 in the future. To see if you have a revision 8.0 motherboard in your system, enter **system display** at the top level of the Administration Console. The first line of the display shows the product name and, in parentheses, the revision number of the motherboard.
- If you are upgrading from a release prior to version 7.0.0, be aware that the menu item `ip forwarding` was changed to `ip routing` at version 7.0.0. If you have created automated scripts that include `ip forwarding`, edit them to reflect this command change.
- If you are upgrading from a release prior to version 8.1.1, be aware that the parameter `broadcast address` in the IP interface definition procedure was changed to `advertisement address(es)` at version 8.1.1. If you have created automated scripts that include `broadcast address`, edit them to reflect this command change.

Restrictions with ATM and 10BASE-FL Modules

Each CoreBuilder 2500 chassis features two slots for low-speed modules (Ethernet) and two slots for high-speed modules (ATM, FDDI, or Fast Ethernet). At this release, however, the system supports only one ATM module per chassis.

In addition, restrictions apply to certain configurations that mix one ATM module with two older Ethernet 10BASE-FL modules (3C201400; no longer orderable). The combination of these three modules causes certain systems to draw excessive power and eventually fail. Whether your system could be affected by this module-combination problem depends on the revision level of the system motherboard.



You can order a newer version of the 10BASE-FL module (3C201400A). The configuration restrictions described in this section do not apply to this newer version of the 10BASE-FL module.

To determine the revision level of your system motherboard, enter **system display** at the top level of the Administration Console. The first line of the display shows the product name and, in parentheses, the revision number of the motherboard.

Table 2 outlines the configuration restrictions.

Table 2 Physical Configuration Limitations

System Configuration	Chassis with Revision 8.x Motherboard	Chassis with Revision 7.x Motherboard	Chassis with Revision 6.x Motherboard
<ul style="list-style-type: none"> ■ 2 old 10BASE-FL modules (3C201400) 	<i>Configuration is not supported*</i>	<i>Configuration is not supported*</i>	<i>Configuration is not supported*</i>
<ul style="list-style-type: none"> ■ 1 FDDI (MMF or SMF) module 	Draws 15 amps	Draws 14.3 amps	Draws 14.45 amps
<ul style="list-style-type: none"> ■ 1 ATM module 			
<ul style="list-style-type: none"> ■ 2 old 10BASE-FL modules (3C201400) 	<i>Configuration is not supported*</i>	Supported configuration	Supported configuration
<ul style="list-style-type: none"> ■ 1 100BASE-FX module 	Draws 14.4 amps		
<ul style="list-style-type: none"> ■ 1 ATM module 			
<ul style="list-style-type: none"> ■ 2 old 10BASE-FL modules (3C201400) 	<i>Configuration is not supported*</i>	Supported configuration	<i>Configuration is not supported*</i>
<ul style="list-style-type: none"> ■ 1 100BASE-TX module 	Draws 14.6 amps		Draws 14.05 amps
<ul style="list-style-type: none"> ■ 1 ATM module 			
<ul style="list-style-type: none"> ■ 2 old 10BASE-FL modules (3C201400) 	<i>Configuration is not supported*</i>	<i>Configuration is not supported*</i>	<i>Configuration is not supported*</i>
<ul style="list-style-type: none"> ■ 1 TP-DDI module 	Draws 15.2 amps	Draws 14.5 amps	Draws 14.65 amps
<ul style="list-style-type: none"> ■ 1 ATM module 			

* This system configuration *would* be supported if you replace both of the older 10BASE-FL modules (3C201400) with the newer 10BASE-FL modules (3C201400A).

Error Message for Unsupported Configurations

During system power on, Intelligent Switching software version 8.1.1 or later can detect the unsupported configurations that are outlined in Table 2. If the system detects an unsupported configuration, it does not boot up normally and initiates a critical error condition, as indicated by these symptoms:

- All LEDs on the system light.
- The Config LED flashes to indicate the critical error.
- The following error message appears:

```
FATAL Error .....
```

```
Option Module Configuration Not Supported.  
Illegal Combination of Adapter Cards
```

```
SYSTEM HALTED!
```



A similar error message appears if a newer Ethernet 10BASE-FL module (3C201400A) is present but is not functioning properly:

```
An Overcurrent Condition Has Occurred For The  
Adapter Card In Slot - 3 or 4  
Please Remove This Adapter Card and Contact 3Com  
Technical Support.
```

```
SYSTEM HALTED!
```

Customer Documentation

Most functionality in Intelligent Switching software version 8.1.2 is described in the documentation titles that are listed in Table 3.

Table 3 Customer Documentation*

Title	Part Number
<i>CoreBuilder 2500 Getting Started Guide</i>	801-00376-000
<i>CoreBuilder 2500 Operation Guide</i>	801-00375-000
<i>CoreBuilder 2500 Administration Console User Guide</i>	801-00374-000

* If you ordered a system that had Intelligent Switching software version 8.1.2 installed, then you also received a Documentation CD-ROM that contains online versions of these documents. If you are upgrading an existing system to version 8.1.2 and want to download the latest documentation, visit the 3Com Web site: www.3com.com

Other functionality in version 8.1.2 is described in "About Software Version 8.1.2" earlier in these release notes, as well as in Appendix A and Appendix B:

- Appendix A briefly describes the new features that were included in Intelligent Switching software version 8.1.1.
- Appendix B describes how to administer ATM. ATM is mentioned in Appendix A and described fully in Appendix B.



Some titles of documentation that are shipped with the CoreBuilder 2500 system use the LANplex name instead of the CoreBuilder name.

Software Installation Procedure

Use this section in either of these cases:

- If these Intelligent Switching version 8.1.2 release notes are included in your system packaging, then version 8.1.2 is already installed on your system. Use this "Software Installation Procedure" section and the Software CD-ROM only if you need to reinstall the software later.
- If you are upgrading an existing system to Intelligent Switching software version 8.1.2, read through this entire "Software Installation Procedure" section at least once before you start the installation process.

Software Files on the Software CD-ROM

Intelligent Switching software version 8.1.2 includes the following directory and file structure:

- Mib_defs
 - baseMibs
 - hpov
 - mosy
 - smic
 - snm
- Software
 - lp2500c
 - lpexpand
 - lpx2000s

Filter Builder

The Software CD-ROM also includes the Filter Builder utility, which you can use to develop and test packet filters for the CoreBuilder 2500 system. You load Filter Builder software on a PC, not on the system. See the *LAN Switching Tools Filter Builder Getting Started Guide* on the Documentation CD-ROM for more information about installing and using Filter Builder.

Software Files on the 3Com Web Site

You can also obtain Intelligent Switching software version 8.1.2 from the 3Com Web site. For easy downloading, all software files are compressed into one file. To locate this file, begin from the following URL:

<http://support.3com.com/software/switches.htm>

Software Installation Process Summary

To install CoreBuilder 2500 Intelligent Switching software version 8.1.2, follow these general steps, which are explained in greater detail in the indicated sections:

- 1 Copy the software files from the Software CD-ROM or download the software files from the 3Com Web Site to the hard disk of a host device. See "Copying Software to a Hard Disk" for detailed instructions.
- 2 Prepare the system and the host device. See "Preinstallation Tasks" for detailed instructions.
- 3 Install the diagnostic software file and system software files onto the CoreBuilder 2500 system by retrieving the files from the host device. See "Installing the Diagnostic Software" and "Installing the System Software" for detailed instructions.



