Configuring the PA-8E

To continue your PA-8E port adapter installation, you must configure the ethernet interfaces. The instructions that follow apply to all supported platforms. Minor differences between the platforms are noted.

This chapter contains the following sections:

Using the EXEC Command Interpreter

You modify the configuration of your router through the software command interpreter called the EXEC (also called enable mode). You must enter the privileged level of the EXEC command interpreter with the **enable** command before you can use the **configure** command to configure a new interface or to change the existing configuration of an interface. The system prompts you for a password if one has been set. The system prompt for the privileged level ends with a pound sign (#) instead of an angle bracket (>).

At the console terminal, use the following procedure to enter the privileged level:

Step 1 At the user-level EXEC prompt, enter the **enable** command. The EXEC prompts you for a privileged-level password as follows:

```
Router> enable

Password:
```

Step 2 Enter the password (the password is case sensitive). For security purposes, the password is not displayed.

When you enter the correct password, the system displays the privileged-level system prompt (#):

```
Router#
```

Configuring the PA-8E Interfaces

After you verify that the new PA-8E is installed correctly (the enabled LED goes on), use the privileged-level **configure** command to configure the new interfaces. Have the following information available:

- Protocols you plan to route on each new interface
- IP addresses, if you plan to configure the interfaces for IP routing
- Bridging protocols you plan to use

If you installed a new PA-8E or if you want to change the configuration of an existing interface, you must enter configuration mode to configure the new interfaces. If you replaced a PA-8E that was previously configured, the system recognizes the new interfaces and brings each of them up in their existing configurations.

Note The PA-8E interfaces can both be configured at 10 Mbps, full duplex (FDX), for a maximum aggregate bandwidth of 80 Mbps.

For a summary of the configuration options available and instructions for configuring interfaces on a PA-8E, refer to the appropriate configuration publications listed in the "Related Documentation" section on page viii.

You execute configuration commands from the privileged level of the EXEC command interpreter, which usually requires password access. Contact your system administrator, if necessary, to obtain password access. (See the "Using the EXEC Command Interpreter" section on page 4-1 for an explanation of the privileged level of the EXEC.)

This section contains the following subsections:

- Shutting Down an Interface, page 4-2
- Performing a Basic Interface Configuration, page 4-8

Shutting Down an Interface

Before you remove an interface that you will not replace, or replace port adapters, use the **shutdown** command to shut down (disable) the interfaces to prevent anomalies when you reinstall the new or reconfigured port adapter. When you shut down an interface, it is designated *administratively down* in the **show** command displays.

Follow these steps to shut down an interface:

Step 1   Enter the privileged level of the EXEC command interpreter (also called enable mode). (See the "Using the EXEC Command Interpreter" section on page 4-1 for instructions.)

Step 2   At the privileged-level prompt, enter configuration mode and specify that the console terminal is the source of the configuration subcommands, as follows:

```
Router# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#
```

Step 3   Shut down interfaces by entering the **interface ethernet** subcommand (followed by the interface address of the interface), and then enter the **shutdown** command.

When you have finished, press **Ctrl-Z**—hold down the **Control** key while you press **Z**—or enter **end** or **exit** to exit configuration mode and return to the EXEC command interpreter.

Table 4-1 shows the **shutdown** command syntax for the supported platforms.

Table 4-1   ***Syntax of the shutdown Command for the Supported Platforms***

Platform	Command	Example

Catalyst RSM/VIP2 in Catalyst 5000 family switches	**interface**, followed by the *type* (**ethernet**) and *slot/port* (port-adapter-slot-number/ interface-port-number)
	
	 shutdown
		The example is for interface 0 and interface 1 on a port adapter in port adapter slot 1.
		
		 ```Router(config-if)# interface ethernet 1/0```
		```Router(config-if)# shutdown```
		```Router(config-if)# interface ethernet 1/1```
		```Router(config-if)# shutdown```
		```Ctrl-Z```
		```Router#```

Cisco 7120 series routers	**interface**, followed by the *type* (**ethernet**) and *slot/port* (port-adapter-slot-number/ interface-port-number)
	
	 shutdown
		The example is for interface 0 and interface 1 on a port adapter in port adapter slot 3.
		
		 ```Router(config-if)# interface ethernet 3/0```
		```Router(config-if)# shutdown```
		```Router(config-if)# interface ethernet 3/1```
		```Router(config-if)# shutdown```
		```Ctrl-Z```
		```Router#```

Cisco 7140 series routers	**interface**, followed by the *type* (**ethernet**) and *slot/port* (port-adapter-slot-number/ interface-port-number)
	
	 shutdown
		The example is for interface 0 and interface 1 on a port adapter in port adapter slot 4.
		
		 ```Router(config-if)# interface ethernet 4/0```
		```Router(config-if)# shutdown```
		```Router(config-if)# interface ethernet 4/1```
		```Router(config-if)# shutdown```
		```Ctrl-Z```
		```Router#```

Cisco 7200 series routers and Cisco 7200 VXR routers	**interface**, followed by the *type* (**ethernet**) and *slot/port* (port-adapter-slot-number/ interface-port-number)
	
	 shutdown
		The example is for interface 0 and interface 1 on a port adapter in port adapter slot 6.
		
		 ```Router(config-if)# interface ethernet 6/0```
		```Router(config-if)# shutdown```
		```Router(config-if)# interface ethernet 6/1```
		```Router(config-if)# shutdown```
		```Ctrl-Z```
		```Router#```

Cisco 7201 router	**interface**, followed by the *type* (**ethernet**) and *slot/port* (port-adapter-slot-number/ interface-port-number)
	
	 shutdown
		The example is for interface 0 and interface 1 on a port adapter in port adapter slot 1.
		
		 ```Router(config-if)# interface ethernet 1/0```
		```Router(config-if)# shutdown```
		```Router(config-if)# interface ethernet 1/1```
		```Router(config-if)# shutdown```
		```Ctrl-Z```
		```Router#```

Table 4-1   *Syntax of the shutdown Command for the Supported Platforms (continued)*

