Abstract
This document contains detailed instructions for configuring and using HPE OneView for VMware vCenter. It is intended for system administrators who are experienced in virtual and physical IT infrastructure administration and understand server virtualization, storage, and networking concepts.
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# Contents

## Introduction to HPE OneView for VMware vCenter

- HPE OneView for VMware vCenter configuration
  - Prerequisites
  - Enhanced Linked Mode
  - Configuring vCenters
    - Adding vCenter
    - Editing vCenter details
    - Initiate vCenter refresh
    - Deleting vCenter
  - vSphere Client Administration
    - Administrator Console
    - Certificate Management
  - Configuring Server Integrations for HPE OneView for VMware vCenter
    - HPE OneView for VMware vCenter for Server credentials
  - Configuring vCenters and Storage Systems
    - Configuring HPE OneView for VMware vCenter
    - Configuring Storage System
  - HPE OneView for VMware vCenter appliance settings
    - Backup and Restore
    - Custom Properties
    - Logging
  - Role-based security

## Using HPE OneView for VMware vCenter for Servers

- Navigating HPE Server Hardware
- Accessing HPE Server Hardware
- HPE Server Hardware - Monitor
- HPE Server Hardware - Manage/Configure
- Managing HPE Enclosures
  - Enclosures infrastructure summary page
  - Enclosures infrastructure Related Objects page
  - FCoE support using HPE 5900 switch

## Provisioning HPE Servers

- Growing a cluster
  - Grow Cluster with SPT
  - Grow cluster – Choose deployment plan and target servers
  - Grow Cluster – Configure VMware hosts
  - Grow cluster – Confirmation
  - Grow Cluster using Image Streamer
  - Edit Cluster
  - Edit Cluster Deployment Plan with OS Deployment Settings

## Using HPE OneView for VMware vCenter for Storage
Introduction to HPE OneView for VMware vCenter

HPE OneView for VMware vCenter is a single, integrated plugin application for VMware's vCenter management which enables the vSphere administrator to quickly obtain context-aware information about HPE servers and HPE storage in their VMware vSphere datacenters directly from within vCenter. This application enables the vSphere administrator to easily manage physical servers and storage, datastores and virtual machines. By providing the ability to clearly view and directly manage the HPE Infrastructure from within the vCenter console, the VMware administrator's productivity increases, as does the ability to ensure quality of service.

The HPE OneView for VMware vCenter consists of server and storage components which provide the following features:

- **HPE OneView for VMware vCenter for Server**—Adds HPE ProLiant and HPE BladeSystem hardware monitoring into the HPE OneView for VMware vCenter console. Provides server hardware management capabilities, including comprehensive monitoring, firmware update, vSphere/ESXi image deployment, remote control, and end-to-end monitoring for Virtual Connect for HPE servers in the VMware environment.

- **HPE OneView for VMware vCenter for Storage**—Provides storage configuration and status information for mapping VMs, datastores, and hosts to LUNs on Hewlett Packard Enterprise storage systems. Supports provisioning on HPE 3PAR StoreServ, HPE StoreVirtual, and HPE MSA 1040/2040/2042/1050/2050/2052 storage systems. Supported provisioning tasks include creating, expanding, or deleting a datastore, and creating a VM. Displays view-only information for the HPE StoreOnce Backup systems.

HPE Oneview for VMware vCenter offers the following benefits:

- Simplified administration through integration of the physical and virtual infrastructure.
- Accurate problem indicators through the hardware events generated in the VMware vSphere management console.
- Single-click launch of trusted HPE management tools from the vSphere dashboard.
- Ability to proactively manage or view changes with detailed relationship dashboards of server, networking, and storage.
- Simplified on-demand server and storage provisioning.
- Visualization of complex configuration relationships:
  - Virtual machine mashup with storage
  - Peer persistence volumes mashup
  - Virtual connect end-to-end networking view

For installation instructions, see the *HPE OneView for VMware vCenter Installation Guide*. 
HPE OneView for VMware vCenter configuration

HPE OneView for VMware vCenter is managed as a plug-in in the vCenter Server environment. Several settings can impact the interaction between HPE OneView for VMware vCenter and vCenter server. You can manage these settings from the HPE OneView for VMware vCenter page in the vSphere Client/Web Client to perform the following tasks:

- Manage credentials (HPE OneView, HPE Insight Control server provisioning, and HPE Servers)
- Generate a self-signed certificate or certificate the signing request and upload the same.

To navigate to HPE OneView for VMware vCenter settings:

1. Login to vSphere Client/Web Client.
2. From Menu drop-down, select Administration option.
   The Administration panel is displayed in the left side.
3. Under Administration > HPE OneView for VMware vCenter selection one of the following options to manage the required settings:
   - Administrator Console
   - Certificate Management
   - Server Integrations

For more information on these options, see vSphere Client Administration.

Prerequisites

After successful installation of the HPE OneView for VMware vCenter appliance and before you configure the HPE OneView for VMware vCenter, ensure you have:

- Launched the Administrator console. For information on how to launch administration console, see HPE OneView for VMware vCenter Installation Guide.
- Added vCenters. For information on how to add vCenters, see Configuring vCenters.
- Based on the requirement, you can add servers and/or storage systems through HPE OneView for VMware vCenter. For information on how to add server credentials and/or storage systems, see HPE OneView for VMware vCenter for Server credentials and Configuring Storage System.

Enhanced Linked Mode

HPE OneView for VMware vCenter supports the Enhanced Linked Mode (ELM) feature of VMware vCenter and allows you to link multiple vCenter servers and manage the environment through a single web console. With Enhanced Linked Mode, you can search, view, configure, and access the inventory of all the linked vCenters through any vCenter web console. Installing the VMware Platform Services Controller is a prerequisite to ELM. You can install PSC either in an embedded form or externally as a separate standalone VM. You need an external PSC for linking multiple VCenters.

For more information about setting up Enhanced Linked Mode and installing PSC, see the VMware documentation.
NOTE:
HPE does not support using multiple instances of OneView for VMware vCenter in an ELM environment. You can have only one instance of OneView for VMware vCenter configured in an ELM across all connected domains, PSCs and vCenters.

NOTE:
Configure all the vCenters in linked mode using the Administrator Console for the configured storage systems to appear on the HPE Infrastructure page on the vSphere web client.

### Configuring vCenters

This section is about configuring and managing vCenters in the HPE OneView for VMware vCenter environment using Administrator Console. You can add, edit, refresh, and delete the configured vCenters in the environment.

### Adding vCenter

**Procedure**

1. Log in to Administrator Console.
2. Click the down arrow next to **HPE OneView for VMware vCenter**. The main menu is displayed.
3. Under **MANAGERS**, click **vCenters**. The vCenters page is displayed.
4. Click **+ Add vCenter** in the left pane. Alternatively, from the **Actions** drop-down list, select **Add**.
   
   **IMPORTANT:**
   Until the first vCenter appliance is added, the **Actions** button in the top right-hand corner is greyed out.

5. Provide the following details in the **Add vCenter** dialog box:
   - **Name**—Enter the vCenter Fully Qualified Domain Name or an IPv4 address.
   - **Username**—Enter the vCenter username.
   - **Password**—Enter the vCenter password.

6. Click **Add**.
   
   **NOTE:** **Add +** enables you to add another vCenter in the same dialog box.

   The screen displaying the SSL certificate details appears.

7. Review the details and click **Accept**.
Editing vCenter details

Procedure

1. Login to Administrator Console.
2. Click the down arrow next to HPE OneView for VMware vCenter.
   The main menu is displayed.
3. Under MANAGERS, click vCenters.
   The vCenters page is displayed.
4. Select the existing vCenter for which you want to modify the details.
5. From the Actions drop-down, select Edit.
6. Modify the Username and Password and click OK.

Initiate vCenter refresh

To refresh an existing vCenter, after modifying its details:

1. Select the vCenter that you want to refresh.
2. From the Actions drop-down list, select Refresh.

Deleting vCenter

Procedure

1. Login to Administrator Console.
2. Click the down arrow next to HPE OneView for VMware vCenter.
   The main menu is displayed.
3. Under MANAGERS, click vCenters.
   The vCenters page is displayed.
4. Select the vCenter that you want to delete.
5. From the Actions drop-down, select Delete.
6. Click Yes, delete to confirm the delete action.

vSphere Client Administration

The vSphere Client/Web Client home page provides access to the following administration pages. The page links are provided in the left navigation pane.
Figure 1: Administration

Under HPE OneView for VMware vCenter option:
Option | Description
--- | ---
**Getting Started** | This page provides information on accessing the information on the installed HPE OneView for VMware vCenter version. It also provides links to:
  - About HPE OneView for VMware vCenter
  - About HPE and VMware
  - Configuring the product
  - Using the product

**Administrator Console** | This page provides hyperlink to access the HPE OneView for VMware vCenter Administrator Console that enables configuration of vCenter server instances and storage systems. You can assign access permissions for storage pools belonging to the storage systems that support provisioning. You can launch the Administrator Console from this page.

**Certificate Management** | From this page you can view installed signed certificate, generate a new self-signed certificate, or generate a certificate signing request to be signed by a Certificate Authority.

**Server Integrations** | Access this page to set credentials for HPE OneView, HPE Insight Control server provisioning, and Servers, global credentials for HPE Onboard Administrator, ESXi Servers, HPE iLO and HPE Virtual Connect, and specific device credentials for HPE Onboard Administrator, Servers, HPE iLO, and HPE Virtual Connect.

**Administrator Console**

This page provides hyperlink to access the HPE OneView for VMware vCenter Administrator Console that enables configuration of vCenter server instances and storage systems.

To launch Administrator Console from vSphere Client/Web Client:

1. Navigate to **Menu > Administration**.
2. Under **HPE OneView for VMware vCenter**, click **Administrator Console**.
   - The **Administrator Console** page is displayed.

3. Click **Launch Administrator Console** link.
   - The **HPE OneView for VMware vCenter** login page is displayed.

4. Log in using username and password.
   - The **HPE OneView for VMware vCenter** page is displayed.
The **HPE OneView for VMware vCenter** provides the following options:

<table>
<thead>
<tr>
<th>Menu</th>
<th>Options</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>GENERAL</td>
<td>Activity</td>
<td>This page provides the information on all the activities performed on the appliance. You can filter the information based on:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Activities that need attention</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Type of an activity—All, Alerts, and Tasks</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Status of an activity—All, Critical, Warning, OK, Unknown, or Disabled</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• State of an activity—All, Active, Locked, Cleared, Pending, Running, Completed, Interrupted, Error, Warning, Terminated, or Killed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Time duration—Today, Last 7 days, Last 30 days, Older than 3 months, Older than 1 year, or you can also specify a date range</td>
</tr>
<tr>
<td>MANAGERS</td>
<td>vCenters</td>
<td>From this page, you can:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• <strong>Adding vCenter</strong>—Adds single or multiple vCenters</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• <strong>Edit vCenters</strong>—Modifies the details of the selected vCenter.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• <strong>Refresh vCenters</strong>—Refreshes the selected vCenter</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• <strong>Delete vCenters</strong>—Deletes the selected vCenter.</td>
</tr>
</tbody>
</table>

*Table Continued*
<table>
<thead>
<tr>
<th>Menu</th>
<th>Options</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>INFRASTRUCTURE</td>
<td>Storage Systems</td>
<td>From this page, you can:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Overview—Provides the details about the selected storage system.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• <strong>Add storage system</strong>—Adds single or multiple storage systems</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• <strong>Edit storage system</strong>—Modifies the details of the selected storage system</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• <strong>Refresh storage system</strong>—Initiates the refresh of the selected storage system</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• <strong>Delete storage system</strong>—Deletes the selected storage system.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>You can also filter the information for the storage systems based on the health status of a storage system—Critical, Warning, OK, Unknown, or Disabled.</td>
</tr>
<tr>
<td>ADMINISTRATION</td>
<td>Settings</td>
<td>From the settings page, you can:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• <strong>Management VM</strong>—configure network and DNS settings</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• <strong>Log Collection</strong>—generate logs required for logging a support call</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• <strong>Sessions</strong>—display information about all the active sessions in the appliance</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• <strong>Time</strong>—display the log in time and date</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• <strong>Upgrade</strong>—display the last upgrade activity status and update the appliance to the latest version</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• <strong>Backup and Restore</strong>—display the date and time of the last backup taken. Initiate the backup or restore from the backup of the configuration date about the servers, enclosures, and storage systems in the HPE OneView for VMware vCenter plug-in</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• <strong>Custom Properties</strong>—define custom properties for debugging with help from the support personnel</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• <strong>Logging</strong>—enable or disable trace-level logging for troubleshooting</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Users</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>From this page, you can:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• <strong>Add local user</strong>—add single or multiple local users as Administrator or Observer</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• <strong>Edit</strong>—modify the details of the selected user</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• <strong>Remove</strong>—remove a selected user</td>
</tr>
</tbody>
</table>
Certificate Management

The Certificate Management page enables you to generate a new self-signed certificate for HPE OneView for VMware vCenter or generate a certificate signing request to be signed by a Certificate Authority. You can install a certificate once it is signed.

You can perform the following tasks:

- **View installed certificate**
- **Generate a certificate signing request and install a CA-signed certificate**

Navigating to Certificate Management page

To navigate to Certificate Management page:

1. Login to vSphere Client/Web Client.
2. From Menu drop-down list, select Administration.
3. Select HPE OneView for VMware vCenter > Certificate Management.

The Certificate Management page appears.

![Certificate Management Page](image)

Figure 2: Certificate Management page

Viewing installed certificate

To view currently installed signed certificate:

**Procedure**

   The Certificate Management page is displayed.
2. Click View Installed Certificate.
   The View Installed Certificate window with the details of the certificates is displayed.
3. Click on the close icon to save and go back to the Certificate Management page.
Installing a CA-signed certificate

HPE recommends using a CA-signed certificate when using the HPE OneView for VMware vCenter with the VMware VASA provider.

To add a signed certificate:

Procedure

1. Navigate to Home > Administration > HPE OneView for VMware vCenter.
2. Click Certificate Management.
   
   The Certificate Management page is displayed.

3. Click Generate certificate signing request.
   
   The Generate Certificate Signing Request window is displayed.

4. Enter the following information in the mandatory fields:
   
   • Country
   • State
   • Locality
   • Organization
   • Common name (The fully qualified vCenter Server name)

   Additionally, you can also enter the information in the optional fields:

   • Organization unit
   • Email
   • Surname
   • Given name

   The certificate signing request is generated. A certificate request with 1024-bit encryption is generated.

5. Click the close icon to save and go back to the Certificate Management window.

6. Provide the certificate signing request to your trusted authority. The trusted authority must generate a signed certificate that matches your signing request.

7. Export the certificate using Base-64 encoding.

8. Click Install Signed Certificate.
   
   The Install Signed Certificate window opens.

9. Press ctrl+v to paste the certificate in the empty text area.

10. Click the close icon to save and go back to the Certificate Management page.

11. Restart the HPE OneView for VMware vCenter appliance.
Configuring Server Integrations for HPE OneView for VMware vCenter

Post configuring the plugin, we need to add credentials of HPE OneView for:

- HPE OneView managed hosts
- HPE Insight Control server provisioning for server provisioning
- HPE iLO, HPE Virtual Connect, ESXi, and HPE Onboard Administrator for managing non-HPE OneView hosts.

