Restore and verify the system configuration - AFF A220 and FAS2700

ONTAP Systems

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Restore and verify the system configuration - AFF A220 and FAS2700

After completing the hardware replacement and booting to Maintenance mode, you verify the low-level system configuration of the replacement controller and reconfigure system settings as necessary.

Step 1: Set and verify system time after replacing the controller

You should check the time and date on the replacement controller module against the healthy controller module in an HA pair, or against a reliable time server in a stand-alone configuration. If the time and date do not match, you must reset them on the replacement controller module to prevent possible outages on clients due to time differences.

About this task

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

- The *replacement* node is the new node that replaced the impaired node as part of this procedure.
- The *healthy* node is the HA partner of the *replacement* node

Steps

1. If the *replacement* node is not at the LOADER prompt, halt the system to the LOADER prompt.
2. On the healthy node, check the system time: `show date`

   The date and time are given in GMT.

3. At the LOADER prompt, check the date and time on the *replacement* node: `show date`

   The date and time are given in GMT.

4. If necessary, set the date in GMT on the replacement node: `set date` *`mm/dd/yyyy`*
5. If necessary, set the time in GMT on the replacement node: `set time` *`hh:mm:ss`*
6. At the LOADER prompt, confirm the date and time on the *replacement* node: `show date`

   The date and time are given in GMT.

Step 2: Verify and set the HA state of the controller module

You must verify the `HA` state of the controller module and, if necessary, update the state to match your system configuration.

1. In Maintenance mode from the new controller module, verify that all components display the same `HA` state: `ha-config show`

If your system is in…	The HA state for all components should be…
An HA pair	ha
A MetroCluster FC configuration with four or more nodes	mcc
A two-node MetroCluster FC configuration	mcc-2n
A MetroCluster IP configuration	mccip
A stand-alone configuration	non-ha

2. If the displayed system state of the controller module does not match your system configuration, set the `HA` state for the controller module: `ha-config modify controller ha-state`
3. If the displayed system state of the chassis does not match your system configuration, set the `HA` state for the chassis: `ha-config modify chassis` *`HA-state`*

Step 3: Run system-level diagnostics

You should run comprehensive or focused diagnostic tests for specific components and subsystems whenever you replace the controller.

All commands in the diagnostic procedures are issued from the node where the component is being replaced.

1. If the node to be serviced is not at the LOADER prompt, reboot the node: `halt`

   After you issue the command, you should wait until the system stops at the LOADER prompt.

2. At the LOADER prompt, access the special drivers specifically designed for system-level diagnostics to function properly: `boot_diags`

   During the boot process, you can safely respond `y` to the prompts until the Maintenance mode prompt (*>) appears.

3. Display and note the available devices on the controller module: `sldiag device show -dev mb`

   The controller module devices and ports displayed can be any one or more of the following:

   - `bootmedia` is the system booting device..
   - cna is a Converged Network Adapter or interface not connected to a network or storage device.
   - fcal is a Fibre Channel-Arbitrated Loop device not connected to a Fibre Channel network.
   - `env` is motherboard environmentals.
   - mem is system memory.
   - nic is a network interface card.
   - `nvram` is nonvolatile RAM.

- `nvmem` is a hybrid of NVRAM and system memory.
- `sas` is a Serial Attached SCSI device not connected to a disk shelf.

4. Run diagnostics as desired.

If you want to run diagnostic tests on…	Then…
Individual components	a. Clear the status logs: `sldiag device clearstatus` b. Display the available tests for the selected devices: `sldiag device show -dev dev_name` *dev_name* can be any one of the ports and devices identified in the preceding step. c. Examine the output and, if applicable, select only the tests that you want to run: `sldiag device modify -dev dev_name -selection only` -selection only disables all other tests that you do not want to run for the device. d. Run the selected tests: `sldiag device run -dev dev_name` After the test is complete, the following message is displayed: `*> <SLDIAG:_ALL_TESTS_COMPLETED>` e. Verify that no tests failed: `sldiag device status -dev dev_name -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.

If you want to run diagnostic tests on…	Then…
Multiple components at the same time	a. Review the enabled and disabled devices in the output from the preceding procedure and determine which ones you want to run concurrently. b. List the individual tests for the device: `sldiag device show -dev dev_name` c. Examine the output and, if applicable, select only the tests that you want to run: `sldiag device modify -dev dev_name -selection only` -selection only disables all other tests that you do not want to run for the device. d. Verify that the tests were modified: `sldiag device show` e. Repeat these substeps for each device that you want to run concurrently. f. Run diagnostics on all of the devices: `sldiag device run` Do not add to or modify your entries after you start running diagnostics. After the test is complete, the following message is displayed: `*> <SLDIAG:_ALL_TESTS_COMPLETED>` g. Verify that there are no hardware problems on the node: `sldiag device status -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.

5. 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: `sldiag device clearstatus` b. Verify that the log was cleared: `sldiag device status` The following default response is displayed: `SLDIAG: No log messages are present.` c. Exit Maintenance mode: `halt` The system displays the LOADER prompt. You have completed system-level diagnostics.
Resulted in some test failures	Determine the cause of the problem. a. Exit Maintenance mode: `halt` b. Perform a clean shutdown, and then disconnect the power supplies. c. Verify that you have observed all of 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 then power on the storage system. e. Rerun the system-level diagnostics test.

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