2
Installation

This chapter describes how to install the XpressFlow Switch. Topics include:

Front and Back Views

Figure 2-1 shows the front panel of the XpressFlow Switch. Figure 2-2 shows the back panel.

Figure 2-1. XpressFlow Switch Front View

Figure 2-2. XpressFlow Switch Back View

Preinstallation Considerations

Before you install the XpressFlow Switch, observe the preinstallation considerations in the following sections.

Fast Ethernet Topology Considerations

If you will be using the XpressFlow Switch for Fast Ethernet (100 Mbps) operation, observe the following guidelines:

- The maximum unshielded twisted-pair (UTP) cable length is 100 meters (328 feet) over Category 5 cable.
- Single-repeater topologies permit a total network span of 325 meters (1066 feet).

Full-Duplex Considerations

The XpressFlow Switch provides full-duplex support for its Fast Ethernet ports. Full-duplex operation allows frames to be sent and received simultaneously, doubling a link's potential data throughput.

If you will be using the XpressFlow Switch in full-duplex mode, the maximum UTP cable length is 100 meters (328 feet) over Category 5 cable.

Positioning the XpressFlow Switch

The XpressFlow Switch is designed for office use, where it can be free standing, wall-mounted, or mounted in most standard 19-inch equipment racks. If you prefer, you can rack-mount the XpressFlow Switch in a wiring closet or equipment room using two mounting brackets and six screws.

When choosing a location for the XpressFlow Switch, observe the following guidelines:

- Make sure the XpressFlow Switch is accessible and that the cables can be connected easily.
- Keep cabling away from sources of electrical noise such as radios, transmitters, and broadband amplifiers as well as power lines and fluorescent lighting fixtures.
- Prevent water or moisture from entering the XpressFlow Switch case.
- Make sure there are no obstructions to restrict air flow around the XpressFlow Switch. We recommend that you provide a minimum of 25-millimeter (1-inch) clearance.
- Do not place liquids or other objects on top of the XpressFlow Switch.
- If XpressFlow Switches are free-standing, do not stack more than four XpressFlow Switches on top of one another.

Rack-Mount Installation Instructions

The following procedure describes how to install the XpressFlow Switch in a standard 19-inch rack.

Prerequisites

- Disconnect all cables from the XpressFlow Switch.
- Remove all adhesive pads from the bottom of the XpressFlow Switch.

Installation Instructions

1. Place the XpressFlow Switch right side up on a hard flat surface, with the front panel facing you.
2. Locate a mounting bracket over the mounting holes on one side of the XpressFlow Switch (see Figure 2-3).

Figure 2-3. Locating a Mounting Bracket

3. Insert three screws and use a screwdriver to secure.
4. Repeat the two previous steps for the other side of the XpressFlow Switch.
5. Insert the XpressFlow Switch into the 19-inch rack and secure with suitable screws. Make sure the ventilation holes on the XpressFlow Switch are not obstructed.
6. Connect the cables to the back of the XpressFlow Switch.

Stacking Installation Instructions

You can stack up to four XpressFlow Switches on top of one another. The XpressFlow Switch comes with four self-adhesive rubber pads that can be used when stacking Switches.

1. Apply the pads to the underside of the XpressFlow Switch, sticking one in the marked area at each corner of the XpressFlow Switch.
2. Place the XpressFlow Switches on top of each other, ensuring that the pads of the upper XpressFlow Switch line up with the recesses of the lower XpressFlow Switch.
3. Connect the cables to the back of the XpressFlow Switch.

Wall Mounting Installation Instructions

A single XpressFlow Switch can be mounted on a wall, using the following procedure.

Prerequisites

- Make sure the wall to which the XpressFlow Switch will be mounted is smooth, flat, dry and sturdy. If necessary, attach a piece of plywood, approximately 305 x 510 x 12 millimeters (12 x 20 x 0.5 inches) securely to the wall and mount the XpressFlow Switch to the plywood.
- Disconnect any cables from the back of the XpressFlow Switch.
- If the bottom of the XpressFlow Switch has adhesive pads, remove the pads.

Installation Instructions

1. Place the XpressFlow Switch right side up on a hard, flat surface, with the front panel facing you.
2. Locate a mounting bracket over the mounting holes on one side of the XpressFlow Switch (see Figure on page 23).
3. Insert two screws and use a screwdriver to secure.
4. Repeat steps 2 and 3 for the other side of the XpressFlow Switch.
5. Position the base of the XpressFlow Switch against the wall or plywood and mark the position of the screw holes in both wall brackets.
6. Drill the four holes where the positions appear on the wall or plywood.
7. Use suitable fixings and screws to attach the XpressFlow Switch securely to the wall or plywood.
8. Connect the cables to the back of the XpressFlow Switch.

Powering On the XpressFlow Switch

When you power-on the XpressFlow Switch, the Switch performs its Power-On Self Test (POST). During the POST, the XpressFlow Switch performs a series of diagnostic procedures to make sure the basic system is functioning with integrity. The Switch then decompresses the run-time image and loads the image from the flash ROM into DRAM area; the system jump starts from this entry point.

If you press a key during the POST process, a menu prompts you with the following options:

Option	Description
Download Runtime Software from Serial Port	This option downloads the runtime system image to the Switch through the Switch's serial port. Before you select this option, make sure: ◆ A host system is running a terminal emulation program that supports the Kermit file transfer protocol. ◆ The host system's hard drive has the required binary file that will be downloaded to the Switch.
Configure the System	This option lets you modify any configurable parameter in the Switch's flash ROM before the Switch system boots.
Run Manufacturing Diagnostics	This option downloads the manufacturer's diagnostics. This option has the same download requirements as the runtime software apply here. When the file transfer is completes, the target system jumps to the entry point of the diagnostic program and starts executing the diagnostic code. The Main Menu of the diagnostic program appears, where you can initiate tests or obtain system information. Note that user intervention is not required when a test runs, unless an error occurs. If an error occurs during testing, you are given the choice of continuing the diagnostics or skip the error.

POST LED Error Codes

Each diagnostic in the POST has its own LED error code. If an error is detected during the POST, the front panel LED goes ON and OFF a certain number of times, followed by a delay and continuous blinking. In the unlikely event your XpressFlow Switch encounters an error during the POST, refer to Appendix A to find out which diagnostic failed.

3
Switch Management

This chapter describes how to manage the XpressFlow Switch. Topics include:

Overview

The XpressFlow Switch provides a user-friendly, menu driven console interface. Using this interface, you can perform various Switch configuration and management activities, including:

- Configuring system and port parameters.
- Assigning an IP address.
- Setting up VLAN policy.
- Setting up packet filters.
- Configuring STP and SNMP parameters.
- Upgrading software.

Management Methods

There are three ways to manage the XpressFlow Switch:

- Local Console Management via the XpressFlow Switch serial port.
- Remote Console Management via a network or dial-up connection.
- Using an SNMP Network Management Station.

Local Console Management

You can manage the XpressFlow Switch locally by connecting a VT100 terminal, or a personal computer or workstation with terminal emulation software, to the XpressFlow Switch serial port. The terminal or workstation connects to the XpressFlow serial port using a null modem cable that has the appropriate connectors on each end.

This management method is ideal when:

- The network is unreliable.
- The Network Manager does not have direct network connection.
- A Network Manager does not support SNMP.

The XpressFlow Switch's serial port's default setting is set to auto-baud using a character format of 8 data bits, no parity, and 1 stop bit. Therefore, configure the terminal or workstation to use these settings before you log on to the XpressFlow Switch. You can change this default setting, if desired, after you log on.

Remote Console Management

You can manage the XpressFlow switch remotely by having a remote host establish a Telnet connection to the XpressFlow Switch via an Ethernet or modem link.

Using this management method:

- The host must run a SLIP protocol if a modem is used.
- The XpressFlow Switch must have an Internet Protocol (IP) address (see "Assigning an IP Address to the XpressFlow Switch" on page 32).

The Remote Console Management interface is identical in appearance and functionality to the Local Console Management interface described in the previous section.

SNMP Management

You can manage the XpressFlow Switch across a LAN using an SNMP Network Management Station with a graphical user interface. This management method lets you monitor statistical counters and set Switch parameters from the remote Network Management Station.

Using this management method:

- The network must run the IP protocol.
- The XpressFlow Switch must have an IP address (see "Assigning an IP Address to the XpressFlow Switch" on page 32).

Assigning an IP Address to the XpressFlow Switch

To manage the XpressFlow Switch remotely through the console port or with an SNMP Management Station, you must assign an IP address to the XpressFlow Switch.

For VLAN-Aware switches, you assign IP address through the VLAN management screen. This procedure is described in Chapter 4. Vertex recommends you assign an IP address to the default VLAN (VLAN ID = 1) for Remote Console Management and SNMP Network Management.

Logging on to the XpressFlow Switch

When you log on to the XpressFlow Switch console port for the first time, a sign-on string appears and you are prompted for a password. The factory default password is **123456**. If you desire, you can change this password after you log on.

4

Configuring the XpressFlow Switch

The XpressFlow Switch provides a menu-driven console interface for configuration purposes. The switch can be configured either locally through its RS-232 port or remotely via a Telnet session. This chapter describes how to use the console interface to configure the XpressFlow Switch.

Logging on to the XpressFlow Switch

To log on to the XpressFlow Switch:

1. At the screen prompt:

```
XpressFlow Switch Login Password
```

Enter the console interface factory default password (123456) or user-defined password if you changed the default password using the instructions on page 33. The Switch Management screen in Figure 4-1 appears, with the **Basic** option highlighted.

Note Only one local or remote user at a time can log on to the XpressFlow Switch.

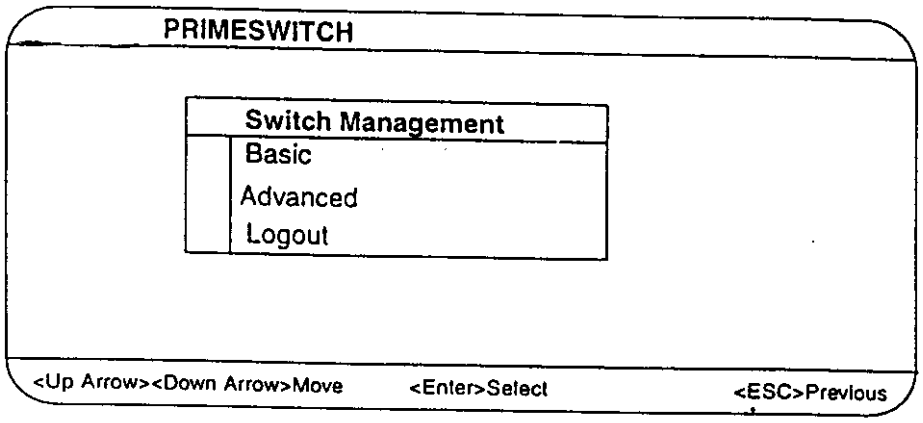


Figure 4-1. Switch Management Screen

- To perform basic management activities, refer to "Performing Basic Management Activities" on page 36.
- To perform advanced management activities, refer to "Performing Advanced Management Activities" on page 61.
- To log out, highlight **Logout** and press Enter.

Navigating Through the Console Interface

The console interface consists of a series of menu boxes. Each menu box has several options, which are listed vertically. A highlight in each box lets you select the option you wish to choose; pressing the Enter key activates the highlighted option.

Table 4-1 shows the keys used for navigating through the console interface.

Table 4-1. Navigating Through the Console Interface

To...	Press This Key...
Move the highlight one line up in a menu box.	Up arrow
Move the highlight one line down in a menu box.	Down arrow
Move the highlight between screens.	Tab
Select the highlighted option.	Enter
Move to the previous menu.	Escape

Performing Basic Management Activities

Basic management activities consist of system, LAN port, and console port tasks. To perform basic management activities:

1. From the Switch Management screen (see Figure 4-1 on page 34), highlight **Basic Management** and press Enter. The Basic Management screen in Figure 4-2 appears.

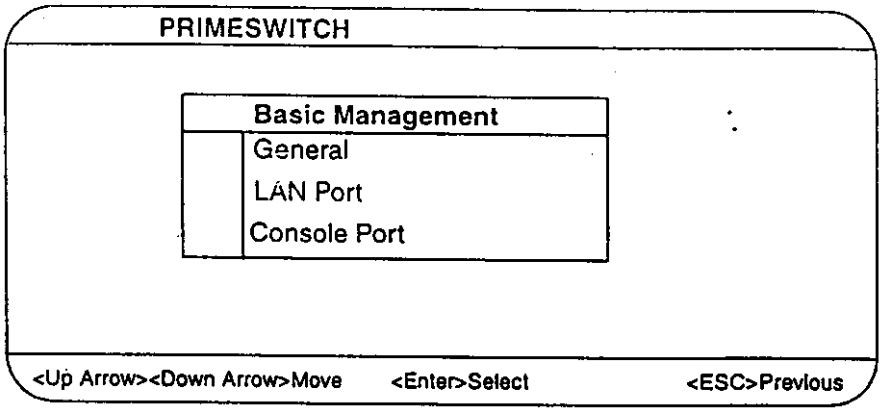


Figure 4-2. Basic Management Screen

2. From the Basic Management screen, highlight the desired option and press the Enter key:

   - **General** — lets you change the system name, password, Power On Self Test, VLAN level supported, and remote Telnet login. See "General Management Configuration" on page 37.
   - **LAN Port** — lets you configure the line speed, congestion control, switching mode, link type, Remote Monitoring (RMON), and port mirroring. See "LAN Port Configuration" on page 43.
   - **Console Port** — lets you change the console baud rate; flow control method; modem control and setup string; and SLIP, SLIP address, and SLIP subnet mask. See "Console Port Configuration" on page 53.

General Management Configuration

If you select **General** from the Basic Management screen (see Figure 4-2 on page 36), the General screen in Figure 4-3 appears, with the **System Name** value highlighted.

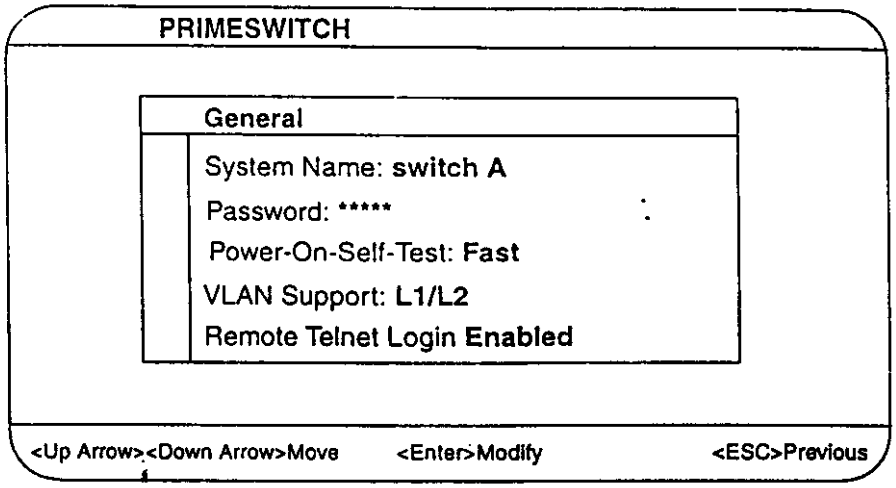


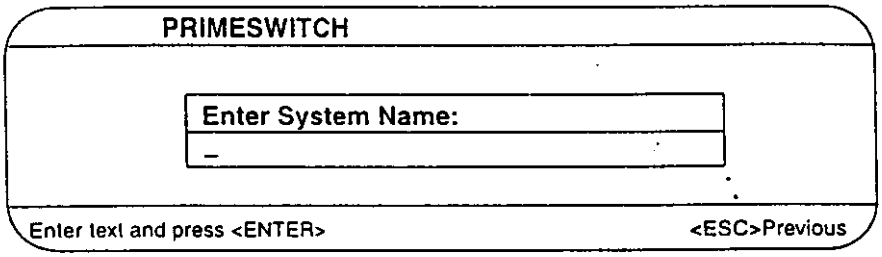
Figure 4-3. General Screen

Use the following procedure to configure the general management options.

Changing the System Name

To change the system name:

1. From the General screen, highlight **System Name** and press the Enter key. The following screen appears.



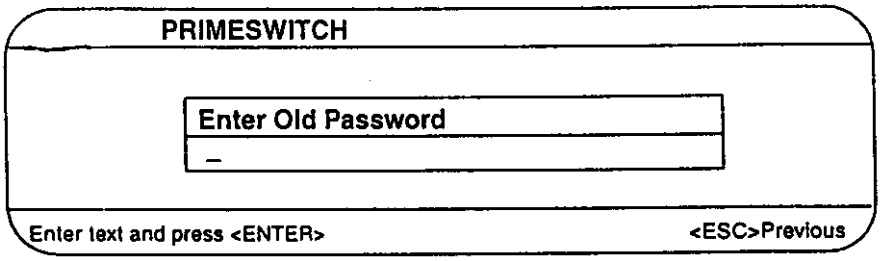
2. Enter a system name. If you make a mistake, use the Backspace key to delete the error.

3. Press Enter to return to the General screen.

Changing the Console Interface Password

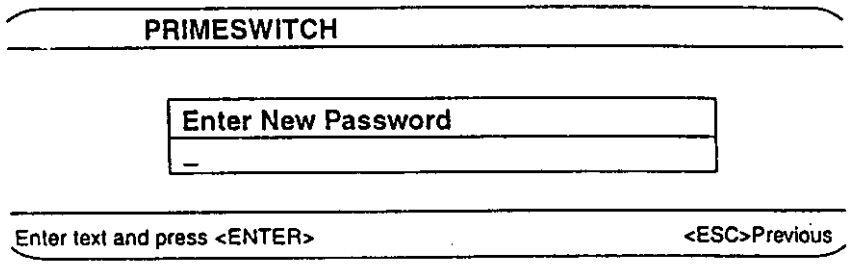
To change the console interface password:

1. From the General screen, highlight **Password** and press the Enter key. The following screen appears.

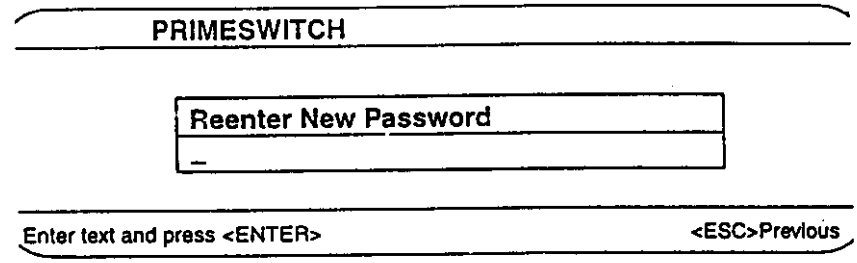


2. Enter the current password. Each character you type appears as an asterisk (*). If you make a mistake, use the Backspace key to delete the error.

