Installing or Replacing Modules, Fan Trays, and Power Supplies

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Using an ESD Wrist Strap to Prevent ESD Damage

Before you touch any switch modules, you must ground yourself to protect the modules from electrostatic discharge (ESD). You can ground yourself by wearing an ESD wrist strap connected to a grounded chassis or a grounded rack.

Caution Always handle modules by their carrier edges (typically the covered bottom, sides, and front of the module) and never touch the circuitry on the module.

Before you begin

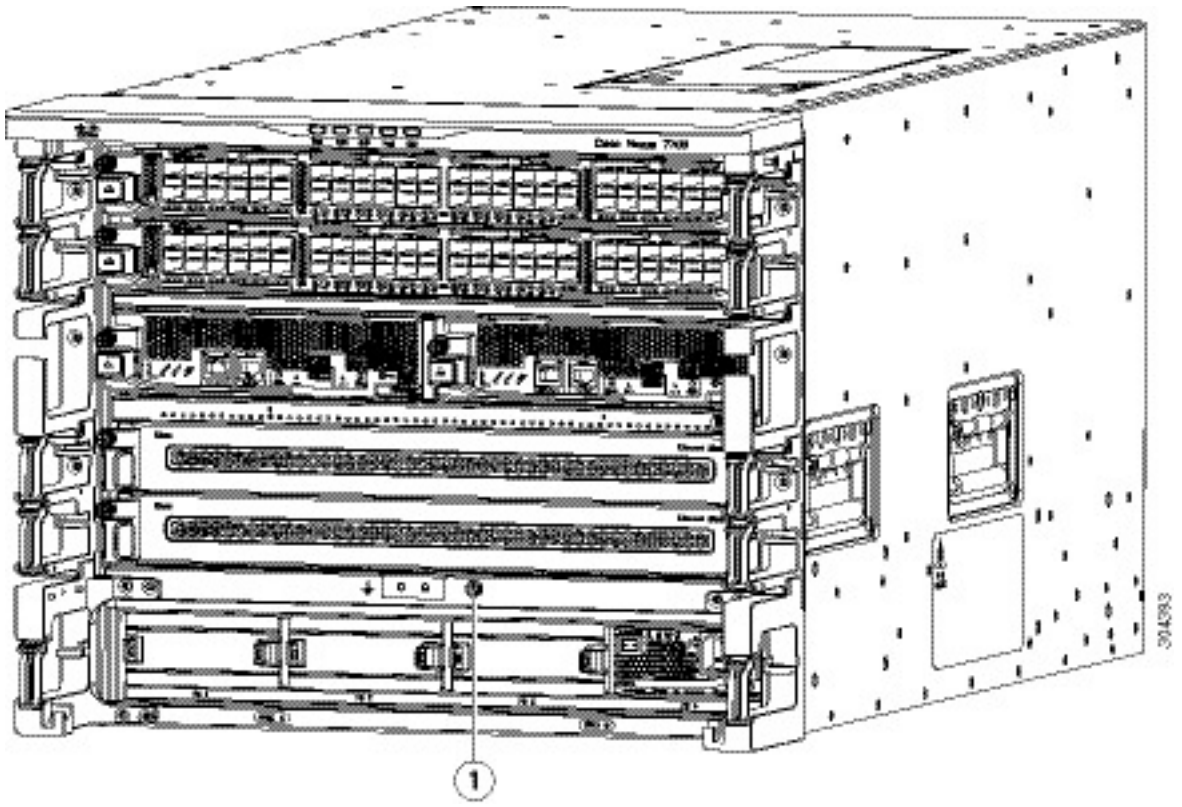
You must have a grounding connection close to where you are installing components in the chassis.

Step 1 Attach or wrap an ESD wrist strap to your arm.

Step 2 Attach the other end of the strap to the grounded chassis in one of the following ways:

- If the wrist strap has a banana plug on the other end, insert the plug into the ESD port on the chassis (see the following figure for the location of the port on the front of the chassis).

Figure 1: Location of the ESD Port on the Front of the Chassis



1	ESD port on the front of the chassis

- If the wrist strap has an alligator clip on the other end, clip that onto one of the two screws holding the grounding lug to the chassis.

What to do next

After you ground yourself, you can replace the modules on the chassis.

Installing or Replacing a Supervisor Module

You can install or replace a supervisor module during switch operations so long as there is another supervisor module installed and operating on the switch. If you eject the active supervisor from its slot in a chassis with two supervisor modules, operations automatically switch over to the standby supervisor module. If you need

to replace a supervisor in a chassis with just one supervisor, you can install the new supervisor in the open supervisor slot, make the new supervisor active, and remove the other supervisor module.

Note If you remove a supervisor module without replacing it, you must fill the slot with a blank filler plate to maintain the designed airflow for the chassis.

Before you begin

Caution The system will shut down when you remove the single supervisor module in the Cisco Nexus 7702 chassis.

- You must follow ESD protocols, including the following:
  - You must wear a grounded ESD wristband (or other personal grounding device) whenever you handle the electronic modules outside the grounded chassis.
  - You must carry electronic modules by only their covered edges or handles. Do not touch their electronic components.
  - Whenever a module is outside a grounded chassis, place it flat on an antistatic surface or in an antistatic bag. Never lean the module on anything nor place anything else on top of the module nor lean anything on the module.
- Verify that the chassis is grounded.
- Verify that you have the following tools and equipment:
  - ESD wrist strap (or other personal grounding device)
  - Number 1 Phillips torque screwdriver

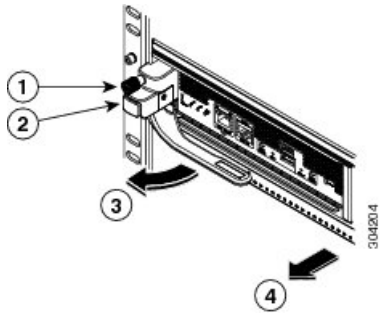
    Manual torque screwdrivers are recommended. Be sure to never exceed the recommended torque setting for the screw that you are working with.
  - Replacement supervisor module

Step 1 If you need to remove a supervisor module to open the slot for a new module, follow these steps (if you already have an open slot, go to the next step):

Note If the slot that you need to open has a blank filler plate, remove the plate by unscrewing its captive screw and pulling on the handle attached to the plate to remove the plate, and go to Step 3).

a) Disconnect all of the networking cables attached to the front of the module.
b) Unscrew the captive screw on the left side of the module until the screw is no longer connected to the chassis (see Callout 1 in the following figure).

Figure 2: Removing a Half-Width Supervisor Module



1	Unscrew the captive screw until it is free of the chassis.	3	The handle springs open.
2	Press the ejector button.	4	Pull the handle to remove the module part way from the slot. Place your other hand under the module and fully remove it from the slot.

c) Press the eject button on the left side of the module (see Step 2 in the previous figure).

The ejector springs out part way from the front of the module.

d) Fully rotate the handle from the front of the module and pull the handle to move the module part way out of its slot.
e) Place your other hand under the module to support its weight and pull the module fully out of its slot.
f) Place the module on or in antistatic material.

Step 2 Install the new or replacement supervisor module as follows:

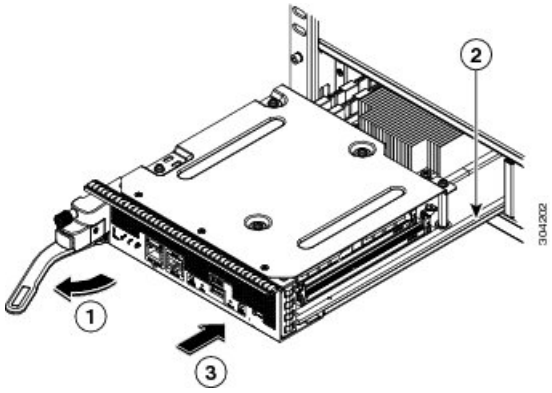
a) Unpack the new supervisor module and inspect it for damage.

If anything is damaged or missing, contact your customer representative immediately.

Caution Do not touch the electrical components or connectors on the module. Always hold the module by only its covered front and bottom sides.

b) Press the ejector button next to the handle to release the handle from the front of the module (see Callout 1 in the following figure).

Figure 3: Positioning a Half-Width Supervisor Module to its Slot



1	Rotate the handle fully away from the front of the module.	3	Push the module all the way into the slot (until it stops and the front is about 1/4 inch in front of the chassis).
2	Align the bottom of the module to the module guides in the slot.		

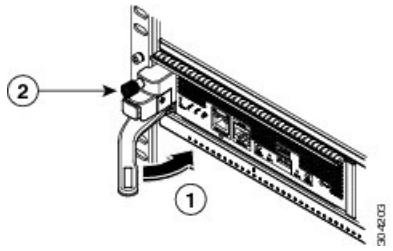
c) Rotate the end of the handle away from the front of the module until it stops (see Callout 1 in the previous figure).
d) With one hand under the supervisor module and the other hand holding the module by its front, align the rear of the module to the open supervisor slot.
e) Slide the module onto the guides inside the slot and push the module fully into the slot until you cannot push the module further.

   The front of the module should be about 1/4 inch (0.6 cm) in front of the chassis.

f) Rotate the handle to the front of the module (see Callout 1 in the following figure) until it clicks when it reaches the front of the module.

   The module should be fully inserted in the slot and the front of the module should be even with the fronts of all of the other installed modules. The captive screw by the ejector button on the module should be aligned to a screw hole on the chassis.

Figure 4: Securing a Supervisor Module to its Slot



1	Rotate the handle all the way to the front of the module.	2	Tighten the captive screw to 8 in-lb (0.9 N·m) of torque.

g) Screw in the captive screw to secure the module to the chassis (see Callout 2 in the previous figure). Tighten the screw to 8 in-lb (0.9 N·m) of torque.
h) Verify that the supervisor module LEDs turn on and appear as follows:
   - STATUS LED is green.
   - SYSTEM LED is green.
   - ACTIVE LED is amber or green.

   For more information about the LED states for this module, see Supervisor Module LEDs.
i) Attach the management cable to the MGMT ETH port.

   The MGMT ETH LED should be green. If not, see Supervisor Module LEDs for information about the LED states.

Migrating from Supervisor 2E Modules (N77-SUP2E) to Supervisor 3E Modules (N77-SUP3E)

To migrate from Supervisor 2E modules to Supervisor 3E modules, follow these steps:

Before you begin

- Before migrating from Supervisor 2E modules to Supervisor 3E modules, note the following guidelines:
  - This migration process is disruptive because the power must be turned off for the switch.
  - You cannot mix Supervisor 2E and Supervisor 3E modules in a production environment.

Step 1 Insert a USB drive in the usb1 or the slot0 USB port on the active supervisor 2E module. We will use the usb1 port for the steps given below.

Step 2 Format the drive by using the **format** command.

switch(config)# **format usb1**

Step 3 Copy all of the VDC configurations for the switch to the USB drive by using the **copy running-config** command.

switch(config)# **copy running-config usb1:***configuration_file_name* **vdc-all**

Step 4 Backup the installed licenses for the switch to the USB drive by using the **copy licenses** command.

switch(config)# **copy licenses usb1:***licenses_archive_file_name***.tar**

Note You must use the **tar** extension for the archive file. This file will contain all of the license files that were installed on the Supervisor 2E module.

Step 5 Copy the Supervisor 3E version of the kickstart, system, and EPLD (optional) images to the USB drive by using the **copy** command.

switch(config)# **copy scp:***//path/n7700-s3-kickstart.8.3.1.bin* **usb1:**

switch(config)# **copy scp:***//path/n7700-s3-dk9.8.3.1.bin* **usb1:**

switch(config)# **copy scp:***//path/n7700-s3-epld.8.3.1.img* **usb1:**

Note This example specifies Cisco NX-OS Release 8.3(1) images. This is the minimum software release for the Cisco Nexus 7700 Series Supervisor 3E modules.

Caution Use -s3- images with Supervisor 3E modules. If you use an -s2- image with a Supervisor 3E module, the supervisor will not boot up. Some examples of an -s2- image are given below:

- n7700-s2-kickstart.8.0.1.bin
- n7700-s2-kickstart.8.1.1.bin
- n7700-s2-kickstart.8.2.1.bin

Step 6 Turn off the power to the switch using the power switch on each power supply. The Output LED turns off on each power supply and the Status LEDs turn off on all of the supervisor and I/O modules.

Caution If any of the supervisor or I/O module Status LEDs is turned on (showing any color), stop at this step until you are able to turn off those modules.

Step 7 For each Supervisor 2E module installed in the switch, remove the module and replace it with a Supervisor 3E module as explained in Installing or Replacing a Supervisor Module, on page 2.

Caution If the switch has two supervisor modules, ensure that both supervisors are of the same type. Do not mix Supervisor 2E modules with Supervisor 3E modules.

Step 8 Power up the switch by using the power switch on each of its power supplies. The Output LED on each power supply turns on and eventually turns green when the power supply is sending power to the switch. The Status LED on each installed supervisor module also turns on when the module begins to turn on. The supervisor that becomes active has a green ACTIVE LED (the standby supervisor module has an amber ACTIVE LED).

Step 9 Remove the USB drive from the Supervisor 2E module (this drive has the copies of the Supervisor 2E configuration, license, and software images) and insert it in the USB port on the active Supervisor 3E module (ACTIVE LED is green).

Step 10 Connect a console to the active supervisor module as explained in Connecting a Console to the Switch.

Step 11 If you are setting up the initial configuration for the supervisor module, the initial setup script will ask you if you want to enforce the secure password standard. Make your selection, enter your password, and then confirm the password by entering it again.

```
        ---- System Admin Account Setup ----
Do you want to enforce secure password standard (yes/no) [y]:
  Enter the password for "admin":
  Enter the password for "admin":
```

Step 12 When you are asked to enable admin VDCs, enter **no**.

```
Do you want to enable admin vdc (yes/no) [no]: no
```

Step 13 When you are asked to enter the basic configuration, enter **no**.

```
          ---- Basic System Configuration Dialog VDC: 1 ----
This setup utility will guide you through the basic configuration of
the system. Setup configures only enough connectivity for management
of the system.

Please register Cisco Nexus7000 Family devices promptly with your
supplier. Failure to register may affect response times for initial
service calls. Nexus7000 devices must be registered to receive
entitled support services.

Press Enter at anytime to skip a dialog. Use ctrl-c at anytime
to skip the remaining dialogs.

Would you like to enter the basic configuration dialog (yes/no): no
```

Step 14 When asked to log in, enter the login and password that you specified in step 11.

```
User Access Verification
switch login:
Password:
```

Step 15 Verify that the switch is running the required version of the NX-OS software by using the show version command.

switch(config)# **show version**

Note If the version of NX-OS is not the same as you intended to use, copy the previously saved images from the USB drive in usb1 to bootflash: and perform an upgrade to the appropriate version. For more information, see the Cisco Nexus 7000 Series NX-OS Software Upgrade and Downgrade Guide.

Step 16 Copy the TAR archive containing the license files from the usb1 drive to bootflash:, extract the archive, and install the licenses by using the **copy**, **tar extract**, and **install license** commands. Repeat the **install license** command for each extracted license file.

switch(config)# **copy usb1:***licenses_archive_file_name***.tar bootflash:**

switch(config)# **tar extract bootflash:***licenses_archive_file_name***.tar to bootflash:**

switch(config)# **install license bootflash:***licenses_archive_file_name***.lic**

Note The **tar extract** command requires that the TAR file be located in bootflash: or volatile:.

Step 17 Make sure that all I/O modules are online and that the standby supervisor is in ha-standby mode by using the **show module** command.

switch(config)# **show module**

```
switch(config)# show module
Mod Ports Module-Type                          Model              Status
--- ----- ------------------------------------ ------------------ ---------------
9   0     Supervisor module-3                  N77-SUP3E          active *
10  0     Supervisor module-3                  N77-SUP3E         ha-standby
12  30    100 Gbps Ethernet Module             N77-F430CQ-36        ok
...
```

Step 18 Restore the previously saved configurations by using the **copy** command to copy the configuration file in the USB drive to the running configuration.

switch(config)# **copy usb1:***configuration_file_name* **running-config**

Note If the imported configuration file includes configurations for Fabric Extenders (FEXs) and those modules are not up yet, you will see error messages for that. If that happens, we recommend that you run the FEX configuration again after the FEX modules come online. You can verify the status of the FEX modules and for the associated server-facing interfaces by using the **show fex** and **show interface brief** commands.

Note If you have not inserted the standby supervisor module until now, do not insert it during this step. Instead, wait until you complete this procedure before installing the standby supervisor module.

Step 19 Save the configuration in the startup configuration by using the **copy running-config startup-config vdc-all** command.

switch(config)# **copy running-config startup-config vdc-all**

Nondisruptive Migration from Supervisor 2E Modules (N77-SUP2E) to Supervisor 3E Modules (N77-SUP3E)

Nondisruptive Migration from Supervisor 2E Modules (N77-SUP2E) to Supervisor 3E Modules (N77-SUP3E) has the following limitations:

- Do not change any configuration settings or network connections during the upgrade.
- Configuration mode is blocked during the migration procedure to prevent any changes.
- You cannot press Control+C to abort the migration procedure until 45 minutes have elapsed since the **migrate sup kickstart** <*sup3-kickstart-image*> **system** <*sup3-system-image*> command has been used.
- Before you initiate the migration procedure, you must first remove QoS policies and ACLs from interfaces that are in the down state. The clear inactive-config qos command, that clears inactive configuration, will delete the port channel policies even if one of the ports in a port channel has inactive policies.

