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Nortel Networks

BroadBand STP

Centillion 1200N Element Manager User Guide

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NORTEL NETWORKS

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Introduction

1

This manual describes the Centillion Element Manager (CEM) application. It is intended for network managers with a basic knowledge of ATM technology and Nortel Networks Centillion 8000 SERIES ATM and 9000 SERIES ATM switches. For additional information on the ATM switches and their command sets, please refer to the appropriate user and command reference manuals.

How This Manual is Organized

Chapter 1 - Introduction

Gives a brief description of the application, explains how the manual is organized, and a list of the other manuals related to the Centillion Element Management (CEM) system and the switches it manages. It also includes a description of the documentation standards used in the manual.

Chapter 2 - Centillion Element Management

Describes the CEM application, its features, and the configurations in which it can be used.

Chapter 3 - Installation

Explains how to install the application in a Microsoft® Windows environment.

Chapter 4 - Getting Started

Explains how to start CEM. Also describes the menus and how to use them. This chapter also describes the administration tasks, such as how to add a user, assign user privileges, and passwords.

Chapter 5 - Device Management

Explains how to define, edit, and delete devices and ATM profiles. It also describes how to configure the system, and save and reset the system configurations.

Chapter 6 - Port Management

Describes how to update and modify Line Card interfaces, and their associated parameters, such as signaling parameters, ILMI connections, looptime parameters, SVCLine parameters, and Tunneling parameters. This chapter also explains how to add, modify, and delete Shapers.

Chapter 7 - Connection Management

Explains Permanent Virtual Connections (PVCs), SoftPVP connections, and Switched Virtual Connections (SVCs). It also describes how to define and maintain these connections.

Chapter 8 - Routing

Describes all aspects for configuring and maintaining Public Network-Private Network (PNNI) routing connections. It also describes how to define and maintain IISP static routes, and dynamic routes.

Chapter 9 - Performance

Explains how to monitor the system's performance.

Chapter 10 - General Services

Explains how to view and read device events.

Chapter 11 - Troubleshooting

Explains how to diagnose and fix common problems when installing or using CEM.

Conventions Used in This Manual

The following conventions and icons are used in this manual.

Panel Names

The names of all panels are indicated by bold lettering. For example:

The **User List** panel displays.

Buttons

Button names are in small capital letters. For example:

1. Click **OK** to save the record and close the dialog box.

Icons

The following icons indicate important items.

NOTE

Notes provide additional or critical technical information needed to complete a task.

CAUTION

Caution warns you about a potential problem.

WARNING!

Warning indicates an action that may result in system disruptions or loss of critical data.

This page is for your notes.

Centillion Element Management

2

What is Centillion Element Manager?

The Centillion Element Manager (CEM) is a world class configuration tool for the Nortel Networks Centillion 8000 SERIES ATM and 9000 SERIES ATM switching equipment. It uses Internet Protocol (IP) based technology in which hardware management services are performed using a java client interface. CEM automatically adapts to various switching platform operating systems, and up to 20 devices can be configured.

You can use the Element Manager to view your device list or to display the device chassis or interface list. Additionally, you can view traffic shapers, connection profiles, PVC and Soft PVP connections, and static ATM routes.

NOTE *The communication between the desktop server and a network switch requires that Telnet protocols be allowed to pass through the network.*

Figure 2-1 shows the Element Manager interface for hardware and system management.

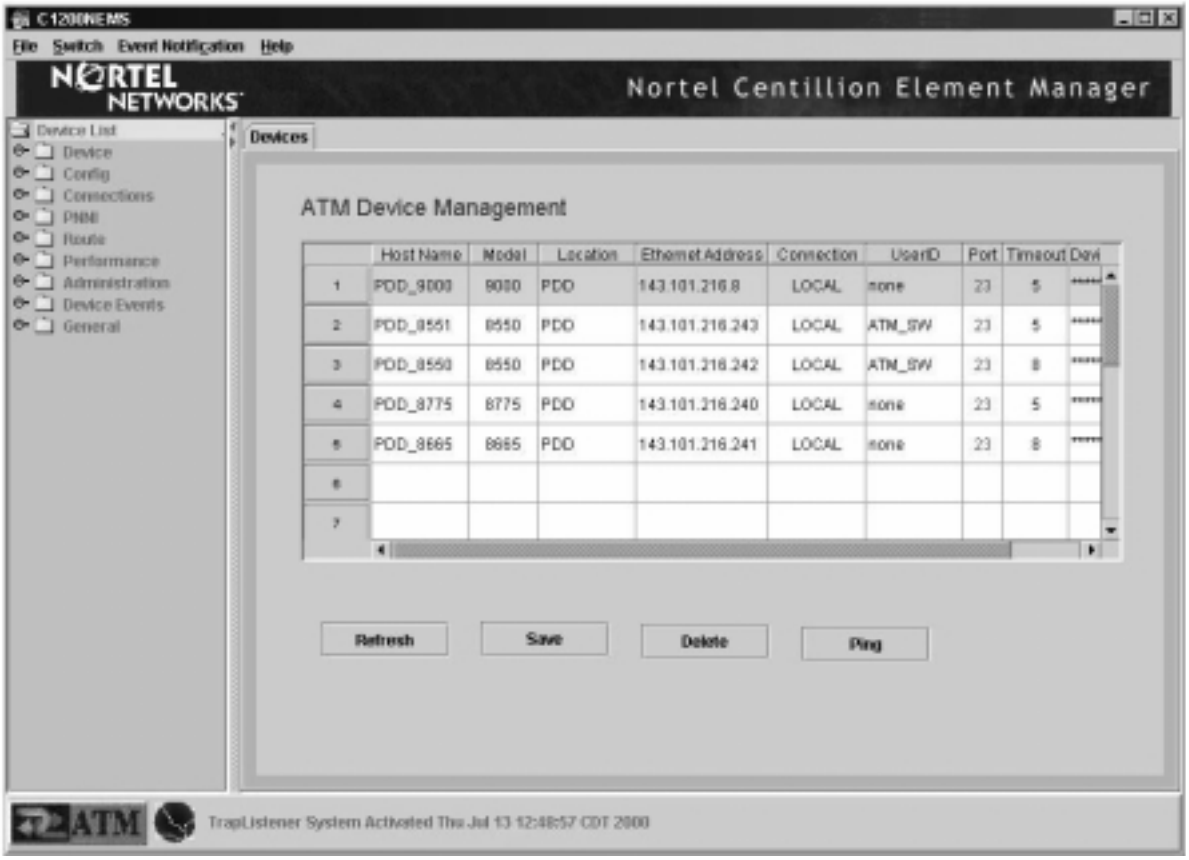

Figure 2-1: Centillion Element Manager

Element Manager Features

Element Manager provides these features:

- Uses standard protocols such as Telnet/Ping
- Provides easy configuration and management of switch information through dialog boxes
- Shows real-time display of ports, line cards, and other objects associated with a switch
- Uses a hierarchical menu tree for easy access to switch parameters for configuration, monitoring, and diagnostics.
- Provides traffic, performance, and other statistical information about switch operation through graphs

This version supports these network cards:

- DS1 and DS3 IF
- E1 and E3 IF (ATM Mode for E1/E3 with CE)
- OC-3 in MMF and UTP5 formats
- OC-12 IF
- OC-48

CEM Configurations

An independent CEM communicates with the ATM switches using Telnet protocols. See Figure 2-2.

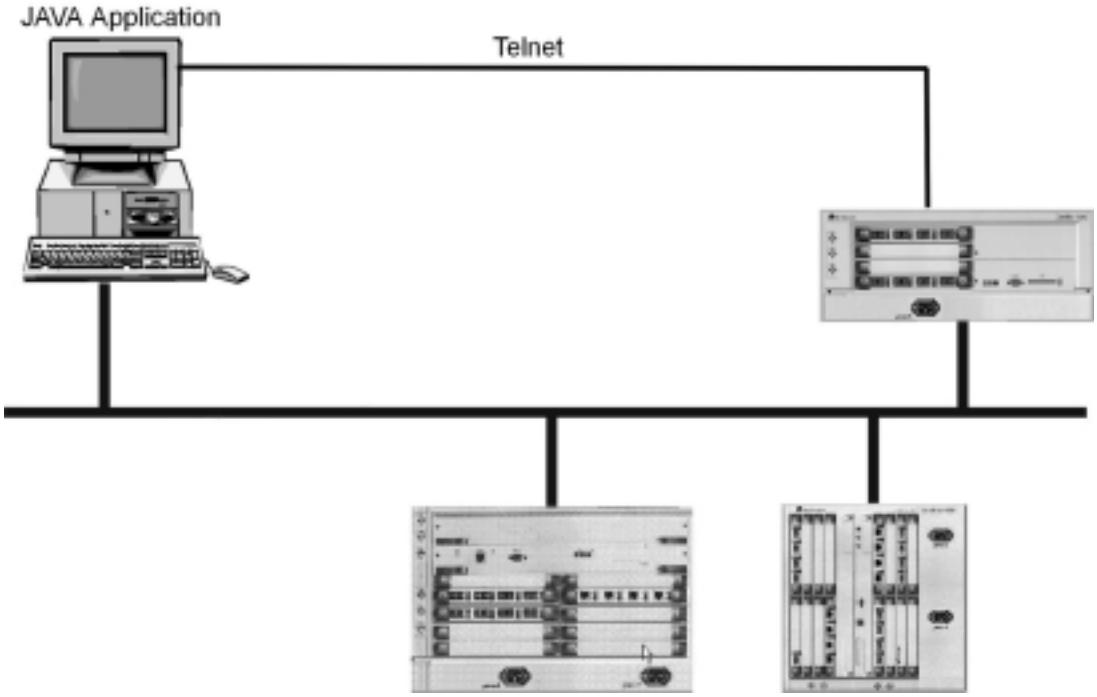

Figure 2-2: Access Using Telnet

This page is for your notes.

3 Installation

The Centillion Element Management System server can be installed on the following system platforms:

- Microsoft® Windows 98®
- Microsoft® Windows NT® 4.0 server and workstation
- Microsoft® Windows® 2000 Advanced Server

System Requirements

Windows 95/98 Based System

- Pentium PC (200 MHz minimum) with Windows NT 4.0 Server/ Workstation
- At least 64 Mb RAM (Additional switch management increases memory requirements.)
- 1024 x 768 super VGA monitor.
- At least 40Mb free disk space

Quick Installation of Centillion Application

Windows NT

The CEM application program is shipped with the following:

- CEM installation CD
- Internal help system
- User manual

To install CEM to a Windows NT system, perform the following steps:

CAUTION

Uninstall earlier versions of CEM. You should not install CEM over an existing installation.

1. Insert installation CD into CD-ROM drive.
2. Run **setup.exe**.

The Centillion Element Manager Welcome panel displays. See Figure 3-1.

Figure 3-1: Welcome Panel

3. Read the Welcome and Warning messages.

4. Click **NEXT** to proceed.

   The **Software License Agreement** panel displays. See Figure 3-2.

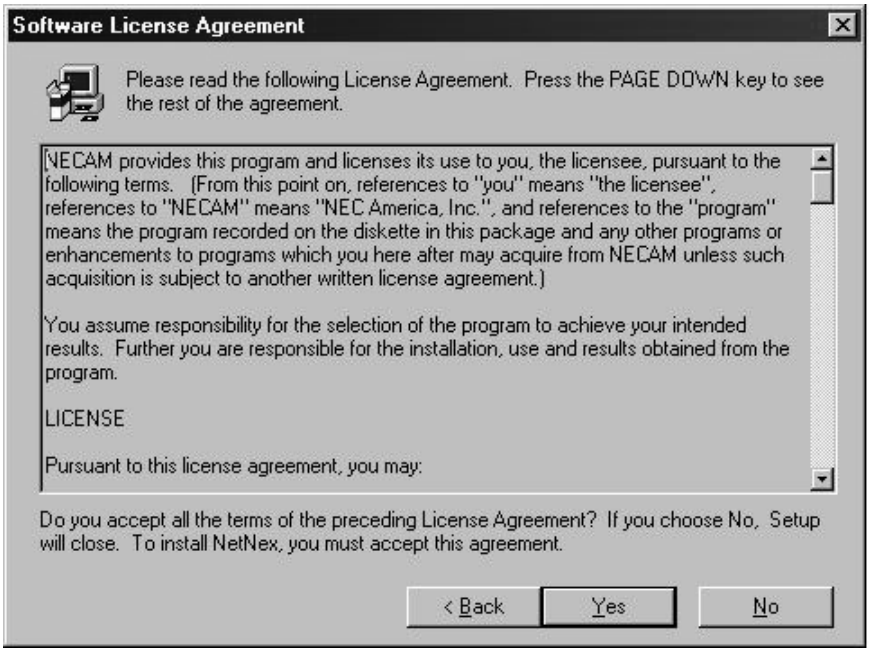

Figure 3-2: Software License Agreement Panel

The **Centillion Choose Destination Location** panel displays. The default destination address is listed at the bottom of the window. Use this folder or select **BROWSE** to choose an alternate location. See Figure 3-3.

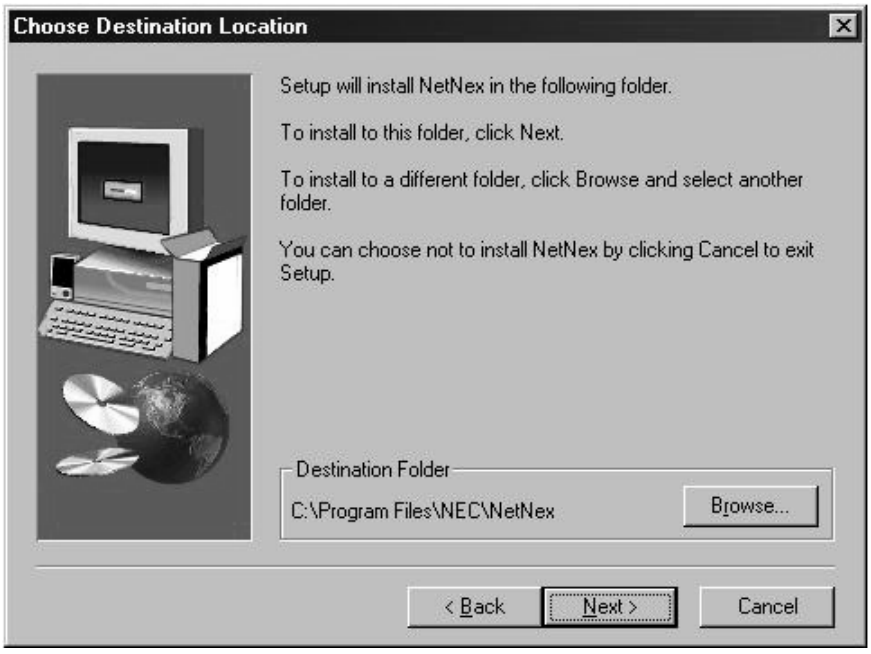

Figure 3-3: NETNEXChoose Destination Location Panel

5. Click **NEXT** to accept the default destination folder and proceed. The default destination address is listed at the bottom of the window. Use this folder or select **BROWSE** to choose an alternate location. The **Select Program Folder** panel displays. See Figure 3-4.

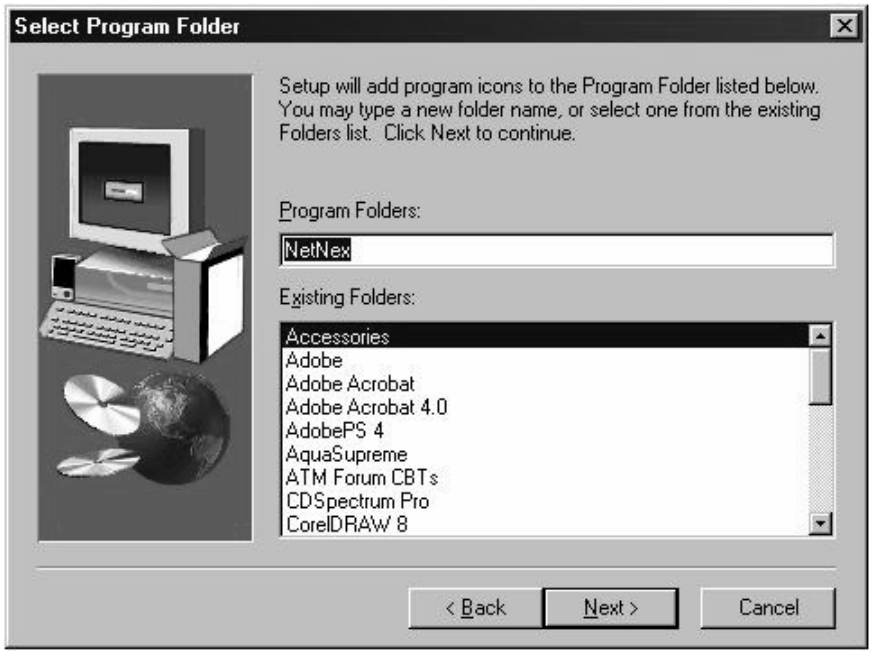

Figure 3-4: Select Program Folder Panel

6. Click **NEXT** to install CEM to the default program folder, or select another folder. (You may use any program folder name you wish.)

   The program files are installed. See Figure 3-5.

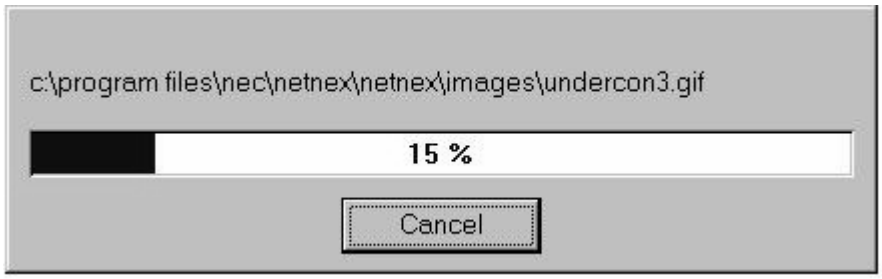

Figure 3-5: CEM Installation Progress Panel

The **Setup Complete** panel displays. See Figure 3-6.

Figure 3-6: Setup Complete Panel

7. Click **FINISH** to finish installation.

To run Centillion Element Management application, click the CEM icon that was added to your Desktop during the installation process.

This page is for your notes.

4 Getting Started

Startup

To start the Centillion Element Manager application, double-click the icon that was created on your Desktop during the installation process.

The Element Manager **User Login Information Dialog** panel displays. See Figure 4-1.

Figure 4-1: Element Manager User Login Panel

8. Enter your user name and password. The default user name is *admin* and password is *necatm*.

9. Press **ENTER**.

   The **ATM Device Management** panel displays. See Figure 4-2.

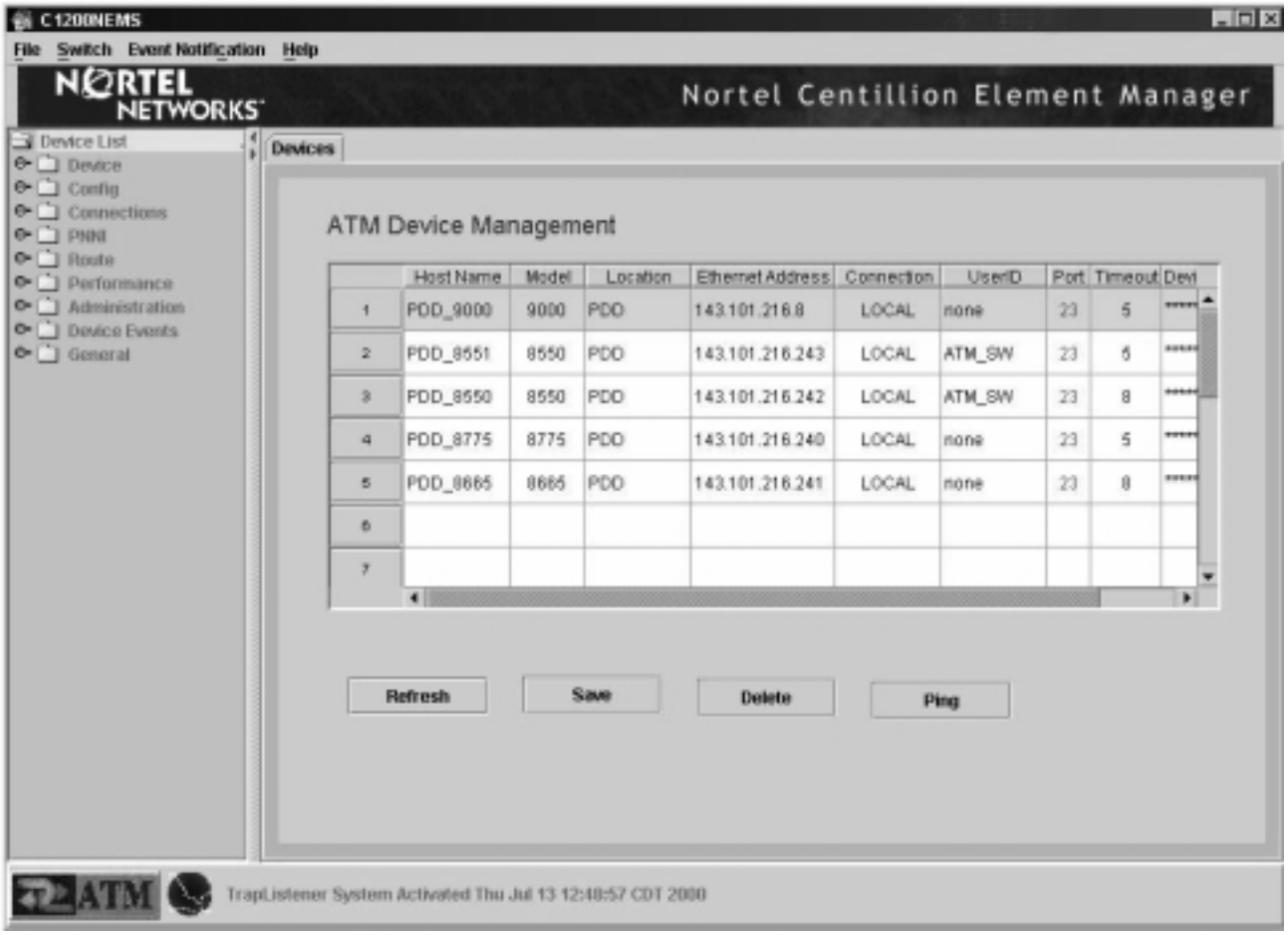

Figure 4-2: ATM Device Management Panel

Menus

Element Manager has four menus in the menu bar for shortcuts to some tasks. These menus are:

- File
- Switch
- Event Notification
- Help

File Menu

The File menu allows you to control the display style of the application. See Figure 4-3.

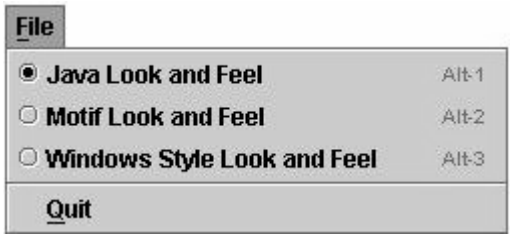

Figure 4-3: File Menu

On the File menu, you can do the following tasks:

- Select the style for displaying Element Manager
- Exit the application

Select Element Manager Look

To change the way the Element Manager interface displays, select one of the styles from the File menu. Valid values are:

- Java
- Motif
- Windows

See Figure 4-4 for an example of the Java style interface.

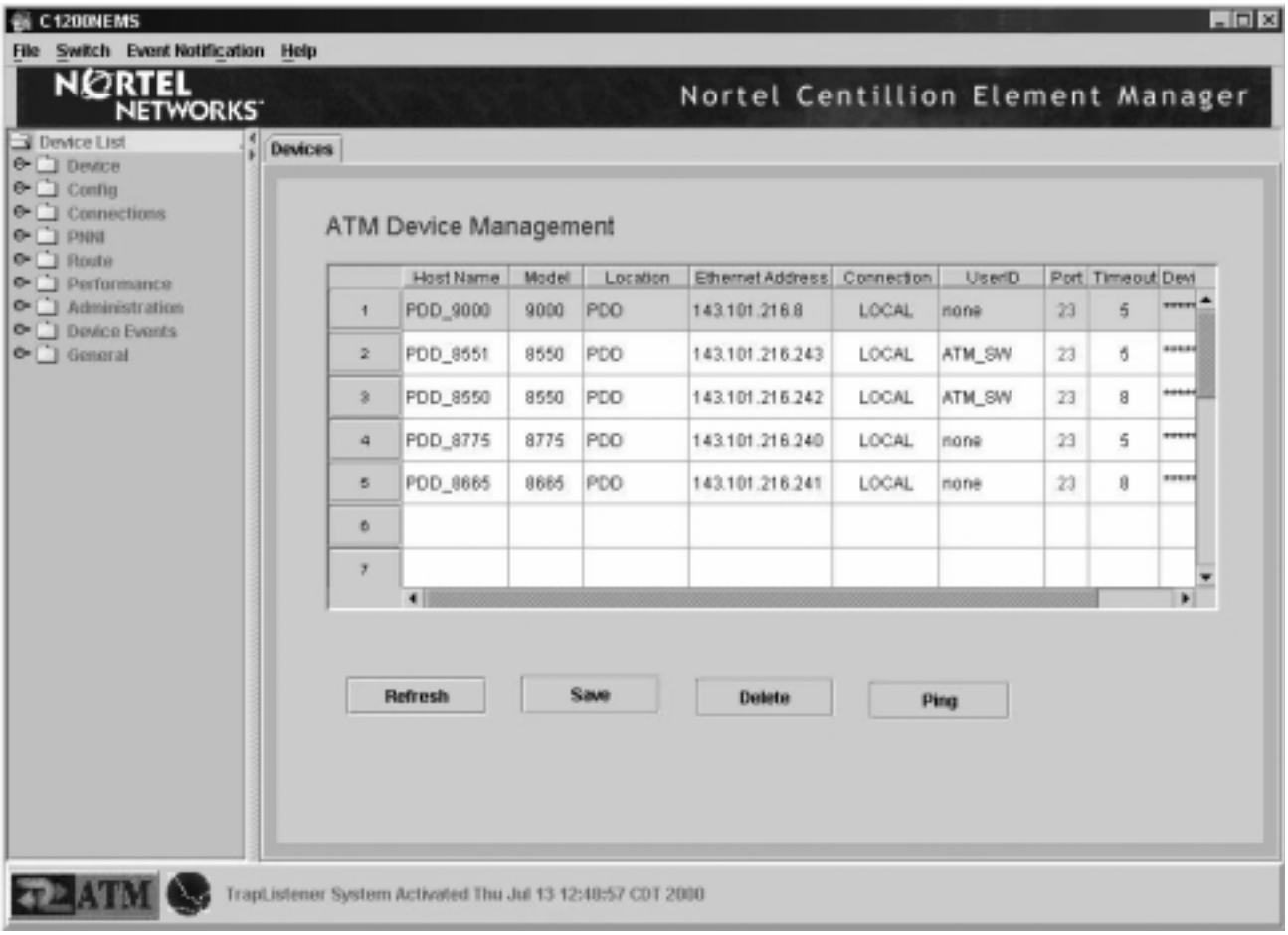

Figure 4-4: Java Style Interface Look

See Figure 4-5 for the Motif style interface look.

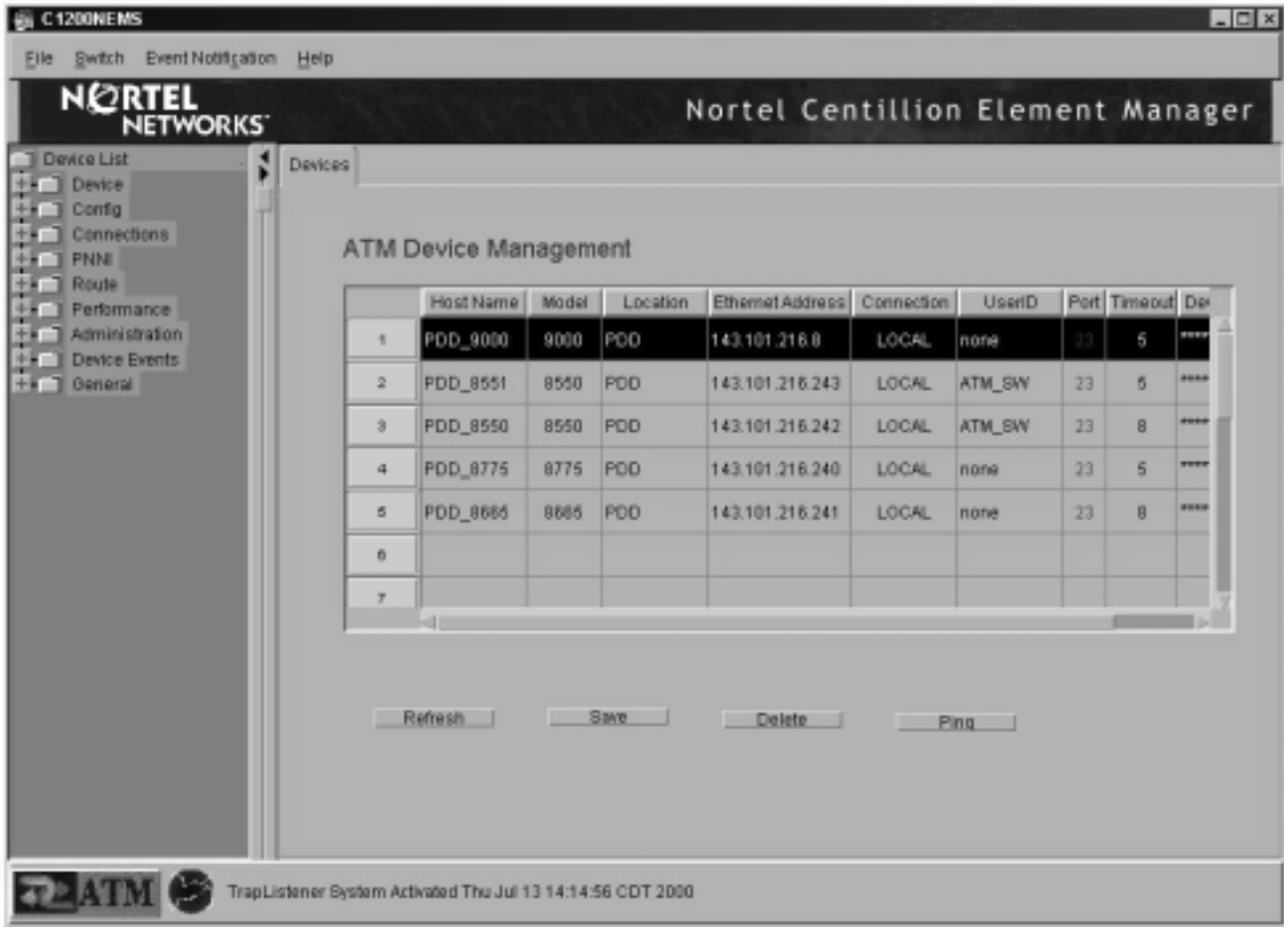

Figure 4-5: Motif Look and Feel

See Figure 4-6 for the Microsoft® Windows style interface look.

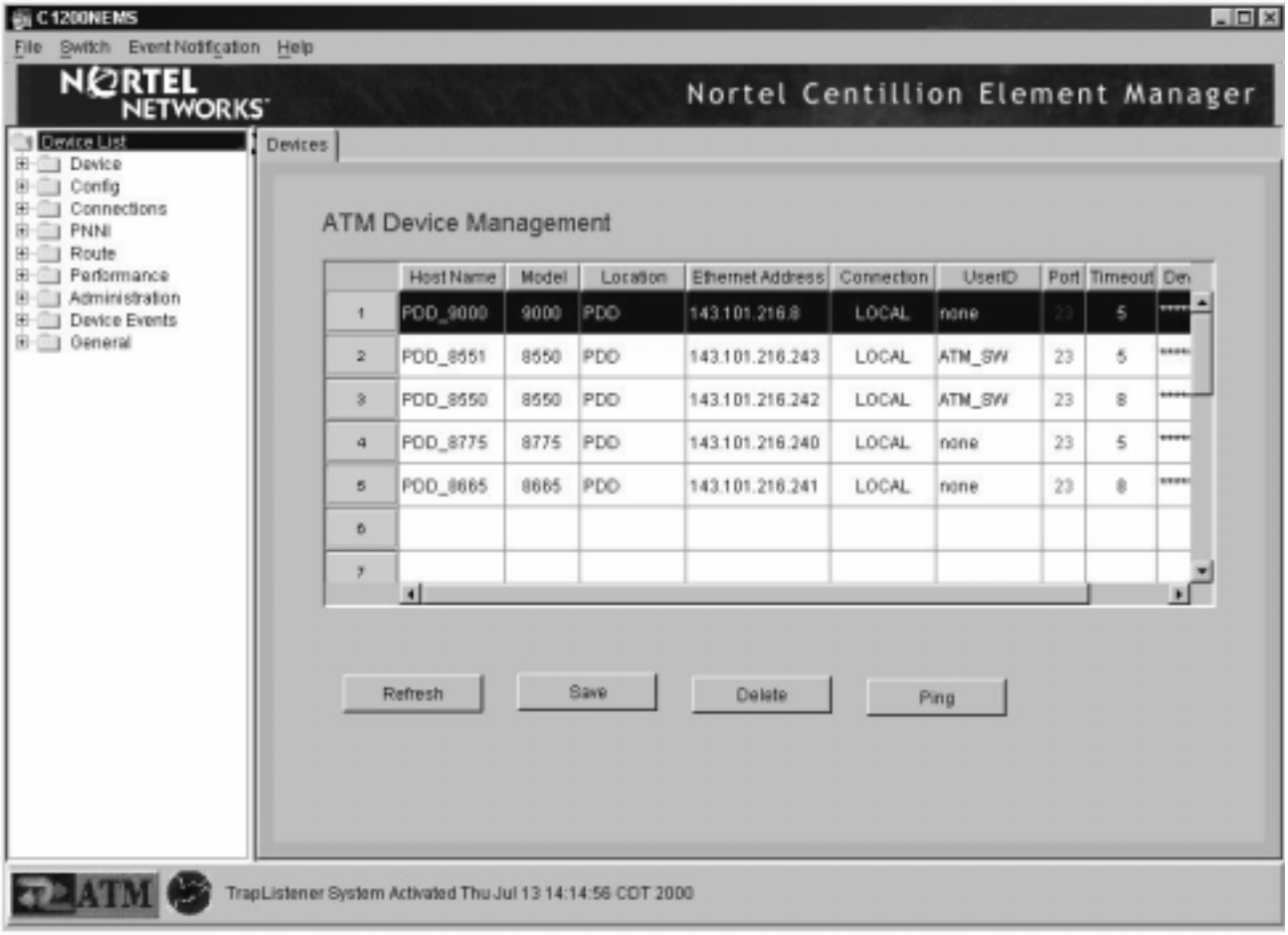

Figure 4-6: Microsoft Windows Style Interface

Exit the Application

You can exit the Element Manager application by selecting Quit from the File menu. You can also exit the system by selecting the Exit icon under the General folder.

