Catalyst 2960 Switch Getting Started Guide

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Catalyst 2960 Switch Getting Started Guide

CHAPTER 1

Getting Started Guide

About This Guide

This guide provides instructions on how to use Express Setup to initially configure your Catalyst switch. Also covered are switch management options, basic rack-mounting procedures, port and module connections, power connection procedures, and troubleshooting help.

For additional installation and configuration information for Catalyst 2960 switches, see the Catalyst 2960 documentation on Cisco.com. For system requirements, important notes, limitations, open and resolved bugs, and last-minute documentation updates, see the release notes, also on Cisco.com.

When using the online publications, refer to the documents that match the Cisco IOS software version running on the switch. The software version is on the Cisco IOS label on the switch rear panel.

For translations of the warnings that appear in this publication, see the *Regulatory Compliance and Safety Information for the Catalyst 2960 Switch* guide.

Taking Out What You Need

Follow these steps:

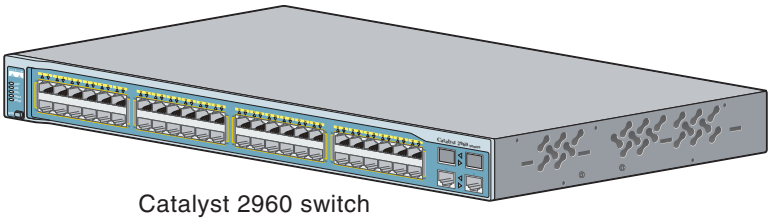
1. Unpack and remove the switch and the accessory kit from the shipping box.
2. Return the packing material to the shipping container, and save it for future use.
3. Verify that you have received the items shown in the "Shipping Box Contents" section. If any item is missing or damaged, contact your Cisco representative or reseller for instructions. Some switch models might include additional items that are not shown.

Equipment That You Supply to Run Express Setup

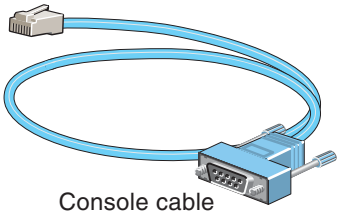
You need to supply this equipment to run Express Setup:

- PC
- Ethernet (Category 5) straight-through cable (as shown)

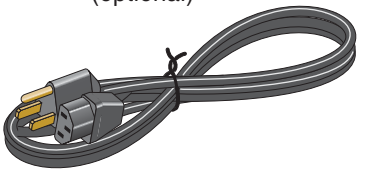
Shipping Box Contents



Catalyst 2960 switch



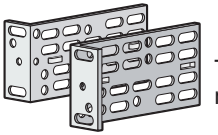
Console cable (optional)



AC power cord

Four rubber mounting feet

Documentation

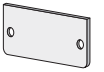


Two 19-inch mounting brackets

Four number-12 Phillips machine screws

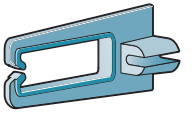
Four number-8 Phillips truss-head screws

Six number-8 Phillips flat-head screws



Connector cover for redundant power system (RPS)

Two number-4 pan-head screws



Cable guide

One black Phillips machine screw

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Running Express Setup

When you first set up the switch, you should use Express Setup to enter the initial IP information. This enables the switch to connect to local routers and the Internet. You can then access the switch through the IP address for further configuration.

To run Express Setup:

Step 1 Verify that no devices are connected to the switch, because during Express Setup, the switch acts as a DHCP server. If your PC has a static IP address, before you begin, you should change your PC settings to temporarily use DHCP.

Step 2 Connect the AC power cord to the switch and to a grounded AC outlet. The power-on self-test (POST) begins. During POST, the LEDs blink while a series of tests verify that the switch functions properly. LED behavior during POST is unpredictable and might vary.

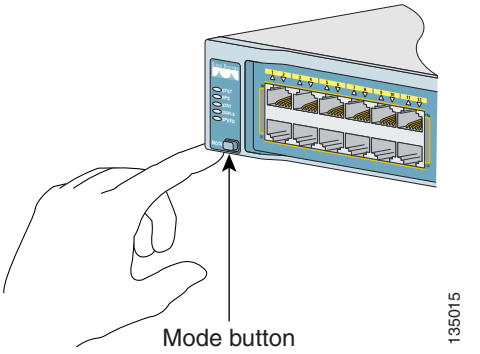
Step 3 Wait for the switch to complete POST. It might take several minutes for the switch to complete POST.

