



Catalyst 3560-CX and 2960-CX Switch Hardware Installation Guide

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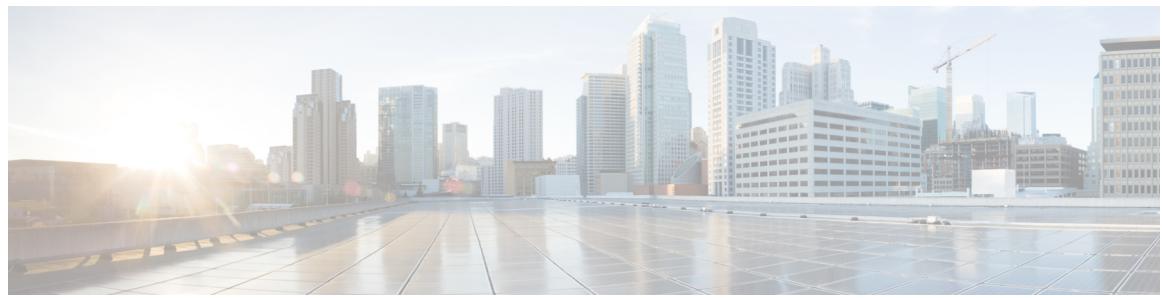
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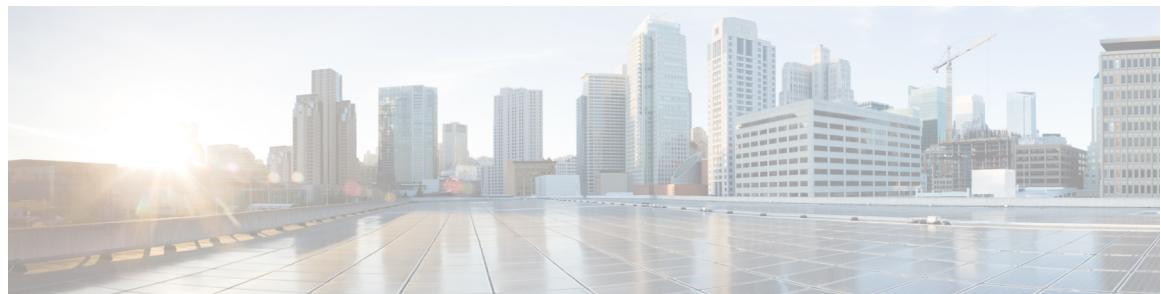
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Preface

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Document Conventions

This document uses the following conventions:

Convention	Description
<code>^</code> or <code>Ctrl</code>	Both the <code>^</code> symbol and <code>Ctrl</code> represent the Control (<code>Ctrl</code>) key on a keyboard. For example, the key combination <code>^D</code> or <code>Ctrl-D</code> means that you hold down the Control key while you press the D key. (Keys are indicated in capital letters but are not case sensitive.)
bold font	Commands and keywords and user-entered text appear in bold font.
<i>Italic</i> font	Document titles, new or emphasized terms, and arguments for which you supply values are in <i>italic</i> font.
<code>Courier</code> font	Terminal sessions and information the system displays appear in <code>courier</code> font.
<code>Courier</code> font	<code>Courier</code> font indicates text that the user must enter.
<code>[x]</code>	Elements in square brackets are optional.
<code>...</code>	An ellipsis (three consecutive nonbolded periods without spaces) after a syntax element indicates that the element can be repeated.
<code> </code>	A vertical line, called a pipe, indicates a choice within a set of keywords or arguments.
<code>[x y]</code>	Optional alternative keywords are grouped in brackets and separated by vertical bars.

Convention	Description
{x y}	Required alternative keywords are grouped in braces and separated by vertical bars.
[x {y z}]	Nested set of square brackets or braces indicate optional or required choices within optional or required elements. Braces and a vertical bar within square brackets indicate a required choice within an optional element.
string	A nonquoted set of characters. Do not use quotation marks around the string or the string will include the quotation marks.
< >	Nonprinting characters such as passwords are in angle brackets.
[]	Default responses to system prompts are in square brackets.
!, #	An exclamation point (!) or a pound sign (#) at the beginning of a line of code indicates a comment line.

Reader Alert Conventions

This document may use the following conventions for reader alerts:


Note

Means *reader take note*. Notes contain helpful suggestions or references to material not covered in the manual.


Tip

Means *the following information will help you solve a problem*.


Caution

Means *reader be careful*. In this situation, you might do something that could result in equipment damage or loss of data.


Timesaver

Means *the described action saves time*. You can save time by performing the action described in the paragraph.


Warning
IMPORTANT SAFETY INSTRUCTIONS

This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. Use the statement number provided at the end of each warning to locate its translation in the translated safety warnings that accompanied this device. Statement 1071

SAVE THESE INSTRUCTIONS

Related Documentation

**Note**

Before installing or upgrading the switch, refer to the release notes.

- Catalyst 3560-CX and Catalyst 2960-CX switch documentation at these URLs:
 - <http://www.cisco.com/c/en/us/support/switches/catalyst-3560-cx-series-switches/tsd-products-support-series-home.html>
 - <http://www.cisco.com/c/en/us/support/switches/catalyst-2960-cx-series-switches/tsd-products-support-series-home.html>
- Cisco SFP and SFP+modules documentation, including compatibility matrixes, located at:
http://www.cisco.com/en/US/products/hw/modules/ps5455/tsd_products_support_series_home.html
- Cisco Validated Designs documents at this URL:
<http://www.cisco.com/go/designzone>

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Obtaining Documentation and Submitting a Service Request



1

CHAPTER

Product Overview

The Catalyst 3560-CX and 2960-CX switches are Ethernet switches to which you can connect devices such as Cisco IP Phones, Cisco Wireless Access Points, workstations, and other network devices such as servers, routers, and other switches.

You can deploy these switches outside of the traditional wiring closet environment, such as in office workspaces, hotel rooms, slot machines, kiosks, and classrooms. The switch is suitable for deployments where there are space and power constraints (access to power outlets).

See the switch software configuration guide for deployment examples.

This chapter contains these topics:

- [Switch Models](#), page 1
- [Front Panel](#), page 2
- [Rear Panel](#), page 9
- [Management Options](#), page 13
- [Network Configurations](#), page 14

Switch Models

Table 1: Catalyst 3560-CX and 2960-CX Switch Models and Descriptions

Switch Model	Software Image	Description
WS-3560CX-8PC-S	IP Base	8 10/100/1000 Power over Ethernet plus (PoE+) ports (PoE budget of 240 W); 2 Gigabit Ethernet and 2 small form-factor pluggable (SFP) ¹ module uplink slots.
WS-3560CX-8TC-S	IP Base	8 10/100/1000 Ethernet ports; 2 Gigabit Ethernet and 2 small form-factor pluggable (SFP) module uplink slots.
WS-3560CX-12PC-S	IP Base	12 10/100/1000 PoE+ ports (PoE budget of 240 W); 2 Gigabit Ethernet and 2 SFP module uplink slots.

Switch Model	Software Image	Description
WS-3560CX-12TC-S	IP Base	12 10/100/1000 Ethernet ports; 2 Gigabit Ethernet and 2 SFP module uplink slots.
WS-3560CX-12PD-S	IP Base	12 10/100/1000 PoE+ ports (PoE budget of 240 W); 2 Gigabit Ethernet and 2 SFP+ ² module uplink slots.
WS-3560CX-8PT-S	IP Base	8 10/100/1000 PoE+ ports (PoE budget of 146W); 2 Gigabit Ethernet uplink ports.
WS-3560CX-8XPD-S	IP Base	2 Multigigabit ³ 100/1000/2500/5000/10000 PoE+ ports; 6 10/100/1000 PoE+ ports (PoE budget of 240 W); 2 SFP+ module uplink slots.
WS-C3560CPX-8PT-S	IP Base	8 Gigabit Ethernet PoE+ ports; and 2 SFP module uplink slots.
WS-C3560CX-8PD-S	IP Base	6 Gigabit Ethernet ports; 2 multi-Gigabit Ethernet PoE+ ports; and 2 SFP+ uplink slots.
WS-2960CX-8PC-L	LAN Base	8 10/100/1000 PoE+ ports (PoE budget of 124 W); 2 Gigabit Ethernet and 2 SFP module uplink slots.
WS-2960CX-8TC-L	LAN Base	8 10/100/1000 Ethernet ports; 2 Gigabit Ethernet and 2 SFP module uplink slots.

¹ SFP = Gigabit uplink.

² SFP+ = 10-Gigabit uplink.

³ Multigigabit ports support speeds of 100 Mbps, 1 Gbps, 2.5 Gbps, and 5 Gbps on Category 5e cable and up to 10 Gbps over Category 6a cabling



Note

IP Base switches can be upgraded to IP Services with the RTU (right to use) software license.

Front Panel

- 8 or 12 downlink Ethernet ports of one of these types:

- 10/100/1000

- 10/100/1000 PoE+



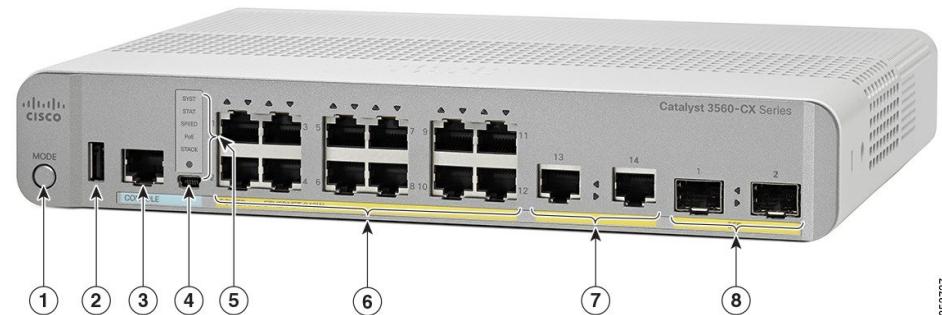
Note

The Catalyst 3560CX-8XPD-S has 6 PoE+ ports and 2 Multigigabit PoE+ ports.

- Two 10/100/1000 uplink ports and two SFP or SFP+ module ports depending on the switch model.

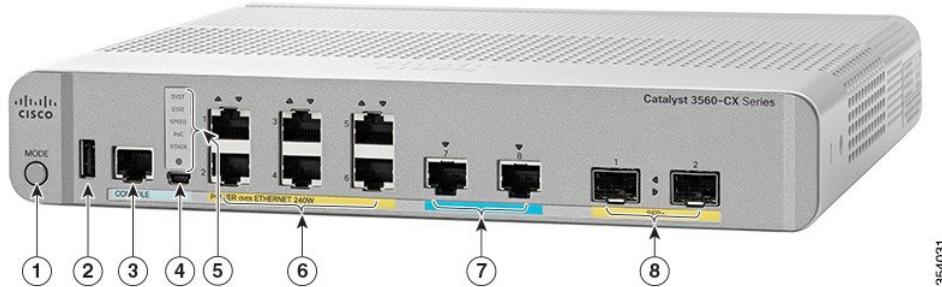
- RJ-45 console port
- USB mini-Type B (console) port
- USB Type A port
- LEDs

Figure 1: Catalyst 3560CX Front Panel View



1	Mode button	5	System LEDs
2	USB Type A port	6	10/100/1000 PoE+ ports
3	RJ-45 console port	7	10/100/1000 uplink ports
4	USB mini-Type B (console) port	8	SFP module slots

Figure 2: Catalyst 3560CX-8XPD-S Front Panel View



1	Mode button	5	System LEDs
2	USB Type A port	6	10/100/1000 PoE+ ports
3	RJ-45 console port	7	Multigigabit PoE+ ports

PoE and PoE+ Ports

4	USB mini-Type B (console) port	8	SFP module slots
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**Note**

PoE+ ports 1 to 6 are Gigabit Ethernet 1/0/1 to 1/0/6. The remaining ports are 10-Gigabit Ethernet 1/0/1 and 1/0/2. However, depending on the SFP type, the rightmost ports will either be 10-Gigabit Ethernet 1/0/3 and 10-Gigabit Ethernet 1/0/4 or Gigabit Ethernet 1/0/7 and Gigabit Ethernet 1/0/8.

PoE and PoE+ Ports

The ports provide PoE+ support for devices compliant with IEEE 802.3af, IEEE 802.3at, and ePoE and also provide Cisco prestandard PoE support for Cisco IP Phones and Cisco Aironet Access Points.

The maximum switch power output is either 124 W or 240 W, depending on the switch mode. Intelligent power management allows flexible power allocation across all ports.

For switches with a 124 W power budget, you can budget the PoE and PoE+:

- 15.4 W of PoE output on 8 ports
- 30 W of PoE+ output on 4 ports

For switches with a 240 W power budget, you can budget the PoE and PoE+:

- 15.4 W of PoE output on 12 ports
- 30 W of PoE+ output on 8 ports

On a per-port basis, you control whether or not a port automatically provides power when an IP phone or an access point is connected.

The PoE ports use RJ-45 connectors with Ethernet pinouts. The maximum cable length is 328 feet (100 meters). The 10BASE-T, 100BASE-TX, 1000BASE-T traffic requires Category 5, Category 5e, or Category 6 unshielded twisted pair (UTP) cable. The 10BASE-T traffic can use Category 3 or Category 4 UTP cable.

Cisco intelligent power management capabilities include enhanced power negotiation, power reservation, and per-port power policing. For information about configuring and monitoring PoE ports, see the switch software configuration guide on Cisco.com.

**Note**

The output of the PoE circuit has been evaluated as a Limited Power Source (LPS) per IEC 60950-1.

10/100/1000 Ports

The 10/100/1000 ports use RJ-45 connectors with Ethernet pinouts. The maximum cable length is 328 feet (100 meters). The 10BASE-T, 100BASE-TX, 1000BASE-T traffic requires Category 5 or Category 5e twisted pair (UTP) cable. The 10BASE-T traffic can use Category 3 or Category 4 UTP cable.

Multigigabit ports

The Multigigabit ports can be configured to auto-negotiate multiple speeds on switch ports, and support 100 Mbps, 1 Gbps, 2.5 Gbps, and 5 Gbps speeds on Category5e cables, and up to 10 Gbps over Category6 and Category 6A cables.

The Multigigabit ports support PoE and PoE+ for all the supported speeds and cable types. The following table lists the cable types and speed.

Cable Type	100Mbps	1G	2.5G	5G	10G
Category5E	Yes	Yes	Yes	Yes	N/A
Category6	Yes	Yes	Yes	Yes	Yes (55meters)
Category6A	Yes	Yes	Yes	Yes	Yes

Management Ports

The management ports connect the switch to a PC running Microsoft Windows or to a terminal server.

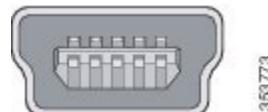
- RJ-45 console port (EIA/TIA-232). The RJ-45 console port connection uses an RJ-45-to-DB-9 female cable.
- USB mini-Type B console port (5-pin connector).

If you use the USB mini-Type B console port, the Cisco Windows USB device driver must be installed on any PC connected to the console port (for operation with Microsoft Windows). Mac OS X or Linux do not require special drivers.

The 4-pin mini-Type B connector resembles the 5-pin mini-Type B connectors. They are not compatible. Use only the 5-pin mini-Type B.

This illustration shows a 5-pin mini-Type B USB port.

Figure 3: USB Mini-Type B Port



With the Cisco Windows USB device driver, you can connect and disconnect the USB cable from the console port without affecting Windows HyperTerminal operations.

The console output always goes to both the RJ-45 and the USB console connectors, but the console input is active on only one of the console connectors at any one time. The USB console takes precedence over the RJ-45 console. When a cable is connected into the USB console port, the RJ-45 console port becomes inactive. Conversely, when the USB cable is disconnected from the USB console port, the RJ-45 port becomes active.

SFP and SFP+ Module Slots

You can use the command-line interface (CLI) to configure an inactivity timeout which reactivates the RJ-45 console if the USB console has been activated and no input activity has occurred on the USB console for a specified time.

After the USB console deactivates due to inactivity, you cannot use the CLI to reactivate it. Disconnect and reconnect the USB cable to reactivate the USB console. For information on using the CLI to configure the USB console interface, see the software guide.

SFP and SFP+ Module Slots

The switch has either two 1-Gigabit SFP or 10-Gigabit SFP+ module slots. The slots marked *SFP+* support both SFP and SFP+ modules. The *SFP* slots support only the SFP modules.

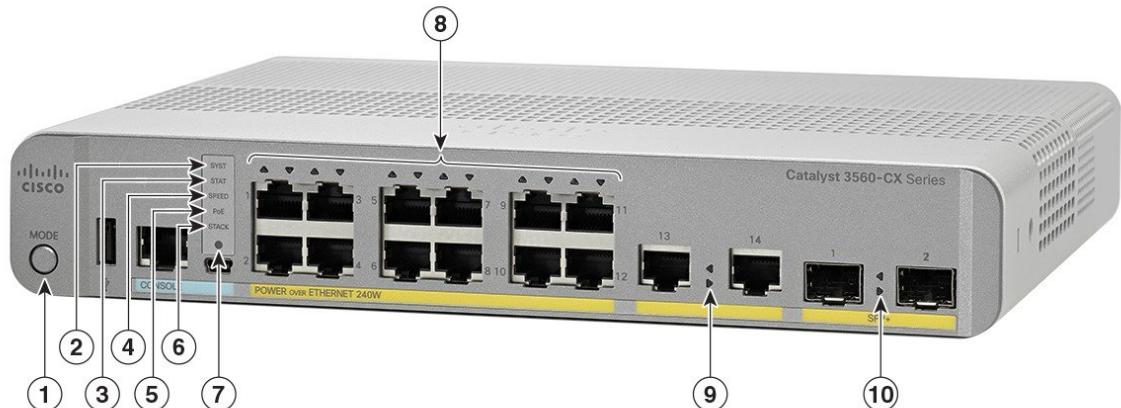
For Cisco SFP and SFP+ modules documentation, including compatibility matrixes, refer to this URL: http://www.cisco.com/en/US/products/hw/modules/ps5455/products_device_support_tables_list.html

LEDs

You can use the switch system and port LEDs to monitor switch activity and performance.

This figure shows the switch LEDs and the Mode button that you use to select a port mode.

Figure 4: Switch LEDs and Mode Button



353731

1	Mode button	6	STACK LED ⁴
2	SYST LED (system)	7	Console LED
3	STAT LED (status)	8	Port LEDs
4	SPEED LED	9	Uplink port LED (copper)

5	PoE LED ⁵	10	Uplink port LED (SFP/SFP+)
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⁴ Only on switch models that have stacking capability. Note that this release does not support switch stacking.

⁵ Only on switch models that support PoE.

System LED

Color	System Status
Off	System is not powered on.
Green	System is operating normally.
Amber	System is receiving power but is not operating properly.

Color	System Status
Off	System is not powered on.
Green	System is operating normally.
Amber	System is receiving power but is not operating properly.
Blinking Green	POST is in progress.

Modes for Port LEDs

The port LEDs, as a group or individually, display information about the switch and about the individual ports.

LED	Port Mode	Description
STAT	Port status	The port status. This is the default mode.
SPEED	Port speed	The port operating speed: 10, 100, or 1000 Mb/s.
PoE	PoE port power	The PoE status.

PoE LED

Even if the PoE mode is not selected, the LED shows PoE problems when they are detected. The PoE LED is only on the switches that support PoE.

Color	Description
Off	PoE is not enabled.
Green	PoE is enabled. Ports are functioning correctly.
Blinking amber	<ul style="list-style-type: none"> • PoE mode is not selected • At least one of the 10/100 or 10/100/100 PoE ports has been denied power • At least one of the ports has a PoE fault

Console LEDs

The console LEDs show which console port is in use.

If you connect a cable to a console port, the switch automatically uses that port for console communication. If you connect two console cables, the USB-mini console port has priority.

