



# Monitoring and Reporting for an ONTAP Account

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# About Monitoring and Reporting for an ONTAP Account

Cisco UCS Director displays all managed components in each of the ONTAP accounts. These components can be hardware or software. You can also add a component and set up a component, and view reports for each of the discovered or added components.

## 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 an ONTAP account:

- VMs
- Aggregates
- Volumes
- QTrees
- Quotas
- LUNs
- Disks
- Initiator groups
- Initiators
- License
- SnapMirrors
- vFilers
- IP spaces
- Interfaces
- FC adapters
- NFS exports
- CIFS shares

## 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.

## Managing Filers

The NetApp filer is a type of disk storage device that owns and controls a file system and presents files and directories over the network. It uses an operating system called Data ONTAP.

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

**Step 2** In the left pane, choose the pod that includes the NetApp ONTAP account.

**Step 3** Click the **Filers** tab.

The filers available in the account are displayed. The **Filers** 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.

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

Action	Description
<b>View Details</b>	Displays information about the current status of the selected component. You can click the tabs in the window for more details about that component.
<b>Persist Network Configuration</b>	Displays the number of changes detected between the previously saved persistent configuration and the newly generated persistent configuration.
<b>Add Hosts</b>	Allows you to update the IP address and name of remote system for host address resolution.

**Step 4** Click the filer and click **View Details**.

The **Storage Filer** window displays information about the selected filer. Click the tabs in the window to view more details about the filer component.

# Managing Virtual Machines

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

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

**Step 3** Click the filer and click **View Details**.

**Step 4** Click the **VMs** tab.

The VMs available in the filer are displayed. The **VMs** 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.

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

Action	Description
<b>View Details</b>	Displays summary and service request details of the VM.
<b>Stack View</b>	Displays the stack view of the VM.
<b>Access VM Credentials</b>	Displays the credentials of the VM.
<b>Launch VM Client</b>	Launch the VM client through one of the following access scheme: <ul style="list-style-type: none"> <li>• Web Access</li> <li>• Remote Desktop</li> <li>• VMRC Console</li> </ul>

Action	Description
Assign VM	<p>Assigns the VM to a user group and a user.</p> <p>To assign the VM to a user group and a user, complete the following fields:</p> <ul style="list-style-type: none"> <li>• <b>VM Name</b> field—<i>Display Only</i>. The name of the VM.</li> <li>• <b>User Group</b> drop-down list—Choose a user group to which you want to assign the VM. <ul style="list-style-type: none"> <li><b>Note</b> You can choose only groups with valid virtual data center (VDC).</li> </ul> </li> <li>• <b>Assign to Users</b> check box—Check this check box to assign the VM to a user. Choose a user from the <b>User</b> drop-down list that appears when you choose the <b>Assign to Users</b> check box.</li> <li>• <b>vDC</b> drop-down list—Choose a vDC from the list.</li> <li>• <b>Category</b> drop-down list—Choose a category under which the VM needs to be categorized.</li> <li>• <b>VM User Label</b> field—The label for the VM user.</li> <li>• <b>Set Provision Time</b> check box—Check this check box to set the time at which the VM needs to be provisioned. Set the date and time in the <b>Provision Date/Time</b> field that appears when you choose the <b>Set Provision Time</b> check box.</li> <li>• <b>Comments</b> field—Comments, if any.</li> </ul>
Configure Lease Time	Sets the lease time for configuring the VM.
Resize VM	<p>Resizes the VM.</p> <p>To resize the VM, complete the following fields:</p> <ol style="list-style-type: none"> <li>1 <b>VM Name</b> field—<i>Display Only</i>. The name of the VM.</li> <li>2 <b>Current Allocated CPU</b> field—<i>Display Only</i>. The current size of CPU allocated to the VM.</li> <li>3 <b>Current Allocated Memory (GB)</b> field—<i>Display Only</i>. The current allocated memory of the VM.</li> <li>4 <b>New CPU Count</b> drop-down list—Choose the new CPU size of the VM.</li> <li>5 <b>New Memory</b> drop-down list—Choose the new memory size of the VM.</li> </ol>

