Replacing a controller module in a 20xx system

To replace a controller module, you must remove the faulty controller module from the system and move the replaceable components, including the NVMEM battery, from the old controller module to the new controller module. You then install the new controller module in the system chassis.

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 Cluster-Mode. A 7-Mode system refers to a system running Data ONTAP 8.x 7-Mode or releases prior to Data ONTAP 8.0.
- This procedure refers to HA pairs, which in releases prior to Data ONTAP 8.0 were called active/active configurations.
- All disks and disk shelves must be working properly and you cannot change any disks or disk shelves as part of this procedure.
- You must be replacing a controller module with a FRU controller module of the same model type.
- You cannot upgrade your system by just replacing the controller module.
- If your system is in an HA pair, the partner node must be able to take over the target node.

1. Shutting down the node on page 1
2. Saving the Fibre Channel configuration for HA pairs in SAN configurations on page 3
3. Removing the controller module and moving the components on page 4
4. Installing the components and the new controller module on page 8
5. Running diagnostics on the controller module on page 11
6. Restoring the Fibre Channel configuration for HA pairs in SAN configurations on page 11
7. Verifying the time after replacing the controller module in an HA pair on page 12
8. Reassigning disks on page 13
9. Installing the firmware after replacing the controller module on page 17
10. Performing a final takeover and giveback from the target node on page 18
11. Completing the replacement process on page 18

Shutting down the node

You shut down a node using different procedures, depending on whether it is a stand-alone system or part of an HA pair.

Next topics

Shutting down a node in an HA pair on page 1
Shutting down the node in a stand-alone system on page 2

Shutting down a node in an HA pair

To shut down the node, you must determine the status of the node and, if necessary, take over the node so that the partner continues to serve data from the node's storage.

Steps

1. Check the status of the target node (the node you want to perform maintenance on) by entering the following command at the system console of either node:
If your system is configured in...

Then issue this command...

<table>
<thead>
<tr>
<th>7-Mode</th>
<th>cf status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cluster-Mode</td>
<td>storage failover show</td>
</tr>
</tbody>
</table>

2. Take one of the following actions, depending on the result of the `cf status` or `storage failover show` command:

<table>
<thead>
<tr>
<th>If...</th>
<th>Then...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neither node is in takeover mode</td>
<td>Go to the next step in this procedure.</td>
</tr>
<tr>
<td>The partner node took over the target node</td>
<td>The target node is in a state where you can begin removing it from the system chassis.</td>
</tr>
<tr>
<td>The target node took over the partner node</td>
<td>a. Correct the problem that caused the takeover.</td>
</tr>
<tr>
<td></td>
<td>b. Run the <code>cf giveback</code> command (if in a 7-Mode system) or <code>storage failover giveback</code> command (if in a Cluster-Mode system) from the target node console.</td>
</tr>
<tr>
<td></td>
<td>c. Go back to the beginning of this procedure.</td>
</tr>
</tbody>
</table>

3. Take over the target node by entering one of the following commands from the partner node’s console:

<table>
<thead>
<tr>
<th>If your system is configured in...</th>
<th>Then issue this command...</th>
</tr>
</thead>
<tbody>
<tr>
<td>7-Mode</td>
<td>cf takeover</td>
</tr>
<tr>
<td>Cluster-Mode</td>
<td>storage failover takeover -bynodule node</td>
</tr>
</tbody>
</table>

4. Take one of the following actions depending on your system configuration:

<table>
<thead>
<tr>
<th>If your system has...</th>
<th>Then...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two controller modules in the chassis</td>
<td>Do not shut off the power supplies.</td>
</tr>
<tr>
<td>One controller module in the chassis</td>
<td>Turn off the power supplies and unplug them from the power sources.</td>
</tr>
</tbody>
</table>

**Shutting down the node in a stand-alone system**

For a node that is in a stand-alone configuration, you must perform a clean shutdown (ensuring that all data has been written to disk) and disconnect the power supplies.

**Steps**

1. Enter one of the following commands from the system console:

<table>
<thead>
<tr>
<th>If your system is configured in...</th>
<th>Then issue this command...</th>
</tr>
</thead>
<tbody>
<tr>
<td>7-Mode</td>
<td>halt</td>
</tr>
<tr>
<td>Cluster-Mode</td>
<td>halt local</td>
</tr>
</tbody>
</table>

**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 controller module 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.
Note: The preceding illustration shows a 2050 system. The NVMEM LEDs are in a similar location on a 2020 or 2040 system. The Platform Monitoring Guide contains additional information about the NVMEM LEDs.

