Day-to-day administration

ONTAP System Manager

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Day-to-day administration

Administration overview

ONTAP System Manager is a graphical management interface that enables you to use a web browser to manage storage systems and storage objects (such as disks, volumes, and storage tiers) and perform common management tasks related to storage systems.

Using the System Manager Dashboard, you can view at-a-glance information about important alerts and notifications, the efficiency and capacity of storage tiers and volumes, the nodes that are available in a cluster, the status of the nodes in an HA pair, the most active applications and objects, and the performance metrics of a cluster or a node.

With System Manager you can perform many common tasks, such as the following:

- Create a cluster, configure a network, and set up support details for the cluster.
- Configure and manage storage objects, such as disks, local tiers, volumes, qtrees, and quotas.
- Configure protocols, such as SMB/CIFS and NFS, and provision file sharing.
- Configure protocols such as FC, FCoE, NVMe, and iSCSI for block access.
- Create and configure network components, such as subnets, broadcast domains, data and management interfaces, and interface groups.
- Set up and manage mirroring and vaulting relationships.
- Perform cluster management, storage node management, and storage virtual machine (storage VM) management operations.
- Create and configure storage VMs, manage storage objects associated with storage VMs, and manage storage VM services.
- Monitor and manage high-availability (HA) configurations in a cluster.
- Configure service processors to remotely log in, manage, monitor, and administer the node, regardless of the state of the node.

Search, filter, and sort any object or operation

You can search for various actions and objects in System Manager. Then, you can sort and filter the results.

For better results, perform searching, filtering, and sorting one minute after logging in and five minutes after creating, modifying, or deleting an object.

Searching

At the top of each page in System Manager, you can use a global search field to search various objects and actions in the interface. For example, you can search for different objects by name, pages available in the navigator column (on the left side), various action items, like "Add Volume" or "Add License", and links to external help topics.

The search is not case-sensitive. You can enter a variety of text strings to find the page, actions, or topics you need. Up to 20 results are listed. If more results are found, you can click **Show more** to view all results. The following examples describe typical searches:

Type of search	Sample search string	Sample search results
By object name	vol_	vol_lun_dest on storage VM: svm0 (Volume) /vol/vol…est1/lun on storage VM: svm0 (LUN) svm0:vol_lun_dest1 role: Destination (Relationship)
By location in interface	volume	Add Volume (Action) Protection – Overview (Page) Recover deleted volume (Help)
By actions	add	Add Volume (Action) Network – Overview (Page) Expand volumes and LUNs (Help)
By help content	san	Storage – Overview (Page) SAN overview (Help) Provision SAN storage for databases (Help)

Filtering

You can narrow the results with filters, as shown in the following examples:

Filter	Syntax	Sample search string
By object type	<type>:<objectName>	volume:vol_2
By object size	<type><size-symbol><number><units>	luns<500mb
By broken disks	“broken disk” or “unhealthy disk”	unhealthy disk
By network interface	<IP address>	172.22.108.21

Sorting

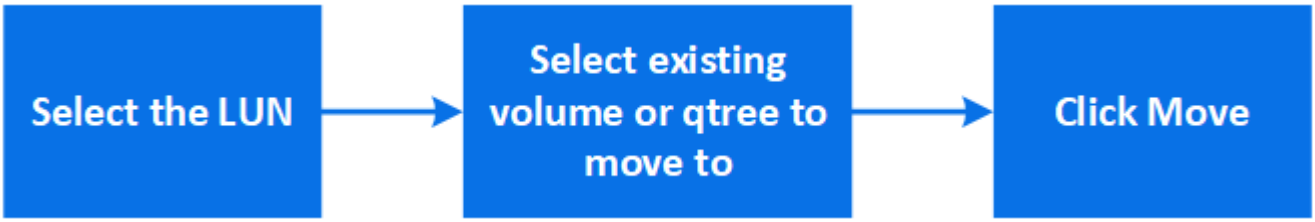
When you view all the search results, they are sorted alphabetically. You can sort the results by clicking Filter and selecting how you want to sort the results.

Balance loads by moving LUNs

You can move a LUN to another volume within the storage VM to balance the load, or you can move it to a volume with a higher performance service level to improve performance.