Platform	Command	Example
Cisco uBR7223 router	**interface**, followed by the *type* (**ethernet**) and *slot/port* (port-adapter-slot-number/ interface-port-number) **shutdown**	The example is for interface 0 and interface 1 on a port adapter in port adapter slot 1. `Router(config-if)# `**`interface ethernet 1/0`** `Router(config-if)# `**`shutdown`** `Router(config-if)# `**`interface ethernet 1/1`** `Router(config-if)# `**`shutdown`** **`Ctrl-Z`** `Router#`
Cisco uBR7246 router	**interface**, followed by the *type* (**ethernet**) and *slot/port* (port-adapter-slot-number/ interface-port-number) **shutdown**	The example is for interface 0 and interface 1 on a port adapter in port adapter slot 2. `Router(config-if)# `**`interface ethernet 2/0`** `Router(config-if)# `**`shutdown`** `Router(config-if)# `**`interface ethernet 2/1`** `Router(config-if)# `**`shutdown`** **`Ctrl-Z`** `Router#`
Cisco 7301 router	**interface**, followed by the *type* (**ethernet**) and *slot/port* (port-adapter-slot-number/ interface-port-number) **shutdown**	The example is for interface 0 and interface 1 on a port adapter in port adapter slot 1. `Router(config-if)# `**`interface ethernet 1/0`** `Router(config-if)# `**`shutdown`** `Router(config-if)# `**`interface ethernet 1/1`** `Router(config-if)# `**`shutdown`** **`Ctrl-Z`** `Router#`
Cisco 7304 PCI Port Adapter Carrier Card in a Cisco 7304 router	**interface**, followed by the *type* (**ethernet**) *slot/port* (module-slot-number/ interface-port-number) **shutdown**	The example is for interface 0 and interface 1 on a port adapter in a Cisco 7304 PCI Port Adapter Carrier Card in module slot 3 of a Cisco 7304 router. `Router(config-if)# `**`interface ethernet 3/0`** `Router(config-if)# `**`shutdown`** `Router(config-if)# `**`interface ethernet 3/1`** `Router(config-if)# `**`shutdown`** **`Ctrl-Z`** `Router#`
Cisco 7401ASR router	**interface**, followed by the *type* (**ethernet**) and *slot/port* (port-adapter-slot-number/ interface-port-number) **shutdown**	The example is for interface 0 and interface 1 on a port adapter in port adapter slot 1. `Router(config-if)# `**`interface ethernet 1/0`** `Router(config-if)# `**`shutdown`** `Router(config-if)# `**`interface ethernet 1/1`** `Router(config-if)# `**`shutdown`** **`Ctrl-Z`** `Router#`
VIP in Cisco 7000 series routers or Cisco 7500 series routers	**interface**, followed by the *type* (**ethernet**) and *slot/port adapter/port* (interface-processor-slot-number/ port-adapter-slot-number/ interface-port-number) **shutdown**	The example is for interface 1 and interface 0 on a port adapter in port adapter slot 1 of a VIP installed in interface processor slot 1. `Router(config-if)# `**`interface ethernet 1/1/1`** `Router(config-if)# `**`shutdown`** `Router(config-if)# `**`interface ethernet 1/1/0`** `Router(config-if)# `**`shutdown`** **`Ctrl-Z`** `Router#`

Note   If you need to shut down additional interfaces, enter the **interface ethernet** command (followed by the interface address of the interface) for each of the interfaces on your port adapter. Use the **no shutdown** command to enable the interface.

Step 4   Write the new configuration to NVRAM as follows:

```
Router# copy running-config startup-config
[OK]
Router#
```

The system displays an OK message when the configuration has been stored in NVRAM.

Step 5   Verify that new interfaces are now in the correct state (shut down) using the **show interfaces** command (followed by the interface type and interface address of the interface) to display the specific interface.

Table 4-2 provides examples of the **show interfaces ethernet** command for the supported platforms.

Table 4-2   Examples of the show interfaces ethernet Command for the Supported Platforms

Platform	Command	Example

Catalyst RSM/VIP2 in Catalyst 5000 family switches	**show interfaces ethernet**, followed by *slot/port* (port-adapter-slot-number/ interface-port-number)	The example is for interface 0 on a port adapter in port adapter slot 1.
		
		`Router# show interfaces ethernet 1/0`
		
		`ethernet 1/0 is administratively down, line protocol is down`
		
		`[Additional display text omitted from this example]`

Cisco 7120 series routers	**show interfaces ethernet**, followed by *slot/port* (port-adapter-slot-number/ interface-port-number)	The example is for interface 0 on a port adapter in port adapter slot 3.
		
		`Router# show interfaces ethernet 3/0`
		
		`ethernet 3/0 is administratively down, line protocol is down`
		
		`[Additional display text omitted from this example]`

Cisco 7140 series routers	**show interfaces ethernet**, followed by *slot/port* (port-adapter-slot-number/ interface-port-number)	The example is for interface 0 on a port adapter in port adapter slot 4.
		
		`Router# show interfaces ethernet 4/0`
		
		`ethernet 4/0 is administratively down, line protocol is down`
		
		`[Additional display text omitted from this example]`

Table 4-2   Examples of the show interfaces ethernet Command for the Supported Platforms (continued)

Platform	Command	Example
Cisco 7200 series routers and Cisco 7200 VXR routers	**show interfaces ethernet**, followed by *slot/port* (port-adapter-slot-number/ interface-port-number)	The example is for interface 0 on a port adapter in port adapter slot 6. Router# **show interfaces ethernet 6/0** ethernet 6/0 is administratively down, line protocol is down [Additional display text omitted from this example]
Cisco 7201 router	**show interfaces ethernet**, followed by *slot/port* (port-adapter-slot-number/ interface-port-number)	The example is for interface 0 on a port adapter in port adapter slot 1. Router# **show interfaces ethernet 1/0** ethernet 1/0 is administratively down, line protocol is down [Additional display text omitted from this example]
Cisco uBR7223 router	**show interfaces ethernet**, followed by *slot/port* (port-adapter-slot- number/ interface-port-number)	The example is for interface 0 on a port adapter in port adapter slot 1. Router# **show interfaces ethernet 1/0** ethernet 1/0 is administratively down, line protocol is down [Additional display text omitted from this example]
Cisco uBR7246 router	**show interfaces ethernet**, followed by *slot/port* (port-adapter-slot-number/ interface-port-number)	The example is for interface 0 on a port adapter in port adapter slot 2. Router# **show interfaces ethernet 2/0** ethernet 2/0 is administratively down, line protocol is down [Additional display text omitted from this example]
Cisco 7301 router	**show interfaces ethernet**, followed by *slot/port* (port-adapter-slot-number/ interface-port-number)	The example is for interface 0 on a port adapter in port adapter slot 1. Router# **show interfaces ethernet 1/0** ethernet 1/0 is administratively down, line protocol is down [Additional display text omitted from this example]

Table 4-2   Examples of the show interfaces ethernet Command for the Supported Platforms (continued)

Platform	Command	Example

Cisco 7304 PCI Port Adapter Carrier Card in a Cisco 7304 router	**show interfaces ethernet**, followed by *slot/port* (module-slot-number/ interface-port-number)	The example is for interface 0 on a port adapter in a Cisco 7304 PCI Port Adapter Carrier Card in module slot 3 of a Cisco 7304 router.
		
		`Router# `**`show interfaces ethernet 3/0`**
		
		`Ethernet 3/0 is administratively down, line protocol is down`
		
		`[Additional display text omitted from this example]`

Cisco 7401ASR router	**show interfaces ethernet**, followed by *slot/port* (port-adapter-slot-number/ interface-port-number)	The example is for interface 0 on a port adapter in port adapter slot 1.
		
		`Router# `**`show interfaces ethernet 1/0`**
		
		`ethernet 1/0 is administratively down, line protocol is down`
		
		`[Additional display text omitted from this example]`

VIP in Cisco 7000 series routers or Cisco 7500 series routers	**show interfaces ethernet**, followed by *slot/port adapter/port* (interface-processor-slot-number/ port-adapter-slot-number/ interface-port-number)	The example is for interface 0 on a port adapter in port adapter slot 1 of a VIP in interface processor slot 1.
		