3. Press Enter. The following screen appears.



4. Enter the new password and press Enter. The following screen appears.



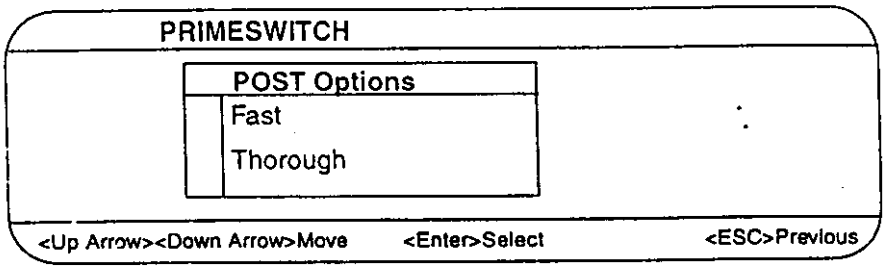
5. Reenter the new password you typed in step 4. The "Password changed" message appears to confirm that the new password is in effect. Press Enter to remove the message and return to the General screen.

Note If you do not receive the confirmation message, you may have typed the new password differently in steps 4 and 5. In this case, your new password did not take effect. Repeat this procedure and make sure to type the same new password in steps 4 and 5.

Power On Self Test

To select the Power On Self Test you want performed when you turn on or reset the XpressFlow Switch:

1. From the General screen, highlight **Power-On-Self-Test** and press the Enter key. The following screen appears.



2. Highlight one of the following choices:

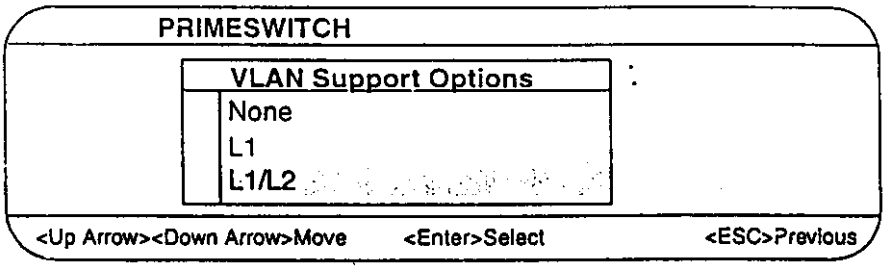
   - **Fast** — performs a quick Power On Self Test. This is the default setting.
   - **Thorough** — performs an extensive Power On Self Test, which takes more time than **Fast**.

3. Press Enter to return to the General screen.

VLAN Level

If your system supports VLAN, and you want to change the VLAN level:

1. From the General screen, highlight **VLAN Support** and press the Enter key. A screen similar to the following appears for switches that support VLAN.



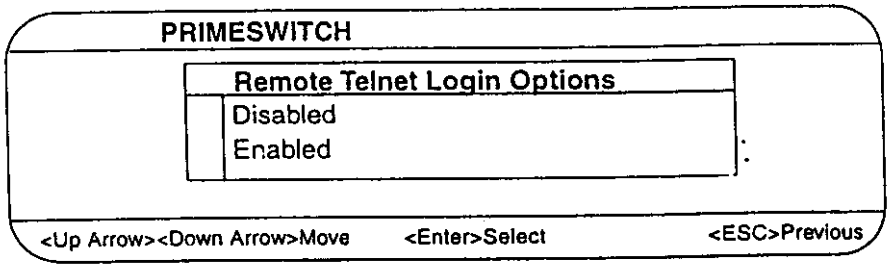
Note For systems that do not support VLAN, **VLAN Unaware** appears in the screen and cannot be changed. Systems that support L1/L2 VLAN offer only the choices shown in the screen above (factory default is **L1/L2**).

2. Highlight the VLAN level desired:
   - **None** indicates no VLAN.
   - **L1** indicates port-level VLAN.
   - **L1/L2** indicates MAC-addressed VLAN.
3. Press Enter to return to the General screen.

Telnet Logins

To enable or disable Telnet logins to the XpressFlow Switch:

1. From the General screen, highlight **Remote Telnet Login** and press the Enter key. The following screen appears.



2. Highlight one of the following choices:

   - **Disabled** — prevents remote Telnet logins to the XpressFlow Switch.
   - **Enabled** — allows remote Telnet logins to the XpressFlow Switch. This is the default setting.

3. Press Enter to return to the General screen.

Returning to the Basic Management Screen

After completing the general management activities, press the Esc key to exit the General screen and return to the Basic Management screen in Figure 4-2 on page 4-36. Select another option from the Basic Management screen or press Esc to return to the Switch Management screen.

LAN Port Configuration

If you select **LAN Port** from the Basic Management screen (see Figure 4-2 on page 36), the LAN Port Configurations screen in Figure 4-4 appears, with **Line Speed** highlighted.

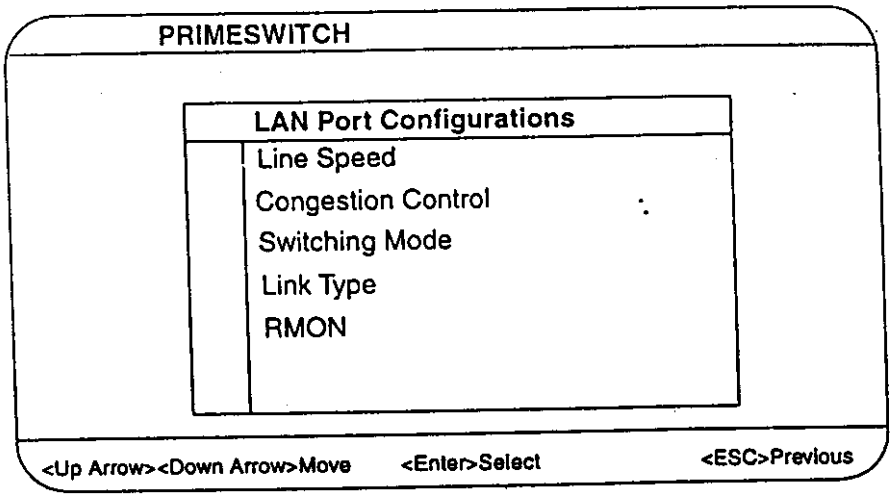


Figure 4-4. LAN Port Configurations Screen

Use the procedures in the following sections to configure the LAN port configuration options for one or more ports:

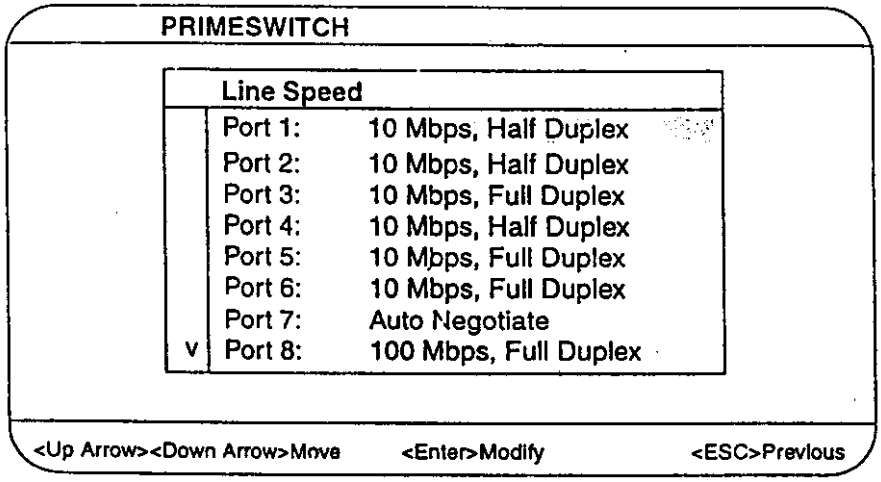
- Line speed — refer to "Changing the Line Speed" on page 44.
- Congestion control — refer to "Enabling or Disabling Congestion Control" on page 46.
- Switching mode — refer to "Changing the Switching Mode" on page 47.
- Link type — refer to "Changing the Link Type" cn page 49.
- RMON setting — refer to "Enabling or Disabling RMON" on page 51.
- Port mirroring — refer to "Enabling or Disabling Port Mirroring" on page 52.

Changing the Line Speed

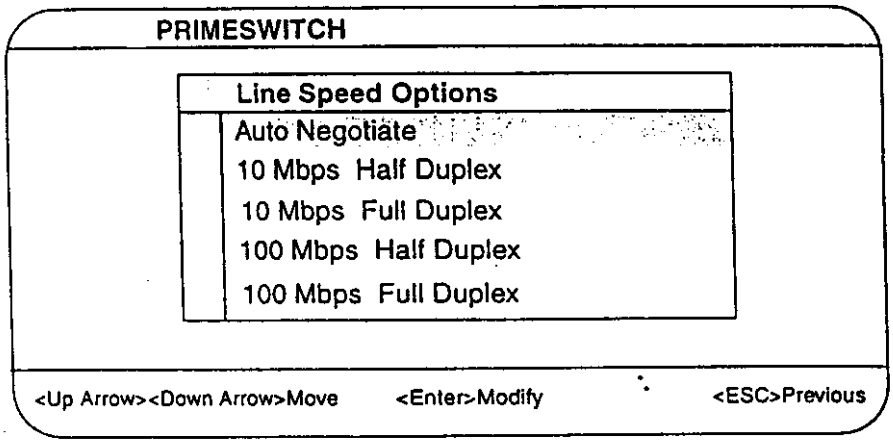
To change the line speed for one or more ports:

1. From the LAN Port Configurations screen, highlight **Line Speed** and press the Enter key. A screen similar to the following shows the current line speed settings for all ports.

Note If there are more ports below the bottom one shown in a screen, a v appears next to the bottom port in the screen (Port 8 in the following screen, for example). To view these ports, scroll the highlight to the bottom port shown and press the Down Arrow key.



2. Highlight the port whose line speed setting you want to change and press Enter. The following Line Speed Options screen appears.



3. Highlight the line speed option you want to select for the port.

   - **Auto Negotiate** allows the XpressFlow Switch to automatically ascertain the line speed and duplex mode.
   - All the other selections force the XpressFlow to use a specific line speed and duplex mode.

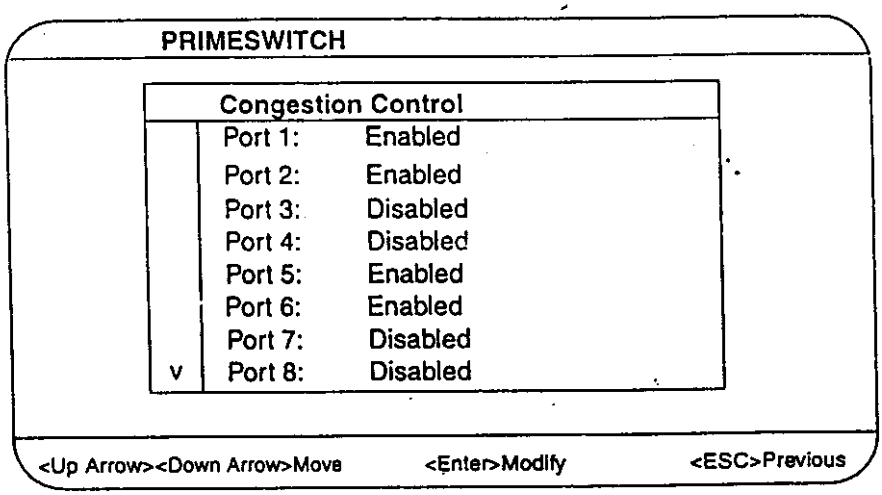
4. Press Enter. You return to the Line Speed screen and the line speed setting you selected appears next to the selected port.

5. Repeat steps 2 through 4 to configure the line speed for additional ports. When you finish, press the Esc key to return to the LAN Port Configurations screen.

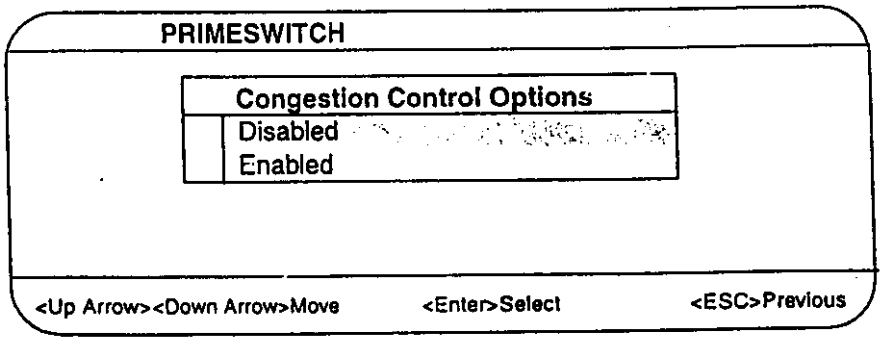
Enabling or Disabling Congestion Control

To enable or disable congestion control for one or more ports:

1. From the LAN Port Configurations screen, highlight **Congestion Control** and press the Enter key. A screen similar to the following shows the current congestion control settings for all ports.



2. Highlight the port whose congestion control setting you want to change and press Enter. The following Congestion Control Options screen appears.



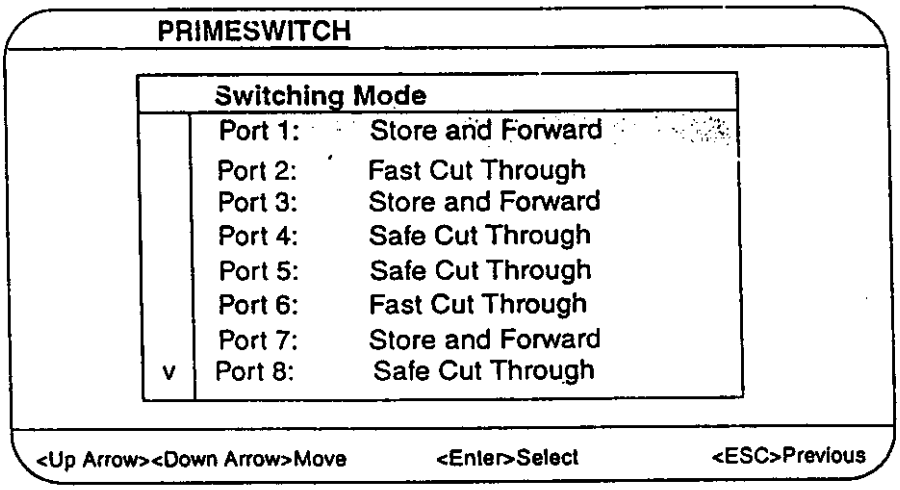
3. Highlight the congestion control option you want to select for the port and press Enter. You return to the Congestion Control screen and the congestion control setting you selected appears next to the selected port.

4. Repeat steps 2 and 3 to configure the congestion control setting for additional ports. When you finish, press the Esc key to return to the LAN Port Configurations screen.

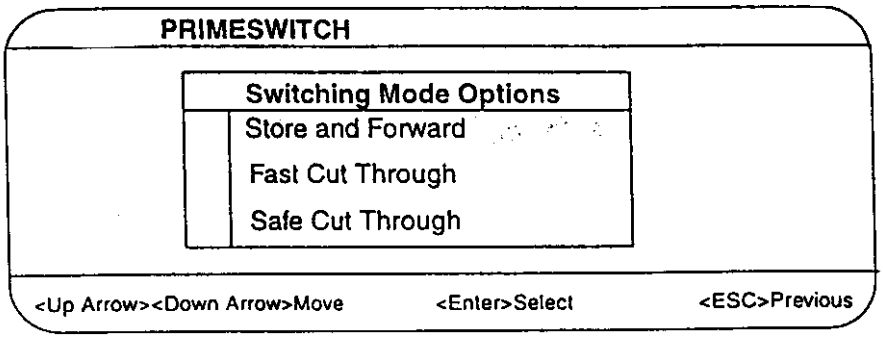
Changing the Switching Mode

To change the switching mode for one or more ports:

1. From the LAN Port Configurations screen, highlight **Switching Mode** and press the Enter key. A screen similar to the following shows the current congestion control settings for all ports.



2. Highlight the port whose switching mode setting you want to change and press Enter. The following Switching Mode Options screen appears.



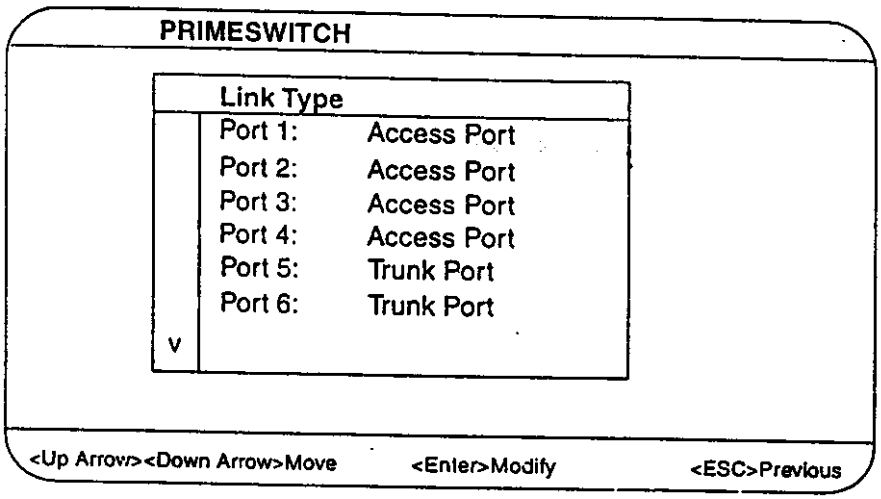
3. Highlight the switching mode option you want to select for the port and press Enter. You return to the Switching Mode screen and the switching mode setting you selected appears next to the selected port.

