NetApp

Stage 5. Install the replacement system modules on node2

Upgrade controllers

NetApp
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Install the replacement system modules on node2

Install AFF A30, AFF A50, AFF C30, or AFF C60 module in node2

Install the replacement controller module that you received for the upgrade on node2. Node2 is controller B located in the bottom half of the chassis when looking at the controllers from the rear of the system.

Steps

1. Position the storage system onto the rails in the middle of the cabinet or telco rack, and then support the storage system from the bottom and slide it into place.

   > ⓘ Don't completely insert the controller module in the chassis until instructed to do so later in the procedure.

2. Cable the management and console ports to the node2 controller module.

   > ⓘ Because the chassis is already powered ON, node2 starts BIOS initialization followed by AUTOBOOT as soon as it is fully seated. To interrupt the node2 boot, before completely inserting the controller module into the slot, it is recommended that you connect the serial console and management cables to the node2 controller module.

3. With the cam handle in the open position, firmly push the controller module in until it meets the midplane and is fully seated. The locking latch rises when the controller module is fully seated. Close the cam handle to the locked position.

   > ⓘ To avoid damaging the connectors, don't use excessive force when sliding the controller module into the chassis.

4. Connect the serial console as soon as the module is seated and be ready to interrupt AUTOBOOT of node2.

5. After you interrupt AUTOBOOT, node2 stops at the LOADER prompt. If you do not interrupt AUTOBOOT on time and node2 starts booting, wait for the prompt and press Ctrl-C to go into the boot menu. After the node stops at the boot menu, use option `8` to reboot the node and interrupt AUTOBOOT during reboot.

6. At the LOADER> prompt of node2, set the default environment variables:

   ```
   set-defaults
   ```

7. Save the default environment variables settings:

   ```
   saveenv
   ```

8. For two-node switchless configurations, verify that you have an X60132A, 4-port 10/25 GbE card in slot1 on node2. The X60132A card is required for cluster interconnect during the upgrade.

Install the AFF A90 or AFF A70 module in node2

Install the AFF A90 or AFF A70 controller module that you received for the upgrade in node2. Node2 is controller B located on the lower bay of the chassis when looking at the controllers from the rear of the system.

Steps

1. On the front of the chassis, use your thumbs to firmly push each drive in to the top and bottom disk bays until you feel a positive stop. This ensures that the drives are firmly seated against the chassis midplane.
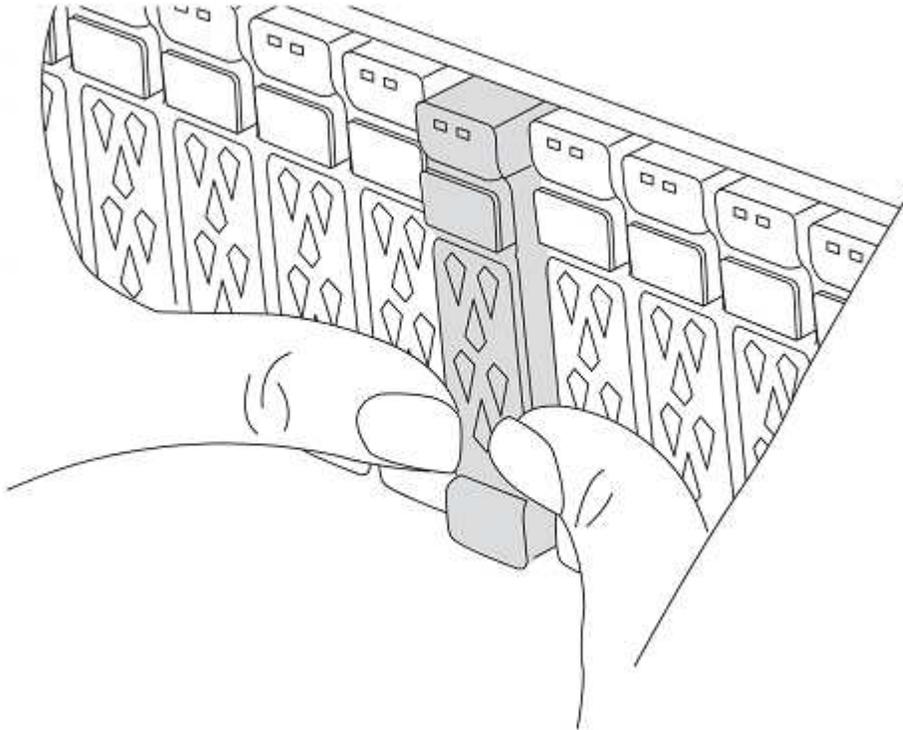
   a. Go to the rear of the chassis.