Step 4 Verify that POST has completed by confirming that the SYST LED rapidly blinks green. If the switch fails POST, the SYST LED turns amber.

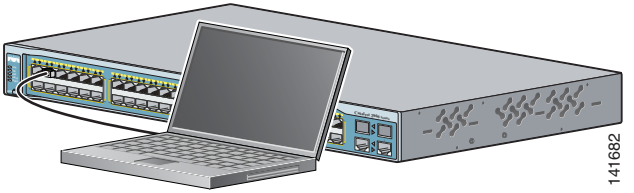
POST errors are usually fatal. Call Cisco Systems immediately if your switch fails POST.

Step 5 Press and hold the Mode button for 3 seconds. When all of the LEDs above the Mode button turn green, release the Mode button.

If the LEDs above the Mode button begin to blink after you press the button, release it. Blinking LEDs mean that the switch has already been configured and cannot go into Express Setup mode. For more information, see the "Resetting the Switch" section on page 1-19.

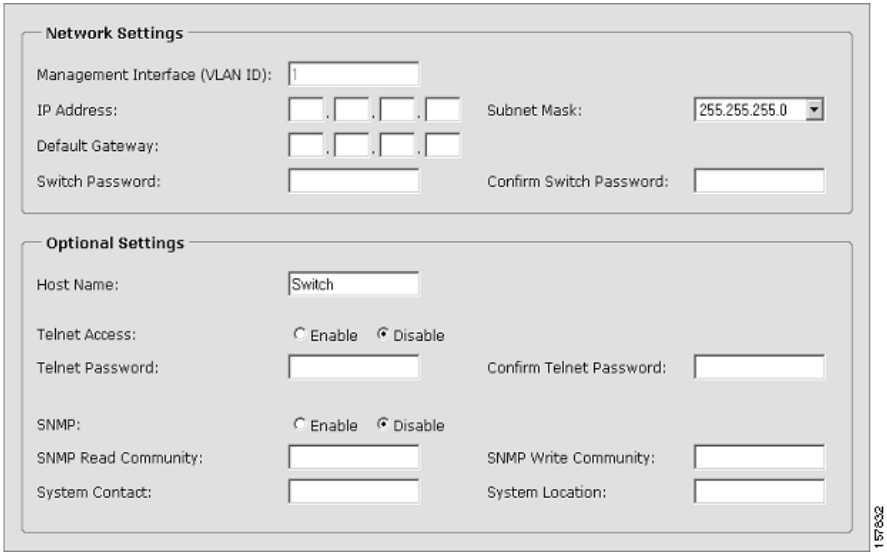


Step 6 Verify that the switch is in Express Setup mode by confirming that all LEDs above the Mode button are green. (The redundant power system (RPS) and Power over Ethernet (PoE) LEDs remain off on some models.)

Step 7	Connect a straight-through Category 5 Ethernet cable (not provided) to any 10/100 or 10/100/1000 Ethernet port on the switch front panel and to the Ethernet port on the PC.	 141682 DHCP-enabled PC
Step 8	Verify that the LEDs on both Ethernet ports are green.	
Step 9	Wait 30 seconds.	

Step 10 Launch a web browser on your PC. Enter the IP address **10.0.0.1** in the web browser, and press **Enter**.

The Express Setup page appears. If it does not appear, see the "In Case of Difficulty" section on page 1-18 for help. Note: all entries must be in English letters and numbers.



Step 11 Enter this information in the **Network Settings** fields:

- In the **Management Interface (VLAN ID)** field, the default is **1**. Enter a new VLAN ID only if you want to change the management interface through which you manage the switch and to which you assign IP information. The VLAN ID range is 1 to 1001.
- In the **IP Address** field, enter the IP address of the switch. In the **IP Subnet Mask** field, click the drop-down arrow, and select an **IP Subnet Mask**.
- In the **Default Gateway** field, enter the IP address for the default gateway (router).
- Enter your password in the **Switch Password** field. The password can be from 1 to 25 alphanumeric characters, can start with a number, is case sensitive, allows embedded spaces, but does not allow spaces at the beginning or end. In the **Confirm Switch Password** field, enter your password again.