  Guidelines for manual policy removal:

  - During manual removal, when the interface is part of a port channel, remove the policy map or access list from the port channel or remove the interface from the port channel before initiating the migration procedure.
  - For all other interface types, please remove the policy map or access list from the interface.

- The **migrate sup kickstart** <*sup3-kickstart-image*> **system** <*sup3-system-image*> command that is used to initiate the non-disruptive migration process is only available in global config mode.
- Ensure that the Supervisor-3E module has not been inserted in the standby slot before using the **migrate sup kickstart** <*sup3-kickstart-image*> **system** <*sup3-system-image*> command. If the supervisor-3E module has already been inserted in the standby slot, the migration process will be aborted and the supervisor-3E module will be powered down.
- Do not reload or manually insert or remove any I/O or fabric module after using the **migrate sup kickstart** <*sup3-kickstart-image*> **system** <*sup3-system-image*> command. Any removal or insertion of I/O or fabric modules has to be done before initiating the migration process or after the migration is completed.
- Do not remove or insert any Fabric Extender (FEX) modules during migration.
- Insert the standby Supervisor-3E module into the chassis only when you are prompted to insert the Supervisor-3E module during migration by a message on the system console.
- After the Supervisor-3E module has been inserted during the migration process, do not remove or manually reload the standby Supervisor-3E module.
- Do not insert or remove any transceivers from any modules while the migration is in progress.
- Do not remove any power supply modules or fan modules during the migration process.
- Do not copy any configurations using the **copy running-config startup-config** command or the **copy running-config startup-config vdc-all** from any other management session while migration is in progress.
- Do not trigger any EPLD or BIOS upgrades during migration.
- Do not trigger any ISSU during migration.

- Do not perform migration from fabric module-2 to fabric module-3 during the supervisor-2E to supervisor-3E migration.
- Take a backup of the licenses and configuration before starting the migration procedure. In case of any failure or loss of licenses and configuration in Supervisor-2E, disruptive migration has to be done to upgrade to Supervisor- 3E. In such a scenario, all configurations and licenses have to be applied or installed again. Backup the installed licenses from the switch to a USB drive by using the **copy licenses** command. To view the current licenses installed on the switch, use the **show license** command.

  ```
  switch# copy licenses usb1:<licenses_archive_file_name>.tar
  ```

- Ensure that there is sufficient power in the chassis before starting the migration process. In case of a power failure, redundant power supplies can then take over and migration will not be disrupted.
- Downgrade to supervisor-2E modules from supervisor-3E modules is a disruptive procedure.

Prerequisites for Nondisruptive Migration from Supervisor 2E Modules (N77-SUP2E) to Supervisor 3E Modules (N77-SUP3E)

- The minimum supported release for this procedure is Cisco NX-OS Release 8.4(1). If you are using an image older than Cisco NX-OS Release 8.4(1), upgrade to Cisco NX-OS Release 8.4(1), and then perform nondisruptive migration from Supervisor 2E modules to Supervisor 3E modules.
- We recommend that you use a console connection to perform the migration procedure. In case you do not have a console connection and are using an SSH/Telnet connection, use the **terminal monitor** command to display all the syslogs mentioned in the below procedures.
- Back up the running configuration from the current active supervisor module to the FTP/SFTP/TFTP server, or a USB flash drive.

  ```
  switch# copy running-config ftp:[//[username[:password]@]server][/path]
  or
  switch# copy running-config usb1:<runningconfiguration>.txt
  Copy complete, now saving to disk (please wait)...
  ```

- Before you initiate the migration procedure, you must first remove QoS policies and ACLs from interfaces that are in the down state. The clear inactive-config qos command, that clears inactive configuration, will delete the port channel policies even if one of the ports in a port channel has inactive policies.

  Guidelines for manual policy removal:

  - During manual removal, when the interface is part of a port channel, remove the policy map or access list from the port channel or remove the interface from the port channel before initiating the migration procedure.
  - For all other interface types, please remove the policy map or access list from the interface.

- The **migrate sup kickstart** <*sup3-kickstart-image*> **system** <*sup3-system-image*> command that is used to initiate the non-disruptive migration process is only available in global config mode.
- Ensure that the Supervisor-3E module has not been inserted in the standby slot before using the **migrate sup kickstart** <*sup3-kickstart-image*> **system** <*sup3-system-image*> command. If the supervisor-3E module has already been inserted in the standby slot, the migration process will be aborted and the supervisor-3E module will be powered down.

- Do not reload or manually insert or remove any I/O or fabric module after using the **migrate sup kickstart** <*sup3-kickstart-image*> **system** <*sup3-system-image*> command. Any removal or insertion of I/O or fabric modules has to be done before initiating the migration process or after the migration is completed.
- Do not remove or insert any Fabric Extender (FEX) modules during migration.
- Insert the standby Supervisor-3E module into the chassis only when you are prompted to insert the Supervisor-3E module during migration by a message on the system console.
- After the Supervisor-3E module has been inserted during the migration process, do not remove or manually reload the standby Supervisor-3E module.
- Do not insert or remove any transceivers from any modules while the migration is in progress.
- Do not remove any power supply modules or fan modules during the migration process.
- Do not copy any configurations using the **copy running-config startup-config** command or the **copy running-config startup-config vdc-all** from any other management session while migration is in progress.
- Do not trigger any EPLD or BIOS upgrades during migration.
- Do not trigger any ISSU during migration.
- Do not perform migration from fabric module-2 to fabric module-3 during the supervisor-2E to supervisor-3E migration.
- Take a backup of the licenses and configuration before starting the migration procedure. In case of any failure or loss of licenses and configuration in Supervisor-2E, disruptive migration has to be done to upgrade to Supervisor- 3E. In such a scenario, all configurations and licenses have to be applied or installed again. Backup the installed licenses from the switch to a USB drive by using the **copy licenses** command. To view the current licenses installed on the switch, use the **show license** command.

  ```
  switch# copy licenses usb1:<licenses_archive_file_name>.tar
  ```

- Ensure that there is sufficient power in the chassis before starting the migration process. In case of a power failure, redundant power supplies can then take over and migration will not be disrupted.
- Downgrade to supervisor-2E modules from supervisor-3E modules is a disruptive procedure.

Case 1: Dual Supervisor Migration

To perform non-disruptive migration from Supervisor 2E modules to Supervisor 3E modules in a switch that has both active and standby supervisor modules installed, follow these steps:

Before you begin

The minimum supported release for this procedure is Cisco NX-OS Release 8.4(1). If you are using an image older than Cisco NX-OS Release 8.4(1), upgrade to Cisco NX-OS Release 8.4(1), and then perform nondisruptive migration from Supervisor 2E modules to Supervisor 3E modules.

Step 1 Copy the Cisco NX-OS Release 8.4(1) kickstart and system images to the active supervisor module bootflash, using an FTP or TFTP server.

switch# **copy tftp://tftpserver.cisco.com/n7700/n7700-s3-kickstart.8.4.1.bin bootflash:n7700-s3-kickstart.8.4.1.bin**

switch# **copy tftp://tftpserver.cisco.com/n7700/n7700-s3-dk9.8.4.1.bin bootflash:system n7700-s3-dk9.8.4.1.bin**

Step 2 Use the **migrate sup kickstart** <*sup3-kickstart-image*> **system** <*sup3-system-image*> command in config mode to initiate the migration process. This command triggers image version compatibility checks before initiating the migration process to ensure that the image being used is compatible with the supervisor 3E module.

- A message then appears on the console asking for confirmation to continue the migration procedure. Type **Yes** on the console prompt to continue with the migration procedure.
- Configuration commands are now blocked. The **migrate sup kickstart** <*sup3-kickstart-image*> **system** <*sup3-system-image*> command will then check if it has to initiate a single supervisor or dual supervisor migration process by checking if there is a standby supervisor 2E module installed in the switch.
- The **migrate sup kickstart** <*sup3-kickstart-image*> **system** <*sup3-system-image*>command will power down the standby supervisor 2E module installed in the switch.
- You can use the **show module**command to display the modules installed in the switch.

Sup2E syslogs

```
switch# show module
Mod Ports Module-Type                          Model              Status
--- ----- ------------------------------------ ------------------ ----------
1   48    1/10 Gbps Ethernet Module            N77-F348XP-23      ok
2   30    10/25/40/100 Gbps Ethernet Module    N77-F430CQ-36      ok
3   0     Supervisor Module-2                  N77-SUP2E          ha-standby
4   0     Supervisor Module-2                  N77-SUP2E          active*
5   30    10/25/40/100 Gbps Ethernet Module    N77-F430CQ-36      ok
6   30    10/25/40/100 Gbps Ethernet Module    N77-F430CQ-36      powered-dn
```

```
switch(config)# migrate sup kickstart n7700-s3-kickstart.8.4.1.bin system n7700-s3-dk9.8.4.1.bin
This will start the Supervisor-2 to Supervisor-3 migration. Configuration will be locked until
migration is complete.
Do you wish to continue (y/n) [n] y
<Thu May 16 01:10:11 2019> Starting migration, Please do not remove any linecards or fabric
cards until migration is complete
<Thu May 16 01:10:11 2019> Standby supervisor in slot 3 has been powered down
```

Step 3 After the standby supervisor 2E module is powered down, remove the standby supervisor 2E module from the slot and replace it with the supervisor 3E module, as explained in the Installing or Replacing a Supervisor Module section. When the supervisor 3E module is detected in the standby supervisor slot, a netboot is initiated with the image that is provided by using the **migrate sup kickstart** <*sup3-kickstart-image*> **system** <*sup3-system-image*> command.

Note
- After removing the supervisor 2E module from the switch, you have to insert the replacement supervisor 3E module into the switch within a period of 30 minutes after using the **migrate sup kickstart** <*sup3-kickstart-image*> **system** <*sup3-system-image*> command. In case you have not inserted the supervisor 3E module within 30 minutes after using this command, migration is aborted and you have to use the command again to reinitiate the migration process.
- After the supervisor 3E module is inserted in the slot, a timeout of 45 minutes is triggered for the supervisor 3E module to power up and come online. If the supervisor 3E module fails to power up and come online at the first attempt, a retry is initiated every 15 minutes. In case the supervisor 3E module fails to come online after 3 retries or 45 minutes, you have to remove the supervisor 3E module and restart the migration process by using the **migrate sup kickstart** <*sup3-kickstart-image*> **system** <*sup3-system-image*> command.

Sup2E syslogs

```
2019 Apr 23 22:36:35 Switch %$ VDC-1 %$ %PLATFORM-2-MOD_PWRDN: Module 3 powered down
(Serial number JAE21360CHS)
<Thu May 16 01:10:11 2019> Manual-boot is enabled for Standby Supervisor
<Thu May 16 01:10:11 2019> Please remove Supervisor-2 (N77-SUP2E) module from slot 3
and insert Supervisor-3 (N77-SUP3E) module within 30 minutes
```

Step 4 Wait for the supervisor 3E module to come up in HA-standby mode. After the new supervisor 3E module is detected by the switch, it may take up to 15 minutes for the supervisor 3E module to come online.

Sup2E syslogs

```
<Tue Apr 30 10:02:47 2019> Supervisor-3 is detected in slot 4
<Tue Apr 30 10:02:47 2019> Reloading standby. This might take upto 15 minutes.
Please wait ...
2019 May 16 01:10:19 Switch-m3 %$ VDC-3 %$ %PLATFORM-2-MOD_DETECT: Module 3 detected
(Serial number :unavailable) Module-Type Supervisor Module-3 Model :unavailable
<Thu May 16 01:10:21 2019> Supervisor-3 (N77-SUP3E) is detected in slot 3
<Thu May 16 01:10:21 2019> Reloading standby. This might take up to 15 minutes. Please wait
2019 May 16 01:10:21 Switch %$ VDC-1 %$ %PLATFORM-2-PFM_STANDBY_MODULE_RESET_MIGRATION:
Reloading Standby Supervisor as part of Supervisor migration
<Thu May 16 01:12:21 2019> Standby supervisor not yet online. This might take sometime,
Please wait ...
2019 May 16 01:36:18 Switch %$ VDC-1 %$ %CARDCLIENT-2-SSE: MOD:3 SUP ONLINE
```

Sup3E syslogs

```
System is coming up ... Please wait ... System is
coming up ... Please wait ...
Switch(standby) login: 2019May 16 01:32:56 Switch %$ VDC-1 %$ %USBHSD-2-MOUNT:
logflash: online
adminbackup
Switch(standby)# 2019May 16 01:35:37 Switch %$ VDC-1 %$ %CARDCLIENT-2-REG: Sent
2019May 16 01:35:54 Switch %$ VDC-1 %$ %CARDCLIENT-2-SSE: LC_READY sent
2019May 16 01:36:18 Switch %$ VDC-1 %$ %CARDCLIENT-2-SSE: MOD:3 SUP ONLINE
```

Step 5 After the supervisor 3E module is online, the configurations are copied to the supervisor 3E module.

Sup2E syslogs

```
<Thu May 16 01:36:43 2019> Standby Supervisor-3 (N77-SUP3E) has come online, configs
will be copied
<Thu May 16 01:36:43 2019> Saving configuration now. Please wait ...
[########################################] 100%
Copy complete.
/mnt/plog/migration_cli.log: 3.35 kB 85.81 kB/s
```

Step 6 System switchover is then initiated. This process moves the supervisor 3E module from the HA-standby mode to Active mode. The SSH/telnet session is disconnected during the switchover. You have to then reconnect to the SSH/telnet session. Also, ensure that the console link and the management link is connected to the newly inserted supervisor-3E module.

Sup2E syslogs

```
<Thu May 16 01:37:26 2019> Supervisor-2 (N77-SUP2E) will switchover to
Supervisor-3 (N77-SUP3E) now
<Thu May 16 01:37:26 2019> Switchover is successful, Supervisor-3 (N77-SUP3E)
is now active
Switch(config)#
User Access Verification
Switch login:
```

Sup3E syslogs

```
Switch(standby)# 2019May 16 01:37:26 Switch %$ VDC-1 %$ %KERN-2-SYSTEM_MSG: [
553.259393] Switchover started by redundancy driver - kernel
```

```
2019May 16 01:37:26 Switch %$ VDC-1 %$ %SYSMGR-2-HASWITCHOVER_PRE_START: This
supervisor is becoming active (pre-start phase).
2019May 16 01:37:27 Switch %$ VDC-1 %$ %SYSMGR-2-SWITCHOVER_OVER: Switchover
completed.
```

Step 7 After the switchover to the supervisor 3E module is completed, the boot parameters are set for the supervisor migration process. Do not set any configuration parameters until the boot parameters are set. After the boot parameters are set, the migration process is complete. Use the **show boot** command to display the current boot variables and the **show module** command to display the modules installed in the switch.

Sup3E syslogs

```
2019May 16 01:37:39 Switch %$ VDC-1 %$ %BOOTVAR-2-SUP3_MIGRATION_CONFIG_STARTED:
Setting boot parameters for supervisor migration process, it might take some
time. Please do not replace Supervisor-2 (N77-SUP2E) in standby slot with
Supervisor-3 (N77-SUP3E) and set any config parameters until migration is
complete.
Switch# 2019Apr 23 00:18:53 Switch %$ VDC-1 %$ %BOOTVAR-2-SUP3_MIGRATION_
COMPLETE: Migration process is complete now. Supervisor-2 (N77-SUP2E) in standby
slot can now be replaced with Supervisor-3 (N77-SUP3E).
Switch# show boot
Current Boot Variables:
sup-1
kickstart variable = bootflash:/n7700-s3-kickstart.8.4.1.bin
system variable = bootflash:/n7700-s3-dk9.8.4.1.bin
Boot POAP Disabled
sup-2
kickstart variable = bootflash:/n7700-s3-kickstart.8.4.1.bin
system variable = bootflash:/n7700-s3-dk9.8.4.1.bin
Boot POAP Disabled
Boot Variables on next reload:
sup-1
kickstart variable = bootflash:/n7700-s3-kickstart.8.4.1.bin
system variable = bootflash:/n7700-s3-dk9.8.4.1.bin
Boot POAP Disabled
sup-2
kickstart variable = bootflash:/n7700-s3-kickstart.8.4.1.bin
system variable = bootflash:/n7700-s3-dk9.8.4.1.bin
Boot POAP Disabled
Cisco Nexus Operating System (NX-OS) Software
TAC support: http://www.cisco.com/tac
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The copyrights to certain works contained in this software are
owned by other third parties and used and distributed under
license. Certain components of this software are licensed under
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Lesser General Public License (LGPL) Version 2.1. A copy of each
such license is available at
http://www.opensource.org/licenses/gpl-2.0.php and
http://www.opensource.org/licenses/lgpl-2.1.php
Switch# show module
Mod Ports Module-Type                       Model              Status
--- ----- ------------------------------- ------------------ ----------
1   48    1/10 Gbps Ethernet Module         N77-F348XP-23      ok
2   30    10/25/40/100 Gbps Ethernet Module N77-F430CQ-36      ok
3   0     Supervisor Module-3               N77-SUP3E          active*
4   0     Supervisor Module-2               N77-SUP2E          powered-dn
5   30    10/25/40/100 Gbps Ethernet Module N77-F430CQ-36      ok
6   30    10/25/40/100 Gbps Ethernet Module N77-F430CQ-36      ok
Mod  Power-Status   Reason
---  -------------  ---------------------
3    powered-dn     Reset (powered-down) because of incompatible configuration
```

After the supervisor 3E module has been moved to Active mode, non-disruptive migration from supervisor 2E modules to supervisor 3E modules is completed. A console message, SUP3_MIGRATION_COMPLETE, is then displayed.

