Replace Chassis Components

Note

The images in this chapter are only for representation purposes, unless specified otherwise. The chassis' actual appearance and size may vary.

⚠

Caution

Whenever you replace any card, you must always ensure to secure the ejector thumbscrews properly.

Replace a Route Processor Card

The router supports up to two redundant Route Processor (RP) cards. When two RP cards are installed in the router, one acts as an active card and the other as the standby card. If the router has only one RP card installed, a new RP can be installed in the empty RP slot during operation.

Note

- The replacement procedure for the RP cards is only applicable to the standby RP card. You need to shutdown the router to replace an RP on a single-RP system. When you shutdown the standby RP card, the router automatically shuts down the standby Switch Card (SC) as both of them belong to the same operational domain. For example, when you shutdown RP0, the router shuts down the corresponding SC0. When you shutdown RP1, the router shuts down SC1.

- To replace an active RP card, you must trigger a failover using the **redundancy switchover** command.

Warning **Statement 1029**—Blank Faceplates and Cover Panels

Blank faceplates and cover panels serve three important functions: they prevent exposure to hazardous voltages and currents inside the chassis; they contain electromagnetic interference (EMI) that might disrupt other equipment; and they direct the flow of cooling air through the chassis. Do not operate the system unless all cards, faceplates, front covers, and rear covers are in place.

Warning **Statement 1034**—Backplane Voltage

Hazardous voltage or energy is present on the backplane when the system is operating. Use caution when servicing

Before you begin

Before replacing the Route Processor (RP) card, you must perform a graceful shutdown of the card to avoid disk corruption. Use one of the following procedures to perform graceful shutdown of the card:
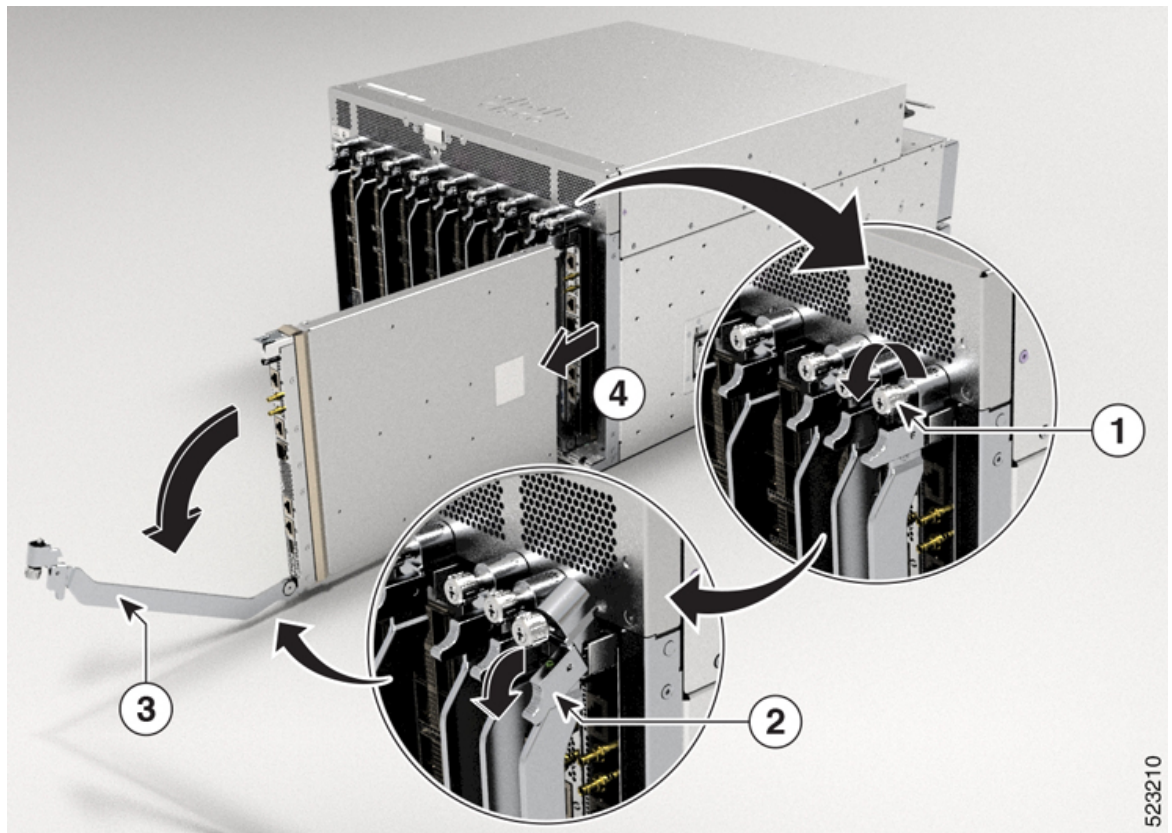
- unscrew the captive screws, pull the release latch down, and open ejector lever to trigger auto-shutdown of the card, and then verify that the Status LED is in Off state.

- use the **shutdown location** *location* command in admin EXEC mode to shutdown the card. Then use the **show platform** command to verify that the Status LED is in Off state.

Procedure

Step 1 Open the packaging for the new RP card, inspect the card for damage, and verify that the card is the same type as the other RP cards installed in the chassis.

If the RP card is damaged, alert the Technical Assistance Center (TAC).

Step 2 If you are installing the RP card in an empty slot, remove the blank card that is already in that slot by unscrewing its captive screw and pulling it out of the slot. Go to Step 4.

Step 3 If you are replacing an RP card that is currently in the chassis, remove the existing card from the chassis by following these steps:

a) Disconnect the following cables from the card:

- Console cable

- Ethernet Management cable

b) If there are any external drives attached to the card through its USB ports, detach those drives.

c) Perform the graceful shutdown of the RP. Run the **shutdown location** *location* command in admin EXEC mode, which gracefully shuts down RP module to prevent any of the file systems from being corrupted.

d) Verify that the RP Status LED for the slot that you specified turns off. Also, you can verify that the card is in the powered off state by running the **show platform** command.

e) Rotate the captive screw, press the latch, and rotate the ejector lever away from the front of the card (see Callouts 1 and 2 in the following figure).

The card unseats its connectors from the midplane and moves slightly out of the chassis.

Figure 1: Remove Route Processor Card from Chassis

1	Unscrew the captive screw.	2	Release the latch.
3	Rotate the ejector lever away from the card.	4	Pull on the lever to slide the card partly out of the chassis. Release the lever, hold the front of the card, and pull the card all the way out of the chassis.

    f)   Use one hand to hold the front of the card, place your other hand under the card to support its weight, pull the card out of the chassis, and set it on an antistatic surface or inside an antistatic bag.

**Step 4**   To install a new card, follow these steps:

    a)   Pull the middle section of the ejector lever toward the end of the lever and rotate the lever away from the front of the card.

        This action opens the lever so that the card can be fully inserted into the slot.

    b)   Hold the front of the card with one hand and place your other hand under the card to support its weight.

    c)   Align the back of the card to the guides in the open route processor slot and slide the card all the way into the slot (see the following figure).

        The card stops when its front is about 0.25 inches (0.6 cm) outside the front of the chassis.

