Replacing an NVMEM battery in a FAS20xx system

To replace an NVMEM battery in the system, you must complete a specific sequence of tasks.

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 8.0 Cluster-Mode. A *7-Mode system* refers to a system running Data ONTAP 8.0 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 other components in the system must be functioning properly; if not, contact technical support.

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

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.

About this task

Note: Leave the power supplies turned on at the end of this procedure to provide power to the partner node.

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...
7-Mode	`cf status`
Cluster-Mode	`storage failover show`

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

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

3. Take over the target node by entering the following command from the partner node's console:

If your system is configured in...	Then issue this command...
7-Mode	`cf takeover`
Cluster-Mode	`storage failover takeover -bynode node`

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

For a node that is not configured with a high-availability (HA) partner, 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:

If your system is configured as a...	Then issue this command...
7-Mode system	`halt`
Cluster-Mode system	`halt local`

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.
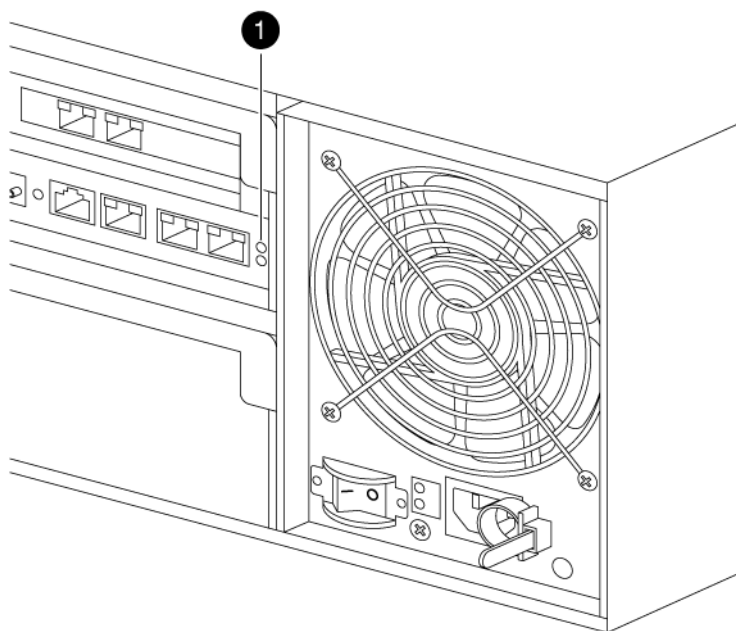
1	NVMEM LED

> **Note:** The preceding illustration shows a FAS2050 system. The NVMEM LEDs are in a similar location on a FAS2020 or FAS2040 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:

| If your system uses...	Then...
AC power supplies	Unplug the power cords from the power source, and then remove the power cords.
DC power supplies	Remove the power at the DC source, and remove the DC wires, if necessary.

Opening the system

To access components inside the controller module, you must open 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 cam handle downward and slide the controller module out of the system.

4. Remove the controller module cover by completing the following substeps, using the applicable illustration for reference.

   If you have a FAS2050 system:
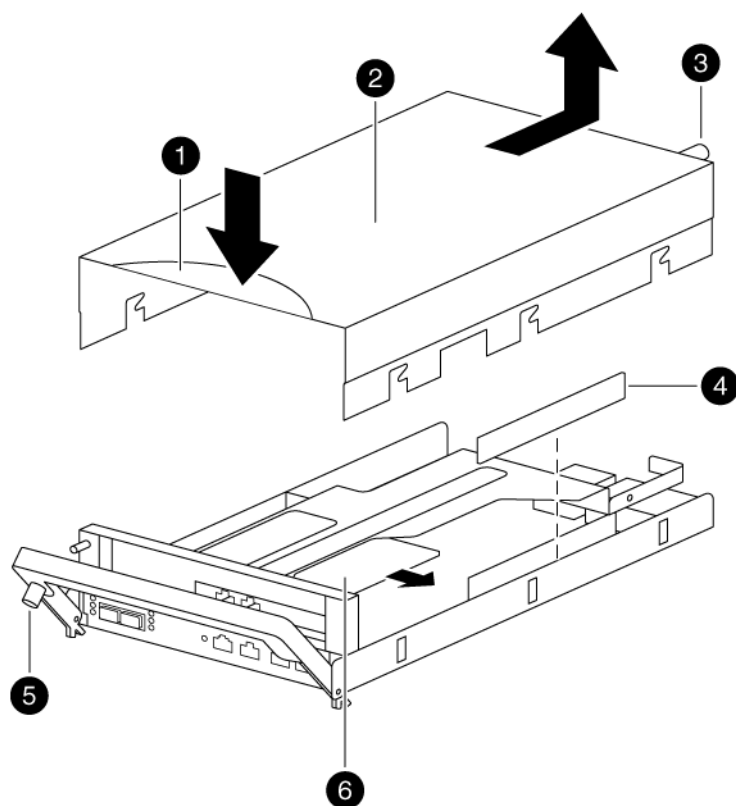
❶	Indentation
❷	Controller module cover
❸	Thumbscrew
❹	DIMMs
❺	Thumbscrew
❻	PCI card

