



Replacing Modules

- [Replacing the Uplink Module, page 1](#)
- [Replacing a Fan Module During Operations, page 2](#)
- [Replacing an AC Power Supply, page 4](#)
- [Replacing a DC Power Supply During Operations, page 6](#)

Replacing the Uplink Module

You must shut down the switch before replacing the M4PC, M6PQ, or M12PQ uplink module.



Note The M12PQ uplink module ports connected with copper cables do not autonegotiate their speeds so you must set the speed for each port at the connected device by using the **speed 40000** command.

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- Step 1** Power off the switch by removing the power cables from both of the power supplies installed in the switch.
- Step 2** Verify that both LEDs on each power supply are off and that all of the other switch LEDs are off. If any LEDs are on, look for a power supply that is still powered on and remove its power cable.
- Step 3** Remove the cables from each of the ports on the uplink module. Be sure to label each cable for future reference.
- Step 4** Unscrew both captive screws on the front of the module.
- Step 5** Holding both handles on the front of the module, slide the module out of the slot.
- Caution** To prevent electrostatic discharge (ESD) damage to the module electronics, do not touch the electrical connectors on the back side of the module. Also, to prevent any damage to the electrical connectors, prevent them touching anything that can bend or break them.
- Step 6** Place the module on an antistatic surface or inside an antistatic bag. If possible, repack the module in its shipping materials for safe shipping or storage.
- Step 7** Remove the replacement module from its packing materials and place it on an antistatic surface. Hold the module by its two handles and do not touch the electrical connectors on its backside. Also, to protect the electrical connectors, avoid letting them come in contact with anything other than the electrical connectors inside the chassis.

- Step 8** Holding the replacement module by its two handles, position the module with the electrical components on its backside facing the open uplink-module slot.
- Step 9** Slide the module all the way into the chassis until its front side comes in contact with the chassis. For the last 0.2 inches (0.5 cm), carefully mount the module onto the chassis connectors by pushing more firmly, but do not force the module if it does not move further (excessive force can damage the connectors).
- Note** If you are not able to push the module all the way into the slot, carefully slide the module out of the slot and check its electrical connectors for damage. If damaged, contact Cisco Technical Assistance for help. If undamaged, repeat Step 6 to reinstall the module.
- Step 10** Screw in both captive screws on the front of the module to secure the module to the chassis. Tighten each screw to 8 in-lb (0.9 N·m).
- Step 11** Verify that the Status (STS) LED turns on and becomes amber.
- Step 12** Reconnect each of the uplink cables and verify that the LED for each port becomes green. Under each set of two uplink ports, there is an Active (ACT) LED that indicates whether the ports are active for this switch. Connect cables to only the active ports.
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Replacing a Fan Module During Operations

For the Cisco Nexus 93120TX, there must always be at least one fan module installed in the chassis to maintain the designed airflow. You can remove one fan module temporarily to replace it with another fan module within two minutes to avoid a shutdown, but if the replacement fan module is not available, leave the original fan module in the chassis.

All fan and power supply modules must have the same airflow direction or else an error can occur with the switch overheating and shutting down. You can determine the airflow direction of a fan module by the color of the stripe on the front of the module. A blue stripe indicates a port-side exhaust airflow direction and a burgundy stripe indicates a port-side intake airflow direction (DC power supplies have a green stripe for port-side intake airflow). To avoid over heating the switch, make sure that the fan modules are positioned in one of the following ways:

- For port-side exhaust airflow with burgundy coloring, position the fan modules in a cold aisle.
- For port-side intake airflow with blue coloring, position the ports in a cold aisle.

Before You Begin

Before you can replace a fan module, ensure that both of the following conditions exist:

- For the Cisco Nexus 93128TX, 9396PX, and 9396TX switches, there are two functioning fan modules in the other fan slots. In order to replace a fan module during operations, there must be two fan modules circulating air in the chassis at all times. The other fan module is redundant and can be replaced.
- The replacement fan module must have the same airflow direction as the other modules in the chassis. If the other modules have blue coloring, the replacement fan module must have blue coloring. If the other modules have a burgundy coloring (or the DC power supplies have green coloring), the replacement fan module must have burgundy coloring.