Figure 2: Install Route Processor Card into Chassis
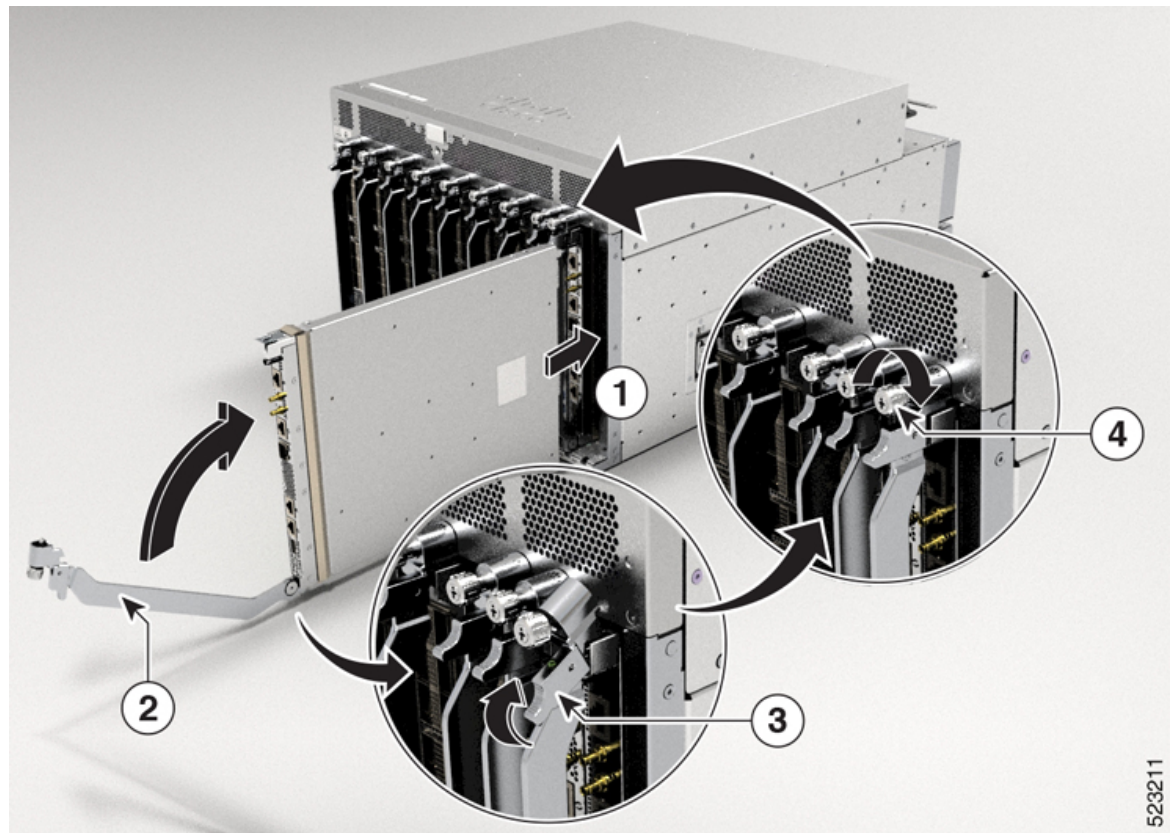
| 1	Slide the back end of the card into the open route processor slot.	3	Press the latch upwards.
2	Rotate the ejector lever towards the card.	4	Rotate the captive screw to secure the route processor card.

d) Rotate the lever all the way to the front of the chassis until it locks in place with a click.

Ensure that the other end of the lever engages behind the front of the slot so that the card fully seats onto the connectors on the midplane.

e) Rotate the captive screw to secure the card to the chassis. Tighten the screws to 9.7 in-lbs (1.09 N-m) of torque.

f) Attach the following cables to the card:

- Console cable—Attach to the Console port.

- Management cable—Attach to the Management Ethernet port.

Note Reload an RP card by using the **reload location** *location* command. Verify that the reloaded RP card is again in the Operational state by using the **show platform** command.

To verify the mode of RP card, if it is in standby or active mode, use the **show platform domain** command.

g) Verify that the route processor card LEDs turn on and appear as follows:

• The Status LED is in solid amber color and later turns to solid green color.

Figure 3: Route Processor LEDs
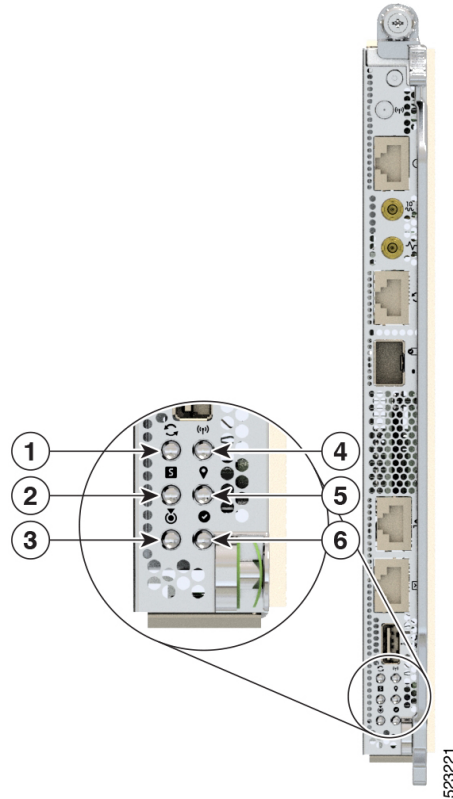
1	Sync
2	Status
3	Attention
4	Management Activity
5	GPS
6	Active

Migrating from Single Route Processor System to Dual-Route Processor System

The Cisco 8608 router supports a single Route Processor (RP) system and a dual Router Processor system. This section provides step-by-step instructions for migrating from a single-RP system to a dual-RP system.

1. From the SC slot, where you want to install a new SC, remove the fan trays, and then remove the Fan Spinner. For more information, see Remove a Fan Spinner.

2. In the slot from where you removed the fan spinner, insert the standby Switch Card (SC). For more information, see Install a Switch Card.

3. After you're done installing the SC, install the fan trays, and then install the RP card. For more information, see Replace a Route Processor Card.

Migrating from Dual-Route Processor System to Single Route Processor System

This section provides step-by-step instructions for migrating from a dual-RP system to a single-RP system.

1. Remove the fan trays from the standby SC that you want to remove.

2. Remove the standby SC from the slot. For more information, see Remove a Switch Card.

3. Install a Fan Spinner in the slot where you've removed the standby SC. For more information, see Install a Fan Spinner.

4. After you're done installing the Fan Spinner, install the fan trays. For more information, see Replace a Fan Module.

Replace Modular Port Adapters

The following sections describe how to remove or install an MPA:

Remove a Modular Port Adapter

Before you begin:

Before replacing the Modular Port Adapter (MPA), you must perform a graceful shutdown of the module to avoid disk corruption. Use one of the following procedures to perform graceful shutdown of the card:

- unscrew the captive screws, pull the release latch down, and open ejector lever to trigger auto-shutdown of the card, and then verify that the Status LED is in Off state.

- use the **shutdown location** *location* command in admin EXEC mode to shutdown the card. Then use the **show platform** command to verify that the Status LED is in Off state.

To remove an MPA, perform the following steps:

1. Ensure the router is in the NSR-ready state. Use the **show redundancy** command as shown in the following example:

```
Router#show redundancy
Thu Jun  1 21:44:12.842 UTC
Redundancy information for node 0/RP0/CPU0:
==========================================
Node 0/RP0/CPU0 is in ACTIVE role
Partner node (0/RP1/CPU0) is in STANDBY role
Standby node in 0/RP1/CPU0 is ready
Standby node in 0/RP1/CPU0 is NSR-ready

Reload and boot info
```

```
---------------------
RP reloaded Wed May 31 16:03:53 2023: 1 day, 5 hours, 40 minutes ago
Active node booted Wed May 31 16:03:53 2023: 1 day, 5 hours, 40 minutes ago
Standby node boot Wed May 31 16:04:06 2023: 1 day, 5 hours, 40 minutes ago
Standby node last went not ready Wed May 31 16:07:06 2023: 1 day, 5 hours, 37 minutes
ago
Standby node last went ready Wed May 31 16:08:53 2023: 1 day, 5 hours, 35 minutes ago
Standby node last went not NSR-ready Wed May 31 16:06:49 2023: 1 day, 5 hours, 37 minutes
 ago
Standby node last went NSR-ready Wed May 31 16:13:26 2023: 1 day, 5 hours, 30 minutes
ago
There have been 0 switch-overs since reload

Active node reload "User initiated chassis reload"
Standby node reload "User initiated chassis reload"
```

2. Perform the graceful shutdown of the MPA. Run the **shutdown location** *location* command in admin EXEC mode, which gracefully shuts down MPA to prevent any of the file systems from being corrupted.

3. Verify that the MPA Status LED for the slot that you specified turns off. Also, you can verify that the card is in the powered off state by running the **show platform** command.

4. To remove the MPA from the chassis, loosen the captive screws (marked as 1 in the image) on the MPA.

5. Press the tab down (marked as 2 in the image).

6. Pull the ejector lever away from the MPA (marked as 3 in the image).

7. Grasp the MPA and pull the MPA from the chassis (marked as 4 in the image). (You have already disconnected the cables from the MPA.)