Procedure

1. Log in to the vSphere Client/Web Client home page.
2. Navigate to Menu > Administration > HPE OneView for VMware vCenter > Server Integrations.

HPE OneView for VMware vCenter for Server credentials

HPE OneView for VMware vCenter for Server credentials page enables you to manage the credentials for infrastructure integration and Hewlett Packard Enterprise management software integration. From the credentials page, you can set:

- OneView Credentials
- Deployment Manager
- Server Credentials
  - Global Device credentials
  - Device credentials

OneView Credentials

From the OneView tab, we can view and set the credentials for the HPE OneView Controllers. You can perform the following tasks:

- Add a new HPE OneView controller—Click the Add icon . If the host or the credentials are invalid, the HPE OneView controller is not added.

**NOTE:**

Starting in HPE OneView 4.0, the connection between HPE OneView and the vCenter will require a trusted certificate. This may require adding the vCenter's certificate or a CA certificate to HPE OneView using the Manage Certificates screen in HPE OneView.
NOTE: If your OneView controller is configured to authenticate using one or more Directory servers, the plugin can only authenticate against the Default Directory configured in OneView. When entering the username only enter the UserName portion of the full account username. For example if the full account username is MyUser@example.com or example\MyUser configure the plugin with the username MyUser.

- **Delete an HPE OneView controller**—Select the appropriate controller, and then click the **Delete** icon.

- **Edit an HPE OneView controller**—Select the appropriate controller and then click the **Edit** icon. Only the password can be edited.

- **OneView Configuration**—The OneView Configuration window displays the status of the registered vCenter and/or Deployment Server with the selected OneView controller. To access the OneView Configuration window select the OneView controller and then click the **icon. From the OneView Configuration window, you can perform the following tasks:
  
  - View status ([Connected, Registering, Not Registered, Configuring, and Disconnected]) of the vCenter and/or Deployment Server registered to the OneView.

    **NOTE:**
    
    For the Deployment Server status to be available, the deployment server must have been added to the OneView.

  - Re-register the vCenter or the Deployment Server if the status shows "Not Registered".
  - Deleting the vCenter or the Deployment Server will unregister the vCenter and/or the Deployment Server in the selected OneView.

To verify the status of the vCenter and/or Deployment Server registration to OneView:

1. Navigate to **Administration > HPE OneView for VMware vCenter > Server Integrations**.
   
   The **HPE Server Integrations** page is displayed.

2. Under **OneView Credentials** or **Deployment** tab, select the OneView credentials from the table, and click **icon.

   The **OneView Configurations** window is displayed.
3. Under **Cluster Management**, if the status for the vCenter is displayed as **Not Registered**, click icon to re-register the vCenter.
   The status changes to **Registering**. This process might take some time.

4. To unregister a vCenter, select the vCenter and click icon.

5. Under **Deployment**, if you have added the Deployment Server credentials to the OneView, the Deployment Server details with the status is displayed.

6. If the status for the Deployment Server is showing as **Not Registered**, click icon to re-register the Deployment Server.

7. To unregister a Deployment Server, select the Deployment Server and click icon.

8. Click **OK** or **Cancel** to close the window.

**Deployment Manager**

From the **Deployment** tab, we can set the credentials for the following management softwares:

- **HPE Insight Control server provisioning** credentials
Enter a valid Hostname/IP Address, Username, and Password and click **Save**.

Click **Test** to test the connection to HPE Insight Control server provisioning using the current values in the fields. The results of the test are displayed in an alert box - **Connected** or **Connection Denied** or **Invalid Username or Password**.

Click **Cancel** to clear the the edited fields and reload the earlier settings.

**Server Credentials**

**NOTE:**
Device credentials are no longer needed for HPE OneView managed hardware. All data will be collected from HPE OneView.

The **Servers** tab allows you to set the following:

- **Global Device** credentials
  - Global Device Credentials can be entered for ESXi, Integrated Lights Out (iLO), Onboard Administrator (OA), and Virtual Connect (VC).
  - Use global credentials if your environment uses the same credentials for all or many of the entities in the infrastructure.
  - If credentials have not been defined for an entity’s IP/Hostname, the global credential, if defined, will be used.

- **Device** credentials
  - Use individual device credentials if your environment uses different credentials for each device. The credentials must be defined for each iLO, OA, VC, and ESXi host in your environment.
  - If global OA and VC credentials are not defined, each OA and VC must have an individual credential entry. This includes secondary OA modules and subordinate VC modules.
  - You can add, delete, or import credentials configured for the system.
    - **Add new credentials**—Click the **Add** icon 🔄, and then enter credentials.
    - **Delete credentials**—Select the appropriate entry, and then click the **Delete** icon ❌.
    - **Edit credentials**—Select the appropriate entry and then click the **Edit** icon 🍉.

**Configuring vCenters and Storage Systems**

After the HPE OneView for VMware vCenter appliance is deployed and powered on, use the HPE OneView for VMware vCenter Administrator Console to configure storage systems and vCenters.

**Configuring HPE OneView for VMware vCenter**

This section provides information about how to maintain the configuration data for vCenters and HPE storage systems in the HPE OneView for VMware vCenter appliance.
Configuring Storage System

This section is about configuring and managing storage systems in the HPE OneView for VMware vCenter environment. You can use the Actions drop-down menu to manage (Add, Edit, Refresh, and Delete) the storage systems currently configured in the environment.

NOTE:
Before proceeding, verify that the storage systems and the management servers meet the network connectivity requirements described in the HPE OneView for VMware vCenter Installation Guide.

Adding Storage System

Procedure

1. Log in to Administrator Console.
   The HPE OneView for VMware vCenter page opens.

2. Navigate to Infrastructure > Storage Systems.

3. Click + Add storage system from the master pane.

4. Provide the following details in the General pane of the Add storage system screen.
   - **Type**—Specify the type of storage system you want to add, such as HPE MSA, HPE 3PAR StoreServ, HPE StoreVirtual, or HPE StoreOnce.
   - **Name**—Specify a valid host name or an IPv4 address.
   - **Username**—Specify a valid user name.
   - **Password**—Specify a valid password.

5. Click Connect.
   The screen displaying the SSL certificate details appears.

6. Review the details and click Accept.

NOTE:
An error or a warning box appears if there are any issues related to the certificate. Address the issues, if any.

7. As part of adding storage system, you can change the access permission for individual storage pools on the storage systems or change the access for all the storage pools by performing either of the following:
a. To change access permission for individual storage pools on the storage systems, click **Read only** on the Maintenance tool to toggle the value to **Allow provisioning**.

OR

b. To change access permission for all storage pools on the storage systems, click **Set All** to toggle the value.

8. Click **Add**

   **NOTE:** **Add +** enables you to add another Storage System in the same dialog box.

   The Refresh Storage Data dialog appears.

9. Click **Yes, refresh data**.

   The **Add Storage Systems** screen displays the current health state and the refresh data status of the storage system.

   **NOTE:**
   You can postpone and initiate refresh at a later time, by clicking **Cancel**.

### Initiate Refresh

To initiate refresh at a later time:

1. Log in to the Administrator Console.
   The **HPE OneView for VMware vCenter** page is displayed.

2. Navigate to **Infrastructure > Storage Systems**.

3. From the Actions drop-down menu, select **Refresh** or click on the header of the sub menu items of **HPE Storage menu in vCenter**.

### Modifying a storage system

**Procedure**

1. Select one of the storage systems configured in HPE OneView for VMware vCenter.

2. From the **Actions** menu, click **Edit**.

3. Provide the credentials and click **Connect**.

4. Change the permissions to the storage pools, if you need to by following step 7 in **Adding Storage System**.

5. From the **Actions** menu, click **Refresh**.
Deleting a Storage System

Procedure

1. Select one of the storage systems configured in HPE OneView for VMware vCenter.
2. From the Actions menu, select Delete.
3. Click Yes, delete to confirm that you want to continue with deleting the information about the selected Storage System.

HPE OneView for VMware vCenter appliance settings

From the Settings page, you can perform any of the following tasks:

<table>
<thead>
<tr>
<th>Options</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management VM &gt;</td>
<td>To configure the network and DNS settings.</td>
</tr>
<tr>
<td>Log Collection &gt;</td>
<td>To generate logs required for logging a support call for the product.</td>
</tr>
<tr>
<td>Sessions &gt;</td>
<td>Displays information about all the active sessions (deployment, provisioning, and so on) in the appliance.</td>
</tr>
<tr>
<td>Time &gt;</td>
<td>Displays the log in time and date.</td>
</tr>
<tr>
<td>Upgrade &gt;</td>
<td>Displays the last upgrade activity status and can be used to update the appliance to the latest version.</td>
</tr>
<tr>
<td>Backup and Restore &gt;</td>
<td>Displays the date and time of the last backup taken. Used to initiate the backup or restore from the backup of the configuration date about the servers, enclosures, and storage systems in the HPE OneView for VMware vCenter plug-in. For more information, see Backup and Restore.</td>
</tr>
<tr>
<td>Custom Properties &gt;</td>
<td>Used to define the customer properties that can be used for debugging with help from the support personnel. For more information, see Custom Properties.</td>
</tr>
<tr>
<td>Logging &gt;</td>
<td>Used to enable or disable Trace-level logging, if required by the support personnel for troubleshooting. For more information, see Logging.</td>
</tr>
</tbody>
</table>

Navigating to Settings page

To navigate to Settings page:

1. From Menu drop-down, select Administration.
2. Under HPE OneView for VMware vCenter, click Administrator Console.
   The Administrator Console login page is launched.
3. Login to the Administrator Console.
   The Settings page is displayed.
Backup and Restore

Backup
You can create a backup which will replace any existing backup on the system locally. You can also download and manage the backup outside the system.

Restore
Following are the ways you can perform Restore:

- Restore from a previously downloaded backup file by browsing or dragging and dropping it into the dialog
- Restore from a local backup, if it exists.

For more information about Backup and Restore, see the *HPE OneView for VMware vCenter Installation Guide*.

Custom Properties
You can create the custom properties, as suggested by the support personnel.

Logging
Enable trace level logging, if required by the support personnel.

Role-based security
HPE OneView for VMware vCenter uses role-based security access. Windows or domain users/groups can be assigned to any of the vCenter roles. HPE OneView for VMware vCenter classifies these roles into three categories:

- Administrator—The vCenter administrator role maps to this category
- Read-only—The vCenter read-only and view-only roles map to this category
- User—All other vCenter roles map to this category

An administrator can:
• Run the setup wizard
• Edit the password database
• Use the properties link to edit properties
• Launch Hewlett Packard Enterprise management tools
• Access the HPE OneView for VMware vCenter Server vSphere Client/Web Client home page

A read-only user can:

View HPE OneView for VMware vCenter

A user can:

• Launch Hewlett Packard Enterprise management tools
• View HPE OneView for VMware vCenter

For information about assigning a user access role, see the *HPE OneView for VMware vCenter Installation Guide*. 
Using HPE OneView for VMware vCenter for Servers

HPE OneView for VMware vCenter for Server enables you to complete the following tasks when using HPE ProLiant servers and BladeSystem enclosures on the network:

After HPE OneView for VMware vCenter is installed, an **HPE Server Hardware** menu is added to the vSphere Client/Web Client under the Monitor and Manage/Configure tabs. HPE OneView for VMware vCenter for Server enables you to complete the following tasks when using ProLiant servers and BladeSystem enclosures on the network:

- Monitor health status
- Manage server information
- Manage and update firmware inventory
- Identify the physical server
- Trace network path from virtual machine to external switch
- Display deployment and network configuration features
- Display enclosure view
- Alert and event forwarding from Onboard Administrator, and CIM providers to vCenter Server

Use HPE OneView for VMware vCenter for Server to manage clusters and hosts remotely, manage system health and configuration, optimize power usage, and for Virtual Connect networking. The administrator can manage the system and monitor the Virtual Connect network, gather information about individual ProLiant servers and BladeSystem enclosures or the infrastructure, and launch certain HPE tools.

Related topics

- Navigating HPE Server Hardware
- Managing HPE Enclosures
- FCoE support using HPE 5900 switch

Navigating HPE Server Hardware

HPE OneView for VMware vCenter displays information about the servers under **HPE Server Hardware** menu. Information from HPE iLO, HPE Onboard Administrator, CIM providers, and HPE Virtual Connect Manager is compiled and displayed at both the cluster level and the host level.

- Accessing the HPE Server Hardware
- **HPE Server Hardware - Monitor**
- **HPE Server Hardware - Configure**

Accessing HPE Server Hardware

After completing the installation and configuration procedures, you use the vSphere Client/Web Client to access HPE OneView VMware for vCenter.
Procedure

1. Log into the vSphere Client/WebClient.
   The vSphere Client/Web Client home page is displayed.
2. Select a cluster, host, VM, or datastore from the left navigation pane.
3. Click the Monitor or Manage or Configure tab.
4. Click HPE Server Hardware menu option.
   Based on the selected component and tab, submenu options are displayed.
   For more information submenus, see HPE Server Hardware - Monitor and HPE Server Hardware - Manage/Configure.

HPE Server Hardware - Monitor

The HPE Server Hardware menu for the Monitor tab provides information on the configured vCenters under following categories:

- **Overview page** - Provides the details of the selected host and ports that it connects to.
- **Hardware page** - Provides detailed information about the selected host server such as health state of that server, server profile, model type, location of the server, iLO IP address, memory, serial number, product ID, and so on.
- **Firmware page** - Provides the details of the firmware component installed for the selected host.
- **Network Ports page** - Provides the details of the network ports IP address and Virtual switch.
- **Activity page** - Provides information about any active alerts in OneView or in iLO for non-OneView managed servers.
- **Network Diagram page** - Displays a graphical representation of the the network topology of the server. This feature requires HPE Blade Enclosures or Frames with HPE Interconnects.
- **Communication Status page** - Provides information about the communications status of the non-OneView managed servers.

HPE Server Hardware - Overview Page

The Overview page displays the hardware and ports information for the selected host server.
For more details on the hardware and ports, see [HPE Server Hardware - Hardware Page](#) and [HPE Server Hardware - Ports Page](#).

### Launching into HPE Tools

The Overview page for the HPE Server Hardware provides links to launch the following HPE tools:

- Integrated Lights Out
- Onboard Administrator
- Virtual Connect Manager
- HPE OneView - This link is displayed if the selected host is managed by HPE OneView. If a selected cluster contains hosts managed by HPE OneView, this link will be displayed at the cluster level also. If the cluster includes hosts managed by separate instances of HPE OneView, mouse-over the HPE OneView icon to display a popup menu with links to each HPE OneView instance.

When configured for vCenter administrators, auto-login is enabled for direct launch into the HPE tools listed in this section with the exception of HPE OneView which does not support auto-login. Users with read-only access cannot access the HPE tools. Other non-administrative vCenter Server users are prompted to enter a user name and password to access the HPE tools.

**NOTE:**

For DL servers, the Onboard Administrator launch link is unavailable.

