



# Monitoring and Reporting for a Cluster Mode Account

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This chapter contains the following sections:

- [About Monitoring and Reporting for a Cluster Mode Account, page 2](#)
- [About Cluster Mode Account and Nodes, page 3](#)
- [About Disks, page 3](#)
- [Adding a License, page 3](#)
- [Managing Logical Interfaces, page 3](#)
- [Configuring a Port, page 6](#)
- [Managing Interface Groups, page 7](#)
- [Managing VLANs, page 8](#)
- [Managing Aggregates, page 9](#)
- [Managing SVMs, page 11](#)
- [Managing FCP Services, page 38](#)
- [Creating and Managing SVM Peers, page 40](#)
- [Creating a Cluster Peer, page 41](#)
- [Managing SnapMirror and SnapVault Relationships, page 41](#)
- [Managing SnapMirror Policies, page 43](#)
- [Managing Snapshot Policies, page 45](#)
- [Managing Jobs, page 47](#)
- [Managing Cron Job Schedules, page 47](#)
- [Managing NFS Services, page 49](#)
- [Managing System Tasks, page 50](#)
- [Managing Routing Group Routes, page 50](#)

- [Managing Licenses, page 51](#)

## About Monitoring and Reporting for a Cluster Mode Account

Cisco UCS Director displays all managed components in each NetApp Cluster Mode (C-Mode) account. These components can be hardware or software.

### Components You Can Monitor

You can monitor each component and perform tasks such as creating, deleting, and modifying these components. The following components are monitored in a C-Mode account:

- Nodes
- SVMs
- Aggregates
- SVM Peer
- Cluster Peer
- SnapMirrors
- SnapMirror Policies
- Jobs
- Failover Groups
- Disks
- FC Adapters
- Snapshot Policies
- Routing Group Routes
- Logical Interfaces (LIFs)
- Ports
- Interface Groups
- vLANs
- Licenses
- Cron Job Schedules
- NFS Services
- FCP Services
- System Tasks

## About Cluster Mode Account and Nodes

Clustered Data ONTAP is the enabler for NetApp scale-out storage configurations. The basic building blocks of a cluster are the familiar NetApp HA pairs in which two storage controllers are interconnected to the same set of disks. If one controller suffers a failure, the other takes over its storage and continues serving data.

In a Data ONTAP cluster, each storage controller is referred to as a cluster node, and nodes are allowed to be of different models and sizes. In a cluster, it is connected to other nodes over a cluster network.

A node is also connected to the disk shelves that provide physical storage for the Data ONTAP Cluster-Mode system or to third-party storage arrays that provide array LUNs for Data ONTAP use.

## About Disks

Disks are grouped together in an aggregate. These aggregates provide storage to the volumes that are associated with the aggregate.

When you click the **Disks** tab, all the disks that are available in that account are displayed. Choose a disk and click **View Details** to view the summary details of the disk.

## Adding a License

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- Step 1** On the menu bar, choose **Physical > Storage**.
  - Step 2** In the left pane, choose the pod that includes the NetApp C-Mode account and select the NetApp C-Mode account.
  - Step 3** Click the **Licenses** tab.  
The licenses available under the account are displayed.
  - Step 4** Click **Add**.
  - Step 5** In the **Add License to Cluster** dialog box, enter a license code in the **License Code** field.
  - Step 6** Click **Submit**.
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## Managing Logical Interfaces

A logical interface (LIF) is an IP address associated with a physical network port; that is, an Ethernet port. In the event of a component failure, a logical interface can failover or be migrated to a different physical port

(potentially on other nodes) based on policies interpreted by the LIF manager. A LIF continues to provide network access despite the component failure. You can create multiple LIFs for a single SVM.

**Step 1** On the menu bar, choose **Physical > Storage**.

**Step 2** In the left pane, choose the pod that includes the NetApp C-Mode account and select the NetApp C-Mode account.

**Step 3** Click the **Logical Interfaces** tab.

The LIFs created in the account are displayed. The **Logical Interfaces** tab provides the following actions:

Action	Description
Refresh	Refreshes the current page.
Favorite	Adds this page to the <b>Favorites</b> tab which displays the page that you go to most often.
Create LIF	Creates a logical interface on a single SVM.

When you choose a LIF, the following additional actions appear:

Action	Description
Delete	Deletes the selected LIF.
Set FCP Portname	Sets the FCP adapter port name for the LIF.
Modify LIF	Updates the following values of the LIF: home node, home port, IP address, subnetmask, and failover policy.
Migrate LIF	Migrates a logical interface to a port or interface group on the node that you specify. Choose the Node name and Port name from the respective drop-down lists.

## Creating a Logical Interface

**Step 1** Navigate to the **Logical Interfaces** tab.

For more information about how to navigate to the Logical Interfaces tab, see [Managing Interface Groups](#), on page 7.

**Step 2** Click **Create**.

**Step 3** In the **Create LIF** dialog box, complete the following fields:

Name	Description
Role drop-down list	Choose any one of the following as a role of the LIF: <ul style="list-style-type: none"> <li>• Data</li> <li>• Intercluster</li> <li>• Cluster Management</li> </ul>
SVM Name field	Click <b>Select</b> and choose the SVM.
Home Node drop-down list	Choose a node from the drop-down list.
Allowed Protocols field	Click <b>Select</b> and choose the allowed protocols from the following list: <ul style="list-style-type: none"> <li>• NFS</li> <li>• CIFS</li> <li>• Flexcache</li> <li>• iSCSI</li> <li>• FCP</li> </ul>
Logical Interface Name field	The name of the logical interface.
IP Address field	The IP address of the network.
Subnet mask field	The subnet mask of the network.
Failover Policy drop-down list	Choose any one of the following as the failover policy for the LIF: <ul style="list-style-type: none"> <li>• Nextavail</li> <li>• Disabled</li> <li>• Priority</li> </ul> <p><b>Note</b> For FCP and iSCSI LIFs, the failover policy is Disabled. For CIFS and fcache LIFs, the default policy is Nextavail.</p>
Use Failover Group drop-down list	Choose any one of the following as the failover group type to specify whether the failover rules are system defined, manually created by the administrator, or disabled: <ul style="list-style-type: none"> <li>• System-defined</li> <li>• Disabled</li> <li>• Enabled</li> </ul>

Name	Description
<b>Failover Group</b> drop-down list	This field is applicable only when <b>Enabled</b> is selected as the Use Failover Group. Choose the failover group to specify the failover group created by the administrator.

**Step 4** Click **Submit**.

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## Configuring a Port

Ports are either physical ports (NICs), or virtualized ports, such as interface groups or VLANs. A LIF communicates over the network through the port that it is currently bound to.

**Step 1** On the menu bar, choose **Physical > Storage**.

**Step 2** In the left pane, choose the pod that includes the NetApp C-Mode account and select the NetApp C-Mode account.

**Step 3** Click the **Ports** tab.

**Step 4** Select the row of a port that you want to configure and click **Configure Port**.

**Step 5** In the **Configure Port** dialog box, complete the following fields:

Name	Description
<b>Administrative Speed</b> drop-down list	Choose the administrative speed from the drop-down list.
<b>Role</b> drop-down list	Choose the role.
<b>Admin Status Enable</b> check box	Check this check box to enable the administrative status.
<b>MTU</b> field	The maximum transfer unit (MTU) of the port.

**Step 6** Click **Submit**.

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## Managing Interface Groups

An interface group is a port aggregate that contains two or more physical ports that act as a single trunk port. Expanded capabilities include increased resiliency, increased availability, and load sharing.

**Step 1** On the menu bar, choose **Physical > Storage**.

**Step 2** In the left pane, choose the pod that includes the NetApp C-Mode account and select the NetApp C-Mode account.

**Step 3** Click the **Interface Groups** tab.

The Interface Groups created in the account are displayed. The **Interface Groups** tab provides the following actions:

Action	Description
<b>Refresh</b>	Refreshes the current page.
<b>Favorite</b>	Adds this page to the <b>Favorites</b> tab which displays the page that you go to most often.
<b>Create</b>	Create a new interface group.

When you choose an interface group, the following additional actions appear:

Action	Description
<b>Delete</b>	Deletes an interface group.
<b>Add Port</b>	Adds a port to the interface group.
<b>Remove Port</b>	Removes a port from the interface group.

