

Installing the Switch

This chapter describes how to install Catalyst 2926 and Catalyst 2926G series switches. For first-time installations, perform the procedures in the following sections in the order listed.

- Safety Overview on page 4-2
- Unpacking the Switch on page 4-3
- Rack-Mounting the Switch on page 4-4
- Using Flash PC Cards (Catalyst 2926G Series Switch Only) on page 4-10
- Connecting a Terminal to the Console Port on page 4-12
- Supervisor Engine Uplink Ports on page 4-14
- Verifying System Operation on page 4-16

Note Before starting the installation procedures in this chapter, use the “Site Planning Checklist” section on page 3-16 to verify that all site planning activities were completed.

Safety Overview

This section provides safety information that you should read and understand to ensure a safe switch installation.

Ensuring Safety

Follow these guidelines to ensure your safety and protect the equipment. This list is not inclusive of all potentially hazardous situations that you may be exposed to as you install the switch, so *be alert*.

- Always unplug all power cords before installing or removing a chassis.
- Keep the chassis area clear and free of dust during and after installation.
- Keep tools and chassis components off the floor and away from foot traffic.
- Avoid wearing jewelry (including rings and chains) or other items that could get caught in the chassis. Avoid wearing any loose clothing or securely fasten items such as ties, scarves, or sleeves.



Warning Before working on equipment that is connected to power lines, remove jewelry (including rings, necklaces, and watches). Metal objects will heat up when connected to power and ground and can cause serious burns or weld the metal object to the terminals.

Working Safely with Electricity

Follow these basic guidelines when working with any electrical equipment:

- Locate the emergency power-off switch for the room in which you are working before beginning installation.
- Disconnect all power and external cables before installing or removing a chassis.
- Do not work alone when potentially hazardous conditions exist.
- Never assume that power has been disconnected from a circuit; always check.
- Do not perform any action that creates a potential hazard to people or makes the equipment unsafe.

- Examine your work area carefully for possible hazards, such as moist floors, ungrounded power extension cables, and missing safety grounds.



Warning Do not work on the system or connect or disconnect cables during periods of lightning activity.

- Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.
- Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.
- Use caution when installing or modifying telephone lines.

Unpacking the Switch

Note See Appendix C, “Preventing ESD Damage,” for details on preventing electrostatic discharge (ESD) including the location of the ESD connector on the Catalyst 2926 and Catalyst 2926G series switches.

Note Do not discard the shipping container when you unpack the switch. Flatten the shipping cartons and store them. You will need these containers if you need to move or ship the switch in the future. Repacking instructions are provided in Appendix D, “Repacking a Switch.”

Perform the following steps to check the contents of the shipping container:

- Step 1** Check the contents of the accessories box against the Accessories Box Components Checklist and the packing slip. Verify that you received all listed equipment, which should include the following:
- Switch hardware and software documentation, if ordered
 - Optional equipment that you ordered, such as network interface cables, transceivers, or special connectors
- Step 2** Check the switch to ensure that the model shipped matches the model listed on the packing list.
- Step 3** To begin installation, proceed to the section “Rack-Mounting the Switch.”

Rack-Mounting the Switch

A rack-mount kit is included for mounting either the Catalyst 2926 or Catalyst 2926G series switch in a standard 19-inch (48.3-centimeter) equipment rack. The equipment rack must meet the following criteria:

- Two unobstructed outer posts
- A minimum depth (between the front and rear mounting posts) of 19.25 inches (48.9 centimeters)
- A maximum depth of 32 inches (81.3 centimeters)

The rack-mount kit is not suitable for use with other racks, such as telco-type equipment racks, or those with obstructions (such as a power strip) that could impair access to switch.



Caution Before installing the chassis in a rack, read the “Safety Overview” section on page 4-2 to familiarize yourself with the proper site and environmental conditions. Failure to read and follow these guidelines could lead to an unsuccessful installation and possible damage to the system and components.



Warning To prevent bodily injury when mounting or servicing this unit in a rack, you must take special precautions to ensure that the system remains stable. The following guidelines are provided to ensure your safety:

- This unit should be mounted at the bottom of the rack if it is the only unit in the rack.
- When mounting this unit in a partially filled rack, load the rack from the bottom to the top with the heaviest component at the bottom of the rack.
- If the rack is provided with stabilizing devices, install the stabilizers before mounting or servicing the unit in the rack.