Step 8 You can now power down and remove the other supervisor 2E module, and replace it with a Supervisor 3E module. This supervisor 3E module will come up in HA-standby mode.

Case 2: Single Supervisor Migration

To perform non-disruptive migration from Supervisor 2E modules to Supervisor 3E modules in a switch that has only the active supervisor module installed and there is no standby supervisor module, follow these steps:

Step 1 Copy the Cisco NX-OS Release 8.4(1) kickstart and system images to the active supervisor module bootflash, using an FTP or TFTP server.

switch# **copy tftp://tftpserver.cisco.com/n7700/n7700-s3-kickstart.8.4.1.bin bootflash:n7700-s3-kickstart.8.4.1.bin**

switch# **copy tftp://tftpserver.cisco.com/n7700/n7700-s3-dk9.8.4.1.bin bootflash:system n7700-s3-dk9.8.4.1.bin**

Step 2 Use the **migrate sup kickstart** <*sup3-kickstart-image*> **system** <*sup3-system-image*> command in config mode to initiate the migration process. This command triggers image version compatibility checks before initiating the migration process to ensure that the image being used is compatible with the supervisor 3E module.

- A message then appears on the console asking for confirmation to continue the migration procedure. Type **Yes** on the console prompt to continue with the migration procedure.
- Configuration commands are now blocked.
- The **migrate sup kickstart** <*sup3-kickstart-image*> **system** <*sup3-system-image*>command will then check if it has to initiate a single supervisor or dual supervisor migration process by checking if there is a standby supervisor 2E module installed in the switch. In this procedure, the switch does not have a standby supervisor module.
- You can use the **show module**command to display the modules installed in the switch.

Sup2E syslogs

```
switch# show module
Mod Ports Module-Type                          Model              Status
--- ----- ------------------------------------ ------------------ ----------
1   48    1/10 Gbps Ethernet Module            N77-F348XP-23      ok
2   30    10/25/40/100 Gbps Ethernet Module    N77-F430CQ-36      ok
4   0     Supervisor Module-2                  N77-SUP2E          active*
5   30    10/25/40/100 Gbps Ethernet Module    N77-F430CQ-36      ok
6   30    10/25/40/100 Gbps Ethernet Module    N77-F430CQ-36      ok

switch(config)# migrate sup kickstart n7700-s3-kickstart.8.4.1.bin system n7700-s3-
dk9.8.4.1.bin
<Thu May 16 01:10:09 2019> Standby Supervisor-2 is not present in slot 3, continuing
with migration ...
<Thu May 16 01:10:09 2019> This will start the Supervisor-2 to Supervisor-3
migration. Configuration will be locked until migration is complete.
Do you wish to continue (y/n) [n] y
<Thu May 16 01:10:09 2019> Starting migration, Please do not remove any linecards
or fabric cards until migration is complete
```

Step 3 Insert the supervisor 3E module in the other switch supervisor slot, as explained in the Installing or Replacing a Supervisor Module section. When the supervisor 3E module is detected in the standby supervisor slot, a netboot is initiated with the image that is provided by using the **migrate sup kickstart** <*sup3-kickstart-image*> **system** <*sup3-system-image*> command.

Note
- You have to insert the supervisor 3E module into the switch within a period of 30 minutes after using the **migrate sup kickstart** <*sup3-kickstart-image*> **system** <*sup3-system-image*> command. In case you have not inserted the supervisor 3E module within 30 minutes after using this command, migration is aborted and you have to use the command again to reinitiate the migration process.
- After the supervisor 3E module is inserted in the slot, a timeout of 45 minutes is triggered for the supervisor 3E module to power up and come online. If the supervisor 3E module fails to power up and come online at the first attempt, a retry is initiated every 15 minutes. In case the supervisor 3E module fails to come online after 3 retries or 45 minutes, you have to remove the supervisor 3E module and restart the migration process by using the **migrate sup kickstart** <*sup3-kickstart-image*> **system** <*sup3-system-image*> command.

Sup2E syslogs

```
<Thu May 16 01:10:11 2019> Manual-boot is enabled for Standby Supervisor
<Thu May 16 01:10:09 2019> Please insert Supervisor-3 (N77-SUP3E) in slot number : 3 within 30 minutes
```

Step 4 Wait for the supervisor 3E module to come up in HA-standby mode. After the new supervisor 3E module is detected by the switch, it may take up to 15 minutes for the supervisor 3E module to come online.

Sup2E syslogs

```
2019 May 16 01:10:19 Switch-m3 %$ VDC-3 %$ %PLATFORM-2-MOD_DETECT: Module 3 detected
(Serial number :unavailable) Module-Type Supervisor Module-3 Model :unavailable 2019
May 16 01:10:19 Switch %$ VDC-1 %$ %PLATFORM-2-MODULE_EJECTOR_POLICY_ENABLED:
All Ejectors closed for module 3. Ejector based shutdown enabled
2019 May 16 01:10:19 Switch %$ VDC-1 %$ %PLATFORM-2-MOD_DETECT: Module 3 detected
(Serial number :unavailable) Module-Type Supervisor Module-3 Model :unavailable
<Thu May 16 01:10:21 2019> Supervisor-3 (N77-SUP3E) is detected in slot 3
<Thu May 16 01:10:21 2019> Reloading standby. This might take up to 15 minutes.
Please wait ...
```

Sup3E syslogs

```
System is coming up ... Please wait ...
System is coming up ... Please wait ...
Switch(standby) login: 2019May 16 01:32:56 Switch %$ VDC-1 %$ %USBHSD-2-MOUNT:
logflash: online
adminbackup
Switch(standby)# 2019May 16 01:35:37 Switch %$ VDC-1 %$ %CARDCLIENT-2-REG: Sent
2019May 16 01:35:54 Switch %$ VDC-1 %$ %CARDCLIENT-2-SSE: LC_READY sent
2019May 16 01:36:18 Switch %$ VDC-1 %$ %CARDCLIENT-2-SSE: MOD:3 SUP ONLINE
```

Step 5 After the supervisor 3E module is online, the configurations are copied to the supervisor 3E module.

Sup2E syslogs

```
<Thu May 16 01:36:43 2019> Standby Supervisor-3 (N77-SUP3E) has come online, configs
will be copied
<Thu May 16 01:36:43 2019> Saving configuration now. Please wait ...
[########################################] 100%
Copy complete.
/mnt/plog/migration_cli.log: 3.35 kB 85.81 kB/s
```

Step 6 System switchover is then initiated. This process moves the supervisor 3E module from the HA-standby mode to Active mode. The SSH/telnet session is disconnected during the switchover. You have to then reconnect to the SSH/telnet session. Also, ensure that the console link and the management link is connected to the newly inserted supervisor-3E module.

Sup2E syslogs

```
<Thu May 16 01:37:26 2019> Supervisor-2 (N77-SUP2E) will switchover to Supervisor-3
(N77-SUP3E) now
<Thu May 16 01:37:26 2019> Switchover is successful, Supervisor-3 (N77-SUP3E) is
now active
Switch(config)#
User Access Verification
Switch login:
```

Sup3E syslogs

```
Switch(standby)# 2019May 16 01:37:26 Switch %$ VDC-1 %$ %KERN-2-SYSTEM_MSG: [
553.259393] Switchover started by redundancy driver - kernel
2019May 16 01:37:26 Switch %$ VDC-1 %$ %SYSMGR-2-HASWITCHOVER_PRE_START: This
supervisor is becoming active (pre-start phase).
2019May 16 01:37:26 Switch %$ VDC-1 %$ %SYSMGR-2-HASWITCHOVER_START: Supervisor 3 is
becoming active.
2019May 16 01:37:27 Switch %$ VDC-1 %$ %SYSMGR-2-SWITCHOVER_OVER: Switchover
completed.
```

Step 7 After the switchover to the supervisor 3E module is completed, the boot parameters are set for the supervisor migration process. Do not set any configuration parameters until the boot parameters are set. After the boot parameters are set, the migration process is complete. Use the **show boot** command to display the current boot variables and the **show module** command to display the modules installed in the switch.

Sup3E syslogs

```
2019May 16 01:37:39 Switch %$ VDC-1 %$ %BOOTVAR-2-SUP3_MIGRATION_CONFIG_STARTED:
Setting boot parameters for supervisor migration process, it might take some time.
Please do not replace Supervisor-2 (N77-SUP2E) in standby slot with Supervisor-3
(N77-SUP3E) and set any config parameters until migration is complete.
Switch# 2019Apr 23 00:18:53 Switch %$ VDC-1 %$ %BOOTVAR-2-SUP3_MIGRATION_
COMPLETE: Migration process is complete now. Supervisor-2 (N77-SUP2E) in standby slot
can now be replaced with Supervisor-3 (N77-SUP3E).
Switch# show boot
Current Boot Variables:
sup-1
kickstart variable = bootflash:/n7700-s3-kickstart.8.4.1.bin system variable =
bootflash:/n7700-s3-dk9.8.4.1.bin
Boot POAP Disabled sup-2
kickstart variable = bootflash:/n7700-s3-kickstart.8.4.1.bin system variable =
bootflash:/n7700-s3-dk9.8.4.1.bin
Boot POAP Disabled
Boot Variables on next reload:
sup-1
kickstart variable = bootflash:/n7700-s3-kickstart.8.4.1.bin
system variable = bootflash:/n7700-s3-dk9.8.4.1.bin
Boot POAP Disabled
sup-2
kickstart variable = bootflash:/n7700-s3-kickstart.8.4.1.bin
system variable = bootflash:/n7700-s3-dk9.8.4.1.bin
Boot POAP Disabled
Cisco Nexus Operating System (NX-OS) Software
TAC support: http://www.cisco.com/tac
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The copyrights to certain works contained in this software are
owned by other third parties and used and distributed under
license. Certain components of this software are licensed under
the GNU General Public License (GPL) version 2.0 or the GNU
```

```
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such license is available at
http://www.opensource.org/licenses/gpl-2.0.php and
http://www.opensource.org/licenses/lgpl-2.1.php
Switch# show module
Mod Ports Module-Type                          Model              Status
--- ----- ------------------------------------ ------------------ ----------
1   48    1/10 Gbps Ethernet Module            N77-F348XP-23      ok
2   30    10/25/40/100 Gbps Ethernet Module    N77-F430CQ-36      ok
3   0     Supervisor Module-3                  N77-SUP3E          active*
4   0     Supervisor Module-2                  N77-SUP2E          powered-dn
5   30    10/25/40/100 Gbps Ethernet Module    N77-F430CQ-36      ok
6   30    10/25/40/100 Gbps Ethernet Module    N77-F430CQ-36      ok
Mod  Power-Status   Reason
---  -------------  ---------------------
3    powered-dn     Reset (powered-down) because of incompatible configuration
```

After the supervisor 3E module has been moved to Active mode, non-disruptive migration from supervisor 2E modules to supervisor 3E modules is completed. A console message, SUP3_MIGRATION_COMPLETE, is then displayed.

Viewing Migration Status

Use the **show logging onboard migration status** command on any management session to display the status of migration. You can use this command during migration or after migration is complete.

The sample output when this command is used on the supervisor-3E module is as given below. This output has both the supervisor-3E and the supervisor-2E logs.

```
switch# show logging onboard migration status
<Sat May 25 01:58:22 2019> ================================================
<Sat May 25 01:58:22 2019> Starting Supervisor-3 (N77-SUP3E) migration logging
<Sat May 25 01:58:22 2019> ================================================
<Sat May 25 01:58:22 2019> Migrate file is created
<Sat May 25 01:58:22 2019> Migration in progress, scratchpad register : 0xfe
and boot_type : 1
<Sat May 25 01:58:22 2019> Written 0xed post migration file creation
<Sat May 25 01:58:22 2019> Post write, read scratchpad_b register 0xed
<Sat May 25 02:05:00 2019> Copying the everland migration log from tmp to plog
succeeded
<Sat May 25 02:05:14 2019> bootvar_handle_mts_msg: migration in progress - 1
<Sat May 25 02:05:14 2019>
bootvar_copy_cfg_for_migration:sup_migration_procjob_hdl : 0
<Sat May 25 02:05:14 2019> bootvar_copy_cfg_for_migration:forking procjob for
copy r s
<Sat May 25 02:05:15 2019> Standby arbiter link of F4 card in slot 6 has been
changed to 12G
<Sat May 25 02:05:15 2019> Standby arbiter link is currently 12G for F4
module : 6
<Sat May 25 02:05:15 2019> bootvar_copy_cfg_proc: sup migration configuration
started
<Sat May 25 02:05:15 2019> bootvar_copy_cfg_proc:isan_img :bootflash:/n7700-
s3-dk9.8.4.1.gbin ks_img :bootflash:/n7700-s3-kickstart.8.4.1.gbin
<Sat May 25 02:05:18 2019> bootvar_copy_cfg_proc: Kickstart cfg - /isan/bin/
vsh -c "configure terminal ; boot kickstart bootflash:/n7700-s3-
kickstart.8.4.1.gbin "
<Sat May 25 02:05:23 2019> bootvar_copy_cfg_proc: System cfg - /isan/bin/vsh -
c "configure terminal ; boot system bootflash:/n7700-s3-dk9.8.4.1.gbin " <Sat
May 25 02:09:03 2019> bootvar_copy_cfg_proc:command for copy r s -
/isan/bin/vsh -c "copy running-config startup-config vdc-all"
<Sat May 25 02:09:18 2019> procjobcb_job_done: Controller PID : 14342,
```

```
sup_migration_procjob_hdl : 14342
<Sat May 25 02:09:18 2019> procjobcb_job_done: sup2_sup3_migration in progress
<Sat May 25 02:09:18 2019> procjobcb_job_done:bootvar config successfully
updated after migration
<Sat May 25 02:09:18 2019> procjobcb_job_done:created migration file
sup2_sup3_migration_standby
<Sat May 25 02:23:28 2019> Read scratchpad_b register 0x96
<Sat May 25 02:31:14 2019> bootvar_handle_mts_msg: migration in progress - 0
<Sat May 25 02:31:30 2019> bootvar_handle_mts_msg: migration in progress - 0
<Sat May 25 02:31:50 2019> bootvar_handle_mts_msg: migration in progress - 0
<Sat May 25 01:55:07 2019> ============================================
<Sat May 25 01:55:07 2019> Starting Supervisor-2 (N77-SUP2E) migration logging
<Sat May 25 01:55:07 2019> ============================================
<Sat May 25 01:55:07 2019> System redundancy status data is dumped
successfully <Sat May 25 01:55:07 2019> Active EOBC link is used, continue
migration
<Sat May 25 01:55:07 2019> Deleted EOBC file
/nxos/tmp/eobc_redundant_link_migration.txt successfully
<Sat May 25 01:55:07 2019> Kickstart image file is /bootflash/k3_fin
<Sat May 25 01:55:07 2019> System image file is /bootflash/s3_fin
<Sat May 25 01:55:07 2019> Standby Supervisor-3 (N77-SUP3E) is not preinserted
before starting migration
<Sat May 25 01:55:08 2019> Migration is started by the user
<Sat May 25 01:55:08 2019> system standby manual-boot is invoked and waiting
for Supervisor-3 (N77-SUP3E) to get inserted
<Sat May 25 01:55:08 2019> Migrate file is created
<Sat May 25 01:55:08 2019> Migrate file is created at tftp location
<Sat May 25 01:55:08 2019> F4 arbiter link for standby SUP is : 24
<Sat May 25 01:55:09 2019> Standby arbiter link of F4 card in slot 6 has been
changed to 12G
Viewing Migration Status
<Sat May 25 01:55:09 2019> Standby arbiter link is currently 12G for F4
module : 6
<Sat May 25 01:55:09 2019> Count : 1, Reloading standby
<Sat May 25 01:55:09 2019> subop: 21 Power-management write for migration for
module 3 SUCCESS
<Sat May 25 01:55:09 2019> subop: 21 Power-management read for migration for
module 3 SUCCESS
<Sat May 25 01:55:09 2019> Power-management written value : 0xfe, read_value:
0xfe
<Sat May 25 01:55:09 2019> Waiting for standby Supervisor-3 (N77-SUP3E) to
come online
<Sat May 25 01:55:27 2019> subop: 20 Power-management write for migration for
module 3 SUCCESS
<Sat May 25 01:55:27 2019> subop: 20 Power-management read for migration for
module 3 SUCCESS
<Sat May 25 01:55:27 2019> Power-management written value : 0xfe, read_value:
0xfe
<Sat May 25 01:55:28 2019> subop: 21 Power-management write for migration for
module 3 SUCCESS
<Sat May 25 01:55:28 2019> subop: 21 Power-management read for migration for
module 3 SUCCESS
<Sat May 25 01:55:28 2019> Power-management written value : 0xfe, read_value:
0xfe
<Sat May 25 02:02:04 2019> subop: 20 Power-management write for migration for
module 3 SUCCESS
<Sat May 25 02:02:04 2019> subop: 20 Power-management read for migration for
module 3 SUCCESS
<Sat May 25 02:02:04 2019> Power-management written value : 0xfe, read_value:
0xfe
<Sat May 25 02:04:09 2019> Standby has come online !!!
<Sat May 25 02:04:30 2019> ALL_AUTOGRANTS set to 1
<Sat May 25 02:04:30 2019> Standbyfabricloopback test succeeded
<Sat May 25 02:04:30 2019> Standby ready for Switchover, deleting
```

```
'/nxos/tmp/migration_log.txt'
<Sat May 25 02:04:30 2019> Saving configuration now
<Sat May 25 02:04:59 2019> Deletion of migration file is successful in
Supervisor-2 (N77-SUP2E)
<Sat May 25 02:04:59 2019> Deletion of tftp migration file is successful in
Supervisor-2 (N77-SUP2E)
<Sat May 25 02:04:59 2019> Copying log file to Standby....
<Sat May 25 02:04:59 2019> Command executed for transferring logfile to other
SUP - ncftpput -u ftpuser -p nbv123 127.1.1.3 /nxos/tmp/
/mnt/plog/migration.log
```