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

3. Turn off the power supplies and unplug both power cords from the power source:

<table>
<thead>
<tr>
<th>If your system uses...</th>
<th>Then...</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC power supplies</td>
<td>Unplug the power cords from the power source, and then remove the power cords.</td>
</tr>
<tr>
<td>DC power supplies</td>
<td>Remove the power at the DC source, and remove the DC wires, if necessary.</td>
</tr>
</tbody>
</table>

Saving the Fibre Channel configuration for HA pairs in SAN configurations

If you have a SAN configuration and the system is in an HA pair, you must save the onboard FC port configuration information before replacing the controller module, so that you can reenter it on the new controller module.

Steps

1. Enter the following command from the partner node to save the onboard FC port configuration information for the target node (the system on which you are replacing the controller module):
   
   partner fcadmin config

2. Copy and save the screen display to a safe location for later reuse.
Removing the controller module and moving the components

You must remove the old controller module from the system and move the CompactFlash card and battery to the new controller module. In the case of a 2050, if the system has a PCI card, you must move the card from the old controller module to the new controller module.

About this task

To reduce the possibility of damage to the replaceable components, you should minimize handling by installing the components into the new controller module as soon as you remove them from the old controller module.

1. Removing the controller module from the system on page 4
2. Removing a PCI card from a 2050 system on page 4
3. Removing the boot device on page 5
4. Removing an NVMEM battery from a 2020 or 2040 system on page 6
5. Removing an NVMEM battery from a 2050 system on page 7

Removing the controller module from the system

To replace the controller, you must first remove the old controller from the system.

Steps

1. If you are not already grounded, properly ground yourself.
2. Unplug the system cables from the controller module, as needed, and keep track of where the cables were connected.
3. Pull the controller module cam handle downward and slide the controller module out of the system.
   Make sure that you support the bottom of the controller module with your free hand.

Removing a PCI card from a 2050 system

To remove a PCI card from the 2050 system, you must perform a specific sequence of steps.

Steps

1. Locate the locking wing nut on the side panel and push and turn the locking wing nut one quarter turn to the left to unlock it.
2. Swing the side panel away from the controller module and lift the panel off the controller module.

3. Remove the PCI card from the controller module and set it aside.
   
   **Attention:** Do not remove the EMI gasket installed in the PCI slot.

### Removing the boot device

You must remove the boot device, also known as the CompactFlash card, and set it aside, so you can reinstall it in the new controller.

#### Steps

1. Remove the controller module, locate the boot device compartment on the underside of the controller module, and then remove the boot device cover.

   The boot device is to the right of center, near the I/O ports.
2. Grasp the edges of the boot device and gently slide it out of the socket.
3. Set the boot device aside.

Removing an NVMeM battery from a 2020 or 2040 system
You must complete a specific sequence of steps to remove the NVMeM battery from a 2020 or 2040 controller module.

Steps
1. Locate the battery, press the clip on the face of the battery plug to release the lock clip from the plug socket, and unplug the battery cable from the socket.

Attention: The battery plug is close to a heat sink. The heat sink is very hot immediately after you shut down your system. Let the controller module sit until the heat sink cools before you attempt to unplug the battery.
2. If the battery is a larger, later version of the battery (part 271-00011_D1 or later), start removing the battery by rotating the cylindrical side of the battery up and out of the battery box.

3. Lift the battery out of the holder and controller module.
   
   It is attached to the controller module with a velcro strip.

**Removing an NVMEM battery from a 2050 system**

To remove the NVMEM battery, you must complete a specific sequence of steps.

**Steps**

1. Locate the locking wing nut on the battery cover and push and turn the locking wing nut one quarter turn to the left to unlock it.
2. Swing the cover up and away from the battery.

3. Press the clip on the face of the battery plug to release the lock clip from the plug socket, and then unplug the battery cable.

4. If the battery is a larger, later version of the battery (part 271-00011_D1 or later), start removing the battery by rotating the cylindrical side of the battery up and out of the battery box.

5. Lift the battery out of the holder and controller module.

Installing the components and the new controller module

You must install the field-replaceable components you removed from the old controller module in the new controller module and then install the new controller module in the chassis.

