# HPE OneView Deployment and Management Guide

## HPE OneView 3.0

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Introduction

Welcome to the Deployment and Management Guide for the HPE OneView 3.0 release. This document is intended to be a quick start guide as well as a reference guide for operations and administrators of HPE OneView.

HPE OneView provides a simple, consumer-inspired user experience that dramatically accelerates the everyday tasks of a Composable Infrastructure. By changing the focus from ‘how devices are managed’ to ‘how people work,’ HPE OneView delivers a software-defined management platform that is extensible and easy to use.

This first half of the document will guide administrators through the setup process, and how to manage the next generation of Composable Infrastructure with HPE OneView. The flow chart below outlines these steps.

This second half of the document will serve as a reference guide to administrators for the various functions they will encounter day to day as they Manage an environment with HPE OneView.

HPE OneView 3.0 Features

The following list outlines the features in the HPE OneView 3.0 release:

Table 1. HPE OneView 3.0 Features

<table>
<thead>
<tr>
<th>RAID Configuration for DL Servers</th>
<th>DL RAID support for embedded controllers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Live OneView Migration Support</td>
<td>In-service Virtual Connect to HPE OneView migration of up to 4 enclosures in parallel</td>
</tr>
<tr>
<td>Monitoring mode for Apollo servers</td>
<td>Apollo 2000 server models</td>
</tr>
<tr>
<td></td>
<td>Apollo 4000 server models</td>
</tr>
<tr>
<td></td>
<td>Apollo 6000 server models</td>
</tr>
</tbody>
</table>
RESTful integration with CloudSystem 10

Automated cluster deployment via the RESTful API for CloudSystem 10 and Cloud Services Automation (CSA)

Scope based resource control

Scopes support enables logically groups resources

Integrated Remote Support

Remote support for c7000, Gen8+ BLs, DLs and Apollos to receive 24x7 monitoring, pre-failure alerts, and automatic call logging.

16GB Fibre Channel Support

Support for the HPE Virtual Connect 16Gb 24-port Fibre Channel Module to accelerate migration to HPE OneView

Support for 8 physical functions

Support for 8 physical functions per NIC port on HPE FlexFabric 20Gb 650FLB/mezzanine adapters with HPE VC FlexFabric-20/40 F8 module

SPP Database size increased

SPP firmware repository size increased to 100 GB

Browser Requirements

Please note that the following web browsers are a minimum requirement:

Table 4. Supported Browsers

<table>
<thead>
<tr>
<th>Web Browser</th>
<th>Version</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internet Explorer</td>
<td>11 (v10 only on Windows Server 2012)</td>
</tr>
<tr>
<td>Mozilla Firefox</td>
<td>45.x (ESR 45.x)</td>
</tr>
<tr>
<td>Google Chrome</td>
<td>50.x</td>
</tr>
<tr>
<td>Safari</td>
<td>Unsupported</td>
</tr>
<tr>
<td>Opera</td>
<td>Unsupported</td>
</tr>
</tbody>
</table>

Supported Hardware

Supported Enclosures

- All c7000 BladeSystem Enclosures

Supported Servers

- All HPE ProLiant Gen9 BL-family of servers
- All HPE ProLiant Gen8 BL-family of servers
- All HPE ProLiant Gen9 DL-family of servers
- All HPE ProLiant Gen8 DL-family of servers
- DL360 Gen8 and DL380 Gen8 servers support limited Server Profile configuration (BIOS Settings only)

Limited server profile configuration for HPE ProLiant G7 servers

Monitoring only for HPE Apollo 2000, 4000 and 6000 servers

Monitoring only for HPE ProLiant G6 servers

Supported IO Adapters

- All HPE Flex-10, FlexFabric 10Gb and FlexFabric 20Gb adapters
- 8Gb Fibre Channel HBAs: HPE QMH2562 8Gb FC HBA, HPE LPe1205 8Gb HBA
- 16Gb Fibre Channel HBAs: HPE QMH2672 16Gb HBA, HPE LPe1605 16Gb HBA
- Passive support for 1Gb, non-Flex10, and InfiniBand adapters.

Supported Interconnects

1 Please review the HPE OneView Support Matrix on [http://www.hpe.com/info/oneview/docs](http://www.hpe.com/info/oneview/docs)

2 Device is allowed, but will not be managed by HPE OneView, nor the corresponding interconnect module via the Server Profile or Logical Interconnect Group.
• HPE Virtual Connect FlexFabric 10Gb/24-Port Module
• HPE Virtual Connect FlexFabric 20Gb/40Gb F8 Module
• HPE Virtual Connect Flex-10 10Gb Ethernet Module
• HPE Virtual Connect Flex-10/10D Ethernet Module
• HPE Virtual Connect 20-port 8Gb Fibre Channel Module
• HPE Virtual Connect 24-port 8Gb Fibre Channel Module
• HPE Virtual Connect 24-port 16Gb Fibre Channel Module

Supported HPE 3PAR StoreServ Storage

• HPE 3PAR StoreServ 7000/8000
• HPE 3PAR StoreServ 10000/20000

Support Fibre Channel Fabric Managers

• Brocade SAN Network Advisor (FC only)
• HPE 5900CP/AF, 5930 (FC & FCoE)
• Cisco Nexus 5500/6000 (FC & FCoE)
• Cisco MDS (FC & FCoE)

Hardware Firmware and Fibre Channel Fabric Manager Minimum Requirements

Table 5 shows the minimum firmware requirements needed to successfully import an enclosure. Firmware will be updated via the appliance to the required versions later in this document.

Table 5. Minimum Firmware/Software Requirements

<table>
<thead>
<tr>
<th>Onboard Administrator</th>
<th>4.10 or newer</th>
</tr>
</thead>
<tbody>
<tr>
<td>iLO4</td>
<td>2.44 or newer</td>
</tr>
<tr>
<td>iLO3</td>
<td>1.61 or newer</td>
</tr>
<tr>
<td>iLO2</td>
<td>2.13 or newer</td>
</tr>
<tr>
<td>Virtual Connect</td>
<td>4.10 or newer</td>
</tr>
<tr>
<td>HPE 3PAR OS</td>
<td>3.1.3 or newer</td>
</tr>
<tr>
<td>Brocade SAN Network Advisor</td>
<td>12.1.4 or newer</td>
</tr>
</tbody>
</table>

Table 6. Post Import Firmware Minimum Version

<table>
<thead>
<tr>
<th>Onboard Administrator</th>
<th>4.01</th>
</tr>
</thead>
<tbody>
<tr>
<td>iLO4 for Gen8 servers</td>
<td>1.40</td>
</tr>
<tr>
<td>iLO4 for Gen9 servers</td>
<td>2.03</td>
</tr>
<tr>
<td>iLO3</td>
<td>1.70</td>
</tr>
<tr>
<td>Virtual Connect</td>
<td>4.20</td>
</tr>
</tbody>
</table>

Note

The Appliance Virtual Machine should not be deployed on a hypervisor within the same enclosure it will manage. Please use an externally available hypervisor host.

Table 7 shows the HPE OneView 3.0 Configuration Maximums.
### Table 7. Supported Maximums

<table>
<thead>
<tr>
<th>Category</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Servers</td>
<td>640</td>
</tr>
<tr>
<td>Servers per Enclosure</td>
<td>16</td>
</tr>
<tr>
<td>Total Enclosures</td>
<td>40</td>
</tr>
<tr>
<td>Total Interconnects</td>
<td>160 / 240</td>
</tr>
<tr>
<td>Total Enclosure Groups</td>
<td>40</td>
</tr>
<tr>
<td>Total Server Profiles</td>
<td>740</td>
</tr>
<tr>
<td>Assigned Server Profiles</td>
<td>640</td>
</tr>
<tr>
<td>Total Unassigned Server Profiles</td>
<td>100</td>
</tr>
</tbody>
</table>

1. HPE OneView 1.10 and newer releases.
HPE OneView User Interface Overview

The entirely new HPE OneView user experience is significantly improved from previous generations of HPE Management software (e.g. HPE System Insight Control.) The HPE OneView user interface is built using modern web programming languages, HTML5 and CSS3. Below is an example of what the User Interface (UI) looks like.

Figure 1. HPE OneView User Interface

- The Top Level Menu is used for navigating the different sections of the UI. Each section is then categorized based on function and/or role (Servers, Networking, Storage, Facilities).
- The Universal Search bar defaults to local context searching, but can also search the global index for resources the administrator is looking for.
- The Sub-Menu is where the current context view, or the Details Pane, can be changed for the select Resource.
- The Activity Details section within the Details Pane will display the most recent activity, whether it was an Administrator performing actions or an automated alert is generated. It can be expanded to view further details, and the administrator can then navigate to the activity item to clear, assign or provide notes regarding the event.
- The Actions menu is also context and resource specific, and provide the administrator with specific actions to perform for a selected resource.
- The Activity Window displays the current activity of the administrator performing various actions within their session, which can be pinned out or collapsed to increase the viewing dimensions of the Details Pane. Individual activity items can be selected, and then directly navigated to in the case of Create and Update actions.

HPE OneView Virtual Connect Management Architecture Overview

HPE OneView’s Virtual Connect management architecture is different from that of Virtual Connect Manager (VCM) or even Virtual Connect Enterprise Manager (VCEM). While VCM provided a consolidated management view, it is limited to a maximum of 4 Enclosures within a Multi-Stack Enclosure (MES) Domain configuration. This limits management scalability. VCEM represents a Manager-of-Managers architecture, where VCM is put into a locked state, and VCEM controls the
configuration. When an enclosure containing Virtual Connect modules is claimed and managed by HPE OneView, Virtual Connect Manager is no longer in use. It cannot be used for any level of management, as HPE OneView is the manager. There will be a hyperlink on the Virtual Connect Manager page to take the user to the HPE OneView that is managing that Virtual Connect instance.

**Deploying Your Appliance**

This segment will guide you through deploying your HPE OneView appliance. It will cover the various steps within the First Time Setup experience.

---

**Note**

It is not supported to deploy the HPE OneView Management appliance on a Virtual Machine host that is inside a blade enclosure managed by this HPE OneView instance.

---

**Microsoft Windows Server 2012 Hyper-V**

HPE OneView supports Microsoft Windows Server Hyper-V as a hosting platform. The following steps outline the process to import the template.

1. **Within the Hyper-V Management Console, select *Import Virtual Machine***.