LED	Color	Description
RJ-45 console port	Green	RJ-45 console port is active. USB-mini console port LED is not active.
	Off	Port is not active. USB-mini console port is active.
USB-mini console port	Green	USB-mini console port is active. RJ-45 console port LED is not active.
	Off	Port is not active. RJ-45 console port is active.

Port LEDs

RJ-45 ports and SFP-module slots have port LEDs. These LEDs, as a group or individually, provide information about the switch and about the individual ports.

LED Color	Description
Off	No link or port was administratively shut down.
Green	Link present but is not sending or receiving data.
Blinking green	Activity. Port is sending or receiving data.
Alternating green-amber	Link fault. Error frames can affect connectivity, and errors such as excessive collisions, CRC errors, and alignment and jabber errors are monitored for link faults.
Amber	Port is blocked by Spanning Tree Protocol (STP) and is not forwarding data. After a port is reconfigured, the port LED is amber for up to 30 seconds as STP searches for loops.

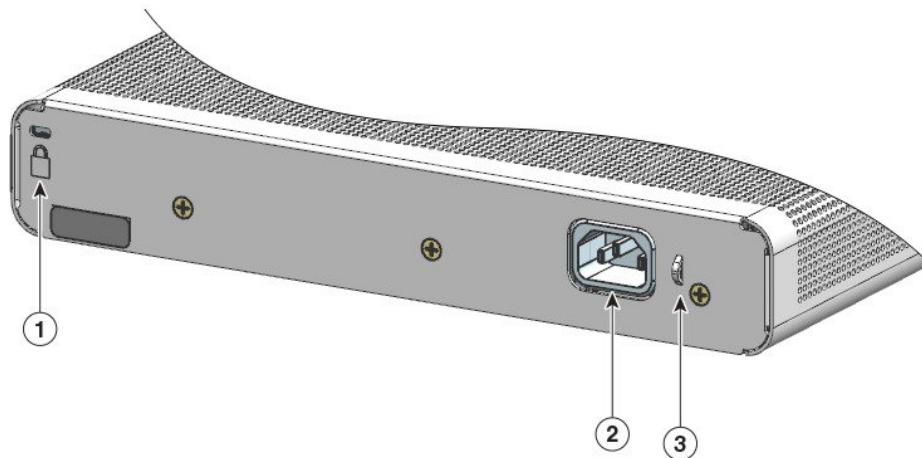
Rear Panel

- A security slot
- An AC power connector or a power adapter connector (on Catalyst 3560CX-8PT-S only)
- A loop (for the optional power cord retainer)

Rear Panel

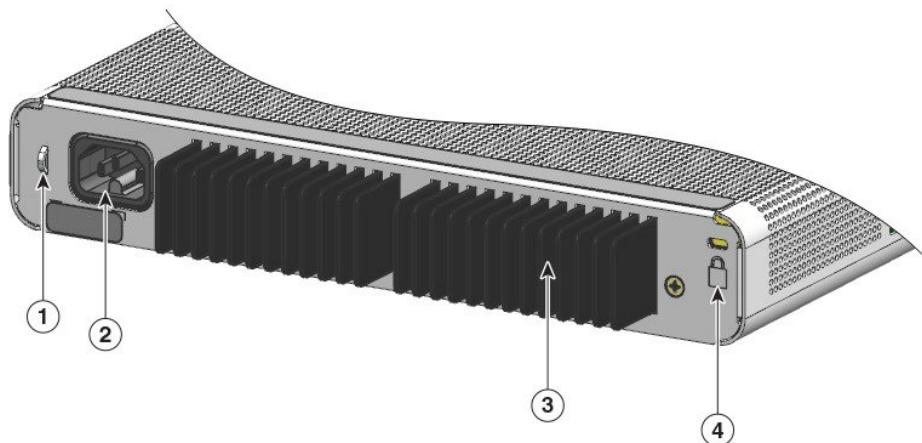
- Heat sink fins (PoE models only)

Figure 5: Rear Panel of a Non-PoE Switch



353780

Figure 6: Rear Panel of a PoE Switch

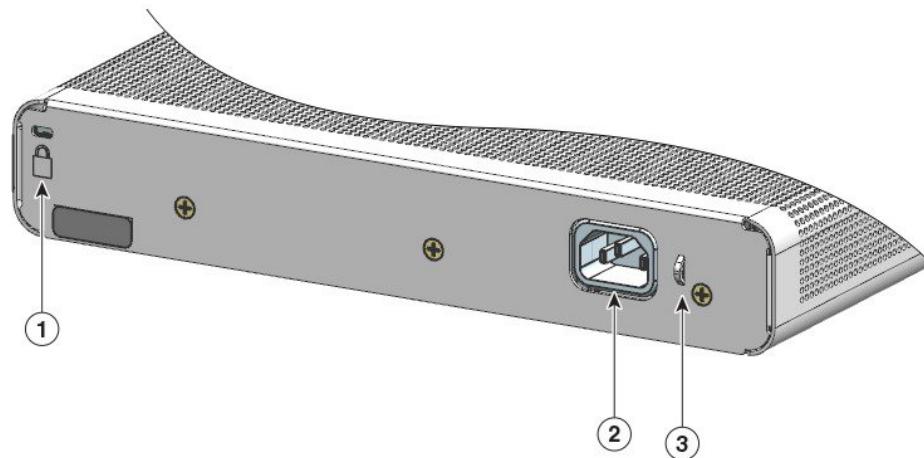


353781

- A security slot
- An AC power connector
- A loop (for the optional power cord retainer)

- Heat sink fins (PoE models only)

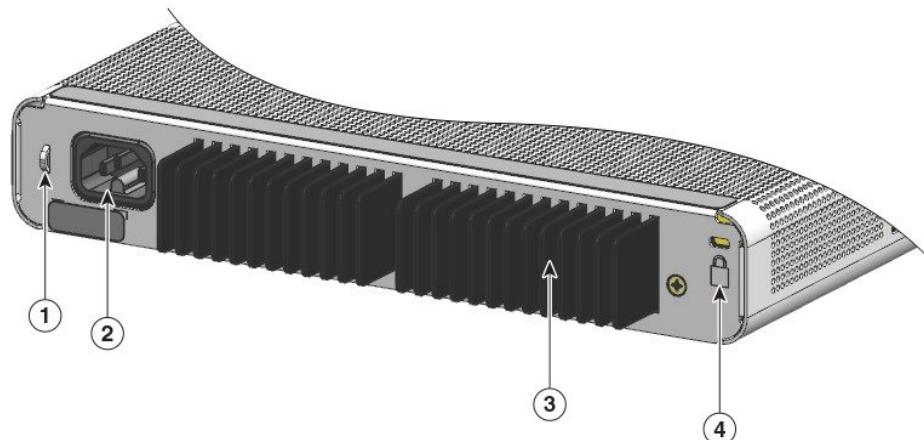
Figure 7: Rear Panel of a Non-PoE Switch



353780

1	Security Slot	3	A loop (for the optional power cord retainer)
2	An AC power connector		

Figure 8: Rear Panel of a PoE Switch



353781

1	Security Slot	3	A loop (for the optional power cord retainer)
2	An AC power connector	4	Heat sink fins

Internal Power Supply

All the switches except Catalyst 3560CX-8PT-S are powered through their internal power supplies. The internal power supply is an autoranging unit that supports input voltages between 100 and 240 VAC. Plug the AC power cord into the AC power connector and into an AC power outlet.

All the switches are powered through their internal power supplies. The internal power supply is an autoranging unit that supports input voltages between 100 and 240 VAC (max of 90V to 264V). The AC frequency range of the power supply is 50Hz~60Hz. Plug the AC power cord into the AC power connector and into an AC power outlet.

Security Slot

The switches have security slots on the rear panel. You can install an optional cable lock, such as the type that is used to secure a laptop computer, to secure the switch.

Figure 9: Switch Rear Panel



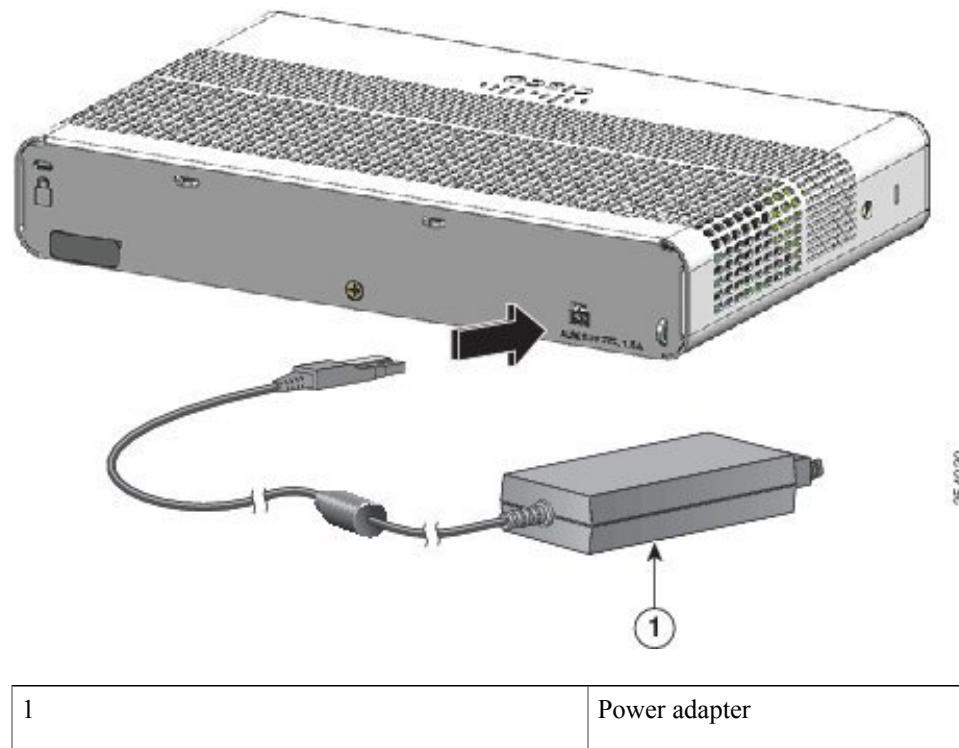
Note For PoE models, the security slot is on the right side of the rear panel.

Auxiliary Power Adapter

Catalyst 3560CX-8PT-S switches can be powered either through the 10/100/1000 uplink ports receiving power from a PoE, PoE+ or UPOE switch or through an auxiliary AC-DC or DC-DC power adapter. You can order

either the AC-DC power adapter (PWR-ADPT) or the DC-DC power adapter (PWR-ADPT-DC) with the switch, or you can order it later from your Cisco representative.

Figure 10: Connecting Through an External Auxiliary Power Adapter



Management Options

- Cisco Network Assistant

Cisco Network Assistant is a PC-based network management GUI application for LANs of small and medium-sized businesses. You can use the GUI to configure and manage switch clusters or standalone switches. Cisco Network Assistant is available at no cost and can be downloaded from this URL: <http://www.cisco.com/en/US/products/ps5931/index.html>

For information on starting the Network Assistant application, see the *Getting Started with Cisco Network Assistant* guide on Cisco.com.

- Device Manager

You can use Device Manager in the switch memory to manage individual and standalone switches. This web interface provides configuration and monitoring from anywhere in your network. For information, see the switch getting started guide and the Device Manager online help.

- Cisco IOS CLI

You can configure and monitor the switch and switch cluster members from the CLI. Access the CLI by connecting your management station to the switch console port or by using Telnet from a remote management station. See the switch command reference on Cisco.com for information.

- Cisco Prime Infrastructure

Cisco Prime Infrastructure combines the wireless functionality of Cisco Prime Network Control System (NCS) and the wired functionality of Cisco Prime LAN Management Solution (LMS), with application performance monitoring and troubleshooting capabilities of Cisco Prime Assurance Manager. For more information, see the Cisco Prime Infrastructure documentation on Cisco.com.

- Catalyst Smart Operations

The Smart Install feature provides a single point of management (director) in a network. You can use it to provide a zero touch image and configuration upgrade of newly deployed switches and image and configuration downloads for any client switches. For information, see the *Cisco Smart Install Configuration Guide* on Cisco.com.

Auto Smartports macros dynamically configure ports based on the device type detected on the port. When the switch detects a new device, it applies the appropriate Auto Smartports macro on the port. For information about configuring Auto Smartports, see the switch software configuration guide on Cisco.com.

Network Configurations

See the switch software configuration guide on [Cisco.com](#) for network configuration concepts and examples of using the switch to create dedicated network segments and interconnecting the segments through Fast Ethernet and Gigabit Ethernet connections.



CHAPTER 2

Switch Installation

For initial switch setup, assigning the switch IP address, and powering on information, see the switch getting started guide on Cisco.com.

This chapter contains these topics:

- [Warnings, page 15](#)
- [Box Contents, page 17](#)
- [Tools and Equipment, page 18](#)
- [Installation Guidelines, page 18](#)
- [Verifying Switch Operation, page 19](#)
- [Mounting the Switch, page 20](#)
- [Attaching the Adapter Bracket to the Switch \(Optional\), page 38](#)
- [Installing the Power Cord Retainer \(Optional\), page 39](#)
- [Installing the Cable Guard \(Optional\), page 42](#)
- [Installing SFP and SFP+Modules, page 46](#)
- [10/100/1000 PoE and PoE+Port Connections, page 47](#)
- [10/100/1000 Port Connections, page 49](#)
- [Where to Go Next, page 49](#)

Warnings

This section includes the warning statements relating to basic installation. Read this section before you start the installation procedure.



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. **Statement 43**

Warnings**Warning**

Read the wall-mounting instructions carefully before beginning installation. Failure to use the correct hardware or to follow the correct procedures could result in a hazardous situation to people and damage to the system. **Statement 378**

**Warning**

Do not work on the system or connect or disconnect cables during periods of lightning activity. **Statement 1001**

**Warning**

Read the installation instructions before connecting the system to the power source. **Statement 1004**

**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**

Class 1 laser product. **Statement 1008**

**Warning**

This equipment must be grounded. Never defeat the ground conductor or operate the equipment in the absence of a suitably installed ground conductor. Contact the appropriate electrical inspection authority or an electrician if you are uncertain that suitable grounding is available. **Statement 1024**

**Warning**

Ultimate disposal of this product should be handled according to all national laws and regulations. **Statement 1040**

**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**

To prevent the system from overheating, do not operate it in an area that exceeds the maximum recommended ambient temperature of: <113°F (45°C). **Statement 1047**

**Note**

The maximum operating temperature is 40°C for Catalyst 3560CX-12PD-S and C3560CX-8XPD-S switches and 45°C for all the other switch models. However, for WS-C3560CX-8XPD-S, the maximum operating temperature will be 35°C when installed inverted and under fully loaded conditions (maximum PoE and 10G SFP+ transceivers installed).

**Warning**

This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents. Use the statement number provided at the end of each warning to locate its translation in the translated safety warnings that accompanied this device. **Statement 1071**

**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**

**Warning**

No user-serviceable parts inside. Do not open. **Statement 1073**

**Warning**

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

**Warning**

To prevent airflow restriction, allow clearance around the ventilation openings to be at least: 3 inches (7.6 cm). **Statement 1076**

**Warning**

Hot surface. **Statement 1079**

Box Contents

The switch getting started guide describes the box contents. If any item is missing or damaged, contact your Cisco representative or reseller for support.

Tools and Equipment

Obtain these necessary tools and equipment:

- Number-2 Phillips screwdriver
- Drill with a #27 drill bit (0.144-inch [3.7 mm])

Installation Guidelines

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

- Clearance to front panels is such that the LEDs can be easily read.
- Power cord reaches from the power outlet to the connector on the switch.
- Cabling is away from sources of electrical noise, such as radios, power lines, and fluorescent lighting fixtures.
- Temperature around the unit does not exceed 113°F (45°C). If the switch is installed in a closed or multirack assembly, the temperature around it might be greater than normal room temperature.



Note The Catalyst 3560CX-12PD-S and C3560CX-8XPD-S switches have a maximum operating temperature of 40°C. All the other switches have a maximum operating temperature of 45°C. However, for WS-C3560CX-8XPD-S, the maximum operating temperature will be 35°C when installed inverted and under fully loaded conditions (maximum PoE and 10G SFP+ transceivers installed).



Note When using these products with the GLC-T SFP module, the thermal limitations are as follows:

- At sea level, table top installation temperature should not exceed 35°C and inverted installation temperature should not exceed 30°C
- At 5000 feet, table top installation temperature should not exceed 30°C and inverted installation temperature should not exceed 25°C
- At 10000 feet, table top installation temperature should not exceed 25°C and inverted installation temperature should not exceed 20°C

-
- Humidity around the switch does not exceed 95 percent.
 - Altitude at the installation site is not greater than 10,000 feet.
 - Airflow around the switch and through the vents must be unrestricted. To avoid any flow blockage, we strongly recommend these guidelines:
 - Allow at least 3 in. (7.6 cm) of clearance from the left and right sides, and the front and rear of the switch.

- If you are installing the switch upright, allow at least 1.75 in. (4 cm) of clearance from the top cover.
- If you are installing the switch inverted, under a table, allow at least 3 in. (7.6 cm) of clearance from the top cover.
- If you are installing the switch in a rack, allow at least 1RU of empty rack space above each switch.

**Note**

For Catalyst 3560CX-12PD-S and C3560CX-8XPD-S switches operating at the maximum specified temperature and fully loaded conditions (with transceivers installed and maximum PoE), when installed inverted, there should be unrestricted airflow all around the switch (and not just limited to the minimum 3 in. requirement). When installed upright, at least 3 in. of clearance from the top cover is required. When installed in a rack, at least 2RU of empty rack space above each switch is required.

- When placing the switch on a flat horizontal surface, we strongly recommend that you attach the rubber feet to the switch.
- For 10/100/1000 fixed ports, cable lengths from the switch to connected devices can be up to 328 feet (100 meters).
- For cable requirements for SFP module connections, see the “[SFP Module Cables, on page 64](#)” section. Each port must match the wave-length specifications on the other end of the cable, and the cable must not exceed the minimum cable length.

Verifying Switch Operation

Before you install the switch in a rack, on a wall, or on a table or shelf, power on the switch and verify that it passes POST.

To power on the switch, do one of the following, depending on your switch model:

- Connect a 10/100/1000 uplink port to a PoE or PoE+ switch.
- Plug the auxiliary power adapter cord into the switch AUX power connector and into an AC power outlet.

**Note**

You can use both the uplink port and the auxiliary power adapter. The switch shares power from all the available power sources. The total available power to the switch is the sum of power available from all the power sources minus the power that is lost.

- Plug one end of the AC power cord into the switch AC power connector, and plug the other end into an AC power outlet.

**Note**

If you have a Catalyst WS-C3560CX-8PT-S switch that is connected to a Power Source Equipment (PSE) PoE or PoE+ port with ether-channel configuration, do not power on the switch by connecting only one 10/100/1000 uplink port to the PSE. Doing so will cause the PSE to detect a port channel misconfiguration when the switch tries to boot in low power mode, and hence the port will go into error disabled mode.

For Catalyst WS-C3560CX-8PT-S switches, you must connect both uplink ports to the PSE. Alternatively, use the auxiliary power supply.

For more details on Low Power Bootup, see the *PoE and PoE Pass-Through Ports on Catalyst WS-C3560CX-8PT-S* section in the *Configuring PoE* chapter of the switch's Software Configuration Guide on Cisco.com.

As the switch powers on, it begins the POST, a series of tests that runs automatically to ensure that the switch functions properly. LEDs can blink during the test. POST lasts approximately 1 minute. When the switch begins POST, the SYST, STAT, and SPEED LEDs turn green. The SYST LED blinks green, and the other LEDs remain solid green.

When the switch completes POST successfully, the SYST LED remains green. The other LEDs turn off and then reflect the switch operating status. If a switch fails POST, the SYST LED turns amber.

POST failures are usually fatal. Call Cisco technical support representative if your switch fails POST.

After a successful POST, unplug the power cord from the switch and install the switch in a rack, on a wall, on a table, or on a shelf.

Mounting the Switch

Mounting on a Desk or Shelf Without Mounting Screws

Step 1

Locate the adhesive strip with the rubber feet in the accessory kit.

