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## Replacing the chassis on a FAS22xx system

To replace the chassis, you must remove the power supplies, hard drives, and controller module or modules from the old chassis, remove the old chassis from the equipment rack or system cabinet, install the new chassis, and then reinstall the components into the new chassis.

### Before you begin

All other components in the system must be functioning properly; if not, you must contact technical support.

### About this task

- You can use this procedure with all versions of Data ONTAP supported by your system.  
In this procedure, a *Cluster-Mode system* refers to a system running Data ONTAP 8.x in Cluster-Mode. A *7-Mode system* refers to a system running Data ONTAP 8.x in 7-Mode.
- This procedure refers to *HA pairs*, which in releases prior to Data ONTAP 8.0 were called *active/active configurations*.
- This procedure assumes you are moving all disk drives to the new chassis.
- This procedure is written with the assumption that the chassis is nonfunctional and, therefore, the controller modules in it are not serving data.
- This procedure is written with the assumption that you are moving the controller module or modules to the new chassis, and that the chassis is a new component from NetApp.

### Steps

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## Removing the power supplies

To remove the power supplies from the chassis, you must perform a specific sequence of steps.

### Steps

1. If you are not already grounded, properly ground yourself.
2. If you have not already done so, turn off the power to the target power supply and remove the power cord.
3. Squeeze the latch on the cam handle until it releases, then open the cam handle fully to release the power supply from the midplane.

If you have a FAS2240-2 system, a plastic flap within the now empty slot is released to cover the opening and maintain air flow and cooling.

4. Use the cam handle to slide the power supply out of the system.

**Attention:** When removing a power supply, always use two hands to support its weight.

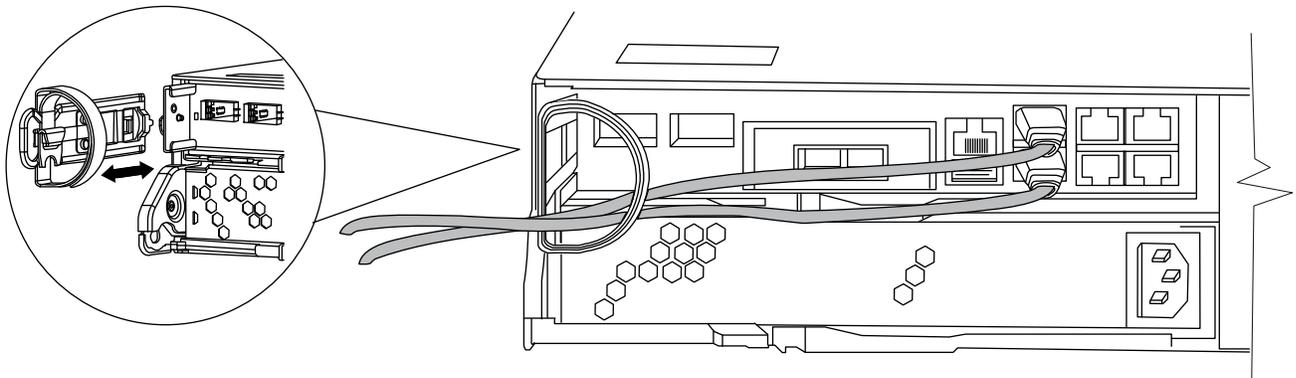
5. Repeat the preceding steps for any remaining power supplies.

## Removing the controller module

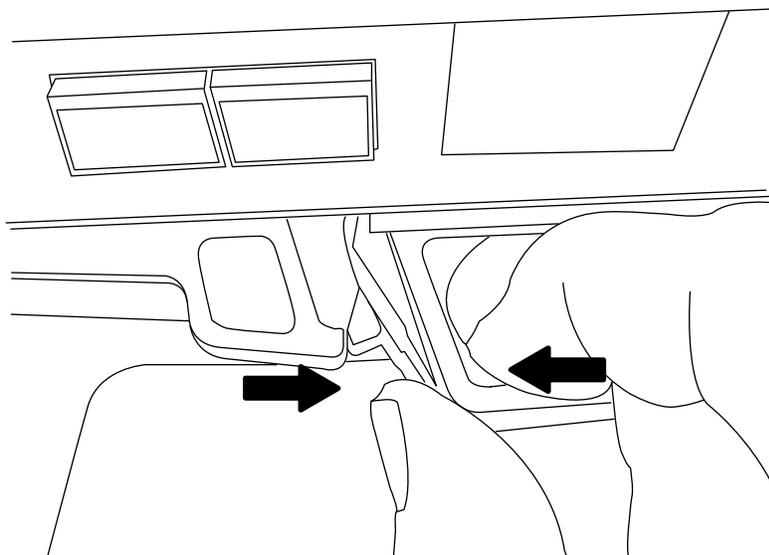
To remove the controller module or modules from the chassis, you must perform a specific sequence of steps.