You can update software on the system while it is operating in a network. The system continues to forward traffic during the installation, except when the system is rebooting.

Copying Software to a Hard Disk

Because you cannot directly load Intelligent Switching software version 8.1.2 from the Software CD-ROM or the 3Com Web site onto your system, you use an interim host device to transfer software files to your system.

Prerequisites for the host device:

- Must be able to function as an FTP server
- Must use a UNIX, Windows 95, or Windows NT operating system

To copy the software to a host device, follow these steps:

- 1 Either:
 - a Copy the software files from the Intelligent Switching version 8.1.2 Software CD-ROM to the hard disk of the selected host device.OR
 - a Download the compressed file from the 3Com Web Site to the hard disk of the selected host device. Begin with the following URL:
`http://support.3com.com/software/switches.htm`
 - b Decompress the file on the host device to reveal the individual software files.

- 2 Because you need it later in the procedure, write down the exact pathname, using exact letter case, for the location of each software file on the host device.



If you copy files from one host device to another host device using the file transfer protocol (FTP), be aware that the case of the letters in the software filenames may change during the transfer.

- 3 Proceed to “Preinstallation Tasks” next.

Preinstallation Tasks

To ensure that the system and the host device are ready to continue with the procedure, follow these steps:

- 1 Using the `ip ping` command, verify that the CoreBuilder 2500 system can reach the host computer to which you copied the updated software.

See the *CoreBuilder 2500 Administration Console User Guide* for more information about the `ip ping` command.

- 2 Verify that the host device has FTP server software running on it.
- 3 Using the `system nvData save` command, save your system’s NVRAM configuration data.

See the *CoreBuilder 2500 Administration Console User Guide* for more information about the `system nvData save` command.

- 4 Proceed to “Installing the Diagnostic Software” next.

Installing the Diagnostic Software

The diagnostic software runs important internal tests at system power up. To update the diagnostic software on the system, follow these steps:



CAUTION: *If you are performing this upgrade process from a remote host (for example, using a modem connection or telnet session), do not disconnect your session to the CoreBuilder 2500 system while the software update is in progress, or the file may become corrupted. If your session is disconnected, do not reboot the system. Instead, log in to the system again and restart the entire software installation procedure.*

- 1 To ensure that no other administrative sessions can occur during the update process, lock the Administration Console:

a From the top level of the Administration Console, enter:

system consoleLock

b At the prompt, enter: **on**



CAUTION: *If another user logs into the system using telnet while a software update is taking place, the software images that are stored in flash memory may become corrupted.*

- 2 To begin loading the diagnostic software, enter the following command from the top level of the Administration Console:

system softwareUpdate

The system prompts you for several items of information.



Press Return at any prompt to accept the default value that is shown in brackets.

- 3 At the `Host IP address` prompt, enter the IP address of the host device from which you are retrieving the diagnostic software.
- 4 At the `Install file pathname` prompt, enter the complete path and filename.



Paths and filenames are case-sensitive. Be sure to type them exactly as shown on the hard disk of the host device.



For an MS-DOS host, you must precede the full path with a forward slash (/). Example: `/c:\3com\cb2500\1px2000s`

- 5 At the `User name` prompt, enter your user name.

- 6 At the `Password` prompt, enter your password. The field does not display the characters that you enter.

After you enter your password, the system begins to retrieve the file from the host device.

When the installation is complete, the system returns you to the top level of the Administration Console.



CAUTION: *If, for any reason, the installation stops (that is, if you do not see activity for more than 2 minutes), do not reboot the system. Instead, press Ctrl+C. After the system displays some trace information, it prompts you for a login ID and password. Log in and try the installation again.*

Example

```
Host IP address [192.9.200.14]: 192.9.200.96
Install file pathname[/usr/cb2500/lpx2000s]:
User name: scottco
Password:
Programming flash memory block 1 of 2...
Programming flash memory block 2 of 2 ...
Installation complete.
```

- 7 To activate the newly loaded diagnostic software, reboot the system by entering the following command from the top level of the Administration Console:

system reboot



CAUTION: *You must reboot the system after you load the diagnostic software but before you load the system software. If you do not reboot the system at this point, then a continuous system reboot occurs later in the installation process.*



After the reboot, the system retains the user-configurable nonvolatile data.

- 8 Log in to the system and proceed to “Installing the System Software” next.

Installing the System Software

The system software is organized in two files: an expander file (`1pexpand`) and a compressed image file (`1p2500c`). The expander file is a utility that expands the compressed image and moves it from flash memory into random access memory on the system.

To install system software, you complete these four tasks:

- Retrieve the expander file: `1pexpand`
- Retrieve the compressed image: `1p2500c`
- Reboot the system
- Retrieve the compressed image again: `1p2500c`

Detailed instructions for each task are provided next.

Loading the Expander File

To load the expander file onto the CoreBuilder 2500 system, follow these steps:

- 1 To ensure that no other administrative sessions can occur during the update process, lock the Administration Console:
 - a From the top level of the Administration Console, enter:
system consoleLock
 - b At the prompt, enter: **on**



*If you completed step 1 in "Installing the Diagnostic Software" earlier in these release notes, the consoleLock is already set to **on**.*



CAUTION: *If another user logs into the system using telnet while a software update is taking place, the software images that are stored in flash memory may become corrupted.*

- 2 From the top level of the Administration Console, enter:

```
system softwareUpdate
```

The system prompts you for several items of information.



Press Return at any prompt to accept the default value that is shown in brackets.

- 3 At the `Host IP address` prompt, enter the IP address of the host device from which you are retrieving the expander file.
- 4 At the `Install file pathname` prompt, enter the complete path and filename.



Paths and filenames are case-sensitive. Be sure to type them exactly as shown on the hard disk of the host device.



For an MS-DOS host, you must precede the full path with a forward slash (/). Example: `/c:\3com\cb2500\lpexpand`

- 5 At the `User name` prompt, enter your user name.
- 6 At the `Password` prompt, enter your password. The field does not display the characters that you enter.

After you enter your password, the system begins to retrieve the file from the host device.



CAUTION: *If, for any reason, the installation stops (that is, if you do not see activity for more than 2 minutes), do not reboot the system. Instead, press Ctrl+C. After the system displays some trace information, it prompts you for a login ID and password. Log in and try the installation again.*

When the installation is complete, the system returns you to the top level of the Administration Console. Do not reboot the system.

Example

```
Host IP address [192.9.200.14]: 192.9.200.96  
Install file pathname[/usr/cb2500/lpexpand]:  
User name: scottco  
Password:  
Programming flash memory block 1 of 1...  
Installation complete.
```



CAUTION: *Do not reboot the system at this point.*

- 7 Proceed to "Loading the Compressed Image" next.

