

Installation

This chapter describes how to install your Catalyst 2900 series XL switch. The following topics follow the order in which they are to be performed:

- Package contents, warnings, and installation guidelines
- Installing the switch in a rack, on a table, or on a wall
- Connecting to the 10/100 ports
- Connecting to the 100BaseFX ports
- Connecting to the console port
- Entering an IP address, subnet mask, and default gateway

Note Installation procedures for the Catalyst 2900 series XL modules are in the *Catalyst 2900 Series XL Modules Installation Guide*.

Packing List

Check the contents of the box. It should contain the following:

- The Catalyst 2900 series unit
- *Quick Start: Catalyst 2900 Series XL Series Cabling and Setup*
- *Release Notes for the Catalyst 2900 Series XL Cisco IOS Release 11.2(8)SA4*
- *Catalyst 2900 Series XL Enterprise Edition Software Configuration Guide* (only model numbers ending in -EN.)

Warnings

- The Cisco Documentation CD-ROM package
- AC power cord
- Mounting kit containing:
 - Four rubber feet for mounting the switch on a table
 - Two mounting brackets
 - Four Phillips flat-head screws and four Phillips truss-head screws for attaching the brackets to the switch
 - Four Phillips machine screws for attaching the brackets to a rack
 - One cable guide and one (two for the modular switches) black Phillips machine screw for attaching the cable guide to one of the mounting brackets
- One RJ-45-to-RJ-45 rollover cable
- One RJ-45-to-DB-9 adapter
- One RJ-45-to-DB-25 male adapter
- Cisco Information Packet, containing warranty, safety, and support information

Warnings

These warnings are translated into several languages in Appendix C, “Translated Safety Warnings.”



Warning Only trained and qualified personnel should be allowed to install or replace this equipment.



Warning Read the installation instructions before you connect the system to its power source.



Warning Do not stack the chassis on any other equipment. If the chassis falls, it can cause severe bodily injury and equipment damage.



Warning To prevent the switch from overheating, do not operate it in an area that exceeds the maximum recommended ambient temperature of 113°F (45°C). To prevent airflow restriction, allow at least 3 inches (7.6 cm) of clearance around the ventilation openings.



Warning The device is designed to work with TN power systems.



Warning When installing the unit, the ground connection must always be made first and disconnected last.



Warning This product relies on the building's installation for short-circuit (overcurrent) protection. Ensure that a fuse or circuit breaker no larger than 120 VAC, 15A U.S. (240 VAC, 10A international) is used on the phase conductors (all current-carrying conductors).



Warning This equipment is intended to be grounded. Ensure that the host is connected to earth ground during normal use.



Warning Care must be given to connecting units to the supply circuit so that wiring is not overloaded.



Warning A voltage mismatch can cause equipment damage and may pose a fire hazard. If the voltage indicated on the label is different from the power outlet voltage, *do not connect the chassis to that receptacle.*



Warning Do not touch the power supply when the power cord is connected. For systems with a power switch, line voltages are present within the power supply even when the power switch is off and the power cord is connected. For systems without a power switch, line voltages are present within the power supply when the power cord is connected.

EMC Regulatory Statements



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



Warning Ultimate disposal of this product should be handled according to all national laws and regulations.



Warning Attach only the Cisco RPS (model PWR600-AC-RPS) to the RPS receptacle.



Warning Class 1 laser product.



Warning Avoid exposure to the laser beam.

EMC Regulatory Statements

U.S.A.

U.S. regulatory information for this product is in the front matter of this manual.

Taiwan

警告使用者：
這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

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Installation Guidelines

When determining where to place the switch, be sure that the following conditions are met:

- For 10/100 ports, cable lengths from the switch to connected devices are less than 100 meters.
- For 100BaseFX ports, cable lengths from the switch to connected devices are less than 412 meters for half-duplex connections and less than 2 kilometers for full-duplex connections.

Note 100BaseFX ports default to full-duplex operation and do not autonegotiate.

- Operating environment is within the ranges listed in Appendix A, “Technical Specifications.”
- Clearance to front and rear panels is such that:
 - Front-panel indicators can be easily read.
 - Access to ports is sufficient for unrestricted cabling.
 - Rear-panel power connector is within reach of an AC power receptacle.
- Airflow around the switch and through the vents is unrestricted.
- If the switch is installed in a closed or multirack assembly, the temperature around it might be greater than normal room temperature. Ensure that the temperature around the unit does not exceed 113°F (45°C).
- Cabling is away from sources of electrical noise, such as radios, power lines, and fluorescent lighting fixtures.