Move restrictions

- A LUN cannot be moved to a qtree within the same volume.
- A LUN created from a file using the CLI cannot be moved with System Manager.
- LUNs that are online and serving data cannot be moved.
- LUNs cannot be moved if the allocated space in the destination volume cannot contain the LUN (even if autogrow is enabled on the volume).
- LUNs on SnapLock volumes cannot be moved with System Manager.



Steps

1. Click **Storage** > **LUNs**.
2. Select the LUN that you want to move and click **Move**.
3. Select an existing volume to which you want to move the LUN. If the volume contains qtrees, select the qtree.

While the Move operation is in progress, the LUN is displayed on both the origin and destination volume.

Enable new features by adding license keys

Some ONTAP features are enabled by license keys. You can add license keys using ONTAP System Manager.

Steps

1. Click **Cluster** > **Settings**.
2. Under **License**, click →.
3. Click **Add**.

Reboot, shut down, take over, and give back nodes

You should switch a node's workload to its HA partner (takeover) before rebooting or shutting down the node.

Steps

1. Click **Cluster** > **Overview**.
2. Under **Nodes**, click ⋮.
3. Click the node and select the desired action.

MetroCluster switchover and switchback

You can switchover from one MetroCluster site to the other to perform maintenance or recover from an issue.

Steps

1. Click **(Return to classic version)**.
2. Click **Configuration** > **MetroCluster**.

   System Manager verifies whether a negotiated switchover is possible.

3. Perform one of the following substeps when the validation process has completed:
   a. If validation fails, but Site B is up, then an error has occurred. For example, there might be a problem with a subsystem, or NVram mirroring might not be synchronized.
      i. Fix the issue that is causing the error, click **Close**, and then start again at Step 2.
      ii. Halt the Site B nodes, click **Close**, and then perform the steps in Performing an unplanned switchover.
   b. If validation fails, and Site B is down, then most likely there is a connection problem. Verify that Site B is really down, then perform the steps in Performing an unplanned switchover.
4. Click **Switchover from Site B to Site A** to initiate the switchover process.
5. Click **Switch to the new experience**.

Recover deleted volumes

If you have accidently deleted one or more FlexVol volumes, you can recover these volumes. You can also delete the volumes permanently by purging the volumes.

The volume retention time can be set on a storage VM level. By default, the volume retention time is set to 12 hours.

Selecting deleted volumes

Steps

1. Click **Storage** > **Volumes**.
2. Click **More** > **Show Deleted Volumes**.
3. Select the volumes and click the desired action to recover or permanently delete the volumes.

Resetting the volume configurations

Deleting a volume deletes the associated configurations of the volume. Recovering a volume does not reset all the configurations. Perform the following tasks manually after recovering a volume to bring the volume back to its original state:

Steps

1. Rename the volume.
2. Set up a junction path (NAS).
3. Create mappings for LUNs in the volume (SAN).
4. Associate a Snapshot policy and export policy with the volume.
5. Add new quota policy rules for the volume.
6. Add a QOS policy for the volume.

Save storage space using compression, compaction, and deduplication

For volumes on non-AFF clusters, you can run deduplication, data compression, and data compaction together or independently to achieve optimal space savings.

- Deduplication eliminates duplicate data blocks.
- Data compression compresses the data blocks to reduce the amount of physical storage that is required.
- Data compaction stores more data in less space to increase storage efficiency.

These tasks are supported for volumes on non-AFF clusters. Beginning with ONTAP 9.2, all inline storage efficiency features, such as inline deduplication and inline compression, are enabled by default on AFF volumes.

Steps

1. Click **Storage** > **Volumes**.
2. Next to the name of the volume for which you want to save storage, click ⋮.
3. Click **Edit** and scroll to **Storage Efficiency**.
4. *Optional*: If you want to enable background deduplication, ensure the checkbox is checked.
5. *Optional*: If you want to enable background compression, specify the storage efficiency policy and ensure the checkbox is checked.
6. *Optional*: If you want to enable inline compression, ensure the checkbox is checked.

Clone volumes and LUNs for testing

You can clone volumes and LUNs to create temporary, writable copies for testing. The clones reflect the current, point-in-time state of the data. You can also use clones to give additional users access to data without giving them access to production data.