Switch Menu

The Switch menu allows you to select the switch to monitor, modify, or define. Figure 4-7.

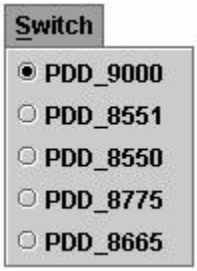

Figure 4-7: Switch Menu

Event Notification Menu

The Event Notification menu allows you to enable or disable the trap function for monitoring trap events on the device. See Figure 4-8.

Figure 4-8: Event Notification Menu

Help Menu

On the Help menu, you can access the Help system, or view the CEM product version information. Help can be accessed through three separate menus. From the menu bar, you can select Help. See Figure 4-9.

Figure 4-9: Help Menu

Then click Help Index to display the general help system. See Figure 4-10

Figure 4-10: Help Menu-Master Index Panel

On the **Help Menu-Master Index** panel, click the down arrow to display the list of help topics. Select the topic and then click **SELECT** to display the help information for that topic.

You can also access the help system by clicking the right mouse button on the tab of any panel. Figure 4-11.

Figure 4-11: Tab Help Menu

At any time, you can click the right mouse button to display a shortcut menu to access the help system. See Figure 4-12.

Figure 4-12: Shortcut Menu

To view the CEM version information, select About Centillion from the Help menu. The **Centillion Splash** panel displays. See Figure 4-13.

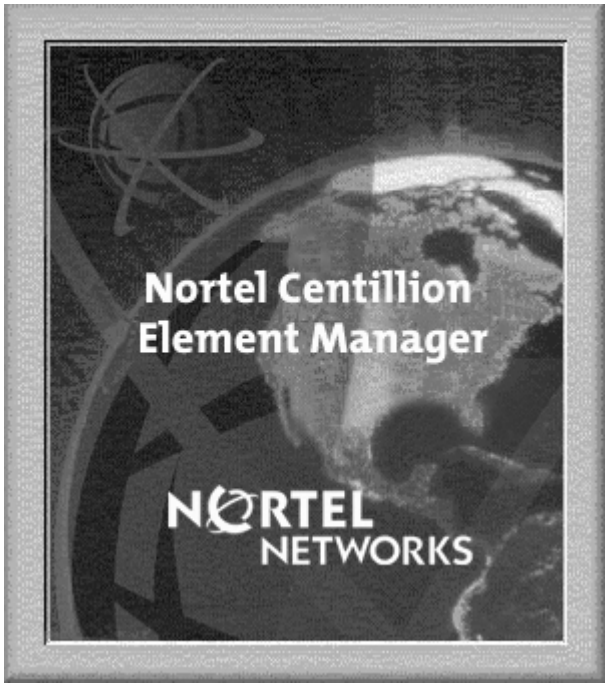

Figure 4-13: **Centillion** ***Splash Panel***

Administration

Before any devices can be defined, users must be defined and user privileges must be assigned. Users are defined on the **Administration** panel. To access this panel, select the Administration icon from the **Administration** folder. Administration allows you to:

- Update the user list information
- Add a user to the list
- Delete a user from the list

You must enter a login ID and password to access the Administration panel. See Figure 4-14.

Figure 4-14: Admin Login Screen

Update the User List

To update the **User List** panel, click **REFRESH**. The most current user information displays in the table. Deleted user records are removed from the list and new user records are added to the list during the refresh. The user information displays in a table. See Figure 4-15.

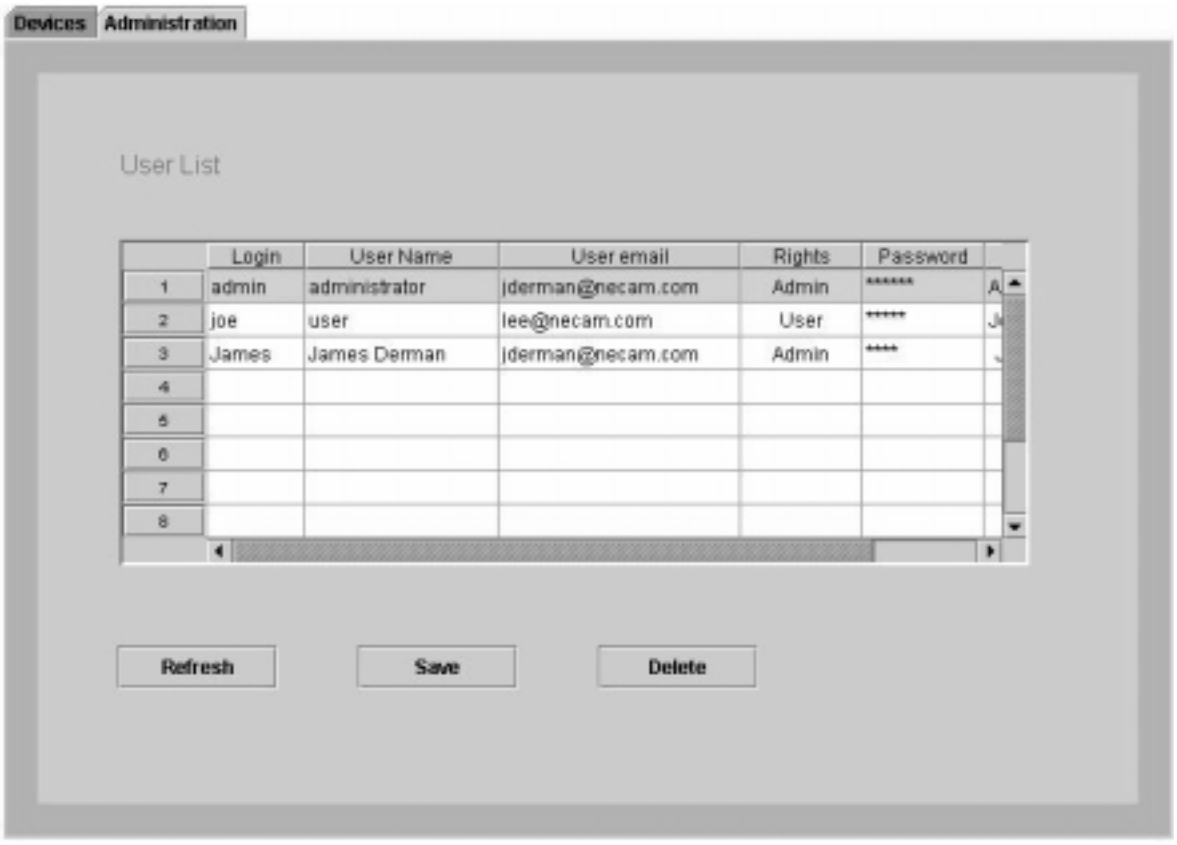

Figure 4-15: User List Panel

Add a New User

To add a new user to the User List:

1. Select an empty row in the table.
2. Type a name for the user's login in the Login column. This field is required.
3. Type the user's actual name in the User Name column. This field is not required.
4. Type the user's email address in the User email column. The email address is used for remote dispatching and is a required field.
5. Select the user rights in the Rights column.
6. Type a password for the user in the Password column.
7. Type a description of the user in the Description column.
8. Click **SAVE**. The Select an Option dialog displays. See Figure 4-16.

Figure 4-16: Save User Confirmation Dialog

9. Click **YES** to save the user information and close the dialog box.

   OR

   Click **NO** to close the dialog box and continue without adding the user.

Field Descriptions

Parameter	Description/Comments
Login	The name the user types to logon to the system. This field is a required field.
User Name	The real name of the new user. This field is optional.
User Email	The email address assigned to this user. This field is required. The email address is used for remote dispatching.

Parameter	Description/Comments
Rights	The user's access level. **Valid values are:** • Admin - Can add, modify, and delete users • User - Can only view the user list
User Password	The new user's password needed to access the system at login.
Description	Enter a description of the user.

Delete a User

To delete an existing user:

1. Highlight the row containing the user information to be deleted.
2. Click **DELETE**. The Select an Option dialog displays. See Figure 4-17.

Figure 4-17: Delete a User Dialog

3. Click **YES** to delete the user information and close the dialog box.

   OR

   Click **NO** to close the dialog box and continue without deleting the user.

5 Device Management

Devices

After logging into Centillion Element Manager, the **ATM Device Management** panel displays. This panel contains a list of devices that have been defined. You can also click the Device tab at any time to display the **ATM Device Management** panel. See Figure 5-1.

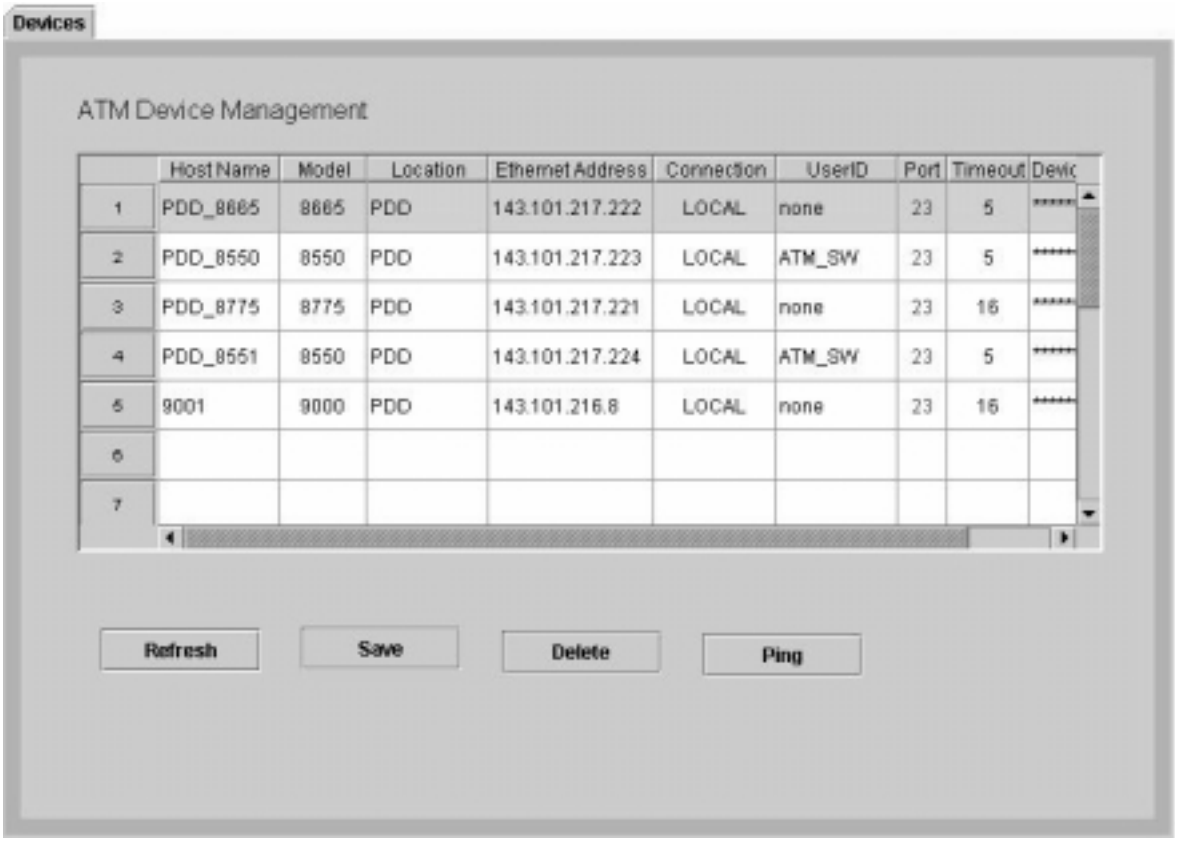

Figure 5-1: Device List Panel

On the **ATM Device Management** panel, you can do the following:

- Update the device list
- Edit a device in the list
- Add a new device
- Delete a device from the list
- Ping the device

Update the Device List

To update the Device List, click **REFRESH**. The status of all devices in the device list is updated. Deleted devices are removed from the list and new devices are added to the list during the refresh. Although the **ATM Device Management** panel is designed to update information asynchronously, the refresh button allows you to manually update device status.

Edit a Device

To edit a device in the device list:

1. Select the table row containing the device to be edited.
2. Change the values in one or more of the table columns.
3. Click **SAVE**. The Select an Option dialog displays. See Figure 5-2.

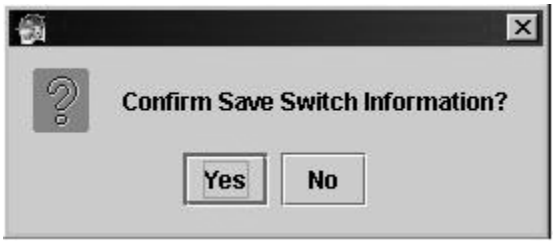

Figure 5-2: Confirm Save Switch Dialog

4. Click **YES** to modify the device and close the dialog box.

   OR

   Click **NO** to close the dialog box and continue without modifying the device.

You may want to click the refresh button to verify that the device was modified.

Add a New Device

To add a new device to the list:

1. Select an empty row in the table.
2. Type the ATM Identification Name in the Host Name column.
3. Type or select the model number of the switch in the Model column.

4. Type the identifier for the physical location of the device in the Location column.
5. Type the exact LAN connection Ethernet IP Address in the Ethernet Address column. Use the format nnn.nnn.nnn.nnn.
6. Type or select the kind of connection in the Connection column.
7. Type a User ID in the UserID column. For 866x, 877x, and 900x series switches, enter “none.”
8. Type or select the Port used for the connection in the Port column. The default connection port for a Telnet connection is Port 23.
9. Type the amount of time to allow before the connection times out in the Timeout column. The default is 8000 msec.
10. Type a password for the device in the Device Password column.
11. Click **SAVE**. The Select an Option dialog displays. See Figure 5-3.

Figure 5-3: Confirm Save Switch Dialog

12. Click **YES** to save the new device information and close the dialog box.

    OR

    Click **NO** to close the dialog box and continue without adding the device.

You may want to click REFRESH to verify that the device was added to the list.

Field Descriptions

The **Devices** panel contains the following fields.

Parameter	Description/Comments
Host Name	The ATM identification name.
Model	The ATM chassis model type.
Location	The actual physical location of the switch.
Ethernet Address	The Local Area Network (LAN) Ethernet Internet Protocol (IP) address connection.

Parameter	Description/Comments
Connection	The type of connection. **Valid values are:** • Local - for a direct ATM Telnet connection • Remote - for connection through a Network Management System (NMS) server
UserID	The identifier for a user to logon to an 855x series switch. For 866x, 877x, and 900x series switches, enter "none."
Port	The connection port being used by the switch. **Default values:** The default connection port is 23 for a Telnet connection.
Timeout	The amount of time the connection is to be retried. **Default values:** The default is 8000 msec.
Device Password	The Telnet/Privileged mode password.

Delete a Device

To delete a device from the list:

1. Highlight the table row containing the device to be deleted.
2. Click **DELETE**. The Select an Option dialog displays. See Figure 5-4.

Figure 5-4: Confirm Switch Delete

3. Click **YES** to delete the device and close the dialog box.

   OR

   Click **NO** to close the dialog box and continue without deleting the device.

You may want to click REFRESH to verify that the device was deleted from the list.

Ping the Device

To ping the device:

1. Select the device to ping.
2. Click **PING**.

A message displays in the status bar. If the device connection is active, the message displays “FOUND:” followed by the device's IP Address and the amount of time it took to locate the device. If the device connection is not active, the device's IP Address displays in the status bar followed by the message “Not Accessible.” See Figure 5-5.

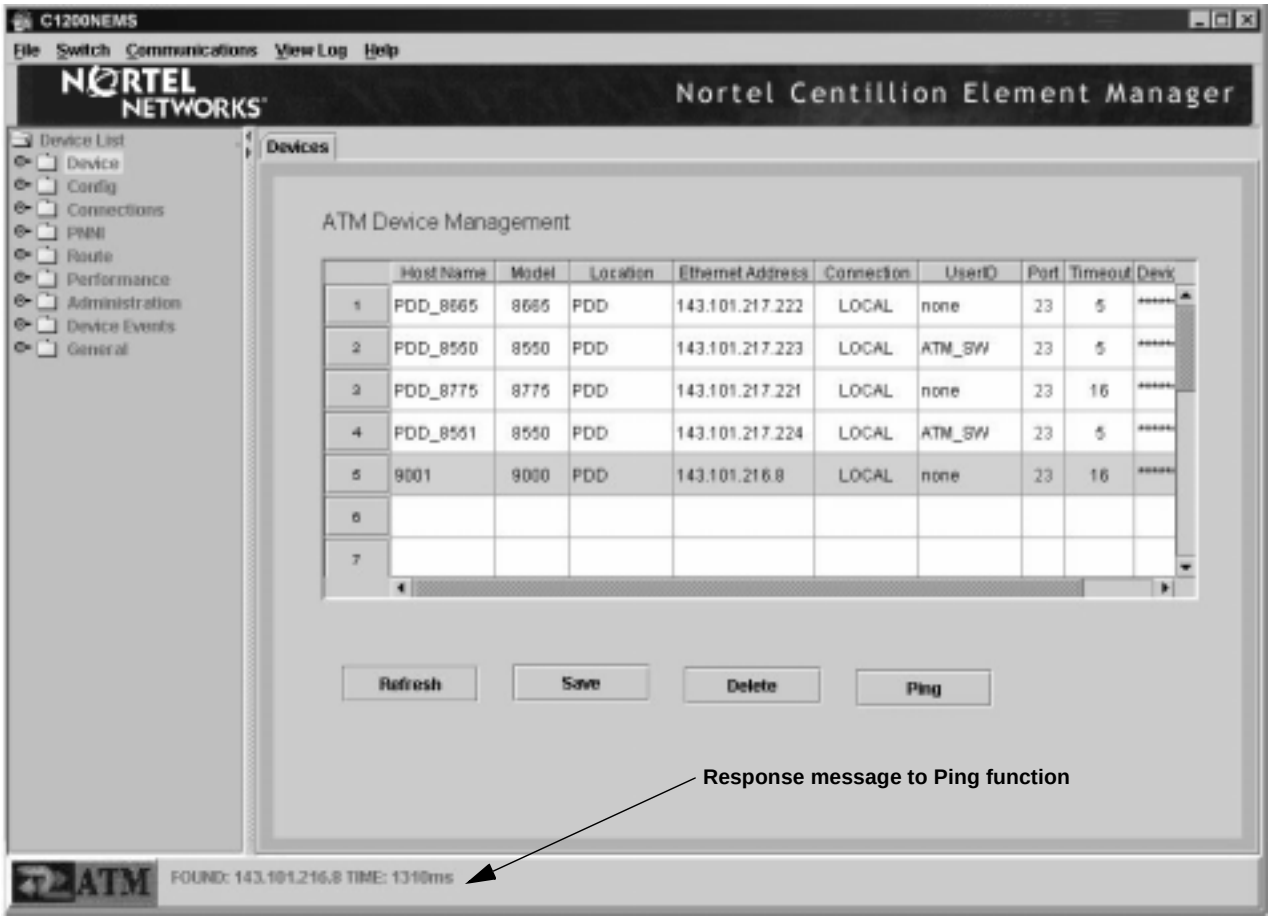

Figure 5-5: Ping the Device

Chassis View Panel

The **Chassis View** panel is a graphical representation of the device. Both the front and rear panels of the selected device can be viewed. To display the **Chassis View** panel:

1. Highlight the table row on the **ATM Device Management** panel containing the device chassis to be viewed.
2. Click the Chassis icon under the Device folder. The chassis for the selected device displays in the **Chassis View** panel. See Figure 5-6.

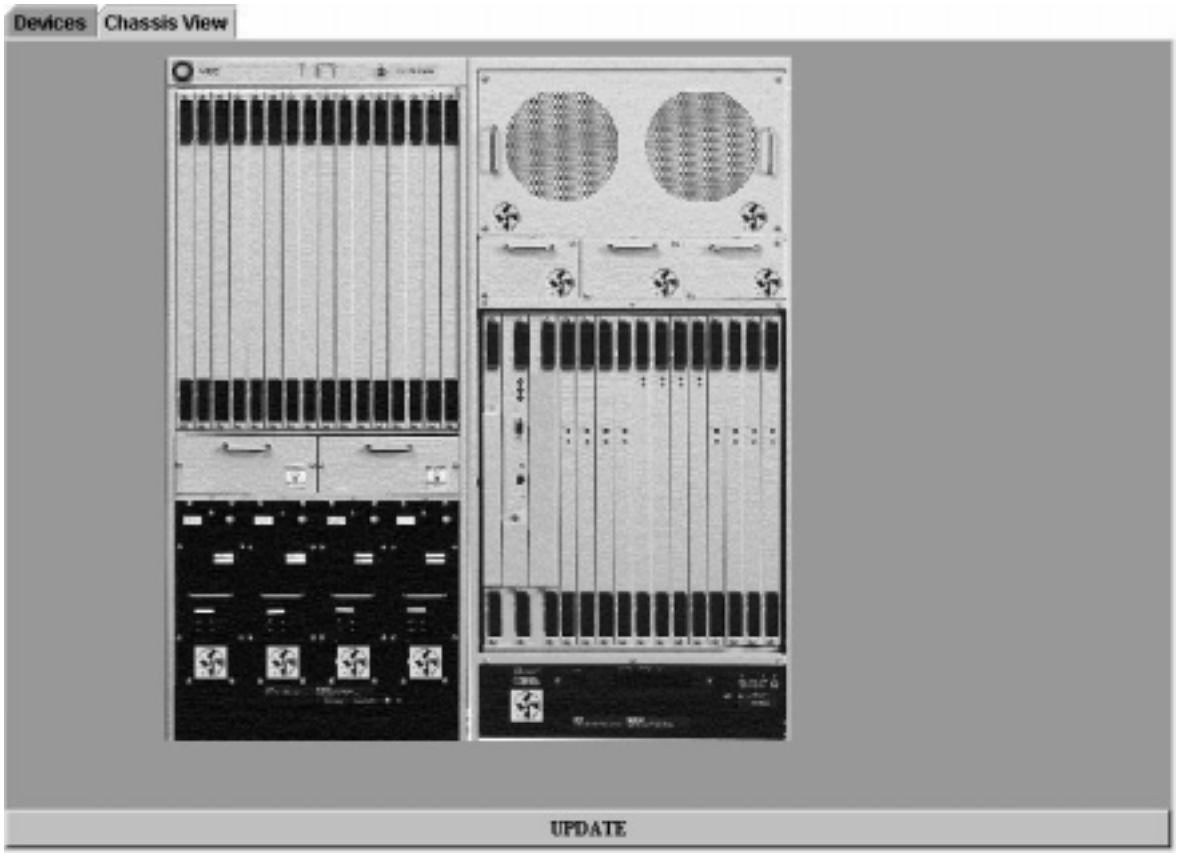

Figure 5-6: Chassis Panel View

As you move your mouse across the chassis view, messages about the status of each component of the switch display in the status line. In some cases, the individual parts of the switch are identified in the status line as the mouse passes over that particular component. See Figure 5-7.

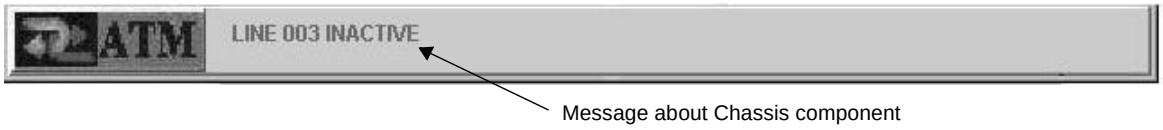

Figure 5-7: Status Bar Chassis Messages

Profiles

Profiles provide information that define the characteristics of a connection and are required to create PVC connections.

ATM Profile Management

ATM profiles provide information that define the characteristics for a connection. To display the **ATM Profile Management** panel, click the Profile icon under the Device folder. See Figure 5-8. On this panel, you can do the following:

- Update the profile table
- Add a new ATM profile
- Modify an existing ATM profile
- Delete an existing ATM profile

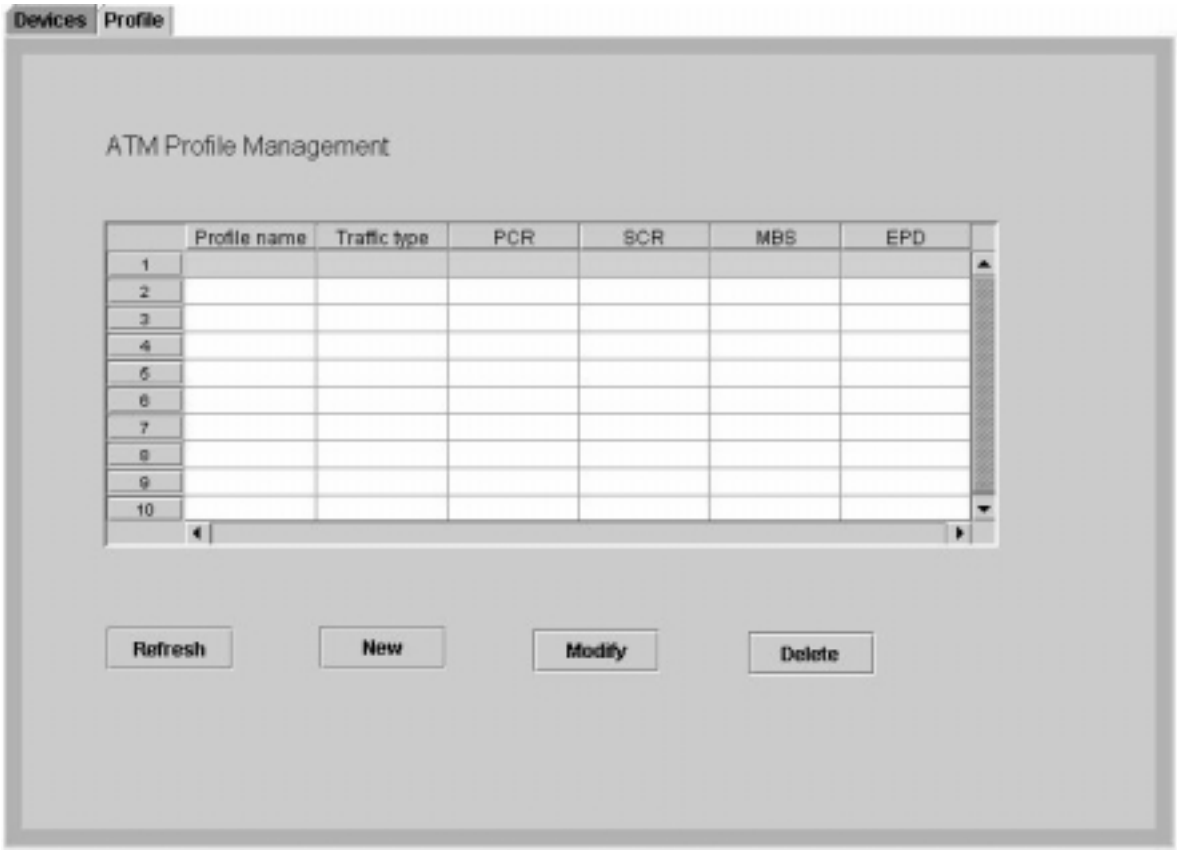

Figure 5-8: ATM Profile Management Panel

Update the ATM Profile Table

To update the ATM profile table information, click **REFRESH**. All profile records are updated. Deleted profile records are removed from the table and new profile records are added to the table during the refresh.

Add a New ATM Profile

To add a new profile:

1. Select an empty row in the table.
2. Type a name for the new Profile. This field is an alpha-numeric field only.
3. Select the traffic type.
4. Type the value for Peak Cell Rate (PCR) in the PCR column. This field is numeric only.
5. Type the value for Sustainable Cell Rate (SCR) in the SCR field. This field is numeric only.
6. Type the value for Maximum Burst Size (MBS) in the MBS column. This field is numeric only.
7. Set the Early Packet Discard flag in the EPD column.
8. Click **NEW**. The Select an Option dialog displays. See Figure 5-9.

Figure 5-9: Confirm Add New Profile Dialog

9. Click **YES** to add the new profile and close the dialog box.

   OR

   Click **NO** to close the dialog box and continue without adding the new profile.

You may want to click **REFRESH** to verify that the new profile was added to the table.

Field Descriptions

These fields display on the **ATM Profile Management** panel.

Parameter	Description/Comments
Profile Name	The identifier assigned to this unique profile. (Up to 10 characters).

Parameter	Description/Comments
Traffic Type	The characteristics assigned to handle congestion through the connection. **Valid values are:** • ABR (Available Bit Rate) The amount of bandwidth remaining after Constant Bit Rate and Variable Bit Rate values have been assigned. • CBR (Constant Bit Rate) The bandwidth required when the connection is established. • UBR (Unspecified Bit Rate) The bandwidth service for users who have unpredictable traffic flow rates. • RT-VBR (Realtime Variable Bit Rate) The traffic type used when end-to-end transmission delay is critical, for example during interactive video conferencing. • NRT-VBR (Non-realtime Variable Bit Rate) The traffic type used when transmission delay is not as critical, for example during video playback.
Peak Cell Rate (PCR)	The cell rate the source can never exceed. Available only for CBR, UBR, rt-VBR, and nrt-VBR traffic types. **Valid values are:** 1~1412830 cells/second.
Sustainable Cell Rate (SCR)	The upper boundary for cell rate transmission. Available for rt-VBR, and nrt-VBR traffic types. **Valid values are:** 1~1412830 cells/second.
Maximum Burst Size (MBS)	The number of cells that can be transmitted and still be in conformance with the Generic Cell Rate Algorithm (GCRA). Available for rt-VBR, and nrt-VBR traffic types. **Valid values are:** 1~1412830 cells/second.
Early Packet Discard (EPD)	The setting that determines whether or not to discard cells at the beginning of the IP packet when there is congestion on the connection. Available only for ABR and UBR. **Valid values are:** • OFF Cells are not discarded. • ON. Cells are discarded.

Modifying an ATM Profile

To modify an existing profile:

1. Highlight the table row containing the profile record to be modified.
2. Change one or more of the values in the profile table.
3. Click **MODIFY**. The Select an Option box displays. See Figure 5-10.

Figure 5-10: Confirm Modify ATM Profile Dialog

4. Click **YES** to modify the ATM profile and close the dialog box.

   OR

   Click **NO** to close the dialog box and continue without modifying the profile.

You may want to click **REFRESH** to verify that the profile was modified.

Delete an Existing ATM Profile

To delete an existing ATM profile:

1. Highlight the table row containing the profile record to be deleted.
2. Click **DELETE**. The Select an Option box displays. See Figure 5-11.

Figure 5-11: Confirm ATM Profile Delete Dialog

3. Click **YES** to delete the ATM profile and close the dialog box.

   OR

   Click **NO** to close the dialog box and continue without deleting the profile.

You may want to click **REFRESH** to verify that the profile record was deleted from the table.