4. Repeat steps 2 and 3 to configure the switching mode setting for additional ports. When you finish, press the Esc key to return to the LAN Port Configurations screen.

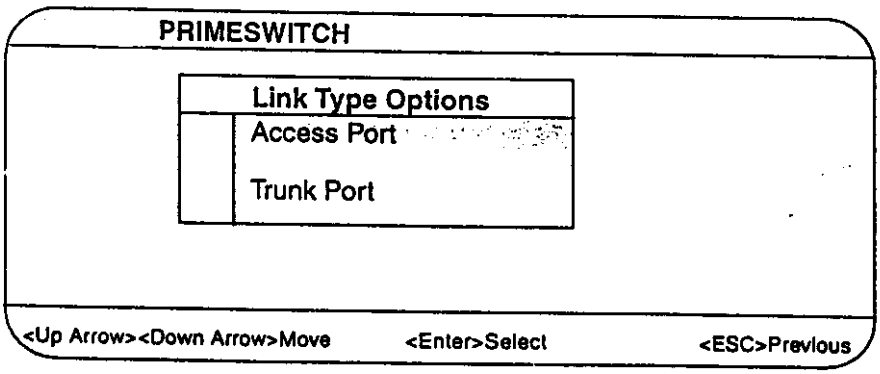
Changing the Link Type

To change the link type for one or more ports:

1. From the LAN Port Configurations screen, highlight **Link Type** and press the Enter key. A screen similar to the following shows the current link type settings for all ports.



2. Highlight the port whose line link type setting you want to change and press Enter. The following Link Type Options screen appears.



3. Highlight the link type option you want to select for the port and press Enter. You return to the Link Type screen and the link type setting you selected appears next to the selected port.

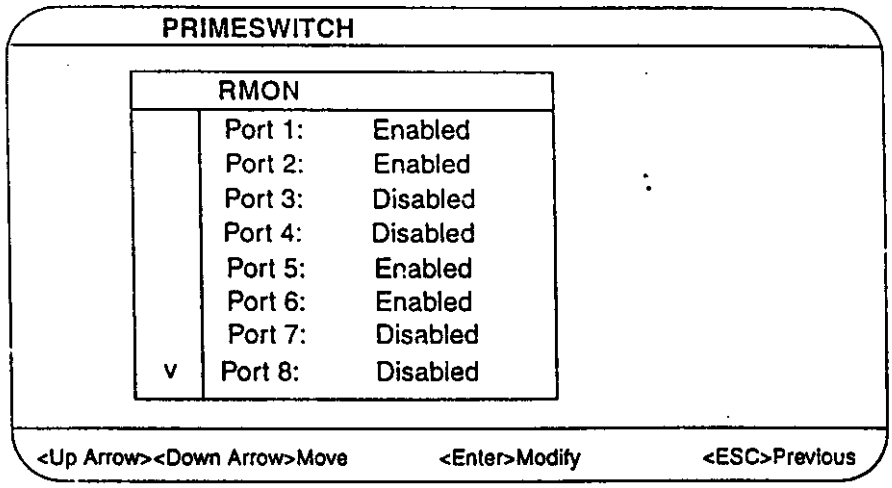
Note Access ports typically connect the XpressFlow switch to network nodes other than switches. Access ports can also connect the XpressFlow switch to other switches that do not support 802.1Q tagging. Packets sent from an access port are always VLAN untagged, unless overridden by the specific setting for a specific VLAN.

4. Repeat steps 2 and 3 to configure the link type for additional ports. When you finish, press the Esc key to return to the LAN Port Configurations screen.

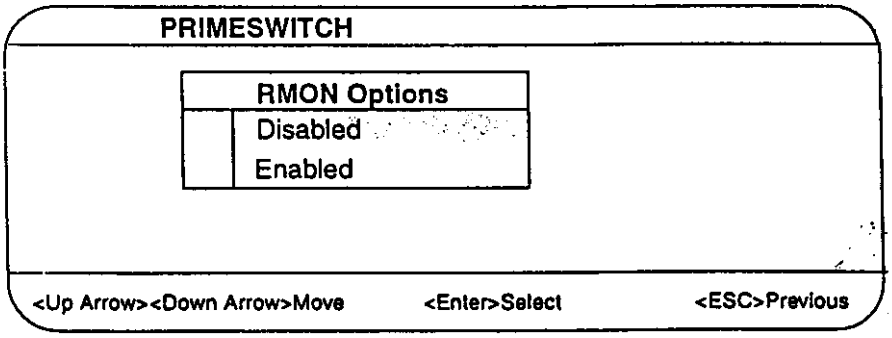
Enabling or Disabling RMON

To enable or disable RMON for one or more ports:

1. From the LAN Port Configurations screen, highlight RMON and press the Enter key. A screen similar to the following appears.



2. Highlight the port whose RMON setting you want to change and press Enter. The following RMON Options screen appears.



3. Highlight the RMON option you want to select for the port and press Enter. You return to the RMON screen and the RMON setting you selected appears next to the selected port.

4. Repeat steps 2 and 3 to configure the RMON setting for additional ports. When you finish, press the Esc key to return to the LAN Port Configurations screen.

Returning to the Basic Management Screen

After completing the LAN port options configuration, press the Esc key to exit the LAN Port Configurations screen and return to the Basic Management screen in Figure 4-2 on page 4-36. Select another option from the Basic Management screen or press Esc to return to the Switch Management screen.

Console Port Configuration

If you select **Console Port** from the Basic Management screen (see Figure 4-2 on page 36), the Console Port Configurations screen in Figure 4-5 appears, with **Baud Rate** highlighted.

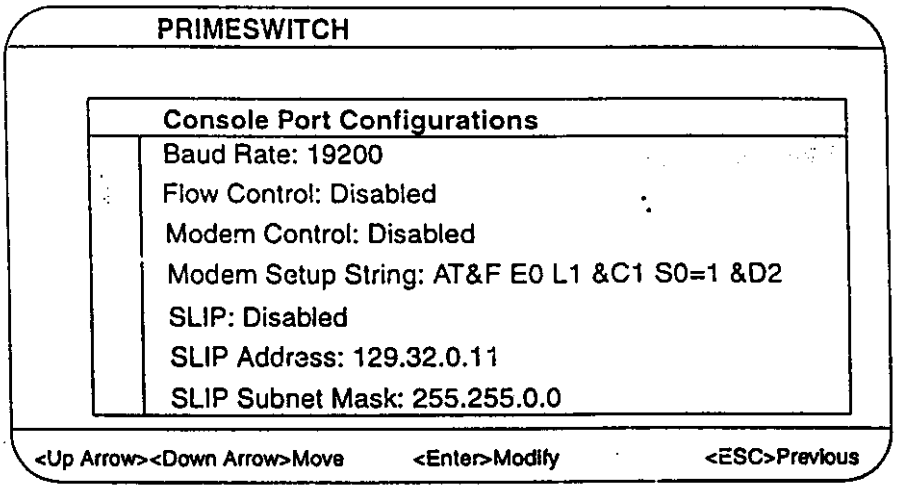


Figure 4-5. Console Port Configurations Screen

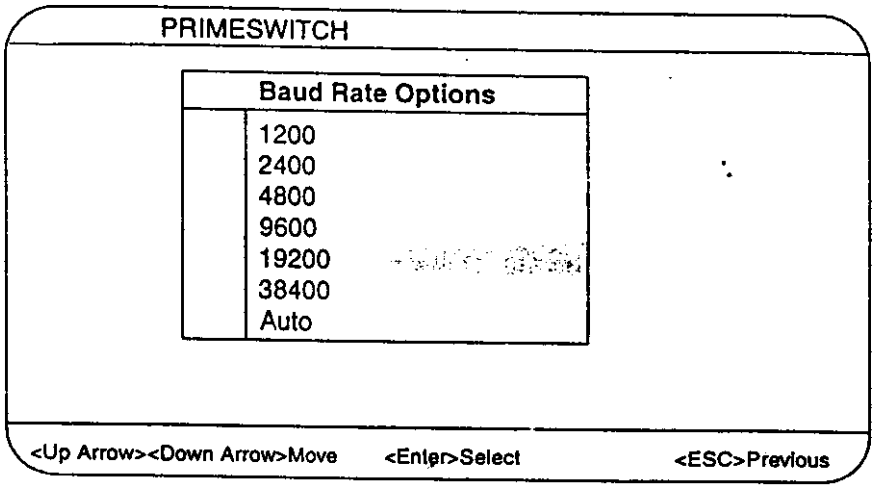
Use the procedures in the following sections to configure the Console port configuration options for one or more ports:

- To change the console baud rate, refer to "Changing the Console Baud Rate" on page 54.
- To change the console flow control setting, refer to "Selecting a Flow Control Method" on page 55.
- To enable or disable a console modem connection, refer to "Enabling or Disabling Modem Control Options" on page 56.
- To specify a modem setup string, refer to "Specifying a Modem Setup String" on page 57.
- To enable or disable SLIP, refer to "Enabling or Disabling SLIP" on page 58.

Changing the Console Baud Rate

To change the console baud rate:

1. From the Console Port Configurations screen, highlight **Baud Rate** and press the Enter key. A screen similar to the following shows the current console baud rate.



2. Highlight the baud rate you want to select for the console:

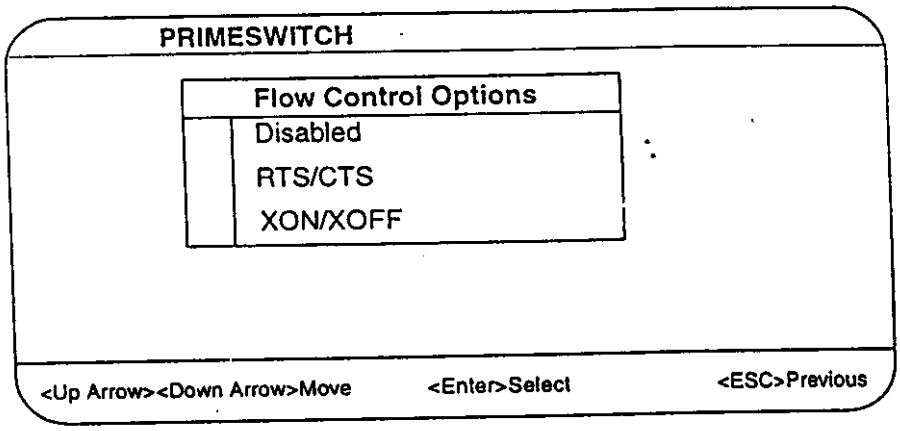
   - **Auto** allows the XpressFlow Switch to autobaud between 1200 bps and 38,400 bps. If you choose this selection, choose the rest of your configuration selections. Then, when you exit the configuration program, press the Enter key one or more times until the prompt `Vertex XpressFlow Switch Login Password` appears on your computer screen.
   - All the other selections force a specific console baud rate.

3. Press Enter. You return to the Console Port Configurations screen and the console port baud rate you selected appears in the **Baud Rate** field.

Selecting a Flow Control Method

To change the console flow control used:

1. From the Console Port Configurations screen, highlight **Baud Rate** and press the Enter key. A screen similar to the following shows the current console flow control method.

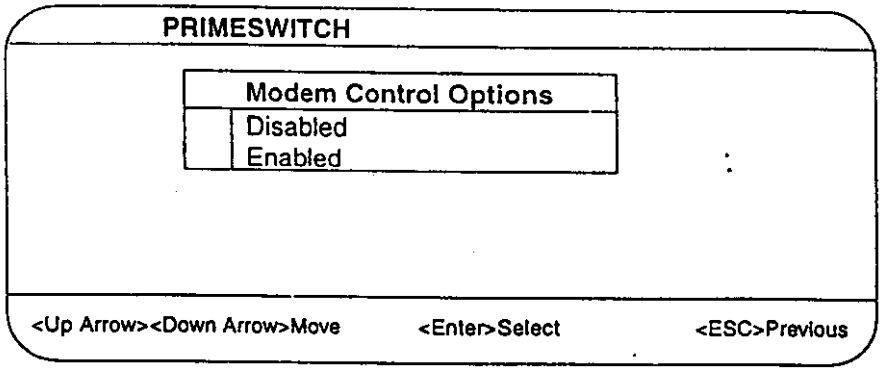


2. Highlight the flow control method you want to select for the console and press Enter. You return to the Console Port Configurations screen and the console port flow control method you selected appears in the **Flow Control** field.

Enabling or Disabling Modem Control Options

To enable or disable modem control options for the console port:

1. From the Console Port Configurations screen, highlight **Modem Control** and press the Enter key. A screen similar to the following shows whether a console modem connection is enabled or disabled.



2. Highlight whether you want to enable or disable a modem connection to the console port.

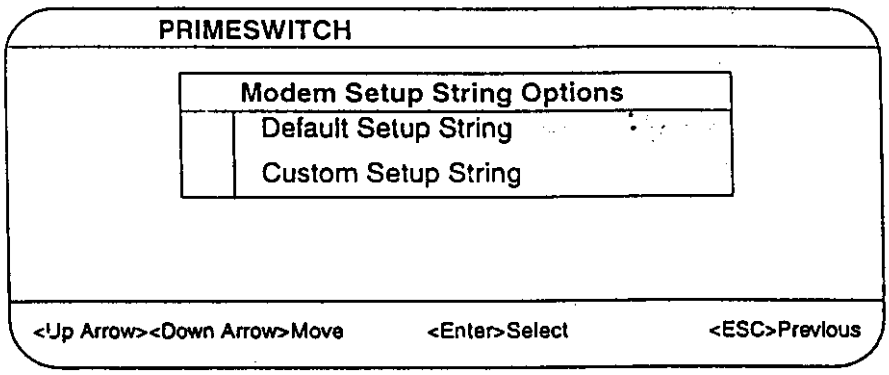
3. Press Enter. You return to the Console Port Configurations screen and the console port flow control method you selected appears in the **Modem Control** field.

Note If you enable a modem connection, proceed to "Specifying a Modem Setup String" on page 57 to specify the appropriate modem setup string.

Specifying a Modem Setup String

If you enabled a modem connection to the console port, use the following procedure to specify a modem setup string:

1. From the Console Port Configurations screen, highlight **Modem Setup String** and press the Enter key. A screen similar to the following shows the current modem setup string option.



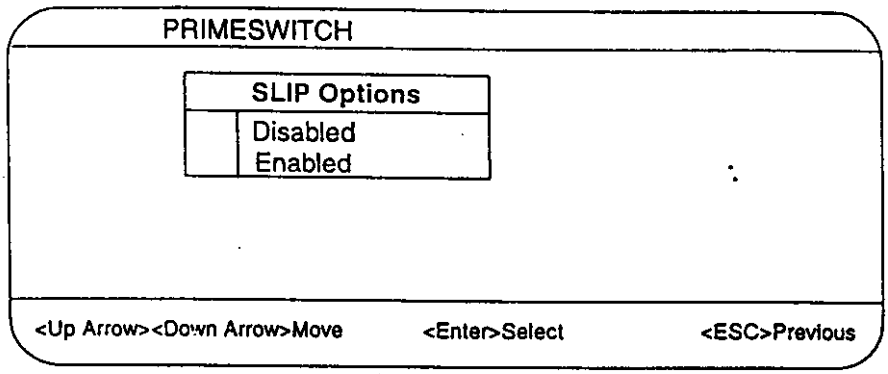
2. Highlight whether you want to use the default setup string or a custom setup string.
3. Press the Enter key.
   - If you highlighted **Default Setup String**, you return to the Console Port Configurations screen and the default modem string appears in the **Modem Setup String** field.
   - If you highlighted **Custom Setup String**, enter the custom string in the Enter Modem Setup String screen, and press Enter again. You return to the Console Port Configurations screen and **Custom Setup String** appears in the **Modem Setup String** field.

Note To find out whether your modem requires the default or custom setup string, refer to the manual that came with your modem.

Enabling or Disabling SLIP

To enable or disable SLIP:

1. From the Console Port Configurations screen, highlight **SLIP** and press the Enter key. A screen similar to the following shows the current SLIP setting.



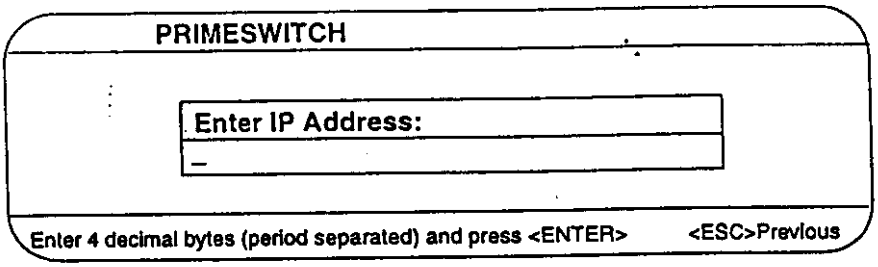
2. Highlight whether you want SLIP enabled or disabled and press Enter. You return to the Console Port Configurations screen and the SLIP option you selected appears in the **SLIP** field.

Note If you enable SLIP, refer to "Specifying a SLIP Address" on page 59 to specify a SLIP address and "Specifying a SLIP Subnet Mask" on page 60 to specify a SLIP subnet mask.

Specifying a SLIP Address

If you enabled SLIP, use the following procedure to enter an address that has a network part different than the network address of the XpressFlow Switch. (For more information, contact your network administrator.)

1. From the Console Port Configurations screen, highlight **SLIP Address** and press Enter. The following screen appears.



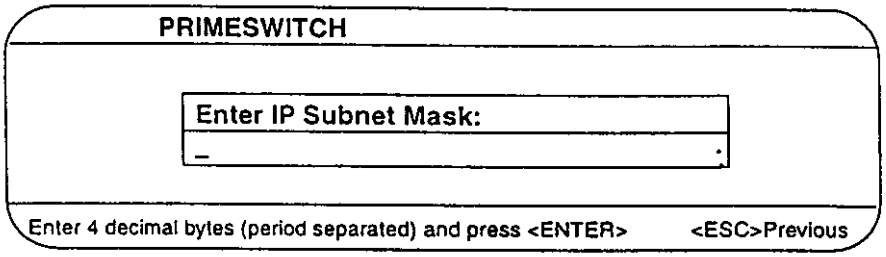
2. Enter the SLIP address. The address consists of numbers separated by periods. For example: 129.32.0.11

3. After you enter the SLIP address, press the Enter key. You return to the Console Port Configurations screen and your entry appears in the **SLIP Address** field.

