



Managing Datastores

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Managing Datastores

Datastores are logical containers used by the HX Data Platform to manage your storage usage and storage resources. Datastores are where the host places virtual disk files and other VM files. Datastores hide the specifics of physical storage devices and provide a uniform model for storing VM files.

You can add, refresh the list, edit name and size, delete, mount and unmount datastores from either the HX Connect UI or the HX Data Platform Plug-in UI. You can only rename an unpaired datastore that is unmounted. Renaming the HX Datastore from the vCenter administration interface is not supported, and should not be done.

Before starting, review the following support notes:

**Important**

- Do not rename an HX datastore from vCenter. The datastore names shown in HX Connect or Intersight and in the ESXi host datastore (that appears in vCenter) must be identical including case sensitive. If they are not identical, some operations such as expansion, mount/unmount of a datastore will be impacted.
- Enabling encryption on your cluster is only possible during the datastore creation procedure. Encryption cannot be disabled for a datastore once enabled.
- For best start-up and upgrade performance, use the fewest number of datastores as possible.
The Cisco HyperFlex best practice recommendation is to not exceed 15 number of datastores.
- The impact of using more than 15 datastores per cluster include:
 - Excessive start-up delay when you perform maintenance work (updates, upgrades and reboots). The start-up delay of each host is linear to the number of datastores created. Each host experiences a 30-second additive delay per datastore created.
 - Timeouts on upgrade.
 - Datastores fail to mount.
- Keep the number of datastores to as few as possible to avoid start-up delay and to keep clone savings high.
- HX Native Snapshots are not supported with multiple datastores.
- If using an M4 node, never use either the HyperFlex NFS or local Springpath datastore for ESXi logging or coredump partition. If using an M5/M6 node, you can use any left over space in the HyperFlex NFS or local Springpath datastore for these purposes.
- When VMs have flat vmdk files, one with thin provisioned and one with thick provisioned, the total combined storage usage of all flat VMDK files as reported by the vCenter/ESXi and HX Connect could be higher than the Datastore usage itself reported by vCenter & HX Connect. This could be due to ESXi and vCenter space reporting for each VM files ignoring the "uniqueBytes" attributes sent by underlying NFS storage in Extended stats and attributes via VAAI APIs.
- For VMware ESXi environments, ensure Storage I/O is disabled for all HyperFlex datastores in the vCenter. This setting is on a per datastore setting, and enabling this can cause unexpected performance impacts.

Step 1 Choose an interface.

- From the vSphere Web Client Navigator, select **vCenter Inventory Lists > Cisco HyperFlex Systems > Cisco HX Data Platform > cluster > Manage > Datastores**.
- From HX Connect, select **Datastores**.

Step 2 Create a new or select an existing datastore, to view options.

- Create a new datastore
- Refresh the datastore list
- Edit the datastore name and size

- Delete the datastore
- Mount the datastore on the host
- Unmount the datastore from the host

Adding Datastores

Datastores are logical containers, similar to file systems, that hide specifics of physical storage and provide a uniform model for storing VM files. You can also use datastores to store ISO images and VM templates.

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- Step 1** Choose an interface.
- From the vSphere Web Client Navigator, select **vCenter Inventory Lists > Cisco HyperFlex Systems > Cisco HX Data Platform > cluster > Manage > Datastores**.
 - From HX Connect, select **Datastores**.
- Step 2** Select the create datastore.
- Step 3** Enter a name for the datastore. vSphere Web Client enforces a 42 character limit for the datastore name. Assign each datastore a unique name.
- Step 4** Specify the datastore size. Choose **GB** or **TB** from the drop-down list.
- Step 5** Specify the data blocksize. From HX Connect, choose **8K** or **4K**. Default is 8K. In the HX Data Platform Plug-in, the default is assumed. For VDI workloads, default is 4k.
- Step 6** To encrypt your datastore, click the **Software Encryption** check box.
- Step 7** Click **OK** to accept your changes or **Cancel** to cancel all changes.
- Step 8** Verify the datastore. Click the **Refresh** icon if needed to display your new datastore.
- From HX Data Platform Plug-in, Click the **Manage > Datastores > Hosts** tab to see the mount status of the new datastore.
- If you check the datastore through the vSphere Client application, **host > Configuration > Datastores**, the Drive Type is listed as `Unknown`. This is expected vSphere behavior, to list NFS datastores as Unknown.