Save and Reset

The **Save and Reset** panel allows you to save and reset system and slot configurations. To display the **Save and Reset** panel, click the Save and Reset icon under the Device folder. See Figure 5-12. This panel allows you to do the following:

- Save the current configuration
- Reset the slot configuration
- Reset the system

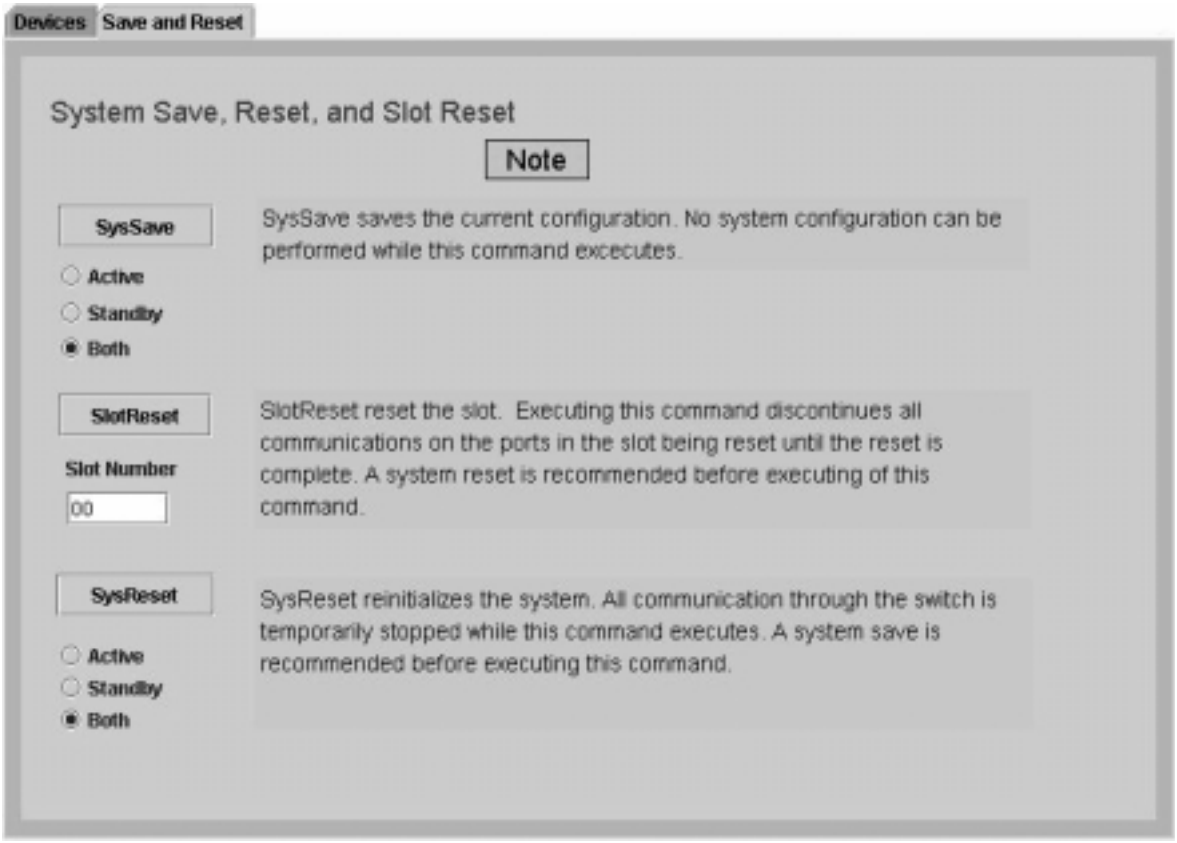

Figure 5-12: System Save, Reset, and Slot Reset

Save the Current Configuration

Clicking **SYSSAVE** saves the current device configuration. The status for each device is indicated under the SysSave button. No system configuration can be performed while this command executes.

Reset the Slot Configuration

Clicking **SLOTRESET** resets the slot. Executing this command discontinues all communication for the ports in the slot being reset until the reset is complete. A system reset is recommended prior to executing this command.

The value in the Slot Number field indicates which slot is being reset during this command. To reset the slot:

1. Type the number of the slot you want to reset in the Slot Number field.
2. Click **SLOTRESET**.

Reset the System

Clicking **SYSRESET** re-initializes the system. All communication through the switch is temporarily stopped while this command executes. A system save is recommended before executing this command. The status for each device is indicated under the SysReset button.

System Configuration

The **System Configuration** panel allows you to configure the system, set the system clock information, and set network information. Each of these functions is represented by a tab on the **System Configuration** panel. The tabs are as follows:

- Config
- Clock
- Network

To view system configuration information for a specific device:

1. Select the device record from the Device list on the **ATM Device Management** panel.
2. Click the System icon under the Config folder. The **System Configuration** panel displays the information for the selected device. See Figure 5-13.

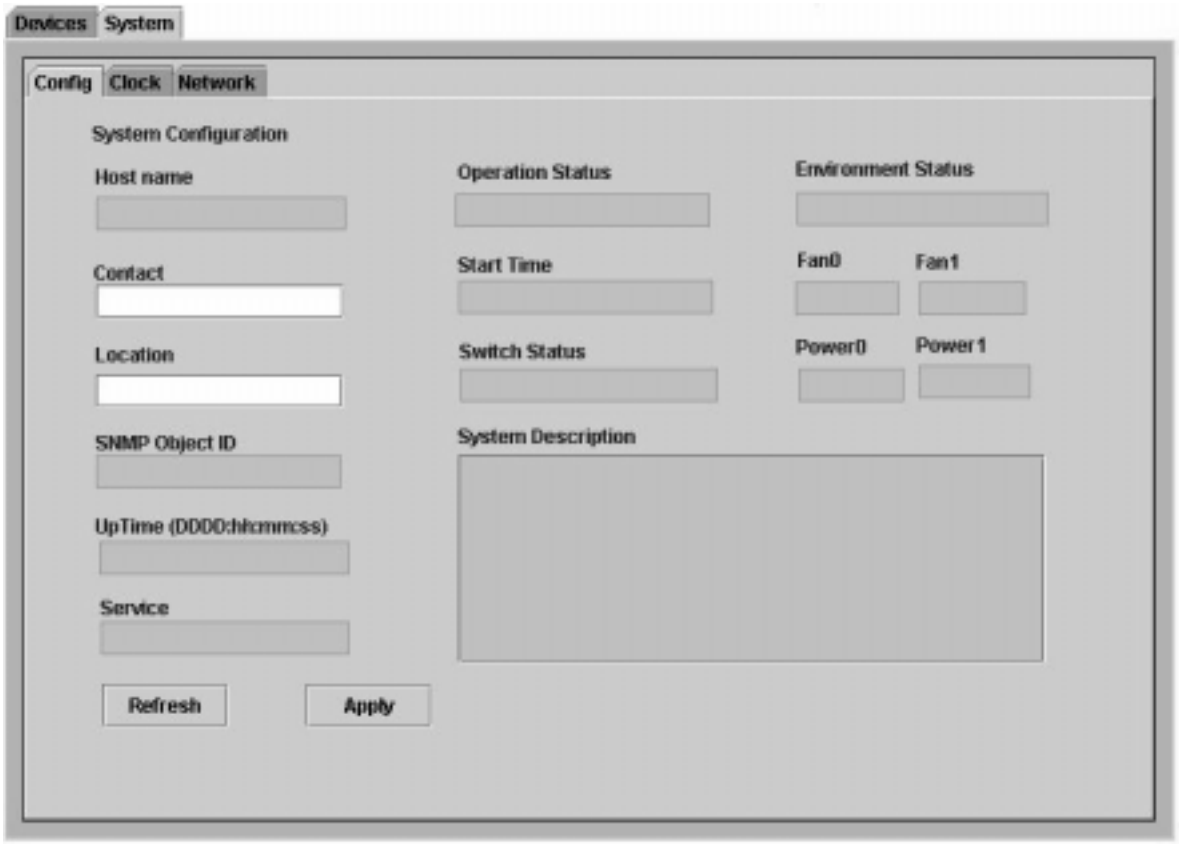

Figure 5-13: System Config Panel

Config

When the System icon is selected, the **System Configuration** panel displays. On this panel, you can do the following:

- Update the system configuration information
- Modify the system configuration information

Update the System Configuration Information

To update the system configuration information, click **REFRESH**. The most current system configuration information displays. New configurations are added and deleted configurations are removed during the refresh.

Modify the System Configuration Information

Only the Contact and Location fields can be modified on the System Configuration panel. To modify these fields:

1. Type the System Administrator's identifier in the Contact field.
2. Type the location of the switch in the Location field.

3. Click **APPLY**. The Select an Option dialog displays. See Figure 5-14.

Figure 5-14: Confirm Apply Dialog

4. Click **YES** to modify the system configuration information and close the dialog box.

   OR

   Click **NO** to close the dialog box and continue without modifying the information.

You may want to click **REFRESH** to verify that the configuration information was modified.

Field Descriptions

The following system configuration information displays on this panel:

Parameter	Description/Comments
Host name	The name assigned to the switch.
Contact	The System Administrator. This field can contain from 1 to 16 alphanumeric characters.
Location	The physical location of the switch. This field can contain from 1 to 16 alphanumeric characters.
SNMP Object ID	The system's object identifier for the Simple Network Management Protocol (SNMP).
Up Time	The amount of time that has elapsed since the device was started. The time is shown in the DDDD:hh:mm:ss format.
Service	The service mode of the switch. The value is usually 72.
Operation Status	The status of the device.
Start Time	The device's calendar start time.
Switch Status	The operational status of the switch.
System Description	Describes the model, software version, and operating system for the device.

Parameter	Description/Comments
Environment Status	The status of the device's environment.
Fan0	The operating status of fan 0.
Fan1	The operating status of fan 1.
Power0	The operating status of the primary power source.
Power1	The operating status of the secondary power source.

Clock

The **Clock Setting** panel allows you to view and change clock settings for the current switch. To access the **Clock Setting** panel, click the Clock tab on the **System** panel. See Figure 5-15. On this panel, you can do the following:

- Update the clock settings
- Modify the clock settings

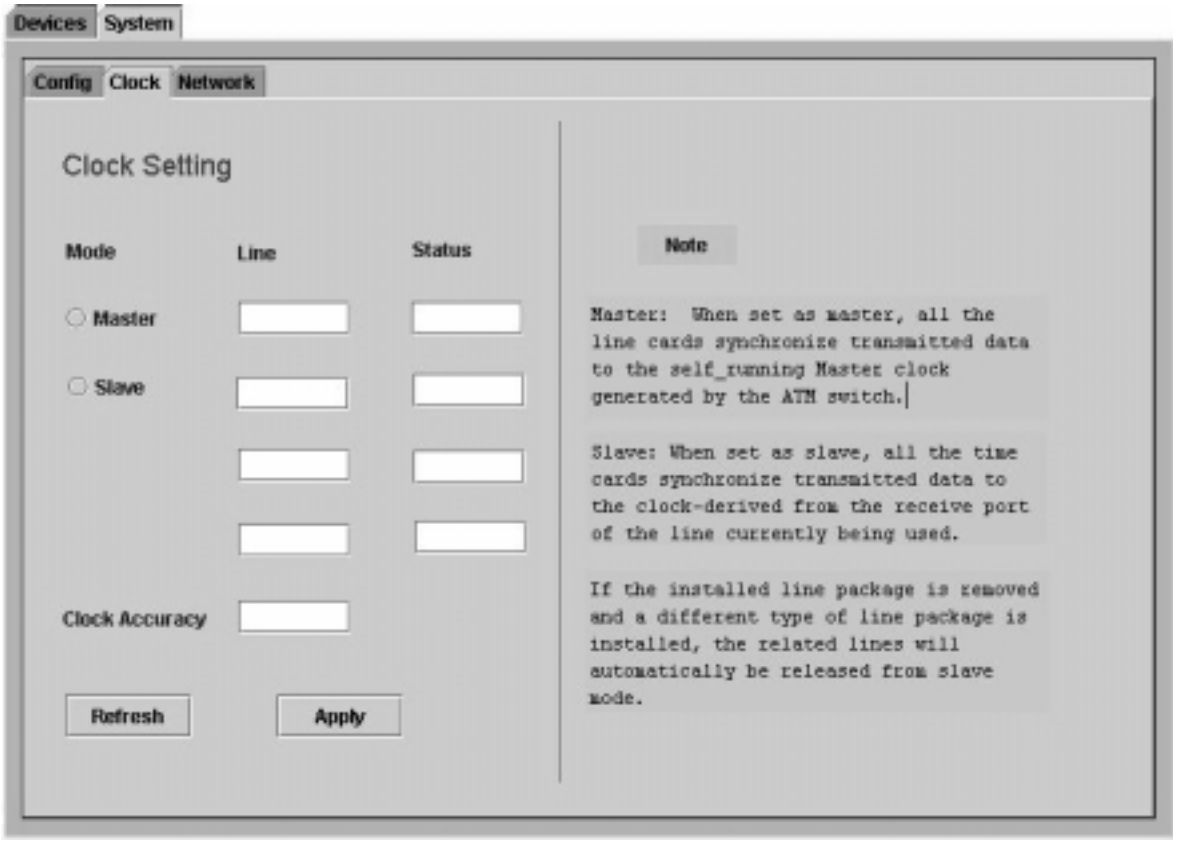

Figure 5-15: Clock Tab Panel

Update the Clock Settings

To see the current clock settings on the switch, click **REFRESH**. The most current information displays.

Modify the Clock Settings

On the **Clock Setting** panel clocking mode can be set to either Master mode or Slave mode. When the clock mode is set to Master, all the line cards synchronize transmitted data with the self-running Master clock generated by the ATM switch.

When the clock mode is set to Slave, all line cards synchronize the transmitted data with the clock derived from the line receiving port being currently used.

If the installed line package is removed, and a different type of line package is installed, the lines that are removed are automatically released from the Slave mode.

To change the current clock settings on the switch, select the clocking mode in the Mode group box.

If you set the clocking mode to Slave:

1. Type the line numbers of the lines connected to the clocking source in the Line fields.

   The status of each line displays in the Status field.

2. Type the clock accuracy in the Clock Accuracy field. This field is used only for 900x series switches.

3. Click **APPLY**. The Select an Option dialog displays. See Figure 5-16.

Figure 5-16: Confirm Modify Clock Dialog

4. Click **YES** to modify the clock settings and close the dialog box.

   OR

   Click **NO** to close the dialog box and continue without modifying the clock settings.

You may want to click **REFRESH** to verify that the clock settings have been modified.

Field Descriptions

The following information displays on the **Clock Setting** panel.

Parameter	Description/Comments
Mode	The status in which the network clock is operating.
Line	The numbers assigned to the lines connected to the clocking source device.
Status	The status of the clock lines.
Clock Accuracy	Sets clocking accuracy when using Slave mode.

Network

The **Network Information** panel displays settings for the switch. To access the **Network** panel, click the Network tab on the **System** panel. See Figure 5-17. On the **Network** panel, you can:

- Display the Host information
- Apply the changes to the Host
- Add an entry to the NMS table
- Delete a record from the NMS table
- Refresh the network information

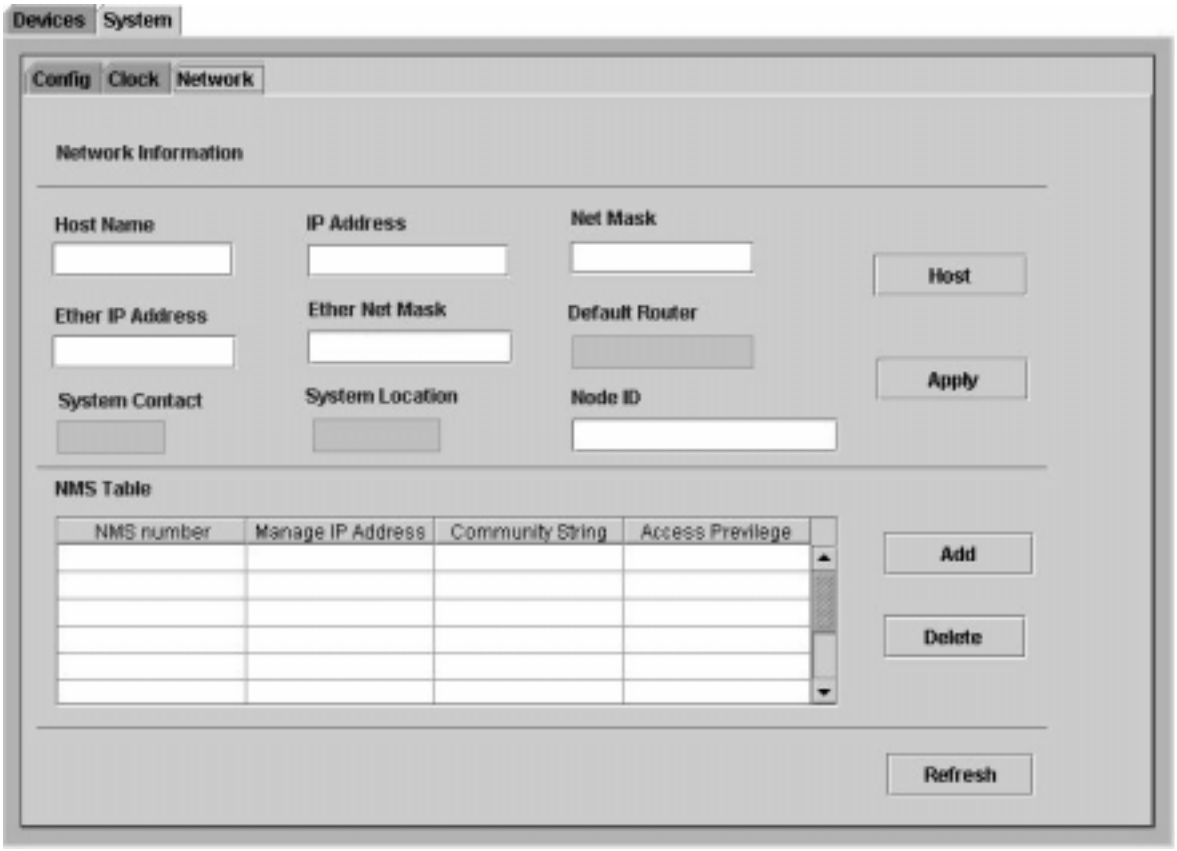

Figure 5-17: Network Panel

Display the Host Information

To see the settings for the current switch, click **HOST**.

Apply the Changes to the Host

The current Host information can be modified on this panel. To modify Host information:

1. Change one or more of the following fields:
   - Host Name
   - IP Address
   - Net Mask
   - Ether IP Address
   - Ether Net Mask
   - Node ID

All other fields are unavailable and cannot be modified.

2. Click **APPLY**. The Select an Option dialog displays. See Figure 5-18.

Figure 5-18: Confirm Modify Host Dialog

3. Click **YES** to modify the host information and close the dialog box.

   OR

   Click **NO** to close the dialog box and continue without modifying the information.

You may want to click **REFRESH** to verify that the information was modified.

Field Descriptions

The following fields display on the **Network Information** panel.

Parameter	Description/Comments
Host Name	The ATM identification name.
IP Address	The internet protocol identifier for the connection.
Net Mask	The bits defined to filter the IP Address,
Ether IP Address	The internet protocol address used when connecting through a Local Area Network (LAN).
Ether Net Mask	The bits defined to filter the Ether IP Address
Default Router	The identifier for the router that the system uses if no other router identifier has been defined.
System Contact	The System Administrator. This field can contain from 1 to 16 alphanumeric characters.
System Location	The physical location of the switch. This field can contain from 1 to 16 alphanumeric characters.
Node ID	The identifier for the connection into the network.
NMS (Network Management System) Table	The table that defines OSI network information.

Add an Entry to the NMS Table

The NMS table displays information about managing the network. You can add or delete network information from this table. To add an entry to the table:

1. Select an empty table row.
2. Type the NMS number in the NMS column.
3. Type the network's IP Address in the Manage IP Address column.
4. Type the password in the Community String column.
5. Type or select the access privilege in the Access Privilege column.
6. Click **ADD**. The Select an Option dialog displays. See Figure 5-19.

Figure 5-19: Confirm New NMS Entry Dialog

7. Click **YES** to add the record to the table and close the dialog box.

   OR

   Click **NO** to close the dialog box and continue without adding the record.

You may want to click **REFRESH** to verify that the NMS record was added to the table.

Delete a Record from the NMS Table

To delete an NMS record:

1. Highlight the record to be deleted.
2. Click **DELETE**. The Select an Option dialog displays. See Figure 5-20.

Figure 5-20: Confirm Delete NMS Dialog

3. Click **YES** to delete the record and close the dialog box.

   OR

   Click **NO** to close the dialog box and continue without deleting the record.

You may want to click **REFRESH** to verify the record has been deleted.

Refresh the Network Information

To update the information on the **Network Information** panel at any time, click **REFRESH**.

Field Descriptions

The NMS table further defines functions for the OSI network layer. The following fields display in the NMS table.

Parameter	Description/Comments
NMS Number	The number assigned to this NMS record. **Valid values are:** • 0 • 1 • 2 • 3
Manage IP Address	The manager internet protocol address.
Community String	The Simple Network Management Protocol (SNMP) password.
Access Privilege	The access rights assigned with this NMS record. **Valid values are:** • 0 = Read Only • 1 = Read/write

Slot Interfaces

The **Slot Interfaces** panel provides information that defines each line. To display the **Slot Interfaces** panel, click the Interfaces icon under the Device folder. See Figure 5-21. On this panel you can do the following:

- Update the slot information

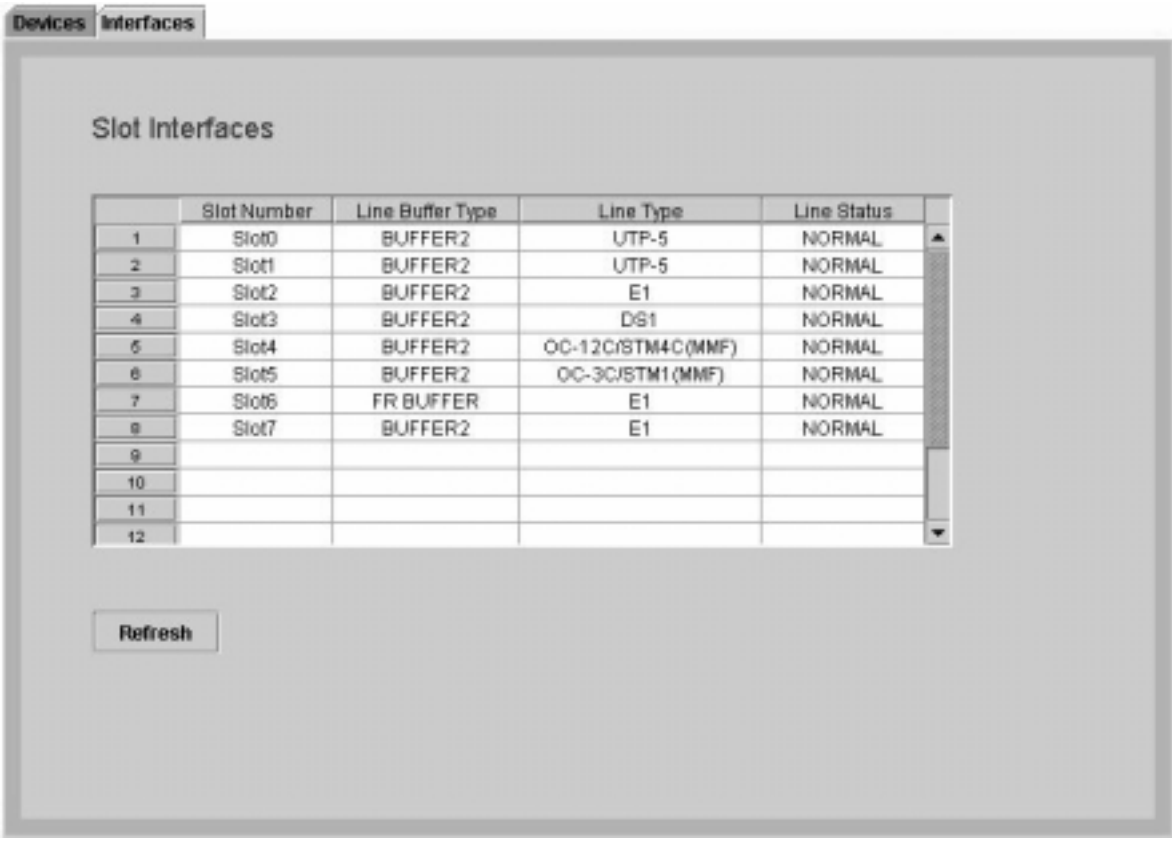

Figure 5-21: Slot Update Panel

Update the Slot Interfaces Panel

To update the **Slot Interfaces** panel information, click **REFRESH**. The most current slot interface information displays.

Field Descriptions

The following slot interface information displays in the table:

Parameter	Description/Comments
Slot Number	The number of the slot in which the Line Card resides.
Line Buffer Type	The kind of buffer assigned to the Line Card. **Valid values are:** • 0 = Not installed • 1 = BUFFER1 • 2 = BUFFER2 • 3 = INITIALIZING • 4 = FR-BUFFER • 5 = FR-BUFFER2 • 6 = FR-BUFFER3
Line Type	The kind of line being used. **Valid values are:** • 0 = OC-48/STM16(SMF-L) • 1 = OC-12C/STM4(SMF-S)TYPEA • 2 = OC-12C/STM4C (SMF-S)TYPEB • 3 = OC-3C/STM1(SMF-L) • 4 = OC-3C/STM(SMF-L) • 5 = OC-3C/STM1(MMF-S) • 6 = UTP-5 • 7 = J2(3M-6M) • 8 = PRIMARY • 9 = 100M-TAXI • 10 = DS3 • 11 = E3 • 12 = DS1 • 13 = E1 • 14 = CE-J2 • 15 = CW-DS1 • 16 = CE-DS3 • 17 = STS-3C/STM1(COAXICAL) • 18 = FR-E1 • 19 = FR-DS1 • 20 = SERVER • 21 = SERVER2 • 22 = FR-BUFFER2 • 23 = OC-12C /STM4 C (MMF) • 24 = OC-12 C/STM4 (MMI) • 25 = OC-3C /STM1 (SMI-5)

Parameter	Description/Comments
Line Status	Indicates the operating mode for that particular Line Card. **Valid values are:** • 0 = FAILURE • 1 = NORMAL • 2 = DIAGNOSTIC • 3 = INITIALIZING • 4 = DIAGNOSIS STATUS NG • 5 = NONE

6 Port Management

Port Config

The **Port Config** panel allows you to configure port information. To access the **Port Config** panels, click the Port Config icon under the Config folder. The **Port Configuration** panel has six tabs:

- Interface
- Signaling
- ILMI
- Looptime
- SVCLine
- Tunneling

When the Port Config icon is selected, the **Interface** panel displays. You can display another panel by clicking its tab. See Figure 6-1.

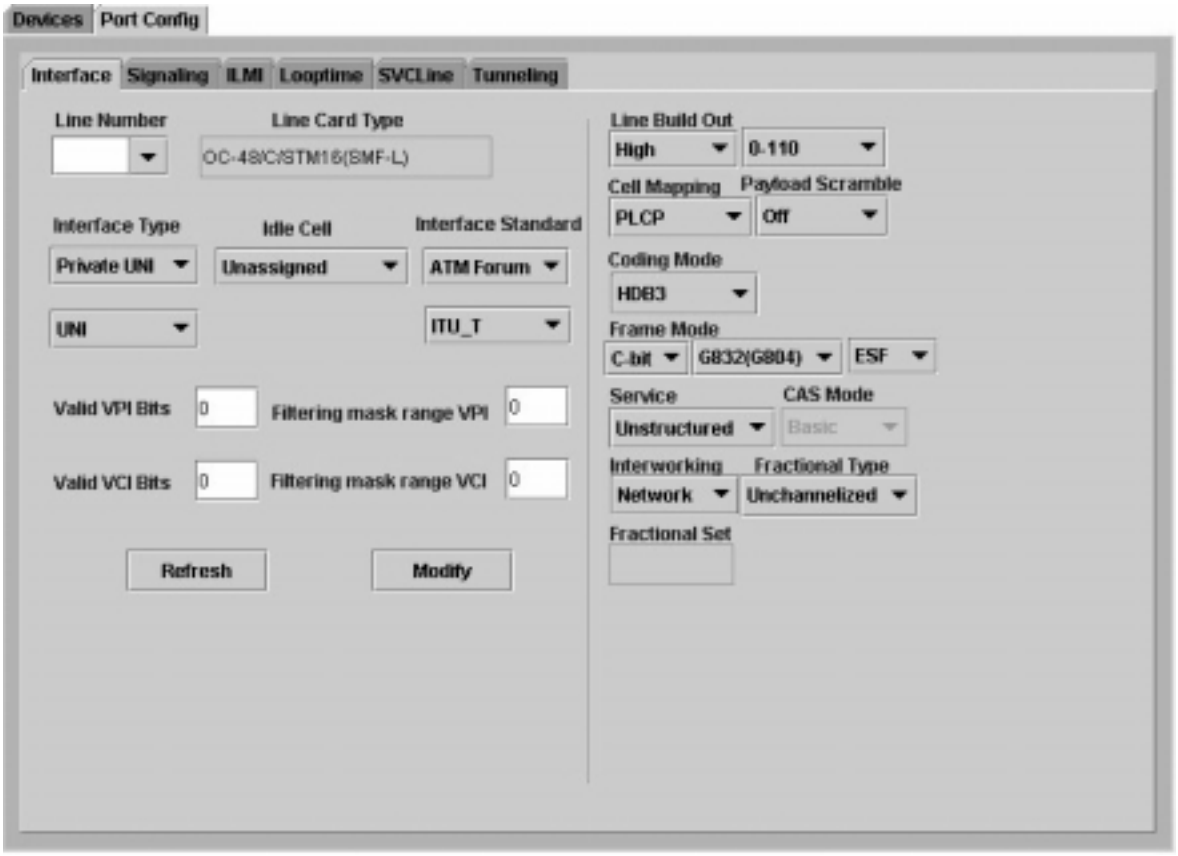

Figure 6-1: Port Config Interface Panel

Interface

The **Interface** panel displays information according to the line card type. On this panel, you can do the following:

- Update the line card interface information
- Modify the line card interface information

CAUTION

Any changes made to the interface configuration are applied immediately to the interface port. Use caution not to disrupt user or network services.

Update the Line Card Interface Information

To update the line card information, click **REFRESH**. The most current line card information displays.

Modify the Line Card Interface Information

The line number field indicates the current interface. On the **Interface** panel only these fields can be modified:

- Line Number
- Valid VPI Bits
- Valid VCI Bits
- Filtering Mask Range VPI
- Filtering Mask Range VCI

To modify the line card information:

1. Type or select a new interface in the Line Number field.
2. Type the new number of bits to be used for the virtual path identifier in the VPI field.
3. Type the new number of bits to be used for the virtual channel identifier in the VCI field.

   The total number of bits in these two fields combined (VPI + VCI) must equal 14. See the following examples:

   VPI bits = 0; VCI bits = 14; Total = 0 + 14 = 14

   VPI bits = 6; VCI bits = 8; Total = 6 + 8 = 14
4. Type the number of bits in the Filtering mask range VPI field.
5. Type the number of bits in the Filtering mask range VCI field.
6. Click **MODIFY**. The Select an Option dialog displays. See Figure 6-2.

Figure 6-2: Confirm Modify Port Interface Dialog

7. Click **YES** to modify the interface and close the dialog box.

   OR

   Click **NO** to close the dialog box and continue without modifying the interface.

You may want to click **REFRESH** to verify that the interface was modified.

Field Descriptions

The following information displays on the **Interface** panel:

<table>
<tr><th>Parameter</th><th>Description/Comments</th></tr>
<tr><td>Line Number</td><td>A combination of the Line Card number and its Slot Position
Valid values are:
<table>
<tr><th>Switch Type</th><th>Valid Values</th></tr>
<tr><td>855x</td><td>0 and 32 through 16383</td></tr>
<tr><td>866x</td><td>0 and 32 through 16383</td></tr>
<tr><td>877x</td><td>0 and 32 through 16383</td></tr>
<tr><td>900x</td><td>0 and 32 through 65535</td></tr>
<tr><td>900x</td><td>0 and 32 through 16383</td></tr>
</table></td></tr>
<tr><td>Line Card Type</td><td>The kind of line being used.
Valid values are:
• 0 = OC-48/STM16(SMF-L)
• 1 = OC-12C/STM4(SMF-S)TYPEA
• 2 = OC-12C/STM4C (SMF-S)TYPEB
• 3 = OC-3C/STM1(SMF-L)
• 4 = OC-3C/STM(SMF-L)
• 5 = OC-3C/STM1(MMF-S)
• 6 = UTP-5
• 7 = J2(3M-6M)
• 8 = PRIMARY
• 9 = 100M-TAXI
• 10 = DS3
• 11 = E3
• 12 = DS1
• 13 = E1
• 14 = CE-J2
• 15 = CW-DS1
• 16 = CE-DS3
• 17 = STS-3C/STM1(COAXICAL)
• 18 = FR-E1
• 19 = FR-DS1
• 20 = SERVER
• 21 = SERVER2
• 22 = FR-BUFFER2
• 23 = OC-12C /STM4 C (MMF)
• 24 = OC-12 C/STM4 (MMI)
• 25 = OC-3C /STM1 (SMI-5)</td></tr>
</table>

Parameter	Description/Comments
Valid VPI Bits	The bits in the ATM header that identify the virtual path. **Valid values are:** 1 through 8 **NOTE:** The total VPI value plus the VCI value must equal 14.
Valid VCI Bits	The bits in the ATM header that identify the virtual channel. **Valid values are:** 0 through 14 **NOTE:** The total VPI value plus the VCI value must equal 14.
Filtering mask range VPI	The filter length that masks the valid VPI during a validation check. **Valid values are:** 0 through x
Filtering mask range VCI	The filter length that masks the valid VCI during a validation check. **Valid values are:** x through 14
Interface Type	The kind of interface used by the connection. **Valid values are:** • 0 = 0 • 1 = PRI-UNI Private User Network Interface is used when connecting an end device, such as a personal computer or router to an ATM switch. • 2 = PRI-NNI Private Network-Network Interface is used when connecting two ATM switches together. • 3 = Pub_UNI Public User Network Interface is used when connecting to a public network, or when using E.164 addressing. • 4 = UNI User Network Interface is used when connecting an end device, such as a personal computer or router to an ATM switch. • 5 = NNI Network-Network Interface is used when connecting two ATM switches together.