Links that appear to be transparent indicate that the tool is inaccessible or that no data is available.
You can select the Hardware page from the drop-down menu to view the current hardware details about the selected host. The Hardware page displays the following information:

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>State</td>
<td>Defines whether OneView profile has been applied to the host or not</td>
</tr>
<tr>
<td>Server Profile</td>
<td>Name of the OneView profile applied</td>
</tr>
<tr>
<td>Server Profile Consistency</td>
<td>Consistency between the server profile and server profile template</td>
</tr>
<tr>
<td>Server power</td>
<td>Displays the state of the server power</td>
</tr>
<tr>
<td>Model</td>
<td>Displays the model number of the selected host</td>
</tr>
</tbody>
</table>

Table Continued
<table>
<thead>
<tr>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product ID</td>
<td>Displays the product id of the selected host</td>
</tr>
<tr>
<td>Serial number</td>
<td>Displays the serial number of the selected host</td>
</tr>
<tr>
<td>License</td>
<td>Displays the type of the license</td>
</tr>
<tr>
<td>UUID</td>
<td>Universally unique identifier set when a server hardware type is inserted in the bay</td>
</tr>
<tr>
<td>Virtual UUID</td>
<td>Universally unique identifies assigned to the virtual machine</td>
</tr>
<tr>
<td>iLO</td>
<td>Integrated Lights Out</td>
</tr>
<tr>
<td>Location</td>
<td>Displays the details of the rack and the bay where the host is installed</td>
</tr>
<tr>
<td>Asset tag</td>
<td>Identifies the hardware for tracking and inventory purposes</td>
</tr>
<tr>
<td>Maximum power</td>
<td>Displays the maximum power limit</td>
</tr>
<tr>
<td>CPU</td>
<td>Displays the CPU details of the selected host server</td>
</tr>
<tr>
<td>Memory</td>
<td>RAM capacity details for the server</td>
</tr>
</tbody>
</table>

**HPE Server Hardware - Ports Page**

Select the **Ports** page to see the details of the ports in use for the selected host.

**HPE Server Hardware - Firmware Page**

Select the **Firmware** page from the drop-down menu to view the firmware version details for the selected host.
HPE Server Hardware - Activity Page

Select the Activity page from the drop-down menu to view the OneView Active and Locked alerts:

The following table lists active and locked alerts under the following columns:
<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
</table>
| Status | The icon indicates the status of the task or alert. You can filter the alerts based on the following status types:  
  - All  
  - Critical  
  - Warning  
  - Serious |

<table>
<thead>
<tr>
<th>Name</th>
<th>The name or a short description of the task or alert</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
<td>The date and time of the alert</td>
</tr>
</tbody>
</table>
| State | The state of the task or the alert:  
  - All  
  - Active  
  - Locked |

**NOTE:**
This field is disabled for Non-OneView host.

| Owner | The name of the user that either started the task or is assigned to investigate the alert |

**HPE Server Hardware - Network Diagram**

The **Network Diagram** page under Monitor tab for HPE Server Hardware displays a graphical representation of the network topology of the server.

**HPE Server Hardware - Communications Status**

You can select **Communication Status** from the Overview drop-down list to view the information about the Non-OneView servers availability and displays the following information:
Table 1: Non-OneView Servers Communication Status

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management Component</td>
<td>The management components listed for Non-OneView servers are:</td>
</tr>
<tr>
<td></td>
<td>• server</td>
</tr>
<tr>
<td></td>
<td>• iLO</td>
</tr>
<tr>
<td></td>
<td>• OA</td>
</tr>
<tr>
<td></td>
<td>• VC</td>
</tr>
<tr>
<td>Description</td>
<td>Lists the description for the management components listed.</td>
</tr>
<tr>
<td>Status</td>
<td>Lists the availability status for each of the management components.</td>
</tr>
<tr>
<td>Last Update</td>
<td>Lists the time and date of the when the update for the listed management components was last collected.</td>
</tr>
</tbody>
</table>

HPE Server Hardware - Manage/Configure

The Configuration tab provides the Consistency information for:

- Cluster configuration
- Host configuration

Cluster Consistency

The Configuration Consistency page displays the consistency information for all the hosts under it on whether the Host network configuration matches the Server Profile Template and if the Server Profile matches the Server Profile Template. To view the cluster consistency information:

Procedure

1. Select the cluster.
2. Click Configure tab.
3. Click HPE Server Hardware menu.

The Configuration Consistency page for the selected cluster is displayed. The information for all the hosts under the selected cluster is displayed.

If you select, the host in the table, the consistency for the selected host is displayed.

Host Consistency

The Configuration Consistency page displays whether the VM host configuration matches the OneView Server Profile and if the Server Profile matches the cluster configuration. If there are any mismatches, the page displays the list of the recommended actions. To view the host consistency information:
Procedure

1. Select the host.
2. Click Configure tab.
3. Click HPE Server Hardware menu.
   
   The Configuration Consistency page for the selected host is displayed.

   - While Host in Consistency

   ![Checkmark] Server Profile matched with Server Profile Template
   ![Checkmark] Host Network Configuration matched with Server Profile

   The following message is displayed:

   Host Configuration does not match the Server Profile

   - While server profile not matched with SPT

   ![Exclamation mark] Server Profile does not match with Server Profile Template
   ![Checkmark] Host Network Configuration matched with Server Profile

   The following message is displayed:

   Host Configuration matches the Server Profile

You can use the Apply Recommended Actions button to trigger the recommended action and resolve the mismatch.

**NOTE:**

This option is available only for the CLRM-managed clusters and not for the standalone hosts or non-OneView hosts or clusters.

---

**Managing HPE Enclosures**

The HPE Enclosures provides information on the:
• HPE Enclosures Summary page

• HPE Enclosures More Objects page

To access HPE Enclosures:

• From Menu drop-down list, click Shortcuts.
  The Shortcuts page is displayed.

• Under Inventories, click HPE Enclosures.
  The HPE Enclosures page is displayed.

Enclosures infrastructure summary page

The Enclosures infrastructure summary page displays information for all enclosures configured in the environment. The number adjacent to the HPE Enclosures link in the left navigation panel indicates the number of enclosures in the environment.

The enclosure infrastructure information is organized into the following sections:

• **Summary**—The Summary page displays:
  
  ◦ General enclosure information including name, rack, model, UUID, serial number, VMware hosts, and number of empty bays.
  
  ◦ Pictorial representation of the current enclosure power and temperature values.
  
  ◦ The health of the enclosure is indicated using color-coded icons:

  – A green icon ( ✅ ) indicates that there are no warnings or errors for this enclosure.
  
  – A yellow icon( 🔴 ) indicates warning.
  
  – A red icon ( ⚠️ ) indicates errors.
  
  Details on the health may be obtained by logging in to the management console for the enclosure.

  • **Devices portlet**—lists the enclosure host servers and storage blades (for HPE Synergy).
  
  • **Fans portlet**—lists the enclosure fan information including model, status and bay number.
- **Interconnects portlet**—lists the interconnect information including status, product name, and bay number.
- **Power Supplies portlet**—lists the enclosure power supply information including model, status, and bay number.

**Enclosures infrastructure Related Objects page**

**Hosts**—Click on the Related Objects tab and select **Hosts** to display information for all the hosts configured in the environment. Host information includes Name, State, Status, Cluster and percentage of CPU.

**Cluster**—Click on the Related Objects tab and select **Cluster** to display information for all of the clusters configured in the environment. This feature helps you to determine where your clusters reside inside of the enclosures. The information displayed on this page includes cluster name, Available CPU, Available Memory, Available Storage, and vSphere HA. Click on the cluster you want to investigate and select **HPE Enclosure** from the list of related objects.

**HPE Enclosure**—Click **Related Objects > Host Enclosure** to display the Enclosure Name, Status, Temperature and Power parameters.

**FCoE support using HPE 5900 switch**

Starting with release 8.1, HPE OneView for VMware vCenter supports Grow Cluster with FCoE connections. The Grow Cluster supports two types of configurations:

- Boot from SAN (OS booting from the LUN which is presented through FCoE)
- Shared disk to the server, which is presented through FCoE

The Grow Cluster workflow with FCoE maintains the same ability to create and grow VMware cluster from HPE OneView profiles as is done using FC.

Grow cluster deployment having FCoE connection, you must bind the MAC address of the physical server to the Virtual Fiber Channel by performing manual configuration steps. The binding is required for the FCoE LUN to be available to the target server during build plan execution and server provisioning. The manual steps is required only if HPE 5900 switch series is used with FCoE. For information about performing these steps, see the **HPE OneView User Guide** available at [http://www.hpe.com/info/oneview/docs](http://www.hpe.com/info/oneview/docs).
Provisioning HPE Servers

This section provides information on how to:

- Grow clusters using Insight Control server provisioning
- Grow clusters using Image Streamer
- Edit clusters

Growing a cluster

Using the Grow Cluster feature, you can create or expand the capacity of an existing cluster. Grow Cluster option use HPE OneView server provisioning and image streaming for deployment of ESXi on the HPE server.

**NOTE:**

- Deployment option with HPE OneView for VMware works only when NIC0 of the server profile is configured with a network that has connectivity to HPE OneView Server Provisioning server.
- The above network can act as a vCenter management network or you can configure a unique vCenter management network on any of the NICs.
- You must enter a valid static IP from the vCenter management network for the host to be discovered in vCenter.
- Grow Cluster option is supported only with HPE OneView.

To grow a cluster:

**Procedure**

1. Launch the vSphere Client/Web Client.
2. Use one of the following methods to start the Grow Cluster wizard:
   
   a. In the left navigation pane, right-click a cluster and select **HPE Server Management Actions > Grow Cluster**.
   
   b. In the left navigation pane, select a cluster and from the VMware Actions pull-down menu select **HPE Server Management Actions > Grow Cluster**.

   The Grow Cluster wizard opens.
3. Follow the steps in the wizard.

   Help is available for each screen if you need assistance.

**Grow Cluster with SPT**

You can grow a cluster using Server Profile Template. It ensures that appropriate network interfaces, active IP pools, and other configuration parameters remain in sync at the time of cluster expansion. HPE OneView supports common host network configuration. It supports HPE OneView Server Profile Templates (SPT) to obtain the OS build plans to execute deployment to the target hardware. This ensures a successful addition of the host to the vCenter cluster with ESX deployment.
NOTE:
If HPE OneView credentials are not configured, this work flow is disabled and a warning message is displayed.

If server provisioning credentials are not configured and HPE OneView credentials are configured that do not have Image Streamer configured, then Grow Cluster is disabled.

If server provisioning credentials are not configured and HPE OneView credentials are configured that have Image Streamer configured, then Grow Cluster is enabled.

Grow cluster – Choose deployment plan and target servers

This page enables you to select the deployment plan and targets servers used to grow the cluster.

NOTE:
The Grow Cluster option works only with a HPE Insight Control server provisioning custom build plan. For more information, see Creating a custom build plan.

Procedure

1. Select a Server Profile Template.
   If the selected cluster has expanded using SPT, then the selected SPT is used as a reference for growing the cluster and is marked as read only.

2. Select an OS Build Plan. When you select SPT, you automatically get the build plans from HPE OneView, depending on whether the server provisioning credentials are saved in HPE OneView.

3. Select the target server.

   NOTE:
The target servers listed for selection are filtered based on hardware type and enclosure group of the reference profile (or reference host).

   Multiple servers can be selected. Use the check box at the top of the table to select all the targets displayed.

   NOTE:
Key points to remember when using private volumes:

- If the SPT has a private volume attached to it, the grow cluster workflow will create a private volume for deploying ESXi. If there is a private volume present, local storage will not be used for deployment.
- Multiple private volumes are not supported.
- Multiple shared volumes as part of a profile are supported.

4. Select Exit Maintenance Mode after OS deployment if you want to quit the maintenance mode after build plan execution.

5. Select either Assign Static IP or Assign IP from HPE OneView IP pools.
   The two fields are displayed depending on whether the SPT has subnet pools associated with a network.
If a management network is associated with IP pool, you can choose to assign IP from IP pool or static IP.

6. Click Next.

Grow Cluster – Configure VMware hosts

This page enables you to enter configuration information.

Procedure

1. Enter the Netmask and Gateway information.
   The DNS Domain and DNS Server information is optional.

2. Enter the NIC0 Static IP Address and ESXi Root Password for each selected target server enclosure.
   The Hostname information is optional.

NOTE:

• DHCP is not supported.

• The ESXi Root Password and Hostname are common per cluster and cannot be defined for an individual host. HPE OneView supports common host network configuration.

If you select **Assign IP from HPE OneView IP Pools**, the following network related information is displayed:

• VMotion Network
• Management Network
• Fault Tolerance Network
• Network Name: Can be either DHCP or Subnet.

NOTE:

If all the special purpose networks, like Vmotion and Fault Tolerance networks are associated with Subnet Pool, then IP is assigned from IP pool. Else, IP is obtained from DHCP for these networks.

3. Click Next.
   The confirmation screen is displayed.

Grow cluster – Confirmation

This page enables you to confirm the configuration before initiating the grow cluster operation.

Procedure

1. Review the information for accuracy.

2. Click Finish to grow the cluster.
   A message is displayed indicating where you can monitor the progress of the operation.
NOTE:
The hosts added using the grow cluster feature remain in Maintenance Mode.

Grow Cluster using Image Streamer

You can use the following steps in Image Streamer environment to grow a cluster in HPE OneView for VMware vCenter:

Procedure

1. Register OneView with HPE OneView for VMware vCenter.
2. Create a Server Profile Template in HPE OneView describing how you want the hosts in your cluster configured.
   Synergy Image Streamer uses the first NIC in the iSCSI network to place the appliance during deployment. Hence, it is mandatory to leave the NIC [:l–a] empty.
3. In the vSphere Web Client, right-click on a cluster and select **HPE Server Management Actions > Grow Cluster**.
4. Select server profile template and the customized Image Streamer Build Plan.
   Image Streamer deployment works only with a custom build plan which re-configures first NIC based on custom attribute.
5. Select the target server(s).
6. Select the **Exit Maintenance Mode** option depending on the requirement.
7. Select the IP option. User can also use Oneview based IP/Subnet pools.
   a. In case of IP/subnet pools option, you do not need to enter any IP configuration values.
   b. In case of static IP option, manually enter IP details.
8. Click **Next**.
9. Enter the network information, in case of Static IP option.
10. Enter the **ESXi Root Password**. This same password will be set for all the new hosts. This is a one time option for SPT based deployment.
11. Click **Next** and review the information.
12. Click **Finish** to grow the cluster.
   A task progress message is displayed to monitor the deployment.
   After successful deployment you can see the host(s) added to the cluster.

Edit Cluster

Edit deployment cluster plan is used to upgrade all the hosts in a cluster to a new version of ESXi.
Prerequisites

- Ensure that the cluster is consistent before performing an Edit Deployment plan operation. Refer to the Consistency tab on Clusters.
- Spare capacity on this cluster to perform vMotion.

Procedure

1. Log in to vCenter Client/Web Client.

2. Navigate to the cluster for which you want to change the Deployment Plan.

3. Right-click on a cluster in the vSphere Client/Web Client and Select HPE Server Management Actions > HPE Edit OS Deployment Plan.

