



Catalyst Digital Building Series Switch Hardware Installation Guide

First Published: 2017-05-19

Americas Headquarters

Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
<http://www.cisco.com>
Tel: 408 526-4000
800 553-NETS (6387)
Fax: 408 527-0883

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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 (Ctrl) key on a keyboard. For example, the key combination <code>^D</code> 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 .
<i>Italic font</i>	Document titles, new or emphasized terms, and arguments for which you supply values are in <i>italic font</i> .
<code>Courier font</code>	Terminal sessions and information the system displays appear in <code>courier font</code> .
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.

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

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>

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CHAPTER

1

Product Overview

The Cisco Catalyst Digital Building Series Switch is an Ethernet switch designed to enable wired Ethernet, Power over Ethernet(PoE), and Universal Power Over Ethernet(UPOE) deployments for digitizing commercial building subsystems, especially with applications such as Network Powered Lighting, HVAC controls, and security. For simplicity, we will focus on the Network Powered Lighting use case in this guide to elaborate the use of the switch. Network Powered Lighting refers to configuring IP and Ethernet LED-based luminaries and sensors for smart lighting and building controls in an enterprise carpeted space.

Cisco Catalyst Digital Building Series Switches enable and drive this convergence of smart lighting and building systems to IP over PoE technology.

Cisco Catalyst Digital Building Series Switches provide support for the following features:

- Eight Fast Ethernet downlink ports
- Two Gigabit Ethernet uplinks
- Power over Ethernet Plus (PoE+) support up to 240W of PoE budget with the PoE/PoE+ switch model and up to 480W of PoE budget with the UPOE switch model
- Reduced power consumption and advanced energy management
- RJ-45 and USB Micro-Type B console ports
- File system support on USB Type A port

- [Switch Models, page 2](#)
- [Front Panel, page 2](#)
- [Rear Panel, page 11](#)
- [Network Configurations, page 12](#)

Switch Models

Table 1: Cisco Catalyst Digital Building Series Switch Models and Description

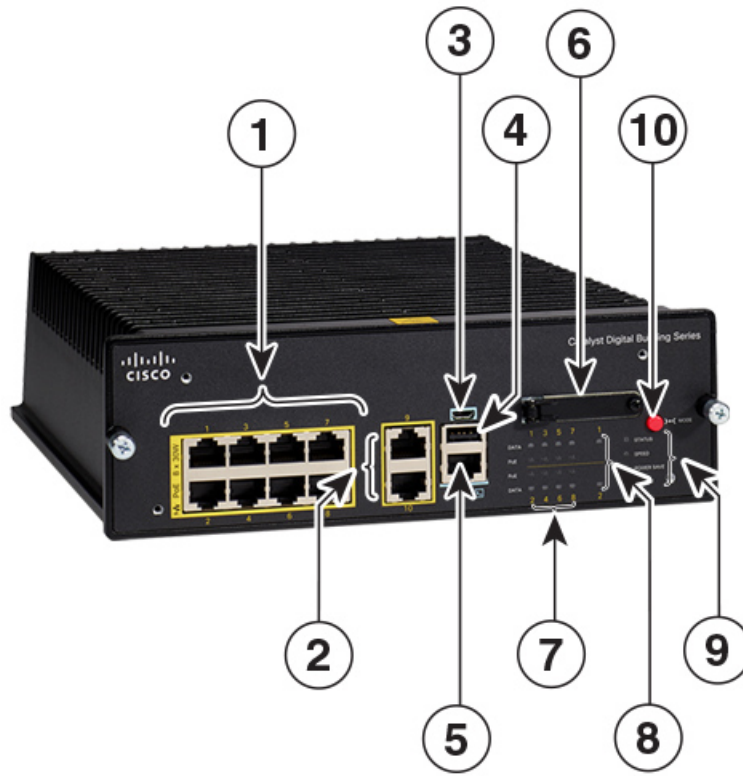
Switch Model	Software Image	Description
CDB-8U	LAN Lite	Eight Fast Ethernet downlink UPOE ports; two 1-Gigabit Ethernet uplink ports; 545W Power Supply.
CDB-8P	LAN Lite	Eight Fast Ethernet downlink PoE+ ports; two 1-Gigabit Ethernet uplink ports; 280W Power Supply.

Front Panel

This section describes the front panel components of a Catalyst Digital Building Series Switch.

Catalyst Digital Building Series PoE/PoE+ Switch	Catalyst Digital Building Series UPOE Switch
Eight downlink Fast Ethernet PoE+ ports	Eight downlink Fast Ethernet UPOE ports
Two copper uplink Gigabit Ethernet ports	Two copper uplink Gigabit Ethernet ports
Mode button	Mode button
RJ-45 console port	RJ-45 console port
USB micro-Type B (console) port	USB micro-Type B (console) port
USB Type A port	USB Type A port
LEDs	LEDs
SD card slot	SD card slot

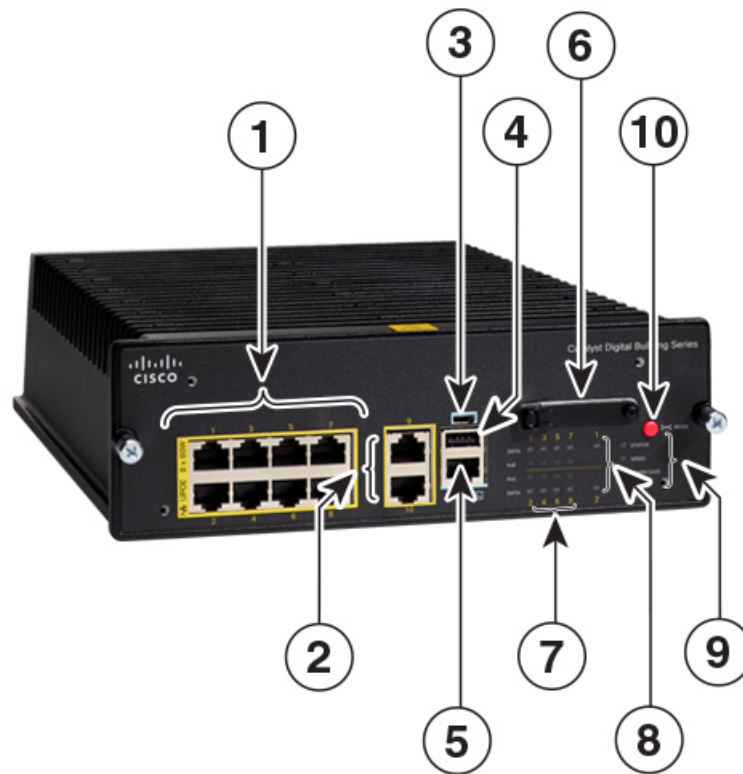
Figure 1: Front Panel of a Catalyst Digital Building Series PoE/PoE+ Switch



35-4996

1	Downlink PoE+ ports	6	SD card slot
2	Uplink Gigabit Ethernet ports	7	Downlink port Data and PoE LEDs
3	USB micro - Type B (console) port	8	Uplink port data LEDs
4	USB Type A port	9	System LEDs
5	RJ-45 Console port	10	Mode button

Figure 2: Front Panel of a Catalyst Digital Building Series UPOE Switch



354997

1	Downlink UPOE ports	6	SD Card Slot
2	Uplink Gigabit Ethernet ports	7	Downlink port data and PoE LEDs
3	USB micro-Type B (console) port	8	Uplink port data LEDs
4	USB Type A port	9	System LEDs
5	RJ-45 Console port	10	Mode button

PoE, PoE+ and UPOE Ports

The ports on the PoE/PoE+ switch provide PoE+ support for devices compliant with IEEE 802.3af and IEEE 802.3at and also provide PoE support for Cisco IP Phones and LED Luminaries. The PoE switch ports are Power Source equipment (PSE) capable and source power to PD devices (Luminaries) connected to the

downlink ports. The switch can source PoE power of up to 30W per port, with a total budget of 240W for the entire switch.

The UPOE ports provide support for Cisco UPOE and each port can deliver a power of up to 60W, with a total budget of 480W for the entire switch.

The PoE and UPOE ports use RJ-45 connectors with Ethernet pinouts. Luminaries are connected to PoE and UPOE switches using CAT5/CAT6 cables and they are controlled through IP.

Gigabit Uplink Ports

The copper gigabit uplink ports support speed up to 1000Mbps.

Console Ports

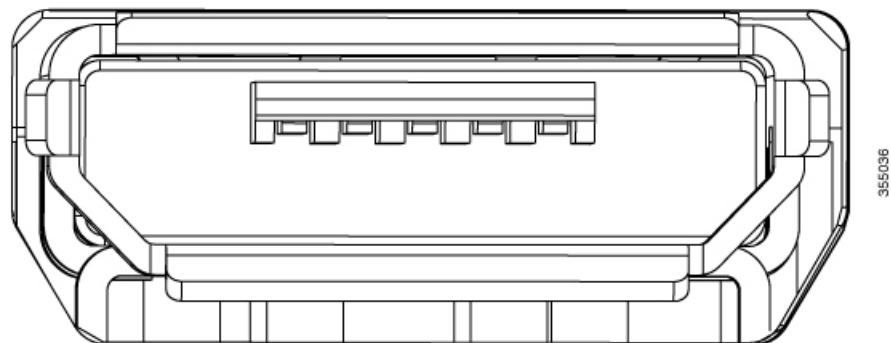
The console ports connect the switch to a PC running Microsoft Windows or to a terminal server.

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

If you use the USB micro-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.

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

Figure 3: USB Micro-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 Configuration Guide, Cisco IOS Release 15.2(5)EX (Cisco Catalyst Digital Building Switches).

USB Type A Port

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

The port supports 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.

The port supports USB Bluetooth devices. The USB Bluetooth device acts as a Bluetooth host and serves as either a serial port or a management port connection. You can pair it with your Bluetooth smart phone, laptop, or tablet.

SD Flash Memory Card Slot

The switch supports a Secure Digital(SD) flash memory card that makes it possible to replace a failed switch without reconfiguring the new switch. A cover protects the flash card and holds the card firmly in place. The cover is hinged and closed with a captive screw. This prevents the card from becoming loose and protects against shock and vibration.

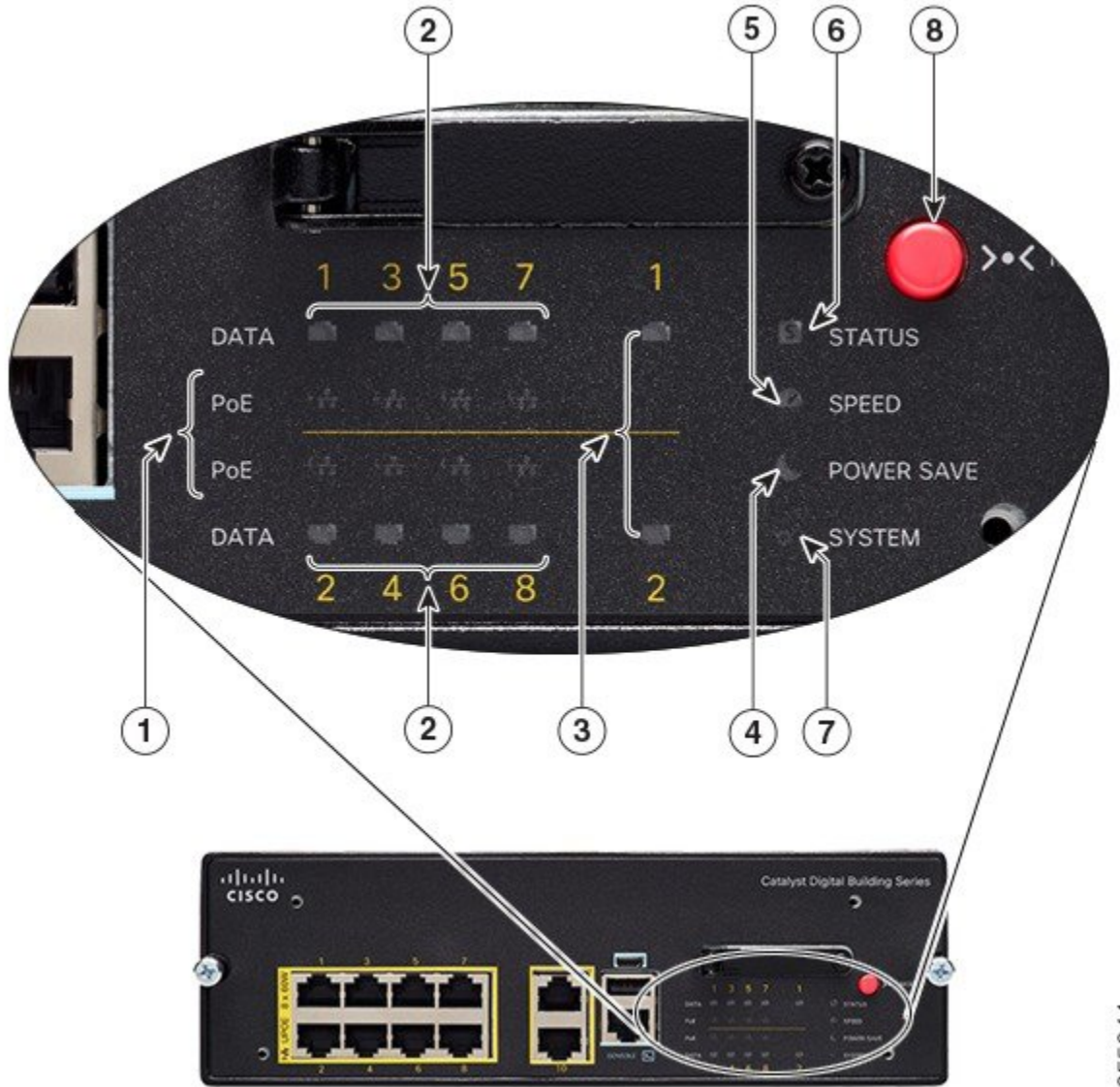
Up to 2GB of Cisco SD memory card is supported.

LEDs

You can use the switch system and port LEDs to monitor switch activity and performance. The LEDs remain off by default when switch is powered on. Press the Mode button to turn on the LEDs.

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







1	Downlink Port PoE LEDs	5	STATUS LED
2	Downlink Port Data LEDs	6	MODE button
3	Uplink Port Data LEDs	7	POWER SAVE LED
4	SPEED LED	8	SYSTEM LED



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Downlink Port Data LEDs

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





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.
Blinking 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.

Downlink Port PoE LEDs



Color	Description
Off	PoE is not enabled.
Green 	PoE is enabled. Ports are functioning correctly.
Blinking amber 	<ul style="list-style-type: none"> • PoE port has been denied power. • PoE port has a PoE fault.

Uplink Port Data LEDs


LED Color	Description
Off	No link or port was administratively shut down.

LED Color	Description
Green 	Link present but is not sending or receiving data.
Blinking green 	Activity. Port is sending or receiving data.
Blinking 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.


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.


Status LED

Color	Description
Off	Status Mode disabled.
Green 	Status Mode Enabled. Port LEDs function as described in Downlink Port Data LEDs and Uplink Port Data LEDs section.

Speed LED

Color	Description
Off	Speed Mode Disabled.
Green 	Speed Mode Active. Port LEDs indicate port speed as follows: <ul style="list-style-type: none"> • Downlink: Green = 100 Mbps, Amber = 10 Mbps, Off = No Link • Uplink: Green = 1000 Mbps, Amber = 100 Mbps, Off = 10 Mbps or No Link

Power Save LED

Color	Description
Off	System is running normally
Green 	System is in a deep sleep mode.

Mode Button

The mode button is used for resetting the switch, entering express setup mode, selecting or changing an LED mode, and manually waking up the switch from hibernation mode.

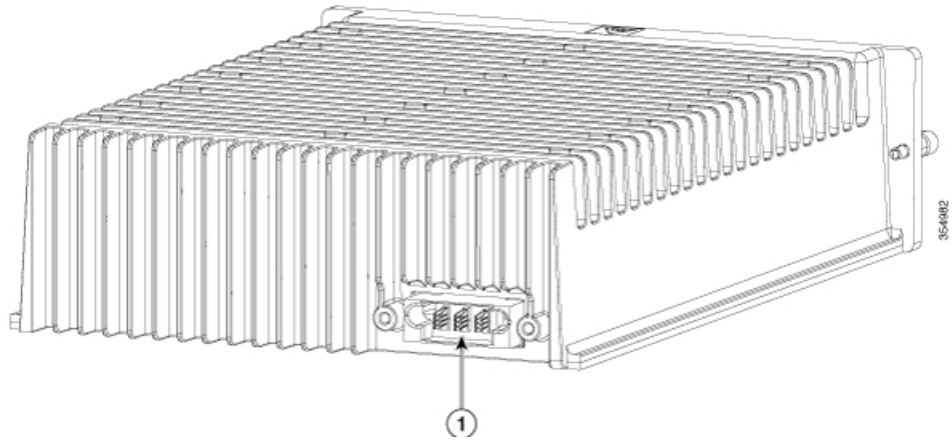
In Cisco Catalyst Digital Building series switches, LEDs are normally turned off to save power. When the mode button is pressed, the LEDs turn on for a set period (60 seconds) before they turn off again to save power. This can be overridden by a configuration parameter which alters the default 60 second timeout or disables LED power savings completely. All LEDs are affected by this function except the System LED, which only dims and does not turn off completely.

System State	Duration	Action
LEDs Off	Any	Activates the LEDs for 60 seconds, then returns the LEDs to Off State. System LED dims but does not turn off.
LEDs On	Any	Toggle between "Stat" and "Speed" LED modes. These modes only affect the port data LEDs.
Bootloader Active	Hold until bootloader completes	Stops autoboot and remains at bootloader prompt.

System State	Duration	Action
IOS Active, No Configuration Stored	Hold for more than 3 seconds	Enters Day 0 configuration.
Switch in Deep Sleep	Hold for more than 1 second	Switch wakes up to full power mode.

Rear Panel

Figure 5: Rear Panel of Catalyst Digital Building Series Switch



1	Proprietary power connector
---	-----------------------------



Note

You should mount the switch in one of the following mount accessories and complete the electrical installation to power on the switch:

- Flexible mount with IEC C14 power junction box (CDB-MNT-FLEX-C14)
- Flexible mount with direct-wired junction box (CDB-MNT-FLEX-DIR) — **Plenum rated**
- 5RU 19" rack mount chassis for up to 5 switches (CDB-MNT-RACK5-C14)

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.



CHAPTER 2

Switch Installation

This chapter contains these topics:

- [Safety Warnings, page 13](#)
- [Box Contents, page 15](#)
- [Installation Guidelines, page 18](#)
- [Mounting the Switch, page 20](#)
- [Installing the Power Cord Retainer, page 75](#)
- [10/100 Port Connections, page 79](#)

Safety Warnings

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



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**

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**

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

**Warning**

Do not use this product near water; for example, near a bath tub, wash bowl, kitchen sink or laundry tub, in a wet basement, or near a swimming pool. **Statement 1035**

**Warning**

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

**Warning**

This product requires short-circuit (overcurrent) protection, to be provided as part of the building installation. Install only in accordance with national and local wiring regulations. **Statement 1045**

**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: <113°F (45°C) up to 10,000 ft and <122°F(50°C) up to 5000 ft. **Statement 1047**

**Warning**

Do not disconnect connections to this equipment unless power has been removed or you have verified that the area is nonhazardous. Secure any external connections that mate to this equipment by using screws, sliding latches, threaded connectors, or other means provided with this product. **Statement 1062**

**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**

Hot surface. **Statement 1079**

**Warning**

Explosion Hazard—The area must be known to be nonhazardous before installing, servicing, or replacing the unit. **Statement 1082**

Box Contents

You will receive a Cisco Catalyst Digital Building UPOE (CDB-8U) or a PoE+ (CDB-8P) Switch. Each switch is shipped in a separate box.

To install the switch, you will require one of the mounting accessories listed below. You can order them when you order your switch, or you can order them later from your Cisco representative.

- Flexible mount with IEC C14 power junction box (CDB-MNT-FLEX-C14)
- Flexible mount with direct-wired junction box (CDB-MNT-FLEX-DIR) — **Plenum-rated**
- 5RU 19" rack mount chassis for up to 5 switches (CDB-MNT-RACK5-C14)

**Note**

Only flexible mount with direct-wired junction box (CDB-MNT-FLEX-DIR) is plenum-rated and is suitable for installation in plenum space. CDB-MNT-FLEX-DIR is compliant with **IEC 60950-1** standard.

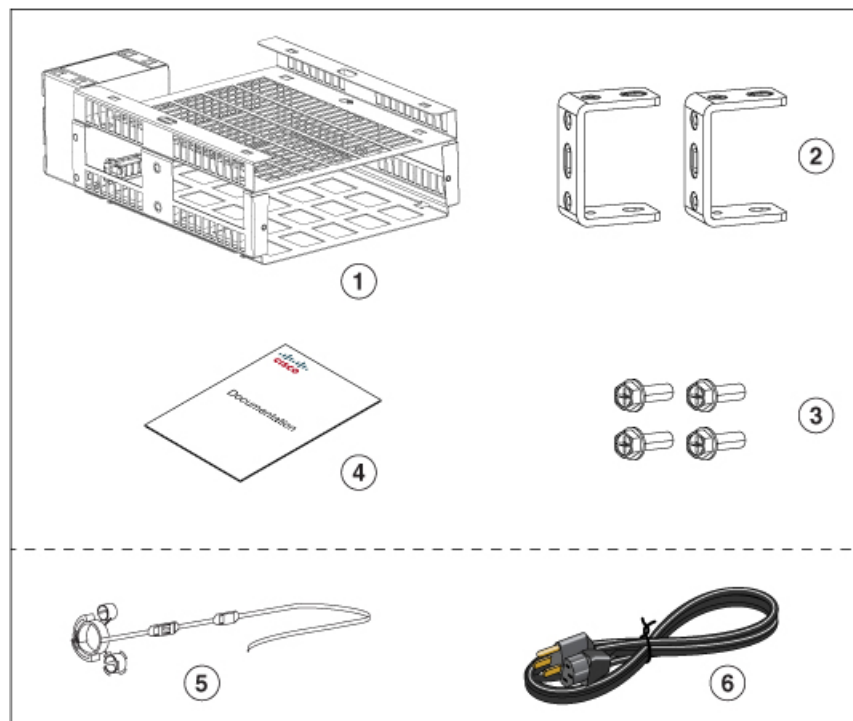
IEC 60950-1 Standard for Plenum Space Installation

English	French
Suitable for use in environmental air space in accordance with Section 300-22(C) of the National Electrical Code, and Sections 2-128, 12-010(3) and 12-100 of the Canadian Electrical Code, Part 1, CSA C22.1.	Peut être utilisé dans des gaines transportant de l'air traité, conformément à la Section 300-22(C) du National Electrical Code et aux articles 2-128, 12-010(3) et 12-100 du Code Canadien de l'électricité, Première partie, CSA C22.1.

Mounting Accessories

This section lists the contents of the shipping box for mounting accessories.

