Installing a Power Supply Unit

Required Tools and Equipment

Obtain these tools:

- A Phillips-head screwdriver
- A 10-mm torque driver (with a 3-inch shaft, at a minimum)
- Wire-stripping tool
- Wire crimping tool

Removing and Installing Power Supply Modules

The chassis supports field-replaceable and hot-swappable AC-input and DC-input power supply modules. You can install a mix of AC-input and DC-input modules in the chassis. This section describes how to remove and install both kinds of modules

- In a redundant mode, you do not have to power down the switch to replace or upgrade the power supplies.
- In the combined mode, the module is still hot-swappable as long as the difference between total output power and the total used power is greater than the capacity of the module being removed.

  Total output power – Total used > Capacity of power supply module being removed.

Warning When stranded wiring is required, use approved wiring terminations, such as closed-loop or spade-type with upturned lugs. These terminations should be the appropriate size for the wires and should clamp both the insulation and conductor.

Statement 1002

Warning **Statement 1003—**DC Power Disconnection

To reduce risk of electric shock or personal injury, disconnect DC power before removing or replacing components or performing upgrades.

Warning This product relies on the building's installation for short-circuit (overcurrent) protection. Ensure that the protective device is rated not greater than these values for US and EU:

- 20A circuit breakers for AC-input power supply.
- 60A DC-rated circuit breakers for each input for safety purposes - irrespective of whether the inputs are power from a single or separate DC sources.

Statement 1005

Warning **Statement 1022—**Disconnect Device

To reduce the risk of electric shock and fire, a readily accessible disconnect device must be incorporated in the fixed wiring.

Warning Use copper conductors only.

Statement 1025

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

Statement 1030

Warning No user-serviceable parts inside. Do not open.

Statement 1073

Warning **Statement 1086—**Replace Cover on Power Terminals

Hazardous voltage or energy may be present on power terminals. To reduce the risk of electric shock, make sure the power terminal cover is in place when the power terminal is not being serviced. Be sure uninsulated conductors are not accessible when the cover is in place.

Removing a Power Supply Module

Before you begin

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

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

Procedure

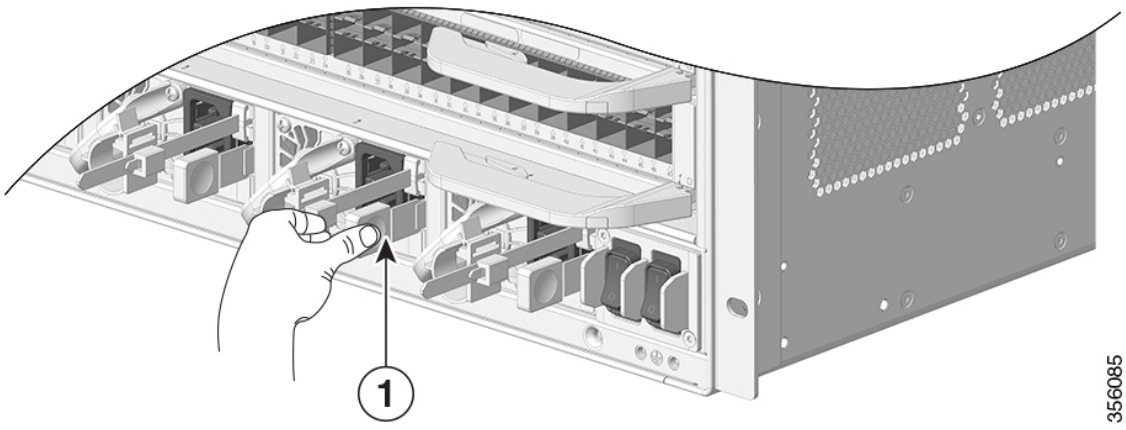
Step 1 Turn the power switch of the designated power supply module to OFF (0) position

Step 2 Loosen and remove the retainer strip that is around the power cord.

Step 3 Remove the power cord from the power receptacle on the power supply.

Step 4 Press the release latch at the right side of the power supply module inwards.

