



Installing the Chassis

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Rack Mount the Chassis

The chassis can be mounted on a 4-post or a 2-post rack.



Warning **Statement 1032**—Lifting the Chassis

To prevent personal injury or damage to the chassis, never attempt to lift or tilt the chassis using the handles on modules, such as power supplies, fans, or cards. These types of handles are not designed to support the weight of the unit.



Warning **Statement 1006**—Chassis Warning for Rack-Mounting and Servicing

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.
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**Warning** **Statement 1047**—Overheating Prevention

To reduce the risk of fire or bodily injury, do not operate the unit in an area that exceeds the maximum recommended ambient temperature of:

104⁰F(40⁰ C).

Rack-Mount the Chassis in a 4-Post Rack

This section describes how to install the router in a 4-post rack.



Caution If the rack is on wheels, ensure that the brakes are engaged or that the rack is otherwise stabilized.

The following table lists the items that are contained in the rack-mount kit.

Table 1: Rack-Mount Kit

Quantity	Part Description
2	Rack-mount brackets
18	M4 x 6-mm Phillips flat-head screws
2	M4 x 6-mm Phillips pan-head screws
2	Rack-mount guides
2	Rack-mount guide rails, 2 lengths for different 4-post depths
1	Grounding lug and screws



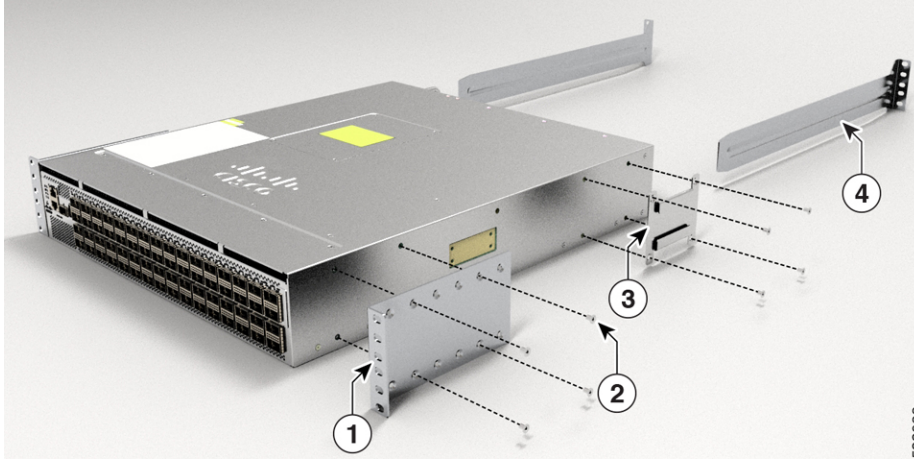
Note The Cisco 8111-32EH-O router doesn't support the port-side exhaust configuration.

Step 1 Install the rack-mount brackets to the router as follows:

- a) Determine which end of the chassis is to be located in the cold aisle as follows:
 - If the router has port-side intake modules (fan modules and power modules with burgundy coloring), position the router so that the ports are in the cold aisle.
 - If the router has port-side exhaust modules (fan modules and power modules with blue coloring), position the router so that the fan and power supply modules are in the cold aisle.
- b) Position a rack-mount bracket on the side of the chassis with its four holes that are aligned to four of the screw holes on the side of the chassis, and then use four M4 flat-head screws with 13.25 in-lbs (1.5 N-m) torque value to attach the bracket to the chassis.

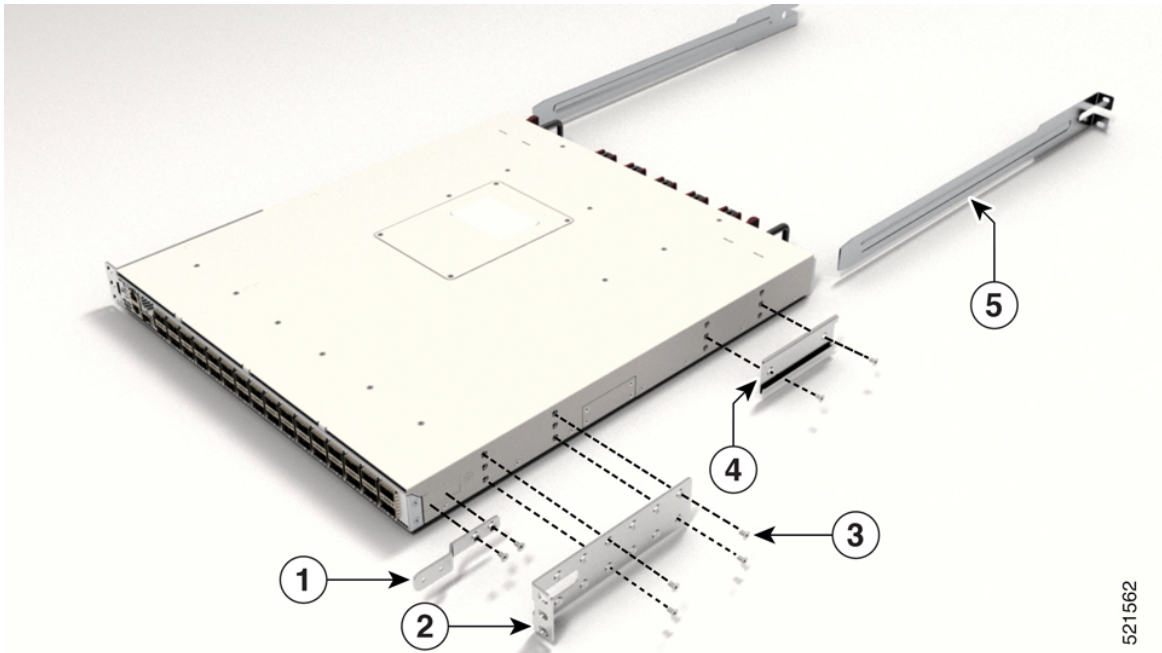
Note You can align four holes in the rack-mount bracket to four screw holes on the front side of chassis or four screw holes on the rear side of the chassis. The holes that you use depend on which end of your chassis is located in the cold aisle.

Figure 1: Rack-Mount Brackets on Cisco 8102-64H-0 Router—Port-Side Intake



1	Rack-mount brackets	3	Rack-mount guide
2	M4 x 6mm Phillips flat-head screws	4	Rack-mount guide rails

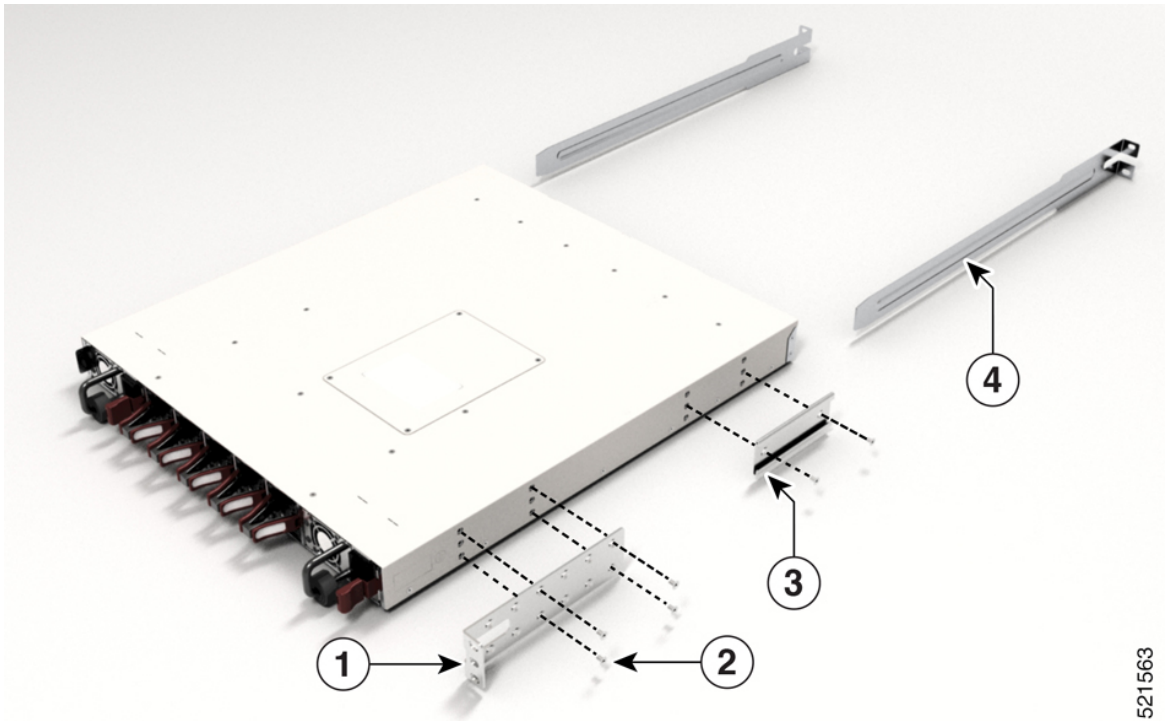
Figure 2: Rack-Mount Brackets on Cisco 8101-32H-0 Router—Port-Side Intake



1	Grounding plate	4	Rack-mount guide
2	Rack-mount brackets	5	Rack-mount guide rails. The orientation of the rails depends upon the rail that you select.