Figure 4: Remove an MPA
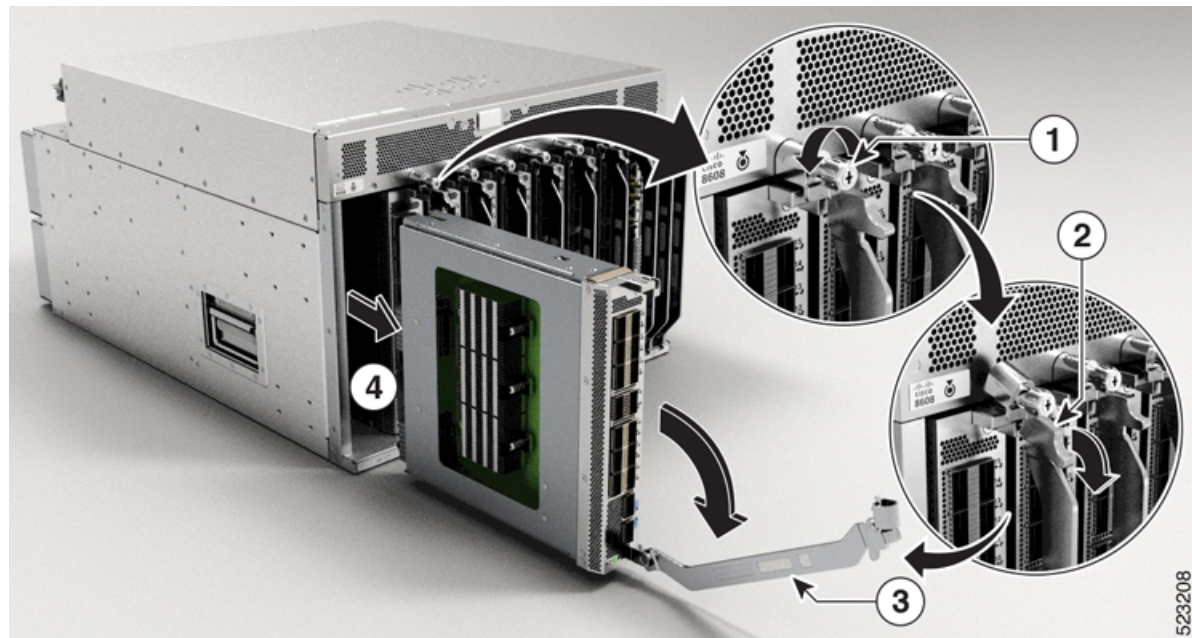
1	Rotate the captive screw to loosen the MPA.	2	Press the tab down.
3	Pull the ejector lever away from the MPA.		

8. Verify that the router is in the NSR-ready state. Use the **show redundancy** command as shown in the following example:

```
Router#show redundancy
Thu Jun  1 21:52:36.811 UTC
Redundancy information for node 0/RP0/CPU0:
==========================================
Node 0/RP0/CPU0 is in ACTIVE role
Partner node (0/RP1/CPU0) is in STANDBY role
Standby node in 0/RP1/CPU0 is ready
Standby node in 0/RP1/CPU0 is NSR-ready

Reload and boot info
--------------------
RP reloaded Wed May 31 16:03:53 2023: 1 day, 5 hours, 48 minutes ago
Active node booted Wed May 31 16:03:53 2023: 1 day, 5 hours, 48 minutes ago
Standby node boot Wed May 31 16:04:06 2023: 1 day, 5 hours, 48 minutes ago
Standby node last went not ready Wed May 31 16:07:06 2023: 1 day, 5 hours, 45 minutes
 ago
Standby node last went ready Wed May 31 16:08:53 2023: 1 day, 5 hours, 43 minutes ago
Standby node last went not NSR-ready Wed May 31 16:06:49 2023: 1 day, 5 hours, 45 minutes
 ago
Standby node last went NSR-ready Wed May 31 16:13:26 2023: 1 day, 5 hours, 39 minutes
ago
There have been 0 switch-overs since reload

Active node reload "User initiated chassis reload"
Standby node reload "User initiated chassis reload"
```

9. Proceed with installing an MPA.

Install a Modular Port Adapter

This section provides step-by-step instructions for installing a modular port adapter (MPA) in a Cisco 8600 Series router.

Note After you remove the MPA from the slot, wait for 60 seconds before you reinsert an MPA.

Warning **During this procedure, wear grounding wrist straps to avoid ESD damage to the card. Do not directly touch the backplane with your hand or any metal tool, or you could shock yourself.** Statement 94

To install an MPA, perform the following steps:

1. Ensure the router is in the NSR-ready state. Use the **show redundancy** command as shown in the following example:

```
Router#show redundancy
Thu Jun  1 21:44:12.842 UTC
Redundancy information for node 0/RP0/CPU0:
==========================================
Node 0/RP0/CPU0 is in ACTIVE role
Partner node (0/RP1/CPU0) is in STANDBY role
Standby node in 0/RP1/CPU0 is ready
Standby node in 0/RP1/CPU0 is NSR-ready
```

```
Reload and boot info
---------------------
RP reloaded Wed May 31 16:03:53 2023: 1 day, 5 hours, 40 minutes ago
Active node booted Wed May 31 16:03:53 2023: 1 day, 5 hours, 40 minutes ago
Standby node boot Wed May 31 16:04:06 2023: 1 day, 5 hours, 40 minutes ago
Standby node last went not ready Wed May 31 16:07:06 2023: 1 day, 5 hours, 37 minutes
ago
Standby node last went ready Wed May 31 16:08:53 2023: 1 day, 5 hours, 35 minutes ago
Standby node last went not NSR-ready Wed May 31 16:06:49 2023: 1 day, 5 hours, 37 minutes
 ago
Standby node last went NSR-ready Wed May 31 16:13:26 2023: 1 day, 5 hours, 30 minutes
ago
There have been 0 switch-overs since reload

Active node reload "User initiated chassis reload"
Standby node reload "User initiated chassis reload"
```

2. To insert the MPA, locate the guide rails inside the chassis that hold the MPA in place.

3. Carefully slide the MPA all the way in the chassis until the MPA is firmly seated in the MPA interface connector. When fully seated, the MPA might be slightly behind the faceplate.

✎

Note   The MPA will slide easily into the slot if it is properly aligned on the tracks. If the MPA does not slide easily, do NOT force it. Remove the MPA and reposition it, paying close attention to engaging it on the tracks. Push the MPA inside the slot until you hear a click. Continue to push the MPA further until you hear a second click. The MPA is fully seated only after the second click is heard.

4. After the MPA is properly seated, pull the ejector lever towards the chassis (marked as 2 in the image).

5. Pull the tab up (marked as 3 in the image).

6. Use a number 2 Phillips screwdriver to tighten the captive screws(marked as 4 in the image) on the MPA.

Figure 5: Install an MPA
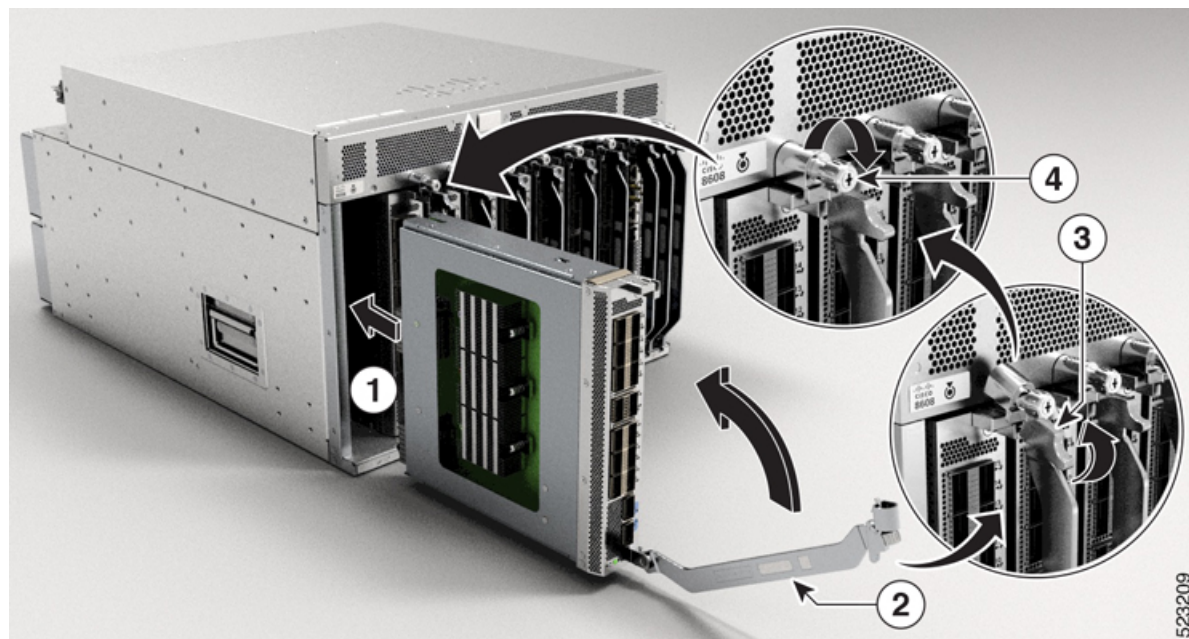
1	Slide the back end of the MPA into the open MPA slot.	2	Pull the ejector lever towards the MPA.
3	Pull the tab up.	4	Rotate the captive screw to tighten the MPA.