Step 12 (Optional) You can enter the **Optional Settings** information now or enter it later by using the device manager interface:

- In the **Host Name** field, enter a name for the switch. The host name is limited to 31 characters; embedded spaces are not allowed.
- In the **System Contact** field, enter the name of the person responsible for the switch. In the **System Location** field, enter the wiring closet, floor, or building where the switch is located.
- In the **Telnet Access** field, click **Enable** if you are going to use Telnet to manage the switch by using the command-line interface (CLI). If you enable Telnet access, you must enter a Telnet password.
- In the **Telnet Password** field, enter a password. The Telnet password can be from 1 to 25 alphanumeric characters, is case sensitive, allows embedded spaces, but does not allow spaces at the beginning or end. In the **Confirm Telnet Password** field, enter the Telnet password again.
- In the **SNMP** field, click **Enable** to enable Simple Network Management Protocol (SNMP). Enable SNMP only if you plan to manage switches by using CiscoWorks2000 or another SNMP-based network-management system.

  If you enable SNMP, you must enter a community string in the **SNMP Read Community** field, the **SNMP Write Community** field, or both. SNMP community strings authenticate access to MIB objects. Embedded spaces are not allowed in SNMP community strings. When you set the SNMP read community, you can access SNMP information, but cannot modify it. When you set the SNMP write community, you can access and modify SNMP information.

Step 13 Click **Submit** to save your settings, or click **Cancel** to clear your settings.

When you click **Submit**, the switch is configured and exits Express Setup mode. The PC displays a warning message and then attempts to connect with the new switch IP address. If you configured the switch with an IP address that is in a different subnet from the PC, connectivity between the PC and the switch is lost.

Step 14 Disconnect the switch from the PC, and install the switch in your network. See the "Managing the Switch" section on page 1-8 for information about configuring and managing the switch.

If you need to rerun Express Setup, see the "Resetting the Switch" section on page 1-19.

Refreshing the PC IP Address

After you complete Express Setup, you should refresh the PC IP address.

For a dynamically assigned IP address, disconnect the PC from the switch, and reconnect it to the network. The network DHCP server will assign a new IP address to the PC.

For a statically assigned IP address, change it to the previously configured IP address.

Managing the Switch

After completing Express Setup and installing the switch in your network, use the device manager, Cisco Network Assistant, or another of the management options described in this section for further configuration.

Using the Device Manager

The simplest way to manage the switch is by using the device manager that is in the switch memory. This is an easy-to-use web interface that offers quick configuration and monitoring. You can access the device manager from anywhere in your network through a web browser.

Follow these steps:

1. Launch a web browser on your PC or workstation.
2. Enter the switch IP address in the web browser, and press **Enter**. The device manager page appears.
3. Use the device manager to perform basic switch configuration and monitoring. Refer to the device manager online help for more information.
4. For a more advanced configuration, download and run the Cisco Network Assistant described in the next section.

Downloading Cisco Network Assistant

Cisco Network Assistant is a free software program that you download from Cisco.com and run on your PC. Network Assistant offers advanced options for configuring and monitoring multiple devices, including switches, switch clusters, switch stacks, routers, and access points.

Follow these steps:

1. Go to this Web address: http://www.cisco.com/go/NetworkAssistant.

   You must be a registered Cisco.com user, but you need no other access privileges.
2. Find the Network Assistant installer.
3. Download the Network Assistant installer, and run it. (You can run it directly from the Web if your browser offers this choice.)
4. When you run the installer, follow the displayed instructions. In the final panel, click **Finish** to complete the Network Assistant installation.

   Refer to the Network Assistant online help and the getting started guide for more information.

Command-Line Interface

You can enter Cisco IOS commands and parameters through the CLI. Access the CLI either by connecting your PC directly to the switch console port or through a Telnet session from a remote PC or workstation.

Follow these steps:

1. Connect the supplied RJ-45-to DB-9 adapter cable to the 9-pin serial port on the PC. Connect the other end of the cable to the console port on the switch.
2. Start a terminal-emulation program on the PC.
3. Configure the PC terminal emulation software for 9600 baud, 8 data bits, no parity, 1 stop bit, and no flow control.
4. Use the CLI to enter commands to configure the switch. See the software configuration guide and the command reference for more information.

Other Management Options

You can use SNMP management applications such as CiscoWorks Small Network Management Solution (SNMS) and HP OpenView to configure and manage the switch. You also can manage it from an SNMP-compatible workstation that is running platforms such as HP OpenView or SunNet Manager.

The Cisco IE2100 Series Configuration Registrar is a network management device that works with embedded CNS agents in the switch software. You can use IE2100 to automate initial configurations and configuration updates on the switch.

