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## Replacing a chassis

To replace the chassis, you must remove the power supplies, fan modules, 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.
- This procedure assumes you are moving all disk drives to the new chassis.
- 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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## Shutting down the nodes

You must shut down the node or nodes in the chassis prior to moving them to the new chassis.

### About this task

**Attention:** If you cannot gracefully shut down the nodes due to system constraints such as backplane failure, call technical support for additional guidance.

### Steps

1. If your system has two controller modules, you must disable the HA pair with one of the following commands:

| If your system is configured as a... | Then issue this command... |
|--------------------------------------|----------------------------|
| System operating in 7-Mode           | <code>cf disable</code>    |

| If your system is configured as a...  | Then issue this command...   |
|---|--|
| System running clustered Data ONTAP with two nodes in the cluster           | <code>node0::&gt; cluster ha modify -configured false</code><br><code>node::&gt; storage failover modify -node node0 -enabled false</code> |
| System running clustered Data ONTAP with more than two nodes in the cluster | <code>node::&gt; storage failover modify -node node0 -enabled false</code>   |

2. Enter one of the following commands on the system console for the target node:

| If your system is configured as a... | Then issue this command... |
|--------------------------------------|----------------------------|
| System operating in 7-Mode           | <code>halt</code>          |
| System running clustered Data ONTAP  | <code>halt local</code>    |

**Attention:** You must perform a clean system shutdown before replacing system components to avoid losing unwritten data in the nonvolatile memory (NVMEM). The NVMEM LED is located on the to the right of the network ports, marked with a battery symbol. If the NVMEM LED is flashing, there is content in the NVMEM that has not been saved to disk. You need to reboot the controller module and proceed from the beginning of this procedure. If repeated attempts to cleanly shut down the controller module fail, be aware that you might lose any data that was not saved to disk.

3. Repeat the preceding step for the second controller module, if present.
4. If you are not already grounded, properly ground yourself.
5. Turn off the power supplies and unplug both power cords from the power source.

## 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, open the power cord locking mechanism, and then remove the power cord from the power supply and the power source.
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 FAS2552 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.

**Caution:** 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 from the chassis, you must perform a specific sequence of steps.

### Steps

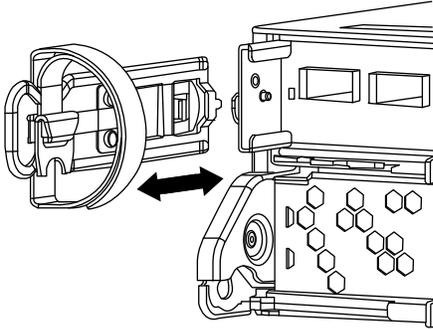
1. If you are not already grounded, properly ground yourself.

2. Loosen the hook and loop strap binding the cables to the cable management arm, and then unplug the system cables and SFPs (if needed), from the controller module, and keep track of where the cables were connected.

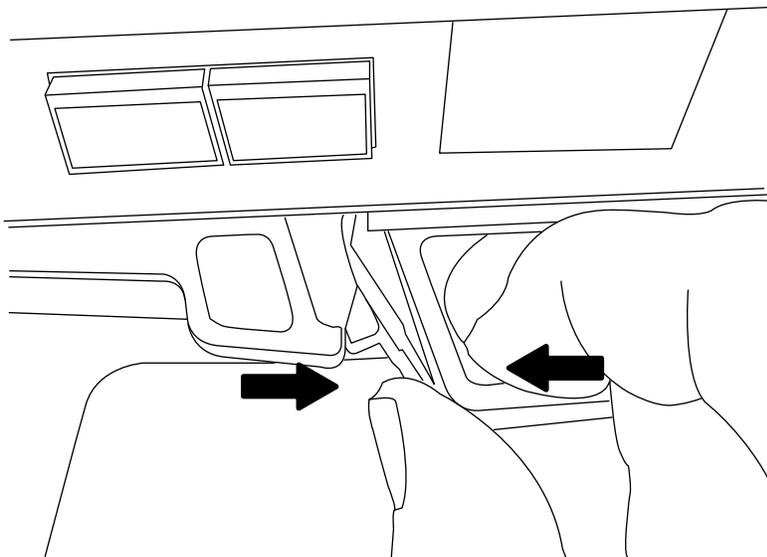
Leave the cables in the cable management arm so that when you reinstall the cable management arm, the cables are organized.

3. Remove the cable management arms from the left and right sides of the controller module and set them aside.

The illustration shows the cable management arms on a FAS2552 system. The procedure is the same for all FAS2500 systems.



4. Squeeze the latch on the cam handle until it releases, as shown in the following illustration. 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.



5. Repeat the preceding steps if you need to remove the second controller module, or if you need to remove the blanking panel.

## 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 FAS2552, you must also move the operator display panel from the old chassis to the same position in the new chassis.

### Steps

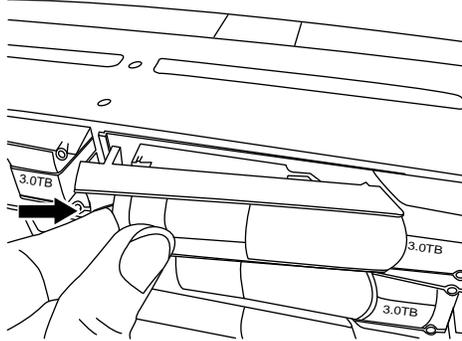
1. Gently remove the bezel from the front of the system.
2. Remove the disk drives:

---

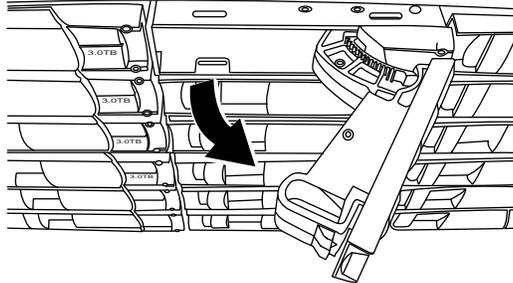
**For the... Then...**

---

- FAS2520  
and  
FAS2554  
systems
- a. Press in the release button on the far left of the carrier face front.