   Edit Cluster Deployment Plan window appears with the OS Deployment Plan field populated.

   **NOTE:**
   Edit Cluster Deployment Plan is applicable only for Image Streamer.
   Edit Cluster Deployment Plan in HPE OneView for VMware vCenter supports only SPT without OS deployment settings. For information on how to perform Edit Cluster operations for SPT with OS deployment settings, see **Edit Cluster Deployment Plan with OS Deployment Settings**.
   The user is not allowed to define new custom attributes in the HPE OneView for VMware vCenter.

4. From the New OS Deployment Plan drop-down menu, select the Deployment Plan.

5. Add or modify the custom attributes.

   **NOTE:**
   Addition or modification of the custom attributes is optional.

6. Click redeploy.

   The Confirmation dialog box appears.

7. Click OK.

   A task progress message is displayed to monitor the deployment.
   This will redeploy the selected deployment plan to all the hosts in the cluster on non-disruptive rolling method.

**Edit Cluster Deployment Plan with OS Deployment Settings**

To perform Edit Cluster Deployment with OS settings:

Procedure

1. In HPE OneView, navigate to Server Profile Template of the cluster.

2. Click Edit and under OS Deployment, select new OS deployment plan.

3. Click OK.
The consistency state for the cluster is changed to inconsistent.

4. Click to Apply Recommended Actions.

The OS upgrade is initiated for all the hosts in the cluster to the new deployment plan selected in the SPT through rolling update.
Using HPE OneView for VMware vCenter for Storage

The HPE Storage menu is available for clusters, hosts, datastores, and virtual machines. HPE Storage menu under Monitor or Configure/Manage tabs provides following information:

- Recent events related to HPE OneView for VMware vCenter (clusters, hosts, datastore, or virtual machine).
- Health status for the storage systems.
- List of tasks performed by the plug-in.
- Provides details on the storage system summary, storage volumes, virtual disks, HBAs, path for a storage volume, replica of storage volumes, and graphical and tabular mapping information about virtual machines related to HPE Storage system.

Depending on the component selected in the inventory tree and your configuration, the information displayed varies. However, the information displayed on the top of all Management pages is consistent and displays:

- The Host, Cluster, Datastore, or VM name depending on what is selected.
- Actions - For the component selected, you can use the Actions drop-down list to create datastore (HPE Create Datastore) or create a VM from template (HPE Create VM from Template) or expand datastore (Expand Datastore) or delete datastore (Delete Datastore). The type of provisioning operations listed in the pull-down list will depend on the type of component selected in the inventory tree.
- A Settings icon to modify configuration settings.
- A cache refresh icon to refresh the cache of the Storage component.
- A help ? icon to display help files.

Navigating the HPE Storage

HPE OneView for VMware vCenter displays information about storage systems under HPE Storage menu. This section provides information on:

- Navigating to HPE Storage menu
- HPE Storage - Monitor tab
- HPE Storage - Manage/Configure tab

Accessing HPE Storage

To access HPE Storage:

**Procedure**

1. Log into the vSphere Client/Web Client.
The vSphere Client/Web Client home page is displayed.

2. Select a cluster, host, VM, or datastore from the left navigation pane.

3. Click the Monitor or Manage or Configure tab.

4. Click HPE Storage.
   The sub menu options based on the tab selected are displayed.

HPE Storage - Monitor

The HPE Storage menu for the Monitor tab provides information on the health status and recent events. It also provides information on the tasks performed by the plug-in. The following are the sub menu options available:

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HPE Storage Overview</td>
<td>This page provides information on:</td>
</tr>
<tr>
<td></td>
<td>• Navigating the product</td>
</tr>
<tr>
<td></td>
<td>• Summary of information for the options available under Monitor and</td>
</tr>
<tr>
<td></td>
<td>Manage/Configure tabs</td>
</tr>
<tr>
<td></td>
<td>• Storage inventories</td>
</tr>
<tr>
<td></td>
<td>• Configuring the product</td>
</tr>
<tr>
<td></td>
<td>• Creating datastores</td>
</tr>
<tr>
<td></td>
<td>• Creating VMs from Template</td>
</tr>
<tr>
<td></td>
<td>• Links to HPE OneView for VMware vCenter</td>
</tr>
<tr>
<td></td>
<td>• Links to information related to VMware</td>
</tr>
<tr>
<td>HPE Storage News Feed</td>
<td>Displays detailed information related to the provisioning tasks being</td>
</tr>
<tr>
<td></td>
<td>performed. For more information, see Viewing news feed information.</td>
</tr>
<tr>
<td>HPE Storage Health</td>
<td>Displays the Array name and its status. For more information, see Viewing</td>
</tr>
<tr>
<td></td>
<td>health/status information.</td>
</tr>
<tr>
<td>HPE Storage Tasks</td>
<td>This page lists the actions performed using the HPE OneView for VMware</td>
</tr>
<tr>
<td></td>
<td>vCenter GUI. It provides details like the status of the task, name of the</td>
</tr>
<tr>
<td></td>
<td>task, details of the task, username that initiated the task, start and</td>
</tr>
<tr>
<td></td>
<td>completed time of the task. For more information, see HPE Storage Tasks.</td>
</tr>
</tbody>
</table>

Viewing news feed information

HPE Storage News Feed provides information related to the provisioning tasks being performed. News feed at any level corresponds to all the tasks performed by the HPE OneView for VMware vCenter appliance.

Procedure

1. Select a component in the inventory tree.

2. Navigate to Monitor > HPE Storage > HPE Storage News Feed.
Detailed event information is displayed. The details include status, date and timestamp and a brief message.

**TIP:**

- To sort the information in a column, select the column and use the up/down arrow to the right of the column header.
- Use the **Filter** tool in the upper-right corner of the page to limit the information displayed to the specified criteria. Enter the data you want to filter on.

### Viewing health/status information

HPE Storage Health displays the Array name and its status that corresponds to the selected component.

To view a list of health/status for the array corresponding to the selected component:

**Procedure**

1. Select a component in the inventory tree.
2. Navigate to **Monitor > HPE Storage > HPE Storage Health**.

   Health information for the array from which at least one volume relates to the corresponding component is displayed. The details include Array Status and Array Name.

**TIP:**

- To sort the information in a column, select the column and use the up/down arrow to the right of the column header.
- Use the **Filter** tool in the upper-right corner of the page to limit the information displayed to the specified criteria. Enter the data you want to filter on.

### HPE Storage Tasks

HPE Storage Tasks lists the actions performed using the HPE OneView for VMware vCenter GUI. It provides details like the status of the task, name of the task, details of the task, username that initiated the task, start and completed time of the task.

**Procedure**

1. Select a component in the inventory tree.
2. Navigate to **Monitor > HPE Storage > HPE Storage Tasks**.

   Detailed task information is displayed. The details include Status, Task, Task Details, Username, Start Time, and Completed Time.
TIP:

• To sort the information in a column, select the column and use the up/down arrow to the right of the column header.

• Use the Filter tool in the upper-right corner of the page to limit the information displayed to the specified criteria. Enter the data you want to filter on.

HPE Storage - Manage/Configure

The HPE Storage menu under Manage/Configure tab provides management, detailed topology, and detailed properties of the selected component. The following are the sub-menu options available:

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>HPE Storage Overview</td>
<td>Same information as described under Monitor tab.</td>
</tr>
<tr>
<td>HPE Storage Summary</td>
<td>This page provides the details of the:</td>
</tr>
<tr>
<td></td>
<td>• HPE Storage Provisioned to Host</td>
</tr>
<tr>
<td></td>
<td>• Provisioned from Host to Virtual Machines</td>
</tr>
<tr>
<td></td>
<td>• HPE Storage Systems</td>
</tr>
<tr>
<td></td>
<td>• Datastores</td>
</tr>
<tr>
<td></td>
<td>For more information, see <a href="#">HPE Storage systems - HPE Storage Summary</a></td>
</tr>
<tr>
<td>HPE Storage Volumes</td>
<td>This page provides details on the storage volumes. For more information, see <a href="#">Viewing storage volumes</a></td>
</tr>
<tr>
<td>HPE Storage Virtual Disks</td>
<td>This page provides details on the virtual disks. For more information, see <a href="#">Viewing Virtual Disks</a></td>
</tr>
<tr>
<td>HPE Storage HBAs</td>
<td>This page provides information on the host bus adapters. For more information, see <a href="#">Viewing HBAs</a></td>
</tr>
<tr>
<td>HPE Storage Paths</td>
<td>This page provides information on the Path ID for the arrays. For more information, see <a href="#">Viewing paths</a></td>
</tr>
<tr>
<td>HPE Storage Replications</td>
<td>This page provides the information on the details about the storage system replications. For more information, see <a href="#">Viewing replications</a></td>
</tr>
<tr>
<td>HPE Storage VMs to Volumes</td>
<td>This page provides information on the VMs to Volumes paths. You can view the data either in tabular format or in graphical format. For more information, see <a href="#">Viewing VMs to volumes</a></td>
</tr>
</tbody>
</table>

Refreshing HPE Storage for vCenter data

After installation, the HPE OneView for VMware vCenter collects information about the VMware environment and the HPE storage systems configured in the HPE OneView for VMware vCenter.
When a cache refresh is in progress:

The refresh status is listed at the top of each storage page. To view details about the cache refresh, move the cursor over the refresh icon.

The time it takes for a refresh to complete depends on the size of the environment and the number of storage systems configured in the HPE Storage systems.

**NOTE:**
Previously gathered data is displayed in the GUI during a cache refresh.

For more information, see [Manually refreshing the cache](#).

**Manually refreshing the cache**

When you make changes to the VMware environment using VMware operations (for example, **Add Datastore**, **New Virtual Machine**, and **Remove VM From Inventory**), the changes are not reflected in the HPE OneView for VMware vCenter until the cache is refreshed. Hewlett Packard Enterprise recommends that you manually refresh the cache whenever you do any of the following:

- Add, remove, or modify storage systems.
- Add or remove VMware hosts, VMs, or datastores using VMware operations.
- Change the storage provisioning using the storage system management console.
- Delete a VM from a disk using a VMware command.

**NOTE:**
Provisioning changes performed by the HPE OneView for VMware vCenter do not require a manual refresh. This information is automatically updated when provisioning is complete. For more information, see [Provisioning storage](#).

You can manually refresh the cache through:

- **Refresh icon**
- **Administrator Console**

**Using Refresh icon**

**Procedure**

1. On the top pane of the content of any HPE Storage related submenu, click the 🔄 icon.
   - The **Refresh HPE Storage Data** screen is displayed with the estimated time required for the refresh to complete.
2. Click **Yes** to start cache refresh.
3. Optional: Move the cursor over the refresh icon to view the elapsed time and estimated time remaining while the refresh is in progress.
Using the Administrator Console

Procedure

1. From the icon drop-down list, click Administrator Console.
   The login page for the Administrator Console is displayed.

2. Enter Username and Password and click Login.

3. Click the down arrow in the top pane.
   The menu options are displayed.

   The Storage Systems page is displayed.

5. Select the storage system that you want to refresh, and click Actions > Refresh.

To view the status of the action, click the icon. The green circle indicates successful completion of the action.

Customizing HPE Storage for vCenter tables

HPE Storage for vCenter pages include tabs that allow you to view additional information about cluster, hosts, VMs, and datastores. Click a submenu to view a table that shows information about the selected cluster, host, VM, or datastore.

To export the information in the storage tables:

1. Click Export and select one of the following options:
   - **Copy All**—copies all the entries across all the pages
   - **Copy to Clipboard Selected Items Only**—copies only the selected rows
   - **Export All**—exports all the information to a excel format (.csv)
   - **Export Selected Items Only**—exports only the selected rows to the excel format (.csv)

2. You can filter the data by entering the text in the Filter text box to view only particular range of data.

3. Click the triangles after each column heading to sort the table in ascending or descending orders.

Viewing Storage systems information

To view complete information for storage systems:

1. Select a component (cluster, host, VM, or datastore) for which you want to view the related storage systems information.

2. Click Manage/Configure tab.

3. Click HPE Storage in master pane and click one of the following options:
• HPE Storage Overview
• HPE Storage Summary
• HPE Storage Volumes
• HPE Storage Virtual Disks
• HPE Storage HBAs (applicable only for cluster and hosts)
• HPE Storage Paths
• HPE Storage Replications
• HPE Storage VMs to Volumes

For information on what each of these options provides information on, see HPE Storage - Configuration.

TIP:

Use the following features when viewing detailed storage information:

• Mouse-over a column heading to get a brief description of the content including what products the information is applicable for.

• To sort the information in a column, select the column and use the up/down arrow to the right of the column header.

• Use the Filter text box ( ) in the upper-right corner of the page to limit the information displayed to the specified criteria. Enter the data you want to filter on.

HPE Storage systems - HPE Storage Summary

The HPE Storage Summary option under the HPE Storage menu provides summarized information for selected clusters, hosts, VMs, and datastores. Using HPE Storage Summary submenu option, you can view:

• Storage information for a selected host
• Storage information for a selected cluster
• Storage information for a selected VM
• Storage information for a selected datastores

Accessing HPE Storage Summary information

1. Log in to the HPE OneView for VMware vCenter.
2. Select host, cluster, VM, or datastore.
3. Click Manage/Configure and navigate to HPE Storage > HPE Storage Summary.

The details pane displays the storage information associated with the selected component.
Cluster Storage Summary Information

The storage summary displays the following information about the selected cluster:

**HPE Storage Provisioned to Cluster**

- **Volumes**—Number of volumes available to the cluster from configured HPE storage systems and number of thin provisioned volumes amongst these volumes.

- **Storage Provisioned**—Amount of storage available to the cluster from configured HPE storage systems.

- **Storage Used**—Amount of storage from configured HPE storage systems that is allocated/used by the cluster. It corresponds to the dark blue pie.

**NOTE:** The Storage Used value can differ from the Storage Provisioned value if thin provisioning or demand-allocated snapshots are used.

- **Storage ThP Savings**—Amount of storage saved through the use of storage systems-based thin provisioning.

If configured HPE Storage Systems have volumes provisioned to the cluster, then corresponding storage pool information appears. Following information is displayed:

1. HPE storage system type, name and firmware.

2. Storage pool name.

3. If you hover over the bar corresponding to storage pool, it informs about number of volumes from the pool, used/allocated capacity to the corresponding volumes (maps to dark blue portion of the bar), total capacity provisioned for the corresponding volumes and resultant capacity savings due to thin provisioning.

**Provisioned from Cluster to Virtual Machines**

All data available here includes configured storage, local storage, and any other unmanaged storage.

- **Datastores overprovisioned**—Number of datastores on the cluster, number of RDM volumes made available to VMs, number of unused volumes that are neither RDM nor used to create datastore.

- **Cluster Provisioned Capacity**—Total amount of storage available to the cluster. This includes capacity from datastores and RDMs.

- **Cluster Used Capacity**—Amount of storage used by the cluster. This includes capacity from datastores and not RDMs. It corresponds to the dark blue pie.

- **Cluster Available Capacity**—Amount of unused storage available to the cluster. This includes datastores available capacity only.

