ı|ıı|ıı
CISCO™

Cisco Catalyst 1000 Series 24-Port and 48-Port Switch Hardware Installation Guide

First Published: 2019-12-25

CONTENTS

Preface

-
-

Document Conventions

This document uses the following conventions:

Convention	Description
^ or Ctrl	Both the **^** symbol and Ctrl represent the Control (Ctrl) key on a keyboard. For example, the key combination **^D** or **Ctrl-D** 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.
Italic font	Document titles, new or emphasized terms, and arguments for which you supply values are in *italic* font.
`Courier` font	Terminal sessions and information the system displays appear in `courier` font.
`Bold Courier` font	`Bold Courier` font indicates text that the user must enter.
[x]	Elements in square brackets are optional.
...	An ellipsis (three consecutive nonbolded periods without spaces) after a syntax element indicates that the element can be repeated.
|	A vertical line, called a pipe, indicates a choice within a set of keywords or arguments.
[x | y]	Optional alternative keywords are grouped in brackets and separated by vertical bars.
{x | y}	Required alternative keywords are grouped in braces and separated by vertical bars.

Convention	Description
[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

Obtaining Documentation and Submitting a Service Request

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

http://www.cisco.com/c/en/us/td/docs/general/whatsnew/whatsnew.html

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

CHAPTER 1

Product Overview

The Cisco Catalyst 1000 Series switches are fixed-configuration, Gigabit Ethernet switches that provide entry-level enterprise-class Layer 2 access for branch offices, conventional workspace, and out-of-wiring closet applications.

Cisco Catalyst 1000 Series switches provide support for the following features:

- 24 or 48 Gigabit Ethernet ports with line-rate forwarding performance.

- Four Gigabit Small Form-Factor Pluggable (SFP/SFP+) uplinks.

- Power over Ethernet Plus (PoE+) support with up to 370W of PoE budget and Perpetual PoE.

- Fanless operation with operational temperature up to 50°C for deployment outside the wiring closet.

- Reduced power consumption and advanced energy management.

- RJ-45 and USB Mini-Type B console ports.

- USB Type A port supports file system.

The Cisco Catalyst 1000 Series Fast Ethernet switches are fixed-configuration, Layer 2 and Layer 3 Fast Ethernet access switches that provide entry-level enterprise-class accesss switching for retail, hospitality and branch offices as well as small and medium-sized businesses.

Cisco Catalyst 1000 Series Fast Ethernet switches provide support for the following features:

- 24 or 48 Fast Ethernet ports with line-rate forwarding performance.

- Two Gigabit Small Form-Factor Pluggable (SFP) uplinks.

- Two combo uplinks (2 RJ-45 ports or 2 SFP module ports)

- Power over Ethernet (PoE) support with up to 370W of PoE budget and Perpetual PoE.

- Fanless operation with operational temperature up to 50°C for deployment outside the wiring closet.

- Reduced power consumption and advanced energy management.

- RJ-45 console ports.

- USB Type A port supports file system.

Switch Models

Table 1: Cisco Catalyst 1000 24-Port and 48-Port Switch Models and Description

Switch Model	Description
C1000-24T-4G-L	24 10/100/1000 Ethernet ports; four 1-Gigabit Ethernet small form-factor pluggable (SFP) module uplink slots
C1000-24P-4G-L	24 10/100/1000 PoE+ ports (PoE budget of 195W); four 1-Gigabit Ethernet SFP module uplink slots
C1000-24FP-4G-L	24 10/100/1000 PoE+ ports (PoE budget of 370W); four 1-Gigabit Ethernet SFP module uplink slots
C1000-48T-4G-L	48 10/100/1000 Ethernet ports; four 1-Gigabit Ethernet SFP module uplink slots
C1000-48P-4G-L	48 ports; 12x10/100/1000 PoE+ ports (PoE budget of 370W) and 36x10/100/1000 Ethernet ports; four 1-Gigabit Ethernet SFP module uplink slots
C1000-48FP-4G-L	48 10/100/1000 PoE+ ports (PoE budget of 740W); four 1-Gigabit Ethernet SFP module uplink slots
C1000-24T-4X-L	24 10/100/1000 Ethernet ports; four 10-Gigabit Ethernet small form-factor pluggable plus (SFP+) module uplink slots
C1000-24P-4X-L	24 10/100/1000 Ethernet ports; limited PoE+ ports (PoE budget of 195W); four 10-Gigabit Ethernet SFP+ module uplink slots
C1000-24FP-4X-L	24 10/100/1000 PoE+ ports (PoE budget of 370W); four 10-Gigabit Ethernet SFP+ module uplink slots
C1000-48T-4X-L	48 10/100/1000 Ethernet ports; four 10-Gigabit Ethernet SFP+ module uplink slots
C1000-48P-4X-L	48 10/100/1000 PoE+ ports (PoE budget of 370W); four 10-Gigabit Ethernet SFP+ module uplink slots
C1000-48FP-4X-L	48 10/100/1000 PoE+ ports (PoE budget of 740W); four 10-Gigabit Ethernet SFP+ module uplink slots

Table 2: Cisco Catalyst 1000 24-Port and 48-Port Fast Ethernet Switch Models and Description

Switch Model	Description
C1000FE-24T-4G-L	24 10/100 Fast Ethernet ports; 2 1-Gigabit SFP module uplink slots or 2 RJ-45 slots combo ports; 2 1-Gigabit Ethernet SFP module uplink slots.

Switch Model	Description
C1000FE-24P-4G-L	24 10/100 Fast Ethernet ports (PoE budget of 195W); 2 1-Gigabit SFP module uplink slots or 2 RJ-45 slots combo ports; 2 1-Gigabit Ethernet SFP module uplink slots.
C1000FE-48T-4G-L	48 10/100 Fast Ethernet ports; 2 1-Gigabit SFP module uplink slots or 2 RJ-45 slots combo ports; 2 1-Gigabit Ethernet SFP module uplink slots.
C1000FE-48P-4G-L	48 10/100 Fast Ethernet ports (PoE budget of 370W); 2 1-Gigabit SFP module uplink slots or 2 RJ-45 slots combo ports; 2 1-Gigabit Ethernet SFP module uplink slots.

Front Panel

Cisco Catalyst 1000 24-Port and 48-Port Switches

This section describes the front panel components of Cisco Catalyst 1000 24-port and 48-port switches.

- 24 or 48 downlink ports of one of these types:

    - 10/100/1000 Ethernet

    - 10/100/1000 PoE+

- Four SFP uplink ports

    Four SFP+ uplink ports

- USB Type A connectors

- USB mini-Type B (console) port

- RJ-45 console port

- LEDs

- Reset button

Figure 1: Front Panel of a 24-Port Cisco Catalyst 1000 PoE Switch

1	USB Type A port	5	RJ-45 console port
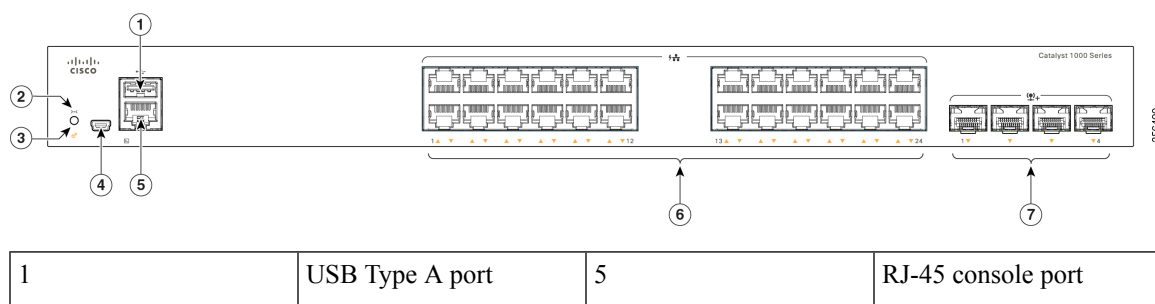
2	Reset button	6	24 10/100/1000 PoE+ ports
3	System LED	7	SFP module slots
4	USB mini-Type B (console) port		

Figure 2: Front Panel of a 48-Port Cisco Catalyst 1000 PoE Switch
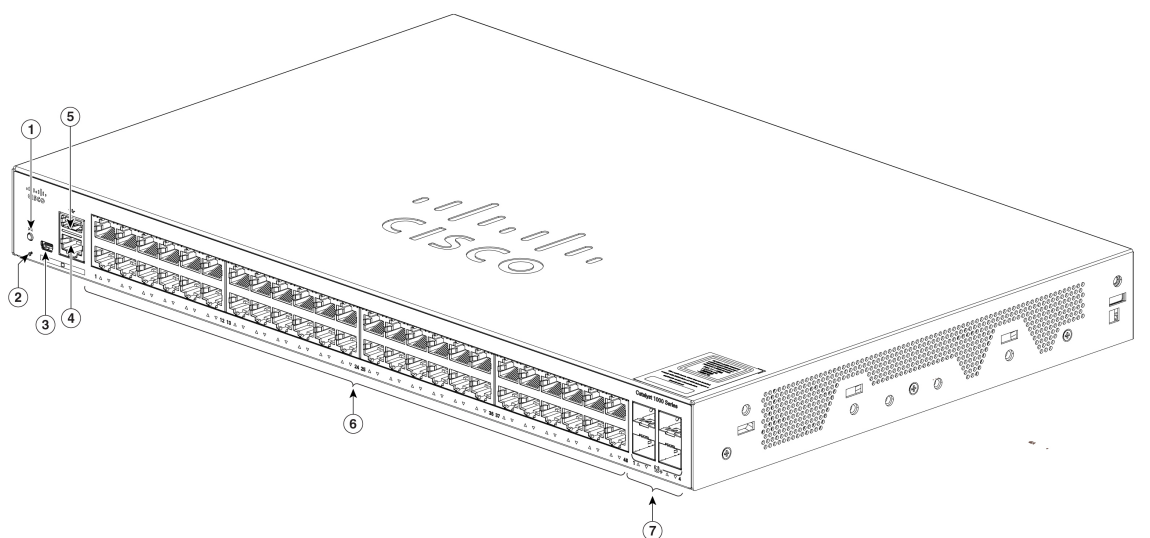
1	Reset button	5	USB Type A port
2	System LED	6	48 10/100/1000 PoE+ ports
3	USB mini-Type B (console) port	7	SFP module slots
4	RJ-45 console port		

Cisco Catalyst 1000 24-Port and 48-Port Fast Ethernet Switches

This section describes the front panel components of Cisco Catalyst 1000 24-port and 48-port Fast Ethernet switches.

- 24 or 48 downlink ports of one of these types:

  - 10/100 Fast Ethernet

  - 10/100 PoE

- Two SFP uplink ports

- Two combo uplink ports (2 RJ-45 ports or 2 SFP module ports)

- USB Type A connectors

- RJ-45 console port

- LEDs

- Reset button

Figure 3: Front Panel of a 24-Port Cisco Catalyst 1000 Fast Ethernet Switch
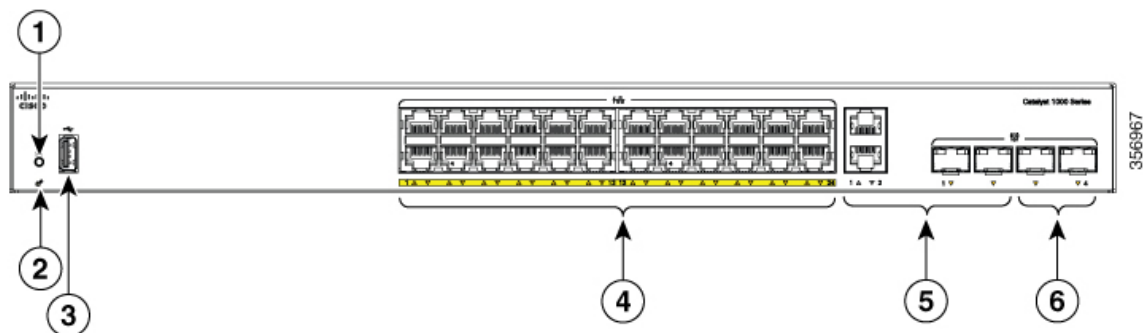
1	Reset Button	4	24 10/100 Fast Ethernet ports
2	System LED	5	Combo ports (2 RJ-45 ports or 2 SFP module ports)
3	USB Type A port	6	SFP module slots

Figure 4: Front Panel of a 48-Port Cisco Catalyst 1000 Fast Ethernet Switch
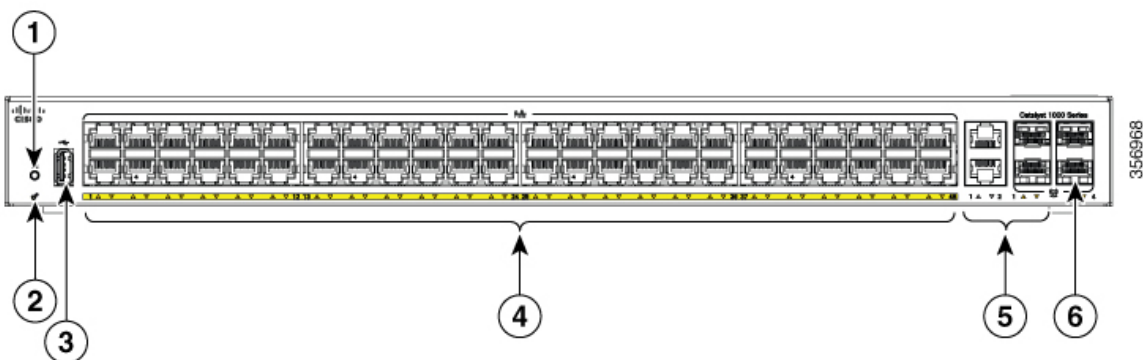
1	Reset Button	4	48 10/100 Fast Ethernet ports
2	System LED	5	Combo ports (2 RJ-45 ports or 2 SFP module ports)

3	USB Type A port	6	SFP module slots

PoE Ports

The ports provide PoE support for devices compliant with IEEE 802.3af and IEEE 802.3at and also provide PoE support for Cisco IP Phones and Cisco Aironet Access Points. The PoE switch ports are Power Source equipment (PSE) capable and source power to PD devices connected to the downlink ports. A switch can source POE power of up to 30W per port.

Depending on the switch model and the number of PoE ports, the maximum switch power output varies. For the 24-port switch models, the power range is between 195W to 370W. For the 48-port switch models, the power range is between 180W and 740W. 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.

The PoE ports use RJ-45 connectors with Ethernet pinouts. 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.

10/100/1000 Ports

The 10/100/1000 ports use RJ-45 connectors with Ethernet pinouts. 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.

Note The Cisco Catalyst 1000 Series Fast Ethernet Switches support only 10/100 downlink ports.

Console Ports

The console 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).

Note The Cisco Catalyst 1000 Series Fast Ethernet Switches do not support the USB mini-Type B console port.

