



# 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:

- Aggregates
- Volumes
- QTrees
- Quotas

- VMs
- LUNs
- Disks
- Initiator Groups
- Initiators
- License
- SnapMirrors
- SnapVault
- 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 **Disks**, all the disks that are available in that account are displayed. Click the row of the disk and then 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.

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- Step 1** Choose **Physical > Storage**.
- Step 2** On the **Storage** page, choose the pod.
- Step 3** On the **Storage** page, click **Storage Accounts**.
- Step 4** Click the row with the NetApp ONTAP account and then click **View Details**.
- Step 5** Click **Filers**.
- Step 6** Click the row of a filer and the following actions become available:

Action	Description
View Details	Displays information about the current status of the selected component.

Action	Description
Persist Network Configuration	Displays the number of changes detected between the previously saved persistent configuration and the newly generated persistent configuration.
Add Hosts	Allows you to update the IP address and name of remote system for host address resolution.

## Managing Virtual Machines

- Step 1** Choose **Physical > Storage**.
- Step 2** On the **Storage** page, choose the pod.
- Step 3** On the **Storage** page, click **Storage Accounts**.
- Step 4** Click the row with the NetApp ONTAP account and then click **View Details**.
- Step 5** Click **Filers**.
- Step 6** Click the row of a filer and then click **View Details**.
- Step 7** On the **Storage Filer** page, click **VMs**.

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

Action	Description
View Details	Displays summary and service request details of the VM.
Stack View	Displays the stack view of the VM.
Access VM Credentials	Displays the credentials of the VM.
Launch VM Client	<p>Launches the VM client through one of the following access scheme:</p> <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.</li> </ul> <p><b>Note</b> You can choose only groups with valid virtual data center (VDC).</p> <ul style="list-style-type: none"> <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
<p><b>Power ON</b></p>	<p>Turns on the VM.</p> <p>To turn on 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>Task</b> field—<i>Display Only</i>. The task to be applied for the VM.</li> <li>3. <b>Comments</b> field—Comments, if any.</li> <li>4. <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>
<p><b>Power OFF</b></p>	<p>Turns off the VM.</p> <p>To turn off 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>Task</b> field—<i>Display Only</i>. The task to be applied for the VM.</li> <li>3. <b>Comments</b> field—Comments, if any.</li> <li>4. <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

- Step 1** Choose **Physical > Storage**.
- Step 2** On the **Storage** page, choose the pod.
- Step 3** On the **Storage** page, click **Storage Accounts**.
- Step 4** Click the row with the NetApp ONTAP account and then click **View Details**.
- Step 5** Click **Filers**.
- Step 6** Click the row of a filer and then click **View Details**.
- Step 7** On the **Storage Filer** page, click **Interfaces**.

## Creating a VLAN

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- Step 1** Choose **Physical > Storage**.
- Step 2** On the **Storage** page, choose the pod.
- Step 3** On the **Storage** page, click **Storage Accounts**.
- Step 4** Click the row with the NetApp ONTAP account and then click **View Details**.
- Step 5** Click **Filers**.
- Step 6** Click the row of a filer and then click **View Details**.
- Step 7** On the **Storage Filer** page, click **Interfaces**.
- Step 8** Click **Create VLAN** and complete the required fields:
- From the **Select Interface** drop-down list, choose a network interface from the list of physical interfaces and interface groups.
  - In the **VLAN ID** field, enter a range of 0 to 4094.
- Step 9** Click **Create**.
- 

## 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.

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- Step 1** Choose **Physical > Storage**.
- Step 2** On the **Storage** page, choose the pod.
- Step 3** On the **Storage** page, click **Storage Accounts**.
- Step 4** Click the row with the NetApp ONTAP account and then click **View Details**.
- Step 5** Click **Filers**.
- Step 6** Click the row of a filer and then click **View Details**.
- Step 7** On the **Storage Filer** page, click **IP Spaces**.

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

Action	Description
<b>Create</b>	Creates an IP space in the filer.
<b>View Details</b>	Displays the service request details of the IP space.
<b>Delete</b>	Deletes the selected IP space after confirmation.
<b>Assign</b>	Assigns the IP space to a VLAN.

