Add-on/Spare Disk Drive Instructions

This document describes how to either add a new disk drive or replace an existing disk drive in a SnapScale X4 node from Overland Storage.

⚠ **CAUTION:** While working with the unit, observe standard Electrostatic Discharge (ESD) precautions to prevent damage to micro-circuitry or static-sensitive devices.

➡ **IMPORTANT:** Because of the SnapScale hot-swap feature, it is not necessary to power down the unit to swap out this part.
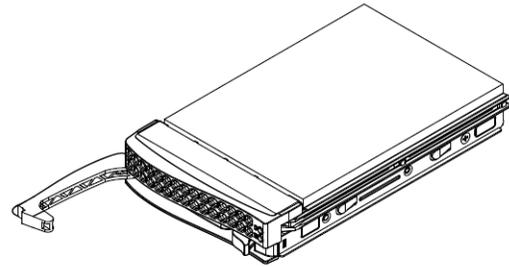
NOTE: The X4 node only supports SAS (and nearline SAS) drives.

Register the Add-on Drives

NOTE: If you are only replacing an existing disk drive, skip to the next section, "Installation Caveats."

When **adding** new drives to your node, you must register them to activate their warranty. Technical and warranty support for the drives are **not available** until this step is done. There are **two options**: registering online before installing the drives or registering by email after the drives are installed. While either method can be used, the online method is recommended should help be needed during installation.

The serial numbers located on the top of each drive (and the box they came in) are necessary to complete this registration process. Be sure you have that information available.

Option 1: Register Online

Use this option to expedite the activation of your drive warranty. That way, you can immediately get technical support should a problem arise during this installation.

1. Go to the **Overland Storage** website (http://www.overlandstorage.com/).
2. Select **Service & Support > My Products**.
3. At the Site Login, enter your **e-mail address** and **password**, and click **GO**.
4. Click the **Manage Products** button.
5. From the Product Selector drop-down list, select the **node** in which you are installing extra drives.
6. Click **Add a Component**.
7. Enter the drive **information**.
8. For each **additional** drive, click **Save & Add Another**, then repeat Step 7.
9. When ALL drives are registered, click **Save & Exit**.

NOTE: You'll receive a confirmation email to complete the process.

Option 2: Register by Email (After Installation)

This option can only be used after <u>all</u> the new cluster drives have been installed.

1. After installing all the drives, go to **Maintenance > Support > Registration**.

2. Enter the **four required items** in the appropriate fields.

3. Click **Download Registration File**.

   The information is incorporated into a CSV file.

4. At the dialog box, select **Save File**.

   This saves the registration file to your local computer.

5. Email the downloaded registration **file** to
   warranty@overlandstorage.com
   using "SnapScale Registration Request" as the subject.

   NOTE: You'll receive a confirmation email to complete the process.
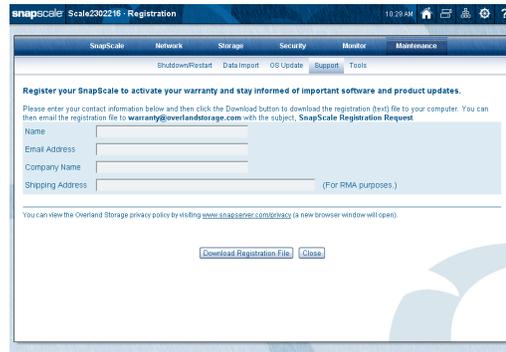
Installation Caveats

Replacing Drives

Should a drive fail (solid red LED), it can be replaced (hot-swapped) without shutting down the SnapScale node. If a spare is available on a node that doesn't already have an active member of the failed drive's peer set, the spare automatically replaces the failed drive and the new drive being installed automatically becomes a spare. If no spares are available, the new drive automatically becomes a member of the failed drive's peer set.

A failed drive can be removed and replaced anytime. When hot-swapping multiple drives, it is recommended to swap one drive at a time to avoid timing issues.