Installing the Switch

A Catalyst 2900 series switch can be installed in a 19-inch or 24-inch standard or telco rack, on a wall, or on a table or shelf. You can mount the switch in a rack or on a wall using the mounting brackets supplied with the switch.

Note The illustrations in this section show the Catalyst 2912 XL model as an example. The other switches, including the two rack-unit high Catalyst 2924M XL and Catalyst 2912FM XL models, can also be installed as shown here.

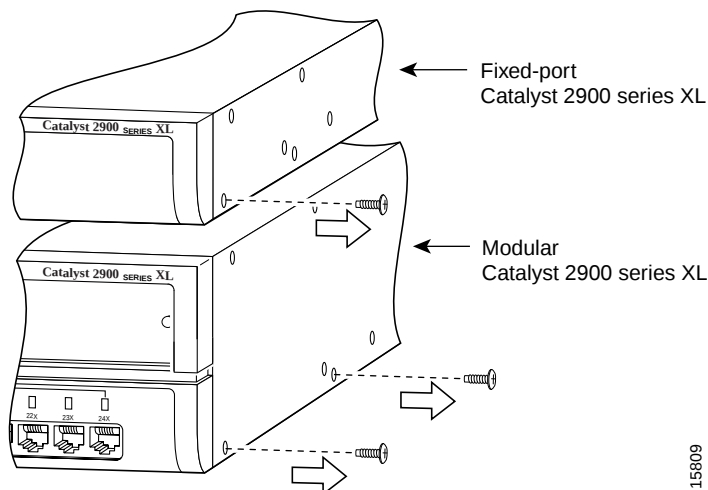
Installing the Switch in a Rack

This section describes the following steps to install the switch in 19- and 24-inch standard and telco racks:

- Removing screws from the switch
- Attaching the brackets to the switch
- Mounting the switch in a rack
- Attaching the optional cable guide

Removing Screws from the Switch

Depending on your installation, you might have to first replace the screws in the switch chassis with screws for the mounting brackets. Decide how you are going to mount the switch by reviewing the illustrations in this section. Remove the screws as the first step in attaching the bracket. Figure 3-1 shows the screws to remove, as needed.

Figure 3-1 Removing Screws from the Switch

Attaching the Brackets to the Switch

The bracket orientation and the screws you use depend on whether you are attaching the brackets for a 19-inch or 24-inch rack. Use two of the supplied screws to attach each bracket, according to the following guidelines:

- For mounting in a 19-inch rack, use the supplied Phillips flat-head screws to attach the long side of the bracket to the switch.
- For mounting in a 24-inch rack, use the supplied Phillips truss-head screws to attach the short side of the bracket to the switch.

Figure 3-2, Figure 3-3, and Figure 3-4 show how to attach a bracket to one side of the switch. Follow the same steps to attach the second bracket to the opposite side of the switch.

Installing the Switch

Figure 3-2 Attaching Brackets for 19- and 24-Inch Racks (Front Panel Forward)

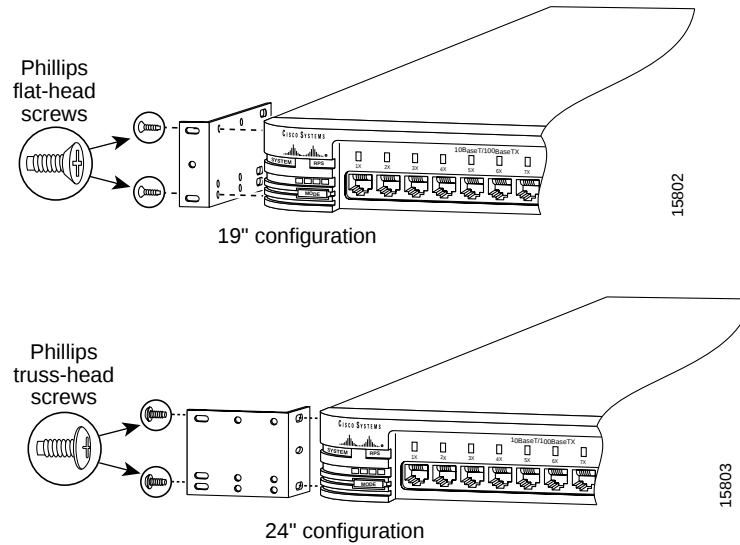


Figure 3-3 Attaching Brackets for 19- and 24-Inch Racks (Rear Panel Forward)