Warning To prevent overheating the switch, do not operate it in an area that exceeds the maximum recommended ambient temperature of 104°F (40°C). To prevent airflow restriction, allow at least 3 inches (7.6 centimeters) of clearance around the ventilation openings.

Rack-Mounting Guidelines

Before rack-mounting the switch, ensure the following:

- The equipment rack is the proper size.
 - The width of the rack, between the two front mounting strips or rails, must be 17.75 inches (45.08 centimeters).
 - The depth of the rack, between the front and rear mounting strips, must be at least 19.25 inches (48.9 centimeters) but not more than 32 inches (81.3 centimeters).
 - The rack must have sufficient vertical clearance to insert the chassis. The Catalyst 2926 series switch chassis is 5.75 inches (14.6 centimeters) high.
- The equipment rack is stable and in no danger of falling over. Ensure that the shelf is constructed to support the weight and dimensions of the chassis. For physical specifications, see Appendix A, “Technical Specifications.”
- The equipment rack is properly ventilated.
 - Install the chassis in an enclosed rack only if it has adequate ventilation or an exhaust fan; use an open rack whenever possible.

- Ensure the ambient temperature of the rack environment does not exceed a maximum temperature of 104°F (40°C). Note that if the switch is installed in a closed or multiunit rack assembly, the ambient operating temperature of the rack environment might be higher than the ambient room temperature.
- Note that a ventilation system in a closed rack that is too powerful might also prevent cooling by creating negative pressure around the chassis and redirecting the air away from the chassis intake vent. If necessary, operate the chassis with the rack open.
- Use baffles correctly to assist in cooling the chassis.
- Note that equipment near the bottom of a rack may generate excessive heat that is drawn upward and into the intake ports of equipment above, leading to overtemperature conditions in the chassis at or near the top of the rack.
- Consider the equipment and cabling that is already installed in the rack. Ensure that cables from other equipment will not obstruct the airflow through the chassis or impair access to the power supplies or the 10/100-Mbps Fast Ethernet autosensing switched ports.
- Allow at least 3 to 4 feet (91.4 to 121.9 centimeters) of clearance behind the rack for maintenance and removal of switch assemblies. If the rack is mobile, you can push it back within 1 foot (30.5 centimeters) of a wall or cabinet for normal operation and pull it out when necessary for maintenance.

Installation Tools

The following tools and equipment are required to install the chassis in a rack:

- Rack-mount kit
- Tape measure and level
- Your own electrostatic discharge (ESD) grounding strap or the disposable ESD strap included with the system

Rack-Mounting Procedure

Follow these steps to rack-mount the switch:

Note The chassis is not intended to be moved frequently. Before you install the switch, ensure that your site is properly prepared so that you can avoid moving the chassis later to accommodate power sources and network connections.

Step 1 Prepare for installation as follows:

- (a) Place the chassis on the floor or on a sturdy table as close as possible to the rack. Leave enough clearance to allow you to move around the chassis.
- (b) Use a tape measure to measure the depth of the rack from the outside of the front mounting posts to the outside of the rear mounting strip. The depth must be at least 19.25 inches (48.9 centimeters) but not greater than 32 inches (81.3 centimeters).
- (c) Measure the space between the inner edges of the left front and right front mounting posts to ensure that it is 17.75 inches (45.1 centimeters) wide. (The chassis is 17.25 inches [43.8 centimeters] wide and must fit between the mounting posts.)
- (d) Open the rack-mount kit and refer to the component checklist in Table 4-1 to verify that all parts are included.

Table 4-1 Rack-Mount Kit Checklist

Quantity	Part Description	Received
2	L brackets	
4	M4 Phillips pan-head screws	
4	12-24 x 3/4-inch Phillips binder-head screws	