Specifying a SLIP Subnet Mask

If you are using SLIP, enter a suitable SLIP subnet mask.

1. From the Console Port Configurations screen, highlight **SLIP Subnet Mask** and press Enter. The following screen appears.



2. Enter the SLIP subnet mask. The subnet mask consists of numbers separated by periods. For example: 255.255.0.0
3. After you enter the SLIP subnet mask, press the Enter key. You return to the Console Port Configurations screen and your entry appears in the **SLIP Subnet Mask** field.

Returning to the Basic Management Screen

After completing the general management activities, press the Esc key to exit the Console Port Configurations screen and return to the Basic Management screen in Figure 4-2 on page 4-36. Select another option from the Basic Management screen or press Esc to return to the Switch Management screen.

Performing Advanced Management Activities

Advanced management activities consist of switching database, static filtering, spanning tree, Simple Network Management Protocol (SNMP), and software upgrade. To perform advanced management activities:

1. From the Switch Management screen (see Figure 4-1 on page 34), highlight **Advanced Management** and press Enter. The Advanced Management screen in Figure 4-6 appears.

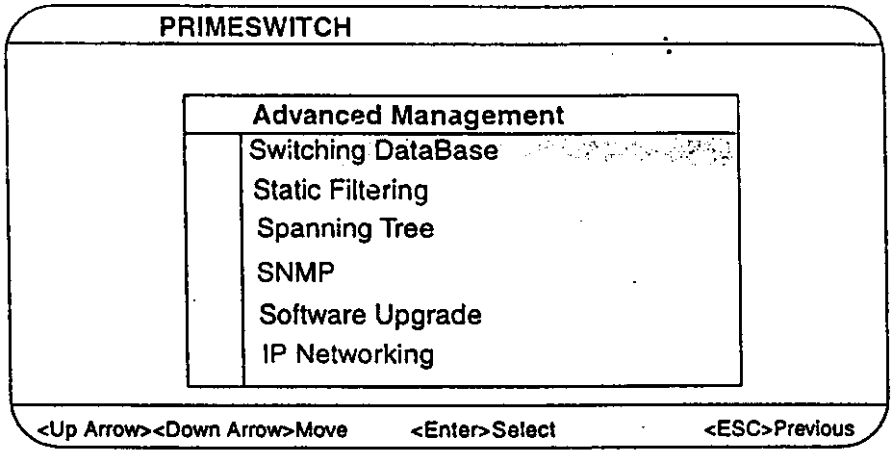


Figure 4-6. Advanced Management Screen

2. From the Advanced Management screen, highlight the desired option and press the Enter key:

   - **Switching DataBase** — lets you view VLAN, MAC address, and port perspectives and view and change the aging period. Refer to "Switching Database Configuration" on page 62.
   - **Static Filtering** — lets you view, add, delete, or search all source or destination addresses to be filtered. Refer to "Static Filtering" on page 92.
   - **Spanning Tree** — lets you view and change parameters relating to the spanning tree protocol. Refer to "Spanning Tree Functions" on page 94.

- **SNMP** — lets you view and change all SNMP-related information. Refer to "SNMP Functions" on page 98.
- **Software Upgrade** — lets you upgrade you XpressFlow Switch software. Refer to "Upgrading Software" on page 99.
- **IP Networking** — lets you ping a remote system and display IP networks. Refer to "IP Networking" on page 100.

Switching Database Configuration

If you select **Switching DataBase** from the Advanced Management screen (see Figure 4-6 on page 61), the Switching DataBase screen in Figure 4-7 appears, with **VLAN Perspective** highlighted.

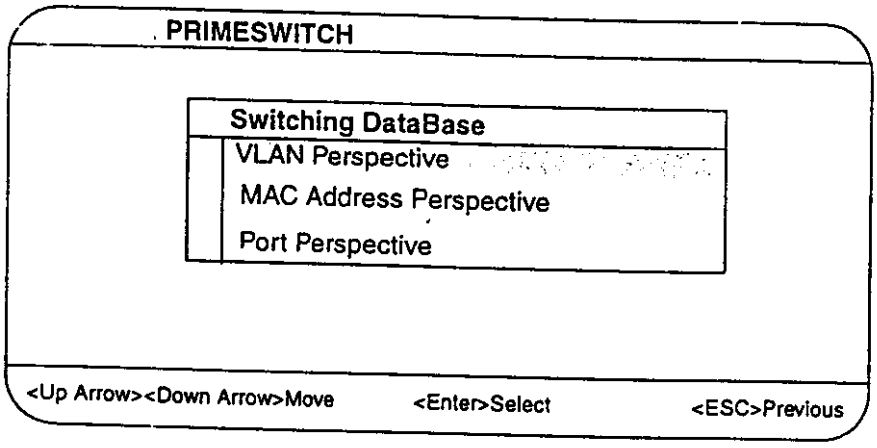


Figure 4-7. Switching DataBase Screen

The XpressFlow Switch can be viewed from the three perspectives shown in the Switching DataBase screen:

- VLAN perspective — refer to "VLAN Perspective" on page 63.
- MAC address perspective — refer to "MAC Address Perspective" on page 84.
- Port perspective — refer to "Port Perspective" on page 86.

These three views allow a network administrator to manage and monitor VLANs and their associated MAC addresses and ports effectively from different views.

VLAN Perspective

To obtain a VLAN perspective:

1. From the Switching DataBase screen shown in Figure 4-7 on page 62, highlight **VLAN Perspective** and press the Enter key. A VLAN perspective screen similar to the one in Figure 4-8 appears.

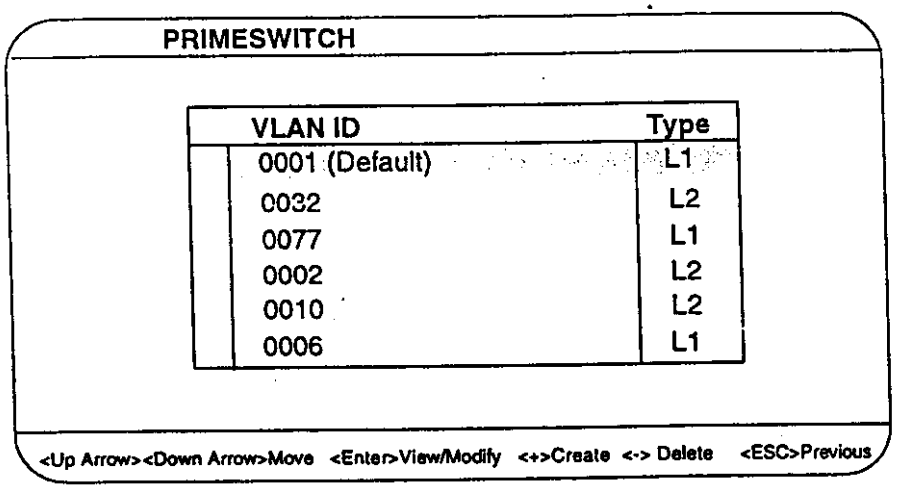


Figure 4-8. VLAN Perspective Screen

2. To create a new VLAN, refer to "Creating a New VLAN" on page 64.

   To delete a VLAN ID, refer to "Deleting a VLAN ID" on page 77.

   To view VLAN activities, refer to "Viewing VLAN Activities" on page 77.

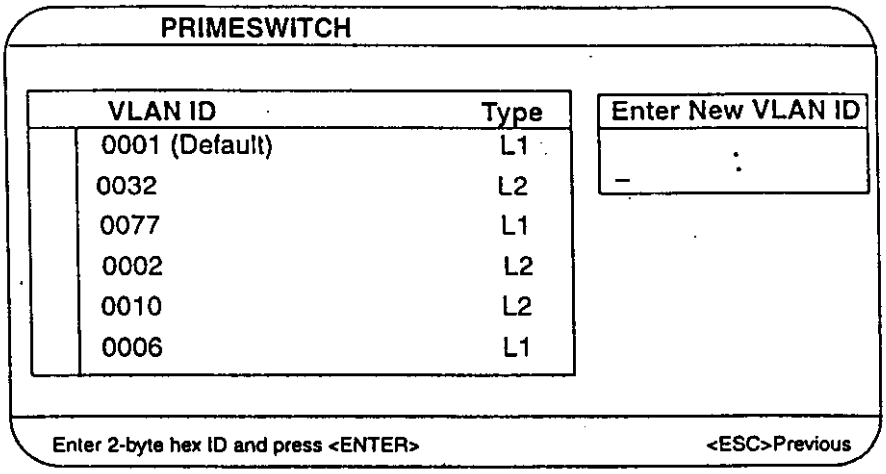
   To view or change a VLAN configuration, refer to "Viewing or Changing a VLAN Configuration" on page 81.

   To return to the Switching DataBase screen, press Esc.

Creating a New VLAN

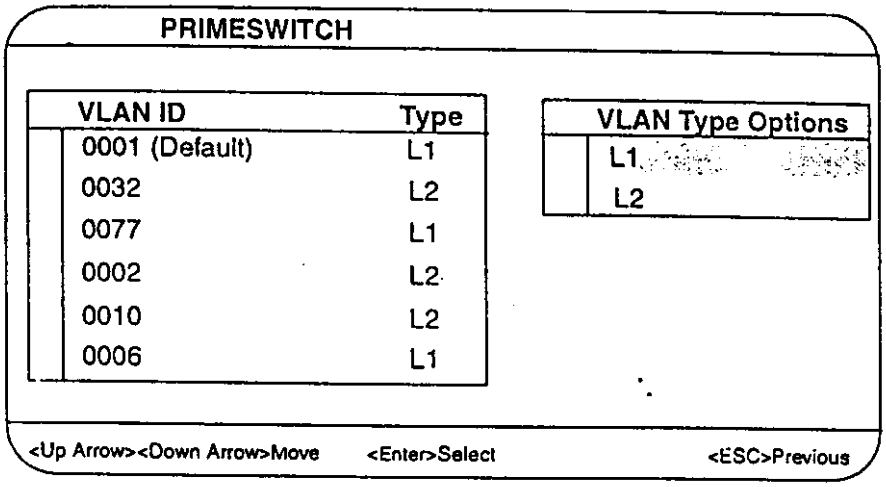
To create a new VLAN:

1. From the VLAN Perspective screen in Figure 4-8 on page 63, hold down the Shift key and press the + key. The Enter New VLAN ID screen appears.



2. In the Enter New VLAN ID screen, enter the new VLAN ID as a 2-byte hexadecimal number separated by periods.

3. Press the Enter key. The VLAN Type Options screen appears next to the VLAN ID screen.

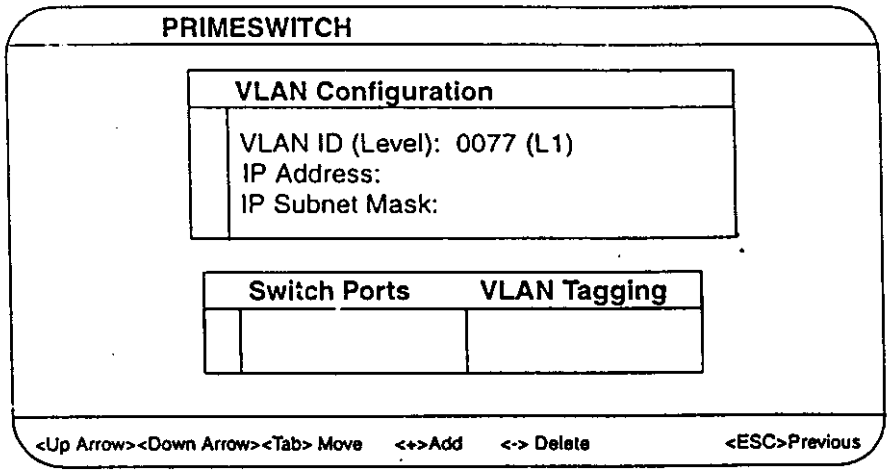


4. Use the arrow keys to highlight a VLAN type and press Enter.

   - If you select **L1**, proceed to "VLAN L1 Options" on page 66.
   - If you select **L2**, proceed to "VLAN L2 Options" on page 71.

VLAN L1 Options

If you select VLAN L1 in the VLAN Type Options screen, screens similar to the following appear.



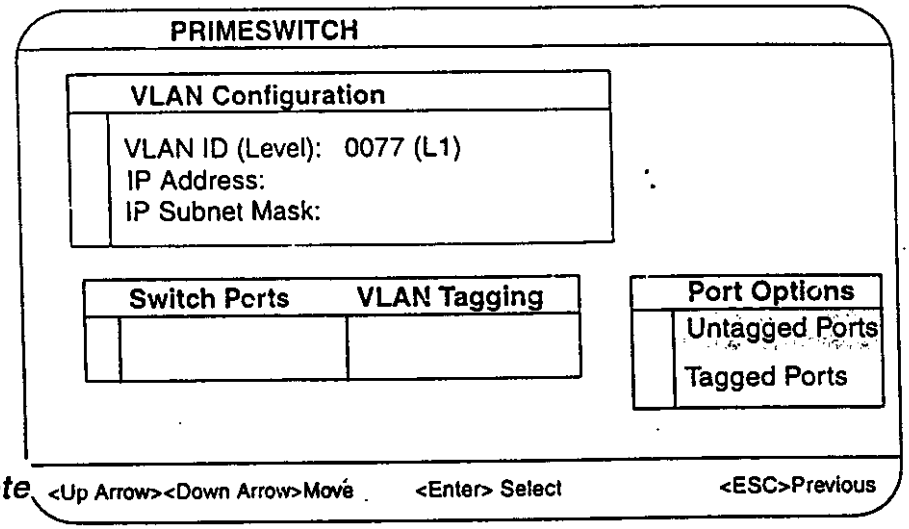
These screens let you:

- Add switch ports to or delete them from the VLAN — refer to "Adding New Switch Ports" on page 67.
- Specify or delete an IP address and IP subnet mask for the switch in the domain of this VLAN — refer to "Specifying an IP Address and IP Subnet Mask" on page 69.

Adding New Switch Ports

To add new switch ports to the newly created L1 VLAN:

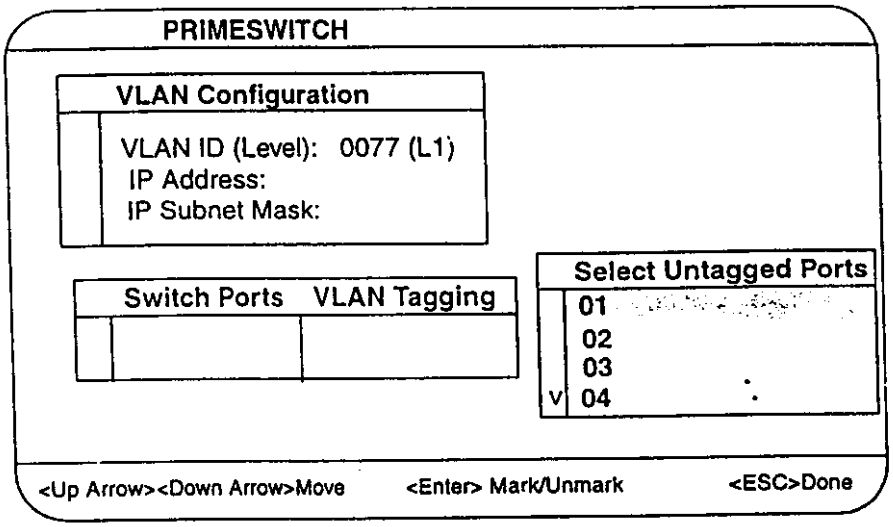
1. Hold down the Shift key and press + to display a list of available ports in the Select Ports screen.



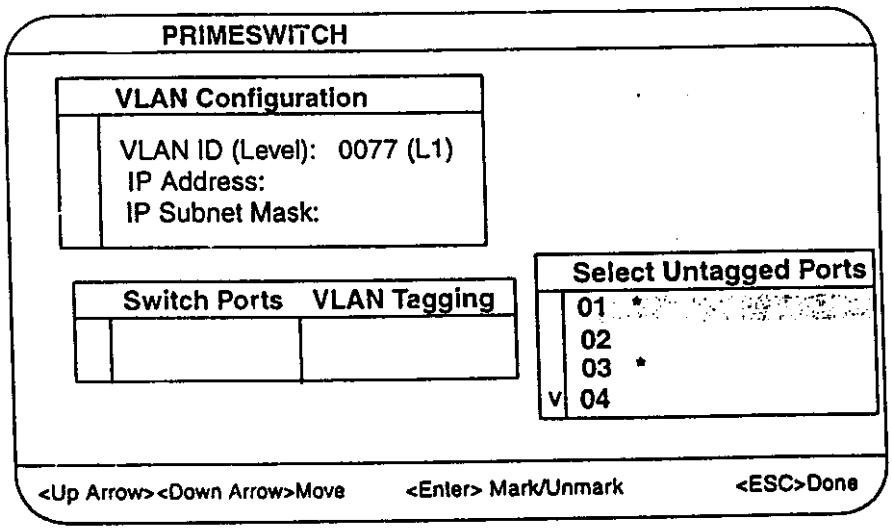
Note

2. In the Port Options screen, highlight either **Untagged Ports** or Tagged Ports and press the Enter key. The following screens appear.