   ![Import Virtual Machine](image1)

2. **Specify the directory where the extracted appliance contents are located.**

   ![Import Virtual Machine](image2)

3. **Click Next**
4. **Select the appropriate option for your environment**

5. **Click Finish at the Summary screen.**

6. **Once the VM has been deployed, edit the Settings.**
7. **Under the VM settings, update the Network Adapter with the appropriate virtual switch.**

8. **Click OK to save the settings**

9. **Start the virtual machine.**

---

**VMware vSphere 5.x or Newer**

1. **Select File > Deploy OVF Template within vSphere**
2. Select Browse then select the OVA file from the location where the file is stored

3. Verify the options selected and click Next.

4. Name the appliance

5. Click Next
6. Select the host or cluster that will run the HPE OneView appliance and click Next.

7. Select the resource pool that will host the HPE OneView appliance and click Next.
8. Select the storage location for the HPE OneView appliance and click Next

9. Select the disk format that will be used for HPE OneView appliance and click Next. HPE recommends that Thick Provision Lazy Zeroed be used for the HPE OneView appliance.
10. Select the network that will support the HPE OneView appliance

11. Click Next

12. Verify that the settings are correct and click Finish
13. The progress window will show you the status of the deployment process.

14. Proceed to the First Time Setup to begin to use your HPE OneView appliance

First Time Setup

- Change Administrator password
- Accept EULA
- Remote Support Opt- in
- Configure Appliance IP Settings

Completing the HPE OneView appliance First Time Setup is designed to be simple and straightforward. By default, the management interface is configured for IPv4/DHCP. If DHCP is not available on the management network you can access the Kiosk Browser within the VM console from the vSphere Client to complete the initial setup. If DHCP is available, you can configure the appliance with a browser remotely to complete the First Time Setup. The First Time Setup consists of Accepting a License Agreement, HPE Remote Support Access for remote troubleshooting, changing the default Administrator account password and configuring IP information.

Installation Checklist

Prior to continuing with this document, please make sure you have completed the following:

<table>
<thead>
<tr>
<th>Task</th>
<th>Completed? (Y/N)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 8. Installation Checklist
Have a supported Microsoft Hyper-V or vSphere 5\(^4\) host for appliance

Have Static IP Address, or DHCP Static Reservation

Have DNS A and PTR Records created

Have NTP Server FQDN or IP Address information

1. **Obtain the Virtual Machine IP Address from the VMware VIClient**

![Virtual Machine Screenshot](image)

2. **Open a supported Web Browser to the noted IP Address to complete the First Time Setup. If DHCP is not available, then you can continue the following steps using the embedded Kiosk Browser, by launching the VMware VM Remote Console or the Microsoft Hyper-V Remote Console.**

**Note**
If the hypervisor host is Window Server Hyper-V, then the First Time Setup must be completed using the appliance console via the Hyper-V Remote Console.

3. **Read and accept the licence agreement.**

\(^4\) Please review the HPE OneView Support Matrix on [http://www.hpe.com/info/oneview/docs](http://www.hpe.com/info/oneview/docs) for the officially supported hypervisors.
4. The HPE Support Access Opt-In is used for HPE Support Services remote access when the appliance is in an unhealthy state, and core services cannot start. By opting out, this also disables the ability to reset the appliance Administrator account password if ever lost.

5. Login to the appliance using the default credentials

<table>
<thead>
<tr>
<th>Table 9. Appliance Administrator Default Credentials</th>
</tr>
</thead>
<tbody>
<tr>
<td>Username</td>
</tr>
<tr>
<td>-----------------</td>
</tr>
<tr>
<td>Administrator</td>
</tr>
</tbody>
</table>
6. Change the default Administrator password.

7. In the General section of the Appliance Networking window, enter a hostname for the appliance (e.g. hpeoneview.example.com)
   a. If you specify an FQDN, verify A and PTR records exist. The appliance will perform an nslookup of the FQDN and IP address and report an appliance warning if neither are available.

8. In the IPv4 section of the Appliance Networking window, enter the IPv4 Address, Subnet Mask and Default Gateway for the appliance (DHCP or Static can be used).
   a. DHCP is only supported when Static Reservations are used.
9. (Optional) In the DNS section of the Appliance Networking window, enter the Preferred and Alternate DNS server addresses for the appliance.

10. (Optional) In the IPv6 section of the Appliance Networking window, configure the IPv6 address for the appliance.

11. Click OK to apply the configuration.

12. After clicking OK, the appliance will configure those parameters. If you selected Static for the IP Address Assignment, you should be redirected to the new IP address. Please accept the certificate security warnings during the redirection, as a new SSL certificate is generated from the FQDN.
Set Time and Language (Optional)

1. From the main menu, click Settings

2. Click the Time and Language section of the settings window
3. On the Actions Menu, select **Edit**

![](image)

4. Configure the NTP, Date and Locale information for the appliance

![](image)

5. Click **OK** to apply the changes.

---

**Note**

The locale changes will require a restart of the HPE OneView appliance.

---

**Firmware Repository**

The HPE OneView 3.0 appliance does not ship with a default SPP. It is necessary to upload an SPP into the appliance, unless a custom baseline (created by HPSUM6 or newer) is required.

1. From the Top Level Menu, select **Firmware Bundles**
2. To upload an SPP Bundle, click the **Add Firmware Bundle** button

3. On the Add Firmware Bundle window, click on the **Browse** button, and select the SPP ISO to upload.

4. Once selected, click the **Start Upload** button. You can also drag-and-drop firmware bundles (SPPs) within Windows environments. You can navigate away from the Firmware Bundle screen to other areas within the UI, as the upload process is a background process within the browser.
5. The SPP upload will begin. You can click the Close button in the lower right, as that will only close the dialog box and not cancel the upload.

**Note**
Do not close the browser window until the Firmware Upload task has completed.

---

**Adding HPE OneView Advanced Licenses to the HPE OneView Appliance**

HPE OneView licensing is designed to be simplified, with the Advanced license typically embedded within the ILO or Onboard Administrator when ordered with Factory Express, CTO or BTO. Please refer to the HPE OneView Quickspecs for all possible licensing options.

HPE OneView also has a built-in 60-day Advanced evaluation license. During this HPE OneView Advanced license evaluation period, HPE OneView will not enable ILO Advanced features or functionality. The ILO Advanced license (trial or retail) is also required for server and enclosure power and performance monitoring.

If you have received a license key, use the appliance Settings menu to add licenses to the internal pool. The following steps outline that process.

1. **From the Top Level Menu, and navigate to Settings in the console**

2. **From the main settings menu, select Licenses**

3. **Select Add License.**
4. In the Add License dialog box, paste in your license key in the dialog box and click Add to apply the license.

5. On the Licenses page, verify that your license count has increased.

Network Configuration

First Time Setup Configure Networking Discover Hardware Upgrade Firmware Server Profiles Environment Management Appliance Security

In this section, you will create Networks, Network Sets, Logical Interconnect Groups and Enclosure Groups.

Networks are constructs within the appliance that define a particular L2 network or FCoE/FC Fabric. A Network will be an object you can assign to Server Profiles, Network Sets, and Logical Uplink Sets. HPE OneView supports Virtual Connect Active/Active networking, so each Ethernet Network does not require unique VLAN IDs. Similar to Virtual Connect provisioning all Ethernet Networks to all Ethernet modules within a Virtual Connect Domain, HPE OneView provisions all defined Ethernet Networks to all managed Ethernet-capable modules.
Network Sets are aggregated networking objects that contain Networks. The Network Set will be an object you can assign to Network Connections within Server Profiles to greatly simplify multiple network management. For instance, if you have a number of standard Networks required for Virtual Machine connectivity, which is different for physical servers, you can create different Network Sets for each host connectivity model. Network Sets replace the Multiple Networks Virtual Connect concept, and becomes the only way to trunk multiple networks to a Network Connection.

Logical Interconnect Groups are similar to Virtual Connect Enterprise Manager Domain Groups, which define what modules are located within the enclosure and the module configurations like IGMP Snooping, Loop Protection, Multicast Filtering, etc. Uplink Sets define uplink connectivity for Ethernet, FCoE and FC Networks, and are members of a Logical Interconnect Groups. The Logical Interconnect Group is then assigned to an Enclosure Groups to complete the Enclosure configuration policy. A Logical Interconnect is patterned after the Logical Interconnect Groups and is defined automatically once an Enclosure is added to the HPE OneView console by associating it to an Enclosure Group.

Uplink Sets are synonymous with the Shared Uplink Set within Virtual Connect, in that it defines the uplink connectivity for selected networks. An Uplink Set can either be an Ethernet or Fibre Channel type, but not both. Any defined Networks not associated with an Uplink Set become Internal Ethernet Networks to the Logical Interconnect, and are reported within the Logical Interconnect.

An HPE OneView Domain is a new concept to the Composable Infrastructure management framework. While you cannot create additional HPE OneView Domains, the appliance itself is a single Domain construct. An HPE OneView Domain consists of one or more Logical Interconnect Groups, Uplink Sets, Networks and help to define how Server Profiles consume these resources. When defining a Network, it will be available within the HPE OneView Domain for consumption by either a Logical Interconnect Groups, Logical Uplink Set, Logical Interconnect (for one-off configuration requirements) or Server Profiles (for Internal Only networks.)

Network Configuration Checklist

Prior to continuing with this document, please make sure you have completed the following:

| Task                                                   | Completed? (Y|N) |
|--------------------------------------------------------|----------------|
| Collect the Virtual Connect Module Types               |                |
| Note the uplink ports connected to the upstream switches|                |
| Document necessary VLAN IDs and names                  |                |
| Document necessary Fibre Channel Fabrics               |                |

Creating Ethernet Networks

1. Select the Top Level Menu, and select Networks.
2. Once on the Networks screen, click the +Create Network button on the far left.

3. In the Create Network Dialog box enter the name of the network. The Name is not case-sensitive. The name can contain spaces and special characters.

4. Select Ethernet as the Type

5. Select the VLAN type from the dropdown box

6. Enter the VLAN ID.
Note

The VLAN ID field can accept ranges of VLANs (i.e. 10,15,20-50) and will append “_VLANID” to the end of the network name.

7. Select the Purpose of the network from the dropdown list. The Purpose drop-down selection is used by the HPE OneView for vCenter Plugin5.

8. Assign the Preferred and Maximum bandwidth settings.

9. Enable any network options needed. Smart Link will automatically be selected by default. Selecting Private Network will mimic PVLAN behavior in that all assigned Network Connections will all be in an isolated network.

5 http://community.hpe.com/t5/Converged-Data-Center/Finally-an-integrated-tool-based-on-how-I-work/ba-p/6792411#V8zpFZqpt-V
10. Click the Create button to create the new Ethernet Network and close the Create Network dialog box. You can also select the Create+ button to continue creating more Networks – e.g. Create the B-Side Ethernet Network.

Creating Fibre Channel Networks

HPE OneView supports multi-hop FCoE Fabrics with either traditional Fibre Channel Fabric Attach, or Virtual Connect Flat SAN with HPE 3PAR StoreServ Direct Attach. Please choose the appropriate following scenario to create either a Fabric Attach or 3PAR Direct Attach Fabric.
Fabric Attached Network

1. From the Top Level Menu, select Networks, then select the +Create Network button.

2. In the Create Network dialog box, enter the Name of the Fibre Channel network.

3. Select Fibre Channel as the Network Type.

4. Select Fabric Attach as the Fabric Type.
Note
The Fabric Attach Fabric Type is used for traditional Fibre Channel Fabric connectivity, which requires NPIV-capable upstream FC switches.