Action	Description
Power ON	<p>Turns on the VM.</p> <p>To turn on the VM, complete the following fields:</p> <ol style="list-style-type: none"> <li><b>VM Name</b> field—<i>Display Only</i>. The name of the VM.</li> <li><b>Task</b> field—<i>Display Only</i>. The task to be applied for the VM.</li> <li><b>Comments</b> field—Comments, if any.</li> <li><b>Schedule Action</b> Pane—Choose <b>Execute Now</b> or <b>Execute Later</b> to turn on the VM immediately or later.</li> </ol> <p><b>Note</b> Once the VM is turned on, execute the VM level inventory collection to get the updated IP address.</p>
Power OFF	<p>Turns off the VM.</p> <p>To turn off the VM, complete the following fields:</p> <ol style="list-style-type: none"> <li><b>VM Name</b> field—<i>Display Only</i>. The name of the VM.</li> <li><b>Task</b> field—<i>Display Only</i>. The task to be applied for the VM.</li> <li><b>Comments</b> field—Comments, if any.</li> <li><b>Schedule Action</b> Pane—Choose <b>Execute Now</b> or <b>Execute Later</b> to turn off the VM immediately or later.</li> </ol>

## Managing Interfaces and Creating a vLAN

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

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

**Step 3** Click the filer and click **View Details**.

Cisco UCS Director displays information about the selected filer. Click the tabs in the window for more details about the filer component.

**Step 4** Click the **Interfaces** tab.

Cisco UCS Director displays the interfaces available in the account. The interfaces 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.

Name	Description
Create VLAN	<p>Creates a VLAN.</p> <p>To create a VLAN, complete the following fields in the <b>Create vLAN</b> dialog box:</p> <ol style="list-style-type: none"> <li><b>Select Interface</b> drop-down list—Choose a network interface from the list of interfaces that shows both physical interface and interface groups.</li> <li><b>vLAN ID</b> field—The VLAN ID from 1 to 4094.</li> <li>Click <b>Create</b>.</li> </ol>

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

Name	Description
View Details	Displays the service request details for the interface.
Delete	Deletes the interface.

## Managing IP Spaces

An IP space defines a distinct IP address space in which vFiler units can participate. IP addresses defined for an IP space are applicable only within that IP space. A distinct routing table is maintained for each IP space. No cross-IP space traffic is routed.

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

**Step 2** In the left pane, choose the pod that includes the NetApp ONTAP account to view the list of Filers.

**Step 3** Click the filer and click **View Details**.

Cisco UCS Director displays information about the selected filer. Click the tabs in the window for more details about the filer component.

**Step 4** Click the **IP Spaces** tab.

Cisco UCS Director displays a list of IP spaces available in the filer. The **IP Spaces** 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 an IP space in the filer.

When you choose an IP Space, the following additional actions appear:

Action	Description
View Details	Displays the service request details of the IP space.
Delete	Deletes the selected IP space after confirmation.
Assign	Assigns the IP space to a VLAN.

## Adding an IP Space

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- Step 1** Navigate to the **Storage Filer** window.  
For more information about how to navigate to the **Storage Filer** window, see [Managing IP Spaces, on page 7](#).
- Step 2** Click the **IP Spaces** tab.  
Cisco UCS Director displays a list of IP spaces available in the filer.
- Step 3** Click **Add**.  
The **Create IP Space** dialog box appears.
- Step 4** In the **IP Space Name** field, enter the IP space name.
- Step 5** Click **Create**.
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### What to Do Next

Assign an IP space to a VLAN.



# Managing vFilers

vFilers are ONTAP 7-mode virtual containers that create separate virtual filer instances within a physical controller. When you use a vFiler, you can partition the storage and network resources of a single storage system so that it appears as multiple storage systems on the network.

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

**Step 2** In the left pane, choose the pod that includes the NetApp ONTAP account to view the list of Filers in the account.

**Step 3** Click the filer and click **View Details**.

Cisco UCS Director displays information about the selected filer. Click the tabs in the window for more details about the filer component.

**Step 4** Click the **vFilers** tab.

The vFilers available under the account are displayed. The **vFiler** 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 vFiler in the NetApp ONTAP account.

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

Action	Description
<b>Setup</b>	Sets up a vFiler.
<b>Setup CIFS</b>	Sets up a CIFS server for the vFiler.
<b>Stop CIFS</b>	Stops the CIFS service configured for the vFiler.
<b>Delete</b>	Deletes the vFiler.

