

Dell EMC ES40 Expansion Shelf Guide

Version 7.0

Field Replacement Unit Guide

Rev 02

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Preface

Contact your Dell EMC technical support professional if a product does not function properly or does not function as described in this document.

 **Note:** This document was accurate at publication time. Go to the Dell EMC Online Support site, <https://support.emc.com/>, to ensure that you are using the latest version of this document.

Purpose

This guide describes the steps to replace failed components on shelves.

Audience

This guide is for trained service personnel who are authorized to install and repair systems and users of this product.

Related Documentation

The following system documents provide additional information:

- *DD OS Release Notes*
- *DD OS Administration Guide*
- *DD OS Command Reference Guide*
- The system installation and setup guides for each of the supported platforms (for example, DD9500 and DD9800)
- System specific safety and regulatory information

Special Notice Conventions Used in this Document

The following conventions for special notices are used:

 **WARNING** Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

 **CAUTION** Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

 **NOTICE** Addresses practices that are not related to personal injury.

 **Note:** Presents information that is important, but not hazard-related.

Typographical conventions

This document uses the following type style conventions in this document:

Bold Use for names of interface elements, such as names of windows, dialog boxes, buttons, fields, tab names, key names, and menu paths (what the user specifically selects or clicks)

Italic Use for full titles of publications referenced in text

Monospace Use for:

- System code
- System output, such as an error message or script

- Pathnames, filenames, prompts, and syntax
- Commands and options

<i>Monospace italic</i>	Use for variables
Monospace bold	Use for user input
[]	Square brackets enclose optional values
	Vertical bar indicates alternate selections - the bar means “or”
{ }	Braces enclose content that the user must specify, such as x or y or z
...	Ellipses indicate nonessential information that is omitted from the example

Technical support

To resolve issues with Dell EMC products, contact your contracted support provider or go to <https://support.emc.com/>.

Your comments

Your suggestions help us continue to improve the accuracy, organization, and overall quality of the user publications. Send your opinions of this document to DPAD.Doc.Feedback@emc.com.

Revision history

Table 1 Document revision history

Revision	Date	Description
02	October 2019	Editorial update.
01	September 2019	Initial publication.

Removing and replacing FRUs

- [Common procedures](#) 14
- [Power Cooling Module Replacement](#)..... 17
- [Controller Replacement](#)..... 22
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Common procedures

This topic contains procedures which are common to the handling of field replaceable units (FRU) within a device.

Listing of common procedures

The following are the common procedures which are used for the handling FRUs:

- Avoiding electro-static discharge (ESD) damage
- Emergency procedures without an ESD kit
- Hardware acclimation times
- Identifying faulty parts

Avoiding electrostatic discharge (ESD) damage

When replacing or installing hardware units, you can inadvertently damage the sensitive electronic circuits in the equipment by simply touching them.

Electrostatic charge that has accumulated on your body discharges through the circuits. If the air in the work area is very dry, run a humidifier in the work area to help decrease the risk of ESD damage.

Follow these procedures to prevent equipment damage:

- Provide enough room to work on the equipment.
- Clear the work site of any unnecessary materials or materials that naturally build up electrostatic charge, such as foam packaging, foam cups, cellophane wrappers, and similar items.
- Do not remove replacement or upgrade units from their antistatic packaging until you are ready to install them.
- Before you begin service, gather together the ESD kit and all other materials you need.
- Once servicing begins, avoid moving away from the work site; otherwise, you may build up an electrostatic charge.
- Use ESD anti-static gloves or an ESD wristband (with strap).
If using an ESD wristband with a strap:
 - Attach the clip of the ESD wristband to the ESD bracket or bare metal on a cabinet/rack or enclosure.
 - Wrap the ESD wristband around your wrist with the metal button against your skin.
 - If a tester is available, test the wristband.
- If an emergency arises and the ESD kit is not available, follow the procedures in Emergency Procedures (without an ESD kit).

Emergency procedures (without an electrostatic discharge kit)

In an emergency when an electrostatic discharge (ESD) kit is not available, use the following precautions to reduce the possibility of an electrostatic discharge by ensuring that your body and the subassembly are at the same electrostatic potential.

 **Note:** These precautions are not a substitute for the use of an ESD kit. Follow them only in the event of an emergency.

- Before touching any unit, touch a bare (unpainted) metal surface of the cabinet/rack or enclosure.
- Before removing any unit from its antistatic bag, place one hand firmly on a bare metal surface of the cabinet/rack or enclosure, and at the same time, pick up the unit while it is still sealed in the antistatic bag. At the same time, do not move around the room or touch other furnishings, personnel, or surfaces until you have installed the unit.
- When you remove a unit from the antistatic bag, avoid touching any electronic components and circuits on it.
- If you must move around the room or touch other surfaces before installing a unit, first place the unit back in the antistatic bag. When you are ready again to install the unit, repeat these procedures.

Hardware acclimation times

Units must acclimate to the operating environment before applying power. This requires the unpackaged system or component to reside in the operating environment for up to 16 hours in order to thermally stabilize and prevent condensation.

Transit/storage environment		Operating environment temperature	Acclimation time
Temperature	Humidity		
Nominal 68-72°F (20-22°C)	Nominal 40-55% RH	Nominal 68-72°F (20-22°C) 40-55% RH	0-1 hour
Cold <68°F (20°C)	Dry <30% RH	<86°F (30°C)	4 hours
Cold <68°F (20°C)	Damp ≥30% RH	<86°F (30°C)	4 hours
Hot >72°F (22°C)	Dry <30% RH	<86°F (30°C)	4 hours
Hot >72°F (22°C)	Humid 30-45% RH	<86°F (30°C)	4 hours
	Humid 45-60% RH	<86°F (30°C)	8 hours
	Humid ≥60% RH	<86°F (30°C)	16 hours
Unknown		<86°F (30°C)	16 hours

- If there are signs of condensation after the recommended acclimation time has passed, allow an additional eight (8) hours to stabilize.
- Systems and components must not experience changes in temperature and humidity that are likely to cause condensation to form on or in that system or component. Do not exceed the shipping and storage temperature gradient of 45°F/hr (25°C/hr).

Removing, installing, or storing replaceable units

Use the following precautions when removing, handling, or storing replaceable units:

⚠ CAUTION Some replaceable units have the majority of their weight in the rear of the component. Ensure that the back end of the replaceable unit is supported while installing or removing it. Dropping a replaceable unit could result in personal injury or damage to the equipment.

i NOTICE

- For a module that must be installed into a slot in an enclosure, examine the rear connectors on the module for any damage before attempting its installation.
- A sudden jar, drop, or even a moderate vibration can permanently damage some sensitive replaceable units.
- Do not remove a faulted replaceable unit until you have the replacement available.
- When handling replaceable units, avoid electrostatic discharge (ESD) by wearing ESD anti-static gloves or an ESD wristband with a strap. For additional information, refer to [Avoiding electrostatic discharge \(ESD\) damage](#) on page 14.
- Avoid touching any exposed electronic components and circuits on the replaceable unit.
- Never use excessive force to remove or install a replaceable unit. Take time to read the instructions carefully.
- Store a replaceable unit in the antistatic bag and the specially designed shipping container in which you received it. Use the antistatic bag and special shipping container when you need to return the replaceable unit.
- Replaceable units must acclimate to the operating environment before applying power. This requires the unpackaged component to reside in the operating environment for up to 16 hours in order to thermally stabilize and prevent condensation. Refer to [Hardware acclimation times](#) on page 15 to ensure the replaceable unit has thermally stabilized to the operating environment.

i NOTICE

Your storage system is designed to be powered on continuously. Most components are hot swappable; that is, you can replace or install these components while the storage system is running. However, the system requires that:

- Front bezels should always be attached to ensure EMI compliance. Make sure you reattach the bezel after replacing a component.
- Each slot should contain a component or filler panel to ensure proper air flow throughout the system.

Unpacking a part

Use these best practices to unpack a part.

Procedure

1. Wear ESD gloves or attach an ESD wristband to your wrist and the enclosure in which you are installing the part.
2. Unpack the part and place it on a static-free surface.
3. If the part is a replacement for a faulted part, save the packing material to return the faulted part.

Standard touch point colors

Touch points are component locations where you can:

- Grip the hardware to remove or install a component.
- Open or close a latch.
- Turn a knob to open, close, or adjust a component.

Standard touch point colors are terra-cotta (orange) or blue.

 **Note:** Within this documentation, the color orange is used instead of terra-cotta for simplicity.

Table 2 Standard touch point colors

Touch point color	Description
Terra-cotta (orange) 	This color indicates that you can perform the task, such as remove a component with a terra-cotta (orange) lever, while the system remains powered (up/on).  Note: Some tasks may require additional steps.
Blue 	This color indicates that a shutdown of the system or component is required before you can perform the task, such as removing a component with a blue lever.

Power Cooling Module Replacement

This section describes how to replace the power cooling module.

Identify the failed power supply unit

Before you begin

Before you begin the replacement procedure, make sure you have correctly identified the failed part, and that a replacement is available and unpacked and ready to install within the two-minute limit.

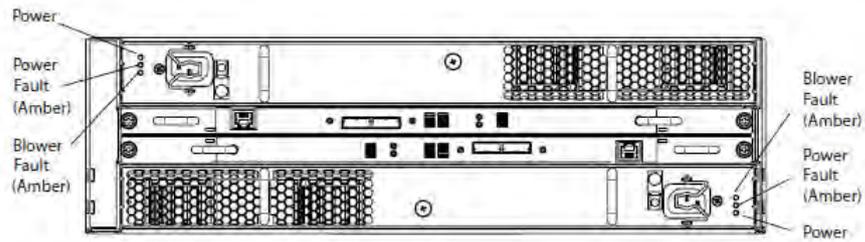
 **CAUTION** To prevent overheating, you must replace a power/cooling module within two minutes. If you do not, the storage enclosure may power down all of the disks, causing the system to lose access to the disks.

When replacing a power/cooling module, make sure the green LED on one module has been steadily on for at least 5 seconds before removing power from the second module.

Procedure

1. Check the service LED on the affected power supply unit.

Figure 1 Power supply/cooling module status LEDs



Light	Quantity	Color	Meaning
Power supply active	1 per power supply	Green	On when the power supply is operating
Power supply fault	1 per power supply	Amber	On when the power supply is faulty or is not receiving AC line voltage. Flashing when either a multiple blower or ambient over temperature condition has shut off DC power to the system
Blower fault	1 per power supply	Blue	On when one of the blowers in the power supply is faulty

2. Log in as sysadmin.
3. Enter the `alerts show current` command to display messages indicating power supply failure. A sample output is shown.

```
# alerts show current
Id      Post Time          Severity Class      Object      Message
-----
81 Mon Jun 1 9:46:27 2015 CRITICAL HWFailure Encl=4:Module=B EVT-ENVIRONMENT-00003:
Power supply module B
is either faulty or unpowered.
```

4. Enter the `enclosure show powersupply` command to check the status of each power supply.

```
# enclosure show powersupply
This command may take up to a minute to complete. Please wait...
Enclosure Description      Status
-----
4      Power module A      FAILED
4      Power module B      OK
```

Before you begin

CAUTION Read the entire replacement procedure before beginning. The entire procedure must be completed within two minutes. Access to the disks in your enclosure will time out and the disks will power down two minutes after a power/cooling module is removed from the enclosure.

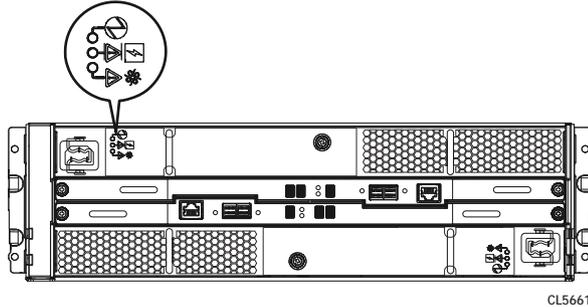
Removing a power cooling module

This procedure describes how to remove a power cooling module from the DAE

Before you begin

Identify the faulted power cooling module by its amber fault LED.

Figure 2 Power cooling module fault LED



About this task

NOTICE Access to the disks in your enclosure will time out and the disks will spin down two minutes after a power cooling module is removed from the enclosure. While the system can continue operating on a single power supply, the loss of a module's two blowers causes the DAE to power down unless you replace the module within two minutes. When replacing both cooling modules, ensure the green light on one module has been steadily on for at least 5 seconds before removing power from the second module.

Procedure

1. For a -48 V DC power/cooling module, turn power off by toggling the module's power switch to the off position, then wait two minutes before removing the module.
2. Unplug the power cord: [Figure 10](#) for an AC module or [Figure 11](#) for a DC module.

Figure 3 Removing the AC power cord

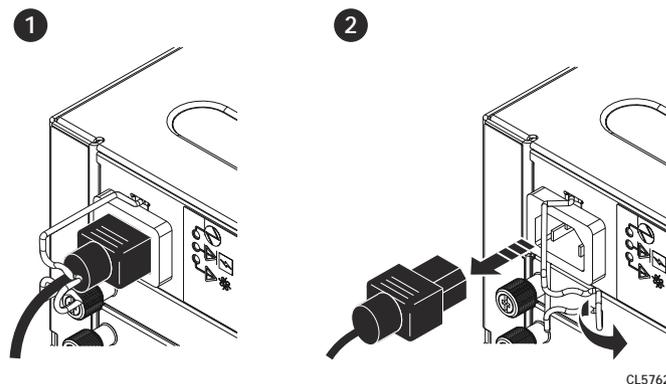
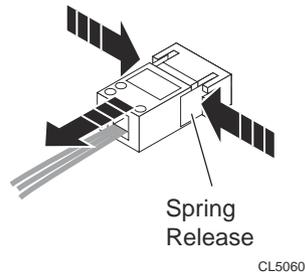


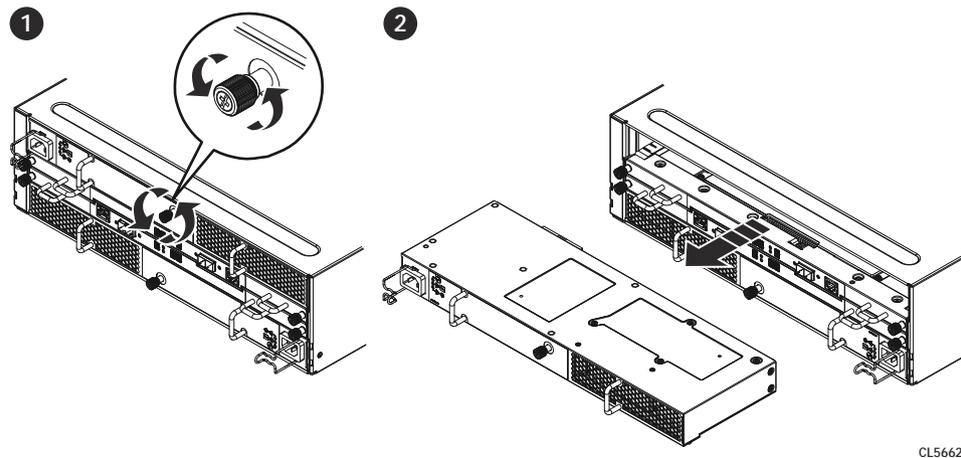
Figure 4 Removing the DC power cord



3. Turn the captive screw counterclockwise to release the power cooling module, and remove the module.

NOTICE To protect a running system from overheating, the enclosure will power down unless you replace the power cooling module within two minutes.

Figure 5 Removing a power cooling module



Installing power cooling module

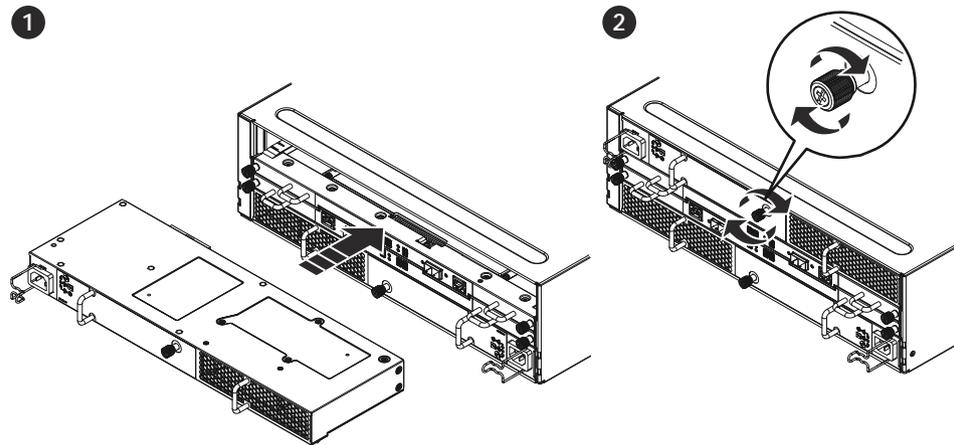
This procedure describes how to install a power cooling module in the DAE.