The FlexClone license should be installed on the storage system.

Cloning a volume

Create a clone of a volume, as follows:

Steps

1. Click **Storage** > **Volumes**.
2. Click ⋮ next to the name of the volume you want to clone.
3. Select **Clone** from the list.
4. Specify a name for the clone and complete the other selections.
5. Click **Clone** and verify that the volume clone appears in the list of volumes.

Alternatively, you can clone a volume from the **Overview** that displays when you view volume details.

Cloning a LUN

Create a clone of a LUN, as follows:

Steps

1. Click **Storage** > **LUNs**.
2. Click ⋮ next to the name of the LUN you want to clone.
3. Select **Clone** from the list.
4. Specify a name for the clone and complete the other selections.
5. Click **Clone** and verify that the LUN clone appears in the list of LUNs.

Alternatively, you can clone a LUN from the **Overview** that displays when you view LUN details.

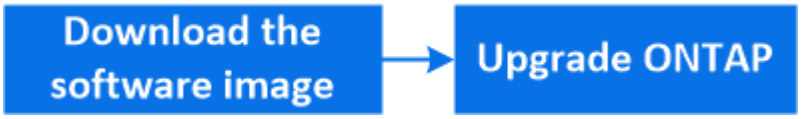
When you create a LUN clone, System Manager automatically enables the deletion of the clone when space is needed.

Update ONTAP

You can nondisruptively update the version of ONTAP on your cluster.

The update process checks your hardware platform and configuration to verify that your system is supported by the ONTAP version to which you are upgrading. ONTAP automatically shifts workloads during an upgrade between clusters so you can continue serving data.

This procedure updates your system to the specified version of ONTAP. It is assumed that your hardware platform and configuration is supported for the target release.



Steps

1. If you want to download the software image to an HTTP or FTP server on your network, copy the software image from the NetApp support site to the directory on the HTTP or FTP server from which the image will be served.

   If you want to download the software image to a local folder, then click the software image on the NetApp support site, select **Save As**, and then choose the local folder to place the image.

2. In ONTAP System Manager, click **Cluster** > **Overview**.
3. In the right corner of the Overview pane, click ⋮.
4. Click **ONTAP Update**.

Expand storage

Increase the size of volumes and LUNs

You can increase the size of your volume or LUN so that more space is available to

your host. The size of a LUN cannot exceed the size of the containing volume.

Steps

1. To increase the size of a volume, click **Storage** > **Volumes**.

   To increase the size of a LUN, click **Storage** > **LUNs**.

2. Hover over the name of the volume or LUN you want to increase in size, click ⋮, and select **Edit**.

Add disks to a local tier (Add capacity to aggregate)

You can increase the size of an existing aggregate (local tier) by adding capacity disks.

Steps

1. Click **(Return to classic version)**.
2. Click **Hardware and Diagnostics** > **Aggregates**.
3. Select the aggregate to which you want to add capacity disks, and then click **Actions** > **Add Capacity**.

   You should add disks that are of the same size as the other disks in the aggregate.

4. Click **Switch to the new experience**.
5. Click **Storage** > **Tiers** to verify the size of the new aggregate.

Add cache to a local tier

Provision cache by converting an existing local tier (aggregate) to a Flash Pool aggregate by adding SSDs. Flash Pool aggregates enable you to deploy flash as high performance cache for your working data set while using lower-cost HDDs for less frequently accessed data.

Steps

1. Click **(Return to classic version)**.
2. Click Hardware and **Diagnostics** > **Aggregates**.
3. Select the aggregate, and then click **Actions** > **Add Cache**.

   Select the cache source as storage pools or dedicated SSDs.

4. Click **Switch to the new experience**.
5. Click **Storage** > **Tiers** to verify the size of the new aggregate.

Add nodes to cluster

You can increase the size and capabilities of your cluster by adding new nodes.

You should have already cabled the new nodes to the cluster.

Steps

1. Click **(Return to classic version)**.
2. Click **Configurations** > **Cluster Expansion**.

   System Manager automatically discovers the new nodes.
3. Click **Switch to the new experience**.
4. Click **Cluster** > **Overview** to view the new nodes.