Note Tighten the captive screws on the MPA within 10 seconds.

Note Do not over-torque the MPA captive screws when installing the MPA. Tighten the captive screws on the MPA to a torque of 9.7 in-lbs (1.09 N-m).

7. Verify that after you've installed MPA, the router is in the NSR-ready state. Use the **show redundancy** command as shown in the following example:

```
Router#show redundancy
Thu Jun  1 21:52:36.811 UTC
Redundancy information for node 0/RP0/CPU0:
==========================================
Node 0/RP0/CPU0 is in ACTIVE role
Partner node (0/RP1/CPU0) is in STANDBY role
Standby node in 0/RP1/CPU0 is ready
Standby node in 0/RP1/CPU0 is NSR-ready

Reload and boot info
--------------------
RP reloaded Wed May 31 16:03:53 2023: 1 day, 5 hours, 48 minutes ago
Active node booted Wed May 31 16:03:53 2023: 1 day, 5 hours, 48 minutes ago
Standby node boot Wed May 31 16:04:06 2023: 1 day, 5 hours, 48 minutes ago
Standby node last went not ready Wed May 31 16:07:06 2023: 1 day, 5 hours, 45 minutes
ago
Standby node last went ready Wed May 31 16:08:53 2023: 1 day, 5 hours, 43 minutes ago
Standby node last went not NSR-ready Wed May 31 16:06:49 2023: 1 day, 5 hours, 45 minutes
 ago
Standby node last went NSR-ready Wed May 31 16:13:26 2023: 1 day, 5 hours, 39 minutes
ago
There have been 0 switch-overs since reload

Active node reload "User initiated chassis reload"
Standby node reload "User initiated chassis reload"
```

Note After you install an MPA, you can use the **show interfaces** command to verify the traffic on that MPA.

Replace a Switch Card

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.

Warning **Statement 1029**—Blank Faceplates and Cover Panels

Blank faceplates and cover panels serve three important functions: they prevent exposure to hazardous voltages and currents inside the chassis; they contain electromagnetic interference (EMI) that might disrupt other equipment; and they direct the flow of cooling air through the chassis. Do not operate the system unless all cards, faceplates, front covers, and rear covers are in place.

Warning **Statement 1034**—Backplane Voltage

Hazardous voltage or energy is present on the backplane when the system is operating. Use caution when servicing

Warning **Statement 1051**—Laser Radiation

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

Before you begin:

Before replacing a Switch Card (SC), you must perform a graceful shutdown of the card to avoid disk corruption. Use one of the following procedures to perform graceful shutdown of the card:

- unscrew the captive screws and open ejector handles to trigger auto-shutdown of the card, and then verify that the Status LED is in Off state.

- use the **shutdown location** *location* command in admin EXEC mode to shutdown the card. Then use the **show platform** command to verify that the Status LED is in Off state.

Note The replacement procedure for the SC is only applicable to the standby SC card. Replacement of a standby SC requires you to shutdown the router. When you shutdown the standby SC, the router automatically shuts down the standby Route Processor (RP) card as both of them belong to the same operational domain. For example, when you shutdown RP0, the router shuts down the corresponding SC0. When you shutdown RP1, the router shuts down SC1. Similarly, when you reload RP1, the router reloads SC1. When you reload RP0, the router reloads SC0.

To replace the SC, you must do the following:

1. Shut down the SC being replaced. Use the **shutdown location** *location* command in admin EXEC mode, which gracefully shuts down the SC module. Shutdown the RP-SC domain of the SC being replaced with the location of the RP.

   Or, unscrew the captive screws and open ejector handles to trigger auto-shutdown of the card, and then verify that the Status LED is in Off state.

2. Verify that the SC Status LED for the slot that you specified turns off. Also, you can verify that the card is in powered off state by running the **show platform** command.

3. Remove the SC. For more information, see Remove a Switch Card.

4. Install the new SC. For more information, see Install a Switch Card.

5. Reload the SC. To bring up the RP-SC domain to an operational state, reload the RP-SC domain by using **reload location** *location* with the location of the RP.

6. Verify that the reloaded SC is again in the Operational state by using the **show platform** command.

   To verify the mode of SC, if it is in standby or active mode, use the **show platform domain** command.

Caution A fully loaded SC (with fans) weighs 27 lbs (12.25 kg). An empty SC (no fans) weighs 21.8 lbs (9.89 kg).

Remove a Switch Card

Before you begin

- You must wear an electrostatic discharge (ESD) wrist strap or other ESD protective device while handling modules.

- Prepare an antistatic surface or packing materials for each module that you remove from the chassis.

⚠️

Caution Ensure to complete the SC replacement within 3 minutes as removing an SC also removes the fan modules.

We recommend that you remove or replace the SC and fan modules as a single unit to save the replacement time.
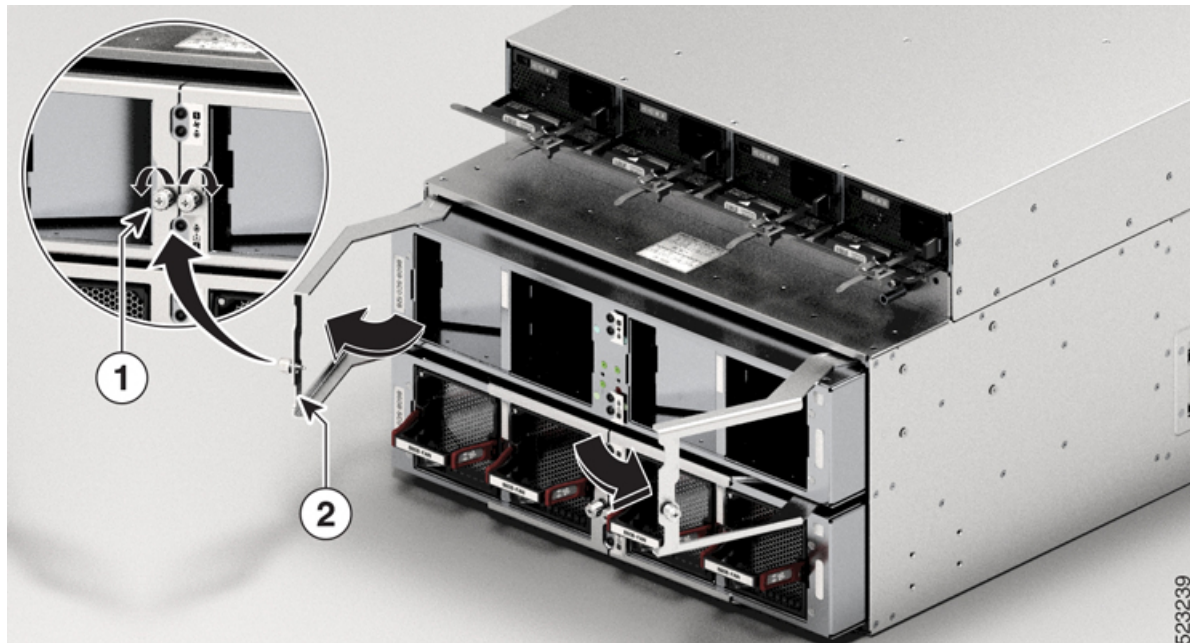
Procedure

Step 1 If you are replacing an SC, open the packaging for the new module and inspect it for damage.

If the SC is damaged, contact your customer service representative and stop this replacement process until you have an undamaged SC to install.