Action	Description
<b>View Details</b>	<p>Displays a storage summary of the vFiler. Click the tabs in the window for more details about the following vFiler component:</p> <ul style="list-style-type: none"> <li>• Volumes</li> <li>• LUNs</li> <li>• Qtrees</li> <li>• Quotas</li> <li>• Initiator groups</li> <li>• Initiators</li> <li>• SnapMirrors</li> <li>• NFS exports</li> <li>• CIFS shares</li> <li>• Service request details</li> </ul>
<b>Assign Group</b>	<p>Assigns a vFiler to a group. Provide inputs for the following fields and click <b>Submit</b>:</p> <ol style="list-style-type: none"> <li><b>1 Group</b> drop-down list—Choose a group to which the vFiler has to be assigned.</li> <li><b>2 Label</b> field—The label for the assigned group.</li> </ol>
<b>Add Hosts</b>	<p>Adds a host to the vFiler. Provide inputs for the following fields and click <b>Submit</b>:</p> <ol style="list-style-type: none"> <li><b>1 Host IP</b> field—The Host IP address.</li> <li><b>2 Host Name</b> field—The name of the host.</li> </ol>

## Creating a vFiler

### Before You Begin

Ensure that IP Space is created and assigned to a VLAN.

### Step 1

Navigate to the **vFiler** tab.

For more information about how to navigate to the **vFiler** tab, see [Managing vFilers](#), on page 9.

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

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

Name	Description
Select <b>IP Space Name</b> drop-down list	Choose the IP space to control the configuration of multiple IP address spaces (ipspace) on a vFiler.
<b>vFiler Name</b> field	A unique name that you assign to this vFiler.
<b>IP Address</b> field	The IP address of the vFiler.
Select <b>Storage Unit</b> drop-down list	Choose the storage unit from the list.

**Step 4** Click **Create**.

## Setting up a vFiler

**Step 1** Navigate to the **vFiler** tab.

For more information about how to navigate to the **vFiler** tab, see [Managing vFilers](#), on page 9.

**Step 2** Click the vfiler and click **Setup**.

**Step 3** In the **Setup vFiler** dialog box, complete the following fields:

Name	Description
<b>vFiler Name</b> field	<i>Display Only.</i> The name of the vFiler.
<b>Subnet Mask</b> field	The subnet mask of the vFiler.
<b>DNS Domain</b> field	The DNS domain.
<b>DNS Server Addresses</b> field	DNS server IP addresses separated by comma.
<b>Default Gateway</b> field	The default gateway IP address.
<b>Interface Name</b> drop-down list	Choose a VLAN interface.
<b>Protocols</b> field	Click <b>Select</b> and choose the protocols that the vFiler supports: <ul style="list-style-type: none"> <li>• NFS</li> <li>• CIFS</li> <li>• iSCSI</li> </ul>

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

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## Setting up a CIFS Server for a vFiler

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**Step 1** Navigate to the **vFiler** tab.  
For more information about how to navigate to the **vFiler** tab, see [Managing vFilers](#), on page 9.

**Step 2** Click the vfiler and click **Setup CIFS**.

**Step 3** In the **Setup CIFS** dialog box, complete the following fields:

Name	Description
<b>vFiler Name</b> field	<i>Display Only</i> . The name of the vFiler.
<b>Authentication</b> drop-down list	Choose the authentication style as Active Directory. The authentication style determines the method by which clients are authenticated when connecting to the CIFS Server.
<b>Security Style</b> drop-down list	Choose the security style as <b>NTFS</b> or <b>Multiprotocol</b> . The security style determines whether the CIFS service will support multiprotocol access.
<b>DNS Domain Name</b> field	The name of the domain that the CIFS server will join. It can be NetBIOS or any fully qualified domain name, for example, cifsdomain, cifsdomain.com.
<b>Login User</b> field	The name of the domain that the CIFS server will join. It can be NetBIOS or any fully qualified domain name, such as, cifsdomain or cifsdomain.com.
<b>Login Password</b> field	The name of the domain user who has the ability to add the CIFS server to the domain given in the <b>DNS Domain Name</b> field.
<b>Organization Unit</b> field	The password of the login user.
<b>Site Name</b> field	The name of the site that the CIFS service will become a member of.
<b>vFiler Root Password</b> field	The root password of the vFiler.

**Step 4** Click **Submit**.  
The CIFS service starts automatically when this configuration is completed. You can stop the CIFS service by clicking **Stop CIFS**.