## Creating Interface Groups

**Step 1** Navigate to **Interface Groups** tab.

For more information about how to navigate to the **Interface groups** tab, see [Managing Interface Groups, on page 7](#).

**Step 2** Click **Create**.

**Step 3** In the **Create IfGroup** dialog box, complete the following fields:

Name	Description
<b>Node Name</b> drop-down list	Choose the node name in which an interface group needs to be created.

Name	Description
Interface Group Name field	The name of the interface group. <b>Note</b> The allowable format of the interface group name is <letter><number><letter>. The name should start with the letter 'a'.
Distribution Function drop-down list	Choose one of the following options as the distribution function of the port interface group: <ul style="list-style-type: none"> <li>• Mac</li> <li>• IP</li> <li>• Sequential</li> <li>• Port</li> </ul>
Create Policy drop-down list	Choose one of the following options as the create policy for the interface group: <ul style="list-style-type: none"> <li>• Multimode</li> <li>• Multimode LCAP</li> <li>• Singlemode</li> </ul>

**Step 4** Click **Submit**.

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## Managing VLANs

VLANs provide logical segmentation of networks by creating separate broadcast domains. A VLAN can span multiple physical network segments.

**Step 1** On the menu bar, choose **Physical > Storage**.

**Step 2** In the left pane, choose the pod that includes the NetApp C-Mode account and select the NetApp C-Mode account.

**Step 3** Click the **vLANs** tab.

The VLANs created in the account are displayed. The **vLANs** tab provides the following actions:

Action	Description
Refresh	Refreshes the current page.
Favorite	Adds this page to the <b>Favorites</b> tab which displays the page that you go to most often.



Action	Description
Create	Creates a VLAN on one of the node in a cluster account.

When you choose a VLAN, the **Delete** action appears.

## Creating VLANs

- Step 1** Navigate to the **vLANs** tab.  
For more information about how to navigate to the **vLANs** tab, see [Managing VLANs, on page 8](#).
- Step 2** Click **Create**.
- Step 3** In the **Create vLAN** dialog box, complete the following fields:

Name	Description
Node Name drop-down list	Choose a node in which the VLAN needs to be created.
Port Name drop-down list	Choose the port or interface group name.
vLAN ID field	The VLAN ID. The valid range of the VLAN ID is from 1 to 4094.

- Step 4** Click **Submit**.

## Managing Aggregates

An aggregate is made up of one or more RAID groups of disks. Aggregates are used to manage plexes and RAID groups as these entities exist as part of an aggregate. You can increase the usable space in an aggregate by adding disks to existing RAID groups or by adding new RAID groups. Once you have added disks to an aggregate, you cannot remove them to reduce storage space without deleting the aggregate.

- Step 1** On the menu bar, choose **Physical > Storage**.
- Step 2** In the left pane, choose the pod that includes the NetApp C-Mode account and select the NetApp C-Mode account.
- Step 3** Click the **Aggregates** tab.  
The aggregates available under the account are displayed. The **Aggregates** tab provides the following actions:

Action	Description
Refresh	Refreshes the current page.
Favorite	Adds this page to the <b>Favorites</b> tab which displays the page that you go to most often.
Create	Creates an aggregate on a selected node.

When you choose an aggregate, the following additional actions appear:

Action	Description
Delete	Deletes the selected aggregate.
Online	Moves the aggregate to an online state.
Offline	Moves the aggregate to an offline state.
Add Disk	Adds a disk to the aggregate.
Manage Tag	<p>Adds a tag to the aggregate, edit the assigned tag, and delete the tag from the aggregate group.</p> <p><b>Note</b> The tags for which the Taggable Entities are assigned as physical storage and NetApp aggregate are displayed. For more information on the tab library, see <a href="#">Cisco UCS Director Administration Guide</a>.</p>
Add Tags	<p>Adds a tag to the aggregate.</p> <p><b>Note</b> The tags for which the Taggable Entities are assigned as physical storage and NetApp aggregate are displayed. For more information on the tab library, see <a href="#">Cisco UCS Director Administration Guide</a>.</p>
Delete Tags	<p>Deletes the tag(s) from the aggregate.</p> <p><b>Note</b> The tags for which the Taggable Entities are assigned as physical storage and NetApp aggregate are displayed. For more information on the tab library, see <a href="#">Cisco UCS Director Administration Guide</a>.</p>

## Creating an Aggregate

- Step 1** Navigate to the **Aggregates** tab.  
For more information about how to navigate to the **Aggregates** tab, see [Managing Aggregates, on page 9](#).
- Step 2** Click **Create**.
- Step 3** In the **Create Aggregate** dialog box, complete the following fields:

Name	Description
Aggregate Name field	The name of the aggregate.
Disk Count field	The number of disks in the aggregate.
Node Name field	Click <b>Select</b> and choose the nodes on which aggregate to be created.
Disk List field	Click <b>Select</b> and choose the disks to be aggregated.
Raid Type drop-down list	Choose the RAID type from the list.

- Step 4** Click **Submit**.

## Managing SVMs

Storage Virtual Machine (SVM), formerly known as Vserver, is a secure virtual storage server that supports multiple protocols and unified storage. Each SVM contains data volumes and one or more Logical Interfaces (LIFs) through which it serves data to the clients. SVMs securely isolate the shared virtualized data storage and network and appear as a single dedicated server to the clients. Each SVM has a separate administrator authentication domain and can be managed independently by its SVM administrator.

- Step 1** On the menu bar, choose **Physical > Storage**.
- Step 2** In the left pane, choose the pod that includes the NetApp C-Mode account and select the NetApp C-Mode account.
- Step 3** Click the **SVMs** tab.  
The SVMs available under the account are displayed. The **SVMs** tab provides the following actions:

Action	Description
Refresh	Refreshes the current page.
Favorite	Adds this page to the <b>Favorites</b> tab which displays the page that you go to most often.

Action	Description
Create	Creates SVM on one of the nodes in a cluster account.

When you choose any SVM, the following additional actions appear:

Action	Description
Modify	Updates an existing SVM.
Delete	Deletes an existing SVM.
Start	Starts the SVM.
Stop	Stops the SVM.
Create Routing Group	Creates a routing group. To create a routing group, complete the following fields: <ul style="list-style-type: none"> <li>• <b>Routing Group</b> field—The name for the routing group.</li> <li>• <b>Destination Address</b> field—The IP address and subnet mask of the destination. For example, 192.168.1.0/24.</li> <li>• <b>Gateway Address</b> field—The IP address of the gateway. For example, 192.168.1.1.</li> <li>• <b>Metric</b> field—The metric (hop count) of the LIF.</li> </ul>
Start NFS Service	Starts the NFS service.
Stop NFS Service	Stops the NFS service.
The following additional options appear in the drop-down icon:	
Start FCP Service	Starts the FCP service.
Stop FCP Service	Stops the FCP service.
Start ISCSI Service	Starts the ISCSI service.
Stop ISCSI Service	Stops the ISCSI service.
Setup CIFS	Sets up the CIFS for the SVM.
Modify CIFS	Updates the CIFS set for the SVM.
Delete CIFS	Deletes the CIFS set for the SVM.

Action	Description
Assign Group	Assigns the SVM to a user or user group.
Manage Tag	Adds a tag to the SVM, edit the assigned tag, and delete the tag from the SVM group. <b>Note</b> The tags for which the Taggable Entities are assigned during creation are displayed.
Add Tags	Adds a tag to the aggregate. <b>Note</b> The tags for which the Taggable Entities are assigned during creation are displayed. For more information on the tag library, see <a href="#">Cisco UCS Director Administration Guide</a> .
Delete Tags	Deletes the tag(s) from the aggregate. <b>Note</b> The tags for which the Taggable Entities are assigned during creation are displayed. For more information on the tag library, see <a href="#">Cisco UCS Director Administration Guide</a> .

## Creating SVMs

- Step 1** Navigate to the **SVMs** tab.  
For more information about how to navigate to the **SVMs** tab, see [Managing SVMs](#), on page 11.
- Step 2** Click **Create**.
- Step 3** In the **Create SVM** dialog box, complete the following fields:

Name	Description
SVM Name field	The name of the SVM.
Name Service Switch drop-down list	Choose the name service switch from the list.
Volume Name field	The name of the root volume in which the SVM metadata needs to be stored.
Aggregate Name drop-down list	Choose the aggregate name in which the volume needs to be created.
Security Style drop-down list	Choose the security style from the list.