Step 2 Remove the SC that you are replacing by following these steps:
a) Loosen the captive screws on both sides of the SC. Wait for the Status LED to go in Off state.
b) Rotate the handles outwards until they stop (see Callout 2 in the following figure).
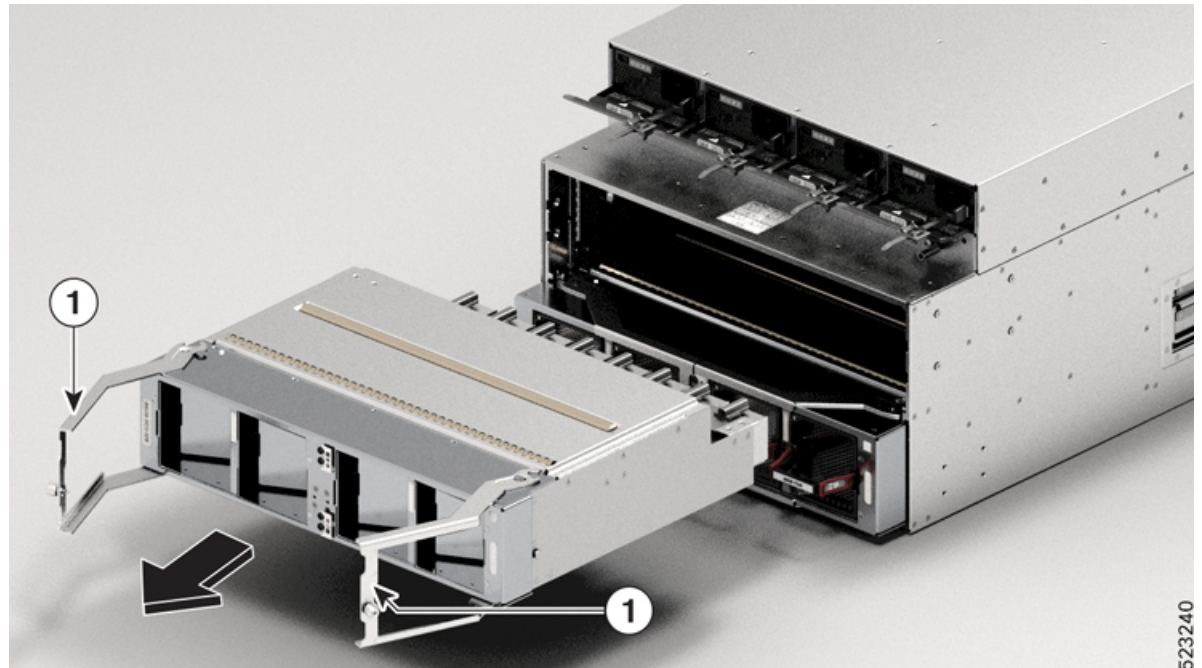c) Use the ejector handles to pull the module a couple of inches (about 5 cm) out of the slot until it stops.

Note Hold the front of the SC with one hand and place your other hand under the SC to support its weight.

Figure 6: Remove Switch Card from Chassis

1	Two captive screws (one on each handle)	2	Rotate both ejector handles to the front of the module. Pull on both handles to partially remove the SC from the chassis

Figure 7: Pull Switch Card from Chassis

1	Pull on both ejector handles to partially remove the SC from the chassis

    d) Close the ejector handles and tighten the captive screws to 9.7 in-lbs (1.09 N-m) of torque.

    e) Pull the module out of the slot.

> **Caution**   Use caution when handling the SC. A fully loaded SC (with fans) weighs 27 lbs (12.25 kg). An empty SC (no fans) weighs 21.8 lbs (9.89 kg).

    f) Place the SC on an antistatic surface or in an antistatic bag.

Install a Switch Card

⚠

> **Caution**   Ensure to complete the Switch Card replacement within 3 minutes as removing an SC also removes the fan modules.
>
> We recommend that you remove or replace the SC and fan modules as a single unit to save the replacement time.

Procedure

Step 1   Unscrew the two captive screws (one on each ejector handle) and rotate the ejector handles until it stops.

Step 2   Slide the SC into the slot until it stops.

Step 3   Close the ejector levers.

Attention   Ensure to close both the ejector levers at the same time so that the SC sits properly in the SC slot.

Step 4   Tighten the captive screw on each side of the SC to 9.7 in-lbs (1.09 N-m) of torque.

Step 5   Reinstall the fan modules into the SC.

Refer to installing the fan tray procedure: Replace a Fan Module, on page 17

Note   Tighten the captive screws on the SC within 10 seconds. If you can't replace an SC within three minutes, we recommend that you leave the SC in the chassis until you are ready to replace it.

Replace a Fan Spinner

The following sections describe how to remove or install a Fan Spinner:

Remove a Fan Spinner

- You must wear an electrostatic discharge (ESD) wrist strap or other ESD protective device while handling modules.

- Prepare an antistatic surface or packing materials for each module that you remove from the chassis.

⚠

Caution   Ensure to complete the Fan Spinner replacement within 3 minutes as removing a Fan Spinner also removes the fan modules.

We recommend that you remove or replace the Fan Spinner and fan modules as a single unit to save the replacement time.

1. If you are replacing a Fan Spinner, open the packaging for the new module and inspect it for damage.
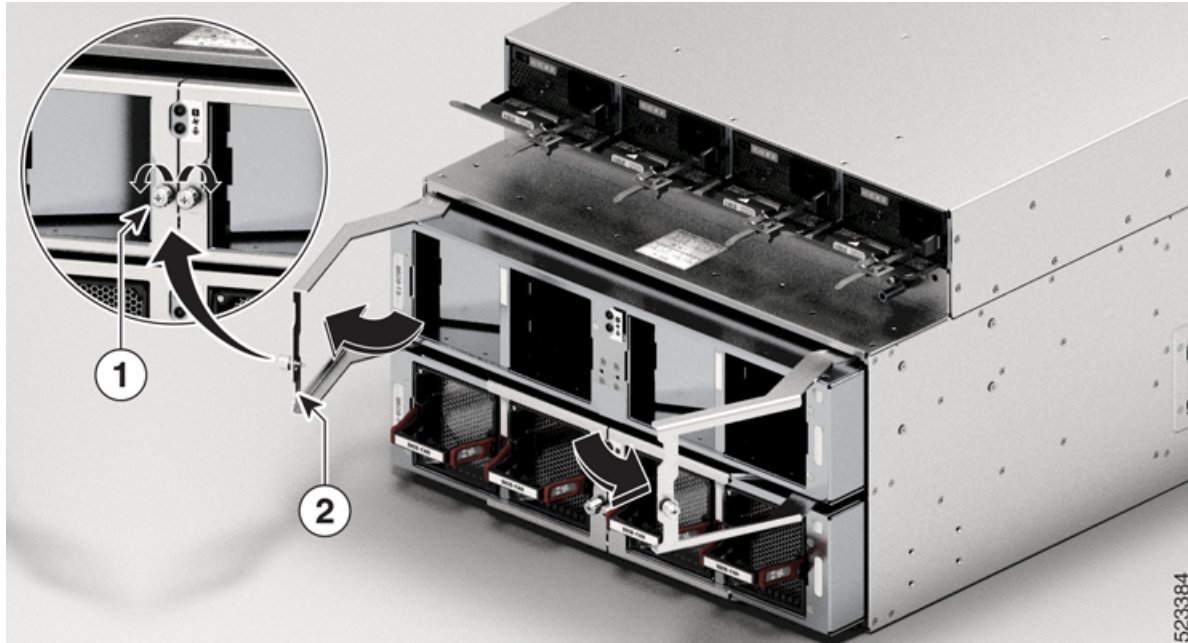
✎

Note   If the Fan Spinner is damaged, contact your customer service representative and stop this replacement process until you have an undamaged Fan Spinner to install.

2. Remove the Fan Spinner that you are replacing by following these steps:

    a. Loosen the captive screws on both sides of the Fan Spinner.

    b. Rotate the handles outwards until they stop (see Callout 2 in the following figure).