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## Creating an IP Space

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- Step 1** Choose **Physical > Storage**.
  - Step 2** On the **Storage** page, choose the pod.
  - Step 3** On the **Storage** page, click **Storage Accounts**.
  - Step 4** Click the row with the NetApp ONTAP account and then click **View Details**.
  - Step 5** Click **Filers**.
  - Step 6** Click the row of a filer and then click **View Details**.
  - Step 7** On the **Storage Filer** page, click **IP Spaces**.
  - Step 8** Click **Create**, and in the **IP Space Name** field, enter the IP space name.
  - Step 9** Click **Create**.
- 

## 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.

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- Step 1** Choose **Physical > Storage**.
  - Step 2** On the **Storage** page, choose the pod.
  - Step 3** On the **Storage** page, click **Storage Accounts**.
  - Step 4** Click the row with the NetApp ONTAP account and then click **View Details**.
  - Step 5** Click **Filers**.
  - Step 6** Click the row of a filer and then click **View Details**.
  - Step 7** On the **Storage Filer** page, click **vFilers**.

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

Action	Description
<b>Create</b>	Creates a vFiler in the NetApp ONTAP account.
<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>1. <b>Assign To Users</b> check box—Check this box to allow resource assignment to users.</li> <li>2. <b>Group</b> drop-down list—Choose a group to which the vFiler has to be assigned.</li> <li>3. <b>Label</b> field—Enter 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>1. <b>Host IP</b> field—Enter the Host IP address.</li> <li>2. <b>Host Name</b> field—Enter 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** Choose **Physical > Storage**.

**Step 2** On the **Storage** page, choose the pod.



- Step 3** On the **Storage** page, click **Storage Accounts**.
- Step 4** Click the row with the NetApp ONTAP account and then click **View Details**.
- Step 5** Click **Filers**.
- Step 6** Click the row of a filer and then click **View Details**.
- Step 7** On the **Storage Filer** page, click **vFilers**.
- Step 8** Click **Create**.
- Step 9** On the **Create vFiler** screen, complete the following fields:

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

- Step 10** Click **Create**.

## Setting up a vFiler

- Step 1** Choose **Physical > Storage**.
- Step 2** On the **Storage** page, choose the pod.
- Step 3** On the **Storage** page, click **Storage Accounts**.
- Step 4** Click the row with the NetApp ONTAP account and then click **View Details**.
- Step 5** Click **Filers**.
- Step 6** Click the row of a filer and then click **View Details**.
- Step 7** On the **Storage Filer** page, click **vFilers**.
- Step 8** Click the row of the vFiler and then click **Setup**.
- Step 9** On the **Setup vFiler** screen, complete the following fields:

Name	Description
Subnet Mask field	Enter the subnet mask of the vFiler.
DNS Domain field	Enter the DNS domain.
DNS Server Addresses field	Enter a comma-separated list of DNS server IP addresses.
Default Gateway field	Enter the default gateway IP address.
Interface Name drop-down list	Choose a VLAN interface.

Name	Description
Protocols check boxes	Check the box for each protocol that the vFiler supports: <ul style="list-style-type: none"> <li>• IP</li> <li>• TCP</li> <li>• UDP</li> <li>• ICMP</li> </ul>

**Step 10** Click **Submit**.

## Setting up a CIFS Server for a vFiler

**Step 1** Choose **Physical > Storage**.

**Step 2** On the **Storage** page, choose the pod.

**Step 3** On the **Storage** page, click **Storage Accounts**.

**Step 4** Click the row with the NetApp ONTAP account and then click **View Details**.

**Step 5** Click **Filers**.

**Step 6** Click the row of a filer and then click **View Details**.

**Step 7** On the **Storage Filer** page, click **vFilers**.

**Step 8** Click the row of the vFiler and then click **Setup CIFS**.

**Step 9** On the **Setup CIFS** screen, complete the following fields:

Name	Description
Authentication drop-down list	Choose <b>Active Directory</b> .  The authentication style determines the method by which clients are authenticated when connecting to the CIFS Server.
Security Style drop-down list	Choose <b>NTFS</b> or <b>Multi-Pprotocol</b> .  The security style determines whether the CIFS service will support multi-protocol access.
DNS Domain Name field	Enter the name of the domain that the CIFS server will join.  It can be NetBIOS or any fully-qualified domain name; for example, cifsdomain, cifs.domain.com.
Login User field	Enter 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.
Login Password field	Enter the password of the login user.
Organizational Unit field	Enter the name of the organizational unit.