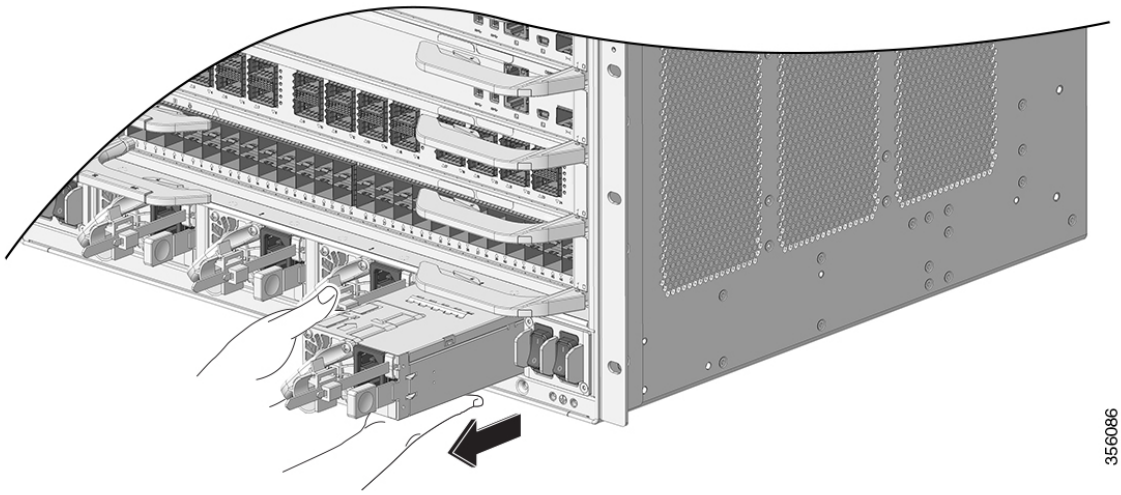
Figure 1: Detaching the Power Supply Module from the Slot



1	Release latch

Step 5 Grasp the power supply module handle with one hand; place your other hand underneath to support the bottom of the power supply. Slide the power supply module out fully.

Figure 2: Sliding the Power Supply Module Out



Caution Do not leave any power supply slot open for any amount of time while the system is powered up. Before inserting a new power supply unit, for instance, when replacing the unit, ensure that there are no foreign, conductive or other objects, or debris in the slot.

Warning In the course of its operation the system may require more than one power supply installed and supplying power. Should it become necessary to remove an active power supply unit from the system, consult the user manual for proper system administration of available power. In order to safely de-energize the power supply unit, the input power should first be turned off and the power cable physically disconnected from the unit. The unit must then be removed from the slot and stowed safely away in a proper antistatic bag. Care must be taken not to touch any of the exposed pins from the backplane connector. When a replacement power supply unit is to be installed, its power switch must always be in the OFF state and no input power cable be installed prior to inserting it into the slot. After the unit is seated, the input power cable may then be installed and fastened securely before switching on the power supply. **Statement 1028**

What to do next

Set the power supply aside and proceed with installing the new or replacement power supply module. Install blank covers in all power supply bays that are to remain empty (C9600-PWR-BLANK). For information about installing blank covers, see Removing and Installing Power Supply Blanks, on page 12.

Installing a Power Supply Module

Before you begin

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

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

Ensure that you have installed the cable guide before you begin the procedure. This is to properly guide and arrange the power cords that you will attach as part of the installation.

Procedure

Step 1 Remove the replacement power supply from its shipping packaging.

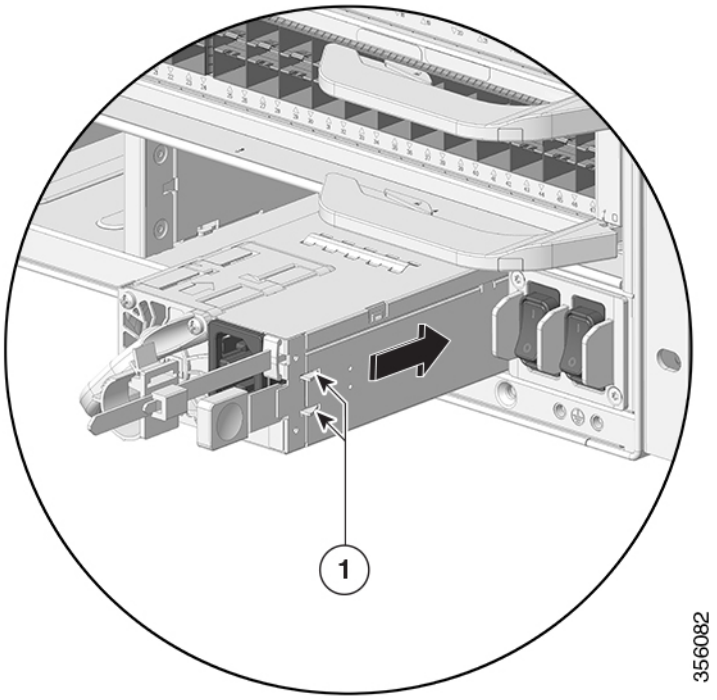
Step 2 Verify that the power switch of the replacement power supply is in the OFF (0) position.

Step 3 If installed, remove the blank power supply cover from the empty power supply bay. For information about removing blank covers, see Removing and Installing Power Supply Blanks, on page 12. Save the blank cover for future use.

Step 4 Grasp the power supply handle with one hand and place your other hand underneath to support the bottom of the power supply. Slide the power supply all the way into the power supply bay. Make sure that the power supply is fully seated in the bay.

When correctly installed, the latch on the power supply locks-in the module, to avoid accidental removal of the module.