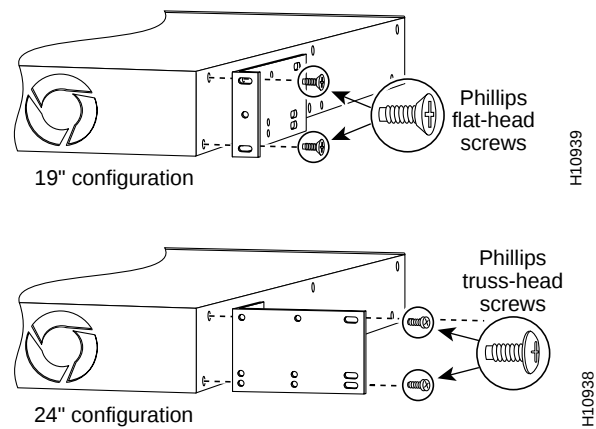
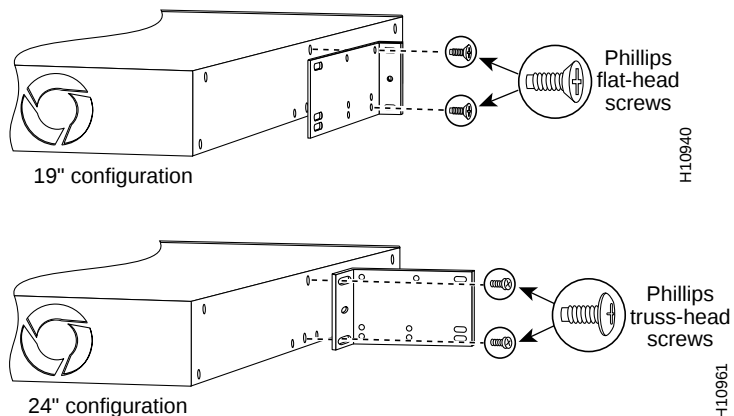


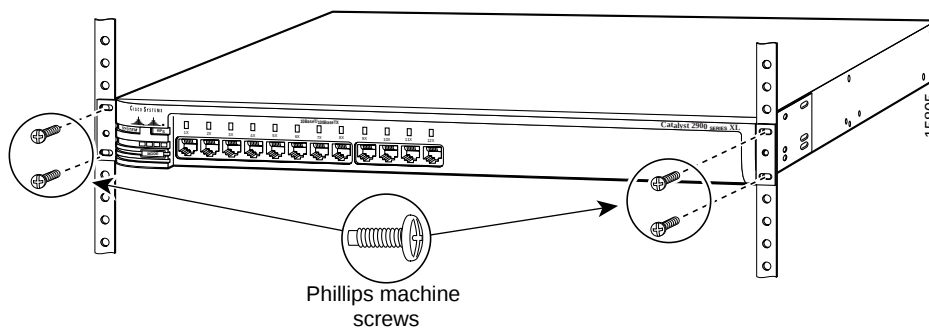
Figure 3-4 Attaching Brackets for 19- and 24-Inch Telco Racks



Mounting the Switch in a Rack

After the brackets are attached to the switch, use the four supplied Phillips machine screws to securely attach the brackets to the rack, as shown in Figure 3-5.

Figure 3-5 Mounting the Switch in a Rack



Installing the Switch

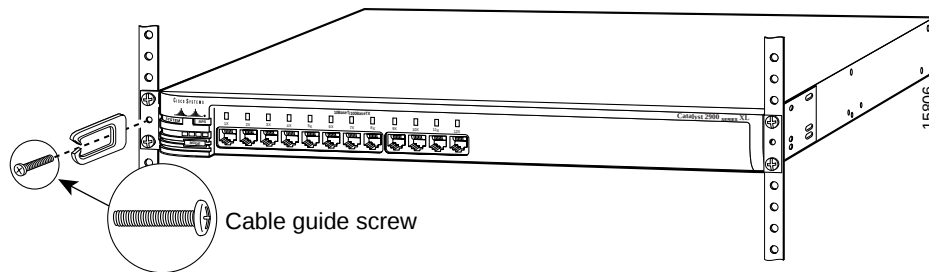
After the switch is mounted in the rack, attach the power cord to the switch. If you are using the redundant power system (RPS), see the Cisco RPS documentation for installation instructions.