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 5: USB Mini-Type B Port
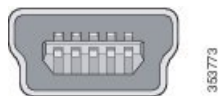
With the Cisco Windows USB device driver, you can connect and disconnect the USB cable from the console port without affecting Windows HyperTerminal operations.

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.

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.

USB Type A Port

The USB Type A port provides access to external USB flash devices (also known as thumb drives or USB keys).

The port supports Cisco USB flash drives with capacities from 128 MB to 8 GB (USB devices with port densities of 128 MB, 256 MB, 1 GB, 4 GB, and 8 GB are supported). Cisco IOS software provides standard file system access to the flash device: read, write, erase, and copy, as well as the ability to format the flash device with a FAT file system.

It provides you with the ability to automatically upgrade the internal flash with the USB drive's configuration and image for emergency switch recovery using USB auto-upgrade. This feature checks the internal flash for a bootable image and configuration and if either image or the configuration is not available, then the USB drive is checked for boot images and configuration. If the boot image and configuration are available, these are copied to flash for the reboot.

SFP Module Slots

Note The Cisco Catalyst 1000 Series Fast Ethernet Switches do not support SFP+ module slots.

The switch has four 1G SFP or 10G SFP+ module slots. The SFP and SFP+ modules provide copper or fiber-optic connections to other devices. These transceiver modules are field replaceable, and provide the uplink interfaces when installed in an SFP module slot. The SFP modules have LC connectors for fiber-optic connections or RJ-45 connectors for copper connections. The SFP slots support only SFP modules.

For Cisco 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

Table 3: Port mapping for Cisco Catalyst 1000 24-Port Switch models

1-GigabitEthernet ports	10-GigabitEthernet ports
GigabitEthernet1/0/25	TenGigabitEthernet1/0/1
GigabitEthernet1/0/26	TenGigabitEthernet1/0/2
GigabitEthernet1/0/27	TenGigabitEthernet1/0/3
GigabitEthernet1/0/28	TenGigabitEthernet1/0/4

Table 4: Port mapping for Cisco Catalyst 1000 48-Port Switch models

1-GigabitEthernet ports	10-GigabitEthernet ports
GigabitEthernet1/0/49	TenGigabitEthernet1/0/1
GigabitEthernet1/0/50	TenGigabitEthernet1/0/2
GigabitEthernet1/0/51	TenGigabitEthernet1/0/3
GigabitEthernet1/0/52	TenGigabitEthernet1/0/4

Note If you insert a 10G SFP+ in to a 1G SFP module slot and vice versa, you need to clear the existing configuration by running the **default-interface <interface-number>** command on the mapped ports. For more information about the command, refer to the *Software Configuration Guide*.

LEDs

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

Figure 6: System LED for a Cisco Catalyst 1000 Series Switch
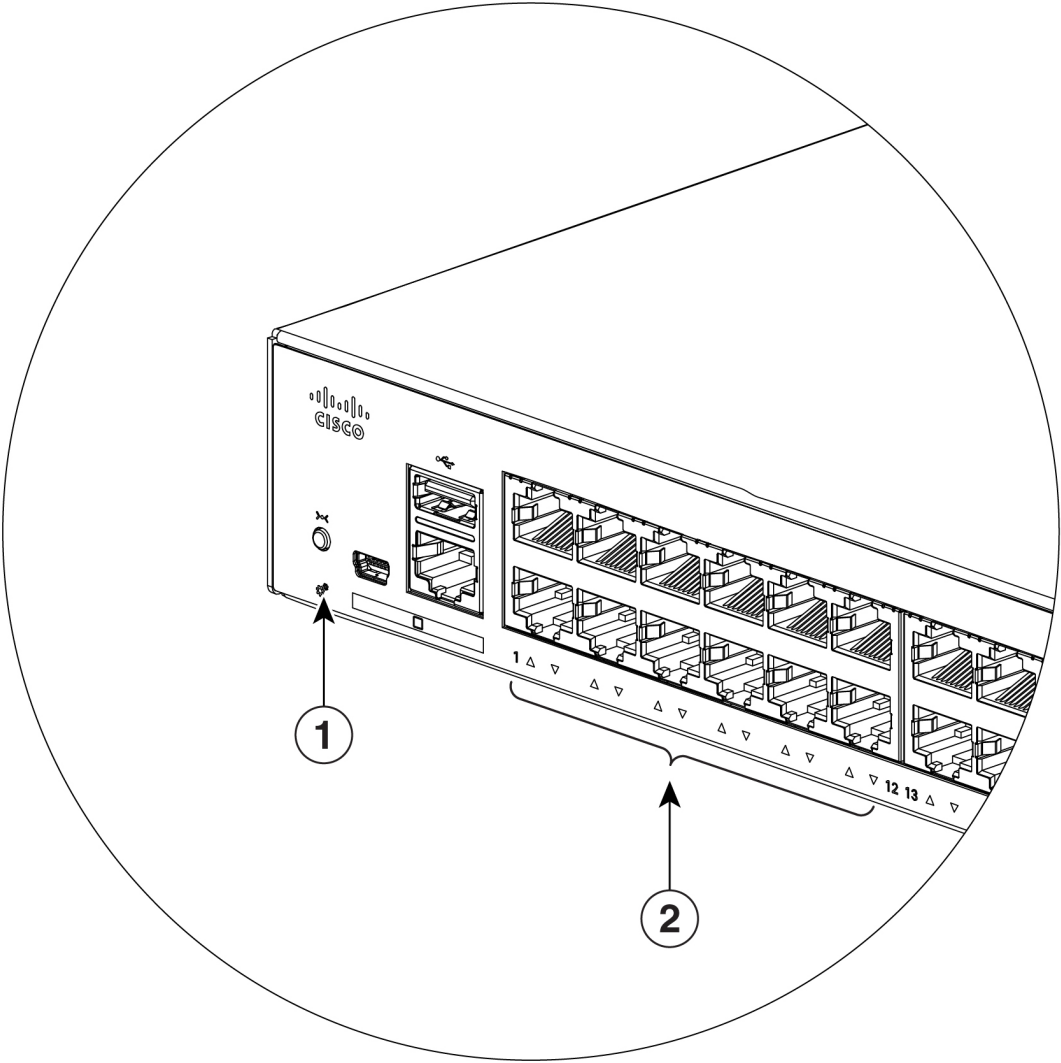
356418
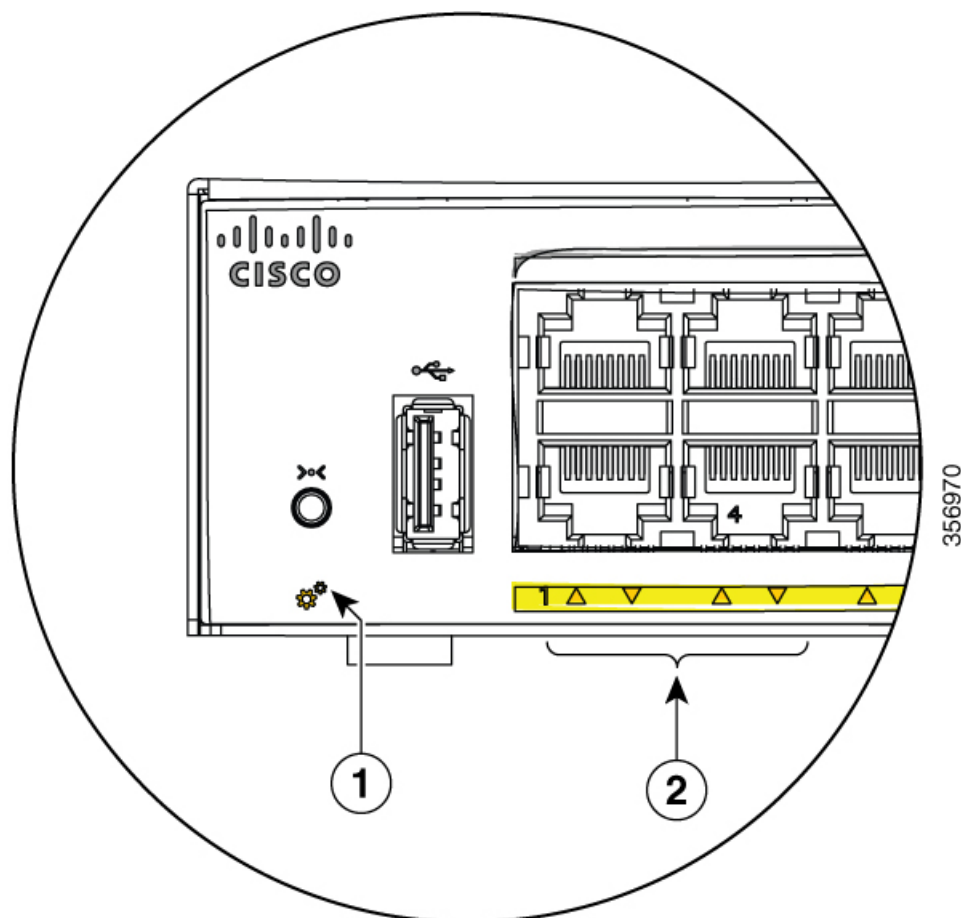
| 1 | SYST LED (system) | 2 | Port LEDs |

| 1 | SYST LED (system) | 2 | Port LEDs |

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.
Blinking Green	POST is in progress.

Port LEDs

✎

Note Physically, there is no amber LED on the device. For all LED-related information of the device, run the **show hardware led** command in privileged EXEC mode.

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.
Blinking Green	Activity. Port is sending or receiving data.

Rear Panel

This section describes the rear panel components of Cisco Catalyst 1000 24-port and 48-port switches.

- A security slot

- An AC power connector

- A loop (for the optional power cord retainer)

- Heat sink fins (fanless models only)

Figure 8: Rear Panel of a Switch with Fan

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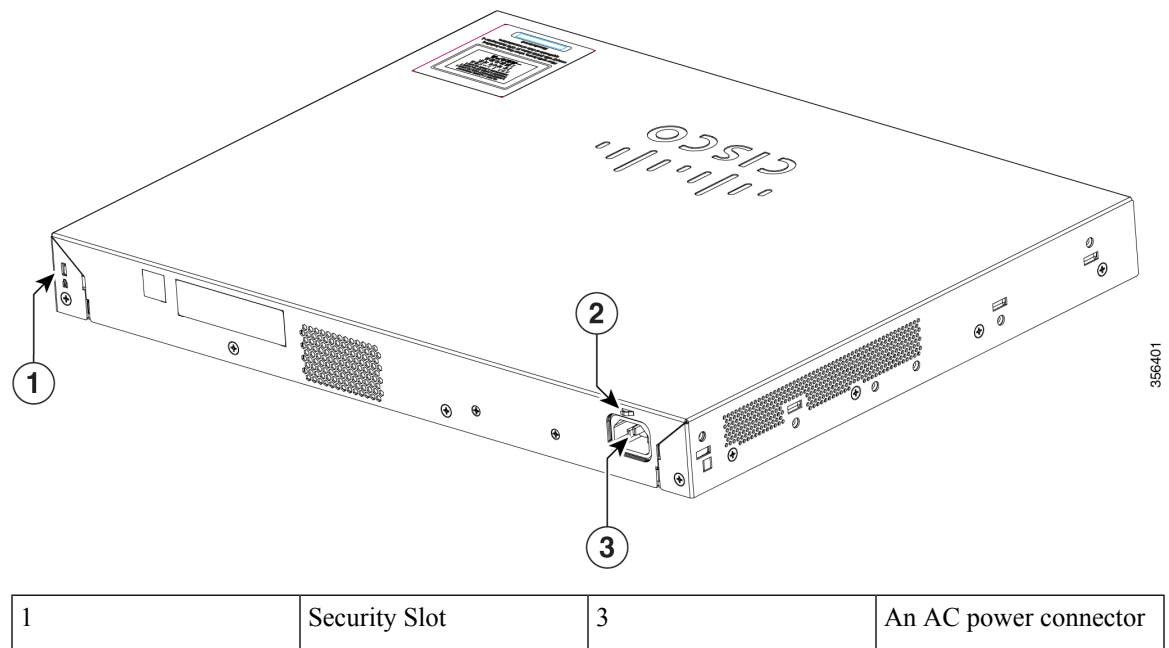
2	A loop (for the optional power cord retainer)		

Figure 9: Rear Panel of a Fanless Switch

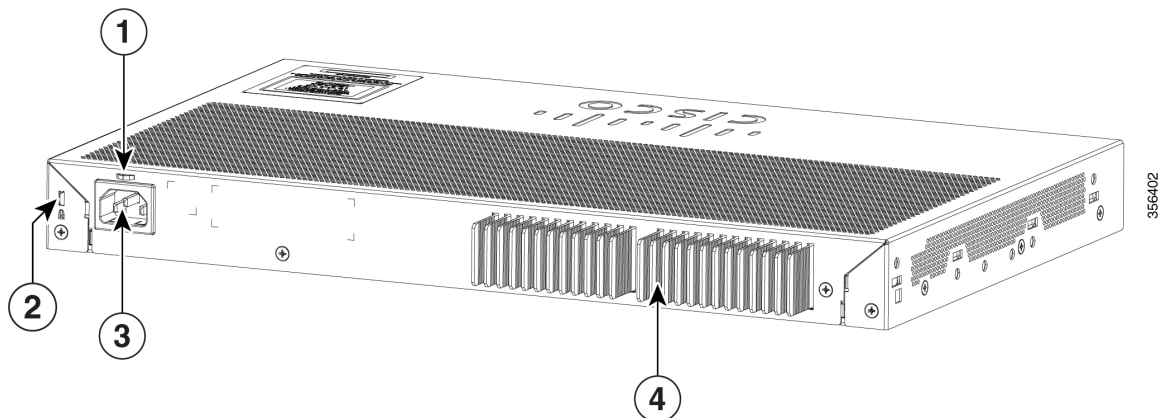| 1	Security Slot	3	An AC power connector
2	A loop (for the optional power cord retainer)	4	Heat sink fins

This section describes the rear panel components of Cisco Catalyst 1000 24-port and 48-port Fast Ethernet switches.