1. Installing an NVMEM battery on page 8
2. Installing a PCI card in a system on page 9
3. Installing the boot device on page 10
4. Reinstalling the controller module on page 10

Installing an NVMEM battery

To install an NVMEM battery in the controller module, you must perform a specific sequence of steps.

Steps

1. If the new battery is larger than the battery you are replacing, remove three rubber bumpers from the battery box in the controller.

   Batteries labeled as part number 271-00011_D1 or later are larger than earlier versions of the battery.

   a. Locate the three bumpers on the interior wall of the battery box.

   These are the bumpers on the wall toward the center of the controller, as shown in the illustration. These bumpers must be removed. The bumpers on the exterior wall are left intact.

   **Note:** The illustration shows a 2050 system. The other 20xx systems have the battery and rubber bumpers in the same relative position.
b. Grasp each rubber bumper and pull it out.

2. Align the battery with the holder in the controller module, keeping the label side up.
   Make sure that the velcro on the battery and the plug is facing in the correct direction, as applicable.

3. Seat the battery in the holder.
   If you have a new, larger battery, seat the battery by placing the long square side of the battery into the battery box against
   the remaining rubber bumpers, and then rotating the cylindrical side of the battery into place. The fit is tight.

4. Plug the battery in to the controller module.
   The plug should lock down onto the socket on the controller module motherboard.

5. Close and lock the battery cover, if applicable.
   When locking the side panel, push the locking wing nut and turn it a quarter turn to the right.

**Installing a PCI card in a system**

To install a PCI card in the system, you must perform a specific sequence of steps.

**About this task**

*Attention:* The EMI gasket is preinstalled in the chassis. Do not install the EMI gasket that comes with your PCI card. You
could damage the PCI card by installing the gasket and then installing the PCI card.

**Steps**

1. Open the controller module side panel, if necessary, slide off the PCI card filler plate, as needed, and install the PCI card.
Be sure that you properly align the card in the slot and exert even pressure on the card when seating it in the socket. The adapter must be fully and evenly seated in the slot.

2. Close and lock the side panel.

When locking the side panel, push the locking wing nut and turn it a quarter turn to the right.

**Installing the boot device**

You must install the boot device (also known as the CompactFlash card) from the old controller in the new controller.

**Steps**

1. Turn the controller module so that you can locate the boot device socket.
2. Remove the boot device cover, if applicable.
3. Align the boot device with the boot device socket or connector, and then firmly push the boot device into the socket or connector.
   
   The boot device socket is keyed. If you feel resistance while pushing the card into the socket, check the orientation of the card.
4. Check the boot device to make sure that it is seated squarely and completely in the socket or connector.
   
   If necessary, remove the boot device and reseat it into the socket.
5. Replace the boot device cover.

**Reinstalling the controller module**

After moving components into the new controller module, you must place the new controller module in the system chassis.

**About this task**

**Note:** For HA pairs, the sequence in which you reinstall the controller module is especially important because it attempts to reboot as soon as you completely seat it in the chassis.

**Steps**

1. Close the module cover, if necessary, by aligning the controller module cover with the notches on the sides of the controller module and sliding the cover down and forward to seat it.
2. Recable the system, as needed.
3. Push the controller module all the way into the system, firmly push the cam handle to finish seating the controller module, push the cam handle to the closed position, and then tighten the thumbscrew on the cam handle.

<table>
<thead>
<tr>
<th>If your system is in...</th>
<th>Then...</th>
</tr>
</thead>
<tbody>
<tr>
<td>An HA pair</td>
<td>The node reboots as soon as you seat the controller module completely into the system.</td>
</tr>
<tr>
<td></td>
<td>a. Press Ctrl-c to stop the boot process.</td>
</tr>
<tr>
<td></td>
<td>b. Enter the following command at the boot loader prompt: <code>boot_diags</code></td>
</tr>
<tr>
<td>A stand-alone</td>
<td>a. Reconnect the power cables to the power supplies and to the power sources, and then turn on the power.</td>
</tr>
<tr>
<td>configuration</td>
<td>b. Press the Delete key to stop the boot process and get to the Loader prompt.</td>
</tr>
<tr>
<td></td>
<td>c. Enter the following command at the boot loader prompt: <code>boot_diags</code></td>
</tr>
</tbody>
</table>
4. Tighten the thumbscrew on the cam handle.

Running diagnostics on the controller module
You should run diagnostics on the new controller module to verify its operation.