Figure 3: Inserting the Power Supply into the Power Supply Bay

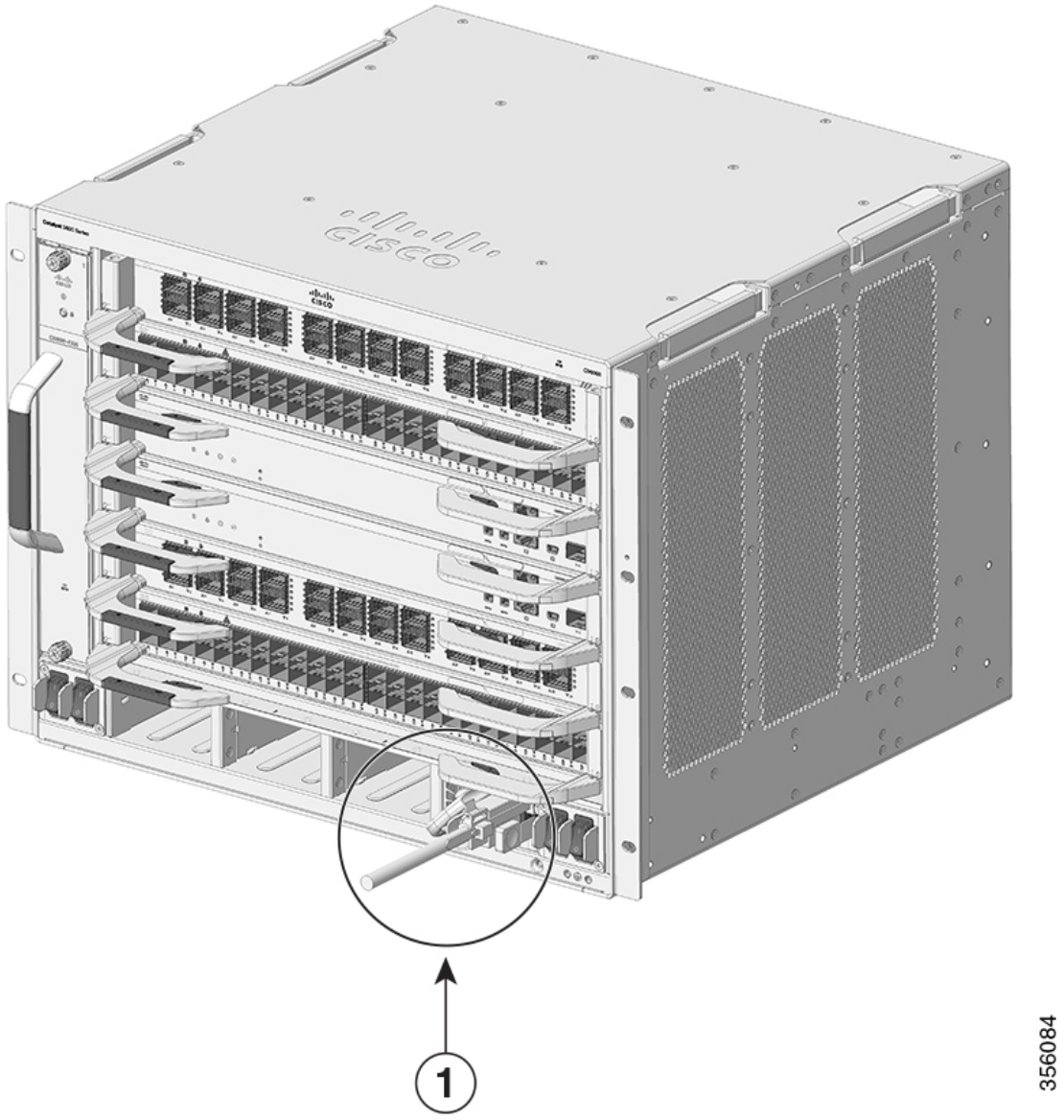


1	Power supply latches, which click into place

Step 5 Verify that all site power and grounding requirements have been met.

Step 6 Verify that you have the correct power cord for your location and power supply rating and only then plug the power cord connector into the power supply receptacle.

Figure 4: Plugging in the Power Cord



1	Power cord plugged into the receptacle

Step 7 Follow the steps to install the power cord retainer, to hold it in place and avoid accidental removal.