Rack-Mounting the Switch

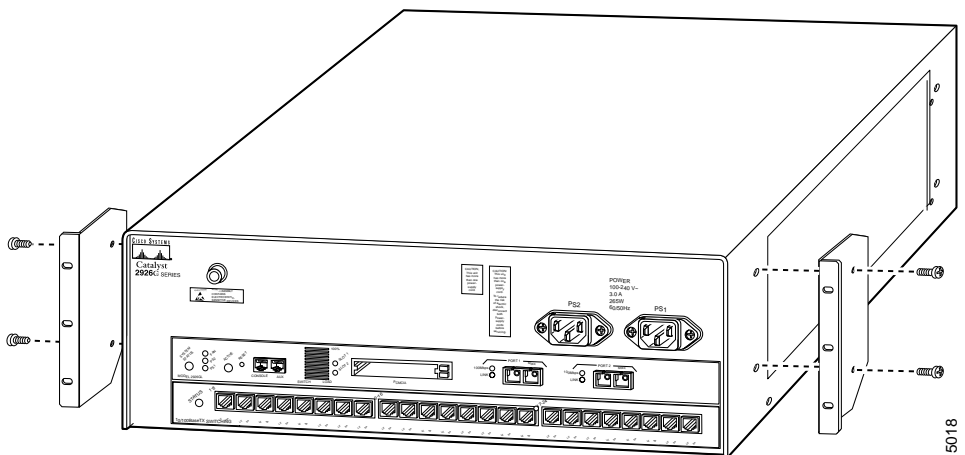
Step 2 Attach the left and right L brackets using the four M4 Phillips pan-head screws provided in the rack-mount kit (see Figure 4-1).

Note Refer to Figure 4-1 to see how to attach the rear of the switch to the rack. You can also attach the front of the switch to the rack, depending on the configuration of your rack.

The L brackets and the mounting posts connect the chassis to the rack. You can mount the L brackets to the front or rear mounting posts of the chassis, depending on which end is in the front of the rack.

Note Some equipment racks provide a power strip along the length of one of the rear posts. If your rack has this feature, consider the position of the strip when planning fastener points, and before you install the L brackets on the chassis, determine whether you will install the chassis from the front or the rear of the rack.

Figure 4-1 Attaching the L Brackets



Note Only the Catalyst 2926G chassis is shown in Figure 4-1 and Figure 4-2. The rack-mount procedure for both the Catalyst 2926 series and Catalyst 2926G series chassis is identical.

Step 3 Put on your ESD grounding strap and connect it to the chassis.

Step 4 Install the chassis in the rack as follows:

(a) Position the chassis in the rack as follows (see Figure 4-2):

If the chassis front panel is in the front of the rack, insert the rear of the chassis between the mounting posts.

If the rear of the chassis is in the front of the rack, insert the front of the chassis between the mounting posts.

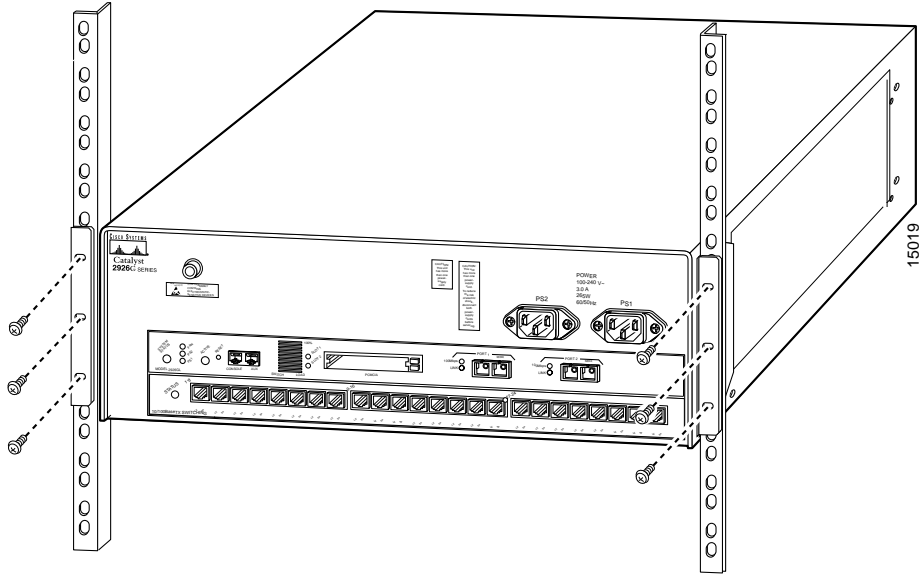
(b) Align the mounting holes in the L bracket with the mounting holes in the equipment rack.

(c) Secure the chassis using six (three per side) 12-24 screws through the elongated holes in the L bracket and into the threaded holes in the mounting post.

(d) Use a tape measure and level to ensure that the chassis is installed straight and level.

Note The Catalyst 2926 and Catalyst 2926G series switches power on when the power supply cords are connected (do not power on the supplies at this point).