**Datastores**

This section lists the datastores corresponding to the selected host. For each datastore, move the cursor over the status bar to view storage information. The bar corresponding to the datastore is marked yellow when it is overprovisioned. This is when datastore is provisioned for more capacity but total capacity currently allocated from storage disks to datastore is less.

The following information is displayed for each datastore:

- **Virtual disks**—Number of virtual disks on datastores provisioned to VM.

- **Total**—Total capacity allocated from disks to datastore.
• **Used**—Amount of storage used on the host as virtual disks (VMDKs or RDMs). It corresponds to the dark blue bar.

• **% Savings**—Amount of storage saved through the use of VMware thin provisioning. It is the percentage of the available over total capacity.

### Host Storage Summary Information

The storage summary displays the following information about the selected host:

#### HPE Storage Provisioned to Host

- **Volumes**—Number of volumes available to the host from configured HPE storage systems and number of thin provisioned volumes amongst these volumes.

- **Storage Provisioned**—Amount of storage available to the host from configured HPE storage systems.

- **Storage Used**—Amount of storage from configured HPE storage systems that is allocated/used by the host. It corresponds to dark blue pie.

**NOTE:** The Storage Used value can differ from the Storage Provisioned value if thin provisioning or demand-allocated snapshots are used.

- **Storage ThP Savings**—Amount of storage saved through the use of thin provisioning.

If configured HPE Storage Systems has volumes provisioned to the host, then corresponding storage pool information appears. Following information is displayed:

1. HPE storage system type, name and firmware.

2. Storage pool name.

3. If you hover over the bar corresponding to storage pool, it informs about number of volumes from the pool, used/allocated capacity to the corresponding volumes(maps to dark blue portion of the bar), total capacity provisioned for the corresponding volumes and resultant capacity savings due to thin provisioning.

### Provisioned from Host to Virtual Machines

All Data available here includes configured storage, local storage and any other unmanaged storage.

- **Datastores overprovisioned**—The number of over-provisioned datastores.

- **Host Provisioned Capacity**—Total amount of storage available to the host. This includes capacity from datastores and RDMs.

- **Host Used Capacity**—Amount of storage used by the host. This includes capacity from Datastores and not from RDMs. It corresponds to the dark blue pie.

- **Host Available Capacity**—Amount of unused storage on the host. This includes datastores’ available capacity only.

- **Current storage inventory**—Number of datastores on the host, number of RDM volumes made available to VMs, number of unused volumes that are neither RDM nor used to create datastore.

### Datastores

This section lists the datastores corresponding to the selected host. For each datastore, move the cursor over the status bar to view storage information. The bar corresponding to the datastore is marked yellow when it is
overprovisioned. This is when datastore is provisioned for more capacity but total capacity currently allocated from storage disks to datastore is less.

The following information is displayed for each datastore:

- **Virtual disks**—Number of virtual disks on datastore provisioned to VM.
- **Total**—Total capacity allocated from disks to datastore.
- **Used**—Amount of storage used on the host as virtual disks (VMDKs or RDMs). It corresponds to dark blue bar.
- **% Savings**—Amount of storage saved through the use of VMware-based thin provisioning. It is the % of available over total capacity.

**Datastore Storage Summary Information**

This tab displays the following information about the selected datastore:

**HPE Storage Provisioned to Datastores**

- **Volumes**—Number of volumes available to the datastore from configured HPE storage systems and number of thin provisioned volumes amongst these volumes.
- **Storage Provisioned**—Amount of storage available to the datastore from HPE storage systems.
- **Storage Used**—Amount of storage from HPE storage systems that is allocated/used by the datastore. It corresponds to the dark blue pie.
- **Storage ThP Savings**—Amount of storage saved through the use of storage system-based thin provisioning.

If configured HPE Storage Systems has volumes provisioned to the datastores, then corresponding storage pool information appears. Following information is displayed:

1. HPE storage system type, name and firmware.
2. Storage pool name.
3. If you hover over the bar corresponding to storage pool, it informs about number of volumes from the pool, used/allocated capacity to the corresponding volumes (maps to dark blue portion of the bar), total capacity provisioned for the corresponding volumes and resultant capacity savings due to thin provisioning.

**Provisioned from Datastore to Virtual Machines**

All data available here includes configured storage, local storage, and any other unmanaged storage.

- **Datastores overprovisioned**—Number of datastores on the cluster, number of RDM volumes made available to VMs, number of unused volumes that are neither RDM nor used to create datastore.
- **Datastore Provisioned Capacity**—Total amount of storage available to the datastore. This includes capacity from datastores and RDMs.
- **Datastore Used Capacity**—Amount of storage used by the datastore. This includes capacity from datastores and not RDMs. It corresponds to the dark blue pie.
- **Datastore Available Capacity**—Amount of available storage on the datastore. This includes datastores available capacity only.
**Datastores**

This section lists the datastores corresponding to the selected host. For each datastore, move the cursor over the status bar to view storage information. The bar corresponding to the datastore is marked yellow when it is overprovisioned. This is when datastore is provisioned for more capacity but total capacity currently allocated from storage disks to datastore is less.

The following information is displayed for the datastore:

- **Virtual disks**—Number of virtual disks on datastores provisioned to VM.
- **Total**—Total capacity allocated from disks to datastore.
- **Used**—Amount of storage used on the host as virtual disks (VMDKs or RDMs). It corresponds to the dark blue bar.
- **% Savings**—Amount of storage saved through the use of VMware thin provisioning. It is the percentage of the available over total capacity.

**VM storage summary information**

This tab displays the following information about the selected VM:

**HPE Storage Provisioned to Virtual Machine**

- **Volumes**—Number of volumes available to the VM from configured HPE storage systems and number of thin provisioned volumes amongst these volumes.
- **Storage Provisioned**—Amount of storage available to the VM from HPE storage systems.
- **Storage Used**—Amount of storage from HPE storage systems that is allocated/used by the VM. It corresponds to the dark blue pie.
- **Storage ThP Savings**—Amount of storage saved through the use of storage system-based thin provisioning.

If configured HPE Storage Systems has volumes provisioned to the VM, then corresponding storage pool information appears. Following information is displayed:

1. HPE storage system type, name and firmware.
2. Storage pool name.
3. If you hover over the bar corresponding to storage pool, it informs about number of volumes from the pool, used/allocated capacity to the corresponding volumes/maps to dark blue portion of the bar, total capacity provisioned for the corresponding volumes and resultant capacity savings due to thin provisioning.

**Provisioned by Virtual Machine**

All data available here includes configured storage, local storage, and any other unmanaged storage.

- **Virtual disks** - Number of virtual disks associated with datastore used by VM.
- **Shared storage volumes** - Number of VMs that are sharing same underlying storage volumes corresponding to the VM.
- **Datastores overprovisioned**—Number of datastores on the VM, number of RDM volumes made available to VMs, number of unused volumes that are neither RDM nor used to create datastore.
• **Virtual Machine Provisioned Capacity**—Amount of storage provisioned by VMDKs or RDMs. This includes capacity from datastores and RDMs.

• **Virtual Machine Used Capacity**—Total amount of storage used by the VM. This includes capacity from datastores and not RDMs. It corresponds to the dark blue pie.

• **Virtual Machine Available Capacity**—Amount of storage available to the VM. This includes datastores available capacity only.

**Datastores**

This section lists the datastores corresponding to the selected host. For each datastore, move the cursor over the status bar to view storage information. The bar corresponding to the datastore is marked yellow when it is overprovisioned. This is when datastore is provisioned for more capacity but total capacity currently allocated from storage disks to datastore is less.

The following information is displayed for each datastore:

• **Virtual disks**—Number of virtual disks on datastores provisioned from the selected host to VMs.

• **Total**—Amount of storage provisioned on the host as virtual disks (VMDKs or RDMs).

• **Used**—Amount of storage used on the host as virtual disks (VMDKs or RDMs). It corresponds to the dark blue bar.

• **% Savings**—Amount of storage saved through the use of VMware thin provisioning. It is the percentage of the available over total capacity.

**Viewing HPE Storage Volumes**

The **HPE Storage Volumes** page displays the following information:

• **Array Disk Name**
  
  ◦ Storage volume name as configured in the HPE Storage system. Locally attached disks appear as "Local Disk:“, and other disks that are not configured appear as "Unmanaged disk".

• **Array Name**
  
  ◦ HPE StoreVirtual—Management group name
  ◦ HPE 3PAR StoreServ—Storage system display name
  ◦ HPE MSA—System name
  ◦ HPE StoreOnce Backup—Not applicable

• **Array Model**—Hewlett Packard Enterprise Storage System model.

• **Datastore/RDM**—Datastore name or the associated .vmdk name for the RDM.

• **Type**—Disk type (Datastore or RDM).

• **Paths**—Number of paths for the storage volume from storage system to corresponding host.

• **VMware Disk Identifier**—Disk name assigned by VMware.

• **Path ID**—Runtime name for the path assigned by VMware.

• **Array Disk RAID**—RAID level of the Storage volume.
• **Array Disk Total Capacity**—Storage volume's total capacity (in GB).

• **Array Disk Allocated Capacity**—Capacity allocated by the storage system. For a thin-provisioned disk, this value might differ from the Storage volume Total Capacity value.

• **Array Disk Provisioned**—Specifies whether the disk is thin provisioned or normal.

• **Array Disk Type**—Storage System disk type. For example, Virtual volume, Peer Persistence.

• **Compaction ratio**—Associated with HPE 3PAR StoreServ storage systems and depicts corresponding values as in storage system.

• **Deduplication ratio**—Associated with HPE 3PAR StoreServ storage systems and depicts corresponding values as in storage system.

• **Compression ratio**—Associated with HPE 3PAR StoreServ storage systems and depicts corresponding values as in storage system.

• **Storage Pool**
  
  ◦ HPE StoreVirtual—Name of the cluster.
  
  ◦ HPE 3PAR StoreServ—Common Provisioning Group where the storage volume is located.
  
  ◦ HPE MSA—Name of the pool where the volume is located. Storage volume name as configured in the HPE Storage system. Locally attached disks appear as "Local Disk:”, and other disks that are not configured appear as "Unmanaged disk".
  
  ◦ HPE StoreOnce Backup—Not applicable.

• **Storage Pool Available Capacity**
  
  ◦ HPE StoreVirtual—Unallocated space in the storage pool (cluster) that can be used to meet storage needs for a snapshot or thin-provisioned volume. The calculation of this value assumes all unallocated space is formatted the same as this volume. For all other volume types, no value is displayed.
  
  ◦ HPE 3PAR StoreServ—Unallocated space in the storage pool that can be used to meet storage needs for a snapshot or thin-provisioned volume. For all other volume types, no value is displayed. The calculation of this value assumes that all disk space uses the same RAID type as this volume.
  
  ◦ HPE MSA—Unallocated space in the storage pool (cluster) that can be used to meet storage needs for a snapshot or thin-provisioned volume. The calculation of this value assumes all unallocated space is formatted the same as this volume. For all other volume types, no value is displayed.
  
  ◦ HPE StoreOnce Backup—Not applicable

• **Storage Pool Domain Name**—Domain name assigned to CPG (applies only to HPE 3PAR StoreServ).

• **Copy Pool Name**—Assigned Copy CPG (applies only to HPE 3PAR StoreServ).

• **Replicated**—Specifies whether the disk is replicated.

• **Physical Device Type**—The type of device in the CPG (applies only to HPE 3PAR StoreServ). The types can be FC, NL, or SSD.

• **Zero Detection**—If enabled, it implies that zeroes are detected and discarded during volume copy. (applies only to HPE 3PAR StoreServ).

• **Volume ID**— Internal volume ID (applies only to storeserv and storevirtual 13.0 onwards).

• **Volume Status**—Volume health status.

• **Creation Time**—Storage creation time.
• **Expiration Time**—Storage expiration time (applies only to HPE 3PAR StoreServ).
• **Retention Time**—Storage volume retention time (applies only to HPE 3PAR StoreServ).
• **User Space Warning**—Alert threshold for a volume’s User space (applies only to HPE 3PAR StoreServ).
• **User Space Limit**—Write failure threshold for a volume’s User space (applies only to HPE 3PAR StoreServ).
• **Copy Space Warning**—Alert threshold for a volume’s Copy space (applies only to HPE 3PAR StoreServ).
• **Copy Space Limit**—Write failure threshold for a volume’s Copy space (applies only to HPE 3PAR StoreServ).

### Viewing HPE Storage Virtual Disks

The **HPE Storage Virtual Disks** page displays the following information:

• **Virtual Disk Name**—Virtual disk name assigned by VMware.
• **Type**—Virtual disk type (Datastore or RDM or VVOL).
• **Virtual Machine**—Name of the VM associated with the virtual disk.
• **Datastore**—Datastore name if type is Datastore.
• **Provisioned Capacity**—Disk capacity that the datastore/RDM is provisioned for.
• **Allocated Capacity**—Disk capacity reserved by VMware for the datastore or RDM.

For a Datastore, this value will match the provisioned capacity value. For a VMDK, this value might be less than the provisioned capacity value if VMware thin provisioning is used. This is separate from thin provisioning configured in the storage system.

• **VMware Provisioned**—Thick or thin.

### Viewing HPE Storage HBAs

The **HPE Storage HBAs** page (applicable for clusters and hosts only) displays the following information:

**NOTE:**

Certain information is not available for SAS HBAs.

• **Host Name**—Host name to which the HBA is associated.
• **Type**—HBA type.
• **VMware Device Identifier**—HBA identifier assigned by VMware.
• **WWN/IQN**—HBA WWN.
• **Label**—HBA identifier assigned by VMware.

### Viewing HPE Storage Paths

The **HPE Storage Paths** page is displayed for selected components. It displays the following information:
• **Array Disk Name**—Storage volume name as in configured HPE Storage system. Locally attached disks appear as "Local Disk:", and other disks that are not configured appear as "Unmanaged disk".

• **VMware Disk Identifier**—Disk name assigned by VMware.

• **Array Name**
  - HPE StoreVirtual—Management group name
  - HPE 3PAR StoreServ—Storage System display name
  - HPE MSA—System name
  - HPE StoreOnce Backup—Not applicable

• **Host HBA Port WWN/IQN**—Host to which the array disk is presented to.

• **Host**—Host that is currently running the selected VM.

• **Array Port WWN/IQN**—HBA WWN for FC/SAS & IQN for iSCSI. VMware assigned friendly names may appear for other port types.

• **LUN**—LUN used for presenting the array disk from the storage system port to the host HBA port.

• **Array Type**—Hewlett Packard Enterprise storage system type.

• **Array Controller**—Controller that is managing this path.

• **Array Port**—Storage System’s port identifier associated to this path.
  - HPE StoreVirtual—Not applicable.
  - HPE 3PAR StoreServ—Port WWN of the controller node.
  - HPE MSA—Port on the storage system controller used for this path.
  - HPE StoreOnce Backup—Not applicable.

• **Host Group**—Name associated with the host port as in the configured HPE storage system.

• **Host Access**—Access setting for volume mapping (for example, READ/WRITE or READ-ONLY).