2. Align the end of the controller module with the opening in the chassis, and then gently push the controller module halfway into the system.

> (i) Don't completely insert the controller module in the chassis until instructed to do so later in the procedure.
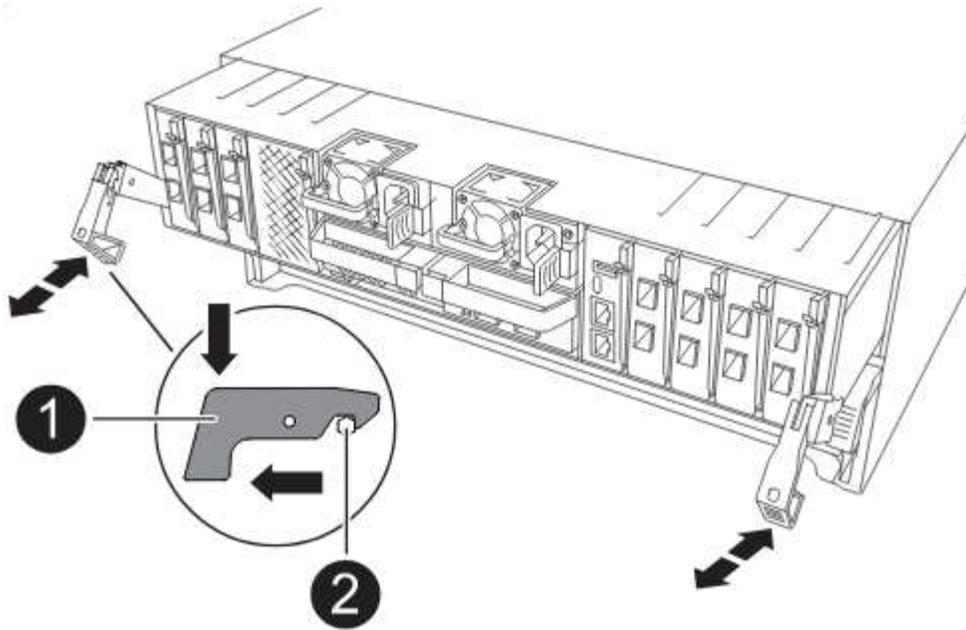
3. Cable the management and console ports to the node2 controller module.

> ⓘ Because the chassis is already powered ON, node2 starts BIOS initialization followed by AUTOBOOT as soon as it is fully seated. To interrupt the node2 boot, before completely inserting the controller module into the slot, it is recommended that you connect the serial console and management cables to the node2 controller module.

4. With the cam handle in the open position, firmly push the controller module in until it meets the midplane and is fully seated. The locking latch rises when the controller module is fully seated. Close the cam handle to the locked position.

> ⓘ To avoid damaging the connectors, don't use excessive force when sliding the controller module into the chassis.