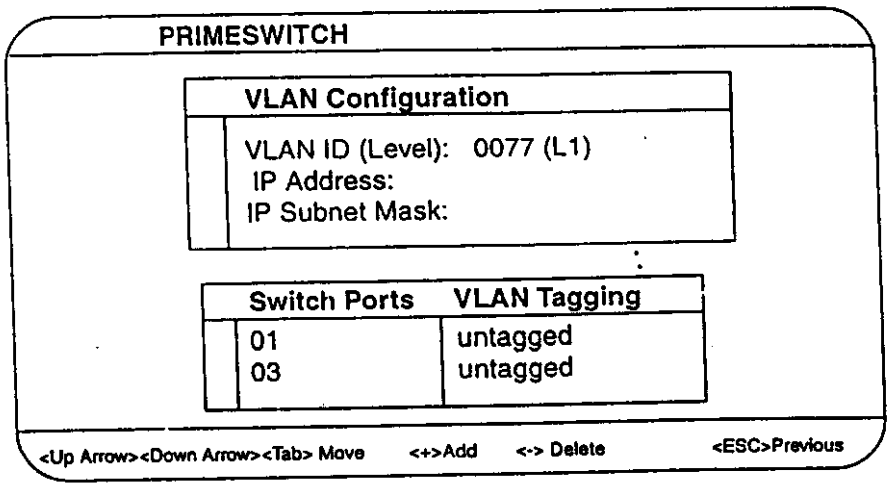
   If you highlight **Untagged Ports**, the screen window reads Select Untagged Ports, as shown on the next page. If you highlight Tagged Ports, the screen reads Select Tagged Ports.



3. Use the Up Arrow and Down Arrow keys to highlight a port and press Enter. An asterisk appears to the right of the port to show it is selected. Repeat this step for each new port you want to add. In the following figure ports 01 and 04 are selected.



4. After selecting the new ports you want to add, press Esc. The Select Untagged Ports or Select Tagged Ports screen disappears. The Switch Ports screen shows the new ports you added. For example:



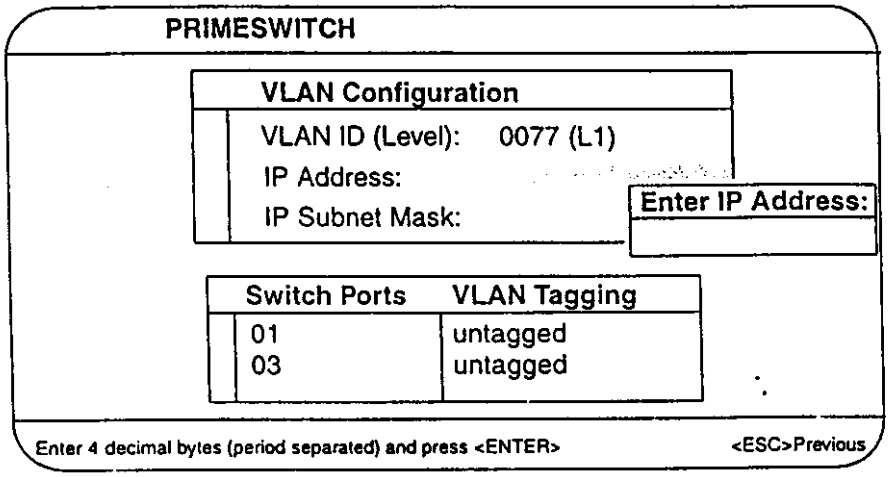
Note To delete a switch port, highlight the port in the Switch Ports screen and press the - (hyphen) key. A precautionary prompt does not appear before you delete a switch port, so be sure you do not need the port before you delete it.

Specifying an IP Address and IP Subnet Mask

The following procedure describes how to specify an optional IP address and IP subnet mask for the switch in the domain of the selected VLAN. Specifying this information allows the XpressFlow Switch to be accessed from any port associated with this L1 VLAN.

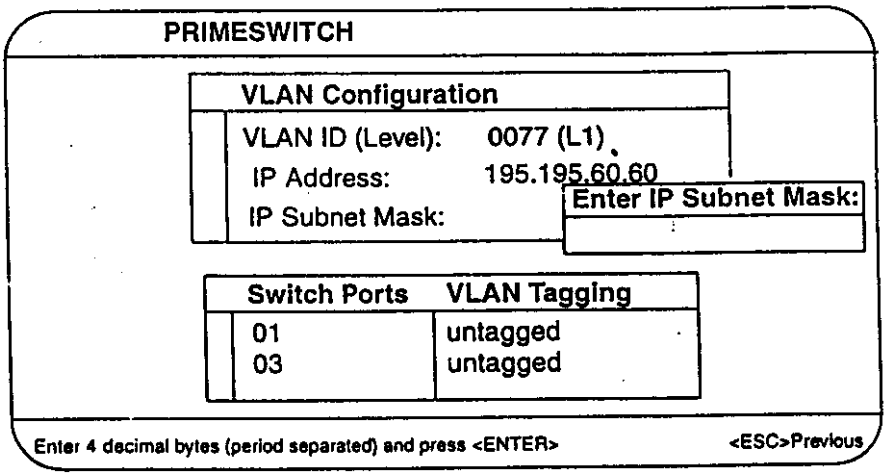
1. If the highlight is not in the VLAN Configuration screen, press the Tab key until the highlight appears in the IP Address field of the VLAN Configuration screen.

2. Press the Enter key. The Enter IP Address screen appears.



3. Enter the switch's IP address and press Enter. When you enter the address, the default IP subnet mask is automatically generated, though you can change it.

4. To change the IP subnet mask, move to the **IP Subnet Mask** field and press Enter. The Enter IP Subnet Mask screen appears.



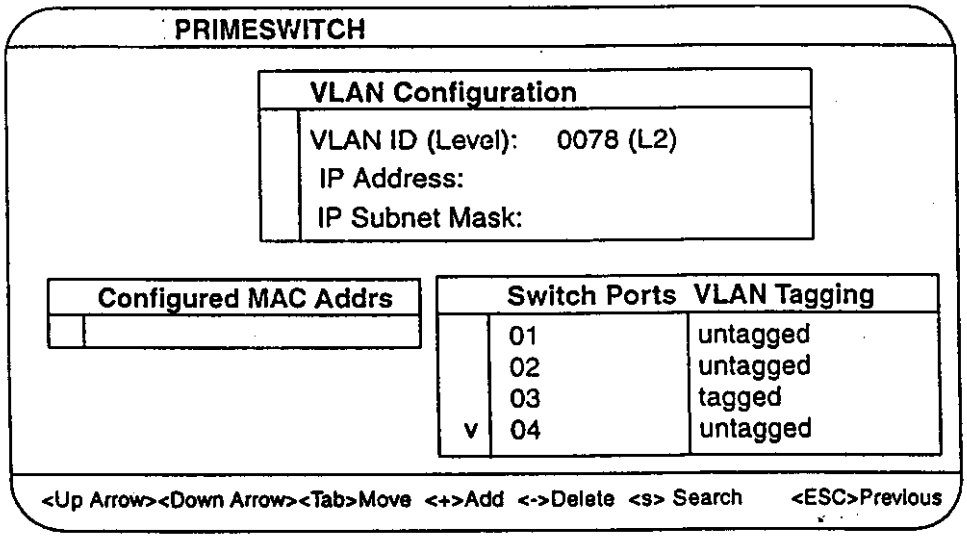
5. Enter the switch's IP subnet mask and press Enter.

Note To delete the IP address and subnet mask, press the - (hyphen) key when the highlight is in the VLAN Configuration screen. A prompt asks whether you want to delete the IP address. Highlight **Yes** and press Enter to delete the IP address and subnet mask, or press the Esc key or highlight **No** and press Enter to retain them.

6. Press Esc to return to the VLAN Perspective screen in Figure 4-8 on page 63. Select another option from the VLAN Perspective screen or press Esc to return to the Switching DataBase screen.

VLAN L2 Options

If you select **VLAN L2** in the VLAN Type Options screen on page 65, screens similar to the following appear.



These screens let you configure the VLAN by:

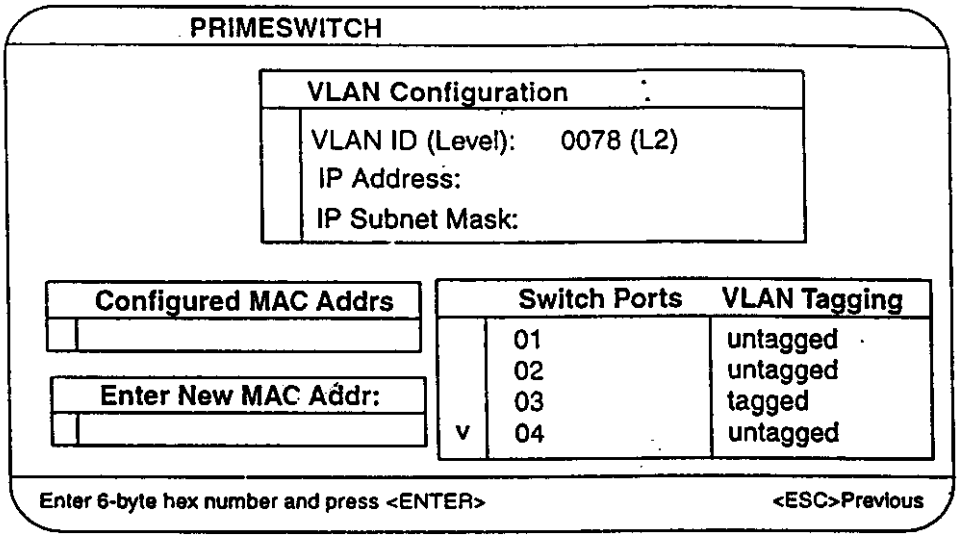
- Adding MAC addresses — refer to "Adding MAC Addresses" on page 73.
- Enabling or disabling VLAN tagging for each VLAN port — refer to "Enabling or Disabling VLAN Tagging" on page 74.
- Specifying or deleting an IP address and IP subnet mask for the switch in the domain of this VLAN — refer to "Specifying an IP Address and IP Subnet Mask" on page 74.
- Deleting MAC addresses from a VLAN — refer to "Deleting a MAC Address" on page 74.
- Searching for a MAC address in a VLAN — refer to "Searching for MAC Addresses" on page 79.

Adding MAC Addresses

To add MAC addresses to the newly created L2 VLAN:

1. If the highlight is not in the Configured MAC Addrs screen, press the Tab key until the highlight appears in this screen.

2. Hold down the Shift key and press the + key. The Enter New MAC Addr screen appears.



3. Enter the new MAC address as a 6-byte hexadecimal number separated by periods, then press Enter. The Enter New MAC Addr screen disappears and the newly added MAC address appears in the Configured MAC Addrs screen.

4. Repeat steps 2 and 3 to add more MAC addresses to the newly created L2 VLAN.

Deleting a MAC Address

The following procedure describes how to delete a MAC address. There is no precautionary message that appears before you delete a MAC address. Therefore, be sure you want to delete the address before doing so.

1. In the Configured MAC Addrs screen, highlight the MAC address you want to delete.
2. Press the - (hyphen) key to delete the selected MAC address.
3. Repeat steps 1 and 2 for each additional MAC address you want to delete.

Enabling or Disabling VLAN Tagging

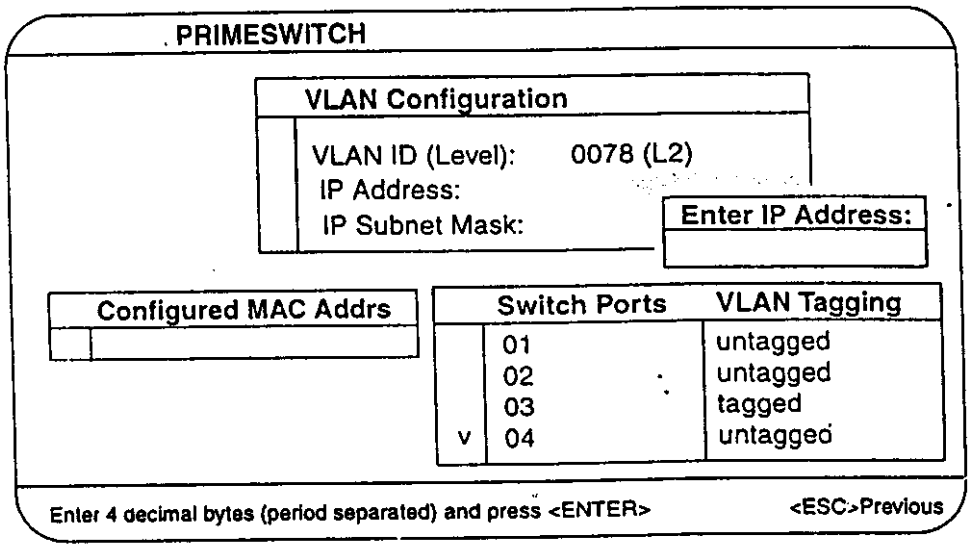
To enable or disable VLAN tagging for a new port:

1. If the highlight is not in the Switch Ports screen, press the Tab key until the highlight appears in this screen.
2. Highlight the port you want to tag.
3. Press T to toggle the port setting between tagged and untagged.
4. Repeat steps 2 and 3 for each additional port you want to tag or untag.

Specifying an IP Address and IP Subnet Mask

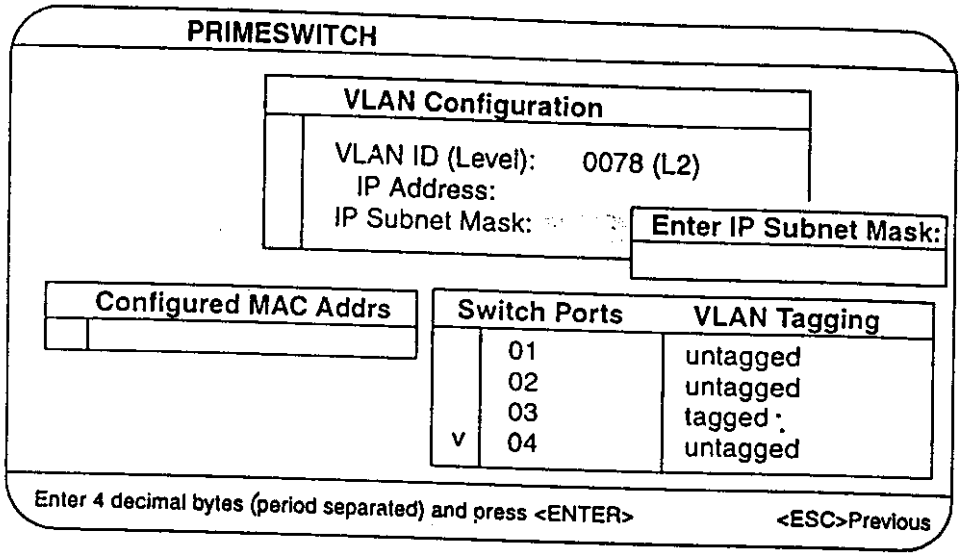
The following procedure describes how to specify an optional IP address and IP subnet mask for the switch in the domain of the selected VLAN. By specifying this information, the XpressFlow Switch can route packets across VLAN boundaries. It also allows the XpressFlow Switch to be accessed from any port associated with this L2 VLAN.

1. If the highlight is not in the VLAN Configuration screen, press the Tab key until the highlight appears in the **IP Address** field of the VLAN Configuration screen.
2. Press the Enter key. The Enter IP Address screen appears.



3. Enter the switch's IP address and press Enter. When you enter the address, the default IP subnet mask is automatically generated, though you can change it.

4. To change the IP subnet mask, move to the **IP Subnet Mask** field and press Enter. The Enter IP Subnet Mask screen appears.



5. Enter the switch's IP subnet mask and press Enter.

Note To delete the IP address and subnet mask, press the - (hyphen) key when the highlight is in the VLAN Configuration screen. A prompt asks whether you want to delete the IP address. Highlight **Yes** and press Enter to delete the IP address and subnet mask, or press the Esc key or highlight **No** and press Enter to retain them.

Returning to the VLAN Perspective Screen

After configuring VLAN L2 options, press Esc to return to the VLAN Perspective screen in Figure 4-8 on page 63. Select another option from the VLAN Perspective screen or press Esc to return to the Switching DataBase screen.

Deleting a VLAN ID

To delete a VLAN ID from the VLAN Perspective screen in Figure 4-8 on page 63:

1. Use the Up Arrow and Down Arrow keys to highlight the VLAN ID you want to delete.
2. Press the - (hyphen) key. A message asks whether you are sure you want to delete the VLAN ID.
3. Highlight **Yes** and press the Enter key to delete the VLAN ID or press the Esc key or highlight **No** and press Enter to retain it.

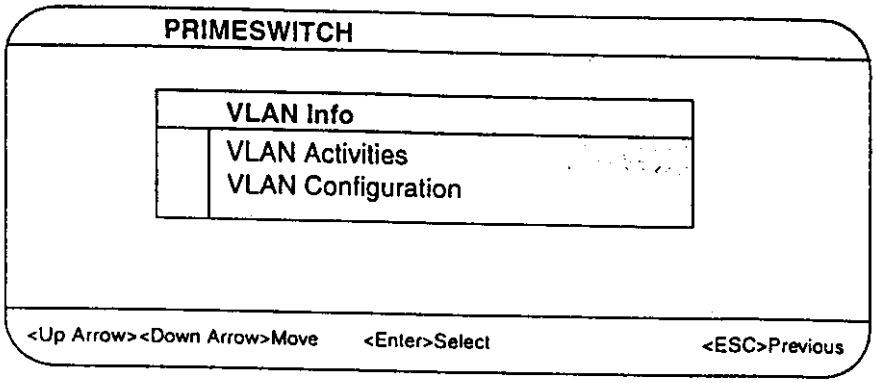
Viewing VLAN Activities

The following procedure describes how to use the VLAN Perspective screen to view activities for a particular VLAN. Using this procedure, you can view:

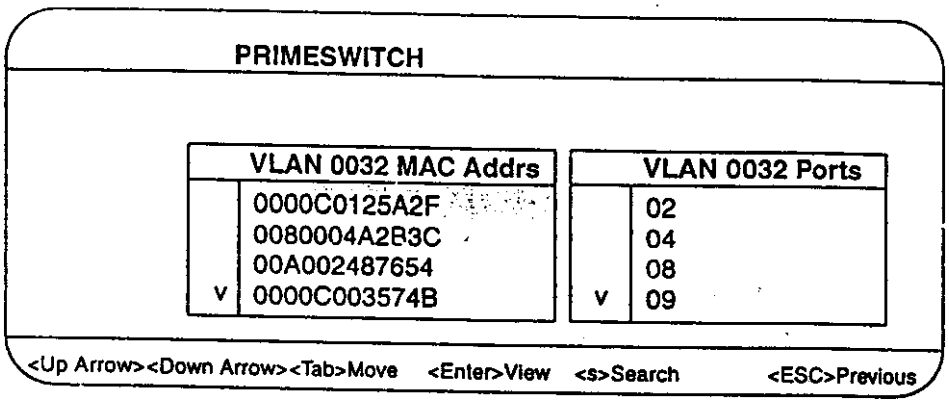
- Active ports
- Active MAC addresses associated with a VLAN
- A transient address, if any.
- Filtering and port information.