See the "Accessing Help Online" section on page 1-20 for a list of supporting documentation.

Rack-Mounting

This section covers basic 19-inch rack-mounting and switch port connections. As an example, all the illustrations show the Catalyst 2960G-48TC-L switch. You can install and connect the Catalyst 2960G-48TC-L or other Catalyst 2960 switches as shown in these illustrations. For alternate mounting procedures, such as installing the switch in a 24-inch rack or on a wall, and for additional cabling information, see the *Catalyst 2960 Switch Hardware Installation Guide* on Cisco.com.

Equipment That You Supply

You need to supply a number-2 Phillips screwdriver to rack-mount the switch.

Before You Begin

When determining where to install the switch, verify that these guidelines are met:

- Airflow around the switch and through the vents is unrestricted.
- Temperature around the switch does not exceed 113°F (45°C).
- Humidity around the switch does not exceed 85 percent.
- Clearance to the switch front and rear panels meets these conditions:
  - Front-panel LEDs can be easily read.
  - Access to ports is sufficient for unrestricted cabling.
  - AC power cord can reach from the AC power outlet to the connector on the switch rear panel.
- Cabling is away from sources of electrical noise, such as radios, power lines, and fluorescent lighting fixtures.
- Altitude at the installation site is not greater than 10,000 feet (3,049 meters).
- For 10/100 and 10/100/1000 ports, the cable length from a switch to an attached device cannot exceed 328 feet (100 meters).
- For cable lengths for small form-factor pluggable (SFP) modules, see the documentation that shipped with the module.

Installation Warning Statements

This section includes the basic installation warning statements. Translations of these warning statements appear in the *Regulatory Compliance and Safety Information for the Catalyst 2960 Switch* guide.

Warning **Only trained and qualified personnel should be allowed to install, replace, or service this equipment.** Statement 148

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.** Statement 17B

Warning **Installation of the equipment must comply with local and national electrical codes.** Statement 1074

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. Statement 1006

Warning **This equipment is intended to be grounded. Ensure that the host is connected to earth ground during normal use.** Statement 39

Warning **If a redundant power system (RPS) is not connected to the switch, install an RPS connector cover on the back of the switch.** Statement 265

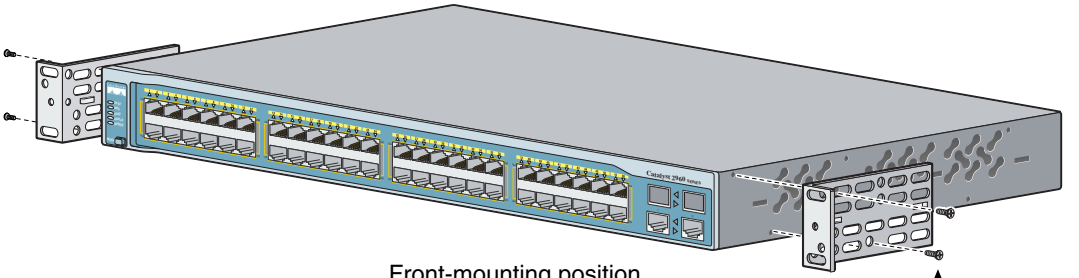
Warning **Class 1 laser product.** Statement 1008

Warning **For connections outside the building where the equipment is installed, the following ports must be connected through an approved network termination unit with integral circuit protection: 10/100/1000 Ethernet.** Statement 1044

Warning **Warning Voltages that present a shock hazard may exist on Power over Ethernet (PoE) circuits if interconnections are made using uninsulated exposed metal contacts, conductors, or terminals. Avoid using such interconnection methods, unless the exposed metal parts are located within a restricted access location and users and service people who are authorized within the restricted access location are made aware of the hazard. A restricted access area can be accessed only through the use of a special tool, lock and key or other means of security.** Statement 1072

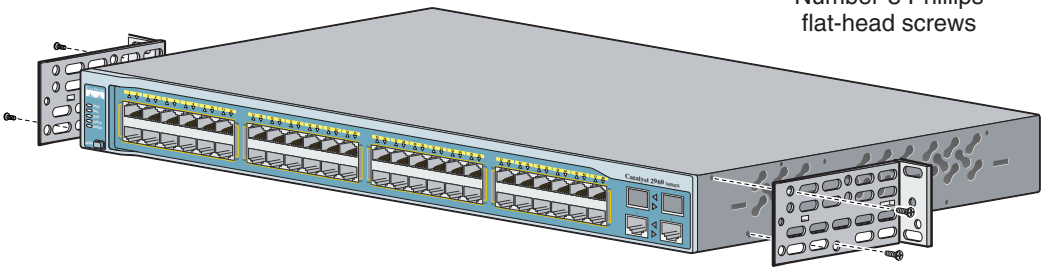
Attaching the Brackets

Use four Phillips flat-head screws to attach the long side of the brackets to Catalyst 2960 switches in one of three mounting positions.