If you have a FAS2020 or FAS2040 system:
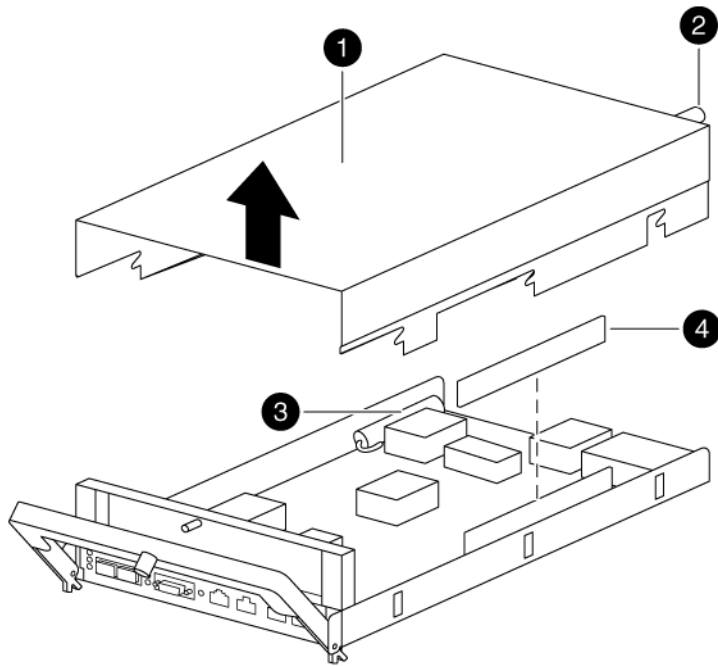
❶	Controller module cover	
❷	Thumbscrew	
❸	Battery	
❹	DIMMs	

a. Loosen the thumbscrew on the back of the controller module.

b. Gently press the heel of your hand on the indentation in the controller module cover closest to the cam handle, then slide the cover toward the back of the controller module.

c. Lift the cover straight up off the controller module.

Removing an NVMEM battery from the controller module

You shut down a node using different procedures, depending on whether it is a FAS2050 system or a FAS2020 or FAS2040 system.
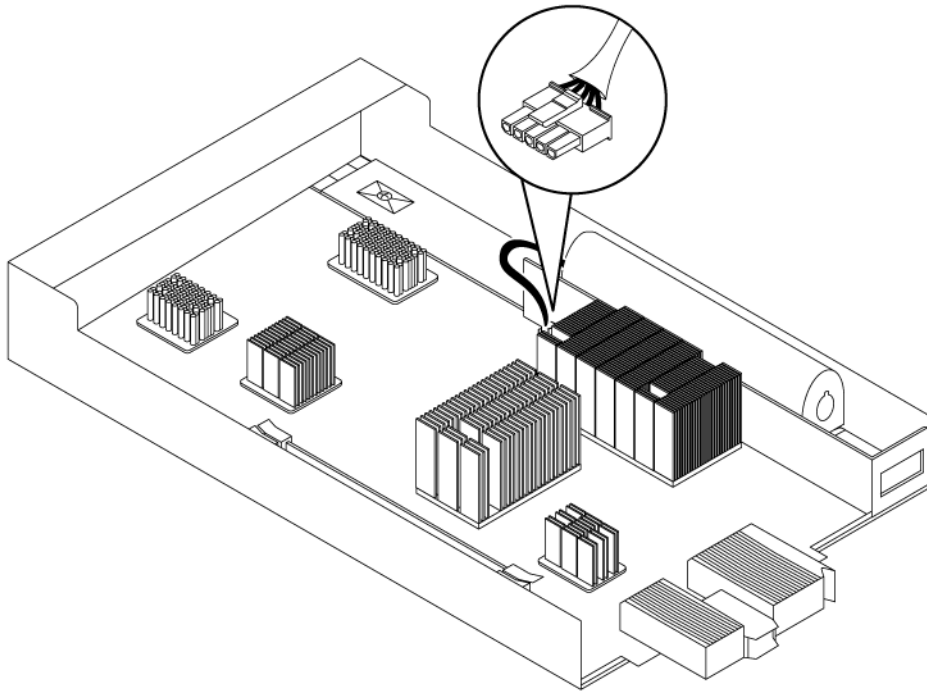
Next topics