- A security slot
- RJ-45 console port
- An AC power connector
- A loop (for the optional power cord retainer)
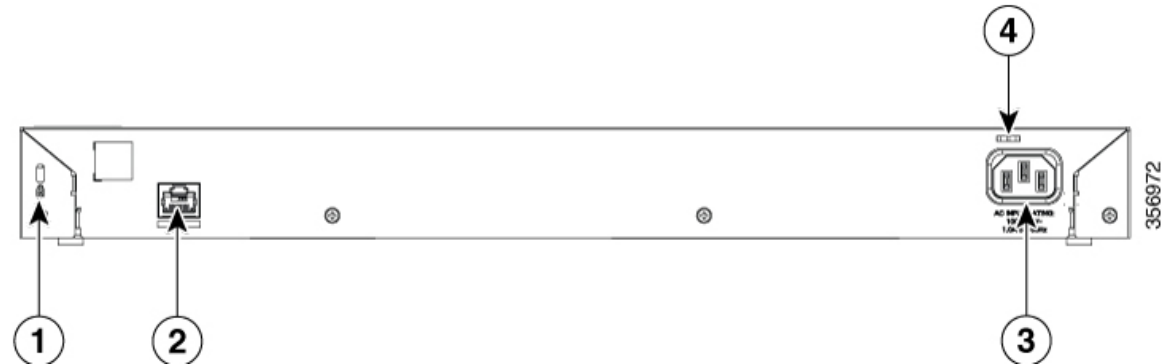- Heat sink fins (fanless models only)

Figure 10: Rear Panel of a Fast Ethernet Switch
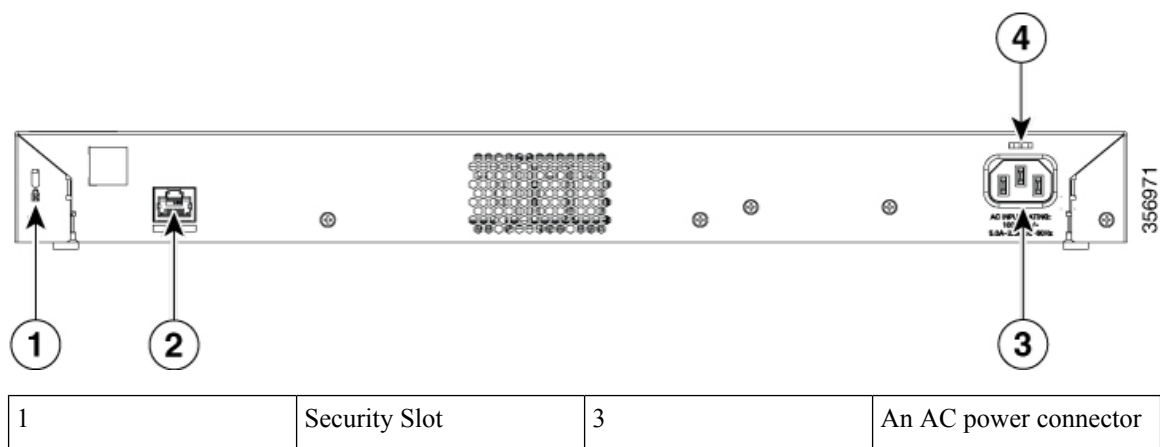
1	Security Slot	3	An AC power connector

2	RJ-45 console port	4	A loop (for the optional power cord retainer)

Figure 11: Rear Panel of a Fanless Fast Ethernet Switch

1	Security Slot	3	An AC power connector
2	RJ-45 console port	4	A loop (for the optional power cord retainer)

Internal Power Supply

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 12: Switch Rear Panel
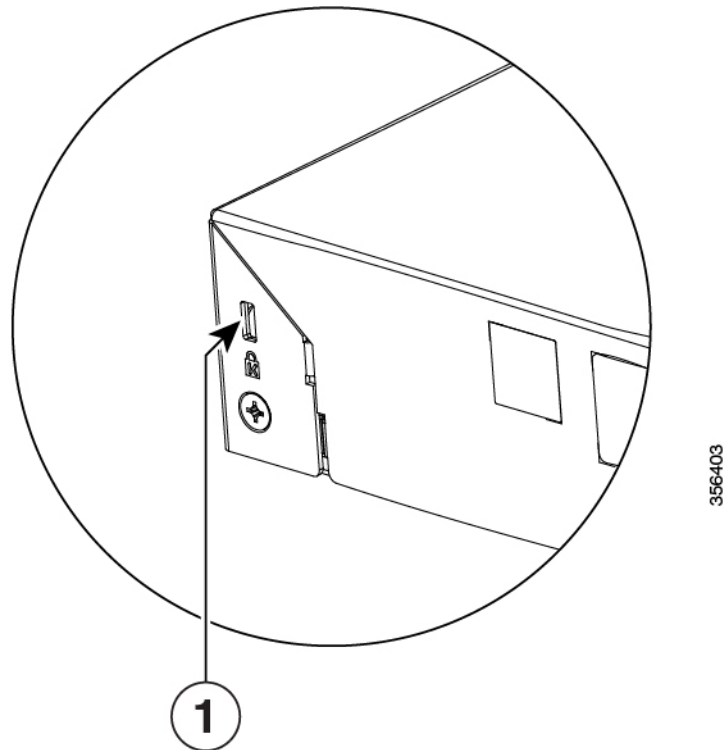
Network Configurations

See the switch software configuration guide 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.

C H A P T E R 2

Switch Installation

This chapter contains these topics:

Safety Warnings

Warning To reduce the risk of electric shock, disconnect all power cords before servicing.

Warning The switch is to be connected only to PoE networks without routing to the outside plant.

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

Warning Before working on equipment that is connected to power lines, remove jewelry (including rings, necklaces, and watches). Metal objects will heat up when connected to power and ground and can cause serious burns or weld the metal object to the terminals. **Statement 43**

⚠️
Warning Do not stack the chassis on any other equipment. If the chassis falls, it can cause severe bodily injury and equipment damage. **Statement 48**

⚠️
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 Connect USB Device to a Certified USB Port. **Statement 388**

⚠️
Warning To avoid or reduce the risk of personal injury, do not use the product if the product has been exposed to irregular environmental conditions, if the product has been misused or if parts of the product have been damaged. Consult qualified service personnel. Never try to service the product yourself. **Statement 0416**

⚠️
Warning To reduce the risk of electric shock, fire or personal injury, do not place power cables in areas where they may be walked on or damaged by items placed upon or against it. **Statement 0417**

⚠️
Warning This product is intended for use in a normal environment based on the standard IEC60950-1 and IEC62368-1. Do not use the product in vehicles, on board ships, in aircrafts or in medical applications with physical connection to the patient, nor in environments with exposure to moisture, dust, vibration or ingress of water. **Statement 0418**

⚠️
Warning Equipment is intended for installation in Information Technology Equipment Rooms. Suitable for installation in Information Technology Rooms in accordance with Article 645 of the National ElectricalCode and NFPA 75. **Statement 0444**

⚠️
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 There is the danger of explosion if the battery is replaced incorrectly. Replace the battery only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions. **Statement 1015**

Warning This unit is intended for installation in restricted access areas. A restricted access area can be accessed only through the use of a special tool, lock and key, or other means of security. **Statement 1017**

Warning Take care when connecting units to the supply circuit so that wiring is not overloaded. **Statement 1018**

Warning The plug-socket combination must be accessible at all times, because it serves as the main disconnecting device. **Statement 1019**

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 Class 1 LED product. **Statement 1027**

Warning   Only trained and qualified personnel should be allowed to install, replace, or service this equipment. **Statement 1030**

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

Warning   When installing or replacing the unit, the ground connection must always be made first and disconnected last. **Statement 1046**

Warning   To prevent the system from overheating, do not operate it in an area that exceeds the maximum recommended ambient temperature of: <122°F (50°C).**Statement 1047**

Warning   Invisible laser radiation may be emitted from disconnected fibers or connectors. Do not stare into beams or view directly with optical instruments. **Statement 1051**

Warning   Invisible laser radiation may be emitted from the end of the unterminated fiber cable or connector. Do not view directly with optical instruments. Viewing the laser output with certain optical instruments (for example, eye loupes, magnifiers, and microscopes) within a distance of 100 mm may pose an eye hazard.

Fiber type and Core diameter (µm)	Wavelength (nm)	Max. Power (mW)	
SM 11	1200 - 1400	39 - 50	
MM 62.5	1200 - 1400	150	
MM 50	1200 - 1400	135	
SM 11	1400 - 1600	112 - 145	

Statement 1056

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**
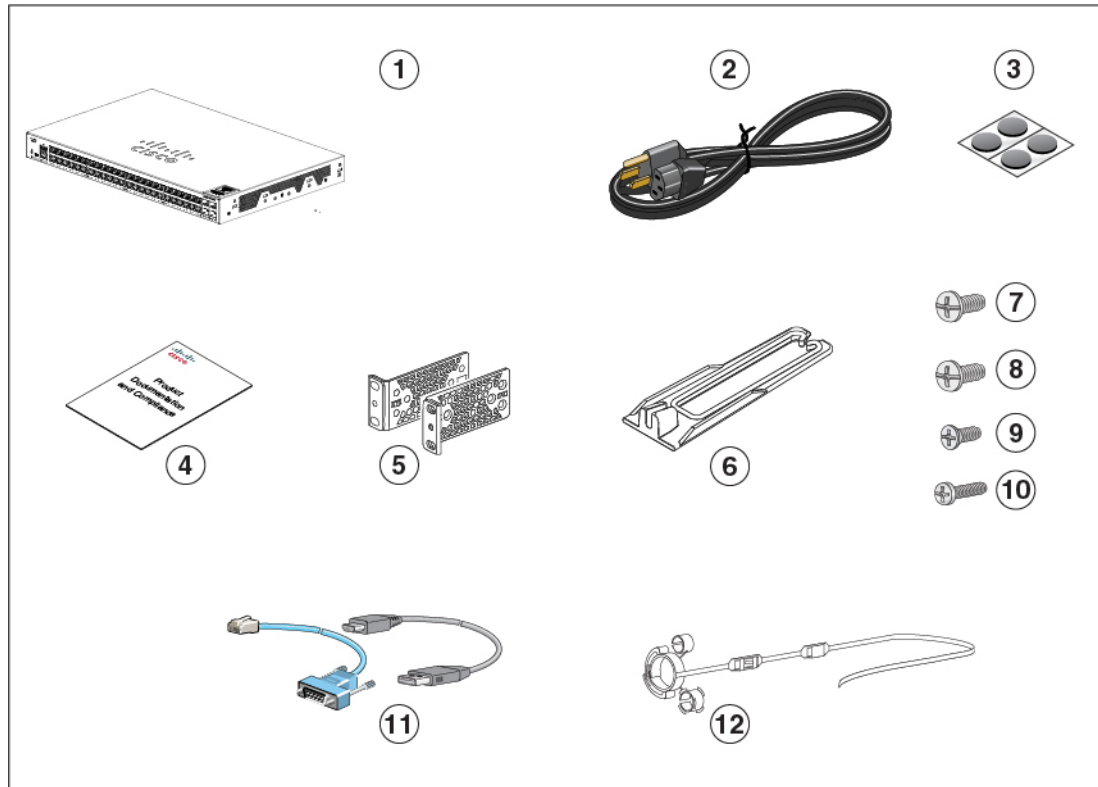
Warning   Hot surface. **Statement 1079**

Box Contents

This section lists the contents of the shipping box for a 24-port and 48-port Cisco Catalyst 1000 switch.

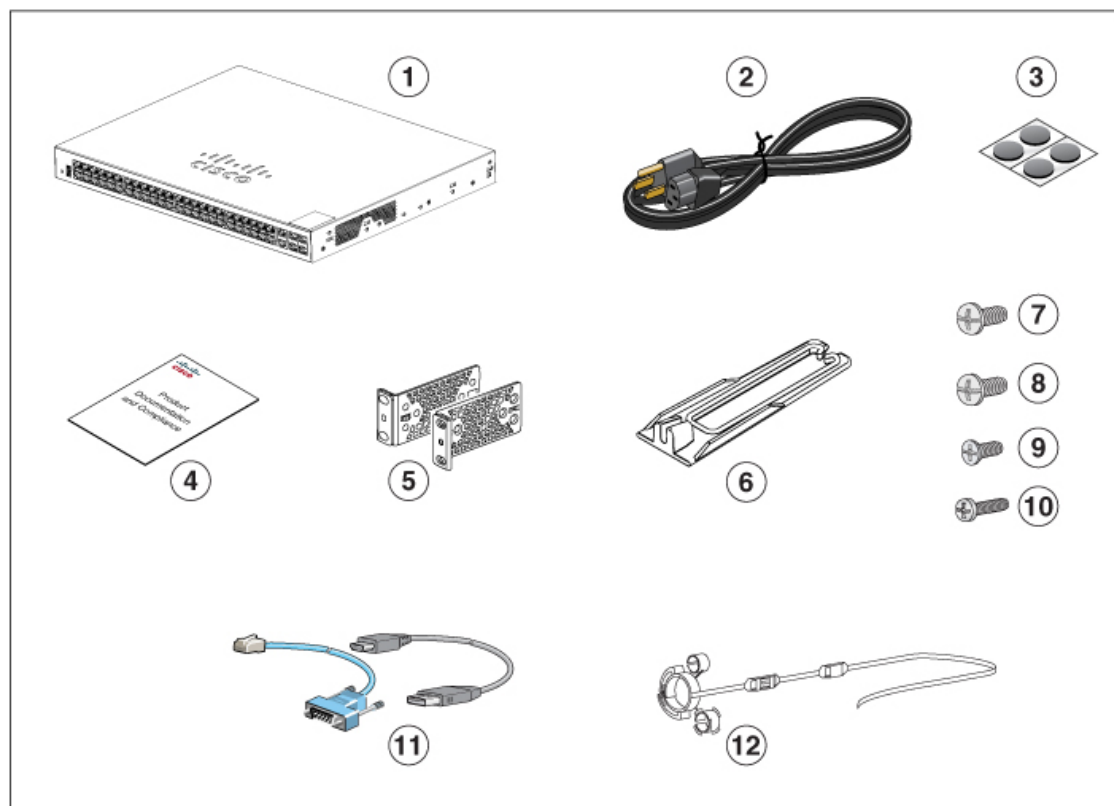*Figure 13: Box Contents of a 24-Port and 48-Port Cisco Catalyst 1000 Switch*

1	24-port or 48-port Cisco Catalyst 1000 switch	7	Four Number-12 Phillips pan-head screws (48-0523-01)
2	AC power cord	8	Four Number-10 Phillips pan-head screws (48-0627-01)
3	Four rubber-mounting feet (51-0089)	9	Eight Number-8 Phillips flat-head screws (48-2927-01)
4	Compliance documentation (78-101287-01)	10	One black Phillips machine screw (48-0654-01)
5	Two 19-inch mounting brackets	11	(Optional) Console cable or USB cable
6	Cable guide	12	(Optional) Power cord retainer

This section lists the contents of the shipping box for a 24-port and 48-port Cisco Catalyst 1000 Fast Ethernet switch.

Figure 14: Box Contents of a 24-Port and 48-Port Cisco Catalyst 1000 Fast Ethernet Switch

1	24-port or 48-port Cisco Catalyst 1000 Fast Ethernet switch	7	Four Number-12 Phillips pan-head screws (48-0523-01)
2	AC power cord	8	Four Number-10 Phillips pan-head screws (48-0627-01)
3	Four rubber-mounting feet (51-0089)	9	Eight Number-8 Phillips flat-head screws (48-2927-01)
4	Compliance documentation (78-101287-01)	10	One black Phillips machine screw (48-0654-01)
5	Two 19-inch mounting brackets	11	(Optional) Console cable or USB cable
6	Cable guide	12	(Optional) Power cord retainer

Tools and Equipment

Obtain these necessary tools:

- A Number-2 Phillips screwdriver.