After the power is connected, the System LED turns green, and the switch starts a series of self-tests described in the “Reading POST Results” section on page 3-13.

Attaching the Optional Cable Guide

We recommend attaching the cable guides to prevent the cables from obscuring the front panel of the switch and the other devices installed in the rack. If the switch is in a 19-inch or 24-inch rack, you can attach the cable guide to the left or right bracket by using the supplied black screw, as shown in Figure 3-6. The cable guides for the modular switches require two screws.

Figure 3-6 Attaching the Cable Guide



Installing the Switch on a Wall

This section describes the steps required to attach the switch to a wall:

- Attaching the brackets to the switch
- Attaching the switch to a wall

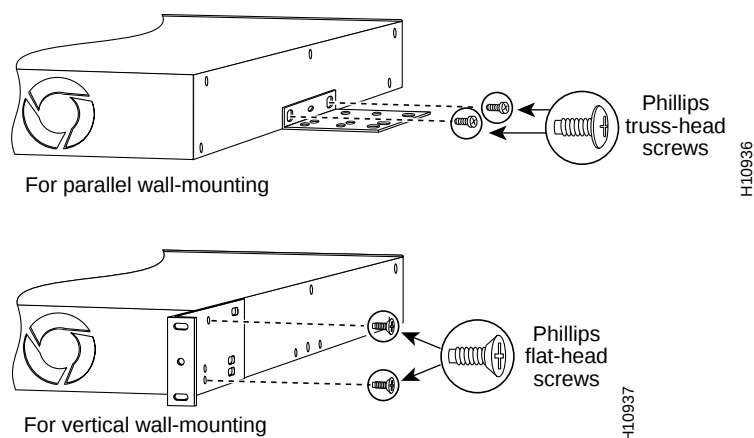
Attaching the Brackets to the Switch

The bracket orientation and the screws you use depend on whether you are attaching the brackets for parallel or vertical wall-mounting. Use two of the supplied screws to attach each bracket, according to the following guidelines:

- For parallel wall-mounting, use the supplied Phillips truss-head screws to attach the short side of the bracket to the switch.
- For vertical wall-mounting, use the Phillips flat-head screws to attach the long side of the bracket to the switch.

Figure 3-7 shows how to attach the brackets to one side of the switch. Follow the same steps to attach the second bracket to the opposite side of the switch.

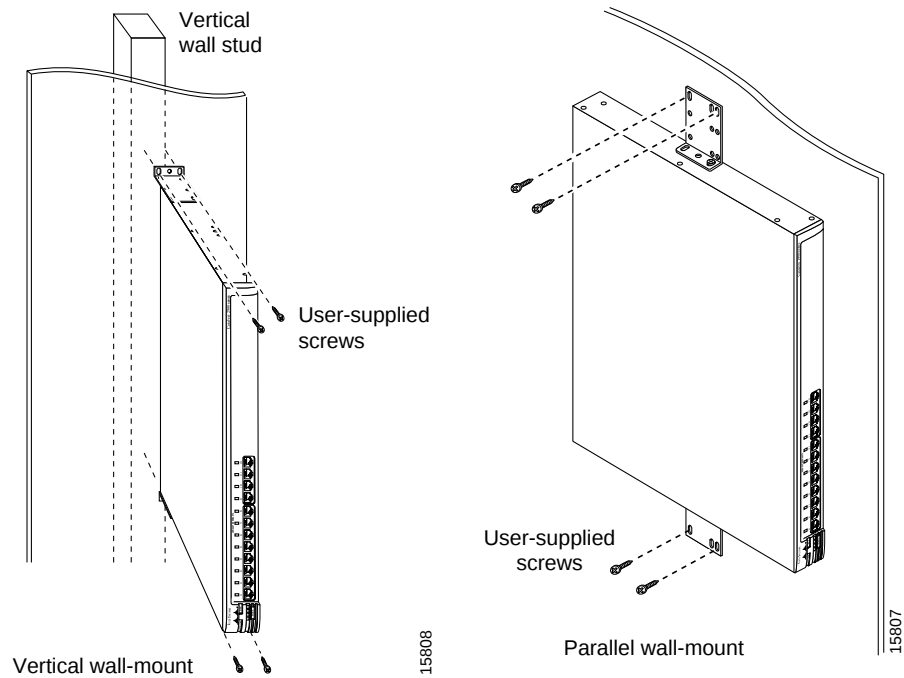
Figure 3-7 Attaching Brackets for Parallel and Vertical Wall-Mounting