		`Router# `**`show interfaces ethernet 1/1/0`**
		
		`ethernet 1/1/0 is administratively down, line protocol is down`
		
		`[Additional display text omitted from this example]`

Step 6   Re-enable interfaces by doing the following:

a.   Repeat Step 3 to re-enable an interface. Substitute the **no shutdown** command for the **shutdown** command.

b.   Repeat Step 4 to write the new configuration to memory. Use the **copy running-config startup-config** command.

c.   Repeat Step 5 to verify that the interfaces are in the correct state. Use the **show interfaces** command followed by the interface type and interface address of the interface.

For complete descriptions of software configuration commands, refer to the publications listed in the "Related Documentation" section on page viii.

Performing a Basic Interface Configuration

Following are instructions for a basic configuration, which include enabling an interface, and specifying IP routing. You might also need to enter other configuration subcommands, depending on the requirements for your system configuration and the protocols you plan to route on the interface. For complete descriptions of configuration subcommands and the configuration options available for ethernet interfaces, refer to the appropriate software documentation.

In the following procedure, press the **Return** key after each step unless otherwise noted. At any time you can exit the privileged level and return to the user level by entering **disable** at the prompt as follows:

```
Router# disable

Router>
```

Step 1 Enter configuration mode and specify that the console terminal is the source of the configuration subcommands, as follows:

```
Router# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#
```

Step 2 Specify the first interface to configure by entering the **interface ethernet** subcommand, followed by the interface address of the interface you plan to configure. (The command for your port adapter may be different, for example, **interface atm**.)

Table 4-3 provides examples of **interface ethernet** subcommand for the supported platforms.

Table 4-3   Examples of the interface ethernet Subcommand for the Supported Platforms

Platform	Command	Example

Catalyst RSM/VIP2 in Catalyst 5000 family switches	**interface ethernet**, followed by *slot/port* (port-adapter-slot-number/ interface-port-number)	The example is for interface 0 of a port adapter in port adapter slot 0.
		
		`Router(config)# interface ethernet 0/0`
		`Router(config-if)#`

Cisco 7120 series routers	**interface ethernet**, followed by *slot/port* (port-adapter-slot-number/ interface-port-number)	The example is for interface 0 of a port adapter in port adapter slot 3.
		
		`Router(config)# interface ethernet 3/0`
		`Router(config-if)#`

Cisco 7140 series routers	**interface ethernet**, followed by *slot/port* (port-adapter-slot-number/ interface-port-number)	The example is for interface 0 of a port adapter in port adapter slot 4.
		
		`Router(config)# interface ethernet 4/0`
		`Router(config-if)#`

Cisco 7200 series routers and Cisco 7200 VXR routers	**interface ethernet**, followed by *slot/port* (port-adapter-slot-number/ interface-port-number)	The example is for interface 0 of a port adapter in port adapter slot 6.
		
		`Router(config)# interface ethernet 6/0`
		`Router(config-if)#`

Cisco 7201 router	**interface ethernet**, followed by *slot/port* (port-adapter-slot-number/ interface-port-number)	The example is for interface 0 of a port adapter in port adapter slot 1.
		
		`Router(config)# interface ethernet 1/0`
		`Router(config-if)#`

Table 4-3   Examples of the interface ethernet Subcommand for the Supported Platforms (continued)

Platform	Command	Example
Cisco uBR7223 router	**interface ethernet**, followed by *slot/port* (port-adapter-slot-number/ interface-port-number)	The example is for interface 0 of a port adapter in port adapter slot 1. `Router(config)# `**`interface ethernet 1/0`**` Router(config-if)#`
Cisco uBR7246 router	**interface ethernet**, followed by *slot/port* (port-adapter-slot-number/ interface-port-number)	The example is for interface 0 of a port adapter in port adapter slot 2. `Router(config)# `**`interface ethernet 2/0`**` Router(config-if)#`
Cisco 7301 router	**interface ethernet**, followed by *slot/port* (port-adapter-slot-number/ interface-port-number)	The example is for interface 0 of a port adapter in port adapter slot 1. `Router(config)# `**`interface ethernet 1/0`**` Router(config-if)#`
Cisco 7304 PCI Port Adapter Carrier Card in a Cisco 7304 router	**interface ethernet**, followed by *slot/port* (module-slot-number/ interface-port-number)	The example is for interface 0 on a port adapter in a Cisco 7304 PCI Port Adapter Carrier Card in module slot 3 of a Cisco 7304 router. `Router(config)# `**`interface ethernet 3/0`**` Router(config-if)#`
Cisco 7401ASR router	**interface ethernet**, followed by *slot/port* (port-adapter-slot-number/ interface-port-number)	The example is for interface 0 of a port adapter in port adapter slot 1. `Router(config)# `**`interface ethernet 1/0`**` Router(config-if)#`
VIP in Cisco 7000 series routers or Cisco 7500 series routers	**interface ethernet**, followed by *slot/port adapter/port* (interface-processor-slot-number/ port-adapter-slot-number/ interface-port-number)	The example is for interface 0 of a port adapter in port adapter slot 1 of a VIP in interface processor slot 1. `Router(config)# `**`interface ethernet 1/1/0`**` Router(config-if)#`

Step 3   Assign an IP address and subnet mask to the interface (if IP routing is enabled on the system) by using the **ip address** subcommand, as in the following example:

```
Router(config-if)# ip address 10.0.0.0 10.255.255.255
```

Step 4   Add any additional configuration subcommands required to enable routing protocols and set the interface characteristics.

Step 5   Re-enable the interfaces using the **no shutdown** command. (See the "Shutting Down an Interface" section on page 4-2.)

Step 6   Configure all additional port adapter interfaces as required.

Step 7   After including all of the configuration subcommands to complete your configuration, press **Ctrl-Z**—hold down the **Control** key while you press **Z**—or enter **end** or **exit** to exit configuration mode and return to the EXEC command interpreter prompt.

Step 8   Write the new configuration to NVRAM as follows:

```
Router# copy running-config startup-config
[OK]
Router#
```

This completes the procedure for creating a basic configuration.

Checking the Configuration

After configuring the new interface, use the **show** commands to display the status of the new interface or all interfaces, and use the **ping** command to check connectivity. This section includes the following subsections:

- Using show Commands to Verify the New Interface Status, page 4-10
- Using the ping Command to Verify Network Connectivity, page 4-24

Using show Commands to Verify the New Interface Status

Table 4-4 demonstrates how you can use the **show** commands to verify that new interfaces are configured and operating correctly and that the PA-8E appears in them correctly. Sample displays of the output of selected **show** commands appear in the sections that follow. For complete command descriptions and examples, refer to the publications listed in the "Related Documentation" section on page viii.

✎
Note   The outputs that appear in this document may not match the output you receive when running these commands. The outputs in this document are examples only.