• **Array Port Speed**
  - HPE StoreVirtual—Not applicable.
  - HPE 3PAR StoreServ—Speed of the storage port (Gb/s).
  - HPE MSA - speed of the storage port (Gb/s).
  - HPE StoreOnce Backup—Not applicable.

• **State**—The state of the path (Active/Standby/Dead/Disabled/Unknown).
  - If a path is active and then goes offline, a standby path takes over.

• **Path ID**—Runtime name for the path assigned by VMware.
Viewing HPE Storage Replications

NOTE: Replication on MSA are available only for Linear (Thick Provisioned) datastores using V2 SMU/CLI mode. You must manage the primary replication system through Administrator Console to obtain the replication reporting.

The **HPE Storage Replications** page displays the following information:

- **Source Disk Name**—Source storage volume.
- **Source Array**—Storage System name on which the source storage volume resides.
- **Replication Type**—The type of replication used. For example, Peer Persistence, Snapshot.
- **Replica Name**—Target replica storage volume. For MSA, it shows the replication set name.
- **Replica Storage System**—Storage System name where the replica storage volume resides.
- **Replica Status**—Status of the replica (for example, Synched, Suspended). See the Replication Status for MSA replication status mapping.

<table>
<thead>
<tr>
<th>Replication Group</th>
<th>OV4VC replication state</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initializing or Replicating or Replicate-delay</td>
<td>SYNCHING</td>
</tr>
<tr>
<td>Online</td>
<td>SYNCHED</td>
</tr>
<tr>
<td>Suspended</td>
<td>SUSPEND</td>
</tr>
<tr>
<td>Offline or Inconsistent</td>
<td>STOPPED</td>
</tr>
<tr>
<td>Detached</td>
<td>FAILED</td>
</tr>
<tr>
<td>ALL Other</td>
<td>UNKNOWN</td>
</tr>
</tbody>
</table>

**Figure 3: Replication status**

- **Replication Group**—Remote Copy group name (applicable to HPE 3PAR StoreServ)
- **Datastore/RDM Type**—Datastore/RDM type (Datastore or RDM).
- **Datastore Name**—Datastore name/the vmdk path on the datastore for RDM.
- **Replica Creation Time**—Replica volume creation time.
- **Replica Expiration Time**—Replica volume expiration time (applies to HPE 3PAR StoreServ).
- **Replica Retention Time**—Replica volume retention time (applies to HPE 3PAR StoreServ).

Viewing HPE Storage VMs to Volumes

The **HPE Storage VMs to Volumes** page displays the following information:

On the **HPE Storage VMs to Volumes** page click **Details** to display the information in table format or click **Graphics** to display a graphical representation of the VMs to volumes paths.

**Details format**

NOTE: The same VM can appear multiple times, based on the number of available paths to a storage disk.
- **Virtual Disk Name**—Virtual disk name assigned by VMware.
- **Virtual Disk Type**—Virtual disk type (Datastore or RDM).
- **Datastore**—The datastore that contains the VM.
- **Virtual Machine**—VM name.
- **Array Disk Name**
  - HPE StoreVirtual—Volume name
  - HPE 3PAR StoreServ—Volume name
  - HPE MSA—Volume name
  - HPE StoreOnce Backup—Not applicable
- **Storage Pool**—Storage system pool to which the underlying volume of the VM belongs.
- **Array Name**
  - HPE StoreVirtual—Management group name
  - HPE 3PAR StoreServ—Storage System display name
  - HPE MSA—System name
  - HPE StoreOnce Backup—Not applicable
- **Array Type**—Hewlett Packard Enterprise storage system type.
- **Array Disk Type**—Storage System disk type.
- **Array Total Disk Total Capacity**—Storage Volume's total capacity.
- **Array Disk Allocated Capacity**—Capacity allocated by the storage system. For a thin provisioned disk, this value might differ from the Array Disk Total Capacity value.
- **Host Name**—Host name.

**Graphics format**
The graphics format provides a representation of the paths between the following entities:

- Virtual Machine
- Virtual Disk Name
- Datastore
- Array Disk Name
• Storage pool
• Array Name

Use the **Filter** text box in the upper-right corner of the page to limit the information displayed. Enter the data you want to filter on. For example, if you want to see only unmanaged disks, filter on the word *unmanaged*.

## Viewing VVOLs

VVOL information is available in the **HPE Storage Volumes**, **HPE Storage Paths**, **HPE Storage VMs To Volumes** and the **HPE Storage Virtual Disks** contents of the HPE Storage.

HPE OneView for VMware vCenter reports information about Data VVOL and Configuration VVOL.

- **HPE Storage Volume**—Volumes can easily be identified by looking at the types shown in the **Storage System Disk Type** column and are displayed as Config VVOL and Data VVOL.

- **HPE Storage Virtual Disks**—Virtual disks related to Config VVOL or Data VVOL are represented as "VVOL" under the "type" column.

- **HPE Storage VMs To Volume**—Enhanced to represent Data VVOLs and Configuration VVOLs with new icons. The updated legend on this page helps you to identify these volumes.

![Legend](image)

**Legend**

- Virtual machine
- Virtual disk
- Data VVOL
- Configuration VVOL
- Raw device mapping
- Datastore
- VVOL datastore
- Array disk
- Array disk
- Storage pool
- 3PAR StoreServ CPO
- StoreVirtual: cluster LISA - Vdisk

**Viewing VVOLs** 59
HPE Storage Systems Page

To access the HPE Storage Systems page:

Navigate to Global inventory lists > HPE Storage > HPE Storage Systems.

The HPE Storage Systems page displays information for all storage systems configured in the plugin’s environment. Click HPE Storage Systems to expand the list of configured storage systems and backup systems. The number adjacent to the HPE Storage Systems link in the left navigation panel indicates the number of storage systems that have been configured using the Administrator Console.

The inventory list indicates the type and name of storage system or backup system. Select an item from the list to display more information in the content pane. The information displayed is determined by the type of storage system selected.

TIP: After configuring storage systems, refresh the storage data by clicking the Refresh Cache link in the Administrator Console, or clicking the Refresh icon (⟳) in any of the Manage or Configure pages. Wait for the refresh to complete. You can view the refresh status by mousing over the Refresh icon (⟳) in the web client.

The HPE Storage Systems tab is organized into the following sections:

- **Header**—The first line of information includes details like health, storage system type, and the name of the item selected. The health of the storage system is indicated using color-coded icons. A green icon (✅) indicates that there are no warnings or errors for this storage system. A yellow icon (⚠️) or a red icon (⛔) indicates warnings or errors respectively.

- **Overview**—Displays system information such as the model, serial number, and firmware version. If a storage system is selected, the amount of storage provisioned to VMware is displayed.
• **System Summary section**— Displays the number of controllers, name of the individual controllers, and ports on the system for storage systems. For backup systems, the rolled up status at the cluster level is displayed along with the capacity and the deduplication ratio. In addition, the configured user and the IP address of the management system, if applicable, are displayed.

**NOTE:**

In storage summary page, only host connected ports are displayed for HPE MSA storage systems. For complete port details, login to HPE MSA storage system using SMU/CLI.

• **Storage Summary section**— Provides additional details about the storage on the system. For a storage system, all the storage pools are listed and also the online node and associated port wwn details for HPE 3PAR and MSA arrays. View capacity information for that storage pool and access level as specified in the Administrator Console. For HPE 3PAR StoreServ storage systems, the RAID value of the CPG and the drive type of the physical disks are also displayed. For a StoreOnce backup system, this section displays the service sets in the cluster. View node name to see the primary and the secondary nodes on which the service set is running. View services label to see the status of the service and the number of backup targets for VTL, NAS, and catalyst services.
Provisioning HPE Storage

HPE OneView for VMware vCenter supports storage provisioning for HPE 3PAR StoreServ, HPE StoreVirtual, and HPE storage systems. You can perform storage provisioning operations such as creating a new datastore, deleting or expanding an existing datastore, creating new VMs.

To perform the tasks in this chapter, you must:

• Use an Hewlett Packard Enterprise storage systems that supports provisioning.
• Use the Administrator Console to set the Full Access permission for the storage pools to be used for the provisioning operations.
• Disable the browser pop-up blocker. If the pop-up blocker is enabled, provisioning cannot be initiated by right-clicking a VM, host, cluster, or datastore in the inventory tree.
• Use a cluster with configured hosts when performing provisioning operations on a cluster.

TIP:

By default, Internet Explorer shows the page URL in the title bar of a pop-up browser window. To show the window title, enable the following Internet Explorer security settings:

• Allow script-initiated windows without size or position constraints
• Allow websites to open windows without address or status bars

• Creating a datastore
• Create VM from a Template
• Expand a datastore
• Switching Peer Persistence
• Delete a datastore
• Delete volume

Creating a datastore

You can create a new datastore on a host or cluster that meets the following prerequisites.

Hosts

1. The host must exist in the vSphere Client/Web client.
2. In an FC environment, the SAN must be zoned between the storage pools and the host.
3. The host must be configured as a hostgroup or host on the storage systems.
4. In an iSCSI environment:
a. The iSCSI initiator on the host must be installed and configured.

b. The iSCSI storage systems IP address or hostname must be configured in the iSCSI initiator's dynamic discovery list on the host.

Clusters

- The cluster and its hosts must exist in the vSphere Web Client.
- In an FC environment, the SAN must be zoned between the storage pools and the cluster hosts.
- The cluster hosts must be configured as hostgroups or hosts on the storage systems.
- The cluster hosts can belong to separate hostgroups.

NOTE:
The Storage Module for vCenter does not support configurations that have all cluster hosts in a single hostgroup.

- In an iSCSI environment:
  - The iSCSI initiator on all cluster hosts must be installed and configured.
  - The iSCSI storage systems IP address or hostname must be configured in the iSCSI initiator's dynamic discovery list on all cluster hosts.

Creating a datastore

- To add a datastore to a host or cluster:
  - Browse to vSphere Client/Web client, and access any submenu of the **HPE Storage** menu, namely: **Monitor**, **Configure** or **Manage**.
  - Use one of the following methods to start the Add Datastore wizard:
    - Right-click a host or cluster and select **All HPE Storage Actions > Create Datastore**.
    - Select **Actions > HPE Create Datastore** on the HPE Storage page for a host or cluster.
      - The Create Datastore wizard opens.
  - Follow the steps in the wizard.

TIP:
You can minimize the wizard using the minimize control («) in the upper right corner of the screen. The wizard will be added to the Work in Progress panel on the right. Click on it to resume the wizard.

Create datastores – Select Location

Select the location for the datastore being created.
Procedure

1. Select the host or the cluster which will own the new datastore.
2. Click Next.

Create datastores – Select Storage

Select the number of datastores to create and their storage properties.

Procedure

1. Enter the number of datastores to be created.
2. Enter the capacity for the new datastores in Datastore Capacity.
3. Select a storage pool to use for the new datastore in Select Storage Pools table.
4. The configured storage pools with Full Access on storage systems that support provisioning are listed.

   TIP:
   The list can be sorted by any column.

5. If there is a drop down of RAID level below the table, select required RAID level from the drop down menu.
6. For an HPE 3PAR StoreServ, if Peer Persistence is to be enabled, select Enable Peer Persistence.
7. For an HPE 3PAR StoreServ, select a storage pool for Copy Space from the drop-down menu.
8. For an HPE 3PAR StoreServ, select Compression and/or Dedupe, if needed. These options will appear only if it is applicable to the storage pool.
9. Click Next.

Create datastores – Configure Peer Persistence

The Peer Storage System should be configured in the Administrator Console. The Peer Storage Pools to be used for the Peer Persistence on the storage systems should be configured with Read-Write access. In addition, the Peer Storage Pools should be in the same domain as the selected host(s).

Procedure

1. Select the Storage Pool on the Peer.
2. Click Next.

Create datastores – Specify Names

Specify new names for the datastores being created.

Procedure

1. Enter the base name for the new datastore(s) in the Datastore name.
2. For single datastore, the # symbol is not required. For multiple datastores, the # symbol is required. It represents a numeric sequence. In the generated datastore names, the # symbol is replaced with a number.
3. Enter the start value for the numeric sequence in **Where # is numeric and starts at**.

4. The **Generated names** box displays the names of the datastores to be created.

5. Click **Next**.

The specified datastore names are validated. Any duplicate names entered are identified.

### Create Datastores – Summary

Review the information and create the datastore.

**Procedure**

1. Review the summary information to ensure it is correct.

2. Click **Finish** to create the specified datastores.

**TIP:**

- View the progress of the operation in the Tasks pane of the vSphere Web Client/Client or navigate to **Monitor > HPE Storage > HPE Storage Task/ HPE Storage News feed**.
- Manual cache refresh is not necessary when the operation is finished. The cache will be refreshed automatically.

### Create VM from a Template

You can create one or more VMs from a template.

**Prerequisites**

- The VM template must exist in the datacenter of vCenter.

- Creating a VM has the same prerequisites as creating a datastore. For more information, see **Creating a datastore**. During the process of creating the new VM, one or more new datastore are created.

- All of the files associated with the new VMs are created on the new datastores.

- If the template contains an RDM, the operation will fail during the process of creating the new VM.

**NOTE:** When VMware converts a VM to a template, all RDMs are converted to empty virtual disks (VMDKs). Therefore, VMs created from this template will not have associated RDMs. For more information, see **Virtual Disk Compatibility Modes** in the VMware vSphere Online Library.

- If a cluster is used to initiate the VM creation, all hosts in the cluster must be zoned to the storage, and hostgroups must be configured.

**Procedure**

1. Browse to the vSphere Client/Web client.

2. Right-click a host or a cluster and select **All HPE Storage Actions > Create VM from Template**.
Alternatively, select Actions > Create VM from Template on any of page related to the submenu of HPE Storage under Configure/Manage tab for a host or a cluster.

The Create Virtual Machines wizard opens.

3. Follow the steps in the wizard.

Create VM from Template – Select Location
Select the location for the virtual machines being created.

Procedure
1. Select the host or the cluster which will own the new virtual machine(s).
2. Click Next.

Create VM from Template – Select VM Template
Select the template and define the properties for the virtual machine being created.

Procedure
1. Enter the number of VMs to create in Number of virtual machines.
2. Select the template to be used to create new VM(s).
3. When a template is selected, the wizard displays the required storage capacity per VM and for all VMs, if multiple VMs are being created.
4. Select a customization specification (if any are available) in Customization Specification.
5. For more information regarding customization specification, see the VMware documentation.
6. Select the Power option if desired.
7. Click Next.

Create VM from Template – Select Storage
Select the number of datastores to create for the host VMs.

Procedure
1. Enter the number of datastores to create in Number of datastores.
2. The new VMs are distributed among these new datastores.
3. Enter the capacity for the new datastores in Datastore Capacity.
4. Select a storage pool to use for the new datastore in Select Storage Pool.
5. The configured storage pools with Full Access on storage systems that support provisioning are listed.

TIP:
The list can be sorted by any column.

6. For a non-3PAR storage system, select a RAID level from the drop-down menu.
7. For an 3PAR StoreServ storage system, if Peer Persistence is to be enabled, select **Enable Peer Persistence**.