Name	Description
Site Name field	Enter the name of the site to which the CIFS service will become a member.
vFiler Root Password field	Enter the password of the vFiler root user.

- Step 10** Click **Submit**.  
The CIFS service starts automatically when this configuration is completed. You can stop the CIFS service by clicking **Stop CIFS**.

## 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** Choose **Physical > Storage**.  
**Step 2** On the **Storage** page, choose the pod.  
**Step 3** On the **Storage** page, click **Storage Accounts**.  
**Step 4** Click the row with the NetApp ONTAP account and then click **View Details**.  
**Step 5** Click **Filers**.  
**Step 6** Click the row of a filer and then click **View Details**.  
**Step 7** On the **Storage Filer** page, click **Aggregates**.

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

Action	Description
<b>Create</b>	Creates an aggregate in the NetApp ONTAP account.
<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 Tags</b>	<p>Adds a tag to the aggregate, edits the assigned tag, and deletes 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** Choose **Physical > Storage**.
- Step 2** On the **Storage** page, choose the pod.
- Step 3** On the **Storage** page, click **Storage Accounts**.
- Step 4** Click the row with the NetApp ONTAP account and then click **View Details**.
- Step 5** Click **Filers**.
- Step 6** Click the row of a filer and then click **View Details**.
- Step 7** On the **Storage Filer** page, click **Aggregates**.
- Step 8** Click **Create**.
- Step 9** On the **Create Aggregate** screen, complete the following fields:

Name	Description
<b>Aggregate Name</b> field	Enter the name of the aggregate.
<b>Disk Count</b> field	Enter the number of disks in the aggregate.
<b>Disk List</b> check boxes	Check the boxes to select the disks.
<b>Raid Type</b> drop-down list	Choose the RAID type.

- Step 10** Click **Submit**.

# Managing Initiator Groups

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

- Step 1** Choose **Physical > Storage**.
- Step 2** On the **Storage** page, choose the pod.
- Step 3** On the **Storage** page, click **Storage Accounts**.
- Step 4** Click the row with the NetApp ONTAP account and then click **View Details**.
- Step 5** Click **Filers**.
- Step 6** Click the row of a filer and then click **View Details**.
- Step 7** On the **Storage Filer** page, click **Initiator Groups**.

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>Create</b>	Creates an initiator group in the NetApp ONTAP account.
<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.

## Creating an Initiator Group

- Step 1** Choose **Physical > Storage**.
- Step 2** On the **Storage** page, choose the pod.
- Step 3** On the **Storage** page, click **Storage Accounts**.
- Step 4** Click the row with the NetApp ONTAP account and then click **View Details**.
- Step 5** Click **Filers**.
- Step 6** Click the row of a filer and then click **View Details**.
- Step 7** On the **Storage Filer** page, click **Initiator Groups**.
- Step 8** Click **Create**.
- Step 9** On the **Create Initiator Group** screen, complete the following fields:

Name	Description
<b>Initiator Group Name</b>	Enter a unique name that you assign to this initiator group.

Name	Description
Group Type drop-down list	Choose the type of the initiator group from one of the following: <ul style="list-style-type: none"> <li>• ISCSI</li> <li>• FCP</li> </ul>
OSType drop-down list	Choose the OS type of the initiators within the group.
Portset field	Enter the name of a current port set to bind to the newly created igroup.

**Step 10** Click **Create**.

## Creating an Initiator

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

- Step 1** Choose **Physical > Storage**.
- Step 2** On the **Storage** page, choose the pod.
- Step 3** On the **Storage** page, click **Storage Accounts**.
- Step 4** Click the row with the NetApp ONTAP account and then click **View Details**.
- Step 5** Click **Filers**.
- Step 6** Click the row of a filer and then click **View Details**.
- Step 7** On the **Storage Filer** page, click **Initiators**.
- Step 8** Click **Create**.
- Step 9** On the **Create Initiator** screen, 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	Enter a unique name that you assign to this initiator.
Force check box	Check this box to forcibly add the initiator to the group.