Figure 4-2 Installing the Switch in the Rack



Using Flash PC Cards (Catalyst 2926G Series Switch Only)

Flash PC card slots on the front panel of the Catalyst 2926G series supervisor engine are for additional Flash PC card-based memory. You can use this Flash memory to store and run software images, configuration files, or to serve as an I/O device.

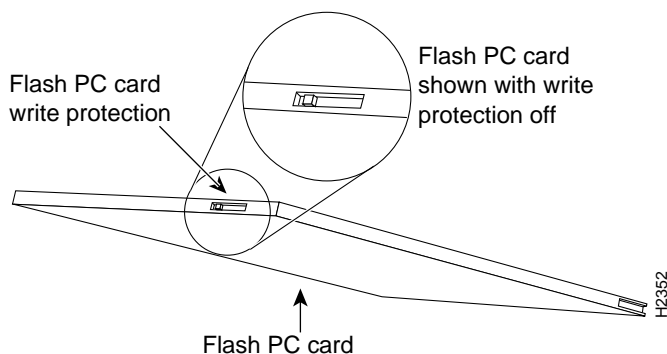
Note Flash PC cards are available in two sizes: 16 and 20 MB.

The Catalyst 2926G series supervisor engine has two Flash PC card slots: slot 0 (bottom) and slot 1 (top). The following procedure is generic and can be used for a Flash PC card in either slot position.

Note You can insert and remove the Flash PC card with the power on.

Before you install a Flash PC card, verify that the card is set with write protection off. The write-protect switch is located on the front edge of the card when oriented with the printing right side up and the edge connector end away from you. (See Figure 4-3.)

Figure 4-3 Locating the Flash PC Card Write-Protection Switch



Use this procedure for installing and removing a Flash PC card from the Catalyst 2926G series switch:

- Step 1** Face the front panel of the switch and hold the Flash PC card with the connector end of the card toward the slot. The connector end of the card is opposite the end with the write-protection switch, which is shown in Figure 4-3.
- Step 2** Insert the card into the appropriate slot until the card completely seats in the connector at the back of the slot and the eject button pops out toward you. Note that the card does not insert all the way inside the slot; a portion of the card remains outside the slot. *Do not attempt to force the card past this point.*
- Step 3** To eject a card, press the appropriate ejector button until the card is free of the connector at the back of the slot.
- Step 4** Remove the card from the slot and place it in an antistatic bag.

Connecting a Terminal to the Console Port

Note For Flash PC card formatting instructions, refer to the “Formatting a Flash Device” in the *Software Configuration Guide* for your switch.

Note For more information on configuring the Catalyst 2926G series switch to boot from a Flash PC card, refer to the *Software Configuration Guide* for your switch.

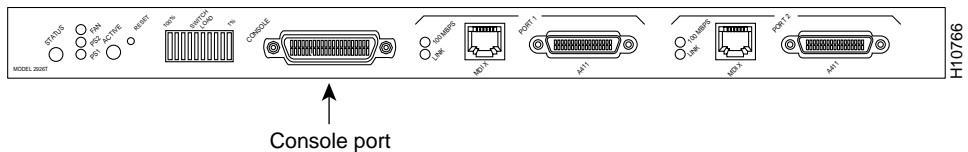
Connecting a Terminal to the Console Port

Use the console port to connect a data terminal to your Catalyst 2926 and Catalyst 2926G series switches.

Catalyst 2926 Series Switch

On the Catalyst 2926 series switch, the console port is located on the supervisor engine front panel and is labeled CONSOLE. (See Figure 4-4.)

Figure 4-4 Console Port Connector (Catalyst 2926 Series Switch)



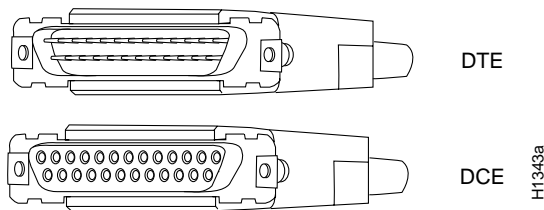
The supervisor engine console port is a data communications equipment (DCE) DB-25 receptacle, which supports a DCE EIA/TIA-232 interface. EIA/TIA-232 supports unbalanced circuits at signal speeds up to 64 kbps.

