Replace the boot media - NS224 shelves

ONTAP Systems

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When the boot media fails on an NS224 drive shelf in an HA pair that is running ONTAP 9.7 or later, or the shelf is running NVMe shelf module (NSM) firmware version 1.1x or later, you can replace the boot media. Replacing the boot media can be done nondisruptively, while the drive shelf is powered on, and I/O is in progress.

Before you begin

- Your HA pair must already be running ONTAP 9.7 or later, which has the minimum supported version of NSM firmware, or your HA pair must already been running a version of ONTAP 9.6 with NSM firmware version 1.1x or later.

  You can enter the `storage shelf show -module` command at the console of either controller to verify the version of NSM firmware on your shelf.

  > If your shelf is not running NSM firmware version 1.1x or later, you cannot replace the boot media, you must replace the NSM module.
  >
  > Replace an NSM module - NS224 shelves

- You need a Phillips #1 screwdriver.

  The screw used to secure the boot media to the board requires a Phillips #1 screwdriver; using a different type of screwdriver could strip the screw.

- The shelf's partner NSM module must be up and running, and be cabled correctly so that your shelf maintains connectivity when you remove the NSM module with the failed FRU (target NSM module).

  NetApp Downloads: Config Advisor

- All other components in the system must be functioning properly.

About this task

- After the boot media is replaced, the boot image from the shelf's partner NSM module is automatically copied to the replacement boot media.

  This can take up to five minutes.

- Allow at least 70 seconds between removal and installation of the NVMe shelf module (NSM).

  This allows enough time for ONTAP to process the NSM removal event.

- **Best practice:** The best practice is to have current versions of NVMe shelf module (NSM) firmware and drive firmware on your system before replacing FRU components.

  > Do not revert firmware to a version that does not support your shelf and its components.
  >
  > NetApp Downloads: Disk Shelf Firmware
  >
  > NetApp Downloads: Disk Drive Firmware

- If needed, you can turn on the shelf's location (blue) LEDs to aid in physically locating the affected shelf:

`storage shelf location-led modify -shelf-name shelf_name -led-status on`

If you do not know the *shelf_name* of the affected shelf, run the `storage shelf show` command.

A shelf has three location LEDs: one on the operator display panel and one on each NSM module. Location LEDs remain illuminated for 30 minutes. You can turn them off by entering the same command, but using the `off` option.

- After replacing the boot media, you can return the failed part to NetApp as described in the RMA instructions shipped with the kit.

  If you need the RMA number or additional help with the replacement procedure, contact technical support at NetApp Support, 888-463-8277 (North America), 00-800-44-638277 (Europe), or +800-800-80-800 (Asia/Pacific).

- You can use the following video or the written steps to replace the boot media.

  Replacing the boot media in an NS224 drive shelf

Steps

1. Properly ground yourself.
2. Disconnect the cabling from the NSM module that contains the FRU that you are replacing:
   a. Disconnect the power cord from the power supply by opening the power cord retainer, and then unplug the power cord from the power supply.

      Power supplies do not have a power switch.

   b. Disconnect the storage cabling from the NSM module ports.

      Make a note of the NSM module ports that each cable is connected to. You reconnect the cables to the same ports when you reinsert the NSM module, later in this procedure.

3. Remove the NSM module from the shelf:
   a. Loop your index fingers through the finger holes of the latching mechanisms on either side of the NSM module.

      If you are removing the bottom NSM module, and if the bottom rail is obstructing access to the latching mechanisms, place your index fingers through the finger holes from the inside (by crossing your arms).

   b. With your thumbs, press down and hold the orange tabs on top of the latching mechanisms.

      The latching mechanisms raise, clearing the latching pins on the shelf.

   c. Gently pull until the NSM module is about one third of the way out of the shelf, grasp the NSM module sides with both hands to support its weight, and then place it on a flat stable surface.

      When you begin pulling, the latching mechanism arms extend from the NSM module and lock in their fully extended position.

4. Loosen the NSM module cover thumb screw and open the cover.
5. Physically locate the failed boot media.

The boot media is located along the shelf chassis wall opposite from the power supply. The boot media attention (amber) LED, located on the board next to the boot media slot, is illuminated.

> The LED remains illuminated for 10 minutes after you remove the NSM module from the shelf.

6. Replace the boot media:
   a. Using the Phillips #1 screwdriver, carefully remove the screw securing the bottom (notched) end of the boot media to the board.
   b. Remove the boot media by rotating the notched end up slightly and then gently pulling it towards you until it releases from the socket.

      You can hold the boot media by placing your thumb and forefinger on the side edges, at the notched end.

   c. Unpack the boot media from the antistatic bag.
   d. Insert the replacement boot media by pushing it gently into the socket until it is seated squarely and completely in the socket.

      You can hold the boot media by placing your thumb and forefinger on the side edges, at the notched end. Make sure that the side with the heat sink is facing up.

      When correctly seated, and when you let go of the boot media, the notched end of the boot media is angled up, away from the board, because it is not yet secured with the screw.

   e. Gently hold down the notched end of the boot media as you insert and tighten the screw with the screwdriver to secure the boot media in place.

      > Tighten the screw just enough to hold the boot media securely in place, but do not overtighten.

7. Close the NSM module cover, and then tighten the thumb screw.
8. Reinsert the NSM module into the shelf:
   a. Make sure that the latching mechanism arms are locked in the fully extended position.
   b. Using both hands, gently slide the NSM module into the shelf until the weight of the NSM module is fully supported by the shelf.
   c. Push the NSM module into the shelf until it stops (about half an inch from the back of the shelf).

      You can place your thumbs on the orange tabs on the front of each finger loop (of the latching mechanism arms) to push in the NSM module.

   d. Loop your index fingers through the finger holes of the latching mechanisms on either side of the NSM module.

      > If you are inserting the bottom NSM module, and if the bottom rail is obstructing access to the latching mechanisms, place your index fingers through the finger holes from the inside (by crossing your arms).

   e. With your thumbs, press down and hold the orange tabs on top of the latching mechanisms.

f. Gently push forward to get the latches over the stop.

g. Release your thumbs from the tops of the latching mechanisms, and then continue pushing until the latching mechanisms snap into place.

   The NSM module should be fully inserted into the shelf and flush with the edges of the shelf.

9. Reconnect the cabling to the NSM module:

   a. Reconnect the storage cabling to the same two NSM module ports.

      Cables are inserted with the connector pull-tab facing up. When a cable is inserted correctly, it clicks into place.

   b. Reconnect the power cord to the power supply, and then secure the power cord with the power cord retainer.

      When functioning correctly, a power supply's bicolored LED illuminates green.

      Additionally, both NSM module port LNK (green) LEDs illuminate. If a LNK LED does not illuminate, reseat the cable.

10. Verify that the attention (amber) LEDs on the NSM module containing the failed boot media and the shelf operator display panel are no longer illuminated.

    It can take between 5 to 10 minutes for the attention LEDs to turn off. This is the amount of time it takes the NSM module to reboot and the boot media image copy to complete.

    If the fault LEDs remain on, the boot media might not be seated correctly or there might be another issue and you should contact technical support for assistance.

11. Verify that the NSM module is cabled correctly, by running Active IQ Config Advisor.

    If any cabling errors are generated, follow the corrective actions provided.

    NetApp Downloads: Config Advisor