Step 2

Remove the four rubber feet from the adhesive strip, and attach them to the recessed areas at the bottom of the unit. This prevents the switch from sliding on the desk or shelf.

Note We strongly recommend that you attach the rubber feet. Doing so also helps prevent airflow restriction and overheating.

- **Warning** To prevent airflow restriction, allow clearance around the ventilation openings to be at least 3 inches (7.6 cm). **Statement 1076**

Step 3

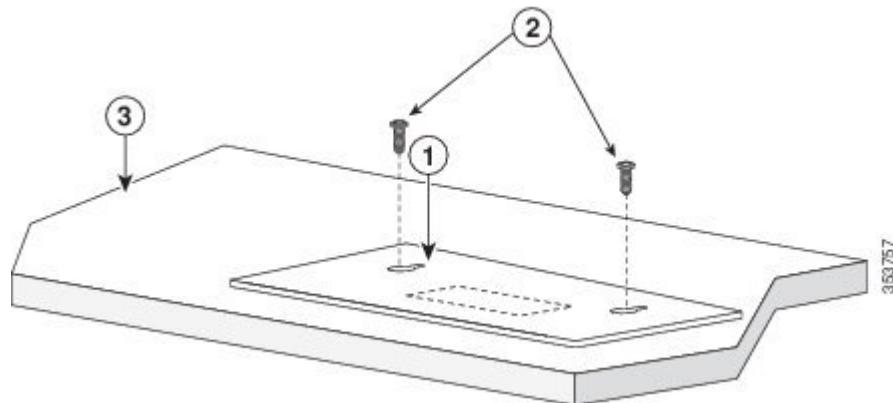
Place the switch on the desk or shelf.

On a Desk, Shelf, or Wall (with Mounting Screws)

Desk- or Shelf-Mounting

- Step 1** Use the screw template to align the mounting screw holes and also as a guide to make sure that you install the screws into the desk or shelf with proper clearance.
- Step 2** Position the screw template on top of the desk or shelf so that the edge that is marked as CABLE SIDE ENTRY faces the front of the desk or shelf. This ensures that the power cord faces the rear of the desk or shelf after the switch is installed.
- Note** Wait before you attach the screw template to the desk or shelf.
- Step 3** Peel the adhesive strip off the bottom of the screw template, and attach it to the top of the desk or shelf.
- Step 4** Use a 0.144-inch (3.7 mm) or a #27 drill bit to drill a 1/2-inch (12.7 mm) hole in the two screw template slots.
- Step 5** Insert two screws in the slots on the screw template, and tighten them until they touch the top of the screw template.

Figure 11: Installing the Mounting Screws on Top of a Desk or a Shelf

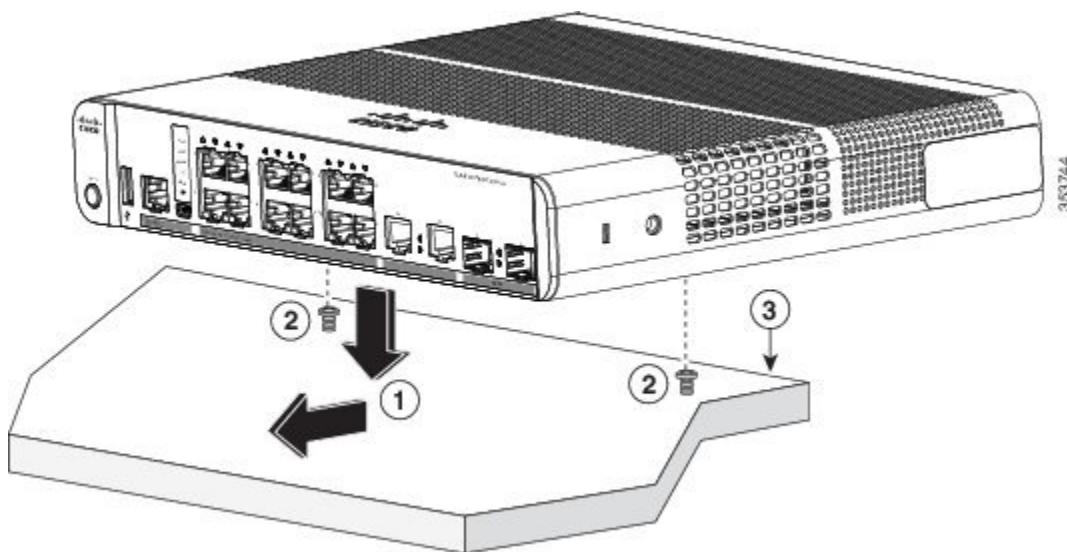


On a Desk, Shelf, or Wall (with Mounting Screws)

Step 6 Remove the screw template from the desk or shelf.

Step 7 Place the switch onto the mounting screws, and slide it forward until it locks in place.

Figure 12: Mounting the Switch on Top of a Desk or Shelf



Warning To prevent airflow restriction, allow clearance around the ventilation openings to be at least: 3 in. (7.6 cm)
Statement 1076

Under a Desk- or Shelf-Mounting

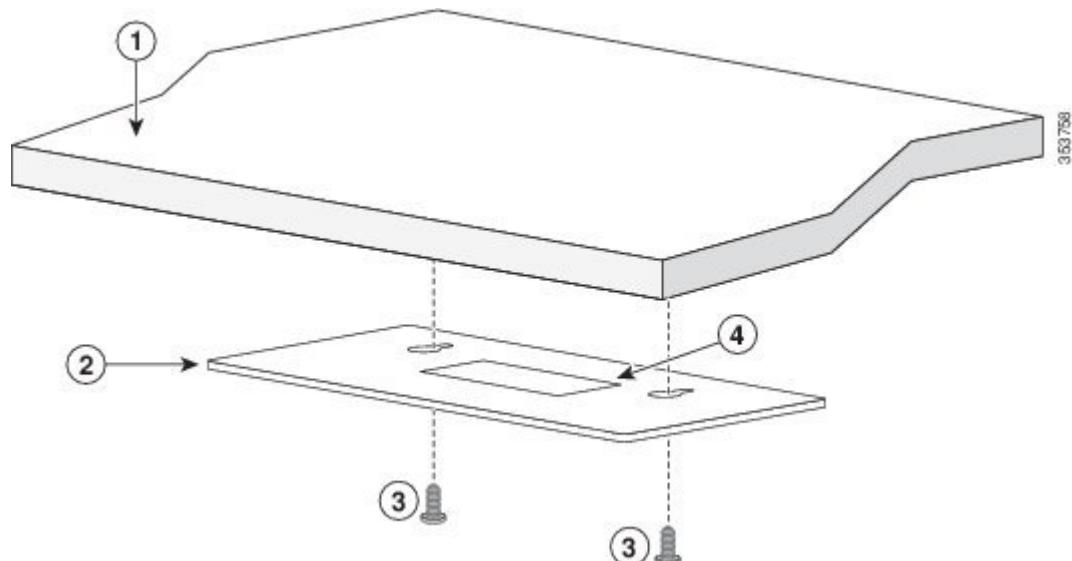
Step 1 Use the screw template to align the mounting screw holes and also as a guide to make sure that you install the screws under the desk or shelf with proper clearance.

Step 2 Position the screw template on top of the desk or shelf so that the edge that is marked as CABLE SIDE ENTRY faces the front of the desk or shelf. This ensures that the power cord faces the rear of the desk or shelf after the switch is installed.

Note Wait before you attach the screw template to the desk or shelf.

- Step 3** Peel the adhesive strip off the bottom of the screw template, and attach it to the top of the desk or shelf.
- Step 4** Use a 0.144-inch (3.7 mm) or a #27 drill bit to drill a 1/2-inch (12.7 mm) hole in the two screw template slots.
- Step 5** Insert two screws in the slots on the screw template, and tighten them until they touch the top of the screw template.

Figure 13: Installing the Mounting Screws Under a Desk or Shelf

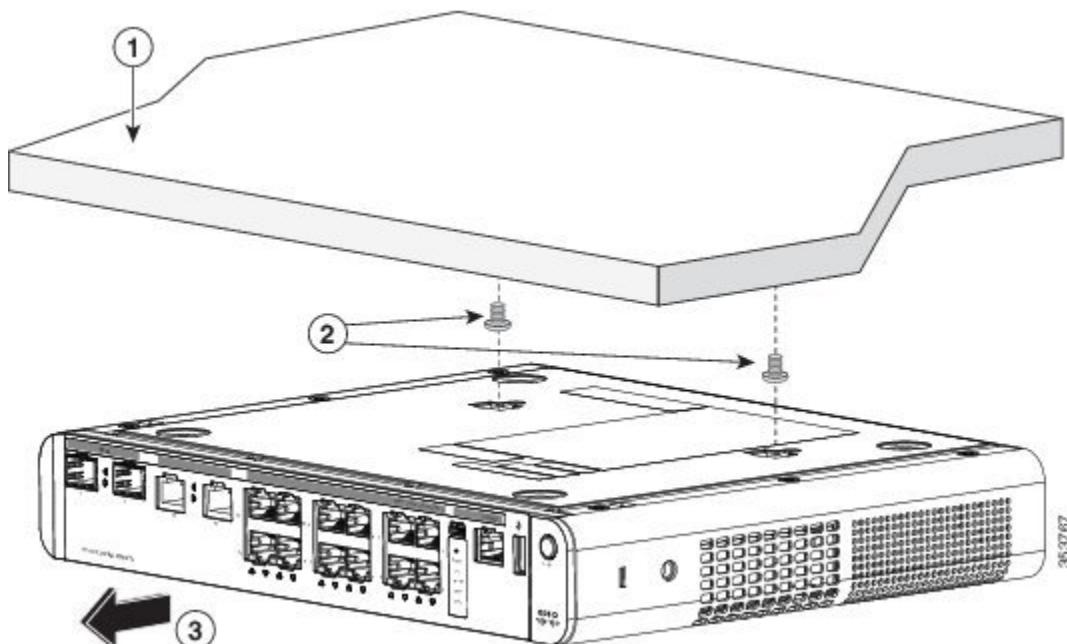


- Step 6** Remove the screw template from underneath the desk or shelf.
- Step 7** Place the switch upside down onto the mounting screws, and slide it forward until it locks in place.

On a Desk, Shelf, or Wall (with Mounting Screws)

Warning To prevent airflow restriction, allow clearance around the ventilation openings to be at least: 3 in. (7.6 cm) Statement 1076

Figure 14: Mounting the Switch Under a Desk or Shelf



Wall-Mounting



Warning Read the wall-mounting instructions carefully before beginning installation. Failure to use the correct hardware or to follow the correct procedures could result in a hazardous situation to people and damage to the system. Statement 378



Caution Do not wall-mount the switch with its front panel facing up. Following safety regulations, wall-mount the switch with its front panel facing down or to the side to prevent airflow restriction and to provide easier access to the cables

Step 1

Locate the screw template. The template is used to align the mounting screw holes.

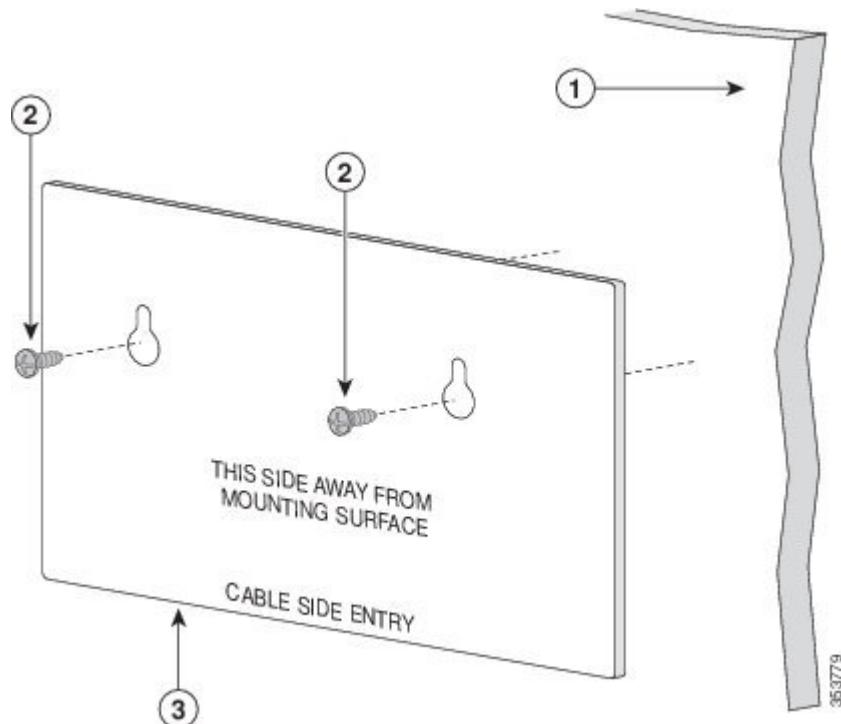
Step 2

Position the screw template so that the edge that is marked as CABLE SIDE ENTRY faces toward the floor.

Note For the best support of the switch and cables, make sure that you attach the switch securely to a wall stud or to a firmly attached plywood mounting backboard

- Step 3** Peel the adhesive strip off the bottom of the screw template.
- Step 4** Attach the screw template to the wall.
- Step 5** Use a 0.144-inch (3.7 mm) or a #27 drill bit to drill a 1/2-inch (12.7 mm) hole in the two screw template slots.
- Step 6** Insert two screws in the slots on the screw template, and tighten them until they touch the top of the screw template.

Figure 15: Installing the Mounting Screws on the Wall

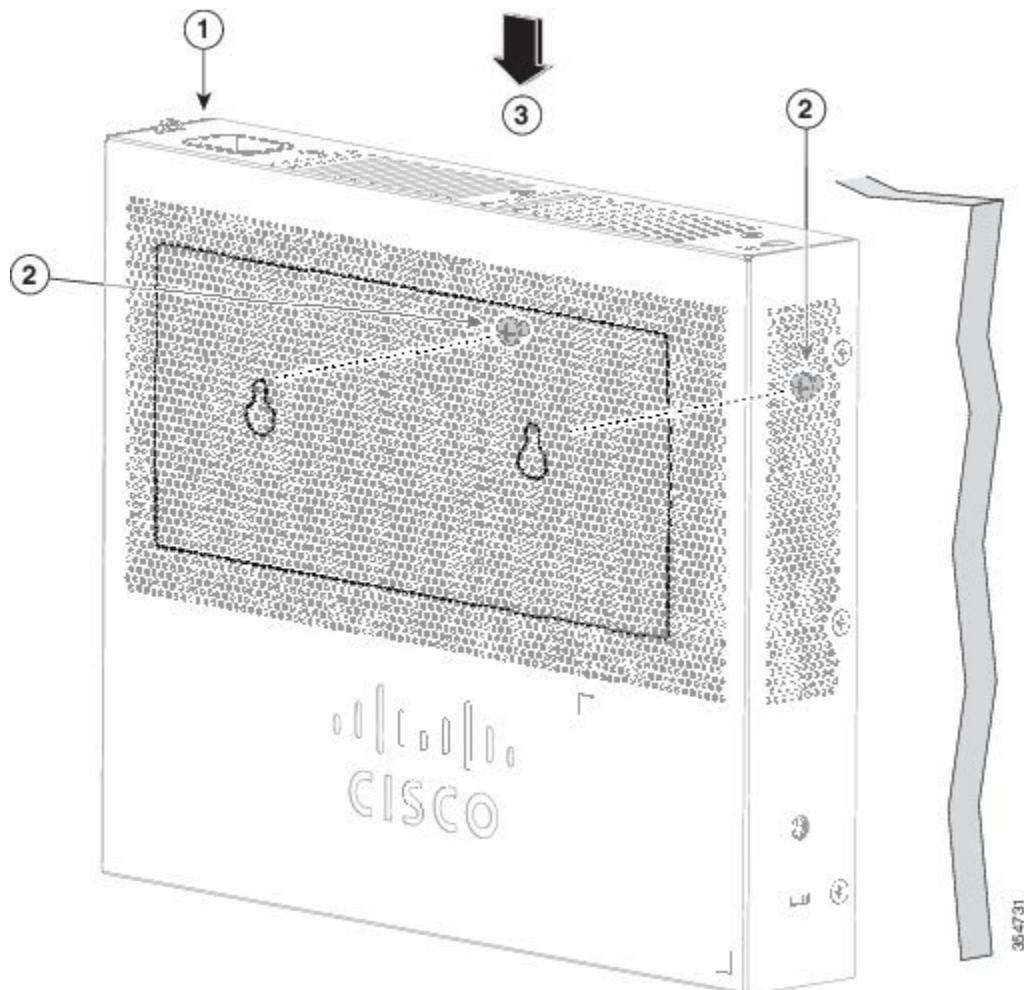


With a Mounting Tray

Step 7 Remove the screw template from the wall.

Step 8 Place the switch onto the mounting screws, and slide it down until it locks in place.

Figure 16: Installing the Switch on a Wall



With a Mounting Tray

The mounting kit (part number CMPCT-MGNT-TRAY=) is optional. You can order it when you order your switch, or you can order it later from your Cisco representative.

The mounting kit ships contents:

- Two number-10 Phillips pan-head screws
- Three number-8 Phillips pan-head screws

- Mounting tray
- Magnet

You can use the mounting tray by itself with mounting screws, or with a magnet.

Mounting Tray with Screws

You can use the mounting tray to secure the switch:

- On a desk or shelf
- Under a desk or shelf
- On a wall

**Caution**

Do not wall-mount the switch with its front panel facing up. Following safety regulations, wall-mount the switch with its front panel facing down or to the side, to allow sufficient airflow and to provide easier access to the cables.

This example shows you how to mount the switch on a desk or shelf. You can use a similar procedure to mount the switch under a desk or on a wall.

Step 1

Place the mounting tray on the desk.

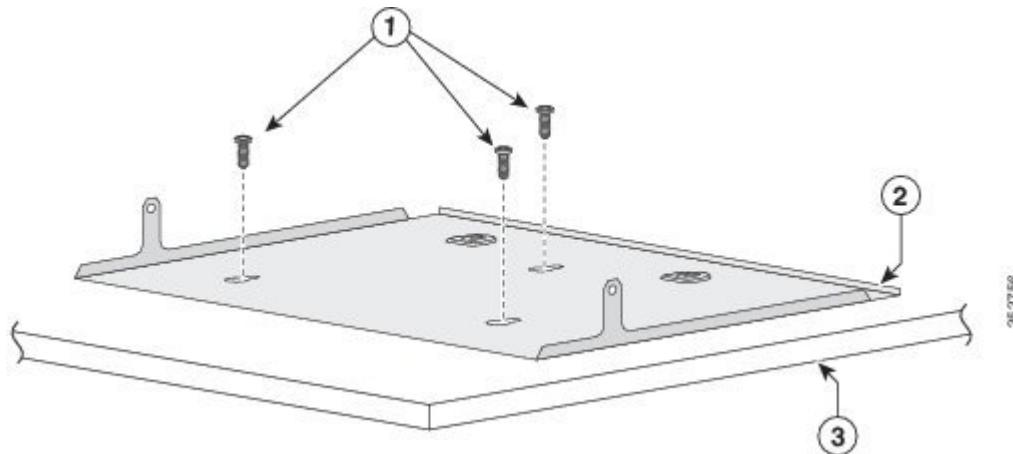
Step 2

Use a 0.144-in. (3.7 mm) or a #27 drill bit to drill three 1/2-in. (12.7 mm) holes in the desk.

Step 3

Insert the three number-8 Phillips pan-head screws in the slots on the mounting tray, and tighten them.