Table 4-4   *Using show Commands*

Command	Function	Example
show version or **show hardware**	Displays system hardware configuration, the number of each interface type installed, Cisco IOS software version, names and sources of configuration files, and boot images	Router# **show version**
show controllers	Displays all the current interface processors and their interfaces	Router# **show controllers**
show diag *slot* **Note** The *slot* argument is not required with Catalyst 5000 family switches.	Displays types of port adapters installed in your system and information about a specific port adapter slot, interface processor slot, or chassis slot	Router# **show diag 2**

Table 4-4   Using show Commands (continued)

Command	Function	Example
show interfaces *type* **0** or **1/** *interface-port-number*	Displays status information about a specific type of interface (for example, serial) on a Catalyst RSM/VIP2	Router# **show interfaces serial 1/0**
show interfaces *type* **3/***interface-port-number*	Displays status information about a specific type of interface (for example, serial) in a Cisco 7120 series router	Router# **show interfaces serial 3/1**
show interfaces *type* **4/***interface-port-number*	Displays status information about a specific type of interface (for example, serial) in a Cisco 7140 series router	Router# **show interfaces serial 4/1**
show interfaces *type port-adapter-slot-number/ interface-port-number*	Displays status information about a specific type of interface (for example, serial) in a Cisco 7200 series router or Cisco 7200 VXR router	Router# **show interfaces serial 1/0**
show interfaces *type* **1/***interface-port-number*	Displays status information about a specific type of interface (for example, serial) in a Cisco uBR7223 router	Router# **show interfaces serial 1/1**
show interfaces *type* **1** or **2/** *interface-port-number*	Displays status information about a specific type of interface (for example, serial) in a Cisco uBR7246 router	Router# **show interfaces serial 2/0**
show interfaces *type interface-processor- slot-number/port-adapter-slot-number/ interface-port-number*	Displays status information about a specific type of interface (for example, serial) on a VIP in a Cisco 7000 series or Cisco 7500 series router	Router# **show interfaces serial 3/1/0**
show interfaces *type slot-number/interface-port-number*	Displays status information about a specific type of interface (for example, serial) on a Cisco 7201 router, Cisco 7301 router or Cisco 7401ASR router	Router# **show interfaces serial 1/0**
show interfaces *type* **2** or **3** or **4** or **5/** *interface-port-number*	Displays status information about a serial interface on a Cisco 7304 PCI Port Adapter Carrier Card in a Cisco 7304 router	Router# **show interfaces ethernet 3/0**
show protocols	Displays protocols configured for the entire system and for specific interfaces	Router# **show protocols**

Table 4-4   Using show Commands (continued)

Command	Function	Example
show running-config	Displays the running configuration file	Router# **show running-config**
show startup-config	Displays the configuration stored in NVRAM	Router# **show startup-config**

If an interface is shut down and you configured it as up, or if the displays indicate that the hardware is not functioning properly, ensure that the interface is properly connected and terminated. If you still have problems bringing up the interface, contact a service representative for assistance. This section includes the following subsections:

- Using the show version or show hardware Commands, page 4-12
- Using the show diag Command, page 4-15
- Using the show interfaces Command, page 4-18

Choose the subsection appropriate for your system. Proceed to the "Using the ping Command to Verify Network Connectivity" section on page 4-24 when you have finished using the **show** commands.

Using the show version or show hardware Commands

Display the configuration of the system hardware, the number of each interface type installed, the Cisco IOS software version, the names and sources of configuration files, and the boot images, using the **show version** (or **show hardware**) command.

The following examples show output for the **show version** command on some of the platforms that support the PA-8E.

Note   The outputs that appear in this document may not match the output you receive when running these commands. The outputs in this document are examples only.

The following sections provide platform-specific output examples using the **show version** command:

- Catalyst RSM/VIP2 in Catalyst 5000 Family Switches—Example Output of the show version Command, page 4-13
- Cisco 7200 Series and Cisco uBR7200 Series Routers—Example Output of the show version Command, page 4-13
- Cisco 7201 Router—Example Output of the show version Command, page 4-14
- Cisco 7401ASR Router—Example Output of the show version Command, page 4-14
- VIP in Cisco 7000 Series Routers and Cisco 7500 Series Routers—Example Output of the show version Command, page 4-15

Catalyst RSM/VIP2 in Catalyst 5000 Family Switches—Example Output of the show version Command

Following is an example of the **show version** command from a Catalyst 5000 family switch with a PA-8E installed:

```
Router# show version

Cisco Internetwork Operating System Software
IOS (tm) GS Software (RSP-A), Version 12.0(471) [mpo 105]
Copyright (c) 1986-1995 by cisco Systems, Inc.
Image text-base: 0x600088A0, data-base: 0x605A4000

ROM: System Bootstrap, Version 5.3(16645)

honda uptime is 4 hours, 22 minutes
System restarted by reload
System image file is "slot0:rsp-a111-1", booted via slot0

cisco RSP2 (R4600) processor with 32768K bytes of memory.
R4600 processor, Implementation 32, Revision 2.0
Last reset from power-on
G.703/E1 software, Version 1.0.
Bridging software.
X.25 software, Version 2.0, NET2, BFE and GOSIP compliant.
Chassis Interface.
1 VIP2 controllers (16 Ethernet).
16 Ethernet/IEEE 802.3 interfaces.
125K bytes of non-volatile configuration memory.

20480K bytes of Flash PCMCIA card at slot 0 (Sector size 128K).
8192K bytes of Flash internal SIMM (Sector size 256K).
No slave installed in slot 6.
Configuration register is 0x2
```

Cisco 7200 Series and Cisco uBR7200 Series Routers—Example Output of the show version Command

Following is an example of the **show version** command from a Cisco 7200 series router with a PA-8E installed:

```
Router# show version

Cisco Internetwork Operating System Software
IOS (tm) 7200 Software (C7200-J-M), Version 11.1(472) [biff 105]
Copyright (c) 1986-1996 by cisco Systems, Inc.
Image text-base: 0x600088A0, data-base: 0x605A4000

ROM: System Bootstrap, Version 12.0(10979) RELEASED SOFTWARE

Router uptime is 8 hours, 22 minutes
System restarted by reload
System image file is "slot0:c7200-j-mz.960421", booted via slot0

cisco 7200 (R4700) processor with 22528K/10240K bytes of memory.
R4700 processor, Implementation 33, Revision 1.0
Last reset from power-on
Bridging software.
X.25 software, Version 2.0, NET2, BFE and GOSIP compliant.
Chassis Interface.
4 Ethernet/IEEE 802.3 interfaces.
5 FastEthernet/IEEE 802.3 interfaces.
125K bytes of non-volatile configuration memory.
```

```
20480K bytes of Flash PCMCIA card at slot 0 (Sector size 128K).
8192K bytes of Flash internal SIMM (Sector size 256K).
Configuration register is 0x2
```

Cisco 7201 Router—Example Output of the show version Command

Following is an example of the **show version** command from a Cisco 7201 router:

```
Router# show version
Cisco IOS Software, 7200 Software (C7200P-ADVENTERPRISEK9-M), Version
12.4(biffDEV.061001), INTERIM SOFTWARE Copyright (c) 1986-2006 by Cisco Systems, Inc.
Compiled Sun 01-Oct-06 23:42 by biff
ROM: System Bootstrap, Version 12.4(4r)XD5, RELEASE SOFTWARE (fc1)
BOOTLDR: Cisco IOS Software, 7200 Software (C7200P-KBOOT-M), Version 12.4(TAZ3DEV.060927),
INTERIM SOFTWARE
c7201alpha1 uptime is 5 days, 18 hours, 32 minutes System returned to ROM by power-on
System image file is "disk0:c7200p-adventerprisek9-mz.2006-10-01.biffdev"
This product contains cryptographic features and is subject to United States and local
country laws governing import, export, transfer and use. Delivery of Cisco cryptographic
products does not imply third-party authority to import, export, distribute or use
encryption.
Importers, exporters, distributors and users are responsible for compliance with U.S. and
local country laws. By using this product you agree to comply with applicable laws and
regulations. If you are unable to comply with U.S. and local laws, return this product
immediately.
A summary of U.S. laws governing Cisco cryptographic products may be found at:
http://www.cisco.com/wwl/export/crypto/tool/stqrg.html
If you require further assistance please contact us by sending email to export@cisco.com.
Cisco 7201 (c7201) processor (revision A) with 917504K/65536K bytes of memory.
Processor board ID 2222222222222
MPC7448 CPU at 1666Mhz, Implementation 0, Rev 2.2
1 slot midplane, Version 2.255
Last reset from power-on
1 FastEthernet interface
4 Gigabit Ethernet interfaces
2045K bytes of NVRAM.
62443K bytes of USB Flash usbflash0 (Read/Write)
250880K bytes of ATA PCMCIA card at slot 0 (Sector size 512 bytes).
65536K bytes of Flash internal SIMM (Sector size 512K).
Configuration register is 0x2
```