Steps
1. Enter the following command at the main diagnostics prompt to begin the diagnostics tests on the new controller module:
   ```
   run mb
   ```
2. Run the appropriate test, examine the results, and make the appropriate changes.
3. Enter the following command at the prompt to exit diagnostics:
   ```
   exit
   ```
4. Your system configuration determines the next step:

<table>
<thead>
<tr>
<th>If your system is...</th>
<th>Then...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not in an HA pair with a SAN configuration</td>
<td>Boot the system by entering the following command from the boot loader prompt:</td>
</tr>
<tr>
<td></td>
<td><code>boot_ontap</code></td>
</tr>
<tr>
<td></td>
<td><strong>Attention:</strong> If your system is in an HA pair, you must enable it again. You use the <code>cf giveback</code> command (in 7-Mode) or <code>storage failover giveback</code> command (in Cluster-Mode) from the partner node’s console to reenable your HA pair. A successful giveback ends with a message on the partner node indicating successful giveback.</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> If <code>Waiting for Giveback</code> is not displayed prior to giveback, reboot the controller module. If this continues, contact technical support.</td>
</tr>
</tbody>
</table>

| In an HA pair with a SAN configuration | Proceed to restore the Fibre Channel configuration. |

Related information

*NetApp Hardware Diagnostics Guide: now.netapp.com/NOW/knowledge/docs/hardware/NetApp/diag/diag.pdf*

Restoring the Fibre Channel configuration for HA pairs in SAN configurations
Because the onboard FC ports are not preconfigured, you must restore the FC port configurations in your HA pair before you bring the node back into service; otherwise, you might experience a disruption in service.

Before you begin
You must have the values of the FC port settings that you saved earlier.

Steps
1. Verify the values of the FC configuration on the target node by entering the following command from the partner node console:
   ```
   fcadmin config
   ```
2. Compare the default FC variable settings with the list you saved earlier.
If the FC variables are...

<table>
<thead>
<tr>
<th>Then...</th>
</tr>
</thead>
<tbody>
<tr>
<td>The same as you recorded earlier</td>
</tr>
<tr>
<td>Boot Data ONTAP by entering the following command:</td>
</tr>
<tr>
<td><code>boot_ontap</code></td>
</tr>
<tr>
<td>Different than you recorded earlier</td>
</tr>
<tr>
<td>a. Reboot the target node to Maintenance mode by pressing Ctrl-C when prompted.</td>
</tr>
<tr>
<td>b. Answer <code>y</code> when prompted by the system.</td>
</tr>
<tr>
<td>c. Enter one of the following commands, depending on what you need to do:</td>
</tr>
<tr>
<td>• To program target ports:</td>
</tr>
<tr>
<td><code>fcadmin config -t target adapter_name</code></td>
</tr>
<tr>
<td>• To program initiator ports:</td>
</tr>
<tr>
<td><code>fcadmin config -t initiator adapter_name</code></td>
</tr>
<tr>
<td>• To unconfigure ports:</td>
</tr>
<tr>
<td><code>fcadmin config -t unconfigure adapter_name</code></td>
</tr>
<tr>
<td>d. Halt the target node by entering the following command:</td>
</tr>
<tr>
<td><code>halt</code></td>
</tr>
<tr>
<td>e. Verify the values of the variables by entering the following command:</td>
</tr>
<tr>
<td><code>printenv</code></td>
</tr>
<tr>
<td>f. Boot Data ONTAP by entering the following command:</td>
</tr>
<tr>
<td><code>boot_ontap</code></td>
</tr>
</tbody>
</table>

3. After the controller module reboots, perform the giveback by entering the following command on the console of the takeover (partner) controller module:

   `cf giveback`

4. Display the date and time on the partner node and set the target node to the same date and time.

Verifying the time after replacing the controller module in an HA pair

If your system is in an HA pair, you must set the time on both controller modules to prevent possible outages on clients due to time differences.

About this task

It is important that you apply the commands in these steps on the correct systems:

- The `target` node is the node on which you are performing maintenance.
- The `partner` node is the HA partner of the target node.

Steps

1. On the partner node, check the system time by entering the following command:

   `date`

2. If you have not already done so, reboot the target node and press Ctrl-c when prompted.

3. On the target node, enter Maintenance mode if you have not already done so.

4. Enter the following command at the boot prompt to check the time on the target node:

   `show date`
5. If necessary, enter the following command to set the time on the target node:

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

## Reassigning disks

Because the new controller module has a new system ID, you must reassign the disks attached to the target node (the node on which the controller module has been replaced) so that they point to the new system ID.