Before you begin

Procedure

1. Install the power cooling module in the enclosure:
 - a. Gently insert the new power cooling module into the enclosure, being sure the module is completely seated.
 - b. Secure the module with the captive screw.

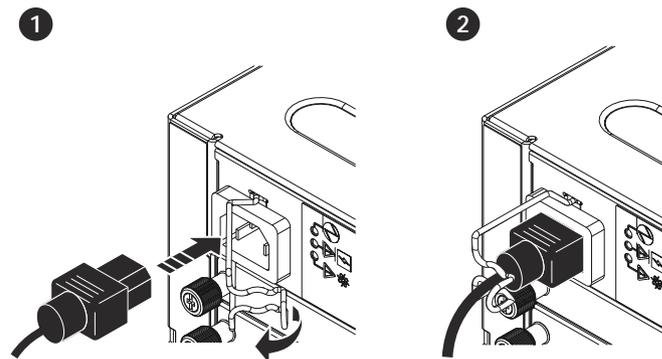
Figure 6 Installing a power cooling module



CL5664

2. For an AC power cooling module:
 - a. Plug the power cord into the power cooling module.
 - b. Secure the power cord with the retention bail at the connector. The bail prevents the power cord from pulling out of the connector.

Figure 7 Plugging in and securing the power cord



CL5765

3. For a DC power cooling module, push the power cord plug into the connector until it snaps in place. The clips on the plug prevents the power cord from pulling out of the connector.

Verify the power supplies

Procedure

1. Enter the `enclosure show powersupply` command to find the status of all the power modules.

```
# enclosure show powersupply
This command may take up to a minute to complete. Please wait...
Enclosure  Description      Status
-----
4          Power module A             OK
4          Power module B             OK
-----
```

Complete the procedure

Procedure

1. Return the failed or replaced part(s) to Dell EMC. Reuse the packaging from the new part(s) and use the included prepaid waybill for shipping. Reference the RMA number on the outside of the package.
2. Send an autosupport report from the system by entering the `autosupport send` command.

Controller Replacement

This section describes how to replace the controller.

Identify the failed controller

Procedure

1. Check the rear of the shelf for the service LED of the affected controller.
 -  **Note:** If the controller needs to be replaced, the service LED is a solid amber.
2. Log in as `sysadmin`.
3. Enter the `alerts show current` command to display messages indicating controller failure. A sample output is shown.

```
# alerts show current
Id      Post Time          Severity  Class      Object      Message
-----
p0-94  Mon Jun 1 9:46:27 2015  WARNING  HWFailure  Enclosure=9  EVT-MPATH-00006:
Path redundancy is lost.
Enclosure 9 only has
1 active connection path
and the required number is 2.
```

4. Enter the `enclosure show controllers 9` command to find the failed controller 9:

```
# enclosure show controllers 9
Encl 9

      Model          ES30
      Capacity       15 Slots
      WWN            N/A
      Serial #       APM00151918344
      Number of Controllers 1

      Controller A
                WWN          50060481109D607F
                Firmware     1.1.0
                Serial #     JWXCL150700011
                Status       Not Installed
                HOST port    24.0 Gbps
                EXP'N port    48.0 Gbps
```

Status LEDs

Verify the status by checking the LEDs. Controller B is located above Controller A in the center of the rear panel. The power supply/cooling units are above and below the controllers.

Facing the back panel of the FS15, the Expander ports are the outer of the two ports; the Host ports are the inner of the two ports. The ports are identified by symbols on the rear panel: a circle symbol indicates a Host port; a diamond symbol indicates an Expander port.

Figure 8 Rear panel overview

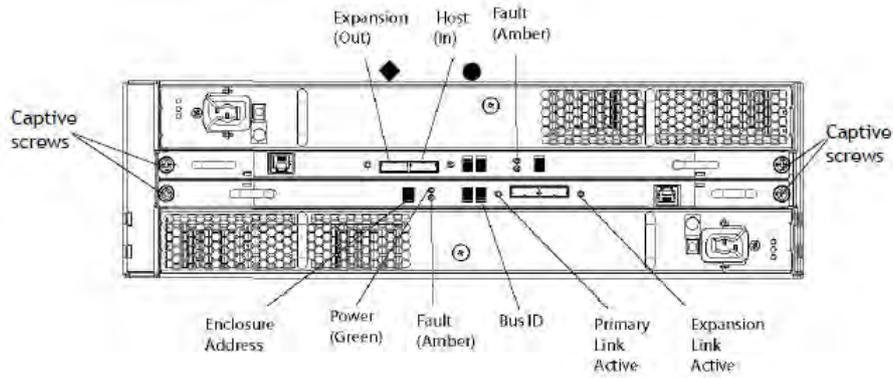


Table 3 Status LEDs

Light	Quantity	Color	Meaning
Controller power	1 per controller	Green	On when the controller is powered on
Controller failure	1 per controller	Amber	On when either the controller or a SAS connection has failed. On during a power-on self test.
Host link active	1 per controller	Blue	On when the host connection is active
Expansion link active	1 per controller	Blue	On when the expansion host is active

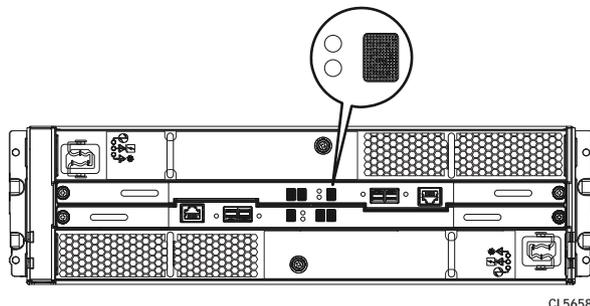
Removing an LCC

This procedure describes how to remove an LCC from the DAE.

Before you begin

Identify the faulted LCC by its amber fault LED.

Figure 9 LCC fault LED



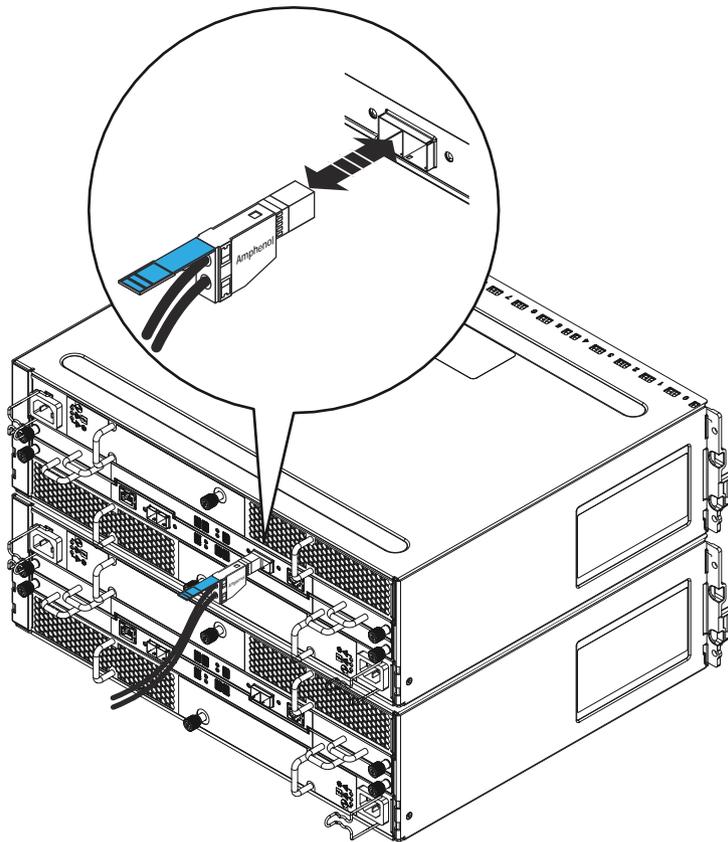
CL5658

Procedure

1. Attach an ESD wristband to your wrist and the enclosure in which you are replacing the LCC.
2. Remove each cable connected to the LCC by gently pulling the connector latches to release the cable from the connector.

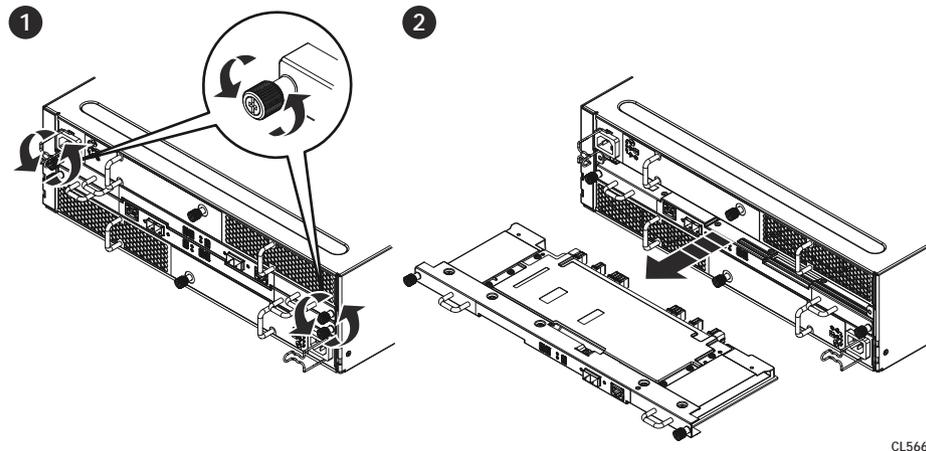
Note where the cables connect to the LCC because you need to reconnect them later.

Figure 10 Removing an LCC cable



CL5659

3. Turn the captive screws counterclockwise to release the LCC.
4. Remove the LCC from its slot and place it on a clean, static-free surface.

Figure 11 Removing an LCC

CL5660

5. Remove and store the ESD wristband.

Installing a replacement controller

Before you begin

Stop the file system by entering the `filesystem disable` command, which returns the following output:

```
Please wait.....
The filesystem is now disabled.
```

If you have any questions about how to disable the file system, check with technical support before proceeding.

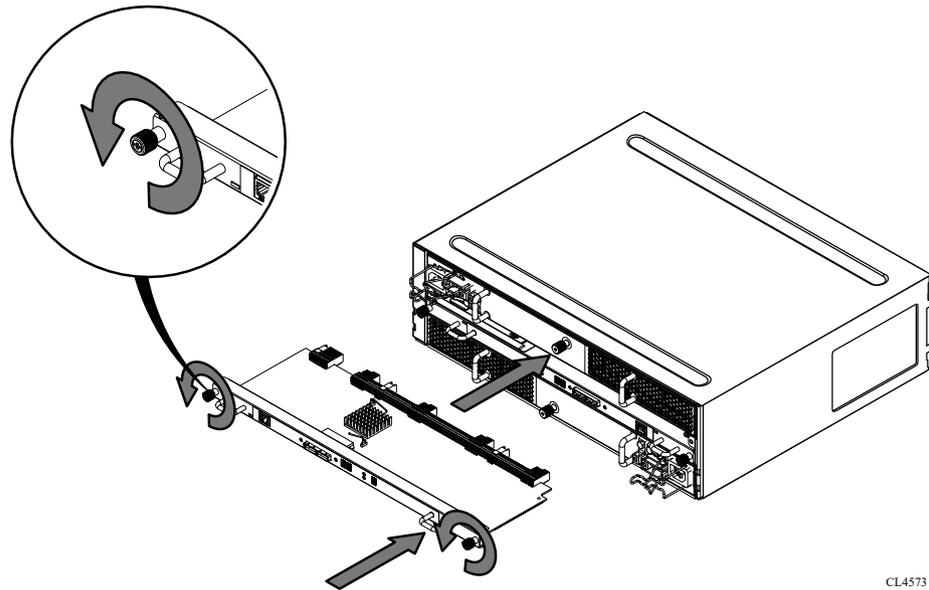
Procedure

1. Attach an ESD wristband to your wrist and the enclosure.
2. Gently insert the controller, being sure the controller is completely seated in the enclosure ([Figure 14](#) on page 27).

The controller power light turns on.

3. Secure the controller with the captive screws ([Figure 14](#) on page 27).

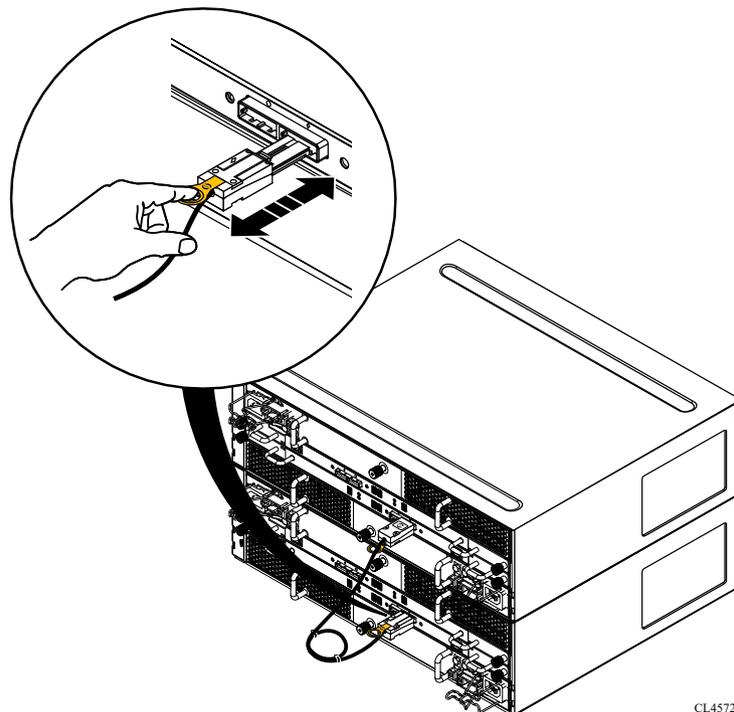
Figure 12 Installing the controller



CL4573

4. Reattach each controller cable to the same connector from which you removed it (Figure 15 on page 27).

Figure 13 Connecting the controller cable



CL4572

5. Remove and store the ESD wristband.

Installing a replacement controller

Procedure

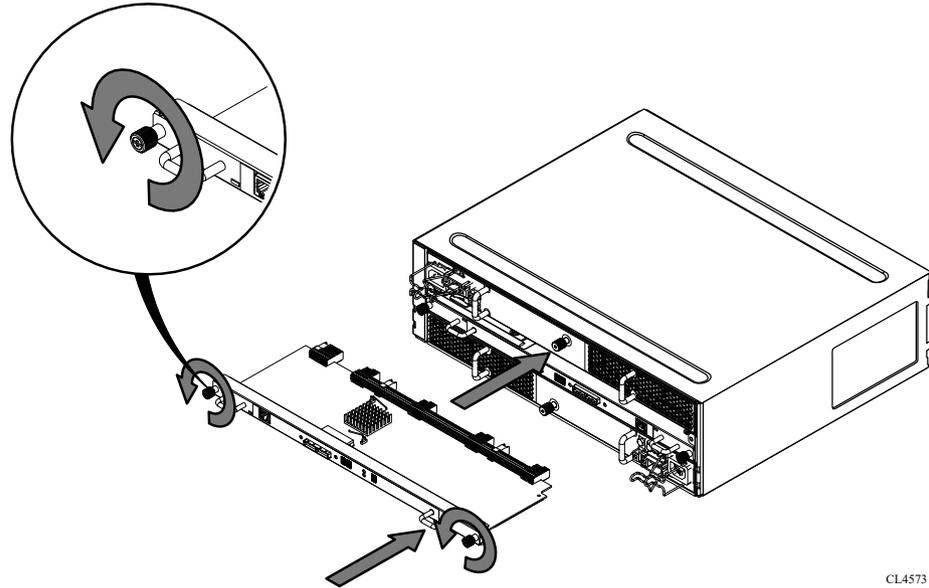
1. Attach an ESD wristband to your wrist and the enclosure.

2. Gently insert the controller, being sure the controller is completely seated in the enclosure (Figure 14 on page 27).

The controller power light turns on.