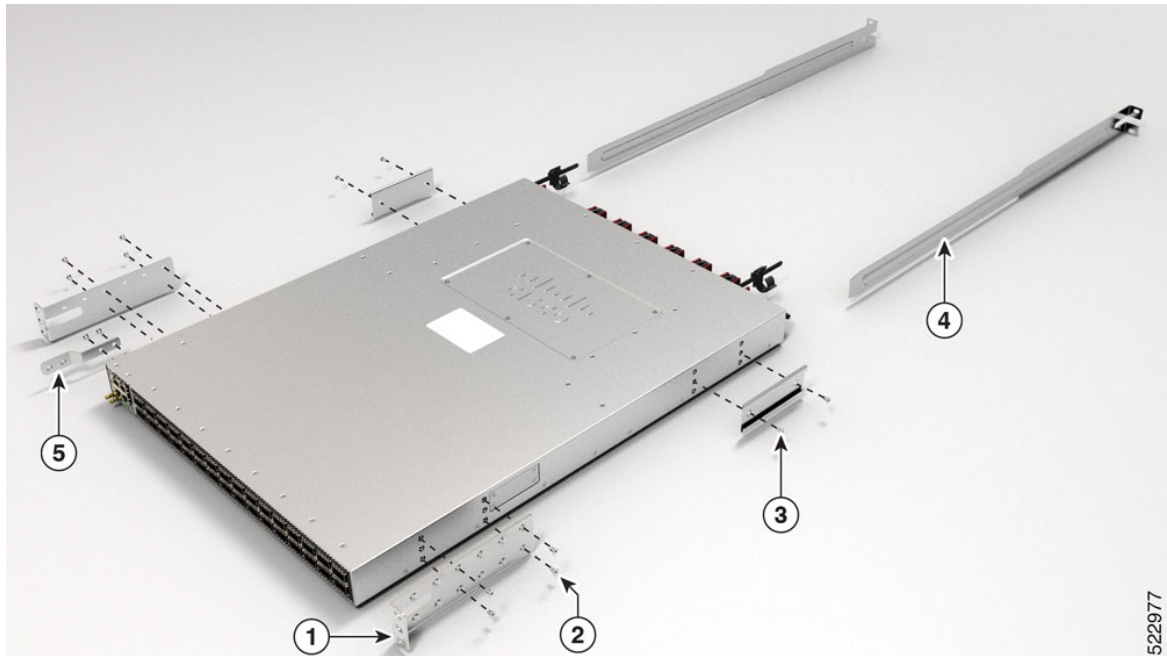
3	M4 x 6mm Phillips flat-head screws		
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Figure 3: Rack-Mount Brackets on Cisco 8101-32H-O Router—Port-Side Exhaust



1	Rack-mount brackets	3	Rack-mount guide
2	M4 x 6mm Phillips flat-head screws	4	Rack-mount guide rails. The orientation of the rail c depending upon the rail that you select.

Figure 4: Rack-Mount Brackets on Cisco 8111-32EH-0 Router—Port-Side Intake



1	Rack-mount brackets	4	Rack-mount guide rails. The orientation of the rails depends upon the rail that you select.
2	M4 x 6mm Phillips flat-head screws	5	Grounding plate
3	Rack-mount guide		

- c) Repeat Step 1b with the other rack-mount bracket on the other side of the router.

Step 2

Install the two rack-mount guides on the chassis:

- Position a rack-mount guide on the side of the chassis with its two holes aligned to the two screw holes on the side of the chassis, and use two M4 flat-head screws to attach the guides to the chassis. Tighten the screws to a torque of 13.27 in-lb (1.5 N-m).
- Repeat with the other rack-mount guide on the other side of the router.

Step 3

Install the guide rails to the rack:

- Position the guide rails at the desired levels on the back side of the rack and use four 12-24 screws or four 10-32 screws, depending on the rack thread type, to attach the rails to the rack.

Note For racks with square holes, you may need to position a 12-24 or 10-32 cage nut behind each mounting hole in a guide rail before using a 12-24 or 10-32 screw.

- Repeat with the other guide rail on the other side of the rack.
- Use a tape measure and level to verify that the rails are at the same height and horizontal.

Step 4

Insert the router into the rack and attach:

- Holding the router with both hands, position the back of the router between the front posts of the rack.
- Align the two rack-mount guides on either side of the router with the guide rails installed in the rack. Slide the rack-mount guides onto the guide rails, and then gently slide the router all the way into the rack.

Note If the router does not slide easily, try realigning the rack-mount guides on the guide rails.

- c) Holding the chassis level, insert two screws (12-24 or 10-32, depending on the rack type) through the holes in each of the rack-mount brackets and into the cage nuts or threaded holes in the rack-mounting rail.
- d) Tighten the 10-32 screws to 20 in-lb (2.26 N.m) or tighten the 12-24 screws to 30 in-lb (3.39 N.m).

Rack-Mount the Chassis in a 2-Post Rack

This section describes how to install a router into a cabinet or 2-post rack.



Caution If the rack is on wheels, ensure that the brakes are engaged or that the rack is otherwise stabilized.

The following table lists the items contained in the rack-mount kit that is provided with the routers.

Table 2: Rack-Mount Kit

Quantity	Part Description
2	Rack-mount brackets
8	M4 x 0.7 x 6-mm Phillips flat-head screws

Step 1 Install two rack-mount brackets to the router:

- a) Determine which end of the chassis is to be located in the cold aisle:
 - If the router has port-side intake modules (fan modules and power modules with burgundy coloring), position the router so that its optical ports are in the cold aisle, and fans and power modules will be in the hot aisle.
 - If the router has port-side exhaust modules (fan modules and power modules with blue coloring), position the router so that its fan and power supply modules are in the cold aisle and optical ports will be in the hot aisle.
- b) With the bracket ears facing toward the center of the chassis, position a front rack-mount bracket on the side of the chassis so that the four holes are aligned to four of the screw holes on the side of the chassis.
- c) Use four M4 flat-head screws with 13.25 in-lbs (1.5 N-m) torque value to attach the bracket to the chassis.

Figure 5: Rack-Mount Brackets on Cisco 8101-32H-0 Router—Port-Side Intake

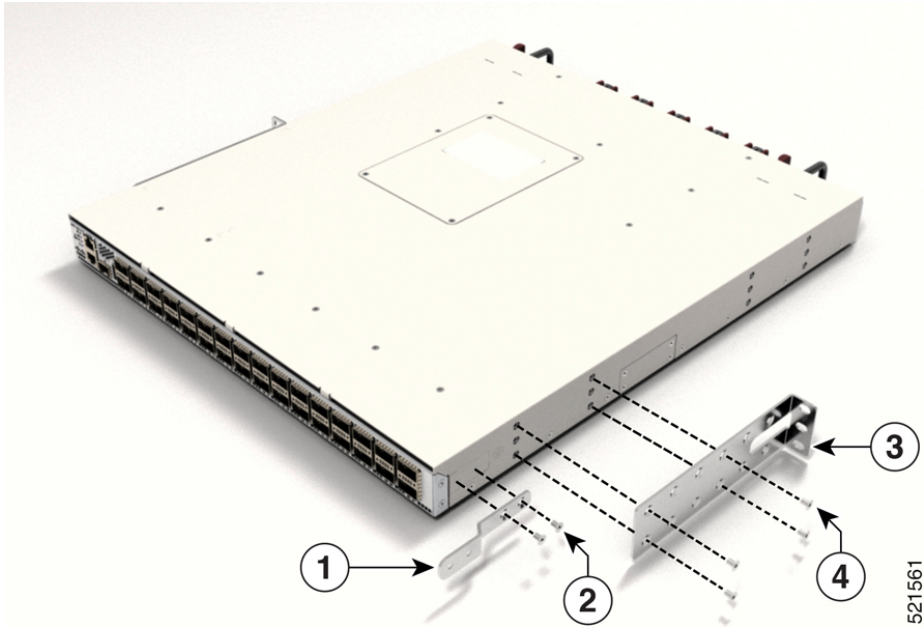
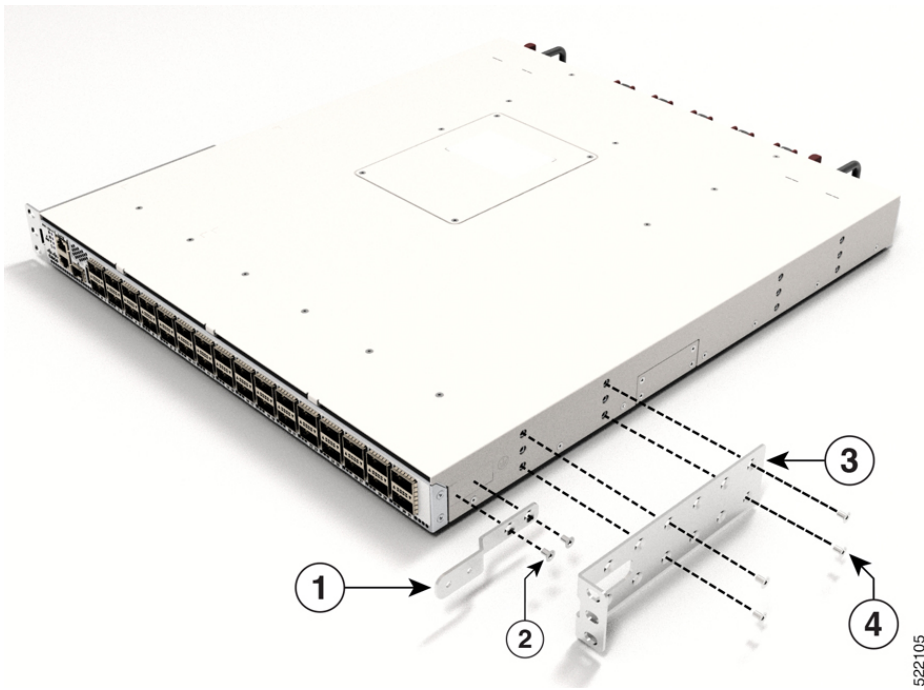
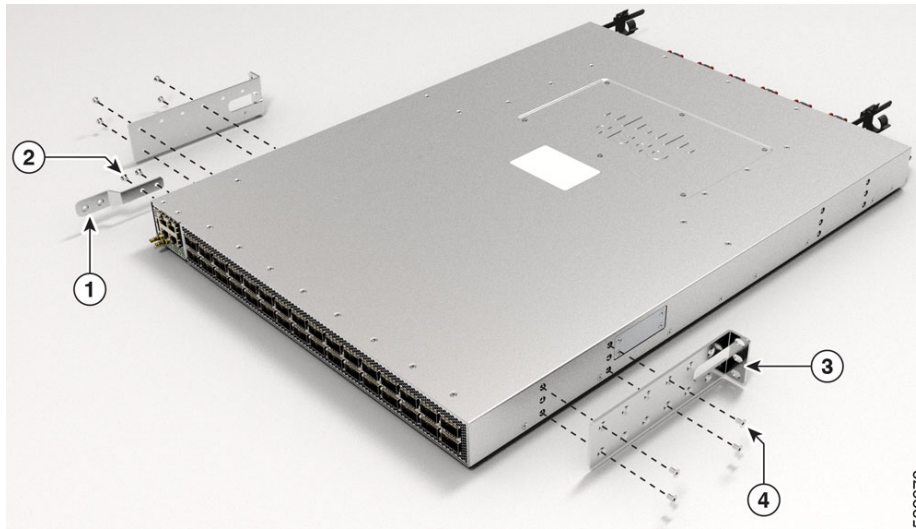


Figure 6: Rack-Mount Brackets on Cisco 8101-32H-0 Router—Port-Side Exhaust



1	Grounding plate	2	M4 x 6-mm Phillips flat-head screws
3	Rack-mount brackets	4	M4 x 6-mm Phillips flat-head screws

Figure 7: Rack-Mount Brackets on Cisco 8111-32EH-0 Router—Port-Side Intake



1	Grounding plate	2	M4 x 6-mm Phillips flat-head screws
3	Rack-mount brackets	4	M4 x 6-mm Phillips flat-head screws

d) Repeat Steps 1b and 1c with the other rack-mount bracket on the other side of the router.