### 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 Cluster-Mode. A **7-Mode system** refers to a system running Data ONTAP 8.x 7-Mode or releases prior to Data ONTAP 8.0.

- It is important that you apply the commands in these steps on the correct system:
  - The **target** node is the node on which you are performing maintenance.
  - The **partner** node is the HA partner of the target node.

### Next topics

- [Reassigning disks on a 7-Mode system](#) on page 13
- [Reassigning disks on a Cluster-Mode system](#) on page 15

## Reassigning disks on a 7-Mode system

You must reassign disks before you boot the software. Some of the steps are different depending on whether the system is stand-alone or in an HA pair.

### About this task

- It is important that you apply the commands in these steps on the correct systems:
  - The **target** node is the node on which you are performing maintenance.
  - The **partner** node is the HA partner of the target node.

- You cannot reassign more than 500 disks from one controller to another by using the `disk reassign` command. If you try to do so, the system reports an error. If you want to reassign more than 500 disks, contact technical support.

### Steps

1. Power on to reboot the target node and press Ctrl-c when prompted, if you have not already done so.

2. On the target node, enter Maintenance mode if you have not already done so.

3. View the new system IDs by entering the following command:

```bash
disk show -v
```

**Note:** Make note of the new system ID, which is displayed in the Local System ID field. The following example contains the following information:

- `system-2` is the target node, which is undergoing maintenance.
- `system-1` is the partner node.
- The new system ID is **118065481**.
- The old system ID is **118073209**, which is still assigned to the disks owned by `system-2`.

### Example

```bash
*>
```

`Local System ID: 118065481`
4. Reassign disk ownership based on your system's configuration:

If the controller module is... Then perform these steps on the applicable node...

In an HA pair

a. Halt the target node by entering the following command on the target node:
   
   `halt`

b. Confirm that the target node has been taken over by entering the following command on the partner node:
   
   `cf status`

c. On the partner node, enter the following command to enter advanced privilege mode:
   
   `priv set advanced`

d. On the partner node, reassign disk ownership (for FAS systems) or LUN ownership (for V-Series systems), using the system ID information obtained from the `disk show -v` command:

   `disk reassign -s old system ID -d new system ID`

Continuing the preceding example:

   • The `old system ID` is 118073209.
   • The `new system ID` is 118065481.

Stand-alone

Reassign disk ownership by entering the following command at the Maintenance mode prompt of the target node:

`disk reassign -s old system ID -d new system ID`

Continuing the preceding example:

   • The `old system ID` is 118073209.
   • The `new system ID` is 118065481.

5. Verify that the disks (or V-Series LUNs) were assigned correctly by entering the following command:

   `disk show -v`

   **Note:** If your system is in an HA pair, you must run this command on the partner node.

Make sure that the disks belonging to the target node show the new system ID for the target node. In the following example, the disks owned by system-2 now show the new system ID, 118065481:

**Example**

```
Example

system-1> disk show -v

<table>
<thead>
<tr>
<th>DISK</th>
<th>OWNER</th>
<th>POOL</th>
<th>SERIAL NUMBER</th>
<th>HOME</th>
</tr>
</thead>
<tbody>
<tr>
<td>0b.17</td>
<td>system-2</td>
<td>Pool0</td>
<td>J8Y0TD2C</td>
<td>system-2</td>
</tr>
<tr>
<td>0a.17</td>
<td>system-1</td>
<td>Pool0</td>
<td>J8Y09D2C</td>
<td>system-2</td>
</tr>
</tbody>
</table>
```

6. Exit Maintenance mode by entering the following command on the target node:

   `halt`

7. After the target node displays the boot prompt, enter the following command to boot the operating system:

   `boot_ontap`
For a system in an HA pair, this puts the node in Waiting for Giveback state.