Figure 6: Box Contents - Flexible mount with IEC C14 power junction box



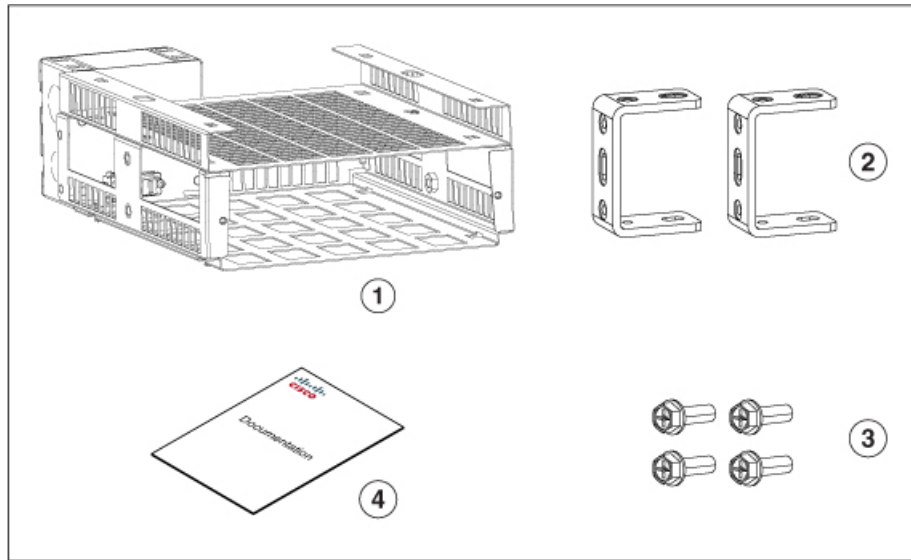
1	CDB-MNT-FLEX-C14	4	Compliance documentation (78-17985-01)
---	------------------	---	--

2	Two U-shaped mounting brackets (700-112420-01)	5	(Optional) Country-specific power cord
3	Four 1/4" mounting screws (48-101572-01)	6	(Optional) Power cord retainer (700-33972-01)



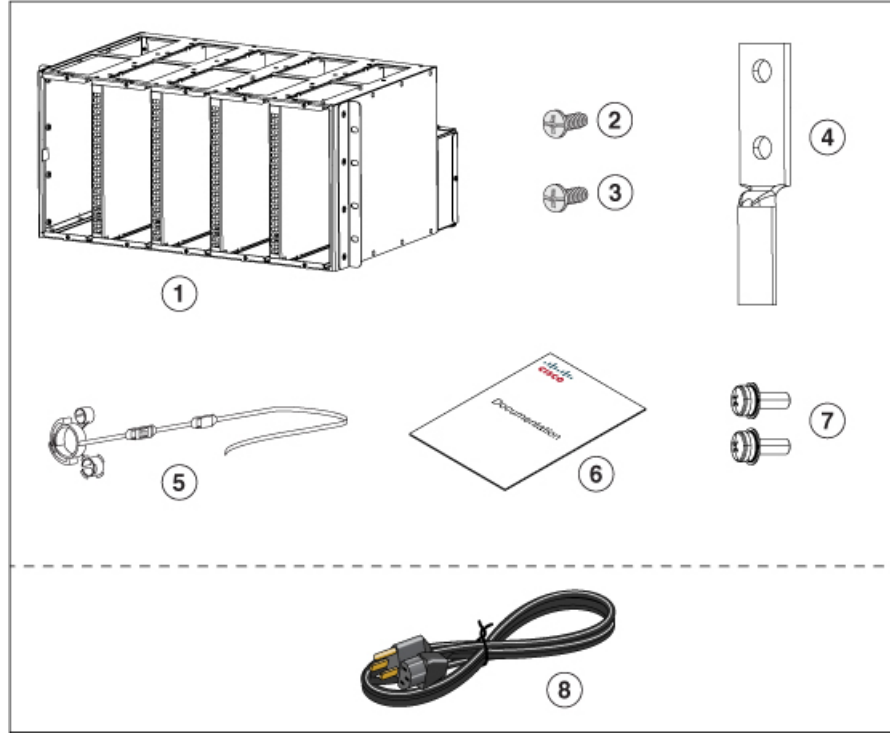
Note Power cord retainer and country-specific power cord are supplied in a separate accessory kit, if ordered.

Figure 7: Box Contents - Flexible mount with direct-wired junction box



1	CDB-MNT-FLEX-DIR	3	Four 1/4" mounting screws (48-101572-01)
2	Two U-shaped mounting brackets (700-112420-01)	4	Compliance documentation (78-17985-01)

Figure 8: Box Contents - 5RU 19" Rack mount chassis



1	CDB-MNT-RACK5-C14	5	Five power cord retainers (700-33972-01)
2	Eight number-12 Phillips pan-head screws (48-0523-01)	6	Compliance documentation (78-17985-01)
3	Eight number-10 Phillips pan-head screws (48-0627-01)	7	Two ground screws (48-0828-01)
4	Dual-hole ground lug (32-0619-01)	8	(Optional) Country-specific power cord



Note Country-specific power cord can be ordered separately, if required.

Installation Guidelines

Supported Hardware

- Bluetooth dongles with the following chipset are supported :

Chipset	Chipset Manufacturer	Bluetooth Version
CSR8510	Qualcomm/Cambridge Silicon Radio (CSR)	Bluetooth 4.0 and above Dual-Mode Dongle
BCM20702	Broadcom	

- USB flash drives with capacities from 128MB to 8GB are supported.
- Up to 2GB of Cisco SD memory card is supported.

General Guidelines

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

- The operating environment is within the ranges listed in [Technical Specifications](#).
- Clearance to the switch front and rear panel meets these conditions:
 - Front-panel LEDs can be easily read.
 - Access to ports is sufficient for unrestricted cabling.
 - AC power cord can reach from the AC power outlet to the connector on the switch mount.
 - At least 3" clearance above cooling fins is provided.
- 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 is unrestricted.
- For 10/100 and 1-Gigabit Ethernet ports, the cable length from a switch to a connected device cannot exceed 328 feet (100 meters).

Rack Mounting Guidelines

- 5RU 19" rack mount chassis (CDB-MNT-RACK5-C14) can only be installed in standard 19-inch racks.
- 19" rack mount chassis can be installed with wiring box up or down for cable routing.
- A gap of 2 RU must be provided between each rack unit for ventilation unless forced air is provided top to bottom in the rack.
- The rack mount chassis can have a mix of CDB-8P and CDB-8U units, as long as power cords are plugged into a power source with sufficient ampacity.
- Switches will power up on insertion. Remove and re-insert to power cycle when direct wired, or cycle at breaker.
- Switches can be hot-swapped.

Flexible Mounting Guidelines

- Flexible mounting requires a strut channel for mounting the assembly. Strut channel is a structural system used by electricians, HVAC professionals, plumbers, etc. to mount mechanical and electrical components in buildings.
- Bolts and screws to attach the mount to the strut channel are not supplied in the accessory kit. You need to obtain these from the manufacturer of the strut channel. The bolt used to attach the mount to the strut channel must match the strut nut.
- One flexible mount is required per switch.
- See [Prohibited Mounting Orientations](#) section for unsupported mounting orientations. Following is a list of prohibited mounting orientations. These will cause overheating.
 - Horizontal stacking
 - Port facing down
 - Ports facing up
- Wall Mounting - The complete assembly of the flexible mount, mounting brackets and the switch weighs 15 lbs for the wall mount case. When mounted directly on a surface, care must be taken to choose fasteners that can safely hold the switch and mounting hardware, which weighs 15 lbs (6.8 kg), under all use conditions.
- Maintain 3-inch of space to any surface above the flexible mount to allow proper cooling.
- Only a trained and qualified electrician should be allowed to complete the wiring of the direct-wired junction box (CDB-MNT-FLEX-DIR).
- All power connection wiring should conform to the rules and regulations in the National Electrical Code (NEC), as well as local codes.
- Switches will power up on insertion. Remove and re-insert to power cycle when direct wired, or cycle at breaker.
- Switches can be hot-swapped.

Mounting the Switch

Flexible Mounting

The Catalyst Digital Building Series Switch offers multiple flexible mounting options. Installing the switch in a flexible mount requires either of the following :

- Flexible mount with IEC C14 power junction box (CDB-MNT-FLEX-C14)
- Flexible mount with direct-wired junction box (CDB-MNT-FLEX-DIR) — **Plenum-rated**

Flexible Mount with IEC C14 power junction box

Figure 9: Flexible mount with IEC C14 power junction box - Front view

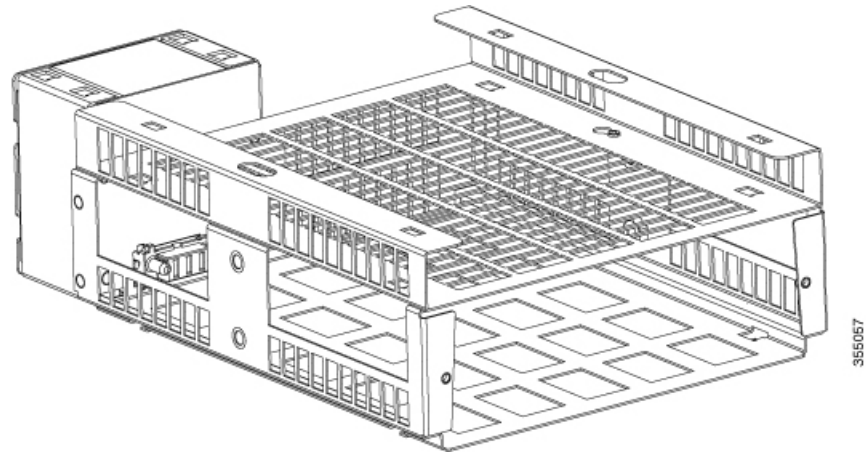
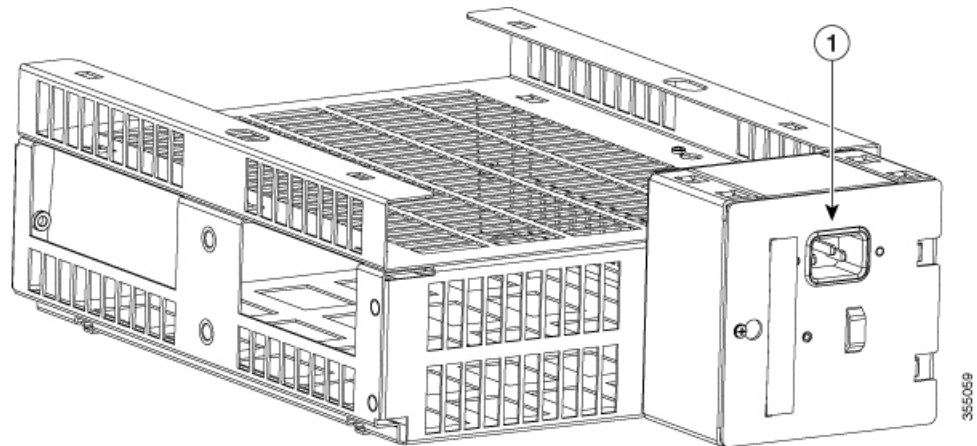


Figure 10: Flexible mount with IEC C14 power junction box - Rear view



1	IEC C14 power connector
---	-------------------------

Flexible mount with direct-wired junction box

Figure 11: Flexible mount with direct-wired junction box - Front view

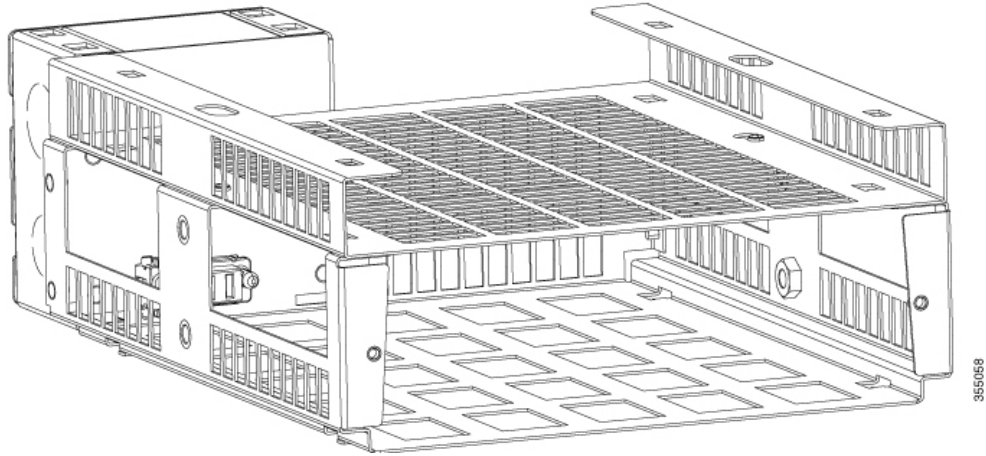
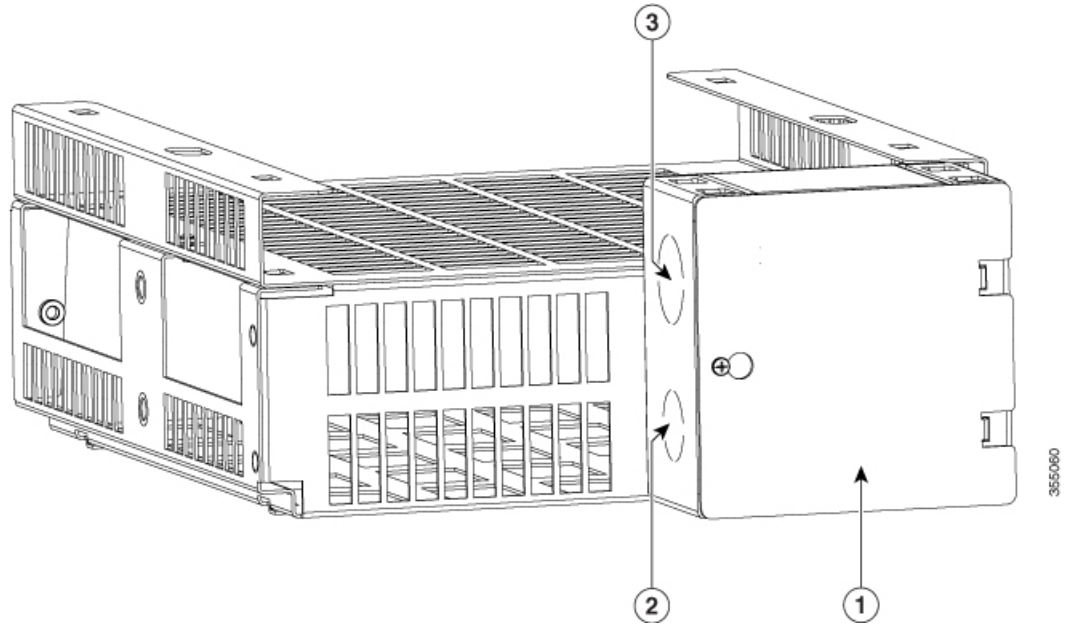


Figure 12: Flexible mount with direct-wired junction box - Rear view



1	Direct-wired junction box
2	1/2" knockout
3	3/4" knockout

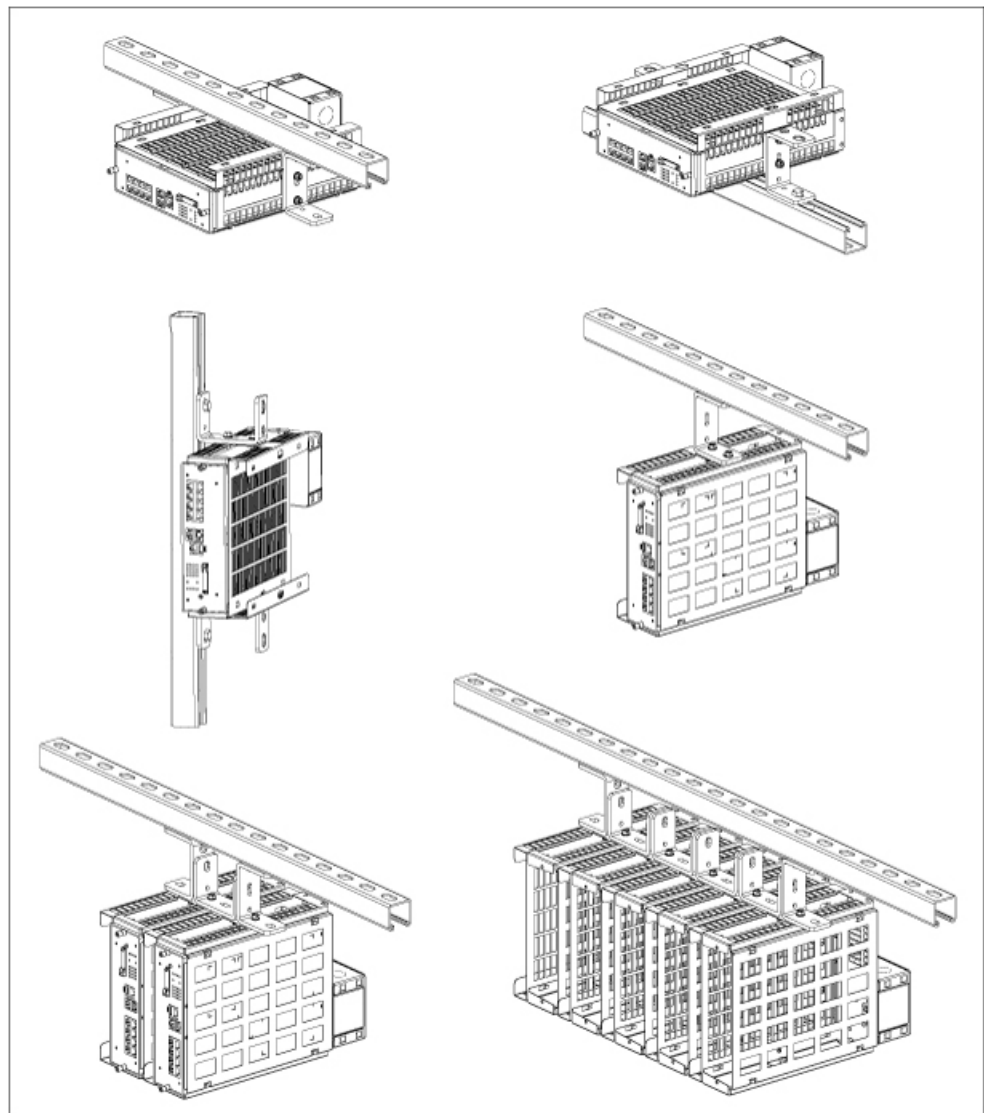
The mounting procedure includes two types of installations :

- Physical Installation - Includes horizontal mounting, vertical mounting and wall mounting
- Electrical Installation - Includes connecting the switch to a power source

The different types of mounting are described in detail in the sections below. You can use these mounting positions to install the switch in a flexible mount.

- [Horizontal Mounting](#)
- [Vertical Mounting](#)
- [Wall Mount](#)

Figure 13: Mounting Orientations for Cisco Catalyst Digital Building Series Switch



Horizontal Mounting

Horizontal Mounting can be done in two different positions :

Horizontal Mounting - Undermount

To install the Catalyst Digital Building Series Switch in a flexible mount in horizontal undermount orientation, follow these steps :



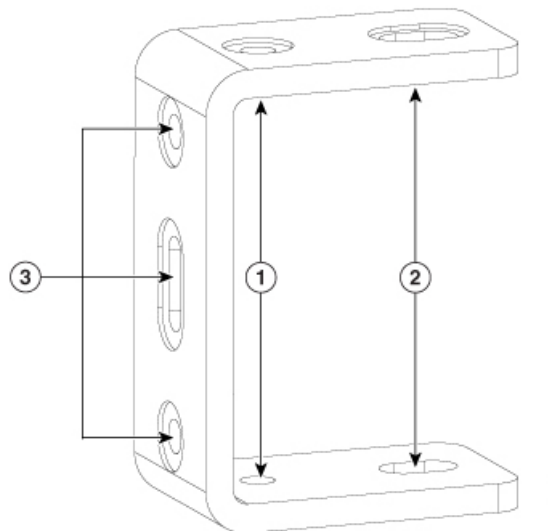
Note

If you are using the flexible mount with direct-wired junction box (CDB-MNT-FLEX-DIR), refer to the [Electrical Installation](#) section before you start the installation procedure.

Before You Begin

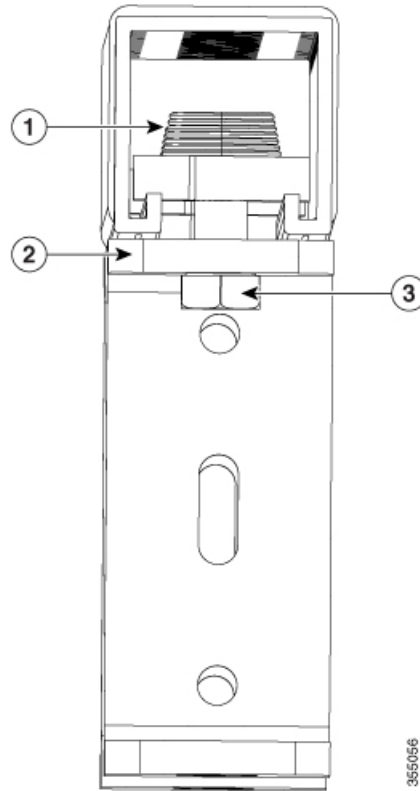
- Refer to [Installation Guidelines](#) section.
- Refer to [Electrical Installation](#) section if you are using the flexible mount with direct-wired junction box (CDB-MNT-FLEX-DIR).
- Review the following illustrations and tables.

Figure 14: Mounting Bracket Detail



1	1/4" hole for attaching to strut channel
2	3/8" hole for attaching to strut channel
3	Mounting screw holes

Figure 15: Strut Channel Nut Attachment Detail



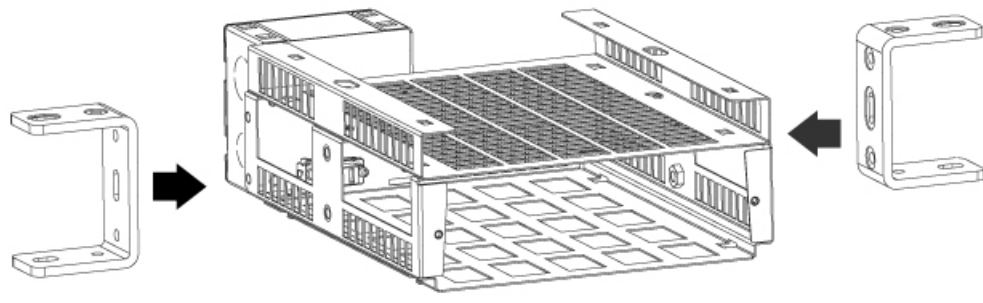
1	Strut channel nut
2	U-shaped mounting bracket
3	Bolt matching the strut nut

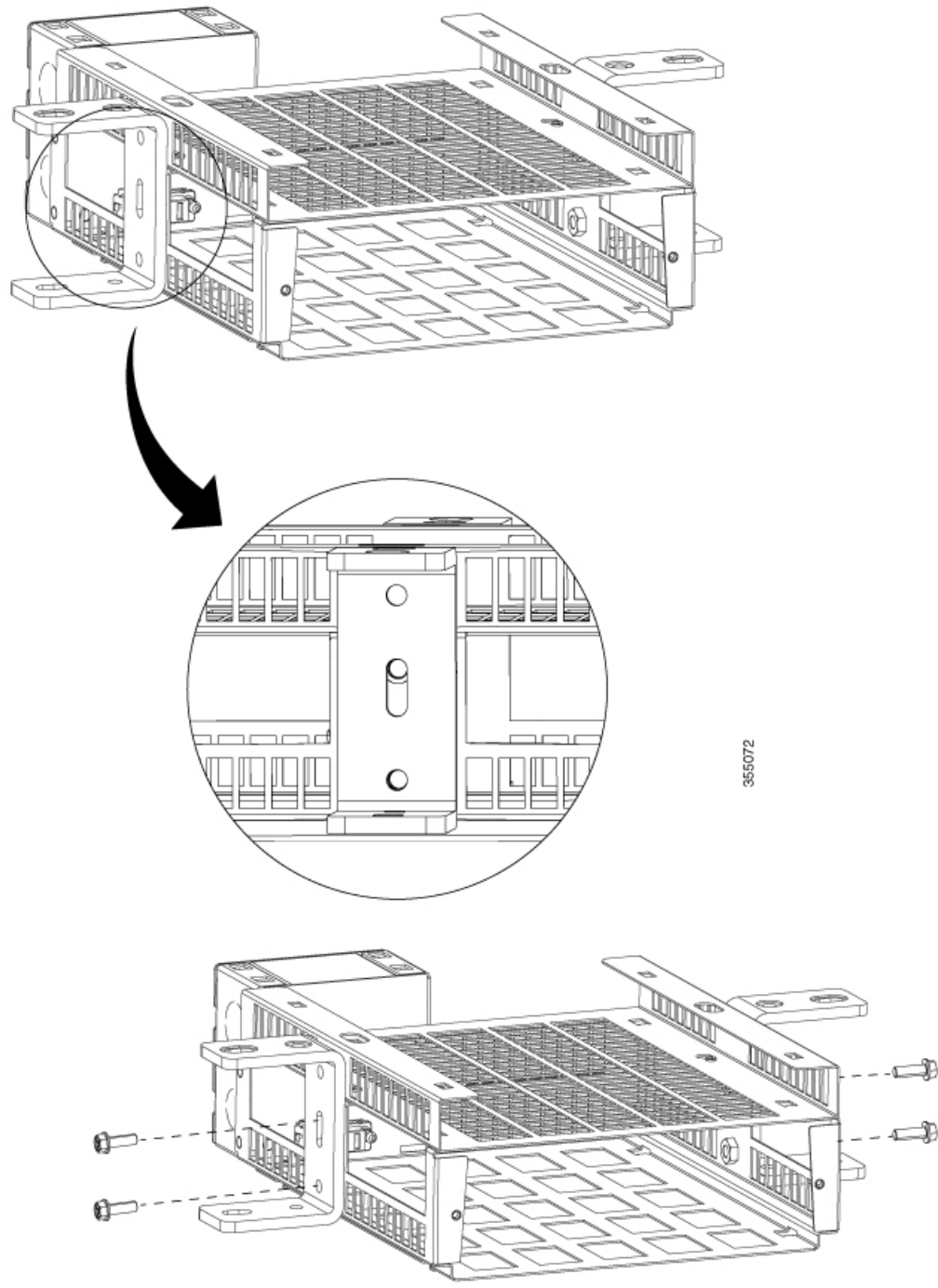
- Strut channel nut slides is inserted into the channel and held by a spring or a plastic cone.
- The bracket acts as an integrated washer. So, strut washer is not required.
- Matching bolt is fed from below into the strut channel nut.