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## Managing Aggregates

An aggregate is a collection of one or two plexes, depending on whether you take advantage of RAID-level mirroring. A plex is a collection of one or more RAID groups that provide the storage for file system volumes. If the aggregate is unmirrored, it contains a single plex. If the SyncMirror feature is licensed and enabled, Data ONTAP adds a second plex to the aggregate, which serves as a RAID-level mirror for the first plex in the aggregate.

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

**Step 2** In the left pane, choose the pod that includes the NetApp ONTAP account to view the list of Filers.

**Step 3** Click the filer and click **View Details**.

Cisco UCS Director displays information about the selected filer. Click the tabs in the window for more details about the filer component.

**Step 4** Click the **Aggregates** tab.

Cisco UCS Director displays the Aggregates available in the account. The **Aggregate** tab provides the following actions:

Name	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 aggregate in the NetApp ONTAP account.

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

Action	Description
<b>Delete</b>	Deletes an existing aggregate.
<b>Online</b>	Moves the aggregate to an online state.
<b>Offline</b>	Moves the aggregate to an offline state.
<b>Add Disk</b>	Adds a disk to the aggregate.
<b>Manage Tag</b>	<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>

Action	Description
<b>Add Tags</b>	<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>
<b>Delete Tags</b>	<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 13.

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

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

Name	Description
<b>Aggregate Name</b> field	The name of the aggregate.
<b>Disk Count</b> field	The number of disks in the aggregate.
<b>Disk List</b> button	Selects the disks.
<b>Raid Type</b> drop-down list	Choose the RAID type.

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

# Managing Initiator Groups

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

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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 ONTAP account and select the account to view the list of Filers in the account.
- Step 3** Click the filer and click **View Details**.  
Cisco UCS Director displays information about the selected filer. Click the tabs in the window for more details about the filer component.
- Step 4** Click the **Initiators Groups** tab.  
Cisco UCS Director displays the initiator groups available in the account. 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 <b>Favorites</b> tab which displays the page that you go to most often.
<b>Create</b>	Creates an initiator group in the NetApp ONTAP account.

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

Action	Description
<b>View Details</b>	Displays the service request details of the selected initiator group.
<b>Delete</b>	Deletes the initiator group.
<b>ALUA</b>	Enables the Asymmetric Logical Unit Access (ALUA) protocol to identify optimized paths between a storage system and a host.

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## Creating an Initiator Group

**Step 1** Navigate to the **Initiator Groups** tab.  
For more information about how to navigate to the **Initiators Groups** tab, see [Managing Initiator Groups](#), on page 15.

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

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

Name	Description
<b>Initiator Group Name</b>	A unique name that you assign to this initiator group.
<b>Group Type</b> drop-down list	Choose the type of the initiator group as one of the following: <ul style="list-style-type: none"> <li>• <b>ISCSI</b></li> <li>• <b>FCP</b></li> </ul>
<b>OS Type</b> drop-down list	Choose the OS type of the initiators within the group.
<b>Portset</b> field	Name of a current port set to bind to the newly created igroup.

**Step 4** Click **Create**.

## Adding an Initiator

An initiator is a part of an initiator group. You can add an initiator to an initiator group.

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

**Step 2** In the left pane, choose the pod that includes the NetApp ONTAP account and select the account to view the list of filers.

**Step 3** Click the filer and click **View Details**.

Cisco UCS Director displays information about the selected filer. Click the tabs in the window for more details about the filer component.

**Step 4** Click the **Initiators** tab.

You can add a new initiator to an initiator group using the **Create** option or remove it from an initiator group using the **Delete** option.

**Step 5** To create a new initiator, click **Create**.

**Step 6** In the **Create Initiator** dialog box, complete the following fields:



Name	Description
Initiator Group Name drop-down list	Choose the initiator group under which the initiator is to be added.
Initiator Name field	A unique name that you assign to this initiator.
Force check box	Check this check box to forcibly add the initiator to the group.

**Step 7** Click **Create**.

## 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 ONTAP account and select the NetApp ONTAP account.

**Step 3** Click the filer and click **View Details**.

**Step 4** Click the **LUNs** tab.

The LUNs available in the volume are displayed. The **LUNs** 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 LUN in the NetApp ONTAP account.

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

Action	Description
View Details	Displays summary and service request details of the LUN.