Loading the Compressed Image

To load the compressed image file onto the CoreBuilder 2500 system, follow these steps:

- 1 From the top level of the Administration Console, enter:

system softwareUpdate

The system prompts you for several items of information.



Press Return at any prompt to accept the default value that is shown in brackets.

- 2 At the `Host IP address` prompt, enter the IP address of the host device from which you are retrieving the compressed image.
- 3 At the `Install file pathname` prompt, enter the complete path and filename.



Paths and filenames are case-sensitive. Be sure to type them exactly as shown on the hard disk of the host device.



For an MS-DOS host, you must precede the full path with a forward slash (/). Example: `/c:\3com\cb2500\1p2500c`

- 4 At the `User name` prompt, enter your user name.
- 5 At the `Password` prompt, enter your password. The field does not display the characters that you enter.

After you enter your password, the system begins to retrieve the file from the host device.



CAUTION: *If, for any reason, the installation stops (that is, if you do not see activity for more than 2 minutes), do not reboot the system. Instead, press Ctrl+C. After the system displays some trace information, it prompts you for a login ID and password. Log in and try the installation again.*



CAUTION: *If a power failure occurs while you are updating the software, the software image that is stored in flash memory may become corrupted. If this happens, contact your network supplier or 3Com Technical Support. See Appendix C for worldwide 3Com contact numbers.*

When the installation is complete, the system returns you to the top level of the Administration Console.

Example Host IP address [192.9.200.14]: **192.9.200.96**
Install file pathname[/usr/cb2500/lp2500c]:
User name: **scottco**
Password:
Programming flash memory block 1 of 15...
Programming flash memory block 2 of 15...
Programming flash memory block 3 of 15...
.
.
Programming flash memory block 15 of 15...
Installation complete.

- 6 Proceed to "Rebooting the System" next.

Rebooting the System

To reboot your system, follow these steps:

- 1 From the top level of the Administration Console, enter:
system reboot
- 2 When the reboot is complete, log in to the system and proceed to "Reloading the Compressed Image" next.

Reloading the Compressed Image

You must load the compressed image file again. Follow these steps:

- 1 From the top level of the Administration Console, enter:
system softwareUpdate

The system prompts you for several items of information.



Press Return at any prompt to accept the default value that is shown in brackets.

- 2 At the Host IP address prompt, enter the IP address of the host device from which you are retrieving the compressed image.
- 3 At the Install file pathname prompt, enter the complete path and filename.



Paths and filenames are case-sensitive. Be sure to type them exactly as shown on the hard disk of the host device.



For an MS-DOS host, you must precede the full path with a forward slash (/). Example: /c:\3com\cb2500\lp2500c

- 4 At the User name prompt, enter your user name.

- 5 At the `Password` prompt, enter your password. The field does not display the characters that you enter.

After you enter your password, the system begins to retrieve the file from the host device.

When the installation is complete, the system returns you to the top level of the Administration Console. You do not need to reboot the system.

Example

```
Host IP address [192.9.200.14]: 192.9.200.96
Install file pathname[/usr/cb2500/lp2500c]:
User name: scottco
Password:
Programming flash memory block 1 of 15...
Programming flash memory block 2 of 15...
Programming flash memory block 3 of 15...
.
.
Programming flash memory block 15 of 15...
Installation complete.
```

- 6 You must now reset the password for the `administer` access level. Follow these steps:



This step activates patch number 32 in this release. See "About Software Version 8.1.2" earlier in these release notes for patch descriptions.

- a From the top level of the Administration Console, enter:
 - system password**
 - You are prompted for an access level to change.
 - b Enter **administer**
 - c At the prompt for your old password, enter the old password.
 - d You are prompted for a new password. Enter a new password.
 - e At the prompt, enter your new password again.
- 7 Unlock the Administration Console.
 - a From the top level of the Administration Console, enter:
 - system consoleLock**
 - b Enter **off**

You have completed the installation procedure for Intelligent Switching software version 8.1.2.

SNMP MIB Files

Table 4 lists the public and private SNMP MIB files that are included in CoreBuilder 2500 Intelligent Switching software version 8.1.2 as ASN.1 files.



These MIB files are unchanged from those that were included with Intelligent Switching software version 8.1.1.

Table 4 Supported MIBs

Public MIBs	Private MIBs
ATM MIB - RFC 1695 (atm.mib)	LANplex Optional FDDI MIB v1.2.1 (IpOpFddi.mib)
ATM MIB, af-lane-1129.001 (les.mib)	LANplex Systems MIB v1.3 (lp.mib)
Bridge MIB - RFC 1493 (bridge.mib)	
Ethernet MIB - RFC 1398 (ethernet.mib)	
FDDI SMT v7.3 - RFC 1512 (fddiSmt7.mib)	
Interface MIB - RFC 1573 (if.mib)	
LEC MIB, af-lane-0044.00 (lec.mib)	
MIB II - RFC 1213 (mib2.mib)	

Compiler Support

3Com provides ASN.1 MIB files for each of the MIB compilers that are listed in this section. Any warnings or exceptions related to a compiler are listed with it.

- SMIC (version 1.0.9)
- MOSY (version 7.1)

For the MIB file *IpOpFddi.mib*, the MOSY compiler reports warnings for counter names that do not end in "s". These reports have no effect on the output produced by the MOSY compiler.

- HP Openview (version 3.1)

- mib2schema (with SunNet Manager version 2.0)

The MIB file *fddiSmt7.mib* produces the following warning messages when compiled using mib2schema:

```
Translating....
```

```
Warning: The following INDEX entries in
fddimibMACCountersTable not resolved:
```

```
fddimibMACSMTIndex
```

```
fddimibMACIndex
```

```
Translation Complete.
```

```
Schema file in "fddiSmt7.mib.schema"
```

```
Oid file in "fddiSmt7.mib.oid"
```

These warning messages have no effect on the ability of SunNet Manager to use the schema file generated with SunNet Manager version 2.0 or later.

Release History

Table 5 provides a brief release history for the CoreBuilder 2500 Intelligent Switching software.

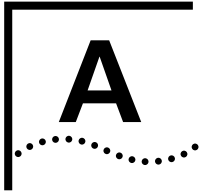
Table 5 Release Descriptions

Version	Description
8.1.2	Maintenance release that includes various patches (bug fixes) as described in these release notes
8.1.1	New features: <ul style="list-style-type: none"> ■ Support for ATM module ■ IP interface definition change ■ System Uptime menu added ■ Several MIB updates ■ Per-port removal from Spanning Tree ■ Telnet timeout change
7.0.1	Maintenance release that corrected problems with the third-party management processor that is used in the system

Table 5 Release Descriptions (continued)

Version	Description
7.0.0	New features: <ul style="list-style-type: none">■ Support for the Fast Ethernet module■ Support for the unterminated BNC module■ Support for IP multicast■ Telnet and rlogin sessions now terminate after a user-specified time interval■ Configurable Spanning Tree Protocol (STP) group address■ Menu item change (ip forwarding now ip routing)■ Support for 64 IP static routes■ Menu item change: IPX frame types■ Ethernet ports configurable as Express Switching ports
5.1.0	Maintenance release that included various patches (bug fixes)
5.0.0	New features: <ul style="list-style-type: none">■ IPX routing■ AppleTalk routing
4.3.0	New features: <ul style="list-style-type: none">■ UDP Helper■ IPX Snap translation
4.2.0	New features: <ul style="list-style-type: none">■ IP routing■ Support for the AUI and terminated BNC modules
4.0.1	Maintenance release that included various patches (bug fixes)
4.0.0	First release of LANplex 2500 system software





NEW FEATURES IN INTELLIGENT SWITCHING SOFTWARE VERSION 8.1.1

This appendix describes the new features, menu changes, and corrections that were introduced in Intelligent Switching Software version 8.1.1 and remain in version 8.1.2.