Parameter	Description/Comments
Idle Cell	The cell that fills the transmission cell time slot when there is no cell to send. **Valid values are:** • 0 = - • 1 = Unassigned • 2 = Idle • 3 = ANSI
Interface Standard	The ATM Forum International Telecommunications Union (ITU) standard on which the connection is based. **Valid values are:** • 0 = - • 1 = ATM Forum • 2 = ITU • 3 = TTC • 4 = ITU-T • 5 = FR-FORUM • 6 = ANSI
Line Build Out	The value set for selectable output attentuation for DTE equipment when using T1 connections. **Valid values are:** • 0 = 0-110 • 1 = 110-120 • 2 = 220-330 • 3 = 330-440 • 4 = 440-550 • 5 = 550-660 • 6 = 660 • 7 = HI • 8 = LO
Cell Mapping	The method for transmitting cells. **Valid values are:** • 0 = PLCP • 1 = Direct

Parameter	Description/Comments
Payload Scramble	The method used for scrambling data. **Valid values are:** • 0 = Off • 1 = 1
Coding Mode	The coding mode controlling the sequential transmission of 0 and 1. **Valid values are:** • 0 = HDB3 • 1 = AMI
Frame Mode	The data communications protocols for defining frame size. **Valid values are:** • 0 = CBIT • 1 = M23 • 2 = G832 (G804) • 3 = G751 • 4 = ESF • 5 = SF
Service	The OSI layer mode. **Valid values are:** • 0 = Unstructured • 1 = Structured
CAS Mode	The value to select the circuit signaling rate. **Valid values are:** • 0 = Basic • 1 = CAS
Interworking	The value indicating which protocol to use when connection from network to network. **Valid values are:** • 0 = Network • 1 = Service
Fractional Type	The way the DS1 interface is partitioned. **Valid values are:** • 0 = Unchanneled • 1 = Fractional

Parameter	Description/Comments
Fractional Set	The fields that reflect the current settings of the interface. **Valid values are:** 1 through 31

Signaling

The **Signaling** panel displays the ATM signaling parameters and the signaling values on a line. To display the **Signaling** panel, click the Port Config icon under the Config folder. Then click the Signaling tab. See Figure 6-3. On this panel, you can do the following:

- Refresh the Signaling parameters
- Modify the Signaling parameters
- Delete a Signaling parameter

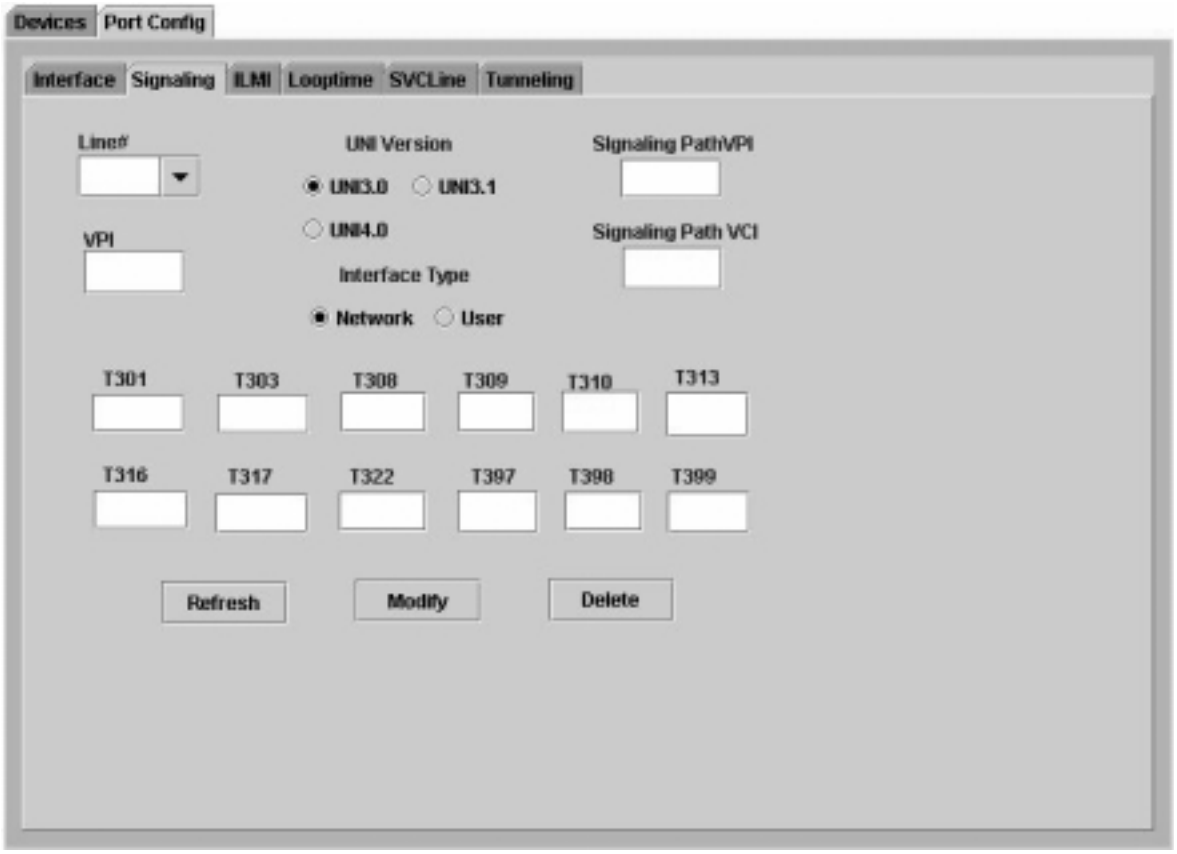

Figure 6-3: Signaling Panel

Refresh the Signaling Parameters

To update the Signaling panel parameters:

1. Select the line number whose signaling parameters you want to view.
2. Click **REFRESH**.

The most current signaling information for the selected interface displays.

Modify the Signaling Parameters

To modify signaling information:

1. Type or select the Line Number whose parameters you want to modify.
2. Change the values in one or more of the fields.
3. Click **MODIFY**. The Select an Option dialog displays. See Figure 6-4.

Figure 6-4: Confirm Modify Signaling Dialog

4. Click **YES** to modify the parameters and close the dialog box.

   OR

   Click **NO** to close the dialog box and continue without modifying the parameters.

You may want to click **REFRESH** to verify that the signaling record was modified.

Delete a Signaling Parameter

When deleting a signaling parameter, you must specify the Line Number and VPI you want to delete. To delete a Signaling record:

1. Select the Line Number for the record you want to delete.
2. Click **DELETE**. The Select an Option dialog displays. See Figure 6-5.

Figure 6-5: Confirm Delete Signaling Dialog

3. Click **YES** to delete the record and close the dialog box.

   OR

   Click **NO** to close the dialog box and continue without deleting the record.

You may want to click **REFRESH** to verify that the signaling record was deleted.

Field Descriptions

The following signaling parameters display on this panel:

Parameter	Description/Comments
Line Number	A combination of the Line Card slot position and the Port Number. **Valid values are:** Switch Type / Valid Values: 855x — 0 and 32 through 16383; 866x — 0 and 32 through 16383; 877x — 0 and 32 through 16383; 900x — 0 and 32 through 65535; 900x — 0 and 32 through 16383
VPI	The bits in the ATM header that identify the virtual path. **Valid values are:** 0 through 8.

Parameter	Description/Comments
UNI Version	The version control number of the User Network Interface software being used. **Valid values are:** • UNI 3.0 • UNI 3.1 • UNI 4.0
Interface Type	The kind of interface used by the connection.
Signaling Path VPI	The bits in the ATM header that define the virtual path for the signaling path.
Signaling Path VCI	The bits in the ATM header that define the virtual channel for the signaling path.
T301, T303, T308, T309, T310, T313, T316, T317, T322, T397, T398, T399	The transmission protocols to use for signaling.

ILMI

The **ILMI** panel displays the current ILMI connections for a line. To display the **ILMI** panel, click the Port Config icon under the Config folder. Then click the ILMI tab. See Figure 6-6. On this panel, you can do the following:

- Refresh the ILMI connection information
- Add a new ILMI connection
- Modify the ILMI connection information
- Delete an ILMI connection

Figure 6-6: ILMI Connection Panel

Refresh the ILMI Connection Information

To update the ILMI information for a specific line:

1. Select or type the line number in the Line # field.
2. Click **REFRESH**. The most current ILMI information displays.

Add a New ILMI Connection

To add a new ILMI connection:

1. Type or select a line number in the Line # field.
2. Type a value from 0 to 4095 in the VPI field. The default value is 0.
3. Type a value from 0 to 16,383 in the VCI field. The default value is 16.

   In the Connection line, complete these fields:
4. Type a the amount of time (from 1 to 511 seconds) that should elapse before the connection attempt is abandoned in the Timeout field. The default is one second.

5. Type the number of times, from 1 to 511, you want the line to retry to connect in the Retry Count field. The default is 1.
6. Type the amount of time to keep the connection open during idle times in the Keep Alive field. The default is 1 seconds.

   In the Configuration line, complete these fields:

7. Type the number of bits to be used for VPI during automatic configuration in the Valid VPI field. The range for VPI bits is 0 to 8.
8. Type the number of bits to be used for VCI during automatic configuration in the Valid VCI field. The range for VCI bits is 0 to 14.

   The total number of bits in the VPI field and VCI field, when added together, must equal 14.

9. Type the interface to be used during automatic configuration in the Interface field.
10. Type the version number of the UNI interface to be used during automatic configuration in the UNIver field.
11. Type the version number of the PNNI interface to be used during automatic configuration in the PNNIver field.
12. Type the interface management entity to be used during automatic configuration in the IME field.

    In the Neighbor line, the information displayed reflects the settings of the connected line.

13. Type the number of bits to be used for VPI in the Valid VPI field. The range for VPI bits is 0 to 8.
14. Type the number of bits to be used for VCI in the Valid VCI field. The range for VCI bits is 0 to 14.

    The total number of bits in the VPI field and VCI field, when added together, must equal 14.

15. Type the interface being used in the Interface field.
16. Type the version number of the UNI interface being used in the UNIver field.
17. Type the version number of the PNNI interface being used in the PNNIver field.

    In the Discovery line, complete these fields:

18. Type the IP address being used by the connected party in the IP Address field.
19. Type the name of the interface being used by the connected party in the IfName field.

In the Process line, complete these fields:

20. Type On to set the ILMI process flag, or type Off to turn off the ILMI process flag for the current line.

21. Type the parameters for the ILMI in the MIB field.

    OR

    The parameters display automatically after an ILMI connection record is added or modified.

22. Click **ADD**. The Select an Option dialog box displays. See Figure 6-7.

Figure 6-7: Confirm Add ILMI Dialog

23. Click **YES** to add the new ILMI connection and close the dialog box.

    OR

    Click **NO** to close the dialog box and continue without adding the new connection.

You may want to click **REFRESH** to verify that the connection was added.

Modify the ILMI Connection

To modify an ILMI connection:

1. Type or select in the Line # field the number of the line to be modified.
2. Click **MODIFY**. The **Modify ILMI** panel displays. See Figure 6-8.

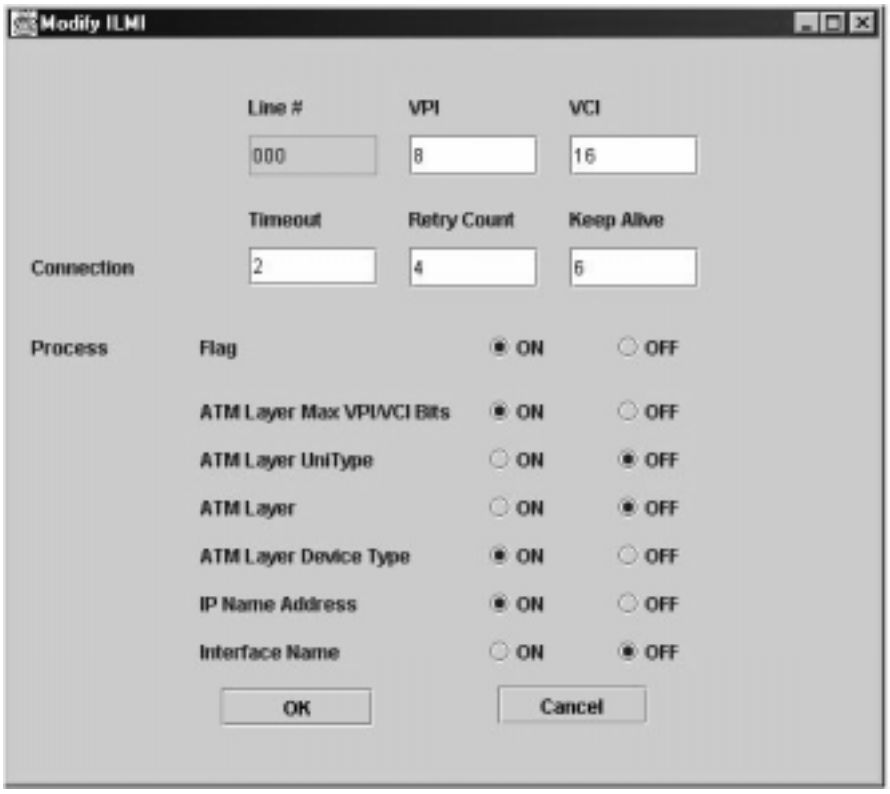

Figure 6-8: Modify ILMI Panel

3. Change the values in one or more of the fields. Fields that are dimmed cannot be modified.

4. Click **OK**. The ILMI connection is modified and the **Modify ILMI** panel closes.

   OR

   Click **CANCEL** to close the **Modify ILMI** panel and continue without modifying the connection.

You may want to click **REFRESH** on the **ILMI** panel to verify that the connection was modified.

Delete an ILMI Connection

To delete an ILMI connection:

1. Type or select in the Line # field the number of the line to be deleted.

2. Click **DELETE**. The Select an Option dialog displays. See Figure 6-9.

Figure 6-9: Confirm Delete ILMI Dialog

3. Click **YES** to delete the connection and close the dialog box.

   OR

   Click **NO** to close the dialog box and continue without deleting the connection.

You may want to click **REFRESH** on the ILMI panel to verify that the connection was deleted.

Field Descriptions

The following information displays on the **ILMI** panel:

Parameter	Description/Comments
Line Number	A combination of the Line Card slot position and the Port Number. **Valid values are:** Switch Type / Valid Values: 855x: 0 and 32 through 16383 866x: 0 and 32 through 16383 877x: 0 and 32 through 16383 900x: 0 and 32 through 65535 900x: 0 and 32 through 16383
VPI	The bits in the ATM header that identify the virtual path. **Valid values are:** 0 through 4095.
VCI	The bits in the ATM header that identify the virtual channel. **Valid values are:** 1 through 16,383

Parameter	Description/Comments
Connection Timeout	The amount of time that should elapse before a connection attempt is abandoned. **Valid values are:** 1 through 511 seconds **Default value:** Five seconds
Connection Retry Count	The number of times a connection attempt should be retried before the attempt is abandoned. **Valid values are:** 1 through 511 **Default value:** 60 seconds
Connection Keep Alive	The length of time to keep the connection open during idle periods. **Default value:** 60 seconds
Configuration Valid VPI	The VPI value recognized by automatic configuration.
Configuration Valid VCI	The VCI value recognized by automatic configuration.
Configuration Interface	The link recognized by automatic configuration.
Configurations UNIver	The User Network Interface software version recognized in automatic configuration.
Connection PNNIVer	The Private Network-Network Interface software version recognized in automatic configuration.
Connection IME	The Interface Management entity recognized in automatic configuration.
Neighbor Valid VPI	The VPI address of the connected line.
Neighbor Valid VCI	The VCI address of the connected line.
Neighbor Interface	The interface type being used by the connected line.
Neighbor UNIVer	The User Network Interface software version being used by the connected line.
Neighbor PNNIVer	The Private Network-Network Interface software version being used by the connected line.
Discovery IP Address	The IP address of the connected party.
Discovery IfName	The Interface name of the connected party.
Process Flag	Indicates whether or not to use ILMI specifications.

Parameter	Description/Comments
Process MIB	Contains the management information base parameters for the selected line.

Looptime

To display the **Looptime** panel, click the Port Config icon under the Config folder. Then click the Looptime tab. See Figure 6-10. On the **Looptime** panel, you can do the following:

- Refresh the looptime information
- Modify the port's looptime

Figure 6-10: Looptime Panel

Refresh the Looptime Information

To refresh the Looptime for line:

1. Type or select the line number in the Line Number field.
2. Click **REFRESH**. The current looptime status information displays.

Modify the Port's Looptime

When modifying the Looptime for a port, take these factors into consideration.

A port with loop time set to ON receives partial clock and synchronizes the transmitting clock to the partial clock. The transmitting clock information slaves its clock to the clock recovered from the receiving port. This clock information has priority.

Looptime cannot be set for 100M-TAXI.

Looptime cannot be set while the switch and line are being diagnosed. Lines for which loop time has been set cannot be connected to each other. Only one line may be set for DS3/E3 loop time.

To set the Looptime value:

1. Type or select the line number in the Line Number field.
2. Click either the ON or OFF option.
3. Click **MODIFY**. The Select an Option dialog displays. See Figure 6-11.

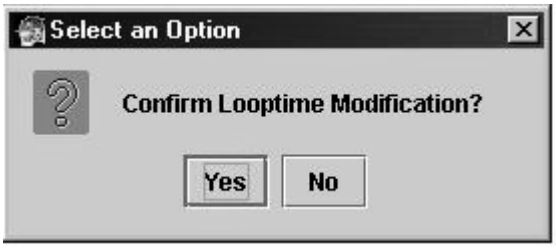

Figure 6-11: Confirm Modify Looptime Dialog

4. Click **YES** to modify the looptime status and close the dialog box.

   OR

   Click **NO** to close the dialog box and continue without modifying the looptime status.

You may want to click **REFRESH** on the **Looptime** panel to view the modified looptime.

Field Descriptions

The following fields display on the **Looptime** panel:

Parameter	Description/Comments
Line Number	A combination of the Line Card slot position and the Port Number. **Valid values are:**
Looptime	The setting that determines whether or not to set the switch into loop status for clock synchronization.

Switch Type	Valid Values
855x	0 and 32 through 16383
866x	0 and 32 through 16383
877x	0 and 32 through 16383
900x	0 and 32 through 65535
900x	0 and 32 through 16383

SVCLine

The **SVCLine** panel displays switched virtual connection (SVC) line information. To display the **SVCLine** panel, click the Port Config icon under the Config folder. Then, click the SVCLine tab. See Figure 6-12. On the **SCVLine** panel, you can do the following:

- Refresh the SVCLine parameters
- Modify the SVCLine parameters

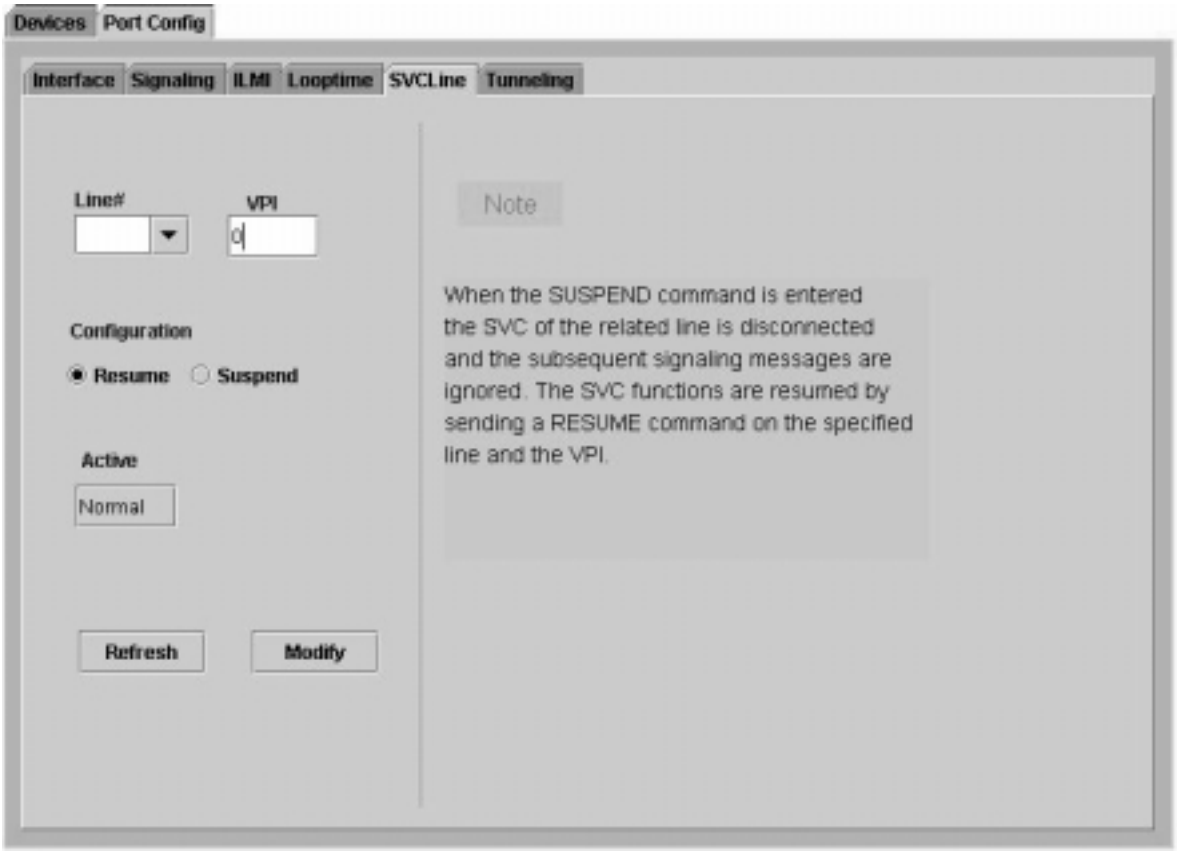

Figure 6-12: SVCLine Panel

Refresh the SVCLine Parameters

To update the SVCLine parameters:

1. Type or select the line number in the Line# field.
2. Click **REFRESH**. The most current SVCLine information displays.

Modify the SVCLine Parameters

To modify the SVCLine parameters:

1. Type or select the line number in the Line# field to be modified.
2. Click either the Resume or Suspend option.
3. Click **MODIFY**. The Select an Option dialog displays. See Figure 6-13.

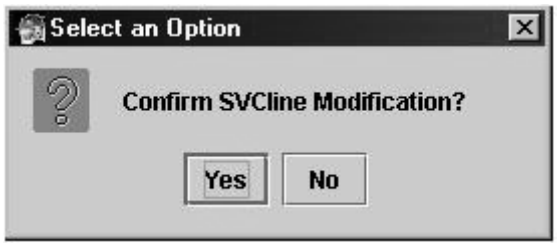

Figure 6-13: Confirm SVCLine Modification Dialog

4. Click **YES** to modify the SVCLine parameters and close the dialog box.

   OR

   Click **NO** to close the dialog box and continue without modifying the parameters.

You may want to click **REFRESH** to view the modified SVCLine parameters.

Field Descriptions

The following fields display on the **SVCLine** panel:

Parameter	Description/Comments
Line#	A combination of the Line Card slot position and the Port Number. **Valid values are:** Switch Type / Valid Values 855x: 0 and 32 through 16383 866x: 0 and 32 through 16383 877x: 0 and 32 through 16383 900x: 0 and 32 through 65535 900x: 0 and 32 through 16383
VPI	The bits in the ATM header that identify the virtual path for the SVC. **Valid values are:** 0 through 8.
Active	The status of the line for the signaling connections.

Tunneling

The **Tunneling** panel displays the policing information for a selected port. To display the **Tunneling** panel, click the Port Config icon under the Config folder. Then, click the Tunneling tab. See Figure 6-14. On the **Tunneling** panel, you can do the following:

- Refresh the Tunneling parameter information
- Create a new Tunneling parameter
- Modify the Tunneling parameter information
- Delete a Tunneling parameter

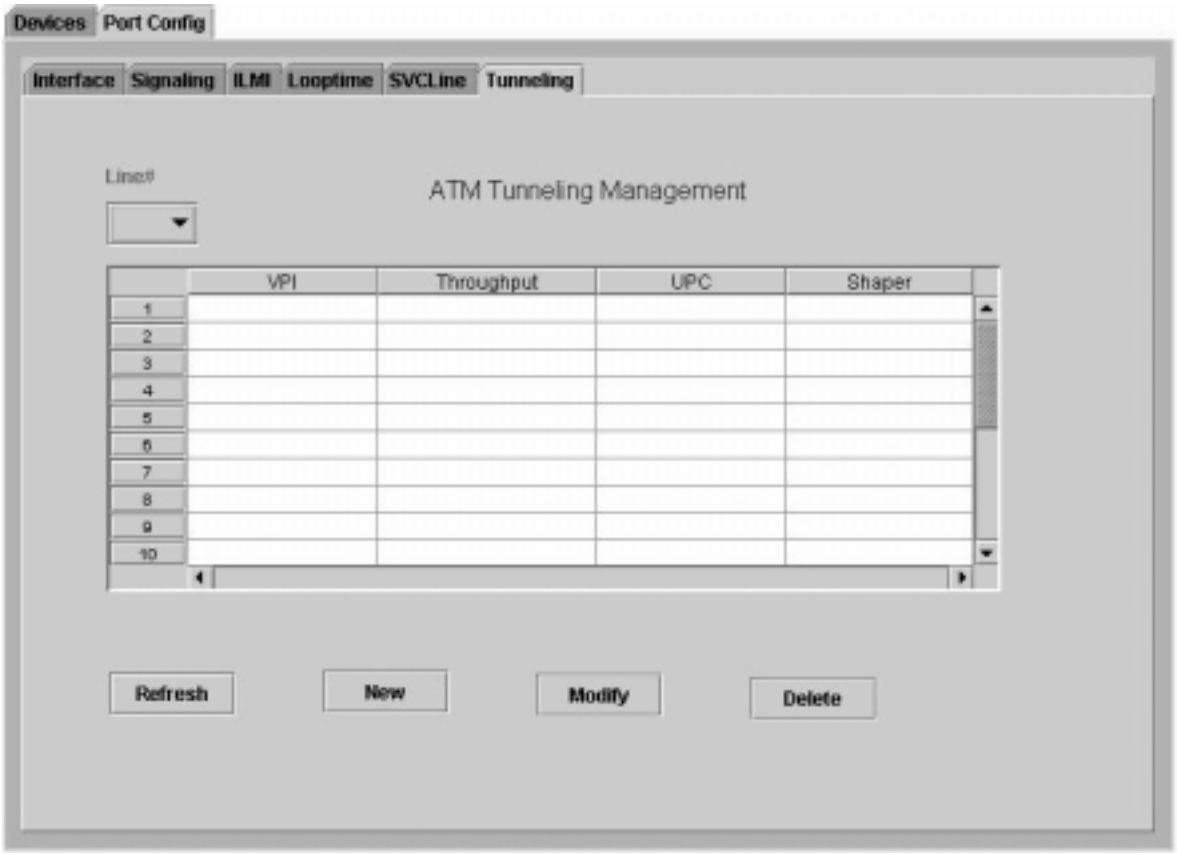

Figure 6-14: PortConfig Tunneling Panel

Refresh the Tunneling Parameter Information

To update the Tunneling parameter information:

1. Type or select the line number in the Line# field.
2. Click **REFRESH**. The most current Tunneling information displays in the table.

Create a New Tunneling Parameter

To create a new Tunneling parameter:

1. Select an empty row in the table.
2. Type the number of bits to be used for the virtual path identifier in the VPI column. The range for VPI bits is 0 to 8.
3. Type the throughput value in the Throughput column.
4. Type or select the usage parameter control in the UPC column. Valid values are OFF and ON.
5. Type or select one of the pre-defined shapers. Valid values are 1 through 7. If you do not want to use a shaper, select OFF.
6. Click **NEW**. The Select an Option dialog displays. See Figure 6-15.

Figure 6-15: Confirm Add New Tunnel Dialog

7. Click **YES** to add the new Tunneling parameter and close the dialog box.

   OR

   Click **NO** to close the dialog box and continue without adding the parameter.

You may want to click **REFRESH** to verify that the new Tunneling parameter was added.

Modify a Tunneling Parameter

To modify a Tunneling parameter:

1. Highlight the table row containing the parameter to be modified.
2. Change the values in one or more of the columns.
3. Click **MODIFY**. The Select an Option dialog displays. See Figure 6-16.

Figure 6-16: Confirm Modify Tunnel Dialog

4. Click **YES** to modify the parameter and close the dialog box.

   OR

   Click **NO** to close the dialog box and continue without modifying the parameter.

You may want to click **REFRESH** to verify that the Tunneling parameter was modified.

Delete a Tunneling Parameter

To delete a Tunneling parameter:

1. Highlight the table row containing the parameter to be deleted.
2. Click **DELETE**. The Select an Option dialog displays. See Figure 6-17.

Figure 6-17: Confirm Delete Tunneling Dialog

3. Click **YES** to delete the parameter and close the dialog box.

   OR

   Click **NO** to close the dialog box and continue without deleting the parameter.

You may want to click **REFRESH** to verify the Tunneling parameter was deleted.

Field Descriptions

The following fields display on the **Tunneling** panel:

<table>
<tr><th>Parameter</th><th>Description/Comments</th></tr>
<tr><td>Line#</td><td>A combination of the Line Card slot position and the Port Number.
Valid values are:
<table><tr><th>Switch Type</th><th>Valid Values</th></tr><tr><td>855x</td><td>0 and 32 through 16383</td></tr><tr><td>866x</td><td>0 and 32 through 16383</td></tr><tr><td>877x</td><td>0 and 32 through 16383</td></tr><tr><td>900x</td><td>0 and 32 through 65535</td></tr><tr><td>900x</td><td>0 and 32 through 16383</td></tr></table></td></tr>
<tr><td>VPI</td><td>The virtual path identifier to use for a temporary tunneling connection.</td></tr>
<tr><td>Throughput</td><td>The amount of useful information transmitted.</td></tr>
<tr><td>UPC</td><td>The usage parameter control.
Valid values are:
• OFF
• ON
Default value is:
OFF.</td></tr>
<tr><td>Shaper</td><td>The number of the shaper, if any, associated with this line.
Valid values are:
• OFF
• 1 through 7.</td></tr>
</table>

Shaper Management

Connections can be associated with a shaper that controls and smooths the flow of cells. Each port can have up to eight pre-defined shapers. To display the ATM **Shaper Managemen**t panel, click the Port Shaper icon under the Config folder. See Figure 6-18. On this panel, you can do the following:

- Refresh the shaper table
- Add a new shaper
- Modify a shaper
- Delete a shaper

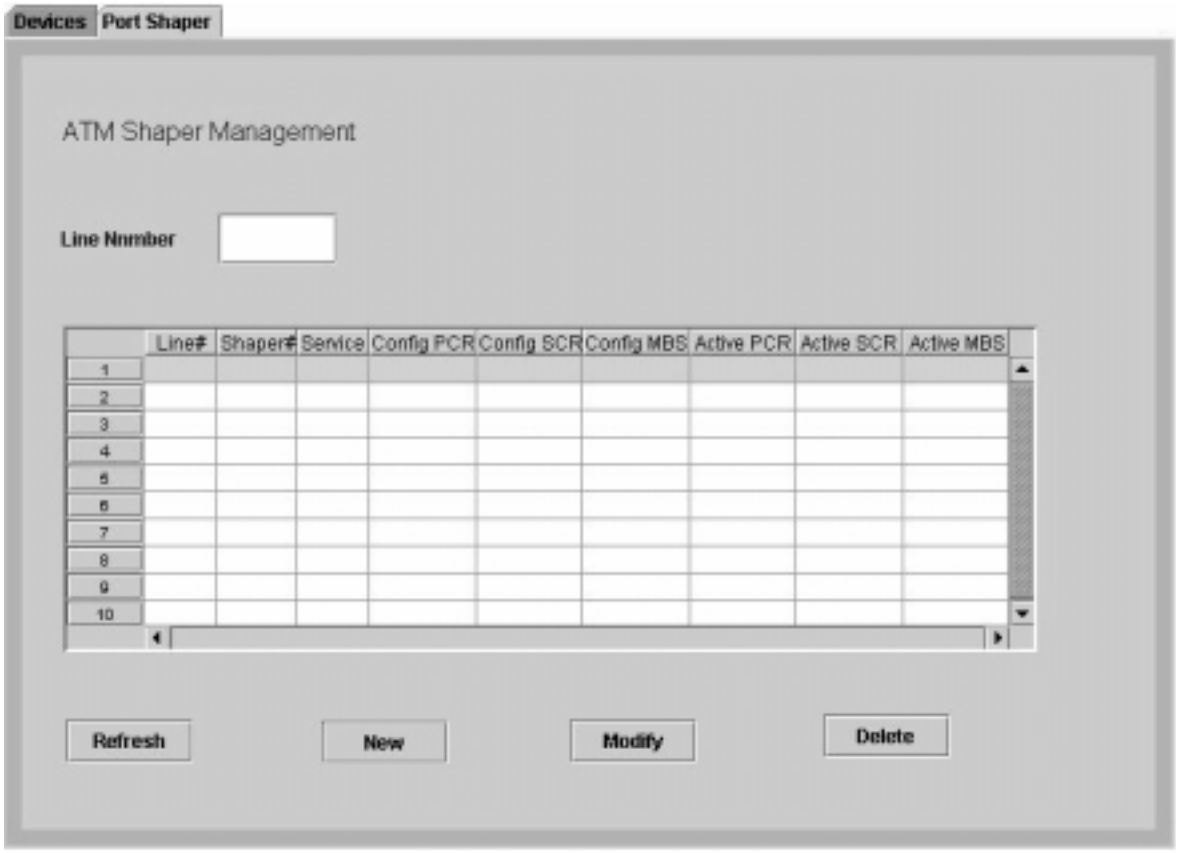

Figure 6-18: Shaper Management Panel

Refresh the Shaper Table

To update the shaper table click **REFRESH**. The most current information displays. New and modified shapers are added to the table and deleted shapers are removed from the table during the refresh.

Add a New Shaper

To add a new shaper:

1. Select an empty row in the table.
2. Type the line number in the Line# column. This number should be the line number with which you want to associate the new shaper.
3. Type a number to assign to the shaper in the Shaper# column. Valid values are 1 to 8.
4. Type or select a service type in the Service column. Valid values are: CBR, UBR, nt-VBR, nrt-VBR
5. Type the Peak Cell Rate (PCR) value in the Config PCR column. Valid values are 151 through 1,412,830 cells per second.
6. Type the Sustainable Cell Rate (SCR) value in the Config SCR column. Valid values are 151 through 1,412,830 cells per second.

NOTE A PCR and SCR exceeding the physical rate cannot be set. If the specified rate cannot be set due to hardware capacity, an approximate value is automatically set.