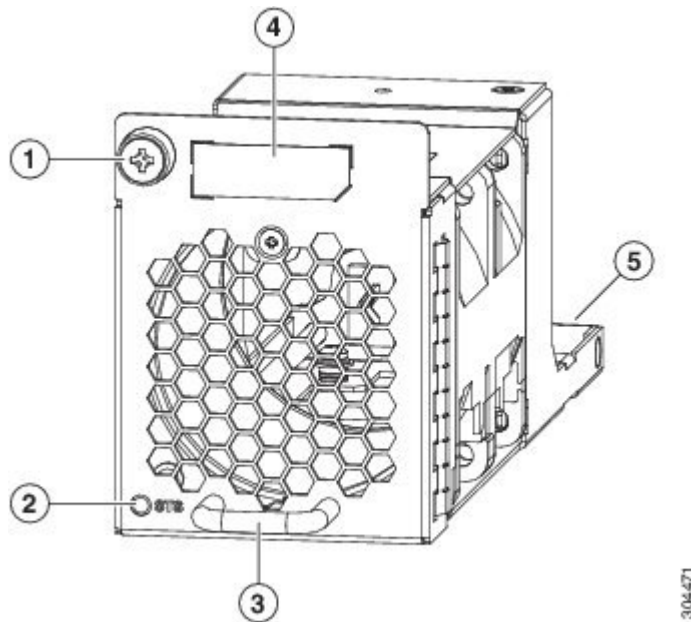
If you must replace the fan module during operations and both of the above conditions are not met, leave the fan module that you need to replace in the chassis to preserve the designed airflow until you have the required module.

Step 1

For a Cisco Nexus 93128TX, 9396PX, or 9396TX switch, verify that the fan modules that you are not replacing each have a lit Status (STS) LED (see the following figure for the location of the LED). If you are replacing a fan module during operations, the other two fan modules must be operating.

Note If you are replacing the fan module while the chassis is not operating, you can skip this step.

Figure 1: Installation Features on the Fan Module



1	Captive screw	4	Colored stripe specifying the airflow direction (burgundy for the port-side intake direction or blue for the port-side exhaust direction)
2	Status (STS) LED	5	Electrical connectors on the backside.
3	Handle		

Note Early shipments of the switch included the FAN1 or FAN1-B fan modules, which have a slightly different appearance when removed from the chassis.

Step 2

Unscrew the captive screw that secures the fan module to the chassis.

Step 3

Pull the fan module handle to slide the module out of the chassis.

Caution To prevent electrostatic discharge (ESD) damage to the module electronics, do not touch the electrical connectors on the back side of the module. Also, to prevent any damage to the electrical connectors, prevent them touching anything that can bend or break them.

- Step 4** Place the removed module on an antistatic surface or in an antistatic bag. If possible, repack the module in its packing materials for safe shipping or storage.
- Step 5** Follow these steps to replace the missing fan module within two minutes to avoid a shutdown.
- a) Remove the replacement fan module from its packing materials and place it on an antistatic surface. Hold the module by its handle and do not touch the electrical connectors on its backside. Also, to protect the electrical connectors, avoid letting them come in contact with anything other than the electrical connectors inside the chassis.
 - b) For a 93128TX, 9396PX, or 9396TX switch, verify that you have the right fan module for the chassis. The correct fan module has one of the following part numbers:
 - N9K-C9300-FAN2-B (port-side exhaust airflow direction and a blue stripe)
 - N9K-C9300-FAN2 (port-side intake airflow direction and a burgundy stripe)
- Note** Previously, the Cisco Nexus 9396PX shipped with the N9k-C9300-FAN1-B or N9K-C9300-FAN1 fans. Currently, the N9K-C9300-FAN2-B and N9K-C9300-FAN2 are shipped with the switch by default.
- Note** Be sure that the airflow direction of the new fan module matches the airflow direction of the other fan and AC power supply modules already installed in the chassis (port-side intake airflow with burgundy or green coloring and port-side exhaust airflow with blue coloring).
- c) Position the fan module in front of the open fan slot (be sure that the backside of the module with the electrical connectors is positioned to enter the slot first) and slide the module all the way into the chassis until its front side comes in contact with the chassis. For the last 0.2 inches (0.5 cm), carefully mount the module onto the chassis connectors by pushing more firmly, but do not force the module if it does not move further (excessive force can damage the connectors).