Step 2

Install the router onto the 2-post rack:

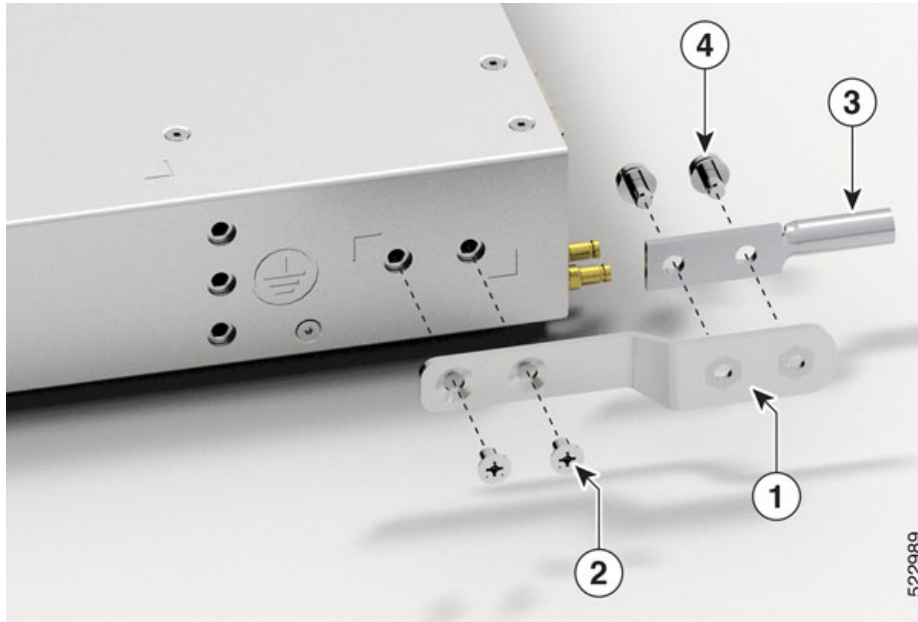
- With the assistance of another person, lift the router into position between the two rack posts.
- Move the router until the rack-mount brackets come in contact with two rack posts.
- Hold the chassis at a level position while the second person inserts two screws (12-24 or 10-32, depending on the rack type) in each of the two rack-mount brackets (a total of four screws) and into the cage nuts or threaded holes in the vertical rack-mounting rails.
- Tighten the 10-32 screws to 20 in-lb (2.26 N.m) or tighten the 12-24 screws to 30 in-lb (3.39 N.m).

Rack-Mount the Chassis in a 4-Post Guide Rail



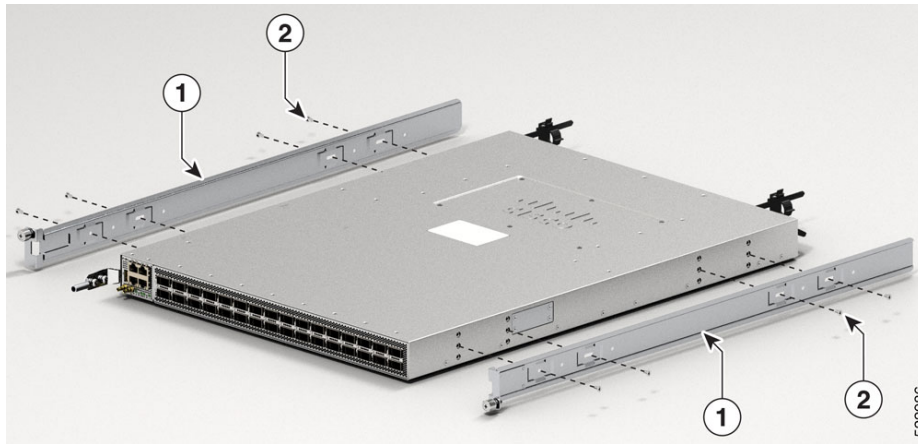
Note The 4-post guide rail is designed only for a 19 inch, Electronic Industries Alliance (EIA) rack with square-hole vertical rails.

1. Install the ground lug bracket to the chassis.



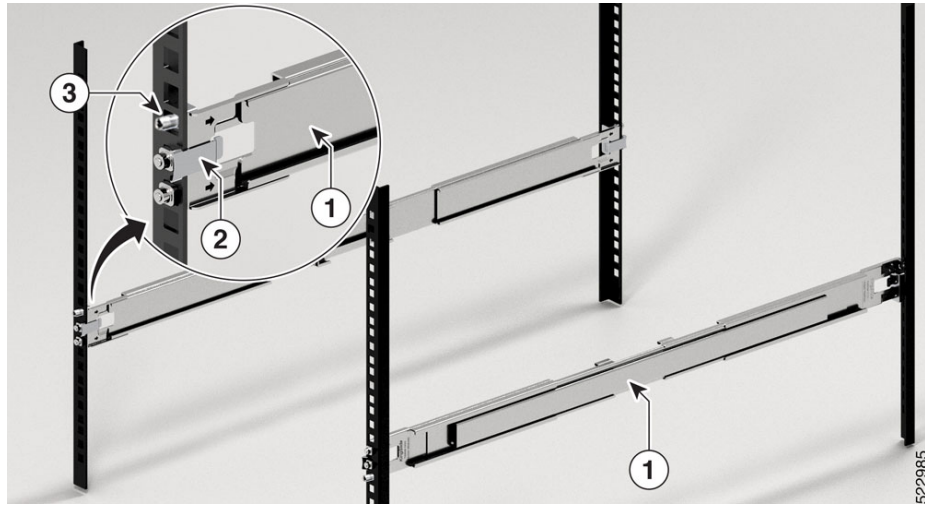
1	Grounding plate	3	Grounding lug
2	M4 x 6-mm Phillips flat-head screws	4	Captive screws

2. Install the side brackets, on the left side and right side of the chassis.



1	Side brackets	2	M4 x 6-mm Phillips flat-head screws
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3. Secure the slide rails to each side of the square-hole vertical rails by using the latch.

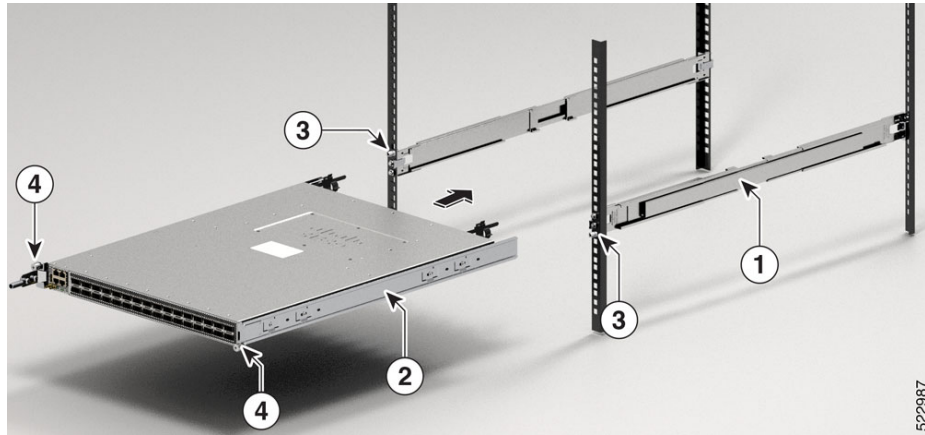


1	Side rails	2	Latch
3	Thread for captive screws		



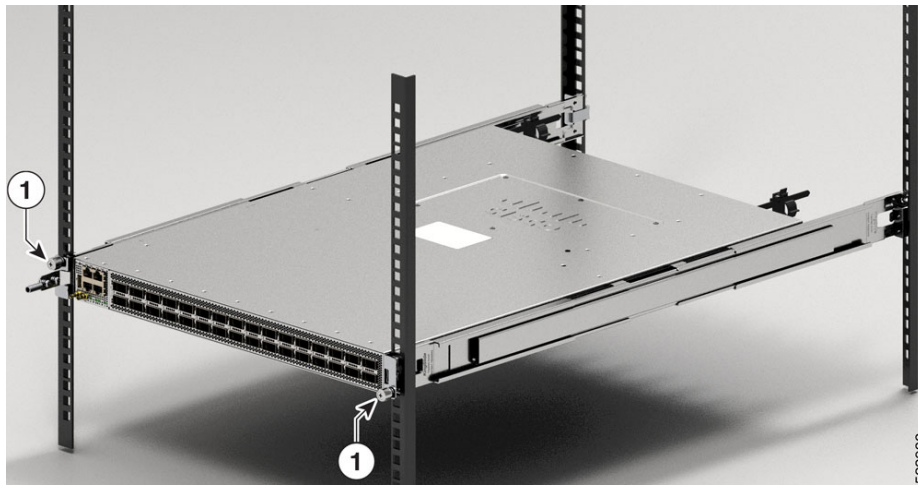
Note The two slide rails are identical and can be installed to either left or right vertical rails in any orientation.

- Slide the chassis in to the mounted track.



1	Side rails	2	Chassis with side brackets
3	Thread for captive screws	4	Captive screws

- Tighten captive screws on front bracket (two on each side) to secure chassis to track.



- | | |
|---|--|
| 1 | Tighten captive screws to torque value of 14in-lbs (1.58 N-m) of front of tray |
|---|--|

Ground the Chassis



Warning **Statement 1101**—Connected To Grounded Outlet

In the Scandinavian countries (Denmark, Finland, Iceland, Norway, and Sweden) the appliance must be connected to a grounded outlet.



Warning **Statement 1024**

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.



Warning **Statement 1046**

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



Warning **Statement 1025**

Use copper conductors only.