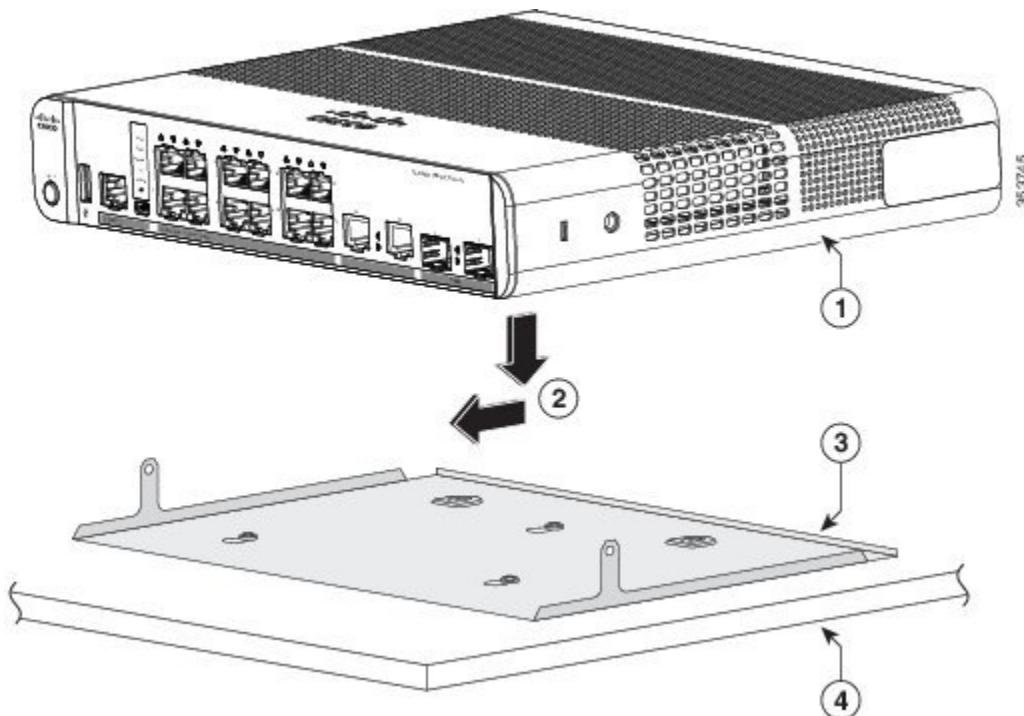
Figure 17: Attaching the Tray to the Desk or Shelf



With a Mounting Tray

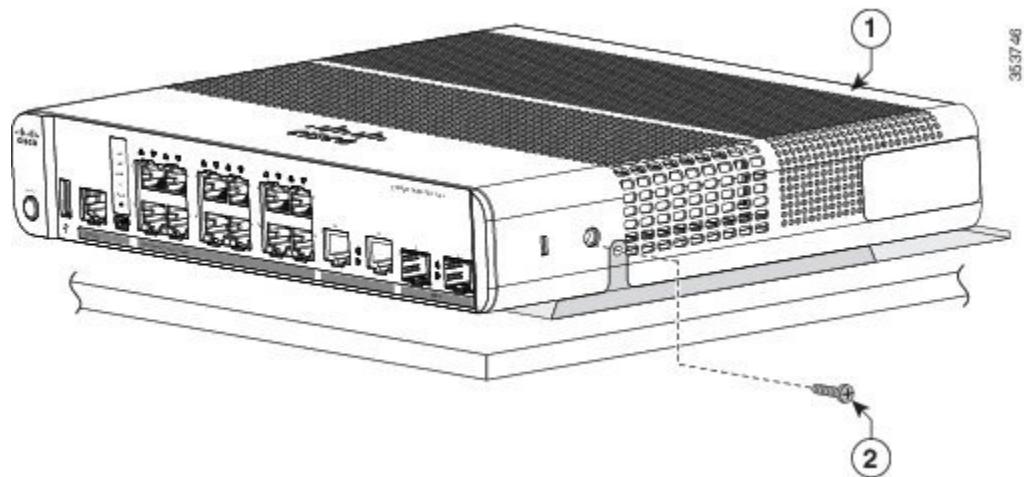
Step 4 Place the switch onto the mounting screws, and slide the switch until it locks into place.

Figure 18: Installing the Switch on the Mounting Tray



Step 5 Use the two number-10 Phillips pan-head screws to secure the switch to the mounting tray.

Figure 19: Securing the Switch to the Mounting Tray



Warning To prevent airflow restriction, allow clearance around the ventilation openings to be at least: 3 in. (7.6 cm)
Statement 1076

Mounting Tray with a Magnet

You can use a magnet with the mounting tray to mount the switch on a metal surface.

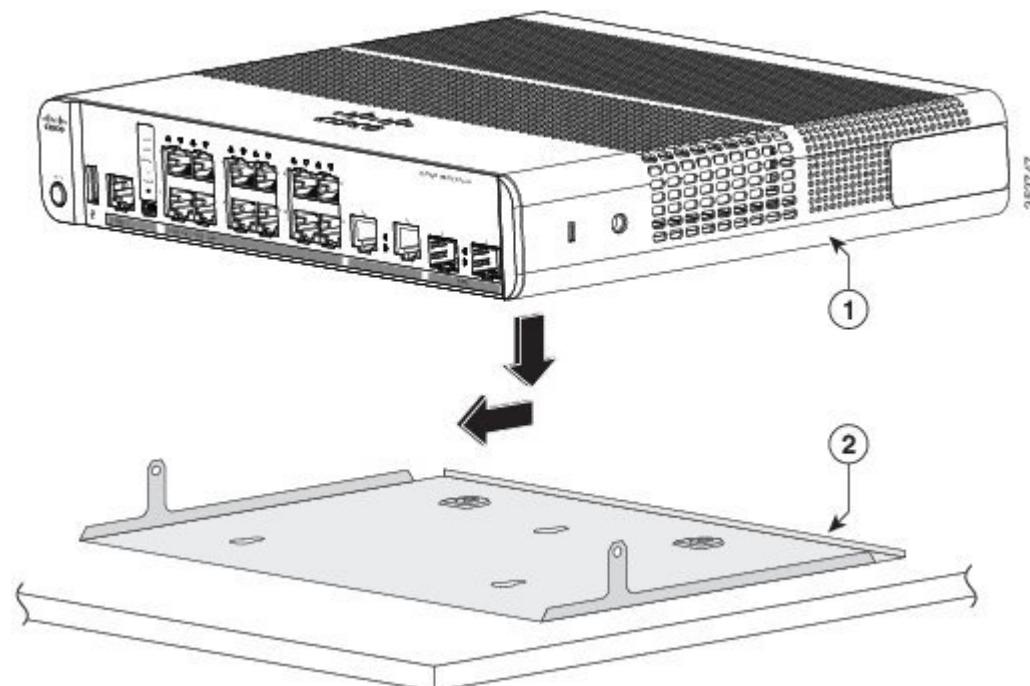


Caution Do not use the magnet without a mounting tray

This example shows you how to mount the switch on a metal wall. You can use a similar procedure to mount the switch on, or under, a metal desk.

Step 1 Place the switch on the mounting tray.

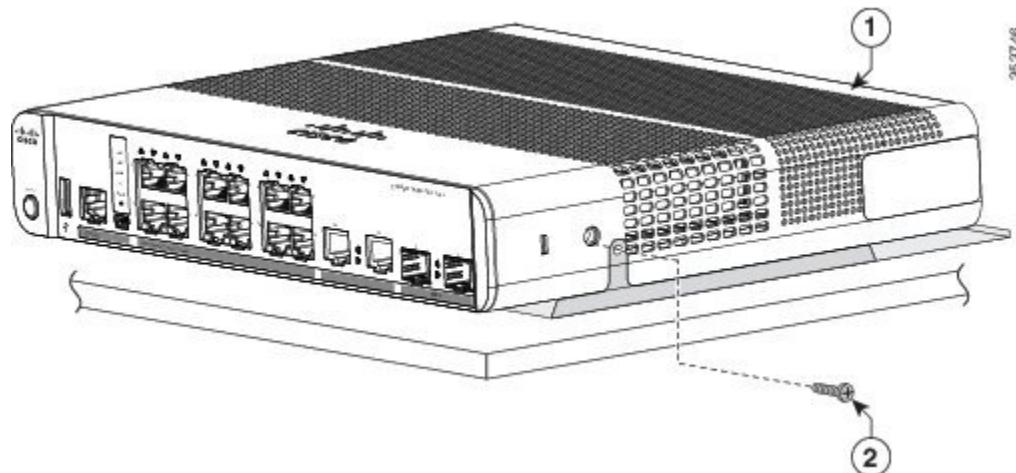
Figure 20: Placing the Switch on the Mounting Tray



With a Mounting Tray

Step 2 Use the two number-10 Phillips pan-head screws to secure the mounting tray to the switch.

Figure 21: Securing the Mounting Tray to the Switch

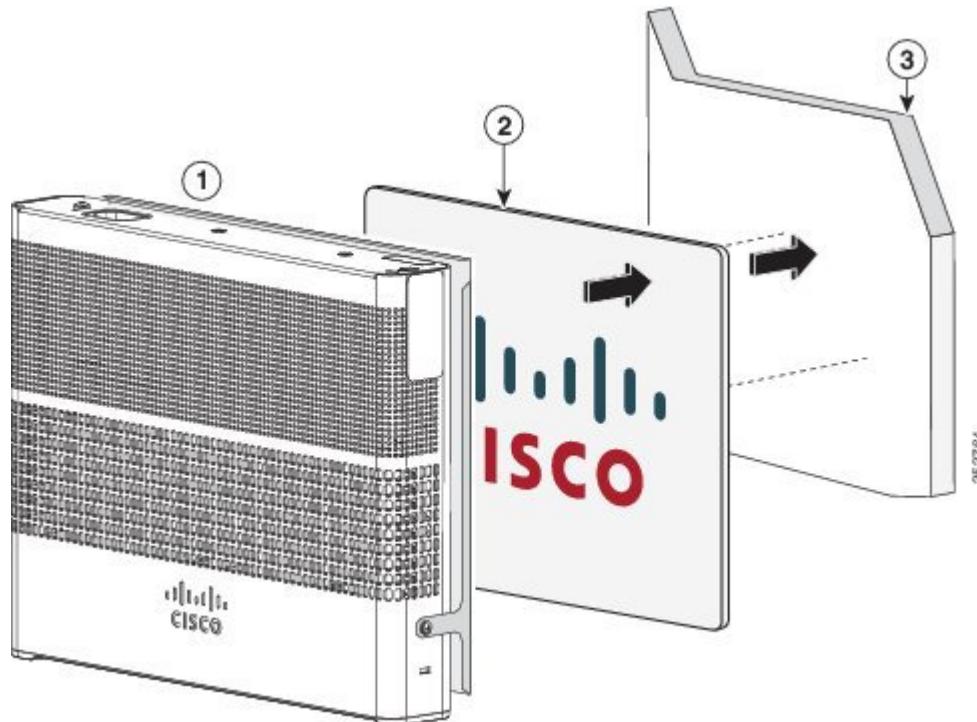


Step 3 Place one side of the magnet against the bottom of the mounting tray. Mount the magnet and switch on a metal wall.

Warning Read the wall-mounting instructions carefully before beginning installation. Failure to use the correct hardware or to follow the correct procedures could result in a hazardous situation to people and damage to the system. Statement 378

Caution Do not wall-mount the switch with its front panel facing up. Following safety regulations, wall-mount the switch with its front panel facing down or to the side, to allow sufficient airflow and to provide easier access to the cables.

Figure 22: Wall-Mounting with a Magnet



Warning To prevent airflow restriction, allow clearance around the ventilation openings to be at least: 3 in. (7.6 cm)
Statement 1076

In a Rack

Installing the switch in a rack requires an optional bracket kit that is not included with the switch. You can order these kits from your Cisco representative:

- 19-inch rack-mounting brackets (RCKMNT-19-CMPCT=)
- 23- and 24-inch rack-mounting brackets (RCKMNT-23-CMPCT=)

**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

Attach a bracket to one side of the switch. Follow the same steps to attach the second bracket to the opposite side. The following figures show how to attach the 19-inch rack-mounting bracket and the 23-inch rack-mounting bracket.

Figure 23: Attaching the 19-inch Brackets for Rack-Mounting

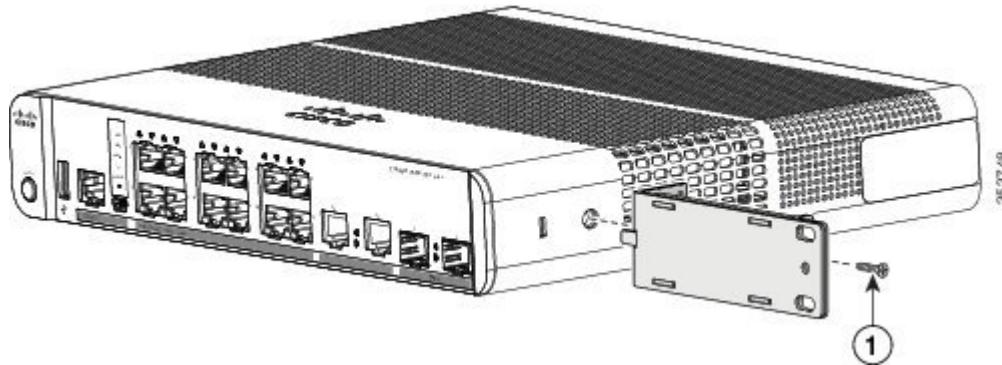
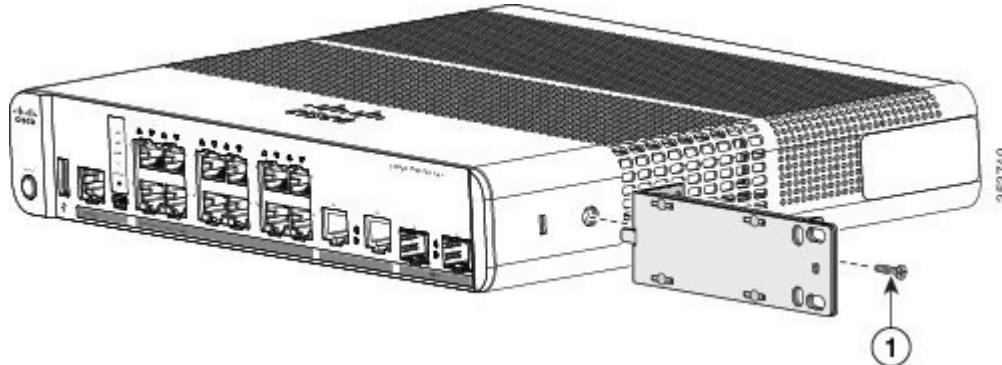


Figure 24: Attaching the 23-inch Brackets for Rack-Mounting

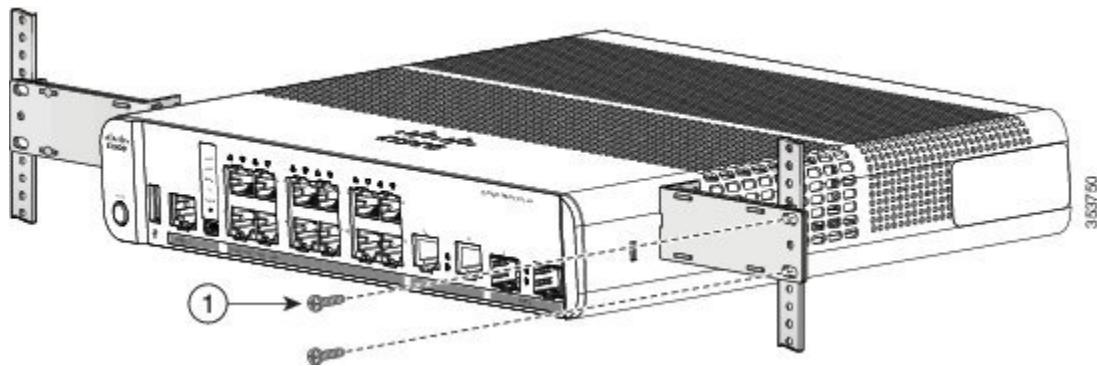


Insert the switch into the rack and align the bracket in the rack. Use either the number-12 or number-10 Phillips machine screws to secure the switch in the rack.

**Warning**

To prevent airflow restriction, allow clearance around the ventilation openings to be at least: 3 in. (7.6 cm) Statement 1076

Figure 25: Mounting the Switch in a Rack



On a DIN Rail

The DIN-mount kit (part number CMPCT-DIN-MNT=) is optional. You can order it when you order your switch, or you can order it later from your Cisco representative.

The DIN-mount kit contains:

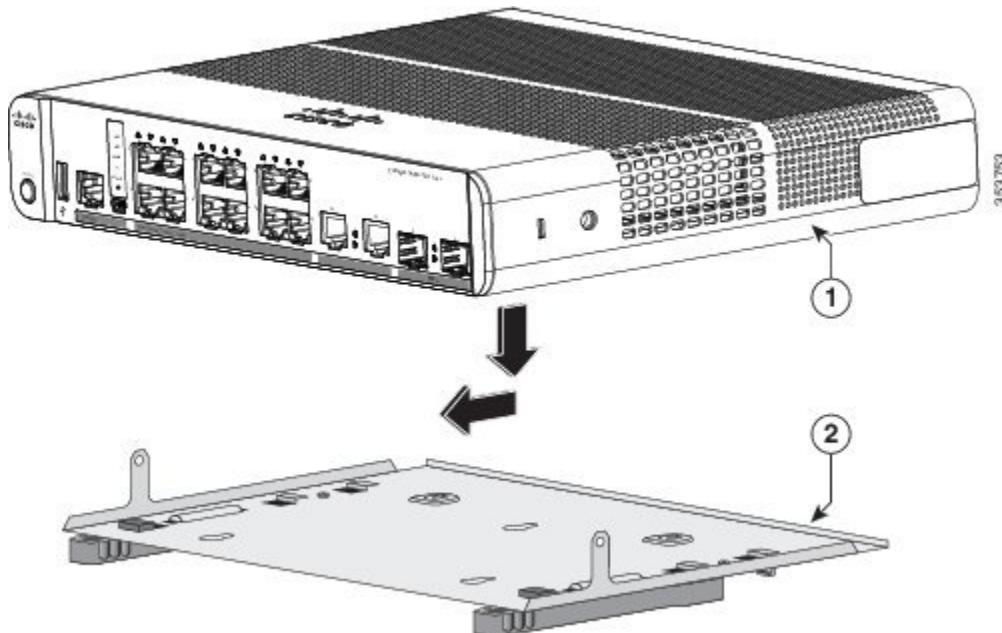
- Two number-10 Phillips pan-head screws
- DIN rail mount

To install the switch on a DIN rail, follow the instructions described in these sections:

Attaching the DIN-Mount Tray to the Switch

Step 1 Place the switch on the DIN rail mount.

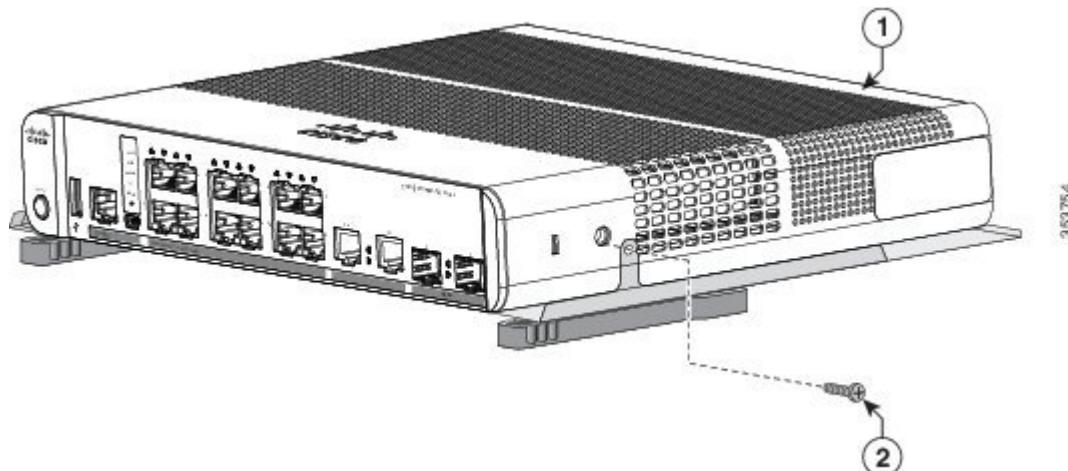
Figure 26: Placing the Switch on the DIN-Mount Tray



1	Switch	2	DIN rail mount
---	--------	---	----------------

- Step 2** Use the two number-10 Phillips pan-head screws to secure the DIN rail mount to the switch.