The sample output when this command is used on the supervisor-2E module is as given below. This output has the supervisor-2E logs only.

```
switch# show logging onboard migration status
<Sat May 25 01:55:07 2019> ================================================
<Sat May 25 01:55:07 2019> Starting Supervisor-2 (N77-SUP2E) migration logging
<Sat May 25 01:55:07 2019> ================================================
<Sat May 25 01:55:07 2019> System redundancy status data is dumped
successfully <Sat May 25 01:55:07 2019> Active EOBC link is used, continue
migration
<Sat May 25 01:55:07 2019> Deleted EOBC file
/nxos/tmp/eobc_redundant_link_migration.txt successfully
<Sat May 25 01:55:07 2019> Kickstart image file is /bootflash/k3_fin
<Sat May 25 01:55:07 2019> System image file is /bootflash/s3_fin
<Sat May 25 01:55:07 2019> Standby Supervisor-3 (N77-SUP3E) is not pre-inserted
before starting migration
<Sat May 25 01:55:08 2019> Migration is started by the user
<Sat May 25 01:55:08 2019> system standby manual-boot is invoked and waiting
for Supervisor-3 (N77-SUP3E) to get inserted
<Sat May 25 01:55:08 2019> Migrate file is created
<Sat May 25 01:55:08 2019> Migrate file is created at tftp location
<Sat May 25 01:55:08 2019> F4 arbiter link for standby SUP is : 24
<Sat May 25 01:55:09 2019> Standby arbiter link of F4 card in slot 6 has been
changed to 12G
<Sat May 25 01:55:09 2019> Standby arbiter link is currently 12G for F4
module : 6
<Sat May 25 01:55:09 2019> Count : 1, Reloading standby
<Sat May 25 01:55:09 2019> subop: 21 Power-management write for migration for
module 3 SUCCESS
<Sat May 25 01:55:09 2019> subop: 21 Power-management read for migration for
module 3 SUCCESS
<Sat May 25 01:55:09 2019> Power-management written value : 0xfe, read_value:
0xfe
<Sat May 25 01:55:09 2019> Waiting for standby Supervisor-3 (N77-SUP3E) to come
online
<Sat May 25 01:55:27 2019> subop: 20 Power-management write for migration for
module 3 SUCCESS
<Sat May 25 01:55:27 2019> subop: 20 Power-management read for migration for
module 3 SUCCESS
<Sat May 25 01:55:27 2019> Power-management written value : 0xfe, read_value:
0xfe
<Sat May 25 01:55:28 2019> subop: 21 Power-management write for migration for
module 3 SUCCESS
<Sat May 25 01:55:28 2019> subop: 21 Power-management read for migration for
module 3 SUCCESS
<Sat May 25 01:55:28 2019> Power-management written value : 0xfe, read_value:
0xfe
<Sat May 25 02:02:04 2019> subop: 20 Power-management write for migration for
module 3 SUCCESS
<Sat May 25 02:02:04 2019> subop: 20 Power-management read for migration for
module 3 SUCCESS
<Sat May 25 02:02:04 2019> Power-management written value : 0xfe, read_value:
0xfe
```

```
<Sat May 25 02:04:09 2019> Standby has come online !!!
<Sat May 25 02:04:30 2019> ALL_AUTOGRANTS set to 1
<Sat May 25 02:04:30 2019> Standbyfabricloopback test succeeded
<Sat May 25 02:04:30 2019> Standby ready for Switchover, deleting
'/nxos/tmp/migration_log.txt'
<Sat May 25 02:04:30 2019> Saving configuration now
<Sat May 25 02:04:59 2019> Deletion of migration file is successful in
Supervisor-2 (N77-SUP2E)
<Sat May 25 02:04:59 2019> Deletion of tftp migration file is successful in
Supervisor-2 (N77-SUP2E)
<Sat May 25 02:04:59 2019> Copying log file to Standby....
<Sat May 25 02:04:59 2019> Command executed for transferring logfile to other
SUP - ncftpput -u ftpuser -p nbv123 127.1.1.3 /nxos/tmp/
/mnt/plog/migration.log
```

Troubleshooting

This sections lists the error messages that may come up on the console during the migration along with the recommended action to be performed.

- **Problem**

  The kickstart or system image is not present on the bootflash of the active supervisor-3E module. The following syslog message is displayed:

  ```
  switch# <Tue Apr 30 10:02:47 2019> Switch %$ VDC-1 %$ %BOOTVAR-2-
  SUP3_MIGRATION_IMAGE_DOES_NOT_EXIST: <Kickstart/System> image doesn't exist on
  bootflash of the active Supervisor-3. Please clear some space in bootflash, copy
  the Supervisor-3 images manually, set the boot variables and save configs before
  replacing Standby Supervisor-2
  ```

  Action to be performed

  Clear space on the bootflash and then copy the supervisor-3E module images manually, as shown in Step 1 in the migration procedures given above. Set the boot variables and save the configuration before replacing the standby Supervisor-2E module. Use the **boot kickstart** <*kickstart_image*> and the **boot system** <*system_image*> on the active supervisor 3E module when it becomes active after the migration has been completed.

- **Problem**

  The newly inserted supervisor-3E module cannot take over as the active supervisor. The following syslog message is displayed:

  ```
  <Tue Apr 30 10:02:47 2019> ERROR!!! Supervisor-3 (N77-SUP3E) cannot take over as
  active Supervisor ...
  ```

  Action to be performed

  Wait for the next retry attempt by the switch to bring up the supervisor-3E module.

- **Problem**

  The migration logging file is already present in the supervisor-2E module. The following syslog message is displayed:

  ```
  <Tue Apr 30 10:02:47 2019> WARNING!!! Migration logging file already exists in
  Supervisor-2 (N77-SUP2E), continuing migration ...
  ```

  Action to be performed

  None. The **show logging onboard migration status** command is used to monitor the migration progress. There is no impact on the migration process.

- **Problem**

  Unable to release the configuration lock that was set to prevent any configuration changes before switching over to the supervisor-3E module. The following syslog message is displayed:

  ```
  <Tue Apr 30 10:02:47 2019> ERROR!!! Failed to release config lock before switching over
   to Supervisor-3 (N77-SUP3E), aborting migration …
  ```

  Action to be performed

  Use the **migrate sup kickstart** <*sup3-kickstart-image*> **system** <*sup3-system-image*> command again.

- **Problem**

  The switch cannot initiate migration logging due to internal errors. The following syslog message is displayed:

  ```
  <Tue Apr 30 10:02:47 2019> WARNING!!! Migration logging cannot be done due to Internal
   Error, continuing migration ...
  ```

  Action to be performed

  None. The **show logging onboard migration status** command is used to monitor the migration progress. There is no impact on the migration process.

- **Problem**

  The switch cannot initiate migration logging due to insufficient file permissions. The following syslog message is displayed:

  ```
  <Tue Apr 30 10:02:47 2019> WARNING!!! Migration logging cannot be done due to
  file permission error, continuing migration ...
  ```

  Action to be performed

  None. The **show logging onboard migration status** command is used to monitor the migration progress. This error message is displayed if the appropriate file permissions have not been provided.

- **Problem**

  The active supervisor-2E module is using the redundant secondary EOBC link instead of the primary EOBC link. The following syslog message is displayed:

  ```
  <Tue Apr 30 10:02:47 2019> ERROR!!! Active Supervisor-2 (N77-SUP2E) is using
  Redundant EOBC link, this indicates some problem with Primary EOBC link,
  aborting migration ...
  ```

  Action to be performed

  Replace the active supervisor-2E module with another supervisor-2E module.

- **Problem**

  Unable to extract the image header from the kickstart or system images. The following syslog messages are displayed:

  ```
  <Tue Apr 30 10:02:47 2019> ERROR!!! Image header extraction failed for
  Kickstart image <kickstart_image> of Supervisor-3 (N77-SUP3E), aborting
  migration ...

  <Tue Apr 30 10:02:47 2019> ERROR!!! Image header extraction failed for System
  image <system_image> of Supervisor-3 (N77-SUP3E), aborting migration ...
  ```

  Action to be performed

  Use the **migrate sup kickstart** <*sup3-kickstart-image*> **system** <*sup3-system-image*> command again.

- **Problem**

  Unable to retrieve the kickstart or system image information. The following syslogs are displayed:

  ```
  <Tue Apr 30 10:02:47 2019> ERROR!!! Failed to get Kickstart image info,
  aborting migration ...

  <Tue Apr 30 10:02:47 2019> ERROR!!! Failed to get System image info, aborting
  migration ...
  ```

  Action to be performed

  Use the **migrate sup kickstart** <*sup3-kickstart-image*> **system** <*sup3-system-image*> command again.

- **Problem**

  The kickstart or system images provided are not valid images for the supervisor-3E modules. The following syslog message is displayed:

  ```
  <Tue Apr 30 10:02:47 2019> ERROR!!! Kickstart image provided '<kickstart_image>'
  is not a valid Supervisor-3 (N77-SUP3E) image, aborting migration ...

  <Tue Apr 30 10:02:47 2019> ERROR!!! System image provided '<system_image>' is
  not a valid Supervisor-3 (N77-SUP3E) image, aborting migration ...
  ```

  Action to be performed

  Use a valid Supervisor 3E image and use the **migrate sup kickstart** <*sup3-kickstart-image*> **system** <*sup3-system-image*> command again.

- **Problem**

  The release versions of the supervisor-3E kickstart and system images provided are not the same as the existing supervisor-2E kickstart and system images. The following syslog messages are displayed:

  ```
  <Tue Apr 30 10:02:47 2019> ERROR!!! Running kickstart version :
  <running_version>,
  version of kickstart image provided : <Supervisor-3_image_version>

  <Tue Apr 30 10:02:47 2019> ERROR!!! Version of kickstart image provided
  ('<sup3_image_version>') does not match running version, aborting migration
  ...
  <Tue Apr 30 10:02:47 2019> ERROR!!! Running System version:
  <running_version>, version of system image provided : <Supervisor-
  3_image_version>

  <Tue Apr 30 10:02:47 2019> ERROR!!! Version of system image provided
  ('<sup3_image_version>') does not match running version, aborting migration
  ...
  ```

  Action to be performed

  Check the image version. The release versions of the supervisor-3E kickstart and system images provided should be the same as the existing supervisor-2E kickstart and system images.

- **Problem**

  Unable to retrieve the chassis information. The following syslog message is displayed:

  ```
  <Tue Apr 30 10:02:47 2019> ERROR!!! Chassis information retrieve failed,
  aborting migration ...
  ```

  Action to be performed

  Use the **migrate sup kickstart** <*sup3-kickstart-image*> **system** <*sup3-system-image*> command again.

- **Problem**

  Unable to retrieve the slot number of the supervisor module. The following syslog message is displayed:

  ```
  <Tue Apr 30 10:02:47 2019> ERROR!!! Supervisor slot information retrieve
  failed, aborting migration ...
  ```

  Action to be performed

  Use the **migrate sup kickstart** <*sup3-kickstart-image*> **system** <*sup3-system-image*> command again.

- **Problem**

  Unable to retrieve the slot number of the standby supervisor module. The following syslog message is displayed:

  ```
  <Tue Apr 30 10:02:47 2019> ERROR!!! Standby Supervisor slot information
  retrieve failed, aborting migration ...
  ```

  Action to be performed

  Use the **migrate sup kickstart** <*sup3-kickstart-image*> **system** <*sup3-system-image*> command again.

- **Problem**

  The Cisco Nexus 7702 switch does not support nondisruptive migration from the supervisor-2E module to a supervisor-3E module. In case the **migrate sup kickstart** <*sup3-kickstart-image*> **system** <*sup3-system-image*> command is used on a Cisco Nexus 7702 switch, the following syslog message is displayed:

  ```
  <Tue Apr 30 10:02:47 2019> ERROR!!! Migration is not supported in N7702
  chassis, aborting migration ...
  ```

  Action to be performed

  None. The **migrate sup kickstart** <*sup3-kickstart-image*> **system** <*sup3-system-image*> command is not supported on a Cisco Nexus 7702 switch.

- **Problem**

  In case the **migrate sup kickstart** <*sup3-kickstart-image*> **system** <*sup3-system-image*> command cannot read the stored Supervisor 2E image links, the migration process fails. The following syslog messages are displayed:

  ```
  <Tue Apr 30 10:02:47 2019> ERROR!!! Kickstart image link for Active
  Supervisor-2 (N77-SUP2E) could not be found, aborting migration ...

  <Tue Apr 30 10:02:47 2019> Please set the boot parameters using 'boot kickstart
  <kickstart_image>' and 'boot system <system_image>'

  <Tue Apr 30 10:02:47 2019> ERROR!!! System image link for Active Supervisor-2
  (N77- SUP2E) could not be found, aborting migration ...

  <Tue Apr 30 10:02:47 2019> Please set the boot parameters using 'boot kickstart
  <kickstart_image>' and 'boot system <system_image>'
  ```

  Action to be performed

  Set the supervisor 2E image links using the **boot kickstart** <*kickstart_image*> command and the **boot system** <*system_image*> command before re-inserting the standby supervisor 2E module.

- **Problem**

  The supervisor-3E module is already present in the standby slot before initiating the migration procedure. The following syslog message is displayed:

```
<Tue Apr 30 10:02:47 2019> ERROR!!! Supervisor-3 is already inserted in standby
slot <slot_number> before starting migration. Please remove Standby supervisor
and start single Supervisor migration, aborting migration ...
```

Action to be performed

Remove the standby supervisor-3E module and start the migration process again.

- **Problem**

  Unable to retrieve VDC information. The following syslog message is displayed:

  ```
  <Tue Apr 30 10:02:47 2019> ERROR!!! Failed to retrieve vdc information,
  aborting migration ...
  ```

  Action to be performed

  Restart the migration procedure.

- **Problem**

  The standby supervisor-2E module is not in the HA-standby state. The following syslog message is displayed:

  ```
  <Tue Apr 30 10:02:47 2019> ERROR!!! Standby Supervisor-2 (N77-SUP2E) is not yet
  in ha-standby state, aborting migration ...

  <Tue Apr 30 10:02:47 2019> Please wait for Standby supervisor in slot
  <slot_number> to become ha-standby or physically remove standby and start
  migration
  ```

  Action to be performed

  Wait till the standby supervisor 2E module comes up in the HA-standby state or remove the standby supervisor 2E module and perform single supervisor migration.

- **Problem**

  Problem In case of dual supervisor migration, the standby supervisor-2E module is powered down by using the **out-of-service** <*slot-number*> command. If the standby supervisor-2E module does not power down after using this command, the following syslog message is displayed:

  ```
  <Tue Apr 30 10:02:47 2019> ERROR!!! Failed to power down Standby Supervisor-2
  in slot <slot_number>, aborting migration ...
  ```

  Action to be performed

  Use the **migrate sup kickstart** <*sup3-kickstart-image*> **system** <*sup3-system-image*> command again.

- **Problem**

  Unable to lock the configuration. The following syslog message is displayed:

  ```
  <Tue Apr 30 10:02:47 2019> ERROR!!! Failed to lock config, aborting migration
  ...
  ```

  Action to be performed

  Use the **migrate sup kickstart** <*sup3-kickstart-image*> **system** <*sup3-system-image*> command again.

- **Problem**

  In case auto-boot is not disabled before the insertion of the supervisor-3E module, the following syslog message is displayed:

  ```
  <Tue Apr 30 10:02:47 2019> ERROR!!! Standby Supervisor config failed,
  aborting migration ...
  ```

Action to be performed

Use the **migrate sup kickstart** <*sup3-kickstart-image*> **system** <*sup3-system-image*> command again.

- **Problem**

  After powering down the supervisor-2E module, the switch will check for the presence of a module in the slot from which the supervisor-2E module was removed. This check happens every 30 minutes after the supervisor-2E module has been removed. In case this check to detect the presence of the supervisor module fails, the following syslog message is displayed:

  ```
  <Tue Apr 30 10:02:47 2019> ERROR!!! Module information retrieve failed
  ```

  Action to be performed

  None. There is no impact on the migration process.