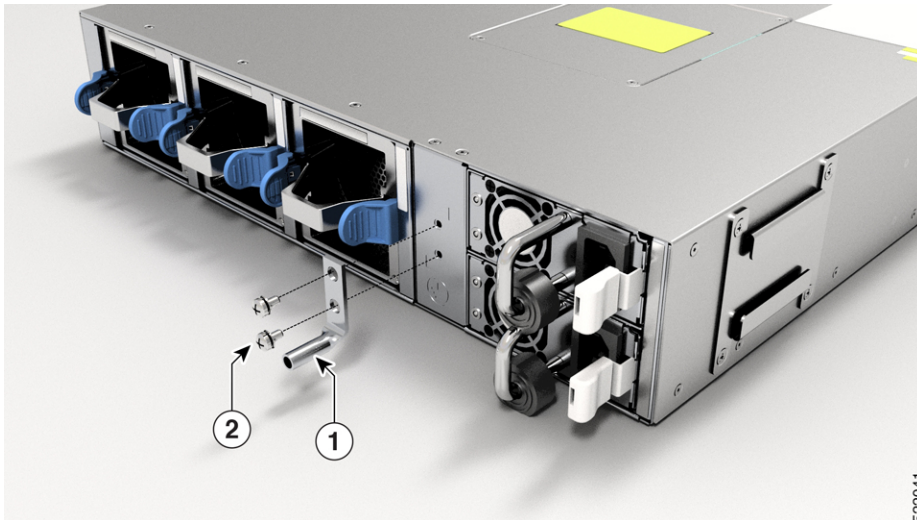
Caution Grounding the chassis is required, even if the rack is already grounded. A grounding pad with two threaded holes is provided on the chassis for attaching either a grounding lug or grounding plate. The ground lug must be NRTL-listed. In addition, a copper conductor (wires) must be used and the copper conductor must comply with NEC code for ampacity.



Caution When terminating the frame ground, do not use soldering lug connectors, screwless (push-in) connectors, quick connect connectors, or other friction-fit connectors.

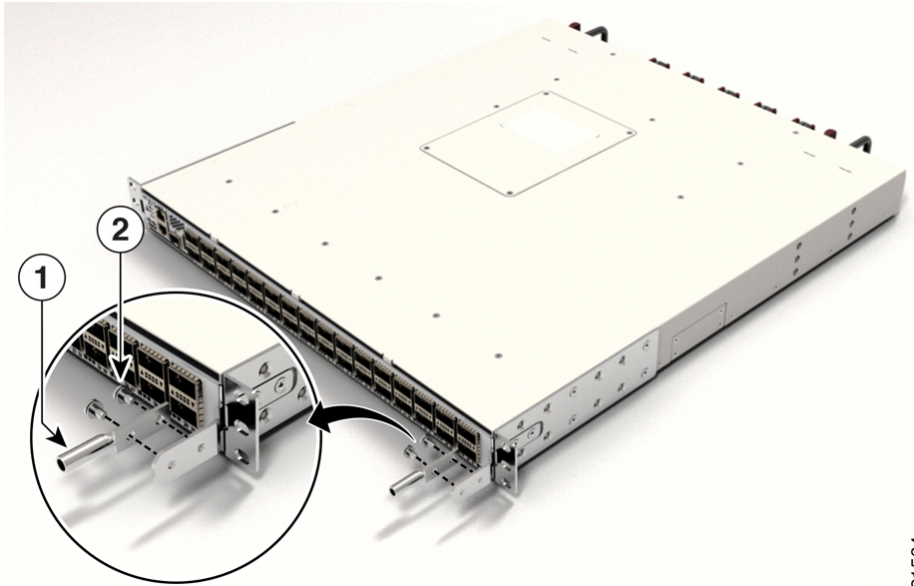
- Step 1** Use a wire-stripping tool to remove approximately 0.75 inches (19 mm) of the covering from the end of the #6 AWG grounding cable.
- Step 2** Insert the stripped end of the grounding cable into the open end of the grounding lug.
- Step 3** Use the crimping tool to secure the grounding cable in the grounding lug.
- Step 4** Attach the ground cable:
- Attach one end of the shelf ground cable (#6 AWG cable) to the grounding plate using the specified dual-hole lug connector.

Figure 8: Cisco 8102-64H-O Router Ground Lug



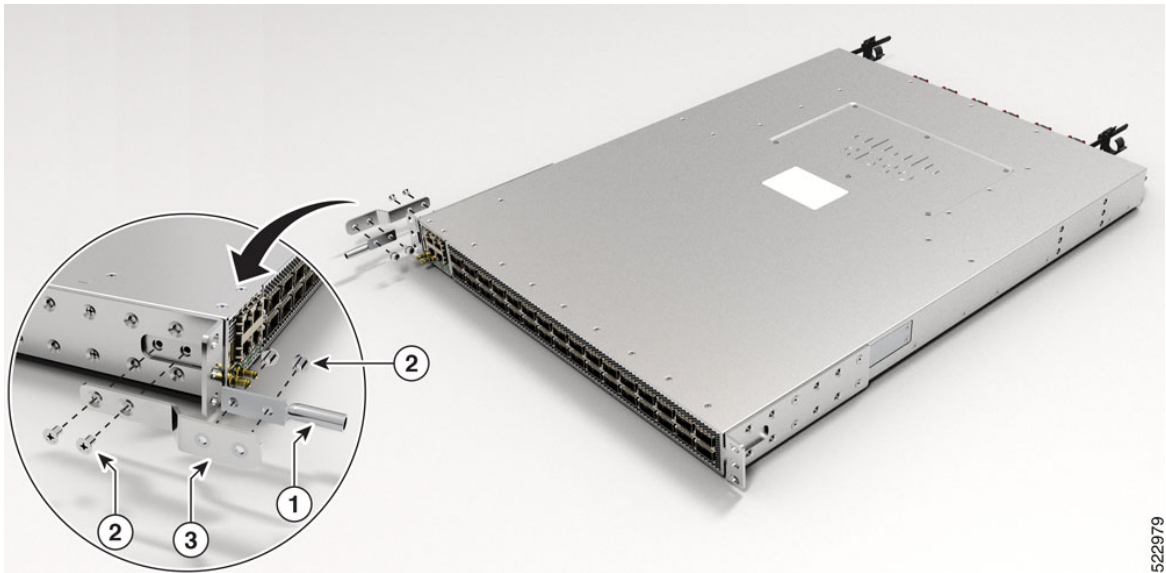
522041

Figure 9: Cisco 8101-32H-0 Ground Lug



521564

Figure 10: Cisco 8111-32EH-0 Ground Lug



522979

1	Grounding lug	2	M4 x 6mm pan-head screws
3	Grounding plate		

Step 5 Tighten the pan-head screws to torque value of 13.25 in-lbs (1.5 N-m).

Step 6 Ensure that the lug and cable do not interfere with other equipment.

Step 7 Prepare the other end of the grounding cable, and connect it to an appropriate grounding point in your site to ensure adequate earth ground.

Power Supply Unit Input and Output Ranges

Power Supply Restrictions and Considerations



Warning **Statement 1090**—Installation by Skilled Person

Only a skilled person should be allowed to install, replace, or service this equipment. See statement 1089 for the definition of a skilled person.

There are no serviceable parts inside. To avoid risk of electric shock, do not open.



Warning **Statement 1091**—Installation by an Instructed Person

Only an instructed person or skilled person should be allowed to install, replace, or service this equipment. See statement 1089 for the definition of an instructed or skilled person.

There are no serviceable parts inside. To avoid risk of electric shock, do not open.



Warning **Statement 1073**—No User-Serviceable Parts

There are no serviceable parts inside. To avoid risk of electric shock, do not open.

Observe the following guidelines and limitations:

- Use one type of power supply in a router.
- The power supply type that is used in the router depends on the type and configuration of the transceivers installed in it.
- Do not install a mix of AC and DC power supplies in a router.
- The airflow direction must be the same for all power supply and fan modules in the router.
- The AC-input power supplies support low-line voltage of 120V (Nominal) and high-line voltage of 220V (Nominal). If you need to change voltage type after installation, disconnect the feed from the power supply before switching the input voltage level.

Connect AC Power to the Chassis



Caution The chassis relies on the protective devices in the building installation to protect against short circuit, overcurrent, and ground faults. Ensure that the protective devices comply with local and national electrical codes.



Note We recommend that you occupy both the power supply slots of the fixed port routers with power supplies. In case a power module fails, it is recommended to retain the failed power module in its slot until it is replaced with a new power module. This recommendation ensures that the system airflow is not impacted adversely, which may then result in the overheating of the router and its components.

The following power supplies are supported:

- PSU650W-ACPI – 650W AC, port-side intake airflow
- PSU650W-ACPE – 650W AC, port-side exhaust airflow

For Cisco 8111-32EH-O router, the following power supplies are supported:

- PSU2KW-ACPI – 2000W AC, port-side intake airflow
- PSU3KW-HVPI – 3000W AC/DC, port-side intake airflow



Note A dual pole breaker is needed for installation. For determining the recommended breaker size, please adhere to local and national rules and regulations. The breaker size is based on the specifications of the product for the current drawn and the specified voltage level.

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- Step 1** Verify that the AC cable is installed in the correct AC source and outlet type.
 - Step 2** Attach the AC power cable to the cable connector in the AC power module.
 - Step 3** Place the cable through the opening in the cable clamp.
 - Step 4** Slide the cable clamp toward the plug.
 - Step 5** Close the cable clamp on the shoulder of the power cable to secure the power cable.