Installation Guidelines

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

- Clearance to the switch's front and rear panel should meet these conditions:

  - Front-panel LEDs can be easily read.

  - Access to ports is sufficient for unrestricted cabling.

  - AC power cord can reach from the AC power outlet to the connector on the switch's rear panel.

- Cabling is away from sources of electrical noise, such as radios, power lines, and fluorescent lighting fixtures. Make sure that the cabling is safely away from other devices that might damage the cables.

- Airflow around the switch and through the vents is 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 the right sides, and the front and rear of the switch.

  - Allow at least 1.75 in. (4 cm) of clearance from the top cover, if you are installing the switch in upright position.

  - Allow at least 3 in. (7.6 cm) of clearance from the top cover, if you are installing the switch.

- Temperature around the unit does not exceed 122°F (50°C). If the switch is installed in a closed or multirack assembly, the temperature around it might be greater than normal room temperature.

- Humidity around the switch does not exceed 95 percent.

- Altitude at the installation site is not greater than 10,000 feet.

- For 10/100/1000 fixed ports, the cable length from a switch to a connected device cannot exceed 328 feet (100 meters).

- Cooling mechanisms, such as fans and blowers in the switch, can draw dust and other particles causing contaminant build-up inside the chassis, which can result in system malfunction. You must install this equipment in an environment as free from dust and foreign conductive material (such as metal flakes from construction activities) as is possible.

- None of the switch models can be deployed outside of the wiring closet. These switches can only be deployed indoors.

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

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. The SYST LED blinks green.

When the switch completes POST successfully, the SYST LED remains green. 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.

Installing the Switch

Rack-Mounting

Installation in other than 19-inch racks requires a bracket kit not included with the switch.

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

Figure 15: Rack-Mounting Brackets

This figure shows the standard 19-inch brackets and other optional mounting brackets. You can order the optional brackets from your Cisco sales
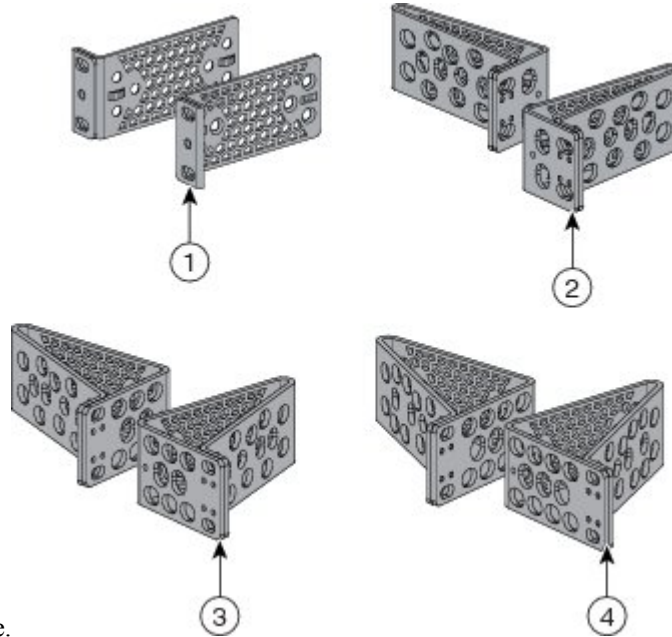

representative.

1	19-inch brackets	3	23-inch brackets
2	ETSI brackets	4	24-inch brackets

Attaching the Rack-Mount Brackets

Attaching the Rack-Mount Brackets to a Cisco Catalyst 1000 24-Port and 48-Port Switch

Use two Phillips flat-head screws to attach the long side of the bracket to each side of the switch.

Figure 16: Attaching 19-inch Brackets to a Cisco Catalyst 1000 24-Port and 48-Port Switch
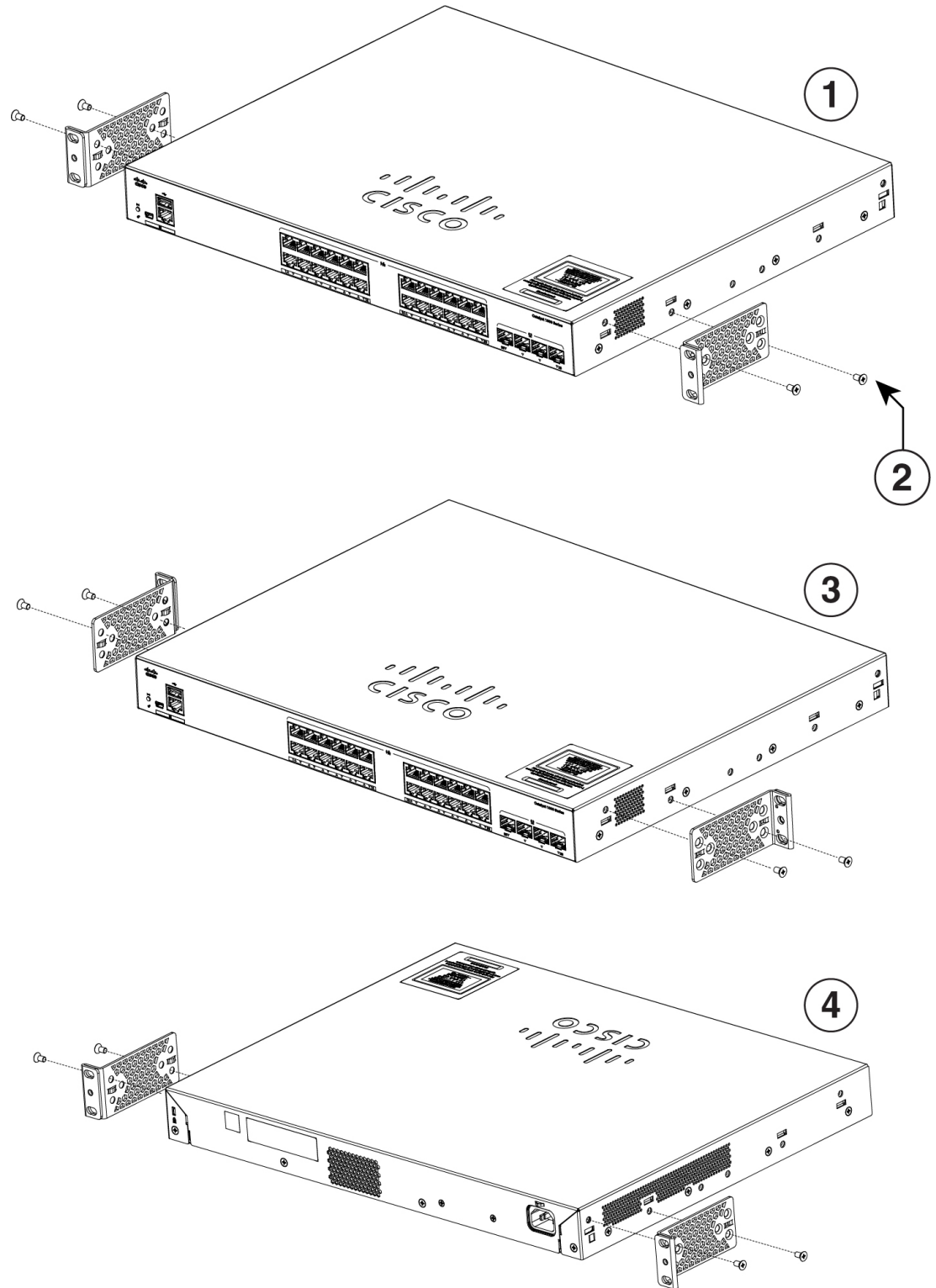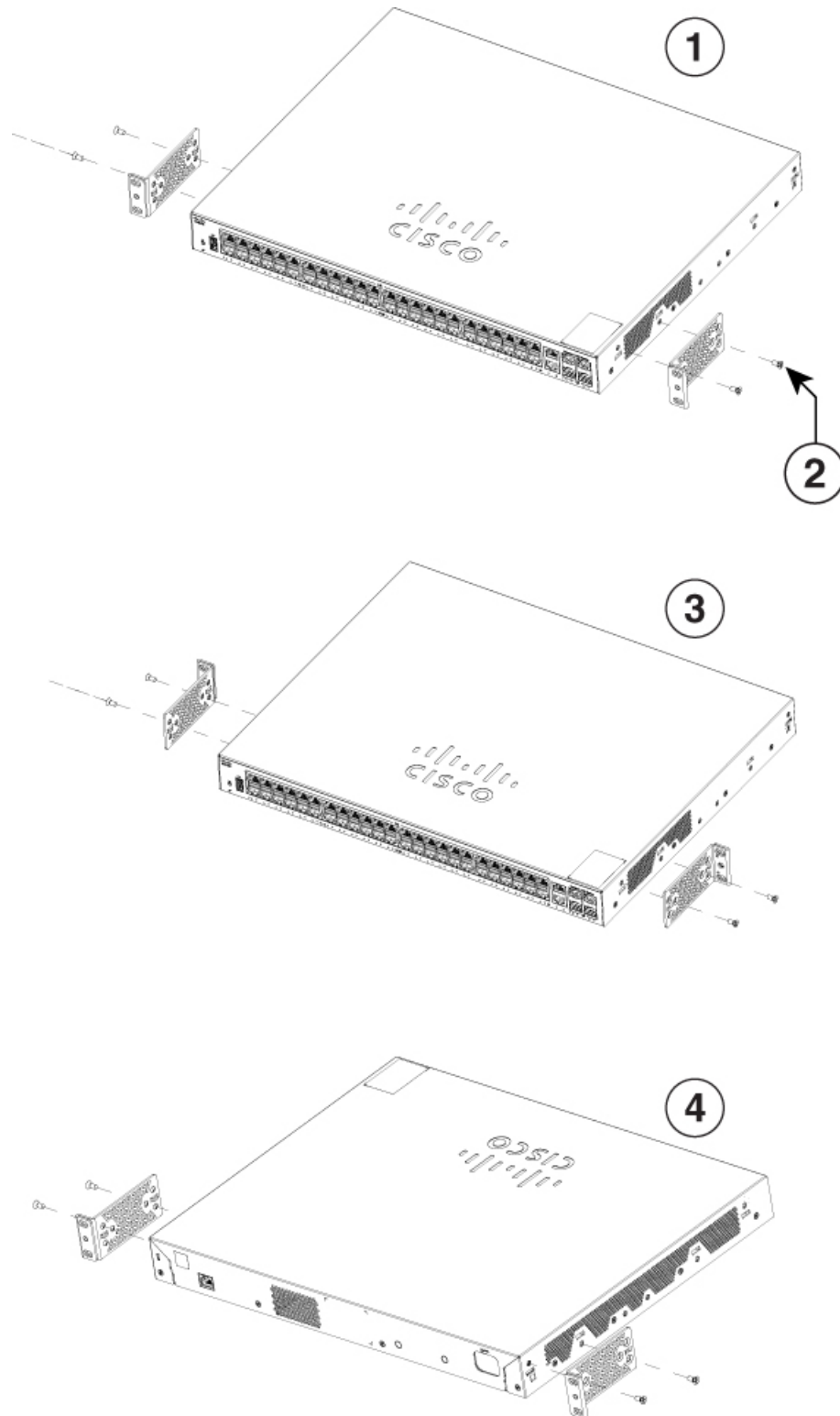

| 1 | Front-mounting position | 3 | Mid-mounting position |

2	Number-8 Phillips flat-head screws	4	Rear-mounting position

Figure 17: Attaching 19-inch Brackets to a Cisco Catalyst 1000 24-Port and 48-Port Fast Ethernet Switch
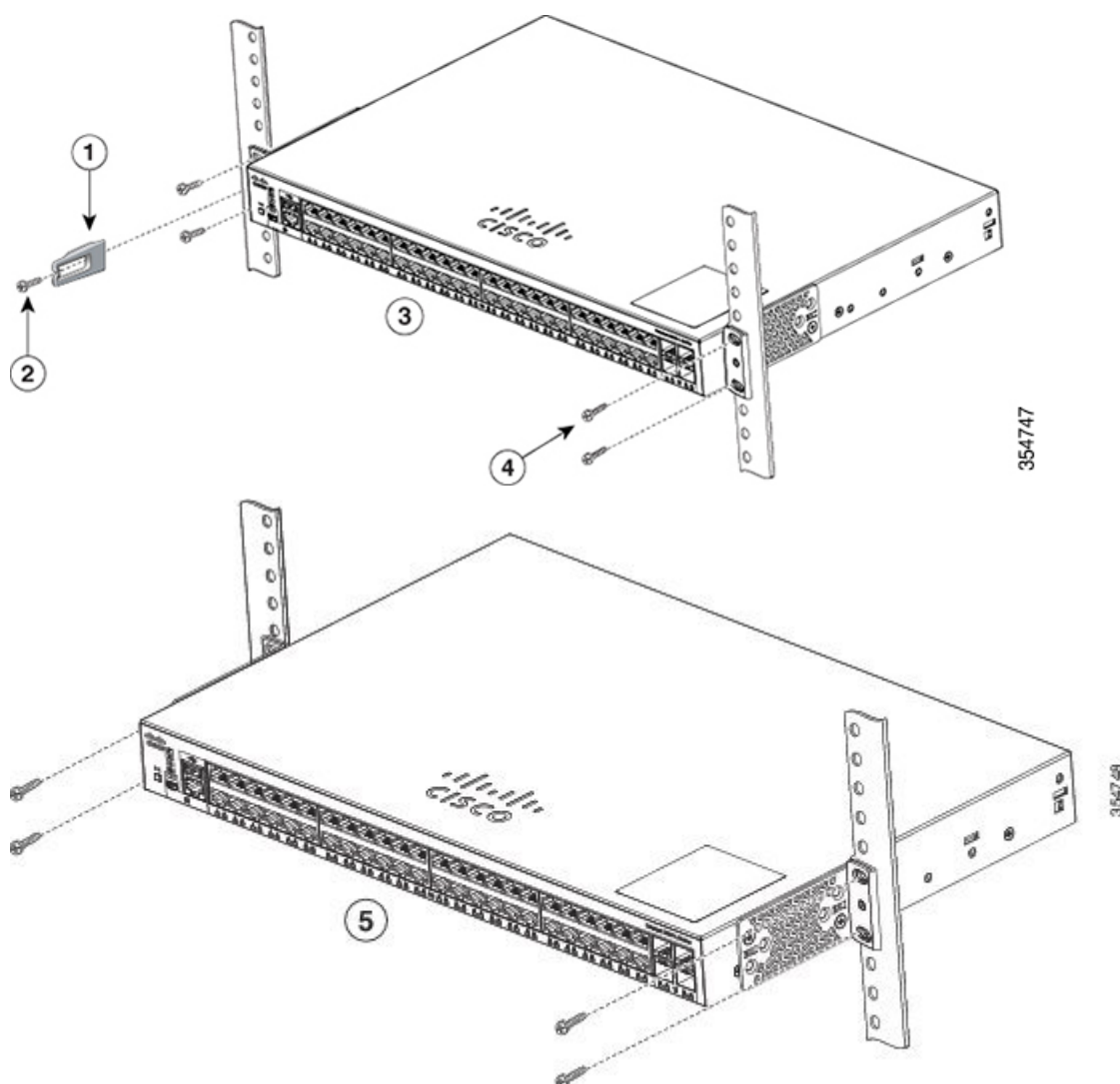
356996