5. Connect the serial console as soon as the module is seated and be ready to interrupt AUTOBOOT of node2.

6. After you interrupt AUTOBOOT, node2 stops at the LOADER prompt. If you do not interrupt AUTOBOOT on time and node2 starts booting, wait for the prompt and press Ctrl-C to go into the boot menu. After the node stops at the boot menu, use option 8 to reboot the node and interrupt AUTOBOOT during reboot.
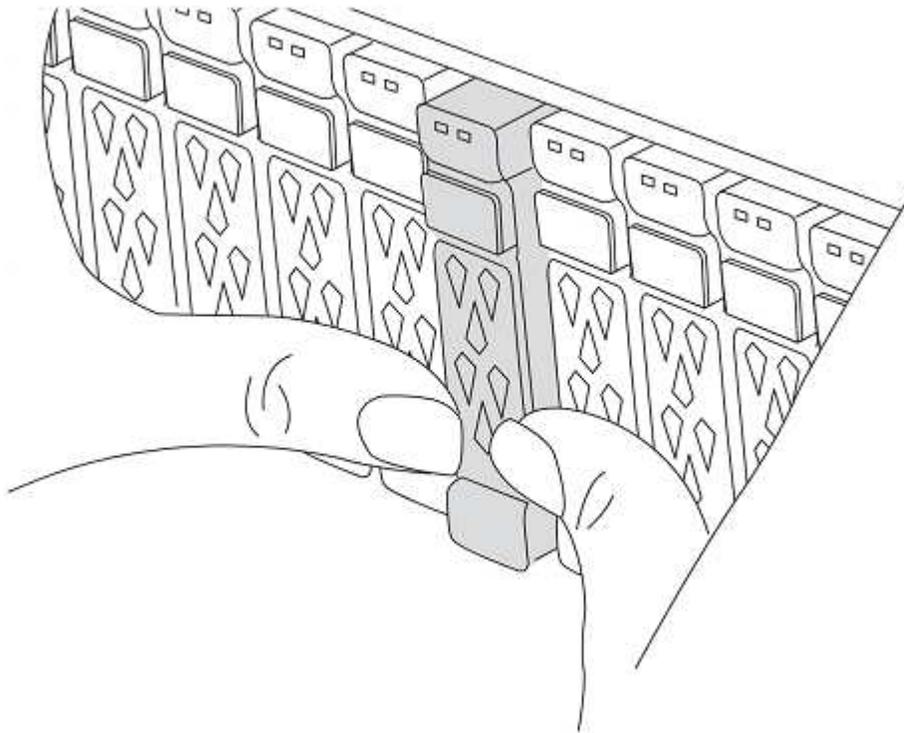
7. At the LOADER> prompt of node2, set the default environment variables:

```
set-defaults
```

8. Save the default environment variables settings:

```
saveenv
```

9. On the front of the chassis, use your thumbs to firmly push each drive in to the top and bottom disk bays until you feel a positive stop. This ensures that the drives are firmly seated against the chassis midplane.

   a. Go to the rear of the chassis.

Install the ASA A150, AFF A150, or FAS2820 controller module in node2

Install the ASA A150, AFF A150, or FAS2820 controller module that you received for the upgrade in node2. Node2 is controller B located on the right side of the chassis when looking at the controllers from the rear of the system.

Before you begin

- If you are not already grounded, correctly ground yourself.
- Disconnect all the cables, including console, management, SAS storage, and data network cables, from the controller being removed.

Steps

1. Align the end of the controller module with bay B in the chassis, and then gently push the controller module halfway into the system.

   💡 | Bay B is located on the right side of the chassis.

   ⚠️ | Don't completely insert the controller module in the chassis until you are instructed to do so later in the procedure.

2. Cable the management and console ports to the node2 controller module.

> (i) Because the chassis is already powered ON, node2 starts booting as soon as it is fully seated. To prevent node2 from booting, connect the console and management cables before fully inserting the controller module.

3. Firmly push the controller module into the chassis until it meets the midplane and is fully seated.

   The locking latch rises when the controller module is fully seated.

> (i) To avoid damaging the connectors, don't use excessive force when sliding the controller module into the chassis.

4. Connect the serial console as soon as the module is seated and be ready to interrupt AUTOBOOT of node2.

5. After you interrupt AUTOBOOT, node2 stops at the LOADER prompt. If you do not interrupt AUTOBOOT on time and node2 starts booting, wait for the prompt and press Ctrl-C to go into the boot menu. After the node stops at the boot menu, use option `8` to reboot the node and interrupt AUTOBOOT during reboot.

Install the ASA A900, AFF A900, or FAS9500 NVRAM and controller modules on node2

Install the ASA A900, AFF A900, or FAS9500 NVRAM and controller modules that you received for the upgrade on node2. Node2 is controller B located on the right side of the chassis when looking at the controllers from the rear of the system.

> (i)
> - Move all blank filler modules in slots 6-1 and 6-2 from the old NVRAM module to the new NVRAM module.
> - Do NOT move the coredump device from the AFF A700 NVRAM module to the ASA A900 or AFF A900 NVRAM module.
> - Move all flash cache modules installed in the FAS9000 NVRAM module to the FAS9500 NVRAM module.

Before you begin

If you are not already grounded, correctly ground yourself.

Step 1: Install the ASA A900, AFF A900, or FAS9500 NVRAM module

Install the ASA A900, AFF A900, or FAS9500 NVRAM module in slot 6 of node2.

Steps

1. Align the NVRAM module with the edges of the chassis opening in slot 6.

2. Gently slide the NVRAM module into the slot until the lettered and numbered I/O cam latch begins to engage with the I/O cam pin, and then push the I/O cam latch all the way up to lock the NVRAM module in place.