Note If you are not able to push the module all the way into the slot, carefully slide the module out of the slot and check its electrical connectors for damage. If damaged, contact Cisco Technical Assistance for help. If undamaged, repeat this step to reinstall the module.
 - d) Verify that the STS LED turns on and becomes green.
If the STS LED does not turn on, slide the module out of the chassis, and visually check the electrical connectors on the back side of the chassis for damage. If damaged, contact Cisco Technical Assistance for help. If undamaged, repeat the previous step to reinstall the module.
 - e) Secure the fan module to the chassis by screwing in the captive screw to the chassis. Tighten the screw to 5 to 7 in-lb (0.56 to 0.79 N·m).
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Replacing an AC Power Supply

You can replace an AC power supply during operations so long as there is another power supply installed and operating during the replacement. The switch requires only one power supply for operations, so you can hot swap the redundant power supply during operations. If there is only one power supply installed in the chassis, you can replace it by installing the new power supply in the open power supply slot before removing the other power supply.

**Warning****Statement 1034—Backplane Voltage**

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

**Caution**

Be sure that the replacement power supply has the correct direction of airflow, which means that it has the same color markings as the other fan trays and AC power supplies in the chassis (DC power supplies will have green handles). Otherwise, the switch can overheat and shutdown.


Removing an AC Power Supply


To remove an AC power supply, follow these steps:

Before You Begin

- To replace a power supply during operations, you must have a functioning power supply providing power to the switch while you replace the other power supply. If there is only one power supply installed in the switch and you need to replace it, install the new power supply in the open slot and power it up (see) before removing the original power supply.
- Ensure that the chassis is grounded. For grounding instructions, see [Grounding the Chassis](#).

Step 1

Pull the power cord out from the power receptacle on the power supply to be removed and verify that the  LED turns off.

Note The  LED might on and amber colored to indicate that the input power has been disconnected.

Step 2

Remove the power supply from the chassis by pushing and holding its thumb latch to the left and pulling the power supply part way out of the chassis.

Step 3

Place your other hand under the power supply to support it while you slide it out of the chassis. Either place the power supply on an antistatic surface or pack it in its packing materials.


Step 4

If the power supply slot is to remain empty, install a blank power supply filler panel (part number N2200-P-BLNK).

What to Do Next

You are ready to install the replacement power supply.

Installing an AC Power Supply

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- Step 1** Ensure that the system (earth) ground connection has been made for the chassis. For ground connection instructions, see [Grounding the Chassis](#).
- Step 2** If the power supply slot has a filler panel, remove it from the slot by moving its release latch to the left and pulling the panel out of the slot.
- Step 3** Holding the replacement power supply with one hand underneath the module and the other hand holding the handle, align the back end of the power supply (the end with the electrical connections) to the open power supply slot and slide the power supply all the way into the slot until it clicks into place.
- Step 4** Test the installation by trying to pull the power supply out of the slot without using the release latch. If the power supply does not move out of place, it is secured in the slot. If the power supply moves, press it all the way into the slot until it clicks in place.
- Step 5** Attach the power cable to the electrical outlet on the front of the power supply.
- Step 6** Connect the other end of the power cable to an AC power source.
- For no power redundancy, connect one power supply to one power source.
 - For power supply redundancy, connect two power supplies to one or two power sources.
 - For grid redundancy, connect each of two power supplies to a different power source.
- Note** Depending on the outlet receptacle on your power distribution unit, you might need the optional jumper cable to connect the switch to your outlet receptacle.
- Step 7** Verify that the power supply is operational by checking that the power supply  LED is green. For information on what the power supply LEDs indicate, see [Power Supply LEDs](#).
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Replacing a DC Power Supply During Operations

You can replace an DC power supply during operations so long as there is another power supply installed and operating during the replacement. The switch requires only one power supply for operations, so you can hot swap the redundant power supply during operations. If there is only one power supply installed in the chassis, you can replace it by installing the new power supply in the open power supply slot and making it operational before removing the other power supply.

Depending on your power redundancy requirement, be sure there are one or two power sources close to the rack:

- For no power redundancy, use one power source.
- For power supply redundancy, use one or two power sources.
- For grid redundancy, use two power sources.

**Caution**

Be sure that the replacement power supply has the same direction of airflow as the other modules. For port-side intake airflow, the fan and AC power supplies have burgundy coloring and DC power supplies have green coloring. For port-side exhaust airflow, the fan and AC power supplies have blue coloring.