Figure 11: Connecting AC Power - Cisco 8102-64H-0

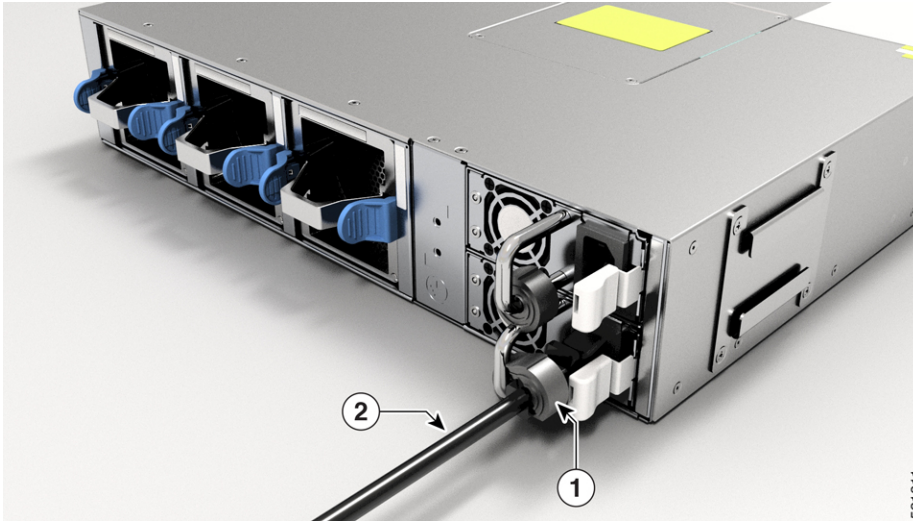


Figure 12: Connecting AC Power - Cisco 8101-32H-0

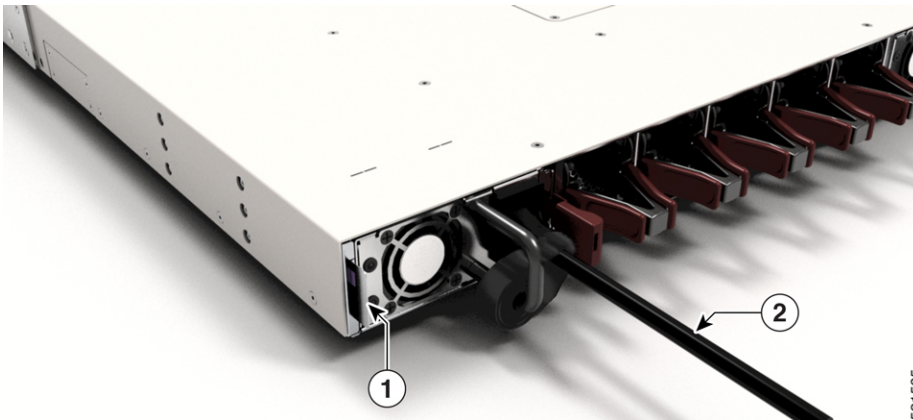
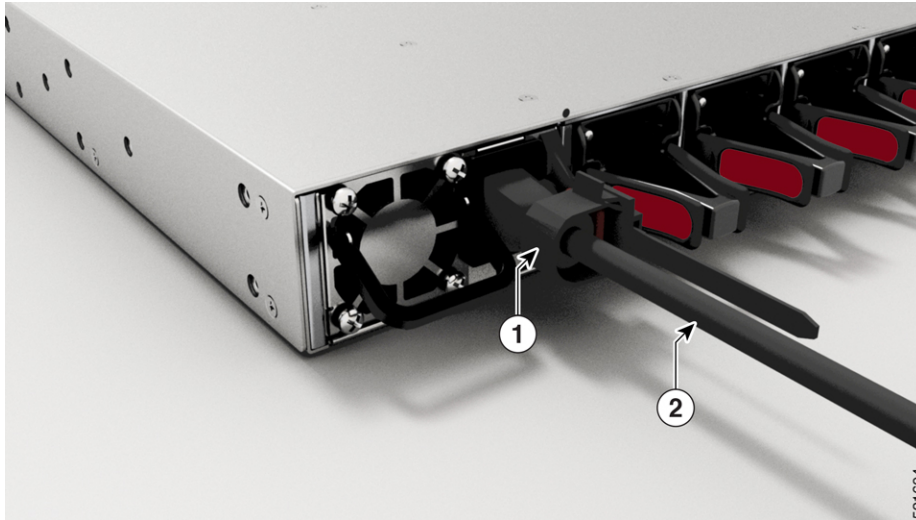


Figure 13: Connecting AC Power - Cisco 8111-32EH-0



1	Cable clamp	2	AC power cable
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Note These routers are designed to boot up in less than 30 minutes, provided the neighboring devices are in full operational state.

Connect DC Power to the Chassis



Caution The chassis relies on the protective devices in the building installation to protect against short circuit, overcurrent, and ground faults. Ensure that the protective devices comply with local and national electrical codes.



Note We recommend that you occupy both the power supply slots of the fixed port routers with power supplies. In case a power module fails, it is recommended to retain the failed power module in its slot until it is replaced with a new power module. This recommendation ensures that the system airflow is not impacted adversely, which may then result in the overheating of the router and its components.



Note The supported output DC power is 930 W. To provide full output power of 930 W, the nominal voltage rating value ranges between -48 V to -60 V, depending on the standards in various countries.

The following combinations of power supplies are supported:

- PSU930W-DCPI – 930W DC, port-side intake airflow

- PSU930W-DCPE – 930W DC, port-side exhaust airflow

For Cisco 8111-32EH-O router, the following power supplies are supported:

- PSU2KW-DCPI – 2000W DC, port-side intake airflow
- PSU3KW-HVPI – 3000W AC/DC, port-side intake airflow

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- Step 1** Verify that the correct fuse panel is installed in the top mounting space.
- Step 2** Ensure that the DC circuit is powered down (either breaker turned off or fuse pulled) and proper lockout tag out procedures are followed. Use the cable (PID: PWR-2KW-DC-CBL) supplied with the power supply. You can purchase power supply cord separately from Cisco.
- Step 3** Dress the power according to local practice.
- Step 4** Connect the office battery and return cables according to the fuse panel engineering specifications.
- Step 5** Insert the DC connector into the DC receptacle on the power supply.

Figure 14: Connecting DC Power - Cisco 8102-64H-0

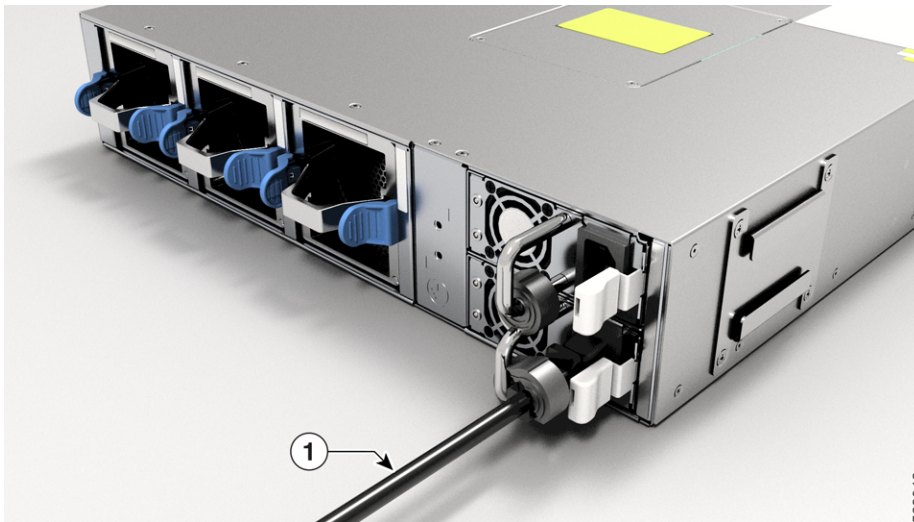
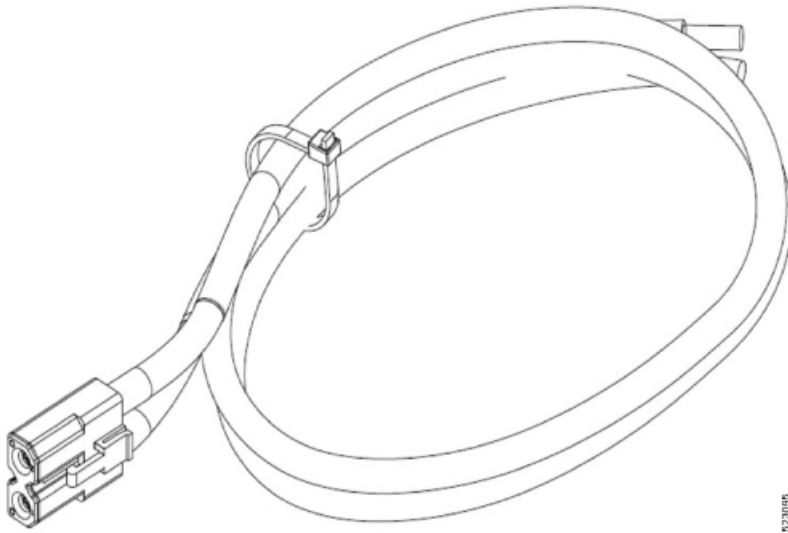


Figure 15: Connecting DC Power - Cisco 8111-32EH-0



1	DC power cable
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Figure 16: DC Power Cable - PWR-2KW-DC-CBL



Step 6 Ensure that the locking mechanism has engaged to secure the cable.

Step 7 Turn on the circuit breaker at the power source.

Note These routers are designed to boot up in less than 30 minutes, provided the neighboring devices are in full operational state.

AC/DC-Input Power Cord Options

This table summarises the input and output power ranges for PSU high line applications:

Table 3: AC/DC-Input Power Cord Options for Cisco 8100 Series Router

Locale	Part Number	Length	Power Cord Rating
Argentina	CAB-TA-AR	14 ft (4.26 m)	10A, 250 VAC
Australia	CAB-TA-AP	14 ft (4.26 m)	10A, 250 VAC
China	CAB-TA-CN	14 ft (4.26 m)	10A, 250 VAC
Europe	CAB-TA-EU	14 ft (4.26 m)	10A, 250 VAC
India	CAB-TA-IN	14 ft (4.26 m)	10A, 250 VAC
Israel	CAB-TA-IS	14 ft (4.26 m)	10A, 250 VAC
Italy	CAB-TA-IT	14 ft (4.26 m)	10A, 250 VAC
Japan	CAB-TA-250V-JP	14 ft (4.26 m)	15A, 250 VAC
Japan Cabinet Jumper Power Cord	CAB-C15-CBN-JP	14 ft (4.26 m)	12A, 250 VAC
Switzerland	CAB-TA-SW	14 ft (4.26 m)	10A, 250 VAC
UK	CAB-TA-UK	14 ft (4.26 m)	10A, 250 VAC
North America AC 2KW Power Cable, Right Angle	CAB-AC-2KW-RA-NA	14 ft (4.26 m)	13A, 250 VAC
Cabinet Jumper Power Cord, 250 VAC 13A, C14-C15 Connectors	CAB-C15-CBN	14 ft (4.26 m)	13A, 250 VAC
C9600 AC IEC C15 to NEMA L6-20P cable	CAB-AC-2KW-CBL	14 ft (4.26 m)	13A, 250 VAC