Cisco 7401ASR Router—Example Output of the show version Command

Following is an example of the **show version** command from a Cisco 7401ASR router with a PA-8E installed:

```
Router# show version

Cisco Internetwork Operating System Software
IOS (tm) 7401ASR Software (C7401ASR-J-M), Version 11.1(472) [biff 105]
Copyright (c) 1986-1996 by cisco Systems, Inc.
Image text-base: 0x600088A0, data-base: 0x605A4000

ROM: System Bootstrap, Version 12.0(10979) RELEASED SOFTWARE

Router uptime is 8 hours, 22 minutes
System restarted by reload
System image file is "slot0:c7401ASR-j-mz.960421", booted via slot0

cisco 7401ASR (R4700) processor with 22528K/10240K bytes of memory.
R4700 processor, Implementation 33, Revision 1.0
```

```
Last reset from power-on
Bridging software.
X.25 software, Version 2.0, NET2, BFE and GOSIP compliant.
Chassis Interface.
4 Ethernet/IEEE 802.3 interfaces.
5 FastEthernet/IEEE 802.3 interfaces.
125K bytes of non-volatile configuration memory.

20480K bytes of Flash PCMCIA card at slot 0 (Sector size 128K).
8192K bytes of Flash internal SIMM (Sector size 256K).
Configuration register is 0x2
```

VIP in Cisco 7000 Series Routers and Cisco 7500 Series Routers—Example Output of the show version Command

Following is an example of the **show version** command from a Cisco 7500 series router with a PA-8E installed:

```
Router# show version

Cisco Internetwork Operating System Software
IOS (tm) GS Software (RSP-A), Version 12.0(471) [mpo 105]
Copyright (c) 1986-1995 by cisco Systems, Inc.
Image text-base: 0x600088A0, data-base: 0x605A4000

ROM: System Bootstrap, Version 5.3(16645)

honda uptime is 4 hours, 22 minutes
System restarted by reload
System image file is "slot0:rsp-a111-1", booted via slot0

cisco RSP2 (R4600) processor with 32768K bytes of memory.
R4600 processor, Implementation 32, Revision 2.0
Last reset from power-on
G.703/E1 software, Version 1.0.
Bridging software.
X.25 software, Version 2.0, NET2, BFE and GOSIP compliant.
Chassis Interface.
1 VIP2 controllers (16 Ethernet).
16 Ethernet/IEEE 802.3 interfaces.
125K bytes of non-volatile configuration memory.

20480K bytes of Flash PCMCIA card at slot 0 (Sector size 128K).
8192K bytes of Flash internal SIMM (Sector size 256K).
No slave installed in slot 6.
Configuration register is 0x2
```

Using the show diag Command

Display the types of port adapters installed in your system (and specific information about each) using the **show diag** *slot* command, where *slot* is the *port adapter slot* in a Catalyst 5000 family switch, Cisco 7100 series router, Cisco 7200 series router, Cisco 7200 VXR router, Cisco uBR7200 series router, Cisco 7201 router, Cisco 7301 router, and Cisco 7401ASR router, the *module slot* in a Cisco 7304 PCI Port Adapter Carrier Card in a Cisco 7304 router, and the *interface processor slot* in a Cisco 7000 series router or Cisco 7500 series router with a VIP.

Note   The outputs that appear in this document may not match the output you receive when running these commands. The outputs in this document are examples only.

Note The *slot* argument is not required for Catalyst 5000 family switches.

The following sections provide platform-specific output examples using the **show diag** command:

Catalyst RSM/VIP2 in Catalyst 5000 Family Switches—Example Output of the show diag Command

Following is an example of the **show diag** command that shows a PA-8E installed in a Catalyst RSM/VIP2:

```
Router# show diag 0
Slot 0:
Ethernet port adapter, 8 ports
Port adapter is analyzed
Port adapter insertion time 2d09h ago
Hardware revision 1.14        Board revision A0
Serial number    4294967295   Part number     73-1556-04
Test history     0x0          RMA number      00-00-00
EEPROM format version 1
EEPROM contents (hex):
0x20:01 01 01 0E FF FF FF FF 49 06 14 04 00 00 00 00
0x30:50 00 00 00 FF FF FF FF FF FF FF FF FF FF FF

        Slot database information:
        Flags: 0x4      Insertion time: 0x1DEC (2d00h ago)
```

Cisco 7200 Series Routers and Cisco uBR7200 Series Routers—Example Output of the show diag Command

Following is an example of the **show diag** command that shows a PA-8E installed in port adapter slot 4 of a Cisco 7200 series router:

```
Router# show diag 4
Slot 4:
Ethernet port adapter, 8 ports
Port adapter is analyzed
Port adapter insertion time 2d09h ago
Hardware revision 1.1         Board revision A0
Serial number    4294967295   Part number     73-1556-04
Test history     0x0          RMA number      00-00-00
EEPROM format version 1
EEPROM contents (hex):
0x20: 01 02 01 01 FF FF FF FF 49 06 14 04 00 00 00 00
0x30: 50 00 00 00 FF FF FF FF FF FF FF FF FF FF FF
```

Port adapters used with the Cisco 7200 VXR and Cisco uBR7246 VXR routers require the correct base hardware revision to function. The following error message will occur on bootup if the incorrect hardware revision is used:

```
PA-3-REVNOTSUPPORTED:PA in slot 1 (Ethernet) requires base h/w revision of (1.14) for
this chassis
```

Use the **show diag** command to display the hardware revision.

Note   For complete command descriptions and examples for Cisco 7200 series routers, Cisco 7100 series routers, and Cisco uBR7200 series universal broadband routers, refer to the publications listed in the "Related Documentation" section on page viii.