Note
By selecting the Fabric Attach Fabric Type, you can assign any of the available X1-X4 ports on a Virtual Connect FlexFabric 10/24 module or ports X1-X8 for FlexFabric 20/40 F8 module to an FC switch, when creating the Uplink Set in the Logical Interconnect Group.

5. Set the Preferred and Maximum Bandwidth.

![](image1.png)

6. Set the desired Login Redistribution and Link Stability interval to be used.

![](image2.png)

7. Click the Create button to create the new Ethernet Network and close the Create Network dialog box. You can also select the Create+ button to continue creating more Networks.
HPE 3PAR StoreServ Direct Attach (Optional)

1. From the Top Level Menu, select Networks, then select the +Create Network button.

The HPE 3PAR StoreServ Flat SAN feature extends Virtual Connects “Wire-Once” management to the FC fabric by reducing the complexity, and cost of expensive FC switches. This feature is only supported with HPE 3PAR StoreServ arrays, and not with other HPE or 3rd party storage arrays.
2. In the Create Network dialog box, enter the Name of the Fibre Channel network.

3. Select Fibre Channel as the Network Type.

4. Select Direct Attach as the Fabric Type.

Note
By selecting the Direct Attach Fabric Type, you can assign any of the available X1-X4 ports on a Virtual Connect FlexFabric module to an HPE 3PAR StoreServ array.

5. Set the Preferred and Maximum Bandwidth.

6. Click the Create button to create the new Direct Attach Network and close the Create Network dialog box. You can also select the Create+ button to continue creating more Networks.
1. From the Top Level Menu, select **Networks**, then select the **+Create Network** button.
2. In the Create Network dialog box, enter the Name of the Fibre Channel over Ethernet network.

3. Select FCoE as the Network Type.

4. Enter the SAN that the FCoE network will be associated with.

5. Enter a VLAN ID.

6. Set the Preferred and Maximum Bandwidth.
7. Click the Create button to create the new Ethernet Network and close the Create Network dialog box. You can also select the Create+ button to continue creating more Networks.

Creating Network Sets

1. Select the Top Level Menu, and choose Network Sets.
2. **Click the +Create network set button.**

3. **From the Create Network Sets dialog menu, enter a name for the Network Set.**

4. **Set the Preferred and Maximum Bandwidth.**

5. **Click the Add Networks button.**
6. From the Add Networks Dialog Box, you can search for a Network or multiple Networks, or either click SHIFT/CTRL+Left Mouse Click to select which will either select all in section, or multi-select the networks to add. The following example shows how to find the “A-Side” Ethernet Networks, and create the “A-Side” Network Set.

7. Click Add once the desired networks are selected.

8. After clicking Add, you can select the specific network that will be the Native VLAN, or the default untagged network for the Servers Network Connection. This is typically used for PXE traffic.
9. **Click Create to create the Network Set**

![Create Network Set](image)

**Note**
If you are creating an Active/Active network design, repeat the prior steps to create the “B-Side” Network Set.

**Create Logical Interconnect Group**

- First Time Setup
- Configure Networking
- Discover Hardware
- Upgrade Firmware
- Server Profiles
- Environment Management
- Appliance Security

- Create Ethernet Networks
- Create Fibre Channel Networks
- (Optional) HPE 3PAR StorServ Direct Attach
- Create Fibre Channel over Ethernet Networks
- Network Sets
- Logical Interconnect Groups
- Enclosure Groups

1. **Select the Top Level Menu, and choose Logical Interconnect Group (LIG).**
2. Select +Create Logical Interconnect Group button.

3. Enter a name for the Logical Interconnect Group (LIG).

4. Using the drop down list, select the Interconnect Type to be used for the LIG

5. Click the Select Interconnects button

6. Using the dropdown list add the desired modules to Bays 1 and 2.
7. Select the correct Virtual Connect Modules, either VC Flex-10, VC Flex-10/10D or VC FlexFabric. When clicking the Add Module button next to the peer bay, the UI will automatically select the correct module.

Creating Uplink Sets
1. Click the Add uplink set button.

2. In the Create Uplink Set dialog window, select a name for the uplink.
3. Select Ethernet as the Type from the drop-down box.

![Uplink Set Creation](image1.png)

4. Adjust the Connection Mode and LACP Timer settings to be used by this uplink set. Automatic Enables the uplinks to form aggregation groups using the IEEE 802.3ad LACP, and to select the highest performing uplink as the active path to external networks. Select Automatic in an active/active configuration.

![Create Uplink Set](image2.png)

5. Click the Add networks button to select the networks to add. By not selecting a Network or multiple Networks, they will be Internal Ethernet Networks within the Logical Interconnect that is applied to each enclosure from the Logical Interconnect Group.

![Add Networks to Uplink](image3.png)

6. In the Add Networks to Uplink dialog window, add the desired networks for this uplink. A search field is provided to quickly locate a specific Network or multiple Networks. After searching you can either Left Click to select a single network or SHIFT/CTRL+Left Mouse Click to multi-select networks. Once all of your networks are selected, click the Add button, or click the Add+ button to continue to add more networks by searching.
7. Make sure to mark the appropriate network as Native if the VLAN on the upstream switch is also the Native or Default VLAN.

8. Click the Add Uplink Ports button to add uplink ports.
9. In the Add Uplink Ports to Uplink dialog, select at least one port from each Ethernet Module. To quickly add multiple Uplink Ports, first search for a common port (e.g. X5), select them, click the Add+ button, then change the search to another port (e.g. X6) and click the Add button.

10. After you have added the Uplink Ports to your Uplink Set, click the Create button. Select the Create+ button if you wish to define an additional Uplink Set – e.g. the B-Side Uplink Set.
11. Verify that the uplinks are shown in the Create Logical Interconnect Dialog Window.

12. Continue to the next section to create Fibre Channel Uplink Sets.

Creating Fibre Channel Uplink Sets (Optional)

1. Click the Add uplink set button to add SAN Fabrics.
2. In the Create Uplink Set dialog window, enter a Name for the uplink

3. From the Type drop down list select Fibre Channel.

4. In the Networks section, select the desired SAN Fabric Name from the drop-down list.

5. Under the Uplink Ports heading, click Add Uplink Ports
6. In the Add Uplink Ports to Uplink dialog, select at least one port for the uplink then click Add.

7. Click the Create button to finalize the Fibre Channel Uplink.
If you are creating an Active/Active network design, repeat the prior steps to create the “B-Side” Uplinks.

**Finalizing the Logical Interconnect Group Settings**

1. From the Create Logical Interconnect Group window, scroll down to the Interconnect settings section. Configure any of the settings that are needed.

2. From the Create Logical Interconnect Group window, scroll down to the Utilization Sampling section. Configure any of the settings that are needed.
3. From the Create Logical Interconnect Group window, scroll down to the SNMP section. Configure any of the settings that are needed.

4. From the Create Logical Interconnect Group window, scroll down to the QoS section. Configure any of the settings that are needed.

5. Click Create to create the Logical Interconnect Group
Reviewing Logical Interconnect Group Configuration

1. Select the Logical Interconnect Group from the left hand menu.

2. Mouse over of the Uplink sets. Examine the relationship of the Uplink set to the physical modules and their uplink ports.
Create Enclosure Group

An Enclosure Group is a centralized configuration policy, similar to that of the Logical Interconnect Group, in which all associated Enclosures retrieve their configuration from. The Enclosure Group can define the Logical Interconnect Group association, and an Enclosure Configuration Script can be assigned that will allow the administrator to configure other allowed settings of the OA.

1. Open the Top Level Menu and select Enclosure Groups.
2. Click on the Create Enclosure Group button

3. In the Create Enclosure Group screen, enter a Name for the enclosure group.

4. Using the drop down menu, select the appropriate Logical Interconnect Group to be used by the enclosure.

5. In the Configuration Script section, enter any configuration script that needs to be executed against the enclosure.
Note
Use configuration scripts to simplify new enclosure deployment and configuration, particularly when setting up multiple enclosures, eliminating the need to configure each enclosure manually. By entering a configuration script on the Enclosure Groups screen, a copy of the configuration script is stored with every enclosure you add that is associated with that enclosure group.

Note
The Enclosure Script will not allow all OA CLI commands to be used. The following table outlines the blacklisted commands:

<table>
<thead>
<tr>
<th>Table 11. Enclosure Groups Configuration Script Blacklist</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADD EBIPA REMOVE CA CERTIFICATE SET ENCLOSURE NAME</td>
</tr>
<tr>
<td>ADD EBIPA REMOVE CA CERTIFICATE SET ENCLOSURE NAME</td>
</tr>
<tr>
<td>ADD EBIPA REMOVE CA CERTIFICATE SET ENCLOSURE NAME</td>
</tr>
<tr>
<td>ADD EBIPA6 REMOVE EBIPA SET ENCLOSED SERIAL_NUMBER</td>
</tr>
<tr>
<td>ADD EBIPA6 REMOVE EBIPA SET ENCLOSED SERIAL_NUMBER</td>
</tr>
<tr>
<td>ADD EBIPA6 REMOVE EBIPA SET ENCLOSED SERIAL_NUMBER</td>
</tr>
<tr>
<td>CLEAR NTP REMOVE EBIPA6 SET ENCRYPTION</td>
</tr>
<tr>
<td>CLEAR NTP REMOVE EBIPA6 SET ENCRYPTION</td>
</tr>
<tr>
<td>CLEAR NTP REMOVE EBIPA6 SET ENCRYPTION</td>
</tr>
<tr>
<td>CLEAR VCMODE REMOVE HPSIM CERTIFICATE SET FACTORY</td>
</tr>
<tr>
<td>CLEAR VCMODE REMOVE HPSIM CERTIFICATE SET FACTORY</td>
</tr>
<tr>
<td>CLEAR VCMODE REMOVE HPSIM CERTIFICATE SET FACTORY</td>
</tr>
<tr>
<td>DISABLE DHCP_DOMAIN_NAME REMOVE OA ADDRESS IPv6 SET FIPS MODE</td>
</tr>
<tr>
<td>DISABLE DHCP_DOMAIN_NAME REMOVE OA ADDRESS IPv6 SET FIPS MODE</td>
</tr>
<tr>
<td>DISABLE DHCP_DOMAIN_NAME REMOVE OA ADDRESS IPv6 SET FIPS MODE</td>
</tr>
<tr>
<td>DISABLE EBIPA REMOVE SNMP TRAPRECEIVER SET HPSIM TRUST MODE</td>
</tr>
<tr>
<td>DISABLE EBIPA REMOVE SNMP TRAPRECEIVER SET HPSIM TRUST MODE</td>
</tr>
<tr>
<td>DISABLE EBIPA REMOVE SNMP TRAPRECEIVER SET HPSIM TRUST MODE</td>
</tr>
<tr>
<td>DISABLE EBIPA6 REMOVE SNMP TRAPRECEIVER V3 SET IPCONFIG</td>
</tr>
<tr>
<td>DISABLE EBIPA6 REMOVE SNMP TRAPRECEIVER V3 SET IPCONFIG</td>
</tr>
<tr>
<td>DISABLE EBIPA6 REMOVE SNMP TRAPRECEIVER V3 SET IPCONFIG</td>
</tr>
<tr>
<td>DISABLE Firmware Management REMOVE SNMP USER SET NTP</td>
</tr>
<tr>
<td>DISABLE Firmware Management REMOVE SNMP USER SET NTP</td>
</tr>
<tr>
<td>DISABLE Firmware Management REMOVE SNMP USER SET NTP</td>
</tr>
<tr>
<td>DISABLE HTTPS REMOVE TRUSTED HOST SET NTP PRIMARY</td>
</tr>
<tr>
<td>DISABLE HTTPS REMOVE TRUSTED HOST SET NTP PRIMARY</td>
</tr>
<tr>
<td>DISABLE HTTPS REMOVE TRUSTED HOST SET NTP PRIMARY</td>
</tr>
</tbody>
</table>
### Table 11. Enclosure Groups Configuration Script Blacklist