### Steps

1. If you are not already grounded, properly ground yourself.
2. Unplug the system cables and SFPs from the controller module, as needed, and keep track of where the cables were connected.  
  
Leave the cables in the cable management arm, so that when you reinstall the cable management arm, the cables are organized.
3. Remove the cable management arms from the left and right sides of the controller module and set them aside.



4. Squeeze the latch on the cam handle until it releases, open the cam handle fully to release the controller module from the midplane, and then, using two hands, pull the controller module out of the chassis.



- Repeat the preceding steps for the second controller module, as needed.

## Moving disk drives to the new chassis

You need to move the disk drives from each bay opening in the old chassis to the same bay opening in the new chassis. If you have a FAS2240-2, you must also move the operator display panel from the old chassis to the same position in the new chassis.

### Steps

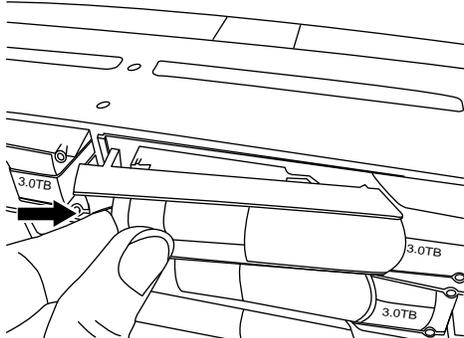
- Gently remove the bezel from the front of the system.
- Remove the disk drives:

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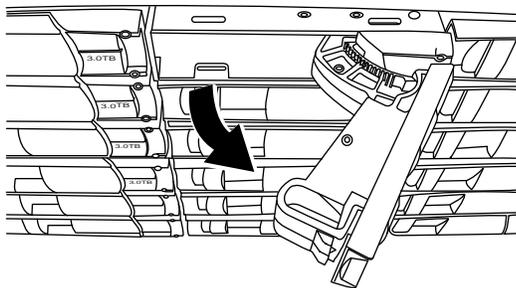
For the...	Then...
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FAS2220 and FAS2240-4 systems	<ol style="list-style-type: none"> <li>Press in the release button on the far left of the carrier face front.</li> </ol>
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The spring-loaded cam handle releases, opens to its fully opened position, and disengages from the midplane.



- Pull the cam handle and gently slide the disk drive out of the disk shelf.

**Attention:** When removing a disk drive, always use two hands to support its weight.

**Note:** Disk drives are fragile. Handle them as little as possible to prevent damage to them.

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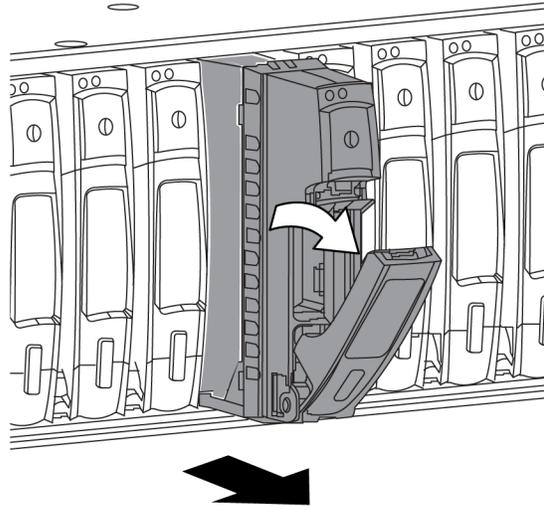
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**For the... Then...**

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FAS2240-2 system

- a. Press the release button at the top of the carrier face below the LEDs.



- b. Pull the cam handle to its fully open position to unseat the disk drive from the midplane, and gently slide the disk drive out of the disk shelf.