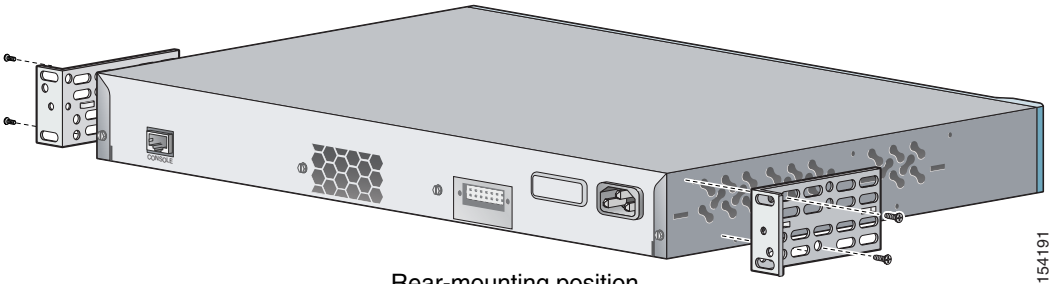


Front-mounting position

Number-8 Phillips flat-head screws



Mid-rack-mounting position (telco rack)



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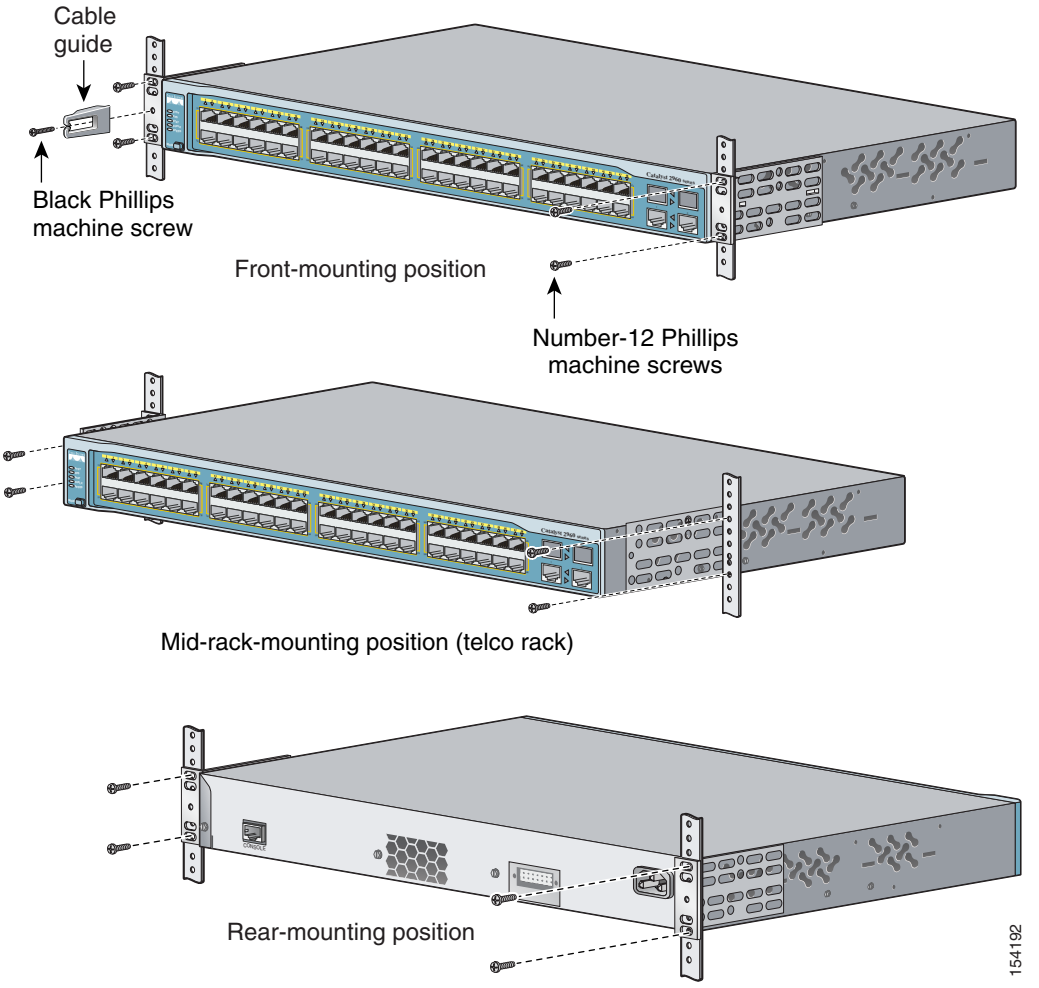
Rear-mounting position