Cisco 7201 Router—Example Output of the show diag Command

Following is an example of the **show diag** command from a Cisco 7201 router:

```
Router# show diag 1
Slot 1:
    Dual OC3 POS Port adapter, 2 ports
    Port adapter is analyzed
    Port adapter insertion time 00:02:19 ago
    EEPROM contents at hardware discovery:
    Hardware Revision : 1.0
    PCB Serial Number : JAE07520DYL
    Part Number : 73-8220-02
    Board Revision : A0
    RMA Test History : 00
    RMA Number : 0-0-0-0
    RMA History : 00
    Deviation Number : 0
    Product (FRU) Number : PA-POS-2OC3
    Top Assy. Part Number : 800-21857-02
    EEPROM format version 4
    EEPROM contents (hex):
        0x00: 04 FF 40 03 E3 41 01 00 C1 8B 4A 41 45 30 37 35
        0x10: 32 30 44 59 4C 82 49 20 1C 02 42 41 30 03 00 81
        0x20: 00 00 00 00 04 00 88 00 00 00 00 CB 94 50 41 2D
        0x30: 50 4F 53 2D 32 4F 43 33 20 20 20 20 20 20 20 20
        0x40: 20 C0 46 03 20 00 55 61 02 FF FF FF FF FF FF FF
        0x50: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
        0x60: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
        0x70: FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF FF
```

Cisco 7401ASR Router—Example Output of the show diag Command

Following is an example of the **show diag** command that shows a PA-8E installed in port adapter slot 1 of a Cisco 7401ASR router:

```
Router# show diag 1

Slot 1:
Ethernet port adapter, 8 ports
Port adapter is analyzed
Port adapter insertion time 2d09h ago
Hardware revision 1.1          Board revision A0
Serial number    4294967295    Part number    73-1556-04
Test history     0x0           RMA number     00-00-00
EEPROM format version 1
EEPROM contents (hex):
0x20: 01 02 01 01 FF FF FF FF 49 06 14 04 00 00 00 00
0x30: 50 00 00 00 FF FF FF FF FF FF FF FF FF FF FF FF
```

VIP in Cisco 7000 Series Routers and Cisco 7500 Series Routers—Example Output of the show diag Command

Following is an example of the **show diag** command that shows a PA-8E installed in port adapter slot 0 on a VIP2 in interface processor slot 4:

```
Router# show diag 4
Slot 4:
Ethernet port adapter, 8 ports
Port adapter is analyzed
Port adapter insertion time 2d09h ago
Hardware revision 1.14          Board revision A0
Serial number    4294967295    Part number    73-1556-04
Test history     0x0           RMA number     00-00-00
EEPROM format version 1
EEPROM contents (hex):
0x20:01 01 01 0E FF FF FF FF 49 06 14 04 00 00 00 00
0x30:50 00 00 00 FF FF FF FF FF FF FF FF FF FF FF FF

        Slot database information:
        Flags: 0x4      Insertion time: 0x1DEC (2d00h ago)

        Controller Memory Size: 8 MBytes

        PA Bay 1 Information:
                Ethernet PA, 8 ports
                EEPROM format version 1
                HW rev 1.1, Board revision 80
                Serial number: 02825590  Part number: 73-1391-04
```

Note   For complete VIP command descriptions and examples, refer to the publications listed in the "Related Documentation" section on page viii.

Using the show interfaces Command

Display s status information (including the physical slot and interface address) for the interfaces you specify using the **show interfaces** command.

With the **show interfaces** command, use arguments such as the interface type (**ethernet**, and so forth) and the port adapter and port numbers (port adapter/port) to display information about a specific Ethernet 10BaseT interface only.

For complete descriptions of interface subcommands and the configuration options available for the individual platforms, refer to the publications listed in the "Related Documentation" section on page viii.

Note   The outputs that appear in this document may not match the output you receive when running these commands. The outputs in this document are examples only.

The following sections provide platform-specific output examples using the **show interfaces** command:

Catalyst RSM/VIP2 in Catalyst 5000 Family Switches—Example Output of the show interfaces Command

Following are examples of the **show interfaces ethernet** command from a Catalyst 5000 family switch. In these examples, the eight serial interfaces (0 to 7) are on a port adapter in port adapter slot 0 of a Catalyst RSM/VIP2; also, most of the status information for each interface is omitted. (Interfaces are administratively shut down until you enable them.)

```
Router# show interfaces ethernet 0/0
Ethernet0/0 is administratively down, line protocol is down
  Hardware is cyBus Ethernet, address is 0000.0ca5.2300 (bia 0000.0ca5.2389)
  MTU 1500 bytes, BW 10000 Kbit, DLY 1000 usec, rely 255/255, load 1/255
  Encapsulation ARPA, loopback not set, keepalive set (10 sec)
(display text omitted)

Router# show interfaces ethernet 0/1
Ethernet0/1 is administratively down, line protocol is down
  Hardware is cyBus Ethernet, address is 0000.0ca5.2301 (bia 0000.0ca5.238a)
  MTU 1500 bytes, BW 10000 Kbit, DLY 1000 usec, rely 255/255, load 1/255
  Encapsulation ARPA, loopback not set, keepalive set (10 sec)
(display text omitted)

Router# show interfaces ethernet 0/2
Ethernet0/2 is administratively down, line protocol is down
  Hardware is cyBus Ethernet, address is 0000.0ca5.2302 (bia 0000.0ca5.238b)
  MTU 1500 bytes, BW 10000 Kbit, DLY 1000 usec, rely 255/255, load 1/255
  Encapsulation ARPA, loopback not set, keepalive set (10 sec)
(display text omitted)

Router# show interfaces ethernet 0/3
Ethernet0/3 is administratively down, line protocol is down
  Hardware is cyBus Ethernet, address is 0000.0ca5.2303 (bia 0000.0ca5.238c)
  MTU 1500 bytes, BW 10000 Kbit, DLY 1000 usec, rely 255/255, load 1/255
  Encapsulation ARPA, loopback not set, keepalive set (10 sec)
(display text omitted)

Router# show interfaces ethernet 0/4
Ethernet0/4 is administratively down, line protocol is down
  Hardware is cyBus Ethernet, address is 0000.0ca5.2304 (bia 0000.0ca5.238d)
  MTU 1500 bytes, BW 10000 Kbit, DLY 1000 usec, rely 255/255, load 1/255
  Encapsulation ARPA, loopback not set, keepalive set (10 sec)
(display text omitted)

Router# show interfaces ethernet 0/5
Ethernet0/5 is administratively down, line protocol is down
  Hardware is cyBus Ethernet, address is 0000.0ca5.2305 (bia 0000.0ca5.238e)
  MTU 1500 bytes, BW 10000 Kbit, DLY 1000 usec, rely 255/255, load 1/255
  Encapsulation ARPA, loopback not set, keepalive set (10 sec)
(display text omitted)
```

```
Router# show interfaces ethernet 0/6
Ethernet0/6 is administratively down, line protocol is down
  Hardware is cyBus Ethernet, address is 0000.0ca5.2306 (bia 0000.0ca5.238f)
  MTU 1500 bytes, BW 10000 Kbit, DLY 1000 usec, rely 255/255, load 1/255
  Encapsulation ARPA, loopback not set, keepalive set (10 sec)
(display text omitted)

Router# show interfaces ethernet 0/7
Ethernet0/7 is administratively down, line protocol is down
  Hardware is cyBus Ethernet, address is 0000.0ca5.2307 (bia 0000.0ca5.2391)
  MTU 1500 bytes, BW 10000 Kbit, DLY 1000 usec, rely 255/255, load 1/255
  Encapsulation ARPA, loopback not set, keepalive set (10 sec)
```