Action	Description
View Connectivity	Displays connectivity of the LUNs to Datastores. Cisco UCS Director provides the four types of view mode: Hierarchical, Concentric, Circular, and Force Directed. Depending on the view mode that you choose, you can adjust item spacing, distance, radius, rigidity, and force distance.
On/Off	Moves the LUN to the online or offline state.
Map iGroup	Maps the LUN to one of the existing initiator groups. Choose the iGroup from the <b>Initiator Group</b> drop-down list. Check the <b>Specify LUN ID</b> check box to specify the LUN ID. If not specified, the system generates a LUN ID automatically.
Unmap iGroup	Unmaps the iGroup from the selected LUN.
Resize	Resizes the LUN. To resize the LUN, complete the following fields: <ol style="list-style-type: none"> <li>1 <b>LUN Name</b> field—<i>Display Only</i>. The name of the LUN.</li> <li>2 <b>Current LUN Size</b> field—<i>Display Only</i>. The current size of the LUN.</li> <li>3 <b>New Size</b> field—The required size of the LUN.</li> <li>4 <b>Size Units</b> drop-down list—Choose the size of the LUN as <b>MB</b>, <b>GB</b>, or <b>TB</b>.</li> </ol>
Move	Moves the LUN to a new path.
Clone	Clones the LUN in another destination.
Modify ID	Changes the LUN ID.
Delete	Deletes 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 in which you want to create the LUN.
LUN Name field	The name of the LUN.
LUN Size field	The size of the LUN to be created.
Size Unit 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 the OS type from the list.
Space Reserve check box	By default, the LUN has a reserved space. Check this check box to manage the space usage manually and to create a LUN without any space being reserved.

**Step 4** Click **Create**.

## Managing Volumes

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 ONTAP account to view the list of Filers.

**Step 3** Click the filer and click **View Details**.

Cisco UCS Director displays information about the selected filer. Click the tabs in the window for more details about the filer component.

**Step 4** Click the **Volumes** tab.

Cisco UCS Director displays the volumes available in the account. The **Volumes** 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 volume in the NetApp ONTAP account.

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

Action	Description
View Details	Displays a summary of the volume. Click the tabs in the window for more details about the following volume component: <ul style="list-style-type: none"> <li>• Qtrees</li> <li>• LUNs</li> <li>• Snapshot</li> <li>• Service request details</li> </ul>
Delete	Deletes the volume.
Online	Moves the volume to the online state.
Offline	Moves the volume to the offline state.
Resize	Resizes an existing volume. To resize the volume, complete the following fields: <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> <li>5 <b>File System Size Fixed</b> check box—Check this check box to fix the file system size.</li> </ol>
Dedup On	Enables data deduplication on the volume.
Dedup Off	Disables data deduplication on the volume.

Action	Description
<b>NFS Export</b>	<p>Exports the volume as a file through NFS.</p> <p>To export the volume, complete the following fields:</p> <ol style="list-style-type: none"> <li><b>1 Actual Path</b> field—<i>Display Only</i>. The actual path of the selected Volume.</li> <li><b>2 Export Path</b> field—The path where the volume should be mounted in the UNIX environment.</li> <li><b>3 Read-Write Hosts</b> field—The comma-separated list of hosts that have read write access to the volume.</li> <li><b>4 Root Hosts</b> field—The comma-separated list of hosts that have root access to the volume.</li> <li><b>5 Security</b> drop-down list—Choose the security applicable for this export.</li> <li><b>6 Persists NFS Export Rule</b> check box—Check this check box to persist the NFS export rule.</li> </ol>
<b>Snapshot</b>	<p>Creates a snapshot for the Volume.</p> <p>To create a snapshot of the volume, complete the following fields:</p> <ol style="list-style-type: none"> <li><b>1 Volume Name</b> field—<i>Display Only</i>. The name of the selected volume.</li> <li><b>2 Snapshot Name</b> field—The name of the Snapshot.</li> <li><b>3 Is Valid LUN Clone Snapshot</b> check box—Check this check box when the snapshot create has been requested by snapvault so that all backup snapshots for the LUN clones are locked.</li> <li><b>4 Async</b> check box—Check this check box to create the snapshot asynchronously.</li> </ol>
<b>Resize Snapshot</b>	<p>Resizes the snapshot space allocated on a volume. The space within a volume can be defined for the snapshots taken on a volume in terms of percentage.</p> <ol style="list-style-type: none"> <li><b>1 Current Snapshot Reserved (%)</b>—<i>Display Only</i>. The current percentage of volume space reserved for snapshots.</li> <li><b>2 New Percentage (%)</b>—The percentage of volume space to be reserved for snapshots.</li> </ol>