3. Secure the controller with the captive screws (Figure 14 on page 27).

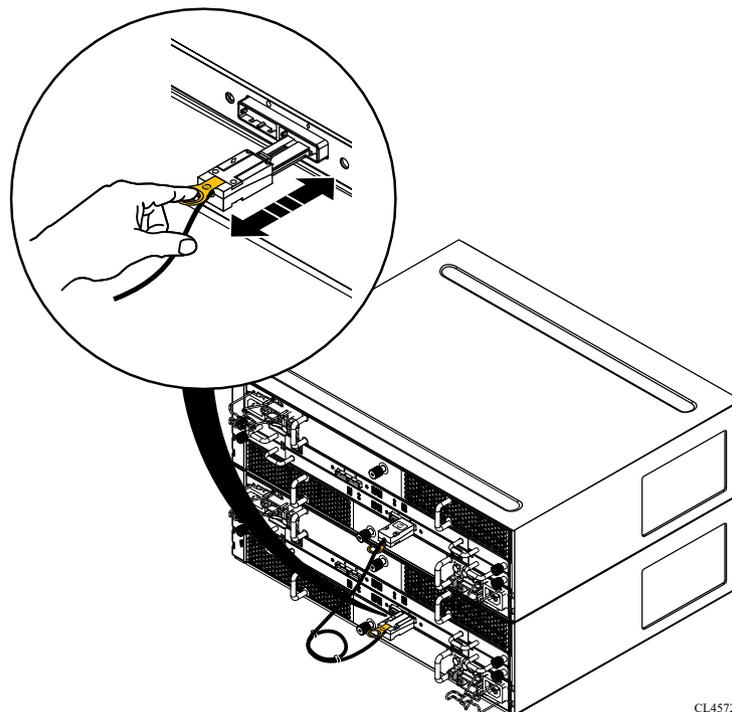
Figure 14 Installing the controller



CL4573

4. Reattach each controller cable to the same connector from which you removed it (Figure 15 on page 27).

Figure 15 Connecting the controller cable



CL4572

5. Remove and store the ESD wristband.

Verify the controller

About this task

Verify that the new component is recognized by your system and operating correctly.

Procedure

1. Log in as sysadmin
2. Enter the `enclosure show controllers` command to verify that the controller is operating correctly:

```
# enclosure show controllers 9
Encl 9
      Model                ES30
      Capacity             15 Slots
      WWN                  N/A
      Serial #             APM00152002461
      Number of Controllers 2

      Controller A
                WWN                500604811082407F
                Firmware            1.1.0
                Serial #            JWXCL150500003
                Status              OK
                HOST port           48.0 Gbps
                EXP'N port          0.0 Gbps

      Controller B
                WWN                500604811086317F
                Firmware            1.1.0
                Serial #            JWXCL150500066
                Status              OK
                HOST port           24.0 Gbps
                EXP'N port          48.0 Gbps
```

Note: The output provides information about both controllers and includes WWN, firmware version number, serial number, status, and speed of the link on the host and expansion ports. If a controller is not discovered, the WWN and serial number fields are blank. Restart the file system.

3. Enter the `enclosure show topology` command to verify the HBA ports and connection:

```
# enclosure show topology
Port      enc.ctrl.port  enc.ctrl.port  enc.ctrl.port  enc.ctrl.port
-----
1a
1b
1c
1d
4a
4b > 9.B.H: 9.B.E > 11.B.H:11.B.E
4c
4d
7a
7b
7c
7d
10a
10b > 11.A.H:11.A.E > 9.A.H: 9.A.E
10c
10d
-----
```

Note: The output provides a text representation of each HBA port and the order in which the shelf controllers are connected. If the replacement controller does not appear in the map, then there is still an issue with this controller.

4. Enter the `filesys enable` command to restart the file system.

Complete the procedure

Procedure

1. Return the failed or replaced part(s) to Dell EMC. Reuse the packaging from the new part(s) and use the included prepaid waybill for shipping. Reference the RMA number on the outside of the package.
2. Send an autosupport report from the system by entering the `autosupport send` command.

Disk Drive Replacement

This section describes how to replace a disk drive.

Identify the failed drive

Follow these steps to identify which drive failed in your system.

Procedure

1. Check the disk enclosure LEDs visible on the front panel of the shelf. Use the table to identify the color and status.

Table 4 Status lights

Light	Quantity	Color	Meaning
Disk enclosure power	1	Blue	Power to the enclosure is on
Disk enclosure fault	1	Amber	Lit when any fault condition exists. If the fault is not obvious from the disk module light, look at the back of the disk enclosure.
Disk active	1 per disk module	Green	<ul style="list-style-type: none"> • No LED when the slot is empty or has a filler module. • LED off when the disk is powered down by command; for example, the result of a temperature fault. • Fast blinking when the SAS drive is powered up but not spinning; this is a normal part of the spin-up sequence, occurring during the spin-up delays of a slot. • On when the drive has power but is not handling any I/O activity (the ready state). • Slow blinking when the drive is spinning and handling I/O activity.

Table 4 Status lights (continued)

Light	Quantity	Color	Meaning
Disk fault	1 per disk module	Amber	On when the disk module is faulty or as an indication to replace the drive.

2. Log in as a sysadmin user.
3. Enter the `alerts show current` command to display messages indicating disk drive failure. Sample output for this command is shown:

```
# alerts show current
Id      Post Time                Severity  Class      Object      Message
-----
p0-83  Mon Jun 8 8:40:25 2015  CRITICAL  HWFailure  Enc=4:Disk=3  EVT-STORAGE-00001:
Disk has a hardware
fault and may need
to be replaced.
```

4. Enter the `disk show state` command to display the state of all disk drives and to identify a failed disk. Sample output for this command is shown:

 **Note:** Failed (F) and absent (A) are possible values.

The drive slot/locations are marked on the chassis 0-14, but the DD OS software still references the slots as 1-15. It is important to identify the proper drive between the location called out in the FRU, and the location as specified in the software.

```
# disk show state
Enclosure  Disk
           1  2  3  4  5  6  7  8  9 10 11 12 13 14 15
-----
1          .  .  .  .
2          s  F  .  .  .  .  .  .  .  .  .  .  .  .  .
-----
Legend      State      Count
-----
.           In Use Disks  17
s           Spare Disks   1
F           Failed Disks  1
-----
Total 19 disks
```

Opening the console

About this task

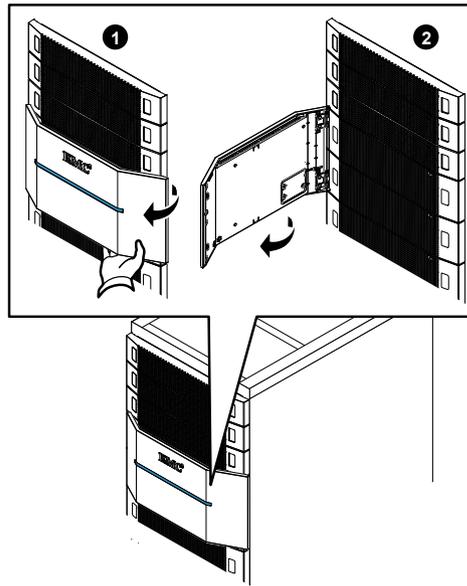
The console is a protruding plastic banner on the front of the cabinet with a stripe of blue or green light and the product badge.

If the console is covering the front of the shelf to which you need access, open the console using the steps that follow. Refer to [Figure 16](#) on page 31.

Procedure

1. Grasp the right side of the console.
2. Pull the console to swing it open.

Figure 16 Opening the console



CL4699

Unlocking and removing the front bezel

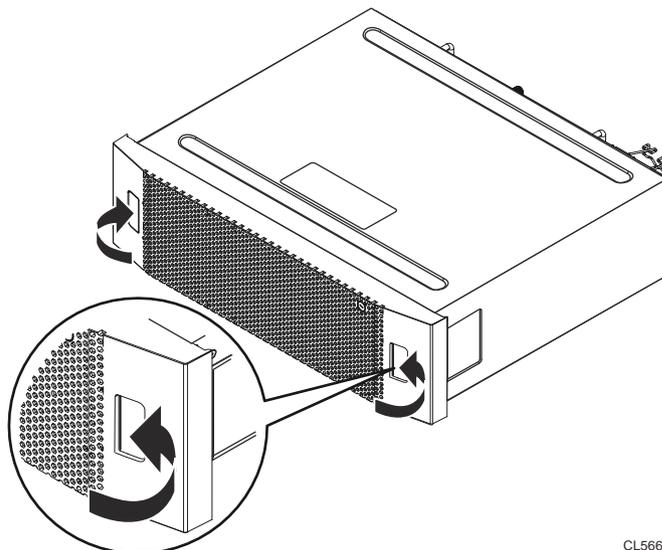
About this task

NOTICE You must remove the enclosure's front bezel to gain access to the disks. The bezel is required for EMI compliance when the enclosure is powered up. Remove it only to replace or add a disk.

Procedure

1. Insert the key that shipped with your enclosure into the bezel lock, and turn it to release the lock.
2. Press the two latch buttons on the bezel surface to release the bezel from the cabinet.

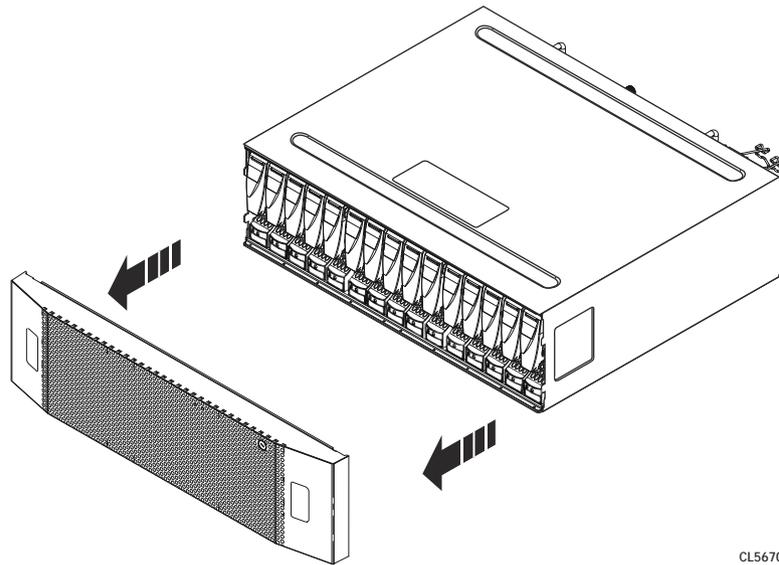
Figure 17 Releasing the front bezel



CL5667

3. Pull the bezel off and put it on a clean, static-free surface.

Figure 18 Removing the front bezel



CL5670

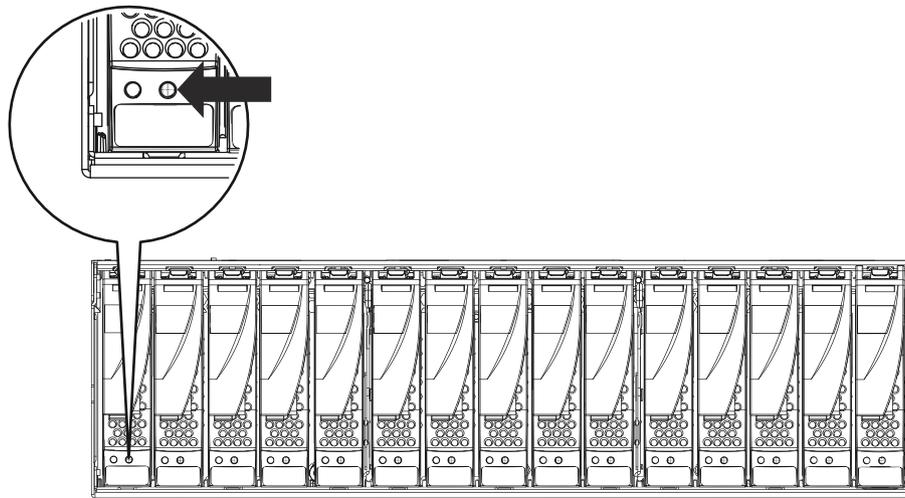
Removing a faulted disk drive

This procedure describes how to remove a disk drive from the DAE

Before you begin

Identify the faulted disk by the amber fault LED on the drive carrier.

Figure 19 Fault LED on the disk drive carrier



CL5668

About this task

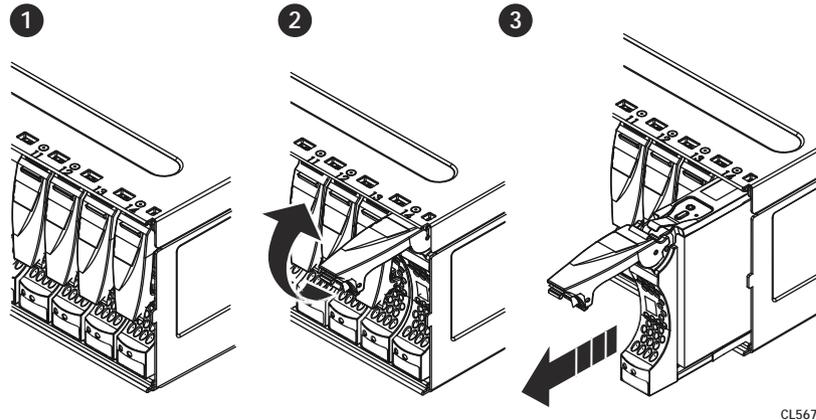
Note: Disks can be removed and replaced with the power applied to the DAE.

Procedure

1. Attach an ESD wristband to your wrist and the enclosure.
2. Pull the latch on the disk up.
3. Do one of the following:

- If the disk's fault LED is on steadily, slowly pull the disk about 1 inch (3 centimeters) from its slot and wait 30 seconds for the disk to stop spinning before pulling the disk completely out of the slot.
 - If the disk's fault LED is off or mostly off, slowly pull the disk completely out of the slot.
4. Place the disk on a static-free surface.

Figure 20 Removing a disk



CL5671

Removing a disk filler module

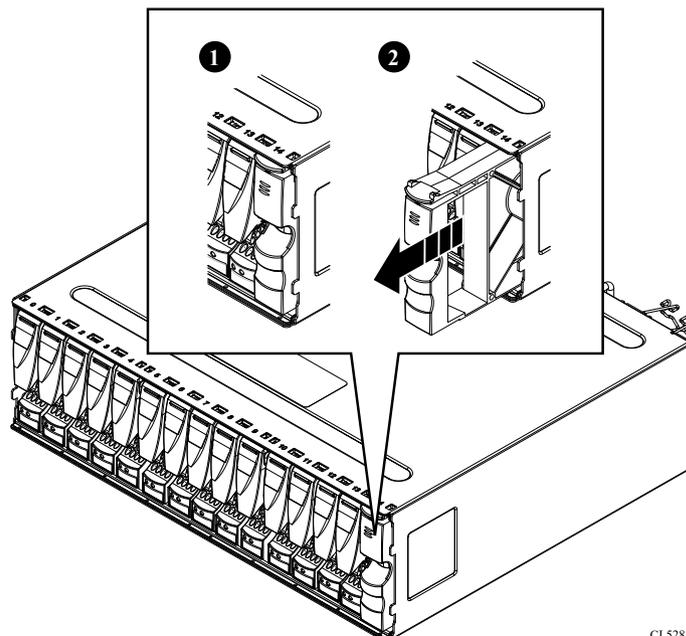
About this task

Refer to [Figure 21](#) on page 33 while performing the procedure that follows.

Procedure

1. Locate the slot where you want to install the disk.
2. Grasp the disk filler with your thumb in the cutout on the front of the filler and your finger on the top of the filler and pull the module from the slot.

Figure 21 Removing a disk filler module



CL5283

Installing a new or replacement disk

Before you begin

Use ESD gloves or attach an ESD wristband to your wrist and the enclosure in which you are installing the disk.