Figure 27: Securing the DIN-Mount Tray to the Switch



1	Switch	2	Number-10 Phillips pan-head screws
---	--------	---	------------------------------------

Mounting the Switch on a DIN Rail



Caution

Do not install the switch with its front panel facing up. Following safety regulations, install the switch with its front panel facing down, to allow sufficient airflow and to provide easier access to the cables.

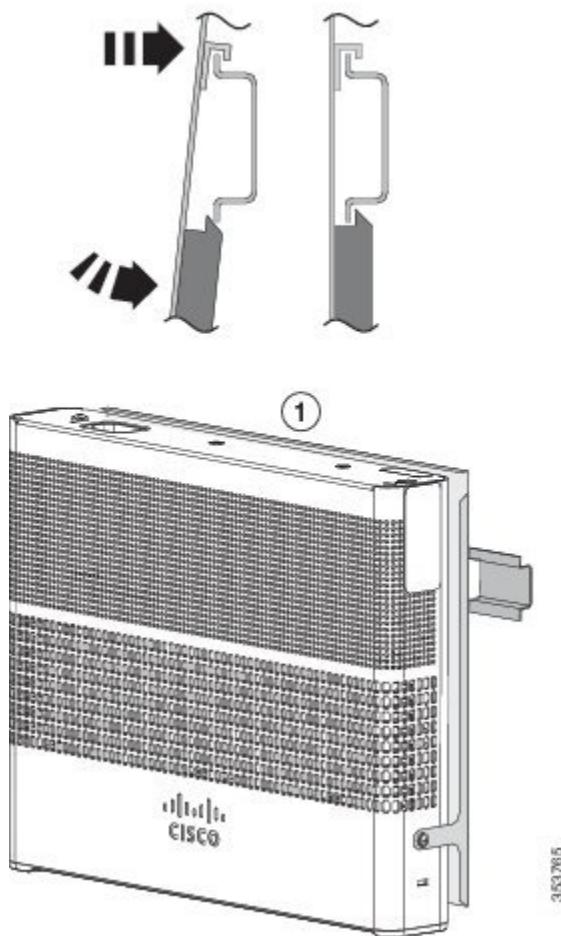
On a DIN Rail**Warning**

To prevent airflow restriction, allow clearance around the ventilation openings to be at least: 3 in. (7.6 cm) Statement 1076

Step 1

Position the switch directly in front of the DIN rail, making sure that the top of the DIN rail mount clip hooks over the top of the DIN rail.

Figure 28: Mounting the Switch on a DIN Rail

**Step 2**

Rotate the switch down toward the DIN rail until the release tabs on the DIN rail mount clicks.

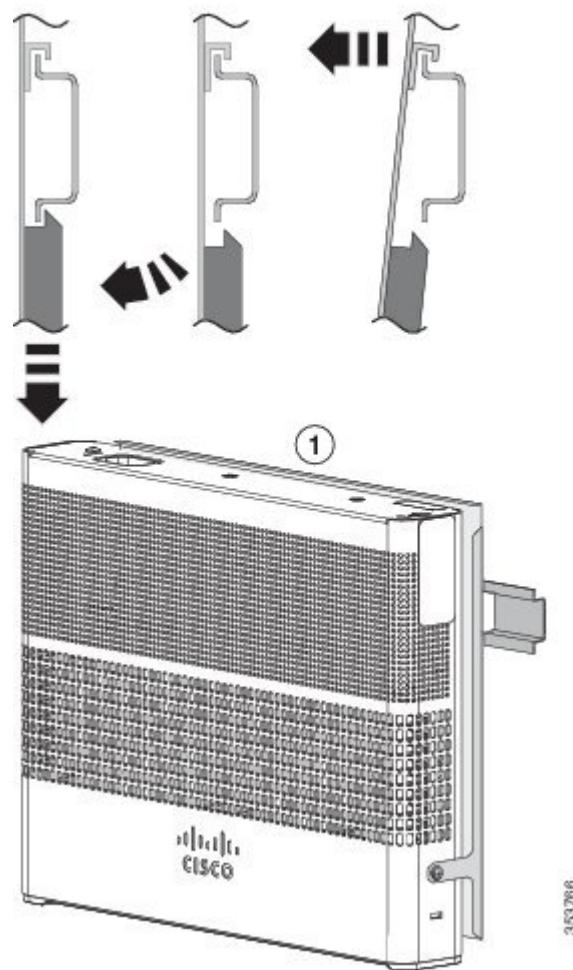
Step 3

Lift lightly on the bottom of the switch to ensure that it is firmly locked in place.

Removing the Switch from a DIN Rail

-
- Step 1** Ensure that power is removed from the switch, and disconnect all cables and connectors from the front panel of the switch.
- Step 2** Pull down on the DIN rail mount release tabs. As the clips release, lift the bottom of the switch.

Figure 29: Switch Removal



353786

Attaching the Adapter Bracket to the Switch (Optional)

If you are using an auxiliary power adapter to power the switch which is placed on a mounting tray or a DIN rail mount, you can use the optional power adapter bracket to secure the power adapter. You can order the power adapter bracket (PWR-ADPT-BRKT) from your Cisco representative.

Before You Begin

- AC-DC or DC-DC power adapter (PWR-ADPT or PWR-ADPT-DC)
- Power adapter bracket (PWR-ADPT-BRKT)
- Phillips screwdriver

Step 1

Ensure that you have attached the switch to a mounting tray or a DIN rail mount.

Note The power adapter bracket cannot be used without a mounting tray or a DIN rail mount.

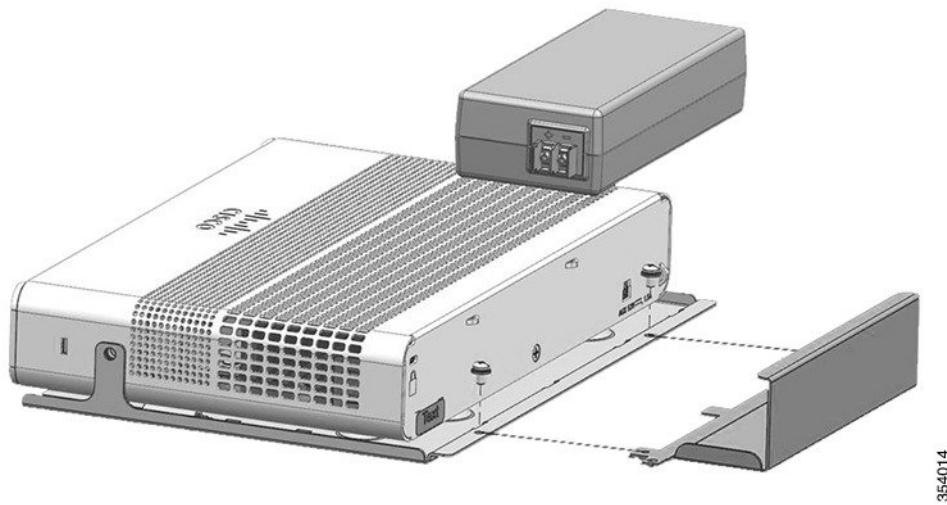
Step 2

Place the adapter into the power adapter bracket.

Step 3

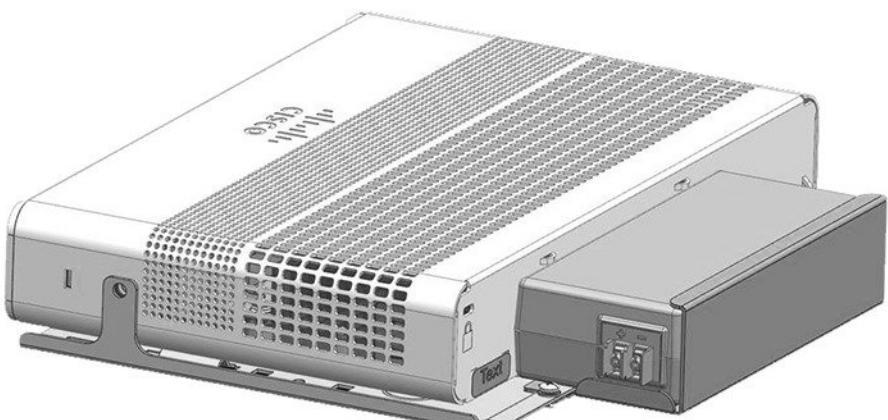
Insert the 3 tabs of the power adapter bracket into the corresponding 3 slots on the rear side of the mounting tray or DIN rail mount.

Figure 30: Inserting the power adapter bracket in to the mounting tray or DIN rail mount



- Step 4** Insert the screws in the holes on the mounting tray or DIN rail mount, and tighten them.

Figure 31: Attaching the power adapter to the switch



Installing the Power Cord Retainer (Optional)



Note This section applies to switches with an AC power connector.

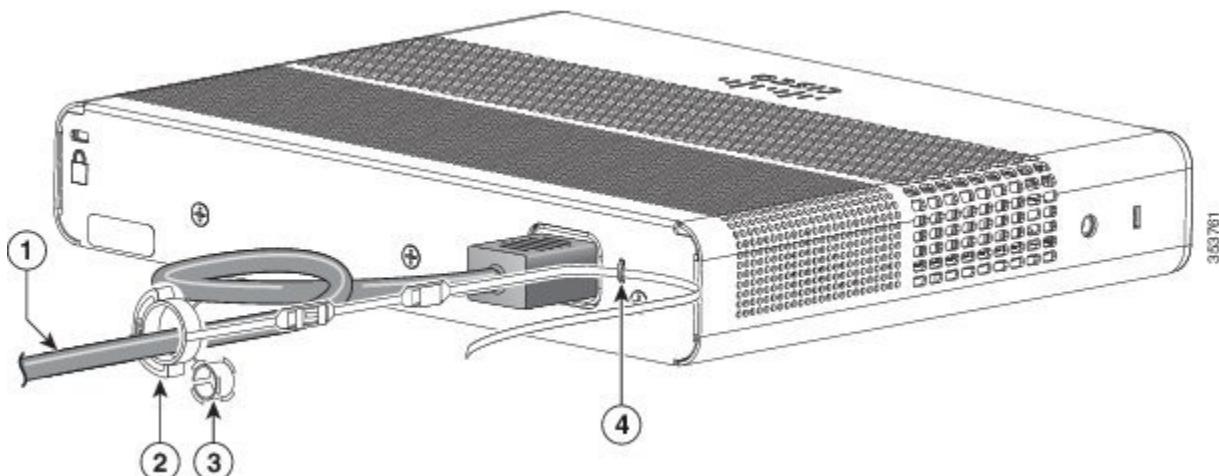
The power cord retainer part number (PWR-CLP=) is optional. You can order it when you order your switch, or you can order it later from your Cisco representative.

-
- Step 1** Choose the sleeve size of the power cord retainer based on the thickness of the cord. The smaller sleeve can be snapped off and used for thin cords.

Installing the Power Cord Retainer (Optional)

Step 2 Slide the retainer around the AC power cord, and pass it around the loop on the switch.

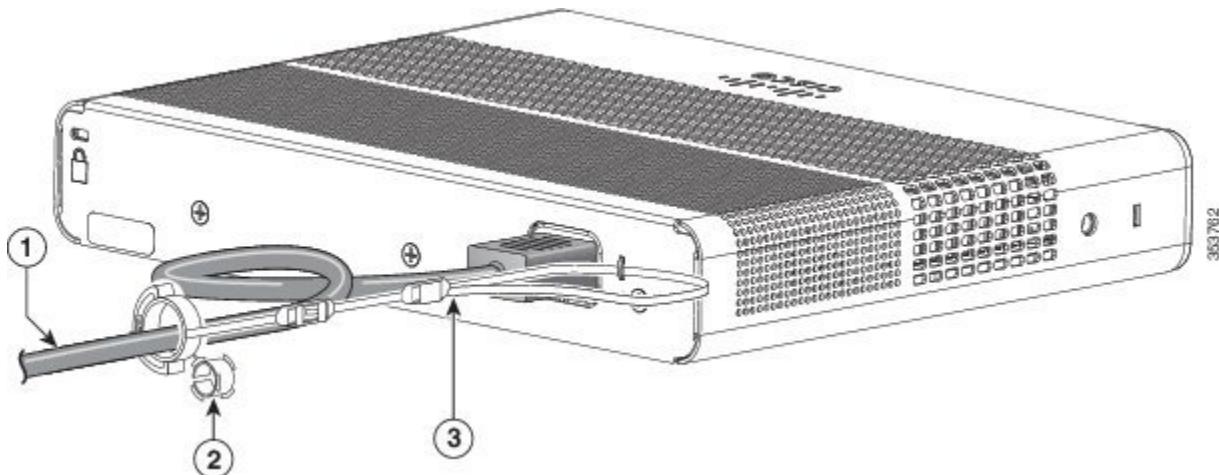
Figure 32: Inserting the Retainer through the Lanced Loop



1	AC power cord	3	Sleeve for thinner power cords
2	Power cord retainer	4	Loop

Step 3 Slide the retainer through the first latch.

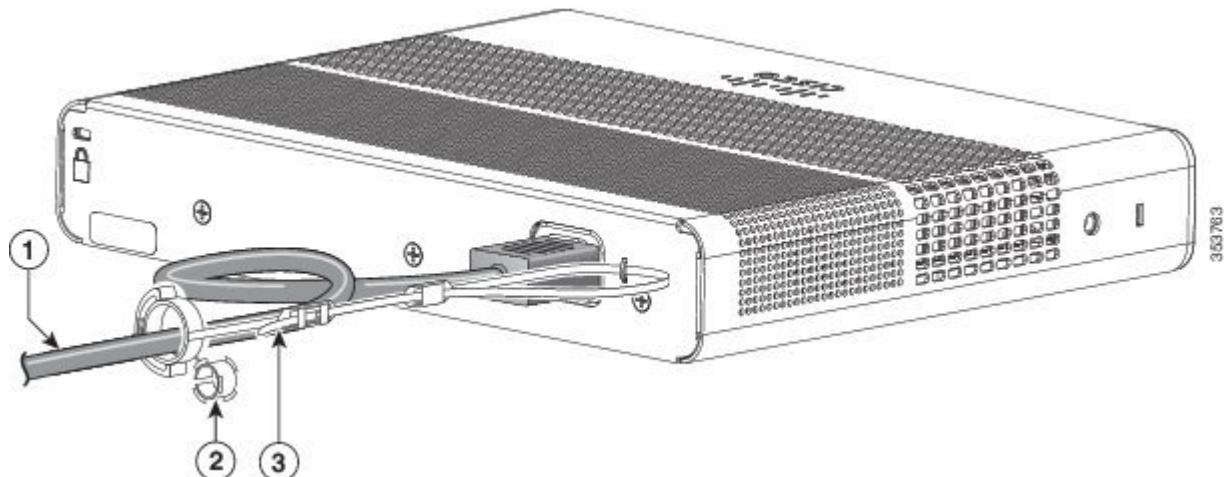
Figure 33: Sliding the Retainer Through the Latch



1	AC power cord	3	Latch
2	Smaller sleeve for thin power cords		

- Step 4** Slide the retainer through the other latches to lock it.

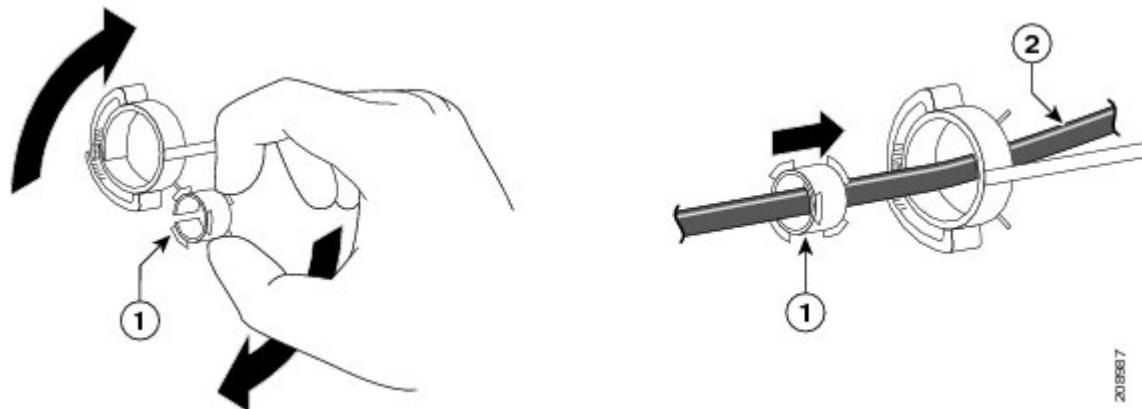
Figure 34: Locking the Retainer



1	AC power cord	3	Latches
2	Smaller sleeve for thin power cords		

- Step 5** (Optional) Use the small sleeve for thin power cords. Use the small sleeve to provide greater stability for thin cords. Detach the sleeve, and slide it over the power cord.

Figure 35: Sleeve Around the Power Cord

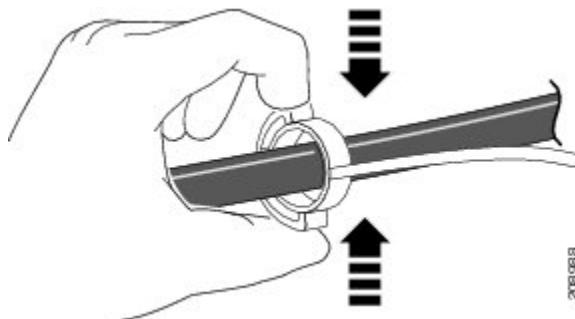


1	Smaller sleeve for thin power cords	2	AC power cord
---	-------------------------------------	---	---------------

Installing the Cable Guard (Optional)

- Step 6** Secure the AC power cord by pressing on the retainer.

Figure 36: Securing the Power Cord in the Retainer



Installing the Cable Guard (Optional)

The cable guard prevents tampering with the cables after the cables are installed. The cable guard (CMPCT-CBLE-GRD=) is not included with the switch, but you can order it from your Cisco representative.



Note You can use the cable guard when the switch is mounted on a desk, under a desk, or on a wall.

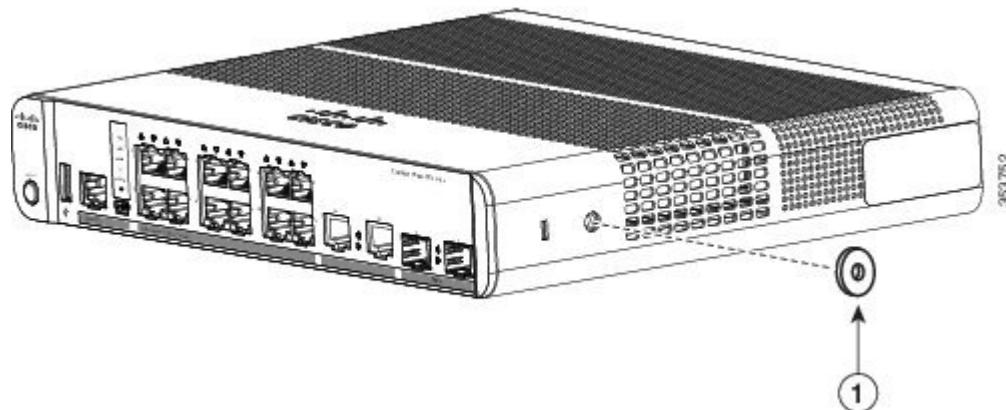
The cable guard is shipped with these items:

- Two 0.5 in. (12.7 mm) number-8 Phillips wood screws
- Two number-10 Phillips pan-head screws
- Two washers

- Step 1** (Optional) Attach the supplied washers before you install the cable guard.