<table>
<thead>
<tr>
<th>Command</th>
<th>Command</th>
<th>Command</th>
</tr>
</thead>
<tbody>
<tr>
<td>DISABLE IPV6 REMOVE USER CERTIFICATE SET OA DOMAIN_NAME</td>
<td>DISABLE IPV6 REMOVE USER CERTIFICATE SET OA DOMAIN_NAME</td>
<td>DISABLE IPV6 REMOVE USER CERTIFICATE SET OA DOMAIN_NAME</td>
</tr>
<tr>
<td>DISABLE IPV6DYNDNS REMOVE USER vcmuser SET OA NAME</td>
<td>DISABLE IPV6DYNDNS REMOVE USER vcmuser SET OA NAME</td>
<td>DISABLE IPV6DYNDNS REMOVE USER vcmuser SET OA NAME</td>
</tr>
<tr>
<td>DISABLE NTP REMOVE USERS ALL SET PASSWORD</td>
<td>DISABLE NTP REMOVE USERS ALL SET PASSWORD</td>
<td>DISABLE NTP REMOVE USERS ALL SET PASSWORD</td>
</tr>
<tr>
<td>DISABLE SLAAC SAVE EBIPA SET SNMP COMMUNITY READ</td>
<td>DISABLE SLAAC SAVE EBIPA SET SNMP COMMUNITY READ</td>
<td>DISABLE SLAAC SAVE EBIPA SET SNMP COMMUNITY READ</td>
</tr>
<tr>
<td>DISABLE SNMP SAVE EBIPAV6 SET SSO TRUST MODE</td>
<td>DISABLE SNMP SAVE EBIPAV6 SET SSO TRUST MODE</td>
<td>DISABLE SNMP SAVE EBIPAV6 SET SSO TRUST MODE</td>
</tr>
<tr>
<td>DISABLE TRUSTED HOST SET DATE SET TIMEZONE</td>
<td>DISABLE TRUSTED HOST SET DATE SET TIMEZONE</td>
<td>DISABLE TRUSTED HOST SET DATE SET TIMEZONE</td>
</tr>
<tr>
<td>DISABLE USER vcmuser SET EBIPA SET USER ACCESS vcmuser</td>
<td>DISABLE USER vcmuser SET EBIPA SET USER ACCESS vcmuser</td>
<td>DISABLE USER vcmuser SET EBIPA SET USER ACCESS vcmuser</td>
</tr>
<tr>
<td>ENABLE DHCP_DOMAIN_NAME SET EBIPAV6 SHOW ALL</td>
<td>ENABLE DHCP_DOMAIN_NAME SET EBIPAV6 SHOW ALL</td>
<td>ENABLE DHCP_DOMAIN_NAME SET EBIPAV6 SHOW ALL</td>
</tr>
<tr>
<td>ENABLE EBIPA SET EBIPA INTERCONNECT SHOW SYSLOG { OA</td>
<td>HISTORY }</td>
<td>ENABLE EBIPA SET EBIPA INTERCONNECT SHOW SYSLOG { OA</td>
</tr>
<tr>
<td>ENABLE EBIPAV6 SET EBIPA SERVER UNASSIGN { SERVER</td>
<td>INTERCONNECT } { &lt;bay number&gt;</td>
<td>ALL</td>
</tr>
<tr>
<td>ENABLE Firmware Management Set Enclosure Asset Tag UNASSIGN OA vcmuser</td>
<td>ENABLE Firmware Management Set Enclosure Asset Tag UNASSIGN OA vcmuser</td>
<td>ENABLE Firmware Management Set Enclosure Asset Tag UNASSIGN OA vcmuser</td>
</tr>
</tbody>
</table>

Please refer to the *Configure an enclosure with an OA configuration script* section of the Online Help, or User Guide for an updated list.

6. Click the Create button to create the Enclosure Group, or Create+ to create the Enclosure Group and additional Enclosure Group
Import a Managed Enclosure

In this section, you will go through the process on how to import an enclosure into the HPE OneView console. In order to successfully import an enclosure, the Onboard Administrator must be configured. At a minimum, both the Primary and Secondary OA must have a valid IP Address, Enclosure Bay IP Addressing or external DHCP Server supplying IP leases, and a valid Administrator-role account. During the Enclosure Import process, HPE OneView will automatically configure SNMP, NTP and the HPE SIM Single-Sign-On Certificate with the HPE OneView appliance IP Address and public SSL Certificate. The Enclosure Import process will also discover any device in the enclosure’s Device Bays, and attempt to configure the supported iLO’s for management (SNMP, NTP, HPE SIM SSO Certificate, create a special user account _HPOneViewAdmin) and license the iLO’s and servers based on the License Intent setting in the Add Enclosure screen.

Enclosure Import Checklist

Table 12. Enclosure Import Checklist

| Task                              | Completed? (Y|N) |
|-----------------------------------|----------------|
| Documented Onboard Administrator IP Address or FQDN |                |
| Documented Onboard Administrator administrator credentials |                |
Configured Onboard Administrator settings (EBIPA, Power Redundancy, etc.)

Warning
If there is an existing Virtual Connect Domain on the enclosure that needs to be imported, please see the steps in the Maintenance section of the document – Importing an enclosure managed by Virtual Connect Manager

Note
If an enclosure is imported as a Managed enclosure then HPE OneView Managed licenses will automatically be applied to the blades within the enclosure

1. Open the Top Level Menu and select Enclosures.

2. Click the Add Enclosure button.

3. Enter the IP address or the Hostname of the enclosure to be imported.

4. Select the Add enclosure for Management option

5. Enter the credentials for the Onboard Administrator.
6. Select the **Enclosure Group** from the drop down list.

7. Select the desired license policy (*Note: if the wrong license is selected the enclosure will need to be deleted from HPE OneView and re-added. This is not something that can be changed after being imported.*)

8. Specify the **Firmware Baseline** from the drop-down list.
9. Selecting the Add or Add+ button, the enclosure will be discovered, and the OA firmware will be updated to the version within the SPP.

10. Once the enclosure information has been verified, the appliance will begin its discovery process. Clicking on the Details link will take you to the Activity view of the enclosure, where you can examine the task and subtask details.
During this time, the appliance will validate if the OA firmware meets the minimum requirement. If the firmware is out of date, the Activity window will display the sub-tasks generated. Below is a sample screenshot.

11. After the Add Enclosure task has completed, the Enclosure State should read Configured.
Examine Imported Resources

After you have successfully imported the enclosure, you will want to verify all the resources in the enclosure have been imported.

Physical and Logical Interconnects

1. Select the Top Level Menu, and choose Interconnects

2. Interconnects are the physical Virtual Connect Modules. If the Virtual Connect modules meet the minimum required version, they should be in a Configured State. If the firmware version didn't meet the minimum management requirements, the state of the module would be Unmanaged.
Server Hardware

1. Select Server Hardware from the top level menu.

2. The Server Hardware section lists the discovered servers listed in the left panel. Selecting a specific server will open the detailed information about the selected server. Some examples of the information presented are installed options, serial numbers, and utilization information.
Server Hardware Types

Server Hardware Types are the unique server hardware platforms discovered during the addition of imported enclosures and devices. Their role within HPE OneView is to define the hardware configuration of each server type, which can include the adapter and its location, BIOS settings and even firmware bundles. Because HPE OneView knows the server hardware and its complete configuration, the administrator is able to do advanced configurations on components like network adapters. A network adapter can be configured for specific physical port to network connection mappings during the Server Profiles creation process. The Server Hardware Type is automatically created when an Enclosure or a Rack Mount server is added.

1. Select Server Hardware Types from the top level menu.

2. Examine the different Hardware Types.
3. The Server Hardware Type allows editing but only to rename it or add a description.

4. Selecting a hardware type will allow you to see the number of servers that have this hardware type as well as the configuration of the network adapters.

Examine Relationships

HPE OneView has extensive mapping and relationship capabilities. These capabilities allow an administrator to select a component such as a server profile, logical interconnect, or physical server and see what other devices or profiles are linked to the component. This allows the administrator to easily see the impact of a change of other devices. In this example the relationship between the enclosure, physical blade and created networks will examined.

1. Select Enclosures from the top level menu.
2. To access the Map View, you can either click on the Map button, or select Map from the sub-menu.

3. Within the Map view, hover over objects to see how the relationships are built. In the following example, observe the relationships shown when the Enc1 Enclosure is selected. Clicking on an object will navigate you to that object's Map View. The resource with the light-blue color is the context of the current resource.
4. Hover over one of the servers from the Server Hardware objects and observe the relationships between the Enclosure, Server Hardware Type, and Interconnect Bays.

5. Select on one of the server objects, and Left-Click. The Map View will change to display the Map View with the server being the center object. Hover over the Server Hardware and notice the relationship shown.

6. Lastly, examine the Network relationships. Because the Server Profile haven’t been assigned yet, the Network relationship to the server is not yet available. From the top level menu, choose Networks.
7. Select an available Network, and click the Map View button. Mouse over the network, and examine the relationship tree that is built.

Using Labels

Labels provide a way to classify, or group common resources for filtering or locating. Any resource can be assigned to one or more labels.

1. From the Top Level Menu, select a resource, for our example we will use the Networks category.

2. Select an item from the left-hand menu, then select Labels from the view selector menu.

3. Select Edit
4. Specify the Label you wish to add. You can add one or more labels. Click the OK button to save your changes.