Name	Description
Protocols field	Click <b>Select</b> and choose one or all of the protocols that the SVM supports: <ul style="list-style-type: none"> <li>• NFS</li> <li>• CIFS</li> <li>• iSCSI</li> <li>• FCP</li> </ul>
Snapshot Policy field	Click <b>Select</b> and choose one or more of the snapshot policies for the SVM.

**Step 4** Click **Submit**.

### What to Do Next

After creating the SVM, expand the purple drop-down list icon on the right pane and choose **View Details** to view details about the SVM. You can also set up, modify, and delete CIFS for that SVM.

## Managing Volumes in SVM

A volume is a logical file system whose structure is made visible to users when you export the volume to a UNIX host through an NFS mount or to a Windows host through a CIFS share. A volume is the most inclusive of the logical containers. It can store files and directories, qtrees, and LUNs.

**Step 1** On the menu bar, choose **Physical > Storage**.

**Step 2** In the left pane, choose the pod that includes the NetApp C-Mode account and select the account.

**Step 3** Click the **SVMs** tab.

**Step 4** Click the SVM for which you wish to view details and choose **View Details** from the purple drop-down list on the right pane.

**Step 5** Click the **Volumes** tab.

The volumes available in the SVM appear. The **Volumes** tab provides the following actions:

Action	Description
<b>Refresh</b>	Refreshes the current page.
<b>Favorite</b>	Adds this page to the <b>Favorites</b> tab which displays the page that you go to most often.
<b>Create</b>	Creates a volume in the NetApp C-Mode account.

Action	Description
<b>Create Multi-Snapshot</b>	<p>Creates a multi-snapshot for the volume.</p> <p>To create a multi-snapshot, do the following in the <b>Create Multi-Volume Snapshot</b> dialog box:</p> <ol style="list-style-type: none"> <li>1 Click <b>Select</b> and check the check boxes for the volumes that you want to select.</li> <li>2 In the <b>Snapshot Name</b> field, enter a name for the snapshot.</li> <li>3 Click <b>Submit</b>.</li> </ol>

When you choose a volume, the following additional actions appear:

Action	Description
<b>Modify</b>	Updates an existing volume.
<b>Delete</b>	Deletes a volume.
<b>Online</b>	Moves a volume to an online state.
<b>Offline</b>	Moves a volume to an offline state.
<b>Resize</b>	<p>Resizes the volume.</p> <p>To resize the volume, complete the following fields:</p> <ol style="list-style-type: none"> <li>1 <b>Volume Name</b> field—<i>Display Only</i>. The name of the volume.</li> <li>2 <b>Current Volume Size</b>—<i>Display Only</i>. The current size of the volume in GB.</li> <li>3 <b>New Size</b> field—The required size of the volume.</li> <li>4 <b>Size Units</b> drop-down list—Choose the size of the volume as <b>MB</b>, <b>GB</b>, or <b>TB</b>.</li> </ol>
<b>Clone Volume</b>	<p>Clones the volume.</p> <p>In the <b>Clone Cluster Volume</b> dialog box, enter the volume name and select the parent snapshot.</p>
<b>Mount</b>	Mounts the volume on the specified junction path. The junction path should start with / and should not end with /.
<b>Unmount</b>	Unmounts the volume.

Action	Description
Move	Moves the volume to the selected aggregate.
Enable Dedupe	Enables data deduplication on the volume to remove duplicate entries.

## Creating a Volume within SVM

**Step 1** Navigate to the **Volumes** tab.  
For more information about how to navigate to the **Volumes** tab, see the "Managing Volumes in SVM" topic.

**Step 2** Click **Create**.

**Step 3** In the **Create Volume** dialog box, complete the following fields:

Name	Description
Volume Type drop-down list	Choose the type of volume.
Volume Name field	The name of the volume.
Volume Size field	The size of the volume to be created.
Aggregate Name drop-down list	Choose an aggregate from the list.
Volume State drop-down list	Choose the state of the volume.
Volume Size Units drop-down list	Choose the size of the volume as <b>MB</b> , <b>GB</b> , or <b>TB</b> .
Space Guarantee drop-down list	Choose the guaranteed space from the list.
Security Style drop-down list	Choose the security style.
Snapshot Size field	The snapshot size as a percentage to be used by the volume.
Export Policy drop-down list	Choose the export policy.
Snapshot Policy field	Click <b>Select</b> and choose a snapshot policy for the volume.

**Step 4** Click **Submit**.



## Managing Volume LIF Association

- Step 1** On the menu bar, choose **Physical > Storage**.
- Step 2** In the left pane, choose the pod that includes the NetApp C-Mode account and select the C-Mode account.
- Step 3** Click the **SVMs** tab.
- Step 4** Click the SVM for which you wish to view details and click **View Details** from the purple drop-down list on the right pane.
- Step 5** Click the **Volume LIF Association** tab.  
The LIFs that are associated with volumes available in the SVM account are displayed. The **Volume LIF Association** tab provides the following actions:

Action	Description
<b>Refresh</b>	Refreshes the current page.
<b>Favorite</b>	Adds this page to the <b>Favorites</b> tab which displays the page that you go to most often.

## Managing LUNs

A logical unit number (LUN) is used to identify a logical unit, which is a device that is addressed by the SCSI protocol or similar protocols such as Fibre Channel or iSCSI. LUNs are central to the management of block storage arrays shared over a storage area network (SAN).

- Step 1** On the menu bar, choose **Physical > Storage**.
- Step 2** In the left pane, choose the pod that includes the NetApp C-Mode account and select the NetApp C-Mode account.
- Step 3** Click the **SVMs** tab.
- Step 4** Click the SVM for which you wish to view details and click **View Details** from the drop-down list on the right pane.
- Step 5** Click the **LUNs** tab.  
The LUNs available in the SVM are displayed. The **LUNs** tab provides the following actions:

Action	Description
<b>Refresh</b>	Refreshes the current page.
<b>Favorite</b>	Adds this page to the <b>Favorites</b> tab which displays the page that you go to most often.
<b>Create</b>	Creates an LUN in the NetApp C-mode account.

When you choose a LUN, the following additional actions appear:

Action	Description
<b>Delete</b>	Deletes a LUN. Check the <b>Force</b> check box in the <b>Destroy LUN</b> dialog box to allow a force deletion of the LUN.
<b>Resize</b>	Resizes the LUN within the volume. To resize the LUN, complete the following fields: <b>1 LUN Size</b> field—The required size of the LUN. <b>2 Size Units</b> drop-down list—Choose the size of the LUN as <b>MB</b> , <b>GB</b> , or <b>TB</b> .
<b>Clone</b>	Clones a source LUN to a destination LUN within the same volume. Starts the LUN clone operation asynchronously. To clone the LUN, complete the following fields: <b>1 LUN Name</b> field— <i>Display Only</i> . The name of the LUN. <b>2 Snapshot Clone</b> checkbox—Check this check box to clone the LUN from the snapshot. <b>3 New LUN Name</b> field—The new LUN name.
<b>Offline/Online</b>	Moves LUN to the online or offline state.
<b>Map iGroup</b>	Maps the LUN to one of the existing initiator groups. Choose the initiator group (iGroup) from the <b>Initiator Group</b> drop-down list. Check the <b>Specify LUN ID</b> check box to specify the LUN ID; otherwise, the system generates a LUN ID automatically.
<b>Unmap iGroup</b>	Unmaps the iGroup for the selected LUN after confirmation.
<b>Toggle Space Reservation</b>	Enables or disables space reservation settings for the selected LUN.
<b>View Details</b>	Displays a summary of the LUN.



## Creating a LUN

- Step 1** Navigate to the **LUNs** tab.  
For more information about how to navigate to the LUNs tab, see [Managing LUNs, on page 17](#).
- Step 2** Click **Create**.
- Step 3** In the **Create LUN** dialog box, complete the following fields:

Name	Description
Select Volume drop-down list	Choose the volume to which the LUN belongs.
LUN Name field	The name of the LUN.
Size field	The required size of the LUN to be created.
Size Units drop-down list	Choose the size of the volume as <b>MB</b> , <b>GB</b> , or <b>TB</b> .
OS Type drop-down list	Choose a type of an operating system from the list.

