Run system installation diagnostics

ONTAP Systems

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You run diagnostics after an initial system installation to identify the version of system-level diagnostics and the supported devices on your storage system, and to verify that the installation is successful and that all hardware is functioning properly.

Your storage system must already be running Data ONTAP.

1. At the storage system prompt, switch to the LOADER prompt: `halt`
2. Enter the following command at the LOADER prompt: `boot_diags`

   You must run this command from the LOADER prompt for system-level diagnostics to function properly. The boot_diags command starts special drivers designed specifically for system-level diagnostics.

3. View the version of system-level diagnostics present on your storage system by entering the following command: `sldiag version show`

   The version is displayed in the format System Level DiagnosticsX.nn.nn. The X is an alpha reference and nn.nn are major and minor numeric references, respectively.

4. Identify the device types in your new system installation so that you know which components to verify by entering the following command: `sldiag device types`

   Your storage system displays some or all of the following devices:

   - `ata` is an Advanced Technology Attachment device.
   - `bootmedia` is the system booting device.
   - `cna` is a Converged Network Adapter not connected to a network or storage device.
   - `env` is motherboard environmentals.
   - `fcache` is the Flash Cache adapter, also known as the Performance Acceleration Module 2.
   - `fcal` is a Fibre Channel-Arbitrated Loop device not connected to a storage device or Fibre Channel network.
   - `fcvi` is the Fiber Channel Virtual Interface not connected to a Fibre Channel network.
   - `interconnect` or `nvram-ib` is the high-availability interface.
   - mem is system memory.
   - `nic` is a Network Interface Card not connected to a network.
   - `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.
   - `serviceproc` is the Service Processor.
   - `storage` is an ATA, FC-AL, or SAS interface that has an attached disk shelf.
   - `toe` is a TCP Offload Engine, a type of NIC.

5. Run all the default selected diagnostic tests on your storage system by entering the following command: `sldiag device run`
6. View the status of the test by entering the following command: `sldiag device status`

   Your storage system provides the following output while the tests are still running:

   ```
   There are still test(s) being processed.
   ```

   After all the tests are complete, the following response appears by default:

   ```
   *> <SLDIAG:_ALL_TESTS_COMPLETED>
   ```

7. Verify that there are no hardware problems on your new storage system by entering the following command: `sldiag device status -long -state failed`

   The following example shows how the full status of the failures is displayed in a test run without the appropriate hardware:

   ```
   *> **sldiag device status -long -state failed**

   TEST START ------------------------------------------
   DEVTYPE: nvram_ib
   NAME: external  loopback test
   START DATE: Sat Jan  3 23:10:55 GMT 2009

   STATUS: Completed
   ib3a: could not set loopback mode, test failed
   END DATE: Sat Jan  3 23:11:04 GMT 2009

   LOOP: 1/1
   TEST END --------------------------------------------

   TEST START ------------------------------------------
   DEVTYPE: fcal
   NAME: Fcal Loopback Test
   START DATE: Sat Jan  3 23:10:56 GMT 2009

   STATUS: Completed
   Starting test on Fcal Adapter: 0b
   Started gathering adapter info.
   Adapter get adapter info OK
   Adapter fc_data_link_rate: 1Gib
   Adapter name: QLogic 2532
   Adapter firmware rev: 4.5.2
   Adapter hardware rev: 2
   ```

```
Started adapter get WWN string test.
Adapter get WWN string OK wwn_str: 5:00a:098300:035309

Started adapter interrupt test
Adapter interrupt test OK

Started adapter reset test.
Adapter reset OK

Started Adapter Get Connection State Test.
Connection State: 5
Loop on FC Adapter 0b is OPEN

Started adapter Retry LIP test
Adapter Retry LIP OK

ERROR: failed to init adaptor port for IOCTL call

ioctl_status.class_type = 0x1

ioctl_status.subclass = 0x3

ioctl_status.info = 0x0
 Started INTERNAL LOOPBACK:
INTERNAL LOOPBACK   OK
Error Count: 2  Run Time: 70 secs
>>>>> ERROR, please ensure the port has a shelf or plug.
END DATE: Sat Jan  3 23:12:07 GMT 2009

LOOP: 1/1
TEST END ------------------------------------------
```

If the system-level diagnostics tests…	Then…
Were completed without any failures	There are no hardware problems and your storage system returns to the prompt. a. Clear the status logs by entering the following command: `sldiag device clearstatus` b. Verify that the log is cleared by entering the following command: `sldiag device status` The following default response is displayed: `SLDIAG: No log messages are present.` c. Exit Maintenance mode by entering the following command: `halt` d. Enter the following command at the Loader prompt to boot the storage system: `boot_ontap` You have completed system-level diagnostics.
Resulted in some test failures	Determine the cause of the problem. a. Exit Maintenance mode by entering the following command: `halt` b. Perform a clean shutdown and disconnect the power supplies. c. Verify that you have observed all 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 power on the storage system. e. Repeat Steps 1 through 7 of *Running system installation diagnostics*.

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