Note This is only required if you are not installing the wall-mount brackets.

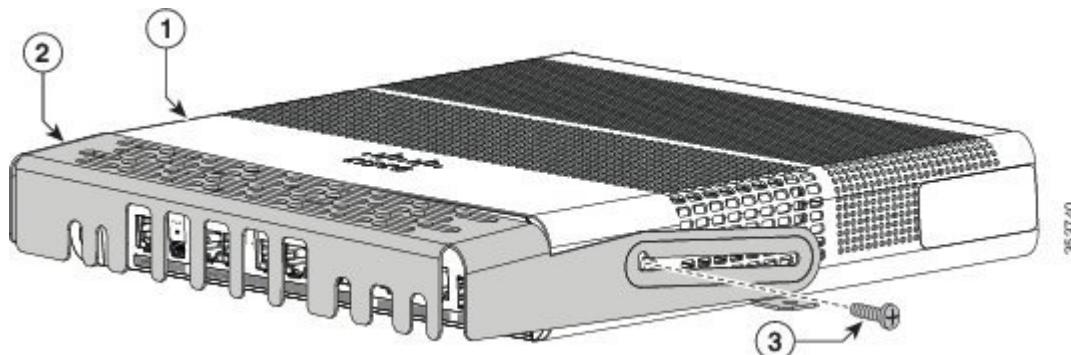
Figure 37: Using the Washer



1	Washer
---	--------

Step 2 Use the supplied number-10 pan-head screws to attach the cable guard to the switch.

Figure 38: Attaching the Cable Guard to the Switch



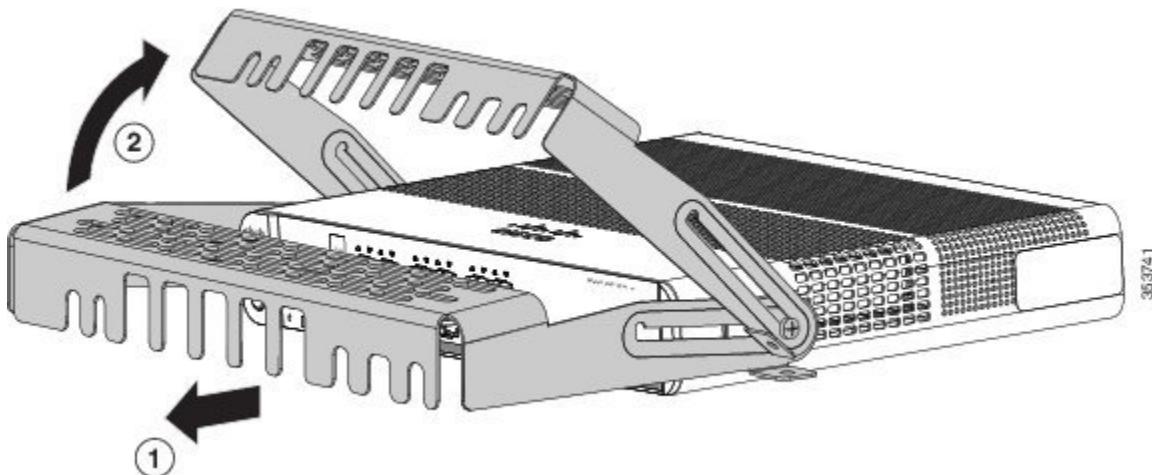
1	Switch	3	Two number-10 Phillips pan-head screws
2	Cable Guard		

Installing the Cable Guard (Optional)

Step 3

Loosen the number-10 Phillips pan-head screws, slide the cable guide out, and pivot it upwards so that you can install the cables.

Figure 39: Pivoting the Cable Guard Upwards

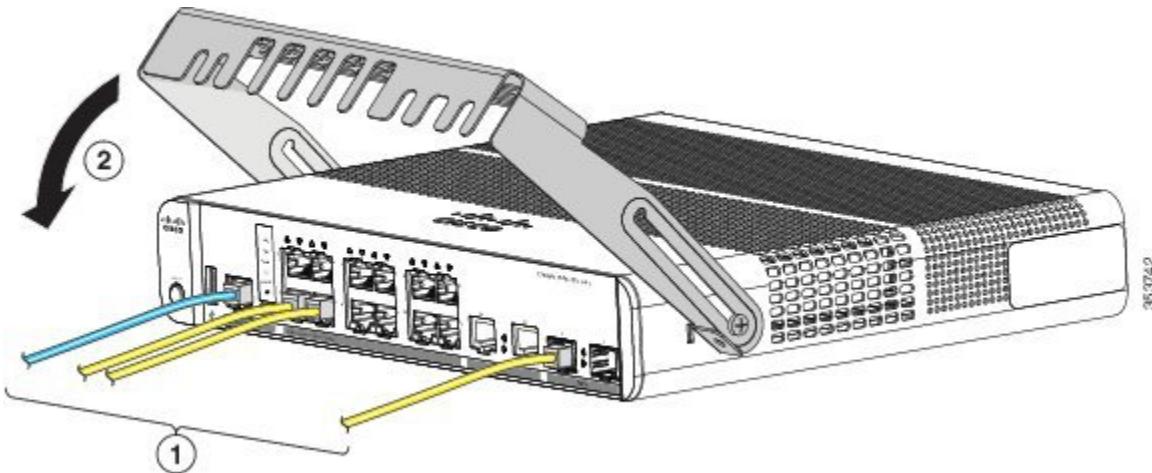


1	Cable guard	2	Pivot direction for cable guard pivots
---	-------------	---	--

Step 4

Attach the cables to the switch.

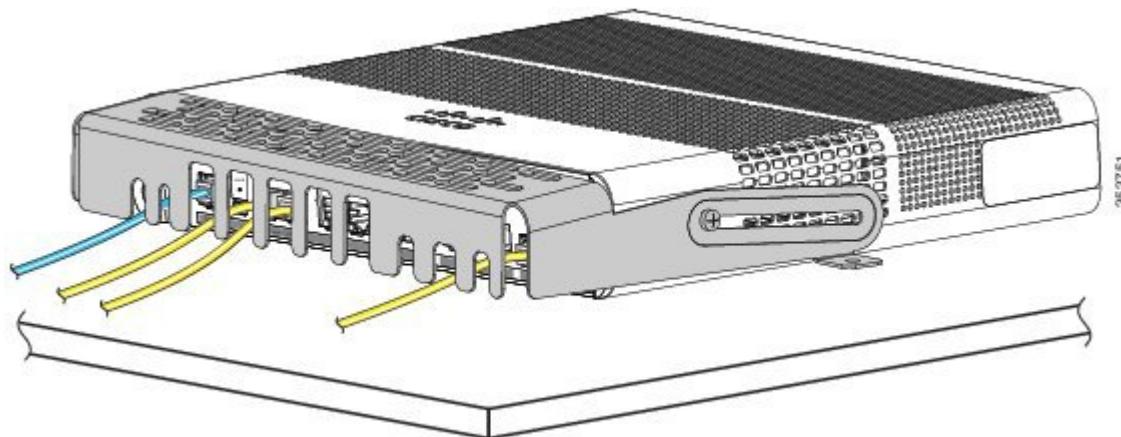
Figure 40: Attaching the Cables to the Switch



1	Cables	2	Pivot direction for cable guard pivots
---	--------	---	--

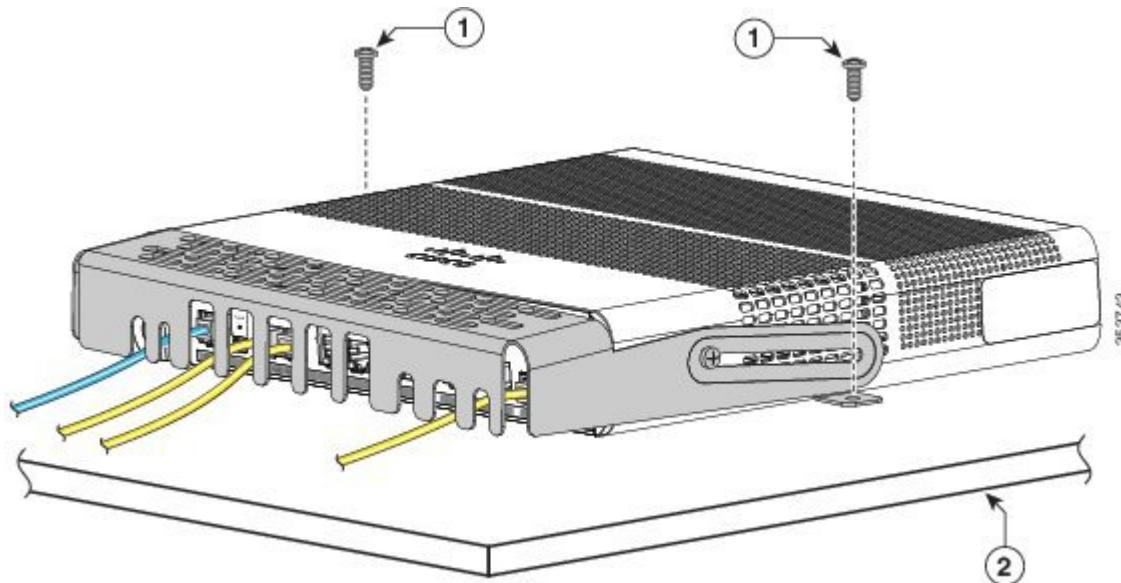
- Step 5** Guide the connected cables through the slots in the front of the cable guard. Slide the cable guide in as shown in the following figure. Tighten the screws

Figure 41: Guiding the Cables through the Guard



- Step 6** (Optional) To attach the cable guard to the desk or wall, use a 0.144-inch (3.7 mm) or a #27 drill bit to drill 1/2-inch (12.7 mm) holes at each of the two mounting locations. Insert the supplied 0.5 in. (12.7 mm) number-8 Phillips wood screws and tighten them.

Figure 42: Securing the Cable Guard to the Desk



1	Number-8 Phillips wood screws	2	Desk or shelf
---	-------------------------------	---	---------------

Installing SFP and SFP+Modules

Some switch models support SFP modules, SFP+ modules, or both. The *SFP* slots support only the SFP modules. The *SFP+* slots support both SFP and SFP+ modules.

See the switch release notes on Cisco.com for the list of supported SFP modules. Use only Cisco SFP modules on the switch. Each Cisco module has an internal serial EEPROM that is encoded with security information. This encoding provides a way for Cisco to identify and validate that the module meets the requirements for the switch.

For information about installing, removing, cabling, and troubleshooting SFP modules, see the module documentation that shipped with your device.

Installing an SFP or SFP+Module

Before You Begin

When installing SFP or SFP+ modules, observe these guidelines:

- Do not remove the dust plugs from the modules or the rubber caps from the fiber-optic cable until you are ready to connect the cable. The plugs and caps protect the module ports and cables from contamination and ambient light.
- To prevent ESD damage, follow your normal board and component handling procedures when connecting cables to the switch and other devices.

**Caution**

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

**Warning**

Class 1 laser product. Statement 1008

Step 1

Attach an ESD-preventive wrist strap to your wrist and to a bare metal surface.

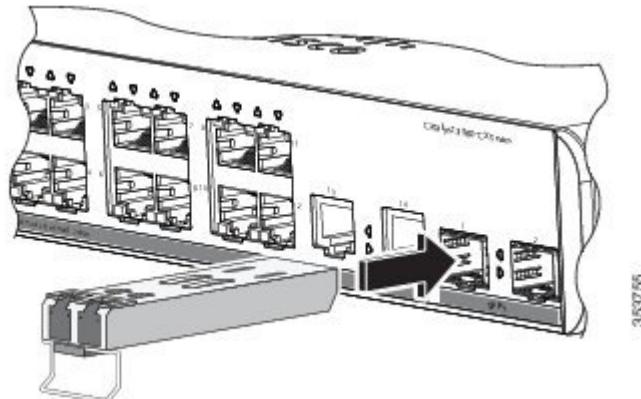
Step 2

Find the send (TX) and receive (RX) markings on the module top.

On some SFP or SFP+ modules, the send and receive (TX and RX) markings might be replaced by arrows that show the direction of the connection.

- Step 3** If the module has a bale-clasp latch, move it to the open, unlocked position.
- Step 4** Align the module in front of the slot opening, and push until you feel the connector snap into place.
- Step 5** If the module has a bale-clasp latch, close it.
- Step 6** For fiber-optic SFP or SFP+ modules, remove the dust plugs and save.
- Step 7** Connect the SFP cables.

Figure 43: Installing an SFP Module



Removing an SFP or SFP+Module

- Step 1** Attach an ESD-preventive wrist strap to your wrist and to a bare metal surface.
- Step 2** Disconnect the cable from the SFP module. For reattachment, note which cable connector plug is send (TX) and which is receive (RX).
- Step 3** Insert a dust plug into the optical ports of the SFP or SFP+ module to keep the optical interfaces clean.
- Step 4** If the module has a bale-clasp latch, pull the bale out and down to eject the module. If the latch is obstructed and you cannot use your finger, use a small, flat-blade screwdriver or other long, narrow instrument to open the latch.
- Step 5** Grasp the SFP or SFP+ module, and carefully remove it from the module slot.
- Step 6** Place the module in an antistatic bag or other protective environment.

10/100/1000 PoE and PoE+Port Connections

The ports provide PoE support for devices compliant with IEEE 802.3af and 802.3at (PoE+), and also provide Cisco prestandard PoE support for Cisco IP Phones and Cisco Aironet Access Points.

On a per-port basis, you can control whether or not a port automatically provides power when an IP phone or an access point is connected.

To access an advanced PoE planning tool, use the Cisco Power Calculator available on Cisco.com at this URL: <http://tools.cisco.com/cpc/launch.jsp>

You can use this application to calculate the power supply requirements for a specific PoE configuration. The results show output current, output power, and system heat dissipation.


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


Caution

Category 5e and Category 6 cables can store high levels of static electricity. Always ground the cables to a suitable and safe earth ground before connecting them to the switch or other devices.


Caution

Noncompliant cabling or powered devices can cause a PoE port fault. Use only standard-compliant cabling to connect Cisco prestandard IP Phones and wireless access points, IEEE 802.3af, or 802.3at (PoE+)-compliant devices. You must remove any cable or device that causes a PoE fault.

SUMMARY STEPS

1. Connect one end of the cable to the switch PoE port.
2. Connect the other end of the cable to an RJ-45 connector on the other device. The port LED turns on when both devices have established link.
3. Reconfigure and reboot the connected device if needed.
4. Repeat Steps 1 through 3 to connect each device.

DETAILED STEPS

Step 1

Connect one end of the cable to the switch PoE port.

Step 2

Connect the other end of the cable to an RJ-45 connector on the other device. The port LED turns on when both devices have established link.

The port LED is amber while STP discovers the topology and searches for loops. This process takes about 30 seconds, and then the port LED turns green. If the LED is off, the other device might not be turned on, there might be a cable problem, or there might be a problem with the adapter in the other device.

Step 3

Reconfigure and reboot the connected device if needed.

Step 4

Repeat Steps 1 through 3 to connect each device.

Note Many legacy powered devices, including older Cisco IP phones and access points that do not fully support IEEE 802.3af, might not support PoE when connected to the switches by a crossover cable.

10/100/1000 Port Connections

The switch 10/100/1000 port configuration changes to operate at the speed of the attached device. If the attached ports do not support autonegotiation, you can manually set the speed and duplex parameters. Connecting devices that do not autonegotiate or that have the speed and duplex parameters manually set can reduce performance or result in no linkage.

To maximize performance, choose one of these methods for configuring the Ethernet ports:

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

Auto-MDIX Connections

The autonegotiation and the auto-MDIX features are enabled by default on the switch.

With autonegotiation, the switch port configurations change to operate at the speed of the attached device. If the attached device does not support autonegotiation, you can manually set the switch interface speed and duplex parameters.

With auto-MDIX, the switch detects the required cable type for copper Ethernet connections and configures the interface accordingly.

If auto-MDIX is disabled, use the guidelines in this table to select the correct cable.

Table 2: Recommended Ethernet Cables (When Auto-MDIX is Disabled)

Device	Crossover Cable ⁶	Straight-Through Cable
Switch to switch	Yes	No
Switch to hub	Yes	No
Switch to computer or server	No	Yes
Switch to router	No	Yes
Switch to IP phone	No	Yes

⁶ 100BASE-TX and 1000BASE-T traffic requires twisted four-pair, Category 5, Category 5e, or Category 6 cable. 10BASE-T traffic can use Category 3 or Category 4 cable.

Where to Go Next

If the default configuration is satisfactory, the switch does not need further configuration. You can use any of these management options to change the default configuration:

- Start the Network Assistant application, which is described in the getting started guide. Through this GUI, you can configure and monitor a switch cluster or an individual switch.
- Use the CLI to configure the switch as a member of a cluster or as an individual switch from the console.
- Use the Cisco Prime Infrastructure application.



CHAPTER 3

Troubleshooting

This chapter contains these topics:

- [Diagnosing Problems, page 51](#)
- [Resetting the Switch, page 55](#)
- [Finding the Switch Serial Number, page 56](#)

Diagnosing Problems

The LEDs on the front panel provide troubleshooting information about the switch. They show POST failures, port-connectivity problems, and overall switch performance. You can also get statistics from Device Manager, from the CLI, or from an SNMP workstation.

Switch POST Results



Note

POST failures are usually fatal. Contact your Cisco technical support representative if your switch does not pass POST.

Switch LEDs

If you have physical access to the switch, look at the port LEDs for troubleshooting information about the switch. See the LED section for a description of the LED colors and their meanings.

Switch Connections

Bad or Damaged Cable

Always examine the cable for marginal damage or failure. A cable might be just good enough to connect at the physical layer, but it could corrupt packets as a result of subtle damage to the wiring or connectors. You can identify this situation because the port has many packet errors or the port constantly flaps (loses and regains link).

- Examine or exchange the copper or fiber-optic cable with a known, good cable.
- Look for broken or missing pins on cable connectors.
- Rule out any bad patch panel connections or media convertors between the source and the destination. If possible, bypass the patch panel, or eliminate faulty media convertors (fiber-optic-to-copper).
- Try the cable in another port or interface, if possible, to see if the problem follows the cable.

Ethernet and Fiber-Optic Cables

Make sure that you have the correct cable for the connection.

- For Ethernet, use Category 3 copper cable for 10 Mb/s UTP connections. Use either Category 5, Category 5e, or Category 6 UTP for 10/100/1000 Mb/s connections.
- For fiber-optic cables, verify that you have the correct cable for the distance and port type. Make sure that the connected device ports both match and use the same type encoding, optical frequency, and fiber type.
- For copper connections, determine if a crossover cable was used when a straight-through was required or the reverse. Enable auto-MDIX on the switch, or replace the cable.

Link Status

Verify that both sides have link. A single broken wire or a shutdown port can cause one side to show link even though the other side does not have link.

A port LED that is on does not guarantee that the cable is fully functional. The cable might have encountered physical stress that causes it to function at a marginal level. If the port LED does not turn on:

- Connect the cable from the switch to a known good device.
- Make sure that both ends of the cable are connected to the correct ports.
- Verify that both devices have power.
- Verify that you are using the correct cable type.
- Look for loose connections. Sometimes a cable appears to be seated, but is not. Disconnect the cable and then reconnect it.

10/100/1000 Port Connections

A port appears to malfunction:

- Use the Mode button to show the status for all ports.
- Use the **show interfaces** privileged EXEC command to see if the port is error-disabled, disabled, or shutdown. Reenable the port if necessary.

10/100/1000 PoE+ Port Connections

A powered device connected to a PoE port does not receive power:

- Use the Mode button to show the PoE status for all ports.
- Use the **show interfaces** privileged EXEC command to see if the port is in error-disabled, disabled, or shutdown. Reenable the port if necessary.
- Verify that the power supply installed in the switch meets the power requirements of your connected devices.
- Verify that there is sufficient PoE power budget to provide power to the attached device. Use the **show power inline** global configuration command to check on the available PoE power budget.
- Verify the cable type. Many legacy powered devices, including older Cisco IP phones and access points that do not fully support IEEE 802.3af, might not support PoE when connected to the switch by a crossover cable. Replace the crossover cable with a straight-through cable.