If you wish to delete a Label, click the X next to the label.

Importing a ProLiant DL Managed Server

HPE OneView supports adding a ProLiant Gen8 or Gen9 DL servers for health, alert management and basic server profiles. In this section you will add a DL Gen9 server by adding the iLO IP Address or FQDN.

1. Select Server Hardware from the top level menu.
2. In the **Server Hardware** screen, click the **+Add Server Hardware** button.

3. In the **Add Server Hardware** screen, add the **iLO FQDN or IP Address** of the DL server to be added and select the radial button for a **Managed** server.

4. Enter the **iLO Administrator credentials**
5. Select the license type to be applied to the server – **HPE OneView Advanced** or **HPE OneView Advanced w/o iLO**.

6. Click the **Add** button to add the DL server, or select the **Add+** button to add other DL Gen8 or Gen9 servers.
7. After clicking the Add button, HPE OneView will begin to discover the server, and configure the iLO for management.

8. Once the server is added, the administrator has the capability of powering the server on, applying a server profile, or launch the Remote Console from the Actions menu.

9. The server is now configured for element management by HPE OneView.
Importing a ProLiant DL or Apollo Monitored Server

HPE OneView supports adding a ProLiant G6 (Generation 6) or newer DL servers and Apollo 2000, 4000 and 6000 servers for hardware monitoring. In this section you will add a server for monitoring by adding the iLO IP Address or FQDN.

1. Select Server Hardware from the top level menu.

2. In the Server Hardware screen, click the +Add Server Hardware button.

3. In the Add Server Hardware screen, add the iLO FQDN or IP Address of the DL server to be added and select Monitored for the license model.

4. Enter the iLO Administrator credentials.
5. Click the Add button to add the DL server, or select the Add+ button to add other servers.

6. The server is now ready for hardware monitoring via HPE OneView
Adding HPE 3PAR StoreServ System

First Time Setup | Configure Networking | Discover Hardware | Upgrade Firmware | Server Profiles | Environment Management | Appliance Security

- Import c7000 Enclosure
- Import ProLiant DL Gen8
- Import 3PAR StoreServ array
- (Optional) Add SAN Manager

HPE OneView supports server profile driven volume provisioning and access configuration using 3PAR storage systems and direct attach or Brocade, HPE or Cisco fabric attach SANs. In this section you will import 1 or more 3PAR storage systems that are already initialized, have existing CPG’s, and any Virtual Domains\(^6\) configured. Additionally, 1 or more SAN Managers are required to discover, monitor, view and perform automated zoning of SANs. SAN Managers to Brocade, HPE or Cisco SAN fabrics must be created explicitly, while SAN Managers to direct attach SANs are created automatically when Logical Interconnects are configured containing direct attach networks. For Brocade SANs, Brocade SAN Network Advisor (BNA) must be installed and available to be configured as a SAN Manager. For HPE and Cisco SANs, the SAN Manager communicates directly with one of the physical switches in the SAN.

Prior to continuing with this document, please make sure you have completed the following:

### HPE OneView Import HPE 3PAR StoreServ Checklist

<table>
<thead>
<tr>
<th>Task</th>
<th>Completed? (Y/N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supported HPE 3PAR StoreServ system with the minimum firmware requirements.(^7)</td>
<td></td>
</tr>
<tr>
<td>HPE 3PAR StoreServ Management FQDN/IP Address and administrator account with at least Create role in root.</td>
<td></td>
</tr>
<tr>
<td>(Optional) Brocade SAN Network Advisor FQDN/IP, HPE or Cisco switch Address and credentials.</td>
<td></td>
</tr>
</tbody>
</table>

---

\(^6\) HPE 3PAR Virtual Domains are a licensed feature.

\(^7\) Review Supported Hardware section for more details.
Utilizing managed SANs will help align the HPE OneView defined Fibre Channel Networks, SAN Fabrics, and HPE 3PAR StoreServ storage system ports together. This provides a simplified way to guarantee storage system ports are connected on the expected HPE OneView managed FC Networks that will be assigned to Server Profiles.

When creating a SAN Manager to an HPN 5900 family or Cisco switch, only switches configured in FCF mode should be added. Any switch in NPV mode cannot be added as a SAN Manager. For more information regarding how to configure or setup an HPN 5900CP for FCF, please either review the sample switch configuration in Appendix A, or review Scenario 7 in the FCoE Cookbook for HPE Virtual Connect whitepaper.

1. Navigate to SAN Managers from the Top Level Menu.

2. Select Add SAN Manager button.

3. In the Add SAN Manager screen, select Brocade Network Advisor as the SAN Manager Type drop down list, provide the FQDN/IP Address, TCP Port (if different from the default SMI-S/WEBM over SSL 5989/TCP), and credentials to authenticate. Then click the Add button, or Add+ button to add another SAN Manager.

---

8 http://h20564.www2.hpe.com/hpsc/doc/public/display?docId=c03808925
4. After adding the BNA SAN Manager, it will discover manageable SAN Fabrics. To view the discovered SANs, click on the SAN Manager’s Used by hyperlink.
5. Automated Zoning is not enabled yet, as the discovered SAN Fabrics will need to be associated with an HPE OneView Fibre Channel Network in order to become Managed. The following section will cover these steps in detail.

Add HPN 5900 family SAN Manager
1. In the Add SAN Manager screen, select HPE as the SAN Manager Type drop down list, provide the FQDN/IP Address of a FCF mode switch in the SAN, TCP Port (SNMP Port), SSH credentials and SNMPv3 to authenticate. Then click the Add
button, or Add+ button to add another SAN Manager

Add Cisco Nexus/MDS SAN Manager
1. In the Add SAN Manager screen, select Cisco as the SAN Manager Type in the drop down list, provide the FQDN/IP Address of a FCF mode switch in the SAN, TCP Port (SNMP Port), SSH credentials and SNMPv3 to authenticate. Then click the Add button, or Add+ button to add another SAN Manager
Modify SAN Protocols and Zoning Policy
After SANs are discovered, the storage administrator can change the protocols being used on the SAN (only required when they could not be detected) and how HPE OneView will configure and name zones and aliases on the SAN.

1. From the Actions menu, select Edit
2. Modify the protocols in use on the SAN (that could not be detected at the switch the SAN Manager is communicating with). Modify the Auto Zoning Policy that will be used on each SAN. You can edit each field and replace tokens (ex. \{server_profile\}) with other pre-defined tokens, or add other static text that will be used to name the respective zones and aliases configured onto the SAN.
**Update Fibre Channel Networks**

After adding a supported SAN Manager, the Fibre Channel Networks will need to be updated, so they are associated with the correct discovered SAN Fabrics.

1. **Navigate to Networks from the Top Level Menu.**

![Diagram showing how to navigate to Networks](image1)

2. **Select the FC Network to be updated, then select Edit from the Actions Menu.**

![Diagram showing editing options](image2)

3. **In the Associate with SAN drop down list, select the appropriate Fabric name, then select OK to save.**

![Diagram showing the Associate with SAN dropdown](image3)
4. After updating the FC Network, examine the Associate with SAN and SAN Manager Properties in the General view.

5. Repeat the same steps to update any additional FC Networks.

6. Navigate back to SANs from the Top Level Menu.
7. The SAN will be *Managed* and will now reflect the associated FC Network, and *Automate Zoning* will be enabled.

8. Automate Zoning can be disabled on a per SAN basis. If automated Zoning is not desired, select and *Edit the SAN*.
Then click the option to **Disable Automated Zoning**
Importing HPE 3PAR StoreServ System

1. Select Storage Systems from the top level menu.
2. In the Storage Systems screen, click the **Add storage system** button.

3. In the Add Storage System screen, add the **FQDN or IP Address** of the 3PAR storage system to be added, along with **Administrator credentials**. Click the **Connect** button to connect to the 3PAR storage system.

4. Once connected to the storage system, select the storage domain from the drop-down box if needed.
5. Once the storage domain is selected the Add storage pools button will be available. Click Add storage pools.

6. From the Add storage pool dialog window, select the storage pool(s) to be added (multi-select is available on this screen.)

7. Click the Add button to add the storage pool, or select the Add+ button to add other storage pools.
Assigning FC SANs/Networks to 3PAR Storage System Host Ports

1. When adding SAN volume attachments to server profiles, only storage system ports on networks to which the profile has connections can be configured by HPE OneView. HPE OneView understands the SAN/Network a storage system port is connected to by its Expected SAN/Network field setting.

On the Storage System Ports section of the Add storage system screen, ports which are automatically detected on a managed SAN will already have its Expected SAN/Network set. Others will have their expected SAN/Network set to Auto, which will cause each port's value to be set to the first managed SAN on which the port is detected. When a port is connected to an unmanaged SAN/Network, it will need its FC Network to be set manually. Any storage system port which you do not want HPE OneView to configure storage access through can be set to None. Repeat the process for the various ports on the storage system.
Creating Storage System Port Groups

When HPE OneView attaches a volume to a server, by default it configures all storage system ports connected to the SAN connecting the storage system to the server as storage targets. If the storage administrator wishes to partition the storage system ports into smaller groups to be configured to each server, then assign a group name to the ports to be configured together. When Port Groups are being used, HPE OneView will choose the least configured port group to attach volumes to a server, achieving a load balancing across the storage system's ports. In this example, only 1 storage target will be configured per data path per server even though there are two possible targets each server data path could be configured to access.

Set the port Port Group names on this screen.
2. From the Add Storage System page, click the Add button to add the storage system, or select the Add+ button to add other storage systems.
Examine Imported HPE 3PAR StoreServ System

After adding an HPE 3PAR StoreServ system, you can examine the details about the new resource.

1. From the Storage Systems view, select the specific storage system in the resource list view.

2. Select Storage System Ports from the sub-menu.
3. Here, you can view the matched storage system host ports, and the associated FC Networks and/or SAN Manager Fabrics.

**Import Existing Volume(s)**

HPE OneView can import existing, unexported volumes for assignment to Server Profiles. The internal HPE 3PAR StoreServ Volume ID will be required. Adding existing volumes can either be performed in the Storage Systems or Volumes view.

**NOTE**

There is a design limitation in the UI that unless an existing Volume has been created, the Actions menu is not available after navigating to the Volumes section. The first imported volume needs to be performed from the Storage Systems view. Subsequent Volumes can be added in the Volumes section of the UI, or continued to be added from the Storage Systems view. This behavior will change in a future release.

1. Navigate to Storage Systems from the Top Level Menu.

2. Select a storage system, then select Add volume from the Actions menu.
NOTE
Adding volumes can also be performed from the Volumes section of the UI. The Actions menu will only be available when a volume exists in HPE OneView, either by importing or creating it.