Attaching the Switch to a Wall

For best support of the switch and cables, make sure the switch is attached securely to a wall stud or to a firmly attached plywood mounting backboard, as shown in Figure 3-8.

Figure 3-8 Attaching the Switch to a Wall



After the switch is mounted in the rack, attach the power cord to the switch. If you are using the redundant power system (RPS), see the Cisco RPS documentation.

After the power is connected, the System LED turns green, and the switch starts a series of self-tests described in the “Reading POST Results” section on page 3-13.

Installing the Switch on a Table or Shelf

Follow these steps to install the switch on a table or shelf:

- Step 1** Locate the adhesive strip with the rubber feet in the mounting-kit envelope. Attach the four rubber feet to the recessed areas on the bottom of the unit.
- Step 2** Place the switch on the table or shelf near an AC power source.
- Step 3** Connect the power cord to the switch rear panel and to the power outlet. If you are using the RPS, see the RPS documentation for installation instructions.

After the power is connected, the system LED turns green, and the switch starts a series of self-tests described in the “Reading POST Results” section on page 3-13.

Reading POST Results

The eight tests in the POST ensure that the switch functions properly each time it is powered on. When the switch begins its POST, the port status LEDs are all green. As each of the eight tests is run, these LEDs, starting with number 1X, turn off. The LEDs for ports 2X to 8X then go off in turn as the system completes a test.

When the POST completes successfully, all the port status LEDs blink once and go off, indicating that the switch is operational. If a test fails, the port status LED associated with the test turns amber, and the system LED turns amber.

POST failures are almost always fatal. Call Cisco Systems immediately if the switch does not pass POST. See the “Understanding POST Results” section on page 8-1 for a test-by-test description of the POST.

Connecting to the Switch Ports

This section provides procedures for connecting to the 10/100 ports, the 100BaseFX ports, and the console port.

Connecting to the 10/100 Ports

The Catalyst 2900 series 10/100 ports configure themselves to operate at the speed of attached devices. If the attached ports do not support autonegotiation, you can explicitly set the speed and duplex parameters.

Connecting devices that do not autonegotiate or that have their speed and duplex parameters manually set can reduce performance or result in no link. To maximize performance, choose one of these methods for configuring the 10/100 ports:

- Let the ports autonegotiate both speed and duplex.
- Set the port speed and duplex parameters on both ends of the connection.

Follow these steps to connect to 10BaseT or 100BaseTX devices:

- Step 1** When connecting to servers and workstations, insert a straight-through Category 5 cable into an RJ-45 connector, as shown in Figure 3-9.

Note When connecting to servers and workstations, be sure that the cable is a straight-through, twisted-pair cable. When connecting to switches or repeaters, use a crossover cable. Pinouts for the cables are described in the “Crossover and Straight-Through Cable Pinouts” section on page B-3.

- Step 2** Insert the other end of the cable in the RJ-45 connector of the other device. The port status LED comes on when both the switch and the connected device are turned on.