The disk drive should disengage from the chassis, allowing it to slide free of the chassis.

**Attention:** When removing a disk drive, always use two hands to support its weight.

**Note:** Disk drives are fragile. Handle them as little as possible to prevent damage to them.

- 
3. Align the disk drive from the old chassis with the same bay opening in the new chassis.

4. Gently push the disk drive into the chassis as far as it will go.

The cam handle engages and begins to lift upward.

5. Firmly push the disk drive the rest of the way into the chassis and lock the cam handle by pushing it up and against the disk drive holder.

Be sure to close the cam handle slowly so that it aligns correctly with the front of the drive carrier. You will hear it click when it is secure.

6. Repeat the process for the remaining disk drives in the system.

See the *Hardware Overview* for more information.

7. If you have a FAS2240-2, you must move the operator display panel (which contains the status LEDs for the system) from the old chassis to the new chassis:

- a) With the disk drives removed, note the touch-point release pin on the side of the operator display panel.
- b) Insert your hand into the chassis, pull the pin straight out to release the operator display panel, and then with your other hand, grasp the front of the operator display panel and slide it out of the chassis.
- c) Moving to the new chassis, slide the operator display panel into the slot until it meets the midplane and clicks into place.

## Removing the chassis from the equipment rack or system cabinet

You must remove the existing chassis from the equipment rack or system cabinet before you can install the new one.

### Steps

1. Remove the screws from the chassis mount points.
2. Using two or three people, slide the chassis off the slide rails and set it aside.

**Attention:** Depending on the system, you might need a third person to help you safely remove the chassis from the equipment rack or system cabinet. See the weight stickers on the top of the chassis before you remove the chassis from the equipment rack or system cabinet.

## Installing the new chassis into the equipment rack or system cabinet

To install the new chassis in the equipment rack or system cabinet, you must perform a specific sequence of steps.

### Steps

1. If you are not already grounded, properly ground yourself.
2. Using two or three people, install the empty chassis into the equipment rack or system cabinet by guiding the chassis onto the rail guides in a system cabinet or angel wings in an equipment rack.
3. Slide the chassis all the way into the equipment rack or system cabinet.
4. Secure the rear of the chassis to the support rail, if applicable, using the screws you removed from the defective chassis.
5. Secure the front of the chassis to the equipment rack or system cabinet upright, using the screws you removed from the chassis.

## Installing the power supplies

Installing the power supplies requires that you place the power supply in the chassis, secure it, and reconnect the power cord to it.

### Steps

1. Make sure that the on/off switch of the new power supply is in the Off position.
2. If you are not already grounded, properly ground yourself.
3. Align the edges of the power supply with the opening in the system chassis, and gently push the power supply into the chassis.
4. Push on the power supply cam handle to seat it all the way into the chassis, and then push the cam handle to the closed position.

**Attention:** Do not use excessive force when sliding the power supply into the system; you can damage the connector.

5. Reconnect the power cord.

Only connect the power cord to the power supply; do not connect the power cord to a power source yet.

## Reinstalling the controller modules and booting the system

To install and cable controller modules in the new chassis and then boot the system, you must perform a specific sequence of steps.

### Steps

1. Close and latch the controller module cover, if necessary.
2. Push the controller module all the way into the system, firmly push the cam handle to finish seating it, and then push the cam handle to the closed position.
3. Reinstall the cable management arms and recable the system, as needed.

When recabling, remember to reinstall the media converters (SFPs) if you are using fiber cables.

4. The next step depends on your system configuration.

If your system is in...	Then...
A stand-alone configuration	Go to the next step.
An HA pair with a second controller module	Repeat the preceding steps for the second controller module.

5. Connect the power supplies to different power sources, and then turn them on.
6. Press Ctrl-c to stop the boot process and display the boot menu when prompted to do so, and then select the option to boot to Maintenance mode.

## Verifying and setting the HA state of the chassis

You must verify the HA state of the chassis, and if necessary, update the state to match your system configuration (HA pair or stand-alone).

### Steps

1. In Maintenance mode, enter the following command from either controller module to display the HA state of the local controller module and chassis:

```
ha-config show
```

The HA state should be the same for all components.