8. For an 3PAR StoreServ storage system, select a storage pool for **Copy Space** from the drop-down menu.

9. Click **Next**.

---

### Create VM from Template – Configure Peer Persistence

The Peer Storage System should be configured in the Administrator Console. The Peer Storage Pools to be used for the Peer Persistence on the storage system should be configured with Read-Write access. In addition, the Peer Storage Pools should be in the same domain as the selected host(s).

**Procedure**

1. Select the Storage Pool on the Peer.

2. Click **Next**.

---

### Create VM from Template – Specify Names

Specify names for the virtual machines and datastores being created.

**Procedure**

1. Enter the base name for the new virtual machine(s) in the **Virtual Machine name**.

2. For single virtual machine, the # symbol is not required. For multiple virtual machines, the # symbol is required. It represents a numeric sequence. In the generated virtual machine names, the # symbol is replaced with a number.

3. Enter the start value for the numeric sequence in **Where # is numeric and starts at**.

4. The **Generated names** box displays the names of the virtual machines to be created.

5. Similarly, if multiple datastores are being created, enter the base name for the new datastore(s) in **Datastore name** and the start value of the # symbol for the datastore(s).

6. Click **Next**.

---

### Create VM from Template – Summary

Review the information and create the VMs.

**Procedure**

1. Review the summary information to ensure it is correct.

2. Click **Finish** to create the specified VMs and datastores.

---

**TIP:**

Manual cache refresh is not necessary when the operation is finished. The cache will be refreshed automatically.
Expand a datastore

You can expand the size of a datastore if it is located on a single disk.

NOTE:
If the underlying volume is setup for 3PAR StoreServ Peer Persistence, the datastore cannot be expanded.

To expand a datastore:

Procedure

1. Browse to the vSphere Client/Web Client.
2. Right-click a host or a cluster and select All HPE Storage Actions > Expand a datastore.
   Alternatively, select Actions > Expand a datastore on any page related to the submenu of HPE Storage under Configure/Manage tab for a host or a cluster.

   The Expand a datastore page is displayed.
3. Enter the new capacity in New Datastore Capacity.
4. The following rules apply when expanding datastores.
   a. A datastore can be expanded only if it is located on a single disk on a storage system that supports provisioning by the Storage Module for vCenter.
   b. The requested capacity cannot exceed the total capacity of the storage pool.
   c. The requested capacity cannot be less than or equal to the original datastore capacity.
5. The Expand Datastore window displays the Available Capacity for the selected storage pool.
6. Click Finish to expand the selected datastore.

TIP:

- View the progress of the operation in the Tasks pane of the vSphere Web Client/Client or navigate to Monitor > HPE Storage > HPE Storage Tasks/HPE Storage News feed.
- Manual cache refresh is not necessary when the operation is finished. The cache will be refreshed automatically.

Switching Peer Persistence

The Switch Peer Persistence page is used to reverse the source and target roles of an HPE 3PAR StoreServ Peer Persistence relationship. Source and target storage systems must be configured in the Administrator Console for Peer Persistence related features to work.

NOTE: Switch Peer Persistence is only applicable to HPE 3PAR StoreServ source disks. The Switch Peer Persistence operation can be initiated from any of the HPE Storage content that display the source disk.
Procedure

1. Browse to the HPE Storage Volumes table.

2. Right-click on a storage volume that has Peer Persistence as the array disk type, and then click Switch Peer Persistence.

3. Click Switch Peer Persistence to swap the source and target roles.

   A window displays with the current peer persistence setup details as known to HPE OneView for VMware vCenter to confirm switching to Peer Persistence. The confirmation window also indicates how you can monitor the progress of the operation.

4. Click OK.

Delete a datastore

You can delete a datastore if it is not used by a VM or VM template.

Procedure

1. Browse to the vSphere Client/Web client.

2. Right-click a host or a cluster and select All HPE Storage Actions > Delete a datastore.

   Alternatively, select Actions > Delete a datastore on any of page related to the submenu of HPE Storage under Configure/Manage tab for a host or a cluster.

   The Delete a datastore wizard opens.

3. Follow the steps in the wizard.

4. If the disk used by the datastore is replicated using snapshot, the delete operation will fail.

5. If the datastore is used by a VM or VM template, the delete operation will fail.

To delete a datastore:

• If any errors are shown, address them and then retry the operation. Otherwise, click Yes to confirm the operation.

• The Storage Module for vCenter unpresents the storage volumes from all hosts, deletes the volumes, and re-scans the hosts. When these tasks are complete, the deleted datastore is no longer displayed in the vSphere Client/Web Client.

• If the datastore is setup with Peer Persistence and the Peer storage systems is configured in the plug-in, the volumes on the Peer storage systems are also deleted.

• If the delete operation cannot be performed, an error message is displayed describing why the operation failed.

💡 TIP:

Manual cache refresh is not necessary when the operation is finished. The cache will be refreshed automatically.
Delete volume

An unassigned volume is a volume that is not associated with a datastore or RDM. You can delete unassigned storage volumes that belong to storage systems that support provisioning.

To delete a volume:

Procedure

1. Browse to the vSphere Client/Web client.
2. Right-click a host or a cluster and select All HPE Storage Actions > Delete volume.
   Alternatively, select Actions > Delete volume on any of page related to the submenu of HPE Storage under Configure/Manage tab for a host or a cluster.

   The Delete volume wizard opens.

3. Follow the steps in the wizard.

4. If any errors are shown, address them and then retry the operation. Otherwise, click Delete to confirm the operation.

5. The Storage Module for vCenter removes the LUN presentation from all hosts, deletes the volume, and re-scans the hosts. When these tasks are complete, the deleted volume is no longer displayed in the vSphere Client/Web Client.

6. If the volume is setup with Peer Persistence and the Peer storage systems is configured in the plug-in, the volume on the Peer storage systems will also be deleted.

7. If the delete operation cannot be performed, an error message is displayed describing why the operation failed.

   ☀ TIP:
   Manual cache refresh is not necessary when the operation is finished. The cache will be refreshed automatically.
Alerts - Server Hardware and Enclosures

HPE OneView for VMware vCenter delivers alerts from server hardware and enclosures to the vCenter Events Log. Users can then set up their own Alarm Definitions in vCenter to trigger actions based on received alerts.

**For HPE OneView managed hardware** - HPE OneView for VMware vCenter monitors the HPE OneView’s State Change Message Bus (SCMB) for Critical and Warning alerts from Server Hardware and Enclosures/Frames. Alerts that originate from an enclosure or frame are delivered to each host in the enclosure or frame.

**For Non-OneView managed hardware** - HPE OneView for VMware vCenter monitors HPE iLO, HPE CIM providers, and HPE Onboard Administrator for alerts. Alerts from HPE Onboard Administrator are delivered to each host in the enclosure.

**Alerts delivered to vCenter**

Alerts from HPE hardware are delivered to the vCenter Event Log with the following Event Types and fields:

<table>
<thead>
<tr>
<th>Event Type</th>
<th>Event Name</th>
<th>Fields</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>com.hp.wbem.info</td>
<td>HPE Server WBEM Info Event</td>
<td>evDescription</td>
<td>Event Description</td>
</tr>
<tr>
<td>com.hp.wbem.warning</td>
<td>HPE Server WBEM Warning Event</td>
<td>evDescription</td>
<td>Event Description</td>
</tr>
<tr>
<td>com.hp.wbem.error</td>
<td>HPE Server WBEM Error Event</td>
<td>evDescription</td>
<td>Event Description</td>
</tr>
<tr>
<td>com.hp.cseries.status.info</td>
<td>HPE Infrastructure Status Info Event</td>
<td>entity, evDescription</td>
<td>Subsystem type, Event Description</td>
</tr>
<tr>
<td>com.hp.cseries.status.warning</td>
<td>HPE Infrastructure Status Warning Event</td>
<td>entity, evDescription</td>
<td>Subsystem type, Event Description</td>
</tr>
<tr>
<td>com.hp.cseries.status.error</td>
<td>HPE Infrastructure Status Error Event</td>
<td>entity, evDescription</td>
<td>Subsystem type, Event Description</td>
</tr>
<tr>
<td>com.hp.cseries.hardware.info</td>
<td>HPE Infrastructure Hardware Info Event</td>
<td>evDescription</td>
<td>Event Description</td>
</tr>
<tr>
<td>com.hp.cseries.hardware.warning</td>
<td>HPE Infrastructure Hardware Warning Event</td>
<td>evDescription</td>
<td>Event Description</td>
</tr>
<tr>
<td>com.hp.cseries.hardware.error</td>
<td>HPE Infrastructure Hardware Error Event</td>
<td>evDescription</td>
<td>Event Description</td>
</tr>
<tr>
<td>com.hpe.oneview.status.info</td>
<td>HPE OneView Info Event</td>
<td>healthCategory, lifeCycle, alertState, evDescription</td>
<td>Check OneView /rest/alerts/ API reference for a detailed description of the fields</td>
</tr>
<tr>
<td>com.hpe.oneview.status.warning</td>
<td>HPE OneView Warning Event</td>
<td>healthCategory, lifeCycle, alertState</td>
<td></td>
</tr>
</tbody>
</table>

*Table Continued*
Creating an alarm description

For monitoring your environment, you can create or modify alarm definitions in the vCenter Client/Web Client to trigger actions based on received alerts. For information on the alert types, see Alerts delivered to vCenter.

The alarm definitions can be accessed from the Monitor tab. For more information on how to create or modify alarm definitions, see vSphere Monitoring and Performance document from VMware.

Procedure

1. Log in to vSphere Client/Web Client.

2. Navigate to Monitor > Issues and Alarms > Alarm Definitions. Follow the steps provided in the vSphere Monitoring and Performance document from VMware.

The following are examples of how to create an Alarm Definition that will trigger an alarm when HPE OneView reports a memory alert on a server. A server hardware memory alarm can be defined in the following ways:

a. You can define an alarm to trigger when any memory alert occurs on the server by looking for events where:

   - healthcategory = Memory
   - lifeCycle ≠ False
   - healthCategory = Memory

   I. Navigate to New Alarm Definition window.

   II. Enter the details for the General window:
III. Click Next.

The **Triggers** window is displayed.

IV. Enter the details for the **Triggers** window:
b. You can define an alarm to trigger for a specific memory alert by checking the evDescription field for the text that matches the alert:

- **evDescription**—starts with 'Correctable memory errors require a replacement of the memory module'

I. Navigate to **New Alarm Definition** window.

II. Enter the details for the **General** window:
III. **Click Next.**

The **Triggers** window is displayed.

IV. **Enter the details for the Triggers window:**
NOTE:
For information on format of specific alerts, see documentation on HPE OneView, HPE iLO, and HPE Onboard Administrator.

For information on creating custom Alarm Definitions, see VMware documentation.

NOTE:
Previous version of HPE OneView for VMware vCenter created example Alarm Definitions in vCenter. This version of HPE OneView for VMware vCenter does not create these examples but they might still be visible if HPE OneView for VMware vCenter was upgraded. These Alarm Definitions can be referenced as examples or deleted.
Troubleshooting

Symptom
Before troubleshooting issues with HPE OneView for VMware vCenter, you must do the following:

• Verify that the correct user name and password are entered for vCenter Server.
• Verify that the software is installed and configured as described in the *HPE OneView for VMware vCenter Installation Guide*.

• **Troubleshooting HPE OneView for VMware vCenter**
• **Troubleshooting the HPE OneView for VMware vCenter for Server**
• **Troubleshooting the HPE OneView for VMware vCenter for Storage**

Troubleshooting HPE OneView for VMware vCenter

**Cause**
This section includes general troubleshooting information for HPE OneView for VMware vCenter.

For troubleshooting information specific to the HPE OneView for VMware vCenter for Server, see **Troubleshooting the HPE OneView for VMware vCenter for Server**. For troubleshooting information specific to the HPE OneView for VMware vCenter for Storage, see **Troubleshooting the HPE OneView for VMware vCenter for Storage**.

This section covers the following troubleshooting solutions for HPE OneView for VMware vCenter:

• **HPE Storage menu not available in the vSphere Client/Web client**
• **Stale or corrupt cache or cookies result in GUI anomalies**

HPE Storage menu not available in the vSphere Client/Web client

**Symptom**
Unable to access the HPE Storage menu in the vSphere Client/Web client.

**Cause**
The vSphere has not deployed the plug-in.

**Action**

1. Log out of the vSphere Client/Web client and then log back in.
2. If the icon still does not appear, ensure that the network firewall is not blocking ports that are used by HPE OneView for VMware vCenter.
3. If there is no port blocking, ensure that the vCenter server and HPE OneView for VMware vCenter can lookup each other over network based on the IP address and FQDN.
4. A restart of the vSphere UI service in vCenter or restart of the vCenter may be needed.
Stale or corrupt cache or cookies result in GUI anomalies

Symptom
Stale, corrupt cache or cookies can result in GUI anomalies

Cause
HPE OneView for VMware vCenter browser/proxy server may have cached data that is being displayed.

Action
Clear the cache in the browser.

Troubleshooting the HPE OneView for VMware vCenter for Server

Cause
This section includes troubleshooting information specific to the HPE OneView for VMware vCenter for Server.

For general HPE OneView for VMware vCenter troubleshooting, see Troubleshooting HPE OneView for VMware vCenter. For troubleshooting information specific to the HPE OneView for VMware vCenter for Storage, see Troubleshooting the HPE OneView for VMware vCenter for Storage.

This section covers the following troubleshooting solutions for HPE OneView for VMware vCenter for Server:

- Health status or information is missing for specific hosts or clusters
- No Virtual Connect information is available for this host error

Health status or information is missing for specific hosts or clusters

Possible cause: Active and properly authenticated communication between vCenter Server, HPE OneView for VMware vCenter, ESXi Offline Bundle for VMware ESXi, or Virtual Connect Manager (blades only), and the managed nodes is not established with their management processors.

Action: Verify that properly authenticated communication is established.

- Verify that the iLO information is associated correctly with the corresponding host system.
- Verify that the ESXi Offline Bundle for VMware ESXi are installed and that the credentials are properly configured in HPE OneView for VMware vCenter.
- Verify that either the global credentials or the credentials specific to each iLO, Onboard Administrator, and VMware host are configured properly.
- Ensure that the initial polling cycle is complete. This may take a few moments, depending on the settings.

No Virtual Connect information is available for this host error

The following scenarios can cause this error:

- Servers are not blade servers.
- The blade server is not configured with Virtual Connect.
Troubleshooting the HPE OneView for VMware vCenter for Storage

This section includes troubleshooting information specific to the HPE OneView for VMware vCenter for Storage.

For general HPE OneView for VMware vCenter troubleshooting, see Troubleshooting HPE OneView for VMware vCenter.

For troubleshooting information specific to the HPE OneView for VMware vCenter for Server, see Troubleshooting the HPE OneView for VMware vCenter for Server.