NOTE: Hot-removed (non-spare) drives cannot be added directly back into the peer set from which they were removed. When any non-spare drive is physically removed, it is also removed from the peer set to which it belonged. That peer set then becomes degraded and it attempts to incorporate a suitable cluster spare. If the removed drive is reinserted and there is a degraded peer set or not enough spares to satisfy the spare count, the reinserted drive is reconfigured as a spare; otherwise, the reinserted drive becomes unused and available to the user to incorporate manually via the Web Management Interface.

If there are no errors, after the new drive is incorporated, any alert LEDs are turned off and system statuses are updated.

Adding Drives to Expand Storage

If empty slots are available on one or more nodes, you can add Overland-approved drives to either expand cluster storage space or add hot spares. When adding drives to expand storage space, distribute the new drives evenly across all the cluster nodes. Drives should be added without shutting down the node so that the cluster properly recognizes each drive.

NOTE: Drives with different rotational speeds cannot be combined in the same cluster.

In order to properly create peer sets with each member on different nodes, if you have the Data Replication Count set at 2x, you must add drives in groups of two, each one to different nodes. For a 3x count, add drives in groups of three, each one in a different node.

Once the new drives are added to the nodes, they must be incorporated using the New Disks Detected page in the Web Management Interface to enable the cluster to use them to create new peer sets and spares.
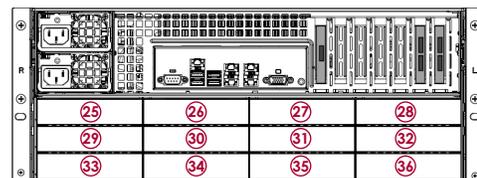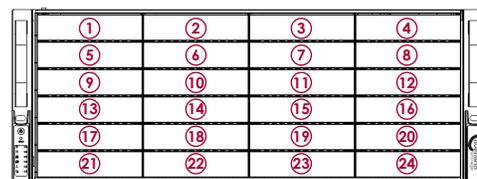
⚠ CAUTION: If new peer sets are created when adding new drives to a node in a SnapScale cluster, all existing snapshots will be deleted.

NOTE: The X4 node only supports SAS (and nearline SAS) drives.

Important Considerations

When adding new drives, consider the following:

- Only add new drives (hot-insert) when the cluster is up and fully operational. Do not add new drives when the cluster is powered down.
- New drives can be added to Uninitialized nodes either while running or powered down.
- If there are fewer spares in the cluster than the spare count specifies, drives added to any cluster node are automatically configured as hot spares until the spare count is satisfied.
- If there is a degraded peer set on the cluster when adding a new drive and there are no existing spares, the drive will automatically be incorporated into the peer set as long as it is not on one of the nodes containing another active member of the peer set.
- When replacing a failed drive, it is recommended that the new drive be installed in the same slot as the old one to maintain a capacity balance.
- When adding a drive that replaces a failed drive in a peer set, the Peer Sets page will display that peer set as rebuilding the new drive into the peer set.

For more information, refer to your *SnapScale Administrator's Guide*.

Install the Drives

Remove the Bezel

1. If locked, **unlock** the bezel.
2. Press the **release button** toward the center and pull the right side out.
3. Pull the left **tabs** out of their slots and set the bezel aside.

Install New Drives

Use the procedure below to do one of the following:

- **Add a new drive** – Remove a blank carrier and install a new drive in its place.
- **Replace a drive**– Remove a defective drive and install a new drive in its place.

NOTE: Do not remove the disk drives from their carriers. Doing so voids the drive warranty.

1. Press the release **button** on the right side of the carrier.
2. Using the built-in **handle**, pull the carrier out.
3. Set the **carrier** on an ESD-safe surface.
4. Position a **new drive carrier** in front of the bay and slide it all the way in.
5. Close the **latch**, locking the carrier in place.
6. Repeat Steps 1–5 for **all** remaining new drives.
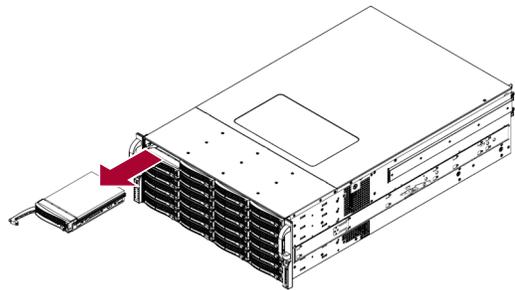
> IMPORTANT: To maintain proper airflow and cooling, a drive carrier or a blank carrier must be installed in *every* slot. No empty slots are allowed.