Use this appendix as an addendum to the documentation titles that are listed in Table 3 on page 14 earlier in these release notes.

New Features

The following features or changes, which were introduced in version 8.1.1, are described briefly in the next few sections:

- Support for the ATM Module (more fully described in Appendix B)
- Parameter Change in Interface Definition Procedure
- Defining an IP Interface
- Field Added to the Interface Display
- New System Uptime Menu
- New and Updated MIBs
- Removing STP on a Per Port Basis
- Telnet Timeout Interval Changed

Support for the ATM Module

Intelligent Switching software version 8.1.1 supports the CoreBuilder 2500 ATM Module, which provides a single OC-3 155 Mbps interface (multimode fiber) into a high-speed slot.

Physical Configuration

Each CoreBuilder 2500 chassis has two slots for high-speed modules (100 Mbps or higher) and two slots for low-speed modules. You can install only one ATM module per chassis. See “Restrictions with ATM and 10BASE-FL Modules” on page 11 for details.

Features

The CoreBuilder 2500 ATM Module is designed to be fully interoperable with other 3Com ATM switches, as well as with other switches that comply with industry standards (UNI 3.0 and LANE 1.0).

The ATM module supports these features:

- UNI 3.0 signaling
- LAN Emulation 1.0 (LEC support) — 2 Emulated LANs
- Dynamic configuration of Emulated LANs (ELANs)
- A maximum of 128 Virtual Connections (VCs) per system
- Management:
 - UME Address registration
 - MIBs: ILMI, AToM, LEC, SONET

For detailed information about administering the ATM module and related software commands, see Appendix B in these release notes.

Parameter Change in Interface Definition Procedure

The parameter `broadcast address` in the IP interface definition procedures has been changed to `advertisement address(es)`, primarily to support nonbroadcast networks, such as ATM.

Previously, a broadcast address was configured for each IP interface. The router used this IP address as the destination address for advertisements, such as RIP updates. You may now enter one or more addresses, and the router sends advertisements to each of these addresses. There is no restriction on the addresses. They may be broadcast addresses, individual addresses, or any combination. Separate multiple addresses with commas (,).

Defining an IP Interface

When you define an IP interface, you now specify several IP interface characteristics.

- 1 From the top level of the Administration Console, enter:

```
ip interface define
```

The system prompts you for the interface parameters.



To accept the value in brackets, press Return at the prompt.

- 2 Enter the IP address of the interface.
- 3 Enter the subnet mask of the network to which the interface is to be connected.
- 4 Enter the cost value of the interface.
- 5 Enter the type of IP interface: management.

Example

```
Enter IP address: 158.101.1.1  
Enter subnet mask [255.255.0.0]: 255.255.255.0  
Enter cost [1]: 1  
Enter interface type (management) [management]: management  
Enter advertisement address(es)[158.101.1.255]: 158.101.1.255
```



If you physically change the configuration of your system after you define IP interfaces, the ports designated for those interfaces may no longer be valid. You may want to reconfigure your interfaces.

Displaying Interface Information

You can display both summary and detailed information about all IP interfaces that are configured for the system. The detail display contains all the summary information as well as information about the advertisement address, PVCs, and VLANs.

- 1 To display IP interface information, enter one of the following command strings from the top-level menu of the Administration Console:
ip interface summary or **ip interface detail**
- 2 Enter specific interface index numbers or **all**.

Field Added to the Interface Display

A new field, `state`, has been added to the interface display table, allowing you to view the state of all interfaces configured for each switching module in the system.

The interface state is determined based on the state of all ports associated with the interface. For IP, the state displayed is either `Up` or `Down`:

- The interface state is displayed as `Down` if no port in the defined interface, including those in overlapping subnetworks, has established link status. Link status is *not* established for FDDI DAS ports when neither the A nor the B port has established link status.
- The interface state is displayed as `Up` if one or more ports in the defined interface, including those in overlapping subnetworks, have established link status.

As the interface state changes, transitions are reflected in the corresponding tables for all directly connected and associated routes.

For IP transitions, all routes that are associated with the interface time out in the same manner as do learned routes that are not updated.

If link status is transitioned, previously defined configurations, such as static routes, do not have to be redefined.

New System Uptime Menu

A menu option was added so that you can display the time — in minutes, hours, and days — since the last system reboot occurred.

To display system upTime, from the top level of the Administration Console, enter **system upTime**

New and Updated MIBs

At version 8.1.1, LANplex MIB support was added for:

- File transfer of Flash and NVRAM images
- Enhanced FDDI MAC and port configuration
- SNMP community string configuration
- Control panel access lock
- Remote console session lock
- Console password configuration
- Date and time configuration
- FDDI backplane station mode configuration

At version 8.1.1, support for the Interface MIB (if.mib) was added. This MIB supports the following objects:

- ifStackTable
- ifXTable
- ifName
- ifLinkUpDownTrapEnable

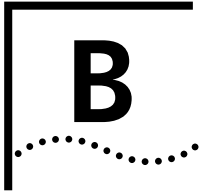
At version 8.1.1, support for the ATM MIB (atm.mib) was added.

Removing STP on a Per Port Basis

Beginning in version 8.1.1, you may remove ports from the Spanning Tree operation on a per-port basis. Ports removed from Spanning Tree (STP) do not participate in the STP operation but continue to forward data. Previously, ports could be enabled or disabled. For more information on administering STP bridge port parameters, see the *CoreBuilder 2500 Administration Console User Guide*.

Telnet Timeout Interval Changed

Beginning in version 8.1.1, you can configure the telnet timeout interval to a number between 1 and 60 minutes. Previously, this interval could only be configured to a number between 30 and 60 minutes.



ADMINISTERING ATM

This appendix describes how to administer asynchronous transfer mode (ATM) on a LANplex® 2500 or CoreBuilder® 2500 system. It covers the following topics:

- ATM in Your Network
- Before You Configure ATM
- LAN Emulation
- Administering UNI Management Entities
- Administering ATM Ports



Before you add an ATM module to your system, see “Restrictions with ATM and 10BASE-FL Modules” on page 11 for details.

ATM in Your Network

ATM architecture differs fundamentally from IEEE 802.x technology. IEEE 802.x LANs, which are limited to FDDI, Ethernet, and token ring, are connectionless and use the Media Access Control (MAC) addresses in each packet to communicate to end-stations. ATM is connection-oriented and uses a circuit identifier, called a virtual channel identifier, to exchange data between two ATM stations over previously established virtual channel connection (VCC).