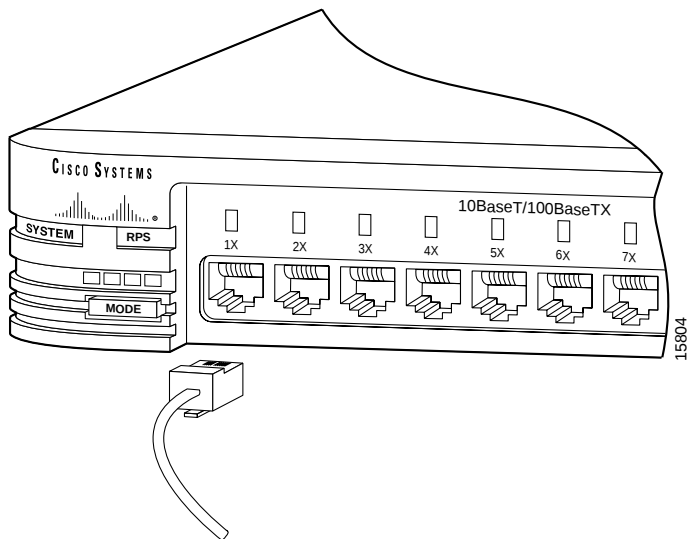
The port status LED is amber while Spanning-Tree Protocol (STP) discovers the topology and searches for loops. This takes about 30 seconds, and then the port status LED turns green.

If the port status LED does not come on, the device at the other end might not be turned on, or there might be a cable problem or a problem with the adapter installed in the attached device. See Chapter 8, “Troubleshooting,” for solutions to cabling problems.

- Step 3** Reconfigure and reboot the connected device if necessary.

- Step 4** Repeat steps 1 through 3 to connect each device.

Figure 3-9 Inserting the RJ-45 Connector in a 10/100 Port



Connecting to the 100BaseFX Ports

Follow these steps to connect to one of the fixed 100BaseFX ports:

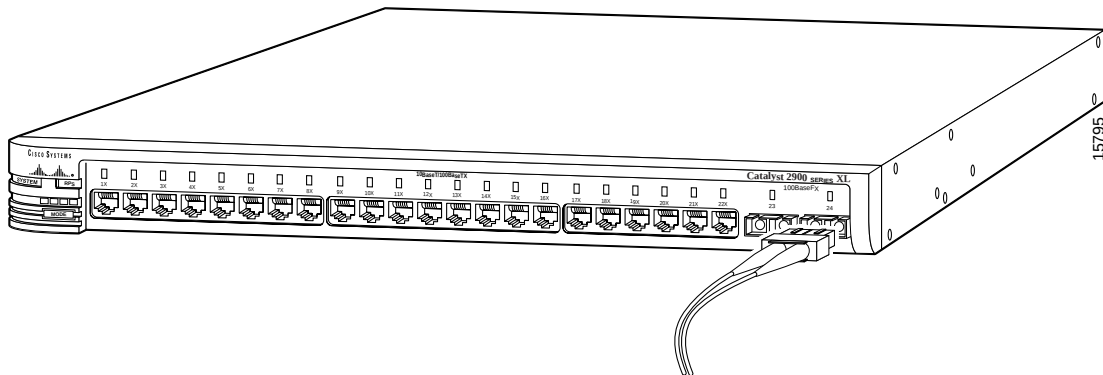
Step 1 Remove the rubber plugs from the fiber-optic port and store them for future use.

Step 2 Insert the connector into the fiber-optic receptacle, as shown in Figure 3-10.



Caution Do not remove the rubber plugs from the fiber-optic port or the rubber caps from the fiber-optic cable until you are ready to connect the cable. The plugs and caps protect the fiber-optic port and cable from contamination and ambient light.

Figure 3-10 Inserting the SC Connector in a 100BaseFX Port



Connecting a Terminal or PC to the Console Port

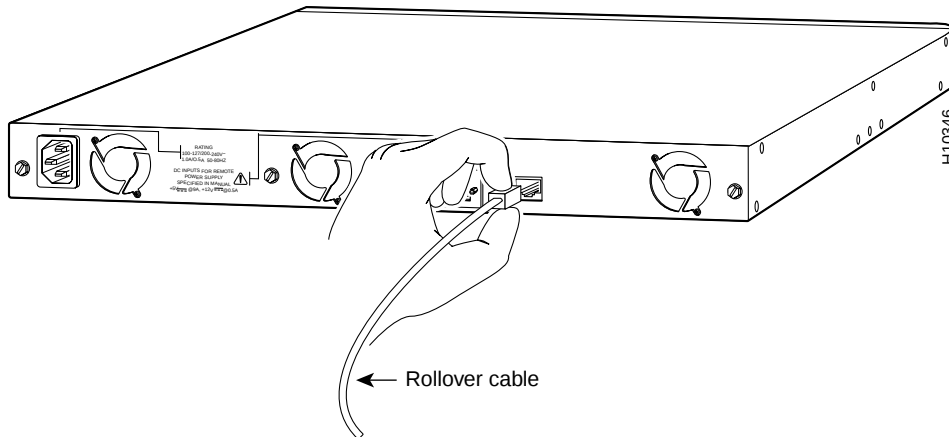
Use the rollover cable shipped with the switch to connect a terminal or PC to the console port. The terminal or PC must support VT100 terminal emulation.