About this task

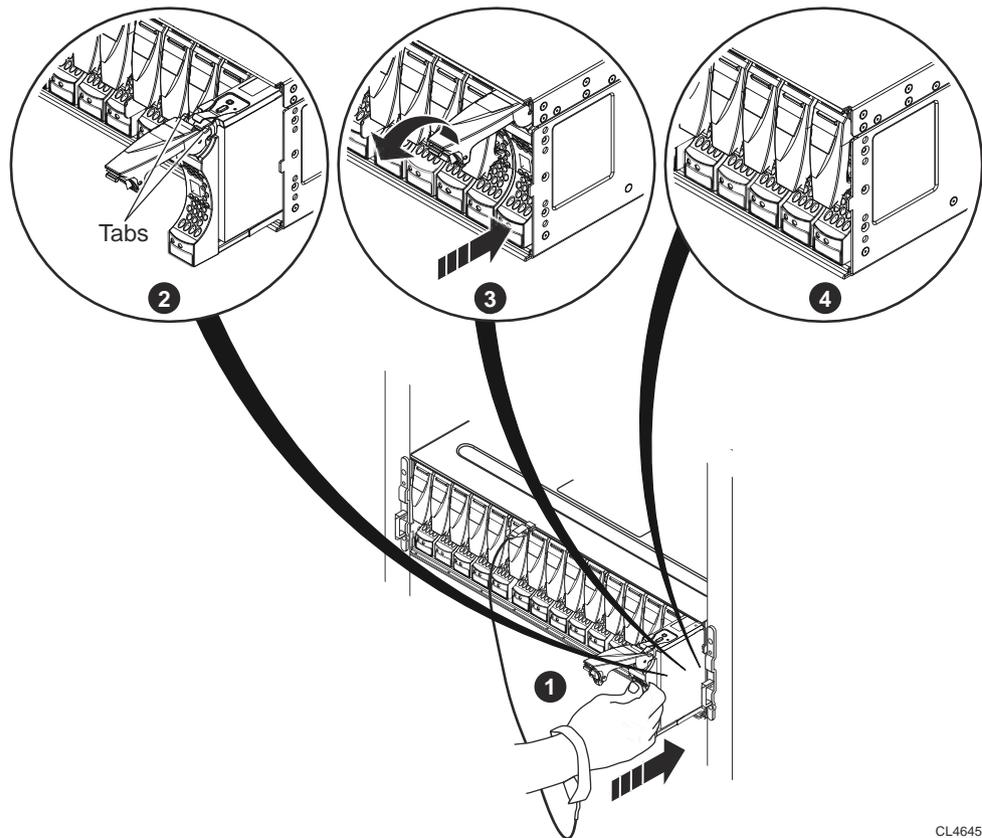
Refer to [Figure 22](#) on page 34 while performing the procedure that follows.

NOTICE If you are installing multiple disks in a storage system that is powered up, wait at least 10 seconds before sliding the next disk module into position.

Procedure

1. Align the disk with the guides in the slot.
2. With the disk latch fully open, gently push the disk into the slot.
The disk latch begins to rotate downward when its tabs meet the enclosure.
3. The disk latch begins to rotate downward when its tabs meet the enclosure.
4. After the latch is engaged, push firmly on the bottom of the disk to verify that the disk is properly seated.

Figure 22 Installing a disk



CL4645

The disk's active light flashes to reflect the disk's spin-up sequence.

After you finish

Remove and store the ESD gear.

Verify the operation of the new disk drive

Procedure

1. Rescan all of the disks by entering the `disk rescan` command
 - Note:** This command does not generate any output. The amount of time it takes to complete depends on how many disks are attached.
2. After the rescan completes, enter the `disk show state` command to verify the state of all drives. This command checks that the drive is recognized.

```
# disk show state
Enclosure  Disk
-----
1          .  .  .  .
2          s  R  .  .  .  .  .  .  .  .  .  .  .  .  .
-----
Legend      State      Count
-----
.           In Use Disks    17
s           Spare Disks    1
R           Rebuilding Disks 1
-----
Total 19 disks
```

- Note:** When the amber fault light has turned off on the front panel of the shelf, all the disk are in good state.
3. After the rescan, if the output of the `disk show state` command displays any disks in the **Unkown, Failed, or Absent** states, run the `disk unfail <enclosure-id>.<disk-id>` command to unfail the disk. For example, to unfail enclosure 2, disk 2, type `disk unfail 2.2`.

Installing and locking the front bezel

Before you begin

CAUTION You must remove the protective plastic strip from the front of the bezel before placing the system into operation. Failure to do this will cause the system to overheat.

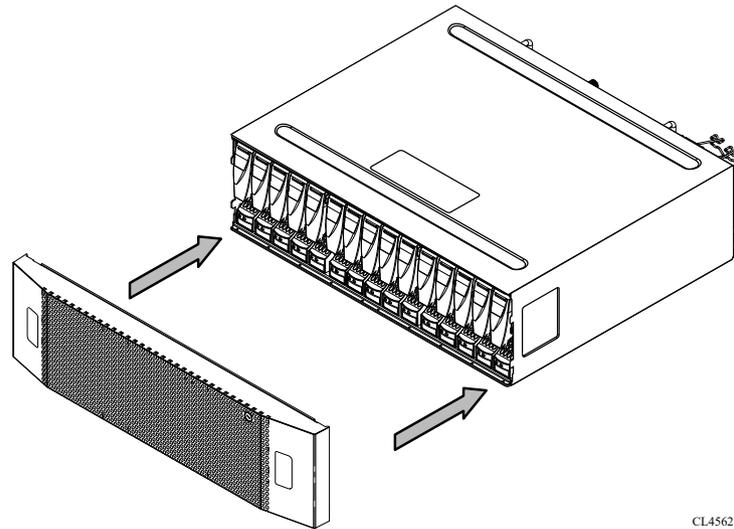
About this task

Refer to [Figure 23](#) on page 36 while performing the procedure that follows.

Procedure

1. If present, remove the protective plastic strip from the front of the bezel.
2. Align the bezel with the enclosure.
3. Gently push the bezel into place until it latches.
4. Secure the bezel by turning the key in the lock.

Figure 23 Installing the front bezel



CL4562

Closing the console

About this task

If you opened the console for access to the enclosure with the part you added or replaced, close the console using the procedure that follows.

Procedure

1. Grasp the free side of the console, and swing the console to the right to close it
2. Gently push on the console until it is closed.

Chassis Replacement

This section describes how to replace a shelf chassis.

Shut down and disconnect the system

Procedure

1. Stop the system using the `system poweroff` command to allow the proper shut down of the file system and other system components.

Note: The `system poweroff` command completes when the front panel blue LED turns off.

For help connecting to a system using a laptop computer and terminal emulator, see the document *FE Toolkit Inventory and Common Procedures for FRU Tasks* at <https://support.emc.com>.

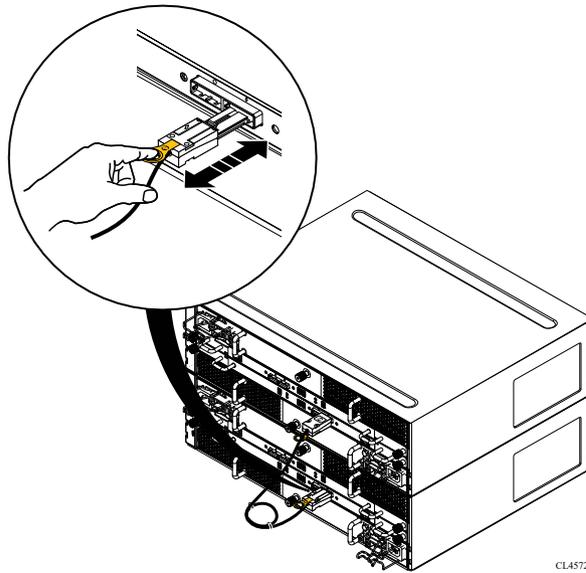
2. Label each of the cables as to their connection location. Taking a photograph for reference is also helpful for re-connecting the cables.
3. Disengage the wire clips, then disconnect both AC power cords from the rear of the system.

Disconnecting a shelf from the back-end bus

Procedure

1. On controller A in the enclosure:
 - a. Unplug the SAS cable from the ●● port.
 - b. Unplug the SAS cable from the ◆◆ port.
2. On controller B in the enclosure:
 - a. Unplug the SAS cable from the ●● port.
 - b. Unplug the SAS cable from the ◆◆ port.

Figure 24 Unplugging a SAS cable



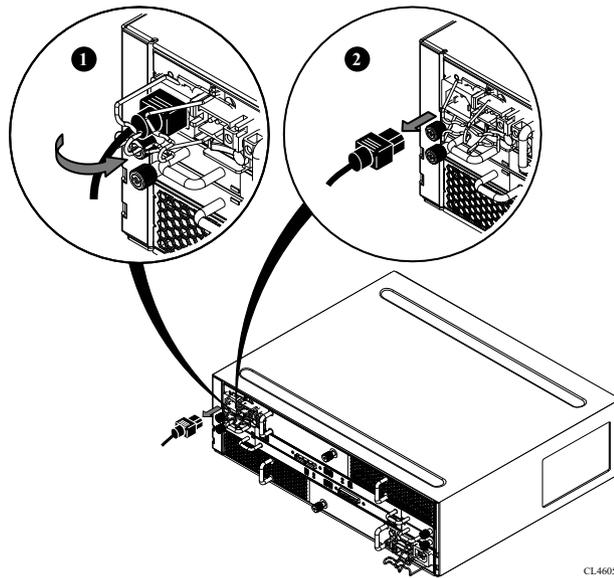
CL4572

Disconnecting power cords

About this task

Unplug the power cord from each power/cooling module in the enclosure.

Figure 25 Unplugging the AC power cord



Opening the console

About this task

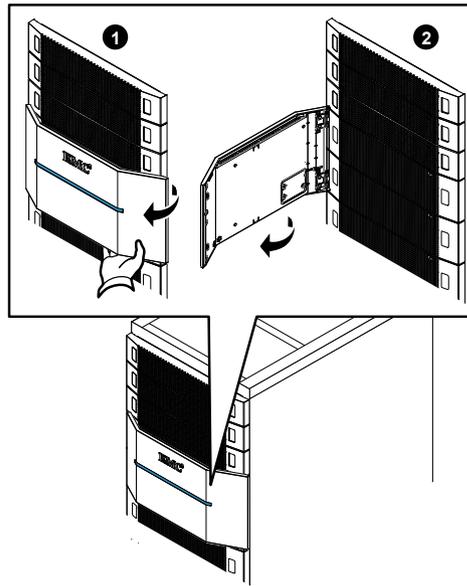
The console is a protruding plastic banner on the front of the cabinet with a stripe of blue or green light and the product badge.

If the console is covering the front of the shelf to which you need access, open the console using the steps that follow. Refer to [Figure 26](#) on page 39.

Procedure

1. Grasp the right side of the console.
2. Pull the console to swing it open.

Figure 26 Opening the console



CL4699

Unlocking and removing the front bezel

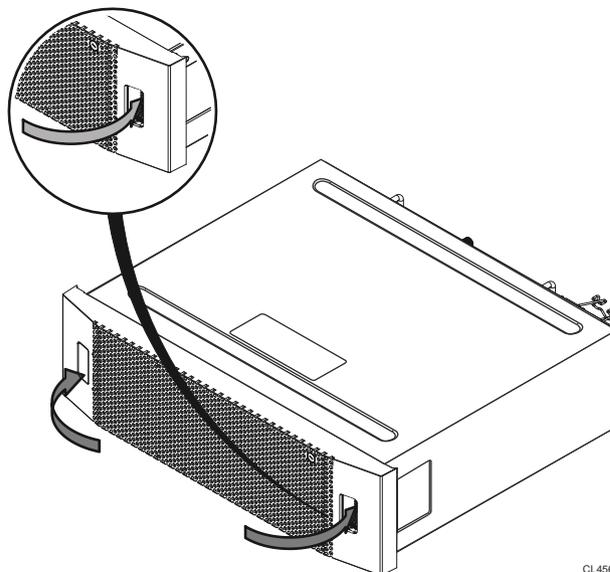
About this task

NOTICE You must remove the enclosure's front bezel to gain access to the disks. The bezel is required for EMI compliance when the enclosure is powered up. Remove it only to replace or add a disk.

Procedure

1. Insert the key that shipped with your enclosure into the bezel lock, and turn it to release the lock.
2. Press the two latch buttons on the bezel surface to release the bezel from the cabinet (Figure 27 on page 39).

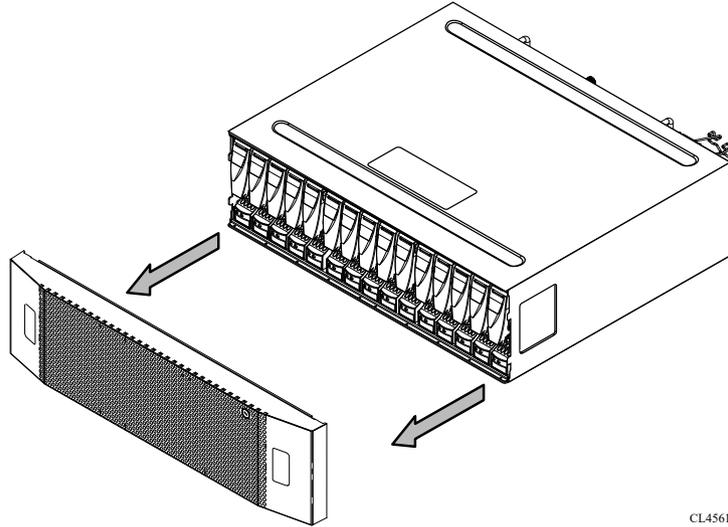
Figure 27 Releasing the front bezel



CL4560

3. Pull the bezel off and put it on a clean, static-free surface (Figure 28 on page 40).

Figure 28 Removing the front bezel



CL4561

Removing a shelf from the cabinet

About this task

CAUTION

The enclosure is heavy and should be installed into or removed from a rack by two people. To avoid personal injury and/or damage to the equipment, do not attempt to lift and install the enclosure into a rack without a mechanical lift and/or help from another person.

L'enclosure étant lourde, sa mise en place dans l'armoire nécessite deux personnes. Afin de ne pas vous blesser et/ou endommager le matériel, n'essayez pas de soulever et d'installer l'armoire sur une rampe sans avoir recours à un relevage mécanique et/ou à l'aide d'une autre personne.

Das Gehäuse ist schwer und sollte nur von zwei Personen in einem Rack installiert werden. Zur Vermeidung von körperlichen Verletzungen und/oder der Beschädigung des Gerätes, bitte das Gehäuse nicht ohne die Hilfe einer zweiten Person anheben und einbauen.

Il contenitore è pesante e dev'essere installato nel rack da due persone. Per evitare danni personali e/o all'apparecchiatura, non tentare di sollevare ed installare in un rack il contenitore senza un sollevatore meccanico e/o l'aiuto di un'altra persona.

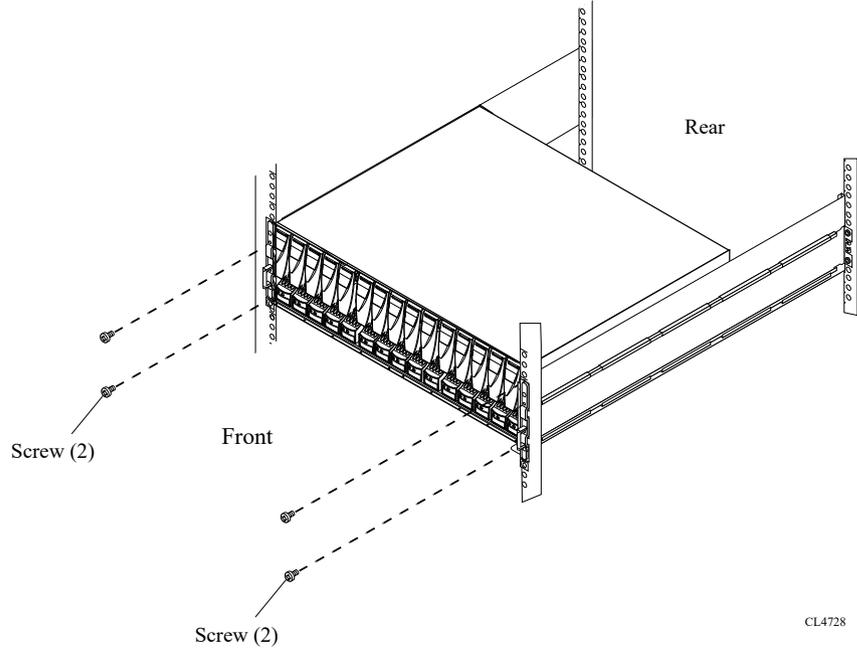
Debido a su considerable peso, la instalación del compartimento en el bastidor deben realizarla siempre dos personas. Para evitar daños personales o en el equipo, el compartimento no debe levantarse ni instalarse en el bastidor sin la ayuda de un elevador mecánico o de otra persona.