- Step 4** Click **Submit**.

## Managing Qtrees

A Qtree is similar in concept to a partition. It creates a subset of a volume to which a quota can be applied to limit its size. As a special case, a Qtree can be the entire volume. A Qtree is more flexible than a partition because you can change the size of a Qtree at any time.

- Step 1** On the menu bar, choose **Physical > Storage**.
- Step 2** In the left pane, choose the pod that includes the NetApp C-Mode account and select the NetApp C-Mode account.
- Step 3** Click the **SVMs** tab.
- Step 4** Click the SVM for which you wish to view details and click **View Details** from the drop-down list on the right pane.
- Step 5** Click the **QTrees** tab.  
The Qtrees available under the account are displayed. The **QTrees** tab provides the following actions:

Action	Description
Refresh	Refreshes the current page.
Favorite	Adds this page to the <b>Favorites</b> tab which displays the page that you go to most often.

Action	Description
Create Qtree	Creates a qtree.

When you choose a Qtree, the following additional actions appear:

Action	Description
Rename	Renames the qtree.
Modify	Updates the oplocks and security style of the qtree.
Delete	Deletes a qtree after confirmation.

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## Creating Qtrees

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- Step 1** Navigate to the **QTrees** tab.  
For more information about how to navigate to the **QTrees** tab, see the "Managing Qtrees" topic.
- Step 2** Click **Create QTree**.
- Step 3** In the **Create QTree** dialog box, do the following:
- a) In the **Volume Name** field, click **Select** and choose the volume in which you want to create the Qtree.
  - b) In the **Qtree Name** field, enter the name of the Qtree.
  - c) Click **Submit**.
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## Managing Quotas

A quota limits the amount of disk space and the number of files that a particular user or group can consume. A quota can also restrict the total space and files used in a qtree, or the usage of users and groups within a qtree.

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- Step 1** On the menu bar, choose **Physical > Storage**.
- Step 2** In the left pane, choose the pod that includes the NetApp C-Mode account and select the NetApp C-Mode account.
- Step 3** Click the **SVMs** tab.
- Step 4** Click the SVM for which you wish to view details and click **View Details** from the purple drop-down list on the right pane.
- Step 5** Click the **Quotas** tab.  
The quotas available in the SVM account are displayed. The **Quotas** tab provides the following actions:

Action	Description
<b>Refresh</b>	Refreshes the current page.
<b>Favorite</b>	Adds this page to the Favorites tab which displays the page that you go to most often.
<b>Create Quota</b>	Creates a quota for a qtree in the SVM account.

When you choose a quota, the following additional actions appear:

Action	Description
<b>Remove Quota</b>	Removes quota of the qtree after confirmation.
<b>Modify Quota</b>	Updates the quota of the qtree.

---

## Creating a Quota

- 
- Step 1** Navigate to the **Quotas** tab.  
For more information about how to navigate to the **Quotas** tab, see [Managing Quotas, on page 21](#).
- Step 2** Click **Create Quota**.
- Step 3** In the **Create Quota** dialog box, complete the following fields:

Action	Description
Qtree Name field	Click <b>Select</b> and choose a qtree for which the quota needs to be created.
Quota Type drop-down list	Choose <b>Tree</b> from the drop-down list.
Disk Space Hard Limit (GB) field	The maximum disk space value in GB.
Files Hard Limit field	The maximum number of files in the quota.
Threshold (GB) field	The threshold limit for the disk space value in GB.
Disk Space Soft Limit (GB) field	The soft quota for the maximum number of files in GB.
Files Soft Limit field	The soft limit for the number of files in the quota.

## Managing Initiator Groups

Initiator groups (igroups) specify which hosts can access specified LUNs on the storage system. Initiator groups are protocol-specific.

**Step 1** On the menu bar, choose **Physical > Storage**.

**Step 2** In the left pane, choose the pod that includes the NetApp C-Mode account and select the NetApp C-Mode account.

**Step 3** Click the **SVMs** tab.

**Step 4** Click the SVM for which you wish to view details and click **View Details** from the drop-down list on the right pane.

**Step 5** Click the **Initiator Groups** tab.

The initiator groups available under the account are displayed. The **Initiator Groups** tab provides the following actions:

Action	Description
<b>Refresh</b>	Refreshes the current page.
<b>Favorite</b>	Adds this page to the Favorites tab which displays the page that you go to most often.
<b>Create</b>	Creates an initiator group.

When you choose an initiator group, the following additional actions appear:

Action	Description
Delete	Deletes an initiator group.
Rename	Renames an initiator group.
Bind Portset	Chooses the port sets to bind with the iGroup.
Unbind Portset	Chooses the port sets to unbind from the iGroup.

## Creating an Initiator Group

**Step 1** Navigate to the **Initiator Groups** tab.  
For more information about how to navigate to the **Initiator Groups** tab, see [Managing Initiator Groups, on page 22](#).

**Step 2** Click **Create**.

**Step 3** In the **Create Initiator Group** dialog box, complete the following fields:

Name	Description
<b>Initiator Group Name</b> field	The name of the initiator group.
<b>Group Type</b> drop-down list	Choose ISCSI or FCP as the initiator group type.
<b>OS Type</b> drop-down list	Choose the type of the operating system from the list.
<b>Portset Name</b> field	Click <b>Select</b> and choose port set from the table.

**Step 4** Click **Submit**.

## Managing Initiators

- Step 1** On the menu bar, choose **Physical > Storage**.
- Step 2** In the left pane, choose the pod that includes the NetApp C-Mode account and select the NetApp C-Mode account.
- Step 3** Click the **SVMs** tab.
- Step 4** Choose the SVM for which you wish to view details and click **View Details** from the drop-down list on the right pane.
- Step 5** Click the **Initiators** tab.  
The initiators available under the account are displayed. The **Initiators** tab provides the following actions:

Action	Description
Refresh	Refreshes the current page.
Favorite	Adds this page to the <b>Favorites</b> tab which displays the page that you go most often.
Create	Adds an initiator to an initiator group.

When you choose an initiator, the following additional actions appear:

Action	Description
Delete	Removes an initiator. Check the <b>Force</b> check box to force delete the initiator.  <b>Note</b> You cannot delete an initiator if LUN maps exists for the initiator group.

## Adding an Initiator

- Step 1** Navigate to the **Initiators** tab.  
For more information about how to navigate to the **Initiators** tab, see [Managing Initiators, on page 24](#).
- Step 2** Click **Create**.
- Step 3** In the **Create Initiator** dialog box, complete the following fields:

Name	Description
<b>Initiator Group Name</b> drop-down list	Choose the initiator group under which the initiator to be created.



Name	Description
Initiator Name field	The name of the initiator.
WWPN alias field	Click <b>Select</b> and check the check boxes of the WWPN alias for the initiator.
Force check box	Check this check box to forcibly add the initiator.

**Step 4** Click **Submit**.

---

## Managing CIFS Shares

The CIFS protocol is used with Microsoft operating systems for remote file operations (mapping network drives), browsing (through the network neighborhood icon), authentication (Windows NT and Windows 2000), and remote printer services. The core of native Microsoft networking is built around its CIFS services.

**Step 1** On the menu bar, choose **Physical > Storage**.

**Step 2** In the left pane, choose the pod that includes the NetApp C-Mode account and select the NetApp C-Mode account.

**Step 3** Click the **SVMs** tab.

**Step 4** Choose the SVM for which you want to view details and click **View Details** from the drop-down list on the right pane.

**Step 5** Click the **CIFS Shares** tab.

The CIFS shares available in the SVM are displayed. The **CIFS Shares** tab provides the following actions:

Action	Description
<b>Refresh</b>	Refreshes the current page.
<b>Favorite</b>	Adds this page to the <b>Favorites</b> tab which displays the page that you go to most often.
<b>Create</b>	Creates a CIFS share in the NetApp C-mode account.

When you choose a CIFS share, the following additional actions appear:

Action	Description
<b>Delete</b>	Deletes a CIFS share.
<b>Modify</b>	Updates the volume path and comment of the CIFS share.