To view VLAN activities:

1. From the VLAN Perspective screen shown in Figure 4-8 on page 63, highlight an existing VLAN and press the Enter key. A screen similar to the following appears, with the highlight on **VLAN Activities**.



2. Press the Enter key. Screens similar to the following appear.



These screens show all active MAC addresses and active ports for the VLAN you selected.

- Active MAC addresses are MAC addresses in this VLAN that have been sending frames to the switch within the last aging period.
- Active ports are ports in this VLAN that have been sending frames to the switch within the last aging period.

You can use the Tab key to move between the MAC Addrs and VLAN Ports screens.

Searching for MAC Addresses

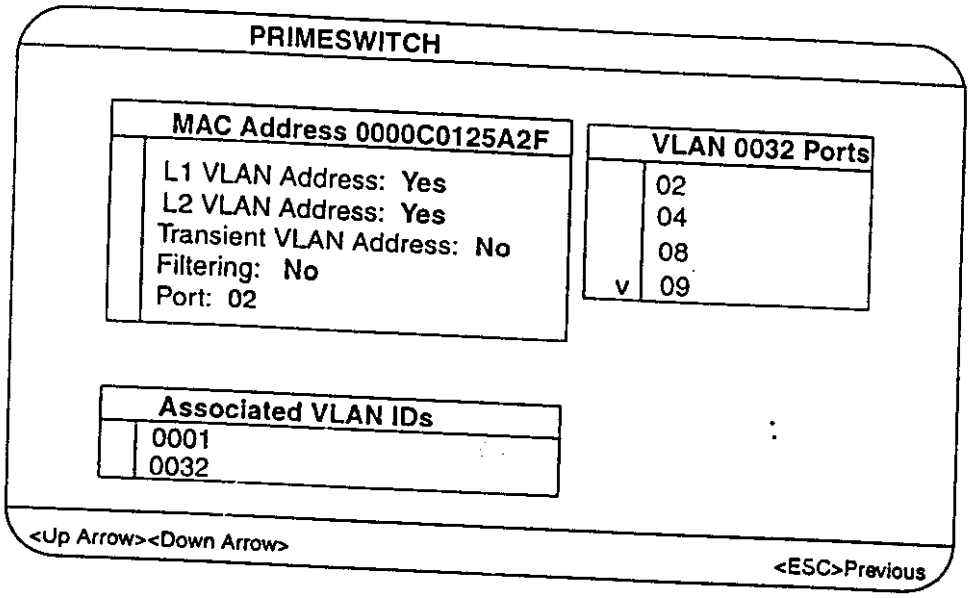
To search for MAC addresses:

1. In the VLAN MAC Addrs screen, press S.
2. When the search prompt appears, enter a MAC address in the Enter MAC Addr To Search screen and press the Enter key. If the address is found, it is highlighted in the VLAN MAC Addrs screen.

Obtaining Additional Information

To obtain additional information about an active MAC address:

1. In the VLAN MAC Addrs screen, scroll to the address about which you want more information.
2. Press the Enter key. Screens similar to the following appear. In our example:
   - The selected MAC address belongs to both an L1 and an L2 VLAN, but does not belong to any transient VLAN. (A transient VLAN is a remote VLAN that the XpressFlow Switch learned through Vertex's Remote VLAN Learning mechanism. A transient VLAN is not static and will be removed from the XpressFlow Switch's database when there is no MAC address associated with it.)
   - There is no filtering specified for this MAC address.
   - This MAC address is learned from port 02.
   - This MAC address belongs to VLANs 01 and 32.
3. To remove the screens, press the Esc key.



Scrolling Through Active Ports

When the VLAN Ports screen is active, you can use the Up Arrow and Down Arrow keys to scroll through the list of active ports associated with the selected VLAN.

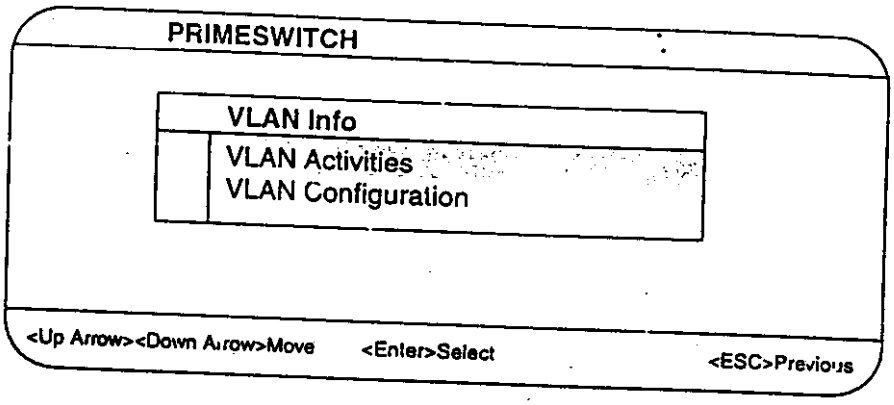
Exiting the VLAN Screens

When you finish performing VLAN activities, press the Esc key until you return to the desired screen.

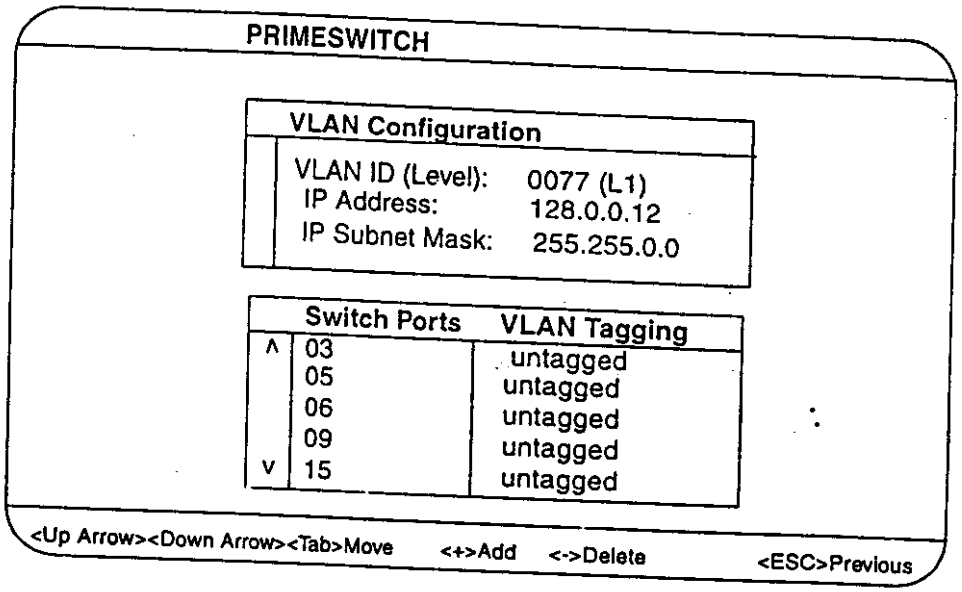
Viewing or Changing a VLAN Configuration

Using the VLAN Configuration screen, you can view and modify VLAN configurations. The parameters for L1 and L2 VLANs are slightly different, so the screen layout for these VLANs differ. No VLAN configuration is available for the default VLAN and transient VLANs.

1. From the VLAN Perspective screen shown in Figure 4-8 on page 63, highlight an existing VLAN and press the Enter key. A screen similar to the following appears, with the highlight on **VLAN Activities**.



2. Press the Up or Down Arrow key to highlight **VLAN Configuration**.
3. Press the Enter key. If you selected an L1 VLAN, screens similar to the ones on the next page appear. If you selected an L2 VLAN, screens similar to the ones on page 83 appear.

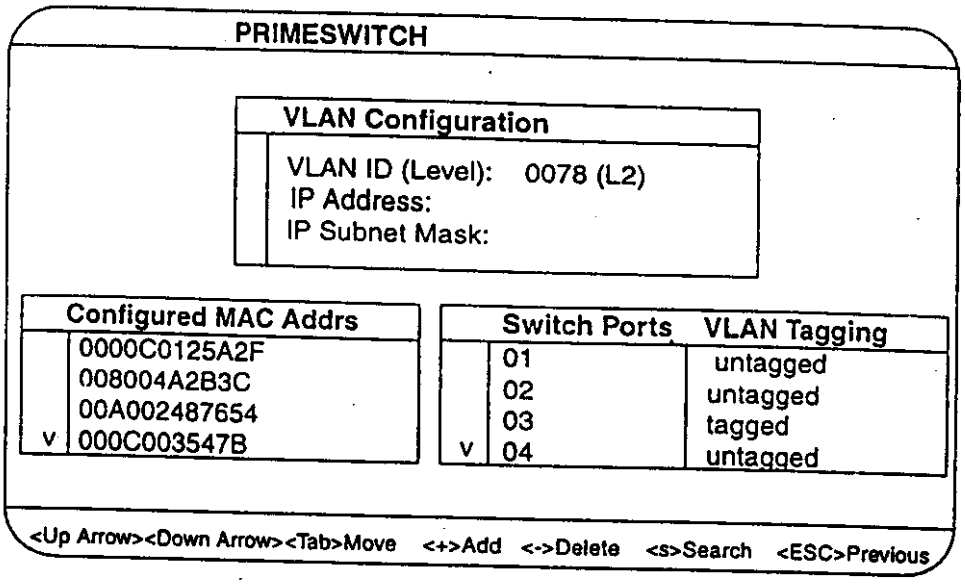


From these screens:

- Use the Tab key to move between the Switch Ports and VLAN Configuration screens.
- From the Switch Ports screen, use the - (hyphen) key to delete a highlighted switch port, or the Shift and + keys to add ports.
- From the VLAN Configuration screen, press the Enter key in the **IP Address** and/or **IP Subnet Mask** fields to add or change the IP address and IP subnet mask. You can also use the - (hyphen) key to delete the IP address and IP subnet mask.

When you finish configuring the VLAN, press the Esc key until you return to the desired screen.

Screens similar to the following appear for an L2 VLAN.



From these screens:

- Use the Tab key to move between the Configured MAC Addrs, Switch Ports, and VLAN Configuration screens.
- From the Configured MAC Addrs screen, use the Shift and + keys to add MAC addresses, the - (hyphen) key to delete a highlighted MAC address, and the S key to search for MAC addresses.
- From the Switch Ports screen, use the - (hyphen) key to delete a highlighted switch port, the Shift and + keys to add ports, and the T key to toggle a highlighted port between tagged and untagged.
- From the VLAN Configuration screen, press the Enter key in the **IP Address** and/or **IP Subnet Mask** fields to add or change the IP address and IP subnet mask. You can also use the - (hyphen) key to delete the IP address and IP subnet mask.

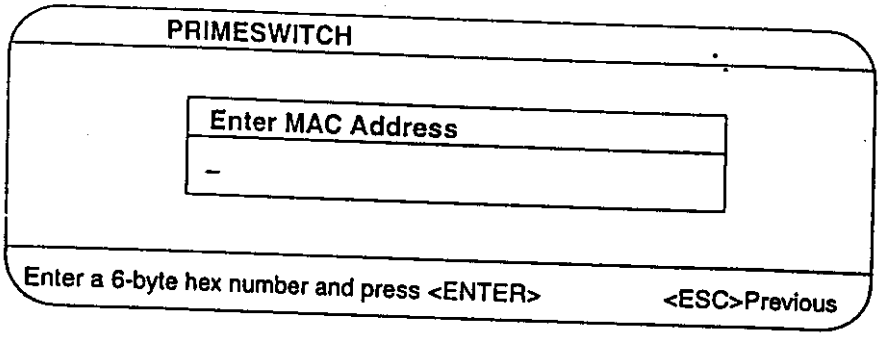
When you finish configuring the VLAN, press the Esc key until you return to the desired screen.

MAC Address Perspective

The MAC address perspective lets you view all characteristics associated with a MAC address, corresponding VLANs, and corresponding ports in the switching database.

To obtain a MAC address perspective:

1. From the Switching DataBase screen shown in Figure 4-7 on page 62, highlight **MAC Address Perspective** and press the Enter key. You are prompted for a MAC address.



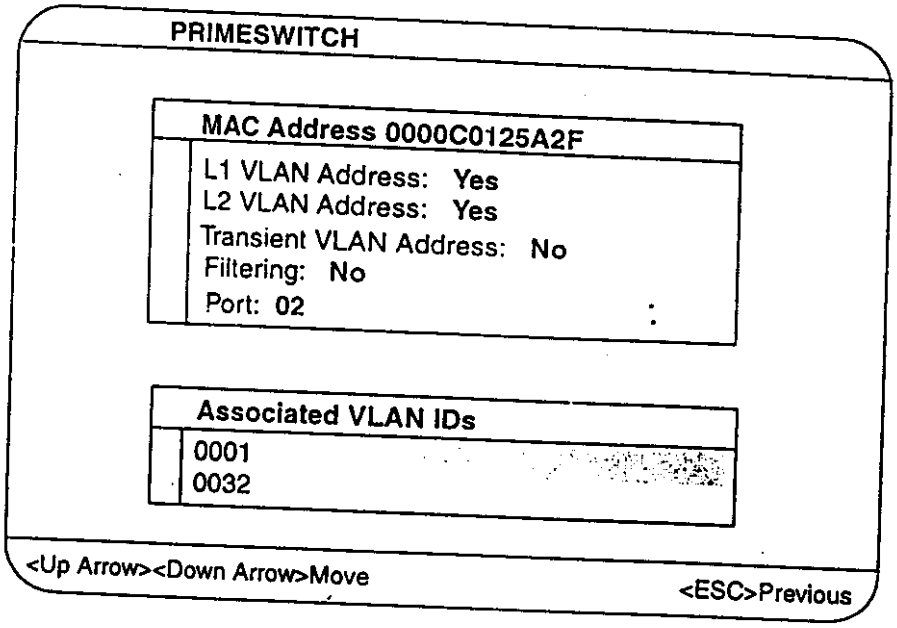
2. Enter the MAC address whose characteristics, corresponding VLANs, and corresponding ports you want to view.

3. Press Enter. A screen similar to the following appears. This screen shows all of the corresponding information in the switching database for the MAC address you entered. This information includes the corresponding port number, VLAN IDs, and characteristics for the specified MAC address.

   In this screen:

   - The Filtering field can show:
     - Sre for source address filtering.
     - Dst for destination address filtering.
     - No for no filtering.

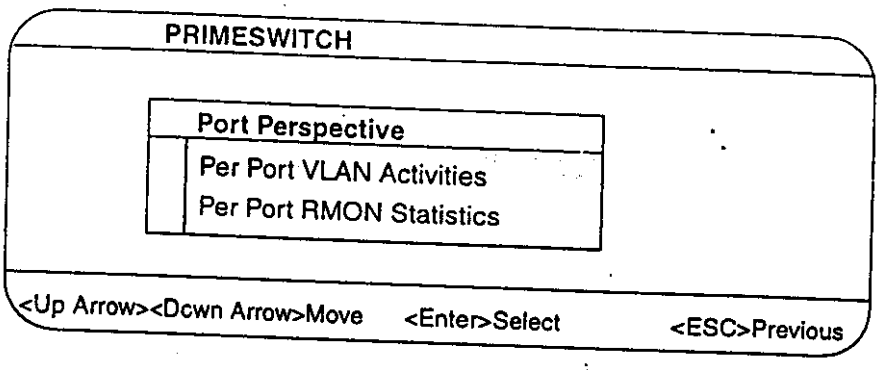
- The Port field can be either the port number from which the MAC address was learned or **Unknown.**



Port Perspective

The port perspective lets you view VLAN activities and RMON statistics. To obtain a port perspective:

1. From the Switching DataBase screen shown in Figure 4-7 on page 62, highlight **Port Perspective** and press the Enter key. The following Port Perspective screen appears.

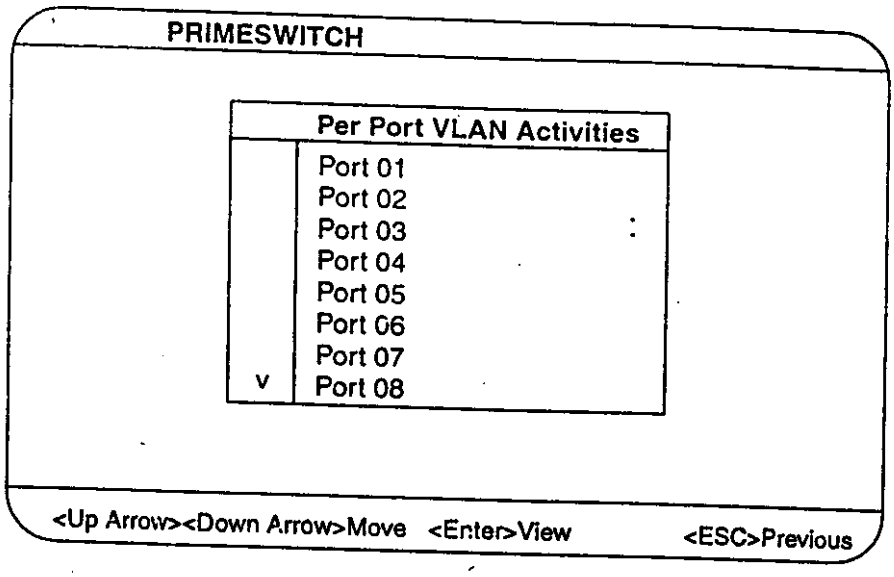


2. To view VLAN activities, highlight **Per Port VLAN Activities**, press the Enter key, and proceed to page 87.

3. To view RMON statistics, highlight **Per Port RMON Statistics**, press the Enter key, and proceed to page 90.

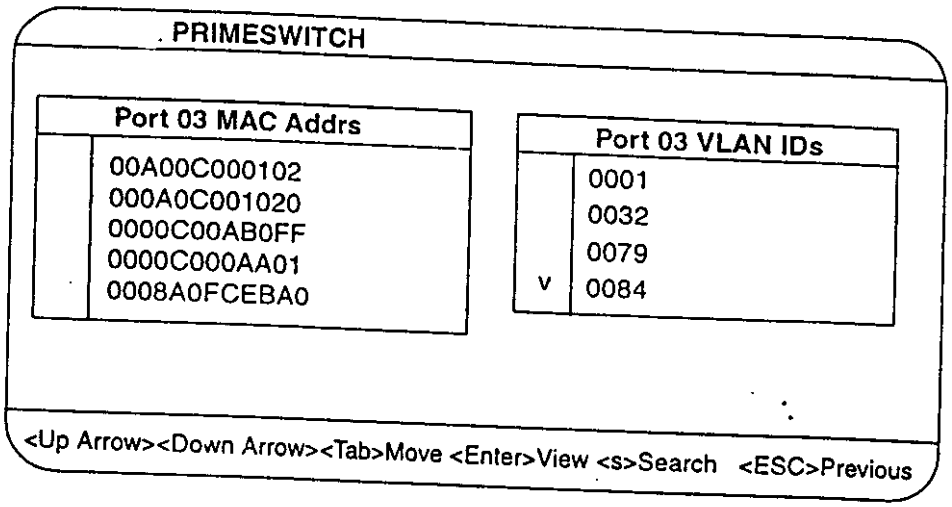
Per Port VLAN Activities

If you select **Per Port VLAN Activities** from the Port Perspective screen, a screen similar to the following Per Port VLAN Activities appears.