本設備相當沉重，安裝置機架時應由兩人搬動。切勿在未經機械搬動車和(或)他人協助的情況下，獨自搬動和安裝本設備，以免受傷和(或)損壞設備。

Procedure

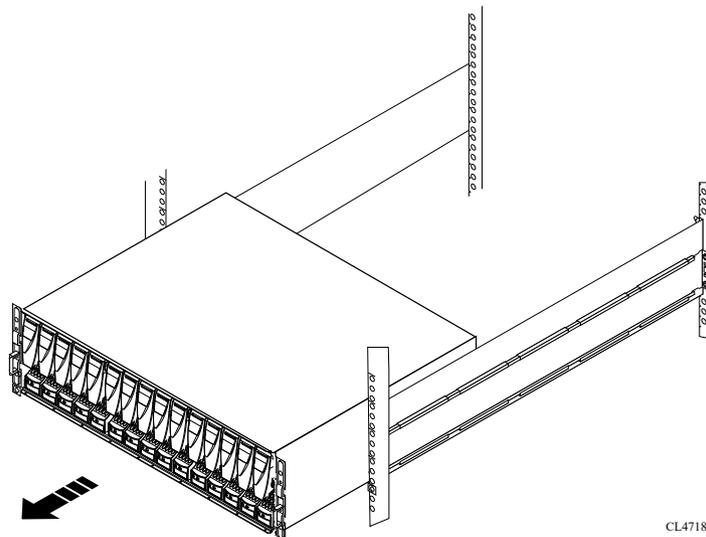
1. Remove the four screws (two per side) that secure the front of the enclosure to the front vertical channels of the cabinet, and save the screws (Figure 29 on page 41).

Figure 29 Removing the screws that secure the enclosure to the front of the cabinet



2. With help from another person, slide the enclosure out of the cabinet and place it on a static-free work surface ([Figure 30](#) on page 41).

Figure 30 Sliding the enclosure out of the cabinet

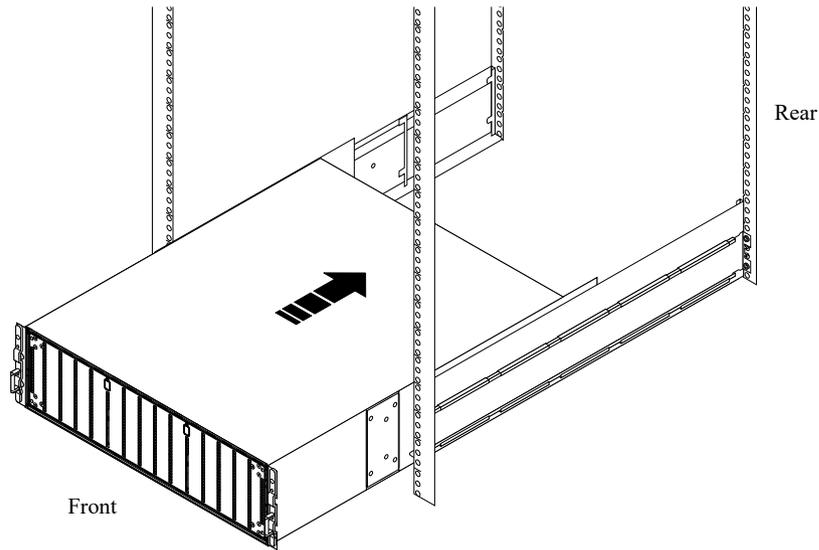


Installing an empty shelf on the rails

Procedure

1. Lift the enclosure and, from the front of the rack, slide the enclosure onto the rails.

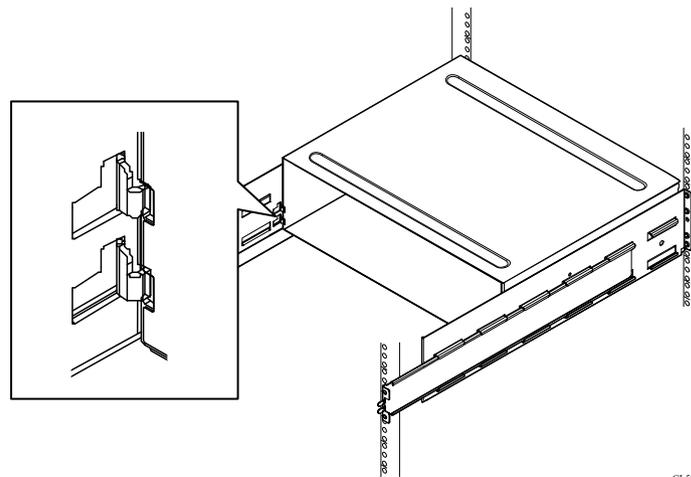
Figure 31 Sliding the enclosure onto the rails



CL4729

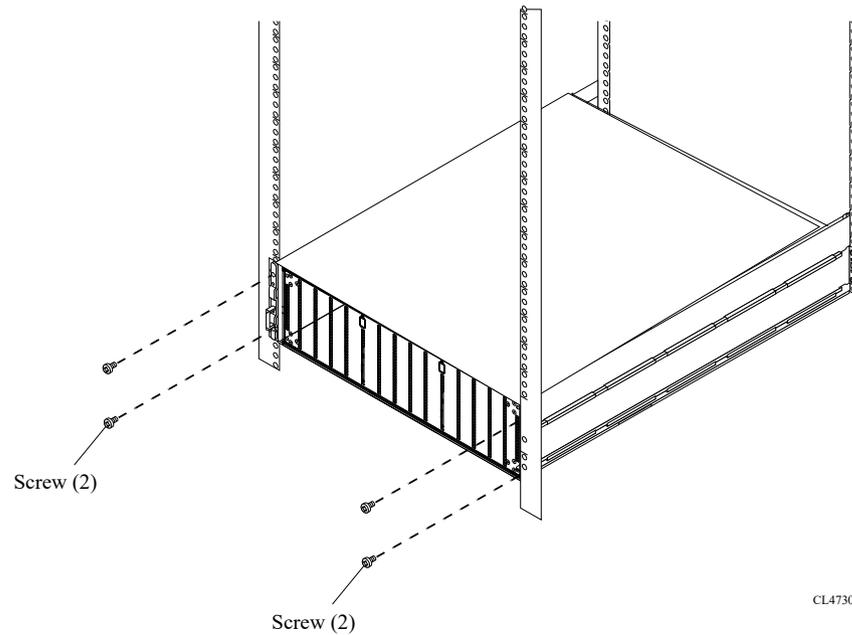
When the enclosure slides into the back of the cabinet, the rear tabs on each rail insert into the two notches in the rear of the enclosure. The tabs secure and support the rear of the enclosure. If the enclosure does not slide all the way into the cabinet, you may need to further loosen the screws that hold the rear of the rails in place, and then adjust the rails to allow the tabs to fit into the notches.

Figure 32 Rail tabs inserted into the enclosure notches



CL5281

2. Once the enclosure is completely seated into the rear tabs, tighten the screws (two on each rail) that secure the rails to the channels.
3. Secure the front of the enclosure to the front vertical channels of the cabinet using four screws - two per side - by installing all four screws, and then tightening them.

Figure 33 Securing enclosure to the front of the cabinet

CL4730

Transferring components from the faulted DAE to the replacement DAE

Use the procedures in this section to transfer each power/cooling module, link control cards (LCCs), disk, and disk filler module from the faulted DAE to the corresponding locations in the replacement DAE.

To help ensure the correct placement in the enclosure:

- Transfer one component at a time.
- When transferring a power/cooling module or LCC:
 - Always move a component from position A (faulted) to position A (replacement), or B to B; do not move A to B or B to A.
 - Move components from position A of the faulted DAE to position A of the replacement DAE.
 - Move components from position B of the faulted DAE to position B of the replacement DAE.
- Transfer each disk and disk filler module to the SAME SLOT LOCATION that it occupied in faulted DAE.

Removing a power/cooling module

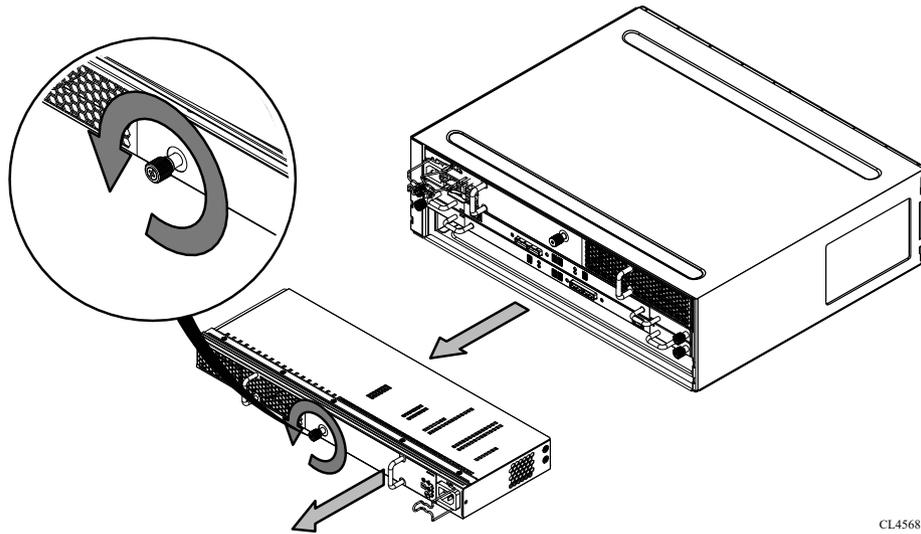
About this task

Refer [Figure 34](#) on page 44 to while performing the procedure that follows.

Procedure

1. Turn the captive screw counterclockwise to release the power/cooling module.
2. Remove the module from the enclosure.

Figure 34 Removing a power/cooling module (AC module shown)



CL4568

Installing a power/cooling module

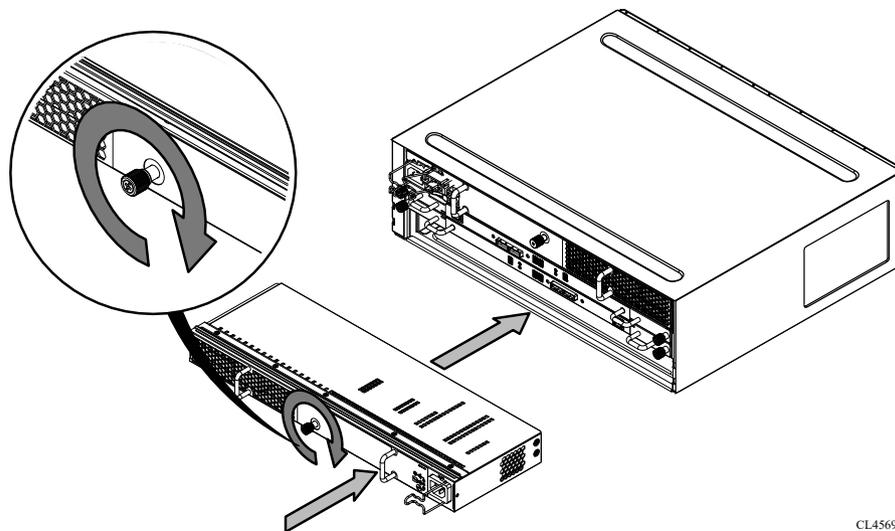
About this task

Refer to [Figure 35](#) on page 44 while performing the procedure that follows.

Procedure

1. Gently insert the new power/cooling module into the enclosure, being sure the module is completely seated.
2. Secure the module with the captive screw.

Figure 35 Installing a power/cooling module (AC module shown)



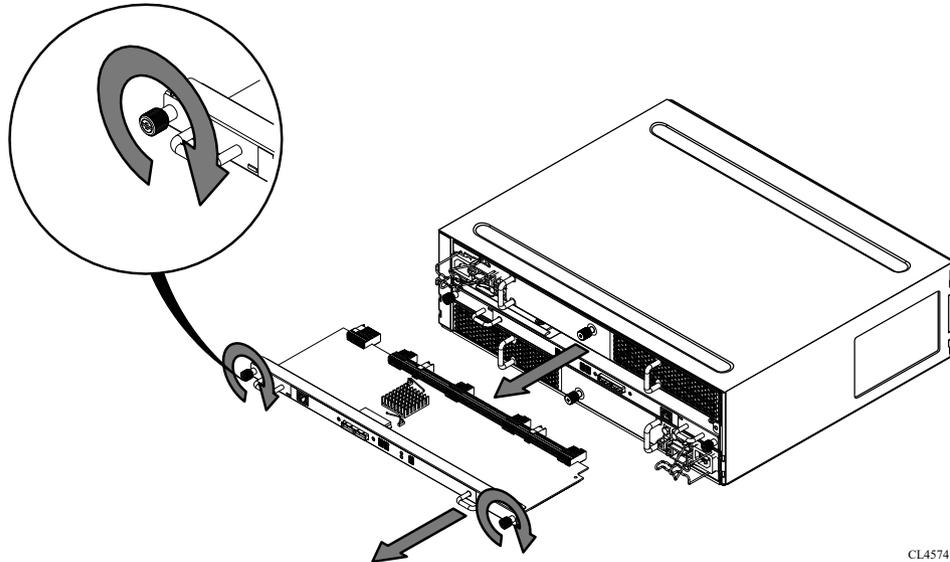
CL4569

Removing the controller

Procedure

1. Attach an ESD wristband to your wrist and the enclosure in which you are replacing the controller.
2. Turn the captive screws counterclockwise to release the controller.
3. Remove the controller from its slot and place it on a clean, static-free surface.

Figure 36 Removing the controller



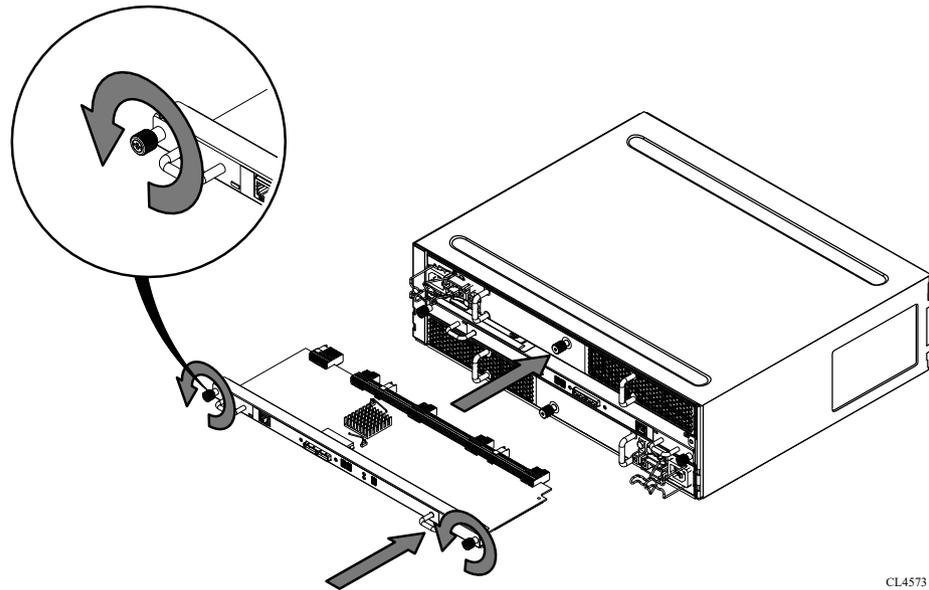
CL4574

Installing the controller

Procedure

1. Attach an ESD wristband to your wrist and the enclosure.
2. Gently insert the controller, being sure the controller is completely seated in the enclosure.
3. Secure the controller with the captive screws.

Figure 37 Installing the controller



CL4573

Transferring disks and disk filler modules

Starting with the disk or disk filler module in slot 0, transfer disks and any disk filler modules one at a time from the faulted enclosure to the replacement enclosure.

NOTICE Make sure to transfer the disks and any disk filler modules to the same slots in the replacement enclosure that they occupied in the faulted enclosure. Installing disks out of their original order results in data unavailability, and possible data loss.