## Creating a Volume

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

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

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

Name	Description
Aggregate pane	Select an aggregate to create the volume.
Space Guarantee drop-down list	Choose one of the following as the space guarantee to allocate space for the volume in the aggregate: <ul style="list-style-type: none"> <li>• Volume</li> <li>• File</li> <li>• None</li> </ul>
Volume Name field	The name of the volume.
Volume Size field	The size of the volume to be created.
Size Unit drop-down list	Choose the size of the volume as <b>MB</b> , <b>GB</b> , or <b>TB</b> .
Snapshot Size field	The snapshot size as a percentage.
Security Style NTFS check box	Check this check box to set the security style as NTFS.
NFS Export check box	Check this check box to create the NFS export path automatically.

**Step 4** Click **Create**.

# Managing SnapMirror Relationships

NetApp SnapMirror software is an enterprise-level disaster recovery and data distribution solution. SnapMirror mirrors data to one or more network filers at high speed over LAN or WAN connections.

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

**Step 2** In the left pane, choose the pod that includes NetApp ONTAP account to view the list of Filers in the account.

**Step 3** Click the filer and click **View Details**.

Cisco UCS Director displays information about the selected filer. Click the tabs in the window for more details about the filer component.

**Step 4** Click the **SnapMirrors** tab.

Cisco UCS Director displays a list of SnapMirror relationships that are created in the account. The **SnapMirror** tab provides the following actions:

Name	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 Connection</b>	Sets up a new connection.
<b>Delete Connection</b>	Deletes a SnapMirror connection.
<b>Remote Access</b>	Provides access to a remote filer (source filer) to the destination volume.
<b>Schedules</b>	Creates a SnapMirror schedule.
<b>Enable</b>	Turns on SnapMirror.
<b>Disable</b>	Turns off SnapMirror.

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

Action	Description
<b>Inventory</b>	Runs a SnapMirror inventory.
<b>View Details</b>	Displays the status history and allows you to edit, delete, and run the inventory on a schedule.

Action	Description
<b>Initialize</b>	Initializes a SnapMirror relationship. After initializing a SnapMirror relationship, you get the following actions: <ul style="list-style-type: none"> <li>• <b>Quiesce</b>—Pauses a transfer to the destination.</li> <li>• <b>Break</b>—Breaks the SnapMirror relationship. You cannot check whether the operation is legal, or whether it is successful. The result is updated after the inventory is collected in this task.</li> <li>• <b>Update</b>—Updates the SnapMirror relationship.</li> </ul>
<b>Delete</b>	Deletes the SnapMirror relationship.

## Configuring a SnapMirror Relationship

- Step 1** Navigate to the **SnapMirrors** tab.  
For more information about how to navigate to the **SnapMirrors** tab, see [Managing SnapMirror Relationships, on page 23](#).
- Step 2** Click **Create Connection**.
- Step 3** In the **Configure** dialog box, complete the following fields:

Name	Description
<b>Connection Name</b> drop-down list	Choose the connection name to modify the connection. Choose <b>New Connection</b> to create a new connection.
<b>New Connection Name</b> field	If you have chosen to configure a new connection, enter the name of the connection in the field.
<b>Mode</b> drop-down list	Choose one of the following as the type of mode: <ul style="list-style-type: none"> <li>• <b>Multi</b></li> <li>• <b>Failover</b></li> </ul> <p><b>Note</b> In multi-mode, the first address pair provides a connection path. In failover mode, the first address pair provides the preferred connection path.</p>
<b>Source Address</b> field	The source address in the form of the filer name or IP address in the <b>Address Pair 1</b> and <b>Address Pair 2</b> area.



Name	Description
Destination Address field	The source address in the form of the filer name or IP address in the <b>Address Pair 1</b> and <b>Address Pair 2</b> area.

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

## Scheduling a SnapMirror Relationship

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

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

**Step 3** Click the filer and click **View Details**.

Cisco UCS Director displays information about the selected filer. Click the tabs in the window for more details about the filer component.

