

## Replacing drives for H600S series storage nodes

You can hot-swap a failed solid-state drive (SSD) with a replacement drive.

### Before you begin

- You have a replacement drive.
- You have an electrostatic discharge (ESD) wristband, or you have taken other antistatic precautions.
- You have contacted NetApp Support to verify that the SSD failed and for help with the proper resolution procedure. You will need the service tag or serial number when you call NetApp Support. Support will work with you to get a replacement drive according to your Service Level Agreement.

### About this task

The instructions apply to the following H600S series storage node model:

- H610S

The following figure shows the placement of the drives in the chassis:



Slot 0 holds the metadata drive for the node. If you are replacing the drive in slot 0, attach the sticker included in the replacement drive shipping box to the replacement drive to distinguish the metadata drive from the other drives.

The following table describes the states of the LEDs on the drive:

LED	States
Drive status/fault LED	<ul style="list-style-type: none"> <li>• Solid blue: Drive is online.</li> <li>• Blinking blue: Identification (if blinking twice per second) and rebuilding (if blinking once per second).</li> <li>• Solid amber: Drive has fault and needs to be replaced.</li> <li>• Off: Drive slot is empty.</li> </ul>
Drive active LED	<ul style="list-style-type: none"> <li>• Blinking blue: Drive access is active.</li> <li>• Off: Drive is inactive.</li> </ul>

## Rules for handling drives

You must take care to avoid damaging the drives while removing and replacing them.

- Prevent electrostatic discharge (ESD):

- Keep the drive in the ESD bag until you are ready to install it.
- Do not insert a metal tool or knife into the ESD bag.  
Open the ESD bag by hand or cut the top off with a pair of scissors.
- Keep the ESD bag and any packing materials in case you must return a drive later.
- Always wear an ESD wrist strap grounded to an unpainted surface on your chassis.
- Handle drives carefully:
  - Always use both hands when removing, installing, or carrying a drive.
  - Never force a drive into the chassis.
  - Do not stack drives on top of each other.
  - Protect the drives from excessive shock, because shock might damage the components of the drives.
  - Always use approved packaging when shipping drives.

## Removing failed drives from the cluster

The SolidFire system puts a drive in a failed state if the drive's self-diagnostics tells the node it has failed or if communication with the drive stops for five and a half minutes or longer. The system displays a list of the failed drives. You must remove a failed drive from the failed drive list in NetApp Element software.

### About this task

Drives in the **Alerts** list show as **blockServiceUnhealthy** when a node is offline. When restarting the node, if the node and its drives come back online within five and a half minutes, the drives automatically update and continue as active drives in the cluster.

### Steps

1. In the Element UI, select **Cluster > Drives**.
2. Click **Failed** to view the list of failed drives.
3. Note the slot number of the failed drive.

You need this information to locate the failed drive in the chassis.

4. Remove the failed drives using one of the following methods:

Option	Steps
To remove individual drives	<ol style="list-style-type: none"> <li>a. Click <b>Actions</b> for the drive you want to remove.</li> <li>b. Click <b>Remove</b>.</li> </ol>
To remove multiple drives	<ol style="list-style-type: none"> <li>a. Select all the drives you want to remove, and click <b>Bulk Actions</b>.</li> <li>b. Click <b>Remove</b>.</li> </ol>

# Replacing failed drives from the chassis

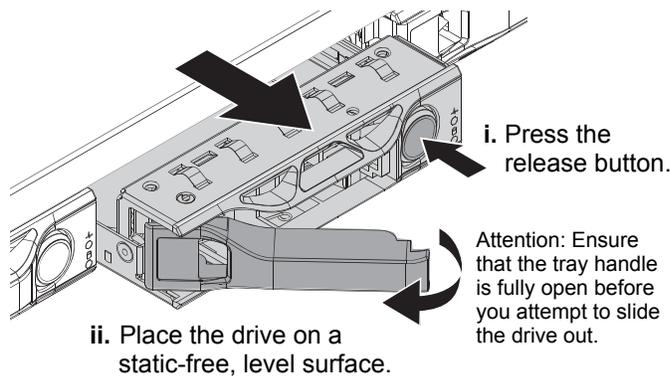
After you remove a failed drive from the failed drive list in the Element UI, you are ready to physically replace the failed drive from the chassis.

## Before you begin

- You have removed the failed drive from the cluster by using the Element UI.
- You have obtained the slot number of the failed drive from the Element UI.
- You have reviewed [Rules for handling drives](#).

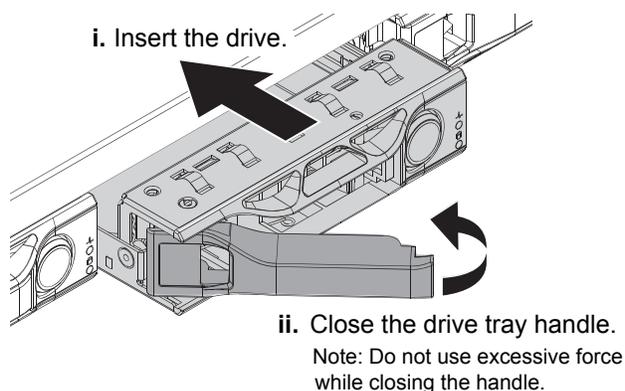
## Steps

1. Unpack the replacement drive, and place it on a flat, static-free surface near the rack.  
Save the packing materials for when you return the failed drive to NetApp.
2. Match the slot number of the failed drive from the Element UI with the number on the chassis.  
The LED on the failed drive is lit amber.
3. Remove the failed drive as shown in the following illustration:



4. Slide the drive out, and place it on a static-free, level surface.
5. Press the release button on the replacement drive before you insert it into the drive bay.  
The latch springs open.

6. Insert the replacement drive as shown in the following illustration:



When the drive is inserted fully, you hear a click.

7. Notify NetApp Support about the drive replacement.

NetApp Support will provide instructions for returning the failed drive.

## Adding drives to a cluster

When you add a node to the cluster or install new drives in an existing node, the drives automatically register as available. You must add the drives to the cluster using either the Element UI or API before it can participate in the cluster.

### About this task

Drives are not displayed in the Available Drives list when the following conditions exist:

- Drives are in Active, Removing, Erasing, or Failed state.
- The node of which the drive is a part of is in Pending state.

### Steps

1. Select **Cluster > Drives**.
2. Click **Available** to view the list of available drives.
3. Choose one of the following options to add drives:

Option	Steps
To add individual drives	<ol style="list-style-type: none"><li>a. Click the <b>Actions</b> button for the drive you want to add.</li><li>b. Click <b>Add</b>.</li></ol>
To add multiple drives	<ol style="list-style-type: none"><li>a. Select the check boxes of the drives to add, and click <b>Bulk Actions</b>.</li><li>b. Click <b>Add</b>.</li></ol>

# Contacting NetApp Support

If you need help with or have questions or comments about NetApp products, contact NetApp Support.

- Web: [mysupport.netapp.com](http://mysupport.netapp.com)
- Phone:
  - 888.4.NETAPP (888.463.8277) (US and Canada)
  - 00.800.44.638277 (EMEA/Europe)
  - +800.800.80.800 (Asia/Pacific)

## Where to find additional information

You can learn more about using and managing SolidFire storage systems in NetApp's documentation library.

### [NetApp Element Software Documentation Library](#)

Includes documentation for various releases of Element software.

### [NetApp SolidFire Resources page](#)

Provides resources about SolidFire, including links to video content and technical reports.

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