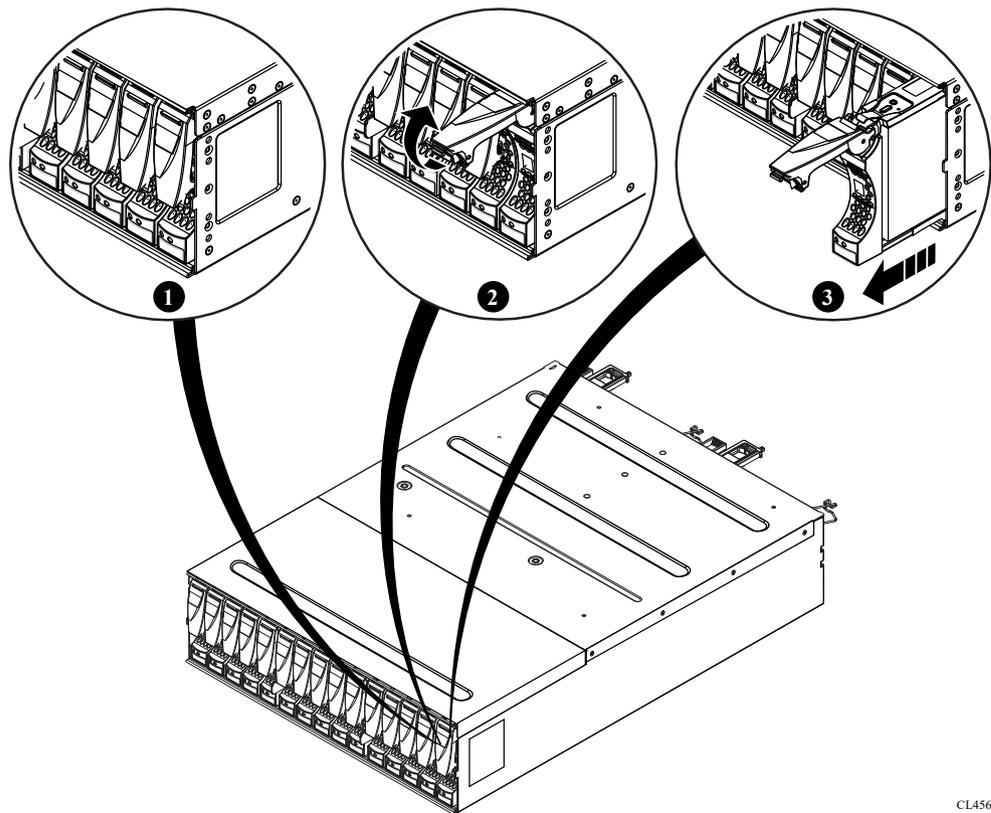
Removing a disk

About this task

Refer to [Figure 38](#) on page 47 while performing the procedure that follows.

Procedure

1. Pull the latch on the disk up.
2. Slowly pull the disks from its slot.
3. Place the disk on a static-free surface.

Figure 38 Removing a disk

CL4563

Installing a new or replacement disk

Before you begin

Use ESD gloves or attach an ESD wristband to your wrist and the enclosure in which you are installing the disk.

About this task

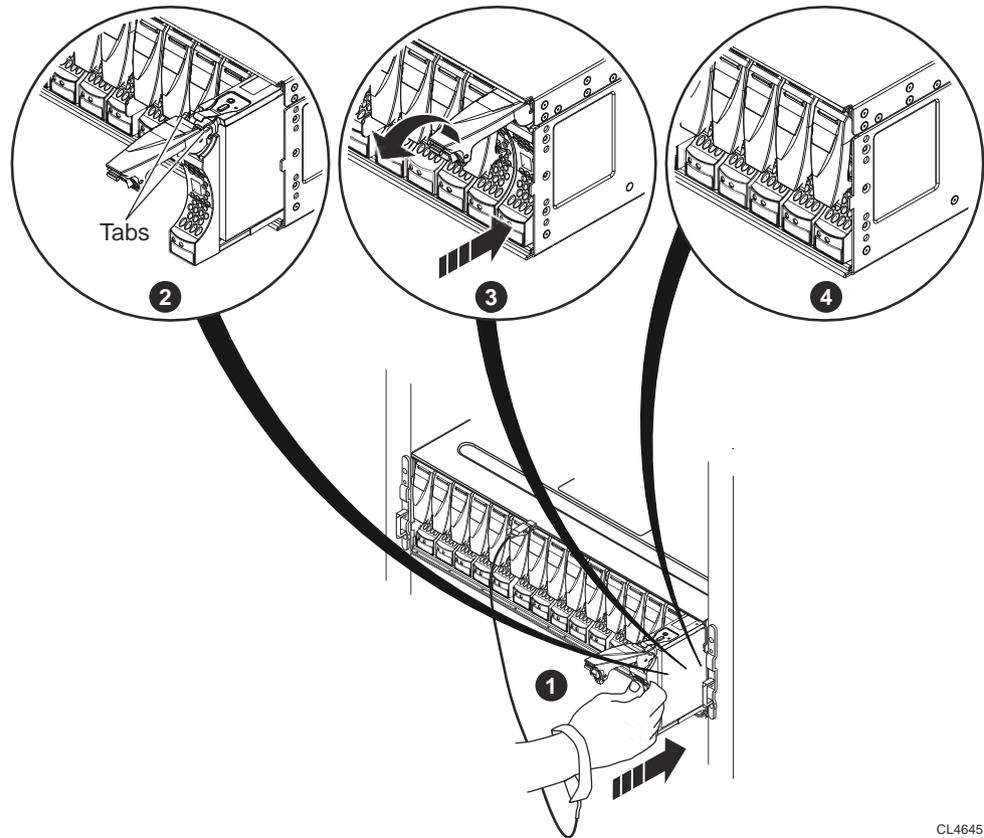
Refer to [Figure 39](#) on page 48 while performing the procedure that follows.

NOTICE If you are installing multiple disks in a storage system that is powered up, wait at least 10 seconds before sliding the next disk module into position.

Procedure

1. Align the disk with the guides in the slot.
2. With the disk latch fully open, gently push the disk into the slot.
The disk latch begins to rotate downward when its tabs meet the enclosure.
3. The disk latch begins to rotate downward when its tabs meet the enclosure.
4. After the latch is engaged, push firmly on the bottom of the disk to verify that the disk is properly seated.

Figure 39 Installing a disk



CL4645

The disk's active light flashes to reflect the disk's spin-up sequence.

After you finish

Remove and store the ESD gear.

Removing a disk filler module

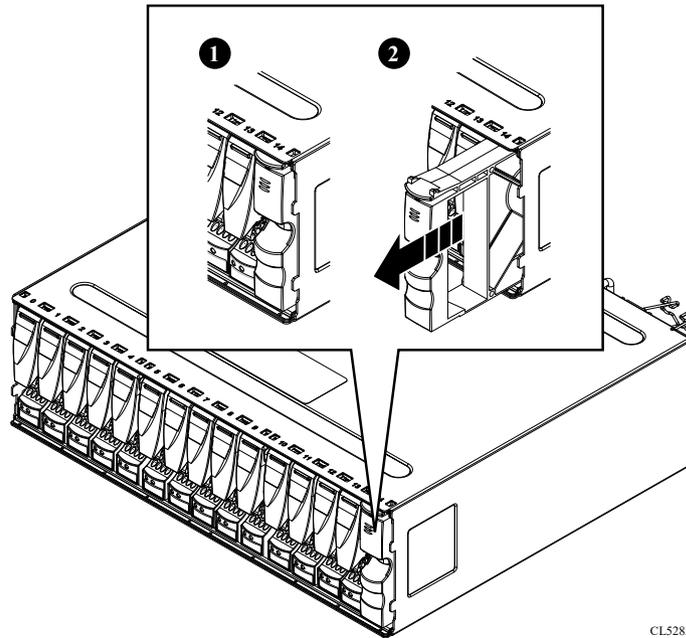
About this task

Refer to [Figure 40](#) on page 49 while performing the procedure that follows.

Procedure

1. Locate the slot where you want to install the disk.
2. Grasp the disk filler with your thumb in the cutout on the front of the filler and your finger on the top of the filler and pull the module from the slot.

Figure 40 Removing a disk filler module



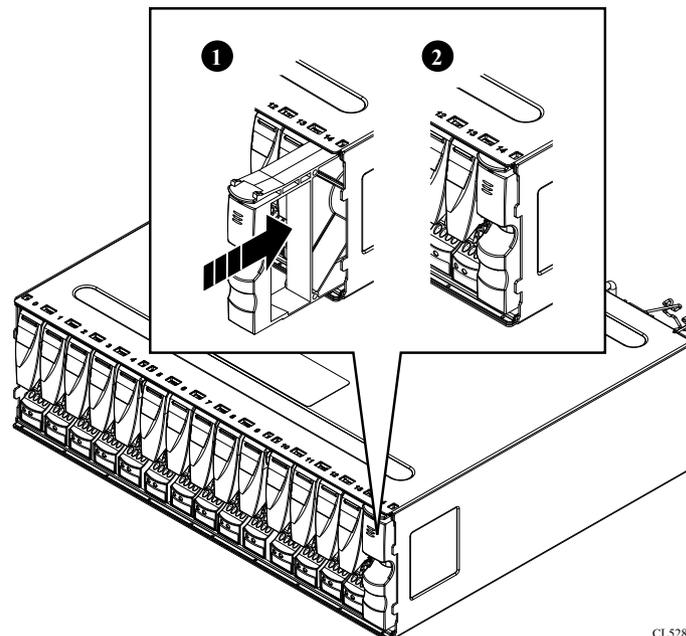
CL5283

Installing a disk filler

Procedure

1. Hold the disk filler with you thumb in the cutout on the front of the filler and your finger on the top of the filler.
2. Push the disk filler module all the way into the slot.

Figure 41 Installing a disk filler module



CL5284

Connecting power to the replacement enclosure

About this task

Use the procedure that follows to connect the AC power cord to each power/cooling module. Refer to [Figure 42](#) on page 50 while performing the procedure.

Procedure

1. Plug in the AC power cord.

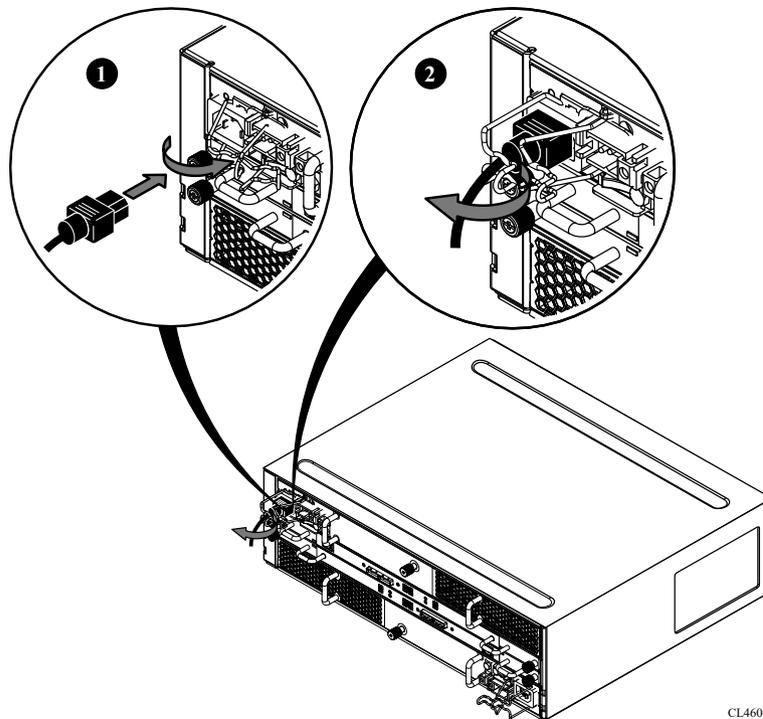
i **NOTICE** Do not connect a power/cooling module in an optional power/cooling module to an SPS. Only connect a power/cooling module in enclosure 0 on bus 0, which contains the system (vault) disks, to the SPS.

As soon as the enclosure is connected to a live power source, it powers up and its lights begin blinking.

2. Secure the power cord with the retention bail at the connector.

The bail prevents the power cord from pulling out of the connector.

Figure 42 Plugging in and securing an AC power cord

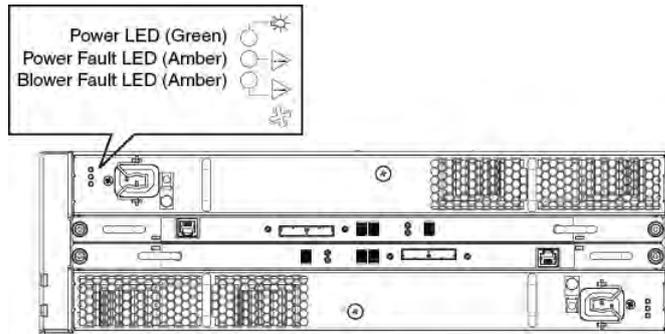


Verifying shelf status

Procedure

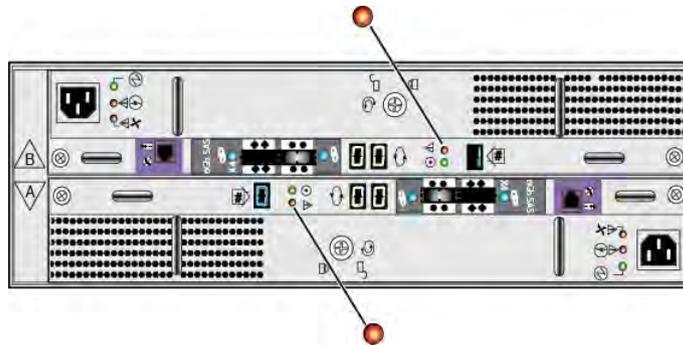
1. Verify that the shelf power LED is lit and that the power fault and blower fault LEDs are not lit ([Figure 43](#) on page 51).

Figure 43 Enclosure status LEDs



2. Verify that the shelf fault LED is not lit (Figure 44 on page 51).

Figure 44 Enclosure fault LED



Connecting the back-end bus to the shelf

Procedure

1. On controller A in the previous enclosure on the bus, locate the cable plugged into the ♦♦ port and plug its free end into the ●● port on controller A in the replacement enclosure.
The enclosure immediately before an enclosure on the same back-end bus is called the previous enclosure.
2. On controller A in the next enclosure, locate the cable plugged into the ●● port and plug its free end into the ♦♦ port on controller A in the replacement enclosure.
The enclosure immediately after an enclosure on the same back-end bus is called the next enclosure.
3. On controller B in the previous enclosure on the bus, locate the cable plugged into the ♦♦ port and plug its free end into the ●● port on controller B in the replacement enclosure.
4. On controller B in the next enclosure on the bus, locate the cable plugged into the ●● port and plug its free end into the ♦♦ port on controller B in the replacement enclosure.
5. Verify that the Bus ID LED displays the expected value.

Installing and locking the front bezel

Before you begin

CAUTION You must remove the protective plastic strip from the front of the bezel before placing the system into operation. Failure to do this will cause the system to overheat.

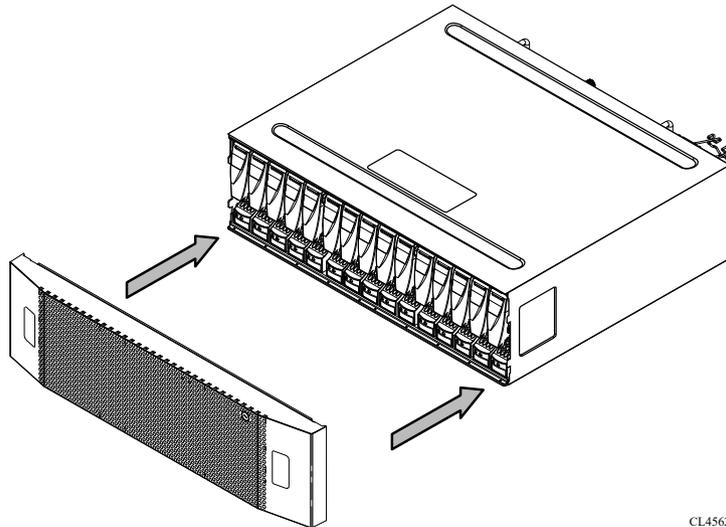
About this task

Refer to [Figure 45](#) on page 52 while performing the procedure that follows.

Procedure

1. If present, remove the protective plastic strip from the front of the bezel.
2. Align the bezel with the enclosure.
3. Gently push the bezel into place until it latches.
4. Secure the bezel by turning the key in the lock.

Figure 45 Installing the front bezel



CL4562

Closing the console

About this task

If you opened the console for access to the enclosure with the part you added or replaced, close the console using the procedure that follows.

Procedure

1. Grasp the free side of the console, and swing the console to the right to close it
2. Gently push on the console until it is closed.

Verify the chassis replacement

Procedure

1. Run the `disk rescan` command to discover the disks.
 - a. If all of the disks are not listed, perform another rescan.
 - b. If all of the disks are still not listed, check the connection.
2. Enter the `alerts show current` command and confirm that the system has no alerts.

```
# alerts show current
No active alerts.
```

Note: If the command output displays hardware failure, use the appropriate sections in this document (PSU, controller, disk, and fan) to identify and verify the component connections until there are no alerts.

Bezel Replacement

This section describes how to install or remove a bezel.