Removing an NVMEM battery from a FAS2020 or FAS2040 system

You must complete a specific sequence of steps to remove the NVMEM battery from a FAS2020 or FAS2040 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. 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 FAS2050 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.

Replacing an NVMEM battery in a FAS20xx system
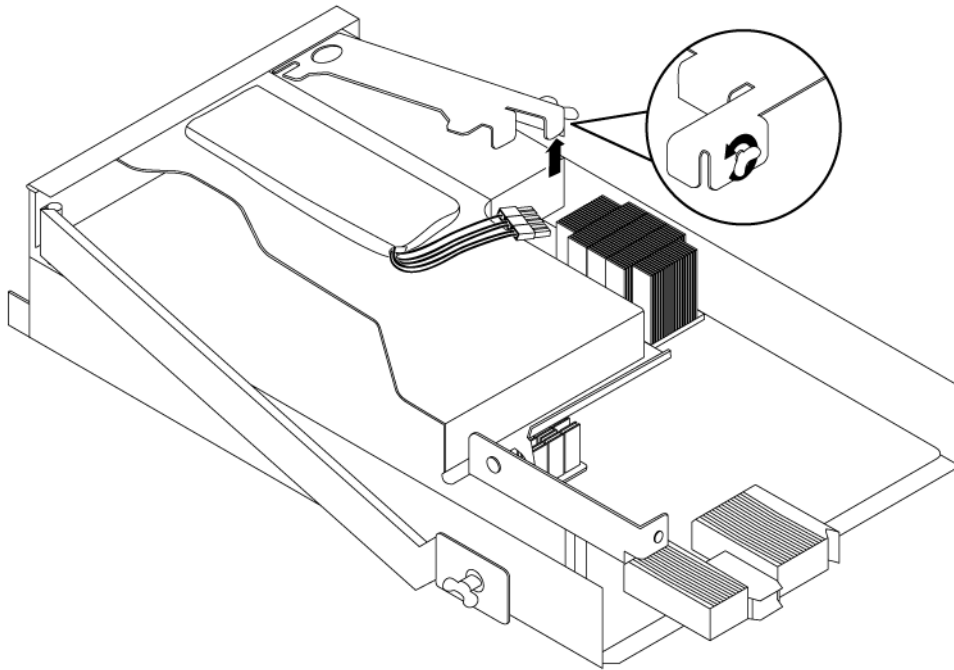
2. Swing the cover up and away from the battery.

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

Installing an NVMEM battery

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

Steps

1. Align the battery with the holder in the controller module.

   Make sure that the velcro on the battery and the plug is facing in the correct direction, as applicable.

2. Seat the battery in the holder and plug it in to the controller module.

   The plug should lock down onto the socket on the controller module motherboard.

3. 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.

Reinstalling the controller module and booting the system

After you replace a component within the controller module, you must reinstall the controller module in the system chassis.

About this task

> **Attention:** 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. Align the end of the controller module with the opening in the chassis, if necessary, and then gently push the controller module halfway into the system.

3. Recable the system, as needed.

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

4. Push the controller module all the way into the chassis.

If your system is in...	Then...
An HA pair	The node reboots as soon as you seat the controller module completely into the chassis.
A stand-alone configuration	Reconnect the power cables to the power supplies and to the power sources, and then turn on the power.