- **Problem**

  A supervisor-2E module in inserted instead of a supervisor-3E module. The following syslog message is displayed:

  ```
  <Tue Apr 30 10:02:47 2019> ERROR!!! Supervisor-2 (N77-SUP2E) is inserted in slot
  <slot_number> instead of Supervisor-3 (N77-SUP3E), aborting migration ...
  ```

  Action to be performed

  Ensure that the newly inserted supervisor module is the supervisor-3E module.

- **Problem**

  In case the supervisor-3E module is not inserted into the standby slot within 30 minutes after the supervisor 2E module has been powered down, the following syslog message is displayed:

  ```
  <Tue Apr 30 10:02:47 2019> ERROR!!! Timeout waiting for Supervisor-3 (N77-SUP3E)
  to be inserted in slot <slot_number>, aborting migration ...
  ```

  Action to be performed

  Use the **migrate sup kickstart** <*sup3-kickstart-image*> **system** <*sup3-system-image*> command again and ensure that the supervisor 3E module is inserted into the standby slot within 30 minutes after the supervisor 2E module has been powered down.

- **Problem**

  Unable to create image links for the supervisor-3E module images. The following syslog message is displayed:

  ```
  <Tue Apr 30 10:02:47 2019> ERROR!!! Supervisor-3 (N77-SUP3E) image links could
  not be created for Standby Supervisor-3 bootup, aborting migration ...
  ```

  Action to be performed

  Use the **migrate sup kickstart** <*sup3-kickstart-image*> **system** <*sup3-system-image*> command again.

- **Problem**

  After the supervisor-3E module is detected, the arbiter links of the F4-series I/O modules are changed to 12G as the supervisor-3E module supports a speed of 12G compared to 4G in the supervisor-2E module. This change has to be done for all F4-series I/O modules present in the switch. In case of failure in changing to the 12G link for any F4- series I/O module, 3 retry attempts are initiated. After all the attempts to change the arbiter links fail, ensure that the standby supervisor arbiter link for all F4-series I/O modules are set to 4G. In case the standby supervisor arbiter link for all F4-series I/O modules are

not set to 4G, the standby supervisor-2E module will not come up if a supervisor-2E module is inserted instead of the supervisor-3E module after migration failure.

The following syslog messages are displayed in case of failure in changing the standby supervisor arbiter links for the F4-series I/O modules:

```
<Tue Apr 30 10:02:47 2019> ERROR!!! Failed to change Standby Supervisor
arbiter link for F4 linecard in slot <F4_linecard_slot>

<Tue Apr 30 10:02:47 2019> ERROR!!! Failed to change Standby Supervisor
arbiter link for F4 linecard in slot <F4_linecard_slot> even after 3
retries, aborting migration ...
```

Action to be performed

Please contact TAC for assistance.

- **Problem**

  Unable to reload the supervisor-3E module after the supervisor-3E module is detected in the switch. The following syslog message is displayed:

  ```
  <Tue Apr 30 10:02:47 2019> ERROR!!! Failed to reload Standby Supervisor-3
  (N77-SUP3E), aborting migration ...
  ```

  Action to be performed

  Use the **migrate sup kickstart** <*sup3-kickstart-image*> **system** <*sup3-system-image*> command again.

- **Problem**

  The supervisor-3E module is stuck in loader prompt due to a boot failure. The following syslog message is displayed:

  ```
  <Tue Apr 30 10:02:47 2019> ERROR!!! Standby Supervisor-3 (N77-SUP3E) is stuck
  in loader prompt due to boot-up failure ...
  ```

  Action to be performed

  None. A retry attempt to bring up the supervisor-3E module is initiated by the switch every 15 minutes.

- **Problem**

  The supervisor-3E module is unable to come online. The following syslog message is displayed:

  ```
  <Tue Apr 30 10:02:47 2019> ERROR!!! Standby Supervisor-3 (N77-SUP3E) could not
  come online ...
  ```

  Action to be performed

  None. A retry attempt to bring up the supervisor-3E module is initiated by the switch every 15 minutes.

- **Problem**

  The supervisor module fails to come online. The following syslogs are displayed:

  ```
  <Tue Apr 30 10:02:47 2019> ERROR!!! Timeout waiting for Supervisor-3 (N77-SUP2E)
  to come online, aborting migration ...

  <Tue Apr 30 10:02:47 2019> Powering down Supervisor-3 (N77-SUP3E) in slot
  <slot_number>
  ```

  Action to be performed

Use the **migrate sup kickstart** <*sup3-kickstart-image*> **system** <*sup3-system-image*> command again and ensure that the supervisor-3E module is inserted in the standby slot within 30 minutes after the supervisor-2E module is powered down.

- **Problem**

  The supervisor-2E image links are not restored on the active supervisor-2E module before the switchover to supervisor-3E is initiated. The following syslogs are displayed before saving configuration:

  ```
  <Tue Apr 30 10:02:47 2019> WARNING!!! Error resetting original Supervisor-2
  (N77- SUP2E) image links, continuing migration ...

  <Tue Apr 30 10:02:47 2019> WARNING!!! Please set the boot variables manually
  before inserting back Supervisor-2 (N77-SUP2E) in standby slot <slot_number>,
  continuing migration ...
  ```

  Action to be performed

  Use the **migrate sup kickstart** <*sup3-kickstart-image*> **system** <*sup3-system-image*> command again.

- **Problem**

  The **copy r s vdc-all** command fails on the active supervisor-2E module before the switchover to the supervisor-3E module is initiated. The following syslog is displayed:

  ```
  <Tue Apr 30 10:02:47 2019> ERROR!!! Failed to save configuration,
  aborting migration …
  ```

  Action to be performed

  Use the **migrate sup kickstart** <*sup3-kickstart-image*> **system** <*sup3-system-image*> command again.

- **Problem**

  The switchover fails on the active supervisor-2E module before the switchover to the supervisor-3E module is initiated. The following syslog is displayed:

  ```
  <Tue Apr 30 10:02:47 2019> ERROR !! Switchover failed, aborting
  migration …
  ```

  Action to be performed

  Use the **migrate sup kickstart** <*sup3-kickstart-image*> **system** <*sup3-system-image*> command again.

- **Problem**

  In case the supervisor-3E module is not inserted within 30 minutes after using the **migrate sup kickstart** <*sup3-kickstart-image*> **system** <*sup3-system-image*> command, the switch will try to power up the powered-down supervisor-2E module in the standby slot on reaching the timeout of 30 minutes. If the standby supervisor-2E module fails to power up, the following syslog message is displayed before aborting migration:

  ```
  <Tue Apr 30 10:02:47 2019> ERROR !!! Failed to power up Standby Supervisor-2,
  Please power up manually using "no poweroff module <slot_num>" from config mode
  ```

  Action to be performed

  Use the **no poweroff module** <*slot-number*> command on the active supervisor 2E module to bring up the powered down standby supervisor 2E module in case the supervisor 3E module has not been inserted within 30 minutes after using the **migrate sup kickstart** <*sup3-kickstart-image*> **system** <*sup3-system-image*> command again.

- **Problem**

Once the supervisor-3E module is active after migration has been completed successfully, both the arbiter links of the F4- series I/O modules will be changed to 12G. After migration, in case the other link to the powered down supervisor-2E module is not automatically changed to 12G due to an error, the following syslog message is displayed:

```
Switch %$ VDC-1 %$ %BOOTVAR-2-F4_LC_ARB_LINK_SET_FAIL: ERROR!!! Failed to change
Standby Supervisor arbiter link for F4 linecard in slot <F4_linecard_slot>. Please run
'migrate clean' once migration process gets completed, but before replacing
Supervisor-2 (N77-SUP2E) in standby slot.
```

Action to be performed

After migration has been completed, use the **migrate clean** command before replacing the supervisor-2E module in the standby slot.

- **Problem**

  Setting of the boot variable parameters fails after migration when the supervisor-3E module becomes active. The following syslog is displayed:

  ```
  Switch# <Tue Apr 30 10:02:47 2019> Switch %$ VDC-1 %$ %BOOTVAR-2-
  SUP3_MIGRATION_CONFIG_ERROR: Setting boot parameters failed for Supervisor-3 (N77-
  SUP3E). Please set boot variables manually using 'boot kickstart <kickstart_image>'
  and 'boot system <system_image>' and save configs before replacing Standby
  Supervisor-2 (N77-SUP2E)
  ```

  Action to be performed

  Use the **boot kickstart** <*kickstart_image*> and the **boot system** <*system_image*> on the active supervisor 3E module when it becomes active after the migration has been completed.

Migration Clean Up

- In case any migration clean up errors have been detected on the supervisor-2E module, the following syslog message is displayed:

  ```
  <Tue Apr 30 10:02:47 2019> Please run 'migrate clean' before doing any
  operation.
  ```

  In such a scenario, use the **migrate clean** command to resolve the errors.

  ```
  switch# migrate clean
  <Tue May 28 03:34:58 2019> Manual-boot is disabled for Standby Supervisor
  <Tue May 28 03:34:58 2019> Migration clean up done
  ```

- In case the standby supervisor-3E's arbiter link for the F4 module is not changed, the following syslog message is displayed:

  ```
  <Tue Apr 30 10:02:47 2019> Switch %$ VDC-1 %$ %BOOTVAR-2-
  F4_LC_ARB_LINK_SET_FAIL: ERROR!!! Failed to change Standby Supervisor arbiter
  link for F4 linecard in slot <F4_linecard_slot>. Please run 'migrate clean'
  once migration process gets completed, but before replacing Supervisor-2 (N77-
  SUP2E) in standby slot.
  ```

  In such a scenario, use the **migrate clean** command to retry changing the arbiter link.

- In case any migration clean up errors have been detected on the supervisor-3E module, the following syslog message is displayed:

  ```
  <Tue Apr 30 10:02:47 2019> Switch %$ VDC-1 %$ %BOOTVAR-2-
  MIGRATION_CONFIG_CLEAN_ERROR: Please run 'migrate clean' command from active
  Supervisor before replacing the standby Supervisor.
  ```

In such a scenario, use the **migrate clean** command to resolve the errors.

```
switch# migrate clean
<Tue May 28 03:34:58 2019> Migration clean up done
```

- In case the **migrate clean** command is used on a supervisor-2E or a supervisor-3E module for which migration has not been initiated, the following syslog is displayed:

```
switch# migrate clean
<Tue May 28 03:34:58 2019> Migration was not done on this Supervisor
```

Installing or Replacing an I/O Module

Before you begin

- You must follow ESD protocols, including the following:
  - You must wear a grounded ESD wristband (or other personal grounding device) whenever you handle the electronic modules outside the grounded chassis.
  - You must carry electronic modules by only their covered edges or handles. Do not touch their electronic components.
  - Whenever a module is outside a grounded chassis, place it flat on an antistatic surface or in an antistatic bag. Never lean the module on anything nor place anything else on top of the module nor lean anything on the module.
- Verify that the chassis is grounded.
- Verify that you have the following tools and equipment:
  - Number 1 Phillips torque screwdriver

Note Manual torque screwdrivers are recommended. Be sure to never exceed the recommended torque setting for the screw that you are working with.

  - Replacement or new I/O module

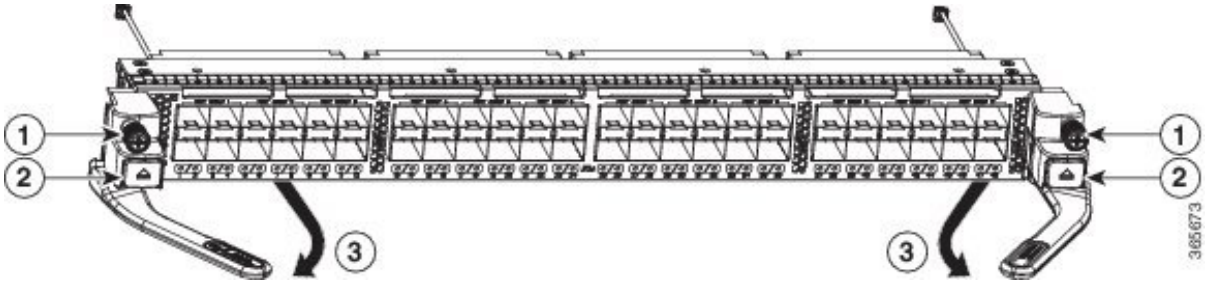
Note You can replace an I/O module with another I/O module while the switch is operational. To do this action, you must first remove an I/O module from the chassis, and then install a new or replacement I/O module in the newly vacated slot within a couple of minutes to maintain the designed airflow.

Step 1 Open a slot in the chassis for the new I/O module as follows:

Note If you need to remove a blank filler plate from the slot, unscrew the captive screws on either side of the module and pull the handle on the plate to remove it from the slot. Continue with Step 2.

a) Disconnect all of the networking cables attached to the front of the I/O module to be removed.
b) Unscrew the captive screw on each side of the module until the screws are loose and no longer connected to the chassis (see Callout 1 in the following figure).

Figure 5: Removing an I/O Module



1	Loosen the two captive screws	3	Two handles spring out part way from the front of the module
2	Press the two ejector buttons		

c) Press the two ejector buttons on the each side of the module (see Callout 2 in the above figure).

   The two handles spring out part way from the front of the module.

d) Fully rotate the two handles away from the front of the module and pull on them to move the module part way out of its slot.
e) Place one hand under the module to support its weight, grasp the front of the module with the other hand, pull the module fully out of its slot, and set the module on an antistatic surface.

   Caution Do not touch any electrical circuitry on the removed I/O module. Handle the module only by its covered surfaces (front and bottom of the module) and always set the module on an antistatic surface when it is not inside the chassis.

Step 2 Install the new I/O module in the open slot as follows:

a) Unpack the new I/O module, set it right side up on an antistatic surface (so that you can see the electrical components from above the module), and inspect the module for damage.

   If anything is damaged, contact your customer representative immediately.

b) Press the two eject buttons (one on each side of the module front) and rotate the handles away from the front of the module.
c) Without touching any electronic circuitry, grasp the front of the I/O module with one hand, place your other hand under the module to support its weight, and lift the module to the slot.
d) Align the back of the module to the guides inside the slot, and slide the module fully into the slot by pushing on the front of the module.

   If you push the module fully into the slot, you seat it onto its connectors inside the slot and the handles move part way toward the front of the module. The front of the module should be 1/4 inch (0.6 cm) out of the slot.

e) Simultaneously rotate each of the two handles to the front of the module until they click.

   As you rotate the handles to the front of the module, the module should move fully into the slot.

f) Verify that the front of the module is even with the fronts of the other installed I/O modules. If not, press both ejector buttons, pull on the handles to partly remove the module, and repeat Steps 2d and 2e to reseat the module in the slot.

g) Screw in the two captive screws (one on each side of the module) to secure the module to the chassis. Tighten the screws to 8 in-lb (0.9 N·m) of torque.

The Status module LED should be green. If not, see I/O Module LEDs for information about the LED states.

h) Attach networking cables to the I/O ports.

The LED for each port should be green. If not, see I/O Module LEDs for information about the LED states.

Replacing a Fan Tray

You can replace a fan tray module during operations so long as there are at least two other fan tray modules operating in the chassis. We recommend that you put a switch in fan tray maintenance mode before removing a fan tray. You can also remove a fan tray in order to replace one of the two fabric modules installed behind it. When not replacing a fan tray or a fabric module, there should be three fan trays operating in the chassis.

Note You have up to 72 hours to replace one fan tray as long as the switch air-inlet temperature does not exceed 86° Fahrenheit (30° C). If the temperature exceeds 86° Fahrenheit (30° C), the switch will shut down in 3 minutes. If you remove more than one fan tray at a time, the switch can operate up to three minutes before shutting down. To prevent a shutdown, remove only one fan tray at a time.

Starting from Cisco NX-OS Release 7.2(0)D1(1), use the **hardware fan-tray maintenance-mode** [**long** | **medium** | **short**] command to prepare a switch for fan tray removal. By default, the fans run at 100 percent speed for approximately 4 minutes to prepare for fan tray removal when the **hardware fan-tray maintenance-mode** command is used. Starting from Cisco NX-OS Release 8.1(1), by default, the fans run at 85 percent speed for approximately 4 minutes to prepare for fan tray removal when the **hardware fan-tray maintenance-mode** command is used.

Use the **long** keyword to run the fans at 65 percent speed for approximately 9 minutes to prepare for fan tray removal. Use the **medium** keyword to run the fans at 75 percent speed for approximately 6 minutes to prepare for fan tray removal. Use the **short** keyword to run the fans at 85 percent speed for approximately 4 minutes to prepare for fan tray removal. For more information about the **hardware fan-tray maintenance-mode**, see Cisco Nexus 7000 Series NX-OS System Management Command Reference.

The fan tray maintenance mode will be cancelled in the following cases:

- If a temperature alarm is present.
- Hot-inlet temperature (Sup inlet temperature >= 30 degrees Celsius)
- Fan-tray is absent.
- Post-cool period (time elapsed after fan tray removal) has crossed 4 minutes.

Note Fan tray maintenance mode is cancelled and fan speed is set to normal if fan tray migration or replacement is completed within 2 minutes of using the **hardware fan-tray maintenance-mode** command. If fan tray migration or replacement is not completed within 2 minutes, the remaining fan trays run at 85 percent speed for the next 2 minutes, and at 100 percent speed from then on.