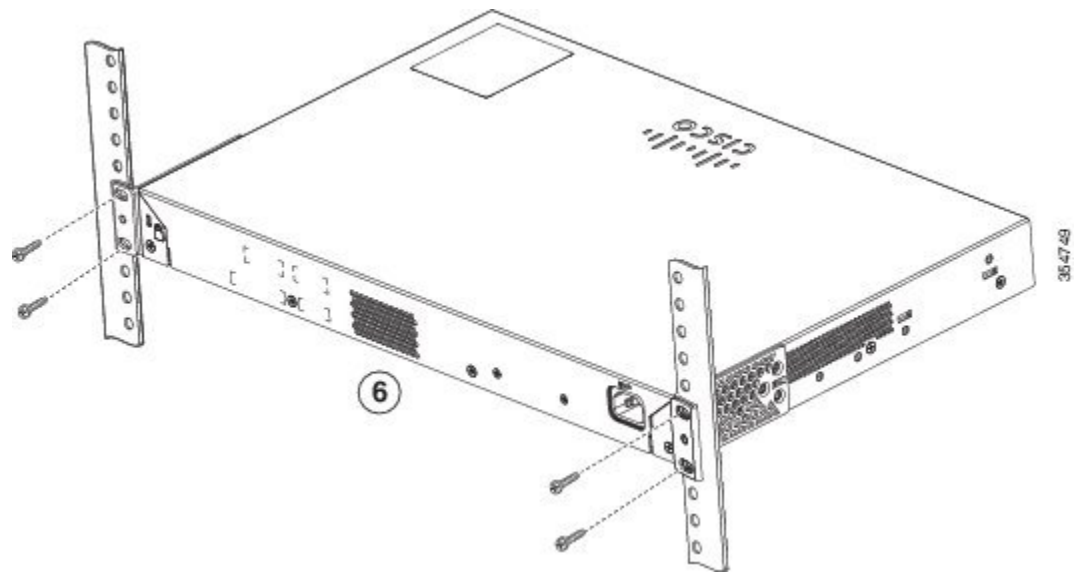| 1	Front-mounting position	3	Mid-mounting position
2	Number-8 Phillips flat-head screws	4	Rear-mounting position

Mounting a 24-Port or 48-Port Switch in a Rack

Procedure

Step 1 Use the four supplied Phillips machine screws to attach the brackets to the rack.

Step 2 Use the black Phillips machine screw to attach the cable guide to the left or right bracket.
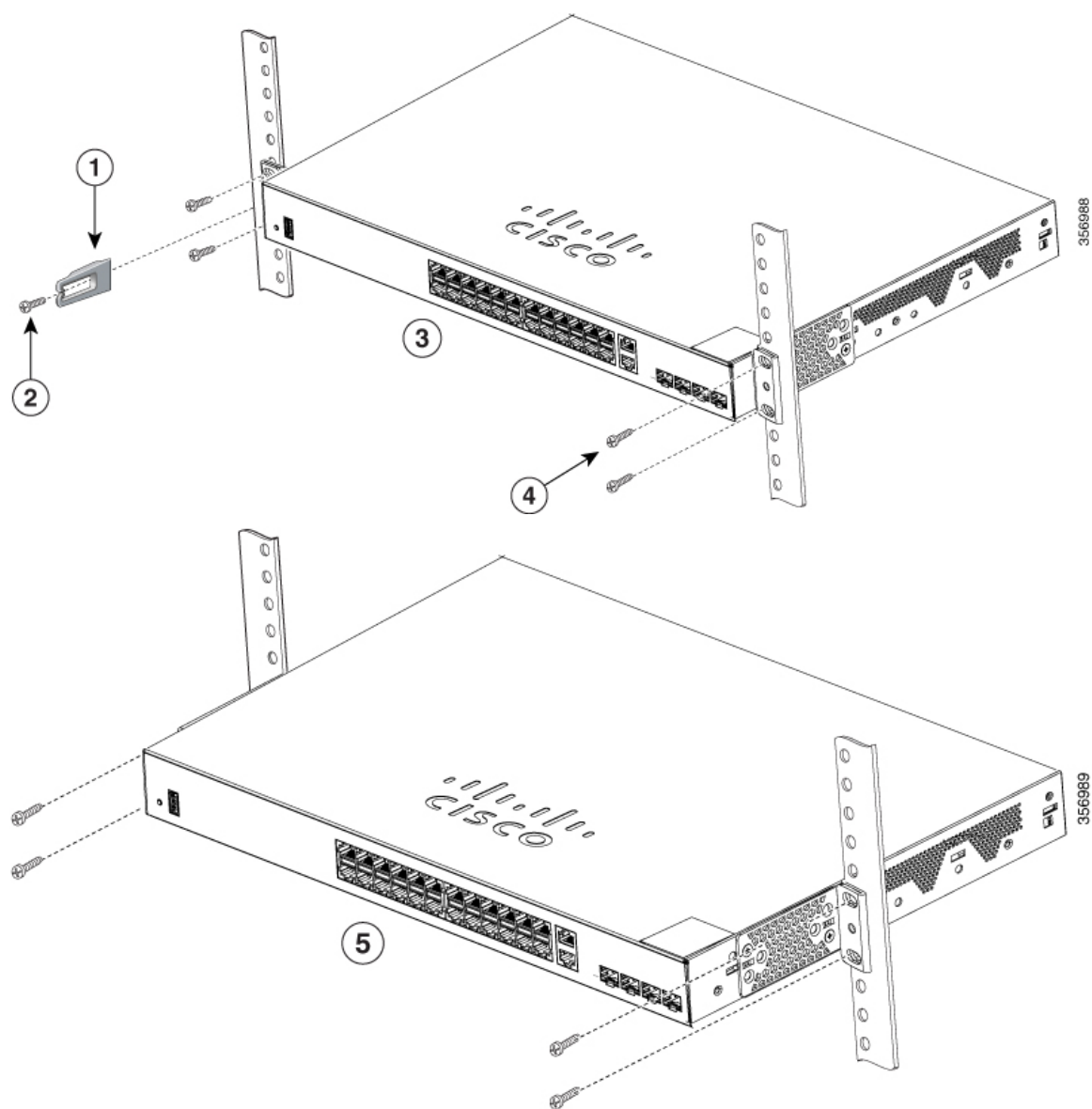
Figure 18: Mounting a Cisco Catalyst 1000 24-Port and 48-Port Switch in a Rack

1	Cable guide	4	Number-12 Phillips pan-head screws (48-0523-01) or Number-10 Phillips pan-head screws (48-0627-01)
2	Phillips machine screw, black (48-0654-01)	5	Mid-mounting position
3	Front-mounting position	6	Rear-mounting position

Figure 19: Mounting a Cisco Catalyst 1000 24-Port and 48-Port Fast Ethernet Switch in a Rack

| 1	Cable guide	4	Number-12 Phillips pan-head screws (48-0523-01) or Number-10 Phillips pan-head screws (48-0627-01)
2	Phillips machine screw, black (48-0654-01)	5	Mid-mounting position
3	Front-mounting position	6	Rear-mounting position

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**

Attaching the Brackets for Wall-Mounting

Procedure

Step 1 Attach a 19-inch bracket to one side of the switch.

Step 2 Follow the same steps to attach the second bracket to the opposite side.

Figure 20: Attaching the 19-inch Brackets for Wall-Mounting

1	Number-8 phillips flat-head screws (48-2927-01)
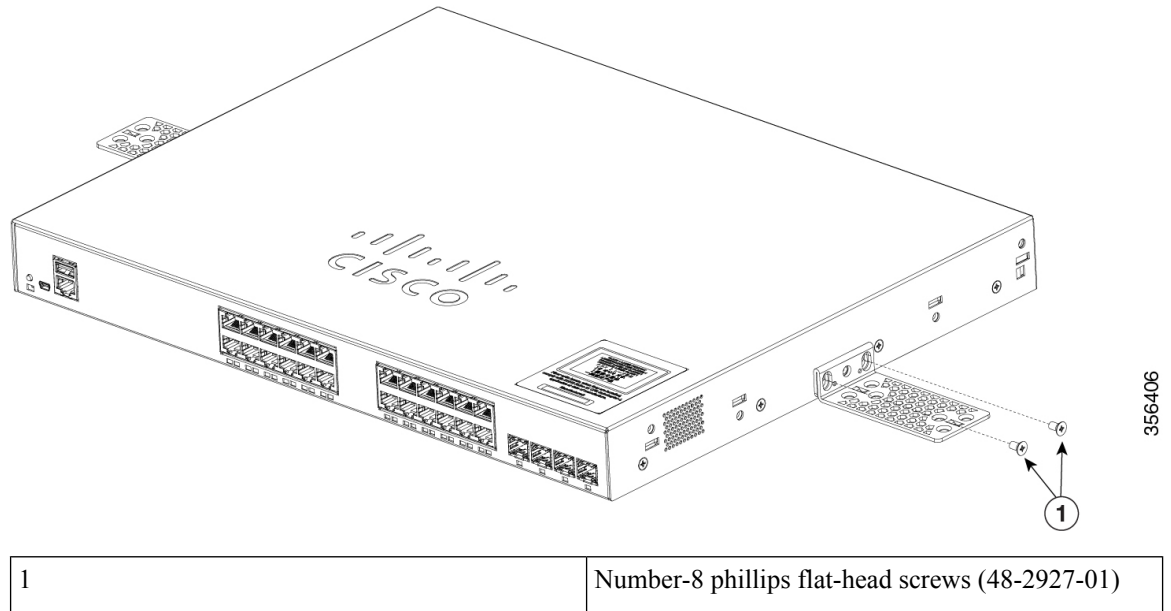
Mounting on a Wall

For the best support of the switch and cables, make sure that the switch is attached securely to wall studs or to a firmly attached plywood-mounting backboard. Mount the switch with the front panel facing down.

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   Following safety regulations, wall-mount the switch with its front panel facing down.

Figure 21: Mounting on a Wall
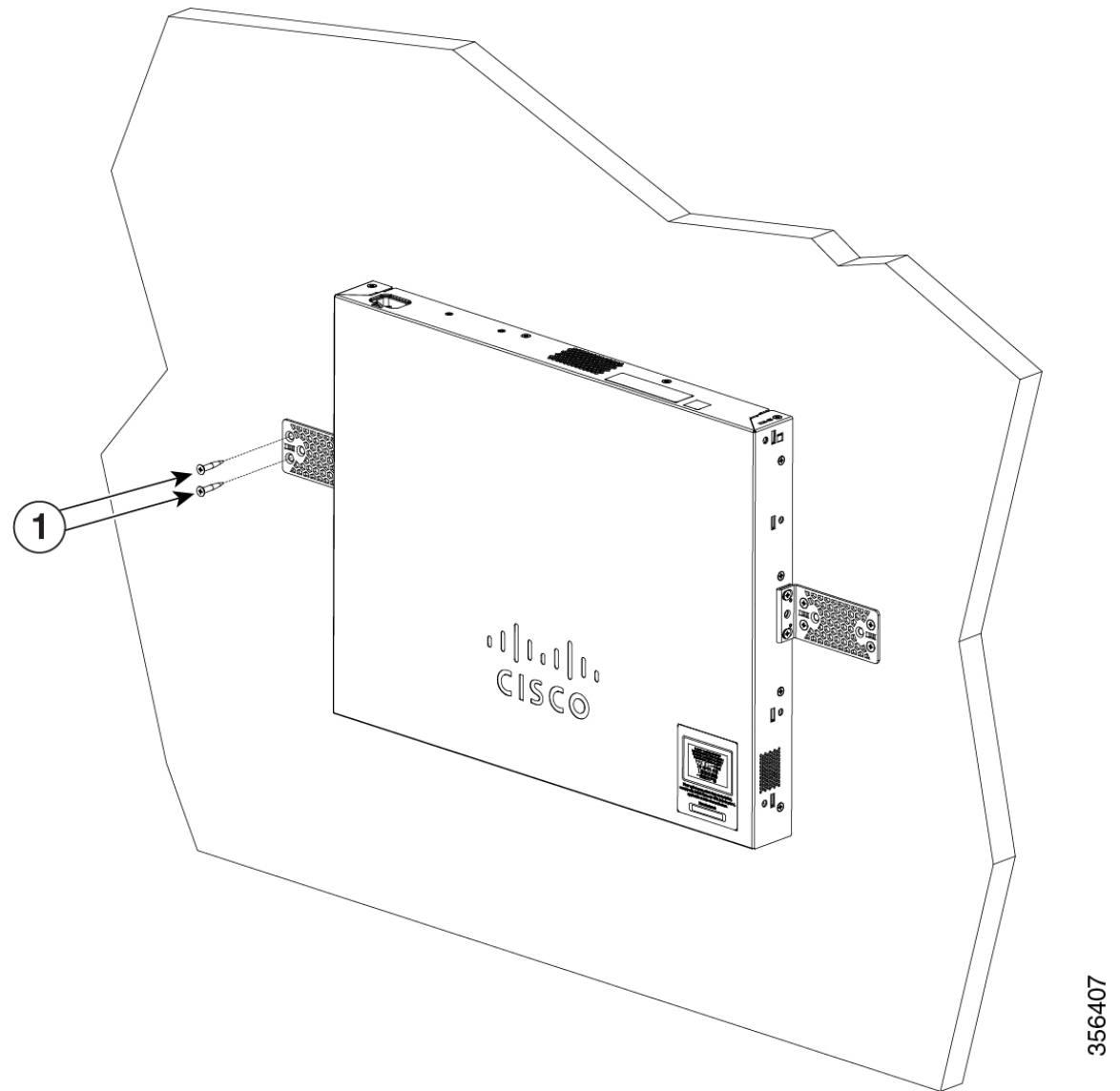
1	User-supplied screws (for example, you can use # 6 wood screws with a washer head 1-inch long).

When you complete the switch installation, see *After Switch Installation* for information on switch configuration.

Installing the Switch on a Table or Shelf

Procedure

Step 1   To install the switch on a table or shelf, locate the adhesive strip with the rubber feet in the mounting-kit envelope.

Step 2 Attach the four rubber feet to the four circular etches on the bottom of the chassis.

Step 3 Place the switch on the table or shelf near an AC power source.

Step 4 When you complete the switch installation, see *After Switch Installation* for information on switch configuration.

After Switch Installation

- Configure the switch using the Configuration Setup wizard to enter the initial switch configuration.

- Install the power cord retainer (optional).

- Connect to the front-panel ports.

Installing the Power Cord Retainer (Optional)

The power cord retainer is optional (part number [PWR-CLP=]). You can order it when you order your switch.

Procedure

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.