Procedure

- Step 1** Place the flexible mount horizontally on a flat surface.
- Step 2** Align the mounting holes on the bracket to the holes on the flexible mount and attach them to the mount with the 1/4" mounting screws supplied.

Figure 16: Attaching mounting brackets to the flexible mount





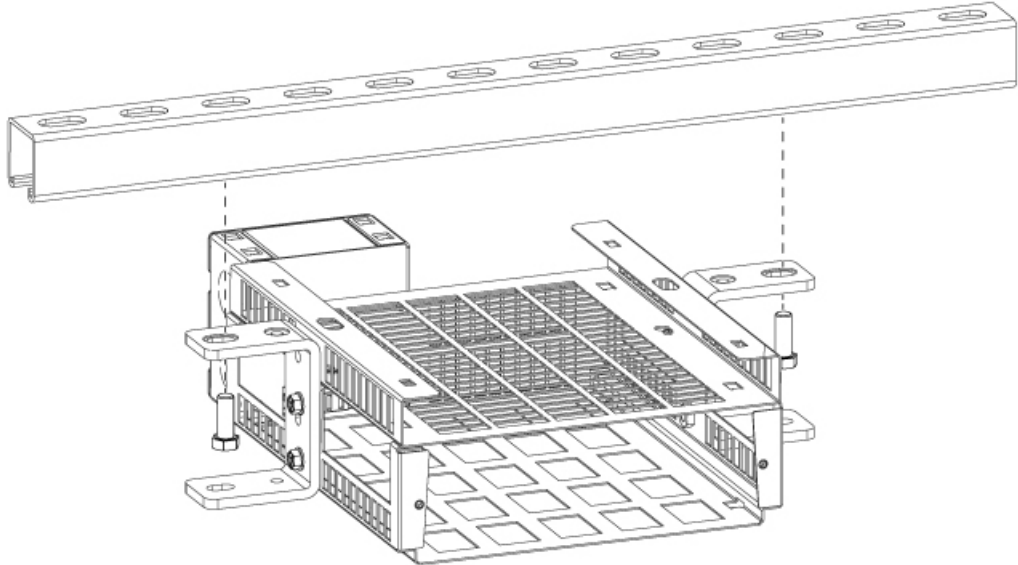
Step 3 Position the assembly as shown in the figure. Align one of the screw holes — 1/4" or 3/8" — of the mounting bracket to the strut nut hole on the strut channel and secure the bracket to the strut channel using a bolt matching to the strut nut.

Note The bolt must match the strut nut.

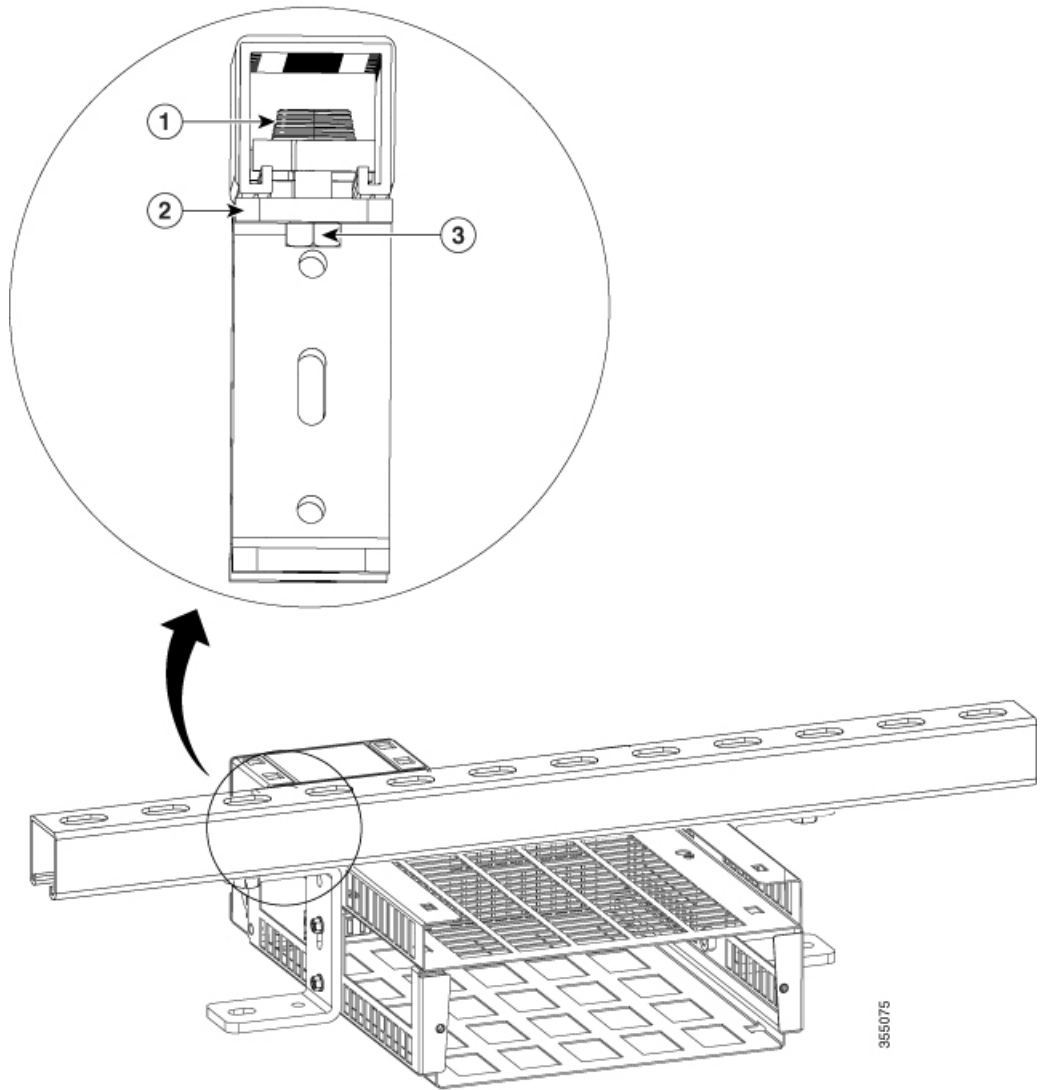
Repeat the step to attach the other bracket to the strut channel.

Figure 17: Attaching flexible mount assembly to strut channel

Note In the following figure, 3/8" hole is used to attach the assembly to the strut channel. You can also use 1/4" hole to attach the assembly to the strut channel.



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1	Strut channel nut
2	U-shaped mounting bracket
3	Bolt matching the strut nut

Step 4 Connect to a power source.

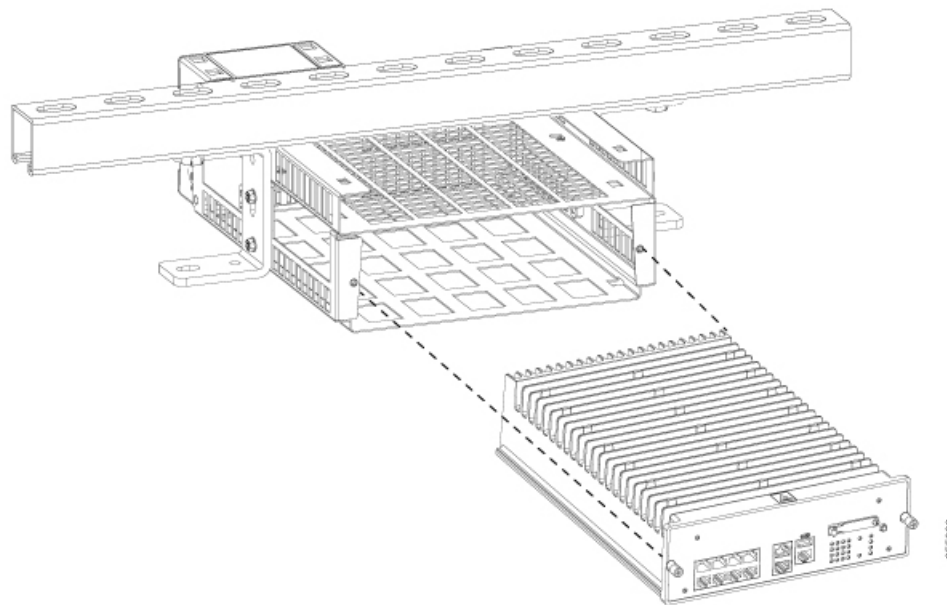
- To connect the assembly which uses flexible mount with direct-wired junction box (CDB-MNT-FLEX-DIR) to a power source, use an armored cable. See [Electrical Installation](#) section. CDB-MNT-FLEX-DIR accepts 100V – 277V AC Input.
- To connect the assembly which uses flexible mount with IEC C14 power junction box (CDB-MNT-FLEX-C14) to a power source, use country-specific power cord.

CDB-MNT-FLEX-C14 accepts 100V – 240V AC Input.

Step 5 Slide the switch into the flexible mount in a front mounting position as shown in the figure and tighten thumb screws to secure the switch to flexible mount.

Warning Switches require at least 3 inches of space above the heatsink fins for proper cooling. Do not stack multiple switches on top of each other in horizontal mounting orientation. To collocate multiple switches, use top vertical mounting orientation as described in [Top Vertical Mount](#).

Figure 18: Inserting switch into flexible mount assembly



Horizontal Mounting - Overmount

To install the Catalyst Digital Building Series Switch in a flexible mount in horizontal overmount orientation, follow these steps :



Note

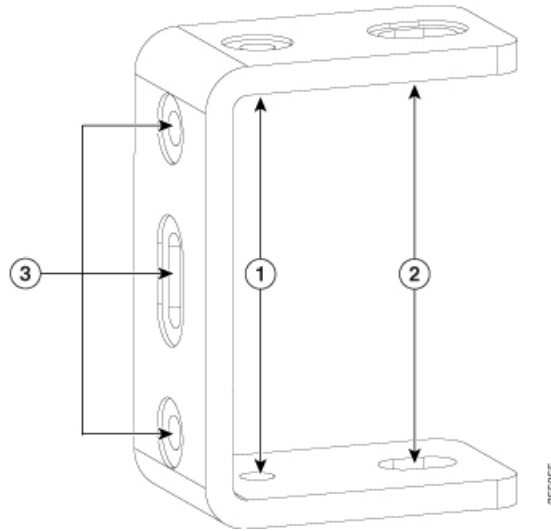
If you are using the flexible mount with a direct-wired junction box (CDB-MNT-FLEX-DIR), refer to the [Electrical Installation](#) section before you start the installation procedure.

Before You Begin

- Refer to [Installation Guidelines](#) section.
- Refer to [Electrical Installation](#) section if you are using the flexible mount with direct-wired junction box (CDB-MNT-FLEX-DIR).

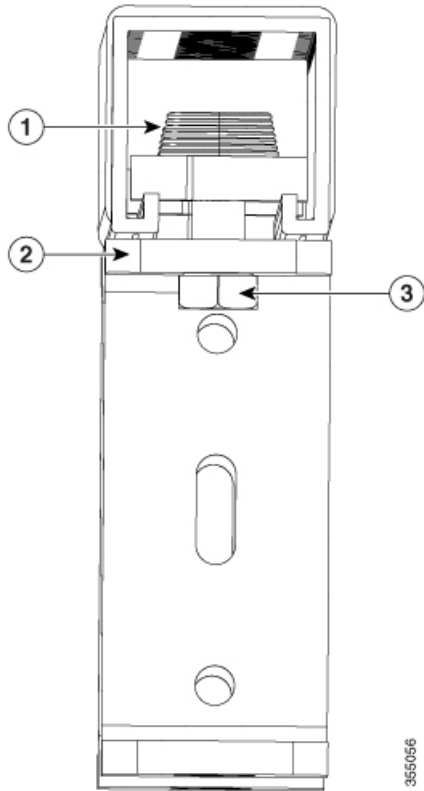
- Review the following illustrations and tables.

Figure 19: Mounting Bracket Detail



1	1/4" hole for attaching to strut channel
2	3/8" hole for attaching to strut channel
3	Mounting screw holes

Figure 20: Strut Channel Nut Attachment Detail



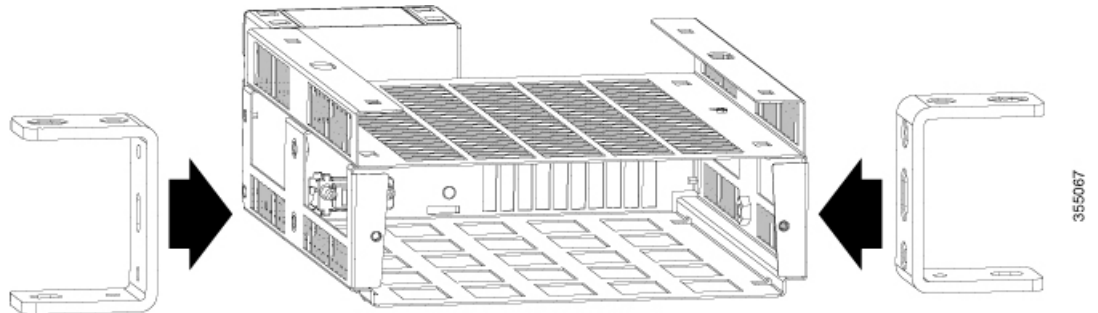
1	Strut channel nut
2	U-shaped mounting bracket
3	Bolt matching the strut nut

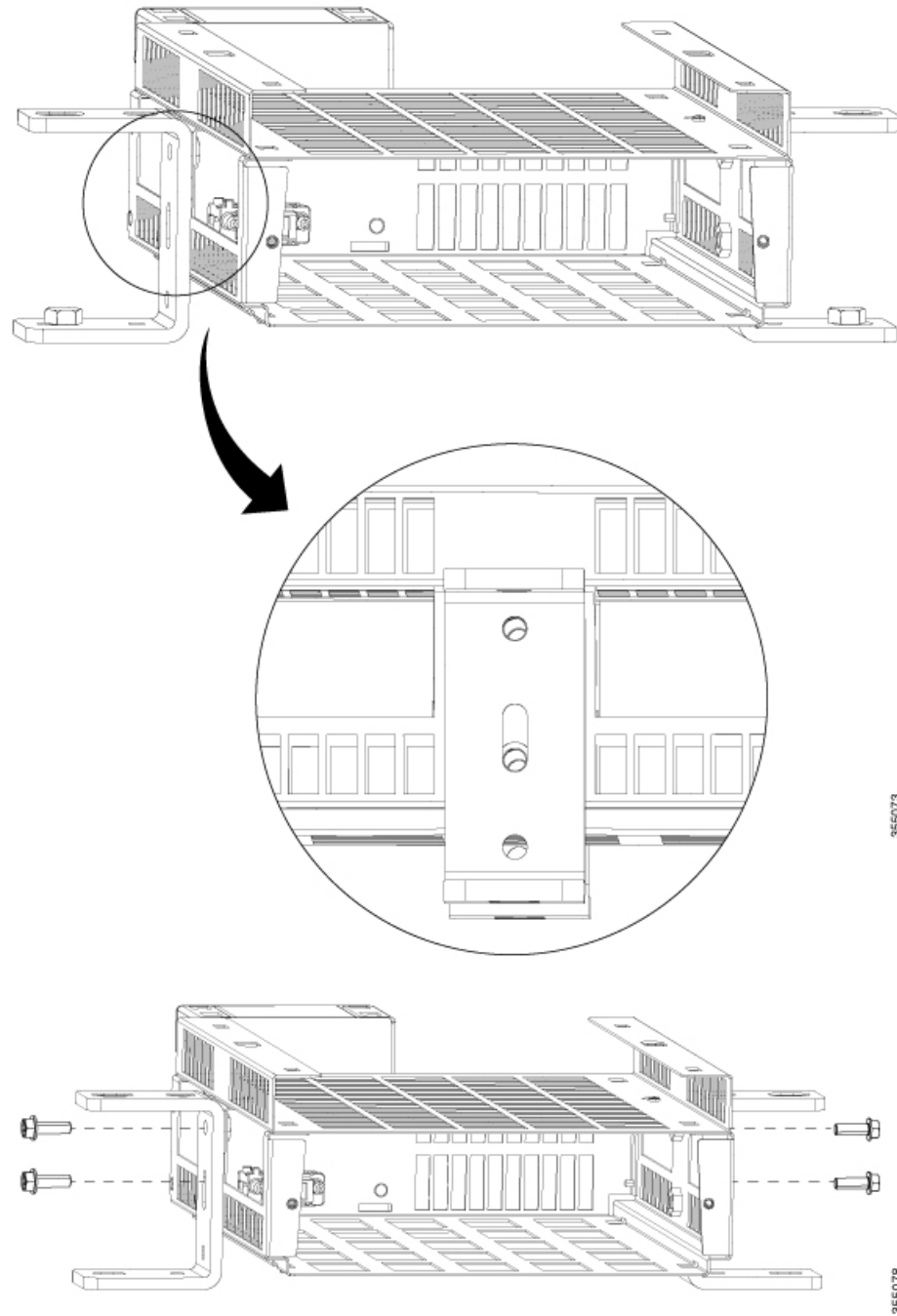
- Strut channel nut slides is inserted into the channel and held by a spring or a plastic cone.
- The bracket acts as an integrated washer. So, strut washer is not required.
- Matching bolt is fed from below into the strut channel nut.

Procedure

- Step 1** Place the flexible mount horizontally on a flat surface.
- Step 2** Align the mounting holes on the bracket to the holes on the flexible mount and attach them to the mount with the 1/4" mounting screws supplied.

Figure 21: Attaching mounting brackets to the flexible mount





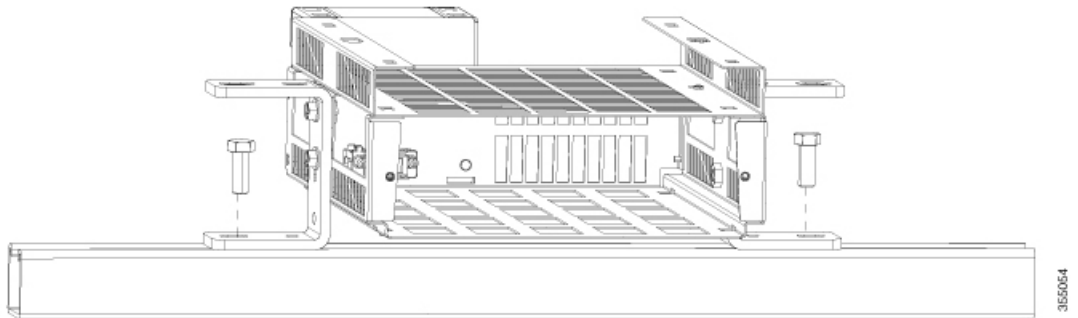
Step 3 Position the assembly as shown in the figure. Align one of the screw holes — 1/4" or 3/8" — of the mounting bracket to the strut nut hole on the strut channel and secure the bracket to the strut channel using a bolt matching to the strut nut.

Note The bolt must match the strut nut.

Repeat the step to attach the other bracket to the strut channel.

Figure 22: Attaching flexible mount assembly to strut channel

Note In the following figure, 3/8" hole is used to attach the assembly to the strut channel. You can also use 1/4" hole to attach the assembly to the strut channel.



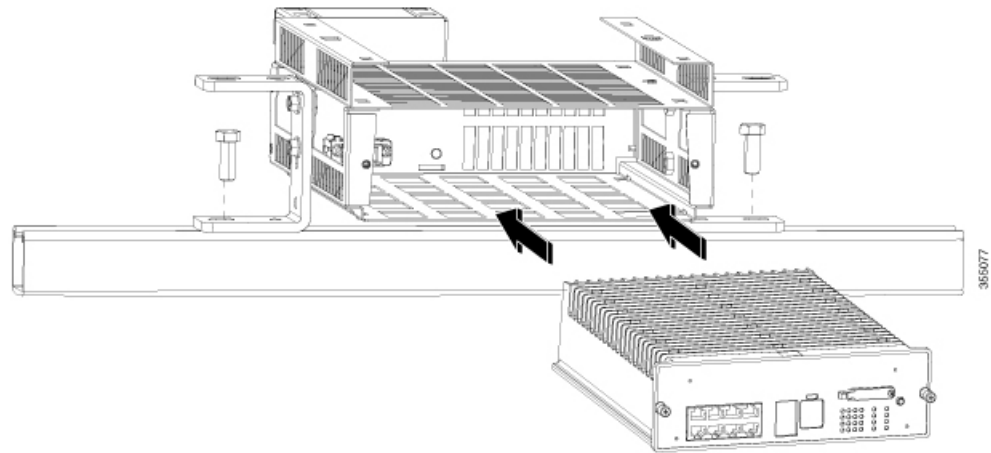
Step 4 Connect to a power source.

- To connect the assembly which uses flexible mount with direct-wired junction box (CDB-MNT-FLEX-DIR) to a power source, use an armored cable. See [Electrical Installation](#) section. CDB-MNT-FLEX-DIR accepts 100V – 277V AC Input.
- To connect the assembly which uses flexible mount with IEC C14 power junction box (CDB-MNT-FLEX-C14) to a power source, use country-specific power cord. CDB-MNT-FLEX-C14 accepts 100V – 240V AC Input.

Step 5 Slide the switch into the flexible mount in a front mounting position as shown in the figure and tighten thumb screws to secure the switch to flexible mount.

Warning Switches require at least 3 inches of space above the heatsink fins for proper cooling. Do not stack multiple switches on top of each other in horizontal mounting orientation. To collocate multiple switches, use top vertical mounting orientation as described in [Top Vertical Mount](#).

Figure 23: Inserting switch into flexible mount assembly



Vertical Mounting

Vertical Mounting can be done in two different positions:

Fixed Vertical Mount

To install a Catalyst Digital Building Series Switch in a flexible mount in fixed vertical mounting orientation, follow these steps :



Note

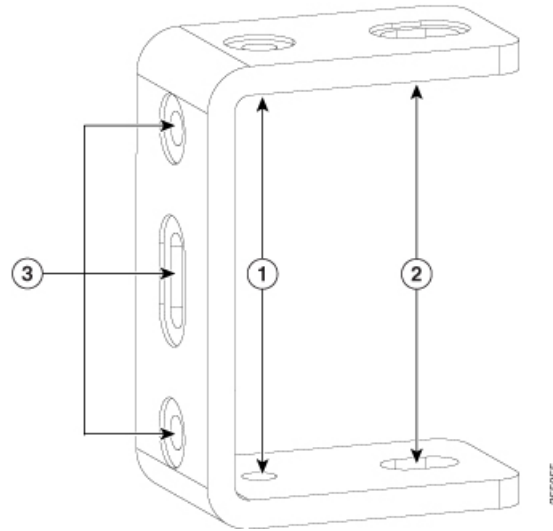
If you are using the flexible mount with a direct-wired junction box (CDB-MNT-FLEX-DIR), refer to the [Electrical Installation](#) section before you start the installation procedure.