7. Type the Maximum Burst Size (MBS) value in the Config MBS column. This value must be numerical. Valid values are 151 through 1412830.
8. Type the PCR value to be achieved when the shaper is applied in the Active PCR column. This value must be numerical.
9. Type the SCR to be achieved when the shaper is applied in the Active SCR column. This value must be numerical.
10. Type the MBS to be to be achieved when the shaper is applied in the Active MBS column. This value must be numerical.
11. Click **NEW**. The Select an Option dialog displays. See Figure 6-19.

Figure 6-19: Confirm Add New Shaper Dialog

12. Click **YES** to add the new shaper to the table and close the dialog box.

    OR

    Click **NO** to close the dialog box and continue without adding the new shaper.

You may want to click **REFRESH** to verify the new shaper was added to the table.

Modify an Existing Shaper

To modify an existing shaper:

1. Highlight the table row containing the shaper to be modified.
2. Make changes to one or more of the columns for that shaper.
3. Click **MODIFY**. The Select an Option dialog displays. See Figure 6-20.

Figure 6-20: Confirm Modify Shaper Dialog

4. Click **YES** to modify the shaper and close the dialog box.

   OR

   Click **NO** to close the dialog box and continue without modifying the shaper.

You may want to click **REFRESH** to verify that the shaper was modified.

Delete an Existing Shaper

To delete an existing shaper:

1. Highlight the table row containing the shaper to be deleted.
2. Click **DELETE**. The Select an Option dialog displays. See Figure 6-21.

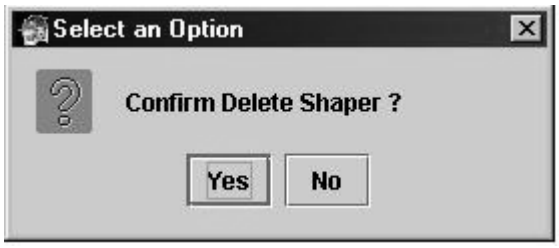

Figure 6-21: Confirm Delete Shaper Dialog

3. Click **YES** to delete the shaper and close the dialog box.

   OR

   Click **NO** to close the dialog box and continue without deleting the shaper.

You may want to click **REFRESH** to verify that the shaper was deleted.

Field Descriptions

The following fields display on the **Shaper Management** panel:

<table>
<tr><th>Parameter</th><th>Description/Comments</th></tr>
<tr><td>Line Number</td><td>A combination of the Line Card slot position and the Port Number.
Valid values are:
<table><tr><th>Switch Type</th><th>Valid Values</th></tr><tr><td>855x</td><td>0 and 32 through 16383</td></tr><tr><td>866x</td><td>0 and 32 through 16383</td></tr><tr><td>877x</td><td>0 and 32 through 16383</td></tr><tr><td>900x</td><td>0 and 32 through 65535</td></tr><tr><td>900x</td><td>0 and 32 through 16383</td></tr></table></td></tr>
<tr><td>Line#</td><td>A combination of the Line Card slot position and the Port Number.</td></tr>
<tr><td>Shaper#</td><td>The number assigned to the shaper value created for the selected line.
Valid values are 0 through 8.</td></tr>
<tr><td>Service</td><td>The traffic class service.
Valid values are:
• ABR (Available Bit Rate)
The amount of bandwidth remaining after Constant Bit Rate and Variable Bit Rate values have been assigned.
• CBR (Constant Bit Rate)
The bandwidth required when the connection is established.
• UBR (Unspecified Bit Rate)
The bandwidth service for users who have unpredictable traffic flow rates.
• RT-VBR (Realtime Variable Bit Rate)
The traffic type used when end-to-end transmission delay is critical, for example during interactive video conferencing.
• NRT-VBR (Non-realtime Variable Bit Rate)
The traffic type used when transmission delay is not as critical, for example during video playback.</td></tr>
<tr><td>Config PCR</td><td>The Peak Cell Rate that has been configured for this line.
Valid values are:
151 through 1,412,830 cells per second.</td></tr>
</table>

Parameter	Description/Comments
Config SCR	The Sustainable Cell Rate that has been configured for this line. **Valid values are:** 151 through 1,412,830 cells per second.
Config MBS	The Maximum Burst Size that has been configured for this line.
Active PCR	The actual Peak Cell Rate to be sustained by the shaper.
Active SCR	The actual Sustainable Cell Rate to be sustained by the shaper.
Active MBS	The actual Maximum Burst Size to be sustained by the shaper.

This page is for your notes.

7 Connection Management

Connection Management allows you to create, delete, and modify Permanent Virtual Circuit (PVC) connections, including point-to-point and point-to-multipoint connections.

PVC Connections

To display the **PVC Management** panel, click the PVCs icon under the Connections folder. See Figure 7-1. On this panel, you can do the following:

- Refresh the PVC connection table
- Create a new PVC connection
- Delete a PVC connection
- Flush ALL PVC connections
- Add a Leaf to a PVC connection

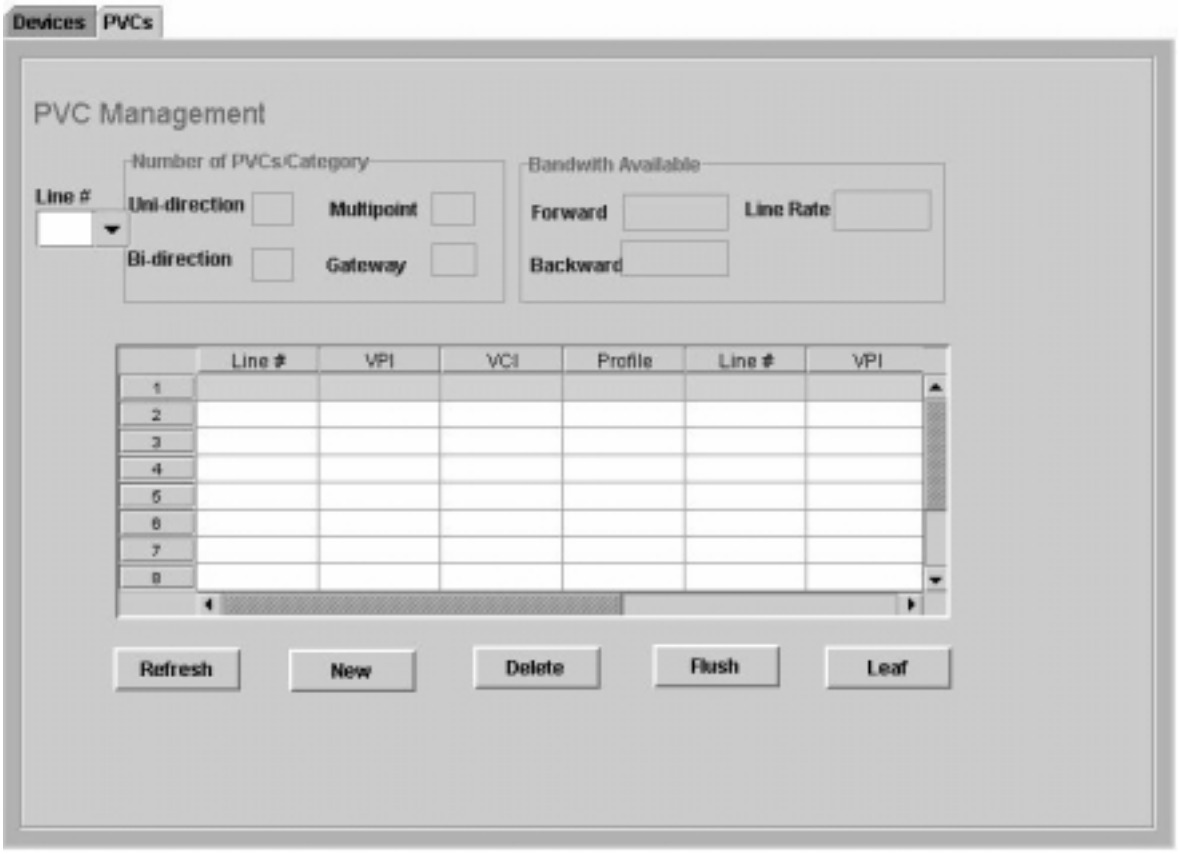

Figure 7-1: PVC Management Panel

Refresh the PVC Connection Table

To update the PVC connection table, click REFRESH. The most current information displays in the table. Deleted PVC management connections are removed from the table and new PVC management connections are added to the table during the refresh.

Add a New PVC Connection

To add a new PVC connection:

1. Click **NEW**. The Add New PVC panel displays. See Figure 7-2.

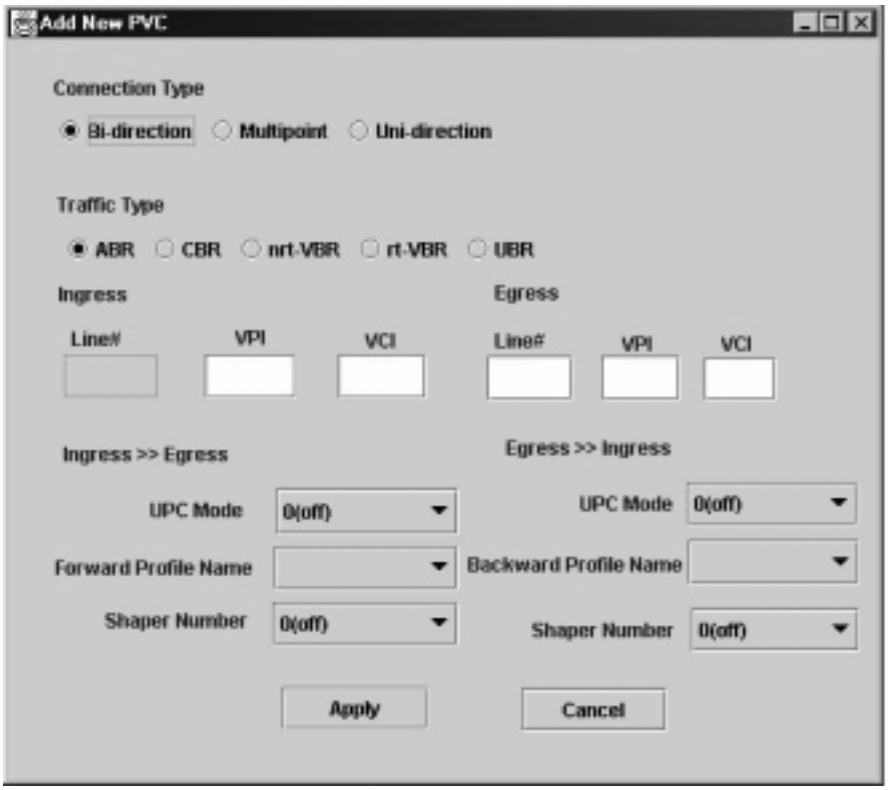

Figure 7-2: Add New PVC Panel

2. Select the option to indicate the directional flow of cells in the Connection Type line. Valid values are:
   - Uni-directional
   - Bi-directional
   - Multipoint
3. Select the option for Quality of Service characteristics in the Traffic Type line. Valid values (in order of highest priority to lowest priority) are: ABR, CBR, nrt-VBR, rt-VBR, and UBR.

The Ingress fields define the incoming line number for the traffic flow and its VPI/VCI addresses.

4. Type the Virtual Path Identifier address and the Virtual Channel Identifier address in the Ingress fields.

The Egress fields define the outgoing line number for the traffic flow and its VPI/VCI addresses.

5. Type the Line#, the Virtual Path Identifier address, and the Virtual Channel Identifier address in the Egress fields.

Traffic flowing in the Ingress to Egress direction must have an associated Usage Control Mode (UPC) and a forward direction profile name. A shaper to shape traffic can also be defined, but is not required.

6. Select the Ingress>>Egress UPC mode value. The UPC Mode defines the type of traffic policing performed on the connection. Valid values are OFF and 1 through 5.

The forward profile name identifies the traffic types associated with the forward cell flow.

7. Select the Ingress>>Egress Forward Profile Name. Valid values are ABR, CBR, UBR, nrt-VBR, and rt-VBR

Shapers define the smoothing characteristics and associate a traffic flow with a Quality of Service class. You can define up to eight shapers.

8. Select the Ingress>>Egress Shaper Number. Valid values are:
   - 0-No shaping is desired.
   - 1 through 8

Like Ingress to Egress, traffic flowing in the Egress to Ingress direction must have an associated Usage Parameter Control (UPC) Mode, and a forward direction profile name. A shaper to shape traffic can also be defined, but is not required. The Egress address defines the outgoing line number for traffic flow and its VPI/VCI addresses.

9. Select the Egress>>Ingress UPC mode value. Valid values are OFF and 1 through 5.
10. Select the Egress>>Ingress Backward Profile Name. Valid values are ABR, CBR, UBR, nrt-VBR, and rt-VBR
11. Select the Egress>>Ingress Shaper Number. Valid values are:
    - 0-No shaping is desired.
    - 1 through 8
12. Click **APPLY** to add the new PVC connection and close the dialog box.

    OR

    Click **CANCEL** to close the dialog box and continue without adding the new PVC.

Delete an Existing PVC Connection

To delete an existing PVC connection:

1. Highlight the table row containing the PVC connection to be deleted.
2. Click **DELETE**. The Select an Option dialog displays. See Figure 7-3.

Figure 7-3: Confirm Delete PVC Dialog

3. Click **YES** to delete the connection and close the dialog box.

   OR

   Click **NO** to close the dialog box and continue without deleting the PVC connection.

Delete ALL Existing PVCs

WARNING!

This command deletes all PVCs for the selected port! Use with extreme caution!

To delete ALL existing PVCs for a given port:

1. Select the Line Number for the port whose connections you want to delete. **Ensure that you have selected the correct port!**
2. Click **FLUSH**. The Select an Option dialog displays. See Figure 7-4.

Figure 7-4: Confirm Delete All PVC Connections Dialog

3. Click **YES** to delete **ALL** PVC connections for this port and close the dialog box.

   OR

   Click **NO** to close the dialog box and continue without deleting the PVC connections.

Field Descriptions

The PVC Management table lists the following information for all connections:

<table>
<tr><th>Parameter</th><th>Description/Comments</th></tr>
<tr><td>Line#</td><td>A combination of the Line Card slot position and the Port Number.
Valid values are:
<table><tr><th>Switch Type</th><th>Valid Values</th></tr><tr><td>855x</td><td>00 - 33</td></tr><tr><td>866x</td><td>000 - 073</td></tr><tr><td>877x</td><td>000 - 153</td></tr><tr><td>900x</td><td>0000 - 1515</td></tr></table></td></tr>
<tr><td>Number of PVCs/ Category</td><td>The number of each type or permanent virtual circuits associated with this line number.
Valid values are:
• Uni-directional
Information flows in one direction only.
• Bi-directional
Information flows in both directions, but not at the same time.
• Multipoint
Information flows from one central circuit to many others, but the remote circuits cannot communicate with each other.</td></tr>
<tr><td>Bandwidth Available</td><td>The bandwidth used by the originating connection.
Valid values are:
• Forward
The bandwidth used by the originating connection.
• Backward
The bandwidth used by the return circuit.
• Line Rate
The bandwidth used by the line.</td></tr>
</table>

<table>
<tr><th>Parameter</th><th>Description/Comments</th></tr>
<tr><td>Line#</td><td>A combination of the Line Card slot position and the Port Number.
Valid values are:
<table>
<tr><th>Switch Type</th><th>Valid Values</th></tr>
<tr><td>855x</td><td>00 - 33</td></tr>
<tr><td>866x</td><td>000 - 073</td></tr>
<tr><td>877x</td><td>000 - 153</td></tr>
<tr><td>900x</td><td>0000 - 1515</td></tr>
</table></td></tr>
<tr><td>VPI</td><td>The virtual path identifier used by the connection.
Valid values are:
0 through 4095</td></tr>
<tr><td>VCI</td><td>The virtual channel identifier used by the connection.
Valid values are:
<table>
<tr><th>Switch Type</th><th>Card Type</th><th>Valid Values</th></tr>
<tr><td>855x</td><td></td><td>0 and 32 through 16383</td></tr>
<tr><td>866x</td><td></td><td>0 and 32 through 16383</td></tr>
<tr><td>877x</td><td></td><td>0 and 32 through 16383</td></tr>
<tr><td>900x</td><td>OC-48C/OC-12C</td><td>0 and 32 through 65535</td></tr>
<tr><td>900x</td><td>Others</td><td>0 and 32 through 16383</td></tr>
</table></td></tr>
<tr><td>Profile</td><td>The profile name assigned to the characteristics needed to create the PVC connection.</td></tr>
</table>

Add a Leaf to a PVC Connection

The **Connection Detail** panel allows you to add or remove Leafs in a point-to-multipoint connection. Once a multi-point PVC has been created, end points can be added to and/or removed from the connection. See Figure 7-5. On the **Connection Detail** panel, you can do the following tasks:

- Refresh the connection detail information
- Add a leaf
- Remove a leaf
- Exit the Connection Detail Panel

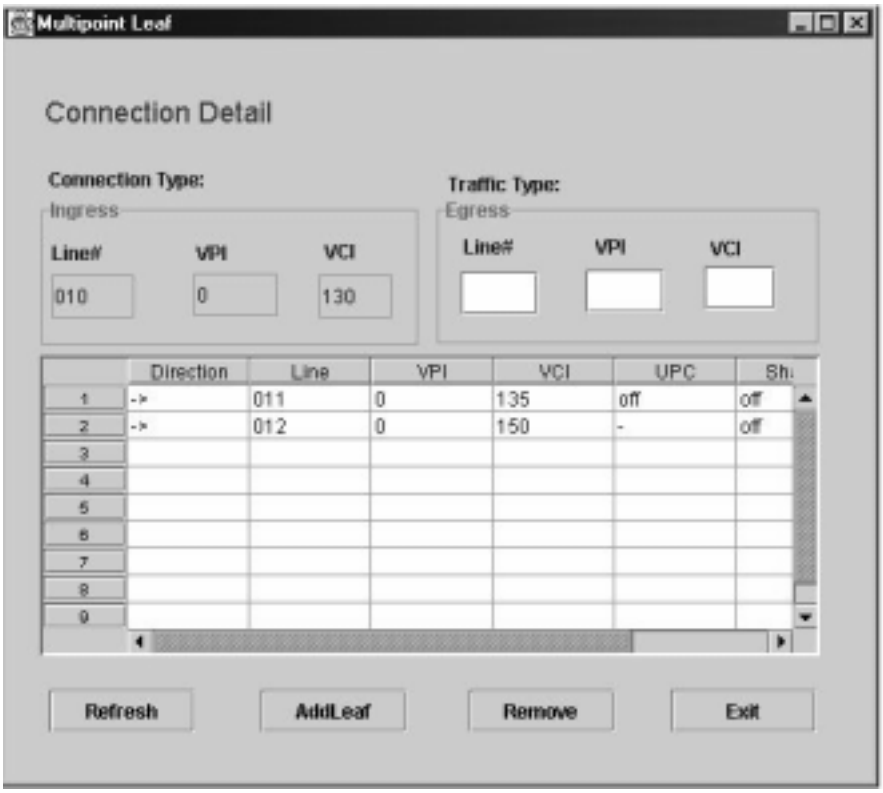

Figure 7-5: PVC Connection Detail Panel

Refresh the Connection Detail Information

To update the connection detail information, click **REFRESH**. The most current information displays in the table. Deleted PVC connections are removed from the table and new PVC connections are added to the table during the refresh.

Add a Leaf

To add a Leaf:

1. Highlight the Line Number on the **PVC Management** panel for which you want to add a Leaf.
2. Click **LEAF**. The **Connection Detail** panel displays. The Ingress line number, VPI address, and VCI address display in the Connection Type group box.

   Complete these fields in the Traffic Type group box.
3. Type the Egress line number in the Line# field.
4. Type the Egress virtual path address identifier in the VPI field. Valid values are 0 through 4095.

5. Type the Egress virtual channel address identifier in the VCI field. Valid values are 0 and 32 through 16,383.
6. Scroll to an empty row in the table.
7. Type or select the direction the cells flow in the Direction column.
8. Type or select the line number in the Line column.
9. Type or select the virtual path address identifier in the VPI column.
10. Type or select the virtual channel address identifier in the VCI column.
11. Type or select the usage parameter control mode in the UPC column.
12. Type or select the shaper number in the Shaper column.
13. Click **ADDLEAF** to add the Leaf.

Remove a Leaf

To remove a leaf:

1. Highlight the Line Number on the **PVC Management** panel for which you want to remove a Leaf.
2. Click **LEAF.** The **Connection Detail** panel displays. See Figure 7-6.

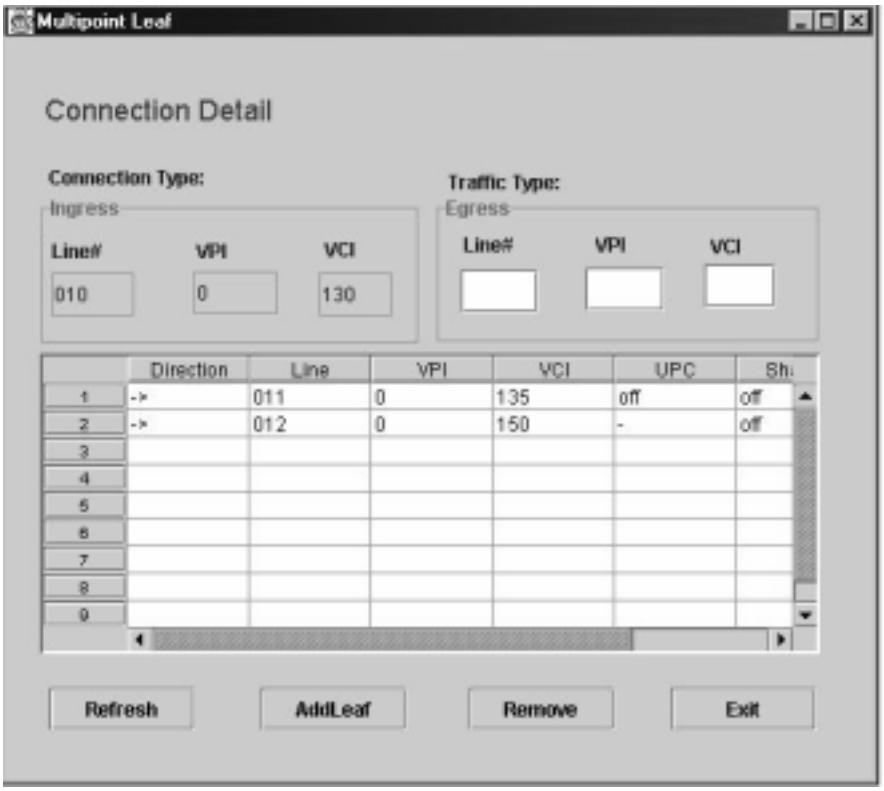

Figure 7-6: Connection Detail Panel

3. Highlight the row containing the Leaf to be deleted.
4. Click **REMOVE**. The Select an Option dialog displays. See Figure 7-7.

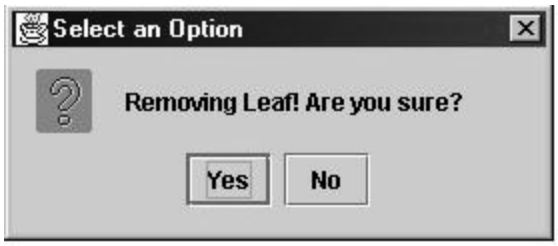

Figure 7-7: Confirm Delete Leaf Dialog

5. Click **YES** to delete the Leaf.

   OR

   Click **NO** to continue.

Exit the Connection Detail Panel

To exit the **Connection Detail** panel at any time, click EXIT. You must click this button to return to the **PVC Management** panel.

Field Descriptions

The following information displays on the **Connection Detail** panel:

Parameter	Description/Comments
Ingress Line#	The Line Card slot position and the Port Number for the incoming connection. **Valid values are:** **Switch Type** / **Valid Values** 855x: 00 - 33 866x: 000 - 073 877x: 000 - 153 900x: 0000 - 1515
Ingress VPI	The virtual path identifier for the incoming connection. **Valid values are:** 0 through 4095

<table>
<tr><th>Parameter</th><th>Description/Comments</th></tr>
<tr><td>Ingress VCI</td><td>The virtual channel identifier for the incoming connection.
Valid values are:
<table>
<tr><th>Switch Type</th><th>Card Type</th><th>Valid Values</th></tr>
<tr><td>855x</td><td></td><td>0 and 32 through 16383</td></tr>
<tr><td>866x</td><td></td><td>0 and 32 through 16383</td></tr>
<tr><td>877x</td><td></td><td>0 and 32 through 16383</td></tr>
<tr><td>900x</td><td>OC-48C/OC-12C</td><td>0 and 32 through 65535</td></tr>
<tr><td>900x</td><td>Others</td><td>0 and 32 through 16383</td></tr>
</table></td></tr>
<tr><td>Egress Line#</td><td>The Line Card slot position and Port Number for the outgoing connection.</td></tr>
<tr><td>Egress VPI</td><td>The virtual path identifier for the outgoing connection.
Valid values are:
0 through 4095</td></tr>
<tr><td>Egress VCI</td><td>The virtual channel identifier for the outgoing connection.
Valid values are:
<table>
<tr><th>Switch Type</th><th>Card Type</th><th>Valid Values</th></tr>
<tr><td>855x</td><td></td><td>0 and 32 through 16383</td></tr>
<tr><td>866x</td><td></td><td>0 and 32 through 16383</td></tr>
<tr><td>877x</td><td></td><td>0 and 32 through 16383</td></tr>
<tr><td>900x</td><td>OC-48C/OC-12C</td><td>0 and 32 through 65535</td></tr>
<tr><td>900x</td><td>Others</td><td>0 and 32 through 16383</td></tr>
</table></td></tr>
<tr><td>Direction</td><td>--></td></tr>
<tr><td>Line</td><td>A combination of the Line Card slot position and the Port Number.</td></tr>
<tr><td>VPI</td><td>The virtual path identifier for the connection.
Valid values are:
0 through 4095</td></tr>
</table>

<table>
<tr><th>Parameter</th><th>Description/Comments</th></tr>
<tr><td>VCI</td><td>The virtual channel identifier for the connection.
Valid values are:
<table><tr><th>Switch Type</th><th>Card Type</th><th>Valid Values</th></tr><tr><td>855x</td><td></td><td>0 and 32 through 16383</td></tr><tr><td>866x</td><td></td><td>0 and 32 through 16383</td></tr><tr><td>877x</td><td></td><td>0 and 32 through 16383</td></tr><tr><td>900x</td><td>OC-48C/OC-12C</td><td>0 and 32 through 65535</td></tr><tr><td>900x</td><td>Others</td><td>0 and 32 through 16383</td></tr></table></td></tr>
<tr><td>UPC</td><td>The usage parameter control.
Valid values are:
• 0 = OFF
• 1 through 5</td></tr>
<tr><td>Shaper</td><td>The number assigned to the shaper being used by this connection.</td></tr>
</table>

SoftPVP Connection Management

To access the **SoftPVPs Connection Management** panel, click the SoftPVCs icon under the Connections folder. See Figure 7-8. The **SoftPVPs Connection Management** panel has two tabs for managing SoftPVP connections.

- Port
- System

When the SoftPVPs icon is selected, the **Port** panel displays.

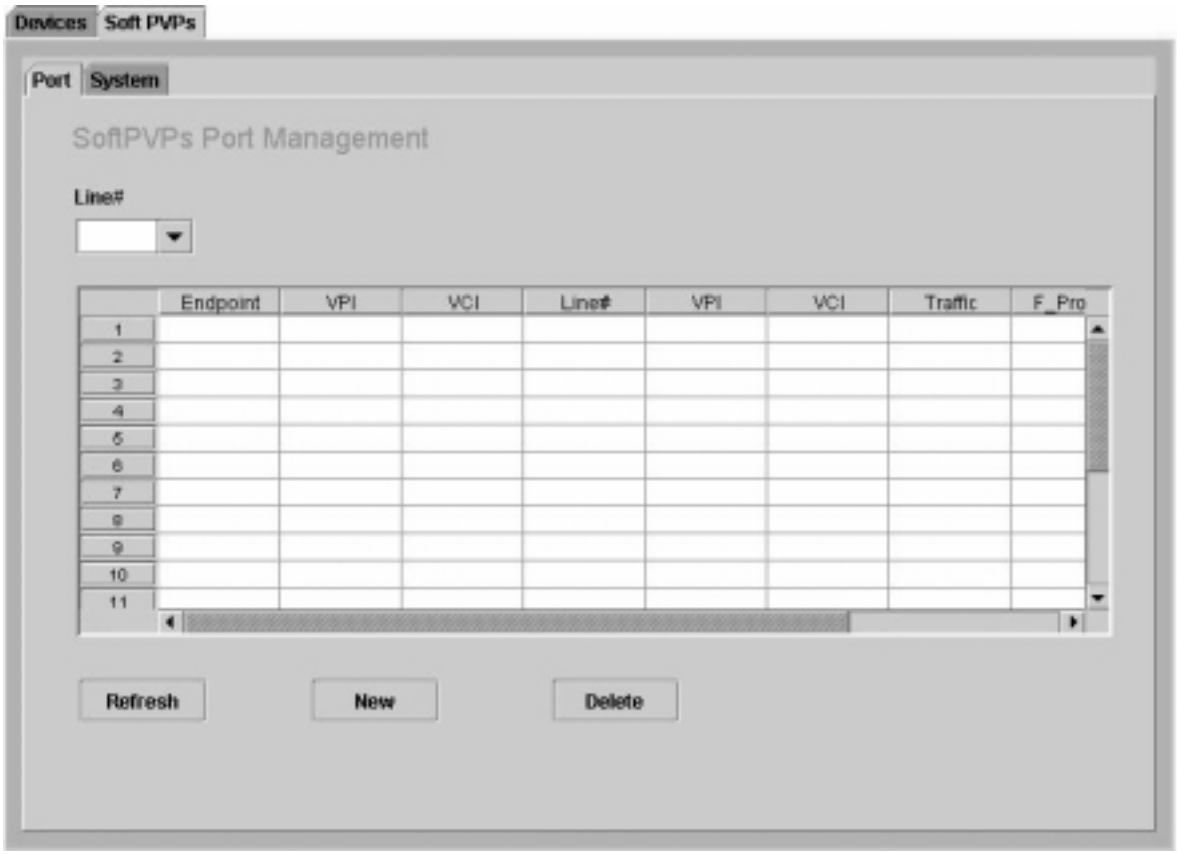

Figure 7-8: SoftPVP Port Panel

SoftPVPs Port Management

On the **SoftPVPs Port Management** panel, the following tasks can be performed:

- Refresh the SoftPVP connection table
- Create a new SoftPVP connection
- Delete a SoftPVP connection

Refresh the SoftPVP Connection Table

To update the SoftPVP Port table, click **REFRESH**. The most current connection information displays in the table. Deleted SoftPVP connections are removed from the table and new SoftPVP connections are added to the table during the refresh.

Create a New SoftPVP Connection

To create a new SoftPVP Port connection:

1. Click **NEW**. The **Add New Softpvps** panel displays. See Figure 7-9.

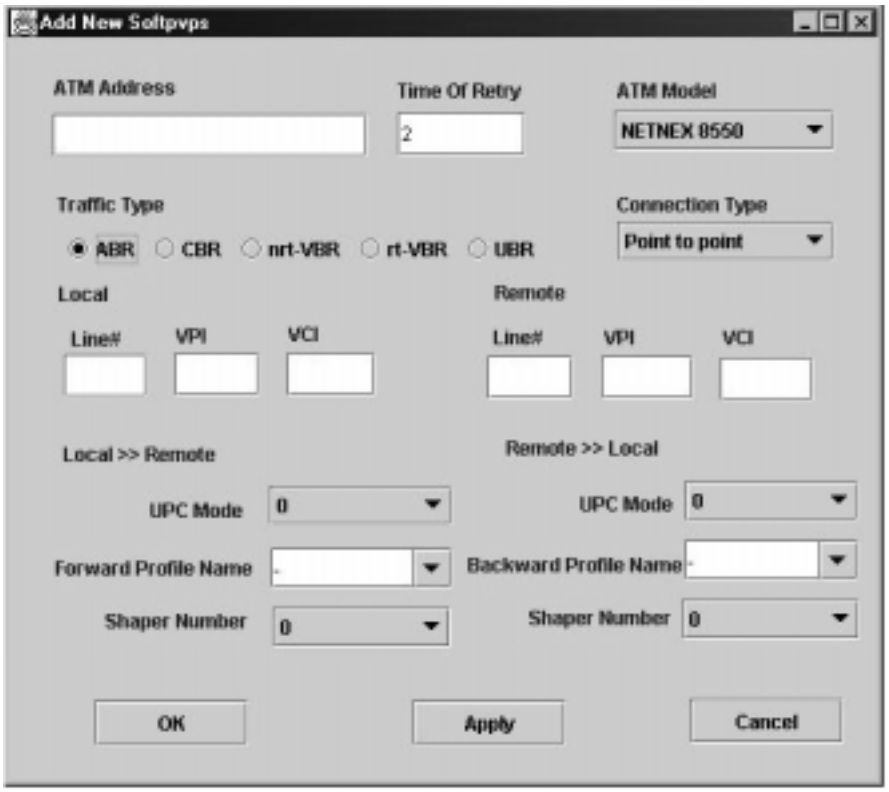

Figure 7-9: Add New SoftPVPs Panel

2. Type the ATM address in the ATM Address field. The address can be up to 40 digits. Valid values are:
   - 0 through 9
   - a through f
   - A through F
3. Type the number of connection attempts you want the system to try in the Time Of Retry field.
4. Select the switch type from the ATM Model list.