3. Select the Storage System form the drop-down list,

4. Enter a name for the volume name

5. Enter a description for the volume

6. Select if the volume will be a Private or Shared volume
7. Select the Add or Add+ button to add the volume.

Create Storage Volume Templates

Storage Volume Templates allow the Storage Administrator to enforce certain volume parameters when being created. Storage Volume Templates are not required in order to provision Storage Volumes.

1. Navigate to Volume Templates from the Top Level Menu.
2. Click Create volume template button

3. In the Create Volume Template screen, enter a Name for the Volume template

4. Enter a description for the Volume Template

5. Using the storage pool drop down list, select the Storage pool

6. Using the Snapshot storage pool drop down list, select the snapshot storage pool (if different from the default)
7. In the Volume Properties section, select the capacity for the volume template

8. Using the provisioning drop down list, select the provisioning model for the volume template

9. Select the sharing model for the volume template

10. Then click the Create or Create+ button.
11. (Optional) If the Storage administrator would like to enforce volumes to be created from Storage Volume Templates, the **Require template for Volume Creation** Global Policy needs to be set, which is in the **Edit Settings** option of the **Actions** menu.

12. In the **Edit Settings** dialog box, check the option to **Require a template for volume creation**

13. Click **OK** to apply the setting
Creating Storage Volumes

Volume creation is performed in the Volumes section, under the Storage column of the Top Level Menu within the UI. Volumes can be pre-created, or created after a Server Profile has been assigned to a server. In this release, Ephemeral Volume creation is not supported, and must exist prior to requesting the Volume(s) in the Server Profile. Volumes can be created with either the Server or Storage role.

1. Navigate to Volumes from the Top Level Menu.

2. Click the Create volume button.

3. In the Create Volume screen, enter a Name for the volume.

4. Enter a description for the volume.

On-demand storage that lives with the lifespan of the Server Profile.
5. In the Create Volume screen, the options can be restricted if the Storage Administrator has forced Volume Creation to be provisioned from a Storage Volume Template. Otherwise, the administrator creating the Volume may choose whether it will be associated with an available Storage Volume Template.

6. If not associated with a volume template, select the Storage Pool for the volume

7. If not associated with a volume template, select the Snapshot storage pool for the volume
8. Set the Capacity for the volume

9. Select the sharing method.

Note
HPE OneView attempts to name volumes on the 3PAR storage system as close as possible to volume names in HPE OneView. When the HPE OneView volume name is not a valid volume name on the 3PAR storage system (unsupported characters, too long, already exists, etc.), HPE OneView will remove illegal characters, shorten and ensure the name is unique to create a legal name on the 3PAR storage system. Any scripting communicating with both systems needs to be aware of this.
10. Click Create or Create+ button to create the volume.

(Optional) Growing Volume Capacity
Growing a Volume is performed editing the volume and increasing its capacity.

1. Select the volume from the left hand menu

2. Select Edit from the actions menu

3. In the Edit dialog box, edit the volume capacity
4. Click OK.

Upgrade Infrastructure Firmware

In this exercise, you will examine the firmware status of the imported enclosures and servers.
Examine Infrastructure Firmware
The first place to start is with the Enclosure. There is a Firmware sub-menu view that you can switch to, which will report the firmware installed. If a Firmware Baseline was attached during the Enclosure import process, it will also report the available version in the Firmware Baseline.

1. **Navigate to Enclosures from the Top-level Menu.**

![Diagram of OneView interface with Enclosures highlighted]  

2. **Select Firmware in the submenu.**

![Diagram of OneView interface with Firmware highlighted]  

3. **Examine what is installed.**

![Diagram of OneView interface with firmware details]  

Managing Virtual Connect Firmware
HPE OneView provides the ability to manage Virtual Connect firmware from multiple locations; at the Logical Interconnect or Enclosure level. Managing Virtual Connect firmware at the Logical Interconnect would be used for those times where only VC firmware requiring updating.

1. **Select Logical Interconnects from the Top Level Menu.**
2. In the Logical Interconnects view, validate the [ENC-Name]-LI Logical Interconnect is selected, then select Update Firmware from the Actions menu.

3. On the Update Firmware on [ENC-NAME]-LI window, select the update action from the drop down list.

4. Select the Firmware Baseline from the firmware baseline dropdown list.

5. Select the Ethernet and Fibre Channel activation methods from the dropdown list.
**Note**

HPE OneView does not offer the ability to modify Activation order, and each module is activated independently or at the same time, which will cause a network outage. To control potential outages, consider staging and manual activation of Virtual Connect firmware.

6. **Set the appropriate delay for the activation methods.**

7. **Click OK to begin the firmware update process.**
However, if you want to examine the individual update process for each Virtual Connect module, click the Details link in the Activity bar.

8. Once the firmware update has completed, examine the Firmware section.
Creating Server Profiles

Server Profiles are managed resources that specify supported settings for the selected Server Hardware Type (e.g. Hardware Platform, Adapter Layout/Network Connections, BIOS Settings) and Enclosure Group (e.g. Networks based on Logical Interconnect), and can be left Unassigned for use as a Template. A Firmware Baseline (Policy) can be set within the Server Profile (for supported platforms), which will automatically update the firmware prior to assigning and configuring the Server Profile to the Device Bay it’s assigned.

Server Profile Affinity is to provide and control if and when the Server Profile is reapplied to the server hardware during rip-and-replace procedures. When the Server Profile Affinity is set to Device Bay, the Server Profile will be reapplied (Connections, BIOS, Boot Order, Firmware, etc.) when any server blade is inserted into the device bay, as long as the Server Hardware Type (SHT) matches the original configured SHT. If the Server Profile Affinity is set to Device Bay + Server Hardware, then the Server Profile will not be applied in the event of the physical server being reinserted into the same Device Bay. If the Server Hardware and its physical Serial Number do not match, the Server Profile will be flagged as Incompatible.

HPE 3PAR StoreServ Volume Attach is an automated method to provisioning host access to Volumes on a storage system, and to automate Fibre Channel Zoning. The Server Administrator would be able to attach 1 or more Volumes to a Server Profile. Then when the Server Profile is assigned to a Server, HPE OneView will orchestrate the Host creation and Virtual Volume export on the HPE 3PAR StoreServ system, and configure any required FC Zones for Fabric Attach networks.

In this chapter, you will first create a Server Profile to be used as a Template that defines specific elements. The Server Profile Template will then be copied and assigned to a Server Hardware Device.

Create Server Profile for Template Use

Server Profile Templates provide a powerful way to update and maintain your existing infrastructure. HPE HPE OneView simplifies the one to many style of update and management of server profiles using templates. This feature adds inheritance to HPE OneView templates where BIOS settings, firmware & driver updates, as well as other functions can be made in the template and then propagated out to the profiles created from that template.

The Templates in HPE OneView provide a monitor and flag model. Profiles created from the template are monitored for compliance with the desired configuration. When inconsistencies are detected the profile is flagged as no longer being compliant with the template. So when a new update is made at the template level, all profiles parented to that template will be flagged as not being consistent. From there – the user has control to bring individual nodes into compliance with the template or multi-select systems for update to the template.

1. From the main menu, select Server Profile Template.
2. **Once on the Server Profile Template screen, select the +Create Server Profile Template button**

3. **In the General section of the server profile template creation page, provide a Name and Description for the Server Profile Template.**

4. **In the Server Profile section of the server profile template creation page, enter a description for the server profile template.**

5. **Select the Server Hardware Type using the dropdown menu.**
6. Select the **Enclosure Group** from the dropdown menu that the server profile template will be associated with.

7. Specify the **Server Affinity** method you’d like to configure.

8. In the firmware section of the server profile template creation page, select a **Firmware Baseline** from the dropdown menu.
9. Once a baseline is selected, choose how the baseline will be applied to the servers used within this server profile template. If either of the options using the HPE Smart Update Tools is selected then the firmware or driver updates will be done while the systems are online. If the firmware only option is selected then the firmware will be updated offline using Intelligent Provisioning.

10. In the connections section of the server profile template creation page, click Add Connection.

11. In the Add Connection dialog window, enter a name for the connection

12. Using the dropdown list select the function type for the connection

13. Select the network to be associated with the function using the Network dropdown list
14. Set the function type specific parameters

15. Click the Add to close the Add Connection dialog window or Add+ button to continue adding Network Connections to the Server Profile.

Note
The Use user-specified IDs is for those customers that wish to provide their own MAC or WWN address for that connection.
16. **(Optional) Adding Fibre Channel Networks** is a similar operation as an Ethernet Device Type. FlexNIC B is reserved for FC Connections when FC Connection Types are added to the Server Profile. When choosing the FlexNIC, you can leave the default `Auto`. You can force the FlexNIC assignment, but the list will be filtered based on the connection location to the Interconnect Bay the FC Network is assigned to.

A. **(Optional) If you wish to configure FC Boot From SAN (BFS), change the Boot setting from Not Bootable to either Primary or Secondary.** You will need to provide the Target WWN and Host LUN ID in the respective fields.
17. If desired, enable local storage management by editing the edit option.

18. In the Edit Integrated Storage Controller dialog box, select the mode of the storage controller using the dropdown list

19. Enable or disable the option to Re-initialize storage on next profile application. A warning will be shown about this option
20. Click **Create logical drive**

21. In the Create Logical Drive dialog window, enter a **Name** for the logical drive

22. Select the **RAID Level** for the logical drive

23. Select the **number of drives** for that RAID set
24. Select the drive technology of that RAID set.

25. Click Create or Create+ to create the logical drive for the server profile template.

26. Once all of your logical drives are created, click OK to finish configuring the Integrated Storage Controller.
27. If desired, select the box to enable the Local Storage as the boot device

28. Enable SAN Storage if necessary.
   A. Check the box for Manage SAN Storage
   B. Specify the Host OS Type, which controls the Host created on the 3PAR storage system.
C. Click the Add Volume button to display the list of volumes available for assignment.

D. In the Add Volume dialog window, select Volume Type from the drop down list.

E. If creating a new volume, create the volume to the needed specifications.
F. If using an existing volume select the Volume using the dropdown list or the SmartSearch feature.

G. Once the Volume has been selected, the available Storage Paths will be displayed. You can disable, remove or add Storage Paths. Click Add or Add+ to add the volume.
29. **In the Boot Settings section, set the boot mode from the dropdown list**

**Warning**
Disabling Boot Order in the Server Profile will also disable PXE and FC BfS configuration options.

30. **In the BIOS Settings section, if desired, check the box to Manage the BIOS.**
31. Click *Edit BIOS Settings*

32. In the *Edit BIOS settings* dialog window, *edit* any desired BIOS settings.
33. In the Edit BIOS settings dialog box, click OK after all of the desired BIOS settings are made.
34. The HPE recommendation is to leave the Advanced section as default, which would be Virtual Managed Addresses.