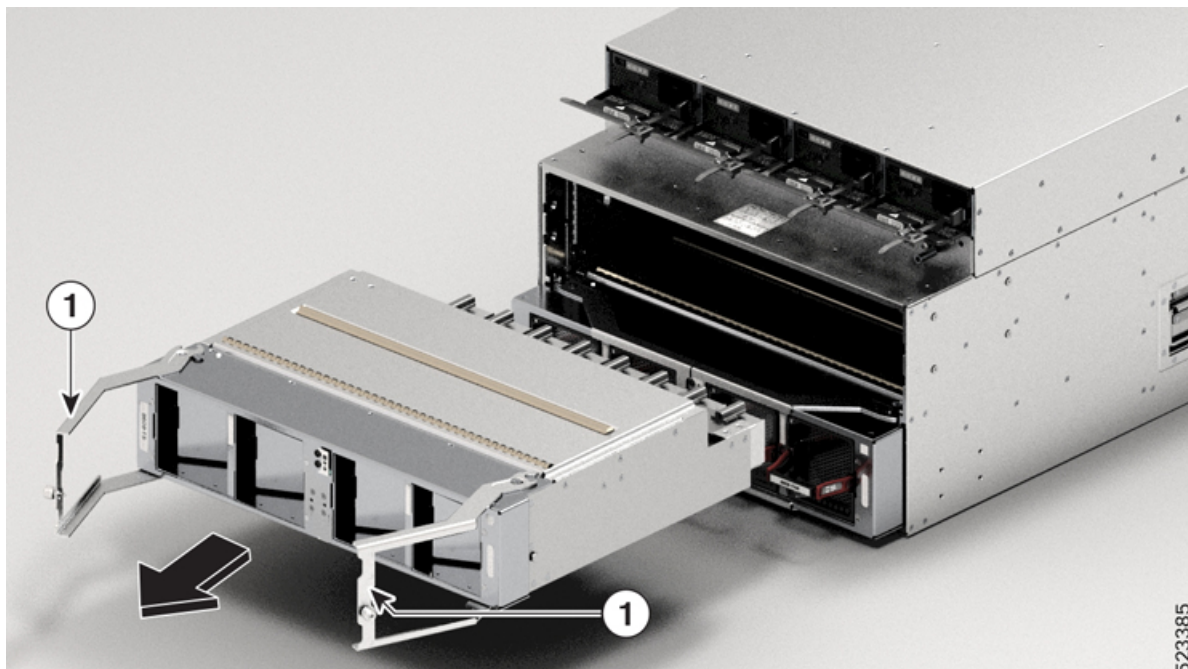   c. Use the ejector handles to pull the module a couple of inches (about 5 cm) out of the slot until it stops.

✎

Note   Hold the front of the Fan Spinner with one hand and place your other hand under the Fan Spinner to support its weight.

Figure 8: Remove Fan Spinner from Chassis

1	Two captive screws (one on each handle)	2	Rotate both ejector handles to the front of the module. Pull on both handles to partially remove the Fan Spinner from the chassis

Figure 9: Pull Fan Spinner from Chassis

1	Pull on both ejector handles to partially remove the Fan Spinner from the chassis

d. Close the ejector handles and tighten the captive screws.

e. Pull the module out of the slot.

⚠️

Caution Use caution when handling the Fan Spinner. A fully loaded Fan Spinner (with fans) weighs 17.5 lbs (7.94 kg). An empty Fan Spinner (no fans) weighs 12.3 lbs (5.58 kg).

f. Place the Fan Spinner on an antistatic surface or in an antistatic bag.

Install a Fan Spinner

⚠️

Caution Ensure to complete the Fan Spinner replacement within 3 minutes as removing a Fan Spinner also removes the fan modules.

We recommend that you remove or replace the Fan Spinner and fan modules as a single unit to save the replacement time.

1. Unscrew the two captive screws (one on each ejector handle) and rotate the ejector handles until it stops.

2. Slide the Fan Spinner into the slot until it stops.

3. Close the ejector levers.

⚠️

Attention Ensure to close both the ejector levers at the same time so that the Fan Spinner sits properly in the slot.

4. Tighten the captive screw on each side of the Fan Spinner to 9.7 in-lbs (1.09 N-m) of torque.

5. Reinstall the fan modules into the Fan Spinner.

Refer to installing the fan tray procedure: Replace a Fan Module, on page 17

✎

Note Tighten the captive screws on the Fan Spinner within 10 seconds. If you can't replace an Fan Spinner within three minutes, we recommend that you leave the Fan Spinner in the chassis until you are ready to replace it.

Replace a Fan Module

The Cisco 8608 router uses eight fan modules (8608-FAN) but it can operate with seven fan modules while you replace one. When you remove one fan module, the other fan modules speed up their fans to maintain the designed airflow.

The fan module is designed to be removed and replaced while the system is operating without presenting an electrical hazard or damage to the system. Please keep the replacement fan modules ready prior to attempting this task.

Note To ensure adequate airflow and prevent overheating, do not operate the router with seven fan modules for more than 10 minutes.

If you cannot replace a fan module within three minutes, we recommend that you leave it in the chassis until you are ready to replace it.

Caution Never remove two fan modules at a time during operation. The router allows up to two minutes of operations before shutting down unless you replace the missing fan module within that time. If the router senses an over temperature condition when multiple fan modules are removed, the shutdown can occur in fewer than two minutes.

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.

Warning **Statement 1029**—Blank Faceplates and Cover Panels

Blank faceplates and cover panels serve three important functions: they prevent exposure to hazardous voltages and currents inside the chassis; they contain electromagnetic interference (EMI) that might disrupt other equipment; and they direct the flow of cooling air through the chassis. Do not operate the system unless all cards, faceplates, front covers, and rear covers are in place.

Warning **Statement 1034**—Backplane Voltage

Hazardous voltage or energy is present on the backplane when the system is operating. Use caution when servicing

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Warning **Statement 1051**—Laser Radiation

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

Figure 10: Cisco 8608 Router - Replace Fans
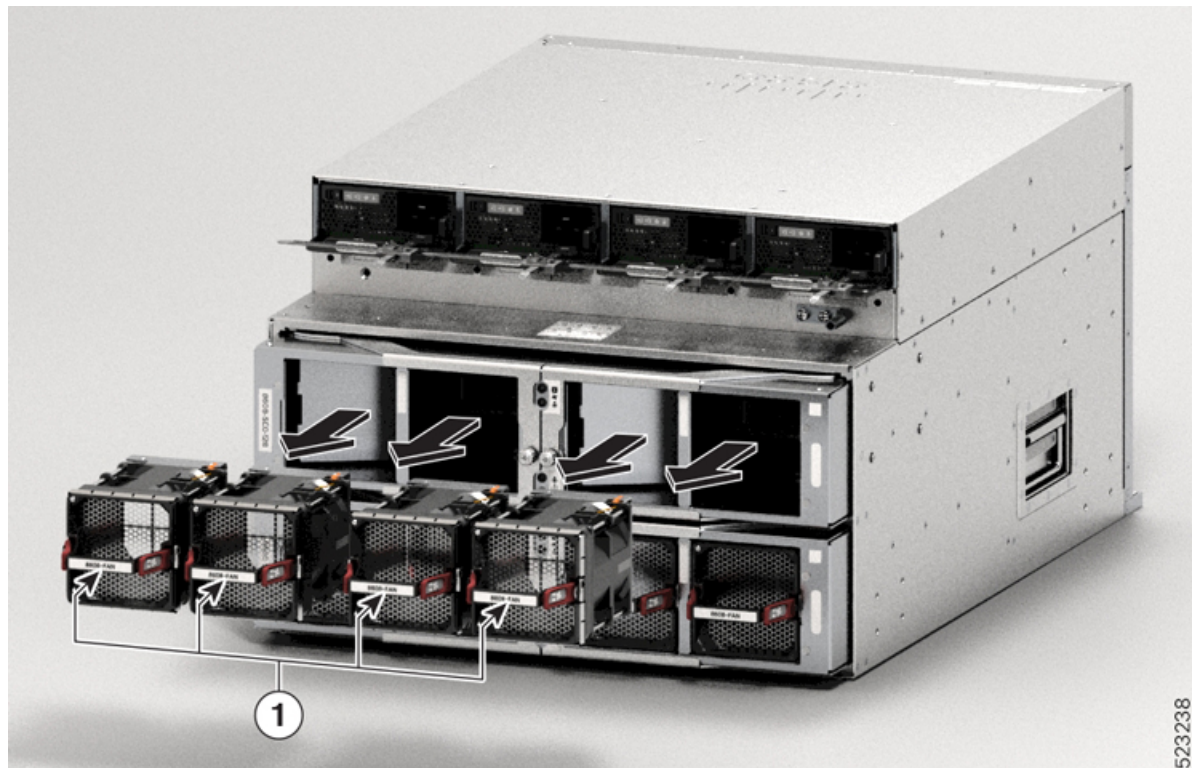
To replace a fan tray, you must perform the following functions:

1. Press the latch to remove the fan to be replaced.

2. Hold the fan module with the LED and PID label at the top.

3. Align the fan module to the open fan slot in the chassis and press the module all the way into the slot until the front of the fan module touches the chassis.