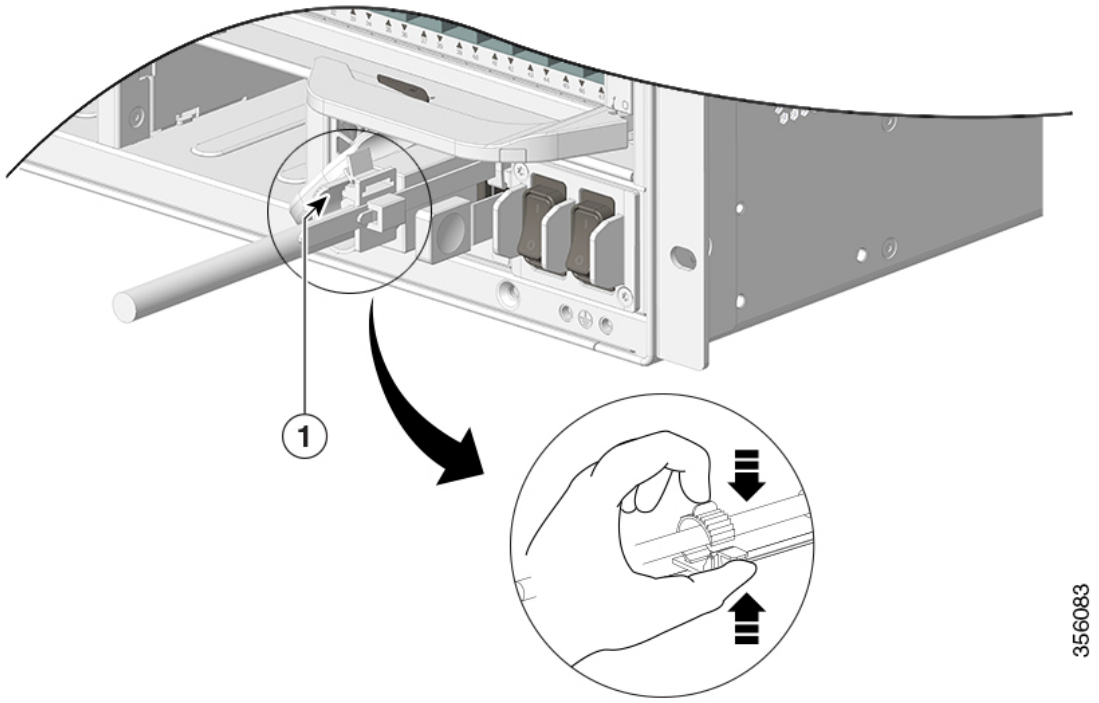
a) Fix the strap in the power cord retainer to the power supply module, to hold the clamp in place.

b) Slide the retainer clamp around the power cord and position the retainer closest to the power supply.

Depending on the width of the power cord, adjust the size of the retainer clamp, if required.

c) Press the tabs on the retainer clamp towards each other to secure the power cord.

Figure 5: Installing the Power Cord Retainer



1	Power supply fully inserted into the chassis; power cord and retainer strapped into place.

Step 8 Set the power switch to the ON (|) position

What to do next

Connect the power supply to the power source.

Connecting to a Power Source

The following sections provide information about connecting the chassis to an AC and DC power source.

Connecting to an AC Power Source

To connect to a power source, follow these steps:

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

Procedure

Step 1 Prior to connecting the power supply to a power source, ensure that the chassis is properly grounded.

Step 2 Plug the power cable into the power supply.

Step 3 Plug the other end of the power cable into a power source supplied by the data center.

Note When using redundant mode, connect each power supply to a separate power source.

Step 4 Verify that the power supply is receiving power by checking that the LED is on and is green. For more information about the power supply LEDs and the conditions that they indicate, see Power Supply Modules LEDs.

When you first activate the power supply, you can verify the functionality of the LED by checking that LED turns on for a couple of seconds. If the LED is flashing amber or green, check the power connections on the power supply and the power source.

Connecting to a DC Power Source

To connect the DC power supply directly to one or two DC power sources, follow these steps:

Warning **Statement 1086—**Replace Cover on Power Terminals

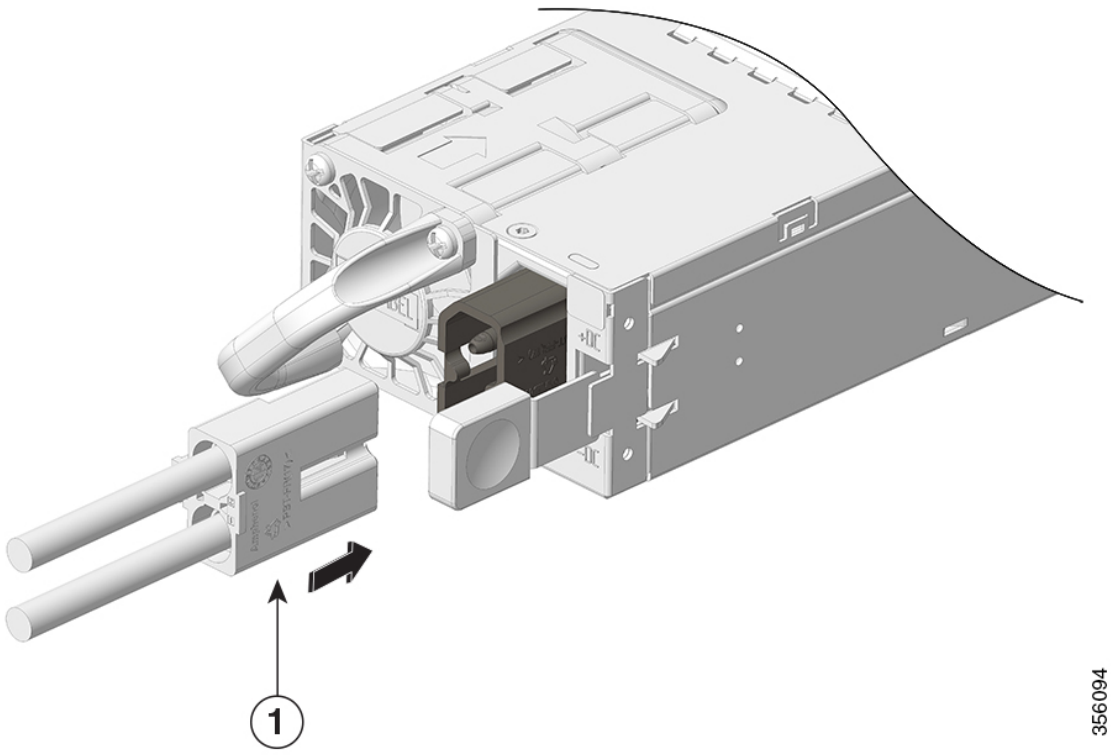
Hazardous voltage or energy may be present on power terminals. To reduce the risk of electric shock, make sure the power terminal cover is in place when the power terminal is not being serviced. Be sure uninsulated conductors are not accessible when the cover is in place.

Procedure

Step 1 Prior to connecting the power supply to a power source, ensure that the chassis is properly grounded.

Step 2 Plug the DC power cable into the DC power receptacle on the power supply module.

Figure 6: Plugging in the DC Power Cable



1	Power Cable

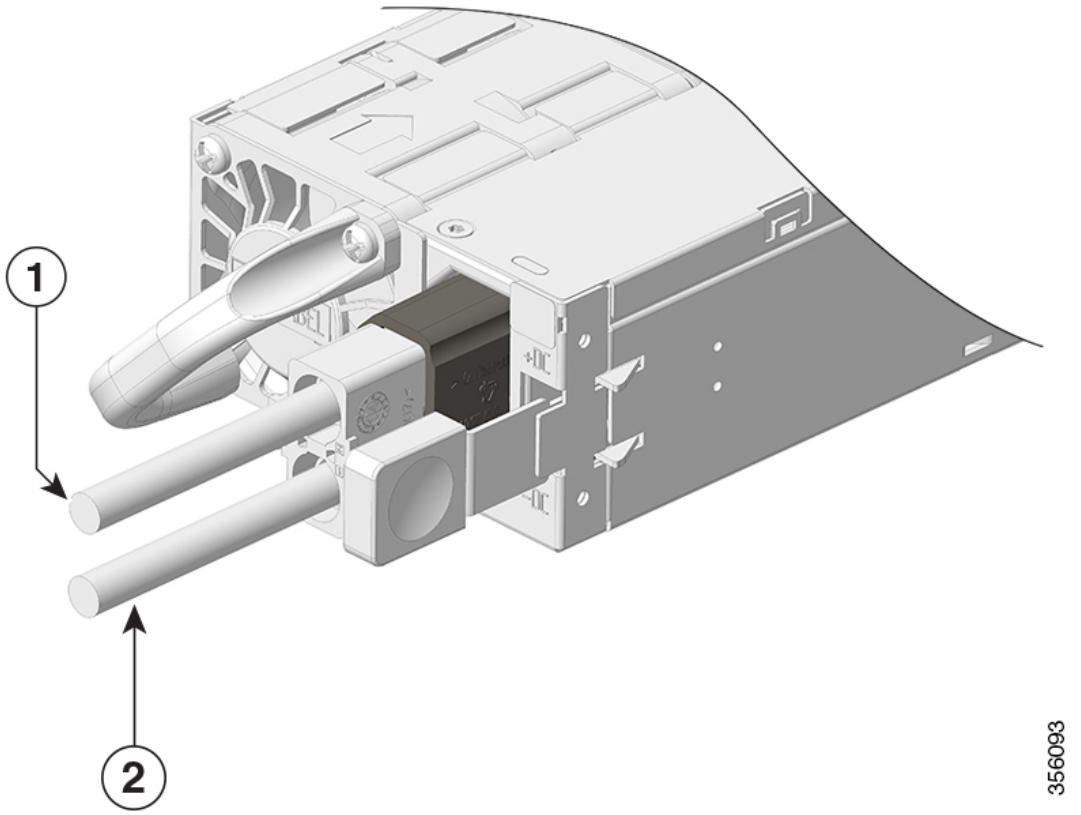
Step 3 Turn off the power at the circuit breakers for the portions of the DC grid power that you are connecting to and verify that all of the LEDs on the DC grid power supplies are off.