Action	Description
Set Share Access	Creates a CIFS share access. To create CIFS share access, complete the following fields: <b>1 Permission</b> drop-down list—Choose the level of access permission from the list. <b>2 User or Group</b> field—The user or group name for which the permissions are listed. <b>3 Comment</b> field—Comments, if any.
Delete Share Access	Deletes the CIFS share access.
Modify Share Access	Updates the permission to access the CIFS share.

## Creating CIFS Shares

- Step 1** Navigate to the **CIFS Share** tab.  
For more information about how to navigate to the **CIFS Share** tab, see [Managing CIFS Shares](#), on page 25.
- Step 2** Click **Create**.
- Step 3** In the **Create CIFS Share** dialog box, complete the following fields:

Name	Description
<b>Volume Name</b> drop-down list	Choose the volume under which you want to create the CIFS share.
<b>Share Name</b> field	The name of the CIFS share.
<b>Comment</b> field	Comments, if any.
<b>Set Share Access</b> check box	Check the check box to provide access to the CIFS share.

## Managing DNS

You can view the domain, configured name servers, and state of DNS in the SVM account.

- 
- Step 1** On the menu bar, choose **Physical > Storage**.
- Step 2** In the left pane, choose the pod that includes the NetApp C-Mode account and select the NetApp C-Mode account.
- Step 3** Click the **SVMs** tab.
- Step 4** Click the SVM for which you wish to view details and click **View Details** from the purple drop-down list on the right pane.
- Step 5** Click the **DNS** tab.  
The DNS configured in the SVM account are displayed. The **DNS** tab provides the following actions:

Action	Description
<b>Refresh</b>	Refreshes the current page.
<b>Favorite</b>	Adds this page to the <b>Favorites</b> tab which displays the page that you go to most often.

---

## Managing IP Hostname

You can view the IP address and name of hosts in the SVM account.

- 
- Step 1** On the menu bar, choose **Physical > Storage**.
- Step 2** In the left pane, choose the pod that includes the NetApp C-Mode account and select the NetApp C-Mode account.
- Step 3** Click the **SVMs** tab.
- Step 4** Click the SVM for which you wish to view details and click **View Details** from the purple drop-down list on the right pane.
- Step 5** Click the **IP Hostname** tab.  
The SVM name, IP address, and hostname in the SVM account are displayed. The **IP Hostname** tab provides the following actions:

Action	Description
<b>Refresh</b>	Refreshes the current page.
<b>Favorite</b>	Adds this page to the <b>Favorites</b> tab which displays the page that you go to most often.

---

## Managing SIS Policy

You can define the Single Instance Storage (SIS) policy to perform SIS operations: compression and/or deduplication. Data compression can be used on-the-fly, and/or as a scheduled background operation. This can be followed by deduplication, which is a method of reducing disk space usage by eliminating duplicate data blocks on a FlexVol volume, where only a single instance of each unique data blocks is stored.

- 
- Step 1** On the menu bar, choose **Physical > Storage**.
- Step 2** In the left pane, choose the pod that includes the NetApp C-Mode account and select the C-Mode account.
- Step 3** Click the **SVMs** tab.
- Step 4** Click the SVM for which you wish to view details and click **View Details** from the purple drop-down list on the right pane.
- Step 5** Click the **SIS Policies** tab.
- The SIS policies available in the SVM account are displayed. The **SIS Policies** tab provides the following actions:

Action	Description
Refresh	Refreshes the current page.
Favorite	Adds this page to the <b>Favorites</b> tab which displays the page that you go to most often.
Create	Creates a SIS policy in the SVM account.

When you choose a SIS policy, the following additional actions appear:

Action	Description
Delete	Deletes a SIS policy after confirmation.
Modify	Updates the SIS policy.

---

## Creating a SIS Policy

- 
- Step 1** Navigate to the **SIS Policies** tab.

For more information about how to navigate to the **SIS Policies** tab, see [Managing SIS Policy](#), on page 28.

**Step 2** Click **Create**.

**Step 3** In the **Create sis Policy on SVM** dialog box, do the following:

Name	Description
SIS policy name field	The name of the SIS policy.
Enabled drop-down list	Choose <b>true</b> to enable SIS policy on the SVM.
QOS Policy field	Choose <b>best-effort</b> or <b>background</b> as the QoS policy.
Duration field	The duration in hours for which the scheduled SIS operation must run.
Schedule drop-down list	Choose the schedule of the SIS operation for the volume.
Comment field	Comments, if any.

**Step 4** Click **Submit**.

## Managing Export Policies

An export policy includes export rules to control client access to volumes. An export policy must exist on SVM for clients to access data. You associate an export policy with each volume to configure client access to the volume.

A single SVM can contain multiple export policies. This enables you to do the following for SVMs with multiple volumes:

- Assign different export policies to each volume of a single SVM for individual client access control to each volume in the SVM.
- Assign the same export policy to multiple volumes of a single SVM for identical client access control without having to create a new export policy for each volume.

**Step 1** On the menu bar, choose **Physical > Storage**.

**Step 2** In the left pane, choose the pod that includes the NetApp C-Mode account and select the NetApp C-Mode account.

**Step 3** Click the **SVMs** tab.

**Step 4** Click the SVM for which you wish to view details and click **View Details** from the drop-down list on the right pane.

**Step 5** Click the **Export Policies** tab.

The export policies available under the account are displayed. The **Export Policies** tab provides the following actions:

Action	Description
Refresh	Refreshes the current page.
Favorite	Adds this page to the <b>Favorites</b> tab which displays the page that you go to most often.
Create	Creates an export rule.

When you choose an export policy, the following additional actions appear:

Action	Description
Modify	Updates an export rule.
Delete	Deletes an export rule after confirmation.

## Managing Export Rules

You can configure export rules to determine how to handle the client access requests to volumes.

At least one export rule need to be added to an export policy to allow access to clients. If an export policy contains more than one rule, the rules are processed based on rule index. The permissions defined in a rule are applied to the clients that match the client match criteria specified in the export rule.

**Step 1** On the menu bar, choose **Physical > Storage**.

**Step 2** In the left pane, choose the pod that includes the NetApp C-Mode account and select the NetApp C-Mode account.

**Step 3** Click the **SVMs** tab.

**Step 4** Click the SVM for which you wish to view details and click **View Details** from the drop-down list on the right pane.

**Step 5** Click the **Export Rules** tab.

The export rules available under the account are displayed. The **Export Rules** tab provides the following actions:

Action	Description
Refresh	Refreshes the current page.
Favorite	Adds this page to the <b>Favorites</b> tab which displays the page that you go to most often.
Create	Creates an export rule.

When you choose an export rule, the following additional actions appear:

Action	Description
Modify	Updates an export rule.
Delete	Deletes an export rule after confirmation.

## Creating an Export Rule

### Step 1

Navigate to the **Export Rules** tab.

For more information about how to navigate to the **Export Rules** tab, see [Managing Export Rules](#), on page 30.

### Step 2

Click **Create**.