   Ensure that the thumbscrew on the fan module is aligned with the screw hole in the chassis.

4. If the chassis is powered on, listen for the fans. You should immediately hear them operating. If you do not hear them, ensure that the fan module is inserted completely in the chassis.

5. Verify that the fan module LED is green. If the LED is not green, one or more fans are faulty. If this situation occurs, contact your customer service representative for replacement parts.

Replace Power Modules

The following sections describe how to remove or install power modules:

Removing an AC Power Supply Unit

To remove an AC Power Supply Unit (PSU), follow the steps described here.
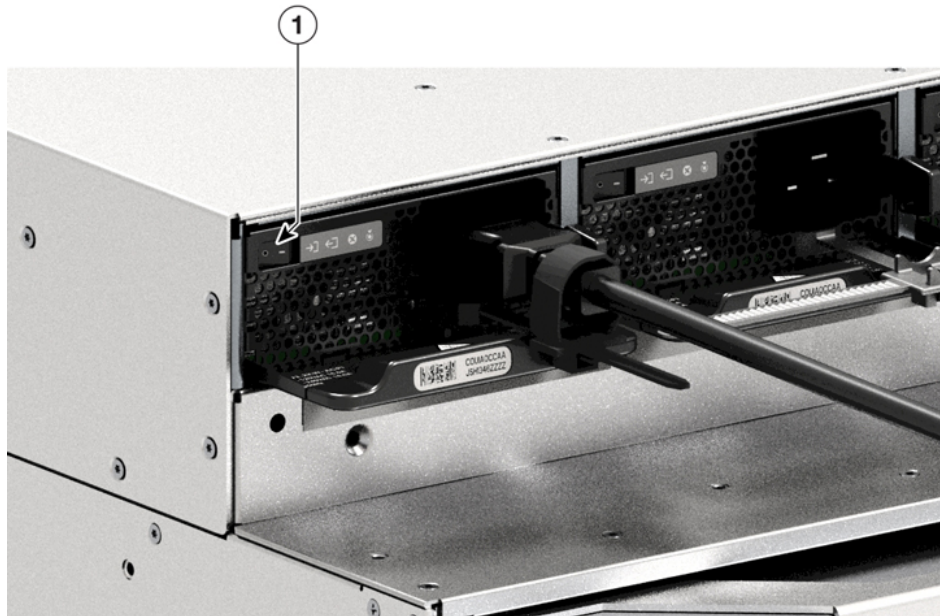
Before you begin

Warning	**Statement 1073**—No User-Serviceable Parts
	There are no serviceable parts inside. To avoid risk of electric shock, do not open.

Procedure

Step 1 Set the AC-input power supply rocker switch to the OFF (0) position

Figure 11: AC Power Supply Switch Position

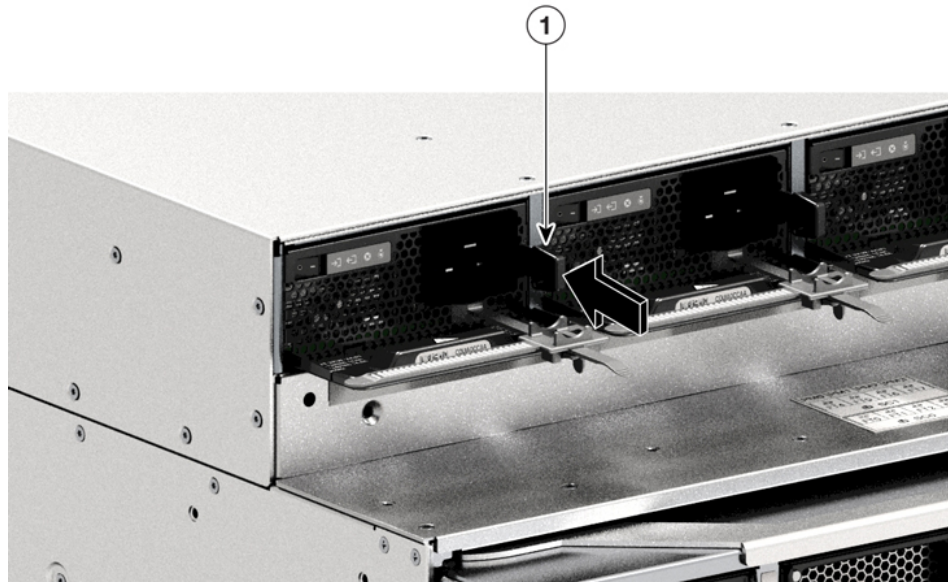| 1	Power supply in the OFF (0) position

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

See Power Cord Retainer Mechanism.

Step 3 Remove the power cord from AC-in receptacle.

Step 4   Press the release latch of the PSU inward.

Figure 12: Release PSU Latch

| 1 | Release latch, which should be pressed inwards |

Step 5   Grasp the PSU with one hand; place your other hand underneath to support the bottom of the power supply. Slide it out of the bay completely.

Figure 13: Slide the PSU Out

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 PSU, for instance, when replacing the unit, ensure there are no foreign, conductive or other objects, or debris in the slot.

Warning   **Statement 1028**—More Than One Power Supply

This unit might have more than one power supply connection. To reduce risk of electric shock, remove all connections to de-energize the unit.

What to do next

Set the power supply aside and proceed with installing the new or replacement PSU. For more information, see Connect AC Power to the Chassis.

Remove a DC Power Supply Unit

When removing a DC Power Supply Unit (PSU), you will need access to the terminal block of the module to disconnect the DC-input wires. If the front panel of the chassis has limited access because of other interfering cables, consider removing the module from the chassis before disconnecting the DC-input wires. If you do have clear access to the terminal block, you can disconnect the DC-input wires and then remove the module from the chassis. In either case (whether you have access to the front panel or not), you must begin by completing all the steps described in Powering Down the DC-Input Power Supply. Proceed with the next task depending on your setup.

The procedures to disconnect DC-input wires and to remove the module from the chassis have been described in Disconnect the DC-Input Wires, on page 23 and Remove a DC Power Supply Unit from the Chassis, on page 25.

Power Down a DC Power Supply Unit

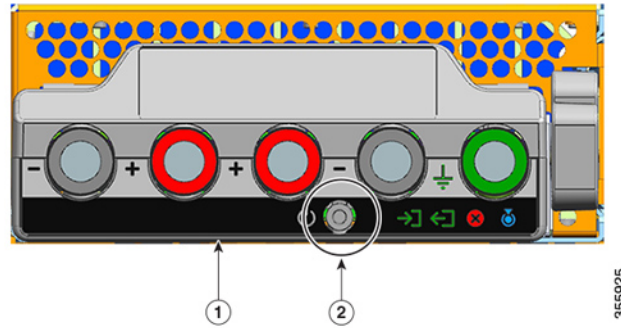To power down a DC-input Power Supply Unit (PSU), follow the steps described here.

Before you begin

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

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

Procedure

Step 1   Press the power button on the PSU for two seconds to turn it off. Check that the OUTPUT LED is off.

Figure 14: Power Off the PSU

1	Front panel of the PSU3.2KW-DCPI	2	Power button

Step 2 Locate the circuit breaker on the panel board that services the DC circuit, and switch the circuit breaker to the OFF position.

Step 3 Check that the INPUT LED on the PSU is off.

The FAIL LED is illuminated for two to three seconds after DC input is disconnected through a circuit breaker.

Disconnect the DC-Input Wires

To disconnect the DC-input wires, follow the steps described here.

Before you begin

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

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

Procedure

Step 1 Using a number one Phillips screwdriver, loosen the captive installation screw on the terminal block cover and lift to open.

*Figure 15: Open Terminal Block Cover*

Step 2   Using a nut driver, loosen the two nuts of one terminal slot at a time. After the lugs are removed, place the nuts back on the terminal posts and tighten.

The nut driver you are using must have at least a three-inch shaft, to clear the height of the terminal block cover and enable you to loosen or tighten the nuts in the terminal slots.

Disconnect the DC-input wires from the terminal block first, and disconnect the ground wire last.