Step 2: Install the ASA A900, AFF A900, or FAS9500 controller module

Install, cable, and connect the ASA A900, AFF A900, or FAS9500 controller module in node2.

Steps

1. Align the end of the controller module with bay B in the chassis, and then gently push the controller module halfway into the system.

   💡   The bay label is located on the chassis directly above the controller module.

   ℹ️   Don't completely insert the controller module in the chassis until you are instructed to do so later in the procedure.

2. Cable the management and console ports to the node2 controller module.

   ℹ️   Because the chassis is already powered ON, node2 starts booting as soon as it is fully seated. To avoid node2 booting, it is recommended that you connect the console and management cables to the node2 controller module before completely inserting the controller module into the slot.

3. Firmly push the controller module into the chassis until it meets the midplane and is fully seated.

   The locking latch rises when the controller module is fully seated.

   ⚠️   To avoid damaging the connectors, don't use excessive force when sliding the controller module into the chassis.

4. Connect the serial console as soon as the module is seated and be ready to interrupt AUTOBOOT of node2.

5. After you interrupt AUTOBOOT, node2 stops at the LOADER prompt. If you do not interrupt AUTOBOOT on time and node2 starts booting, wait for the prompt and press Ctrl-C to go into the boot menu. After the node stops at the boot menu, use option `8` to reboot the node and interrupt AUTOBOOT during reboot.

6. At the LOADER> prompt of node2, set the default environment variables:

```
set-defaults
```

7. Save the default environment variables settings:

```
saveenv
```

Netboot node2

After swapping the corresponding replacement node2 system modules, you might need to netboot them. The term netboot means that you are booting from an ONTAP image stored on a remote server. When preparing for netboot, you put a copy of the ONTAP 9 boot image onto a web server that the system can access.

It isn't possible to check the version of ONTAP installed on the boot media of the replacement controller module unless it is installed in a chassis and powered ON. The ONTAP version on the replacement system boot media must be the same as the ONTAP version running on the old system that you are upgrading and both the primary and backup boot images must match. You can configure the images by performing a netboot

followed by the `wipeconfig` command from the boot menu. If the controller module was previously used in another cluster, the `wipeconfig` command clears any residual configuration on the boot media.

You can also use the USB boot option to perform the netboot. See the Knowledge Base article How to use the boot_recovery LOADER command for installing ONTAP for initial setup of a system.

Before you begin

- Verify that you can access a HTTP server with the system.
- Download the necessary system files for your system and the correct version of ONTAP from the *NetApp Support Site*. Refer to References to link to the *NetApp Support Site*.

About this task

You must netboot the new controllers if they do not have the same version of ONTAP 9 installed on them that is installed on the original controllers. After you install each new controller, you boot the system from the ONTAP 9 image stored on the web server. You can then download the correct files to the boot media device for subsequent system boots.

Steps

1. Refer to References to link to the *NetApp Support Site* to download the files used for performing the netboot of the system.

2. Download the appropriate ONTAP software from the software download section of the NetApp Support Site and store the `<ontap_version>_image.tgz` file on a web-accessible directory.

3. Change to the web-accessible directory and verify that the files you need are available.

4. Your directory listing should contain `<ontap_version>_image.tgz`.

5. Configure the netboot connection by choosing one of the following actions.

   > (i) You must use the management port and IP as the netboot connection. Do not use a data LIF IP or a data outage might occur while the upgrade is being performed.

If Dynamic Host Configuration Protocol (DHCP) is…	Then…
Running	Configure the connection automatically by using the following command at the boot environment prompt: `ifconfig e0M -auto`

If Dynamic Host Configuration Protocol (DHCP) is…	Then…
Not running	Manually configure the connection by using the following command at the boot environment prompt: `ifconfig e0M -addr=`*`filer_addr`*` -mask=`*`netmask`*` -gw=`*`gateway`*` -dns=`*`dns_addr`*` -domain=`*`dns_domain`* *`filer_addr`* is the IP address of the storage system (mandatory). *`netmask`* is the network mask of the storage system (mandatory). *`gateway`* is the gateway for the storage system (mandatory). *`dns_addr`* is the IP address of a name server on your network (optional). *`dns_domain`* is the Domain Name Service (DNS) domain name (optional). (i) Other parameters might be necessary for your interface. Enter `help ifconfig` at the firmware prompt for details.

