Chassis

Install and maintain

NetApp
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Chassis

Chassis replacement workflow - AFF C80

Get started with replacing the chassis in your AFF C80 system by reviewing the replacement requirements, shutting down the controllers, replacing the chassis, and verifying system operations.

1. **Review the chassis replacement requirements**

Review the chassis replacement requirements, including system compatibility, required tools, ONTAP credentials, and component functionality verification.

2. **Prepare for the chassis replacement**

Prepare for the chassis replacement by locating the system, gathering credentials and tools, verifying the replacement chassis, and labeling cables.

3. **Shut down the controllers**

Shut down the controllers to perform chassis maintenance safely.

4. **Replace the chassis**

Move the components from the impaired chassis to the replacement chassis.

5. **Complete chassis replacement**

Complete the replacement by booting the controllers, performing giveback, and returning the failed chassis to NetApp.

Requirements to replace the chassis - AFF C80

Before replacing the chassis in your AFF C80 system, ensure you meet the necessary requirements for a successful replacement. This includes verifying all other components in the system are functioning properly, verifying that you have local administrator credentials for ONTAP, the correct replacement chassis, and the necessary tools.

The chassis is the physical enclosure housing all the controller components such as the controller/CPU unit, power supply, and I/O.

Review the following requirements.

- Make sure all other components in the system are functioning properly; if not, contact NetApp support for assistance.
- Obtain local administrator credentials for ONTAP if you don’t have them.

- Make sure that you have the necessary tools and equipment for the replacement.
- You can use the chassis replacement procedure with all versions of ONTAP supported by your system.
- The chassis replacement procedure is written with the assumption that you are moving the bezel, NVMe drives, and controller modules to the new chassis, and that the replacement chassis is a new component from NetApp.
- The chassis replacement procedure is disruptive. For a two-node cluster, you will have a complete service outage and a partial outage in a multi-node cluster.

What's next?

After reviewing the requirements, prepare to replace the chassis.

Shut down the controller to replace the chassis - AFF C80

Shut down the controller in your AFF C80 storage system to prevent data loss and ensure system stability when replacing the chassis.

This procedure is for systems with two node configurations. For more information about graceful shutdown when servicing a cluster, see Gracefully shutdown and power up your storage system Resolution Guide - NetApp Knowledge Base.

Before you begin

- Make sure you have the necessary permissions and credentials:
  - Local administrator credentials for ONTAP.
  - BMC accessability for each controller.
- Make sure you have the necessary tools and equipment for the replacement.
- As a best practice before shutdown, you should:
  - Perform additional system health checks.
  - Upgrade ONTAP to a recommended release for the system.
  - Resolve any Active IQ Wellness Alerts and Risks. Make note of any faults presently on the system, such as LEDs on the system components.

Steps

1. Log into the cluster through SSH or log in from any node in the cluster using a local console cable and a laptop/console.
2. Stop all clients/host from accessing data on the NetApp system.
3. Suspend external backup jobs.
4. If AutoSupport is enabled, suppress case creation and indicate how long you expect the system to be offline:

   ```
   system node autosupport invoke -node * -type all -message "MAINT=2h Replace chassis"
   ```

5. Identify the SP/BMC address of all cluster nodes:

   ```
   system service-processor show -node * -fields address
   ```

6. Exit the cluster shell:

   ```
   exit
   ```

7. Log into SP/BMC over SSH using the IP address of any of the nodes listed in the output from the previous step to monitor progress.

   If you are using a console/laptop, log into the controller using the same cluster administrator credentials.

8. Halt the two nodes located in the impaired chassis:

   ```
   system node halt -node <node1>,<node2> -skip-lif-migration-before-shutdown
   true -ignore-quorum-warnings true -inhibit-takeover true
   ```

   > For clusters using SnapMirror synchronous operating in StrictSync mode: `system node halt -node <node1>,<node2> -skip-lif-migration-before-shutdown true -ignore-quorum-warnings true -inhibit-takeover true -ignore-strict-sync-warnings true`

9. Enter **y** for each controller in the cluster when you see:

   ```
   Warning: Are you sure you want to halt node <node_name>? {y|n}:
   ```

10. Wait for each controller to halt and display the LOADER prompt.

What's next?

After you've shut down the controller, you need to replace the chassis.