Before You Begin

- Refer to [Installation Guidelines](#) section.
- Refer to [Electrical Installation](#) section if you are using the flexible mount with direct-wired junction box (CDB-MNT-FLEX-DIR).

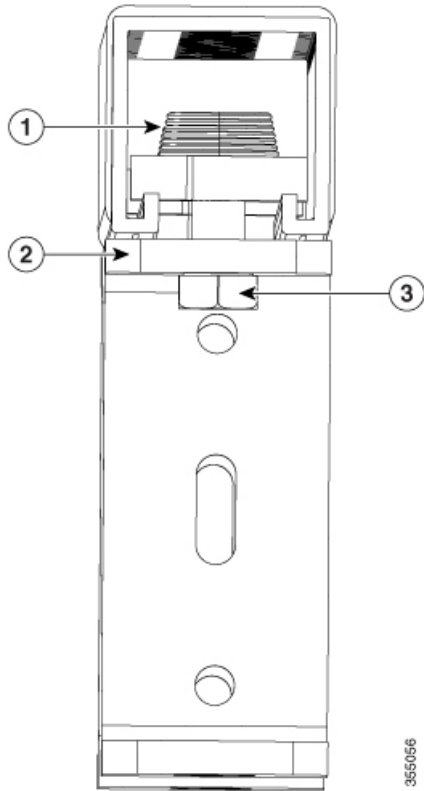
- Review the following illustrations and tables.

Figure 24: Mounting Bracket Detail



1	1/4" hole for attaching to strut
2	3/8" hole for attaching to strut
3	Mounting screw holes

Figure 25: Strut Channel Nut Attachment Detail



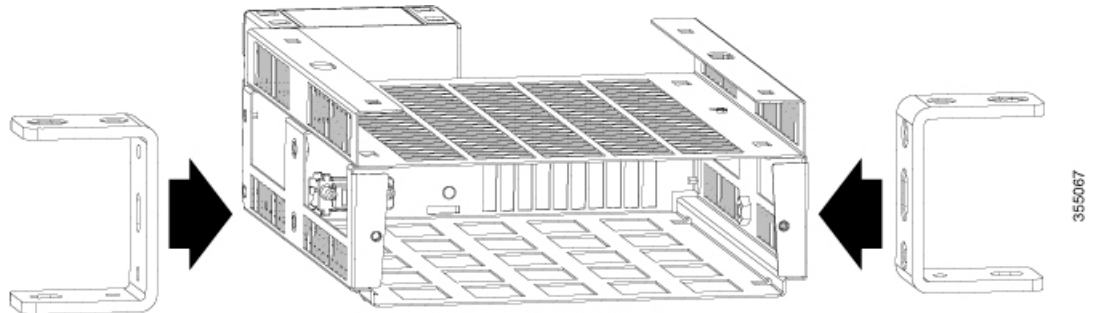
1	Strut channel nut
2	U-shaped mounting bracket
3	Bolt matching the strut nut

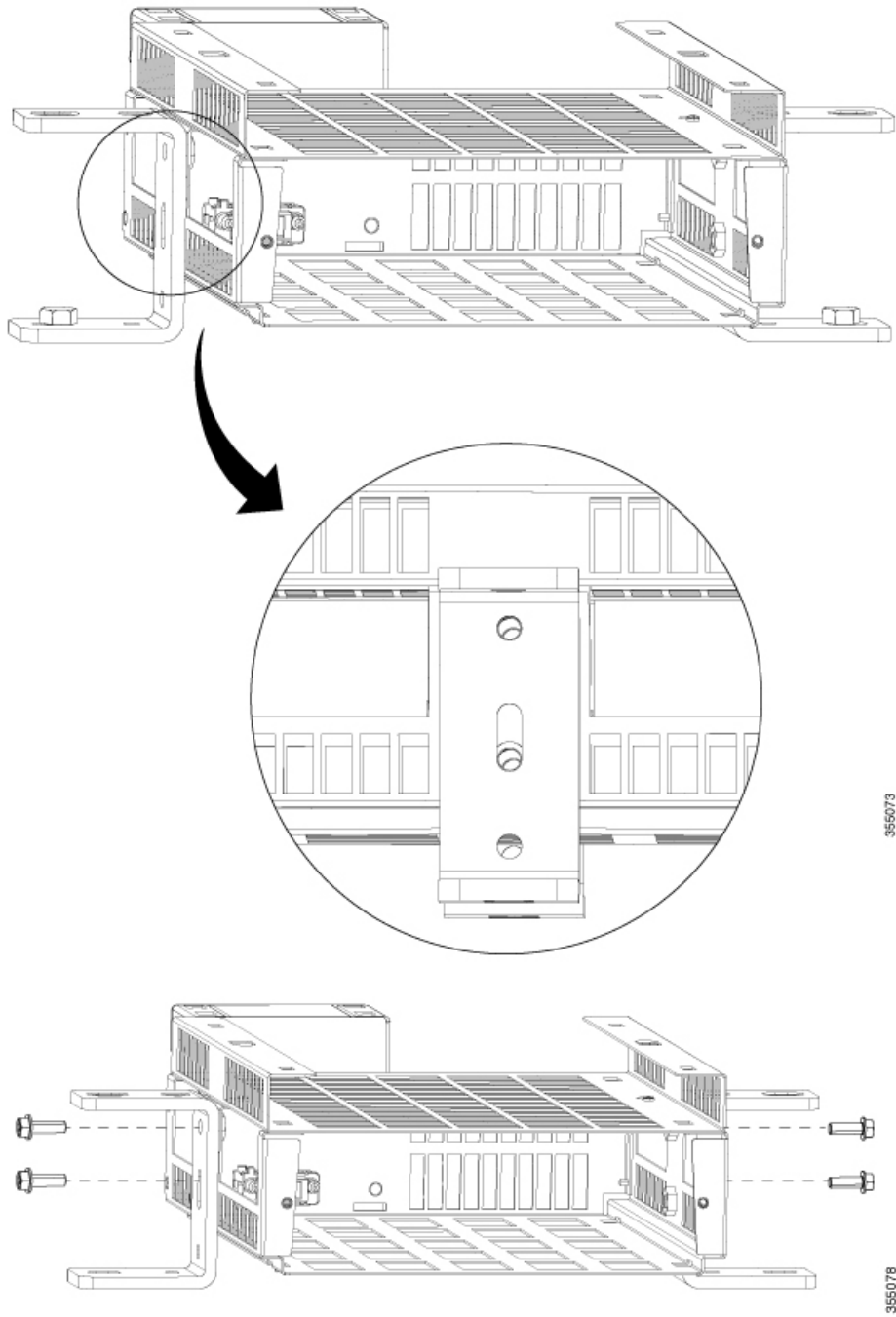
- Strut channel nut slides is inserted into the channel and held by a spring or a plastic cone.
- The bracket acts as an integrated washer. So, strut washer is not required.
- Matching bolt is fed from below into the strut channel nut.

Procedure

- Step 1** Place the flexible mount horizontally on a flat surface.
- Step 2** Align mounting brackets to both sides of the flexible mount and attach them to the mount with the 1/4" mounting screws supplied.

Figure 26: Attaching mounting brackets to the flexible mount





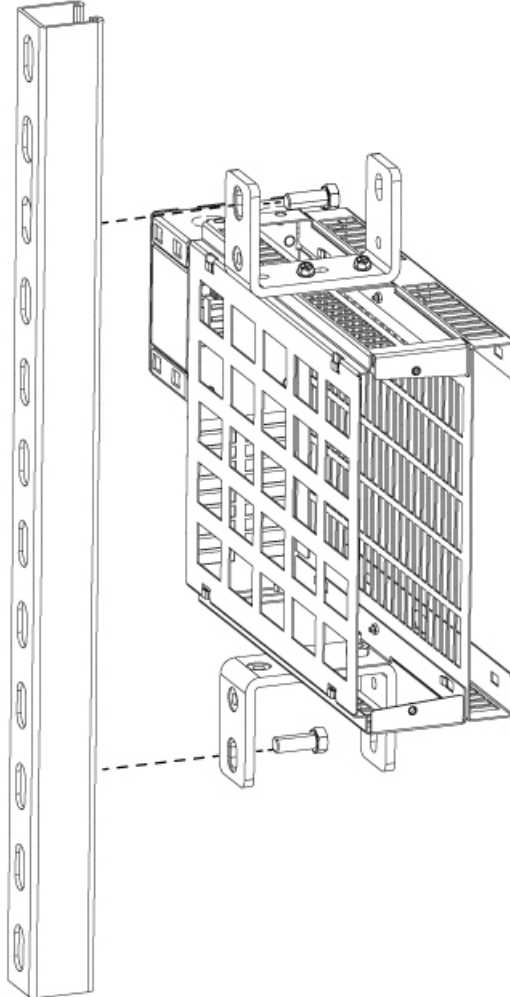
Step 3 Position the assembly vertically as shown in the figure. Align one of the screw holes — 1/4" or 3/8" — of the mounting bracket to the strut nut hole on the strut channel and secure the bracket to the strut channel using a bolt matching to the strut nut.

Note The bolt must match the strut nut.

Repeat the step to attach the other bracket to the strut channel.

Figure 27: Attaching flexible mount assembly to strut channel

Note In the following figure, 3/8" hole is used to attach the assembly to the strut channel. You can also use 1/4" hole to attach the assembly to the strut channel.



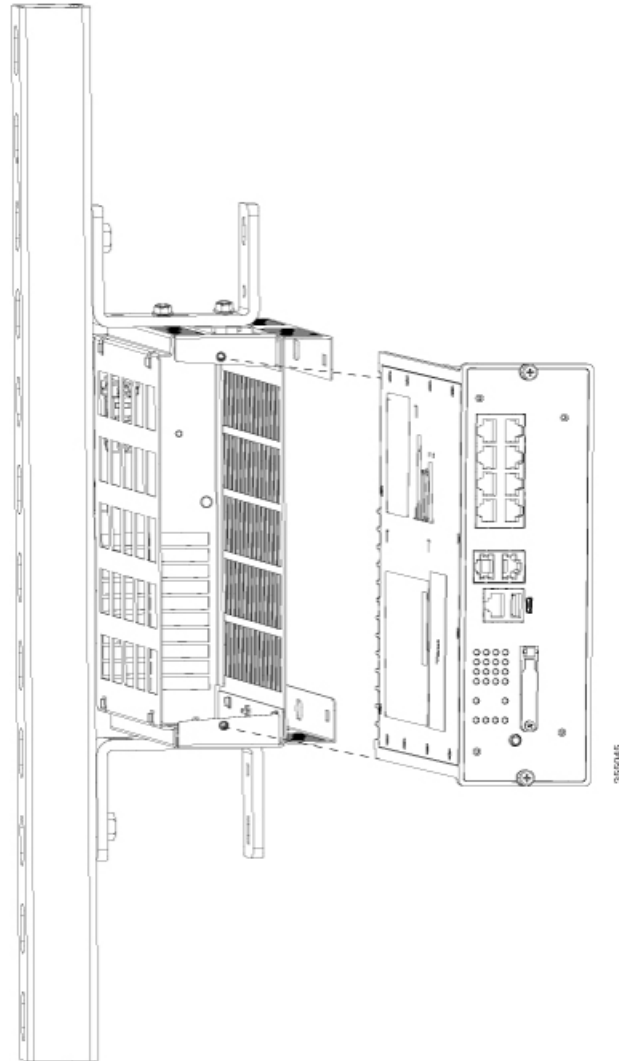
Step 4 Connect to a power source.

- To connect the assembly which uses flexible mount with direct-wired junction box (CDB-MNT-FLEX-DIR) to a power source, use an armored cable. See [Electrical Installation](#) section.
CDB-MNT-FLEX-DIR accepts 100V – 277V AC Input.
- To connect the assembly which uses flexible mount with IEC C14 power junction box (CDB-MNT-FLEX-C14) to a power source, use country-specific power cord.
CDB-MNT-FLEX-C14 accepts 100V – 240V AC Input.

Step 5 Slide the switch into the flexible mount in a front mounting position as shown in the figure and tighten thumb screws to secure the switch to flexible mount.

Warning Maintain 3-inch clearance from top of the flex mount to nearest surface to ensure proper cooling. Do not stack multiple switches on top of each other in the fixed vertical mounting orientation. To collocate multiple switches, use top vertical mounting orientation as described in [Top Vertical Mount](#).

Figure 28: Inserting switch into flexible mount assembly



Top Vertical Mount

To install a single Catalyst Digital Building Series Switch in a flexible mount in top vertical mounting orientation, follow these steps :



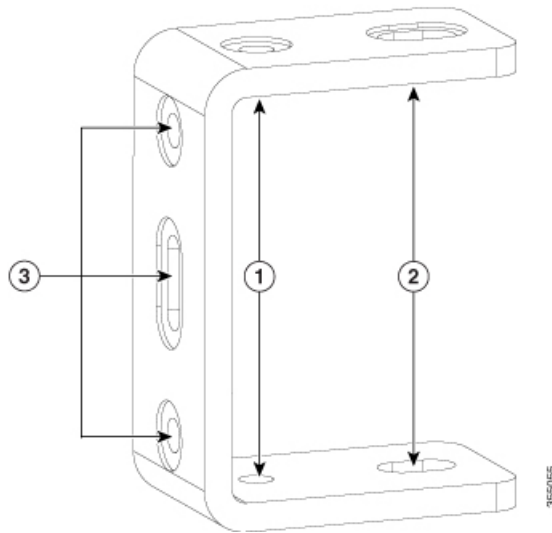
Note

If you are using the flexible mount with a direct-wired junction box (CDB-MNT-FLEX-DIR), refer to the [Electrical Installation](#) section before you start the installation procedure.

Before You Begin

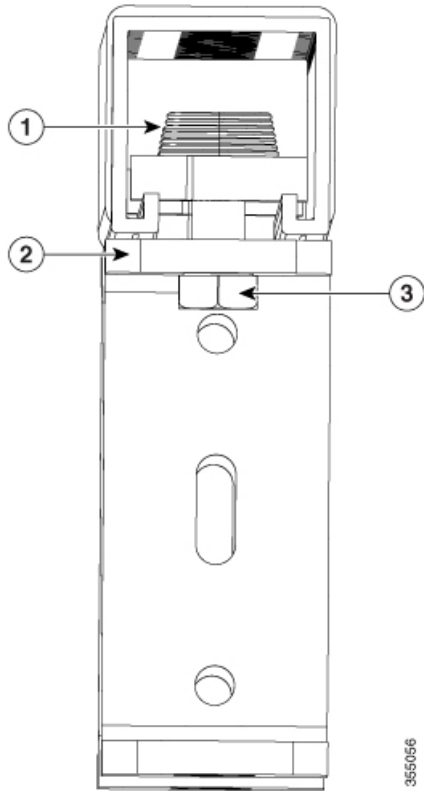
- Refer to [Installation Guidelines](#) section.
- Refer to [Electrical Installation](#) section if you are using the flexible mount with direct-wired junction box (CDB-MNT-FLEX-DIR).
- Review the following illustrations and tables.

Figure 29: Mounting Bracket Detail



1	1/4" hole for attaching to strut
2	3/8" hole for attaching to strut
3	Mounting screw holes

Figure 30: Strut Channel Nut Attachment Detail



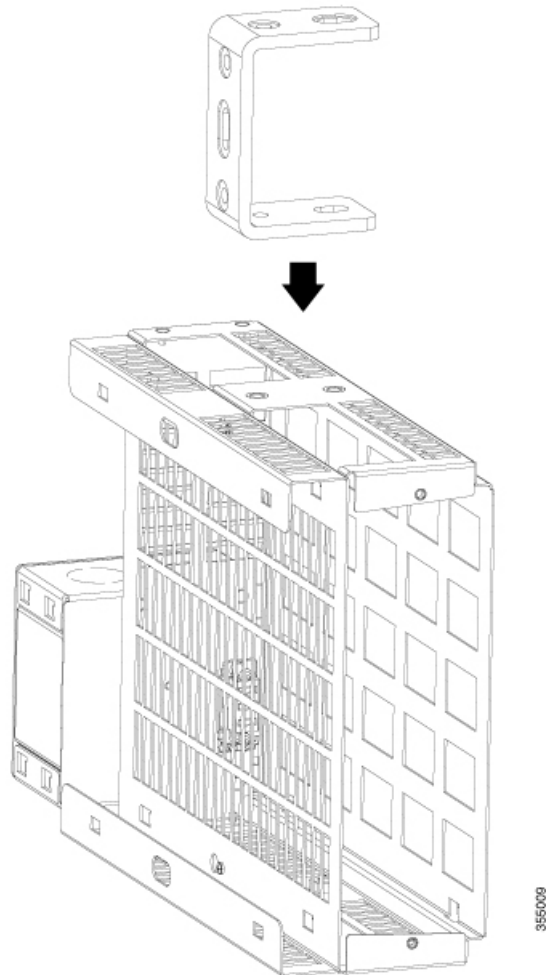
1	Strut channel nut
2	U-shaped mounting bracket
3	Bolt matching the strut nut

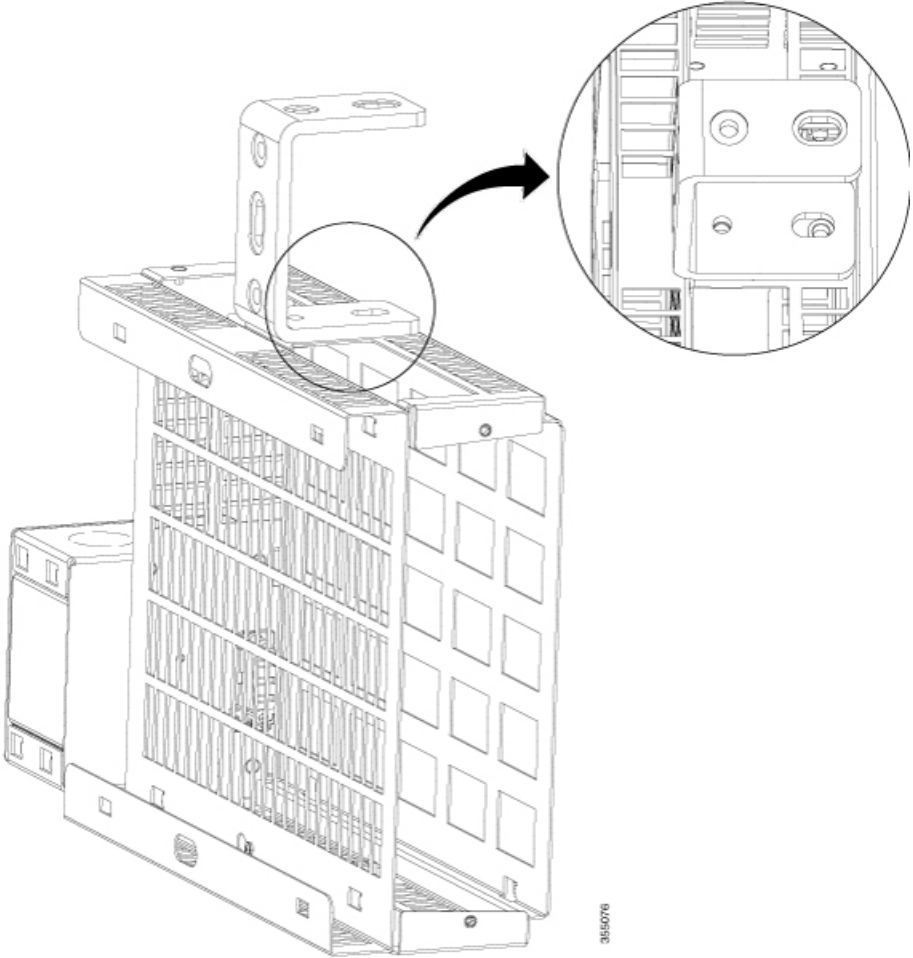
- Strut channel nut slides is inserted into the channel and held by a spring or a plastic cone.
- The bracket acts as an integrated washer. So, strut washer is not required.
- Matching bolt is fed from below into the strut channel nut.

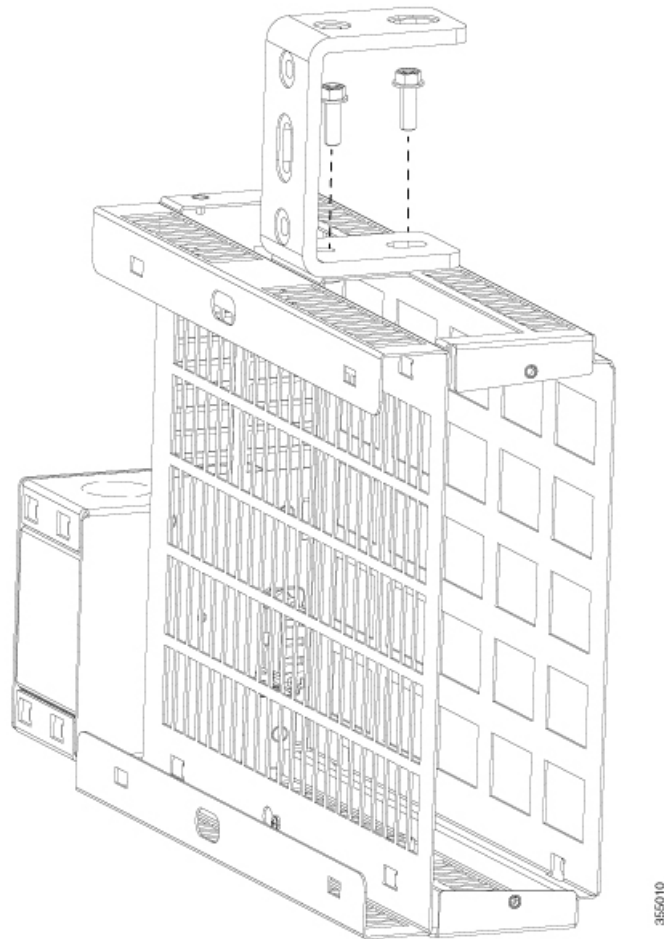
Procedure

- Step 1** Place the flexible mount vertically on a flat surface.
- Step 2** Align the mounting bracket to one side of the flexible mount and attach it to the mount with the 1/4" mounting screws supplied.

Figure 31: Attaching mounting brackets to the flexible mount







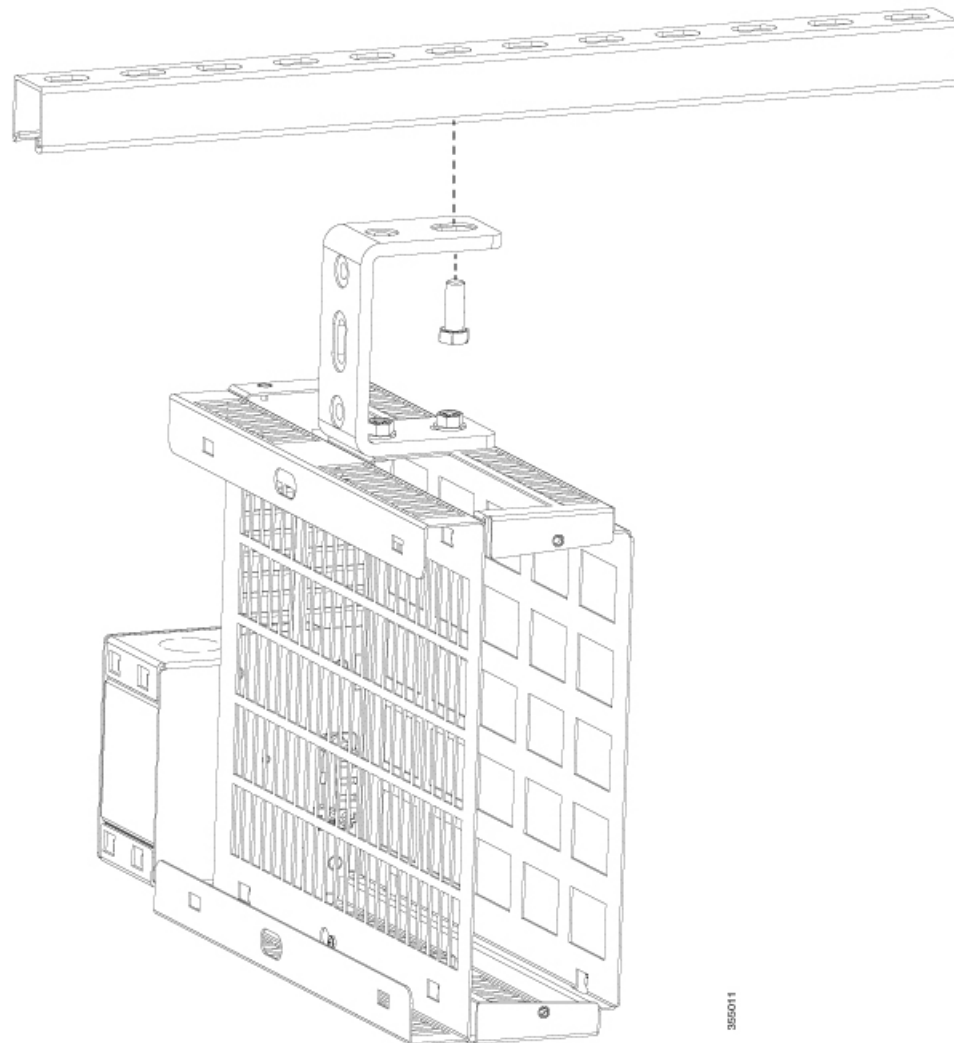
Step 3 Position the assembly vertically as shown in the figure. Align one of the screw holes — 1/4" or 3/8" — of the mounting bracket to the strut nut hole on the strut channel and secure the bracket to the strut channel using a bolt matching to the strut nut.