Table 4: High-Voltage Input Power Cord Options for Cisco 8100 Series Router

Locale	Part Number	Length	Power Cord Rating
Argentina	CAB-AC-16A-SG-AR	14 ft (4.26 m)	16A, 250 VAC
Australia	CAB-AC-16A-SG-AZ	14 ft (4.26 m)	16A, 250 VAC
Brazil	CAB-AC-16A-SG-BR	14 ft (4.26 m)	16A, 250 VAC
China	CAB-AC-16A-SG-CH CAB-AC-16A-CN	14 ft (4.26 m)	16A, 250 VAC
Europe	CAB-AC-16A-SG-EU	14 ft (4.26 m)	16A, 250 VAC
India	CAB-AC-16A-SG-IND	14 ft (4.26 m)	16A, 250 VAC
International/UK	CAB-AC-16A-SG-IN	14 ft (4.26 m)	16A, 250 VAC
Israel	CAB-AC-16A-SG-IS	14 ft (4.26 m)	16A, 250 VAC
Italy	CAB-AC-16A-SG-IT	14 ft (4.26 m)	16A, 250 VAC
Japan	CAB-AC-16A-SG-JPN	14 ft (4.26 m)	16A, 250 VAC
South Africa	CAB-AC-16A-SG-SA	14 ft (4.26 m)	16A, 250 VAC
Switzerland	CAB-AC-16A-SG-SW	14 ft (4.26 m)	16A, 250 VAC
South Korea	CAB-AC-16A-SG-SK	14 ft (4.26 m)	16A, 250 VAC
UK	CAB-AC-16A-SG-UK	14 ft (4.26 m)	16A, 250 VAC
North America (non locking) 110 VAC operation	CAB-AC-20A-SG-US	14 ft (4.26 m)	20A, 110 VAC
North America (locking) 125 VAC operation	CAB-AC-20A-SG-US1	14 ft (4.26 m)	20A, 125 VAC
North America (non locking) 200-240 VAC operation	CAB-AC-20A-SG-US2	14 ft (4.26 m)	20A, 250 VAC

Locale	Part Number	Length	Power Cord Rating
North America (locking) 200-240 VAC operation	CAB-AC-20A-SG-US3	14 ft (4.26 m)	20A, 250 VAC
North America 277 VAC operation	CAB-AC-20A-SG-US4	14 ft (4.26 m)	20A, 277 VAC
North America Cabinet Jumper Power Distribution unit (PDU)	CAB-AC-20A-SG-C20	14 ft (4.26 m)	20A, 250 VAC
North America, Ring Terminal source plug	CAB-HV-25A-SG-US2	14 ft (4.26 m)	20A, 300 VAC/500 VDC
International IEC/EU, Ring Terminal source plug	CAB-HV-25A-SG-IN2	14 ft (4.26 m)	20A, 300 VAC/500 VDC

AC/DC Power Cord Illustrations for Cisco 8100 Series Router

This section contains the AC/DC power cord illustrations, as described in the above table.