LAN Emulation and Classical IP

To forward data over an ATM interface in an existing network, two methods are provided to adapt existing network layer protocols to the connection-oriented paradigm of ATM:

- **LAN Emulation (LANE)** — Supports transparent translation of higher level protocols, such as IP, IPX, and AppleTalk protocols. LANE also supports broadcast and multicast addressing.
- **Classical IP over ATM** — Supports transparent translation of IP only over ATM, and does not support broadcast or multicast addressing.



Classical IP is supported only in CoreBuilder 2500 Extended Switching Software, version 8.1.0 or later. Thus, it does not apply to Intelligent Switching Software version 8.1.2.

Before You Configure ATM

Before you configure ATM, follow these steps:

- Check the ATM link status.
- Verify that address registration is operational.
- Verify that signalling is operational.

Checking ATM Link Status

To check the link status, follow these steps:

- 1 From the top level of the Administration Console, enter:

atm ume display

You are prompted for the number(s) of the UME that you want to display.

- 2 Enter the number(s) of the UME(s) or **all**.

Sample ATM UME display:

```

      reqState      state      reqVpi
connected          connected      0

              vpi      reqVci      vci
                0          16          16

      connCount      discCount      rxPdus
                2              2          232

      dropRxPdus      txPdus
                0          209

```



*The state field should show **connected**. If the state field shows **disconnected**, there is a problem with the link. If this happens, check the cabling to ensure that the CoreBuilder 2500 system is correctly connected to the ATM switch.*

Verifying Address Registration

After you ensure that the link is connected, verify that the system is able to register addresses at both the network and the user sides of the UME Network Interface (UNI). Two addresses — one for LAN Emulation and one for Classical IP over ATM — are registered at the network side.

To verify registered addresses:

- 1 From the top level of the Administration Console, enter:

```
atm ume list
```

The system prompts you for the number(s) of the ATM ports that you want to list.

- 2 Enter the number(s) of the port(s) or **all**. Sample ATM UME list:

```
Select Atm port(s) (1-2|all) [1]:
```

```
Port 1:
```

```
Prefixes registered at the user side UNI:  
47-0005-80-ffe100-0000-f21a-200e
```

```
Addresses registered at the network side UNI:  
47-0005-80-ffe100-0000-f21a-200e-00803e1f6712-00  
47-0005-80-ffe100-0000-f21a-200e-00803e1f6713-00
```

Verifying Signaling The ATM signaling protocol allows end-stations to establish, maintain, and clear ATM connections between end points with virtual connections (VCCs). Multiple virtual connections can exist on a physical link. There are two types of virtual connections: a virtual path and a virtual channel.

You can verify that signaling is operational by viewing the virtual connections — virtual path identifiers (VPIs) and virtual channel identifiers (VCIs) that the system has established.

To verify that signaling is operational, from the top level of the Administration Console, enter **atm ports vcc list**

Sample VCC list:

```
Port 1:      Virtual circuits, actual: 10 maximum: 1024
VPI/VCI      status      aalType      lastChange
0/5          localUpEndToEndUnknown      5              1 min
0/16         localUpEndToEndUnknown      5              1 hr 37 mins 25 secs
3/381        localUpEndToEndUnknown      5              2 hrs 51 mins 40 secs
3/382        localUpEndToEndUnknown      5              2 hrs 51 mins 41 secs
3/383        localUpEndToEndUnknown      5              2 hrs 51 mins 41 secs
3/384        localUpEndToEndUnknown      5              2 hrs 51 mins 40 secs
3/385        localUpEndToEndUnknown      5              2 hrs 51 mins 42 secs
3/386        localUpEndToEndUnknown      5              2 hrs 51 mins 41 secs
3/387        localUpEndToEndUnknown      5              2 hrs 51 mins 42 secs
3/388        localUpEndToEndUnknown      5              2 hrs 51 mins 41 secs
```

In addition to newly defined VCCs, two additional VCCs are listed, which are reserved VPIs and VCIs used for signaling (VPI 0/VCI 5) and for the UME ILMI (VPI 0/VCI 16).

LAN Emulation

LAN Emulation (LANE) provides unicast, multicast, and broadcast network behavior over connection-oriented ATM. An emulated LAN (ELAN) can consist of many LAN emulation clients (LECs). An ELAN consists of the following components:

- **A Broadcast and Unknown Server (BUS)** — Responsible for handling broadcast, multicast, and initial unicast frames sent from a LAN Emulation Client. Each ELAN contains only one BUS.
- **A LAN Emulation Server (LES)** — Responsible for registering and resolving MAC addresses to ATM addresses for LECs. Each ELAN contains only one LES.
- **LAN Emulation Clients (LECs)** — The end node from the perspective of the ATM network. It performs data forwarding, address resolution, and other control functions. Additionally, it maintains the LAN emulation software.
- **A LAN Emulation Configuration Server (LECS)** — The LECS provides configuration information about the ATM and LAN networks. It also provides the address of the LES to the LEC.

Important considerations:

- You must define a LES and a BUS as part of an ELAN before you can define a LEC.
- You can configure the LES and the BUS on the same LEC or on different LECs.

Creating an Emulated LAN

You can create an 802.3 emulated LAN on ATM by defining the LAN's servers (the BUS and the LES) and then configuring each LAN Emulation Client (LEC).

To create an emulated LAN, follow these steps:

- 1 Determine the location of the BUS and LES.

You can define the BUS and LES in any LEC on the network, or on an ATM switch, such as the 3Com CoreBuilder 7000 system.

- 2 Define the Broadcast and Unknown Server (BUS).
- 3 Define the LAN Emulation Server (LES).
- 4 Define the LAN Emulation Clients (LEC).

Eliminating Bridge Loops in ELAN Configurations

When configuring more than one LEC in a LANplex 2500 or CoreBuilder 2500 system, a bridge loop may be created. This possibility exists because the LANplex can bridge between all ports, including logical bridge ports (LECs). Because the Spanning Tree Protocol (STP) is off by default, we recommend following this procedure when you create multiple LECs with Intelligent Switching software:

- 1 After you define all LECs, at the `Enable State` prompt, enter **enable**
- 2 Enable STP. From the top level of the Administration Console, enter:
bridge stpState enabled
- 3 Reboot the system.

The system adds the LECs to the bridge table.

Configuring Clients to Join an Existing Emulated LAN

You can configure a LAN Emulation Client (LEC) to join an existing 802.3 emulated LAN by providing information about the LAN Emulation Server (LES) and the Broadcast and Unknown Server (BUS).

Defining LAN Emulation Clients

When you define a LAN Emulation Client, you give information necessary for a client to be included in the emulated LAN. A BUS and a LES must already be defined as part of the emulated LAN before you can define a client.

When the client attempts to join the emulated LAN, some of the configured information is carried along with the join request sent to the LES. The LES can alter this information. The client then has the option of accepting or rejecting any changes made by the LES. If the changes are accepted or if there are no changes, the client successfully joins the emulated LAN. Otherwise, the join fails.