6. Perform netboot on node2:

```
netboot http://<web_server_ip/path_to_web_accessible_directory>/netboot/kernel
```

(i)   Do not interrupt the boot.

7. Wait for the node2 now running on the replacement controller module to boot and display the boot menu options as shown in the following output:

```
Please choose one of the following:

(1)   Normal Boot.
(2)   Boot without /etc/rc.
(3)   Change password.
(4)   Clean configuration and initialize all disks.
(5)   Maintenance mode boot.
(6)   Update flash from backup config.
(7)   Install new software first.
(8)   Reboot node.
(9)   Configure Advanced Drive Partitioning.
(10) Set Onboard Key Manager recovery secrets.
(11) Configure node for external key management.
Selection (1-11)?
```

8. From the boot menu, select option `(7) Install new software first.`

This menu option downloads and installs the new ONTAP image to the boot device.

Disregard the following message:

```
This procedure is not supported for Non-Disruptive Upgrade on an HA pair
```

This note applies to nondisruptive ONTAP software upgrades, and not controller upgrades.

> (i) Always use netboot to update the new node to the desired image. If you use another method to install the image on the new controller, the incorrect image might install. This issue applies to all ONTAP releases. The netboot procedure combined with option `(7) Install new software` wipes the boot media and places the same ONTAP version on both image partitions.

9. If you are prompted to continue the procedure, enter `y`, and when prompted for the package, enter the URL:
   `http://<web_server_ip/path_to_web-accessible_directory>/<ontap_version>_image.tgz`

   The `<path_to_the_web-accessible_directory>` should lead to where you downloaded the `<ontap_version>_image.tgz` in .

10. Complete the following substeps to reboot the controller module:

    a. Enter `n` to skip the backup recovery when you see the following prompt:

    ```
    Do you want to restore the backup configuration now? {y|n}
    ```

    b. Enter `y` to reboot when you see the following prompt:

    ```
    The node must be rebooted to start using the newly installed
    software. Do you want to reboot now? {y|n}
    ```

    The controller module reboots but stops at the boot menu because the boot device was reformatted, and the configuration data must be restored.

11. Clear any previous configuration on the boot media.

    a. At the following prompt, run the `wipeconfig` command, and press the enter key:

```
Please choose one of the following:

(1)   Normal Boot.
(2)   Boot without /etc/rc.
(3)   Change password.
(4)   Clean configuration and initialize all disks.
(5)   Maintenance mode boot.
(6)   Update flash from backup config.
(7)   Install new software first.
(8)   Reboot node.
(9)   Configure Advanced Drive Partitioning.
(10) Set Onboard Key Manager recovery secrets.
(11) Configure node for external key management.
Selection (1-11)? wipeconfig
```

b. When you see the message below, answer `yes`:

```
This will delete critical system configuration, including cluster
membership.
Warning: do not run this option on a HA node that has been taken
over.
Are you sure you want to continue?:
```

c. The node reboots to finish the `wipeconfig` and then stops at the boot menu.

> (i) Wait until the node stops at the boot menu after completing the `wipeconfig` operation.

12. Select maintenance mode `5` from the boot menu and enter `y` when you are prompted to continue with the boot.

13. Verify that the controller and chassis are configured as `ha`:

`ha-config show`

The following example shows the output of the `ha-config show` command:

```
Chassis HA configuration: ha
Controller HA configuration: ha
```

14. If the controller and chassis are not configured as `ha`, use the following commands to correct the configuration:

`ha-config modify controller ha`

`ha-config modify chassis ha`

15. Halt node2:

```
halt
```

Node2 should stop at the LOADER> prompt.

16. On node1, check the system date, time, and time zone:

```
date
```

17. On node2, check the date by using the following command at the boot environment prompt:

```
show date
```

18. If necessary, set the date on node2:

```
set date mm/dd/yyyy
```

(i) Set the corresponding UTC date on node2.

19. On node2, check the time by using the following command at the boot environment prompt:

```
show time
```

20. If necessary, set the time on node2:

```
set time hh:mm:ss
```

(i) Set the corresponding UTC time on node2.

21. Set the partner system ID on node2:

```
setenv partner-sysid node1_sysid
```

For node2, the `partner-sysid` must be that of the node1 that you are upgrading.

a. Save the settings:

```
saveenv
```

22. On node2, at the LOADER prompt, verify the `partner-sysid` for node2:

```
printenv partner-sysid
```