Figure 17: CAB-AC-16A-SG-AR Power Cord

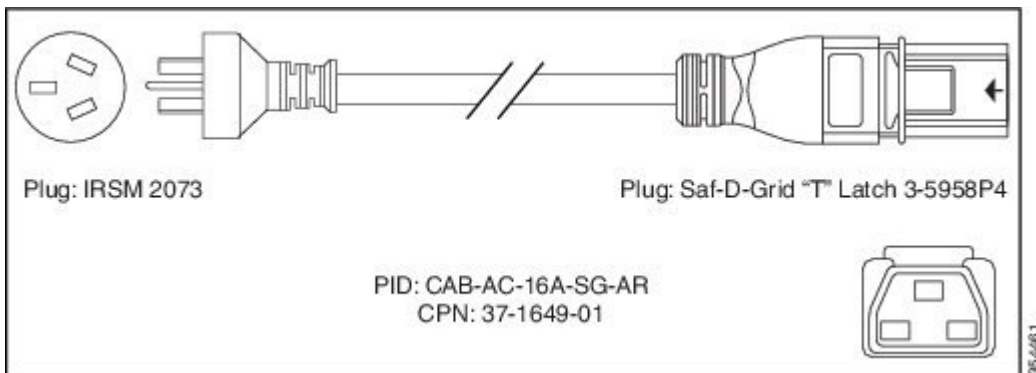


Figure 18: CAB-AC-16A-SG-AZ Power Cord

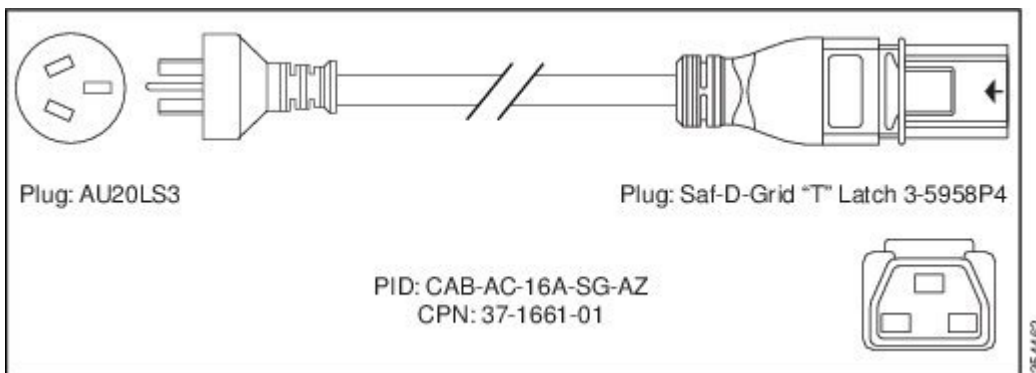


Figure 19: CAB-AC-16A-SG-BR Power Cord

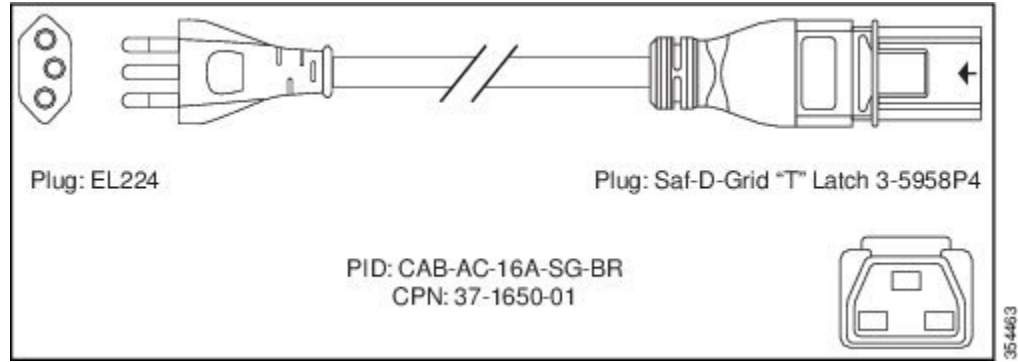


Figure 20: CAB-AC-16A-SG-CH Power Cord

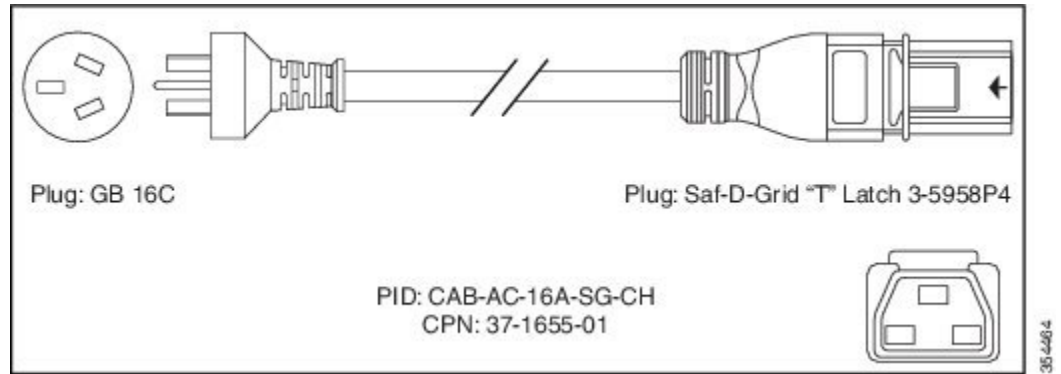


Figure 21: CAB-AC-16A-SG-EU Power Cord

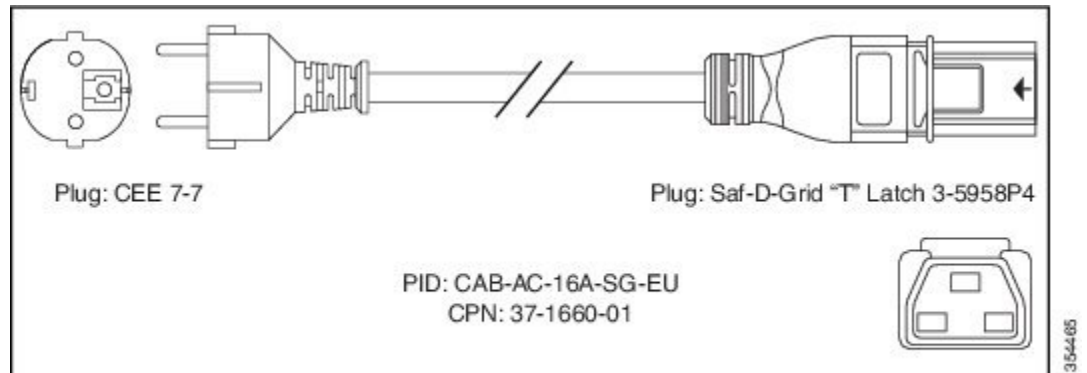


Figure 22: CAB-AC-16A-SG-IND Power Cord

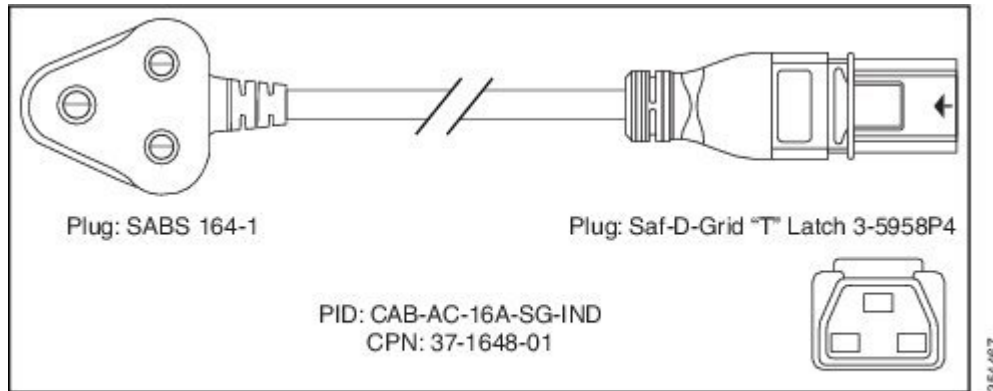


Figure 23: CAB-AC-16A-SG-IN Power Cord

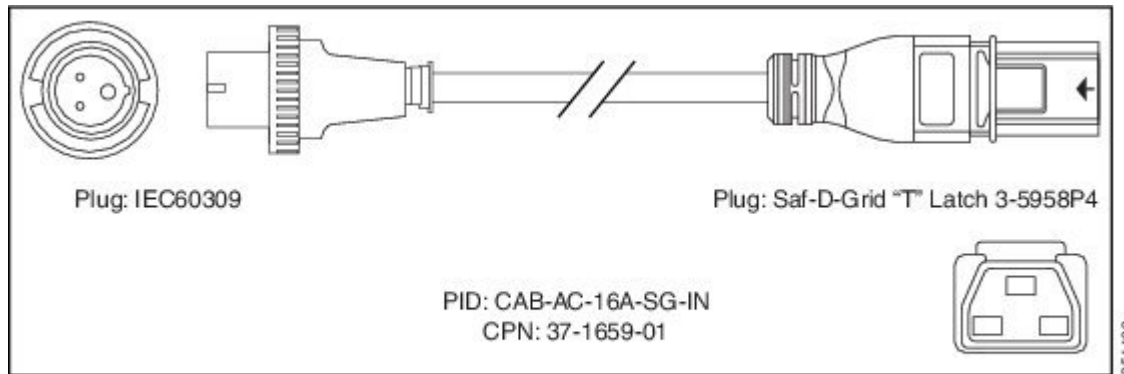


Figure 24: CAB-AC-16A-SG-IS Power Cord

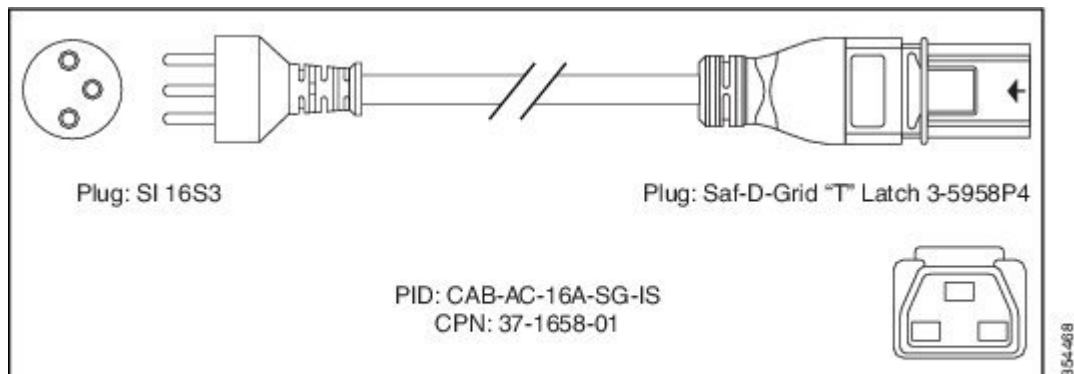


Figure 25: CAB-AC-16A-SG-IT Power Cord

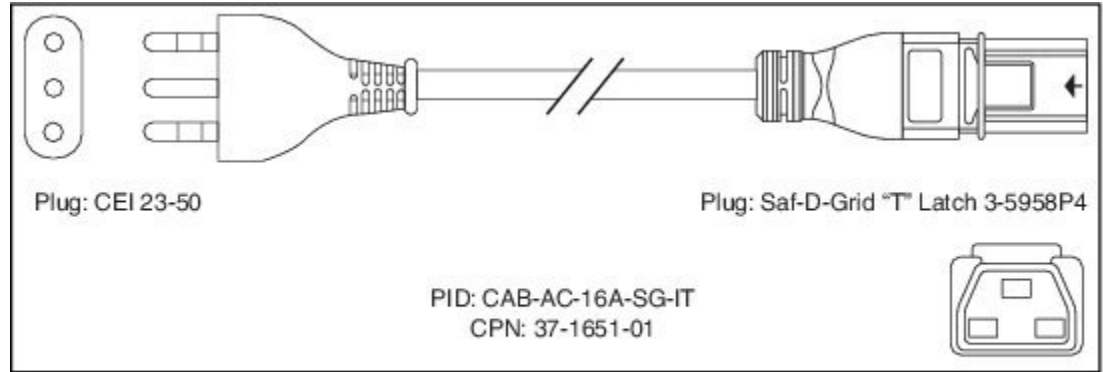


Figure 26: CAB-AC-16A-SG-JPN Power Cord

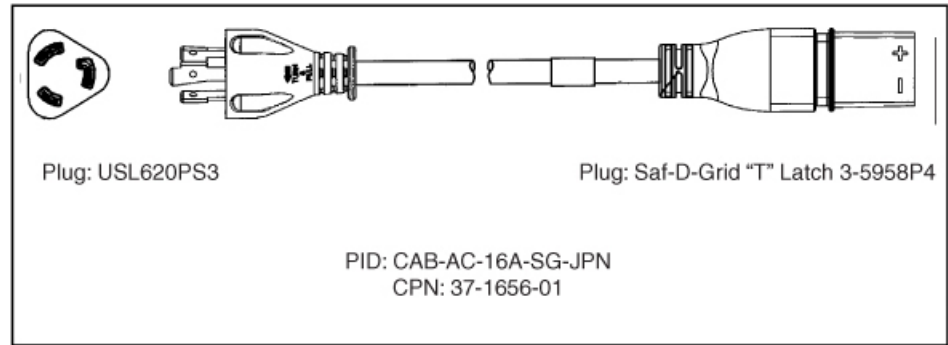


Figure 27: CAB-AC-16A-SG-SA Power Cord

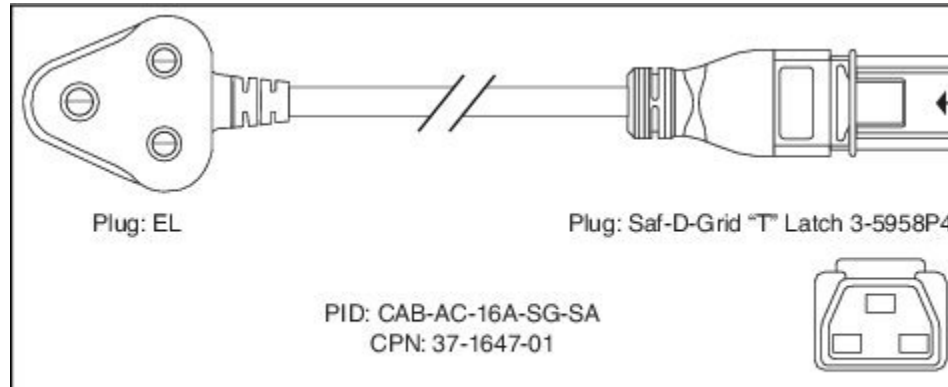