1. Use the Up Arrow and Down Arrow keys to highlight the port number whose corresponding VLANs activities you want to view.

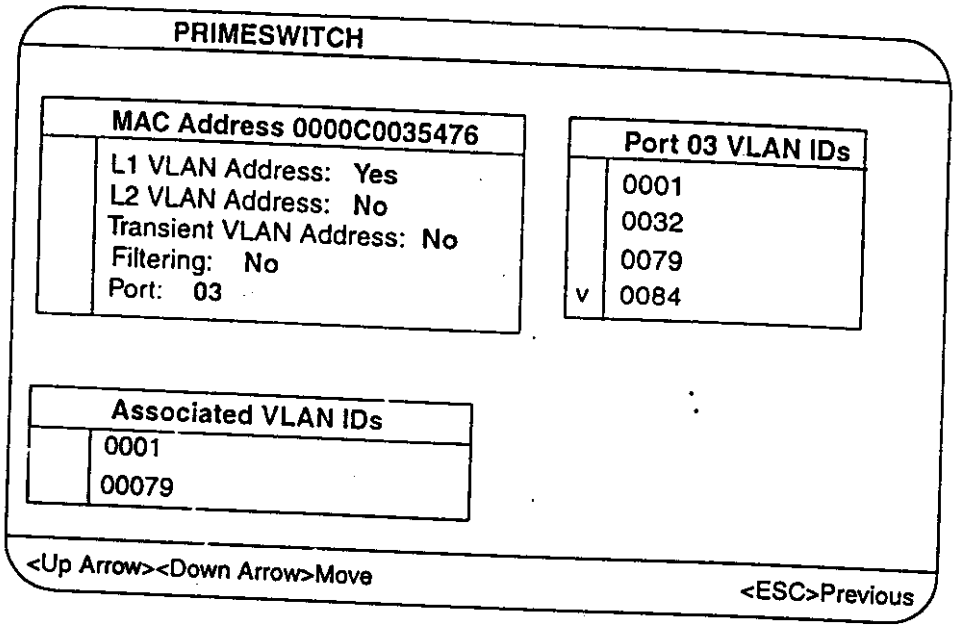
2. Press the Enter key. A screen similar to the following appears This screen shows all of the corresponding information in the switching database for the port you selected. This information includes the corresponding MAC addresses and VLAN IDs.



Scrolling Through MAC Addresses

To scroll through the list of active MAC addresses corresponding to the selected port:

1. If the Port MAC Addrs screen is not the current screen, press the Tab key until it becomes the current screen.
2. Use the Up Arrow and Down Arrow key to scroll through the list of active MAC addresses for the selected port.
3. To search for a MAC address, press S. When the search prompt appears, enter a MAC address in the Enter MAC Addr to Search screen and press the Enter key. If the address is found, it is highlighted in the Port MAC Addrs screen.
4. To obtain additional information about a particular MAC address, scroll to the address in the Port MAC Address screen and press the Enter key. Screens similar to the following appear, showing detailed information about the selected MAC address.



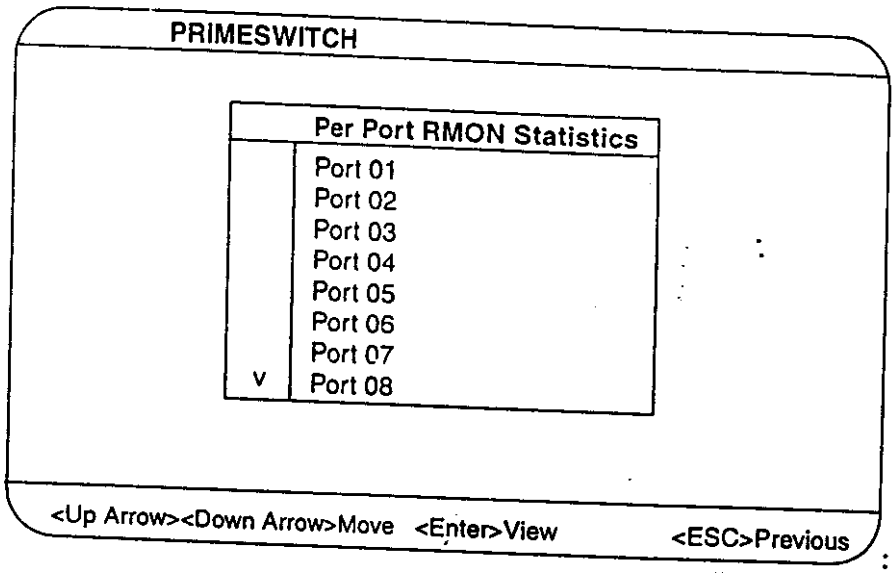
Scrolling Through VLAN IDs

To scroll through the list of VLAN IDs corresponding to the selected port:

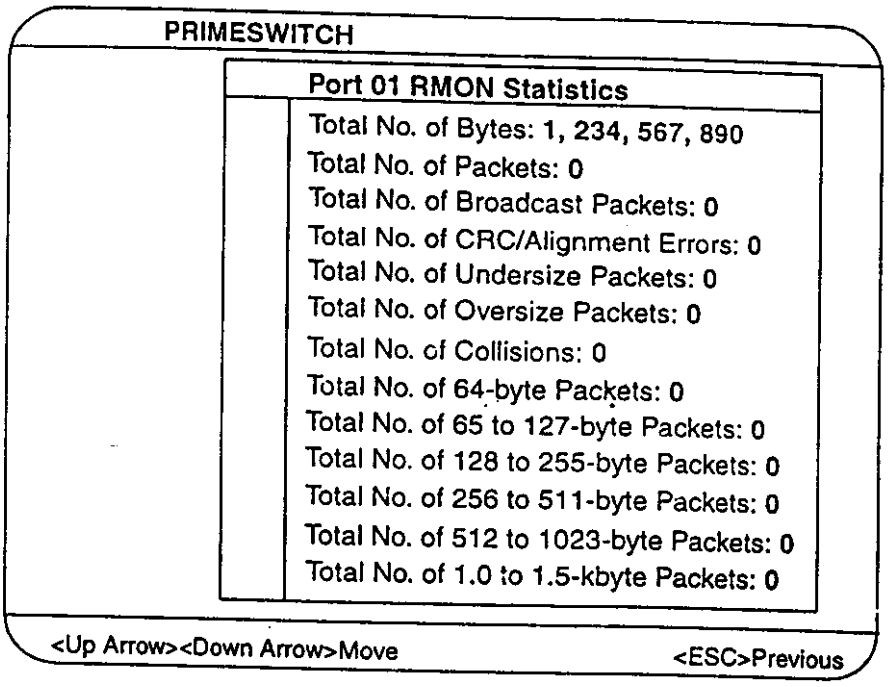
1. Press the Tab key to move the highlight to the Port VLAN IDs screen.
2. Use the Up Arrow and Down Arrow key to scroll through the list of VLAN IDs corresponding to the selected port.
3. When you finish, press the Esc key until you return to the desired screen.

Per Port RMON Statistics

If you select **Per Port RMON Statistics** from the Port Perspective screen, a screen similar to the following Per Port VLAN Activities appears.



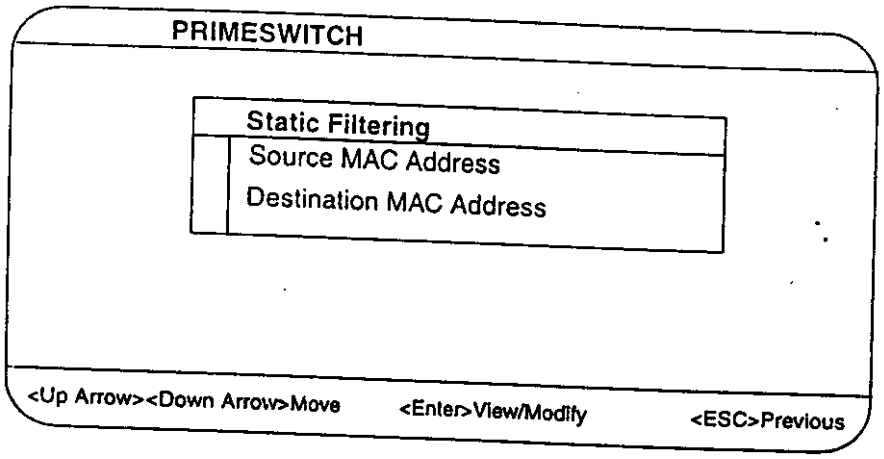
1. Use the Up and Down Arrow keys to select the port whose RMON statistics you want to view.
2. Press the Enter key. A screen similar to the following appears, showing the RMON statistics for the port you selected.



3. After reviewing this information, press the Esc key until you return to the desired screen.

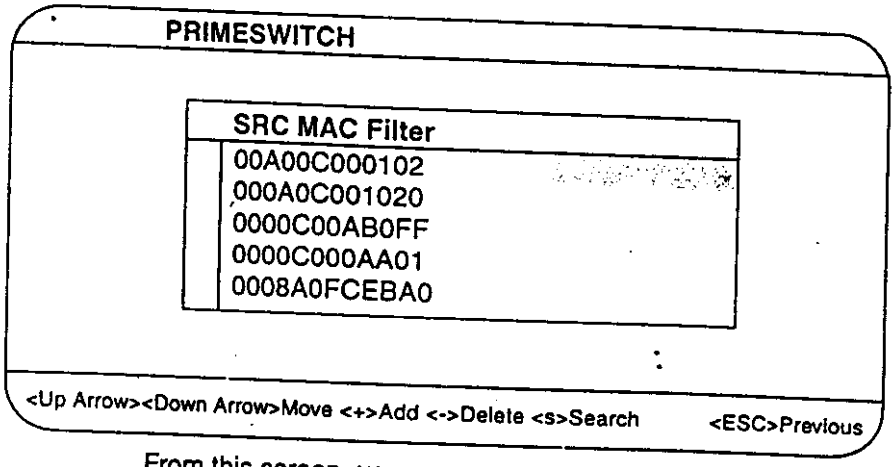
Static Filtering

If you select **Static Filtering** from the Advanced Management screen (see Figure 4-6 on page 61), the following Static Filtering screen appears, with Source MAC Address highlighted.



From the Static Filtering screen, you can select source MAC addresses or destination MAC addresses for static filtering by highlighting one of these options and pressing the Enter key.

- If you select **Source MAC Address**, the SRC MAC Filter screen shows the source MAC addresses. The screen on the following page shows an example of the SRC MAC Filter screen.
- If you select **Destination MAC Address**, the DST MAC Filter screen shows the destination MAC addresses. (The format of this screen is identical to the SRC MAC Filter screen.)



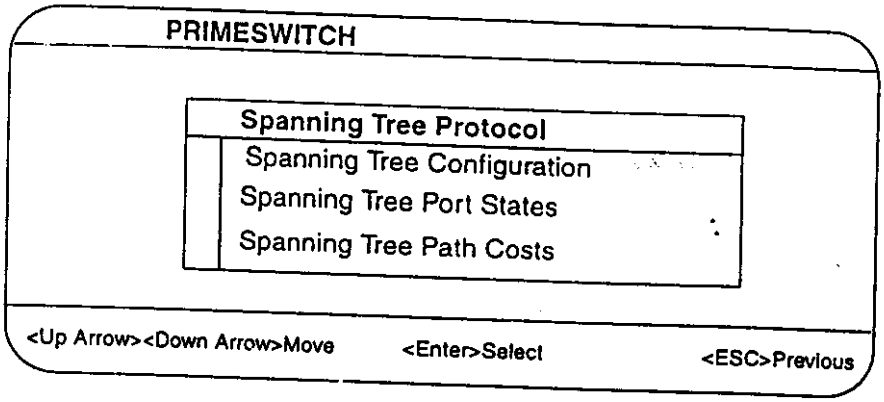
From this screen, you can:

- Hold down the Shift key and press + to add a specific MAC address to be filtered.
- Press - (hyphen) to delete a specific MAC address from being filtered. There is no precautionary message that appears before you delete a MAC address. Therefore, be sure you want to delete the address before doing so.
- Press S to search through the list of MAC addresses in the static filtering database. The static filtering database maximum capacity is 64.

When you finish, press the Esc key until you return to the desired screen.

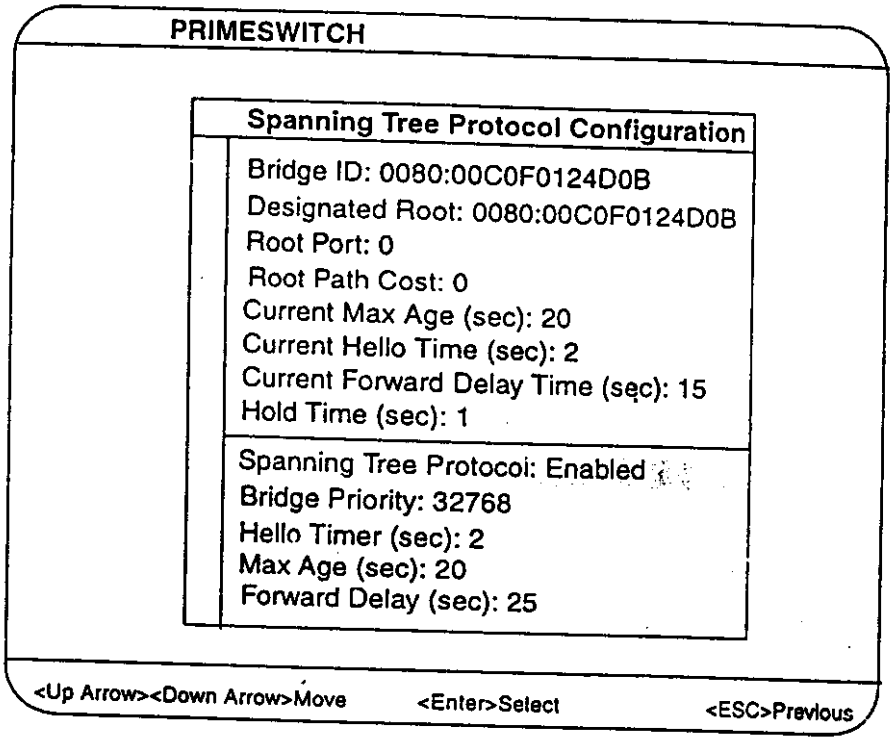
Spanning Tree Functions

If you select **Spanning Tree** from the Advanced Management screen (see Figure 4-6 on page 61), the following Spanning Tree Protocol screen appears.



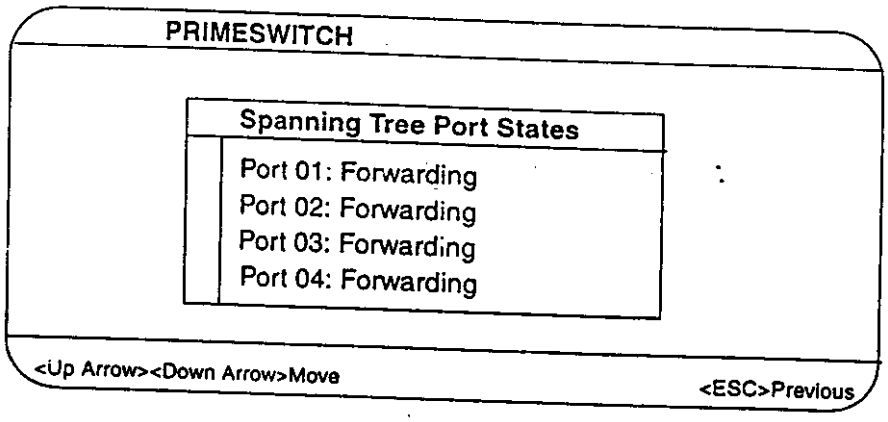
Spanning Tree Protocol Configuration

If you highlight **Spanning Tree Configuration** in the Spanning Tree Protocol screen and press the Enter key, a Spanning Tree Protocol Configuration screen similar to the following appears. The top half of this screen displays read-only values. The bottom half, starting with **Spanning Tree Protocol**, is user configurable. Use the Up and Down Arrow keys to highlight a field, then press Enter to change the value. When you finish, press the Esc key until you return to the desired screen.