To define a client:

- 1 From the top level of the Administration Console, enter:
atm lane define
- 2 Enter the number of the ATM port to which the client is attached.
You can attach only one client per port to the same emulated LAN.

- 3 Enter the LECS access type. Choices are `lecs` and `manual`.



If you choose LECS as your means of joining an ELAN, and another CoreBuilder system provides LES and BUS services, you must update the directly attached ATM switch LECS with the ELAN name and the corresponding LES address.

- 4 Enter the name of the emulated LAN to which you are adding the client, or press Return to choose the default ELAN shown in brackets. The ELAN name may contain a maximum of 32 characters.
- 5 Enter the maximum transmission unit (MTU), also known as maximum frame size. Choices are `Unspecified`, `1516`, and `4544`.



The system supports Unspecified Bit Rate (UBR) only.

All LECs within the same emulated LAN must have the same MTU size. Enter **Unspecified** to allow the LES to select an appropriate MTU size.

- 6 Enter **enable** for the enable state for the next reboot.
- 7 Repeat steps 1 through 6 to define other LECs.
- 8 Enable STP to eliminate potential bridge loops. From the top level of the Administration Console, enter:

```
bridge stpState enabled
```

- 9 Reboot to enable all newly defined LECs.

Sample procedure:

```
Select menu option (atm/lane/lec): define
Select ATM port [1]:
Enter LEC access type (lecs, manual) [lecs]:
Enter Elan Name []: Elan_1
Enter Elan MTU Size (Unspecified,1516,4544) [Unspecified]:
Enter Enable State for next reboot (disable, enable)
[enable].
```

You must REBOOT to be able to enable a newly created LEC.

Reboot after you have added *all* newly created LECs.

Administering LAN Emulation Clients

From the Administration Console you can:

- Display summary or detailed information about emulated LAN clients
- Modify information for emulated LAN clients
- Define a client for inclusion in an emulated LAN
- Remove a client from the network

Displaying Information About LAN Emulation Clients

You can display a summary report or a detailed report of information about LAN Emulation Clients. The summary displays information about the location and state and the most important statistics about the client's general activity. The detailed includes the summary information plus additional statistics.

To display information about a LAN Emulation Client:

- 1 From the top level of the Administration Console, enter:

```
atm lane summary
```

or

```
atm lane detail
```

You are prompted for the number of a LEC.

- 2 Specify the number of the LAN Emulation Client about which you want information.

The information is displayed in the format you specified.

Sample summary display for a LAN Emulation Client:

```

location          bridgePort        state
  Port 1          Port 10         init

maxArpRtryCt     arpRespTime      arpAfterCt
      1             1                0

inArpReqs        inArpRsps        outBusUcDscrds
      0             3                0

                               elanName          elanType
                               elan463_0         802.3

elanMtu          lesAccessType     connCompTime
  1516           lecs                4

controlTime      flushRspTime      maxUnkFrmTim
   120           4                1

pthSwtDlyTim     vccTime          topologyChgFlag
      6          1200              0

fwdDelayTime     ageTime          inCtrls
   15           300              34

outCtrls         inDds           outDds
  4422          0                0

inBus            outBus          outArpReqs
      0           0                3

outArpRsps       macAddress
      0          00-80-3e-20-9e-fd

                               busAddress
                               47-0000-00-000000-0000-0000-00aa-00c0da6001cf-00

                               lesAddr
                               47-0000-00-000000-0000-0000-00aa-00c0da6001cf-00

                               lecsAddr
                               00-0000-00-000000-0000-0000-0000-000000000000-00

```

Sample detail display for a LAN Emulation Client:

```

location                bridgePort              state
  Port 1                 Port 10                init

requestedState          configSource            cfgMaxArpRtryCt
  enabled                manual                  1

maxArpRtryCt           cfgArpRespTime         arpRespTime
  1                      1                      1

cfgMaxUnkFrmCt         arpAfterCt              inArpReqs
  1                      0                      0

inArpRsps              outBusUcDscrds
  3                      0

                                cfgElanName
                                elanName                cfgElanType
                                elan463_0                802.3

elanType                cfgElanMtu              elanMtu
  802.3                 1516                   1516

cfgLesAccessType        lesAccessType           cfgConnCompTime
  lecs                  lecs                    4

connCompTime           cfgCtrlTimer            controlTime
  4                      120                    120

cfgFlushRspTime        flushRspTime            maxUnkFrmTime
  4                      4                      1

maxUnkFrmTim           cfgPathSwDlyTime       pthSwDlyTim
  1                      6                      6

cfgVccTime              vccTime                 topologyChgFlag
  1200                  1200                   0

cfgFwdDlyTime          fwdDelayTime            cfgAgeTime
  15                    15                     300

ageTime                inCtrls                 outCtrls
  300                   34                     4271

inDds                  outDds                  inBus
  0                     0                      0

outBus                 outArpReqs              outArpRsps
  0                     3                      0

macAddress
00-80-3e-20-9e-fd

                                busAddress
                                47-0000-00-000000-0000-0000-00aa-00c0da6001cf-00

                                cfgLesAddr
                                00-0000-00-000000-0000-0000-0000-000000000000-00

                                lesAddr
                                47-0000-00-000000-0000-0000-00aa-00c0da6001cf-00

                                lecAddress
                                47-0000-00-000000-0000-0000-00aa-080002138ccl-01

                                lecsAddr
                                00-0000-00-000000-0000-0000-0000-000000000000-00

```

Table 6 describes the attributes of the LAN Emulation Client displays. References to the ATM Forum Specification for LAN Emulation appear in parentheses following the parameter description.

Table 6 Fields in the LAN Emulation Client Displays

Parameter	Description
arpAfterCt	Number of unknown frames after which the client sends an LE_ARP request
busAddress	ATM address of Broadcast and Unknown Server
cfgAgeTime	Requested maximum time that the client maintains an entry in its LE_ARP cache (C17)
cfgArpRespTime	Requested maximum time (in seconds) that the client expects between an LE_ARP request and an LE_ARP response (C20)
cfgConnCompTime	Requested time during which data or a READY_IND message is expected from a calling party (C28)
cfgCtrlTimer	Requested timeout period for request/response control frame interactions (C7)
cfgElanType	Requested type of LAN to emulate (802.3)
cfgElanMtu	Requested maximum frame size
cfgElanName	Requested emulated LAN name
cfgflushRspTime	Requested time limit for receiving an LE_FLUSH_RESPONSE after sending an LE_FLUSH_REQUEST (C21)
cfgFwdDlyTime	Requested maximum time that the client maintains an entry for a nonlocal MAC address in its LE_ARP cache as long as the topologyChgFlag is true (C18)q
cfgLesAccessType	Requested method for determining how to access the LAN Emulation Server
cfgLesAddr	ATM address of requested LAN Emulation Server
cfgMaxArpRtryCt	Requested maximum number of LE_ARP attempts
cfgMaxUnkFrmCt	Requested maximum unknown frame count (C10)
cfgPathSwDlyTime	Requested time since sending a frame to the BUS after which the client assumes that the frame has been discarded or delivered (C22)
cfgVccTime	Requested time after which the client releases any data direct VCC that did not transmit or receive data frames (C12)
LesAccessType	Current type of access to the LAN Emulation Server
lecState	Current client machine state
location	ATM port to which the client is connected
ElanMtu	Current maximum frame size
ElanName	Current emulated LAN name
ElanType	Type of LAN currently emulated (802.3)