Rack-Mount the Switch

Use the four number-12 Phillips machine screws to attach the brackets to the rack. Use the black Phillips machine screw to attach the cable guide to the left or right bracket.

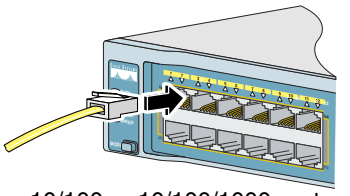


Connect to the Switch Ports

This section describes how to connect to the fixed switch ports and to the SFP module ports.

Connect to the 10/100 and 10/100/1000 Ports

Follow these steps:

Step 1	When you connect to servers, workstations, IP phones, wireless access points, and routers, insert a straight-through, twisted four-pair, Category 5 cable in a switch 10/100 or 10/100/1000 port. Use a crossover, twisted four-pair, Category 5 cable when you connect to other switches, hubs, or repeaters.	
Step 2	Insert the other cable end into an RJ-45 connector on the other device.	

The fixed ports on the Catalyst 2960 PoE switches provide PoE support for devices that are compliant with IEEE 802.3af. They also provide Cisco prestandard PoE support for Cisco IP Phones and Cisco Aironet Access Points.

Each of the Catalyst 2960-24PC-L switch 10/100 ports and ports 1 to 8 on the Catalyst 2960-24LT-L deliver 15.4 W of PoE.

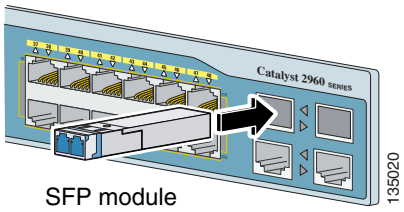
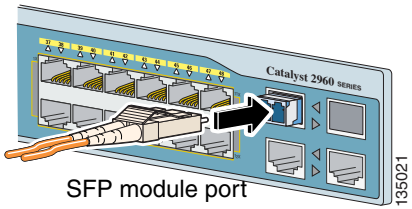
By default, a Catalyst 2960 switch PoE port automatically provides power when a valid powered device is connected to it. For information about configuring and monitoring PoE ports, see the switch software configuration guide. For information about troubleshooting PoE problems, see the *Catalyst 2960 Switch Hardware Installation Guide* on Cisco.com.

Note The automatic medium-dependent interface crossover (auto-MDIX) feature is enabled by default. The switch detects the required cable type for copper Ethernet connections and configures the interfaces accordingly. Therefore, you can use

either a crossover or a straight-through cable for connections to a copper 10/100 or 10/100/1000 module port on the switch, regardless of the type of device on the other end of the connection

Install the SFP Modules and Connect to the Ports

Follow these steps:

Step 1	Grasp the module on the sides, and insert it into the switch slot until you feel the connector snap into place.	
Step 2	Insert an appropriate cable into the module port. Insert the other cable end into the other device.	

For a list of supported modules, see the release notes on Cisco.com. For detailed instructions on installing, removing, and connecting to SFP modules, see the documentation that came with the SFP module.

Caution Removing and installing an SFP module can shorten its useful life. Do not remove and insert SFP modules more often than is absolutely necessary.

Verify Port Connectivity

After you connect to the switch port and another device, the port LED turns amber while the switch establishes a link. This process takes about 30 seconds, and then the LED turns green when the switch and the target device have an established link. If the LED is off, the target device might not be turned on, there might be a cable problem, or there might be a problem with the adapter installed in the target device. See the "In Case of Difficulty" section on this page for information about online assistance.

In Case of Difficulty

If you experience difficulty, help is available here and on Cisco.com. This section includes Express Setup troubleshooting, how to reset the switch, how to access help online, and where to find more information.