Note The bolt must match the strut nut.

Repeat the step to attach the other bracket to the strut channel.

Figure 32: Attaching flexible mount assembly to strut channel

Note In the following figure, 3/8" hole is used to attach the assembly to the strut channel. You can also use 1/4" hole to attach the assembly to the strut channel.



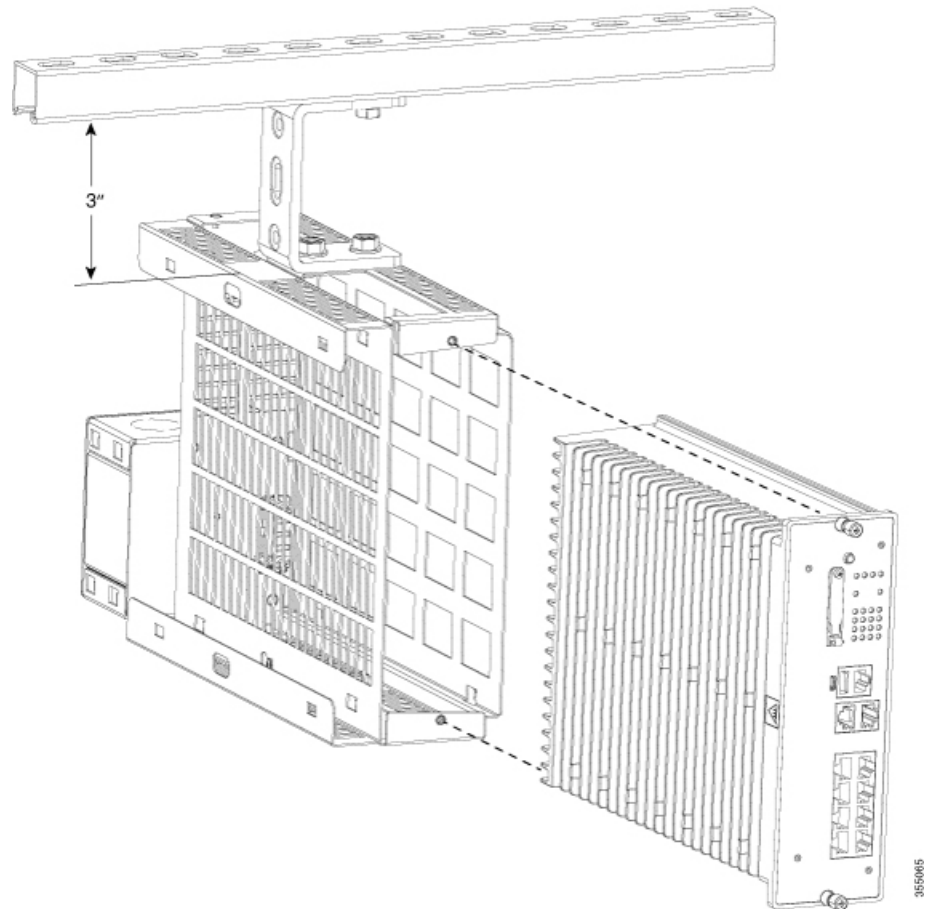
Step 4 Connect to a power source.

- To connect the assembly which uses flexible mount with direct-wired junction box (CDB-MNT-FLEX-DIR) to a power source, use an armored cable. See [Electrical Installation](#) section. CDB-MNT-FLEX-DIR accepts 100V – 277V AC Input.
- To connect the assembly which uses flexible mount with IEC C14 power junction box (CDB-MNT-FLEX-C14) to a power source, use country-specific power cord. CDB-MNT-FLEX-C14 accepts 100V – 240V AC Input.

Step 5 Slide the switch into the flexible mount in a front mounting position.

Warning Maintain 3-inch of space to any surface above the flex mount to allow proper cooling.

Figure 33: Inserting switch into flexible mount assembly



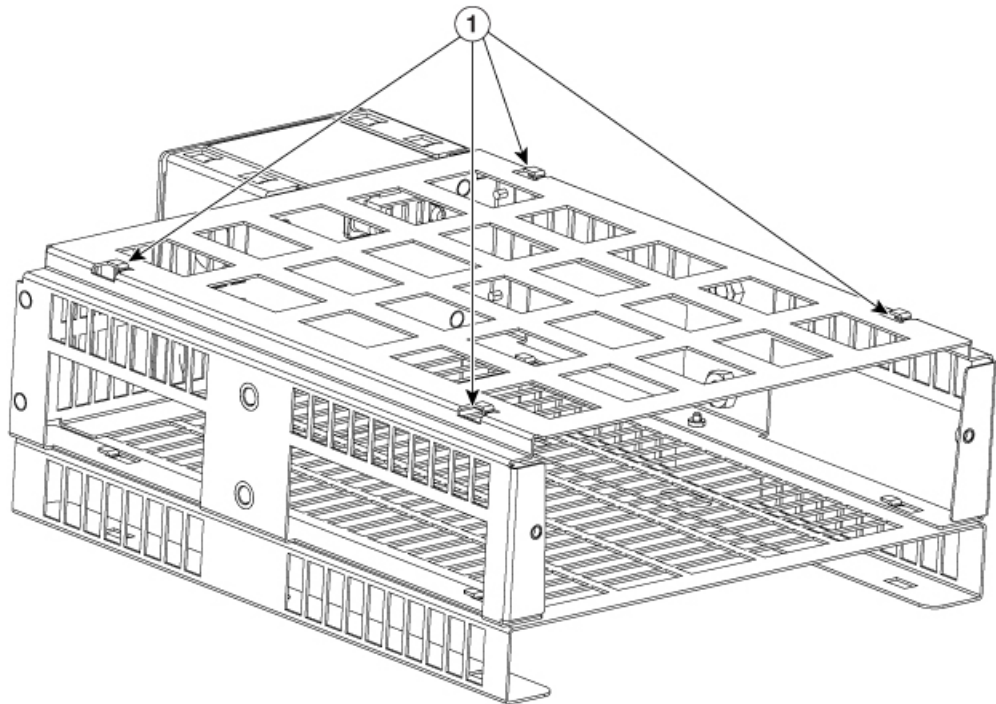
Top Vertical Mount with two Flexible Mounts

Use the following procedure to attach two flexible mounts together.

Procedure

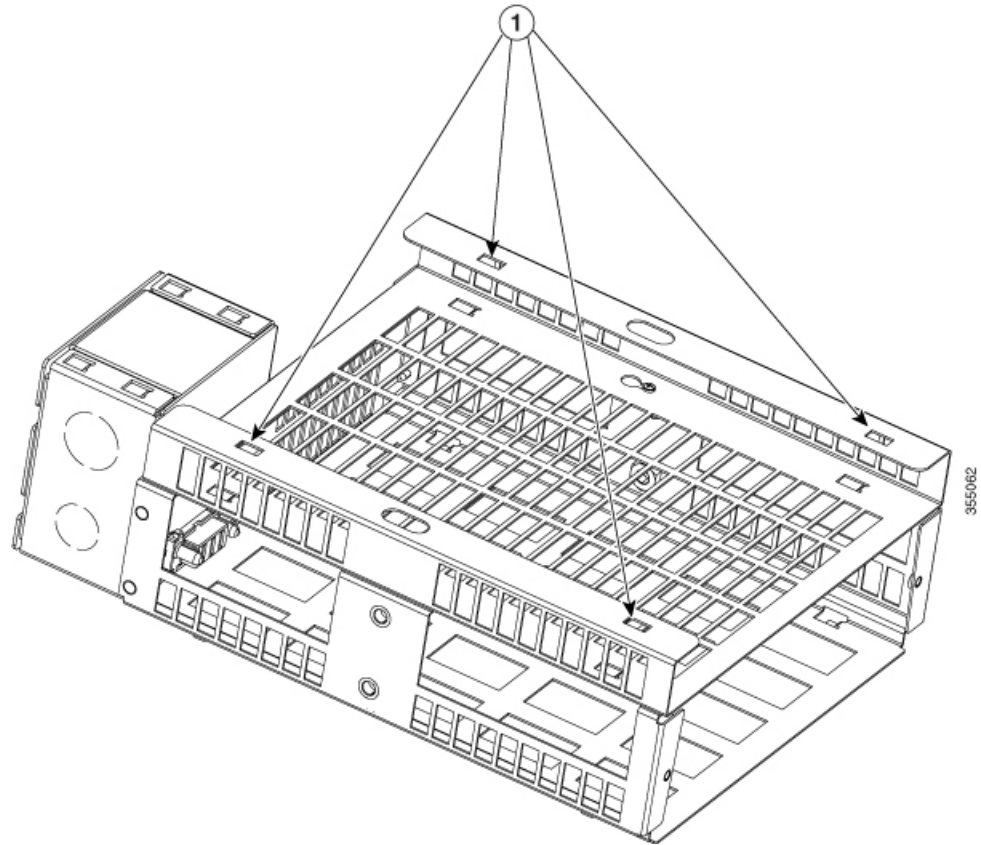
Step 1 Place the flexible mounts on a flat surface. Slide the four tabs at the bottom of the flexible mount into the corresponding four slots of the other flexible mount at once. Following figures show the location of tabs and slots on the flexible mount.

Figure 34: Tabs at the bottom of the flexible mount



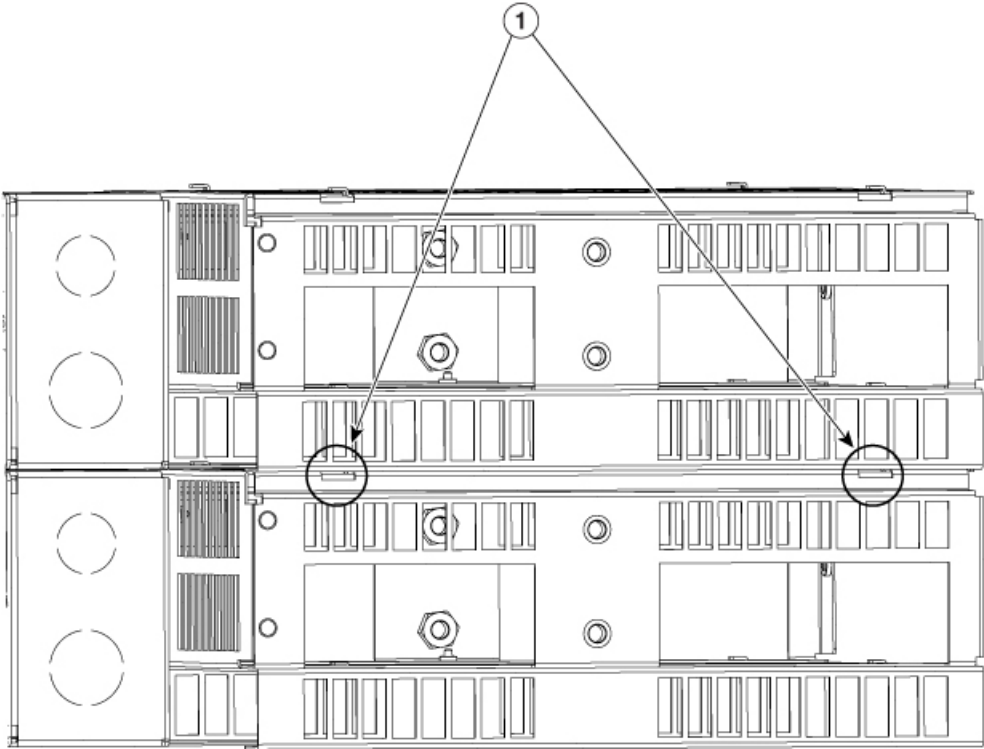
1	Tabs
---	------

Figure 35: Slots at the top of the flexible mount



1	Slots
---	-------

Figure 36: Joining two flexible mounts

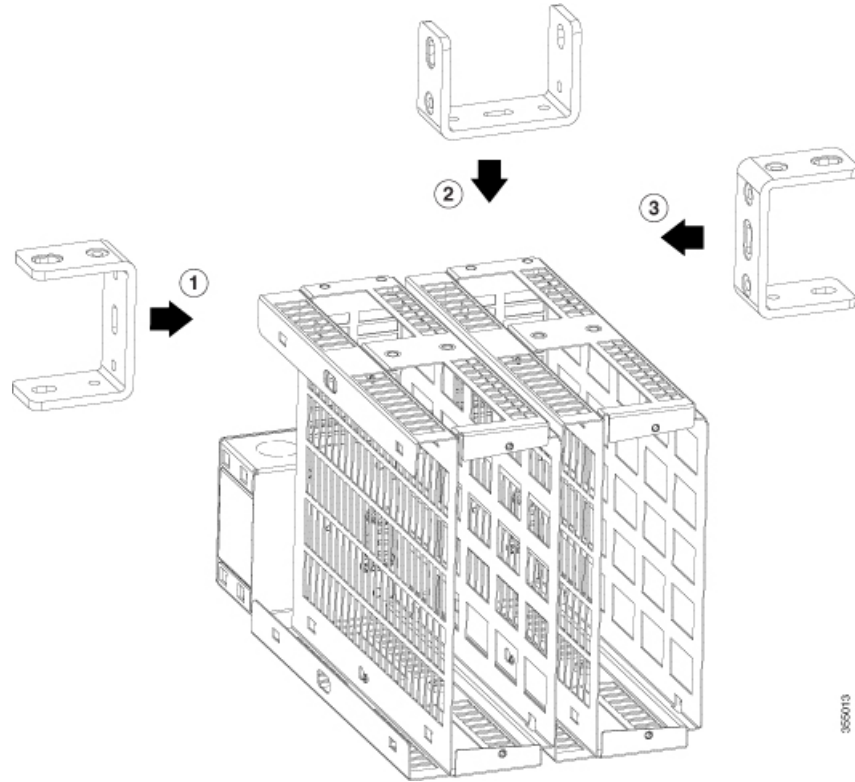


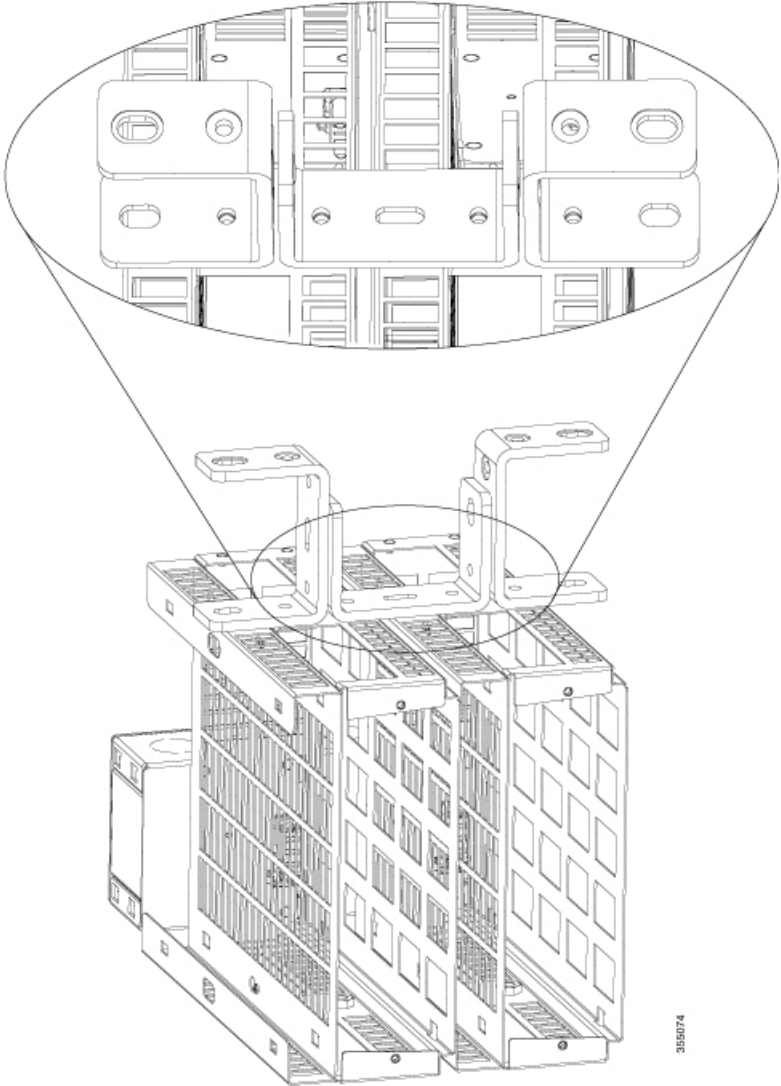
365063

1	Tabs and slots locked together
---	--------------------------------

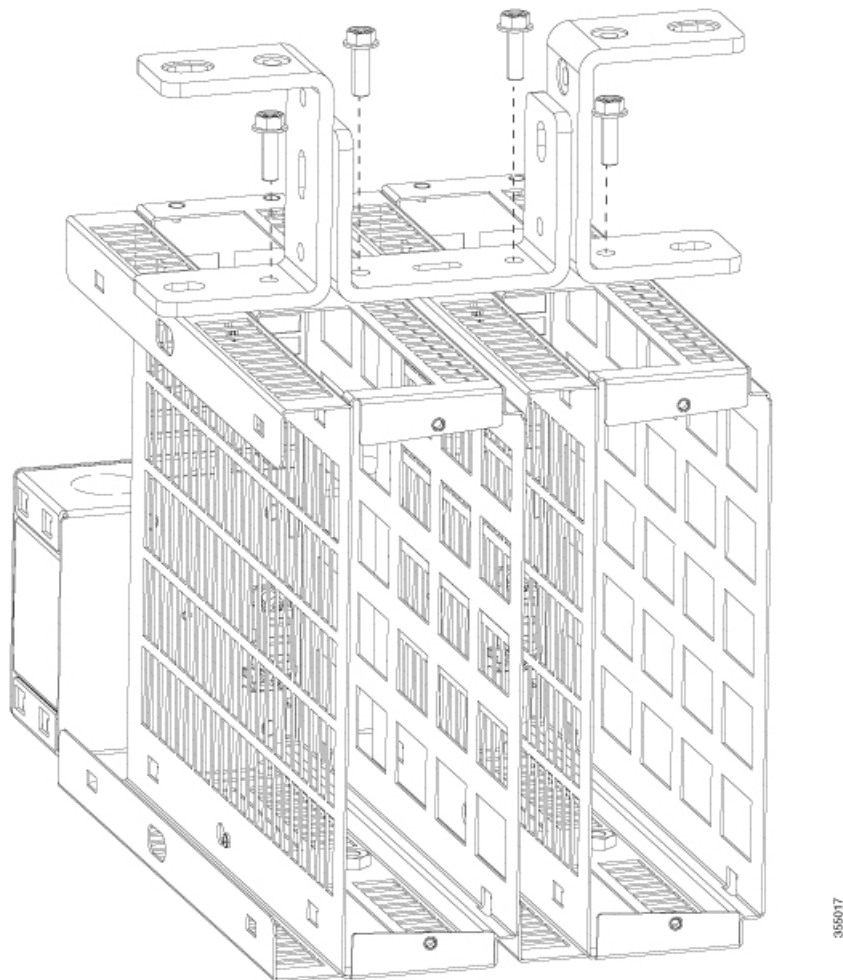
Step 2 Align the brackets and attach them to the flexible mount using the 1/4" mounting screws.

Figure 37: Attaching two flexible mounts





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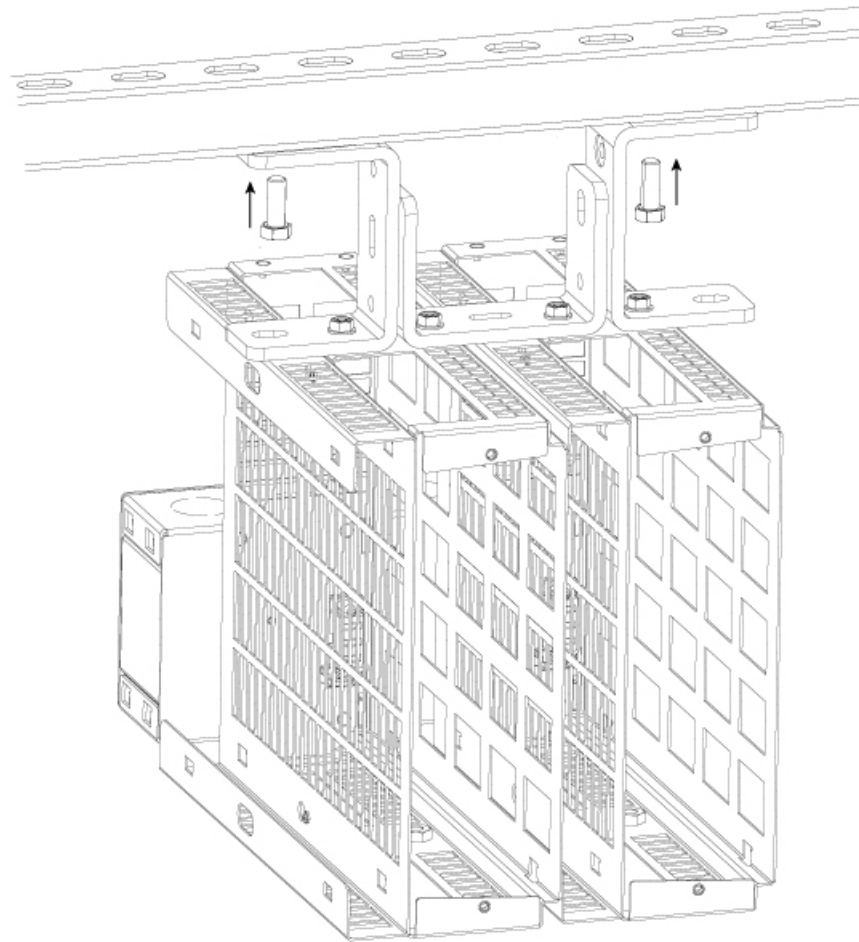
Step 3 Position the assembly as shown in the figure. Align one of the screw holes — 1/4" or 3/8" — of the mounting bracket to the strut nut hole on the strut channel and secure the bracket to the strut channel using a bolt matching to the strut nut.

Note The bolt must match the strut nut.

Repeat the step to attach the other bracket to the strut channel.

Figure 38: Attaching combined flexible mount assembly to strut

Note In the following figure, 3/8" hole is used to attach the assembly to the strut channel. You can also use 1/4" hole to attach the assembly to the strut channel.