Follow these steps to connect the terminal or PC to the switch:

- Step 1** Be sure that your PC or terminal-emulation software is configured to communicate with the switch via hardware flow control.
- Step 2** Configure the baud rate and character format of the terminal or PC to match the following default characteristics of the console port:
- 9600 baud
 - Eight data bits
 - One stop bit
 - No parity
- After you have gained access to the switch, you can change the baud rate of the port. See the “System Configuration” section on page 4-28 for instructions on how to change the baud rate.
- Step 3** Using the supplied rollover cable, insert the RJ-45 connector into the console port, as shown in Figure 3-11. See the “Console Port” section on page B-3 for a description of the pinout.
- Step 4** Attach one of these supplied adapters to a PC or terminal:
- RJ-45-to-DB-9 female DTE adapter to connect to a PC
 - RJ-45-to-DB-25 male adapter
- Step 5** Insert the other end of the supplied rollover cable into the attached adapter.
- Step 6** Boot the terminal-emulation program if you are using a PC or workstation.

Assigning IP Information to the Switch

Figure 3-11 Inserting the RJ-45 Connector in the Console Port



Assigning IP Information to the Switch

You can assign IP information to the switch after you have attached a terminal or PC with emulation software. When the switch has an IP address, you can continue the configuration through the web-based manager software.

The first time you connect to the switch, the setup program prompts you for an IP address, subnet mask, and default gateway. Contact your system administrator for these numbers:

Switch IP address	_____.	_____.	_____.	_____.
Subnet mask (netmask)	_____.	_____.	_____.	_____.
Default gateway (router)	_____.	_____.	_____.	_____.

Follow these steps to assign the IP addresses to the switch:

- Step 1** Be sure the rollover cable is connecting a PC or terminal serial port to the console port. The data characteristics are 9600, 8, 1, no parity.
- Step 2** Enter **Y** at the first prompt:
- Continue with configuration dialog? [yes/no]: **y**
- If this prompt does not appear, enter **enable**, and press Return. Enter **setup** and press **Return** to start the setup program.
- Step 3** Enter the switch IP address, and press **Return**:
- Enter IP address: *IP_address*
- Step 4** Enter the subnet mask (IP netmask) address, and press **Return**:
- Enter IP netmask: *IP_netmask*
- Step 5** Enter **Y** to enter a default gateway (router) address:
- would you like to enter a default gateway address? [yes]: **y**
- Step 6** Enter the IP address of the default gateway (router), and press **Return**:
- Enter router IP address: *IP_address*
- Step 7** Enter a secret password and press **Return**:
- Enter enable secret password: *secret_password*
- The initial configuration displays:
- The following configuration command script was created:
- ```
interface VLAN1
ip address IP_address IP_netmask
ip default-gateway IP_address
enable secret 5 1jJql$VA6U.6uTjsa56Xx2yy/t30
snmp community private rw
snmp community public ro
!
end
!
```
- Use this configuration? [yes/no]:
- Verify that the addresses are correct, enter **Y**, and press **Return**. If the addresses are not correct, enter **N**, press **Return**, and begin again at Step 2.

## Where to Go Next

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**Note** You use the enable secret password to access the Visual Switch Manager Software.

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The “Configuring the Switch for Telnet” section on page 6-7 describes how to set a password to protect the switch against unauthorized Telnet access.

The “Recovering from a Lost or Forgotten Password” section on page 8-10 describes how to access the switch without entering the password.

## Where to Go Next

To continue configuring the switch, choose one of the following management options:

- Start the Visual Switch Manager software as described in the “Accessing the Manager Software” section on page 4-8.
- Continue using the command-line interface (CLI) with the switch connected to the console port. See Chapter 6, “Cisco IOS Management” for an introduction to the CLI.
- Configure a password for Telnet with the CLI. See the “Configuring the Switch for Telnet” section on page 6-7 for instructions.
- Start an SNMP application such as CiscoView.