Troubleshooting Express Setup

If Express Setup does not run, or if the Express Setup page does not appear in your browser:

• Did you verify that POST successfully ran before starting Express Setup?	If not, make sure that only the SYST and STAT LEDs are green before pressing the Mode button to enter the Express Setup mode.
• Did you press the Mode button while the switch was still running POST?	If yes, wait until POST completes. Power cycle the switch. Wait until POST completes. Confirm that the SYST and STAT LEDs are green. Press the Mode button to enter Express Setup mode.
• Did you try to continue without confirming that the switch was in Express Setup mode?	Verify that all LEDs above the Mode button are green. (The RPS LED is off.) If necessary, press the Mode button to enter Express Setup mode.
• Does your PC have a static IP address?	If yes, before connecting to the switch, change your PC settings to temporarily use DHCP.

• Did you connect a crossover cable instead of a straight-through Ethernet cable between a switch port and the Ethernet port of the PC?	If yes, connect a straight-through cable to an Ethernet port on the switch and the PC. Wait 30 seconds before entering **10.0.0.1** in the browser.
• Did you connect the Ethernet cable to the console port instead of to a 10/100 or 10/100/1000 Ethernet port on the switch?	If yes, disconnect from the console port. Connect to an Ethernet port on the switch and the PC. Wait 30 seconds before entering **10.0.0.1** in the browser.
• Did you wait 30 seconds after connecting the switch and the PC before entering the IP address in your browser?	If not, wait 30 seconds, re-enter **10.0.0.1** in the browser, and press **Enter**.
• Did you enter the wrong address in the browser, or is there an error message?	If yes, re-enter **10.0.0.1** in the browser, and press **Enter**.

Resetting the Switch

This section describes how to reset the switch by rerunning Express Setup. These are reasons why you might want to reset the switch:

- You installed the switch in your network and cannot connect to it because you assigned the wrong IP address.
- You want to clear all configurations from the switch and assign a new IP address.
- You are trying to enter Express Setup mode, and the switch LEDs start blinking when you press the Mode button (which means that the switch is already configured with IP information).

Caution Resetting the switch deletes the configuration and reboots the switch.

To reset the switch:

- Press and hold the Mode button. The switch LEDs begin blinking after about 3 seconds. Continue holding down the Mode button. The LEDs stop blinking after 7 more seconds, and then the switch reboots.

The switch now behaves like an unconfigured switch. You can enter the switch IP information by using Express Setup as described in the "Running Express Setup" section on page 1-4.

Accessing Help Online

First look for a solution to your problem in the troubleshooting section of the *Catalyst 2960 Switch Hardware Installation Guide* or the *Catalyst 2960 Switch Software Configuration Guide* on Cisco.com. You can also access the Cisco Technical Support and Documentation website for a list of known hardware problems and extensive troubleshooting documentation, including:

- Factory defaults and password recovery
- Recovery from corrupted or missing software
- Switch port problems
- Network interface cards
- Troubleshooting tools
- Field notices and security advisories

Follow these steps:

1. Open your browser, and go to http://www.cisco.com/.
2. Click **Technical Support and Documentation**.
3. Under the Documentation section, click **Switches**.
4. Under the LAN Switches section, click **Cisco Catalyst 2960 Series Switches**.

For More Information

For more information about the switch, see these documents on Cisco.com:

- *Catalyst 2960 Switch Hardware Installation Guide* (not orderable, but available on Cisco.com).
- *Regulatory Compliance and Safety Information for the Catalyst 2960 Switch* (order number DOC-7816880=).
- *Release Notes for the Catalyst 2960 Switch* (not orderable but available on Cisco.com)
- *Catalyst 2960 Switch Software Configuration Guide* (not orderable but available on Cisco.com).

- *Catalyst 2960 Switch Command Reference* (not orderable but available on Cisco.com).
- *Catalyst 2960 Switch System Message Guide* (not orderable but available on Cisco.com).

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly What's New in Cisco Product Documentation, which also lists all new and revised Cisco technical documentation, at:

http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html

Subscribe to the What's New in Cisco Product Documentation as a Really Simple Syndication (RSS) feed and set content to be delivered directly to your desktop using a reader application. The RSS feeds are a free service and Cisco currently supports RSS Version 2.0.

Cisco Warranty Information

For warranty information, see the product documentation and compliance document that shipped with this product.