**Step 10** 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** Choose **Physical > Storage**.
- Step 2** On the **Storage** page, choose the pod.
- Step 3** On the **Storage** page, click **Storage Accounts**.
- Step 4** Click the row with the NetApp ONTAP account and then click **View Details**.
- Step 5** Click **Filers**.
- Step 6** Click the row of a filer and then click **View Details**.
- Step 7** On the **Storage Filer** page, click **LUNs**.

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

Action	Description
<b>Create</b>	Creates a LUN in the NetApp ONTAP account.
<b>View Details</b>	Displays summary and service request details of the LUN.
<b>View Connectivity</b>	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.
<b>On/Off</b>	Moves the LUN to the online or offline state.
<b>UnMap iGroup</b>	Unmaps the iGroup from the selected LUN.
<b>Map iGroup</b>	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> box to specify the LUN ID. If not specified, the system generates a LUN ID automatically.
<b>Resize</b>	Resizes the LUN. To resize the LUN, complete the following fields: <ol style="list-style-type: none"> <li><b>New Size</b> field—Enter the required size of the LUN.</li> <li><b>Size Unit</b> drop-down list—Choose the size of the LUN as <b>MB</b>, <b>GB</b>, or <b>TB</b>.</li> </ol>
<b>Move</b>	Moves the LUN to a new path.
<b>Clone</b>	Clones the LUN in another destination.
<b>Modify ID</b>	Changes the LUN ID.
<b>Delete</b>	Deletes the LUN.

## Creating a LUN

- Step 1** Choose **Physical > Storage**.
- Step 2** On the **Storage** page, choose the pod.
- Step 3** On the **Storage** page, click **Storage Accounts**.
- Step 4** Click the row with the NetApp ONTAP account and then click **View Details**.
- Step 5** Click **Filers**.
- Step 6** Click the row of a filer and then click **View Details**.
- Step 7** On the **Storage Filer** page, click **LUNs**.
- Step 8** Click **Create**.
- Step 9** On the **Create LUN** screen, complete the following fields:

Name	Description
<b>Select Volume</b> list	Expand the volume list and choose the volume in which you want to create the LUN.
<b>LUN Name</b> field	Enter the name of the LUN.
<b>LUN Size</b> field	Enter the size of the LUN to be created.
<b>Size Unit</b> drop-down list	Choose the size of the volume as <b>MB</b> , <b>GB</b> , or <b>TB</b> .
<b>OSType</b> drop-down list	Choose the OS type from the list.
<b>Space Reserve</b> check box	By default, the LUN has a reserved space. Check this box to manage the space usage manually and to create a LUN without any space being reserved.

- Step 10** 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** Choose **Physical > Storage**.
- Step 2** On the **Storage** page, choose the pod.
- Step 3** On the **Storage** page, click **Storage Accounts**.
- Step 4** Click the row with the NetApp ONTAP account and then click **View Details**.
- Step 5** Click **Filers**.
- Step 6** Click the row of a filer and then click **View Details**.



**Step 7** On the **Storage Filer** page, click **Volumes**.

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

Action	Description
<b>View Details</b>	Displays a summary of the volume including more details about the volume component: <ul style="list-style-type: none"> <li>• Qtrees</li> <li>• LUNs</li> <li>• VMs</li> <li>• Snapshot</li> <li>• Service request details</li> </ul>
<b>Create</b>	Creates a volume in the NetApp ONTAP account.
<b>Delete</b>	Deletes the volume.
<b>Resize</b>	Resizes an existing volume. To resize the volume, complete the following fields: <ol style="list-style-type: none"> <li>1. <b>New Size</b> field—Enter the required size of the volume.</li> <li>2. <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>3. <b>File System Size Fixed</b> check box—Check this box to fix the file system size.</li> </ol>
<b>Offline</b>	Moves the volume to the offline state.
<b>Online</b>	Moves the volume to the online state.
<b>Dedup On</b>	Enables data deduplication on the volume.
<b>Dedup Off</b>	Disables data deduplication on the volume.