5. Select the Traffic Type.
6. Select either point-to-point or point-to-multipoint from the Connection Type list.
7. Type the local line number in the Line# field.
8. Type the local virtual path address identifier in the VPI field.
9. Type the local virtual channel address identifier in the VCI field.
10. Type the remote line number in the Line# field.
11. Type the remote virtual path address identifier in the VPI field.
12. Type the remote virtual channel address identifier in the VCI field.
13. Select the Local>>Remote usage parameter control mode from the UPC Mode list.
    - 0 (off)
    - 1-5
14. Type or select the Local>>Remote forward profile name in the Forward Profile Name list.
15. Type or select the Local>>Remote (Ingress) shaper number. Valid values are:
    - 0 (off)
    - 1-8
16. Type or select the Remote>>Local (Egress) usage parameter control mode from the UPC Mode list. Valid values are:
    - 0 (off)
    - 1-5
17. Type or select the Remote>>Local backward profile name from the Backward Profile Name list.
18. Type or select the Remote>>Local shaper number. Valid values are:
    - 0 (off)
    - 1-8
19. Click **OK** to add the new SoftPVP connection and close the **Add New Softpvps** panel.

    OR

    Click **APPLY** to add this new SoftPVP connection and continue adding new connections.

OR

Click **CANCEL** to close the dialog box and continue without adding the new connection.

You may want to click **REFRESH** on the **SoftPVP Port Management** panel to verify the connection has been added.

Delete a SoftPVP Connection

To delete a SoftPVP connection:

1. Highlight the table row containing the connection to be deleted.
2. Click **DELETE**. The Select an Option dialog displays. See Figure 7-10.

Figure 7-10: Confirm Delete SoftPVP Port Dialog

3. Click **YES** to delete the connection and close the dialog box.

   OR

   Click **NO** to close the dialog box and continue without deleting the connection.

You may want to click **REFRESH** on the SoftPVP Port Management panel to verify the connection has been deleted.

Field Descriptions

The SoftPVP table includes the following information:

Parameter	Description/Comments
Endpoint	The identifier of the originating or terminating device.
VPI	The incoming virtual path identifier. **Valid values are:** 0 through 4095

<table>
<tr><th>Parameter</th><th>Description/Comments</th></tr>
<tr><td>VCI</td><td>The virtual channel identifier for the connection.
Valid values are:
<table><tr><th>Switch Type</th><th>Card Type</th><th>Valid Values</th></tr><tr><td>855x</td><td></td><td>0 and 32 through 16383</td></tr><tr><td>866x</td><td></td><td>0 and 32 through 16383</td></tr><tr><td>877x</td><td></td><td>0 and 32 through 16383</td></tr><tr><td>900x</td><td>OC-48C/OC-12C</td><td>0 and 32 through 65535</td></tr><tr><td>900x</td><td>Others</td><td>0 and 32 through 16383</td></tr></table></td></tr>
<tr><td>Line#</td><td>A combination of the Line Card slot position and the Port Number.</td></tr>
<tr><td>VPI</td><td>The outgoing virtual path identifier.
Valid values are:
0 through 4095</td></tr>
<tr><td>VCI</td><td>The virtual channel identifier for the connection.
Valid values are:
<table><tr><th>Switch Type</th><th>Card Type</th><th>Valid Values</th></tr><tr><td>855x</td><td></td><td>0 and 32 through 16383</td></tr><tr><td>866x</td><td></td><td>0 and 32 through 16383</td></tr><tr><td>877x</td><td></td><td>0 and 32 through 16383</td></tr><tr><td>900x</td><td>OC-48C/OC-12C</td><td>0 and 32 through 65535</td></tr><tr><td>900x</td><td>Others</td><td>0 and 32 through 16383</td></tr></table></td></tr>
</table>

Parameter	Description/Comments
Traffic	The tariffs type assigned to this connection. **Valid values are:** • ABR (Available Bit Rate) The amount of bandwidth remaining after Constant Bit Rate and Variable Bit Rate values have been assigned. • CBR (Constant Bit Rate) The bandwidth required when the connection is established. • UBR (Unspecified Bit Rate) The bandwidth service for users who have unpredictable traffic flow rates. • RT-VBR (Realtime Variable Bit Rate) The traffic type used when end-to-end transmission delay is critical, for example during interactive video conferencing. • NRT-VBR (Non-realtime Variable Bit Rate) The traffic type used when transmission delay is not as critical, for example during video playback.
F_Profile	The profile identifier assigned to the outgoing line for this connection,
B_Profile	The profile identifier assigned to the incoming line for this connection.
ATM Addr.	The three formats consisting of 40 digits each that identify the country, area code, and end-system identifiers as defined in the UNI specifications. **Valid values are:** • 0 through 9 • a through f • A through F

System

To display the **SoftPVPs System Management** panel, click the SoftPVPs icon under the Connections folder. Then, click the System tab. See Figure 7-11. On the **SoftPVPs System Management** panel, you can do the following tasks:

- Refresh the SoftPVPs System Management table
- Delete a SoftPVP System record

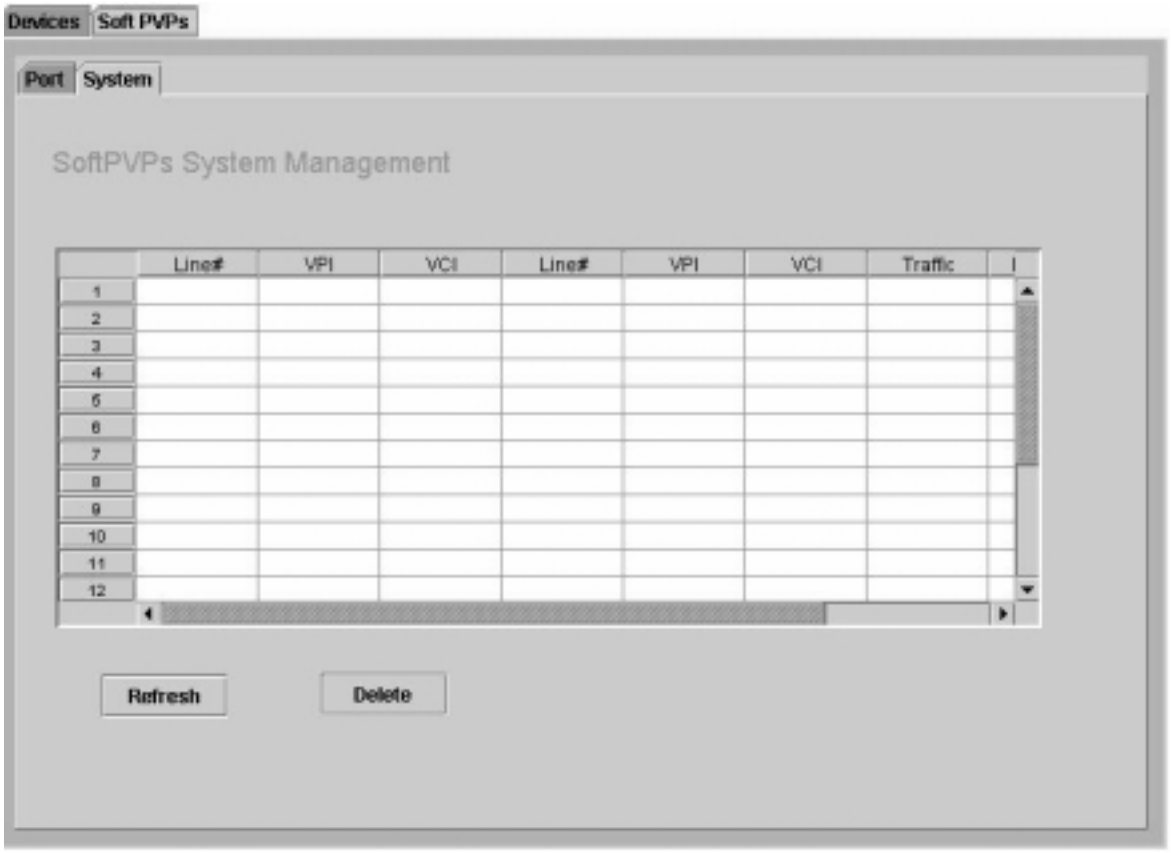

Figure 7-11: SoftPVP System Panel

Refresh the SoftPVPs System Management Table

To see the most current System SoftPVP settings, click REFRESH. The switch system's SoftPVP settings display in a table. Deleted SoftPVP connections are removed from the table and new SofTPVP connections are added to the table during the refresh.

Delete a SoftPVP Connection Record

To delete an existing system parameter:

1. Highlight the table row containing the SoftPVP connection to be deleted.
2. Click **DELETE**. The Select an Option dialog displays. See Figure 7-12.

Figure 7-12: Confirm Delete SoftPVP Connection Dialog

3. Click **YES** to delete the connection and close the dialog box.

   OR

   Click **NO** to close the dialog box and continue without deleting the connection.

You may want to click **REFRESH** on the **SoftPVP System Management** panel to verify the parameter has been deleted.

Field Descriptions

The following fields display on the **SoftPVP System Management** panel:

Parameter	Description/Comments
Line#	A combination of the Line Card slot position and the Port Number. **Valid values are:** Switch Type / Valid Values 855x / 00 - 33 866x / 000 - 073 877x / 000 - 153 900x / 0000 - 1515
VPI	The incoming virtual path identifier for the connection. **Valid values are:** 0 through 4095

<table>
<tr><th>Parameter</th><th>Description/Comments</th></tr>
<tr><td>VCI</td><td>The incoming virtual channel identifier for the connection.
Valid values are:
<table><tr><th>Switch Type</th><th>Card Type</th><th>Valid Values</th></tr><tr><td>855x</td><td></td><td>0 and 32 through 16383</td></tr><tr><td>866x</td><td></td><td>0 and 32 through 16383</td></tr><tr><td>877x</td><td></td><td>0 and 32 through 16383</td></tr><tr><td>900x</td><td>OC-48C/OC-12C</td><td>0 and 32 through 65535</td></tr><tr><td>900x</td><td>Others</td><td>0 and 32 through 16383</td></tr></table></td></tr>
<tr><td>Line#</td><td>A combination of the Line Card slot position and the Port Number.</td></tr>
<tr><td>VPI</td><td>The outgoing virtual path identifier.
Valid values are:
0 through 4095</td></tr>
<tr><td>VCI</td><td>The outgoing virtual channel identifier for the connection.
Valid values are:
<table><tr><th>Switch Type</th><th>Card Type</th><th>Valid Values</th></tr><tr><td>855x</td><td></td><td>0 and 32 through 16383</td></tr><tr><td>866x</td><td></td><td>0 and 32 through 16383</td></tr><tr><td>877x</td><td></td><td>0 and 32 through 16383</td></tr><tr><td>900x</td><td>OC-48C/OC-12C</td><td>0 and 32 through 65535</td></tr><tr><td>900x</td><td>Others</td><td>0 and 32 through 16383</td></tr></table></td></tr>
</table>

Parameter	Description/Comments
Traffic	The traffic type assigned to this connection. **Valid values are:** • ABR (Available Bit Rate) The amount of bandwidth remaining after Constant Bit Rate and Variable Bit Rate values have been assigned. • CBR (Constant Bit Rate) The bandwidth required when the connection is established. • UBR (Unspecified Bit Rate) The bandwidth service for users who have unpredictable traffic flow rates. • RT-VBR (Realtime Variable Bit Rate) The traffic type used when end-to-end transmission delay is critical, for example during interactive video conferencing. • NRT-VBR (Non-realtime Variable Bit Rate) The traffic type used when transmission delay is not as critical, for example during video playback.
F_Profile	The profile identifier assigned to the outgoing line for this connection,
B_Profile	The profile identifier assigned to the incoming line for this connection.

SVCs Connection Management

To display the **SVCs** panel, click the SVCs icon under the Connections folder. The SVCs lists the SVCs for a line number. See Figure 7-13. You can perform the following tasks on the **SVC** panel:

- Refresh the SVCs information
- View SVC information for a specific line number

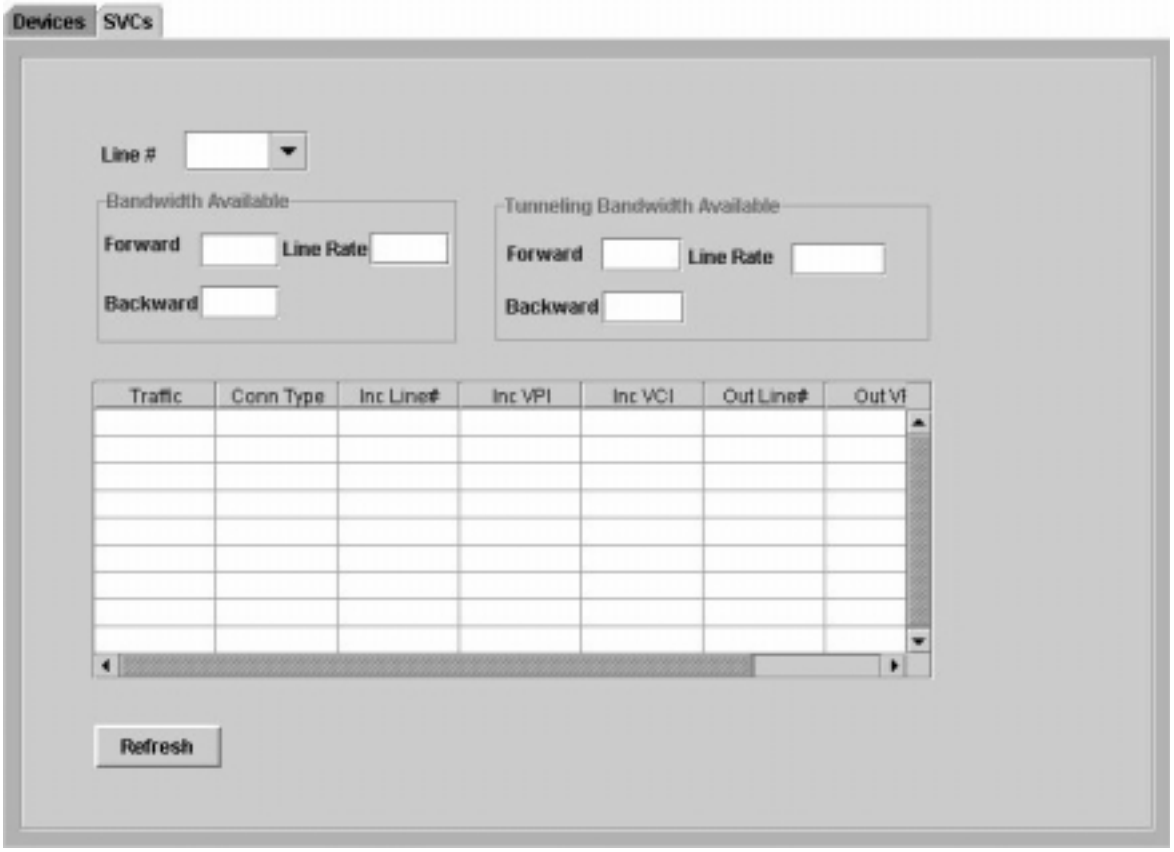

Figure 7-13: SVCs Panel

Refresh the SVCs Information

To update the **SVCs** panel information, click REFRESH. The status of all connections in the SVC list is updated. Deleted SVC connections are removed from the list and new SVC connections are added to the list during the refresh.

View SVC Information for a Specific Line

To view SVC information for a specific line number:

1. Type or select the line number in the Line # field.
2. Click **REFRESH**. The most current information for that line number displays.

Field Descriptions

The following fields display on the **SVC** panel:

<table>
<tr><th>Parameter</th><th>Description/Comments</th></tr>
<tr><td>Line#</td><td>A combination of the Line Card slot position and the Port Number.
Valid values are:
<table><tr><th>Switch Type</th><th>Valid Values</th></tr><tr><td>855x</td><td>00 - 33</td></tr><tr><td>866x</td><td>000 - 073</td></tr><tr><td>877x</td><td>000 - 153</td></tr><tr><td>900x</td><td>0000 - 1515</td></tr></table></td></tr>
<tr><td>Bandwidth Available Forward</td><td>The available bandwidth reported by the switch for the incoming connection.</td></tr>
<tr><td>Bandwidth Available Backward</td><td>The available bandwidth reported by the switch for the outgoing connection.</td></tr>
<tr><td>Bandwidth Available Line Rate</td><td>The available bandwidth reported by the switch for the specified line capacity.</td></tr>
<tr><td>Tunneling Bandwidth Forward</td><td>The amount of bandwidth available for the incoming tunneling connection.</td></tr>
<tr><td>Tunneling Bandwidth Backward</td><td>The amount of bandwidth available for the outgoing tunneling connection.</td></tr>
<tr><td>Tunneling Bandwidth Line Rate</td><td>The amount of bandwidth available for the specified tunneling connection.</td></tr>
</table>

A table containing the following SVC information also displays on this panel.

Parameter	Description/Comments
Traffic	The characteristics assigned to handle congestion through the connection. **Valid values are:** • ABR (Available Bit Rate) The amount of bandwidth remaining after Constant Bit Rate and Variable Bit Rate values have been assigned. • CBR (Constant Bit Rate) The bandwidth required when the connection is established. • UBR (Unspecified Bit Rate) The bandwidth service for users who have unpredictable traffic flow rates. • RT-VBR (Realtime Variable Bit Rate) The traffic type used when end-to-end transmission delay is critical, for example during interactive video conferencing. • NRT-VBR (Non-realtime Variable Bit Rate) The traffic type used when transmission delay is not as critical, for example during video playback.
Conn Type	The kind of connection associated with this circuit. **Valid values are:** • Uni-directional Information flows in one direction only. • Bi-directional Information flows in both directions, but not at the same time. • Multipoint Information flows from one central circuit to many others, but the remote circuits cannot communicate with each other. • Gateway Route information from one circuit to another resolving the protocol differences between the circuits.

<table>
<tr><th>Parameter</th><th>Description/Comments</th></tr>
<tr><td>Inc Line#</td><td>A combination of the Line Card slot position and the Port Number that identify the incoming connection.
Valid values are:
<table><tr><th>Switch Type</th><th>Valid Values</th></tr><tr><td>855x</td><td>00 - 33</td></tr><tr><td>866x</td><td>000 - 073</td></tr><tr><td>877x</td><td>000 - 153</td></tr><tr><td>900x</td><td>0000 - 1515</td></tr></table></td></tr>
<tr><td>Inc VPI</td><td>The identifier of the virtual path for the incoming connection.
Valid values are:
0 through 4095</td></tr>
<tr><td>Inc VCI</td><td>The identifier of the virtual channel identifier for the incoming connection.
Valid values are:
<table><tr><th>Switch Type</th><th>Card Type</th><th>Valid Values</th></tr><tr><td>855x</td><td></td><td>0 and 32 through 16383</td></tr><tr><td>866x</td><td></td><td>0 and 32 through 16383</td></tr><tr><td>877x</td><td></td><td>0 and 32 through 16383</td></tr><tr><td>900x</td><td>OC-48C/OC-12C</td><td>0 and 32 through 65535</td></tr><tr><td>900x</td><td>Others</td><td>0 and 32 through 16383</td></tr></table></td></tr>
<tr><td>Out Line#</td><td>A combination of the Line Card slot position and the Port Number that identify the incoming connection.
Valid values are:
<table><tr><th>Switch Type</th><th>Valid Values</th></tr><tr><td>855x</td><td>00 - 33</td></tr><tr><td>866x</td><td>000 - 073</td></tr><tr><td>877x</td><td>000 - 153</td></tr><tr><td>900x</td><td>0000 - 1515</td></tr></table></td></tr>
</table>

<table>
<tr><th>Parameter</th><th>Description/Comments</th></tr>
<tr><td>Out VPI</td><td>The identifier of the virtual path for the outgoing connection.
Valid values are:
0 through 4095</td></tr>
<tr><td>Out VCI</td><td>The identifier of the virtual channel identifier for the outgoing connection.
Valid values are:
<table>
<tr><th>Switch Type</th><th>Card Type</th><th>Valid Values</th></tr>
<tr><td>855x</td><td></td><td>0 and 32 through 16383</td></tr>
<tr><td>866x</td><td></td><td>0 and 32 through 16383</td></tr>
<tr><td>877x</td><td></td><td>0 and 32 through 16383</td></tr>
<tr><td>900x</td><td>OC-48C/OC-12C</td><td>0 and 32 through 65535</td></tr>
<tr><td>900x</td><td>Others</td><td>0 and 32 through 16383</td></tr>
</table>
</td></tr>
</table>

This page is for your notes.

8 Routing

PNNI

PNNI configuration sets the parameters for Private Network-Network Interface connections. PNNI enables scalable full-function ATM switches to be integrated in the same network.

To access the **PNNI** panel, click the PNNI icon under the PNNI folder. See Figure 8-1. The **PNNI** panel has six tabs.

- Connection
- Nodal
- Address
- PNNI Timers
- Node
- Longest Match

When the PNNI icon is selected, the **Connection Details** panel displays. You can display another panel by clicking on its tab.

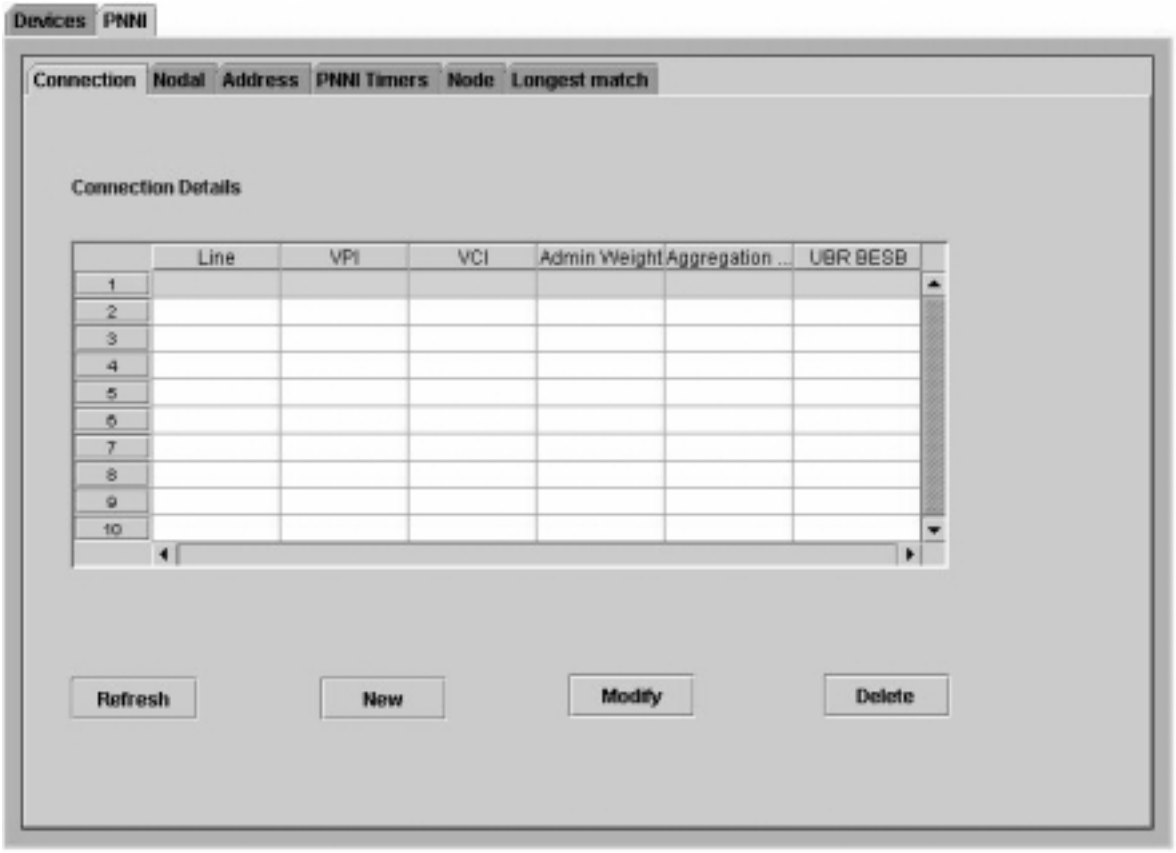

Figure 8-1: PNNI Panel

Connection

The **Connection Details** panel displays all existing connections. On this panel you can perform the following tasks:

- Refresh the PNNI connection list
- Create a new PNNI connection
- Modify an existing PNNI connection
- Delete an existing PNNI connection

Refresh the PNNI Connection List

To update the list of PNNI connections, click **REFRESH**. The most current list of PNNI connections displays. The status of all PNNI connections in the table is updated. Deleted connections are removed from the list and new connections are added to the list during the refresh.

Create a New PNNI Connection

To create a new PNNI connection:

1. Select an empty row in the table.
2. Type a value for the line number in the Line column.
3. Type the virtual path address identifier in the VPI column.
4. Type the virtual channel address identifier in the VCI column.
5. Type a value for the administrative weight in the Admin Weight column.
6. Type a value for the aggregation token in the Aggregation column.
7. Type a value representing the unspecified bit rate (UBR) best effort separate band in the UBR BESB column.
8. Click **NEW**. The Select an Option dialog displays. See Figure 8-2.

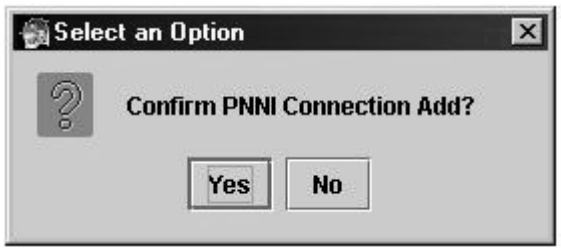

Figure 8-2: Confirm New PNNI Connection Dialog

9. Click **YES** to add the new PNNI connection and close the dialog box.

   OR

   Click **NO** to close the dialog box and continue without adding the new PNNI connection.

Modify an Existing PNNI Connection

To modify an existing PNNI connection:

1. Highlight the row containing the connection to be modified.
2. Change one or more of the values for that connection.
3. Click **MODIFY**. The Select an Option dialog displays. See Figure 8-3.

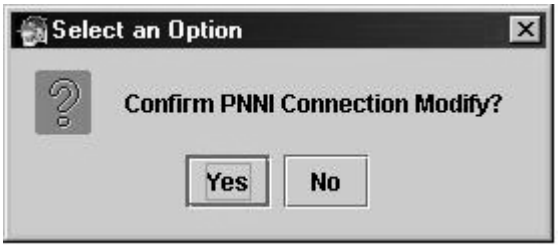

Figure 8-3: Confirm Modify PNNI Connection Dialog

4. Click **YES** to modify the connection and close the dialog box.

   OR

   Click **NO** to close the dialog box and continue without modifying the connection.

You may want to click **REFRESH** on the **Connection Details** panel to verify that the connection was modified.

Delete an Existing PNNI Connection

To delete an existing PNNI connection:

1. Highlight the row containing the PNNI connection to be deleted.
2. Click **DELETE**. The Select an Option dialog displays. See Figure 8-4.

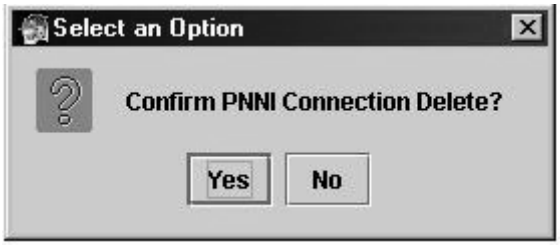

Figure 8-4: Confirm Delete PNNI Connection Dialog

3. Click **YES** to delete the connection and close the dialog box.

   OR

   Click **NO** to close the dialog box and continue without deleting the connection.

You may want to click **REFRESH** on the **Connection Details** panel to verify that the connection was deleted.

Field Descriptions

The following information displays on this panel:

<table>
<tr><th>Parameter</th><th>Description/Comments</th></tr>
<tr><td>Line#</td><td>A combination of the Line Card slot position and the Port Number.
Valid values are:
<table><tr><th>Switch Type</th><th>Valid Values</th></tr><tr><td>855x</td><td>00 - 33</td></tr><tr><td>866x</td><td>000 - 073</td></tr><tr><td>877x</td><td>000 - 153</td></tr><tr><td>900x</td><td>0000 - 1515</td></tr></table></td></tr>
<tr><td>VPI</td><td>The identifier of the virtual path.
Valid values are:
0 through 4095</td></tr>
<tr><td>VCI</td><td>The identifier of the virtual channel identifier.
Valid values are:
<table><tr><th>Switch Type</th><th>Card Type</th><th>Valid Values</th></tr><tr><td>855x</td><td></td><td>0 and 32 through 16383</td></tr><tr><td>866x</td><td></td><td>0 and 32 through 16383</td></tr><tr><td>877x</td><td></td><td>0 and 32 through 16383</td></tr><tr><td>900x</td><td>OC-48C/OC-12C</td><td>0 and 32 through 65535</td></tr><tr><td>900x</td><td>Others</td><td>0 and 32 through 16383</td></tr></table></td></tr>
<tr><td>Admin Weight</td><td>The value used in the computation of PNNI paths.</td></tr>
<tr><td>Aggregation</td><td>Determines the number of divisions of the logical link among the Logical Group Nodes in the Logical layer.</td></tr>
<tr><td>UBR BESB</td><td>The secure band for the PNNI connection.</td></tr>
</table>

Nodal

The **PNNI Nodal** panel allows you to set parameters for the routing method, the PNNI hello packet, and the routing hierarchy. To display the **Nodal** panel, click the PNNI icon under the PNNI folder. See Figure 8-5. Then, click Nodal. On the **Nodal** panel, you can do the following tasks:

- Refresh the Nodal parameter information
- Create new Nodal parameters

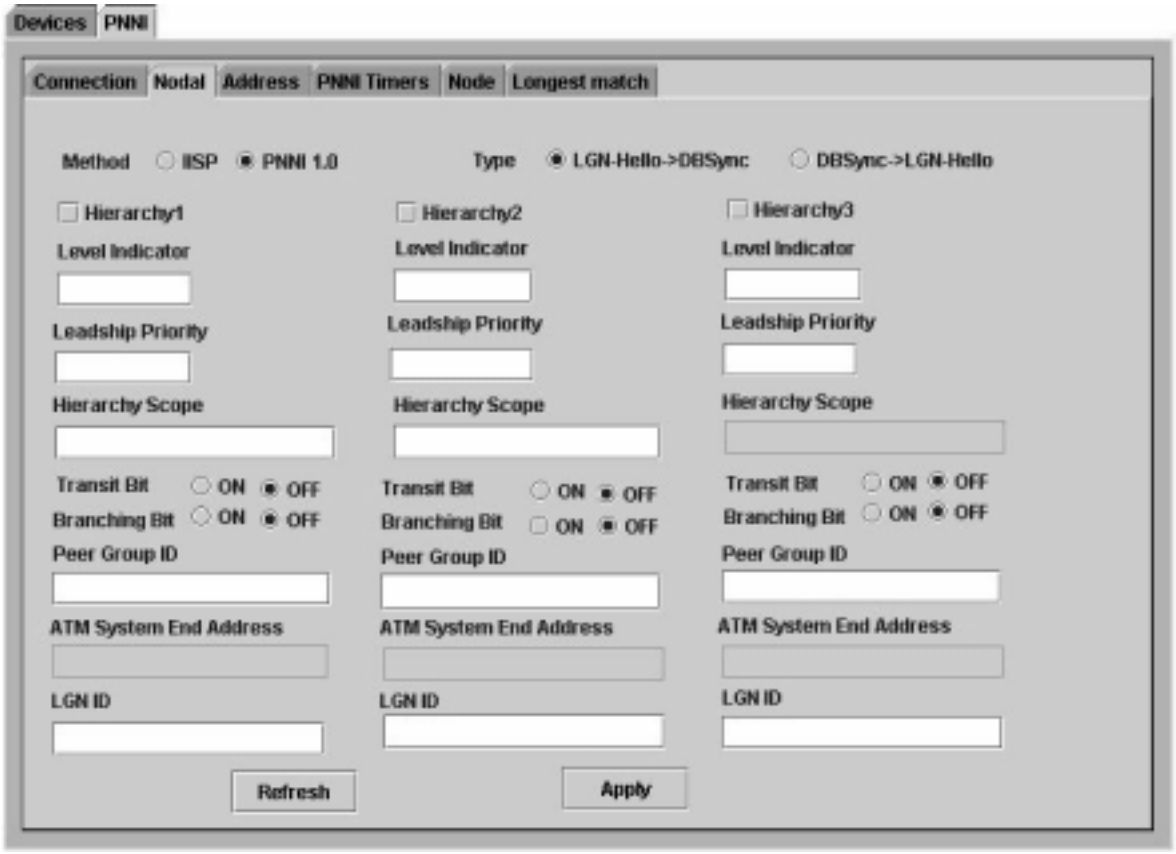

Figure 8-5: PNNI Nodal Panel

Refresh the Nodal Parameter Information

To update the Nodal parameter information, click **REFRESH**. The most current parameter information displays.

Create New Nodal Parameters

To set PNNI Nodal parameters:

1. Select the routing method in the Method group box.
2. Select the hello packet type in the Type group box.
3. Select the hierarchy level.

Under the hierarchy level you selected, complete the routing parameter information.

4. Type the numerical value in the Level Indicator field. Valid values are 0 through 104.
5. Type the value for the priority in which this node is elected peer group leader in the Leadership Priority field.
6. Type the numerical value in the Hierarchy Scope field. Valid values are 1 through 14.
7. Set the Transit bit by selecting either ON or OFF.
8. Set the Branching bit by selecting either OF or OFF.
9. Type the identifier for the peer group in the Peer Group ID field.
10. Type the address identifier for the ATM system in the ATM System End Address field.
11. Type the logical node identifier in the LGN ID field.
12. Click **APPLY**. The Select an Option dialog displays. See Figure 8-6.

Figure 8-6: Confirm Add New Nodal Connection Dialog

13. Click **YES** to apply the changes and close the dialog box.

    OR

    Click **NO** to close the dialog box and continue.

For each additional hierarchy you select, complete the fields following the previous steps.