**Step 4** Click the **SnapMirrors** tab.

**Step 5** Click **Schedules**.

**Step 6** In the **Schedules** window, do the following:

- a) Click the **Add** icon in the **Schedules** pane.
- b) In the **Add Entry to Schedule** dialog box, complete the following fields and click **Submit**.

Name	Description
Source Location field	Click <b>Select</b> and choose the source locations of a schedule to set.
Select Option drop-down box	Choose one of the following options to choose either an existing volume or a new volume in the current filer or vfiler: <ul style="list-style-type: none"> <li>• <b>Existing Destination</b></li> <li>• <b>New Destination</b></li> </ul>
Destination Location drop-down box	Choose the destination location.
Minutes field	Minutes in the hour for which the schedule is set. Possible values are (-) = match nothing, (1) = match minute 1, (1,3) = match minute 1 and 3, and (*) = match all possible legal values.

Name	Description
<b>Hours</b> field	Hours in the day for which the schedule is set. Possible values are (-) = match nothing, (1) = match hour 1, (1,3) = match hour 1 and 3, and (*) = match all possible legal values.
<b>Days of Month</b> field	Days in the month for which the schedule is set. Possible values are (-) = match nothing, (1) = match day 1, (1,3) = match day 1 and 3, (2-5) = match day 2,3,4,5, and (*) = match all possible legal values.
<b>Days of Week</b> field	Days in the week for which the schedule is set. 0 represents Sunday, and 6 represents Saturday. Possible values are (-) = match nothing, (1) = match day 1 (Monday), (1,3) = match day 1 (Monday) and 3 (Wednesday), (2-5) = match day 2,3,4,5 (Tuesday to Friday), and (*) = match all possible legal values.
<b>Max Transfer Rate (KB)</b> field	Maximum transfer rate kilobytes per second.

c) Click **Submit**.

## Managing SnapVault Relationships

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. The SnapVault relationships can be managed through the SnapMirrors tab.

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- Step 1** On the menu bar, choose **Physical > Storage**.
- Step 2** On the left pane, choose the pod that includes the NetApp ONTAP account. The NetApp ONTAP account displays the list of Filers in the account.
- Step 3** Choose the filer and then click **View Details**. Cisco UCS Director displays information about the selected filer.
- Step 4** Click the **SnapVault** tab. Cisco UCS Director displays a list of SnapVault relationships that have been created on the filer. For each SnapVault relationship, the SnapVault tab displays information such as the source volume, the destination volume, the source system, transfer rate, and tries count.
- The **SnapVault** tab provides the following actions:

Name	Description
Refresh	Refreshes the current page.
Favorite	Adds this page to the <b>Favorites</b> tab.
Create	Sets up a new SnapVault relationship.

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

Action	Description
Delete	Deletes the SnapVault relationship.
Modify	Updates an existing SnapVault relationship.
Release	Releases the SnapVault relationship.
Abort	Aborts the SnapVault transfer before it is complete.
Update	Starts a fresh SnapVault transfer.
Restore	Restores the previous SnapVault relationship.

## Creating a SnapVault Relationship

- Step 1** On the menu bar, choose **Physical > Storage**.
- Step 2** On the left pane, choose the pod that includes the NetApp ONTAP account. The NetApp ONTAP account displays the list of Filers in the account.
- Step 3** Choose the filer and then click **View Details**. Cisco UCS Director displays information about the selected filer.
- Step 4** Click the **SnapVault** tab. Cisco UCS Director displays a list of SnapVault relationships that have been created on the filer.
- Step 5** On the SnapVault tab, click **Create**. The Create SnapVault dialog box appears.
- Step 6** In the **Create SnapVault** dialog box, complete the following fields:

Name	Description
Source Path drop-down list	Choose the source qtree from which the data has to be transferred.
Destination Path drop-down list	Choose the destination volume to which the data has to be copied.
New Destination QTree Name field	Enter the new destination qtree name to which the data has to be copied. The new qtree will be created in the selected destination volume.
Maximum Transfer Rate field	Optionally, you can enter the number of kilobytes that can be transferred.
Tries Count field	Specify the maximum number of tries to connect to the source volume before giving up.
Connection field	Specify the IP connection mode when the source is contacted for transfer.
Use Compression field	Set this option to ON when the data transferred from the source is compressed.