- Pre-cool period (time elapsed before fan tray removal) has crossed 1 hour and 9 minutes—The fan tray has not been removed since the past 1 hour and 9 minutes during which the switch was ready for fan tray removal.

The following example shows the syslogs that are generated when the fan speed increases due to a minor temperature alarm:

```
2017 Apr 3 16:46:07 SWITCH %CARDCLIENT-2-SSE: XBAR:5 FABRIC ONLINE
2017 Apr 3 16:46:07 SWITCH %PLATFORM-5-MOD_STATUS: Fabric-Module 5 current-status is
MOD_STATUS_ONLINE/OK
2017 Apr 3 16:46:07 SWITCH %MODULE-5-XBAR_OK: Xbar 5 is online (Serial number: JAE1921079X)
2017 Apr 3 16:47:00 SWITCH %PLATFORM-2-MOD_TEMPMINALRM: Xbar-5 reported minor temperature
alarm. Sensor=1 Temperature=48 MinT
hreshold=20
2017 Apr 3 16:47:00 SWITCH %VSHD-5-VSHD_SYSLOG_CONFIG_I: Configured from vty by admin on
vsh.12644
2017 Apr 3 16:47:35 SWITCH %PLATFORM-6-PFM_INFO: Fan Zone 1 : Fan Speed will change from
45.88(0x75) to 54.12(0x8a)
2017 Apr 3 16:54:50 SWITCH %PLATFORM-2-PFM_MODULE_POWER_OFF: Manual power-off of Xbar 5
from Command Line Interface
2017 Apr 3 16:54:50 SWITCH %PLATFORM-5-XBAR_PWRDN: Xbar 5 powered down (Serial number
JAE1921079X)
2017 Apr 3 16:54:50 SWITCH %PLATFORM-5-MOD_STATUS: Fabric-Module 5 current-status is
MOD_STATUS_CONFIGPOWERED_DOWN
2017 Apr 3 16:54:50 SWITCH %PLATFORM-5-MOD_STATUS: Fabric-Module 5 current-status is
MOD_STATUS_POWERED_DOWN
2017 Apr 3 16:58:40 SWITCH %PLATFORM-6-PFM_INFO: Fan Zone 1 : Fan Speed will change from
54.12(0x8a) to 45.88(0x75)
2017 Apr 3 17:00:41 SWITCH %PLATFORM-2-PFM_MODULE_POWER_ON: Manual power-on of Xbar 5 from
 Command Line Interface
2017 Apr 3 17:00:41 SWITCH %PLATFORM-2-XBAR_DETECT: Xbar 5 detected (Serial number
JAE1921079X)
2017 Apr 3 17:00:41 SWITCH %PLATFORM-5-XBAR_PWRUP: Xbar 5 powered up (Serial number
JAE1921079X)
2017 Apr 3 17:00:41 SWITCH %PLATFORM-5-MOD_STATUS: Fabric-Module 5 current-status is
MOD_STATUS_POWERED_UP
2017 Apr 3 17:00:59 SWITCH %CARDCLIENT-2-SSE: XBAR:5 FABRIC ONLINE
```

The following example shows the syslogs displaying the fan tray maintenance mode being cancelled after the post-cool period of 4 minutes is completed:

```
2017 Apr 3 16:20:08 SWITCH %PLATFORM-2-PFM_CRITICAL: FAN_MAINTENANCE_MODE: system is ready
 for fan-removal.
2017 Apr 3 16:21:07 SWITCH %PLATFORM-2-FAN_REMOVED: Fan module 1(Serial number NCV2108V017)
 Fan1(sys_fan1) removed
2017 Apr 3 16:21:08 SWITCH %PLATFORM-6-PFM_INFO: Fan Zone 1 : Fan Speed will change from
85.10(0xd9) to 74.90(0xbf)
2017 Apr 3 16:21:11 SWITCH %PLATFORM-1-PFM_ALERT: System shutdown in 3 days 0 hours 0 mins
 0 seconds due to fan policy __pfm_
fanabsent_any_singlefan for fan1
2017 Apr 3 16:23:09 SWITCH %PLATFORM-6-PFM_INFO: Fan Zone 1 : Fan Speed will change from
```

```
74.90(0xbf) to 85.10(0xd9)
2017 Apr 3 16:25:09 SWITCH %PLATFORM-6-PFM_INFO: Fan Zone 1 : Fan Speed will change from
85.10(0xd9) to 100.00(0xff)
2017 Apr 3 16:25:33 SWITCH %PLATFORM-5-FAN_DETECT: Fan module 1(Serial number NCV2108V017)
 Fan1(sys_fan1) detected
2017 Apr 3 16:25:33 SWITCH %PLATFORM-5-FAN_STATUS: Fan module 1(Serial number NCV2108V017)
 Fan1(sys_fan1) current-status is F
AN_OK
2017 Apr 3 16:25:33 SWITCH %PLATFORM-2-FANMOD_FAN_OK: Fan module 1(Fan1(sys_fan1) fan) ok
2017 Apr 3 16:25:33 SWITCH %PLATFORM-6-PFM_INFO: Fan Zone 1 : Fan Speed will change from
100.00(0xff) to 45.88(0x75)
2017 Apr 3 16:25:33 SWITCH %PLATFORM-2-PFM_CRITICAL: FAN_MAINTENANCE_MODE_CANCELLED:
Reason(s): Temperature alarm: No, Superv
isor hot-inlet: No, Absent fans count: 0, Precool period completed: N/A, Postcool period
completed: Yes, Total maint. duratio
n: 564 seconds
```

If you need to remove the fan tray to replace a fabric module, see Installing or Replacing a Fabric Module, on page 38.

Note The fan tray displays the fabric module LEDs so that you can see the status of the two fabric modules installed behind that fan tray.

Before you begin

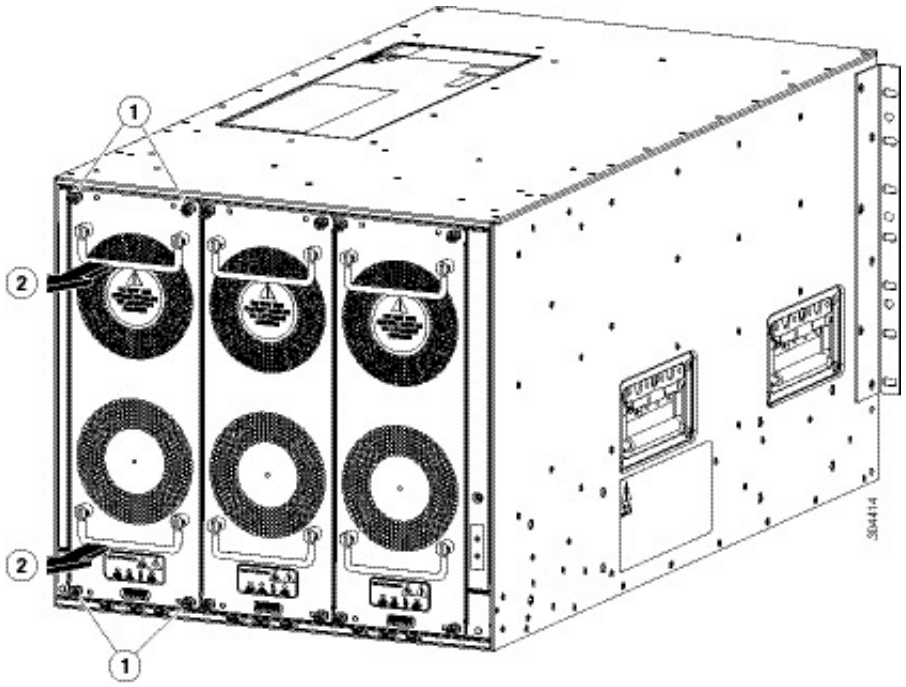
- You must follow ESD protocols, including the following:
  - You must wear a grounded ESD wristband (or other personal grounding device) whenever you handle the electronic modules outside the grounded chassis.
  - You must carry electronic modules by only their covered edges or handles. Do not touch their electronic components.
  - Whenever a module is outside a grounded chassis, place it flat on an antistatic surface or in an antistatic bag. Never lean the module on anything nor place anything else on top of the module nor lean anything on the module.
- Verify that the chassis is grounded.
- Verify that you have the following tools and equipment:
  - ESD wrist strap (or other personal grounding device)
  - Number 1 Phillips torque screwdriver

    Manual torque screwdrivers are recommended. Be sure to never exceed the recommended torque setting for the screw that you are working with.
  - Replacement fan tray
    - N77-C7706-FAN=
- Put the switch in fan tray maintenance mode.

Step 1 Remove the fan tray as follows:

a) Use a Phillips torque screwdriver to loosen the four captive screws on the fan tray until they are no longer connected to the chassis.
b) Grab both fan tray handles with both of your hands.
c) Pull the fan tray straight out of the slot.

Figure 6: Removing a Fan Tray



1	Unscrew four captive screws.	2	Pull on both handles to remove fan tray from the chassis.

d) Set the fan tray on an antistatic surface or inside an antistatic bag.

Caution Do not touch the electrical connectors on the back side and do not set the back side connectors on anything—always set a fan tray down on a covered side to protect its connectors.

Step 2 Install the new fan tray in the open slot as follows:

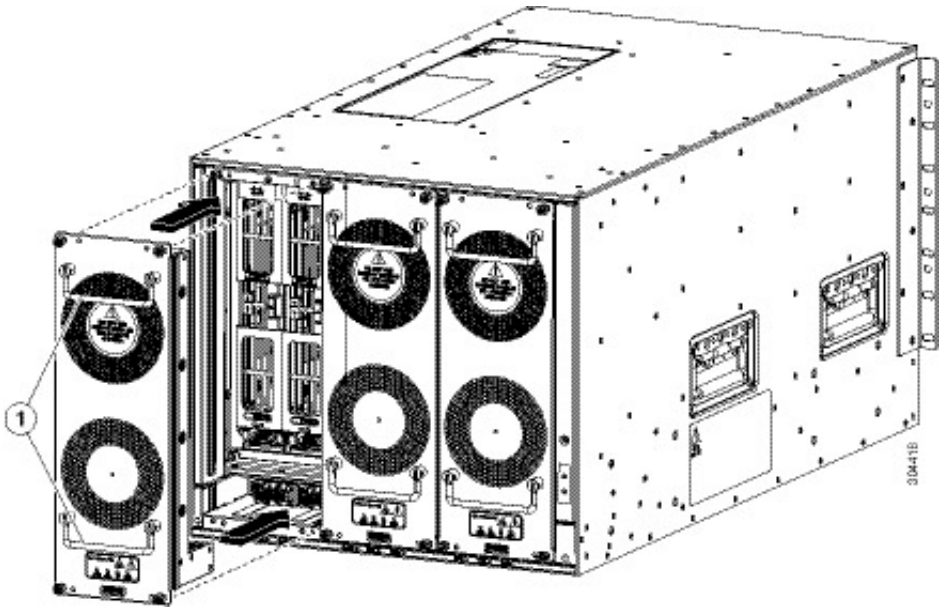
a) Unpack the new fan tray and inspect it for damage.

If anything is damaged or missing, contact your customer representative immediately.

b) Hold both fan tray handles with both of your hands and align the back side of the fan tray to the open fan tray slot.

Two alignment pins on the top and two alignment pins on the bottom should align to holes at the top and bottom of the fan tray slot.

Figure 7: Installing a Fan Tray



1	Hold both handles with both of your hands.	2	Position the alignment pins at the top and bottom of the fan tray to alignment holes in the chassis and press the fan tray into the slot.

c) Screw in each of the four captive screws to secure the fan tray to the chassis and tighten them to 8 in-lb (0.9 N·m) of torque.

Step 3 Verify that the fan tray is functioning by making sure that its Status LED is green.

For more information about the fan tray LEDs, see the I/O Module LEDs topic.

Migrating from Gen 1 Fan Trays (N77-C7706-FAN) to Gen 2 Fan Trays (N77-C7706-FAN-2)

Perform the steps given below to replace all the three Gen 1 fan trays in a switch with Gen 2 fan trays:

1. Put the switch in fan tray maintenance mode by using the **hardware fan-tray maintenance-mode** [**long** | **medium** | **short**] command.
2. Remove the left-most Gen 1 fan tray, FAN TRAY 1 (N77-C7706-FAN), from the switch.
3. Insert the Gen 2 fan tray (N77-C7706-FAN-2) into the empty fan tray slot.

Note The switch shuts down if a mix of Gen 1 (N77-C7706-FAN) and Gen 2 (N77-C7706-FAN-2) fan trays are present in the same switch for more than 21600 seconds (6 hours). The syslog message "PLATFORM-0-FAN_MISMATCH_TIME: Mismatch of Fan modules. Both Gen1 and Gen2 fans are present in the fantray for <*number*> seconds" is displayed at regular intervals when both Gen 1 and Gen 2 fan trays are present in the same switch.

4. Remove the Gen 1 fan tray from FAN TRAY 2.
5. Insert the Gen 2 fan tray into the empty fan tray slot.
6. Remove the Gen 1 fan tray from FAN TRAY 3.
7. Insert the Gen 2 fan tray into the empty fan tray slot.

The following example shows the syslogs that are generated when only one of the three installed Gen 2 fan trays is replaced by a Gen 1 fan tray, resulting in a fan tray mismatch:

```
2017 Apr 3 17:25:19 SWITCH %PLATFORM-2-FAN_REMOVED: Fan module 3(Serial number NCV2108V01K)
 Fan3(sys_fan3) removed
2017 Apr 3 17:25:19 SWITCH %PLATFORM-6-PFM_INFO: Fan Zone 1 : Fan Speed will change from
45.88(0x75) to 100.00(0xff)
2017 Apr 3 17:25:32 SWITCH %PLATFORM-5-FAN_DETECT: Fan module 3(Serial number DCH1910A06N)
 Fan3(sys_fan3) detected
2017 Apr 3 17:25:32 SWITCH %PLATFORM-5-FAN_STATUS: Fan module 3(Serial number DCH1910A06N)
 Fan3(sys_fan3) current-status is F
AN_OK
2017 Apr 3 17:25:32 SWITCH %PLATFORM-2-FANMOD_FAN_OK: Fan module 3(Fan3(sys_fan3) fan) ok
2017 Apr 3 17:25:32 SWITCH %PLATFORM-6-PFM_INFO: Fan Zone 1 : Fan Speed will change from
100.00(0xff) to 80.00(0xcc)
2017 Apr 3 17:25:32 SWITCH %PLATFORM-0-FAN_MISMATCH_TIME: Mismatch of Fan modules. Both
Gen1 and Gen2 fans are present in the
fantray for 1 seconds
2017 Apr 3 17:25:37 SWITCH %PLATFORM-1-PFM_ALERT: System shutdown in 0 days 6 hours 0 mins
 0 seconds due to fan policy __pfm_
fanpresent_mismatch for AllFans
2017 Apr 3 17:25:41 SWITCH %PLATFORM-0-FAN_MISMATCH_TIME: Mismatch of Fan modules. Both
Gen1 and Gen2 fans are present in the
fantray for 9 seconds
2017 Apr 3 17:25:51 SWITCH %PLATFORM-0-FAN_MISMATCH_TIME: Mismatch of Fan modules. Both
Gen1 and Gen2 fans are present in the
fantray for 19 seconds
2017 Apr 3 17:26:01 SWITCH %PLATFORM-0-FAN_MISMATCH_TIME: Mismatch of Fan modules. Both
Gen1 and Gen2 fans are present in the
fantray for 29 seconds
2017 Apr 3 17:26:11 SWITCH %PLATFORM-0-FAN_MISMATCH_TIME: Mismatch of Fan modules. Both
Gen1 and Gen2 fans are present in the
fantray for 39 seconds
2017 Apr 3 17:26:21 SWITCH %PLATFORM-0-FAN_MISMATCH_TIME: Mismatch of Fan modules. Both
Gen1 and Gen2 fans are present in the
fantray for 49 seconds
2017 Apr 3 17:26:31 SWITCH %PLATFORM-0-FAN_MISMATCH_TIME: Mismatch of Fan modules. Both
Gen1 and Gen2 fans are present in the
fantray for 59 seconds
2017 Apr 3 17:26:37 SWITCH %PLATFORM-1-PFM_ALERT: System shutdown in 0 days 5 hours 59 mins
 0 seconds due to fan policy __pfm
_fanpresent_mismatch for AllFans
2017 Apr 3 17:26:41 SWITCH %PLATFORM-0-FAN_MISMATCH_TIME: Mismatch of Fan modules. Both
Gen1 and Gen2 fans are present in the
```

```
fantray for 69 seconds
2017 Apr 3 17:26:51 SWITCH %PLATFORM-0-FAN_MISMATCH_TIME: Mismatch of Fan modules. Both
Gen1 and Gen2 fans are present in the
fantray for 79 seconds
2017 Apr 3 17:27:01 SWITCH %PLATFORM-0-FAN_MISMATCH_TIME: Mismatch of Fan modules. Both
Gen1 and Gen2 fans are present in the
fantray for 89 seconds
2017 Apr 3 17:27:11 SWITCH %PLATFORM-0-FAN_MISMATCH_TIME: Mismatch of Fan modules. Both
Gen1 and Gen2 fans are present in the
fantray for 99 seconds
2017 Apr 3 17:27:17 SWITCH %PLATFORM-2-FAN_REMOVED: Fan module 3(Serial number DCH1910A06N)
 Fan3(sys_fan3) removed
2017 Apr 3 17:27:17 SWITCH %PLATFORM-6-PFM_INFO: Fan Zone 1 : Fan Speed will change from
80.00(0xcc) to 100.00(0xff)
2017 Apr 3 17:27:36 SWITCH %PLATFORM-5-FAN_DETECT: Fan module 3(Serial number NCV2108V01K)
 Fan3(sys_fan3) detected
2017 Apr 3 17:27:36 SWITCH %PLATFORM-5-FAN_STATUS: Fan module 3(Serial number NCV2108V01K)
 Fan3(sys_fan3) current-status is F
AN_OK
2017 Apr 3 17:27:36 SWITCH %PLATFORM-2-FANMOD_FAN_OK: Fan module 3(Fan3(sys_fan3) fan) ok
2017 Apr 3 17:27:36 SWITCH %PLATFORM-6-PFM_INFO: Fan Zone 1 : Fan Speed will change from
100.00(0xff) to 45.88(0x75)
```

Installing or Replacing a Fabric Module

The fabric modules are located as follows behind the fan trays on the back side of the chassis:

- Fabric slots 1 and 2 are behind fan tray slot 1
- Fabric slots 3 and 4 are behind fan tray slot 2
- Fabric slots 5 and 6 are behind fan tray slot 3

When the fan trays are installed, they display the LED states for the fabric modules installed behind them.