PRIMESWITCH
Spanning Tree Protocol Configuration
Bridge ID: 0080:00C0F0124D0B
Designated Root: 0080:00C0F0124D0B
Root Port: 0
Root Path Cost: 0
Current Max Age (sec): 20
Current Hello Time (sec): 2
Current Forward Delay Time (sec): 15
Hold Time (sec): 1
Spanning Tree Protocol: Enabled
Bridge Priority: 32768
Hello Timer (sec): 2
Max Age (sec): 20
Forward Delay (sec): 25
<Up Arrow><Down Arrow>Move
<Enter>Select
<ESC>Previous

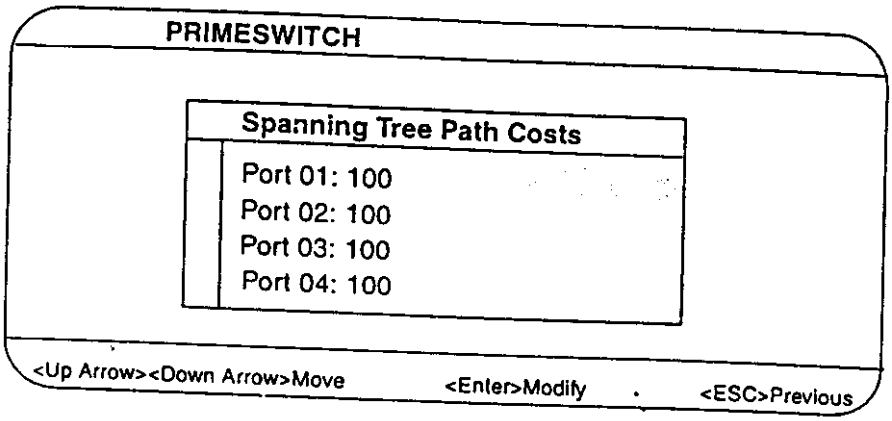
Spanning Tree Port States

If you highlight **Spanning Tree Port States** in the Spanning Tree Protocol screen and press the Enter key, a Spanning Tree Port States screen similar to the following appears. This screen displays read-only values. When you finish, press the Esc key until you return to the desired screen.



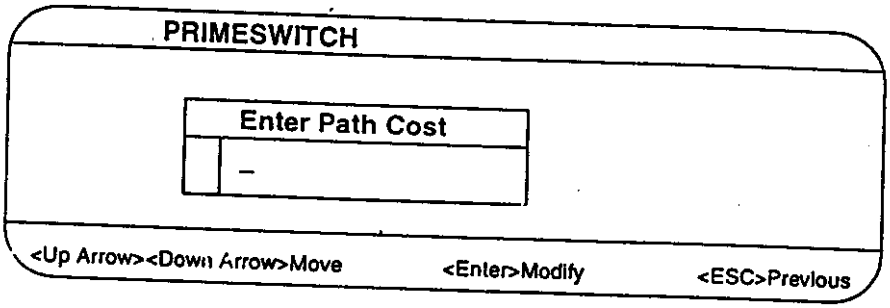
Spanning Tree Path Costs

If you highlight **Spanning Tree Path Costs** in the Spanning Tree Protocol screen and press the Enter key, a Spanning Tree Path Costs screen similar to the following appears.



To change the costs in the Spanning Tree Path Costs screen:

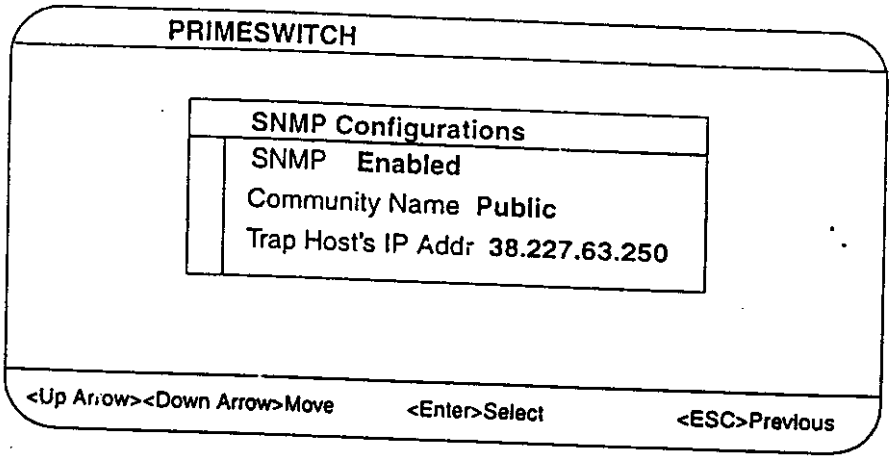
1. Use the Up Arrow and Down Arrow keys to highlight the port whose Spanning Tree path costs you want to change.
2. Press the Enter key. The following Enter Path Cost screen appears.



3. Enter a new path cost, then press Enter. The new Spanning Tree path cost appears next to the selected port.
4. Repeat steps 1 through 3 to change the Spanning Tree path costs for other ports.
5. When you finish, press the Esc key until you return to the desired screen.

SNMP Functions

If you select SNMP from the Advanced Management screen (see Figure 4-6 on page 61), the following SNMP Configurations screen appears, with the SNMP value highlighted.



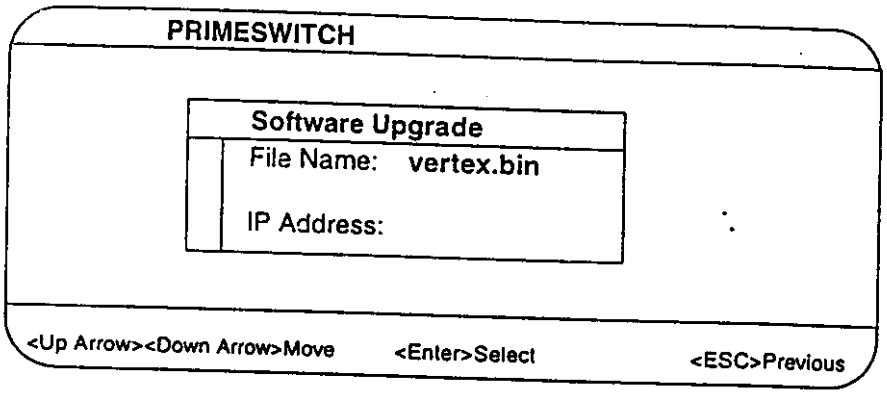
The SNMP Configurations screen lets you view all SNMP-related information. As this screen shows, the factory-default **SNMP** value is **Enabled** and the factory-default **Community Name** value is **Public**.

To change a value:

1. Use the Up Arrow and Down Arrow keys to scroll to the value you want to change.
2. Press the Enter key.
3. Enter the new value and press Enter again.
4. When you finish, press the Esc key until you return to the desired screen.

Upgrading Software

If you select **Software Upgrade** from the Advanced Management screen (see Figure 4-6 on page 61), the following Software Upgrade screen appears, with the **File Name** value highlighted.

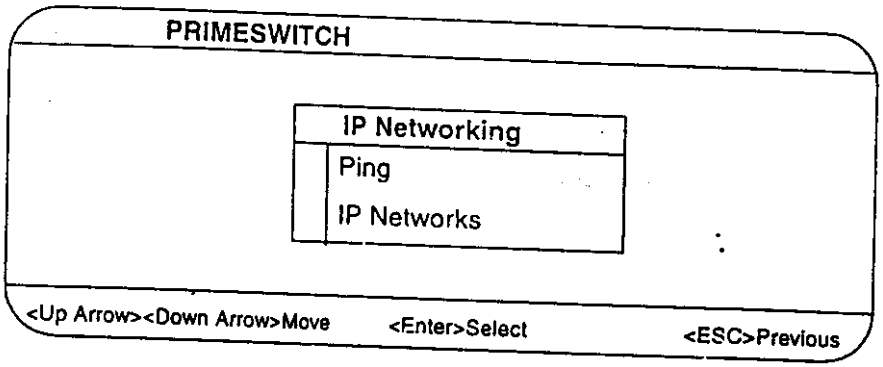


To change a value:

1. Use the Up Arrow and Down Arrow keys to scroll to the value you want to change.
2. Press the Enter key.
3. Enter the new value and press Enter again.
4. When you finish, press the Esc key. A prompt asks whether you want to upgrade your software now.
5. Highlight **Yes** and press Enter to upgrade the software now, or press the Esc key or highlight **No** and press Enter to not upgrade at this time.

IP Networking

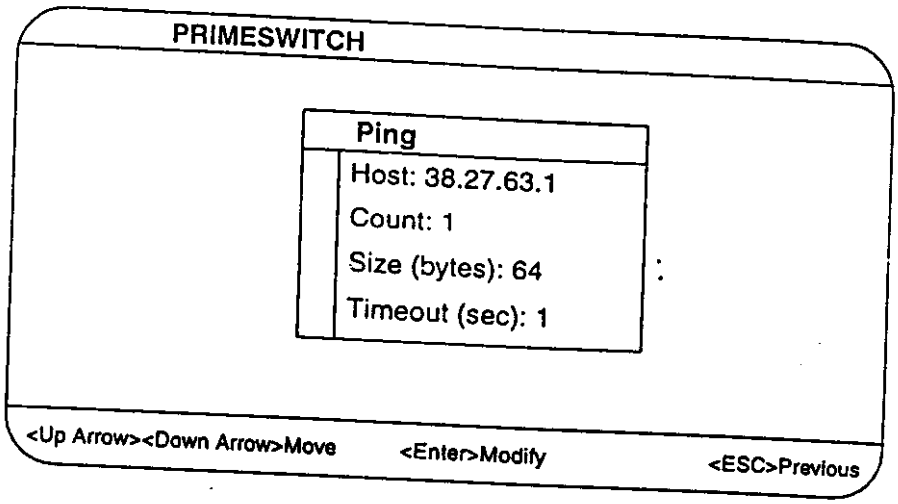
If you select **IP Networking** from the Advanced Management screen (see Figure 4-6 on page 61), the following IP Networking screen appears.



If you select **Ping**, refer to page 101. If you select **IP Networks**, refer to page 102.

Pinging

If you highlight **Ping** in the IP Networking screen and press the Enter key, a screen similar to the following appears.



1. To change the host IP address, use the Up and Down Arrow keys to highlight **Host** and press the Enter key. Enter a new host IP address as four decimal bytes separated by periods and press Enter.

2. To change the packet count, highlight **Count** and press Enter. Enter a new packet count as a decimal number between 0 and 999 (0=infinite) and press Enter.

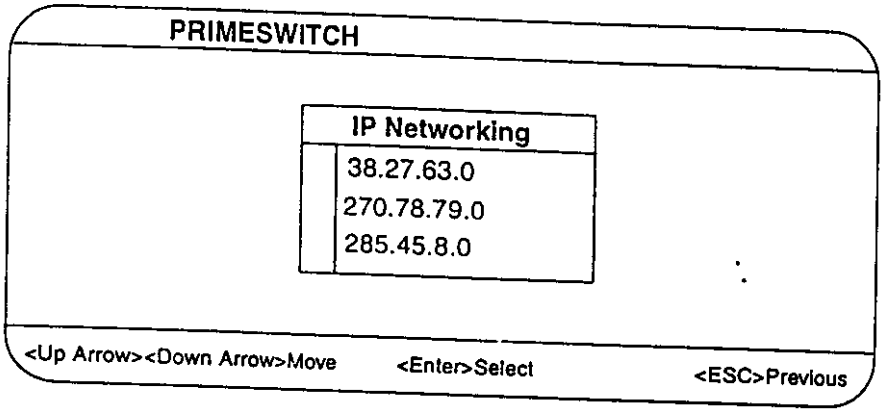
3. To change the packet size, highlight **Size** and press Enter. Enter a new packet size as a decimal number between 0 and 1500 and press Enter.

4. To change the timeout value, highlight **Timeout** and press Enter. Enter a new timeout value as a decimal number between 0 and 999 and press Enter.

5. When you finish, press Esc until you return to the desired screen.

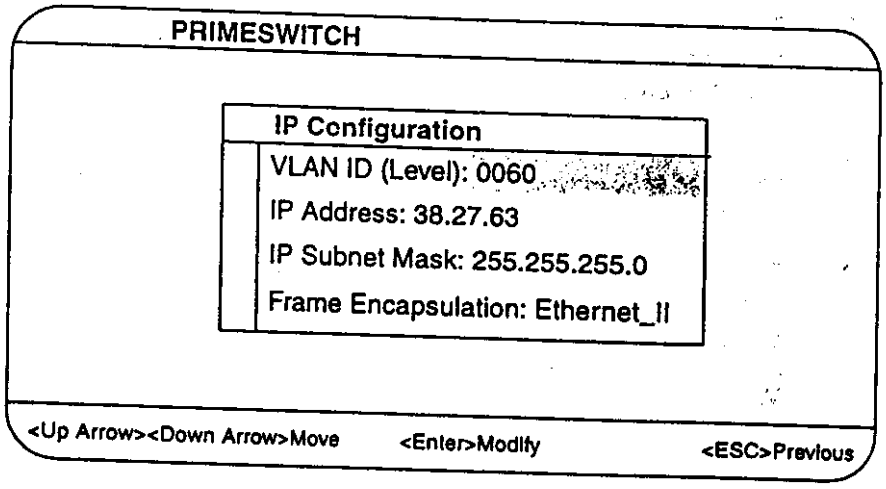
IP Networks

If you highlight **IP Networks** in the IP Networking screen and press the Enter key, a screen similar to the following appears.



To view the IP configuration for an IP address:

1. Use the Up and Down Arrow keys to highlight the IP address whose configuration you want to view.
2. Press the Enter key. A screen similar to the following appears.



3. When you finish viewing the information, press the Esc key until you return to the desired screen.

5

SNMP and RMON Management

This chapter describes the XpressFlow Switch's Simple Network Management Protocol (SNMP) and Remote Monitoring (RMON) capabilities. Topics include:

Overview

RMON is an abbreviation for the Remote Monitoring MIB (Management Information Base). RMON is a system defined by the Internet Engineering Task Force (IETF) documents RFC 1271 and RFC 1757, which define how networks can be monitored remotely.

RMONs typically consist of two components: an RMON probe and a management workstation:

- The RMON probe is an intelligent device or software agent that continually collects statistics about a LAN segment or VLAN. The RMON probe transfers the collected data to a management workstation on request or when a pre-defined threshold is reached.
- The management workstation collects the statistics that the RMON probe gathers The workstation can reside on the same network as the probe, or it can have an in-band or out-of-band connection to the probe.

The XpressFlow Switch provides RMON capabilities that allow network administrators to set parameters and view statistical counters defined in MIB-II, Bridge MIB, and RMON MIB. RMON activities are performed at a Network Management Station running an SNMP network management application with graphical user interface.

SNMP Agent and MIB-2 (RFC1213)

The SNMP Agent running on the Switch Manager CPU is responsible for:

- Retrieving MIB counters from various layers of software modules according to the SNMP GET/GET NEXT frarbe messages.
- Setting MIB variables according to the SNMP SET frame message.
- Generating an SNMP TRAP frame message to the Network Management Station if the threshold of a certain MIB counter is reached.

MIB-2 defines a set of manageable objects in various layers of the TCP/IP protocol suites. MIB-2 covers all manageable objects from layer 1 to layer 4 and, as a result, is the major SNMP MIB supported by all vendors in the networking industry. The XpressFlow Switch supports a complete implementation of SNMP Agent and MIB-2.

RMON MIB (RFC 1757), and Bridge MIB (RFC 1493)

When frame status messages are generated on the switching bus, a software driver running on the Switch Manager CPU automatically updates the XpressFlow Switch's RMON and other hardware-related MIB-counters. A local SNMP Agent and a remote SNMP Network Management Station using the SNMP protocol can then manipulated these counters.

RMON Groups Supported

The XpressFlow Switch supports the following RMON MIB groups defined in RFC1757:

- RMON Statistics Group — maintains utilization and error statistics for the switch port being monitored.
- RMON History Group — gathers and stores periodic statistical samples from the previous Statistics Group.
- RMON Alarm Group — allows a network administrator to define alarm thresholds for any MIB variable. An alarm can be associated with Low Threshold, High Threshold, or both. A trigger can trigger an alarm when the value of a specific MIB variable exceeds a threshold, falls below a threshold, or exceeds or falls below a threshold.
- RMON Event Group — allows a network administrator to define actions based on alarms. SNMP Traps are generated when RMON Alarms are triggered. The action taken in the Network Management Station depends on the specific network management application.

Bridge Groups Supported

The XpressFlow Switch supports the following four groups of Bridge MIB (RFC1493):

- The dot1dBase Group — a mandatory group that contains the objects applicable to all types of bridges.
- The dot1dStp Group — contains the objects that denote the bridge's state with respect to the Spanning Tree Protocol. If a node does not implement the Spanning Tree Protocol, this group will not be implemented. This group is applicable to any transparent only, source route, or SRT bridge that implements the Spanning Tree Protocol.

- The dot1dTp Group — contains objects that describe the entity's transparent bridging status. This group is applicable to transparent operation only and SRT bridges.
- The dot1dStatic Group — contains objects that describe the entity's destination-address filtering status. This group is applicable to any type of bridge which performs destination-address filtering.

A
POST LED Error Codes

The XpressFlow Switch LED issues a series of blinks if it encounters an error during any of the Switch's Power On Self Test (POST) diagnostics. In the unlikely event that your XpressFlow Switch encounters a POST LED error after power-up, refer to this appendix for a description of the error.

If the LED Goes ON and OFF...	An Error has Occurred During the...
One time, pauses 1000 milliseconds, and repeats the process.	Interrupt Controller Register Test
Two times with short delays in between, pauses 1000 milliseconds, and repeats the process.	Timer Register Test
Three times with short delays in between, pauses 1000 milliseconds, and repeats the same process.	Timer Interrupt Test
Four times with short delays in between, pauses 1000 milliseconds, and repeats the same process.	Switch Engine Register Test
Five times with short delays in between, pauses 1000 milliseconds, and repeats the same process.	Switch Engine SRAM Test
Six times with short delays in between, pauses 1000 milliseconds, and repeats the same process.	HISC Core Test
Seven times with short delays in between, pauses 1000 milliseconds, and repeats the same process.	CAM Test

If the LED Goes ON and OFF...	An Error has Occurred During the...
Eight times with short delays in between, pauses 1000 milliseconds, and repeats the same process.	MAC Access Modules Register Test
Nine times with short delays in between, pauses 1000 milliseconds, and repeats the same process.	Access Modules Ethernet Ports Register Test
Ten times with short delays in between, pauses 1000 milliseconds, and repeats the same process.	MAC Access Modules SRAM Test