The following example of the **show interfaces ethernet** command shows all of the information specific to the first PA-8E interface port (interface port 0) in port adapter slot 1:

```
Router# show interfaces ethernet 1/0
Ethernet1/0 is administratively down, line protocol is down
  Hardware is cyBus Ethernet, address is 0000.0ca5.2309 (bia 0000.0ca5.2392)
  MTU 1500 bytes, BW 10000 Kbit, DLY 1000 usec, rely 255/255, load 1/255
  Encapsulation ARPA, loopback not set, keepalive set (10 sec)
  ARP type: ARPA, ARP Timeout 4:00:00
  Last input never, output never, output hang never
  Last clearing of "show interface" counters 2:56:26
  Output queue 0/40, 0 drops; input queue 0/75, 0 drops
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 0 bits/sec, 0 packets/sec
     0 packets input, 0 bytes, 0 no buffer
     Received 0 broadcasts, 0 runts, 0 giants
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
     0 input packets with dribble condition detected
     0 packets output, 0 bytes, 0 underruns
     0 output errors, 0 collisions, 0 interface resets, 0 restarts
     0 output buffer failures, 0 output buffers swapped out
```

Cisco 7200 Series and Cisco uBR7200 Series Routers—Example Output of the show interfaces Command

Following are examples of the **show interfaces** command from a Cisco 7200 series router or a Cisco uBR7200 series router. In these examples, the eight serial interfaces (0 to 7) are on a port adapter in port adapter slot 2; also, most of the status information for each interface is omitted. (Interfaces are administratively shut down until you enable them.)

```
Router# show interfaces ethernet 2/0
Ethernet2/0 is administratively down, line protocol is down
  Hardware is AmdP2 Ethernet, address is 10.0.0.0 10.255.255.255 (bia 0000.0ca5.2389)
  MTU 1500 bytes, BW 10000 Kbit, DLY 1000 usec, rely 255/255, load 1/255
  Encapsulation ARPA, loopback not set, keepalive set (10 sec)
(display text omitted)

Router# show interfaces ethernet 2/1
Ethernet2/1 is administratively down, line protocol is down
  Hardware is AmdP2 Ethernet, address is 10.0.0.0 10.255.255.255 (bia 0000.0ca5.238a)
  MTU 1500 bytes, BW 10000 Kbit, DLY 1000 usec, rely 255/255, load 1/255
  Encapsulation ARPA, loopback not set, keepalive set (10 sec)
(display text omitted)Router# sh int e 2/2

Ethernet2/2 is administratively down, line protocol is down
  Hardware is AmdP2 Ethernet, address is 10.0.0.0 10.255.255.255 (bia 0000.0ca5.238b)
  MTU 1500 bytes, BW 10000 Kbit, DLY 1000 usec, rely 255/255, load 1/255
  Encapsulation ARPA, loopback not set, keepalive set (10 sec)
(display text omitted)
```

```
Router# show interfaces ethernet 2/3
Ethernet2/3 is administratively down, line protocol is down
  Hardware is AmdP2 Ethernet, address is 10.0.0.0 10.255.255.255 (bia 0000.0ca5.238c)
  MTU 1500 bytes, BW 10000 Kbit, DLY 1000 usec, rely 255/255, load 1/255
  Encapsulation ARPA, loopback not set, keepalive set (10 sec)
(display text omitted)


Router# show interfaces ethernet 2/4
Ethernet2/4 is administratively down, line protocol is down
  Hardware is AmdP2 Ethernet, address is 10.0.0.0 10.255.255.255 (bia 0000.0ca5.238d)
  MTU 1500 bytes, BW 10000 Kbit, DLY 1000 usec, rely 255/255, load 1/255
  Encapsulation ARPA, loopback not set, keepalive set (10 sec)
(display text omitted)



Router# show interfaces ethernet 2/5
Ethernet2/5 is administratively down, line protocol is down
  Hardware is AmdP2 Ethernet, address is 10.0.0.0 10.255.255.255 (bia 0000.0ca5.238e)
  MTU 1500 bytes, BW 10000 Kbit, DLY 1000 usec, rely 255/255, load 1/255
  Encapsulation ARPA, loopback not set, keepalive set (10 sec)
(display text omitted)


Router# show interfaces ethernet 2/6
Ethernet2/6 is administratively down, line protocol is down
  Hardware is AmdP2 Ethernet, address is 10.0.0.0 10.255.255.255 (bia 0000.0ca5.238f)
  MTU 1500 bytes, BW 10000 Kbit, DLY 1000 usec, rely 255/255, load 1/255
  Encapsulation ARPA, loopback not set, keepalive set (10 sec)
(display text omitted)


Router# show interfaces ethernet 2/7
Ethernet2/7 is administratively down, line protocol is down
  Hardware is AmdP2 Ethernet, address is 10.0.0.0 10.255.255.255 (bia 0000.0ca5.2391)
  MTU 1500 bytes, BW 10000 Kbit, DLY 1000 usec, rely 255/255, load 1/255
  Encapsulation ARPA, loopback not set, keepalive set (10 sec)
(display text omitted]
```

The following example of the **show interfaces ethernet** command shows all of the information specific
to the first 8E interface port (interface port 0) in port adapter slot 2:

```
Router# show interfaces ethernet 2/0
Ethernet2/0 is administratively down, line protocol is down
  Hardware is AmdP2 Ethernet, address is 10.0.0.0 10.255.255.255 (bia 0000.0ca5.2392)
  MTU 1500 bytes, BW 10000 Kbit, DLY 1000 usec, rely 255/255, load 1/255
  Encapsulation ARPA, loopback not set, keepalive set (10 sec)
  ARP type: ARPA, ARP Timeout 4:00:00
  Last input never, output never, output hang never
  Last clearing of "show interface" counters 2:56:26
  Output queue 0/40, 0 drops; input queue 0/75, 0 drops
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 0 bits/sec, 0 packets/sec
     0 packets input, 0 bytes, 0 no buffer
     Received 0 broadcasts, 0 runts, 0 giants
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
     0 input packets with dribble condition detected
     0 packets output, 0 bytes, 0 underruns
     0 output errors, 0 collisions, 0 interface resets, 0 restarts
```

Cisco 7201 Router—Example Output of the show interfaces Command

Following is an example of the **show interfaces** command from a Cisco 7201 router:

```
Router# show interfaces
GigabitEthernet0/0 is up, line protocol is up
  Hardware is MV64460 Internal MAC, address is 0019.56c5.2adb (bia
0019.56c5.2adb)
  Internet address is 209.165.200.225
  MTU 1500 bytes, BW 1000000 Kbit, DLY 10 usec,
     reliability 255/255, txload 1/255, rxload 45/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  Full-duplex, 1000Mb/s, media type is RJ45
  output flow-control is XON, input flow-control is XON
  ARP type: ARPA, ARP Timeout 04:00:00
  Last input 00:07:03, output 00:00:07, output hang never
  Last clearing of "show interface" counters 00:00:04
  Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
  Queueing strategy: fifo
  Output queue: 0/40 (size/max)
  5 minute input rate 180240000 bits/sec, 430965 packets/sec
  5 minute output rate 0 bits/sec, 0 packets/sec
     2222975 packets input, 133378500 bytes, 0 no buffer
     Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     0 watchdog, 0 multicast, 0 pause input
     0 input packets with dribble condition detected
     0 packets output, 0 bytes, 0 underruns
     0 output errors, 0 collisions, 0 interface resets
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier, 0 pause output
     0 output buffer failures, 0 output buffers swapped out
```