**Caution**

Noncompliant cabling or powered devices can cause a PoE port fault. Use only standard-compliant cabling to connect Cisco prestandard IP Phones and wireless access points or IEEE 802.3af-compliant devices. You must remove any cable or device that causes a PoE fault.

SFP and SFP+ Module

Use only Cisco SFP or SFP+ modules in the switch. Each Cisco module has an internal serial EEPROM that is encoded with security information. This encoding provides a way for Cisco to identify and validate that the module meets the requirements for the switch.

- Inspect the SFP module. Exchange the suspect module with a known good module. Verify that the module is supported on this platform. (The switch release notes on Cisco.com list the SFP modules that the switch supports.)
- Use the **show interfaces** privileged EXEC command to see if the port or module is error-disabled, disabled, or shutdown. Reenable the port if needed.
- Make sure that all fiber-optic connections are properly cleaned and securely connected.

Interface Settings

Verify that the interface is not disabled or powered off. If an interface is manually shut down on either side of the link, it does not come up until you reenable the interface. Use the **show interfaces** privileged EXEC command to see if the interface is error-disabled, disabled, or shutdown on either side of the connection. If needed, reenable the interface.

Ping End Device

Ping from the directly connected switch first, and then work your way back port by port, interface by interface, trunk by trunk, until you find the source of the connectivity issue. Make sure that each switch can identify the end device MAC address in its Content-Addressable Memory (CAM) table.

Spanning Tree Loops

STP loops can cause serious performance issues that look like port or interface problems.

A unidirectional link can cause loops. It occurs when the traffic sent by the switch is received by its neighbor, but the traffic from the neighbor is not received by the switch. A broken fiber-optic cable, other cabling problems, or a port issue could cause this one-way communication.

You can enable UniDirectional Link Detection (UDLD) on the switch to help identify unidirectional link problems.

Switch Performance

Speed, Duplex, and Autonegotiation

If the port statistics show a large amount of alignment errors, frame check sequence (FCS), or late-collisions errors, this might mean a speed or duplex mismatch.

A common issue with speed and duplex occurs when duplex and speed settings are mismatched between two switches, between a switch and a router, or between the switch and a workstation or server. Mismatches can happen when manually setting the speed and duplex or from autonegotiation issues between the two devices.

To maximize switch performance and to ensure a link, follow one of these guidelines when changing the duplex or the speed settings.

- Let both ports autonegotiate both speed and duplex.
- Manually set the speed and duplex parameters for the interfaces on both ends of the connection.
- If a remote device does not autonegotiate, use the same duplex settings on the two ports. The speed parameter adjusts itself even if the connected port does not autonegotiate.

Autonegotiation and Network Interface Cards

Problems sometimes occur between the switch and third-party network interface cards (NICs). By default, the switch ports and interfaces autonegotiate. Laptops or other devices are commonly set to autonegotiate, yet sometimes autonegotiation issues occur.

To troubleshoot autonegotiation problems, try manually setting both sides of the connection. If this does not solve the problem, there could be a problem with the firmware or software on your NIC. You can resolve this by upgrading the NIC driver to the latest version.

Cabling Distance

If the port statistics show excessive FCS, late-collision, or alignment errors, verify that the cable distance from the switch to the connected device meets the recommended guidelines.

Resetting the Switch

**Note**

Resetting the switch reboots the switch.

To reset the switch:

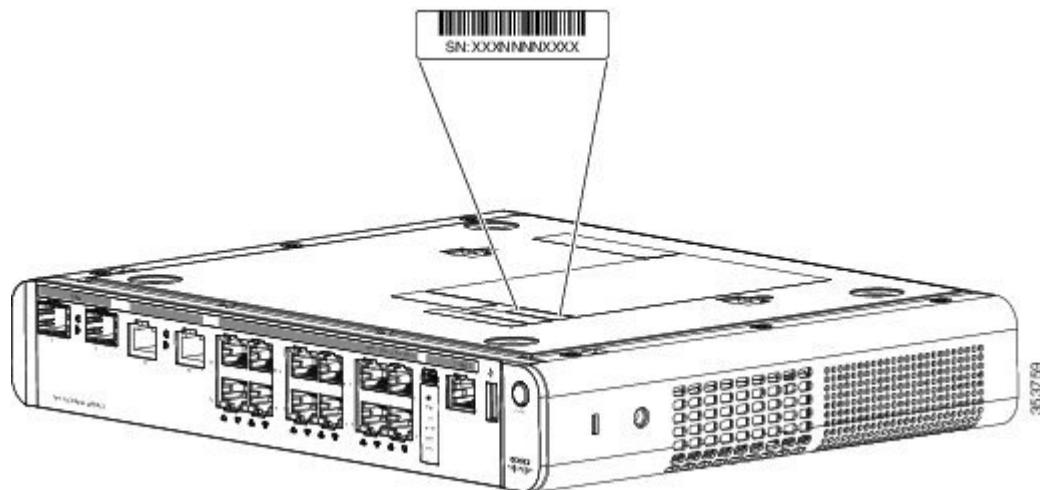
Step 1 At the switch prompt, enter **enable**, and press **Return** or **Enter**.

Step 2 At the Privileged EXEC prompt, `switch#`, enter **setup** and press **Return** or **Enter**.
The switch displays the prompt to run the initial configuration dialog.

Finding the Switch Serial Number

If you contact Cisco Technical Assistance, you need to know the switch serial number. You can also use the **show version** privileged EXEC command to see the switch serial number.

Figure 44: Serial Number Location





APPENDIX A

Technical Specifications

This appendix contains these topics:

- Environmental Specifications, page 58
- Physical Specifications, page 59
- Power Requirements, page 60
- PoE Power Consumption, page 61

Environmental Specifications

Environmental Ranges	
Operating temperature	<p>40°C for Catalyst 3560CX-12PD-S and 3560CX-8XPD-S switches and 45°C for all the other switches</p> <p>Note For Catalyst 3560CX-8XPD-S, the maximum operating temperature will be 35°C when installed inverted and under fully loaded conditions (maximum PoE and 10G SFP+ transceivers installed).</p> <p>When using the Catalyst 3560-CX and 2960-CX switches with the GLC-T SFP module, the thermal limitations are as follows:</p> <ul style="list-style-type: none"> • At sea level, table top installation temperature should not exceed 35°C and inverted installation temperature should not exceed 30°C • At 5000 feet, table top installation temperature should not exceed 30°C and inverted installation temperature should not exceed 25°C • At 10000 feet, table top installation temperature should not exceed 25°C and inverted installation temperature should not exceed 20°C
	<p>When using these products with the GLC-T SFP module, the thermal limitations are as follows:</p> <ul style="list-style-type: none"> • At sea level, table top installation temperature should not exceed 35°C and inverted installation temperature should not exceed 30°C • At 5000 feet, table top installation temperature should not exceed 30°C and inverted installation temperature should not exceed 25°C • At 10000 feet, table top installation temperature should not exceed 25°C and inverted installation temperature should not exceed 20°C
Storage temperature	-22 to 158°F (-30 to 70°C) up to 15,000 ft (4573 m)
Relative humidity	5 to 95% (noncondensing)
Operating altitude	Up to 10,000 ft (3000 m)
Storage altitude	Up to 15,000 ft (4500 m)

Physical Specifications

Weight	
Catalyst 3560CX-8PC-S	5.0 lb (2.27 kg)
Catalyst 3560CX-8TC-S	3.8 lb (1.72 kg)
Catalyst 2960CX-8PC-L	5.0 lb (2.27 kg)
Catalyst 2960CX-8TC-L	3.8 lb (1.72 kg)
Catalyst 3560CX-12PC-S	5.1 lb (2.31 kg)
Catalyst 3560CX-12TC-S	3.9 lb (1.77 kg)
Catalyst 3560CX-12PD-S	5.1 lb (2.31 kg)
Catalyst 3560CX-8PT-S	3.5 lb (1.58 kg)
Catalyst 3560CX-8XPD-S	6.0 lb (2.72 kg)

Dimensions (H x D x W)	
Catalyst 3560CX-8PC-S	1.75 x 10.6 x 9.4 (4.44 x 26.9 x 23.8 cm)
Catalyst 3560CX-8TC-S	1.75 x 10.6 x 8.4 (4.44 x 26.9 x 21.3 cm)
Catalyst 2960CX-8PC-L	1.75 x 10.6 x 9.4 (4.44 x 26.9 x 23.8 cm)
Catalyst 2960CX-8TC-L	1.75 x 10.6 x 8.4 (4.44 x 26.9 x 21.3 cm)
Catalyst 3560CX-12PC-S	1.75 x 10.6 x 9.4 (4.44 x 26.9 x 23.8 cm)
Catalyst 3560CX-12TC-S	1.75 x 10.6 x 8.4 (4.44 x 26.9 x 21.3 cm)
Catalyst 3560CX-12PD-S	1.75 x 10.6 x 9.4 (4.44 x 26.9 x 23.8 cm)
Catalyst 3560CX-8PT-S	1.75 x 10.6 x 7.0 (4.44 x 26.9 x 17.7 cm)
Catalyst 3560CX-8XPD-S	1.75 x 10.6 x 10.4 (4.44 x 26.9 x 26.4 cm)

Power Requirements

AC Input Voltage - 100 to 240 VAC (autoranging)	
Catalyst 3560CX-8PC-S	100-240 VAC, 50-60 Hz, 3.25-1.5A
Catalyst 3560CX-8TC-S	100-240 VAC, 50-60 Hz, 0.5-0.2A
Catalyst 2960CX-8PC-L	100-240 VAC, 50-60 Hz, 3.25-1.5A
Catalyst 2960CX-8TC-L	100-240 VAC, 50-60 Hz, 3.25-1.5A
Catalyst 3560CX-12PC-S	100-240 VAC, 50-60 Hz, 3.25-1.5A
Catalyst 3560CX-12TC-S	100-240 VAC, 50-60 Hz, 0.5-0.2A
Catalyst 3560CX-12PD-S	100-240 VAC, 50-60 Hz, 3.25-1.5A
Catalyst 3560CX-8PT-S	18-60 VDC, 50-60 Hz, 6.0-1.6A
Catalyst 3560CX-8XPD-S	100-240 VAC, 50-60 Hz, 3.25-1.5A

Power Consumption	BTUs per Hour
Catalyst 3560CX-8PC-S	1023.6
Catalyst 3560CX-8TC-S	170.6
Catalyst 2960CX-8PC-L	1023.6
Catalyst 2960CX-8TC-L	170.6
Catalyst 3560CX-12PC-S	1023.6
Catalyst 3560CX-12TC-S	170.6
Catalyst 3560CX-12PD-S	1057.7
Catalyst 3560CX-8PT-S	375.3
Catalyst 3560CX-8XPD-S	1057.7

Power Rating	BTUs per Hour
Catalyst 3560CX-8PC-S	0.3 KVA

Power Rating	BTUs per Hour
Catalyst 3560CX-8TC-S	0.05 KVA
Catalyst 2960CX-8PC-L	0.3 KVA
Catalyst 2960CX-8TC-L	0.05 KVA
Catalyst 3560CX-12PC-S	0.3 KVA
Catalyst 3560CX-12TC-S	0.05 KVA
Catalyst 3560CX-12PD-S	0.31 KVA
Catalyst 3560CX-8PT-S	0.11 KVA
Catalyst 3560CX-8XPD-S	0.31 KVA

PoE Power Consumption

Switch	Consumption without PoE	Consumption with PoE	Available PoE
Catalyst 3560CX-8PC-S	25.4W	247.4W	240W
Catalyst 3560CX-8TC-S	19.7W	NA	NA
Catalyst 3560CX-12PC-S	27.8W	253.0W	240W
Catalyst 3560CX-12TC-S	21.9W	NA	NA
Catalyst 3560CX-12PD-S	32.6W	254.7W	240W
Catalyst 2960CX-8PC-L	24.5W	135.5W	124W
Catalyst 2960CX-8TC-L	20.0W	NA	NA
Catalyst 3560CX-8PT-S	TBD	TBD	Up to 146W
Catalyst 3560CX-8XPD-S	TBD	TBD	240W



APPENDIX **B**

Connector and Cable Specifications

This appendix contains these topics:

- [Connector Specifications, page 63](#)
- [Cables and Adapters, page 64](#)

Connector Specifications

10/100/1000 Ports (Including PoE)

All 10/100/1000 ports use standard RJ-45 connectors and Ethernet pinouts.

Figure 45: 10/100/1000 Port Pinouts

Pin	Label	1	2	3	4	5	6	7	8
1	TP0+								
2	TP0-								
3	TP1+								
4	TP2+								
5	TP2-								
6	TP1-								
7	TP3+								
8	TP3-								

SFP Module Connectors

Figure 46: Duplex LC Cable Connector

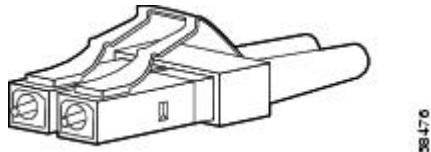


Figure 47: Simplex LC Cable Connector

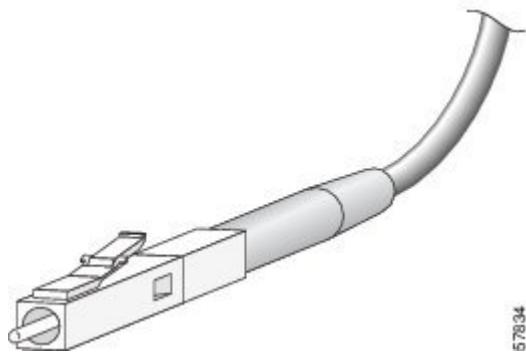


Figure 48: Copper SFP Module LC Connector

Pin	Label	1	2	3	4	5	6	7	8
1	TP0+								
2	TP0-								
3	TP1+								
4	TP2+								
5	TP2-								
6	TP1-								
7	TP3+								
8	TP3-								

A detailed diagram of the pinout for a Copper SFP Module LC Connector. It shows a rectangular arrangement of 8 pins, labeled 1 through 8 from left to right. The top row contains pins 1, 2, 3, and 4. The bottom row contains pins 5, 6, 7, and 8. The number '00915' is located to the right of the pinout diagram.

Cables and Adapters

SFP Module Cables

For cabling specifications, refer to the following notes:

- [Cisco SFP and SFP+ Transceiver Module Installation Notes](#)
- [Cisco 40-Gigabit QSFP+ Transceiver Modules Installation Note](#)

Each port must match the wave-length specifications on the other end of the cable, and the cable must not exceed the stipulated cable length. Copper 1000BASE-T SFP module transceivers use standard four twisted-pair, Category 5 cable at lengths up to 328 feet (100 meters).

Cable Pinouts

Figure 49: Four Twisted-Pair Straight-Through Cable Schematic

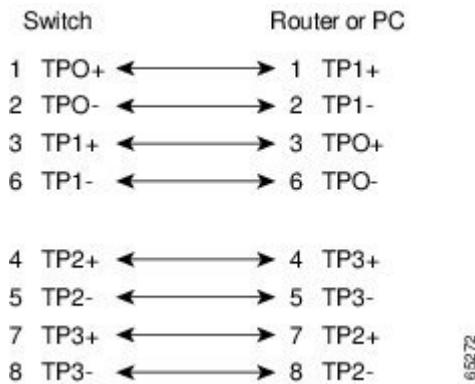


Figure 50: Four Twisted-Pair Semi-Cross Cable Schematic

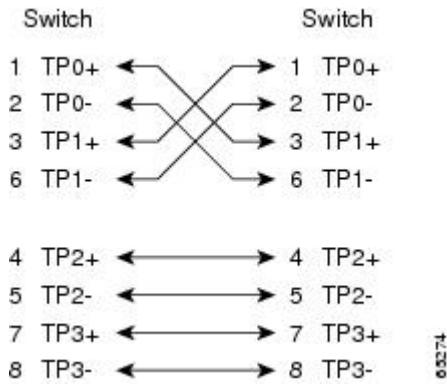


Figure 51: Two Twisted-Pair Straight-Through Cable Schematic

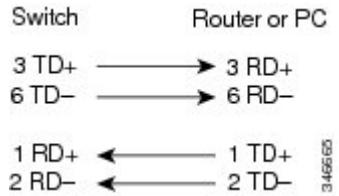
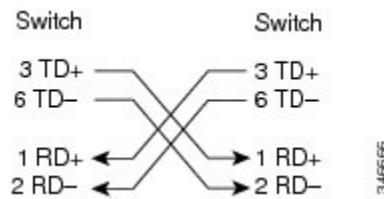


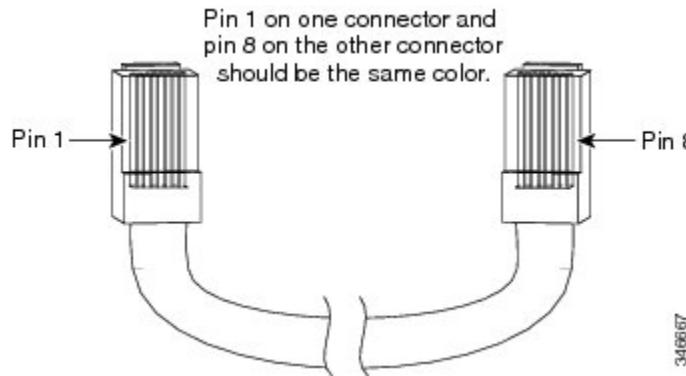
Figure 52: Two Twisted-Pair Crossover Cable Schematic



Identifying a Crossover Cable

To identify a crossover cable, compare the two modular ends of the cable. Hold the cable ends side-by-side, with the tab at the back. The wire connected to the pin on the outside of the left plug should be a different color from the wire connected to the pin on the inside of the right plug.

Figure 53: Identifying a Crossover Cable



Console Port Adapter Pinouts

The RS-232 console port uses an 8-pin RJ-45 connector. Use an RJ-45-to-DB-9 adapter cable to connect the switch console port to a console PC. You need to provide a RJ-45-to-DB-25 female DTE adapter to connect the switch console port to a terminal.

Table 3: Console Port Signaling with a DB-9 Adapter

Switch Console Port (DTE)	RJ-45-to-DB-9 Terminal Adapter	Console Device
Signal	DB-9 Pin	Signal
RTS	8	CTS
DTR	6	DSR
TxD	2	RxD
GND	5	GND
GND	5	GND

Switch Console Port (DTE)	RJ-45-to-DB-9 Terminal Adapter	Console Device
Signal	DB-9 Pin	Signal
RxD	3	TxD
DSR	4	DTR
CTS	7	RTS

Table 4: Console Port Signaling with a DB-25 Adapter

Switch Console Port (DTE)	RJ-45-to-DB-25 Terminal Adapter	Console Device
Signal	DB-25 Pin	Signal
RTS	5	CTS
DTR	6	DSR
TxD	3	RxD
GND	7	GND
GND	7	GND
RxD	2	TxD
DSR	20	DTR
CTS	4	RTS



Configuring the Switch with the CLI-Based Setup Program

This appendix contains these topics:

- [Accessing the CLI Through Express Setup, page 69](#)
- [Accessing the CLI Through the Console Port, page 69](#)
- [Entering the Initial Configuration Information, page 77](#)

Accessing the CLI Through Express Setup

You can access the CLI on an unconfigured switch. Set the switch in Express Setup mode and connect a switch Ethernet port to an Ethernet port on your PC or workstation. Follow the steps described in the getting started guide for turning on the switch and using Express Setup.

When the switch is in Express Setup mode, open a Telnet session to the switch by entering the IP address 10.0.0.1. Enter the **setup** user EXEC command. Enter the information described in [IP Settings, on page 77](#) and [Completing the Setup Program, on page 78](#).