Before connecting the console port, check the terminal documentation to determine the baud rate. The baud rate of the terminal must match the default baud rate (9600 bps) of the switch console port. Set up the terminal as follows:

- 9600 bps
- 8 data bits
- No parity
- 1 stop bit

Use a straight-through cable to connect the switch to a DTE device, such as a terminal or PC. Use a null-modem cable to connect the switch to a remote DCE device, such as a modem or data service unit (DSU). See Figure 4-5 for DCE and DTE cable connectors.

Figure 4-5 EIA/TIA-232 Adapter Cable Connectors, Network End



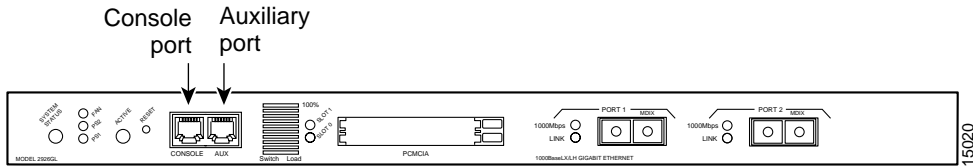
Note The console port is an asynchronous serial port; any device connected to this port must be capable of asynchronous transmission.

Catalyst 2926G Series Switch

The console and AUX ports, located on the front panel of the Catalyst 2926G series switch, are shown in Figure 4-6.

Note The AUX port is currently not supported.

Figure 4-6 Console and AUX Port Connectors



The console port, which is an EIA/TIA-232 asynchronous serial port with an RJ-45 connector, is a full-featured DTE connection with hardware flow control.

Connect the terminal using a thin, flat, RJ-45-to-RJ-45 cable (looks like a telephone cable) and an RJ-45-to-DB-9, RJ-45-to-D-subminiature female, or RJ-45-to-D-subminiature male adapter.

Note An RJ-45-to-RJ-45 cable and the adapters are provided in the console port accessories kit shipped with your Catalyst 2926G series switch.

Supervisor Engine Uplink Ports

This section provides port connection procedures for the Catalyst 2926 and Catalyst 2926G series switch supervisor engine uplink ports:

- 100BaseTX (RJ-45 or MII connectors)
- 100BaseFX, 1000BaseSX, and 1000BaseLX/LH (SC fiber-optic connectors)

Interface cables and equipment, such as Ethernet transceivers, should already be in place. If necessary, see Chapter 3, “Site Planning,” for specific requirements.

100BaseTX (RJ-45 or MII Connectors)

The 100BaseTX RJ-45 port cable connector is shown in Figure 4-7. The 100BaseTX MII cable connector is shown in Figure 4-8.

Figure 4-7 100BaseTX RJ-45 Connector Type

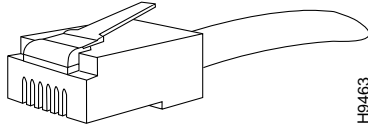
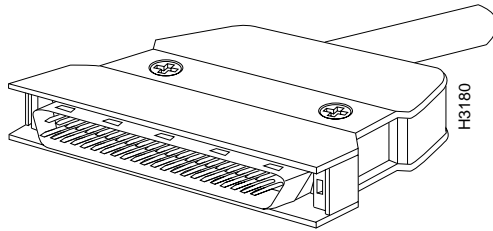


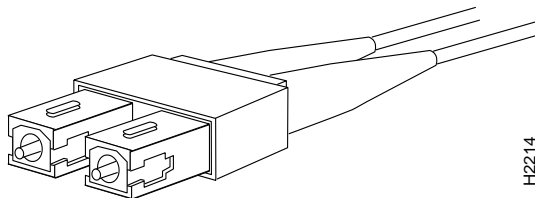
Figure 4-8 100BaseTX MII Connector Type



100BaseFX, 1000BaseSX, and 1000BaseLX/LH (SC Fiber-Optic Connectors)

Use SC fiber-optic connectors (see Figure 4-9) to connect to the 100BaseFX, 1000BaseSX, and 1000BaseLX/LH ports. Always keep caps and plugs on the fiber-optic connectors on the cable and the switch when they are not in use.