Step 4 Install the two cables from the DC power cable to a DC power source as follows:

a) If the unconnected end of each power cable is not stripped of its insulation for the last 0.75 inches (19 mm), use wire strippers to remove that amount of insulation.

b) Attach the negative cables to the negative terminals of a DC power source, and attach the positive cables to the positive terminals of the same power source.

Figure 7: Attaching the Cable to the Power Source



1	Positive terminal	2	Negative terminal

Note If you are using combined power mode or power supply redundancy mode, connect all the power supplies in the chassis to the same power source. If you are using input source redundancy mode or full redundancy mode, connect half the power supplies to one DC power source and the other half of the power supplies to another DC power source.

Step 5 Verify that the power supply is receiving power by checking that the LED is on and is green.

When you first activate the power supply, you can verify the functionality of the LED by checking that LED turns on for a couple of seconds. If the LED is flashing amber or green, check the power connections on the power supply and the power source.

Verifying the Power Supply Installation

Procedure

Step 1 Verify the power supply operation by checking the power supply's front-panel LED. See Power Supply Modules LEDs.

Step 2 Check the power supply and system status from the system console by entering **show power** command in privileged EXEC mode.

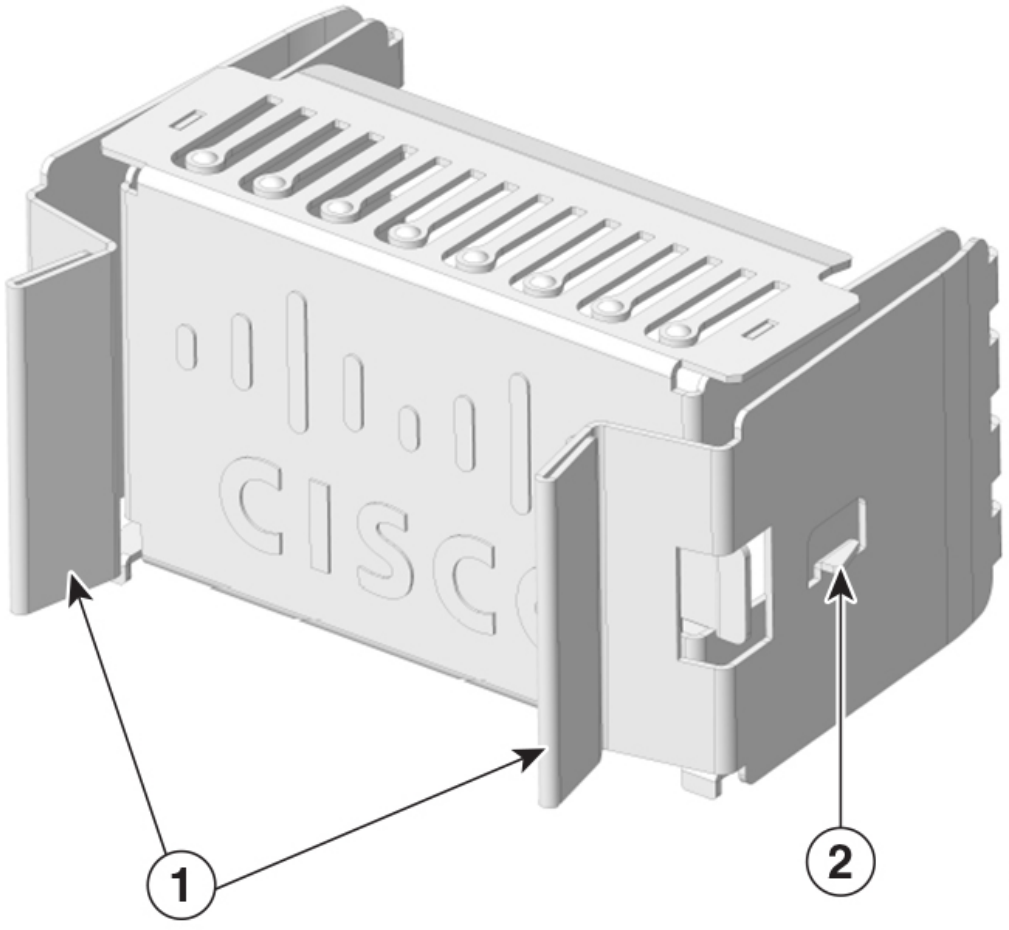
```
Switch# show power
```

Step 3 If the LEDs or **show power** command output indicate a power problem or other system problem, see the *Troubleshooting* section for more information.

Removing and Installing Power Supply Blanks

If a power supply bay in a chassis is unused, you must cover it with a power supply blank cover to maintain proper airflow through the chassis. (Part number C9606-PWR-BLANK=).