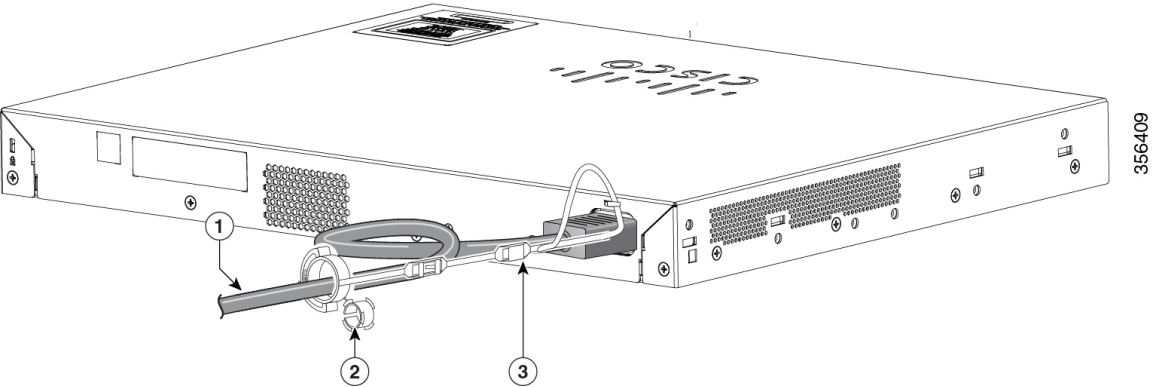**Step 2** Slide the retainer around the AC power cord, and pass it around the loop on the switch.

Figure 22: Inserting the Retainer Through the Lanced Loop
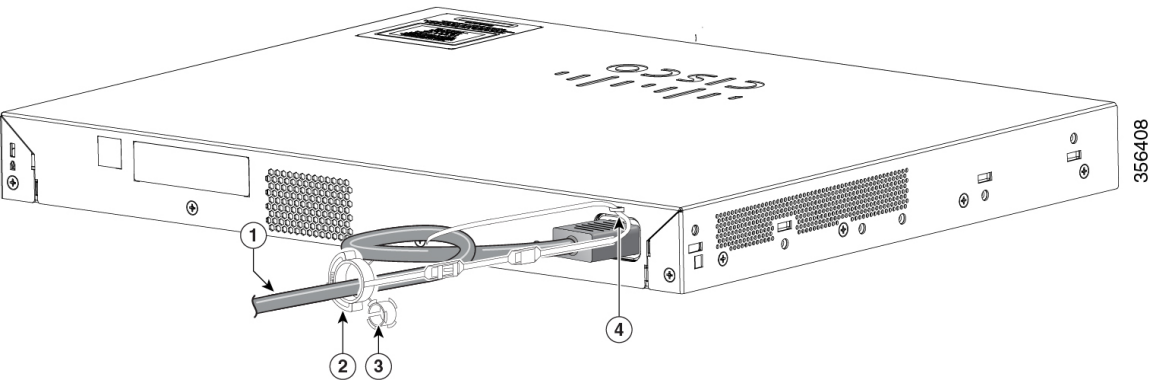
1	AC power cord	3	Sleeve for thinner power cords
2	Power cord retainer	4	Loop

Step 3 Slide the retainer through the first latch.

Figure 23: 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 24: Locking the Retainer
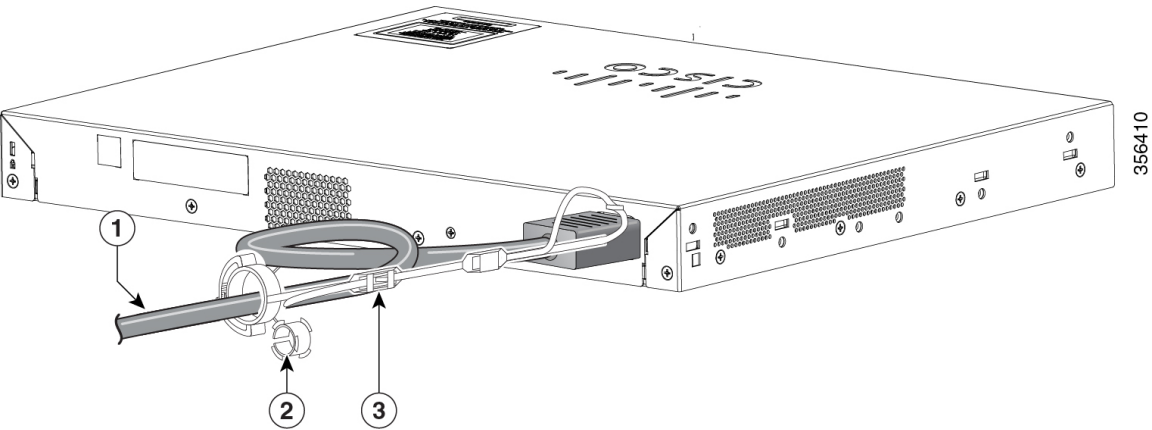
1	AC power cord	3	Latches
2	Sleeve for thin power cords		

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.
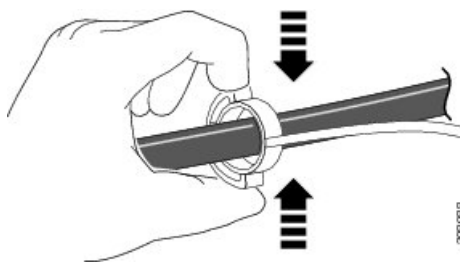
Figure 25: Sleeve Around the Power Cord
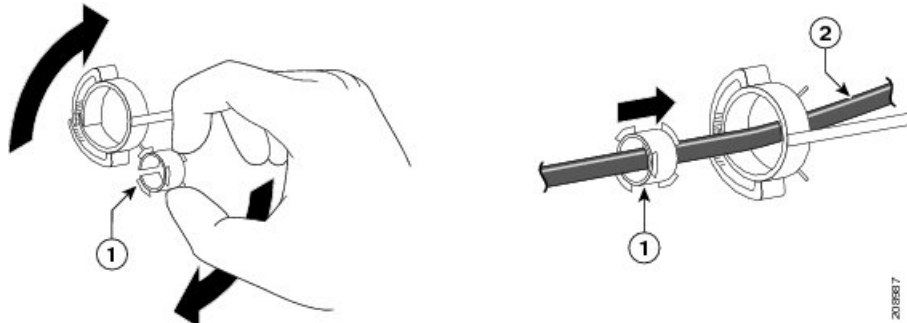
1	Sleeve for thin power cords	2	AC power cord

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

Figure 26: Securing the Power Cord in the Retainer

Installing 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.

Procedure

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 27: Installing an SFP Module
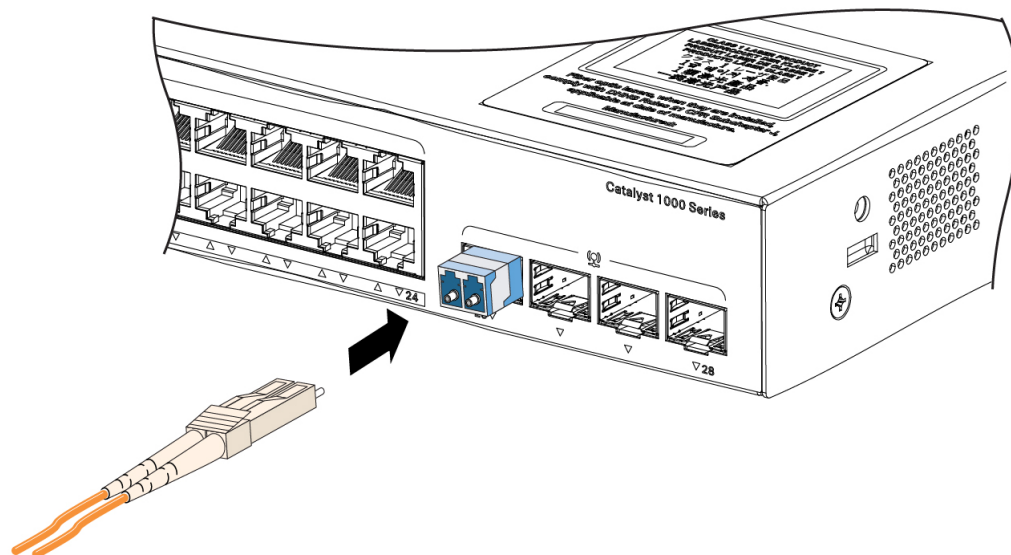
Removing an SFP or SFP+ Module

Procedure

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 or 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.

Connecting to SFP or SFP+ Modules

Connecting to Fiber-Optic SFP or SFP+ Modules

⚠

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

⚠

Caution   Do not remove the rubber plugs from the SFP or SFP+ module port or the rubber caps from the fiber-optic cable until you are ready to connect the cable. The plugs and caps protect the SFP module ports and cables from contamination and ambient light. Before connecting to the SFP module, be sure that you understand the port and cabling stipulations.

Procedure

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

Step 2   Insert one end of the fiber-optic cable into the SFP or SFP+ module port.

Step 3   Insert the other cable end into a fiber-optic receptacle on a target device.

Figure 28: Connecting to a Fiber-Optic SFP Module Port
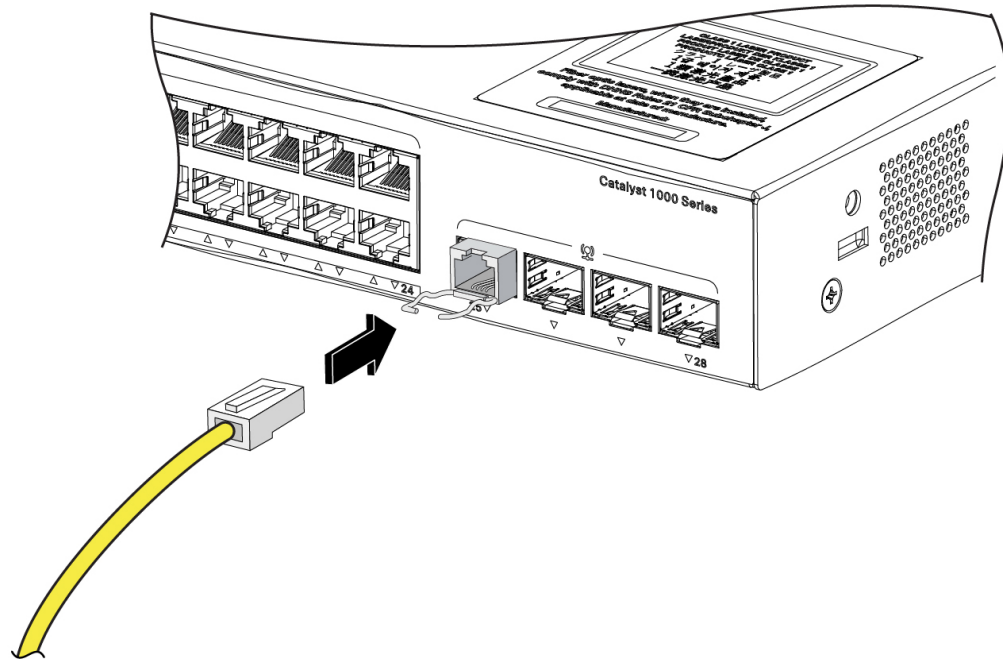
Step 4   Observe the port status LED.

The LED turns green when the switch and the target device have an established link.

If the LED is off, the target device might not be turned on, there might be a cable problem, or there might be problem with the adapter installed in the target device.

Connecting to 1000BASE-T SFP

When connecting to a 1000BASE-T device, be sure to use a four twisted-pair, Category 5 or higher cable.

Note   The automatic medium-dependent interface crossover (auto-MDIX) feature is enabled by default. For configuration information for this feature, see the switch software configuration guide or the switch command reference on Cisco.com.

Caution   To prevent ESD damage, follow your normal board and component handling procedures.

Procedure

Step 1   Connect one end of the cable to the SFP module port. Insert a four twisted-pair, straight-through cable when you connect to servers, workstations, and routers. Insert a four twisted-pair, crossover cable when you connect to switches or repeaters.

Step 2   Connect the other end of the cable to an RJ-45 connector on the other device.

Figure 29: Connecting to a 1000BASE-T SFP Module
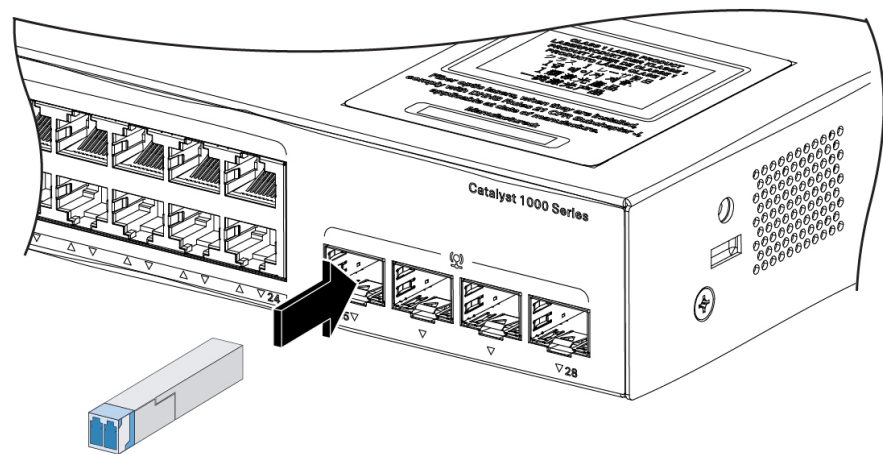
1	RJ-45 connector

Step 3   Observe the port status LED.

- The LED turns green when the switch and the other device have an established link.

- The LED turns amber while the STP discovers the network 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 4   If necessary, reconfigure and restart the switch or other device.

10/100/1000 PoE+ Port Connections

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

- Use the **show hardware led port power** privileged EXEC command 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.

10/100/1000 Ethernet Port Connections

The switch 10/100/1000 Ethernet 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 5: Recommended Ethernet Cables (When Auto-MDIX is Disabled)

Device	Crossover Cable	Straight-Through Cable
Switch to switch	Yes	No
Switch to hub	Yes	No
Switch to computer or server	No	Yes

Device	Crossover Cable	Straight-Through Cable
Switch to router	No	Yes
Switch to IP phone	No	Yes

[1] 100BASE-TX and 1000BASE-T traffic requires twisted four-pair, Category 5 or higher. 10BASE-T traffic can use Category 3 cable or higher.

Troubleshooting

This chapter contains these topics:

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

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

System 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 distance and port type. Ensure that the connected device ports match and use the same type of 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.

• Ensure 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.

• Check 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 **show hardware led port status** privileged EXEC command to check 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 **show hardware led port power** privileged EXEC command 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.