35. Click Create or Create+.
Creating Server Profiles from a Server Profile Template

1. Select the main menu option in the upper left, and choose Server Profile Templates.

2. From the left hand menu, select the server profile template to be used.
3. From the actions menu on the right hand side, select Create Server Profile

4. In the General section of the Create Server Profile dialog window, enter a Name and Description for the server profile

5. Using the dropdown menu, select the Server Hardware that the server profile will be assigned to.

6. Click Create or Create+ to create the server profile.
Create One-Off Server Profile

1. Select the main menu option in the upper left, and choose Server Profiles.

2. Once on the Server Profiles screen, select the +Create Profile button.
3. In the General section of the server profile creation page, provide a Name and Description for the Server Profile.

![Create Server Profile General](image)

4. In the Server Profile section, enter a description for the server profile.

![Server Profile](image)

5. Select the Server Hardware that the profile will be applied to using the dropdown menu.

![Select Server Hardware](image)

6. Specify the Affinity method you'd like to configure.

![Specify Affinity](image)

7. In the firmware section, select a Firmware Baseline from the dropdown menu.

![Select Firmware Baseline](image)

8. Once a baseline is selected, choose how the baseline will be applied to the server. If either of the options using the HPE Smart Update Tools is selected then the firmware or driver updates will be done while the systems are online. If the firmware only option is selected then the firmware will be updated offline using Intelligent Provisioning.
9. In the connections section, click **Add Connection**.

10. In the Add Connection dialog window, enter a **name** for the connection.

11. Using the dropdown list select the function type for the connection.

12. Select the network to be associated with the function using the Network dropdown list.
13. Set the function type specific parameters

14. Click the Add to close the Add Connection dialog window or Add+ button to continue adding Network Connections to the Server Profile.

**Note**
The *Use user-specified IDs* is for those customers that wish to provide their own MAC or WWN address for that connection.
Note
You can specify which FlexNIC to assign the Network Connection to, or leave it at the default of Auto. Auto will apply the same Network Connection to Adapter mapping Virtual Connect does today. Do know that you cannot create a FlexNIC B, C or D without first creating FlexNIC A.

15. (Optional) Adding Fibre Channel Networks is a similar operation as an Ethernet Device Type. FlexNIC B is reserved for FC Connections when FC Connection Types are added to the Server Profile. When choosing the FlexNIC, you can leave the default Auto. You can force the FlexNIC assignment, but the list will be filtered based on the connection location to the Interconnect Bay the FC Network is assigned to.

A. (Optional) If you wish to configure FC Boot From SAN (BFS), change the Boot setting from Not Bootable to either Primary or Secondary. You will need to provide the Target WWN and Host LUN ID in the respective fields.
16. If desired, enable local storage management by editing the edit option. 

Local Storage
Integrated storage controller mode managed manually

17. In the Edit Integrated Storage Controller dialog box, select the mode of the storage controller using the dropdown list.

Edit Integrated Storage Controller
Mode
managed manually
RAID
HBA

Use managed manually to configure drives externally of OneView. OneView will not manage these drives. Use RAID to define logical drives or HBA to present drives directly to the controller.

18. Enable or disable the option to Re-initialize storage on next profile application. A warning will be shown about this option.

Edit Integrated Storage Controller
Mode
RAID

Re-initialize storage on next profile application

Local storage will be initialized the next time the server profile is applied to server hardware.

Any existing data will be lost. If you wish to preserve the data, then de-select this option.
19. **Click Create logical drive**

20. **In the Create Logical Drive dialog window, enter a Name for the logical drive**

21. **Select the RAID Level for the logical drive**

22. **Select the number of drives for that RAID set**

23. **Select the drive technology of that RAID set.**
24. Click Create or Create+ to create the logical drive for the server profile.

25. Once all of your logical drives are created, click OK to finish configuring the Integrated Storage Controller.
26. If desired, select the box to enable the Local Storage as the boot device

27. Enable SAN Storage if necessary.
   A. Check the box for Manage SAN Storage
   B. Specify the Host OS Type, which controls the Host created on the 3PAR storage system.
   C. Click the Add Volume button to display the list of volumes available for assignment.
**SAN Storage**

- Manage SAN Storage
  - Host OS type: Windows 2012 / WS2012 R2

**Volume Attachments**

- Add Volume

**D. In the Add Volume dialog window, select Volume Type from the drop down list**

**Add Volume**

**General**

- Type: Existing volume
  - New volume
- Volume Name: Search

**Volume properties**

- Storage pool: Search
- Capacity: 10 GB
- Provisioning: Thin
- Sharing: Private
  - Permanent

**E. If creating a new volume, create the volume to the needed specifications**

**F. If using an existing volume select the Volume using the dropdown list or the SmartSearch feature.**
G. Once the Volume has been selected, the available Storage Paths will be displayed. You can disable, remove or add Storage Paths. Click Add or Add+ to add the volume.

28. In the Boot Settings section, set the boot mode from the dropdown list.
Warning
Disabling Boot Order in the Server Profile will also disable PXE and FC BfS configuration options.

29. In the BIOS Settings section, if desired, check the box to Manage the BIOS.

30. Click Edit BIOS Settings

31. In the Edit BIOS settings dialog window, edit any desired BIOS settings.
32. In the Edit BIOS settings dialog box, click OK after all of the desired BIOS settings are made.
33. The HPE recommendation is to leave the Advanced section as default, which would be Virtual Managed Addresses.

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<tr>
<td>Hide unused FlexNICs</td>
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34. Click Create or Create+.
Create a Server Profile for Gen9 DL Servers

Network configuration (Ethernet or Fibre Channel) is not supported with Gen9 DL servers.

1. Select Server Profiles from the Top Level Menu.

2. Click the +Add Server Profile button.
3. In the General section of the server profile creation page, provide a Name and Description for the Server Profile.

4. In the Server Profile section, enter a description for the server profile.

5. Select the Server Hardware that the profile will be applied to using the dropdown menu.

Note: Enclosure Group and Affinity are not available for DL servers.

6. In the firmware section, select a Firmware Baseline from the dropdown menu.
7. Once a baseline is selected, choose how the baseline will be applied to the server. If either of the options using the HPE Smart Update Tools is selected then the firmware or driver updates will be done while the systems are online. If the firmware only option is selected then the firmware will be updated offline using Intelligent Provisioning.

8. If desired, enable local storage management by editing the edit option.

9. In the Edit Integrated Storage Controller dialog box, select the mode of the storage controller using the dropdown list.

10. Enable or disable the option to Re-initialize storage on next profile application. A warning will be shown about this option.

11. Click Create logical drive
12. In the Create Logical Drive dialog window, enter a Name for the logical drive

13. Select the RAID Level for the logical drive

14. Select the number of drives for that RAID set

15. Select the drive technology of that RAID set.
16. Click Create or Create+ to create the logical drive for the server profile.

17. Once all of your logical drives are created, click OK to finish configuring the Integrated Storage Controller.
18. In the Boot Settings section, set the boot mode from the dropdown list.

**Warning**
Disabling Boot Order in the Server Profile will also disable PXE and FC BfS configuration options.

19. In the BIOS Settings section, if desired, check the box to Manage the BIOS.

20. Click Edit BIOS Settings

21. In the Edit BIOS settings dialog window, edit any desired BIOS settings.
22. In the Edit BIOS settings dialog box, click OK after all of the desired BIOS settings are made.
23. Click Create or the Create+ button.

Create a Server Profile for Gen8 Servers

HPE OneView has basic Server Profile support for the DL360 and DL380 Gen8 platforms. Only BIOS and Firmware management are supported with these platforms.

1. Select Server Profiles from the Top Level Menu.
2. Click the +Add Server Profile button.

3. In the General section of the server profile creation page, provide a Name and Description for the Server Profile.

4. In the Server Profile section, enter a description for the server profile.

5. Select the Server Hardware that the profile will be applied to using the dropdown menu.

Note: Enclosure Group and Affinity are not available for DL servers.
6. In the firmware section, select a Firmware Baseline from the dropdown menu.

7. Once a baseline is selected, choose how the baseline will be applied to the server. If either of the options using the HPE Smart Update Tools is selected then the firmware or driver updates will be done while the systems are online. If the firmware only option is selected then the firmware will be updated offline using Intelligent Provisioning.

8. If desired, enable local storage management by editing the edit option.

9. In the Edit Integrated Storage Controller dialog box, select the mode of the storage controller using the dropdown list.

10. Enable or disable the option to Re-initialize storage on next profile application. A warning will be shown about this option.
11. Click Create logical drive

12. In the Create Logical Drive dialog window, enter a Name for the logical drive

13. Select the RAID Level for the logical drive

14. Select the number of drives for that RAID set
15. Select the drive technology of that RAID set.

16. Click Create or Create+ to create the logical drive for the server profile.

17. Once all of your logical drives are created, click OK to finish configuring the Integrated Storage Controller.
18. If desired, select the box to enable the Local Storage as the boot device

19. Adjust the boot order if desired

20. In the BIOS Settings section, if desired, check the box to Manage the BIOS.
21. **Click Edit BIOS Settings**

![Edit BIOS Settings dialog window](image)

22. **In the Edit BIOS settings dialog window, edit any desired BIOS settings.**

![Edit BIOS Settings dialog box](image)

23. **In the Edit BIOS settings dialog box, click OK after all of the desired BIOS settings are made.**
24. Click Create or the Create+ button.

**Add New Blade to Enclosure (Optional)**

In this section, you will need to insert a new blade into the enclosure. This will help you verify that a new blade is automatically discovered in the enclosure by HPE OneView. When a new blade is inserted into the enclosure, the Onboard Administrator will register a Blade Insertion event, which will be forwarded to the HPE OneView console. A discovery task will be created, which HPE OneView will attempt to configure the iLO for management.

1. Insert new blade into enclosure.
2. Navigate to the Enclosures from the Top Level Menu.
3. Select the enclosure from the left hand menu

4. Examine the Device Bays using the front view to validate the new blade appears in the appropriate bay.

5. Once the new blade has been discovered it is available for use.

Environmental Management

With HPE OneView, you can optimize the power and cooling requirements of your data center efficiently. While each individual system, enclosure or PDUs in your data center can provide its power requirements and sometimes even a limited amount of power consumption history, it is still difficult to understand the power and cooling requirements for your data center in a holistic way.

In this section, you will go through how to configure your HPE OneView so you can start investigating more about the overall systems in your data center and their power & cooling capacities and consumption.

Physical data center configuration

In order to take advantage of analysis and management features for your environment, you first want your physical data center environment to be accurately represented. You have the ability to match the physical placement of systems, enclosures, racks and other unmanaged devices through HPE OneView.

Add racks based on Location Discovery Services (LDS)

Racks are automatically created based on LDS. HPE ProLiant Servers or HPE BladeSystem enclosures mounted in HPE Intelligent Series Racks are automatically grouped in racks in the proper positions. The initial rack names are provided by the Rack Serial Number. The height of a created rack is displayed as 42U unless the top-most device managed by HPE
OneView is in a higher position. If a managed device is later added to a position about 42U, the rack height will be automatically adjusted.