Figure 4-9 SC Fiber-Optic Connector Type



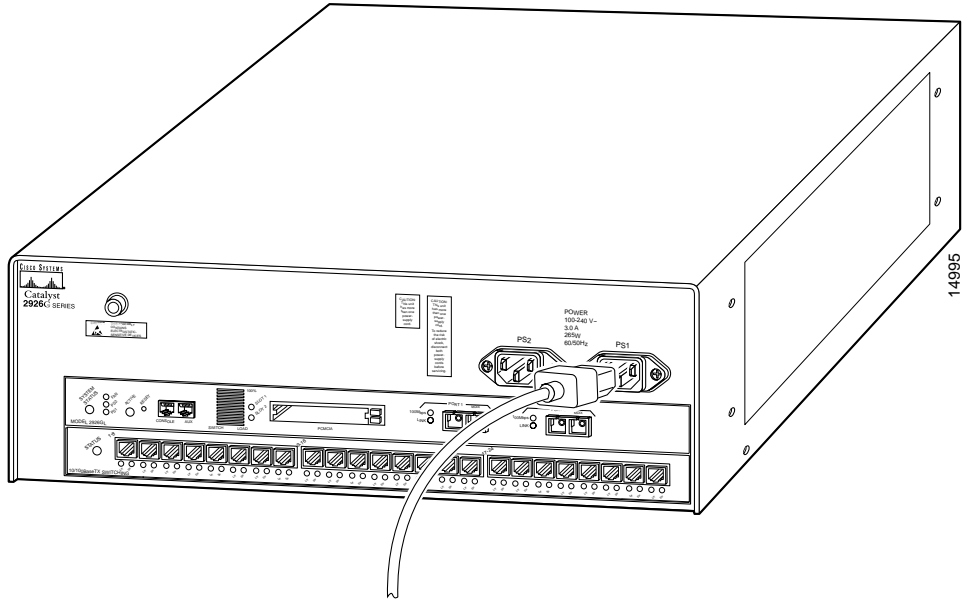


Warning Because invisible laser radiation may be emitted from the aperture of the port when no cable is connected, avoid exposure to laser radiation and do not stare into open apertures.

Verifying System Operation

On the Catalyst 2926 and Catalyst 2926G series switches, when all interfaces are connected, perform a final check of all connections. Then perform these steps to power on the system and verify that it is operational:

- Step 1** Ensure the following before powering on the system:
- (a) The switch power supply cords are not connected.
 - (b) All interface cable connections are secured.
 - (c) At the power-source end of the power cord, make sure the connectors are securely installed in grounded outlets and that the source power is within the range labeled on the back of the switch. Make sure that the power cord for the second power supply is connected to a separate line from the first, if possible.
- Step 2** Check the console terminal and make sure it is on.
- Step 3** Connect the power cords to the switch. See Figure 4-10.

Figure 4-10 Connect Power Cords (Catalyst 2926G Series Switch Shown)

- Step 4** Verify that the appropriate PS1 and PS2 LEDs on the supervisor engine front panel are green.
- Step 5** Listen for the system fans and check the fan LED on the supervisor engine. You should hear the fans begin to operate immediately.
- Step 6** While the system initializes, check that the status LED on the supervisor engine is orange until the boot is complete.

Some interface LEDs might go on or blink for a short time. Some LEDs, such as the link LED, stay on during the entire boot process. If a port is already configured, the LEDs might be on steadily as they detect traffic on the line. Wait until the system boot is complete before attempting to verify the LEDs for the 10/100-Mbps Fast Ethernet autosensing switched ports.

Note Many LEDs on the 10/100-Mbps Fast Ethernet ports do not go on until you configure the ports.

When the system boot is complete (it takes a few seconds), the supervisor engine begins to initialize the 10/100-Mbps Fast Ethernet autosensing switched ports.

During this initialization, the LEDs on the 10/100-Mbps Fast Ethernet autosensing switched ports flash on and off. The STATUS LED goes on when initialization is complete, and the console screen displays a script and system banner.

Note When the 10/100-Mbps Fast Ethernet port LEDs are on, the ports are not necessarily functional or enabled. Although the LEDs for many interface types go on at the initial system startup, they do not indicate an accurate status until you configure the interface. For descriptions of the LEDs on the 10/100-Mbps Fast Ethernet autosensing switched port, see Chapter 2, “Switch Description.”

Step 7 Your hardware installation is now complete. See Chapter 5, “Configuring the Switch,” for default configuration information and commands to change the default configuration. Refer to the *Software Configuration Guide* and *Command Reference* for your switch for complete software configuration instructions.