You may want to click **REFRESH** to verify that the new PNNI route information was added.

Field Descriptions

The following information displays on this panel:

Parameter	Description/Comments
Method	The kind of interface used to connect to the node. **Valid values are:** • IISP (Interim Inter Switch Protocol) • PNNI (Private Network-Network Interface)
Type	The process type used to communicate with the node. **Valid values are:** • LGN-Hello->DBSync • DBSync->LGN-Hello
Hierarchy1	The first hierarchy for the topological information.
Hierarchy1 Level Indicator	The value that defines the hierarchical level for the PNNI connection.
Hierarchy1 Leadership Priority	The value the node group uses to elect the peer group leader.
Hierarchy1 Hierarchy Scope	A level of the peer group in the routing hierarchy.
Hierarchy1 Transit Bit	Indicates the time difference between when the beginning of a data packet crosses a defined point in the transmission process and when the end of the data packet crosses the same defined point. **Valid values are:** • ON • OFF
Hierarchy1 Branching Bit	Indicates when the route can be selected from more than one path. **Valid values are:** • ON • OFF
Hierarchy1 Peer Group ID	The string of bits that identify the logical nodes grouped together for routing.
Hierarchy1 ATM System End Address	The identifier of the address at the endpoint of the route.
Hierarchy1 LGN ID	The identifier for a node on the PNNI route.
Hierarchy2	The second hierarchy for the topological information.

Parameter	Description/Comments
Hierarchy2 Level Indicator	The value that defines the hierarchical level for the PNNI connection.
Hierarchy2 Leadership Priority	The value the node group uses to elect the peer group leader.
Hierarchy2 Hierarchy Scope	A level of the peer group in the routing hierarchy.
Hierarchy2 Transit Bit	Indicates the time difference between when the beginning of a data packet crosses a defined point in the transmission process and when the end of the data packet crosses the same defined point. **Valid values are:** • ON • OFF
Hierarchy2 Branching Bit	Indicates when the route can be selected from more than one path. **Valid values are:** • ON • OFF
Hierarchy2 Peer Group ID	The string of bits that identify the logical nodes grouped together for routing.
Hierarchy2 ATM System End Address	The identifier of the address at the endpoint of the route.
Hierarchy2 LGN ID	The identifier for a node on the PNNI route.
Hierarchy3	The first hierarchy for the topological information.
Hierarchy3 Level Indicator	The value that defines the hierarchical level for the PNNI connection.
Hierarchy3 Leadership Priority	The value the node group uses to elect the peer group leader.
Hierarchy3 Hierarchy Scope	A level of the peer group in the routing hierarchy.
Hierarchy3 Transit Bit	Indicates the time difference between when the beginning of a data packet crosses a defined point in the transmission process and when the end of the data packet crosses the same defined point. **Valid values are:** • ON • OFF

Parameter	Description/Comments
Hierarchy3 Branching Bit	Indicates when the route can be selected from more than one path. **Valid values are:** • ON • OFF
Hierarchy3 Peer Group ID	The string of bits that identify the logical nodes grouped together for routing.
Hierarchy3 ATM System End Address	The identifier of the address at the endpoint of the route.
Hierarchy3 LGN ID	The identifier for a node on the PNNI route.

Address

The **PNNI Address** panel displays the parameters for the external and internal Internal Inter Switch Protocol (IISP) addresses. To display the **Address** panel, click the PNNI icon under the PNNI folder. Then, click the Address tab. See Figure 8-7. On this panel, you can do the following:

- Refresh the IISP address information
- Add an exterior IISP address
- Delete an exterior IISP address
- Modify an exterior IISP address
- Add a PNNI interior address
- Delete a PNNI interior address
- Modify a PNNI interior address

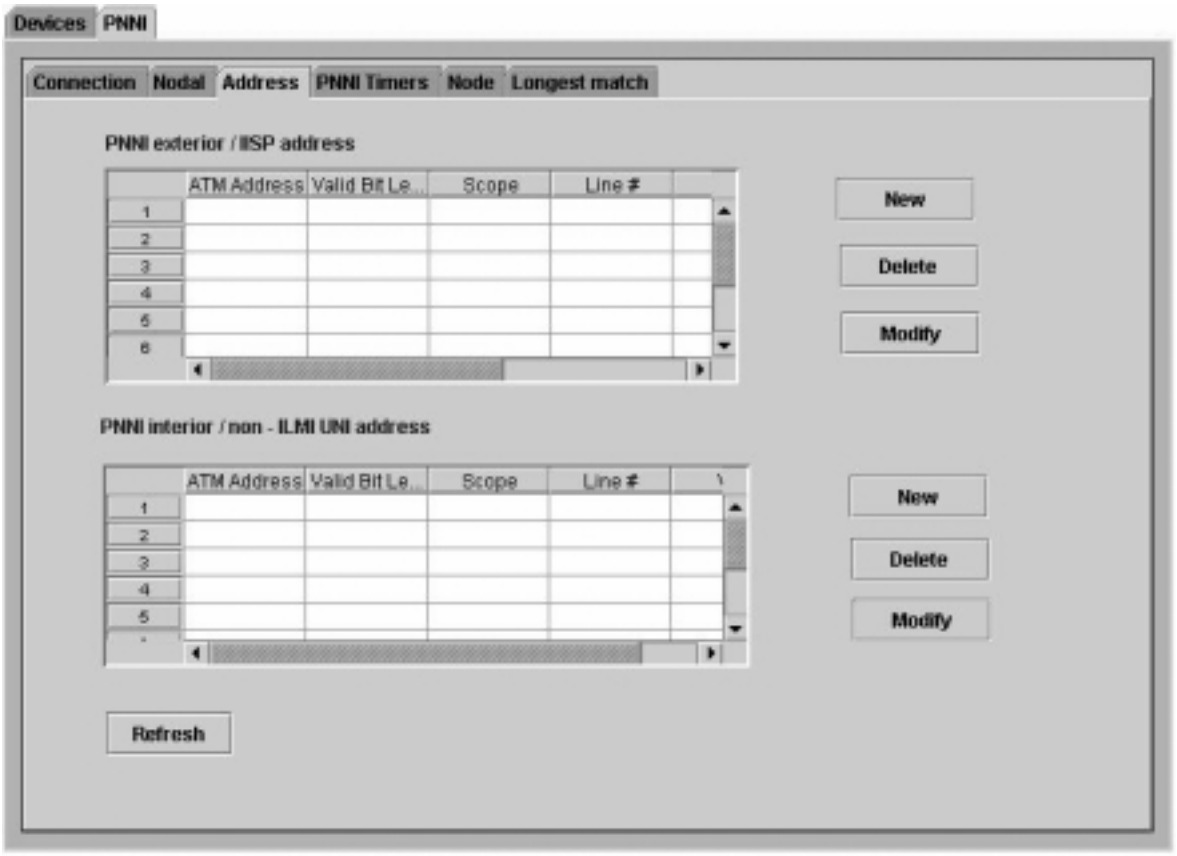

Figure 8-7: PNNI Address Panel

Refresh the IISP Address Information

To update the IISP address information, click REFRESH. The most current exterior and interior IISP address information displays.

Add an Exterior IISP Address

To add an exterior IISP address to the PNNI exterior / IISP address table:

1. Select an empty row in the PNNI exterior / IISP address table.
2. Type the value for the ATM address in the ATM Address column.
3. Type the value of the bit length for the address in the Valid Bit Length column. Valid values are 0 through 152.
4. Type a value for the scope in the Scope column.
5. Type the line number you want to associate with this address in the Line# column.
6. Type the virtual path identifier in the VPI column. Valid values are 0-4095.

7. Type the value for the transit network data ID in the Transit Network ID Data column.
8. Type the value for the transit network identifier in the Transit Network ID column.
9. Click **NEW**. The Select an Option dialog displays. See Figure 8-8.

Figure 8-8: Confirm Add New Exterior IISP Address Dialog

10. Click **YES** to add the new exterior IISP address and close the dialog box.

    OR

    Click **NO** to close the dialog box and continue without adding the new address.

You may want to verify the new exterior address has been added by clicking **REFRESH** to update the table information. The status of all IISP exterior and interior routes is updated. Deleted routes are removed from the list and new routes are added to the list during the refresh.

Delete an Exterior IISP Address

To delete an existing PNNI Exterior Address from the PNNI exterior / IISP address table:

1. Highlight the table row containing the exterior IISP address to be deleted.
2. Click **DELETE**. The Select an Option dialog displays. See Figure 8-9.

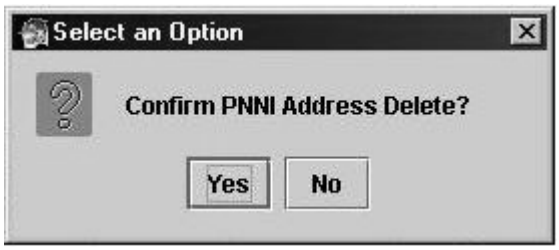

Figure 8-9: Confirm Delete Exterior IISP Address Dialog

3. Click **YES** to delete the address and close the dialog box.

   OR

   Click **NO** to close the dialog box and continue without deleting the address.

You may want to verify the new exterior address has been deleted by clicking **REFRESH** to update the table information.

Modify an Exterior IISP Address

To modify an existing IISP exterior address in the PNNI exterior / IISP address table

1. Highlight the table row containing the exterior IISP address to be modified.
2. Change the values in one or more of the table columns.
3. Click **MODIFY**. The Select an Option dialog displays. See Figure 8-10.

Figure 8-10: Confirm Modify Exterior IISP Address Dialog

4. Click **YES** to modify the IISP address and close the dialog box.

   OR

   Click **NO** to close the dialog box and continue without modifying the IISP address.

You may want to verify the new exterior address has been modified by clicking **REFRESH** to update the table information.

Add a New PNNI Interior Address

To add a new interior PNNI address to the PNNI interior / non-ILMI UNI address table:

1. Select an empty row in the table.
2. Type the value for the ATM address in the ATM Address column.
3. Type the value of the bit length for the address in the Valid Bit Length column.
4. Type a value for the scope in the Scope column.
5. Type the line number you want to associate with this address in the Line# column.

6. Type the virtual path identifier value in the VPI column.
7. Click **NEW**. The Select an Option dialog displays. See Figure 8-11.

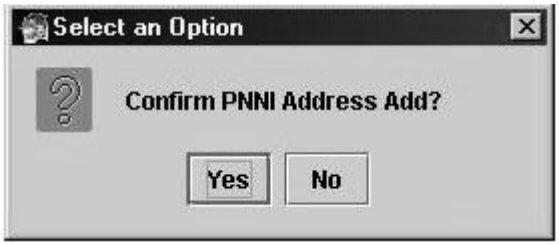

Figure 8-11: Confirm Add New Interior IISP Address Dialog

8. Click **YES** to add the new PNNI interior address and close the dialog.

   OR

   Click **NO** to close the dialog box and continue without adding the new interior address.

You may want to verify the new interior address has been added by clicking **REFRESH** to update the table information.

Delete a PNNI Interior Address

To delete an existing PNNI Interior Address from the PNNI interior / non-ILMI UNI address table:

1. Highlight the table row containing the PNNI interior address to be deleted.
2. Click **DELETE**. The Select an Option dialog displays. See Figure 8-12.

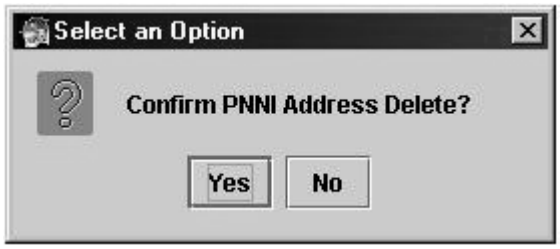

Figure 8-12: Confirm Delete Interior IISP Address Dialog

3. Click **YES** to delete the address and close the dialog box.

   OR

   Click **NO** to close the dialog box and continue without deleting the address.

You may want to click **REFRESH** to verify that the connection was deleted.

Modify an Interior IISP Address

To modify an existing PNNI Internal address in the PNNI interior / non-ILMI UNI address table:

1. Highlight the table row containing the PNNI interior address to be modified.
2. Change the values in one or more of the table columns.
3. Click **MODIFY**. The Select an Option dialog displays. See Figure 8-13.

Figure 8-13: Confirm Modify Interior IISP Address Dialog

4. Click **YES** to modify the PNNI interior address and close the dialog box.

   OR

   Click **NO** to close the dialog box and continue without modifying the PNNI interior address.

You may want to verify the PNNI interior address has been modified by clicking **REFRESH** to update the table information.

Field Descriptions

The following fields display on this panel:

Parameter	Description/Comments
ATM Address	The reachable ATM address (up to 40 hexadecimal characters) for this connection.
Valid Bit Length	The valid bit lengths for the reachable address. **Valid values are:** 0 through 160
Scope	A level of the peer group in the routing hierarchy.

<table>
<tr><th>Parameter</th><th>Description/Comments</th></tr>
<tr><td>Line#</td><td>A combination of the Line Card slot position and the Port Number.
Valid values are:
<table><tr><th>Switch Type</th><th>Valid Values</th></tr><tr><td>855x</td><td>00 - 33</td></tr><tr><td>866x</td><td>000 - 073</td></tr><tr><td>877x</td><td>000 - 153</td></tr><tr><td>900x</td><td>0000 - 1515</td></tr></table></td></tr>
<tr><td>VPI</td><td>The identifier of the virtual path to be used by the route.
Valid values are:
0 through 9</td></tr>
<tr><td>Transit Network ID data</td><td>The content of the data sent to the transit network ID.
Valid values are:
0 through 7F</td></tr>
<tr><td>Transit Network ID</td><td>The identifier (up to 20 characters) of the networks that are passed through to reach the address.
Valid values are:
• 0 through 9
• a through f
• A through F</td></tr>
</table>

PNNI Timers

The **PNNI Timers** panel displays the current architectural information and allows you to change the settings. To display the **PNNI Timers** panel, click the PNNI icon under the PNNI folder. Then, click the PNNI Timers tab. See Figure 8-14. On this panel you can perform the following tasks:

- Refresh the PNNI Timers information
- Modify the PNNI Timers information

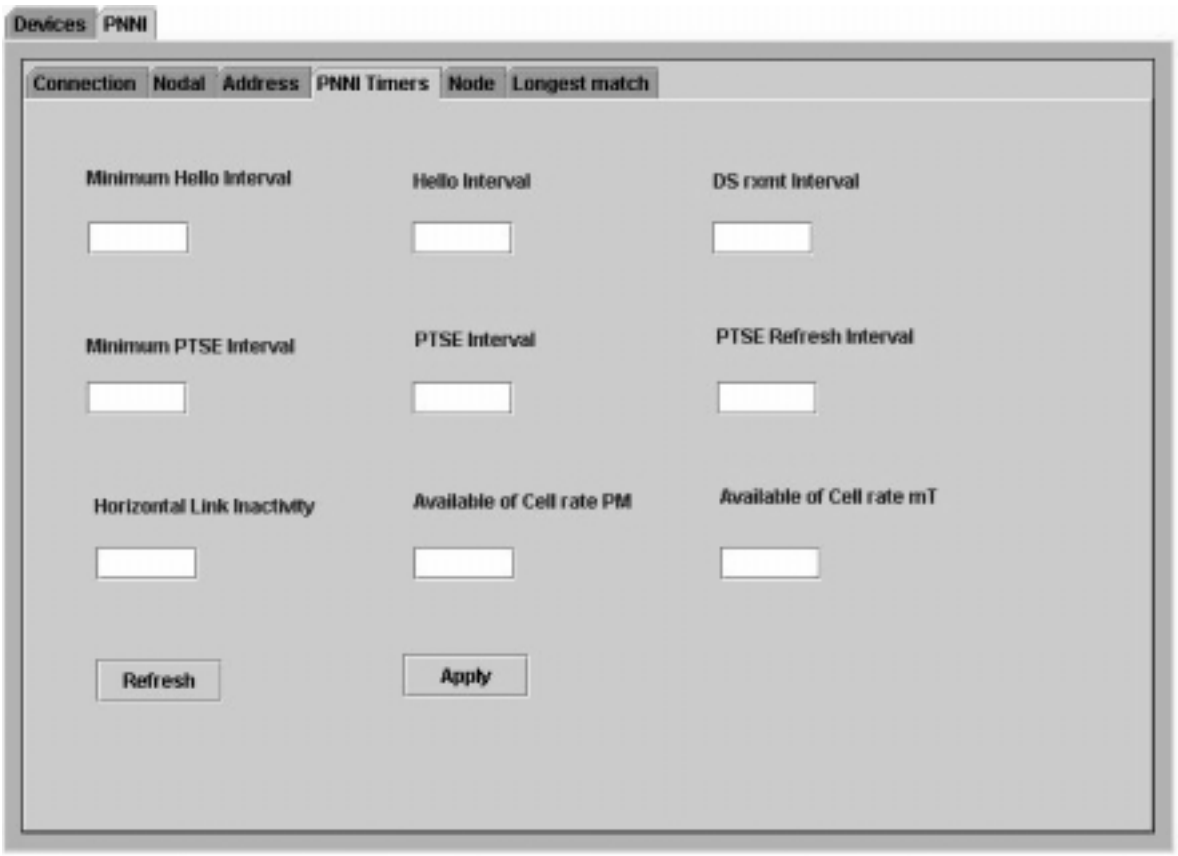

Figure 8-14: PNNI Timers Panel

Refresh the PNNI Timers Information

To update the PNNI Timers architectural information, click **REFRESH**. The most current PNNI Timer information displays. The status of timers is updated. New timers are added to the list during the refresh.

Modify the PNNI Timers Information

To modify the PNNI Timers architectural information:

1. Change the values in one or more of the fields on this panel.
2. Click **APPLY**. The Select an Option dialog displays. See Figure 8-15.

Figure 8-15: Confirm Modify PNNI Timers Dialog

3. Click **YES** to modify the PNNI Timers and close the dialog box.

   OR

   Click **NO** to close the dialog box and continue without changing the PNNI Timers.

You may want to click **REFRESH** to verify that the connection was modified.

Field Descriptions

The following fields display on this panel:

Parameter	Description/Comments
Minimum Hello Interval	The minimum transmission interval of “hello” in seconds.
Hello Interval	The transmission of “hello” in seconds.
DS rxmt Interval	The transmission interval of the database summary packet in seconds and the communication interval of the PTSE request packet.
Minimum PTSE Interval	The minimum transmission interval of the PTSE in seconds.
PTSE Interval	The communication and retransmission interval of the PTSE in seconds.
PTSE Refresh Interval	The refresh interval of the PTSE in seconds.
Horizontal Link Inactivity	The ring down recognition time in seconds.
Available of Cell rate PM	The percentage at which average cell rate change is notified.
Available of Cell rate mT	The minimum value at which average cell rate change is notified.

Node

The **Node** panel displays the Reachable Node Address information in a table. See Figure 8-16. To update the table information, click **REFRESH**. The most current Reachable Node Address information displays.

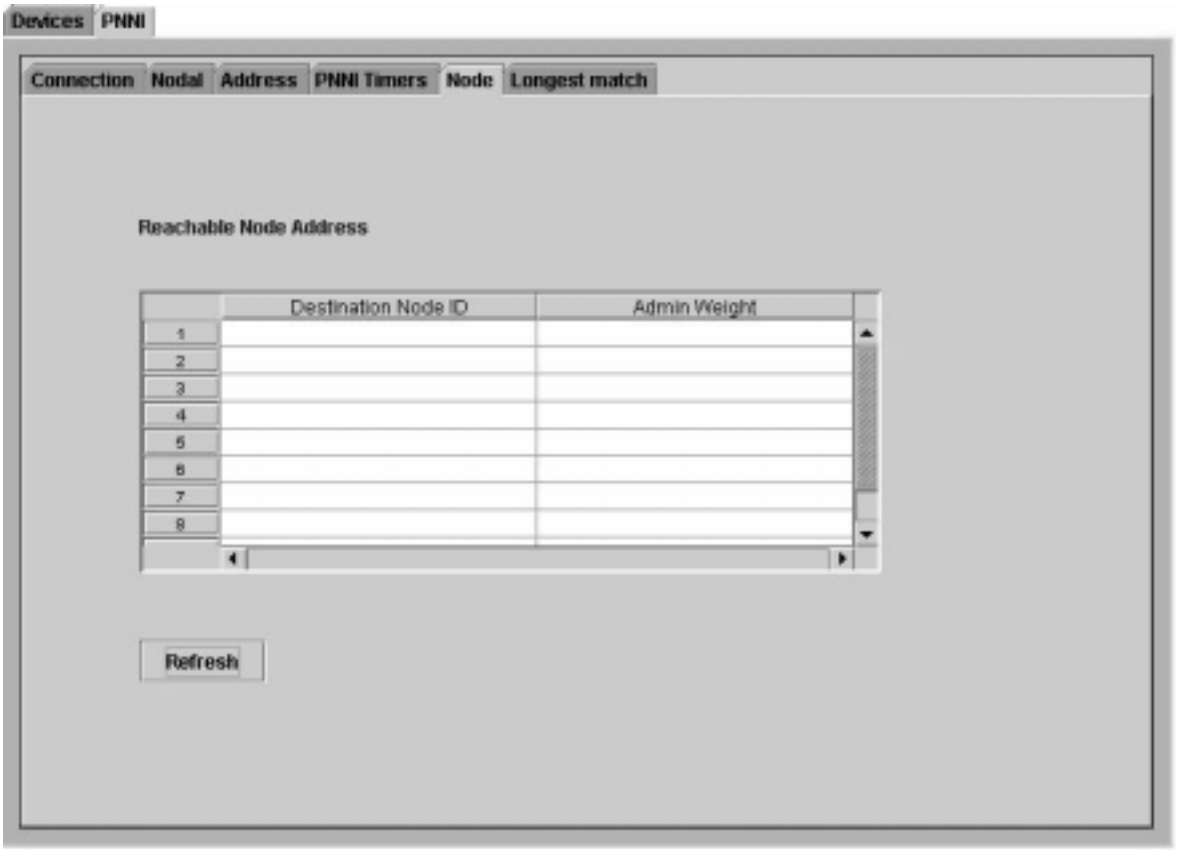

Figure 8-16: Node Panel

Field Descriptions

The following information displays on this panel:

Parameter	Description/Comments
Destination Node ID	The node identifier for the route destination.
Admin Weight	The value used in the computation of PNNI paths.

Longest match

The **LongestMatch** panel displays the LongestMatch Reachable Address information in a table. See Figure 8-17.

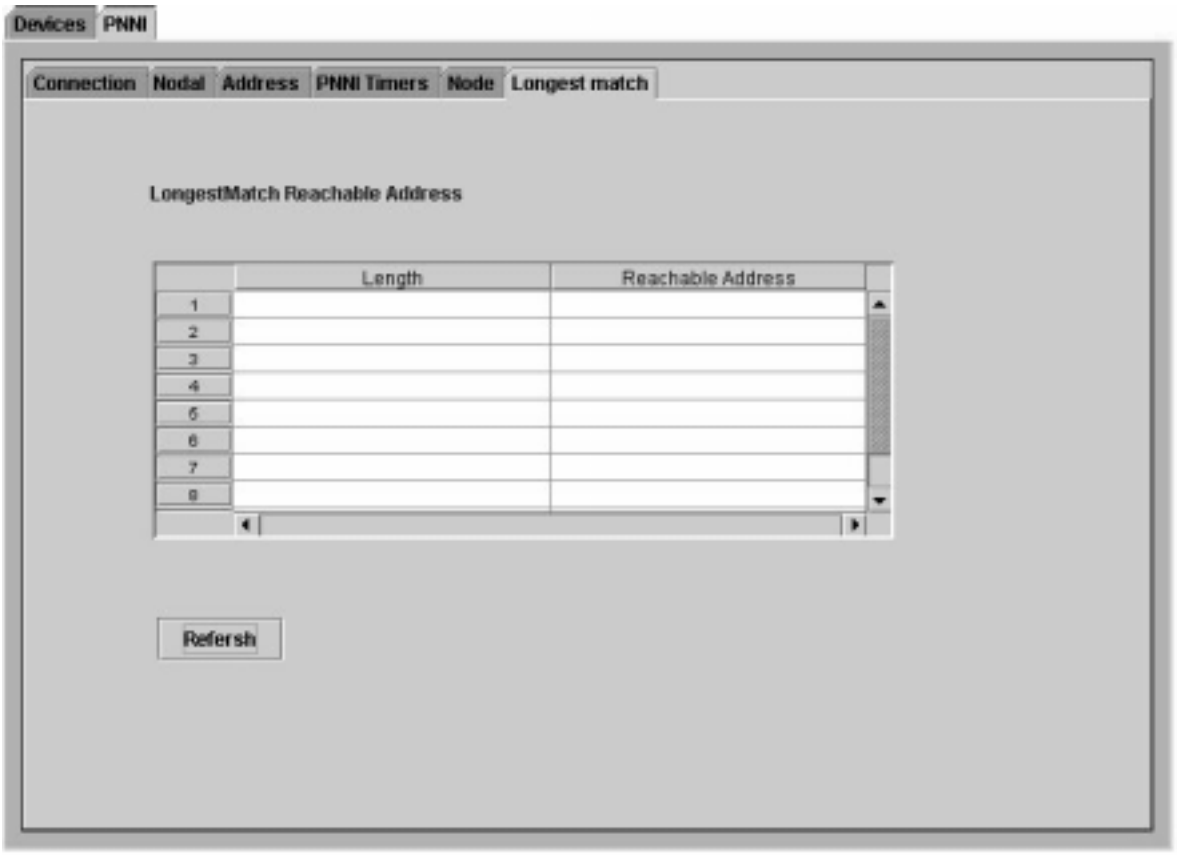

Figure 8-17: LongestMatch Panel

Field Descriptions

The following fields display on this panel:

Parameter	Description/Comments
Length	The transferrable length.
Reachable Address	The flooded reachable addresses in the longest match sequence.

Route

The Route folder contains icons for managing two kinds of routes. The route types are:

- IISP
- Dynamic

ISP Route Management

The **IISP Route Management** panel allows you to manage static IISP routes. The route information displays in a table. To display the **IISP Route Management** panel, click the IISP icon under the Route folder. See Figure 8-18. On this panel, you can perform the following tasks:

- Update the IISP route information
- Create a new IISP route
- Modify existing IISP routes
- Delete existing IISP routes

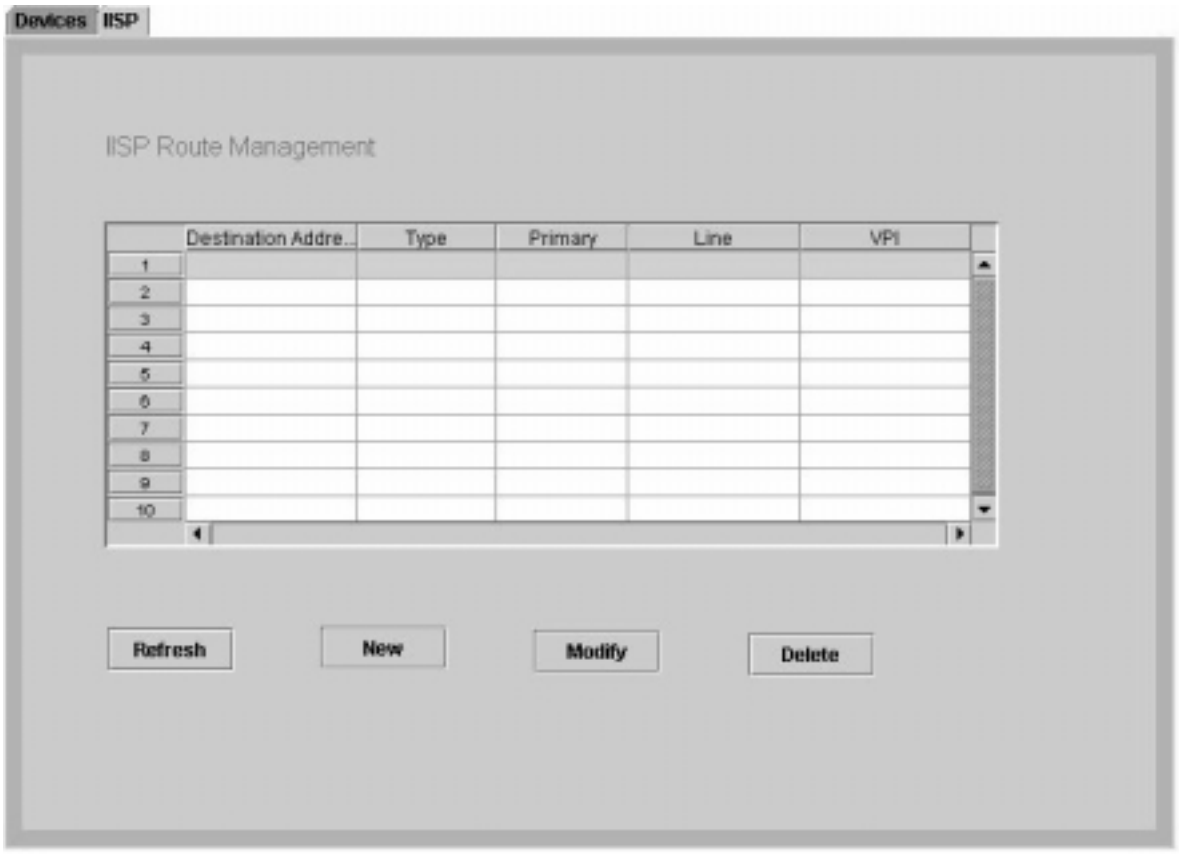

Figure 8-18: IISP Route Management Panel

Update the IISP Route Information

To update the IISP route information, click **REFRESH**. The most current IISP route information displays. The status of all IISP routes in the table is updated. Deleted IISP routes are removed from the list, and new and modified routes are added to the list during the refresh.

Create a New IISP Route

To add a new IISP route:

1. Select an empty row in the table.
2. Type the route's destination identifier in the Destination Address column.
3. Select the network type in the Type column.
4. Type an asterisk in the Primary column to designate the route as a primary route. If the route is not the primary route, leave the Primary column blank.
5. Type the line number in the Line column.
6. Type the Tunneling virtual path identifier value in the VPI column. If there is no Tunneling VPI assigned, type "-" in the VPI column. Valid values are 0-4095.
7. Click **NEW**. The **Add IISP Route** panel displays. See Figure 8-19.

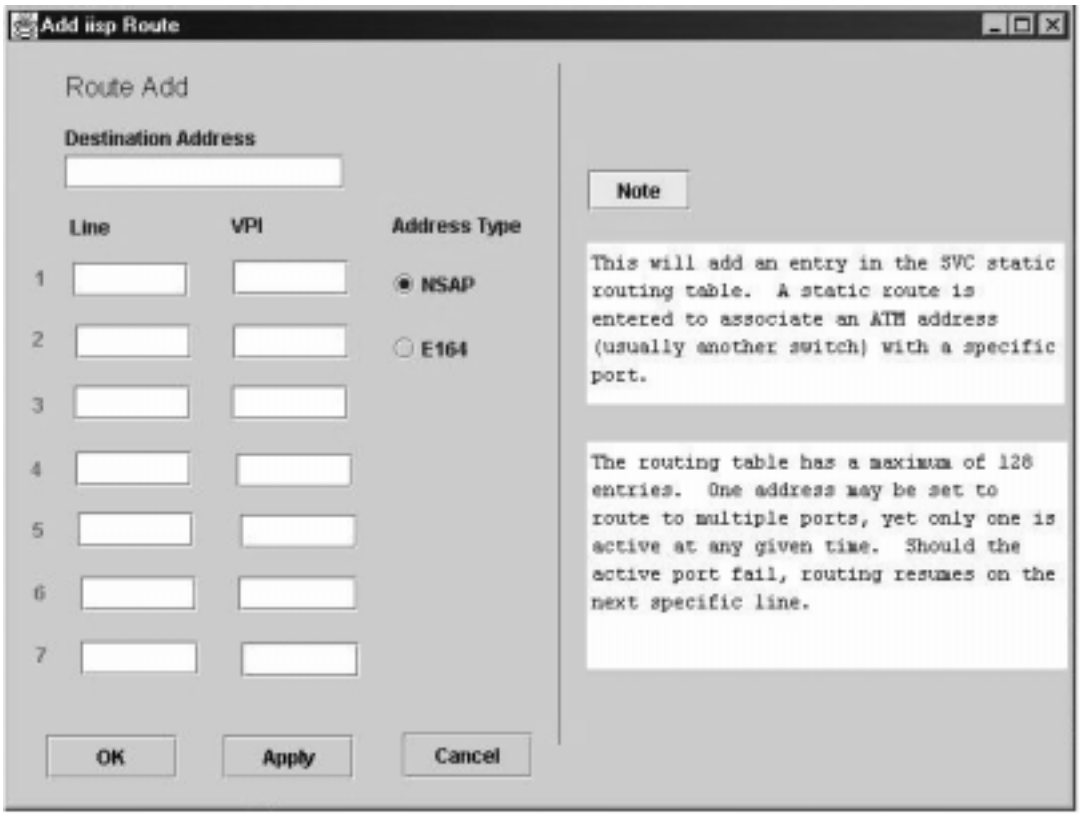

Figure 8-19: Add IISP Route Panel

8. Type the endpoint value in the Destination Address field.
9. Type the number(s) of the line using the route in the Line field.
10. Type the virtual path identifier associated with the Line in the VPI field.
11. Click **YES** to add the new IISP route and display the confirmation dialog box. See Figure 8-20.

    OR

    Click **APPLY** to add the new IISP route and continue adding routes.

    OR

    Click **CANCEL** to close the dialog box and continue without adding the new IISP route.

Figure 8-20: Confirm Add New IISP Route Dialog

12. Click **YES** to add the new IISP route and close the confirmation dialog box and the **Add iisp Route** panel.

    OR

    Click **NO** to close the dialog box and continue without adding the new IISP route.