5. Firmly push the cam handle to finish seating the controller module in the system, and then push the cam handle to the closed position.

6. Tighten the thumbscrew beneath the cam handle.

Checking the status of the NVMEM battery

After installing a new NVMEM battery, you should run diagnostics and check the status of the battery.

Steps

1. Reboot the system and press Ctrl-C to stop the boot process before LOADER completes loading, and then enter the following command at the boot loader prompt:

   `boot_diags`

   Note: Data ONTAP checks the battery charge during system boot. If the battery is not charged enough to hold the NVMEM contents for a sufficient period, the boot process is stopped until the battery is properly recharged. The system also prints an error message and gives an override command on the console screen.

2. Enter the following command at the main diagnostiics prompt to run the NVRAM diagnostics:

   `nvram`

3. Select option **2** to run the battery tests.

4. Enter the following command at the prompt to boot the system:

   `boot_ontap`

5. If your system is in an HA pair, return the system to normal operation:

If you have a...	Then issue this command...
7-Mode system	`cf giveback`
Cluster-Mode system	`storage failover giveback`

6. Check the status of the NVMEM battery from the system command prompt on the console by completing the following substeps:

   a. Press Ctrl-g from the console to go to the Baseboard Management Controller (BMC).

The **bmc shell*->** prompt appears.

b. Change to the advanced privileges:

priv set advanced

c. Show the battery status by entering the following command:

battery show

The output display shows the following information if the battery is good or charging, and fails if the battery is improperly installed or bad:

```
chemistry :LION
device-name :bq20z80
expected-load-mw:81
id :27100010
manufacturer :AVT
manufacture-date:3/16/2006
rev_cell :1
rev_firmware :200
rev_hardware :c0
serial :00e7
status :full
test-capacity :disabled
```

> **Note:** The displayed field's values can change without notice. All fields will be present and have values.

d. If the battery status displayed correctly, go to the next step; otherwise, reinstall the battery and test again.

e. Enter the following command to verify that the battery is charging:

sensors show

The display shows the following information if the battery is very low and charging:

```
Batt Run Time Critical-Low
```

The display shows the following information if the battery is currently charging:

```
Batt Run Time Warning-Low
```

> **Note:** When fully charged, the sensor state should be normal. It displays the number of hours of charge held by the battery.

f. Exit the BMC by entering the following command to return to the system console:

system console

Resetting the date and time on the system

After you reconnect the battery and reboot Data ONTAP, you must reset the date and time on the system.

Steps

1. Display the current date on the node or nodes by entering the following command:

If you have a...	Then issue this command...
7-Mode system	**date** > **Note:** If your system is in an HA pair, make sure that you display the date and time on the partner node and set the target node to those values.

If you have a...	Then issue this command...
Cluster-Mode system	`system date show` **Note:** Make sure that you display the date and time on the other nodes in the cluster and set the target node to those values.

2. Set the date by entering the following command:

If you have a...	Then issue this command...
7-Mode system	`date [-u] [[[CC]yy]mmddhhmm>[.<ss>]]` -u sets the date and time to Greenwich Mean Time instead of the local time. CC is the first two digits of the current year. yy is the second two digits of the current year. mm is the current month. If the month is omitted, the default is the current month. dd is the current day. If the day is omitted, the default is the current day. hh is the current hour, using a 24-hour clock. mm is the current minute. ss is the current second. If the seconds are omitted, the default is 0.
Cluster-Mode system	`system date modify -node node_name -date date_and_time` node_name is the target node. date_and_time is the date and time setting for the node, in the format MM/DD/YYYY HH:MM:SS.

Note: See the Data ONTAP *7-Mode System Administration Guide* or *Cluster-Mode System Administration Guide* in the *Data ONTAP Information Library* for more information.

Example

The following command sets the date and time to 22 May 2009 at 9:25 a.m on a 7-Mode system:

`date 200905220925`

Example

The following command sets the date and time to 22 May 2009 at 9:25 a.m. on a Cluster-Mode system:

`system date modify -node system1 -date "05/22/2009 09:25:00"`

Related information

Data ONTAP Information Library: http://now.netapp.com/NOW/knowledge/docs/ontap/ontap_index.shtml

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: http://now.netapp.com/NOW/knowledge/docs/hardware/hardware_index.shtml

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