Figure 8: Front View of a Power Supply Blank Cover

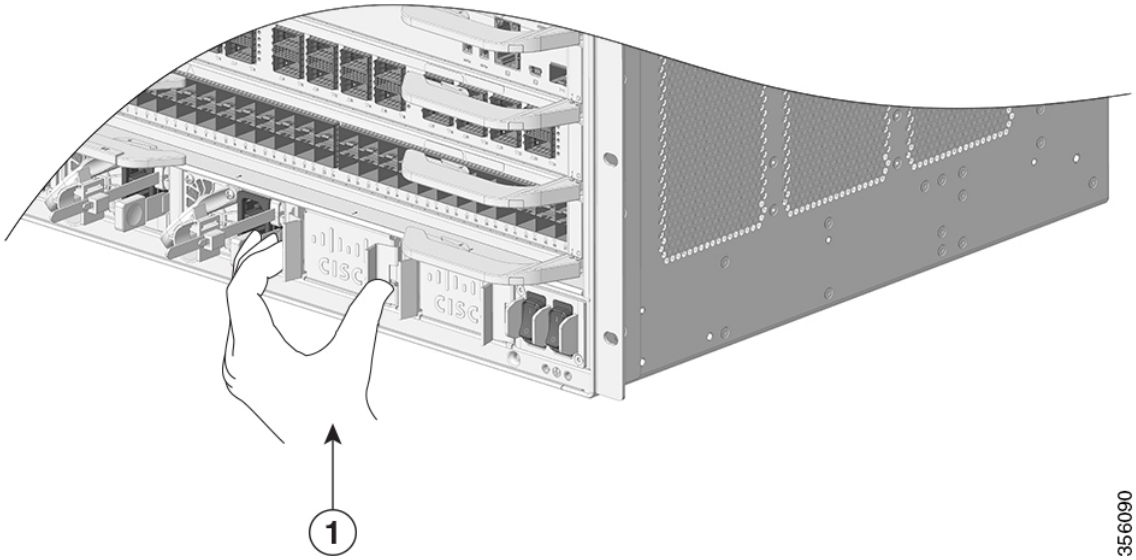


1	Release handles	2	Retainer clip

Removing a Power Supply Blank Cover

To remove the blank cover from a bay, use the release handles to hold the blank cover (with your thumb and index fingers), squeeze both the handles toward each other and slide the cover out of the bay.

Figure 9: Removing a Power Supply Blank Cover



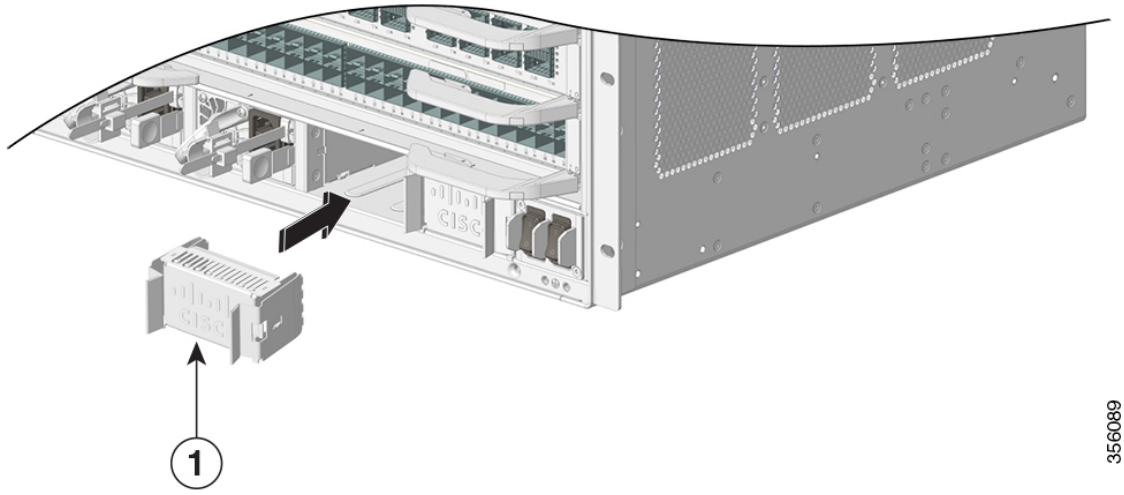
1	Release handles that are squeezed toward each other

Caution Do not leave any power supply slot open for any amount of time while the system is powered up. Prior to inserting a new power supply unit, for instance, when replacing the unit, ensure there are no foreign, conductive or other objects, or debris in the slot.