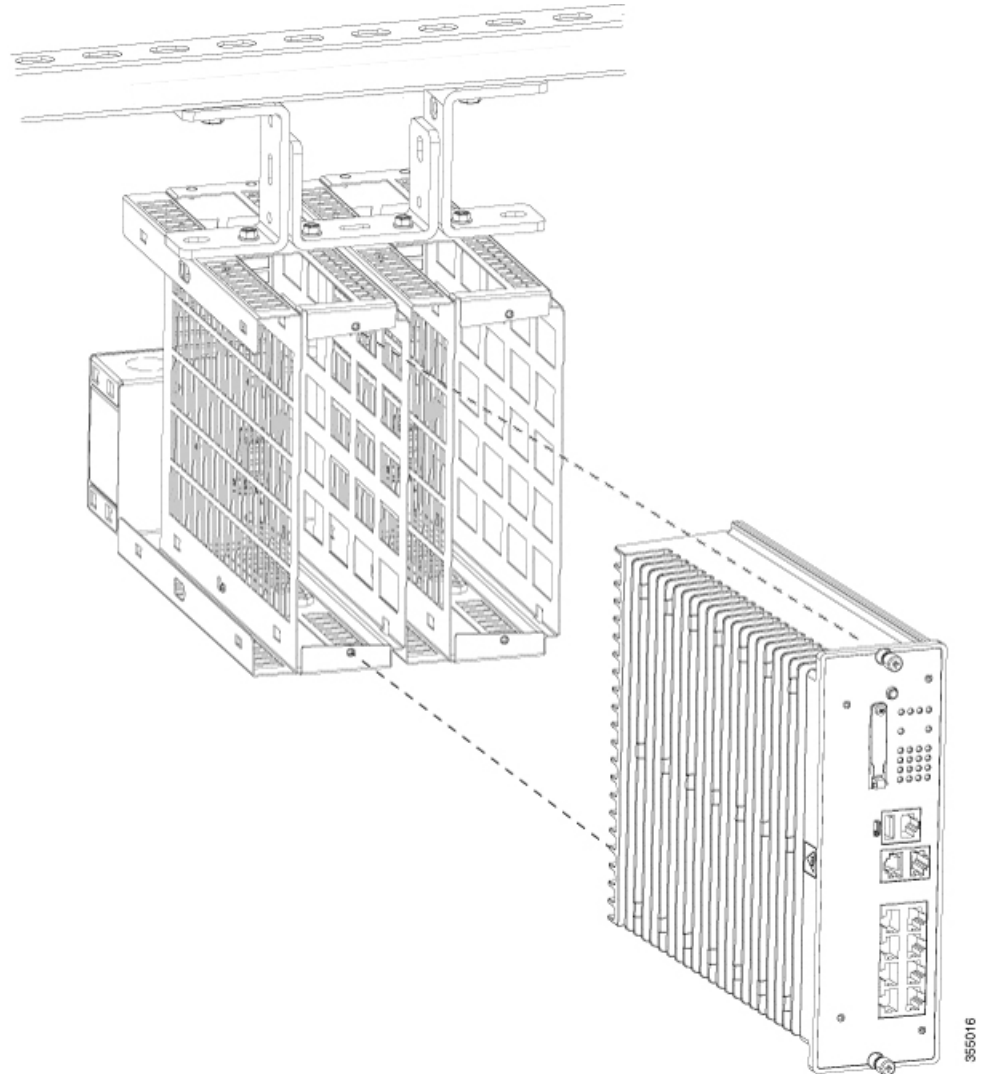
Step 4 Connect to a power source.

- To connect the assembly which uses flexible mount with direct-wired junction box (CDB-MNT-FLEX-DIR) to a power source, use an armored cable. See [Electrical Installation](#) section. CDB-MNT-FLEX-DIR accepts 100V – 277V AC Input.
- To connect the assembly which uses flexible mount with IEC C14 power junction box (CDB-MNT-FLEX-C14) to a power source, use country-specific power cord. CDB-MNT-FLEX-C14 accepts 100V – 240V AC Input.

Step 5 Slide the switch into the flexible mount in a front mounting position as shown in the figure and tighten thumb screws to secure the switch to flexible mount.

Warning Maintain 3-inch of space to any surface above the flex mount to allow proper cooling.

Figure 39: Inserting switch into flexible mount assembly



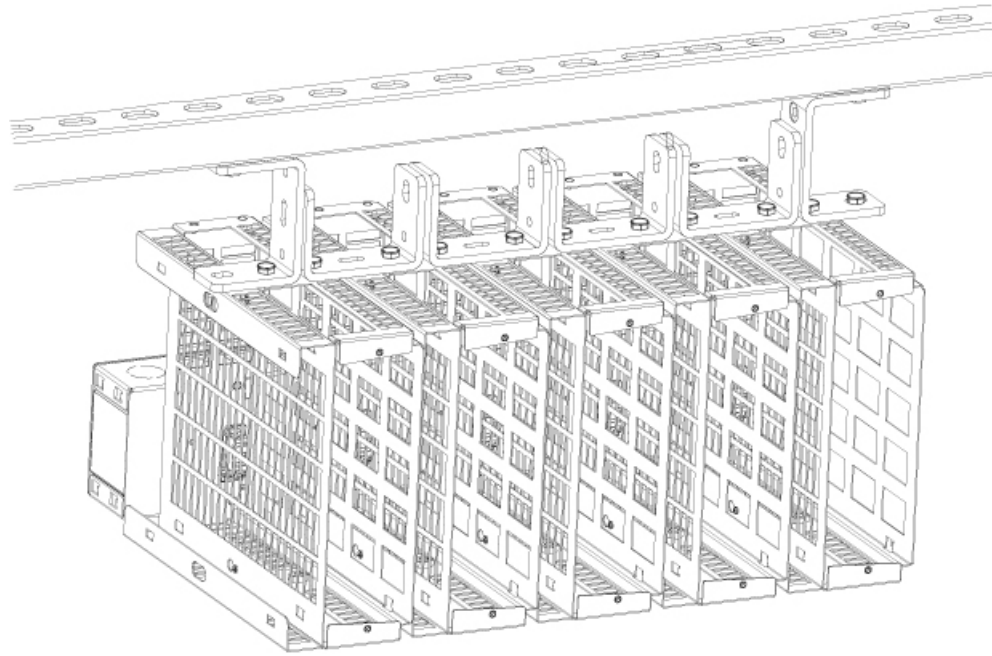
You can combine multiple flexible mounts together using the above procedure.



Note

Maximum recommended number of flexible mounts that you can combine together is five.

Top Vertical Mount with five Flexible Mounts



355027

Wall Mount

To install the Catalyst Digital Building Series Switch in a flexible mount on to a wall, follow these steps :

**Note**

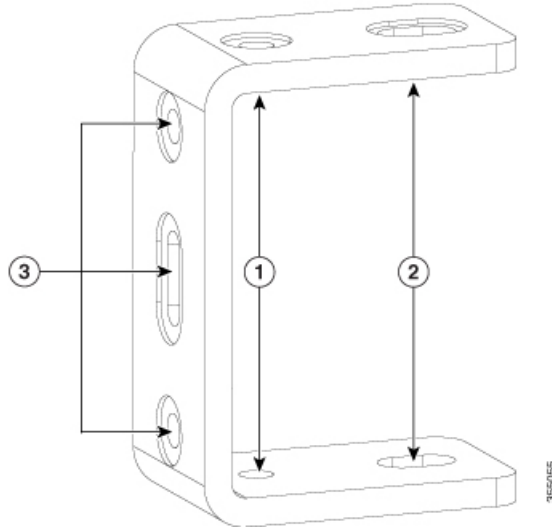
If you are using the flexible mount with a direct-wired junction box (CDB-MNT-FLEX-DIR), refer to the [Electrical Installation](#) section before you start the installation procedure.

Before You Begin

- Refer to [Installation Guidelines](#) section.
- Refer to [Electrical Installation](#) section if you are using the flexible mount with direct-wired junction box (CDB-MNT-FLEX-DIR).

- Review the following illustrations and tables.

Figure 40: Mounting Bracket Detail

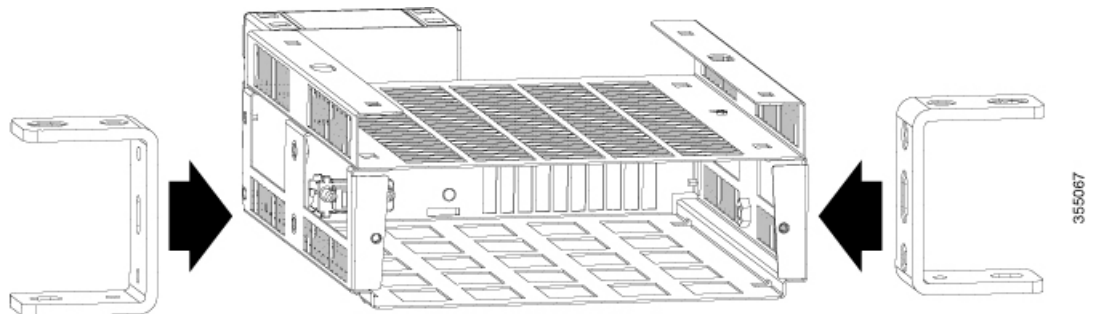


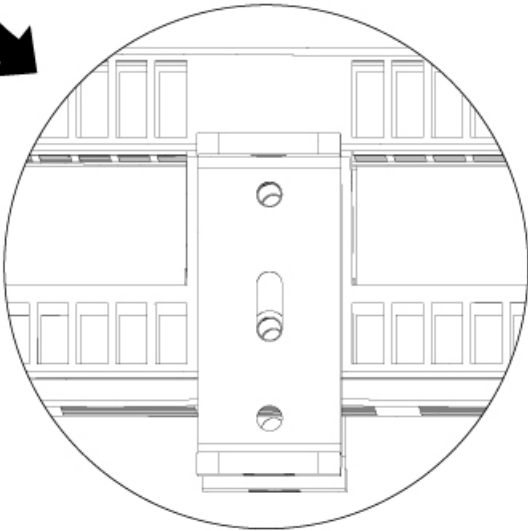
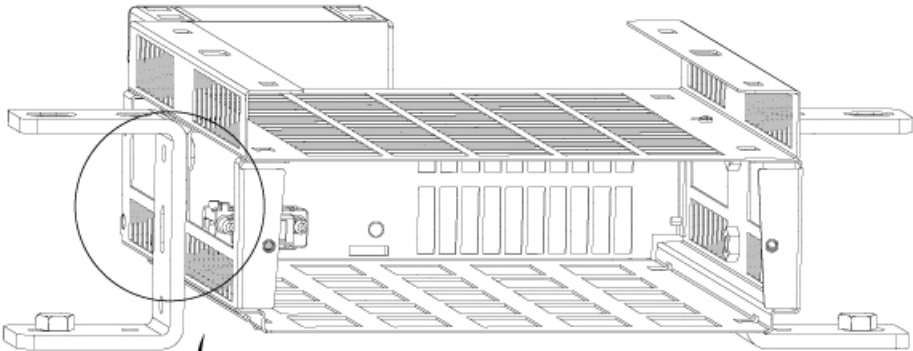
1	1/4" hole for attaching to strut channel or to a wall
2	3/8" hole for attaching to strut channel or to a wall
3	Mounting screw holes

Procedure

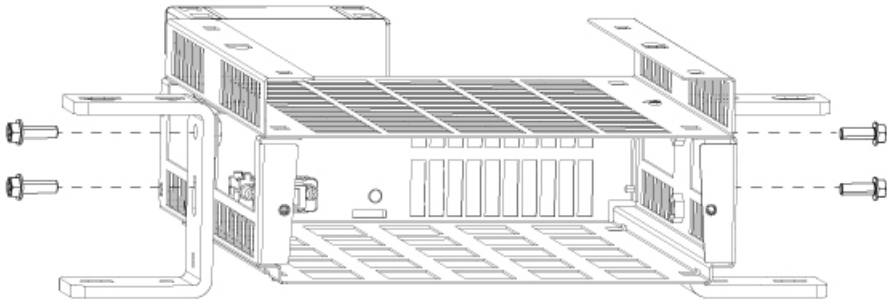
- Step 1** Place the flexible mount horizontally on a flat surface.
- Step 2** Align mounting brackets to both sides of the flexible mount and attach them to the mount with the 1/4" mounting screws supplied.

Figure 41: Attaching mounting brackets to the flexible mount





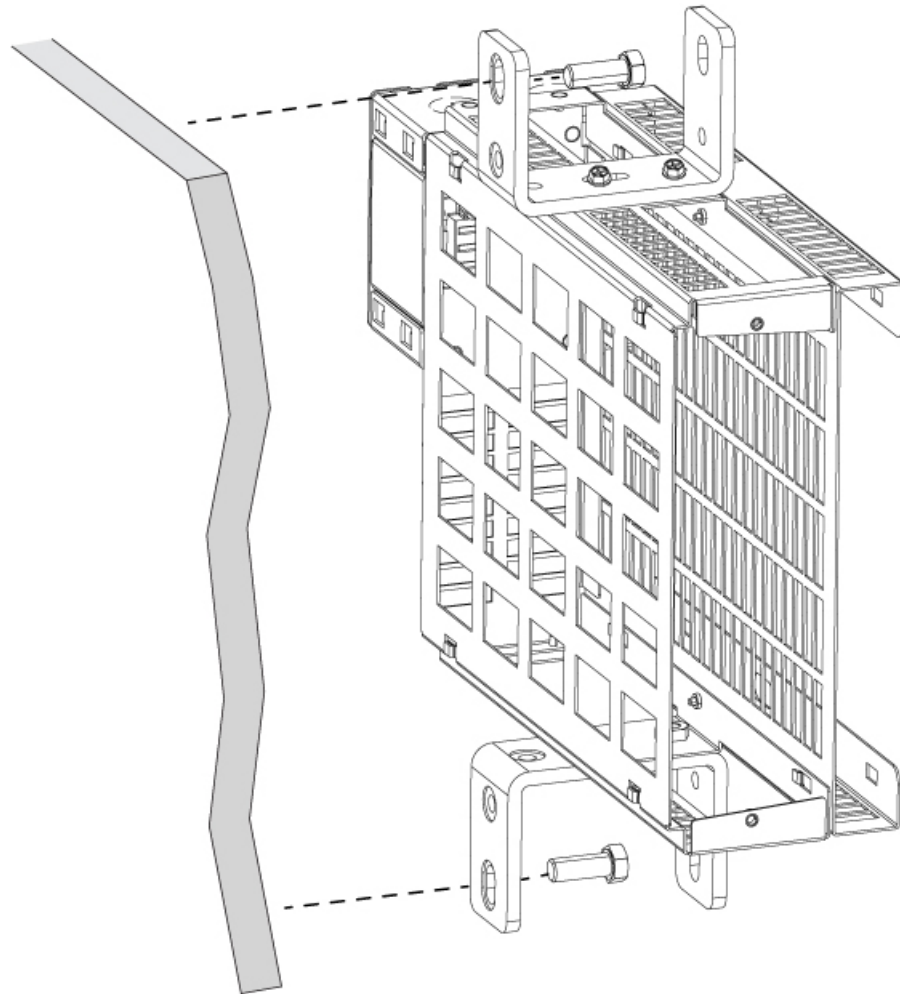
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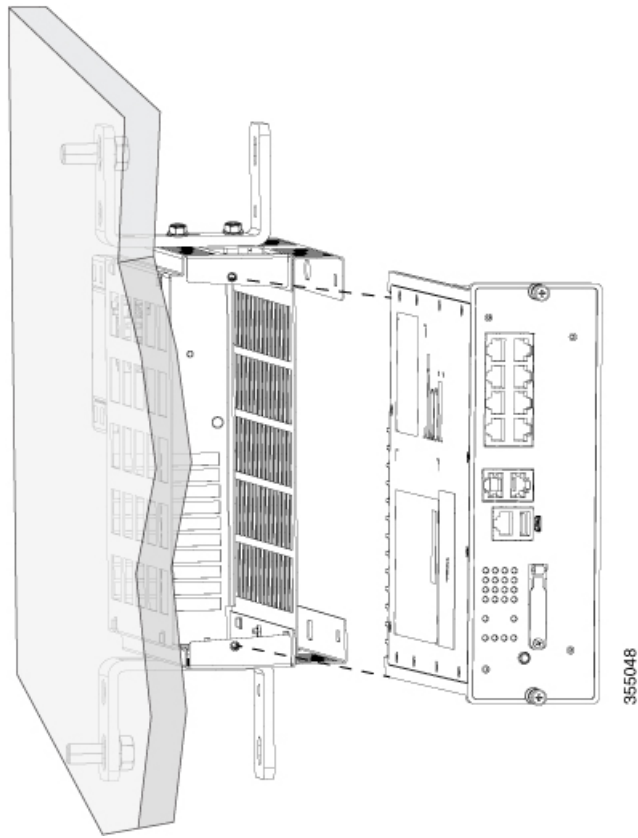
- Step 3** Drill two holes in the wall and insert mounting screws into the holes.
- Step 4** Position the assembly vertically as shown in the figure. Insert screws through the 3/8" or 1/4" hole of mounting bracket into the wall and secure the assembly against the wall.

Figure 42: Attaching flexible mount assembly to the wall



955020

- Step 5** Connect to a power source.
- To connect the assembly which uses flexible mount with direct-wired junction box (CDB-MNT-FLEX-DIR) to a power source, use an armored cable. See [Electrical Installation](#) section. CDB-MNT-FLEX-DIR accepts 100V – 277V AC Input.
 - To connect the assembly which uses flexible mount with IEC C14 power junction box (CDB-MNT-FLEX-C14) to a power source, use country-specific power cord. CDB-MNT-FLEX-C14 accepts 100V – 240V AC Input.
- Step 6** Slide the switch into the flexible mount in a front mounting position as shown in the figure and tighten thumb screws to secure the switch to flexible mount.

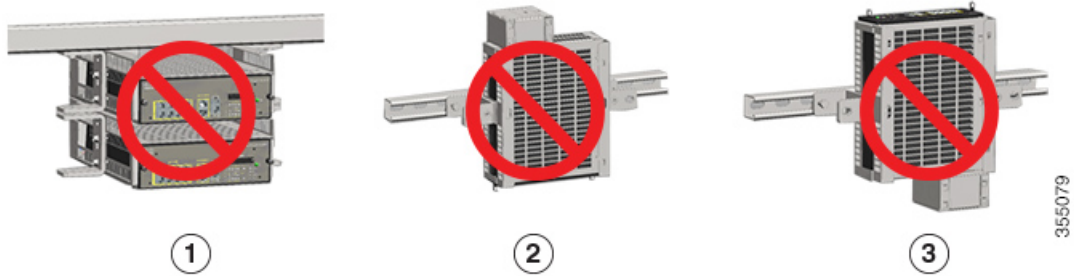


Note The complete assembly of the flexible mount, mounting brackets and the switch weighs 15 lbs for the wall mount case. When mounted directly on a surface, care must be taken to choose fasteners that can safely hold the switch and mounting hardware, which weighs 15 lbs (6.8 kg), under all use conditions.

Prohibited Mounting Orientations

Following mounting orientations are not allowed. These mounting orientations will cause overheating.

Figure 43: Prohibited Mounting Orientations



1	Horizontal stacking
2	Ports facing down
3	Ports facing up

Electrical Installation

Electrical installation requires connecting the switch to a power source. Each type of flexible mount has a different procedure for completing electrical connections. These are explained below.



Warning

All power connection wiring should conform to the rules and regulations in the National Electrical Code (NEC), as well as any local codes.

Flexible Mount with Direct-Wired Junction Box

To complete wiring of the direct-wired junction box and to connect to a power source, follow these steps:



Note

Only a trained and qualified electrician should be allowed to perform the procedure explained below.

Procedure

- Step 1** Ensure that supply wiring is not energized prior to installing the flexible mount.
- Step 2** Remove screw from the direct-wired junction box to open the cover.
- Step 3** Determine mounting orientation and identify the desired wiring entry and exit points from the flexible mount's integrated junction box.
- Step 4** Remove the appropriate knockout(s), either 1/2" or 3/4" from the top or bottom, based on the connector type employed in the installation.
- Step 5** Prepare an armored cable by stripping conductor ends approximately 1/2" or 3/4".
- Step 6** After preparing the cable for connection, attach the cable to an approved connector and install the connector in the appropriate knockout. Ensure that you leave a sufficient working length of wire inside the junction box.
- Step 7** Strip supply wires. Remove pre-stripped insulation from wires supplied inside the flexible mount.
- Step 8** Twist stripped ends of wires and secure the wires with a wire nut or other approved junction device. Supply wires are color coded: Hot-black, Neutral-white, Ground-green/yellow. Verify that connections are made with the appropriate supply wires as color codes may vary.
 - If you are combining multiple flexible mounts to form a single wiring raceway, remove the metal divider plates that separate adjoining junction boxes. Ensure that you leave the divider plates in place on either end of the raceway.
 - When you join two or more flexible mounts with direct-wired junction box, join the Hot, Neutral and Ground supply wires of one wiring box to the corresponding Hot, Neutral and Ground supply wires of

the adjacent wiring box. This allows wiring multiple units to the same circuit with only a single supply wire entry point.

Warning When combining multiple switches on a single circuit, refer to the switch ampacity tables below to verify that the number of switches is appropriate, given the circuit's voltage and ampacity. The switch ampacity table provides number of units that fit on a single circuit (after derating to 80% of capacity), i.e. 15A circuit gives number of units possible when only 12A (80% of 15A) is used.

Table 2: Switch Ampacity Rating for Catalyst Digital Building Series PoE/PoE+ Switch

CDB-8P		Circuit Breaker Rating:	15A	20A	30A
Nominal Input Voltage	Maximum Current Consumption	Circuit Breaker Derating (80%):	12A	16A	24A
115VAC	2.68A	Units / Circuit	4	6	9
230VAC	1.34A	Units / Circuit	9	12	18
277VAC	1.16A	Units / Circuit	10	14	21

Table 3: Switch Ampacity Rating for Catalyst Digital Building Series UPOE Switch

CDB-8U		Circuit Breaker Rating:	15A	20A	30A
Nominal Input Voltage	Maximum Current Consumption	Circuit Breaker Derating (80%):	12A	16A	24A
115VAC	5.18A	Units / Circuit	2	3	4
230VAC	2.59A	Units / Circuit	4	6	9
277VAC	2.18A	Units / Circuit	5	7	11

- Step 9** Secure all excess wire in the raceway. Ensure that no exposed conductors are present.
 - Step 10** Secure junction box cover with screws.
 - Step 11** Once all wiring is complete, re-energize the supply circuit.
 - Step 12** Install switches into the mounts and check for proper operation.
-

Flexible Mount with IEC C14 Power Junction Box

To connect to a power source, follow these steps:

Procedure

- Step 1** Plug the IEC C14 power cord into the power connector on the flexible mount.
 - Step 2** Plug the other end of the power cord into a power source.
-

Rack Mounting

Installing the switch in a rack requires 5RU high 19-inch rack mount chassis (CDB-MNT-RACK5-C14).