Action	Description
NFS Export	<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>Export Path</b> field—Enter the path where the volume should be mounted in the UNIX environment.</li> <li><b>Read-Write Hosts</b> field—Enter the comma-separated list of hosts that have read write access to the volume.</li> <li><b>Root Hosts</b> field—Enter the comma-separated list of hosts that have root access to the volume.</li> <li><b>Security</b> drop-down list—Choose the security applicable for this export.</li> <li><b>Persists NFS Export Rule</b> check box—Check this check box to persist the NFS export rule.</li> </ol>
Snapshot	<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>Snapshot Name</b> field—Enter the name of the Snapshot.</li> <li><b>Is Valid LUN Clone Snapshot</b> check box—Check this box when the snapshot created has been requested by snapvault so that all backup snapshots for the LUN clones are locked.</li> <li><b>Async</b> check box—Check this box to create the snapshot asynchronously.</li> </ol>
Resize Snapshot	<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>Current Snapshot Reserved (%)</b>—<i>Display Only</i>. The current percentage of volume space reserved for snapshots.</li> <li><b>New Percentage (%)</b>—Enter a different percentage of volume space to be reserved for snapshots.</li> </ol>

## Creating a Volume

**Step 1** Choose **Physical > Storage**.

- Step 2** On the **Storage** page, choose the pod.
- Step 3** On the **Storage** page, click **Storage Accounts**.
- Step 4** Click the row with the NetApp ONTAP account and then click **View Details**.
- Step 5** Click **Filers**.
- Step 6** Click the row of a filer and then click **View Details**.
- Step 7** On the **Storage Filer** page, click **Volumes**.
- Step 8** Click **Create**.
- Step 9** On the **Create Flexible Volume** screen, complete the following fields:

Name	Description
Aggregate list	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>• <b>Volume</b></li> <li>• <b>File</b></li> <li>• <b>None</b></li> </ul>
Volume Name field	Enter the name of the volume.
Volume Size field	Enter 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	Enter the snapshot size as a percentage.
Security Style NTFS check box	Check this box to set the security style as NTFS.
NFS Export check box	Check this box to create the NFS export path automatically.

- Step 10** Click **Create**.

## Creating CIFS Shares

- Step 1** Choose **Physical > Storage**.
- Step 2** On the **Storage** page, choose the pod.
- Step 3** On the **Storage** page, click **Storage Accounts**.
- Step 4** Click the row with the NetApp ONTAP account and then click **View Details**.
- Step 5** Click **Filers**.
- Step 6** Click the row of a filer and then click **View Details**.
- Step 7** On the **Storage Filer** page, click **Volumes**.
- Step 8** Click the row of the volume where you want to create a CIFS share.

**Step 9** From the **More Actions** drop-down list, choose **Create CIFS Share**.

**Step 10** On the **Add CIFS Share** screen, complete the following fields:

Name	Description
Share Name field	Enter a unique name that you assign to the CIFS share.
Comment field	Enter comments, if any.

**Step 11** Click **Share**.

## Setting CIFS Share Access

**Step 1** Choose **Physical > Storage**.

**Step 2** On the **Storage** page, choose the pod.

**Step 3** On the **Storage** page, click **Storage Accounts**.

**Step 4** Click the row with the NetApp ONTAP account and then click **View Details**.

**Step 5** Click **Filers**.

**Step 6** Click the row of a filer and then click **View Details**.

**Step 7** On the **Storage Filer** page, click **Volumes**.

**Step 8** Click the row of the volume where you want to set CIFS share access.

**Step 9** From the **More Actions** drop-down list, choose **Set CIFS Share Access**.

**Step 10** On the **Set CIFS Share Access** screen, complete the following fields:

Name	Description
Share Name drop-down list	Choose the share for which you want to provide access.
Select Role drop-down list	Choose the role from the available list.
Role ID field	Enter 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	Enter comments, if any.

**Step 11** Click **Submit**.

## Managing QOS Policy Groups

The QOS policy group allows you to control the resources that can be consumed by storage objects (such as volumes, LUNs, VMDKs, or SVMs) to manage network performance.

- Step 1** Choose **Physical > Storage**.
- Step 2** On the **Storage** page, choose the pod.
- Step 3** On the **Storage** page, click **Storage Accounts**.
- Step 4** Click the row with the NetApp OnCommand account and then click **View Details**.
- Step 5** Click **QOS Policy Groups**.