This section covers the following troubleshooting solutions:

- Configuration Using the Administrator Console
- HPE OneView for VMware vCenter for Storage for vCenter GUI not responsive to mouse clicks
- HPE MSA Storage System Information not Displayed in HPE OneView for VMware vCenter for Storage GUI
- Duplicate LUNs Displayed in HPE OneView for VMware vCenter for Storage Interface
- LUN displayed multiple times for VM or datastore that is part of a cluster
- Internet Explorer script error occurs in environment with 100 or more LUNs
- Expand or Delete on MSA datastore or virtual disk fails
- HPE Storage pages show stale information
- Provisioning operation fails
- Change in HPE Storage Systems must be re-registered
- Storage size expansion of thinly provisioned Datastore created on certain HPE MSA SAS array configuration may not be allowed

Configuration Using the Administrator Console

To configure vCenters and storage systems, you must have administrator privileges with valid credentials to login to the Administrator console. However, this does not grant the VMware Administrator role that is required to perform HPE OneView for VMware vCenter for Storage for provisioning operations on Hewlett Packard Enterprise storage systems. To use the HPE OneView for VMware vCenter for Storage for provisioning features, you must configure the VMware Administrator role in a vSphere session. For instructions, see the HPE OneView for VMware vCenter Installation Guide.

HPE OneView for VMware vCenter for Storage for vCenter GUI not responsive to mouse clicks

Possible cause: The Temporary Internet Files directory is full.

Action: Delete the temporary files created by Internet Explorer.
HPE MSA Storage System Information not Displayed in HPE OneView for VMware vCenter for Storage GUI

Possible cause: The SMI-S service on the storage system might be unresponsive.
Use the following actions to solve this issue. If one action does not work, proceed to the next action.

Action: Restart the HPE MSA SMI-S service. This will not affect disk access.

Procedure

1. Log in to the SMU interface of the HPE MSA storage system as a user with Manage access. Use the available management IP address, applicable for MSA Storage Systems with firmware version GL220 or later (for example: http://Management_IP_address/v3/).


3. Enable the check box under Storage Management Initiative Specification (SMI-S), and then click OK.

4. Re-apply the Storage Management Initiative Specification (SMI-S) by selecting the check box under Storage Management Initiative Specification (SMI-S) in Set Up System Services dialog box, and then click OK.

5. The SMI-S service is now running.

6. Refresh the HPE OneView for VMware vCenter for Storage cache.

7. For instructions, see Initiate refresh.

Action 2: Restart the HPE MSA storage system management controller.

IMPORTANT:
This procedure restarts the HPE MSA storage system controller. If you restart a management controller, communication with it is lost until it restarts successfully. This will not affect disk access. If the restart fails, the partner management controller remains active with full ownership of operations and configuration information. Other applications (such as Microsoft VSS and VDS) that rely on the management controller services might be affected.

1. Log in to the SMU interface of the HPE MSA storage system as a user with Manage access. Use the available management IP address applicable for MSA Storage Systems with firmware version GL200 or later (for example: http://Management_IP_address/v3).

2. Navigate to System topics > Action > Restart System.

3. Determine which controller has the IP address used in step 1.

4. Select the following:
   • Operation: Restart
   • Controller type: Management
   • Controller Module: A or B, as determined in step 3.

5. Click OK.

6. Wait till the storage system is operational to log in to the SMU.

7. Refresh the HPE OneView for VMware vCenter for Storage cache.
Duplicate LUNs Displayed in HPE OneView for VMware vCenter for Storage Interface

Possible cause: When using multipathing, duplicate LUNs might be displayed if a LUN is presented to a host using different LUN numbers across multiple paths.

Action: There are two options for addressing this issue:

Procedure

1. Reconfigure the LUNs so they have a single LUN number across all paths. For more information, see article 1003973 in the VMware Knowledge Base.

2. Disable the VMware advanced setting Scsi.CompareLUNNumber.
   a. Select a host in the vSphere Web Client.
   b. Click the Configuration tab.
   c. Click Advanced Settings in the Software pane.
   d. Click Scsi in the list of advanced settings.
   e. Edit the Scsi.CompareLUNNumber value, and then click OK.

LUN displayed multiple times for VM or datastore that is part of a cluster

Possible cause: The Storage Module for vCenter uses an ESXi Host+LUN number as the unique identifier. When a single LUN is presented to multiple hosts that are part of a cluster, the LUN is listed on the Related VMs and Related Datastores pages for each host.

Action: LUNs with the same disk names are duplicates and represent a single disk on the storage system.

Internet Explorer script error occurs in environment with 100 or more LUNs

The following message occurs during a refresh in an environment with 100 or more LUNs:

Stop running this script? A script on this page is causing Internet Explorer to run slowly. If it continues to run, your computer might become unresponsive.

Possible cause: An Internet script is taking too long to complete.

Action: Click No.

Action: Add or modify the registry entry.

Procedure

1. Open the registry key HKEY_CURRENT_USER\Software\Microsoft\Internet Explorer\Styles. If the key does not exist, add it.

2. Create a DWORD value called MaxScriptStatements under the key you opened or created in.

3. Assign the value 0x00FFFFFFFF to prevent the script error. To prevent Internet Explorer from displaying this error message again, use the value 0xFFFFFFFF.
Expand or Delete on MSA datastore or virtual disk fails

Datastore expansion or deletion fails

**Cause**: MSA allows only snap-pool, base, or standard type datastores to be expanded or deleted. If a datastore or virtual disk is part of replication set, it cannot be expanded or deleted.

**Action**: Remove the replication-set and associated snapshots and snap-pools for the virtual disk. Ensure that disk type is shown as standard or base before deleting.

HPE Storage pages show stale information

**Cause**

Cache in storage module is not up to date.

**Action**

Trigger a global refresh and wait till completion followed by browser refresh.

Provisioning operation fails

**Cause**

One of the causes could be that the credential etc. has changed on the storage system.

**Action**

If there is change in name/access to storage system or access to vCenter or any new storage pool is added then go to the admin console and edit or remove followed by add of the respective vCenter/storage system.

Change in HPE Storage Systems credentials must be re-registered

**Symptom**

Any change in Storage System credentials needs to be re-registered.

**Cause**

As per design when we add a Storage System to HPE OneView for VMware vCenter, it saves the credentials in the database and uses the same for all operations/queries. If a user updates the System password at any point in time, then it becomes unmanageable.

**Action**

Re-register the Storage System continue managing the operations/queries.

Storage size expansion of thinly provisioned Datastore created on certain HPE MSA SAS array configuration may not be allowed

**Symptom**

The user is not able to expand the datastore as Over provisioned.
**Cause**

UI layer does not allow to expand the volume as overcommitted on HPE MSA SAS arrays.

**Action**

1. Login to HPE MSA 1040/2040/2042/1050/2050/2052 SAS storage array to check if overcommit is enabled. This can be checked by login in through SSH and executing “show pools” or hovering over the target pool displayed under pools tab on SMU.

2. If Overcommit is enabled, user must manually expand the volume using array provided options and rescan storage adapter on the host.

   This will allow HPE OneView for VMware vCenter users to see and use updated Datastore space.
Websites

General websites
Hewlett Packard Enterprise Information Library
   www.hpe.com/info/EIL
Single Point of Connectivity Knowledge (SPOCK) Storage compatibility matrix
   www.hpe.com/storage/spock
Storage white papers and analyst reports
   www.hpe.com/storage/whitepapers

For additional websites, see Support and other resources.
Support and other resources

Accessing Hewlett Packard Enterprise Support

• For live assistance, go to the Contact Hewlett Packard Enterprise Worldwide website:
  http://www.hpe.com/assistance

• To access documentation and support services, go to the Hewlett Packard Enterprise Support Center website:
  http://www.hpe.com/support/hpesc

Information to collect

• Technical support registration number (if applicable)
• Product name, model or version, and serial number
• Operating system name and version
• Firmware version
• Error messages
• Product-specific reports and logs
• Add-on products or components
• Third-party products or components

Accessing updates

• Some software products provide a mechanism for accessing software updates through the product interface. Review your product documentation to identify the recommended software update method.

• To download product updates:
  Hewlett Packard Enterprise Support Center
  www.hpe.com/support/hpesc
  Hewlett Packard Enterprise Support Center: Software downloads
  www.hpe.com/support/downloads
  Software Depot
  www.hpe.com/support/softwaredepot

• To subscribe to eNewsletters and alerts:
  www.hpe.com/support/e-updates

• To view and update your entitlements, and to link your contracts and warranties with your profile, go to the Hewlett Packard Enterprise Support Center More Information on Access to Support Materials page:
  www.hpe.com/support/AccessToSupportMaterials
IMPORTANT:
Access to some updates might require product entitlement when accessed through the Hewlett Packard Enterprise Support Center. You must have an HPE Passport set up with relevant entitlements.

Registering for software technical support and update service

Insight Management includes one year of 24 x 7 Hewlett Packard Enterprise Software Technical Support and Update Service. This service provides access to technical resources for assistance in resolving software implementation or operations problems.

The service also provides access to software updates and reference manuals in electronic form as they are made available from Hewlett Packard Enterprise. Customers who purchase an electronic license are eligible for electronic updates.

With this service, Insight Management customers benefit from expedited problem resolution as well as proactive notification and delivery of software updates. For more information about this service, see the HPE OneView Services website at HPE OneView Services.

Registration for this service takes place following online redemption of the license certificate.

How to use your software technical support and update service

As Hewlett Packard Enterprise releases updates to software, the latest versions of the software and documentation are made available to you. The Software Updates and Licensing portal gives you access to software, documentation and license updates for products on your Hewlett Packard Enterprise software support agreement.

You can access this portal from the Hewlett Packard Enterprise Support Center:

Hewlett Packard Enterprise Support Center

After creating your profile and linking your support agreements to your profile, see the Software Updates and Licensing portal at http://www.hpe.com/info/hpesoftwareupdatesupport to obtain software, documentation, and license updates.

Related information

The following documents and websites provide related information:

Documents

• HPE Insight Control Getting Started Guide
• HPE Systems Insight Manager User Guide
• HPE iLO User Guide
• HPE BladeSystem Onboard Administrator User Guide
• HPE Insight Management Support Matrix
Customer self repair

Hewlett Packard Enterprise customer self repair (CSR) programs allow you to repair your product. If a CSR part needs to be replaced, it will be shipped directly to you so that you can install it at your convenience. Some parts do not qualify for CSR. Your Hewlett Packard Enterprise authorized service provider will determine whether a repair can be accomplished by CSR.

For more information about CSR, contact your local service provider or go to the CSR website:

http://www.hpe.com/support/selfrepair

Remote support

Remote support is available with supported devices as part of your warranty or contractual support agreement. It provides intelligent event diagnosis, and automatic, secure submission of hardware event notifications to Hewlett Packard Enterprise, which will initiate a fast and accurate resolution based on your product's service level. Hewlett Packard Enterprise strongly recommends that you register your device for remote support.

If your product includes additional remote support details, use search to locate that information.

Remote support and Proactive Care information
HPE Get Connected
www.hpe.com/services/getconnected
HPE Proactive Care services
www.hpe.com/services/proactivecare
HPE Proactive Care service: Supported products list
www.hpe.com/services/proactivecaresupportedproducts
HPE Proactive Care advanced service: Supported products list
www.hpe.com/services/proactivecareadvancedsupportedproducts

Proactive Care customer information
Proactive Care central
www.hpe.com/services/proactivecarecentral
Proactive Care service activation
www.hpe.com/services/proactivecarecentralgetstarted

Warranty information

To view the warranty for your product or to view the Safety and Compliance Information for Server, Storage, Power, Networking, and Rack Products reference document, go to the Enterprise Safety and Compliance website:

www.hpe.com/support/Safety-Compliance-EnterpriseProducts

Additional warranty information
HPE ProLiant and x86 Servers and Options
www.hpe.com/support/ProLiantServers-Warranties
HPE Enterprise Servers
www.hpe.com/support/EnterpriseServers-Warranties
HPE Storage Products
www.hpe.com/support/Storage-Warranties
Regulatory information

To view the regulatory information for your product, view the Safety and Compliance Information for Server, Storage, Power, Networking, and Rack Products, available at the Hewlett Packard Enterprise Support Center:

www.hpe.com/support/Safety-Compliance-EnterpriseProducts

Additional regulatory information

Hewlett Packard Enterprise is committed to providing our customers with information about the chemical substances in our products as needed to comply with legal requirements such as REACH (Regulation EC No 1907/2006 of the European Parliament and the Council). A chemical information report for this product can be found at:

www.hpe.com/info/reach

For Hewlett Packard Enterprise product environmental and safety information and compliance data, including RoHS and REACH, see:

www.hpe.com/info/ecodata

For Hewlett Packard Enterprise environmental information, including company programs, product recycling, and energy efficiency, see:

www.hpe.com/info/environment

Documentation feedback

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Creating a custom build plan

When using the enhanced deployment option to grow a cluster, a custom build plan is required.

Use the following procedure to create a custom build plan for growing a cluster.

Procedure

1. Log in to HPE Insight Control server provisioning.
2. Select Configuration Files from the DEPLOYMENT options.
3. Select the Kickstart configuration file to modify, and then select Save as in the Actions menu.
4. Enter a valid name for the new Kickstart file, and then click OK.

**NOTE:**

For the build plan to be available in the HPE OneView for VMware vCenter plugin, the name must contain “esx” (case insensitive).

5. Select the new Kickstart file, and then select Edit in the Actions menu.
6. Add the following lines to the Kickstart file. These lines must be added before the ## post-install script line as shown in Figure 4: Script example on page 90. This script can be used for ESXi version 5.0 and above.

```bash
## OV4VC custom values
%firstboot
VMNIC=$(esxcli network nic list | grep -i @mgmt_mac_address@ | awk -F " " '{ print $1 }')
esxcli network vswitch standard uplink remove --uplink-name=vmnic0 --vswitch-name=vSwitch0
esxcli network vswitch standard uplink add --uplink-name=$VMNIC --vswitchname= vSwitch0
esxcli network ip interface ipv4 set --interface-name=vmk0 --ipv4=@@ip_address@ --netmask=@net_mask@ --type=static
esxcli network ip route ipv4 add --gateway @gate_way@ --network default
esxcli network ip dns server remove --server "" -a
esxcli network ip dns server add --server @primary_dns_server@
esxcli network ip dns server add --server @alternate_dns_server@
esxcli system hostname set --host @host_name@ --domain @domain_name@
# If vlan tagging is not used then vlan_id value should be 0 # A vlan_id of 0 disables vlan_tagging in ESX and causes Mgmt to use interface of vswitch
esxcli network vswitch standard portgroup set --portgroup-name "Management Network" --vlan-id @vlan_id@
services.sh restart
```
7. Click OK to save the updated Kickstart configuration file.

8. Select OS Build Plans from the DEPLOYMENT options.

9. Select the OS Build Plan to modify, and then select Save as in the Actions menu.

10. Enter a valid name for the new custom OS Build Plan, and then click OK.

11. Select the new custom OS Build Plan, and then select Edit in the Actions menu.

   The OS Build Plan Edit window opens.

12. Select the ESXi 5.1 Kickstart Config File step (step 6 in the sample figure), and then click the Edit icon.

   The Edit Step window opens.
13. In the Configuration File field, select the new Kickstart configuration file created in the preceding steps.

14. Verify that the Install path field value is maintained from the original OS Build Plan.

15. Click OK to save the edits to the step.

16. Click OK in the OS Build Plan Edit window to save the new build plan.

The new custom build plan can now be used to grow a cluster using the enhanced deployment option.