You can install a fabric module during operations so long as there is at least one other fabric module installed and functioning in the chassis. To install or replace a fabric module, you must first remove the fan tray that is in front of the fabric module. If the chassis has fewer than six fabric modules, leave the empty slots unfilled—the fan tray that you place outside the fabric modules maintains the designed airflow for the chassis.

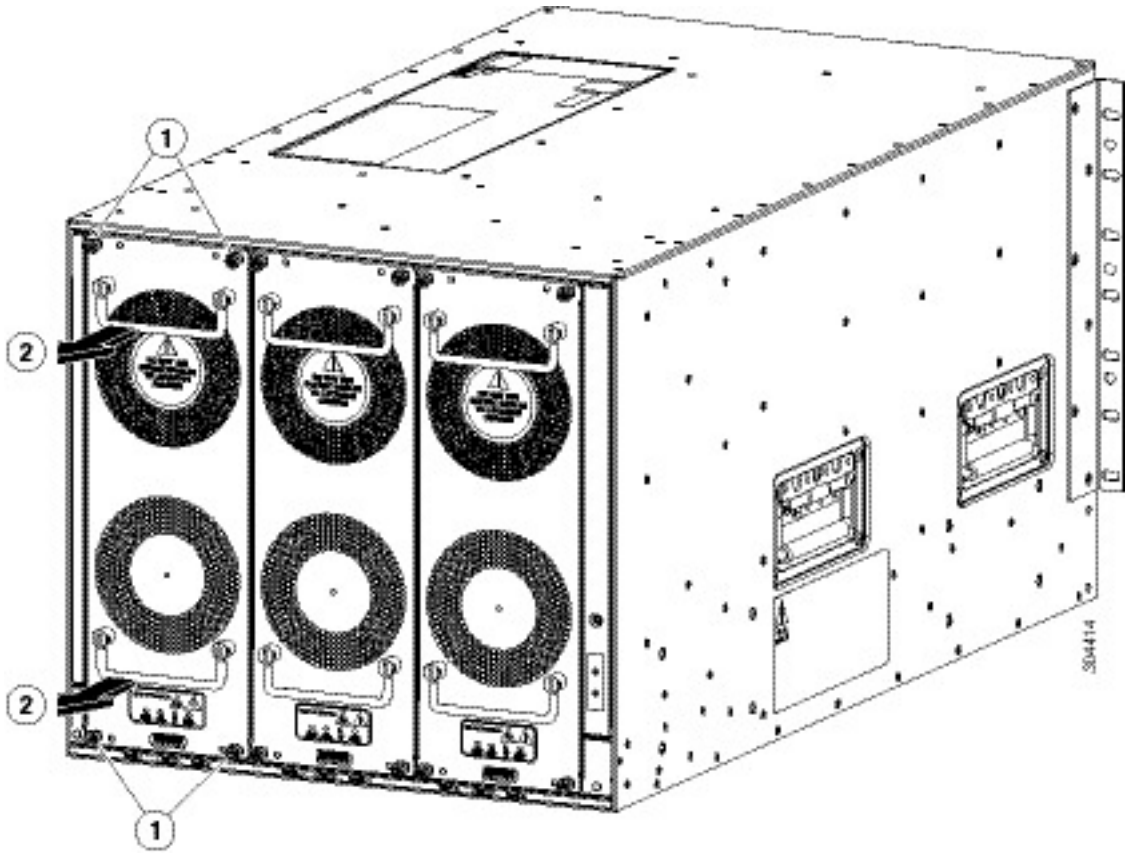
Before you begin

- The chassis must be grounded.
- You must be wearing wearing an ESD wrist strap (or other ESD prevention device) that is connected to the ESD port on the grounded chassis.
- Starting from Cisco NX-OS Release 7.2(0)D1(1), put the switch in fan tray maintenance mode to prepare the switch for fan tray removal.

Step 1 Remove the fan tray that covers the fabric module that you are replacing by following these steps:

a) Loosen four captive screws on the fan tray until they are loose and are no longer connected to the chassis.
b) Grab both handles with both of your hands and pull the bottom of the fan tray out so that its connectors disconnect from the chassis (see the following figure).

Figure 8: Removing a Fan Tray



1	Unscrew four captive screws until they are no longer attached to the chassis.	2	Pull both handles to remove the module from the chassis.

c) After the connectors are free of the chassis connections, pull whole fan tray off the chassis.
d) Set the fan tray down on one of its covered sides only on an antistatic pad or inside an antistatic bag.

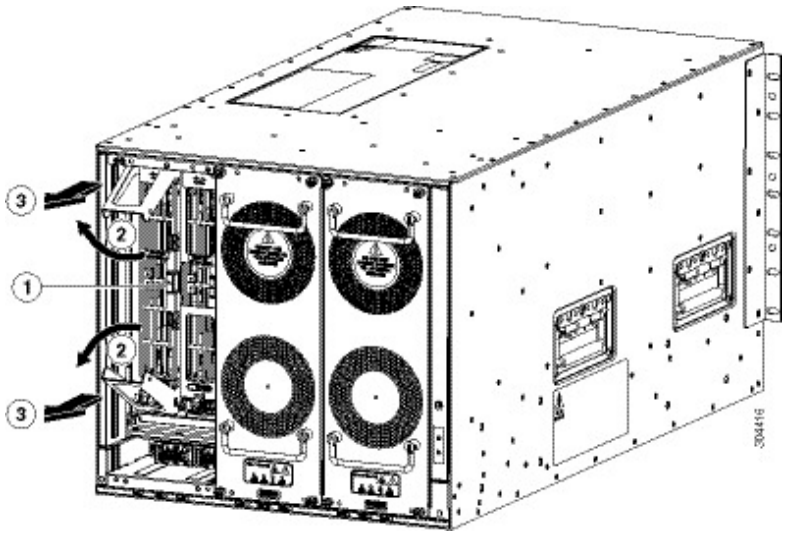
Caution Do not touch the electrical connectors on the back side and do not set the back side connectors on anything—always set a fan tray down on a covered side to protect the connectors.

Step 2 If you need to open a fabric slot for the new fabric module, remove a fabric module as follows:

a) With your face at least 12 inches (30 cm) away from the front of the fabric module, press both ejector buttons on the front of the module (see Callout 1 in the following figure).

Caution Keep your face away from the front of the fabric module so that the levers do not hit your face when they spring out from the front of the module.

Figure 9: Unlocking a Fabric Module from its Slot



1	Press the eject button.	3	Pull the handles to partially remove the module from the slot.
2	Handles spring out from the module.		

b) Grasp each of the two levers with your two hands and fully rotate the levers out 90 degrees from the fabric module.
c) Pull both levers until the fabric module is about 3 inches (7 cm) out of the chassis (see Callout 3 in the previous figure).
d) Rotate both levers back to the front of the module.

   Each lever clicks when it locks in place at the front of the module.

e) Grasp the front of the module with one hand, place the other hand under the module to support its weight, and pull the module out of the slot (see Callout 2 in the previous figure).

   Caution Be careful not to touch any electrical contacts on the back of the module. Handle only covered sides or edges of the module.

f) Place the module on an antistatic surface or inside an antistatic bag.

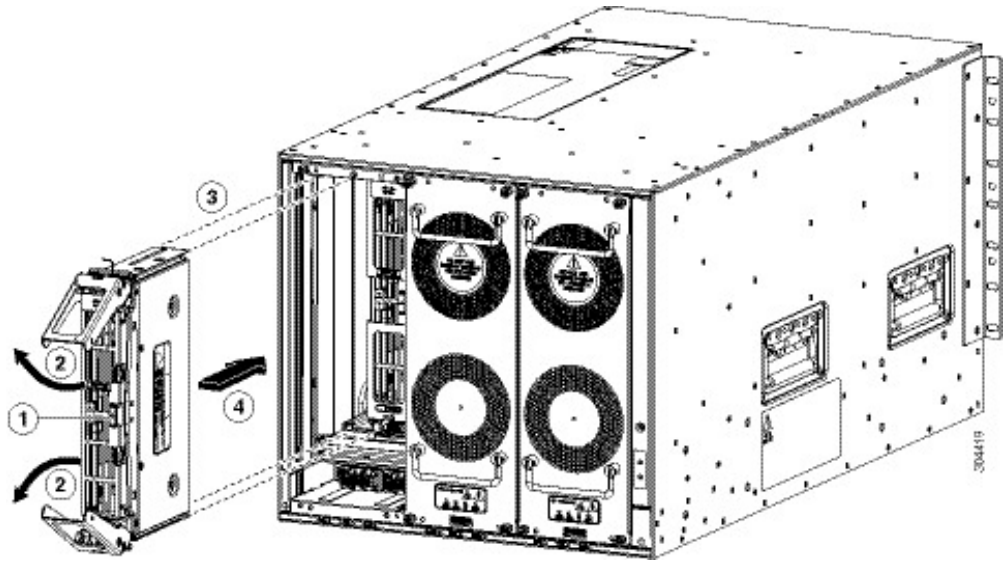
Step 3 Install the new fabric module in the chassis as follows:

a) Unpack the new fabric module and inspect it for damage.

   If anything is damaged or missing, contact your customer representative immediately.

b) Hold the front of the module with one hand and place the other hand under the module.
c) Rotate the module clockwise and align the back of the module to the module guides at the top and bottom of the open fabric slot in the chassis.
d) Push the module half way into the slot (see the following figure).

Figure 10: Inserting the Fabric Module into the Chassis



1	Align the module with the guides in the open slot and push the module half way into the slot.	3	Handles spring out from the module.
2	Press both eject buttons.		

e) With your face away from the fabric module, press both ejector buttons on the front of the module.

Caution Keep your face at least 12 inches (30 cm) from the front of the fabric module so that the ejector handles do not hit your face when they spring out from the front of the module.

Both ejector handles spring out from the front of the module (see Callout 2 in the previous figure).

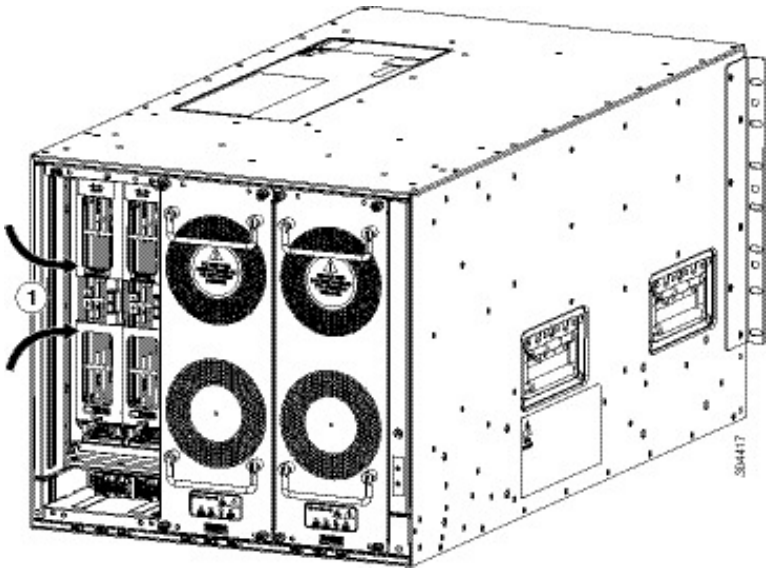
f) Grasp both handles, fully rotate the levers 90 degrees from the front of the module, and push the module all the way into the slot until it seats.

The front of the module will be about 1/4 inch out from the installed fabric modules.

g) Simultaneously rotate both handles to the front of the module while pressing the module further into the slot (see Callout 1 in the following figure).

The handles click when fully rotated to the front of the module.

Figure 11: Securing the Fabric Module to the Slot



1	Rotate the handles to the front of the module until they click.		

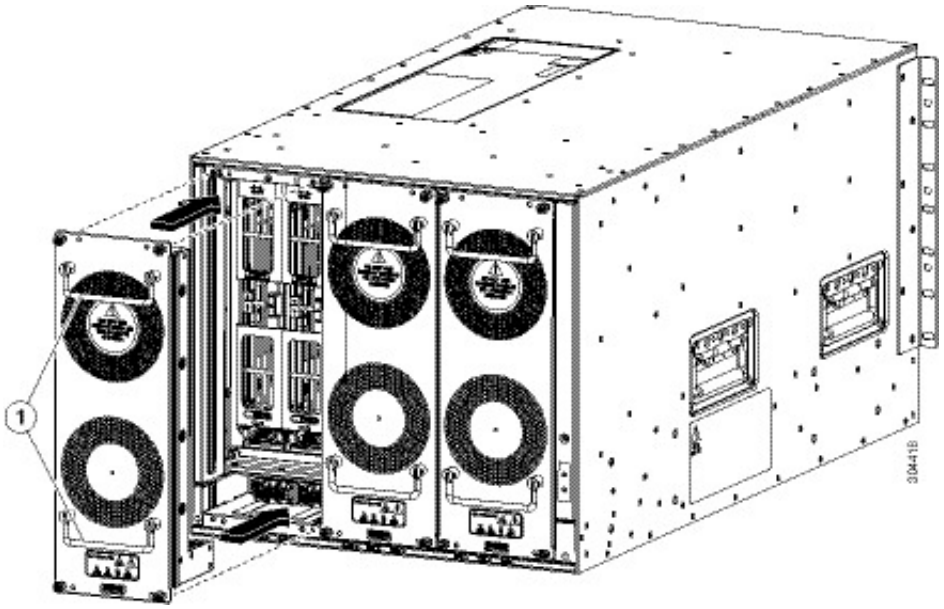
h) Verify that the module is secured to the chassis and that you cannot remove it without pressing the eject buttons.

Step 4 Reinstall the fan tray over the installed fabric module as follows:

a) Hold both fan tray handles with both of your hands and align the back side of the fan tray to the open fan tray slot.

Two alignment pins on the top and two alignment pins on the bottom should align to holes at the top and bottom of the fan tray slot.

Figure 12: Installing a Fan Tray



1	Hold both handles with both of your hands.	2	Position the alignment pins at the top and bottom of the fan tray to alignment holes in the chassis and press the fan tray into the slot.

b) With the electrical contacts on the fan tray aligned to contacts on the back plane, press the fan tray fully into the slot.

The front of the fan tray should be even with the fronts of the other fan trays and the four captive screws on the fan tray should be aligned to four screw holes in the chassis.

c) Screw in each of the four captive screws on the front of the fan tray to secure the fan tray to the chassis. Tighten each screw to 8 in-lb (0.9 N·m) of torque.

d) Verify that the Status LED is green. For more information about the LED states, see I/O Module LEDs.

Replacing Fabric 2 Modules with Fabric 3 Modules

If you are running Cisco NX-OS 8.3(1) or a later release on a Cisco Nexus 7706 switch, you can replace all the Fabric 2 modules with Fabric 3 modules. You can replace the modules during operations if you replace each module within a couple of minutes so that the switch can maintain its designed airflow. The replacement procedure is non-disruptive to switch operations if there is at least one fabric module installed and operating in the switch while you replace the other fabric module.

To replace Fabric 2 modules with Fabric 3 modules, follow these steps:

Step 1 Verify that the switch is running Cisco NX-OS Release 8.3(1) or a later release.

Step 2 Replace the Fabric 2 module that is in the lowest numbered fabric slot.

Step 3 Enter the **show module xbar** command, as shown in the example below, to display the types of fabric modules installed in the fabric slots.

```
switch# show module xbar
Xbar Ports  Module-Type                          Model              Status
---  -----  ----------------------------------- ------------------ ----------
1    0      Fabric Module 3                     N77-C77xx-FAB-3    ok
3    0      Fabric Module 3                     N77-C77xx-FAB-3    ok
5    0      Fabric Module 3                     N77-C77xx-FAB-3    ok

Xbar Sw               Hw
---  ---------------  ------
1    NA               0.509
3    NA               0.509
5    NA               0.505


Xbar MAC-Address(es)                         Serial-Num
---  --------------------------------------  ----------
1    NA                                      JAE214105ZS
3    NA                                      JAE214105ZV
5    NA                                      JAE2122035C

* this terminal session
```

Step 4 If one or more of the fabric modules is indicated as “Fabric Module 2,” repeat Step 2 to replace the Fabric 2 module with the Fabric 3 module and then repeat Step 3 to display the types of fabric modules installed in the fabric slots.