Figure 44: Front View of Rack Mount Chassis

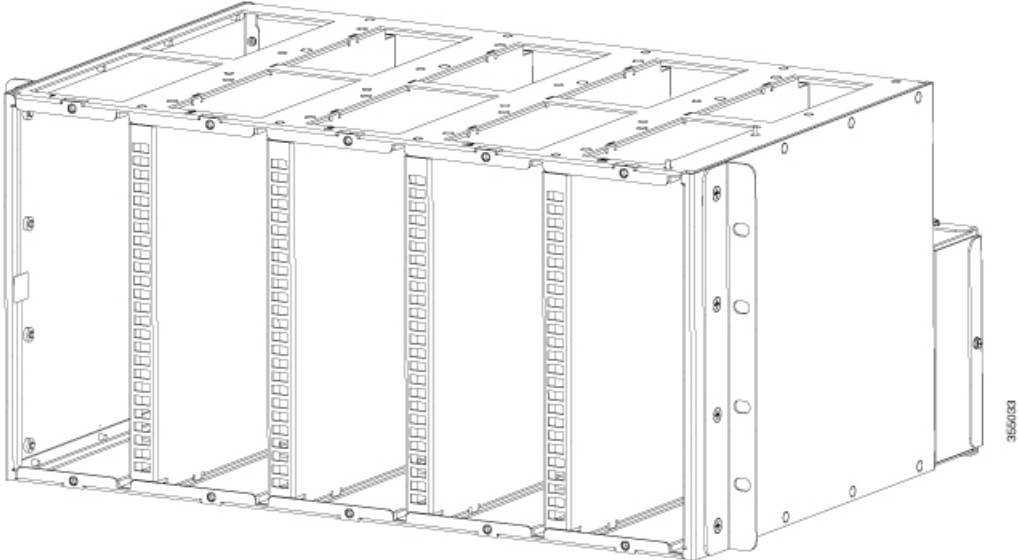
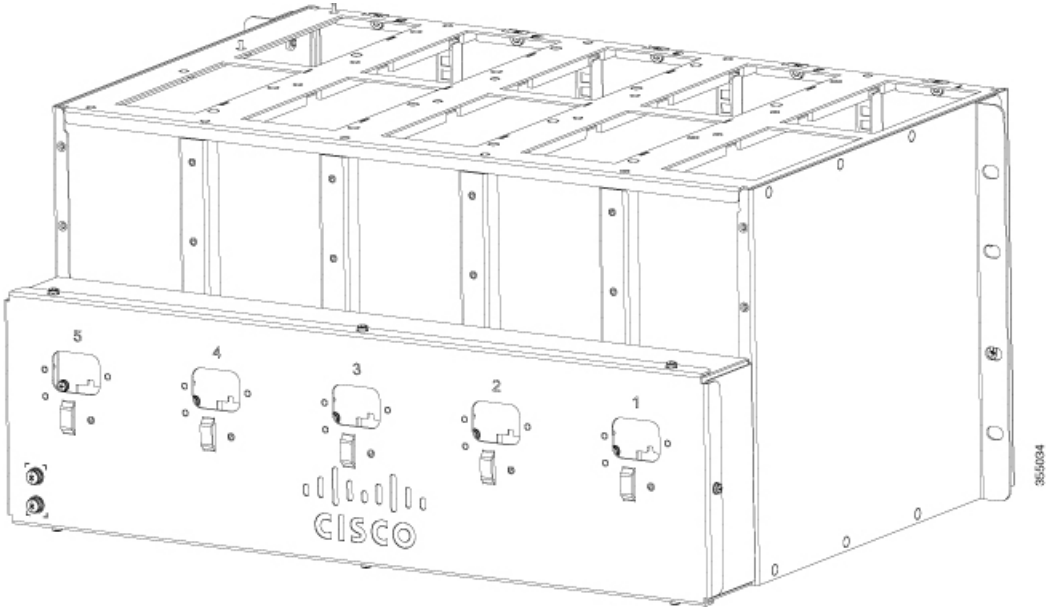


Figure 45: Rear View of Rack Mount Chassis



**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

**Note**

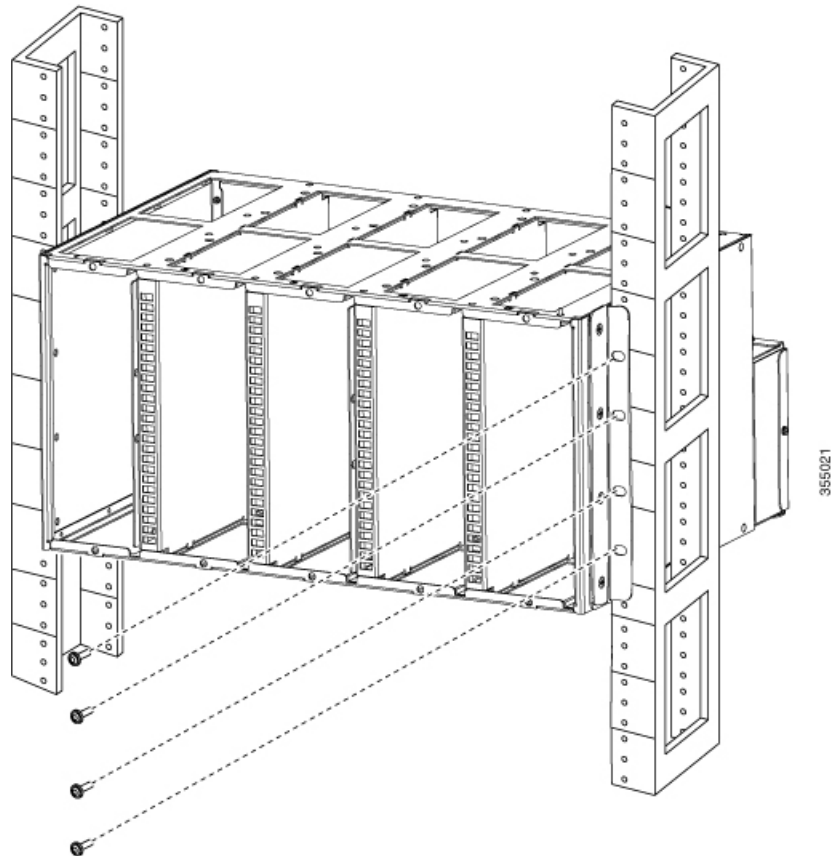
Unit in the above warning statement refers to the rack mount chassis (CDB-MNT-RACK5-C14).

Use the following procedure to install a Catalyst Digital Building Series Switch in a rack.

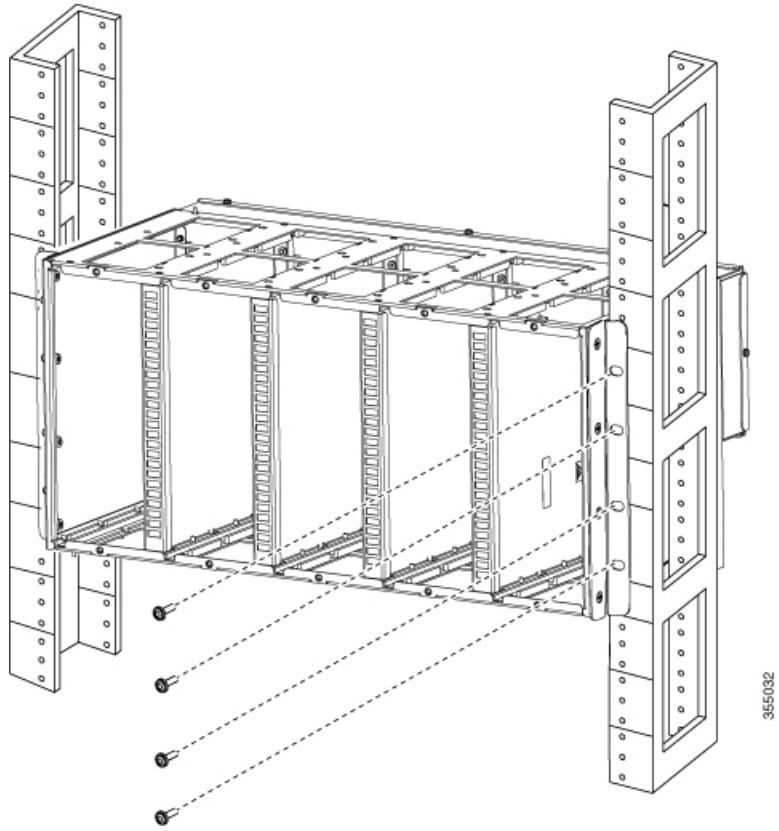
Procedure

- Step 1** Position the 19-inch 5RU rack mount chassis in the rack and align the mounting holes in the chassis with the mounting holes in the rack. Secure the chassis using eight 10-32 or 12-24 screws to the rack post.

Figure 46: Installation of Rack Mount Chassis on a 19-inch Rack

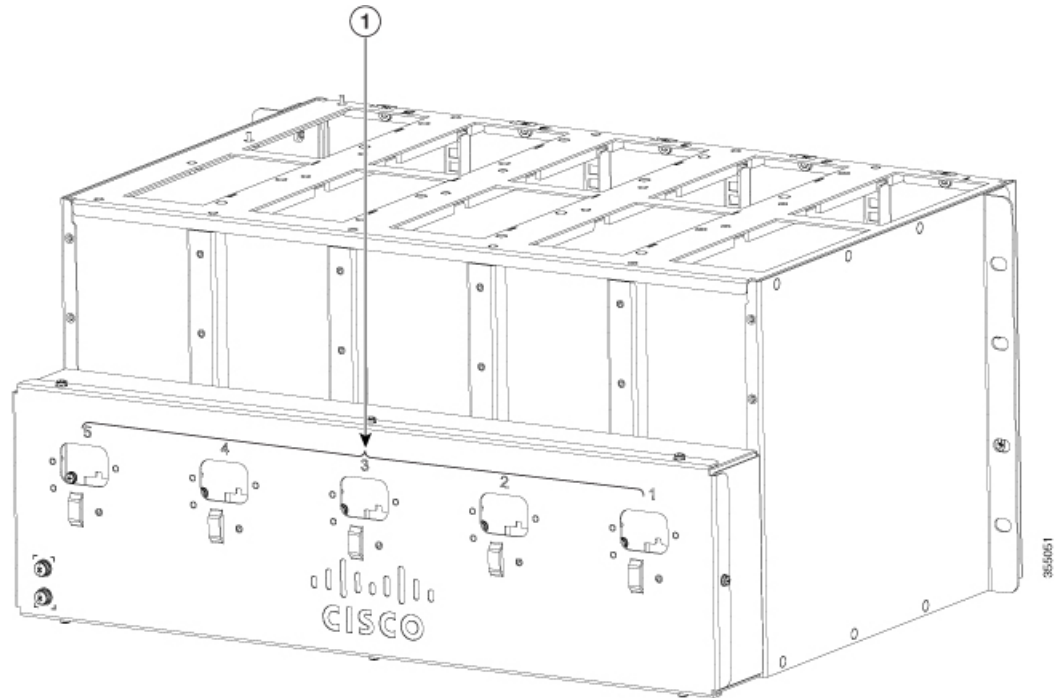


You can also install the rack mount chassis upside down if required for cable routing.



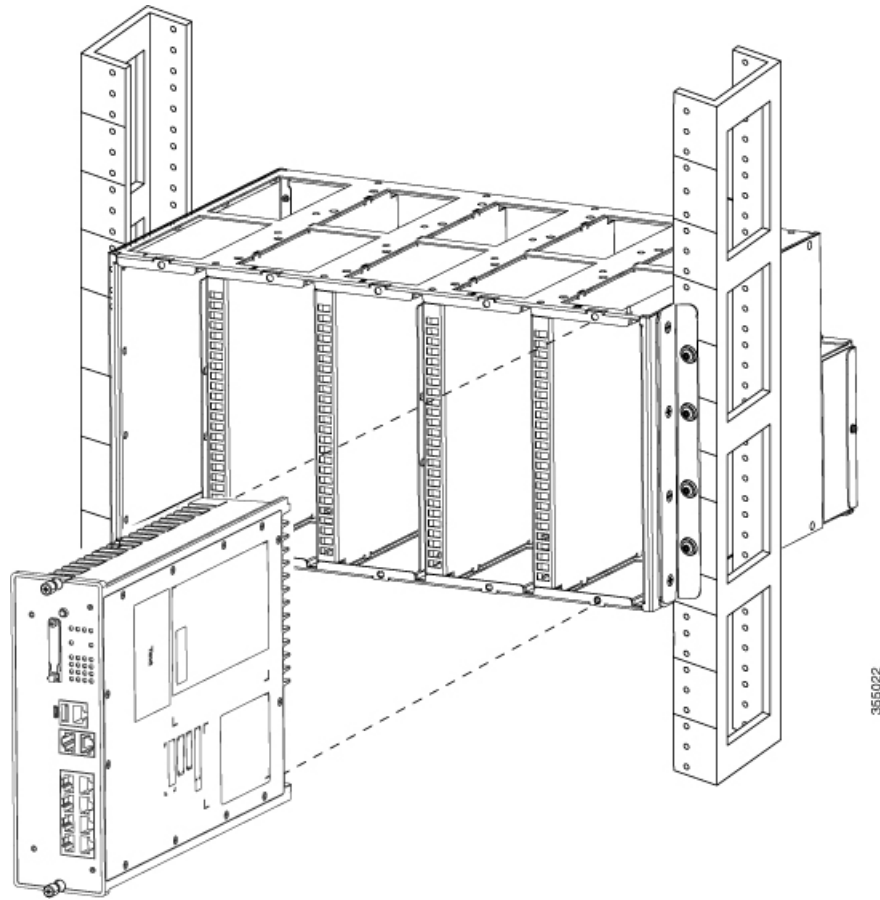
- Step 2** Plug country-specific power cords to power connectors on the rack mount chassis. Plug the other ends of the power cords to a power source.

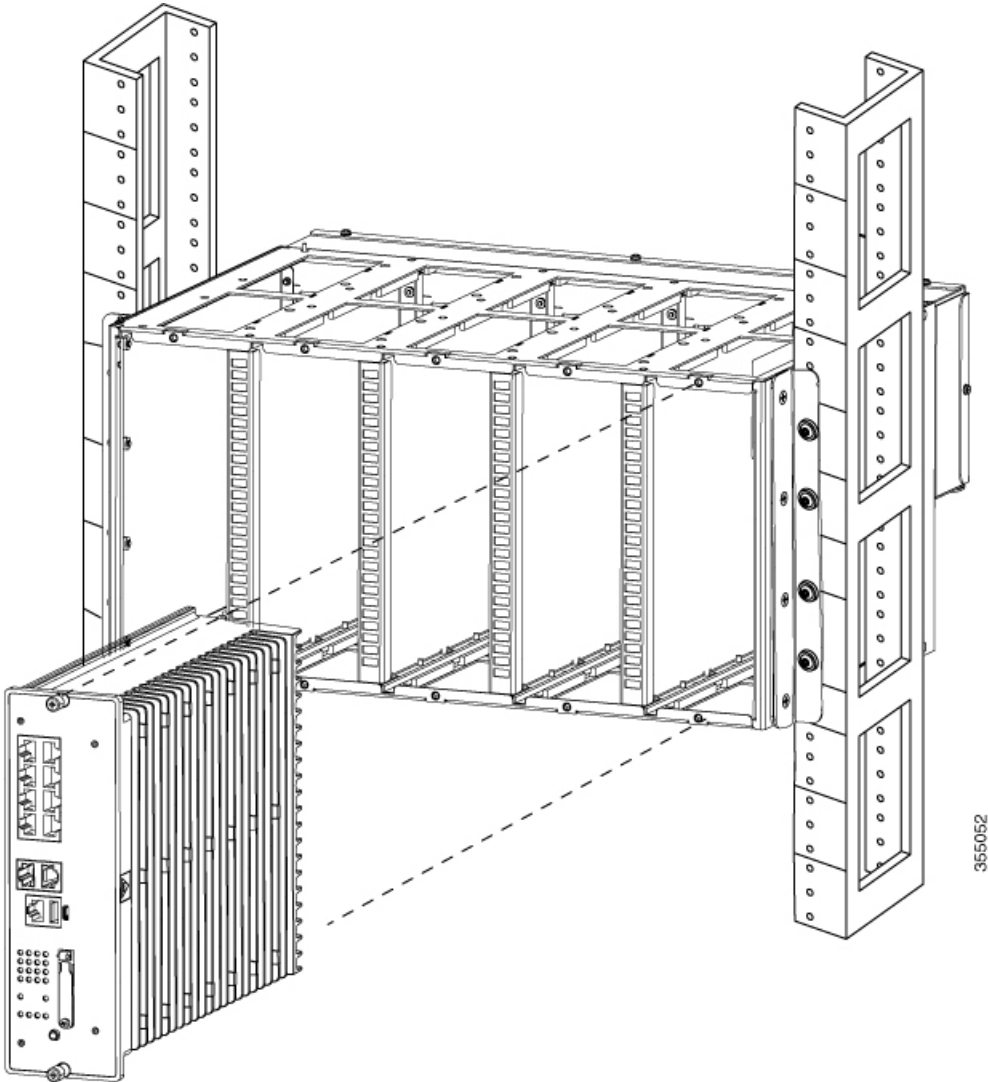
Figure 47:



1	IEC C14 power connector
---	-------------------------

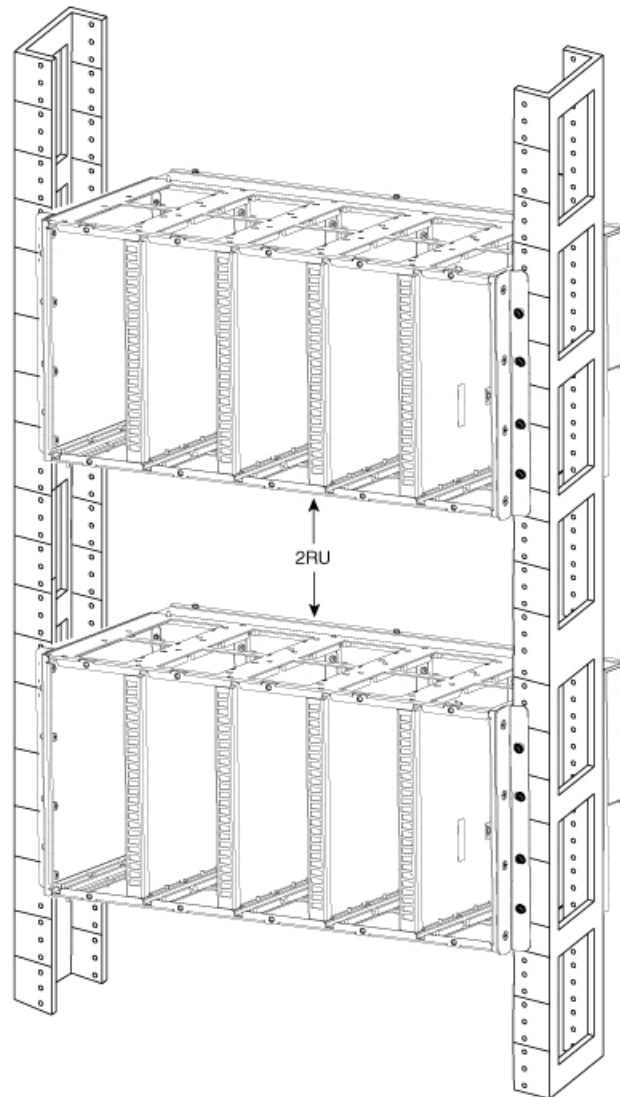
- Step 3** Slide the switches into each of the rack unit slots in a front-mounting position and secure them to the rack using the supplied screws as shown in the figure.





Warning

You must leave 2RU gap between each rack unit for ventilation unless forced air is provided top to bottom in the rack.



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What to Do Next

After installing the switch in the chassis, complete the installation process by grounding the chassis. See [Establishing the System Ground](#).

Establishing the System Ground

This section describes how to connect a system ground to the switch.

The system ground provides additional grounding for EMI shielding requirements and grounding for the low voltage supplies.

**Note**

In all situations, grounding practices must comply with Section 250 of the National Electric Code (NEC) requirements or local laws and regulations.

Required Tools and Equipment

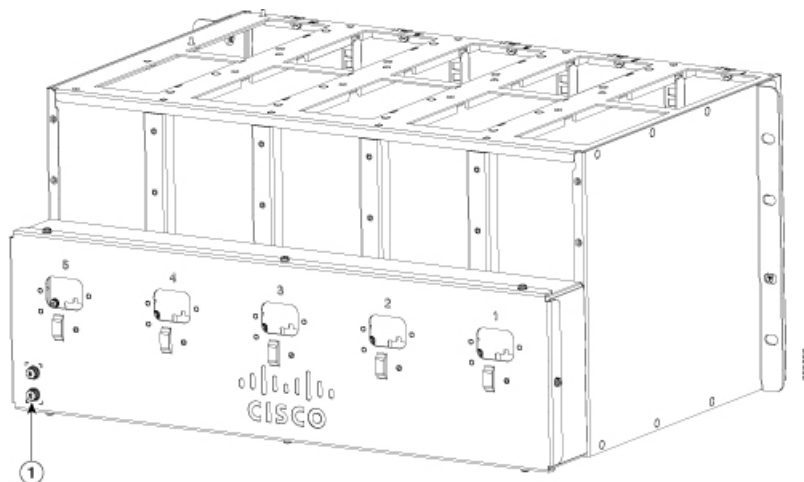
To connect the system ground, you need the following tools and materials:

- Grounding lug—A two-hole standard barrel lug. Supports 6 AWG wire. Supplied as part of accessory kit.
- Grounding screws—Two 8 mm pan-head screws. Supplied as part of the accessory kit.
- Grounding wire—Not supplied as part of accessory kit. The grounding wire should be sized according to local and national installation requirements. The length of the grounding wire depends on the proximity of the chassis to proper grounding facilities.
- No. 1 Phillips screwdriver.
- Crimping tool to crimp the grounding wire to the grounding lug.
- Wire-stripping tool to remove the insulation from the grounding wire.

Connecting the System Ground

To establish an earth ground for the chassis, you must attach a grounding cable from the chassis' grounding lug to the rack.

Figure 48: Connecting the System Ground



1

Location of system ground lug

Procedure

- Step 1** Use a wire-stripping tool to remove approximately 0.5 inch (12.7 mm) \pm 0.02 inch (0.5 mm) of the covering from the end of the grounding wire.
 - Step 2** Insert the stripped end of the grounding wire into the open end of the grounding lug.
 - Step 3** Crimp the grounding wire in the barrel of the grounding lug. Verify that the ground wire is securely attached to the ground lug.
 - Step 4** Place the grounding wire lug against the grounding pad, making sure that there is solid metal-to-metal contact.
 - Step 5** Secure the grounding lug to the chassis with two grounding screws. Ensure that the grounding lug and the grounding wire will not interfere with other switch hardware or rack equipment.
 - Step 6** Connect the other end of the grounding wire to an appropriate grounding point at your site or to the rack.
-

Installing the Power Cord Retainer

The power cord retainer (PWR-CLP=) is optionally supplied as part of accessory kit with the 5RU 19" rack mount chassis (CDB-MNT-RACK5-C14) and flexible mount with IEC C14 power junction box (CDB-MNT-FLEX-C14).