### Step 3

In the **Create Export Rule** dialog box, complete the following fields:

Action	Description
Policy Name drop-down list	Choose an export policy to which you want to add the new export rule. The export policy must already exist. For more information, see <a href="#">Managing Export Policies</a> , on page 29.
Access Protocol drop-down list	Choose an access protocol to which you want to apply the export rule. The possible values of the access protocol include the following: <ul style="list-style-type: none"> <li>• <b>any</b>—Any current or future access protocol</li> <li>• <b>nfs</b>—Any current or future version of NFS</li> <li>• <b>nfs3</b>—The NFSv3 protocol</li> <li>• <b>nfs4</b>—The NFSv4 protocol</li> <li>• <b>cifs</b>—The CIFS protocol</li> <li>• <b>flexcache</b>—The FlexCache protocol</li> </ul>

Action	Description
Client Match Spec field	<p>The client or clients to which the export rule applies.</p> <p>You can specify the match in any of the following formats:</p> <ul style="list-style-type: none"><li>• As a hostname; for instance, host1</li><li>• As an IPv4 address; for instance, 10.1.12.24</li><li>• As an IPv4 address with a subnet mask expressed as a number of bits; for instance, 10.1.12.10/4</li><li>• As an IPv4 address with a network mask; for instance, 10.1.16.0/255.255.255.0</li><li>• As a netgroup, with the netgroup name preceded by the @ character; for instance, @eng</li><li>• As a domain name preceded by the . character; for instance, .example.com</li></ul>



Action	Description
<p><b>Read Only Access Rule</b> drop-down list</p>	<p>Choose one of the following option to define the security type for read-only access to volumes:</p> <ul style="list-style-type: none"> <li>• <b>any</b>—To allow read access to the volume regardless of the security type of the incoming request. The effective security type of the incoming request remains the same. <ul style="list-style-type: none"> <li><b>Note</b> If the security type of the incoming request is AUTH_NONE, read access will be granted to the incoming request as an anonymous user.</li> </ul> </li> <li>• <b>none</b>—To allow read access to the volume as an anonymous user if the security type of the incoming request is not explicitly listed in the list of values in the read-only rule. The effective security type of the incoming request becomes none.</li> <li>• <b>never</b>—To not allow any access to the volume regardless of the security type of the incoming request.</li> <li>• <b>krb5</b>—To allow read access to the volume if the security type of the incoming request is Kerberos 5. The effective security type of the incoming request becomes krb5.</li> <li>• <b>ntlm</b>—To allow read access to the volume if the security type of the incoming request is CIFS NTLM. The effective security type of the incoming request becomes ntlm.</li> <li>• <b>sys</b>—To allow read access to the volume if the security type of the incoming request is AUTH_SYS. The effective security type of the incoming request becomes sys.</li> </ul>

Action	Description
<b>Read Write Access Rule</b> drop-down list	<p>Choose one of the following option to define the security type for read-write access to volumes:</p> <ul style="list-style-type: none"> <li>• <b>any</b>—To allow write access to the volume regardless of the effective security type of the incoming request.</li> <li>• <b>none</b>—To allow write access to the volume as an anonymous user if the effective security type of the incoming request is none.           <p><b>Note</b> If the effective security type of the incoming request is none, write access will be granted to the incoming request as an anonymous user.</p> </li> <li>• <b>never</b>—To not allow write access to the volume regardless of the effective security type of the incoming request.</li> <li>• <b>krb5</b>—To allow write access to the volume if the effective security type of the incoming request is Kerberos 5.</li> <li>• <b>ntlm</b>—To allow write access to the volume if the effective security type of the incoming request is CIFS NTLM.</li> <li>• <b>sys</b>—To allow write access to the volume if the effective security type of the incoming request is AUTH_SYS.</li> </ul>
<b>Rule Index</b> field	<p>The index number of the export rule that specifies order of the rule in the export policy.</p>

**Step 4** Click **Submit**.

## Managing Snapshot Policies

**Step 1** On the menu bar, choose **Physical > Storage**.

**Step 2** In the left pane, choose the pod that includes the NetApp C-Mode account and select the NetApp C-Mode account.

**Step 3** Click the **SVMs** tab.

**Step 4** Click the SVM for which you wish to view details and click **View Details** from the drop-down list on the right pane.

**Step 5** Click the **Snapshot Policies** tab.

The snapshot policies available under the account are displayed. The **Snapshot Policies** tab provides the following actions:

Action	Description
Refresh	Refreshes the current page.
Favorite	Adds this page to the <b>Favorites</b> tab which displays the page that you go to most often.
Create	Creates a new snapshot policy.

When you choose a snapshot policy, the following additional actions appear:

Action	Description
Enable/Disable	Enables or disables the snapshot policy.
Delete	Deletes the snapshot policy.
View Details	Displays the schedule of the snapshot policy. Also, provides the options to create a new schedule, update a schedule, and delete the schedule.

## Creating a Snapshot Policy

**Step 1** Navigate to the **Snapshot Policies** tab.  
For more information about how to navigate to the **Snapshot Policies** tab, see [Managing Snapshot Policies, on page 34](#).

**Step 2** Click **Create**.

**Step 3** In the **Create Snapshot Policy** dialog box, complete the following fields:

Action	Description
Snapshot Policy Name field	The name of the snapshot policy.
Schedule drop-down list	Choose the cron job or schedule interval to be added to the policy.
Count field	The number of snapshots to be retained for the schedule.
Snapmirror label field	The label of the SnapMirror.

Action	Description
Prefix field	The prefix text to be included in the created snapshot names.
Is Enabled check box	Check this check box to enable the policy.

**Step 4** Click **Submit**.

---

## Managing Port Sets

A port set consists of a group of Fibre Channel (FC) target ports. You bind a port set to an igroup, to make the LUN available only on a subset of the storage system's target ports. Any host in the igroup can access the LUNs only by connecting to the target ports in the port set.

If an igroup is not bound to a port set, the LUNs mapped to the igroup are available on all of the storage system FC target ports. The igroup controls which initiators LUNs are exported to. The port set limits the target ports on which those initiators have access.

**Step 1** On the menu bar, choose **Physical > Storage**.

**Step 2** In the left pane, choose the pod that includes the NetApp C-Mode account and select the NetApp C-Mode account.

**Step 3** Click the **SVMs** tab.

**Step 4** Click the SVM for which you wish to view details and click **View Details** from the drop-down list on the right pane.

**Step 5** Click the **Portsets** tab.

The port sets available under the account are displayed. The **Portsets** tab provides the following actions:

Action	Description
<b>Refresh</b>	Refreshes the current page.
<b>Favorite</b>	Adds this page to the <b>Favorites</b> tab which displays the page that you go to most often.
<b>Create</b>	Creates a port set. In the <b>Create Portset</b> dialog box, do the following: <ol style="list-style-type: none"> <li>1 In the <b>Portset Name</b> field, enter the port set name.</li> <li>2 In the <b>Portset Type</b> drop-down list, choose <b>ISCSI</b>, <b>FCP</b>, or <b>MIXED</b> as the port set type.</li> <li>3 Click <b>Submit</b>.</li> </ol>

When you choose a port set, the following additional actions appear:

Action	Description
<b>Destroy</b>	Deletes a port set after confirmation.
<b>Add Port</b>	Adds a port to a port set. In the <b>Add Port To Portset</b> dialog box, click <b>Select</b> and choose LIF that needs to be added to the port set.
<b>Remove Port</b>	Removes a port from a port set. In the <b>Remove Port From Portset</b> dialog box, choose a port that needs to be removed from the port set.

## Managing WWPN Aliases

A World Wide Port Names (WWPN) is a unique, 64-bit identifier displayed as a 16-character hexadecimal value in Data ONTAP. However, SAN Administrators may find it easier to identify FC ports using an alias instead, especially in larger SANs. You can create multiple aliases for a WWPN, but you cannot use the same alias for multiple WWPNs.

**Step 1** On the menu bar, choose **Physical > Storage**.

**Step 2** In the left pane, choose the pod that includes the NetApp C-Mode account and select the NetApp C-Mode account.

**Step 3** Click the **SVMs** tab.

**Step 4** Click the SVM for which you wish to view details and click **View Details** from the drop-down list on the right pane.

**Step 5** Click the **WWPN Aliases** tab.

The WWPN aliases available under the account are displayed. The **WWPN Aliases** tab provides the following actions:

Action	Description
<b>Refresh</b>	Refreshes the current page.
<b>Favorite</b>	Adds this page to the <b>Favorites</b> tab which displays the page that you go to most often.

Action	Description
Create	<p>Creates a WWPN Alias.</p> <p>In the <b>Create WWPN Alias</b> dialog box, do the following:</p> <ol style="list-style-type: none"> <li>1 In the <b>WWPN Alias</b> field, enter the WWPN alias name. The alias can consist of up to 32 characters and can contain only the letters A through Z, a through z, numbers 0 through 9, hyphen (-), underscore (_), left brace ({), right brace (}), and period (.).</li> <li>2 In the <b>WWPN</b> field, enter the FCP initiator WWPN name. For example, 00:00:00:00:00:00:00:00.</li> <li>3 Click <b>Submit</b>.</li> </ol>

When you choose a port set, the following additional actions appear:

Action	Description
Modify	Updates the WWPN of the alias.
Delete	Deletes the WWPN alias after confirmation.