**Step 7** Click **Submit**.

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## Viewing Schedules and Status History of SnapVault Relationships

You can view the schedules and status history of the SnapVault relationships through the SnapMirrors tab.

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

**Step 2** On the left pane, choose the pod that includes the NetApp ONTAP account. The NetApp ONTAP account displays the list of Filers in the account.

**Step 3** Choose the filer and then click **View Details**. Cisco UCS Director displays information about the selected filer.

**Step 4** Click the **SnapVault** tab. Cisco UCS Director displays a list of SnapVault relationships that have been created on the filer. For each SnapVault relationship, the SnapVault tab displays information such as the source volume, the destination volume, the source system, transfer rate, and tries count.

- Step 5** Double-click the SnapVault relationship for which you want to view the schedules and status history. By default, the **Schedules** report appears. The Schedules report displays the available schedules for the selected SnapVault relationship.
- Step 6** To view the status history of the SnapVault relationship, from the **Report** list, select **Status History**. The **Status History** report displays the status of the schedules for the selected SnapVault relationship.

## Creating CIFS Shares

- Step 1** Navigate to the **Volumes** tab.  
For more information about how to navigate to the **Volumes** tab, see [Managing Volumes](#), on page 19.
- Step 2** Click the volume.
- Step 3** Choose **Create CIFS Share** from the drop-down list.
- Step 4** In the **Add CIFS Share** dialog box, complete the following fields:

Name	Description
Share Name field	A unique name that you assign to the CIFS share.
Comment field	Comments, if any.

- Step 5** Click **Share**.

## Setting CIFS Share Access

- Step 1** Navigate to the **Volumes** tab.  
For more information about how to navigate to the **Volumes** tab, see [Managing Volumes](#), on page 19.
- Step 2** Click the Volume.  
You get various actions to perform on the selected volume.
- Step 3** Expand the drop-down list and choose **Set CIFS Share Access**.
- Step 4** In the **Set CIFS Share Access** dialog box, complete the following fields:

Name	Description
Volume Name field	<i>Display-only</i> field. The name of the volume.
Share Name drop-down list	Choose the share for which you want to provide access.

Name	Description
Select Role drop-down list	Choose the role from the available list.
Role ID field	A role ID.
Domain Name field	Enter a domain name.
Access Type drop-down list	Choose one of the following as the access type: <ul style="list-style-type: none"> <li>• Read</li> <li>• Change</li> <li>• Full Control</li> <li>• No Access</li> </ul>
Comment field	Comments, if any.

**Step 5** Click **Submit**.

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## Managing QTrees and Creating Quotas

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 ONTAP account and select the account to view the list of filers.

**Step 3** Click the filer and click **View Details**.

Cisco UCS Director displays information about the selected filer. Click the tabs in the window for more details about the filer component.

**Step 4** Click the **Qtrees** tab.

Cisco UCS Director displays the Qtrees available in the account. The QTree 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.

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

Action	Description
Delete	Deletes a QTree after confirmation.
Create Quota	<p>Creates a quota in the QTree.</p> <p>To create a quota, complete the following fields:</p> <ul style="list-style-type: none"> <li>• <b>Volume Name</b>—<i>Display Only</i>. The name of the volume.</li> <li>• <b>QTree Name</b>—<i>Display Only</i>. The name of the QTree.</li> <li>• <b>Disk Space Hard Limit (GB)</b>—The maximum disk space value in GB.</li> <li>• <b>Disk Space Soft Limit (GB)</b>—The soft limit disk space value in GB.</li> <li>• <b>Files Hard Limit</b>—The maximum number of files in the quota.</li> <li>• <b>Files Soft Limit</b>—The soft limit for the number of files in the quota.</li> <li>• <b>Threshold (GB)</b>—The threshold limit disk space value in GB.</li> <li>• <b>Quota Type</b>—Choose <b>Tree</b> from the drop-down list.</li> </ul>

## Creating a QTree

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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 and Creating Quotas" topic.
- Step 2** To create a new QTree, click the **Volumes** tab and select the volume in which you want to create the QTree.
- Step 3** Choose **Create QTree** from the purple drop-down list on the right pane.
- Step 4** In the **Create QTree** dialog box, complete the following fields:
- a) In the **QTree Name** field, enter the name of the QTree.
  - b) Click **Create**.
-

# 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 ONTAP account and select the ONTAP 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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