Cisco 7401ASR Router—Example Output of the show interfaces Command

Following is an example of the **show interfaces ethernet** command from a Cisco 7401ASR router:

```
Router# show interfaces ethernet 1/0
POS1/0 is up, line protocol is up
Hardware is Packet over Sonet
Internet address is 1.1.1.2/8
MTU 4470 bytes, BW 155000 Kbit, DLY 100 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation HDLC, crc 16, loopback not set
Keepalive not set
Scramble disabled
Last input 00:00:16, output never, output hang never
Last clearing of "show interface" counters never
Queueing strategy:fifo
Output queue 0/40, 0 drops; input queue 0/75, 0 drops
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
7 packets input, 1158 bytes, 0 no buffer
Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
0 parity
10 input errors, 10 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
7 packets output, 1158 bytes, 0 underruns
0 output errors, 0 applique, 1 interface resets
0 output buffer failures, 0 output buffers swapped out
0 carrier transitions
```

VIP in Cisco 7000 Series Routers or Cisco 7500 Series Routers—Example Output of the show interfaces Command

Following are examples of the **show interfaces** command used with the VIP. In these examples, the eight serial interfaces (0 to 7) are on a port adapter in port adapter slot 0 of a VIP in interface processor slot 3; also, most of the status information for each interface is omitted. (Interfaces are administratively shut down until you enable them.)

```
Router# show interfaces ethernet 3/0/0
Ethernet3/0/0 is administratively down, line protocol is down
  Hardware is cyBus Ethernet, address is 0000.0ca5.2300 (bia 0000.0ca5.2389)
  MTU 1500 bytes, BW 10000 Kbit, DLY 1000 usec, rely 255/255, load 1/255
  Encapsulation ARPA, loopback not set, keepalive set (10 sec)
(display text omitted)

Router# show interfaces ethernet 3/0/1
Ethernet3/0/1 is administratively down, line protocol is down
  Hardware is cyBus Ethernet, address is 0000.0ca5.2301 (bia 0000.0ca5.238a)
  MTU 1500 bytes, BW 10000 Kbit, DLY 1000 usec, rely 255/255, load 1/255
  Encapsulation ARPA, loopback not set, keepalive set (10 sec)
(display text omitted)

Router# show interfaces ethernet 3/0/2
Ethernet3/0/2 is administratively down, line protocol is down
  Hardware is cyBus Ethernet, address is 0000.0ca5.2302 (bia 0000.0ca5.238b)
  MTU 1500 bytes, BW 10000 Kbit, DLY 1000 usec, rely 255/255, load 1/255
  Encapsulation ARPA, loopback not set, keepalive set (10 sec)
(display text omitted)

Router# show interfaces ethernet 3/0/3
Ethernet3/0/3 is administratively down, line protocol is down
  Hardware is cyBus Ethernet, address is 0000.0ca5.2303 (bia 0000.0ca5.238c)
  MTU 1500 bytes, BW 10000 Kbit, DLY 1000 usec, rely 255/255, load 1/255
  Encapsulation ARPA, loopback not set, keepalive set (10 sec)
(display text omitted)

Router# show interfaces ethernet 3/0/4
Ethernet3/0/4 is administratively down, line protocol is down
  Hardware is cyBus Ethernet, address is 0000.0ca5.2304 (bia 0000.0ca5.238d)
  MTU 1500 bytes, BW 10000 Kbit, DLY 1000 usec, rely 255/255, load 1/255
  Encapsulation ARPA, loopback not set, keepalive set (10 sec)
(display text omitted)

Router# show interfaces ethernet 3/0/5
Ethernet3/0/5 is administratively down, line protocol is down
  Hardware is cyBus Ethernet, address is 0000.0ca5.2305 (bia 0000.0ca5.238e)
  MTU 1500 bytes, BW 10000 Kbit, DLY 1000 usec, rely 255/255, load 1/255
  Encapsulation ARPA, loopback not set, keepalive set (10 sec)
(display text omitted)

Router# show interfaces ethernet 3/0/6
Ethernet3/0/6 is administratively down, line protocol is down
  Hardware is cyBus Ethernet, address is 0000.0ca5.2306 (bia 0000.0ca5.238f)
  MTU 1500 bytes, BW 10000 Kbit, DLY 1000 usec, rely 255/255, load 1/255
  Encapsulation ARPA, loopback not set, keepalive set (10 sec)
(display text omitted)

Router# show interfaces ethernet 3/0/7
Ethernet3/0/7 is administratively down, line protocol is down
  Hardware is cyBus Ethernet, address is 0000.0ca5.2307 (bia 0000.0ca5.2391)
  MTU 1500 bytes, BW 10000 Kbit, DLY 1000 usec, rely 255/255, load 1/255
  Encapsulation ARPA, loopback not set, keepalive set (10 sec)
```

The following example of the **show interfaces ethernet** command shows all of the information specific to the first PA-8E interface port (interface port 0) in chassis slot 3, port adapter slot 1:

```
Router# show interfaces ethernet 3/1/0
Ethernet3/1/0 is administratively down, line protocol is down
  Hardware is cyBus Ethernet, address is 0000.0ca5.2309 (bia 0000.0ca5.2392)
  MTU 1500 bytes, BW 10000 Kbit, DLY 1000 usec, rely 255/255, load 1/255
  Encapsulation ARPA, loopback not set, keepalive set (10 sec)
  ARP type: ARPA, ARP Timeout 4:00:00
  Last input never, output never, output hang never
  Last clearing of "show interface" counters 2:56:26
  Output queue 0/40, 0 drops; input queue 0/75, 0 drops
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 0 bits/sec, 0 packets/sec
     0 packets input, 0 bytes, 0 no buffer
     Received 0 broadcasts, 0 runts, 0 giants
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
     0 input packets with dribble condition detected
     0 packets output, 0 bytes, 0 underruns
     0 output errors, 0 collisions, 0 interface resets, 0 restarts
     0 output buffer failures, 0 output buffers swapped out
```

Proceed to the next section, "Using the ping Command to Verify Network Connectivity," to check network connectivity of the PA-8E and switch or router.

Using the ping Command to Verify Network Connectivity

Using the **ping** command, you can verify that an interface port is functioning properly. This section provides a brief description of this command. Refer to the publications listed in the "Related Documentation" section on page viii for detailed command descriptions and examples.

The **ping** command sends echo request packets out to a remote device at an IP address that you specify. After sending an echo request, the system waits a specified time for the remote device to reply. Each echo reply is displayed as an exclamation point (!) on the console terminal; each request that is not returned before the specified timeout is displayed as a period (.). A series of exclamation points (!!!!!) indicates a good connection; a series of periods (.....) or the messages [timed out] or [failed] indicate a bad connection.

Following is an example of a successful **ping** command to a remote server with the address 10.0.0.10:

```
Router# ping 10.0.0.10 <Return>
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echoes to 10.0.0.10, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 1/15/64 ms
Router#
```

If the connection fails, verify that you have the correct IP address for the destination and that the device is active (powered on), and repeat the **ping** command.