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

Action	Description
Create	Creates a QOS policy group in the NetApp OnCommand account.
Modify	Changes the QOS policy group.
Delete	Deletes the QOS policy group.

## Creating a QOS Policy Group

- Step 1** Choose **Physical > Storage**.
- Step 2** On the **Storage** page, choose the pod.
- Step 3** On the **Storage** page, click **Storage Accounts**.
- Step 4** Click the row with the NetApp OnCommand account and then click **View Details**.
- Step 5** Click **QOS Policy Groups**.
- Step 6** On the **Create QOS Policy Groups** screen, complete the following fields:.

Name	Description
SVM field	Click <b>Select</b> to choose the SVM and click <b>Select</b> .
QOS Policy Group Name field	Enter the name of the QOS policy group.
Maximum Throughput field	Maximum transfer rate.
Unit of Throughput drop-down list	Choose the unit of transfer rate.

# 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** Choose **Physical > Storage**.
- Step 2** On the **Storage** page, choose the pod.
- Step 3** On the **Storage** page, click **Storage Accounts**.
- Step 4** Click the row with the NetApp ONTAP account and then click **View Details**.
- Step 5** Click **Filers**.
- Step 6** Click the row of a filer and then click **View Details**.
- Step 7** On the **Storage Filer** page, click **SnapMirrors**.

The following actions are available:

Action	Description
<b>Create Connection</b>	Sets up a new SnapMirror 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.

- Step 8** Click a row and 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.
<b>Initialize</b>	<p>Initializes a SnapMirror relationship. After initializing a SnapMirror relationship, you get the following actions:</p> <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>

Action	Description
Delete	Deletes the SnapMirror relationship.

## Configuring a SnapMirror Relationship

- Step 1** Choose **Physical > Storage**.
- Step 2** On the **Storage** page, choose the pod.
- Step 3** On the **Storage** page, click **Storage Accounts**.
- Step 4** Click the row with the NetApp ONTAP account and then click **View Details**.
- Step 5** Click **Filers**.
- Step 6** Click the row of a filer and then click **View Details**.
- Step 7** On the **Storage Filer** page, click **SnapMirrors**.
- Step 8** Click **Create Connection**.
- Step 9** On the **Configure** screen, complete the following fields:

Name	Description
Connection Name drop-down list	Choose the connection name to modify the connection. Choose <b>New Connection</b> to create a new connection.
New Connection Name field	If you have chosen to configure a new connection, enter the name of the connection in the field.
Mode 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>
Source 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.
Destination Address field	The destination 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 10** Click **Submit**.

## Scheduling a SnapMirror Relationship

- Step 1** Choose **Physical > Storage**.
- Step 2** On the **Storage** page, choose the pod.
- Step 3** On the **Storage** page, click **Storage Accounts**.
- Step 4** Click the row with the NetApp ONTAP account and then click **View Details**.
- Step 5** Click **Filers**.
- Step 6** Click the row of a filer and then click **View Details**.
- Step 7** On the **Storage Filer** page, click **SnapMirrors**.
- Step 8** Click **Schedules**.
- Step 9** On the **Schedules** screen, expand the **Schedule** list and then click **Add**.
- Step 10** On the **Add Entry to Schedule** screen, complete the following fields:

Name	Description
Source Location field	Expand the <b>Source Location</b> list and choose the source location 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>• Existing Destination</li> <li>• New Destination</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.
Hours 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.
Days of Month 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.
Days of Week 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.



Name	Description
Max Transfer Rate (KB) field	Maximum transfer rate kilobytes per second.

**Step 11** 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.

**Step 1** Choose **Physical > Storage**.

**Step 2** On the **Storage** page, choose the pod.

**Step 3** On the **Storage** page, click **Storage Accounts**.

**Step 4** Click the row with the NetApp ONTAP account and then click **View Details**.

**Step 5** Click **Filers**.

**Step 6** Click the row of a filer and then click **View Details**.

**Step 7** On the **Storage Filer** page, click **SnapVault**.

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

Action	Description
<b>View Details</b>	Displays information about the current status of the selected component.
<b>Create</b>	Sets up a new SnapVault relationship.
<b>Modify</b>	Updates an existing SnapVault relationship.
<b>Delete</b>	Deletes the SnapVault relationship.
<b>Release</b>	Releases the SnapVault relationship.
<b>Abort</b>	Aborts the SnapVault transfer before it is complete.
<b>Update</b>	Starts a fresh SnapVault transfer.
<b>Restore</b>	Restores the previous SnapVault relationship.