Table 6 Fields in the LAN Emulation Client Displays (continued)

Parameter	Description
enabled	Current management state of the client (<i>disabled</i> or <i>enabled</i>)
inArpReqs	Number of LE_ARP requests received
inArpRsps	Number of LE_ARP responses received
inBus	Number of frames transmitted to the Broadcast and Unknown Server
inCtrls	Number of control frames received
inDds	Number of frames received on data direct circuits
lecAddress	ATM address of client
LesAddr	ATM address of current LAN Emulation Server
maxUnkFrmTime	Requested time period during which the client will send no more than the maximum number of unknown frames to the Broadcast Unknown Server (BUS) for a given destination (C11)
outCtrls	Number of control frames transmitted
outDds	Number of frames transmitted on data direct circuits
outArpReqs	Number of LE_ARP requests transmitted
outArpRsps	Number of LE_ARP responses transmitted
outBus	Number of frames received from the Broadcast and Unknown Server
outBusUcDscrds	Number of unknown unicast frames thrown away by the Broadcast and Unknown Server
requestedState	Requested management state of the client (<i>disabled</i> or <i>enabled</i>)
topologyChgFlag	Boolean value indicating that the client is using Forward Delay Time rather than Aging Time to age nonlocal entries in its LE_ARP cache (C19)

Modifying Information About LAN Emulation Clients

To modify LAN Emulation Client parameters, follow these steps:

- 1 From the top level of the Administration Console, enter:
atm lane modify
You are prompted for the parameter that you want to modify.
- 2 Enter the parameter.
You are prompted for the number(s) of the LEC(s) that you want to modify.
- 3 Select the number(s) of the LEC(s) or **all**.
You are prompted for the new value of the option that you selected.
- 4 Enter the new value.



If you modify the ELAN name in the LEC configuration, you must disable and then enable the LEC before the change takes effect.

Removing a LAN Emulation Client

To remove a client from the emulated LAN, follow these steps:

- 1 From the top level of the Administration Console, enter:
atm lane remove
You are prompted for the number of the LEC to remove.
- 2 Specify the number of the LEC to remove.
You are prompted to confirm the deletion.
- 3 Enter **y** to confirm or **n** to cancel. If you enter **y**, the system reboots and deletes the specified LEC.

Sample procedure:

```
Select menu option (atm/lec): remove
Select LEC(s) (1-3|all) [1]: 1
Delete LEC(s) resulting in system reboot?" (n,y) [y]: y
```


Administering UNI Management Entities

A User-to-Network Interface (UNI) Management Entity (UME) implements the management interface to the ATM network. Each ATM port has one UME, which manages the network prefix and address tables and provides access to the Interim Local Management Interface (ILMI) MIB.

Each CoreBuilder 2500 UME registers one address for LAN Emulation and one address for Classical IP over ATM with the switch port to which it is attached.

You can display information about each UME and configure its attributes.

Displaying UME Information

When you display UME information for an ATM port, you display values for the connection state, the VPI (virtual path identifier), the VCI (virtual channel identifier), and other attributes.

To display UME information:

- 1 From the top level of the Administration Console, enter:

```
atm ume display
```

You are prompted to select an ATM port.

- 2 Enter the ATM port for which you want to display the UME information. The UME information is displayed.

Sample display:

```

reqState      state      reqVpi
connected    disconnected  0
      vpi      reqVci      vci
      0      16      16
connCount    discCount    rxPdus
      2      2      232
dropRxPdus    txPdus
      0      209

```

Table 7 describes the fields provided in the UNI Management Entity displays.

Table 7 Fields in the UME Display

Attribute	Description
connCount	Number of times port has successfully connected since last reboot
discCount	Number of times port has disconnected since last reboot
dropRxPdus	Number of protocol data units (frames) received but not processed
reqState	Requested connection state for management access and address registration (<i>connected</i> or <i>disconnected</i>)
reqVci	Requested virtual channel identifier. This value takes effect after you disable and then enable the port.
reqVpi	Requested Virtual Path Identifier. This value takes effect after you disable and then enable the port.
rxPdus	Number of protocol data units (frames) received
txPdus	Number of protocol data units (frames) transmitted.
state	Current connection state for management access and address registration. Possible values: <ul style="list-style-type: none"> ■ Connected — Address registration has been successfully completed ■ Connecting — Circuit is up, but the port has not successfully completed address registration ■ Disconnected — Either the reqState has been set to this state or the circuit is down ■ Disconnecting — Address registration has been terminated but the circuit is still up
vci	Current virtual channel identifier
vpi	Current virtual path identifier

Listing Network Prefixes and Addresses

You can list the registered network prefixes and addresses of any ATM port.

To list prefixes and addresses:

- 1 From the top level of the Administration Console, enter:

```
atm_ume_list
```

You are prompted for an ATM port.

- 2 Select an ATM port.

The registered network prefixes and addresses are listed for the port that you requested.

Sample UME list:

```
Port 1:  
Prefixes registered at the user side UNI:  
47-0005-80-ffe100-0000-f21a-200e  
  
Addresses registered at the network side UNI:  
47-0005-80-ffe100-0000-f21a-200e-00803e1f6712-00  
47-0005-80-ffe100-0000-f21a-200e-00803e1f6713-00
```

Setting the UME Connect State

For each ATM port, you can set the connect state for management access and address registration.

To set the connect state:

- 1 From the top level of the Administration Console, enter:

```
atm_ume_state
```

You are prompted for an ATM port.

- 2 Enter the ATM port for which to set the state.

- 3 Enter the new value (**connected** or **disconnected**). The default is **connected**.

Setting the Virtual Path Identifier For each ATM port, you can set the virtual path identifier (VPI) used by UME for the Interim Local Management Interface (ILMI). To set the VPI:

- 1 From the top level of the Administration Console, enter:
atm ume vpi
You are prompted for an ATM port.
- 2 Enter the ATM port for which you want to set the virtual path identifier.
- 3 Enter the new value for the VPI.
The new VPI takes effect after the port has been disabled and then enabled.

Setting the Virtual Channel Identifier You can set the virtual channel identifier (VCI) used by UME for the Interim Local Management Interface (ILMI). To set the VCI:

- 1 From the top level of the Administration Console, enter:
atm ume vci
You are prompted for an ATM port.
- 2 Enter the ATM port for which you want to set the virtual channel identifier.
- 3 Enter the new value for the VCI.
The new VCI takes effect after the port has been disabled and then enabled.

Administering ATM Ports

You can display summary or detailed reports, create labels, and list virtual channel connection (VCC) information for ATM ports.