Editing Datastores

A HX Data Platform datastore can be modified using the edit (pencil) option. Edit options are: 1. Change the datastore name, or 2. Change the datastore storage allocation. That is, the size of the datastore.



- Note** Starting with HX Release 5.0(2a), decreasing the size of an existing datastore is not supported. When you attempt to reduce the size of a datastore in 5.0(2a) or later release, the following error appears: Reducing datastore size is not allowed to prevent data loss. If the datastore is new, you can delete and recreate it with the correct size.



Note Do not rename datastores with controller VMs.

Step 1 Choose an interface.

- From the vSphere Web Client Navigator, select **vCenter Inventory Lists > Cisco HyperFlex Systems > Cisco HX Data Platform > cluster > Manage > Datastores**.
- From HX Connect, select **Datastores**.

Step 2 Select a *datastore*.

Step 3 Unmount the datastore.

If you are only resizing the datastore, you do not need to unmount the datastore. Skip this step.

Step 4 Click the **Edit** (pencil icon) datastore.

Step 5 Change the datastore name and/or size, as needed. Click **OK**.

Step 6 Remount the datastore, if you previously unmounted it.

Mounting Datastores

Prepare to mount a datastore.

- No VM, template, snapshot, or CD/DVD image resides on the datastore. This is the most common error while unmounting.
- Storage I/O Control is disabled for the datastore.
- The datastore is not used for vSphere HA heartbeat.
- The datastore is not used to host RDM metadata files. RDM is not supported.
- The datastore is not used as a scratch location.



Note You cannot select an NFS datastore as a destination for the persistent scratch location on ESXi. If you select the HX datastore for the persistent scratch location, it will be removed after the ESXi host reloads.

For all M5/M6 servers, M.2 boot SSD is automatically selected for use as scratch. This is configured out of the box on any new install.

For HX240M4 (non-SED), Intel SSD is used for persistent logs/scratch (same applies on 220M5/M6 and 240M5/M6 and, but on a different local SSD).

For HX220M4 and HX240M4 (SED), there is no location to store the scratch partition. So, the only option is to use syslog for persistent logging over the network.

Mount a datastore.

- Step 1** Choose an interface.
- From the vSphere Web Client Navigator, select **vCenter Inventory Lists > Cisco HyperFlex Systems > Cisco HX Data Platform > cluster > Manage > Datastores**.
 - From HX Connect, select **Datastores**.
- Step 2** Select a *datastore*.
- Step 3** Click the **Mount**.
- Step 4** Confirm to mount the datastore, click **OK**.
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Unmounting Datastores

Prepare to unmount a datastore.

- No VM, template, snapshot, or CD/DVD image resides on the datastore. This is the most common error while unmounting.
- Storage I/O Control is disabled for the datastore.
- The datastore is not used for vSphere HA heartbeat.
- The datastore is not used to host RDM metadata files. RDM is not supported.
- The datastore is not used as a scratch location.

Unmount a datastore.

- Step 1** Choose an interface.
- From the vSphere Web Client Navigator, select **vCenter Inventory Lists > Cisco HyperFlex Systems > Cisco HX Data Platform > cluster > Manage > Datastores**.
 - From HX Connect, select **Datastores**.
- Step 2** Select a *datastore*.
- Step 3** Click the **Unmount**.
- Step 4** Confirm to unmount the datastore, click **OK**.
- Step 5** **If needed, recover from partial unmounts.**
- a) Go through the above checklist and unmount or delete through one of the UIs or CLI again.
 - b) Use the UI or CLI to re-mount the datastore.

For additional information on recovering from partial unmounts, see [Recovering from Partially Unmounted Datastores, on page 7](#).

Deleting Datastores

Prepare to delete the datastores.

- Power off all VMs.
- Close all open shells on the datastore mount point.
- Disable HA on the datastore.
- Close all applications that use the datastore.