Unlocking and removing the front bezel

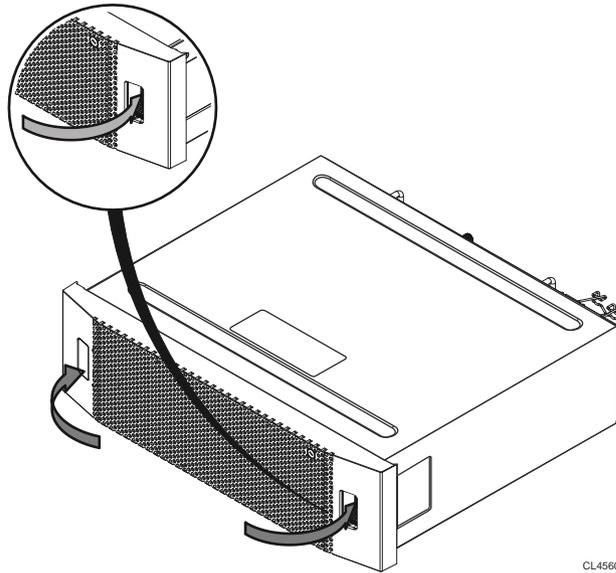
About this task

NOTICE You must remove the enclosure's front bezel to gain access to the disks. The bezel is required for EMI compliance when the enclosure is powered up. Remove it only to replace or add a disk.

Procedure

1. Insert the key that shipped with your enclosure into the bezel lock, and turn it to release the lock.
2. Press the two latch buttons on the bezel surface to release the bezel from the cabinet (Figure 46 on page 54).

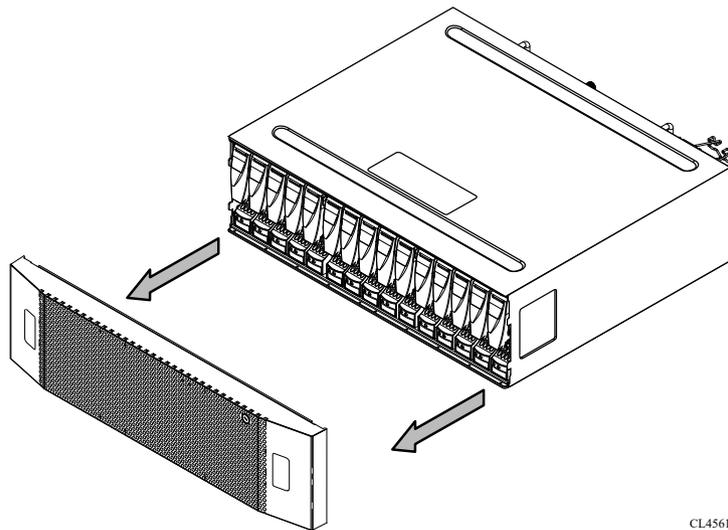
Figure 46 Releasing the front bezel



CL4560

3. Pull the bezel off and put it on a clean, static-free surface ([Figure 47](#) on page 54).

Figure 47 Removing the front bezel



CL4561

Installing and locking the front bezel

Before you begin

CAUTION You must remove the protective plastic strip from the front of the bezel before placing the system into operation. Failure to do this will cause the system to overheat.

About this task

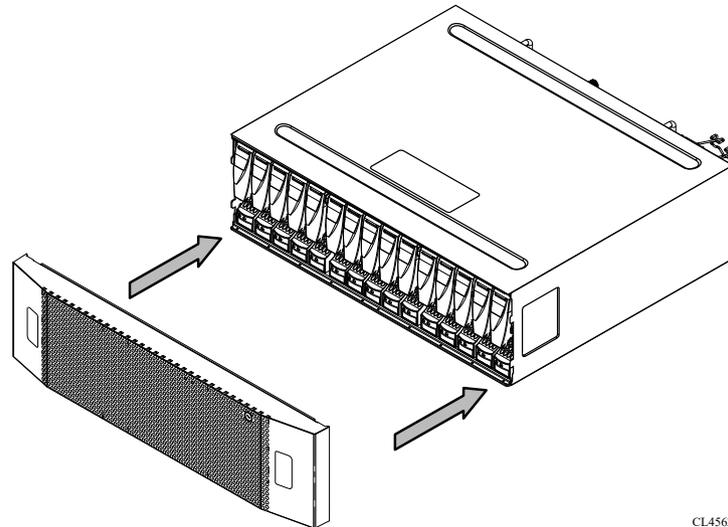
Refer to [Figure 48](#) on page 55 while performing the procedure that follows.

Procedure

1. If present, remove the protective plastic strip from the front of the bezel.
2. Align the bezel with the enclosure.

3. Gently push the bezel into place until it latches.
4. Secure the bezel by turning the key in the lock.

Figure 48 Installing the front bezel



CL4562

Rail Replacement

This section describes how to replace the enclosure's rails. The chassis must be removed from the rack before the rails can be replaced.

Rail kit overview

Ensure that you have received all the parts in the rail kit.

This rail kit is compatible with racks that have front-to-rear spacing between 24 inches and 34 inches. The rails are adaptable to racks with square or round mounting holes. Tapped (threaded) hole racks are supported using the rail adapter hardware kit. The rail kit includes the following:

- 2 rail assemblies, one for the left side and one for the right side of the rack. Each rail is adjustable to accommodate varying rack depths up to 34 inches.
- 12 M5 panhead rail screws
- 2 SAS cables (extra item)
- 2 power cords (extra item)
- Rail adapter hardware kit
 - ① **Note:** These items may be shipped separately
 - 2 short brackets
 - 2 long brackets
 - 1 wrench
 - 1 bag of M5 screws and 1 bag of M5 nuts (for use with M5, M6 or 12/24 tapped round hole racks)
 - 1 bag of 10/32 screws and 1 bag 10/32 nuts (for use with 10/32 tapped round hole racks)

- 1 bag of M5 clip nuts (for use with M5, M6, or 12/24 tapped round hole racks)

Shut down and disconnect the system

Procedure

1. Stop the system using the `system poweroff` command to allow the proper shut down of the file system and other system components.

Note: The `system poweroff` command completes when the front panel blue LED turns off.

For help connecting to a system using a laptop computer and terminal emulator, see the document *FE Toolkit Inventory and Common Procedures for FRU Tasks* at <https://support.emc.com>.

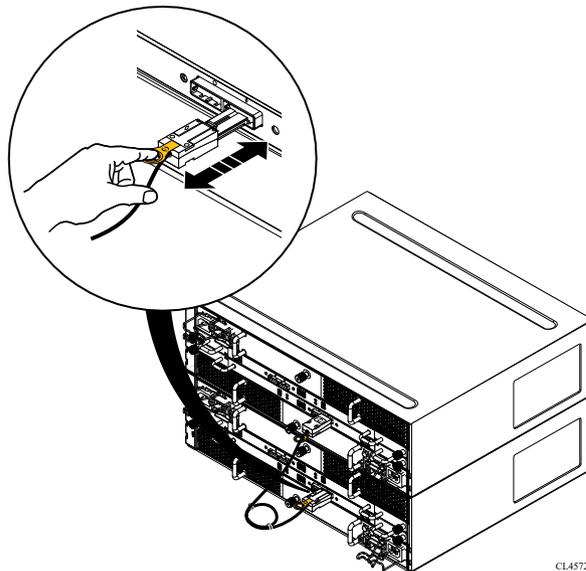
2. Label each of the cables as to their connection location. Taking a photograph for reference is also helpful for re-connecting the cables.
3. Disengage the wire clips, then disconnect both AC power cords from the rear of the system.

Disconnecting a shelf from the back-end bus

Procedure

1. On controller A in the enclosure:
 - a. Unplug the SAS cable from the ●● port.
 - b. Unplug the SAS cable from the ◆◆ port.
2. On controller B in the enclosure:
 - a. Unplug the SAS cable from the ●● port.
 - b. Unplug the SAS cable from the ◆◆ port.

Figure 49 Unplugging a SAS cable



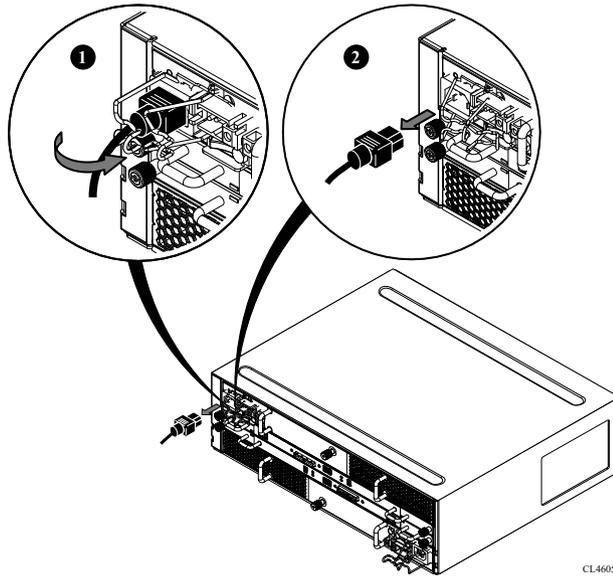
CL4572

Disconnecting power cords

About this task

Unplug the power cord from each power/cooling module in the enclosure.

Figure 50 Unplugging the AC power cord



CL4605

Opening the console

About this task

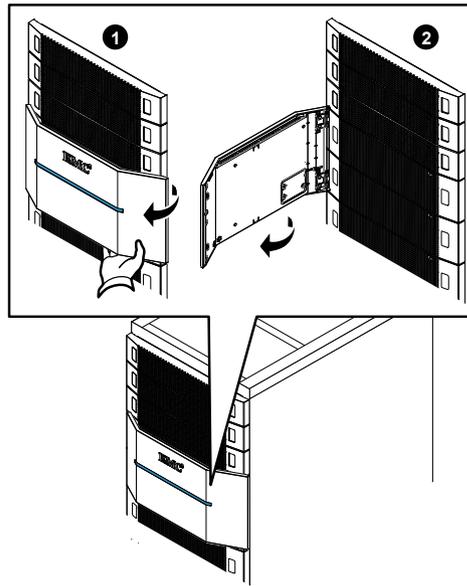
The console is a protruding plastic banner on the front of the cabinet with a stripe of blue or green light and the product badge.

If the console is covering the front of the shelf to which you need access, open the console using the steps that follow. Refer to [Figure 51](#) on page 58.

Procedure

1. Grasp the right side of the console.
2. Pull the console to swing it open.

Figure 51 Opening the console



CL4699

Unlocking and removing the front bezel

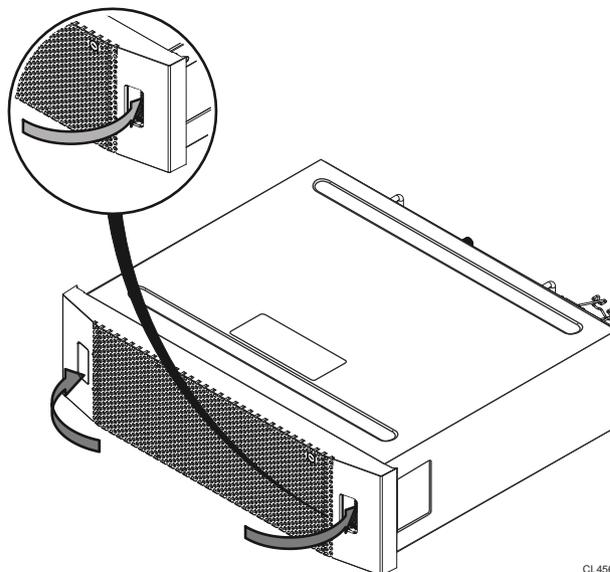
About this task

NOTICE You must remove the enclosure's front bezel to gain access to the disks. The bezel is required for EMI compliance when the enclosure is powered up. Remove it only to replace or add a disk.

Procedure

1. Insert the key that shipped with your enclosure into the bezel lock, and turn it to release the lock.
2. Press the two latch buttons on the bezel surface to release the bezel from the cabinet (Figure 52 on page 58).

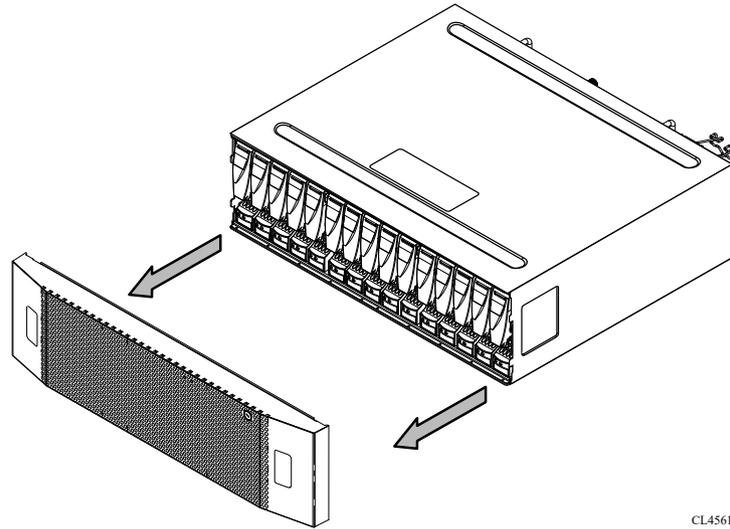
Figure 52 Releasing the front bezel



CL4560

3. Pull the bezel off and put it on a clean, static-free surface (Figure 53 on page 59).

Figure 53 Removing the front bezel



CL4561

Removing a shelf from the cabinet

About this task

CAUTION

The enclosure is heavy and should be installed into or removed from a rack by two people. To avoid personal injury and/or damage to the equipment, do not attempt to lift and install the enclosure into a rack without a mechanical lift and/or help from another person.

L'enclosure étant lourde, sa mise en place dans l'armoire nécessite deux personnes. Afin de ne pas vous blesser et/ou endommager le matériel, n'essayez pas de soulever et d'installer l'armoire sur une rampe sans avoir recours à un relevage mécanique et/ou à l'aide d'une autre personne.

Das Gehäuse ist schwer und sollte nur von zwei Personen in einem Rack installiert werden. Zur Vermeidung von körperlichen Verletzungen und/oder der Beschädigung des Gerätes, bitte das Gehäuse nicht ohne die Hilfe einer zweiten Person anheben und einbauen.

Il contenitore è pesante e dev'essere installato nel rack da due persone. Per evitare danni personali e/o all'apparecchiatura, non tentare di sollevare ed installare in un rack il contenitore senza un sollevatore meccanico e/o l'aiuto di un'altra persona.

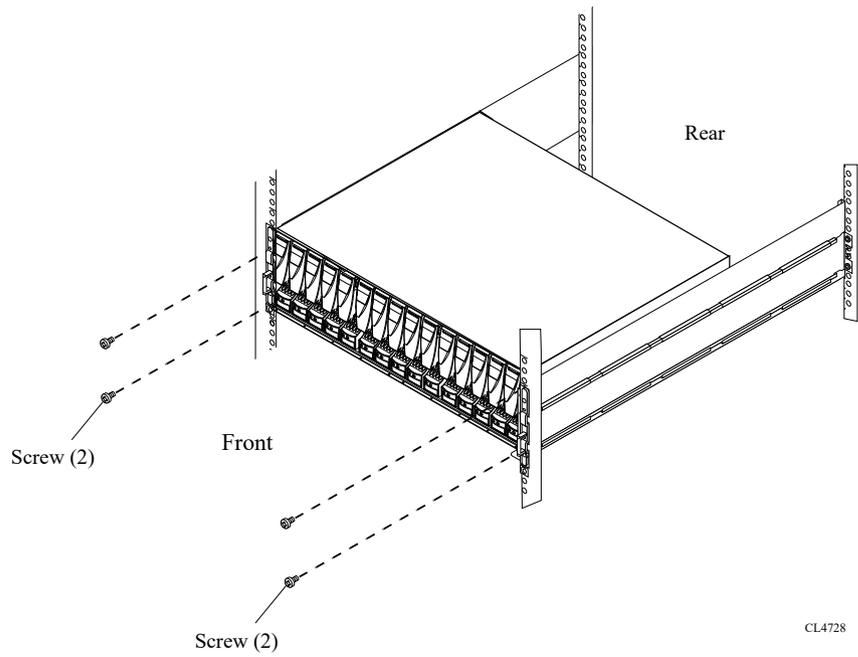
Debido a su considerable peso, la instalación del compartimento en el bastidor deben realizarla siempre dos personas. Para evitar daños personales o en el equipo, el compartimento no debe levantarse ni instalarse en el bastidor sin la ayuda de un elevador mecánico o de otra persona.