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 49: Inserting the Retainer through the Lanced Loop (5RU 19" Rack Mount Chassis)

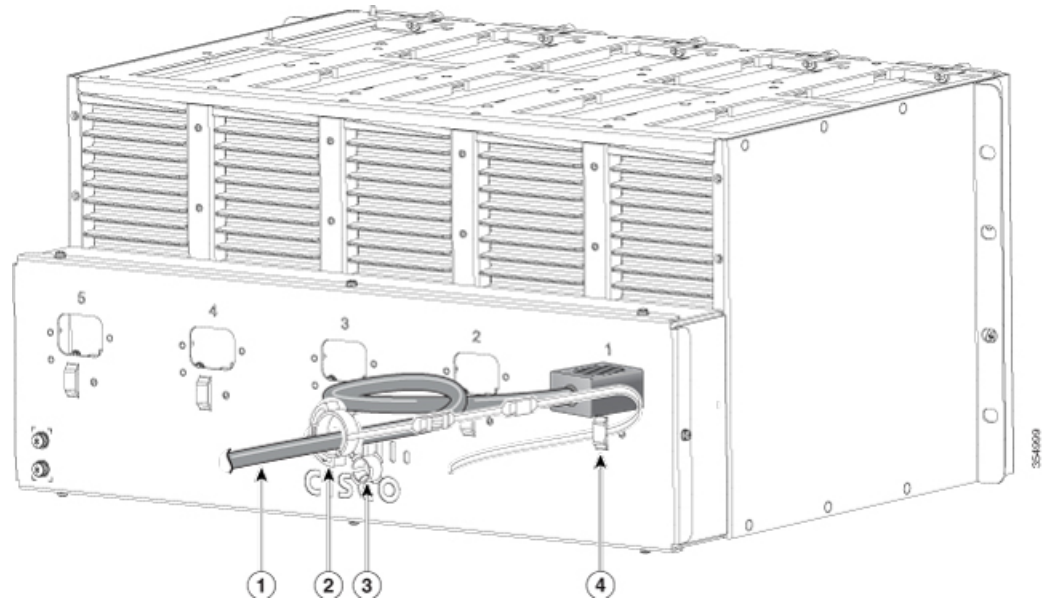
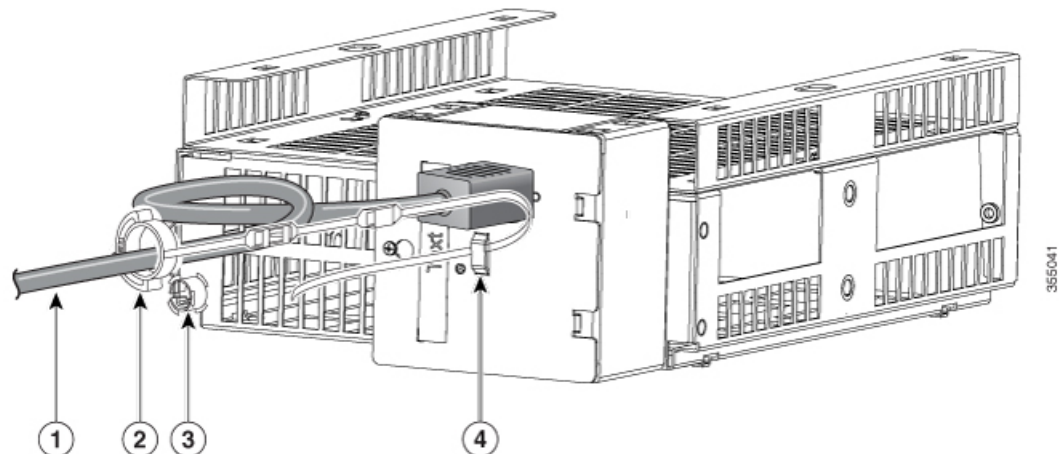


Figure 50: Inserting the Retainer through the Lanced Loop (Flexible mount with IEC C14 power junction box)



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 51: Sliding the Retainer Through the Latch (5RU 19" Rack Mount Chassis)

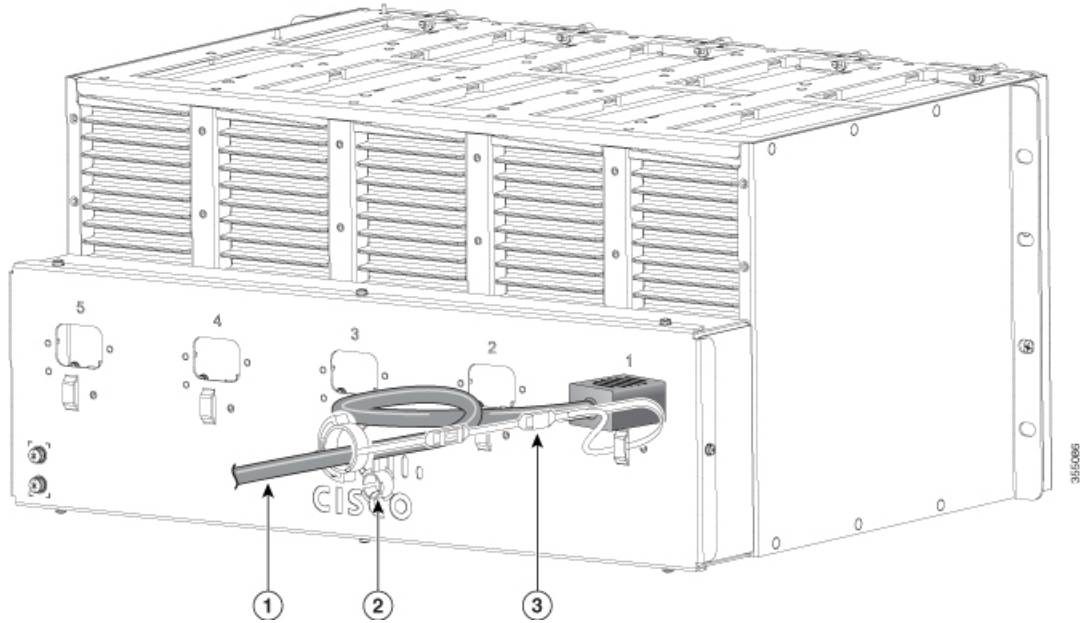
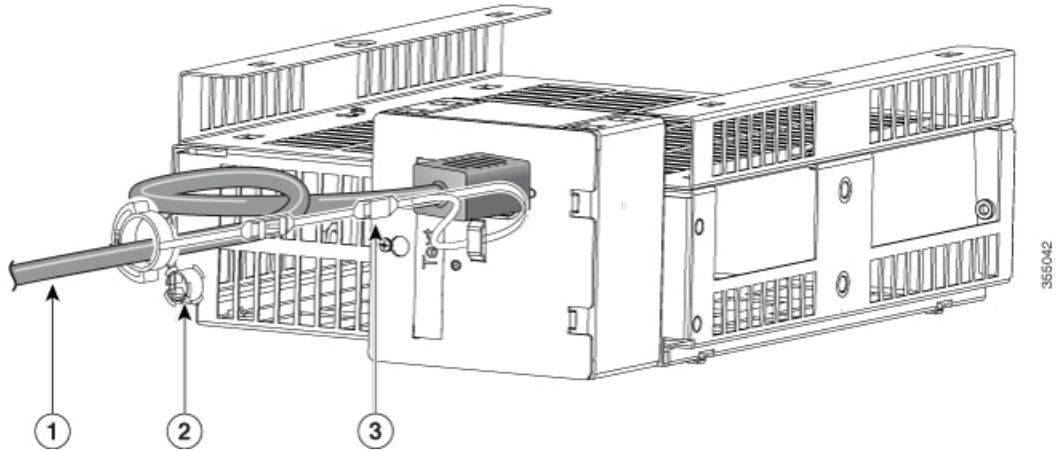


Figure 52: Sliding the Retainer Through the Latch (Flexible mount with IEC C14 power junction box)



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 53: Locking the Retainer (5RU 19" Rack Mount Chassis)

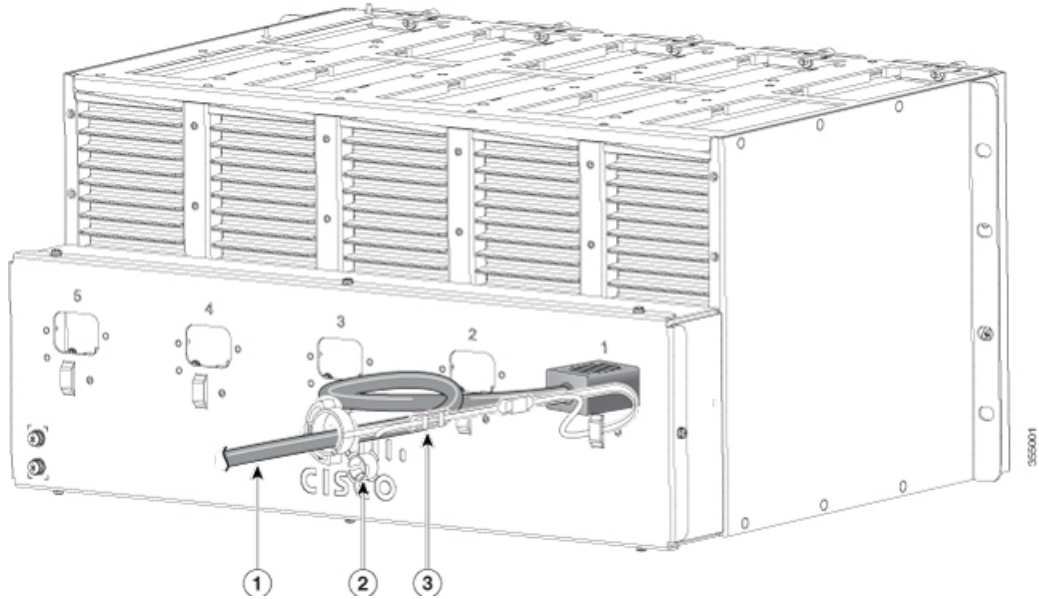
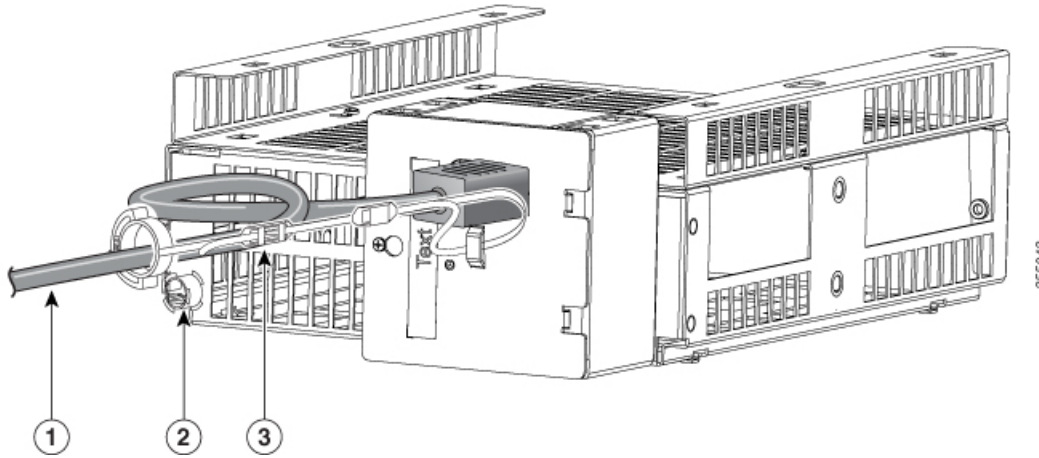


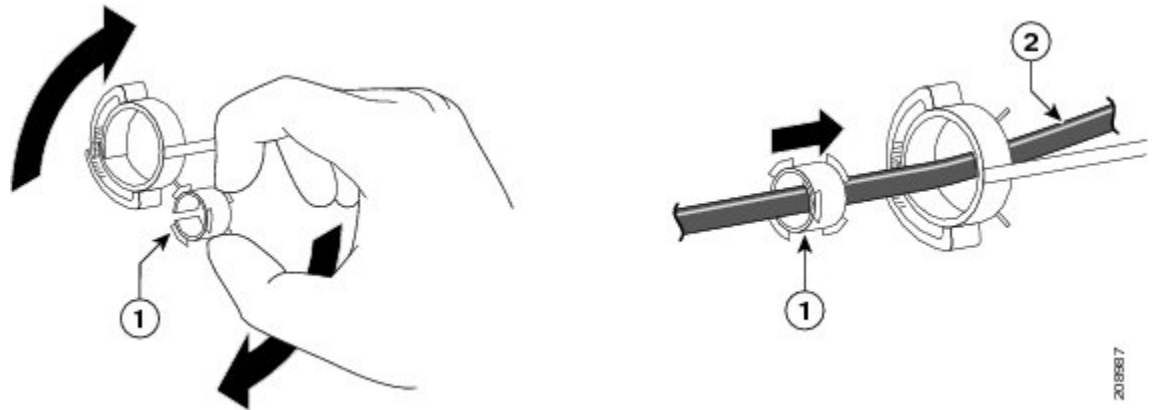
Figure 54: Locking the Retainer (Flexible mount with IEC C14 power junction box)



1	AC power cord	3	Latch
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.

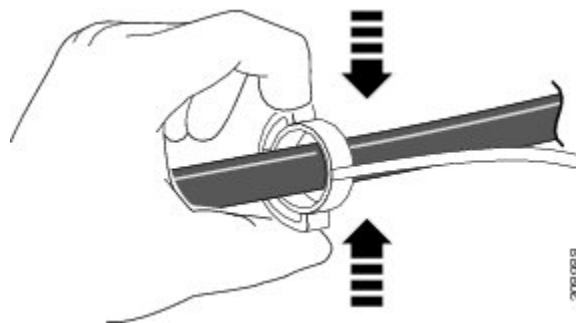
Figure 55: Sleeve Around the Power Cord



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

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

Figure 56: Securing the Power Cord in the Retainer



10/100 Port Connections

The switch 10/100 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.



Troubleshooting

This chapter contains these topics:

- [Diagnosing Problems, page 81](#)
- [Finding the Switch Serial Number, page 84](#)

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.

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 converters between the source and the destination. If possible, bypass the patch panel, or eliminate faulty media converters (fiber-optic-to-copper).
- Try the cable in another port or interface, if possible, to see if the problem follows the cable.

Ethernet 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 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 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 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.

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.

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

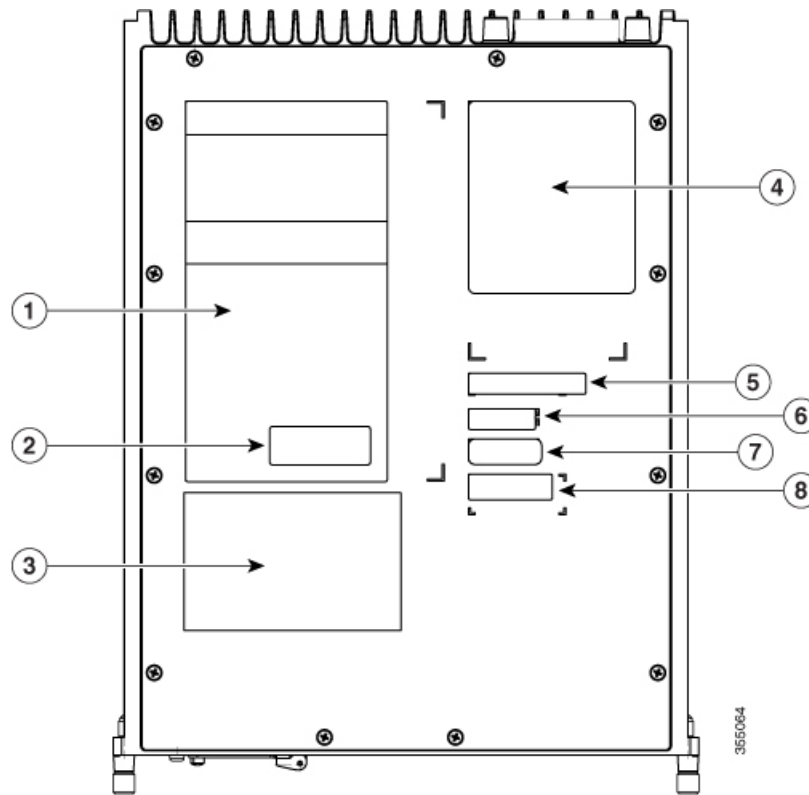
If the port statistics show excessive FCS, late-collision, or alignment errors, verify that the cable distance from the switch to the connected device meets the recommended guidelines.

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 57: Serial Number Location

Serial number of the switch is located at the bottom of the switch. Following illustration shows all the labels at the bottom of the switch.



1	Compliance information	5	Model number
2	Country of Origin	6	Serial number
3	China Network Access License information	7	CLEI code
4	Laser label	8	MAC address



Technical Specifications

This appendix contains these topics:

- [Physical Specifications, page 87](#)
- [Environmental Specifications, page 87](#)
- [Power Requirements, page 88](#)

Physical Specifications

Physical Dimensions	
Weight	<ul style="list-style-type: none"> • 9.65 lbs (4.38 kg) (CDB-8U) • 9.65 lbs (4.38 kg) (CDB-8P)
Dimensions (H x D x W)	<ul style="list-style-type: none"> • 2.75 x 8.72 x 11.07 in. (6.98 x 22.15 x 28.12 cm) (CDB-8U) • 2.75 x 8.72 x 11.07 in. (6.98 x 22.15 x 28.12 cm) (CDB-8P)

Environmental Specifications

Environmental Ranges	
Operating temperature 1 2	23 to 122°F (–5 to 50°C) up to 5000 ft (1524 m) 23 to 113°F (–5 to 45°C) up to 10,000 ft (3048 m)
Storage temperature	-13° to 158°F (-25° to 70°C) up to 15,000 ft (4572 m)
Operating relative humidity	5% to 90% (noncondensing)

Environmental Ranges	
Storage relative humidity	5% to 95% (noncondensing)
Operating altitude	Up to 10,000 ft (3048 m)
Storage altitude	Up to 15,000 ft (4572 m)

¹ Minimum ambient temperature for cold start is 32°F (0°C)

² Operation above 40°C may impact service life.

Power Requirements

Power Requirements	
AC input voltage	100 to 277 VAC (+/- 10%) CDB-8U <ul style="list-style-type: none"> • 5.18A (115 VAC) • 2.59A (230 VAC) • 2.18A (277 VAC) CDB-8P <ul style="list-style-type: none"> • 2.68A (115 VAC) • 1.34A (230 VAC) • 1.16A (277 VAC)
Power rating ³	<ul style="list-style-type: none"> • 600 W (CDB-8U) • 310 W (CDB-8P)

³ Switch dissipation only (excludes PoE, which is dissipated at the end device)



APPENDIX B

Connector and Cable Specifications

This appendix contains these topics:

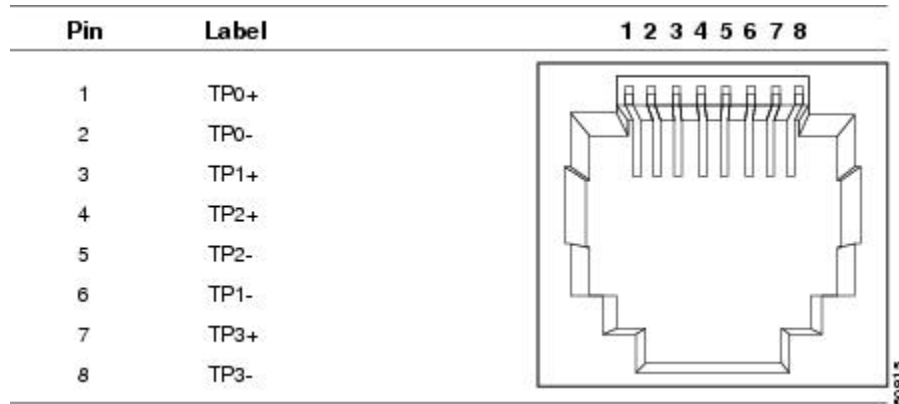
- [Connector Specifications, page 89](#)
- [Cables and Adapters, page 90](#)

Connector Specifications

10/100/1000 Ports (Including PoE)

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

Figure 58: 10/100/1000 Port Pinouts



Cables and Adapters

Cable Pinouts

Figure 59: Four Twisted-Pair Straight-Through Cable Schematic

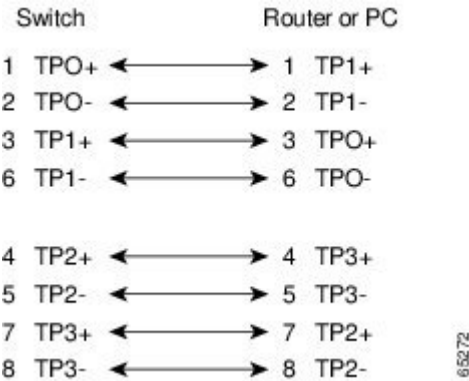


Figure 60: Four Twisted-Pair Semi-Cross Cable Schematic

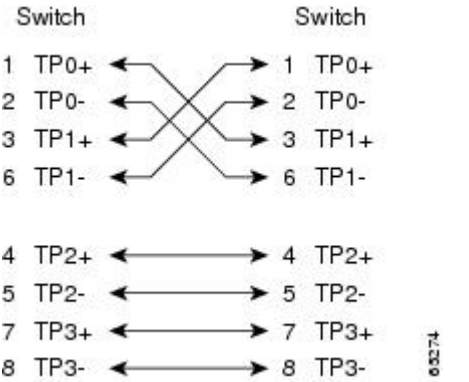


Figure 61: Two Twisted-Pair Straight-Through Cable Schematic

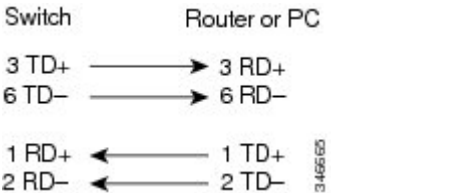
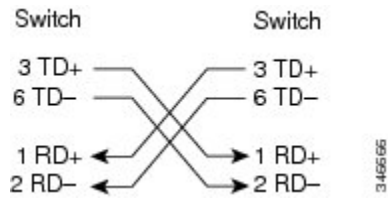


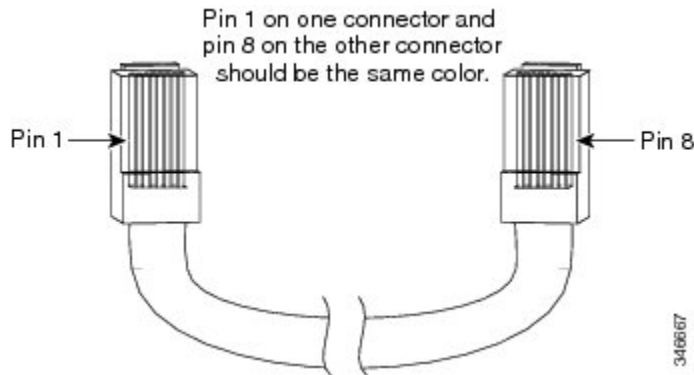
Figure 62: Two Twisted-Pair Crossover Cable Schematic



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 63: 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 4: 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 5: 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

This appendix contains these topics:

- [Configuring the Switch Using the Configuration Setup Wizard, page 93](#)
- [Configuring the Switch Using the CLI, page 95](#)
- [Using the Smartphone App, page 99](#)

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

After you receive the switch from factory, when the switch is powered on the first time, it will boot in **standalone mode**. In this mode, bluetooth is turned on and DHCP server is enabled.

We recommend you to change the default credentials before deploying in the network, once commissioning is complete. To start the switch in **network mode**, reload the switch with a new configuration file (by entering the **write erase** command followed by the **reload** command. This disables bluetooth and prevents default configurations from being set on subsequent '**write erase** and **reload command**).

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** The switch is in Standalone mode when it is powered on.
- Step 3** LEDs remain off by default when switch is powered on. Press the Mode button to turn on the LEDs. You can also turn on LEDs using the mobile application **Digital Building-Installer** .
- Step 4** 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 5** Connect a straight-through Category 5 Ethernet cable to a 10/100 Ethernet port on the switch front panel and to the Ethernet port on the PC.
- Step 6** Verify that the port LEDs on the PC and on your device are solid green or blinking green. This indicates a successful connection.
- Step 7** Wait 30 seconds.
- Step 8** 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, if the switch is in network mode, and press Enter. Type the IP address 172.16.0.1 in the address bar of your Internet browser, if the switch is in standalone mode and press Enter.
- Step 9** Type the following default credentials: username: cisco, password: cisco and press **Enter**. We recommend you to change default credentials after logging in.
- 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.

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 96.
- Note** USB Type A port on the switch provides file system support and is **NOT** a console port. See USB Type A Port section.

- Step 2** Connect a USB cable to the PC USB port. Connect the other end of the cable to the switch micro-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.
- 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

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 Vista and 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 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.

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 Vista and 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**.
-

Using the Smartphone App

You must use Cisco's *Digital Building — Installer* smartphone app to configure your switch. When your switch arrives, it is in standalone mode by default. This app allows you to perform the initial setup.



Note

You must type the name of the app as is — *Digital Building — Installer*. This is important because the search on the Play Store does not yield right results if app name is typed differently from the one that is specified above.

When the initial setup is complete, the switch is connected to the network and is ready for day-to-day usage. The network administrator must now move the switch to network mode. This will disable Bluetooth.

Here are some of the features of the app when the switch is in standalone mode:

- Connect to the switch from your smartphone, either via Bluetooth or a serial connection.
- View details of the switch, such as MAC Address, software image version, and operating temperature.
- Change the switch's name and password.
- Turn on or off (make available or unavailable) each downlink port on a switch. This will enable or disable endpoints connected to those ports.
- View the details of each endpoint connected to the ports.
- Update the switch's firmware image with a new version.
- Install a pre-defined or modified configuration template on the switch.
- Generate a report for the switch and send via email to a recipient.

Installing the Smartphone App

To install the app, look for the *Digital Building — Installer* app in the Google Play Store or the iOS App Store.

Minimum mobile OS requirements for the app:

- Android 4.4.2 and higher
- iOS 9 to iOS 10.2

Connecting Your Smartphone to the Switch

After you have installed the *Digital Building — Installer* app, turn on Bluetooth on your smartphone, open the app and connect to the switch. Refer to the app's help documentation for instructions on how to connect your smartphone to the switch.



Note

You must connect your smartphone to the switch only from the *Digital Building — Installer* app. Do not connect to the switch by going to the **Settings** option in your smartphone.

- If you have an Android device, your smartphone should connect to the switch via Classic Bluetooth. This can happen only if you connect to the switch from the app and not from the Android **Settings** option.
 - If you have an iOS device, your smartphone should connect to the switch via Bluetooth Low Energy. This can happen only if you connect to the switch from the app and not from the iOS **Settings** option.
-