Recovery Procedure for Downgrading to Fabric 2 Modules from Fabric 3 Modules

This section describes the steps needed to downgrade from Fabric 3 modules to Fabric 2 modules if there are issues with the Fabric 3 upgrade.

Scenario 1

If both Fabric 2 and Fabric 3 modules are up in the switch (FAB2_FAB3 mode), then replace the Fabric 3 modules with the Fabric 2 modules.

Scenario 2

If the switch is loaded with Fabric 3 modules only (FAB3 mode), then migrating to Fabric 2 is disruptive. The Fabric 2 module will power down when the switch is in FAB3 mode.

Perform the steps given below to replace FAB3 modules with FAB2 modules when the switch is loaded with only FAB3 modules:

Step 1 Replace one FAB3 module with a FAB2 module. The switch is still in FAB3 mode.

Step 2 The FAB2 module will be in power down state.

Step 3 Repeat Step 1 to replace FAB3 modules with FAB2 modules in all slots until a single FAB3 module is remaining in the switch.

Step 4 Remove the last FAB3 module. The I/O modules will be powered down due to non-availability of Stage2 bandwidth.

Step 5 Insert a FAB2 module in the slot from which the last FAB3 module was removed. This FAB2 module will power up and all the I/O modules will also power up in FAB2 mode.

Step 6 After all the I/O modules come online, power up the remaining FAB2 modules by using the **no poweroff xbar** *moduleNumber* command.

Installing or Replacing a Power Supply in a Switch Chassis

You can install up to four power supplies of the following types:

- 3-kW AC power supply (N77-AC-3KW)
- 3-kW DC power supply (N77-DC-3KW)
- 3.5-kW HVAC/HVDC power supply (N77-HV-3.5KW)

If you leave any power supply slots empty, you must install a blank filler plate () in that slot to maintain the designed airflow.

You follow the same steps to install AC, DC and HVAC/HVDC power supplies into the switch, but you ground them differently. For an AC and HVAC/HVDC power supply, you automatically ground it when you connect its power cable to the power supply and the power source.

Before you begin

- The switch chassis must be installed in a cabinet or rack that is secured to the data center.

You need the following additional tools and equipment:

- Nut driver attachment for Number 1 Phillips-head screwdriver or ratchet wrench with torque capability (used only for DC power supplies)
- Crimping tool
- Grounding wire—Size this wire to meet local and national installation requirements. For U.S. installations, you must use a 6 AWG copper conductor. For installations outside the U.S., consult your local and national electrical codes. The length of the grounding wire depends on the proximity of the switch to proper grounding facilities.

Step 1 If you need to open a power supply slot for another power supply, follow these steps:

Note If you neet to remove a blank filler plate, unscrew its captive screws and pull it off the chassis. Go to Step 2.

a) Turn off the power for the power supply that you are removing, as follows:

1. Ensure that the power switch on the front of the power supply is set to standby (labelled as). The Output LED turns off.
2. Verify that the Output LED turns off. If the LED is still on, return to Step 1.
3. If you are removing a DC power supply, ensure that the power is turned off at the power source by turning off the power for that circuit, and verify that the Input LEDs turn off.

b) If you are removing a power supply, detach the power and ground cables as follows:

- For a AC power supply, unplug the power cables that are attached to the power supply and the power source.
- For a 3.5-kW HVAC/HVDC power supply, release the built-in latch and unplug the power cable from the power source.

c) Remove the power supply or blank filler plate from the power supply slot as follows:

Note To remove a blank filler plate, unscrew its captive screws and pull on its handle to remove the plate from the slot.

- For a 3.5-kW HVAC/HVDC power supply, disconnect the power cable from the power supply by pressing the release button on the power cable, pull the power supply part way out of the slot by its handle, place your other hand under the module to support its weight, and pull it fully from the slot.

Step 2 Install the new power supply in the open slot as follows:

a) Verify that the power switch on the front of the new power supply is set to standby (labelled as) and that the power supply is not connected to any power sources.

b) Hold the handle on the power supply with one hand, place your other hand under the power supply to support its weight, and position the power supply with its back end at the open power supply bay.
c) Slide the unit all the way into the power supply bay until one of the following situations occurs:
   - For a 3.5-kW power supply, the built-in latch secures the power cable to the power supply.

What to do next

- For an AC and HVAC/HVDC (when used with an input AC source) power supply, you must connect it to an AC power source (see the Connecting a 3-kW AC Power Supply to AC Power Sources and Connecting a 3.5-kW HVAC/HVDC Power Supply to AC Power Sources topic). The power supply will be automatically grounded through its power cable.

Connecting a 3-kW AC Power Supply to AC Power Sources

You use one power cord to connect a 3-kW power supply to its AC power source and to ground the power supply. Depending on the power mode that you use for the switch, you either connect all of the power supplies to one AC power source or you connect half of the power supplies to one AC power source and the other half to another AC power source:

- For combined power mode (no power redundancy), you need enough power supplies to power all switch operations and connect all of the power supplies to the same AC power source. You can install the power supplies in any open power supply slot in the chassis.
- For power supply redundancy mode (*n*+1 redundancy mode), you need enough power supplies to power all switch operations and one extra power supply that can replace a failing power supply. You connect all power supplies to the same AC power source. You can install the power supplies in any open power supply slot in the chassis.
- For input source redundancy (grid redundancy) mode or full redundancy mode, you need twice the number of power supplies needed to power the switch operations. You connect half of the power supplies to one power source for active power and the other half to another power source for redundant power. You must ensure that the power supplies on the left side of the chassis are connected to one grid and that the power supplies on the right side of the chassis are connected to the other grid.

Before you begin

Before you connect power supplies to one or two power sources, ensure all of the following:

- You have receptacles for one or two AC power sources within reach of the power supply cables. The number of power sources depends on the power mode to be used for the switch.
  - Combined power (no power redundancy)—One AC power source
  - Power supply redundancy (*n*+1 redundancy)—One AC power source
  - Input source redundancy (power-grid redundancy)—Two AC power sources
  - Full redundancy—Two AC power sources
- The AC power sources are rated as follows:

- For North American installations—20A with 110V or 220V circuits.
- For international installations—size the circuits by local and national standards.

- The power supply is already installed in the chassis.
- The chassis is connected to an earth ground.

Step 1 Ensure that the power supply switch located on the front of the power supply is set at standby (labeled as 0).

Step 2 Plug one AC power cable into the power supply, and pull down the retention clip over the plug on the power cable.

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

Note If you are using the combined power mode or power supply redundancy, you connect the power cables to the same 20-A circuit. If you are using the input source redundancy mode or full redundancy mode, you connect half of the power cables to one AC power source and the other half to another AC power source.

Warning To reduce risk of electric shock and fire, take care when connecting units to the supply circuit so that wiring is not overloaded.

Statement 1018

Warning This product relies on the building's installation for short-circuit (overcurrent) protection. To reduce risk of electric shock or fire, ensure that the protective device is rated not greater than:

250V, 20 A

Statement 1005

Step 4 Turn the power supply switch from standby to on (from 0 to 1 as labeled on the power switch).

Step 5 Verify that the power supply is receiving AC power and outputting DC power by making sure that the INPUT and OUTPUT power supply LEDs are lit and the FAULT LED is not lit or flashing. For an explanation of all the power supply LEDs and the conditions that they indicate, see Table D-5.

Note When you first activate the power supply, you can verify the functionality of the LEDs by checking that each LED turns on for a couple of seconds.

If the Fault LED is flashing red, turn the power switch to standby (labeled as 0), check the AC power connections on the power supply and the AC power source, and then turn the power switch back on (labeled as 1). The Input and Output LEDs for the connected power supplies should be green and the Fault LED should be off.

Connecting a 3.5-kW HVAC/HVDC Power Supply to AC Power Sources

You use one power cord to connect a 3.5-kW HVAC/HVDC power supply to its AC power source and to ground the power supply. Depending on the power mode that you use for the switch, you either connect all of the power supplies to one AC power source or you connect half of the power supplies to one AC power source and the other half to another AC power source:

- For combined power mode (no power redundancy), you need enough power supplies to power all switch operations and connect all of the power supplies to the same AC power source. You can install the power supplies in any open power supply slot in the chassis.

- For power supply redundancy mode (*n*+1 redundancy mode), you need enough power supplies to power all switch operations and one extra power supply that can replace a failing power supply. You connect all power supplies to the same AC power source. You can install the power supplies in any open power supply slot in the chassis.
- For input source redundancy (grid redundancy) mode or full redundancy mode, you need twice the number of power supplies needed to power the switch operations. You connect half of the power supplies to one power source for active power and the other half to another power source for redundant power. You must ensure that the power supplies on the left side of the chassis are connected to one grid and that the power supplies on the right side of the chassis are connected to the other grid.

Before you begin

Before you connect power supplies to one or two power sources, ensure all of the following:

- You have receptacles for one or two AC power sources within reach of the power supply cables. The number of power sources depends on the power mode to be used for the switch.
  - Combined power (no power redundancy)—One AC power source
  - Power supply redundancy (*n*+1 redundancy)—One AC power source
  - Input source redundancy (power-grid redundancy)—Two AC power sources
  - Full redundancy—Two AC power sources
- The AC power sources are rated as follows:
  - For North American installations—20A with 110V or 220V circuits.
  - For international installations—size the circuits by local and national standards.
- The power supply is already installed in the chassis.
- The chassis is connected to an earth ground.

Step 1 Ensure that the power supply switch located on the front of the power supply is set at standby (labeled as 0).

Step 2 Plug the AC power cable into the power supply. The built-in latch secures the power cable to the power supply. You can disconnect the power cable from the power supply by pressing the release button on the power cable.

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

Note If you are using the combined power mode or power supply redundancy, you connect the power cables to the same 20-A circuit. If you are using the input source redundancy mode or full redundancy mode, you connect half of the power cables to one AC power source and the other half to another AC power source.

Warning To reduce risk of electric shock and fire, take care when connecting units to the supply circuit so that wiring is not overloaded.

Statement 1018

Warning This product relies on the building's installation for short-circuit (overcurrent) protection. To reduce risk of electric shock or fire, ensure that the protective device is rated not greater than:

250V, 20 A

Statement 1005

Step 4 Turn the power supply switch from standby to on (from 0 to 1 as labeled on the power switch).

Step 5 Verify that the power supply is receiving AC power and outputting DC power by making sure that the INPUT and OUTPUT power supply LEDs are lit and the FAULT LED is not lit or flashing. For an explanation of all the power supply LEDs and the conditions that they indicate, see Table D-5.

Note When you first activate the power supply, you can verify the functionality of the LEDs by checking that each LED turns on for a couple of seconds.

If the Fault LED is flashing red, turn the power switch to standby (labeled as 0), check the power connections on the power supply and the AC power source, and then turn the power switch back on (labeled as 1). The Input and Output LEDs for the connected power supplies should be green and the Fault LED should be off.

Connecting DC Power Supplies with Power Sources

Connect each installed DC power supply with a DC power circuit as follows:

Note If you are using combined power mode (no power redundancy) or power supply (*n*+1) power mode, connect all of the power supplies to the same power circuit (grid).

If you are using input source (*n*+*n*) or full power mode, connect half of the power supplies (located in slots 1 and 2) to one AC power circuit and the other half of the power supplies (located in slots 3 and 4) to another AC power circuit.

Before you begin

- The power supplies are installed in the chassis.
- A DC power source is within reach of power cables that will be attached to the power supplies.
- Power cables are available to connect each DC power supply to the DC power source.

Step 1 Turn the power switch to standby (labeled 0 on the power switch).

Step 2 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 power supplies are off.

Warning Before performing any of the following procedures, ensure that power is removed from the DC circuit.

Statement 1003

Step 3 Size the power cables to the distance between the power supply and the DC power grid. If you need to cut the cable, cut it at the end that connects to the DC power grid, remove 0.75 inch (19 mm) of insulation from the cut ends, and attach them to the DC power system. Be sure to connect the negative cables to negative lines and positive cables to positive lines.

Note For all your power connections, if you are using cables with two different colors, use one color cable for all positive circuits and the other color for all negative circuits.

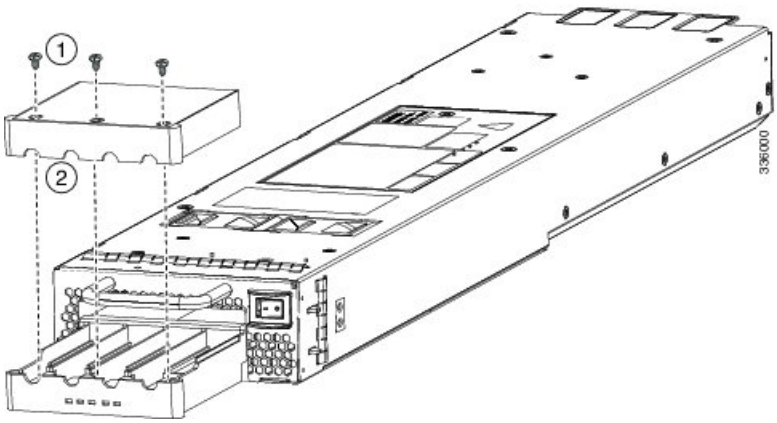
Warning Hazardous voltage or energy may be present on DC power terminals. Always replace the cover when the terminals are not in service. Be sure uninsulated conductors are not accessible when cover is in place.

Statement 1075

Step 4 Remove the three screws that hold down the safety cover for the terminal box on the front of the DC power supply and remove the cover (see the following figure).

Note The terminal box has four slots for four power terminals (ordered as negative [-], positive [+], positive [+], and negative [-]). Each terminal has two nuts that you use to fasten a power cable to the terminal.

Figure 13: Removing the Safety Cover for the Terminal Box on a 3-kW DC Power Supply



1	Remove three screws from the safety cover.	2	Remove the cover.

Step 5 Install four cables (two positive and two negative cables) in the four terminal slots as follows:

a) Unscrew the two nuts in each of the four terminal slots.
b) Attach and crimp each lug to the end of each power cable.
c) Attach each cable lug to the two terminal posts in each slot, fasten with two nuts, and tighten to 40 in-lb (4.5 N·m).

Note For all your power connections, if you are using cables with two different colors, use one color cable for all positive circuits and the other color for all negative circuits.

d) Replace the safety cover on the terminal box and fasten with three screws.

Step 6 Install the four cables from the DC power supply 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.

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 7 For the powered down circuits connected to the power supplies, turn on the power at the circuit breaker. The Input 1 (IN1) and Input 2 (IN2) LEDs turn on each connected power supply.

Step 8 Turn on the power supply by setting the power switch to 1. The LEDs should flash and then the Output LED should turn on in addition to the Input LEDs.

If the FAULT LED is lit or flashing, call Cisco TAC for assistance.

What to do next

You are ready to connect the switch to the network.

Connecting a 3.5-kW HVAC/HVDC Power Supply to DC Power Sources

You use one power cord to connect a 3.5-kW HVAC/HVDC power supply to its DC power source and to ground the power supply. Depending on the power mode that you use for the switch, you either connect all of the power supplies to one DC power source or you connect half of the power supplies to one DC power source and the other half to another DC power source.

Before you begin

Before you connect power supplies to one or two power sources, ensure all of the following:

- The power supply is already installed in the chassis.
- A DC power source is within reach of power cables that will be attached to the power supplies.
- Power cables are available to connect each HVAC/HVDC power supply to the DC power source.

Step 1 Ensure that the power supply switch located on the front of the power supply is set at standby (labeled as 0).

Step 2 Plug the DC power cable into the power supply. The built-in latch secures the power cable to the power supply. You can disconnect the power cable from the power supply by pressing the release button on the power cable.

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

Note Connect the power supply to the appropriate polarity and ground as indicated on the power cable plug or as marked on the ring lug cable.

Warning To reduce risk of electric shock and fire, take care when connecting units to the supply circuit so that wiring is not overloaded.

Statement 1018

Warning This product relies on the building's installation for short-circuit (overcurrent) protection. To reduce risk of electric shock or fire, ensure that the protective device is rated not greater than:

250V, 20 A

Statement 1005

Step 4 Turn the power supply switch from standby to on (from 0 to 1 as labeled on the power switch).

Step 5 Verify that the power supply is receiving DC power by making sure that the INPUT and OUTPUT power supply LEDs are lit and the FAULT LED is not lit or flashing. For an explanation of all the power supply LEDs and the conditions that they indicate, see Table D-5.

Note When you first activate the power supply, you can verify the functionality of the LEDs by checking that each LED turns on for a couple of seconds.

If the Fault LED is flashing red, turn the power switch to standby (labeled as 0), check the HVAC/HVDC power connections on the power supply and the DC power source, and then turn the power switch back on (labeled as 1). The Input and Output LEDs for the connected power supplies should be green and the Fault LED should be off.