# 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.

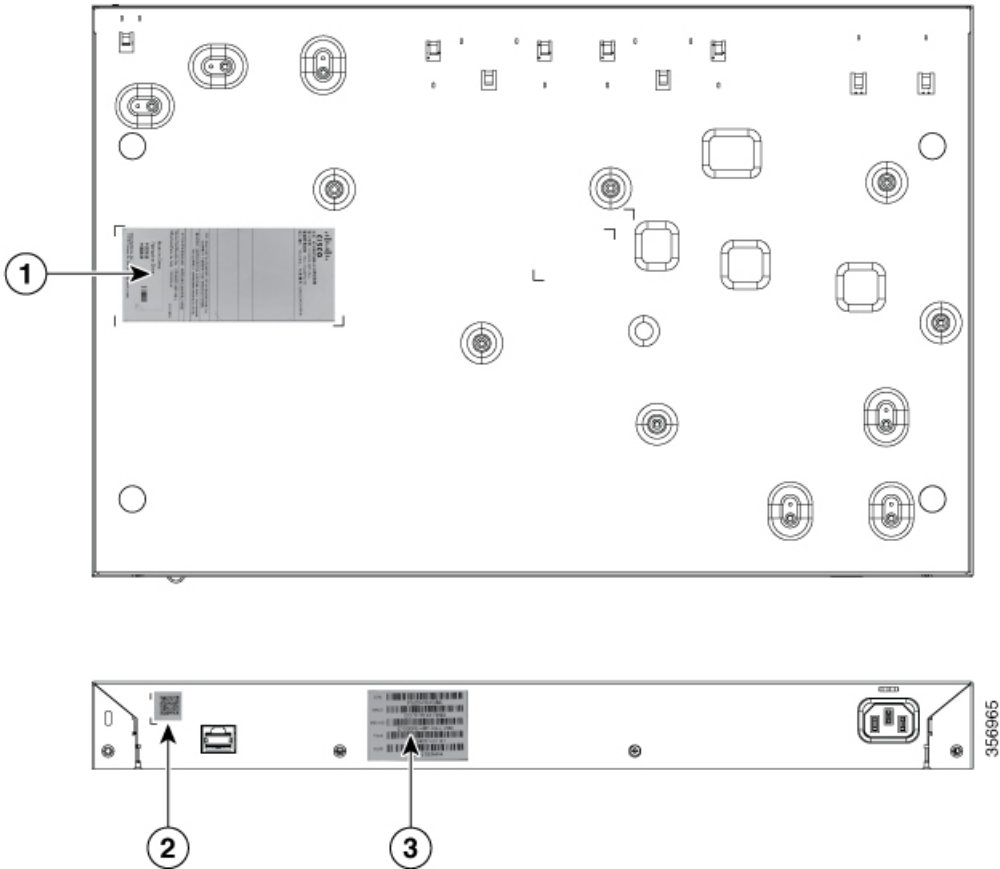*Figure 30: Serial Number Location on a 24-Port Cisco Catalyst 1000 Series Switch*
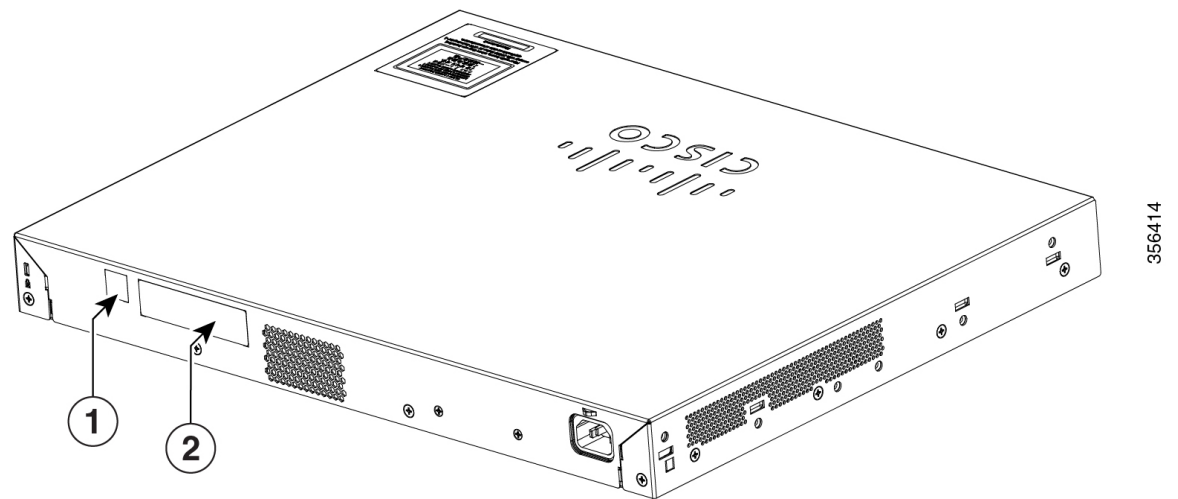
1	QR code	2	4 in 1 label (includes PID number, Serial number, MAC address, and CLEI code)

*Figure 31: Serial Number Location on a 48-Port Cisco Catalyst 1000 Series Switch*
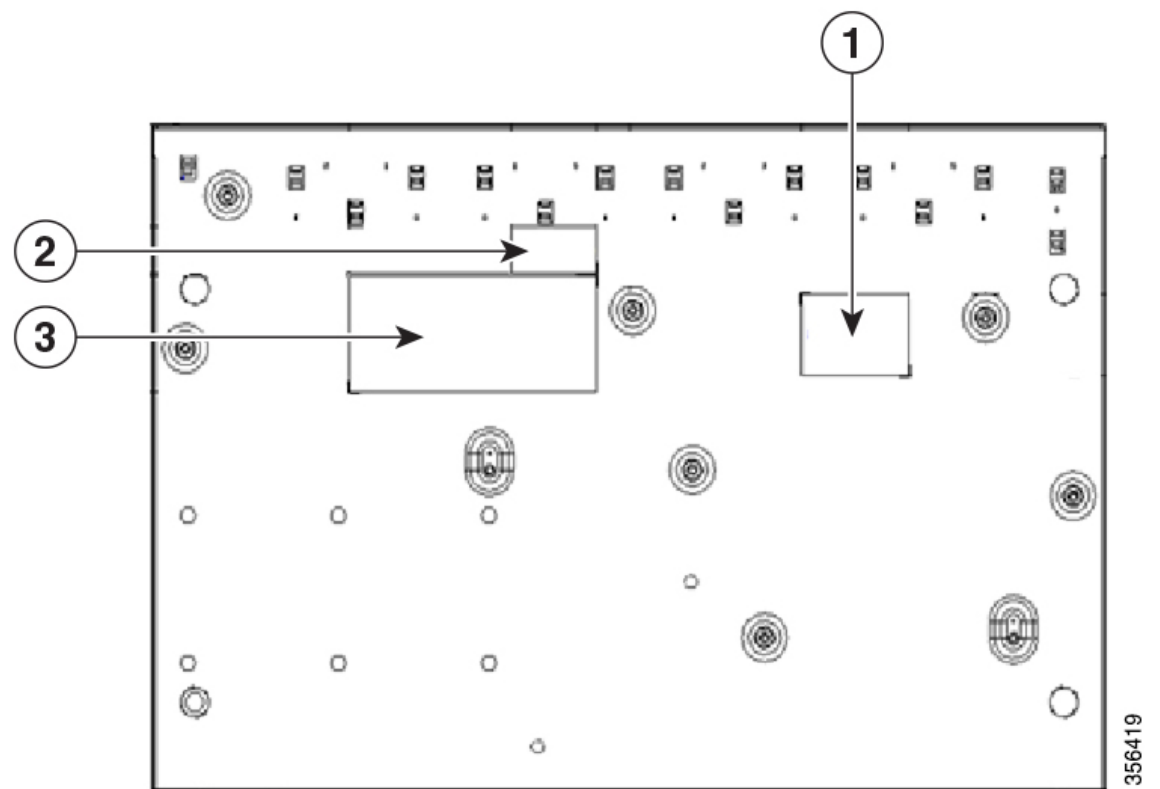
1	Serial number	3	Product label
2	MII label		

Figure 32: Serial Number Location on a 24-Port Cisco Catalyst 1000 Fast Ethernet Switch

1	Product label	3	4 in 1 label (includes PID number, Serial number, MAC address, and CLEI code)
2	QR code		

Figure 33: Serial Number Location on a 48-Port Cisco Catalyst 1000 Fast Ethernet Switch
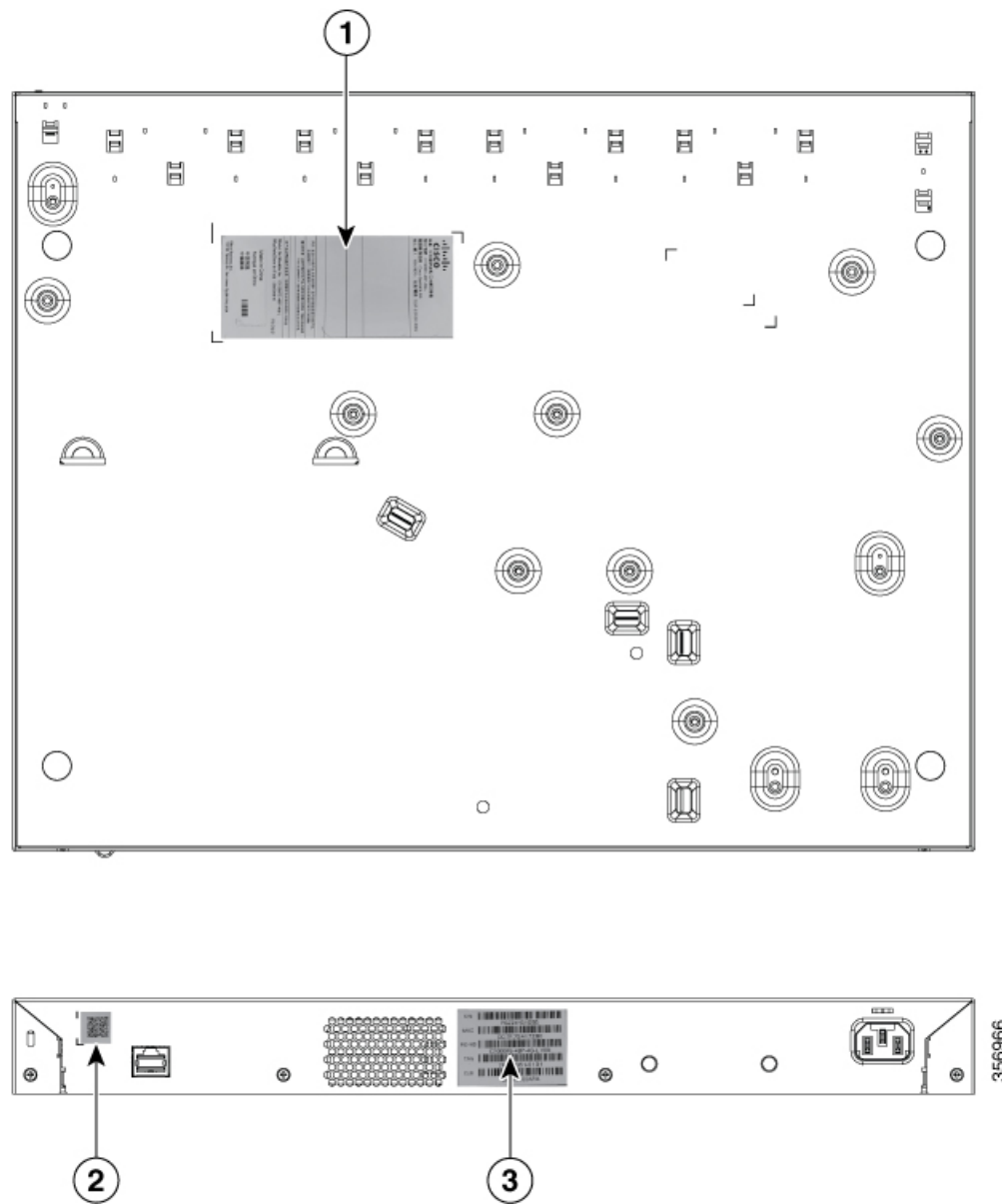
1	Product label	3	4 in 1 label (includes PID number, Serial number, MAC address, and CLEI code)
2	QR code		

APPENDIX **A**

Technical Specifications

This appendix contains these topics:

Physical Specifications

Physical Dimensions for Cisco Catalyst 1000 Series Switches	
Weight	• 5.79 lbs (2.63 kg) (C1000-24T-4G-L)
	• 7.78 lbs (3.53 kg) (C1000-24P-4G-L)
	• 10.14 lbs (4.6 kg) (C1000-24FP-4G-L)
	• 8.70 lbs (3.95 kg) (C1000-48T-4G-L)
	• 11.97 lbs (5.43 kg) (C1000-48P-4G-L)
	• 12.83 lbs (5.82 kg) (C1000-48FP-4G-L)
	• 6.12 lbs (2.78 kg) (C1000-24T-4X-L)
	• 8.11 lbs (3.68 kg) (C1000-24P-4X-L)
	• 10.14 lbs (4.6 kg) (C1000-24FP-4X-L)
	• 8.70 lbs (3.95 kg) (C1000-48T-4X-L)
	• 11.97 lbs (5.43 kg) (C1000-48P-4X-L)
	• 12.83 lbs (5.82 kg) (C1000-48FP-4X-L)

Dimensions (H x D x W)	• 17.5 x 9.45 x 1.73 in (C1000-24T-4G-L)
	• 17.5 x 11.76 x 1.73 in (C1000-24P-4G-L)
	• 17.5 x 13.59 x 1.73 in (C1000-24FP-4G-L)
	• 17.5 x 10.73 x 1.73 in (C1000-48T-4G-L)
	• 17.5 x 13.78 x 1.73 in (C1000-48P-4G-L)
	• 17.5 x 13.78 x 1.73 in (C1000-48FP-4G-L)
	• 17.5 x 9.45 x 1.73 in (C1000-24T-4X-L)
	• 17.5 x 11.76 x 1.73 in (C1000-24P-4X-L)
	• 17.5 x 13.59 x 1.73 in (C1000-24FP-4X-L)
	• 17.5 x 10.73 x 1.73 in (C1000-48T-4X-L)
	• 17.5 x 13.78 x 1.73 in (C1000-48P-4X-L)
	• 17.5 x 13.78 x 1.73 in (C1000-48FP-4X-L)

Physical Dimensions for Cisco Catalyst 1000 Series Fast Ethernet Switches	
Weight	• 7.85 lbs (3.56 kg) (C1000FE-24T-4G-L)
	• 9.96 lbs (4.52 kg) (C1000FE-24P-4G-L)
	• 8.75 lbs (3.97 kg) (C1000FE-48T-4G-L)
	• 12.03 lbs (5.46 kg) (C1000FE-48P-4G-L)
Dimensions (H x D x W)	• 17.32 x 11.34 x 1.73 in (C1000FE-24T-4G-L)
	• 17.48 x 13.78 x 1.73 in (C1000FE-24P-4G-L)
	• 17.32 x 11.34 x 1.73 in (C1000FE-48T-4G-L)
	• 17.48 x 13.78 x 1.73 in (C1000FE-48P-4G-L)

Environmental Specifications

Environmental Ranges	
Operating temperature [2]	23 to 122°F (–5 to 50°C) up to 5,000 ft (1524 m)
Storage temperature	-13º to 158ºF (-25º to 70ºC) up to 15,000 ft (4572 m)
Operating relative humidity	5% to 90% (noncondensing)
Storage relative humidity	5% to 95% (noncondensing)

Environmental Ranges	
Storage altitude	Up to 15,000 ft (4572 m)

[2] Minimum ambient temperature for cold start is 32°F (0°C)

Note When using C1000-24T-4X-L and C1000-24P-4X-L switches with SFP-10G-ER or SFP-10G-ER-S SFP+ module, the thermal limitations are as follows:

- Up to 5,000 ft (1524 m), the operating temperature should not exceed 113°F (45°C).