**Warning****Statement 1034—Backplane Voltage**

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

Removing a 48 V DC Power Supply

If the switch has two power supplies, you can replace one power supply while the other one provides power to the switch. If you have only one power supply in the switch, install the replacement power supply in the open slot before removing the original power supply.

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- Step 1** Turn off the circuit breaker for the power source to the power supply that you are replacing. Be sure that the LEDs on the power supply turn off.
- Step 2** Remove the power cable connector block from the power supply by doing the following:
- Push the orange plastic button on the top of the connector block inward toward the power supply.
 - Pull the connector block out of the power supply.
- Step 3** Grasp the power supply handle while pressing the release latch towards the handle.
- Step 4** Pull the power supply out of the bay.
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Installing a 48 V DC Power Supply

If the switch has two power supplies, you can replace one power supply while the other one provides power to the switch. If you have only one power supply in the switch, install the replacement power supply in the open slot before removing the original power supply.

Before You Begin

The circuit breaker for the DC power source for the power supply must be turned off.

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- Step 1** Holding the power supply module by its handle, align the back of the module to the empty bay.
- Step 2** Push the module into the bay until the release lever clicks and locks the module in place.
- Step 3** If the DC power cables and a grounding cable are already connected to an electrical connector block, insert the block into the power receptacle on the power supply.

If the electrical cables have not been connected to the electrical connector block, wire them as described in [Wiring a 48 V DC Electrical Connector Block](#), on page 8.

Step 4 Turn on the circuit breaker for the DC power source connected to the power supply.

Step 5 Verify that the power supply  LED turns on and becomes green.

Wiring a 48 V DC Electrical Connector Block

You must connect the ground, negative, and positive DC power cables to a connector block in order to connect the power cables to a 48 V DC power supply.



Note

The recommended wire gauge is 8 AWG. The minimum wire gauge is 10 AWG.



Warning

Statement 342—Before Connecting to System Power Supply

High leakage current □ earth connection essential before connecting to system power supply.



Warning

Statement 1024—Ground Conductor

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.

Before You Begin

You must turn off the circuit breaker for the DC power cables that you are connecting to prevent electrocution.

Step 1 Verify that the circuit breaker for the DC power source you are connecting is turned off.

Step 2 Remove the DC power connector block from the power supply by doing the following:

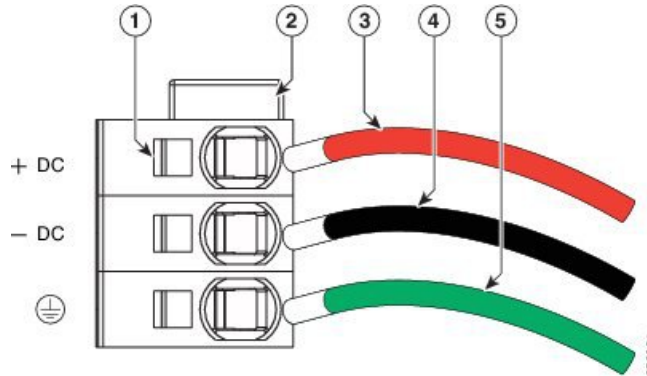
- a) Push the orange plastic button on the top of the connector block inward toward the power supply.

b) Pull the connector block out of the power supply.

Step 3 Strip 0.6 inches (15 mm) of insulation off the DC wires that you are using.

Step 4 Orient the connector as shown in the following figure with the orange plastic button on top.

Figure 2: Wiring a 930W -48VDC Power Supply Connector Block



1	Wire retainer lever	4	-48V (-DC) cable
2	Orange plastic button on top of the connector	5	Grounding cable (8 AWG recommended)
3	-48V Return (+DC) cable		

Step 5 Use a small screwdriver to depress the spring-loaded wire retainer lever on the lower spring-cage wire connector. Insert your green (ground) wire into the aperture and then release the lever.

Step 6 Use a small screwdriver to depress the spring-loaded wire retainer lever on the middle spring-cage wire connector. Insert your black (DC negative) wire into the aperture and then release the lever.

Step 7 Use a small screwdriver to depress the spring-loaded wire retainer lever on the upper spring-cage wire connector. Insert your red (DC positive) wire into the aperture and then release the lever.

Step 8 Insert the connector block back into the power supply. Make sure that your red (DC positive) wire aligns with the power supply label, "+ DC".

What to Do Next

Verify that the other ends of the cables are attached to the DC power source and ground. You are then ready to turn on the DC power source.