## Creating a SnapVault Relationship

**Step 1** Choose **Physical > Storage**.

- Step 2** On the **Storage** page, choose the pod.
- Step 3** On the **Storage** page, click **Storage Accounts**.
- Step 4** Click the row with the NetApp ONTAP account and then click **View Details**.
- Step 5** Click **Filers**.
- Step 6** Click the row of a filer and then click **View Details**.
- Step 7** On the **Storage Filer** page, click **SnapVault**.
- Step 8** Click **Create**.
- Step 9** On the **Create SnapVault** screen, complete the following fields:

Name	Description
Source Path drop-down list	Choose the source QTree from which the data has to be transferred.
Destination Volume 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 Mode field	Specify the IP connection mode when the source is contacted for transfer.
Use Compression field	Set this option to <b>On</b> when the data transferred from the source is compressed.

- Step 10** Click **Submit**.

## Viewing Schedules and Status History of SnapVault Relationships

You can also view the schedules and status history of a SnapVault relationships through **SnapMirrors**. See [Managing SnapMirror Relationships, on page 22](#).

- Step 1** Choose **Physical > Storage**.
- Step 2** On the **Storage** page, choose the pod.
- Step 3** On the **Storage** page, click **Storage Accounts**.
- Step 4** Click the row with the NetApp ONTAP account and then click **View Details**.
- Step 5** Click **Filers**.
- Step 6** Click the row of a filer and then click **View Details**.

- Step 7** On the **Storage Filer** page, click **SnapVault**.
- Step 8** Click the row of the SnapVault relationship for which you want to view the schedules and status history and then click **View Details**.
- Step 9** From the **More Reports** drop-down list, choose one of the following reports:
- **Schedules**
  - **Status History**

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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.

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- Step 1** Choose **Physical > Storage**.
- Step 2** On the **Storage** page, choose the pod.
- Step 3** On the **Storage** page, click **Storage Accounts**.
- Step 4** Click the row with the NetApp ONTAP account and then click **View Details**.
- Step 5** Click **Filers**.
- Step 6** Click the row of a filer and then click **View Details**.
- Step 7** On the **Storage Filer** page, click **Qtrees**.

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

Action	Description
Delete	Deletes a QTree after confirmation.

Action	Description
<b>Create Quota</b>	<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>Disk Space Hard Limit (GB)</b>—Enter the maximum disk space value in GB.</li> <li>• <b>Disk Space Soft Limit (GB)</b>—Enter the soft limit disk space value in GB.</li> <li>• <b>Files Hard Limit</b>—Enter the maximum number of files in the quota.</li> <li>• <b>Files Soft Limit</b>—Enter the soft limit for the number of files in the quota.</li> <li>• <b>Threshold (GB)</b>—Enter 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

- Step 1** Choose **Physical > Storage**.
- Step 2** On the **Storage** page, choose the pod.
- Step 3** On the **Storage** page, click **Storage Accounts**.
- Step 4** Click the row with the NetApp ONTAP account and then click **View Details**.
- Step 5** Click **Filers**.
- Step 6** Click the row of a filer and then click **View Details**.
- Step 7** On the **Storage Filer** page, click **Volumes**.
- Step 8** Click the row of the volume where you want to create a QTree.
- Step 9** From the **More Actions** drop-down list, choose **Create QTree**.
- Step 10** On the **Create QTree** screen in the **QTree Name** field, enter the name of the QTree.
- Step 11** 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** Choose **Physical > Storage**.

**Step 2** On the **Storage** page, choose the pod.

**Step 3** On the **Storage** page, click **Storage Accounts**.

**Step 4** Click the row with the NetApp ONTAP account and then click **View Details**.

**Step 5** Click **System Tasks**.

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

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