Figure 28: CAB-AC-16A-SG-SW Power Cord

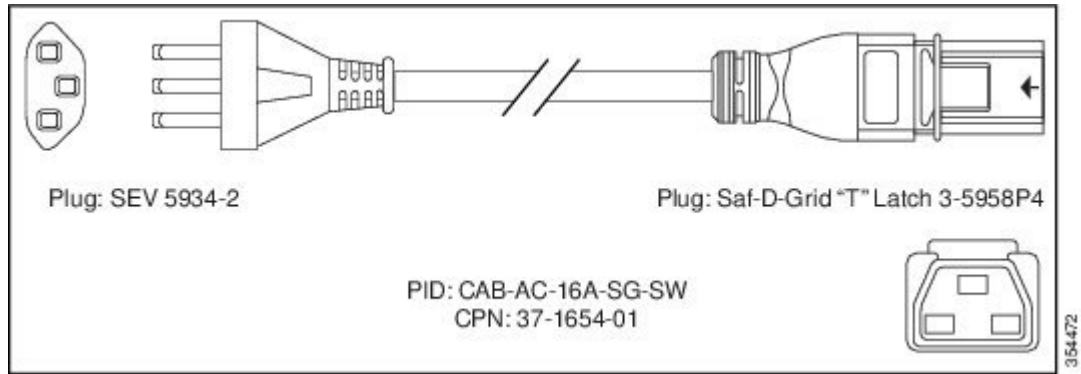


Figure 29: CAB-AC-16A-SG-UK Power Cord

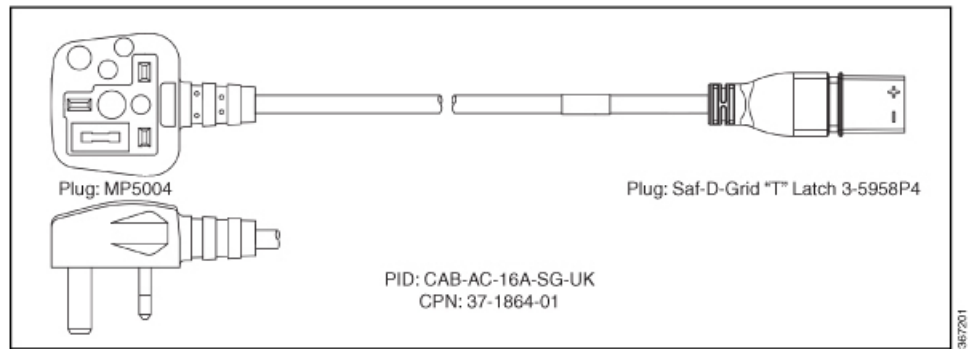


Figure 30: CAB-AC-20A-SG-US Power Cord

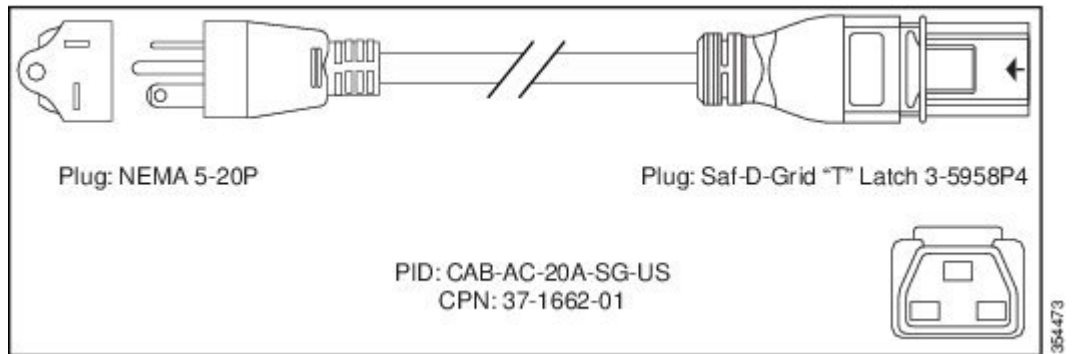


Figure 31: CAB-AC-20A-SG-US1 Power Cord

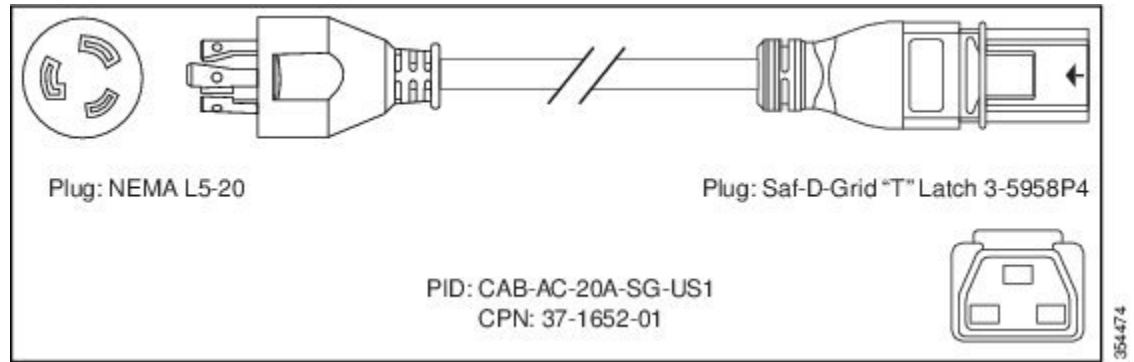


Figure 32: CAB-AC-20A-SG-US2 Power Cord

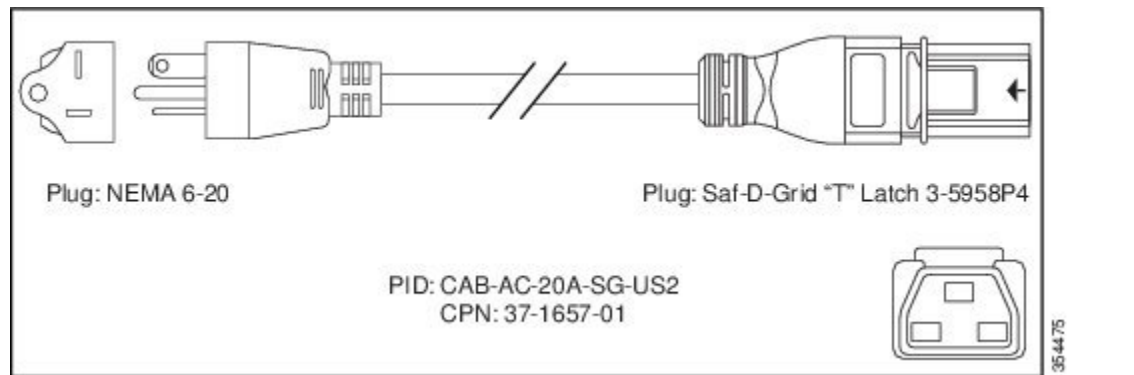


Figure 33: CAB-AC-20A-SG-US3 Power Cord

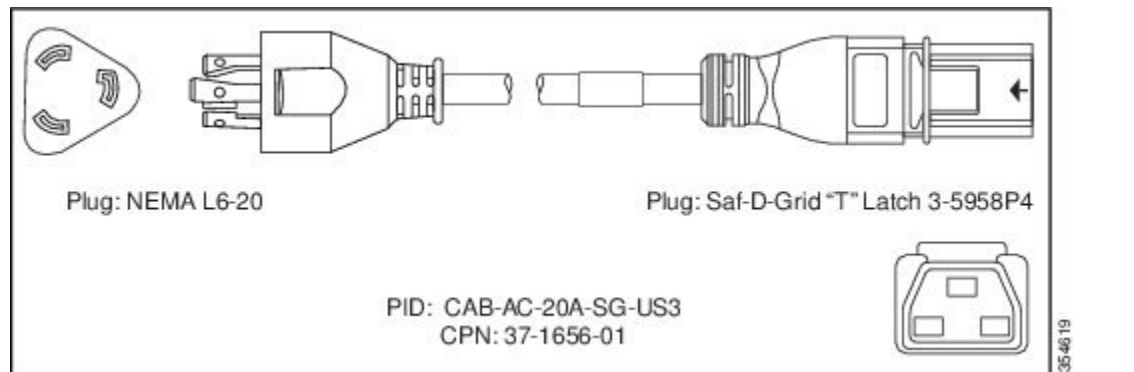


Figure 34: CAB-AC-20A-SG-US4 Power Cord

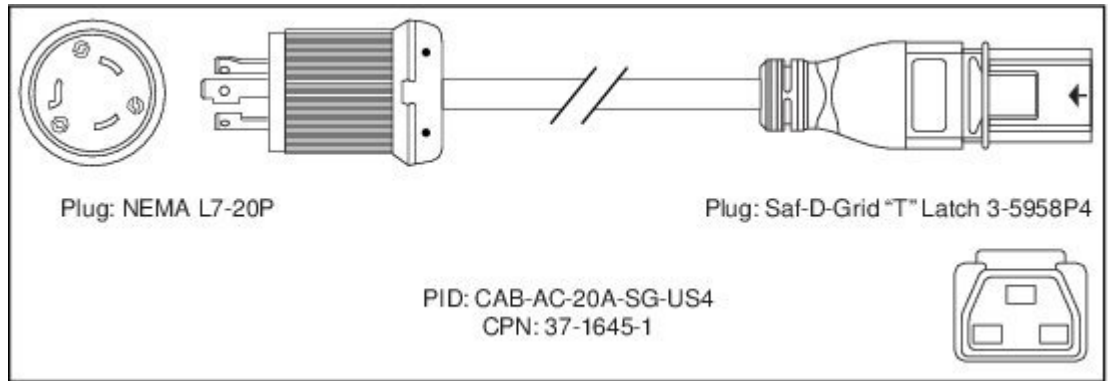


Figure 35: CAB-AC-20A-SG-C20 Power Cord

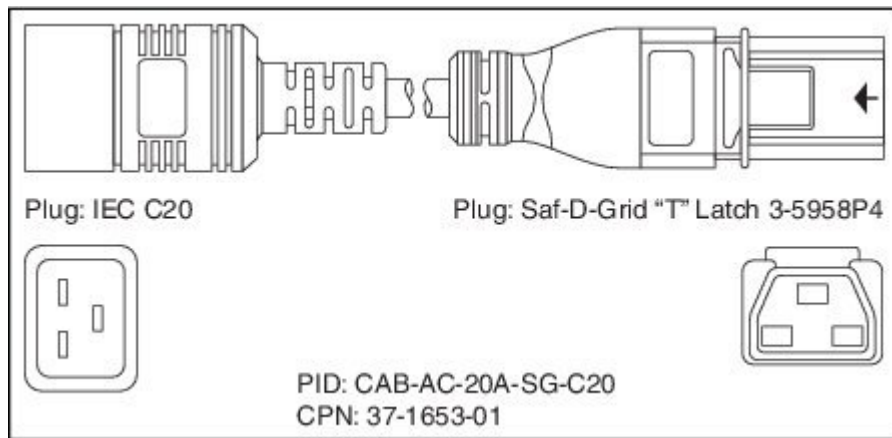


Figure 36: CAB-HV-25A-SG-US2 Power Cord

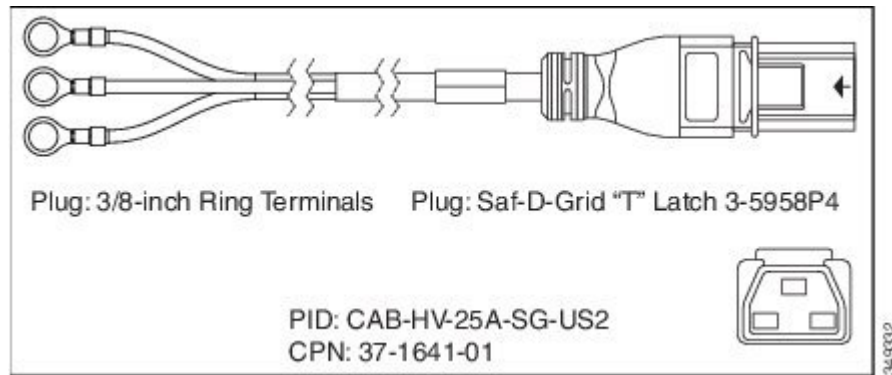


Figure 37: CAB-HV-25A-SG-IN2 Power Cord

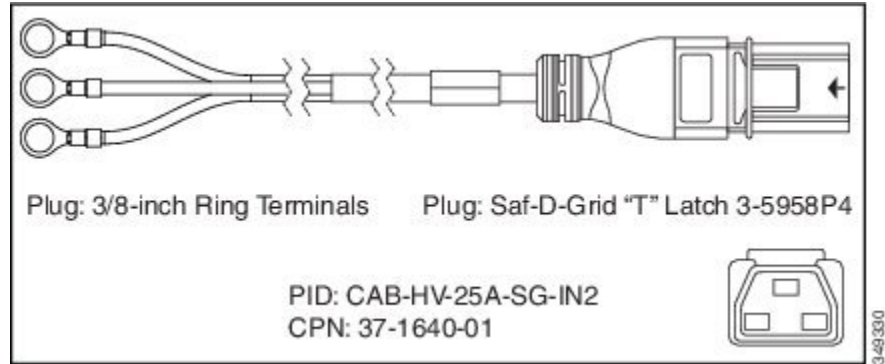


Figure 38: CAB-HV-25A-SG-IN3 Power Cord