The spring-loaded cam handle releases, opens to its fully opened position, and disengages from the midplane.



- b. 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.

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

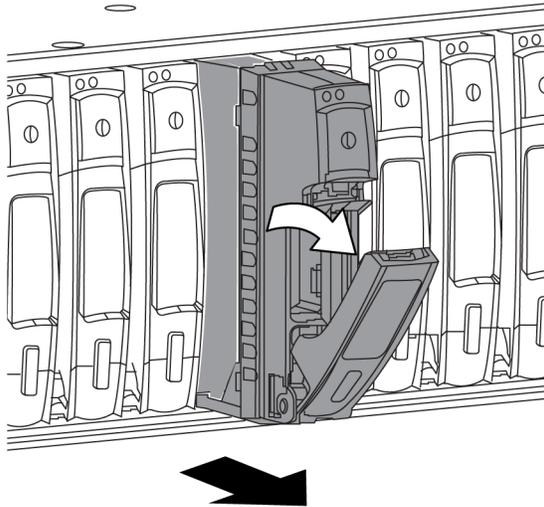
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**For the... Then...**

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FAS2552 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, allowing it to slide free of the chassis.

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

**Attention:** 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.
  7. If you have a FAS2552, 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. With the help of two or three people, slide the empty chassis off the rack rails and set it aside.

## 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 rack rails in a system cabinet or *L* brackets in an equipment rack.
3. Slide the chassis all the way into the equipment rack or system cabinet.
4. Secure the front of the chassis to the equipment rack or system cabinet, using the screws you removed from the chassis.

## Installing the power supplies

Installing the power supplies requires that you place each 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 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 using the cam handle.
4. Push the power supply 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 at this time.

## Reinstalling the controller module 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. 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.

2. Reinstall the cable management device on the controller module and I/O expansion module, if present.
3. Recable the console port only.
4. The next step depends on your system configuration.

| If your system is in...                                    | Then...  |
|--|--|
| A stand-alone configuration, single controller module only | Reinstall the blanking panel, and then 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 on each controller to display the boot menu when prompted to do so, and then select the option to boot to Maintenance mode on each controller.
7. Enter the following command from either controller module to display the HA state of the controller module:

```
ha-config show
```

The HA state should be the same for all components.

8. Proceed based on the results of the previous step.

| 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:<br><code>ha-config modify chassis [ha   non-ha]</code> |

9. The next step depends on your system configuration.

| If your system is in...                    | Then...  |
|--|--|
| A stand-alone configuration                | <ol style="list-style-type: none"> <li>a. Exit Maintenance mode by entering the following command:<br/><code>halt</code></li> <li>b. Go to "<a href="#">Completing the replacement process</a>" on page 10.</li> </ol> |
| An HA pair with a second controller module | Exit Maintenance mode by entering the following command:<br><code>halt</code><br>The LOADER prompt appears.  |

## 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         | <p>a. Set the HA state for the chassis by entering the following command:</p> <pre>ha-config modify chassis HA-state</pre> <p>The value for <i>HA-state</i> can be one of the following:</p> <ul style="list-style-type: none"> <li>• ha</li> <li>• non-ha</li> </ul> <p>b. Confirm that the setting has changed:</p> <pre>ha-config show</pre> |

- 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 interconnect diagnostics.

### Steps

- 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.

- Repeat the previous step on the second controller if you are in an HA configuration.

**Attention:** Both controllers must be in Maintenance mode to run the interconnect test.

- Clear the status logs by entering the following command:

```
sldiag device clearstatus
```

- 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.
```

- Enable the interconnect diagnostics tests by entering the following command from the Maintenance mode prompt:

```
sldiag device modify -dev interconnect -sel enable
```

**Attention:** The interconnect tests are disabled by default and must be enabled to run separately.

- Run the interconnect diagnostics test by entering the following command from the Maintenance mode prompt:

```
sldiag device run -dev interconnect
```

**Note:** You only need to run the interconnect test from one controller.

- 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>

8. Verify that no hardware problems resulted from the replacement of the chassis by entering the following command from the Maintenance mode prompt:

```
sldiag device status -dev interconnect -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.

9. Proceed based on the result of the preceding step.

---

| If the system-level diagnostics tests... | Then... |
|--|---------|
|--|---------|

---

|                                     |  |
|-------------------------------------|--|
| Were completed without any failures |  |
|-------------------------------------|--|

- a. Clear the status logs by entering the following command:

```
sldiag device clearstatus
```

- b. 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.
```

- c. Exit Maintenance mode on both controllers by entering following command:

```
halt
```

**Attention:** You must exit Maintenance mode on both controllers before proceeding any further.

- d. Enter the following command on both controllers at the LOADER prompt:

```
boot_ontap
```

- e. If your system is a 7-Mode system run the `cf enable` command; or If your system is a clustered Data ONTAP system run the `storage failover modify -node node_name -enabled true` command.

You have completed system-level diagnostics.

---

|                                |  |
|--------------------------------|--|
| Resulted in some test failures |  |
|--------------------------------|--|

Determine the cause of the problem.

- a. Exit Maintenance mode by entering the following command:

```
halt
```

- b. Perform a clean shutdown and disconnect the power supplies.

- c. 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.

- d. Reconnect the power supplies and power on the storage system.

- e. Rerun the system-level diagnostics tests.
- 

## 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 the NetApp Support Site, 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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