Displaying Port Information

You can display a summary of ATM port information or a detailed report. When you display a summary, you receive information about the port, including its label, status, and the most important statistics about general port activity and port errors. The detailed report includes the information in the summary plus additional port statistics, such as cells discarded.

To display information about ATM ports:

- 1 From the top level of the Administration Console, enter:

atm ports summary or **atm ports detail**

The port information is displayed in the format you specified.

Sample summary display:

```

      status          cfgVPCs          cfgVCCs
inService            2              10

bandWidth            rxCells          txCells
148608000           13467          13434

portLabel

```

Sample detail display:

```

      status          cfgVPCs          cfgVCCs
inService            2              10

bandWidth            rxCells          txCells
148608000           13196          13163

ocdEvents            hecErrors          txCellDiscards
      2              7              0

transType            mediaType          uniType
sonet                multiMode          private

uniVersion            tcAlarm          maxVPCs
      3.0           noTcAlarm          16

maxVCCs              maxVPiBits          maxVCiBits
      1024          4              10

lastChange
      1 min

portLabel

```

Table 8 describes the fields in the port displays:

Table 8 Fields in the ATM Ports Displays

Field	Description
bandwidth	Total bandwidth available for port (in bits per second)
cfgVPCx	Current number of virtual path connections
cfgVCCs	Current number of virtual channel connections
hecErrors	Header Error Checksum count
lastChange	Last time the link state of the port changed since the last reboot
linkStatus	State of link
maxVCCs	Maximum number of possible virtual channel connections
maxVPCs	Maximum number of possible virtual path connections
maxVCIbits	Maximum number of bits available to represent a Virtual Channel Identifier
maxVPIbits	Maximum number of bits available to represent a Virtual Path Identifier
mediaType	Type of physical connection media
ocdEvents	Number of times an out-of-cell delineation was detected
operStatus	Current state of port
portLabel	Label for the physical port
reqStatus	Requested state of port
rxCells	Number of cells received
rxCellsDropped	Number of cells received but thrown away
tcAlarm	Transmission convergence alarm
transType	Type of transmission sublayer
txCellDiscards	Number of cells thrown out after attempting to transmit
txCells	Number of cells transmitted
uniType	Type of User-Network Interface (public or private)
uniVersion	UNI specification implemented

Labeling a Port Port labels serve as a useful reference point and as an accurate way to identify your ports for management. You might want to label your ATM ports so that you can easily identify the device specifically attached to each port (for example, LAN, workstation, or server).

To label an ATM port:

1 From the top level of the Administration Console, enter:

atm ports label

2 Enter the port(s) that you want to label.

3 Enter the label of each ATM port.

Ports labels can be a maximum of 32 characters in length. The new port label appears the next time that you display information for that port.

Listing Virtual Channel Connection Information

You can list general virtual channel connection (VCC) information as well as specific transmit and receive information.

Listing General VCC Information

To list general VCC information, enter the following command from the top level of the Administration Console:

```
atm ports vcc list
```

Sample display of general VCC information:

```
Port 1:   Virtual circuits, actual: 10 maximum: 128
VPI/VCI      status      aalType      lastChange
0/5      localUpEndToEndUnknown      5      1 min
0/16     localUpEndToEndUnknown      5      1 hr 37 mins 25 secs
3/381    localUpEndToEndUnknown      5      2 hrs 51 mins 40 secs
3/382    localUpEndToEndUnknown      5      2 hrs 51 mins 41 secs
3/383    localUpEndToEndUnknown      5      2 hrs 51 mins 41 secs
3/384    localUpEndToEndUnknown      5      2 hrs 51 mins 40 secs
3/385    localUpEndToEndUnknown      5      2 hrs 51 mins 42 secs
3/386    localUpEndToEndUnknown      5      2 hrs 51 mins 41 secs
3/387    localUpEndToEndUnknown      5      2 hrs 51 mins 42 secs
3/388    localUpEndToEndUnknown      5      2 hrs 51 mins 41 secs
```

Table 9 describes the fields in the display.

Table 9 Fields in the General VCC Display

Field	Description
aalType	Type of ATM Adaptation Layer (aal5)
lastChange	Last time the circuit changed state
status	Current status for the circuit
VPI/VCI	The VPI and VCI for the circuit listed in the present entry

Listing VCC Transmit Information

To list virtual channel connection transmit information, enter the following command from the top level of the Administration Console:

```
atm ports vcc listxmt
```

Sample display of VCC transmit information:

```
Port 1:      Virtual circuits, actual: 5 maximum: 128
VPI/VCI    transmit
            trafficDescriptor    parameter 1    parameter 2    parameter 3
0/5        atmNoClpNoScr                CLP 0+1 pcr
                                     350490                n/a                n/a
0/16       atmNoClpNoScr                CLP 0+1 pcr
                                     350490                n/a                n/a
3/381      atmNoClpNoScr                CLP 0+1 pcr
                                     350490                n/a                n/a
3/382      atmNoClpNoScr                CLP 0+1 pcr
                                     350490                n/a                n/a
3/383      atmNoClpNoScr                CLP 0+1 pcr
                                     350490                n/a                n/a
```

Table 10 describes the fields in the VCC transmit display:

Table 10 Fields in the VCC Transmit Display

Field	Description
parameter 1 parameter 2 parameter 3	Values associated with the transmit trafficDescriptor
transmit trafficDescriptor	Transmit characteristics of the circuit
VPI/VCI	The VPI and VCI for the circuit listed in the present entry

Listing VCC Receive Information

To list virtual channel connection receive information, enter the following command from the top level of the Administration Console:

```
atm ports vcc listrcv
```

Sample display of VCC receive information:

```
Port 1:   Virtual circuits, actual: 4 maximum: 128

VPI/VCI   receive
           trafficDescriptor   parameter 1   parameter 2   parameter 3

    0/5     atmNoClpNoScr   CLP 0+1 pcr
           350490                               n/a           n/a

    0/16    atmNoClpNoScr   CLP 0+1 pcr
           350490                               n/a           n/a

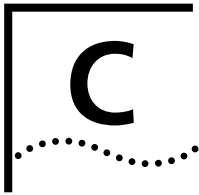
    3/381   atmNoClpNoScr   CLP 0+1 pcr
           350490                               n/a           n/a

    3/382   atmNoClpNoScr   CLP 0+1 pcr
           350490                               n/a           n/a
```

Table 11 describes the fields in the VCC receive display:

Table 11 Fields in the VCC Receive Display

Field	Description
vpi/vci	The VPI and VCI for the circuit listed in the present entry
receive trafficDescriptor	Receive characteristics of the circuit
parameter 1 parameter 2 parameter 3	Values associated with the receive trafficDescriptor



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 FactsSM 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://support.3com.com/index.htm>

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 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 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:	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		
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			
U.S.A. and Canada	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
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	
Latin America	1 408 326 2927*	1 408 326 3355*
U.S.A. and Canada	1 800 876 3266	1 408 326 7120*

* Number is not toll-free

Year 2000 Compliance

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

<http://www.3com.com/products/yr2000.html>

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<http://www.404manual.com>

<http://www.luxmanual.com>

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<http://tv.somanuals.com>