## Managing FCP Services

Fibre Channel (FC) is a licensed service on the storage system that enables you to export logical units (LUNs) and transfer block data to hosts using the Small Computer System Interface (SCSI) protocol over a Fibre Channel fabric.

**Step 1** On the menu bar, choose **Physical > Storage**.

**Step 2** In the left pane, choose the pod that includes the NetApp C-Mode account and select the NetApp C-Mode account.

**Step 3** Click the **FCP Services** tab.

The FCP services created in the account are displayed. The **FCP Services** tab provides the following actions:

Action	Description
Refresh	Refreshes the current page.
Favorite	Adds this page to the <b>Favorites</b> tab which displays the page that you go to most often.

Action	Description
Create	Creates a FCP service on SVM.

When you choose a FCP service, the following additional actions appear:

Action	Description
Destroy	Deletes the FCP service after confirmation.
Start FCP Service	Starts the FCP service on SVM.
Stop FCP Service	Stops the FCP service that is running on SVM.

## Creating a FCP Service

- Step 1** Navigate to the **FCP Services** tab.  
For more information about how to navigate to the **FCP Services** tab, see [Managing FCP Services, on page 38](#).
- Step 2** Click **Create**.
- Step 3** In the **Create FCP Service** dialog box, complete the following fields:

Name	Description
SVM Name field	Click <b>Select</b> and choose SVM on which you want to create the FCP service.
FCP Target Node Name field	The worldwide node name (WWNN) that is used to identify FC node.
Start check box	Check this check box to start the FCP service on the SVM.

- Step 4** Click **Submit**.

## Creating and Managing SVM Peers

**Step 1** On the menu bar, choose **Physical > Storage**.

**Step 2** In the left pane, choose the pod that includes the NetApp C-Mode account and select the NetApp C-Mode account.

**Step 3** Click the **SVM Peer** tab.

The SVM peers that are available under the account are displayed. The **SVM Peer** tab provides the following actions:

Action	Description
<b>Refresh</b>	Refreshes the current page.
<b>Favorite</b>	Adds this page to the Favorites tab which displays the page that you go to most often.
<b>Create</b>	<p>Creates a new SVM peer relationship.</p> <p>To create a new SVM peer relationship, complete the following fields:</p> <ul style="list-style-type: none"> <li>• <b>Select Local SVM Name</b> field—SVM that you want to use as the local SVM.</li> <li>• <b>Select Peer SVM Name</b> field—SVM that you want to use as the peer SVM.</li> </ul>

When you choose an existing SVM peer relationship, the following additional actions appear:

Button	Description
<b>Delete</b>	Deletes the SVM Peer relationship.
<b>Accept</b>	Accepts the SVM Peer relationship.
<b>Reject</b>	Rejects the SVM Peer relationship.



## Creating a Cluster Peer

- Step 1** On the menu bar, choose **Physical > Storage**.
- Step 2** In the left pane, choose the pod that includes the NetApp C-Mode account and select the NetApp C-Mode account.
- Step 3** Click the **Cluster Peer** tab.
- Step 4** Click **Create**.
- Step 5** In the **Create Cluster Peer Relationship** dialog box, complete the following fields:

Name	Description
Select Peer Cluster field	Click <b>Select</b> and choose the cluster account that you want to use.
Time Out (Seconds) field	The time out value in seconds.

- Step 6** Click **Submit**.

## Managing SnapMirror and SnapVault Relationships

SnapMirror software is a disaster recovery and data distribution solution, whereas SnapVault is a backup solution that is exclusively used to archive data. SnapMirror mirrors data to one or more network filers at high speed over LAN or WAN connections. If a disaster occurs, the destination volume can be made as source (reverse Snapmirror). SnapVault is a collection of snapshot copies of the primary volume, which can be restored with minimal downtime when there is data loss or when a system is corrupted.

Both the SnapMirror and SnapVault relationships can be managed through the SnapMirrors tab. The SnapMirrors tab displays both the Snapmirror and SnapVault data, with the relationship type column differentiating the data.

- Step 1** On the menu bar, choose **Physical > Storage**.
- Step 2** In the left pane, choose the pod that includes the NetApp C-Mode account and select the NetApp C-Mode account.
- Step 3** Click the **SnapMirrors** tab.  
Cisco UCS Director displays all the SnapMirror and SnapVault relationships created in the account. The SnapMirrors tab provides the following actions:

Name	Description
Refresh	Refreshes the current page.
Favorite	Adds this page to the <b>Favorites</b> tab.

Name	Description
Create	Creates a new SnapMirror or SnapVault relationship.
Inventory	Runs a SnapMirror or SnapVault inventory.

When you choose a SnapMirror or SnapVault, the following additional actions appear:

Action	Description
Delete	Deletes the SnapMirror or SnapVault relationship.
Modify	Updates an existing SnapMirror or SnapVault relationship.
Initialize	Starts an initial transfer over the network for a specific destination. Sets the transfer priority to Low or Normal.
Update	This command performs an incremental transfer.
Resync	Kicks off a resynchronization of a broken SnapMirror or SnapVault pair.
Break	Breaks the SnapMirror relationship. You cannot check whether the operation is legal or whether it is successful. The result is updated after the inventory collected in this task. <b>Note</b> The break action is not applicable for a SnapVault relationship.
Quiesce	Pauses a SnapMirror or SnapVault transfer to the destination.
Promote	Promotes SnapMirror after a confirmation. <b>Note</b> The Promote action is not applicable for a SnapVault relationship.
Release	Releases SnapMirror or SnapVault to permanently end a relationship.
Resume	This option is available in the drop-down list. The resume command enables future transfers for a SnapMirror or SnapVault relationship that has been quiesced.
Abort	This option is available in the drop-down list. Aborts a SnapMirror or SnapVault transfer before it is complete.

## Creating a SnapMirror Relationship

### Before You Begin

You must create a SVM peer to create an intra-cluster SnapMirror relationship. If you want to establish an inter-cluster SnapMirror relationship, you must create a cluster peer and a server peer.

**Step 1** Navigate to the **SnapMirrors** tab.  
For more information about how to navigate to the **SnapMirrors** tab, see .

**Step 2** Click **Create**.

**Step 3** In the **Create SnapMirror Relationship** dialog box, complete the following fields:

Name	Description
Relationship Type drop-down list	Choose one of the following options as the type of relationship: <ul style="list-style-type: none"> <li>• <b>Data protection</b></li> <li>• <b>Load Sharing</b></li> </ul>
Destination Volume field	Click <b>Select</b> and choose the destination volumes.
Source Volume field	Click <b>Select</b> and choose the source volumes.
Policy field	Click <b>Select</b> and choose the SnapMirror policies.
Schedule field	Click <b>Select</b> and choose the cron job to schedule the SnapMirror update.
Maximum Transfer Rate (Kbps) field	The maximum transfer rate. The default value is zero, which means that the MTR is unlimited.

**Step 4** Click **Submit**.

## Managing SnapMirror Policies

**Step 1** On the menu bar, choose **Physical > Storage**.

**Step 2** In the left pane, choose the pod that includes the NetApp C-Mode account.

**Step 3** Click the **SnapMirrors Policies** tab.

Cisco UCS Director displays all the SnapMirror policies created in the account. The **SnapMirror Policies** tab provides the following actions:

Name	Description
Refresh	Refreshes the current page.
Favorite	Adds this page to the <b>Favorites</b> tab which displays the page that you go to most often.
Create	Creates a new SnapMirror policy.

When you choose a SnapMirror policy, the following additional actions appear:

Action	Description
Modify	Updates the restart type and transfer rate of the SnapMirror policy.
Delete	Deletes the SnapMirror policy after confirmation.
Add Rule	<p>Adds rule to the SnapMirror policy.</p> <p>To add a rule to the SnapMirror policy, complete the following fields:</p> <ul style="list-style-type: none"> <li>• <b>Snapshot Copy Retention Count</b> field—The snapshot copy retention count.</li> <li>• <b>SnapMirror Label</b> field—The snapshot copy label.</li> <li>• <b>Preserve</b> checkbox—Check this check box to enable a snapshot copy reservation.</li> <li>• <b>Warning Threshold Count</b> field—The warning threshold count.</li> </ul>
Remove Rule	Removes the selected rule from the SnapMirror policy.
Modify Rule	Updates the rule in the SnapMirror policy.
View Details	Displays the SnapMirror policy rules.