8. Proceed depending on whether the system is in an HA pair:

<table>
<thead>
<tr>
<th>If the controller module is...</th>
<th>Then...</th>
</tr>
</thead>
<tbody>
<tr>
<td>In an HA pair</td>
<td></td>
</tr>
<tr>
<td>a.</td>
<td>On the partner node, enter the following command to return to standard privilege mode:</td>
</tr>
<tr>
<td></td>
<td><code>priv set admin</code></td>
</tr>
<tr>
<td>b.</td>
<td>On the partner node, return storage to the target node by entering the following command:</td>
</tr>
<tr>
<td></td>
<td><code>cf giveback</code></td>
</tr>
<tr>
<td>c.</td>
<td>Proceed to run diagnostics on the target node.</td>
</tr>
</tbody>
</table>

| Stand-alone                     | Proceed to install firmware on the system. |

**Reassigning disks on a Cluster-Mode system**

You must assign the NVRAM system ID of the new NVRAM adapter to the disks in the system.

**About this task**

- It is important that you apply the commands in these steps on the correct systems:
  - The **target** node is the node on which you are performing maintenance.
  - The **partner** node is the HA partner of the target node.
  - The target system must have been taken over by its partner.
  - This procedure does not apply to Data ONTAP GX, only to a Data ONTAP 8.x Cluster-Mode system.
  - You cannot reassign more than 500 disks from one controller to another by using the `disk reassign` command. If you try to do so, the system reports an error. If you want to reassign more than 500 disks, contact technical support.

**Steps**

1. Complete the following substeps on the **partner** node:
   a. Log in as admin and enter the password.
   b. Enter the following command:
      ```
      run local
      ```
      The command prompt appears.
   c. Enter the following command to obtain the system ID of the failed NVRAM adapter:
      ```
      disk show
      ```
      In the following example, the old system ID of target node, 101174200, appears to the right of the column labeled Home.
      **Example**
      The command displays system and disk information, as shown in the following example.

<table>
<thead>
<tr>
<th>DISK</th>
<th>OWNER</th>
<th>HOME</th>
<th>POOL</th>
</tr>
</thead>
<tbody>
<tr>
<td>0b.18</td>
<td>partner_node (103668010)</td>
<td>target_node (101174200)</td>
<td>Pool0</td>
</tr>
<tr>
<td>0b.22</td>
<td>partner_node (103668010)</td>
<td>target_node (101174200)</td>
<td>Pool0</td>
</tr>
<tr>
<td>[...]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0b.20</td>
<td>partner_node (103668010)</td>
<td>target_node (101174200)</td>
<td>Pool0</td>
</tr>
</tbody>
</table>

d. Write down the system ID.
   This is the old system ID, which you use later in this procedure.
2. Complete the following substeps on the target node:
   a. If you have not already done so, turn on the power to the node and immediately press any key to access the boot prompt.
   b. Set the `bootarg.mgwd.autoconf.disable` variable to `true` to disable automatic configuration:
      ```
      setenv bootarg.mgwd.autoconf.disable true
      ```
   c. Boot the Data ONTAP software by entering the following command.
      ```
      autoboot
      ```
   d. As the software starts, access the boot menu by pressing Ctrl-c.
   e. When prompted, answer `y` to acknowledge the system ID mismatch.
      ```
      Example
      ...
      Restoring /var from CF.
      WARNING: System id mismatch. This usually occurs when moving CF cards!
      Override system (y|n) ? [n] y
      ```
   f. If you see the following messages, answer `n` to the prompt and wait for the battery to charge before proceeding.
      ```
      WARNING: The battery voltage is too low to hold data for 3 days
during a power-out condition. The charger is now turned on. When the voltage
is ok the boot process will complete and services will be engaged. To
override this delay, press 'c' followed by 'Enter'.
CAUTION: Using this appliance without NVRAM battery backup coupled with a
power failure condition CAN CAUSE DATA LOSS.
Are you sure you want to continue (y or n)?
```
   g. Enter the following command at the boot menu:
      ```
      maint
      ```
   h. Enter the following command to obtain the system ID of the new NVRAM adapter:
      ```
      disk show
      ```
      ```
      Example
      *> disk show
disk show
Local System ID: 0101166306
```  
   i. Write down the system ID.
      This is the new system ID, which you use later in this procedure.
   j. Halt the node by entering the following command:
      ```
      halt
      ```