Replace the chassis - AFF C80

Replace the chassis in your AFF C80 system when a hardware failure requires it. The replacement process involves removing the controllers and power supply units (PSUs), removing the drives, installing the replacement chassis, and reinstalling the chassis components.

Step 1: Remove the PSUs and cables

You need to remove all four power supply units (PSUs), two per controller, before removing the controller. Removing them lightens the overall weight of each controller.

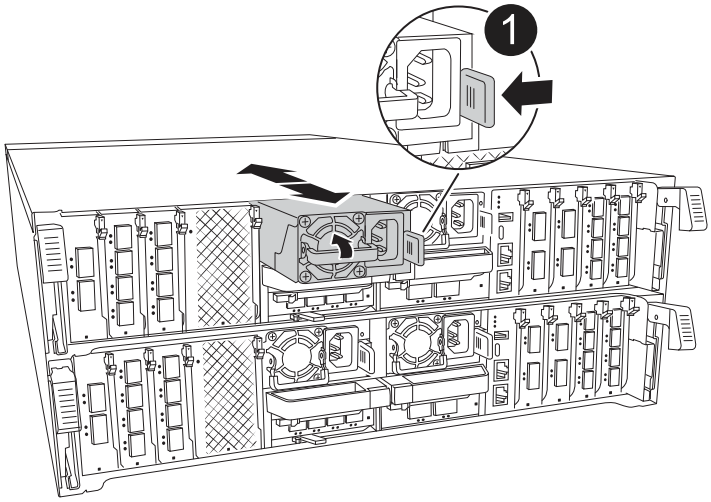
Steps

1. Remove the four PSUs:
   a. If you are not already grounded, properly ground yourself.
   b. Unplug power cords from the controller module PSU.

      If your system has DC power, disconnect the power block from the PSUs.

   c. Remove the PSU from the controller by rotating the PSU handle up so that you can pull the PSU out, press the PSU locking tab, and then pull PSU out of the controller module.

The PSU is short. Always use two hands to support it when removing it from the controller module so that it does not suddenly swing free from the controller module and injure you.



1	Terracotta PSU locking tab

d. Repeat these steps for the remaining PSUs.

2. Remove the cables:

a. Unplug the system cables and any SFP and QSFP modules (if needed) from the controller module, but leave them in the cable management device to keep them organized.

Cables should have been labeled at the beginning of this procedure.

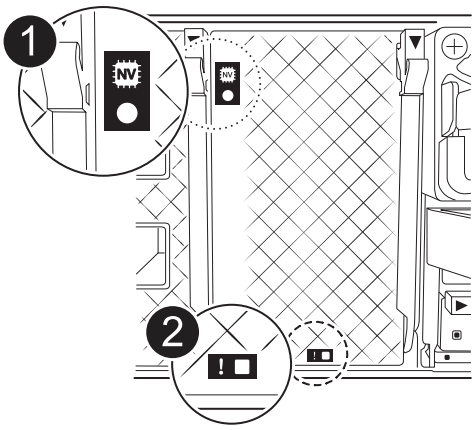
b. Remove the cable management device from the controller modules and set them aside.

Step 2: Remove the controller modules and drives

Remove the controllers from the chassis and then remove the drives from the chassis.

Steps

1. Check the that amber NVRAM status LED located in slot 4/5 on the back of each controller module is off. Look for the NV icon.

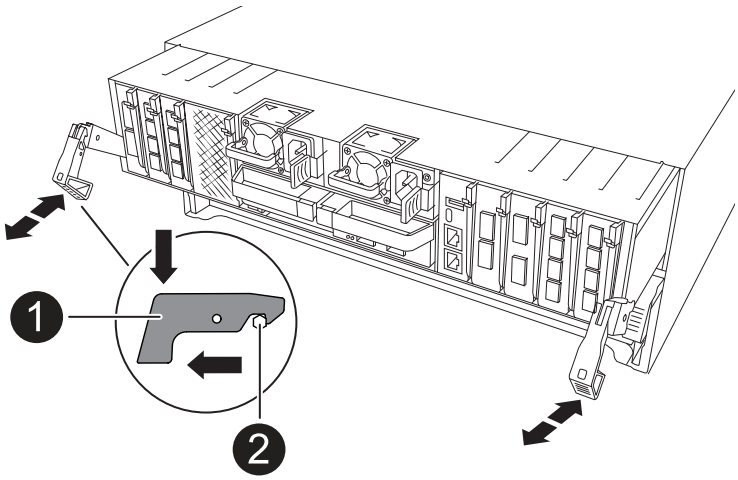


1	NVRAM status LED
2	NVRAM attention LED

- If the NVRAM LED is off, go to the next step.
- If the NVRAM LED is flashing, wait for the flashing to stop. If flashing continues for longer than 5 minutes, contact NetApp Support Site for assistance.