2. Proceed based on the results of Step 1.

If the displayed system state for the chassis...	Then...
Matches your system configuration	Go to the next step.
Does not match your system configuration	Set the HA state for the chassis by entering the following command: <pre>ha-config modify chassis [ha   non-ha]</pre>

3. Exit Maintenance mode by entering the following command:

```
halt
```

The LOADER prompt appears.

# Running diagnostics on the chassis

After installing a new chassis, you should run diagnostics. If your system is in an HA configuration, you should run the tests separately on both nodes.

## Steps

1. Enter the following command at the LOADER prompt:

```
boot_diags
```

**Note:** You must enter this command from the LOADER prompt for system-level diagnostics to function properly. The `boot_diags` command starts special drivers designed specifically for system-level diagnostics.

The Maintenance mode prompt (`*>`) appears.

2. Enter the following command at the Maintenance mode prompt:

```
sldiag
```

For details about the `sldiag` command, see the `sldiag` man page.

3. Clear the status logs by entering the following command:

```
sldiag device clearstatus
```

4. Verify that the log is cleared by entering the following command:

```
sldiag device status
```

The following default response is displayed:

```
SLDIAG: No log messages are present.
```

5. Run the environmental diagnostics test by entering the following command from the Maintenance mode prompt:

```
sldiag device run -dev env
```

6. View the status of the test by entering the following command:

```
sldiag device status
```

Your storage system provides the following output while the tests are still running:

```
There are still test(s) being processed.
```

After all the tests are complete, the following response appears by default:

```
*> <SLDIAG:_ALL_TESTS_COMPLETED>
```

7. Verify that no hardware problems resulted from the addition or replacement of hardware components on your system by entering the following command:

```
sldiag device status [-dev devtype] [-name device] -long -state failed
```

System-level diagnostics returns you to the prompt if there are no test failures, or lists the full status of failures resulting from testing the component.

8. Proceed based on the result of the preceding step:

<b>If the system-level diagnostics tests...</b>	<b>Then...</b>
Were completed without any failures	<p>a. Clear the status logs by entering the following command:</p> <pre><b>sldiag device clearstatus</b></pre> <p>b. Verify that the log is cleared by entering the following command:</p> <pre><b>sldiag device status</b></pre> <p>The following default response is displayed: SLDIAG: No log messages are present.</p> <p>c. Exit Maintenance mode by entering the following command:</p> <pre><b>halt</b></pre> <p>d. Enter the following command at the firmware prompt to reboot the storage system:</p> <pre><b>boot_ontap</b></pre> <p>e. If your system is in an HA pair, enter the <code>cf giveback</code> command (7-Mode) or <code>storage failover giveback</code> command (Cluster-Mode) from the partner node console.</p> <p>You have completed system-level diagnostics.</p>
Resulted in some test failures	<p>Determine the cause of the problem:</p> <p>a. Exit Maintenance mode by entering the following command:</p> <pre><b>halt</b></pre> <p>After you issue the command, wait until the system stops at the LOADER prompt.</p> <p>b. Turn off or leave on the power supplies, depending on how many controller modules are in the target chassis:</p> <ul style="list-style-type: none"> <li>• If you have two controller modules in the chassis, leave the power supplies turned on to provide power to the partner node.</li> <li>• If you have one controller module in the chassis, turn off the power supplies and unplug them from the power sources.</li> </ul> <p>c. Check the controller module and verify that you have observed all the considerations identified for running system-level diagnostics, that cables are securely connected, and that hardware components are properly installed in the storage system.</p> <p>d. Boot the target node, interrupting the boot by pressing Ctrl-c:</p> <ul style="list-style-type: none"> <li>• If you have two controller modules in the chassis, fully seat the controller module in the chassis. The controller module boots up when fully seated.</li> <li>• If you have one controller module in the chassis, connect the power supplies and turn them on.</li> </ul> <p>e. Rerun the system-level diagnostic tests.</p>

9. Repeat the preceding steps for the other controller module, if necessary.

**Related information**

*[System-Level Diagnostics Guide](#)*

## Completing the replacement process

After you replace the part, you can return the failed part to NetApp, as described in the RMA instructions shipped with the kit. Contact technical support at [support.netapp.com](http://support.netapp.com), 888-463-8277 (North America), 00-800-44-638277 (Europe), or +800-800-80-800 (Asia/Pacific) if you need the RMA number or additional help with the replacement procedure.

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