本設備相當沉重，安裝置機架時應由兩人搬動。切勿在未經機械搬動車和(或)他人協助的情況下，獨自搬動和安裝本設備，以免受傷和(或)損壞設備。

Procedure

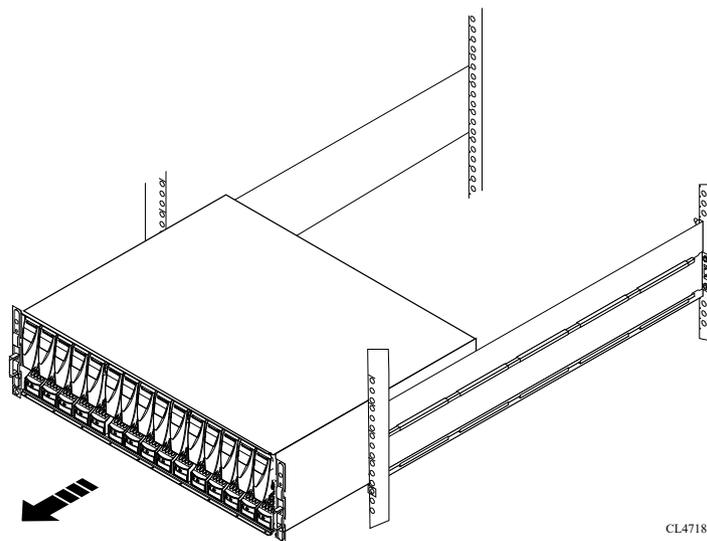
1. Remove the four screws (two per side) that secure the front of the enclosure to the front vertical channels of the cabinet, and save the screws (Figure 54 on page 60).

Figure 54 Removing the screws that secure the enclosure to the front of the cabinet



2. With help from another person, slide the enclosure out of the cabinet and place it on a static-free work surface ([Figure 55](#) on page 60).

Figure 55 Sliding the enclosure out of the cabinet

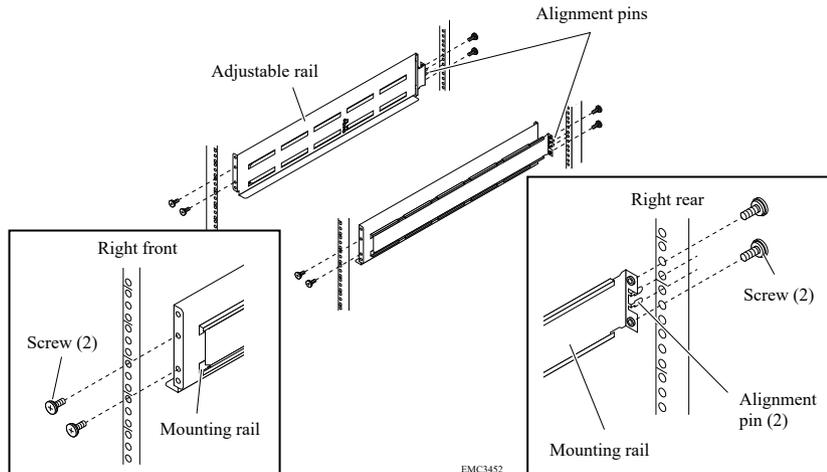


Removing the rails

This procedure describes how to remove the universal rails from a Data Domain or third-party rack. This procedure assumes the shelf that was installed in the rails has been removed.

About this task

Figure 56 Removing rails



Procedure

1. Remove the two screws from the front channel.
2. Remove the two screws from the rear channel.
3. Push in the alignment pins on the rear channel and remove the rail.
4. Repeat for other rail.

Installing the rails in the cabinet

About this task

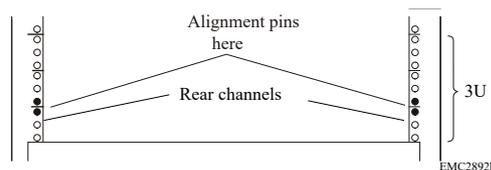
Note: The front edge of each rail is stamped L or R for left or right side, when the rail faces the cabinet front.

Install each rail in the cabinet.

Procedure

1. From the front of the cabinet, insert the rail alignment pins above and below the bottom U mark on the rear cabinet channel.

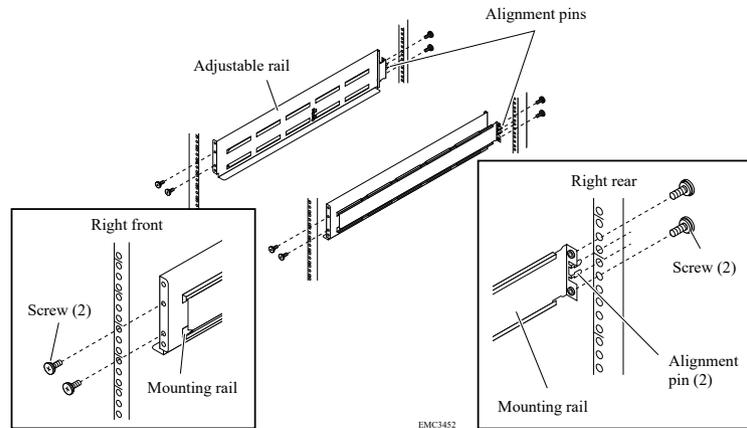
Figure 57 Holes for alignment pins



2. Pull the sliding rail to the front of the cabinet, and secure it to the front channel at the middle two holes of the rail using two of the provided screws.

- Secure the rail to the rear channel loosely with two screws to allow for adjustment when you install the enclosure.

Figure 58 Installing the rails



Adjusting for various rack types

The standard rail components can accommodate racks with square or untapped round holes with a depth of 24 inches to 34 inches.

Using the rail adapter hardware, the following additional rack mounting types and depths can be accommodated:

- Racks with depths of 34 inches to 36 inches
- Racks with tapped holes, M6 or 12/24
- Racks with tapped holes, M5 or 10/32

Installing the rails using the adapter hardware

About this task

Only use this procedure if the rack is 34 inches to 36 inches deep and/or the rack has tapped holes that are M5, M6, 10/32, or 12/24.

The front edge of each rail is stamped L or R for left and right sides, when facing the front of the rack. Since the brackets cover these markings, make a note as to which rack is L and which rack is R.

Use a #2 Phillips screwdriver with a shank diameter less than 7.0 mm and the wrench that was included in the kit to tighten the nuts.

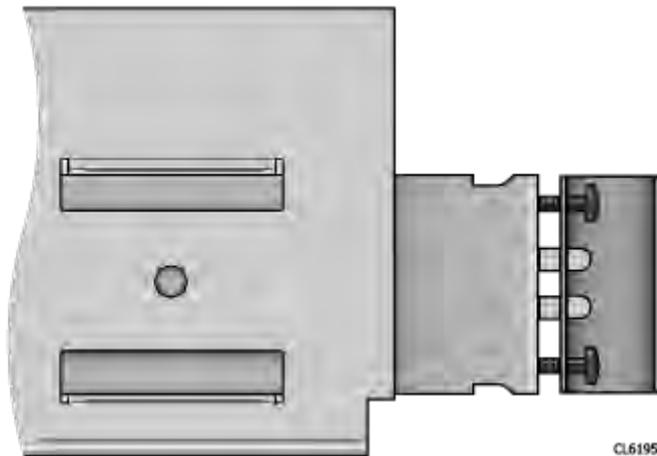
CAUTION The adapter kit is only for static applications where the rack will not be moved. If the rack is to be moved, remove the shelves before moving the rack.

Procedure

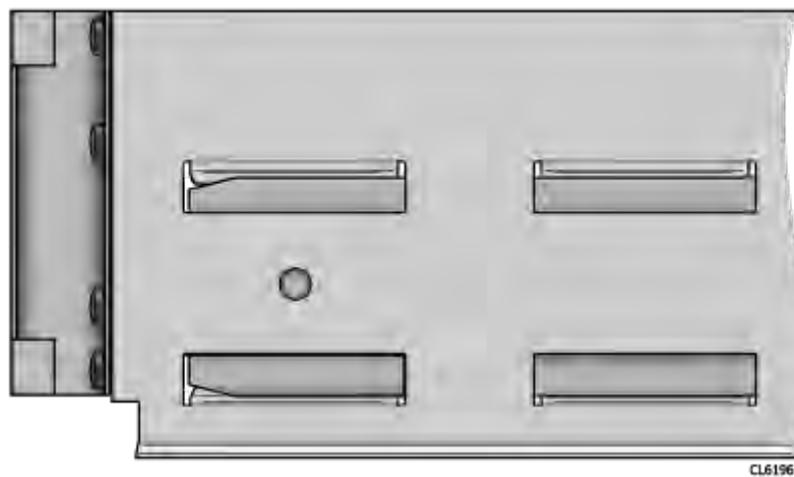
- Attach a long bracket to the front of each rail using four M5 screws into the first (top), second, fourth, and sixth holes.



2. Attach a short bracket to the rear of each rail using two M5 screws into the top and bottom holes.



3. (M6 or 12/24 tapped holes racks only) Attach clip nuts. Slide two clip nuts onto the front bracket assembly at the top and bottom positions.



4. Determine the vertical position in the rack at each rack post where the rails are to be installed.

The top-most mounting hole for a particular rack unit (RU) mounting position is typically identified by a mark or hole. Racks may also be screen-printed to show the positions of the rack units.

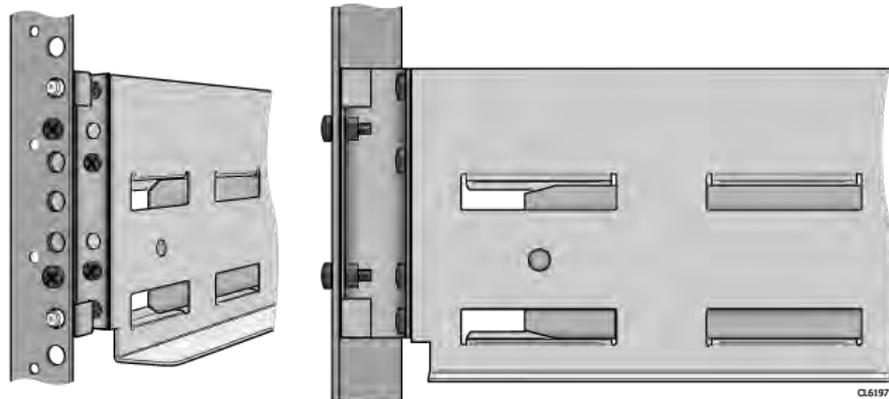
Note: Two people may be required to attach the rail/bracket assembly to the rack.

5. Attach the first rail to the rack as follows:
 - a. Hold the rail against the inside of the rack, with the rear bracket aligned with the rear of the rack.
 - b. Pull the front of the rail until it is aligned with the inside of the rack front.
 - c. Attach the front of the rail/bracket assembly to the front of the rack.

For M6 or 12/24 tapped rack holes: insert M5 screws through the rack hole positions as shown in [Figure 59](#) on page 64. Secure the screws using the furnished nuts.

For M5 or 10/32 tapped rack holes: partially screw in the screws into the rack hole positions as shown in [Figure 59](#) on page 64. Slide the rail kit over the exposed threads. These threads temporarily hold the rail kit in position while the kit length is being adjusted. Once the rail kit is set to the correct length, thread the mating nuts onto the exposed screws and tighten with a wrench.

Figure 59 Attaching the rail to the rack



Note: To secure the rail adapter hardware nuts, you may need to use the supplied wrench or pliers to tighten the nuts.

6. Repeat step 5 for the second rail.
7. After installing both rails, ensure that they are level with one another.

Installing the shelf on the rails

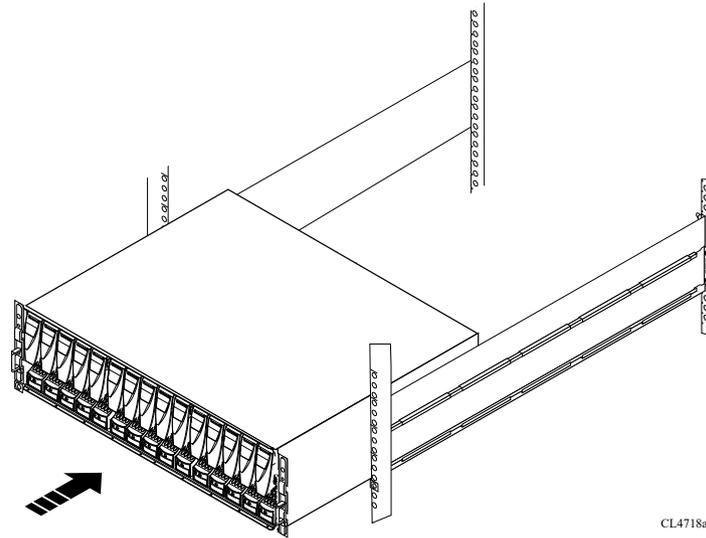
About this task

WARNING The enclosure is heavy and should be installed into or removed from a rack by two people. To avoid personal injury and/or damage to the equipment, do not attempt to lift and install the enclosure into a rack without a mechanical lift and/or help from another person.

Procedure

1. With help from another person, lift the enclosure and, from the front of the cabinet/rack, slide the enclosure onto the rails ([Figure 60](#) on page 65).

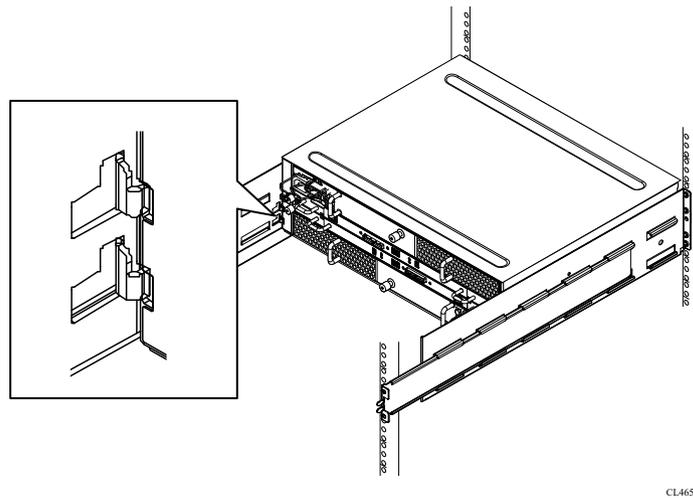
Figure 60 Sliding the enclosure onto the rails



When the enclosure slides to the back of the cabinet, the rear tabs on the rails insert into the two notches in the rear of the enclosure. The tabs secure and support the rear of the enclosure ([Figure 61](#) on page 65).

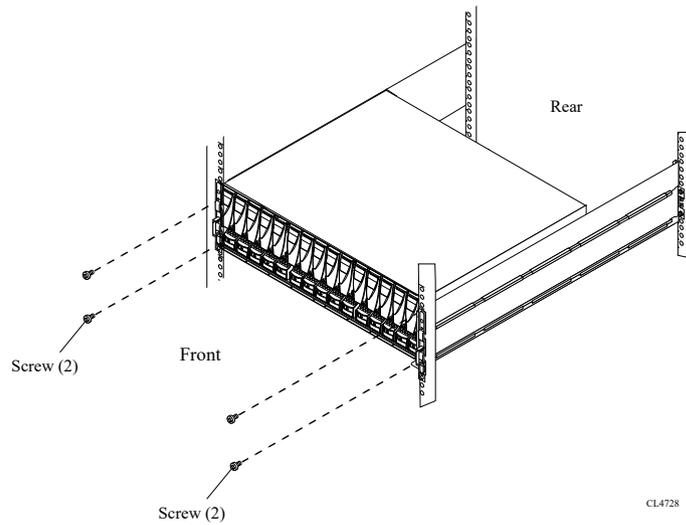
If the chassis does not slide all the way into the cabinet, you may need to further loosen the screws that hold the rear of the rails in place, then adjust the rails to allow the tabs to fit into the notches.

Figure 61 Rail tabs securing the rear of the enclosure



2. Once the enclosure is completely seated into the rear tabs, secure the enclosure, tighten the screws (two on each rail) that secure the rails to the channels.
3. Secure the front of the enclosure to the front vertical channels with four screws (two per side), but do not tighten the screws until they are all in place ([Figure 62](#) on page 66).

Figure 62 Securing the front of the enclosure



Complete the procedure

Procedure

1. Return the failed or replaced part(s) to Dell EMC. Reuse the packaging from the new part(s) and use the included prepaid waybill for shipping. Reference the RMA number on the outside of the package.
2. Send an autosupport report from the system by entering the `autosupport send` command.