- Up to 10,000 ft (3048 m), the operating temperature should not exceed 104°F (40°C).

When using C1000-24T-4G-L and C1000-24P-4G-L switches with GLC-BX-U or GLC-BX-D SFP module, the thermal limitations are as follows:

- Up to 5,000 ft (1524 m), the operating temperature should not exceed 113°F (45°C).

- Up to 10,000 ft (3048 m), the operating temperature should not exceed 104°F (40°C).

Power Requirements

Table 6: Power Requirements for Cisco Catalyst 1000 24-Port and 48-Port Switch Models

Switch Model	Voltage (auto ranging)	Frequency	Current	Power Rating (maximum consumption)
C1000-24T-4G-L	110 to 220V AC in	50 to 60 Hz	0.29A to 0.47A	0.08 kVA
C1000-24T-4X-L	110 to 220V AC in	50 to 60 Hz	0.29A to 0.51A	0.08 kVA
C1000-24P-4G-L	110 to 220V AC in	50 to 60 Hz	1.316A to 2.314A	0.45 kVA
C1000-24P-4X-L	110 to 220V AC in	50 to 60 Hz	1.316A to 2.314A	0.45 kVA
C1000-24FP-4G-L	110 to 220V AC in	50 to 60 Hz	2.07A to 4.25A	0.8 kVA
C1000-24FP-4X-L	110 to 220V AC in	50 to 60 Hz	2.07A to 4.25A	0.8 kVA
C1000-48T-4G-L	110 to 220V AC in	50 to 60 Hz	0.74A to 1.29A	0.06 kVA
C1000-48T-4X-L	110 to 220V AC in	50 to 60 Hz	0.74A to 1.29A	0.06 kVA
C1000-48P-4G-L	110 to 220V AC in	50 to 60 Hz	0.42A to 0.74A	0.5 kVA
C1000-48P-4X-L	110 to 220V AC in	50 to 60 Hz	0.42A to 0.74A	0.5 kVA
C1000-48FP-4G-L	110 to 220V AC in	50 to 60 Hz	0.45A to 0.94A	0.95 kVA
C1000-48FP-4X-L	110 to 220V AC in	50 to 60 Hz	0.45A to 0.94A	0.95 kVA

Table 7: Power Requirements for Cisco Catalyst 1000 24-Port and 48-Port Fast Ethernet Switch Models

Switch Model	Voltage (auto ranging)	Frequency	Current	Power Rating (maximum consumption)
C1000FE-24T-4G-L	100 to 240V AC in	50 to 60 Hz	0.12A to 0.34A	0.02 kVA
C1000FE-24P-4G-L	100 to 240V AC in	50 to 60 Hz	0.23A to 0.35A	0.25 kVA
C1000FE-48T-4G-L	100 to 240V AC in	50 to 60 Hz	0.24A to 0.69A	0.03 kVA
C1000FE-48P-4G-L	100 to 240V AC in	50 to 60 Hz	0.26A to 0.46A	0.46 kVA

PoE Power Consumption

Table 8: PoE Power Consumption for Cisco Catalyst 1000 24-Port and 48-Port Switch Models

Switch Model	Consumption without PoE (Watts)	Consumption with PoE (Watts)	Available PoE	Maximum Power Wattage for BTU/hr
C1000-24T-4G-L	22.8	-	-	25.9
C1000-24T-4X-L	25.68	-	-	29.1
C1000-24P-4G-L	23.16	218.16	195	54.2
C1000-24P-4X-L	25.68	220.68	195	57.9
C1000-24FP-4G-L	35.4	405.4	370	94
C1000-24FP-4X-L	36	406	370	94.5
C1000-48T-4G-L	53.66	-	-	64.83
C1000-48T-4X-L	54.73	-	-	65.20
C1000-48P-4G-L	54.25	434.01	370	500.4
C1000-48P-4X-L	54.49	435.09	370	500.3
C1000-48FP-4G-L	61.66	809.66	740	955.67
C1000-48FP-4X-L	62.26	810.73	740	957.53

Table 9: PoE Power Consumption for Cisco Catalyst 1000 24-Port and 48-Port Fast Ethernet Switch Models

Switch Model	Consumption without PoE (Watts)	Consumption with PoE (Watts)	Available PoE	Maximum Power Wattage for BTU/hr
C1000FE-24T-4G-L	19.79	-	-	19.79
C1000FE-24P-4G-L	35.05	248.52	195	248.52

Switch Model	Consumption without PoE (Watts)	Consumption with PoE (Watts)	Available PoE	Maximum Power Wattage for BTU/hr
C1000FE-48T-4G-L	34.96	-	-	34.96
C1000FE-48P-4G-L	48.09	464.57	370	464.57

Connector and Cable Specifications

This appendix contains these topics:

Connector Specifications

10/100/1000 Ports (Including PoE)

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

Figure 34: 10/100/1000 Port Pinouts

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

SFP Module Connectors

Figure 35: Duplex LC Cable Connector
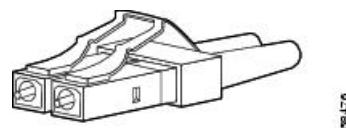
Figure 36: Simplex LC Cable Connector
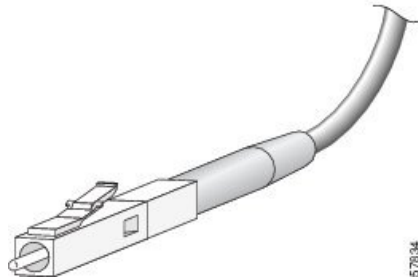
Figure 37: Copper SFP Module LC Connector

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-	

Cables and Adapters

SFP Module Cables

For cabling specifications, refer to the following notes:

Cisco SFP Transceiver Module Installation Notes

Each port must match the wavelength 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 38: Four Twisted-Pair Straight-Through Cable Schematic
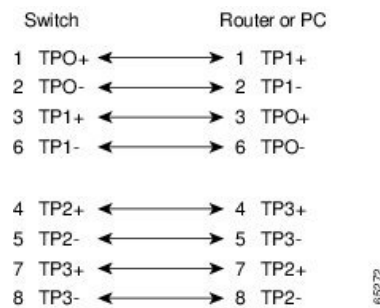
Figure 39: Four Twisted-Pair Semi-Cross Cable Schematic
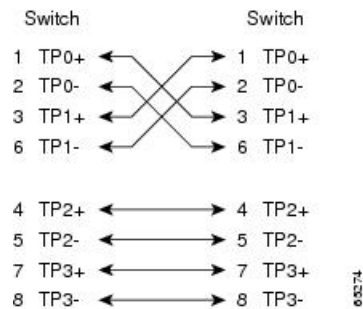
Figure 40: Two Twisted-Pair Straight-Through Cable Schematic
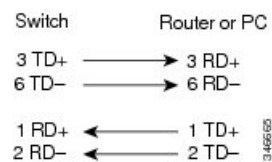
Figure 41: Two Twisted-Pair Crossover Cable Schematic
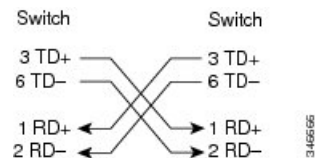
Identifying a Crossover Cable

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 42: Identifying a Crossover Cable

Pin 1 on one connector and pin 8 on the other connector should be the same color.

Pin 1 → ← Pin 8

346667
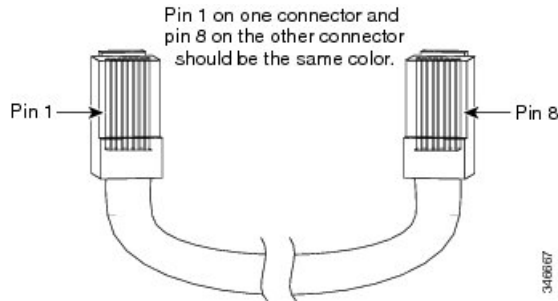
Console Port Adapter Pinouts

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 10: 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
RxD	3	TxD
DSR	4	DTR
CTS	7	RTS

Table 11: 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

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

APPENDIX C

Configuring the Switch

This appendix contains these topics:

Configuring the Switch Using the Configuration Setup Wizard

Quick Setup: Accessing the Configuration Setup Wizard

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

Note If your device supports Bluetooth, it loads with the initial setup tasks preconfigured. Connect your PC to the device using Bluetooth. In your Web browser, enter the IP address 172.16.0.1. Enter the following default credentials: username: cisco, password: cisco and press **Enter**.
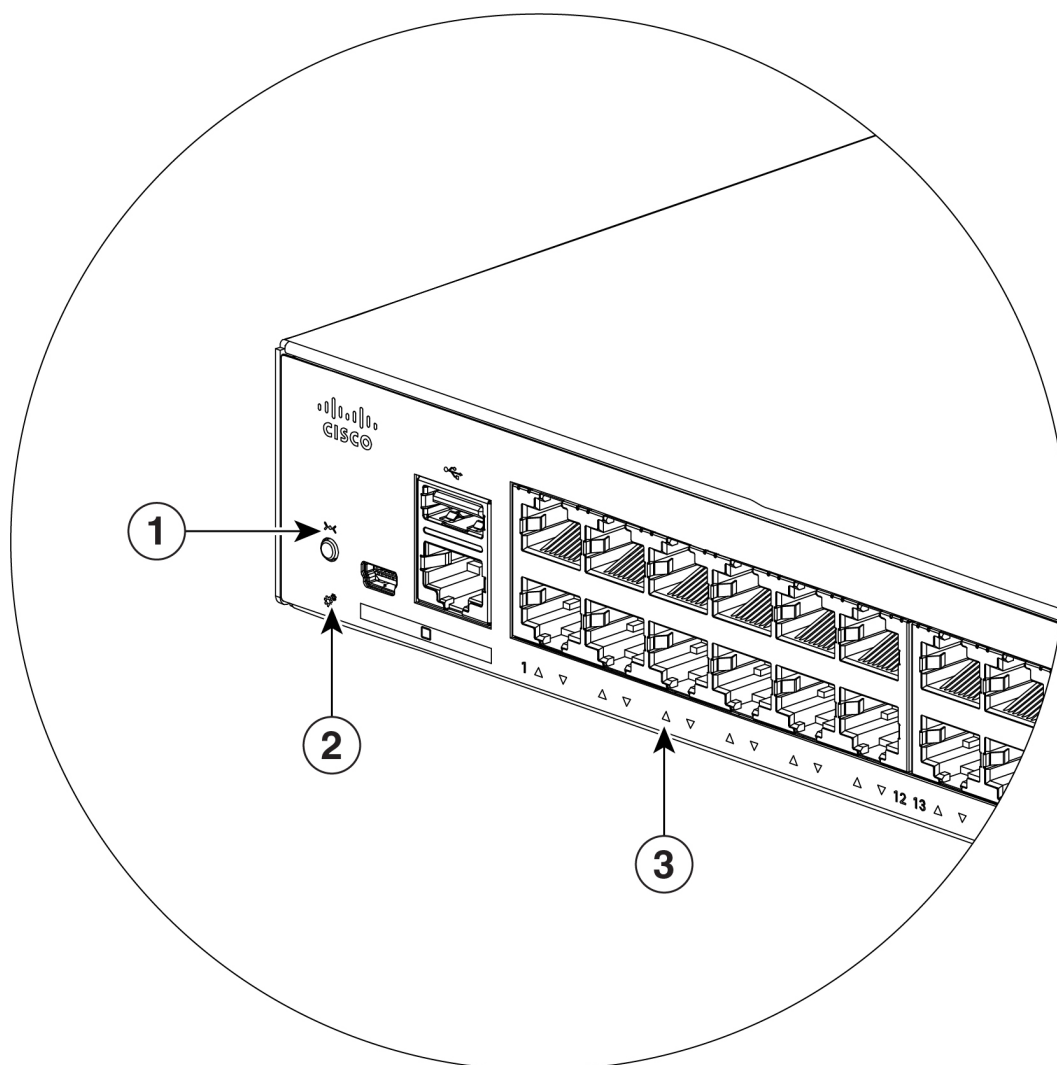
1	Reset button
2	SYST LED (system)
3	Port LEDs

Before you Begin: If your PC has a static IP address, change your PC settings to temporarily use DHCP.

Procedure

Step 1   Verify that no devices are connected to the switch. Initially, the switch acts as a DHCP server.

Step 2   Confirm that the STAT LED is solid green. This indicates that POST is complete. If the STAT LED turns amber, the device failed POST. Reconnect the AC power cord to the AC power connector of your device and to a grounded AC outlet. If the STAT LED still does not turn green, contact your Cisco representative or retailer.

Step 3   Press and hold the **Reset** button for 3 to 4 seconds and release it.

Caution: Release the **Reset** button after 3 to 4 seconds. Continuing to hold the **Reset** button for longer exits the Setup mode.

Step 4   Connect a straight-through Category 5 Ethernet cable to a 10/100/1000 Ethernet port on the switch front panel and to the Ethernet port on the PC.

Step 5   Verify that the port LEDs on the PC and on your device are solid green or blinking green. This indicates a successful connection.

Step 6   Wait 30 seconds.

Step 7   To log on to the device using an Internet browser on your PC, type the IP address 10.0.0.1 or 10.0.0.3 in the address bar of your Internet browser and press Enter.

Step 8   Type the following default credentials: username: cisco, password: cisco and press **Enter**.
The Configuration Setup wizard is displayed. Click **Go to Wizard**.

Completing the Configuration Setup Wizard

Completing the Configuration Setup Wizard enables you to set up your device with the minimum configuration required to enable traffic to pass through the network. To achieve this, you must complete the following setup tasks as you proceed with the Configuration Setup Wizard.

- Basic Device Settings

- Interfaces

- Layer 3 Settings

- Advanced Device Settings

For more information on the configuration steps involved in completing the Configuration Setup Wizard, see *User Guide for Cisco Configuration Professional for Catalyst* .

Configuring the Switch Using the CLI

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

Procedure

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.

Connecting the USB Console Port

Procedure

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 69.

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

Procedure

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

Procedure

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 7 USB Driver

Procedure

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 7, double-click the setup.exe file in the Windows_32 folder. If using 64-bit 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.

Procedure

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.

Procedure

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 7 USB Driver

Before you begin

Disconnect the switch console terminal before uninstalling the driver.

Procedure

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.**