## Creating a SnapMirror Policy

**Step 1** Navigate to the **SnapMirror Policies** tab.  
For more information about how to navigate to the **SnapMirror Policies** tab, see [Managing SnapMirror Policies](#), on page 43.

**Step 2** Click **Create**.

**Step 3** In the **Create SnapMirror Policy** dialog box, complete the following fields:

Name	Description
SVM Name field	Click <b>Select</b> and choose the SVM name.
Enter Policy Name field	The name of the policy.
Restart drop-down list	Choose one of the following options as the type of restart: <ul style="list-style-type: none"> <li>• <b>Always</b></li> <li>• <b>Never</b></li> <li>• <b>Default</b></li> </ul>
Transfer Priority drop-down list	Choose one of the following options as the transfer priority: <ul style="list-style-type: none"> <li>• <b>None</b></li> <li>• <b>Normal</b></li> <li>• <b>Low</b></li> </ul>
Enter Comment field	Comments, if any.

**Step 4** Click **Submit**.

## Managing Snapshot Policies

**Step 1** On the menu bar, choose **Physical > Storage**.

**Step 2** In the left pane, choose the pod that includes the NetApp C-Mode account and select the NetApp C-Mode account.

**Step 3** Click the **Snapshot Policies** tab.

The snapshot policies available under the account are displayed. The **Snapshot Policies** tab provides the following actions:

Action	Description
Refresh	Refreshes the current page.
Favorite	Adds this page to the <b>Favorites</b> tab which displays the page that you go to most often.
Create	Creates a new snapshot policy.

When you choose a snapshot policy, the following additional actions appear:

Action	Description
Enable/Disable	Enables or disables the snapshot policy.
Delete	Deletes the snapshot policy.
View Details	Displays the schedule of the snapshot policy. Also, provides the options to create a new schedule, update a schedule, and delete the schedule.

## Creating a Snapshot Policy

**Step 1** Navigate to the **Snapshot Policies** tab.  
For more information about how to navigate to the **Snapshot Policies** tab, see [Managing Snapshot Policies, on page 45](#).

**Step 2** Click **Create**.

**Step 3** In the **Create Snapshot Policy** dialog box, complete the following fields:

Action	Description
<b>Snapshot Policy Name</b> field	The name of the snapshot policy.
<b>Schedule</b> drop-down list	Choose the cron job or schedule interval to be added to the policy.
<b>Count</b> field	The number of snapshots to be retained for the schedule.
<b>Snapmirror label</b> field	The label of the SnapMirror.

Action	Description
Prefix field	The prefix text to be included in the created snapshot names.
Is Enabled check box	Check this check box to enable the snapshot policy.

**Step 4** Click **Submit**.

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## Managing Jobs

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**Step 1** On the menu bar, choose **Physical > Storage**.

**Step 2** In the left pane, choose the pod that includes the NetApp C-Mode account and select the NetApp C-Mode account.

**Step 3** Click the **Jobs** tab.

The jobs scheduled under the account are displayed. The **Jobs** tab provides the following actions:

Action	Description
Refresh	Refreshes the current page.
Favorite	Adds this page to the <b>Favorites</b> tab which displays the page that you go to most often.
Inventory	Runs a job inventory after confirmation.

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## Managing Cron Job Schedules

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**Step 1** On the menu bar, choose **Physical > Storage**.

**Step 2** In the left pane, choose the pod that includes the NetApp C-Mode account and select the NetApp C-Mode account.

**Step 3** Click the **Cron Job Schedules** tab.

The cron jobs scheduled under the account are displayed. The **Cron Job Schedules** tab provides the following actions:

Action	Description
Refresh	Refreshes the current page.

Action	Description
Favorite	Adds this page to the <b>Favorites</b> tab which displays the page that you go to most often.
Create	Creates a cron job schedule.

When you choose a cron job schedule, the **Modify** and **Delete** actions appear.

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## Creating a Cron Job Schedule

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**Step 1** Navigate to the **Cron Job Schedules** tab.  
For more information about how to navigate to the **Cron Job Schedules** tab, see [Managing Cron Job Schedules](#), on page 47.

**Step 2** Click **Create**.

**Step 3** In the **Create Cron Job Schedule** dialog box, complete the following fields:

Name	Description
<b>Job Schedule Name</b> field	The name of the cron job schedule.
<b>Day of Month</b> field	Values for the cron day of month separated by commas.
<b>Day of Week</b> field	Values for the cron day of week separated by commas.
<b>Hour</b> field	Values for the cron hour separated by commas.
<b>Minute</b> field	Values for the cron minutes separated by commas.
<b>Month</b> field	Values for the cron month separated by commas.

**Step 4** Click **Submit**.

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## Managing NFS Services

**Step 1** On the menu bar, choose **Physical > Storage**.

**Step 2** In the left pane, choose the pod that includes the NetApp C-Mode account and select the NetApp C-Mode account.

**Step 3** Click the **NFS Services** tab.

The network file system (NFS) services available under the account are displayed. The **NFS Services** tab provides the following actions:

Action	Description
Refresh	Refreshes the current page.
Favorite	Adds this page to the <b>Favorites</b> tab which displays the page that you go to most often.
Create	Creates the NFS service.

When you choose a NFS service, the following additional actions appear:

Action	Description
Modify	Updates the NFS service.
Destroy	Deletes the NFS service.
Starts NFS Service	Starts the NFS service.
Stops NFS Service	Stops the NFS service.

## Creating an NFS Service

**Step 1** Navigate to the **NFS Services** tab.

For more information about how to navigate to the **NFS Services** tab, see [Managing NFS Services, on page 49](#).

**Step 2** Click **Create**.

**Step 3** In the **Create NFS Service** dialog box, complete the following fields:

Name	Description
SVM Name field	Click <b>Select</b> and choose the SVM names.

Name	Description
Is NFS Access Enabled check box	Check this check box to enable the NFS access.
Is NFS Vstorage Enabled check box	Check this check box to enable the vStorage for the NFS service.

**Step 4** Click **Submit**.

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## Managing System Tasks

A multi-node setup improves scalability by offloading the processing of system tasks, such as inventory data collection, from the primary node to one or more service nodes. You can assign certain system tasks to one or more service nodes. The number of nodes determines how the processing of system tasks are scaled.

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**Step 1** On the menu bar, choose **Physical > Storage**.

**Step 2** In the left pane, choose the pod that includes the NetApp C-Mode account and select the NetApp C-Mode account.

**Step 3** Click the **System Tasks** tab.

The tasks that are defined for the account is displayed. For more information about how to manage system tasks, see the [Cisco UCS Director Administration Guide](#).

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## Managing Routing Group Routes

**Step 1** On the menu bar, choose **Physical > Storage**.

**Step 2** In the left pane, choose the pod that includes the NetApp C-Mode account and select the NetApp C-Mode account.

**Step 3** Click the **Routing Group Routes** tab.

The routing group routes set under the account are displayed. The **Routing Group Routes** tab provides the following actions:

Action	Description
Refresh	Refreshes the current page.
Favorite	Adds this page to the <b>Favorites</b> tab which displays the page that you go to most often.

Action	Description
Delete	Deletes a routing group route.

## Managing Licenses

**Step 1** On the menu bar, choose **Physical > Storage**.

**Step 2** In the left pane, choose the pod that includes the NetApp C-Mode account and select the NetApp C-Mode account.

**Step 3** Click the **Licenses** tab.

The Licenses available under the account are displayed. The **Licenses** tab provides the following actions:

Action	Description
Refresh	Refreshes the current page.
Favorite	Adds this page to the <b>Favorites</b> tab which displays the page that you go to most often.
Add	Adds license to a cluster.

When you choose a license, the **Delete** action appear.

## Adding a License

**Step 1** On the menu bar, choose **Physical > Storage**.

**Step 2** In the left pane, choose the pod that includes the NetApp C-Mode account and select the NetApp C-Mode account.

**Step 3** Click the **Licenses** tab.

The licenses available under the account are displayed.

**Step 4** Click **Add**.

**Step 5** In the **Add License to Cluster** dialog box, enter a license code in the **License Code** field.

**Step 6** Click **Submit**.