You may want to click **REFRESH** to verify that the connection was added.

Modify an Existing IISP Route

To modify an existing IISP route:

1. Highlight the table row containing the IISP route to be modified.
2. Change the values in one or more of the table columns.
3. Click **MODIFY**. The **Modify Route** panel displays. See Figure 8-21.

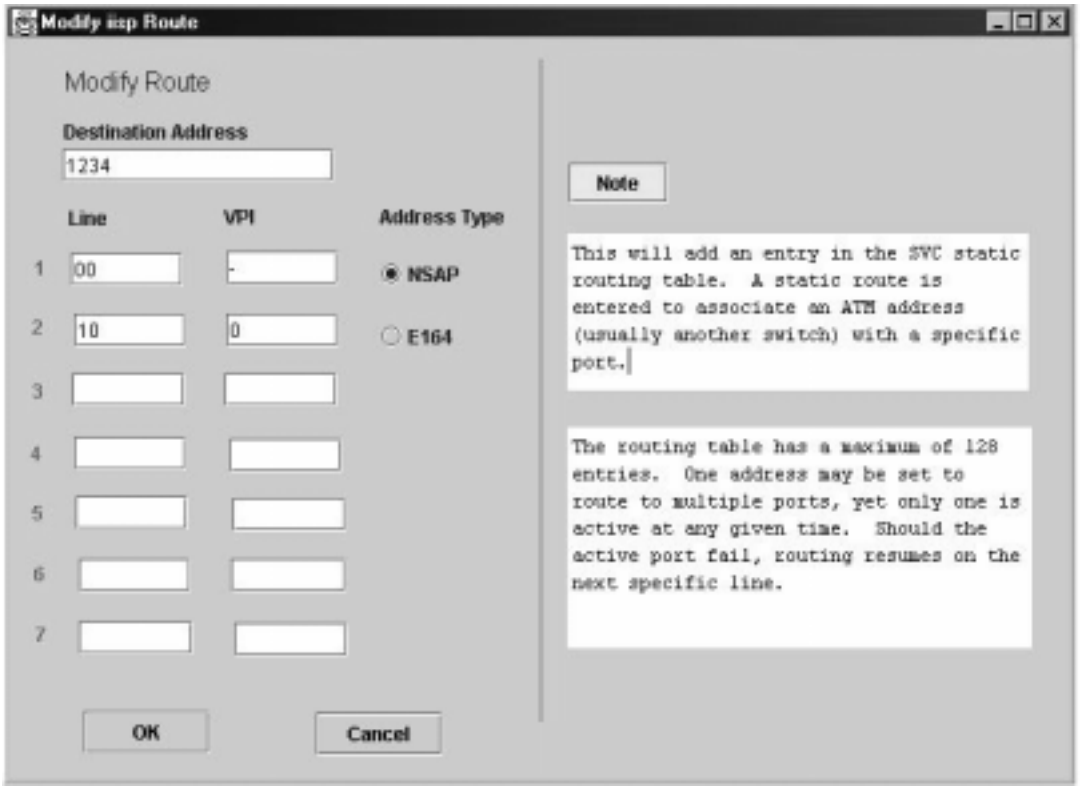

Figure 8-21: Confirm Modify IISP Route Dialog

4. Click **OK** to modify the IISP route and close the dialog box.

   OR

   Click **CANCEL** to close the dialog box and continue without modifying the IISP route.

You may want to click **REFRESH** to verify that the connection was modified.

Delete an Existing IISP Route

To delete an existing IISP route:

1. Highlight the table row containing the IISP route to be deleted.
2. Click **DELETE**. The Select an Option dialog displays. See Figure 8-22.

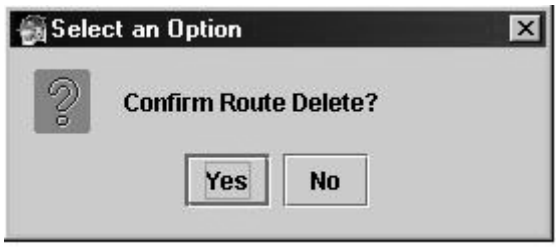

Figure 8-22: Confirm Delete IISP Route Dialog

3. Click **YES** to delete the IISP route and close the dialog box.

   OR

   Click **NO** to close the dialog box and continue without deleting the IISP route.

You may want to click **REFRESH** to verify that the connection was deleted.

Field Descriptions

The following fields display on this panel.

Parameter	Description/Comments
Destination Address	The end user's ATM address.
Type	The network type use by the route. **Valid values are:**

Type	Length	Values	Use
NSAP	Up to 40 characters	0 through 9 a through f A through F	Private network addressing
E.164	Up to 16 characters	0 through 9	Public network addressing

<table>
<tr><th>Parameter</th><th>Description/Comments</th></tr>
<tr><td>Line</td><td>A combination of the Line Card slot position and the Port Number
Valid values are:
<table><tr><th>Switch Type</th><th>Valid Values</th></tr><tr><td>855x</td><td>00 - 33</td></tr><tr><td>866x</td><td>000 - 073</td></tr><tr><td>877x</td><td>000 - 153</td></tr><tr><td>900x</td><td>0000 - 1515</td></tr></table></td></tr>
<tr><td>VPI</td><td>The identifier of the virtual path used by this route.
Valid values are:
0 through 4095</td></tr>
</table>

Dynamic Route Summary

The **Dynamic Route Summary** panel allows you to view all dynamic route information in a table. See Figure 8-23. To view the updated dynamic route summary information, click **REFRESH**. The most current dynamic route summary information displays.

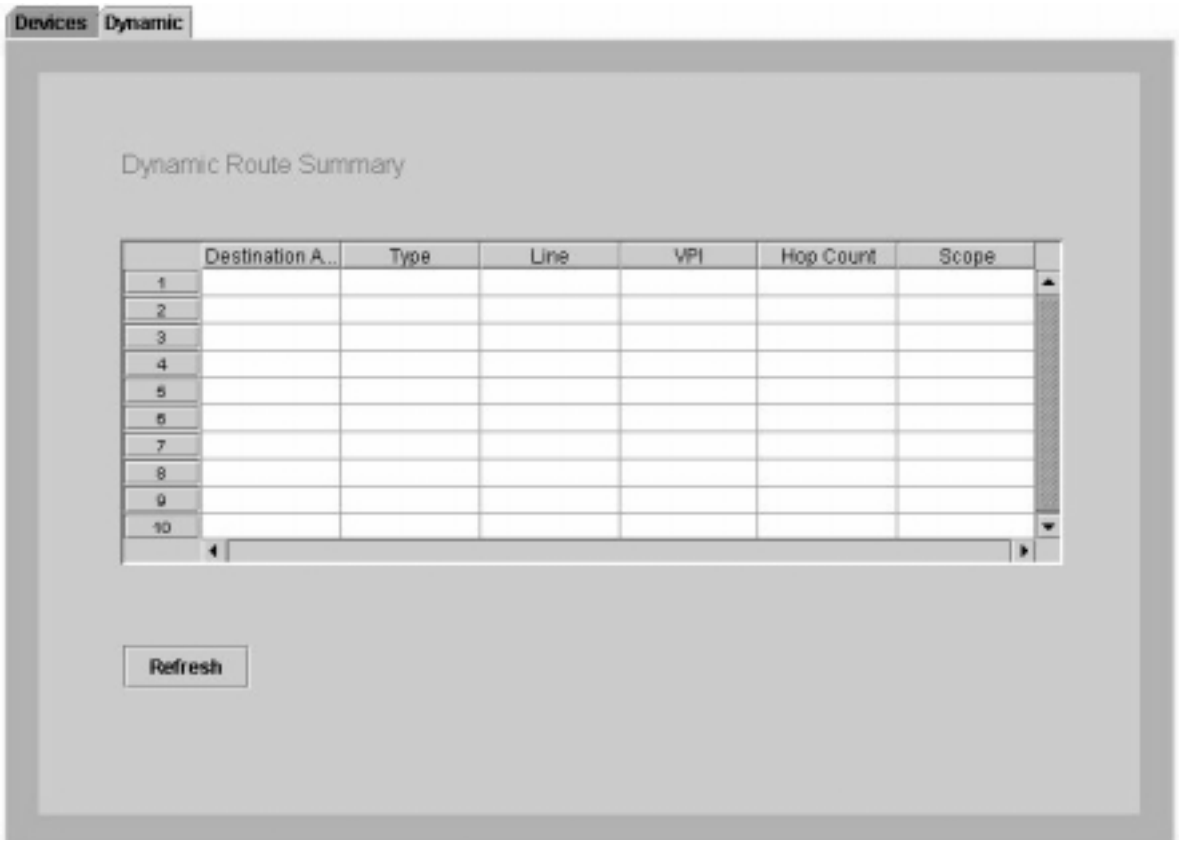

Figure 8-23: Dynamic Route Summary Panel

Field Descriptions

The following information displays on this panel:

<table>
<tr><th>Parameter</th><th>Description/Comments</th></tr>
<tr><td>Destination Address</td><td>The end user’s ATM address.</td></tr>
<tr><td>Type</td><td>The network type use by the route.
Valid values are:
<table>
<tr><th>Type</th><th>Length</th><th>Values</th><th>Use</th></tr>
<tr><td>NSAP</td><td>Up to 40 characters</td><td>0 through 9
a through f
A through F</td><td>Private network addressing</td></tr>
<tr><td>E.164</td><td>Up to 16 characters</td><td>0 through 9</td><td>Public network addressing</td></tr>
</table></td></tr>
<tr><td>Line</td><td>A combination of the Line Card slot position and the Port Number
Valid values are:
<table>
<tr><th>Switch Type</th><th>Valid Values</th></tr>
<tr><td>855x</td><td>00 - 33</td></tr>
<tr><td>866x</td><td>000 - 073</td></tr>
<tr><td>877x</td><td>000 - 153</td></tr>
<tr><td>900x</td><td>0000 - 1515</td></tr>
</table></td></tr>
<tr><td>VPI</td><td>The identifier of the virtual path used by this route.
Valid values are:
0 through 4095</td></tr>
<tr><td>Hop Count</td><td>The number of tunneled switches</td></tr>
<tr><td>Scope</td><td>The PNNI route. Used only for 900x series switches.</td></tr>
</table>

This page is for your notes.

9 Performance

The **ATM Performance** panel allows you to monitor the traffic parameters for a given line and/or connection. The parameters can be monitored over a period of time. To display the **ATM Performance** panel, click the Performance icon under the Performance folder. See Figure 9-1. The traffic parameters that can be monitored are:

- Line
- Physical (DS1, DS3, OC3, OC12,E1,E3)
- Connection (Uni/Bi-direction and Multipoint)

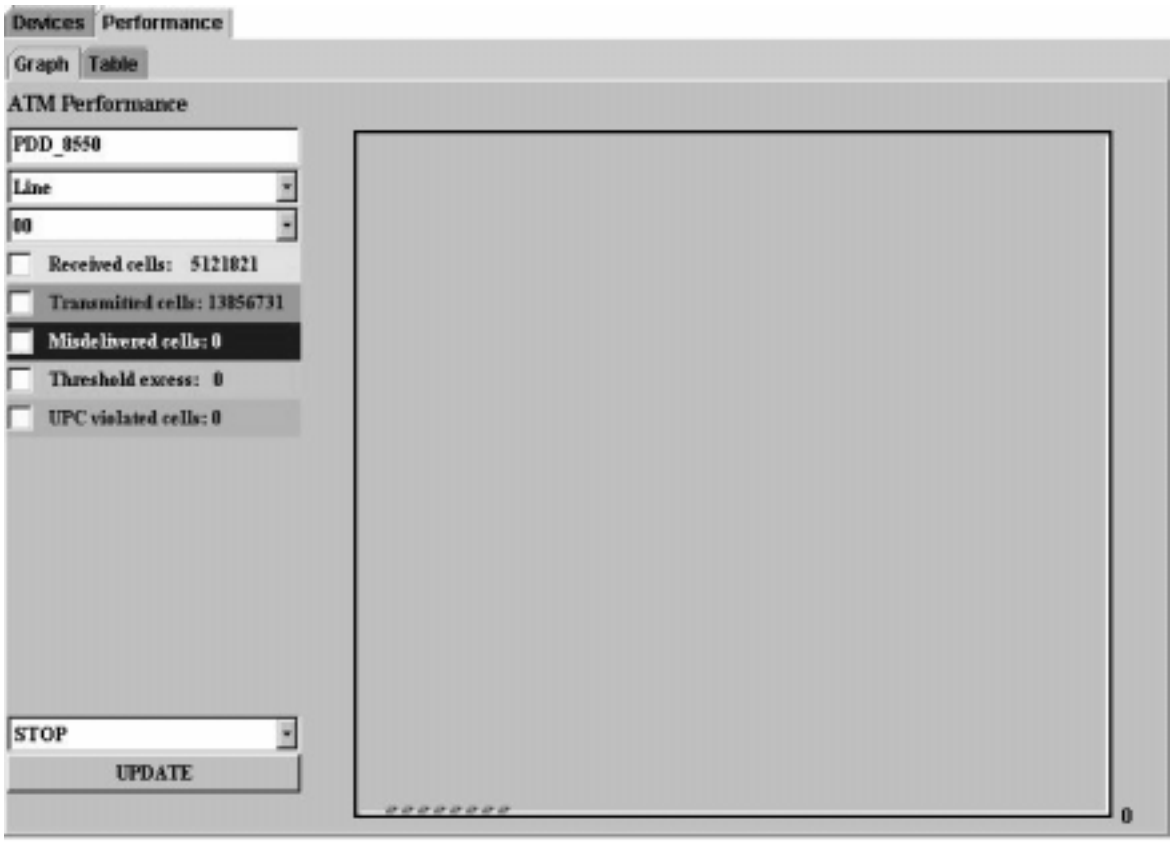

Figure 9-1: ATM Performance Panel in Graph Form

Monitor a Switch

To monitor traffic for a specific switch:

1. Type the switch identifier in the Switch field.
2. Select the graph type you want to view. Valid values are:
   - Line Graph
   - Bar Graph
3. Select the parameter you want to monitor. Valid values are:
   - Line
   - Physical (DS1, DS3, OC3, OC12,E1,E3)
   - Connection (Uni/Bi-direction and Multipoint)
4. Select the Line number.

5. Select the polling interval in the Stop field.

   OR

6. Click **REFRESH**. The graph information displays the most current switch information.

Field Descriptions

The following fields display on the ***ATM Performance*** panel:

<table>
<tr><th>Parameter</th><th>Description/Comments</th></tr>
<tr><td>Line#</td><td>A combination of the Line Card slot position and the Port Number.
Valid values are:
<table><tr><th>Switch Type</th><th>Valid Values</th></tr><tr><td>855x</td><td>00 - 33</td></tr><tr><td>866x</td><td>000 - 073</td></tr><tr><td>877x</td><td>000 - 153</td></tr><tr><td>900x</td><td>0000 - 1515</td></tr></table></td></tr>
<tr><td>Physical</td><td>The kind of digital transmission hierarchy being used.
Valid values are:
DS1, DS3, OC3, OC12, E1, E3</td></tr>
<tr><td>Connection</td><td>The kind of connection used by the switch.
Valid values are:
• Uni-directional
Information flows in one direction only.
• Bi-directional
Information flows in both directions, but not at the same time.
• Gateway
Route information from one circuit to another resolving the protocol differences between the circuits.</td></tr>
<tr><td>Received Cells</td><td>The number of cells received at the destination address.</td></tr>
<tr><td>Transmitted Cells</td><td>The number of cells transmitted to the destination address.</td></tr>
<tr><td>Misdelivered Cells</td><td>The number of cells transmitted to the wrong destination address.</td></tr>
<tr><td>Threshold Excess</td><td>The number of cells that exceeded the defined threshold.</td></tr>
</table>

Parameter	Description/Comments
UPC Violated Cells	The number of cells that passed the defined traffic levels.
Stop	Sets the polling interval to check for alarms.

ATM Performance Table

The **Performance Table** panel displays the switch's performance in a table. See Figure 9-2. On this panel, you can do the following tasks:

- Update the performance information
- Delete one performance record from the table
- Clear all data from the table
- Backup the performance data

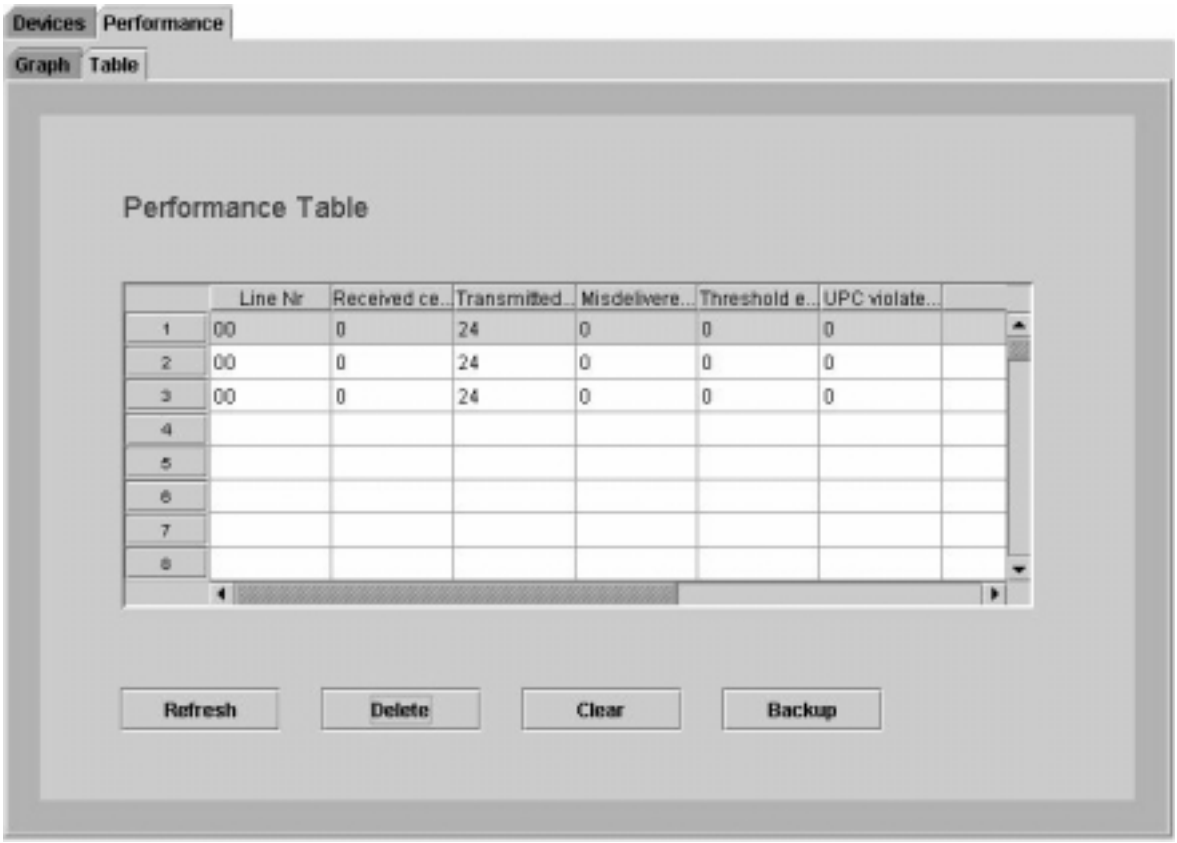

Figure 9-2: ATM Performance Table Panel

Refresh the Performance Information

To update the list of Performance information, click **REFRESH**. The most current list of Performance records displays. The status of all records in the table is updated. Deleted records are removed from the list and new records are added to the list during the refresh.

Delete One Performance Record

To delete a single performance record:

1. Highlight the row containing the record to be deleted.
2. Click **DELETE**. The Select an Option dialog displays. See Figure 9-3.

Figure 9-3: Confirm Delete Performance Record Dialog

3. Click **YES** to delete the record and close the dialog box.

   OR

   Click **NO** to close the dialog box and continue without deleting the performance record.

Clear All Data from the Table

To clear all data from the table:

1. Click **CLEAR**. The Select an Option Dialog displays. See Figure 9-4.

Figure 9-4: Confirm Clear all Performance Data

2. Click **YES** to delete all performance data and close the dialog box.

   OR

   Click **NO** to close the dialog box and continue without deleting the performance data.

Backup the Performance Data

To backup the performance data:

1. Click **BACKUP**. The backup file name field displays. See Figure 9-5.

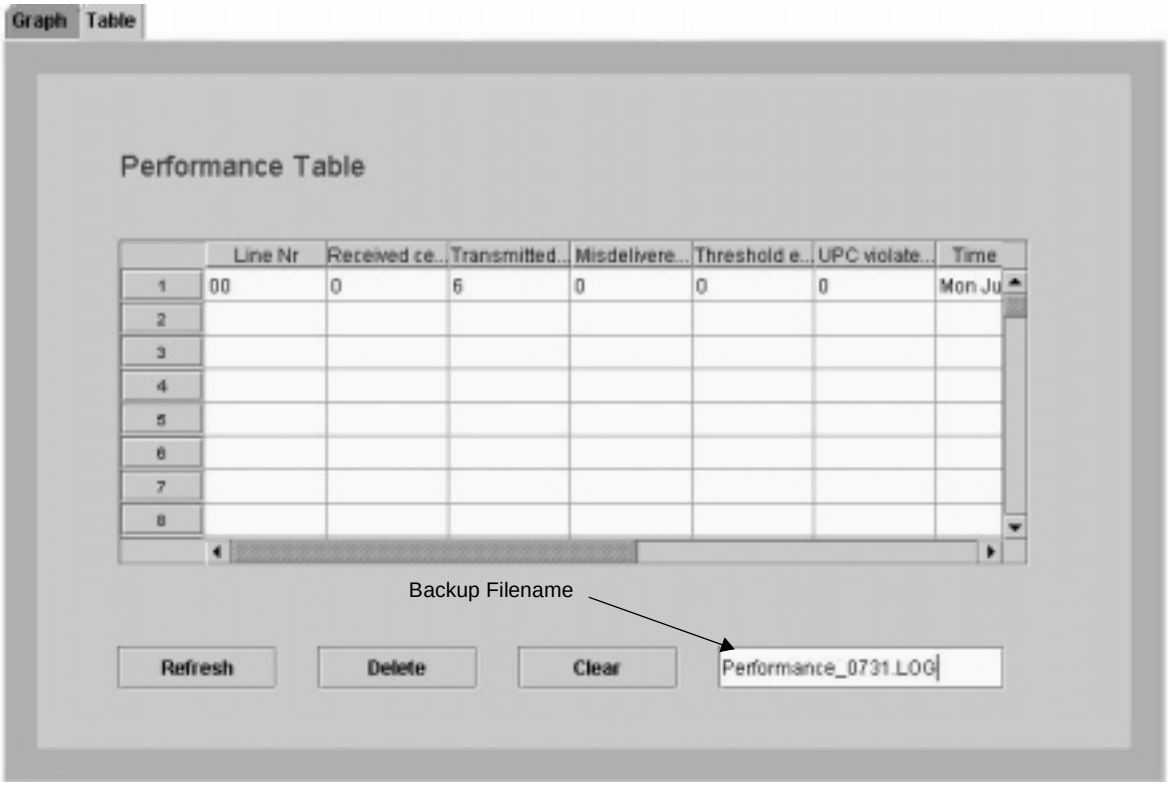

Figure 9-5: Backup File Name Field

2. Press **ENTER** to accept the default file name and save the file.

   OR

   Rename the file. Then, press **ENTER**.

   OR

   Press **ESC** to close the backup file name field.

Field Descriptions

The following fields display on this panel.

<table>
<tr><th>Parameter</th><th>Description/Comments</th></tr>
<tr><td>Line#</td><td>A combination of the Line Card slot position and the Port Number.
Valid values are:
<table><tr><th>Switch Type</th><th>Valid Values</th></tr><tr><td>855x</td><td>00 - 33</td></tr><tr><td>866x</td><td>000 - 073</td></tr><tr><td>877x</td><td>000 - 153</td></tr><tr><td>900x</td><td>0000 - 1515</td></tr></table></td></tr>
<tr><td>Received Cells</td><td>The number of cells received at the destination address.</td></tr>
<tr><td>Transmitted Cells</td><td>The number of cells transmitted to the destination address.</td></tr>
<tr><td>Misdelivered Cells</td><td>The number of cells transmitted to the wrong destination address.</td></tr>
<tr><td>Threshold Excess</td><td>The number of cells that exceeded the defined threshold.</td></tr>
<tr><td>UPC Violated Cells</td><td>The number of cells that passed the defined traffic levels.</td></tr>
<tr><td>Time/Date</td><td>Shows the time and date that the performance date was captured.</td></tr>
</table>

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10 Services

Device Events

The **Device Events** panel shows the list of all events (traps) generated by the particular device. To display the **Device Events** panel, click the Device Events icon under the Device Events folder. See Figure 10-1. The device events information displays in a table.

On the **Device Events** panel, you can perform the following tasks:

- Update the device events information
- Delete device event information
- Clear all device events from the table
- Backup the device event information

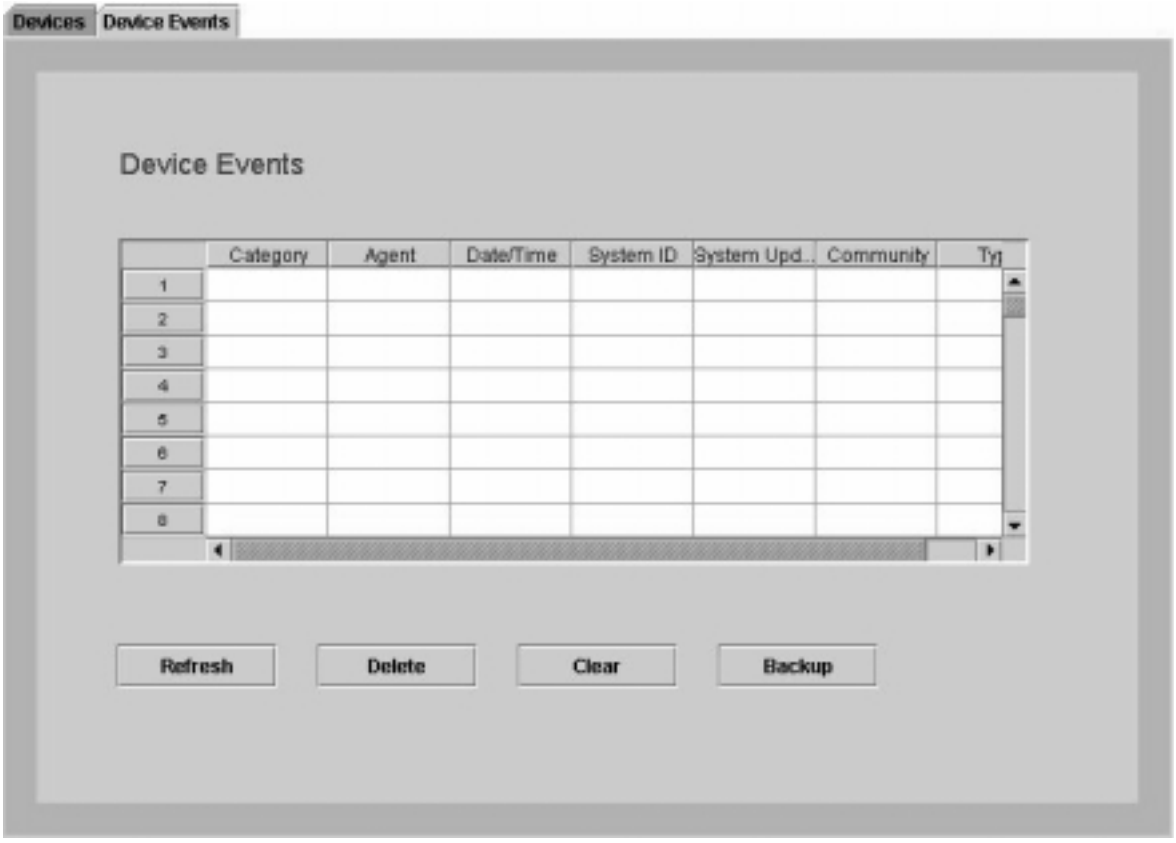

Figure 10-1: Device Events Panel

Update the Device Events Information

To update the device events table, click **REFRESH**. The most current information displays.

Delete the Device Event Information

To delete the device event information:

1. Highlight the table row containing the device event record to be deleted.
2. Click **DELETE**. The Select an Option dialog displays. See Figure 10-2.

Figure 10-2: Confirm Delete Device Event Dialog

3. Click **YES** to delete the device event and close the dialog box.

   OR

   Click **NO** to close the dialog box and continue without deleting the device event.

Clear All Device Events from the Table

To clear all device event information from the table:

1. Click **CLEAR**. The Select an Option dialog displays. See Figure 10-3.

Figure 10-3: Confirm Delete All Device Events Dialog

2. Click **YES** to delete the device events and close the dialog box.

   OR

   Click **NO** to close the dialog box and continue without deleting the device events.

Backup the Device Event Information

To backup the device event information:

1. Click **BACKUP**. The backup file name field displays. See Figure 10-4.

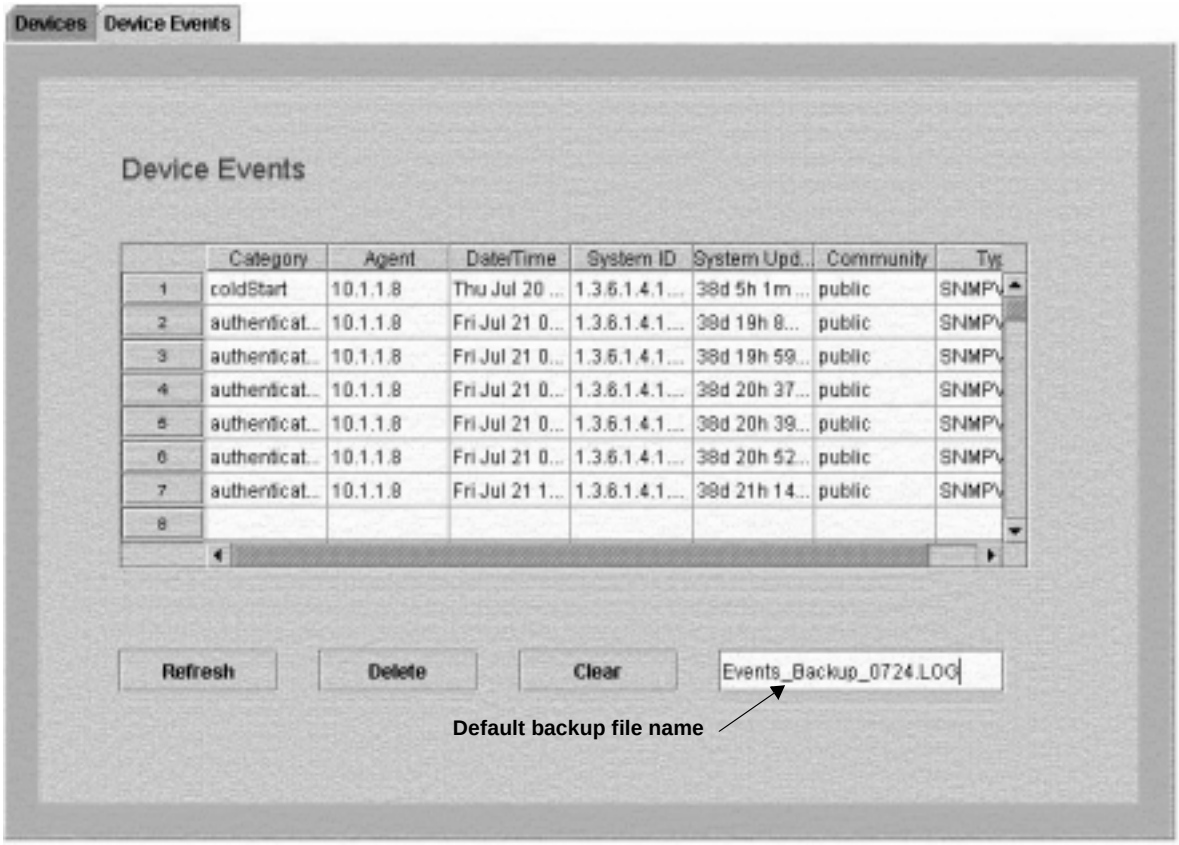

Figure 10-4: Backup File Name Field

2. Press **ENTER** to accept the default file name and save the file.

   OR

   Rename the file. Then, press **ENTER**.

   OR

   Press **ESC** to close the backup file name field.

Field Descriptions

The following information is found in the Device Events table:

Parameter	Description/Comments
Category	The generic type of the event.
Agent	Explains the nature of the event, For example, Switch line up, Switch line down, etc.
Date and Time	The date and time the event occurred on the device.

Parameter	Description/Comments
SystemID	The SystemID of the event from the Simple Network Management Protocol (SNMP) Management Information Base (MIB)
System Uptime	Displays the system uptime in days/hrs./min./sec.
Community	Public/Private
Type	The SNMP version type.

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Troubleshooting

11

The following table is intended to assist the user/administrator in properly determining the cause of a malfunction or error condition obtained during the installation and operation of the Centillion EMS.

Module	Symptoms	Cause	Corrective Action
EMS Client	Device icons shows red/ down	Device not attached to network	Check device connectivity
		Incorrect IP address for device	Check device IP address and correct in EMS server device list
		Device is behind a firewall	Make sure device is reachable from EMS network for TCP/IP ports 161,162, and 23
		Device is turned off	Make sure device is powered on and connected to the network with no major alarms present
		A Telnet session already exists to the device by another EMS/NMS/etc...	Check Telnet access to device, Centillion switches. Allow a maximum of one session
	Cannot add profiles, PVCs, etc...	Connection or profile may already exist	Check the configuration.The connection or profile may already exist.

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