Figure 16: Disconnect DC-input Wires
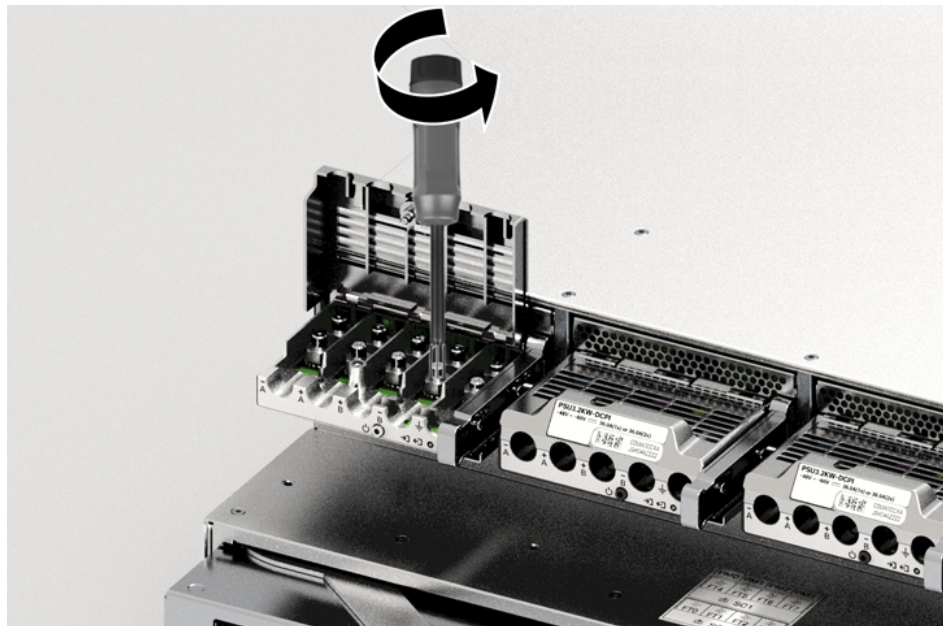
1	Terminal slots of the DC-input wires, which should be removed first	2	Terminal slots of the ground wire, which should be removed last

Step 3   Close the terminal block cover and finger-tighten the captive installation screw (approximately 0.25 Nm).

Remove a DC Power Supply Unit from the Chassis

To remove a DC-input Power Supply Unit (PSU) from the chassis, follow the steps described here.
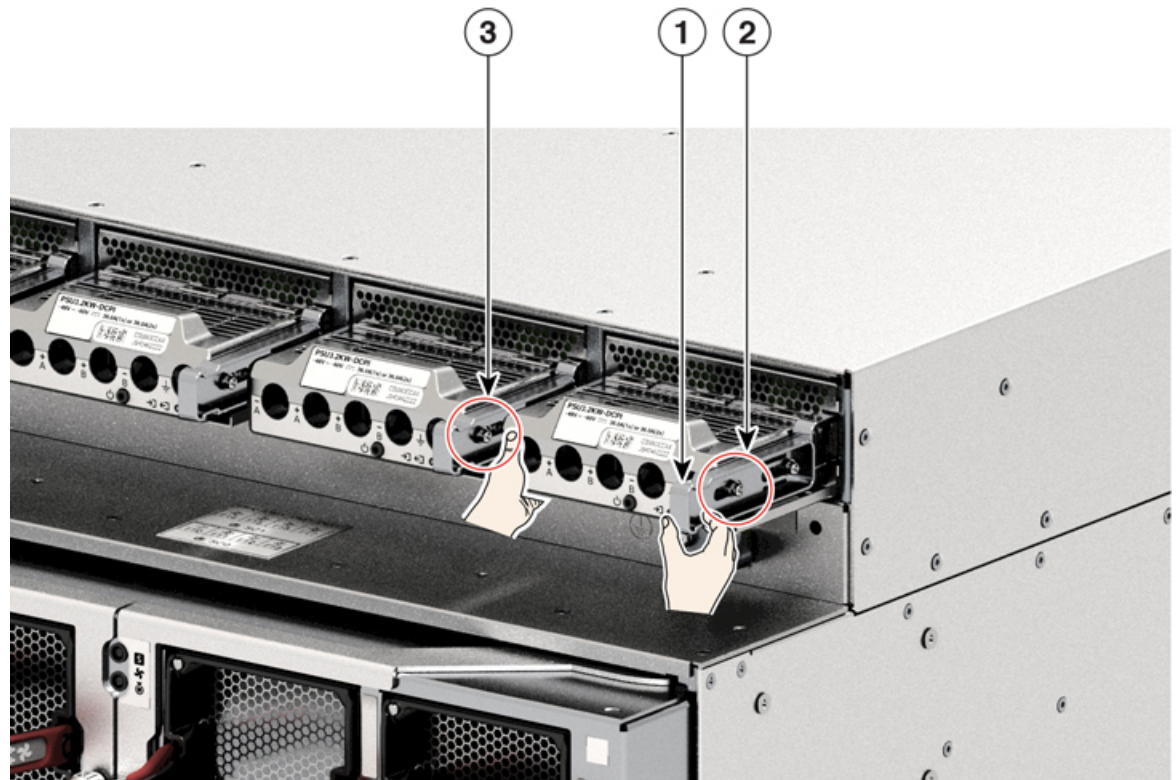
Before you begin

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

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

Procedure

Step 1   Pull out the latch on the module, to unlock it.

**Figure 17: Unlock the Module**

1	Release latch to be pulled out (towards yourself)	3	Comparative location of the nut on a module where the release latch has not been pulled out.

2	Location of the nut on the side when the release latch has been pulled	-	-

Step 2 Grasp the terminal block with one hand and place your other hand underneath as you slide the PSU out of the bay.

Figure 18: Pull the DC PSU Out
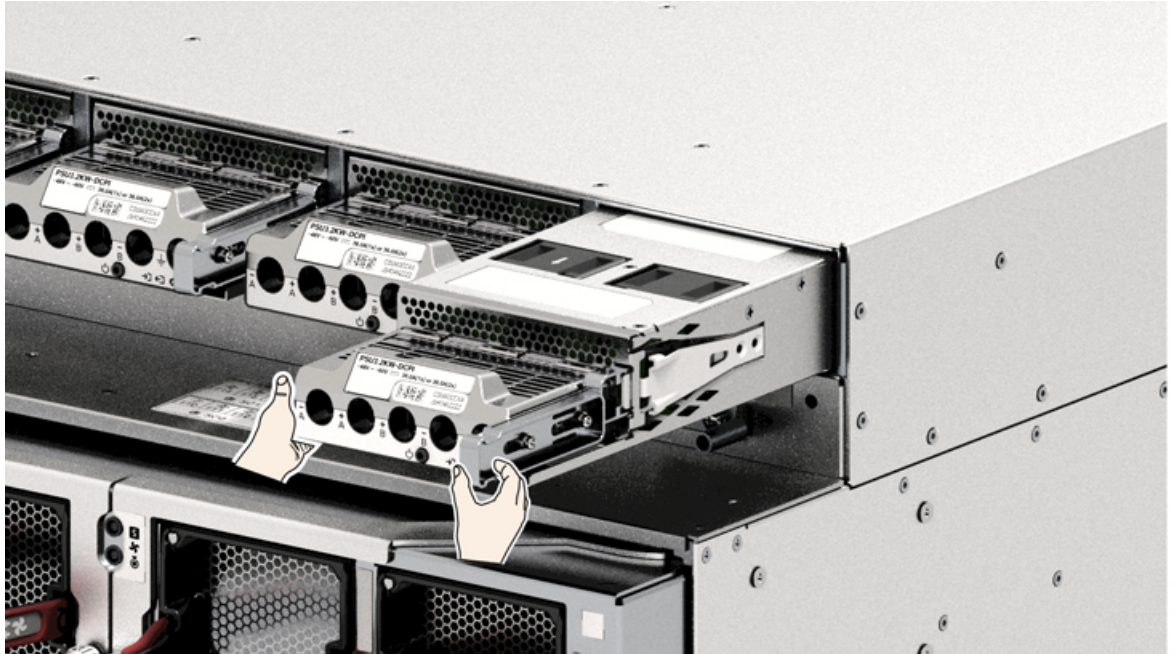
Step 3 Install another power supply module. For information on the installation, see Install a DC Power Supply Unit in the Chassis.

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 you are replacing a unit, ensure there are no foreign, conductive, or other objects, or debris in the slot.