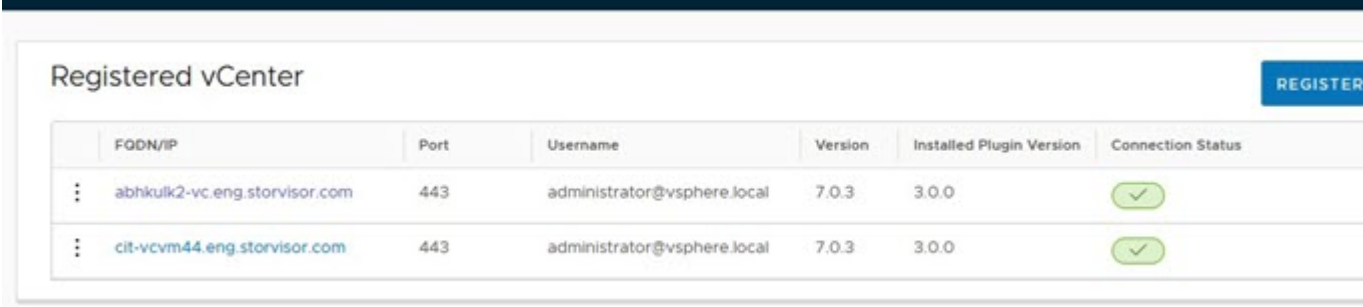
Delete datastores.

- Step 1** Choose an interface.
- From the vSphere Web Client Navigator, select **vCenter Inventory Lists > Cisco HyperFlex Systems > Cisco HX Data Platform > cluster > Manage > Datastores**.
 - From HX Connect, select **Datastores**.
- Step 2** Select a *datastore*.
- Step 3** Click **Delete**.
- Step 4** Confirm to delete the datastore, click **OK**.
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Encryption Support for Datastores

To enable remote plugin Encryption, perform the following steps. For more information on enabling Software Encryption on your cluster, see [Enabling HyperFlex Software Encryption Workflow](#).

- Step 1** Select the cluster you want to encrypt.
- Step 2** Click **Datastore**.
- Step 3** Click the **Create** button. The Create New Datastore window appears.
- a) Type the Datastore Name.
 - b) Type the Size, and select GB or TB.
 - c) Select the Block Size, Select 4K or 8K
 - d) Check the **Software Encryption** check box
- Step 4** Click **OK**. A new Datastore is created and added to the Datastore table list.



	FQDN/IP	Port	Username	Version	Installed Plugin Version	Connection Status
⋮	abhkulk2-vc.eng.storvisor.com	443	administrator@vsphere.local	7.0.3	3.0.0	✓
⋮	cit-vcvm44.eng.storvisor.com	443	administrator@vsphere.local	7.0.3	3.0.0	✓

If the new Datastore does not appear in the list, click the **Refresh** arrow and recheck the list.

Recovering from Partially Unmounted Datastores

When mounting, unmounting, or deleting datastores, sometimes a datastore can become partially unmounted. If this occurs, complete the following as needed.

- Step 1** Depending upon the task you are attempting, complete the items in Prepare to mount a datastore, Prepare to unmount a datastore, or Prepare to delete the datastores.
- Step 2** Retry to mount, unmount, or delete the datastore through the HX Connect or HX Data Platform Plug-in UI or CLI again.
- Step 3** If the datastore is not in the desired mount, unmount, or deleted state, complete the following.

- Ensure VMs are not running on the datastore.
- From ESX host, check to see if the HX Data Platform datastore is being used by VMware service, `storageRM`.

```
# ls -ltra /vmfs/volumes/stfs-ds1/ | grep -i iorm
```

Sample response

```
-rwxr-xr-x 1 root root 16511 Jan 20 20:05 .iormstats.sf
drwxr-xr-x 1 root root 1125 Jan 20 20:06 .iorm.sf
```

- Check the `storagerm` status.

```
# /etc/init.d/storagerm status
```

Sample response

```
storagerm is running
```

- Stop the `storagerm` service.

```
# /etc/init.d/storagerm stop
```

Sample response

```
watchdog-storagerm: Terminating watchdog process with PID 34096
storagerm stopped
```

- e) Try to mount, unmount, or delete the datastore again.
 - f) This is one possible solution, if this doesn't resolve the issue, contact Technical Assistance Center (TAC).
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