After you have entered the configuration information for the switch, save it to flash memory by using the **write memory** privileged EXEC command.



Note

In Express Setup mode, the IP address 10.0.0.1 remains active on the switch until you enter the **write memory** command. You lose the Telnet connection after entering the **write memory** command.

Accessing the CLI Through the Console Port

You can access the CLI on a configured or unconfigured switch by connecting the RJ-45 console port or USB console port of the switch to your PC or workstation and accessing the switch through a terminal emulation program.

**Note**

If you have stacked your switches, connect to the console port of one of the switches in the stack. You can initially configure the entire stack from any member switch.

Connecting the RJ-45 Console Port

SUMMARY STEPS

1. Connect the 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 switch console port.
2. Start the terminal-emulation program on the PC or the terminal. The program, frequently a PC application such as HyperTerminal or ProcommPlus, makes communication between the switch and your PC or terminal possible.
3. Configure the baud rate and character format of the PC or terminal to match the console port default characteristics:
4. Power on the switch as described in the switch getting started guide.
5. The PC or terminal displays the bootloader sequence. Press **Enter** to display the setup prompt. Follow the steps in [Entering the Initial Configuration Information, on page 77](#).

DETAILED STEPS

Step 1 Connect the 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 switch console port.

Step 2 Start the terminal-emulation program on the PC or the terminal. The program, frequently a PC application such as HyperTerminal or ProcommPlus, makes communication between the switch and your PC or terminal possible.

Step 3 Configure the baud rate and character format of the PC or terminal to match the console port default characteristics:

- 9600 baud
- 8 data bits
- 1 stop bit
- No parity
- None (flow control)

Step 4 Power on the switch as described in the switch getting started guide.

Step 5 The PC or terminal displays the bootloader sequence. Press **Enter** to display the setup prompt. Follow the steps in [Entering the Initial Configuration Information, on page 77](#).

Connecting the USB Console Port

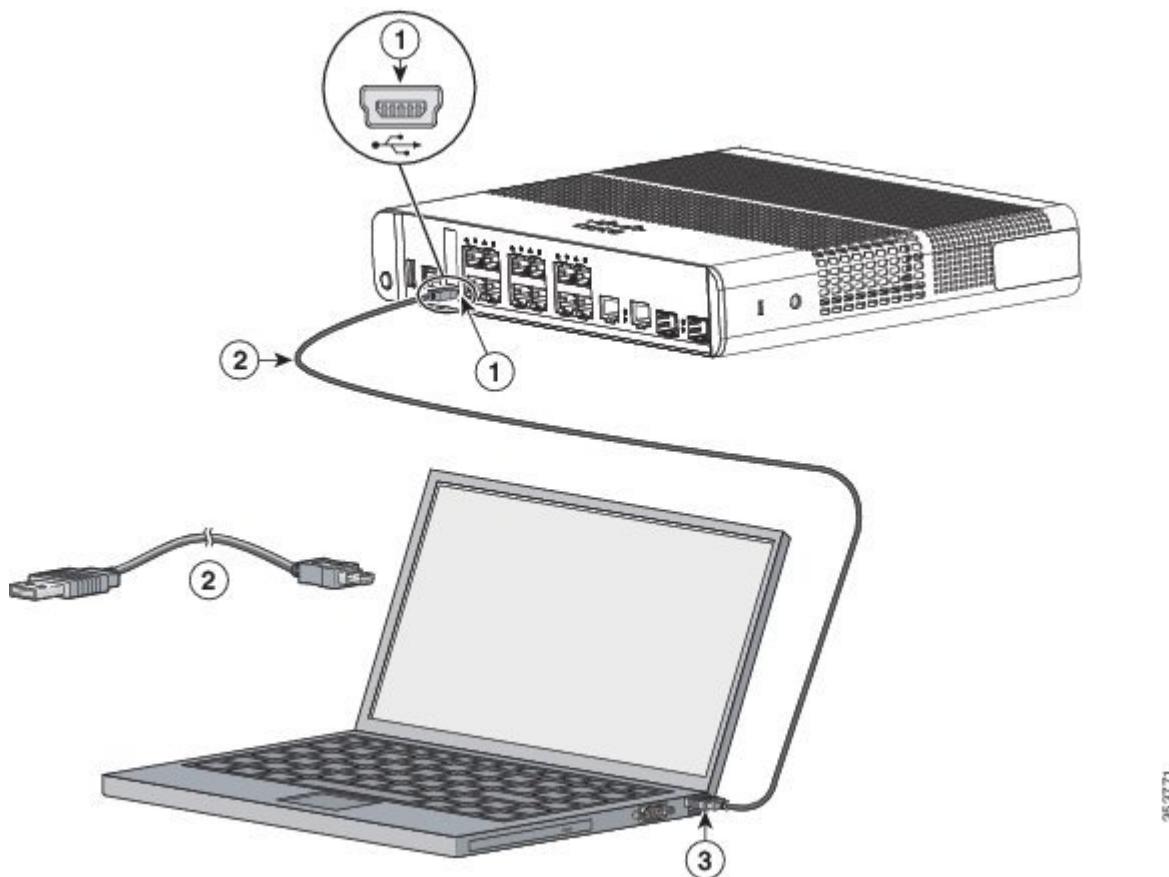
SUMMARY STEPS

1. If you are connecting the switch USB console port to a Windows-based PC for the first time, install the USB driver. See [Installing the Cisco Microsoft Windows USB Device Driver, on page 73](#).
2. Connect a USB cable to the PC USB port. Connect the other end of the cable to the switch mini-B (5-pin-connector) USB console port.
3. Start the terminal-emulation program on the PC or the terminal. The program, frequently a PC application such as HyperTerminal or ProcommPlus, makes communication between the switch and your PC or terminal possible.
4. Configure the baud rate and character format of the PC or terminal to match the console port default characteristics:
5. Power on the switch as described in the switch getting started guide.
6. The PC or terminal displays the bootloader sequence. Press **Enter** to display the setup prompt. Follow the steps in the Setup program.

DETAILED STEPS**Step 1**

If you are connecting the switch USB console port to a Windows-based PC for the first time, install the USB driver. See [Installing the Cisco Microsoft Windows USB Device Driver, on page 73](#).

Figure 54: Connecting the USB Console Cable to the Switch



353771

1	USB console port (5-pin mini-Type B)	3	USB Type A connection on the laptop
2	USB Type A to 5-pin mini-Type B cable		

Step 2

Connect a USB cable to the PC USB port. Connect the other end of the cable to the switch mini-B (5-pin-connector) USB console port.

Step 3

Start the terminal-emulation program on the PC or the terminal. The program, frequently a PC application such as HyperTerminal or ProcommPlus, makes communication between the switch and your PC or terminal possible.

Step 4

Configure the baud rate and character format of the PC or terminal to match the console port default characteristics:

- 9600 baud

- 8 data bits
- 1 stop bit
- No parity
- None (flow control)

Step 5 Power on the switch as described in the switch getting started guide.

Step 6 The PC or terminal displays the bootloader sequence. Press **Enter** to display the setup prompt. Follow the steps in the Setup program.

Installing the Cisco Microsoft Windows USB Device Driver

A USB device driver must be installed the first time a Microsoft Windows-based PC is connected to the USB console port on the switch.

- [Installing the Cisco Microsoft Windows XP USB Driver](#)
- [Installing the Cisco Microsoft Windows 2000 USB Driver](#)
- [Installing the Cisco Microsoft Windows Vista and Windows 7 USB Driver](#)

Installing the Cisco Microsoft Windows XP USB Driver

SUMMARY STEPS

1. Obtain the Cisco USB console driver file from the Cisco.com web site and unzip it.
2. If using 32-bit Windows XP, double-click the setup.exe file in the Windows_32 folder. If using 64-bit Windows XP, double-click the setup(x64).exe file in the Windows_64 folder.
3. The Cisco Virtual Com InstallShield Wizard begins.
4. The Ready to Install the Program window appears. Click **Install**.
5. The InstallShield Wizard Completed window appears. Click **Finish**.
6. Connect the USB cable to the PC and the switch console port. The USB console port LED turns green, and the Found New Hardware Wizard appears. Follow the instructions to complete the driver installation.

DETAILED STEPS

Step 1 Obtain the Cisco USB console driver file from the Cisco.com web site and unzip it.

Note You can download the driver file from the Cisco.com site for downloading the switch software.

- Step 2** If using 32-bit Windows XP, double-click the setup.exe file in the Windows_32 folder. If using 64-bit Windows XP, double-click the setup(x64).exe file in the Windows_64 folder.
- Step 3** The Cisco Virtual Com InstallShield Wizard begins.
- Step 4** The Ready to Install the Program window appears. Click **Install**.
- Step 5** The InstallShield Wizard Completed window appears. Click **Finish**.
- Step 6** Connect the USB cable to the PC and the switch console port. The USB console port LED turns green, and the Found New Hardware Wizard appears. Follow the instructions to complete the driver installation.
-

Installing the Cisco Microsoft Windows 2000 USB Driver

SUMMARY STEPS

1. Obtain the Cisco USB console driver file from the Cisco.com web site and unzip it.
2. Double-click the setup.exe file.
3. The Cisco Virtual Com InstallShield Wizard begins. Click **Next**.
4. The Ready to Install the Program window appears. Click **Install**.
5. The InstallShield Wizard Completed window appears. Click **Finish**.
6. Connect the USB cable to the PC and the switch console port. The USB console port LED turns green, and the Found New Hardware Wizard appears. Follow the instructions to complete the driver installation.

DETAILED STEPS

- Step 1** Obtain the Cisco USB console driver file from the Cisco.com web site and unzip it.

Note You can download the driver file from the Cisco.com site for downloading the switch software.

- Step 2** Double-click the setup.exe file.
- Step 3** The Cisco Virtual Com InstallShield Wizard begins. Click **Next**.
- Step 4** The Ready to Install the Program window appears. Click **Install**.
- Step 5** The InstallShield Wizard Completed window appears. Click **Finish**.
- Step 6** Connect the USB cable to the PC and the switch console port. The USB console port LED turns green, and the Found New Hardware Wizard appears. Follow the instructions to complete the driver installation.
-

Installing the Cisco Microsoft Windows Vista and Windows 7 USB Driver

SUMMARY STEPS

1. Obtain the Cisco USB console driver file from the Cisco.com web site and unzip it.
2. If using 32-bit Windows Vista or Windows 7, double-click the setup.exe file in the Windows_32 folder. If using 64-bit Windows Vista or Windows 7, double-click the setup(x64).exe file in the Windows_64 folder.
3. The Cisco Virtual Com InstallShield Wizard begins. Click **Next**.
4. The Ready to Install the Program window appears. Click **Install**.
5. The InstallShield Wizard Completed window appears. Click **Finish**.
6. Connect the USB cable to the PC and the switch console port. The USB console port LED turns green, and the Found New Hardware Wizard appears. Follow the instructions to complete the driver installation.

DETAILED STEPS

Step 1 Obtain the Cisco USB console driver file from the Cisco.com web site and unzip it.

Note You can download the driver file from the Cisco.com site for downloading the switch software.

Step 2 If using 32-bit Windows Vista or Windows 7, double-click the setup.exe file in the Windows_32 folder. If using 64-bit Windows Vista or Windows 7, double-click the setup(x64).exe file in the Windows_64 folder.

Step 3 The Cisco Virtual Com InstallShield Wizard begins. Click **Next**.

Step 4 The Ready to Install the Program window appears. Click **Install**.

Note If a User Account Control warning appears, click **Allow - I trust this program** to proceed.

Step 5 The InstallShield Wizard Completed window appears. Click **Finish**.

Step 6 Connect the USB cable to the PC and the switch console port. The USB console port LED turns green, and the Found New Hardware Wizard appears. Follow the instructions to complete the driver installation.

Uninstalling the Cisco Microsoft Windows USB Driver

Uninstalling the Cisco Microsoft Windows XP and 2000 USB Driver

Use the Windows Add or Remove Programs utility or the setup.exe file.

Using the Setup.exe Program

Before You Begin

Disconnect the switch console terminal before uninstalling the driver.

SUMMARY STEPS

1. Run setup.exe for Windows 32-bit or setup(x64).exe for Windows-64bit. Click **Next**.
2. The InstallShield Wizard for Cisco Virtual Com appears. Click **Next**.
3. When the Program Maintenance window appears, select the Remove radio button. Click **Next**.
4. When the Remove the Program window appears, click **Remove**.
5. When the InstallShield Wizard Completed window appears, click **Finish**.

DETAILED STEPS

Step 1 Run setup.exe for Windows 32-bit or setup(x64).exe for Windows-64bit. Click **Next**.

Step 2 The InstallShield Wizard for Cisco Virtual Com appears. Click **Next**.

Step 3 When the Program Maintenance window appears, select the Remove radio button. Click **Next**.

Step 4 When the Remove the Program window appears, click **Remove**.

Step 5 When the InstallShield Wizard Completed window appears, click **Finish**.

Using the Add or Remove Programs Utility**Before You Begin**

Disconnect the switch console terminal before uninstalling the driver.

SUMMARY STEPS

1. Click **Start > Control Panel > Add or Remove Programs**.
2. Scroll to Cisco Virtual Com and click **Remove**.
3. When the Program Maintenance window appears, select the **Remove** radio button. Click **Next**.

DETAILED STEPS

Step 1 Click **Start > Control Panel > Add or Remove Programs**.

Step 2 Scroll to Cisco Virtual Com and click **Remove**.

Step 3 When the Program Maintenance window appears, select the **Remove** radio button. Click **Next**.

Uninstalling the Cisco Microsoft Windows Vista and Windows 7 USB Driver**Before You Begin**

Disconnect the switch console terminal before uninstalling the driver.

SUMMARY STEPS

1. Run setup.exe for Windows 32-bit or setup(x64).exe for Windows-64bit. Click **Next**.
2. The InstallShield Wizard for Cisco Virtual Com appears. Click **Next**.
3. When the Program Maintenance window appears, select the Remove radio button. Click **Next**.
4. When the Remove the Program window appears, click **Remove**.
5. When the InstallShield Wizard Completed window appears, click **Finish**.

DETAILED STEPS

Step 1 Run setup.exe for Windows 32-bit or setup(x64).exe for Windows-64bit. Click **Next**.

Step 2 The InstallShield Wizard for Cisco Virtual Com appears. Click **Next**.

Step 3 When the Program Maintenance window appears, select the Remove radio button. Click **Next**.

Step 4 When the Remove the Program window appears, click **Remove**.

Note If a User Account Control warning appears, click **Allow - I trust this program to proceed**.

Step 5 When the InstallShield Wizard Completed window appears, click **Finish**.

Entering the Initial Configuration Information

To set up the switch, you need to complete the setup program, which runs automatically after the switch is powered on. You must assign an IP address and other configuration information necessary for the switch to communicate with the local routers and the Internet. This information is also needed to use Device Manager or Cisco Network Assistant to configure and manage the switch.

IP Settings

Obtain this information from your network administrator before you start the setup program:

- Switch IP address
- Subnet mask (IP netmask)
- Default gateway (router)
- Enable secret password
- Enable password
- Telnet password

Completing the Setup Program

If your switches are stacked and there are multiple console connections to individual switches in the stack, the initial setup dialog box appears at the console where you first press **Enter**.

SUMMARY STEPS

1. Enter **Yes** at these two prompts:
2. Enter a host name for the switch, and press **Return**.
3. Enter an enable secret password, and press **Return**.
4. Enter an enable password, and press **Return**.
5. Enter a virtual terminal (Telnet) password, and press **Return**.
6. To configure the country code, enter **yes** and press **Return**.
7. Enter the country code, and press **Return**.
8. (Optional) Configure Simple Network Management Protocol (SNMP) by responding to the prompts. You can also configure SNMP later through the CLI, Device Manager, or the Network Assistant application. To configure SNMP later, enter **no**.
9. Enter the interface name (physical interface or VLAN name) of the connection to the management network, and press **Return**. For this release, always use **vlan1** as that interface.
10. Configure the interface by entering the switch IP address and subnet mask and pressing **Return**. The IP address and subnet masks shown are examples.
11. Enter **Y** to configure the switch as the cluster command switch. Enter **N** to configure it as a member switch or as a standalone switch.
12. From these choices that appear, make your selection and press **Return**.

DETAILED STEPS

Step 1 Enter **Yes** at these two prompts:

```
Would you like to enter the initial configuration dialog? [yes/no]: yes
```

At any point you may enter a question mark '?' for help.

Use **ctrl-c** to abort configuration dialog at any prompt.

Default settings are in square brackets '[]'.

Basic management setup configures only enough connectivity
for management of the system, extended setup will ask you
to configure each interface on the system.

```
Would you like to enter basic management setup? [yes/no]: yes
```

Step 2 Enter a host name for the switch, and press **Return**.

On a command switch, the host name is limited to 28 characters; on a member switch the name is limited to 31 characters. Do not use *-n*, where *n* is a number, as the last character in a host name for any switch.

```
Enter host name [Switch]: host_name
```

Step 3 Enter an enable secret password, and press **Return**.

The password can be from 1 to 25 alphanumeric characters, can start with a number, is case sensitive, allows spaces, but ignores leading spaces. The secret password is encrypted, and the enable password is in plain text.

```
Enter enable secret: secret_password
```

Step 4 Enter an enable password, and press **Return**.

```
Enter enable password: enable_password
```

Step 5 Enter a virtual terminal (Telnet) password, and press **Return**.

The password can be from 1 to 25 alphanumeric characters, is case sensitive, allows spaces, but ignores leading spaces.

```
Enter virtual terminal password: terminal-password
```

Step 6 To configure the country code, enter **yes** and press **Return**.

```
Do you want to configure country code? [no]: yes
```

Step 7 Enter the country code, and press **Return**.

```
Enter the country code[US]: US
```

Step 8 (Optional) Configure Simple Network Management Protocol (SNMP) by responding to the prompts. You can also configure SNMP later through the CLI, Device Manager, or the Network Assistant application. To configure SNMP later, enter **no**.

```
Configure SNMP Network Management? [no]: no
```

Step 9 Enter the interface name (physical interface or VLAN name) of the connection to the management network, and press **Return**. For this release, always use **vlan1** as that interface.

```
Enter interface name used to connect to the  
management network from the above interface summary: vlan1
```

Step 10 Configure the interface by entering the switch IP address and subnet mask and pressing **Return**. The IP address and subnet masks shown are examples.

```
Configuring interface vlan1:  
Configure IP on this interface? [yes]: yes  
IP address for this interface: 10.4.120.106  
Subnet mask for this interface [255.0.0.0]: 255.0.0.0
```

Step 11 Enter **Y** to configure the switch as the cluster command switch. Enter **N** to configure it as a member switch or as a standalone switch.

If you enter **N**, the switch appears as a candidate switch in the Network Assistant GUI. You can configure the switch as a command switch later through the CLI, Device Manager, or the Network Assistant application. To configure it later, enter **no**.

```
Would you like to enable as a cluster command switch? [yes/no]: no
```

You have now completed the initial configuration of the switch. This is an example of the configuration output that appears:

```
The following configuration command script was created:
hostname switch1
enable secret 5 $1$Ulq8$D1A/OiaEbl90WcBPd9cOn1
enable password enable_password
line vty 0 15
password terminal-password
no snmp-server
!
no ip routing

!
interface Vlan1
no shutdown
ip address 10.4.120.106 255.0.0.0
!
interface GigabitEthernet1/0/1
!
interface GigabitEthernet1/0/2

interface GigabitEthernet1/0/3
!
...<output abbreviated>
!

interface GigabitEthernet1/0/23
!
end
```

Step 12 From these choices that appear, make your selection and press **Return**.

[0] Go to the IOS command prompt without saving this config.

[1] Return back to the setup without saving this config.

[2] Save this configuration to nvram and exit.

Choose (2) to save the configuration to NVRAM to use it the next time the switch reboots.

```
Enter your selection [2]:2
```

The switch now runs this default configuration. If you want to change this configuration or perform other management tasks, see [Management Options, on page 13](#).