2. Remove the controller modules:
   a. Press down on both of the locking latches on the controller, and then rotate both latches downward at the same time.

      The controller module moves slightly out of the chassis.



1	Locking latch
2	Locking pin

   b. Slide the controller module out of the chassis by the locking latches, and place it on a flat, stable surface.

Make sure that you support the bottom of the controller module as you slide it out of the chassis.

c. Repeat these steps for the second controller module.

3. Remove the drives:
   a. Gently remove the bezel from the front of the system.
   b. Press the release button at the top of the drive carrier face below the LEDs.
   c. Pull the cam handle to its fully open position to unseat the drive from the midplane, and then gently slide the drive out of the chassis.

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

      Drives are fragile. Always use two hands to support the drive weight when removing a drive to prevent damage to them.

   d. Keep track of which drive bay each drive was in and set the drive aside on a static-free cart or table.
   e. Repeat this step for the remaining drives in the chassis.

Step 3: Replace the chassis and install components

Remove the impaired chassis, install the replacement chassis, and reinstall all components.

Steps

1. Remove the impaired chassis:
   a. Remove the screws from the chassis mount points.
   b. Using two people or a lift, slide the impaired chassis off the rack rails in a system cabinet or equipment rack, and then set it aside.
2. Install the replacement chassis:
   a. Using two people or a lift, install the replacement chassis into the equipment rack or system cabinet by guiding the chassis onto the rack rails in a system cabinet or equipment rack.
   b. Slide the chassis all the way into the equipment rack or system cabinet.
   c. Secure the front of the chassis to the equipment rack or system cabinet, using the screws you removed from the impaired chassis.
3. Beginning with the bottom controller module, install the controller modules in the replacement chassis:
   a. Align the end of the controller module with the opening in the chassis, and then gently push the controller all the way into the chassis.
   b. Rotate the locking latches upward into the locked position.
   c. If you have not already done so, reinstall the cable management device and recable the controller.

      If you removed the media converters (QSFPs or SFPs), remember to reinstall them.

      Make sure that the cables are connected referencing the cable labels.
4. Reinstall the drives into their corresponding drive bays in the front of the chassis.
5. Install all four of the PSUs:
   a. Using both hands, support and align the edges of the PSU with the opening in the controller module.

b. Gently push the PSU into the controller module until the locking tab clicks into place.

   The power supplies will only properly engage with the internal connector and lock in place one way.

   > To avoid damaging the internal connector, do not use excessive force when sliding the PSU into the system.

6. Reconnect the PSU power cables to all four of the PSUs.

   a. Secure the power cable to the PSU using the power cable retainer.

      If you have DC power supplies, reconnect the power block to the power supplies after the controller module is fully seated in the chassis and secure the power cable to the PSU with the thumbscrews.

The controller modules begin to boot as soon as PSUs are installed and power is restored.

What's next?

After replacing the impaired chassis and reinstalling the components, complete the chassis replacement.

Complete chassis replacement - AFF C80

Reboot the controllers, verify system health, and return the failed part to NetApp to complete the final step in the AFF C80 chassis replacement procedure.

Step 1: Boot the controllers and perform giveback

Boot ONTAP on the controllers and perform controller giveback to return storage ownership.

Steps

1. Check the console output:
   a. If the controller boots to the LOADER prompt, reboot the controller with the `boot_ontap` command.
   b. If the console displays `waiting for giveback` after the reboot, log into the partner controller and check that the replaced controller is ready for giveback with the `storage failover show` command.
2. Perform the giveback:
   a. Connect the console cable to the partner controller.
   b. Give back the controller with the `storage failover giveback -fromnode local` command.

Step 2: Verify storage system health

After the controller giveback completes, verify system health using Active IQ Config Advisor. Address any issues found.

Step 3: Return the failed part to NetApp

Return the failed part to NetApp, as described in the RMA instructions shipped with the kit. See the Part Return and Replacements page for further information.

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