Installing a Power Supply Blank Cover

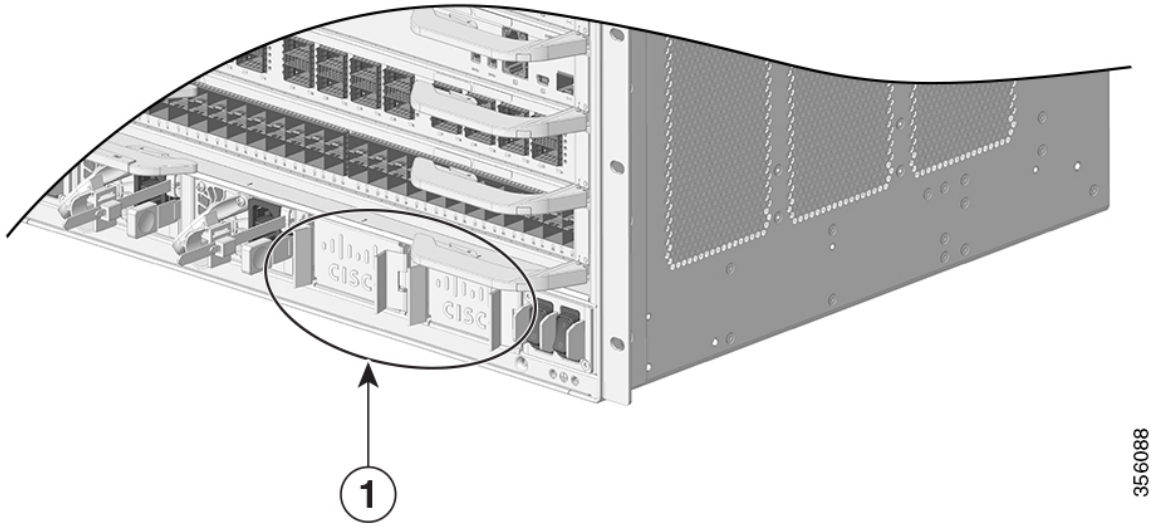
To install a power supply blank cover, push the blank cover straight and into the bay. You will hear retainer clips snap into place when installed correctly. You can hold the blank cover by the outside edges when you perform this task; alternatively, use the release handles to hold the blank cover.

Figure 10: Installing a Power Supply Blank Cover



1	Power supply blank

Figure 11: Power Supply Blank Cover Installed



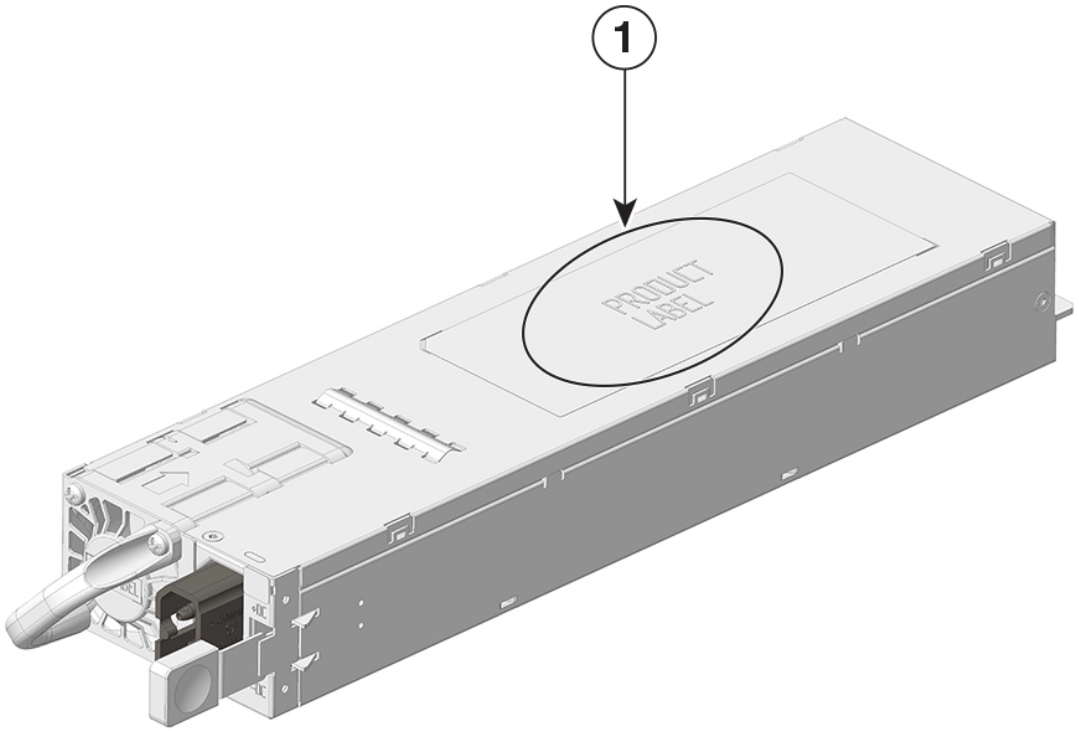
1	Power supply blanks after installation

Note Power supply blank covers can be placed in any slot when fewer than 4 power supplies are installed in a chassis.

Finding the Serial Number

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

Figure 12: Serial Number on the Power Supply Module



1	Power supply module serial number	-	-