3. Complete the following substeps on the partner node:
   a. On the partner node, enter the following command to enter advanced privilege mode:
      ```
      priv set advanced
      ```
   b. Enter the following command to assign the system ID of the new NVRAM adapter to the disks:
      ```
      disk reassign -s old_system_ID -d new_system_id
      ```
      **Note:** Be sure to perform this step correctly. If disks are not assigned correctly, the nodes will panic.
      ```
      old_system_ID represents the system ID you recorded in step 1d.
      new_system_id represents the system ID you recorded in Step 2i.
      ```
   c. Answer `y` to the questions when you see the following prompt:
Example

```bash
disk reassign -s 101174200 -o target_node -d 0101166306
Disk ownership will be updated on all disks previously belonging to Filer with syslog 101174200.
Would you like to continue (y/n)? y
```

d. Enter the following command to ensure that the system IDs have been correctly reassigned to the disks:
   ```bash
disk show
```
e. Return to the ngsh shell by pressing Ctrl-d or by typing the following command:
   ```bash
exit
```

4. Complete the following substeps on the target node (the one containing the new NVRAM adapter):

   a. Restart the node by entering the following command:
      ```bash
      autoboot
      ```
   
   b. As the software starts, access the boot menu by pressing Ctrl-c.
   
   c. Synchronize the flash-based configuration by entering the following command from the boot menu and enter y when prompted:
      ```bash
      syncflash
      ```
      The `syncflash` command updates the configuration and restarts the node.

      Example

      ```bash
      Please make a selection: syncflash
      This will replace all flash-based configuration with the last backup to disks.
      Are you sure you want to continue? (y or n): y
      ```

d. Boot the Data ONTAP software by entering the following command:
   ```bash
   autoboot
   ```

e. Answer y when the startup process prompts you to confirm the system ID mismatch.

   Example

   ```bash
   WARNING: System id mismatch. This usually occurs when moving CF cards!
   Override system id (y|n) ? [n] y
   ```
   This puts the node in Waiting for Giveback state.

5. On the partner node, return the storage to the node containing the new NVRAM adapter by entering the following command:
   ```bash
   storage failover giveback -fromnode local
   ```

### Installing the firmware after replacing the controller module

After replacing the controller module you must install the latest firmware.

#### Step

1. Log into the NOW site, select the most current version of firmware for your system from those listed at now.netapp.com/NOW/download/tools/serviceimage/, and then follow the instructions for downloading and installing the new firmware.

   **Note:** Installing a new controller module changes the World Wide Port Name (WWPN) and World Wide Node Name (WWNN) values associated with each onboard FC port. If your configuration uses switched-based zoning, you must adjust the switch zoning to reflect the new WWPN and WWNN values. If your configuration includes a V-Series system, you must also adjust the WWPN values in the host or volume groups associated with arrays on the storage subsystem.
Performing a final takeover and giveback from the target node

On a system running Data ONTAP 8.x, to ensure that the disk reassignment is successful, you must perform a final takeover and giveback from the target node.

About this task

It is important that you apply the commands in these steps on the correct system:

- The target node is the node on which you are performing maintenance.
- The partner node is the HA partner of the target node.

Steps

1. Take over the partner node by entering one of the following commands from the target node’s console:

<table>
<thead>
<tr>
<th>If your system is configured in...</th>
<th>Then issue this command...</th>
</tr>
</thead>
<tbody>
<tr>
<td>7-Mode</td>
<td>cf takeover</td>
</tr>
<tr>
<td>Cluster-Mode</td>
<td>storage failover takeover –bynode node</td>
</tr>
</tbody>
</table>

2. Return control to the partner node by entering one of the following commands from the target node’s console:

<table>
<thead>
<tr>
<th>If your system is configured in...</th>
<th>Then issue this command...</th>
</tr>
</thead>
<tbody>
<tr>
<td>7-Mode</td>
<td>cf giveback</td>
</tr>
<tr>
<td>Cluster-Mode</td>
<td>storage failover giveback</td>
</tr>
</tbody>
</table>

A successful giveback ends with a message on the partner node indicating successful giveback.

Note: If Waiting for Giveback is not displayed prior to giveback, reboot the controller module. If this continues, contact technical support.

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 NetApp technical support at 888-463-8277 (North America), 00-800-44-NETAPP (Europe), or +800-800-80-800 (Asia/Pacific) if you need the RMA number or additional help with the replacement procedure.

Disposing of batteries

Dispose of batteries according to local regulations regarding battery recycling or disposal. If you cannot properly dispose of the battery, return it to NetApp, as described in the RMA instructions shipped with the kit.

Related information

Warranty Agreement, Safety Information, and Regulatory Notices: now.netapp.com/NOW/knowledge/docs/hardware/hardware_index.shtml

Trademark information

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