On the Disks page, any newly detected drives show a Disk Unused icon next to the drive. It may take a minute or two before the drives appear as unused and the New Disks Detected banner is displayed. The alert link in the banner takes you to the New Disks Detected page for incorporation.
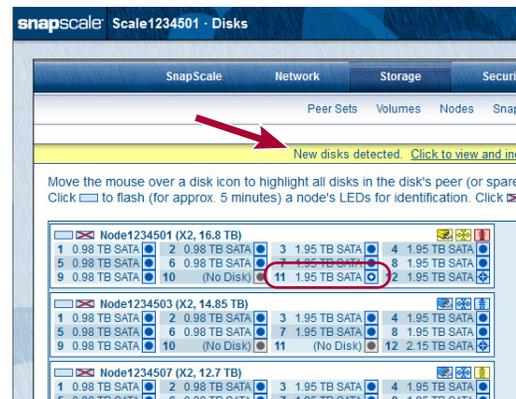
Peer Set/Hot Spare Incorporation

When newly installed drives are detected, SnapScale first auto-incorporates drives to fix any failed peer set and fulfill any reserved spare count. The Web Management Interface then displays an alert banner about the new drives and the New Disks Detected page is activated.

Click the link in the alert to go to the New Disks Detected page. The New Disks Detected page displays all new drives available to be formed into new peer sets or used as new spares.

The boxes next to the drive name can be unchecked to remove a drive from the incorporation list. However, to balance peer set and spare creation, it is recommended that all drives be incorporated at the same time.

Click **Incorporate Disks** to begin the process.

- If enough new or spare drives exist on different nodes based on your Data Replication Count, new peer sets are formed as long as the spare count is satisfied.

- If there are not enough drives or they are not on different nodes, the drives are used to create additional hot spares.

After incorporation, the drives are displayed normally as peer sets or hot spares on the Disks page.
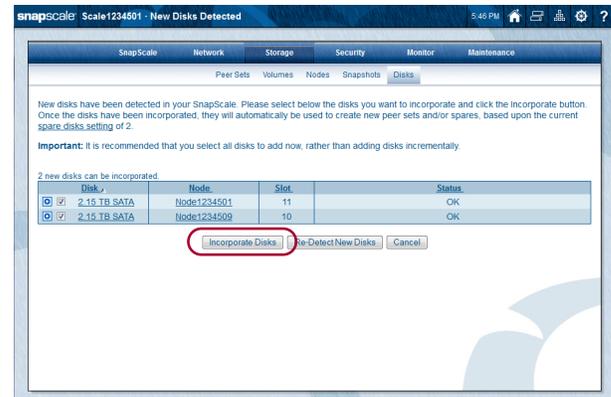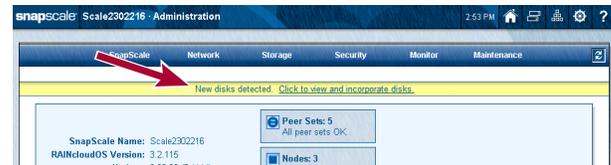
Reattach the Bezel

1. Position the **bezel** with the tabs in the tab slots on the left.
2. With the tabs still in the slots, move the right side of the bezel toward the unit until the **latch** clicks close.
3. If required, relock the **lock**.

➡ IMPORTANT: If you have not activated the warranty of your new drives, please do so now. Use either Option 1 (recommended) or Option 2 as described above in "Register the Add-on Drives."

Return Old Parts to Overland

1. Place the **old part** in the anti-static bag and put it in the replacement part's box.
2. Use an RMA to return the part to **Overland Storage**.

   For return shipping details and RMA number, go to:
   http://docs.overlandstorage.com/return-instructions