**Add enclosures to racks without LDS**

If no LDS is present, HPE BladeSystem enclosures automatically create an enclosing rack in HPE OneView during the discovery process, based upon the name configured in the HPE BladeSystem Onboard Administrator.

- Use of BladeSystem management stacking link cables up/down for all enclosures in a rack is encouraged – it causes a single rack to be created per set of enclosures and the enclosures will be in the proper order in the rack. Specific slot positioning must be provided by adjusting the positioning in the UI or via REST.
- If BladeSystem management stacking links are not used – one rack is created per enclosure. Manually change the HPE OneView configuration to put the enclosures into a single rack and delete any duplicated racks.

1. To view the rack an enclosure is located in, select the Enclosures from the main menu.

2. After selecting the correct enclosure from the main pane, the information in the Hardware section of the details pane allows you to see the rack automatically created to house the enclosure.

**Adding DLs to rack without LDS**

If LDS is not present, racks are not automatically created for DL servers. DL servers may be added to racks previously created via enclosure discovery or racks may be created manually and have servers added to them. For either option, begin by navigating to the Racks screen.

1. From the top level menu, select Racks.
2. On the Racks screen, to create a rack either select +Add Rack button in the left panel.

3. In the General section of the Add Rack dialog window, enter the Name for the rack

4. There are two optional settings in the General section, Thermal Limit and Serial Number. Enter these if desired

5. Enter the dimensions for the rack

6. The Layout panel consists of a visual representation of the rack and its slots, a list of available devices and a search box to find the desire systems and enclosures. From this panel, you can add, remove, and rearrange devices within the rack and edit the device details. To place a device, drag and drop it in the desired location.
7. Once the rack has been configured, select Add to complete the setup or Add + if additional racks need to be created.

Creating a data center
HPE OneView allows you to describe the physical locations of your racks and systems within your data center. After placing systems in the racks, 3D data center maps can be created to accurately describe the racks location on the data center floor.

1. From the Top Level Menu, select Data Centers.

2. HPE OneView automatically creates a default data center (Datacenter 1) during setup which serves as a holding place for racks once created. All racks are listed under Datacenter 1 in the order they were created. A message is shown until the default data center indicating it has not been configured.
3. If you wish to use the default Datacenter 1 for your actual data center, resolve the warning message by editing Datacenter 1 and renaming/resizing it to match the data center floor (or portion thereof) you are going to be managing with HPE OneView. This process is described in subsequent steps. Alternately, you can remove Datacenter 1 and Add one or more data centers as described next.

4. To add new data centers, use the +Add Data Center link on the Data Centers screen.

5. In the General section of the Add Data Center Window, enter the details about the new data center.

6. In the Layout section of the Add Data Center dialog box, arrange the physical location of the unpositioned racks.
7. **To edit an existing data center, select Edit in the Layout section of data center page.**

8. **The Layout panel of the Edit screen allows you to drag & drop racks on the grid from an overhead view.**

9. **For physically accurate positioning not aligned with the grid lines, enter the position and angle in the rack positioning popup.**
Once editing of the data center is complete, select the OK button to return to the data center screen to view the 3D model of the data center.

Configuring power delivery topology for the data center

Configuring the physical setup for your data center is only half the picture. To get a complete understanding of your environment, you can also configure its power delivery hierarchy. Building out your environment’s power topology helps reduce downtime by eliminating wiring errors and identifying potential overloads. HPE OneView enables you to create power distribution device objects and describe the power source for one or more components in the rack. Below, configure the rack-level power distribution for each rack.

Adding HPE iPDUs

1. Navigate to the Power Delivery Devices section from the Top Level Menu

2. To add HPE iPDUs that power your previously discovered equipment, select + Add power delivery device.

3. Select the type of PDU from the dropdown list
4. Enter the FQDN or IP address of the iPDU to be imported

   **Add Power Delivery Device**

   **Type**: HPE Intelligent Power Distribution Unit

   **IP address or hostname**: [Field]

5. Enter the login credentials for the iPDU.

   **Add Power Delivery Device**

   **Type**: HPE Intelligent Power Distribution Unit

   **IP address or hostname**: 172.16.8.11

   **Credentials**

   **User name**: dcs

   **Password**: [Field]

6. Click Add or Add+ to import the iPDU
Note: The import process will take a few minutes as it discovers the iPDU but all extension bars attached to it. It will also discover any other HPE equipment that is attached to the iPDU and extension bars.

Adding Unmanaged Devices

Unmanaged devices can be created for any devices that cannot be discovered by HPE OneView but consume power or slots in the rack.
1. Select **Unmanaged Device** from the Top Level Menu.

2. Once on the **Unmanaged Devices** screen, select the **+Add unmanaged device** button.

3. Enter the specified information to represent the unmanaged device. Specify the maximum power value for the device to enable capacity and consumption analysis of your power delivery system. Once all information is completed, click the **Add or Add+** button.

4. The device can then be added to any rack layout and associated with any power delivery device.

**Securing the Appliance**

- First Time Setup
- Configure Networking
- Discover Hardware
- Upgrade Firmware
- Server Profiles
- Environment Management
- Appliance Security
  - Create Local User Accounts
  - (Optional) Configure Active Directory or OpenLDAP
  - (Optional) Configure Directory Groups

HPE OneView supports Role-based Access to the appliance with either local User Accounts, or it can be integrated with Microsoft Active Directory or other LDAP directories, like OpenLDAP. This section will cover how to create local user accounts, and optionally configure Active Directory authentication within the appliance.

**(Optional) Integrating Active Directory/LDAP Security**

You will need the following prior to configuring Active Directory settings within the appliance:
Active Directory or OpenLDAP Checklist

Table 10. Active Directory or OpenLDAP Checklist

| Task                                                                 | Completed? (Y|N) |
|----------------------------------------------------------------------|----------|
| SSL certificates installed on your Domain Controllers                |          |
| FQDN of available Domain Controllers or LDAP Servers                 |          |
| Domain Security Groups for Server Admins (will map to Specialized Server Administrator role) |          |
| Network Admins (map to Specialized Network Administrator role)        |          |
| Infrastructure Admins (map to Full Administrator role.)              |          |
| Read-Only Users                                                      |          |

(Optional) Integrating with Active Directory/OpenLDAP

1. Select the main menu option in the upper left, and choose Settings.

2. Select Security

3. The Security page will be displayed. Select Add Directory
4. In the Add Directory window, you will need to specify the following:
   - Directory Name
   - Directory Type
   - Search Context
     - Field 1: CN for Active Directory, UID for LDAP Directories
     - Field 2: Organizational Unit in Distinguished Name format (i.e. OU=Admins,OU=Contoso)
     - Field 3: Top Level Domain Name in Distinguished Name format (i.e. DC=contoso,DC=com)
   - Click the Add directory server button to add your Domain Controller FQDN and Base-64 Public Key Certificate used for Server Authentication.
   - The Username and Password fields are to validate the Directory configuration. A Valid user account must exist in the Search Context you configured. You must specify the Canonical Name value of the user account.

Note
Field 2 can contain up to 4 Search Contexts. Referred to as multiple Relative Distinguished Names (RDNs), a '+' symbol is used to provide different search contexts. For instance, the following OU's could contain different Administrator accounts and groups:

- OU=admins,OU=Finance,DC=Contoso,DC=com
- OU=admins,OU=Sales,DC=Contoso,DC=com
- OU=admins,OU=HR,DC=Contoso,DC=com
- OU=admins,OU=Corp,DC=Contoso,DC=com

You can combine the above Search Contexts into a single value:

- OU=admins,OU=Finance,DC=Contoso,DC=com+OU=admins,OU=Sales,DC=Contoso,DC=com+OU=admins,OU=HR,DC=Contoso,DC=com+OU=admins,OU=Corp,DC=Contoso,DC=com

5. Enter the directory information
6. **Click Add Directory Server**

![Add Directory Server](image)

7. **Enter the IP address or host name and server port for the Directory Server and click Add**

![Add Directory Server](image)

8. **After the Directory has been configured, go back and Edit Security to set the Default Directory, and click OK to save the settings.**

![Edit Security](image)

9. **Next, navigate to Users and Groups from the main menu.**

![Main Menu](image)

10. **In the Users and Groups view, select the Actions menu and choose Add Group**
11. **Select the Select Group button**

12. **Provide the credentials to authenticate and click Connect.**

13. **Once authenticated, select a group from the groups dialog window and click OK.**
14. Assign the role that is needed for that directory group.

15. Click Add to close the Add Group Dialog window
16. Repeat the same steps to add the remaining Directory Groups.

17. After you have configured your Directory Groups, you should log out by clicking the User button in the upper right of the UI and select Logout.

18. On the logon page, you will notice a new field to choose. This is the Directory chooser. You can select from the configured Directories and Local (if Local was not disabled in your Directory configuration.) Verify that you have setup the various groups correctly by logging in with different users and ensure the permissions are set correctly.

Adding a Scope
1. Select the main menu option in the upper left, and choose **Settings**.

![OneView menu.png](image1.png)

2. **Select Scopes**

![Settings page.png](image2.png)

3. The Scopes page will be displayed. **Select Create Scope**

![Create Scope dialog.png](image3.png)

4. In the Create Scope dialog window add a name and description for the scope

![Create Scope form.png](image4.png)

5. **Click Add Resources**
6. In the Add Resources to Scope dialog window, use the dropdown box to find the resources to be added to the scope.

7. Select the resources to be added to the scope.

8. Click Add or Add+ to close the Add Resources to Scope dialog window.
9. Click Create or Create+ to create the scope

Maintaining Your Appliance

This segment will guide you through the maintenance tasks you may encounter when using the HPE OneView appliance. It will cover the maintaining user groups and accounts, alerts and monitoring as well as other tasks you may experience when using HPE OneView to manage your Composable Infrastructure.
Import/Migrate a Virtual Connect Managed Enclosure

HPE OneView supports the ability to migrate existing Virtual Connect Domains. Starting in HPE OneView 3.0 the migration process is now a live migration.

Before proceeding with the following steps, please make sure you have completed the following:

**Table 11. VCM Migration Checklist**

| Task | Completed? (Y|N) |
|------|-------------|
| Created Virtual Connect Domain Backup |   |
| Source Onboard Administrator IP Address/FQDN |   |
| Source Onboard Administrator Credentials (not LDAP/AD credentials) |   |
| Source Virtual Connect Manager Domain-level Credentials (not LDAP/AD credentials) |   |

1. From the main menu, select Enclosures

2. Select Add Enclosure

3. Enter the IP Address or FQDN for the Onboard Administrator address for the enclosure to be migrated

4. Select Add enclosure and migrate Virtual Connect domain.
5. Enter the credentials needed for the Onboard Administrator.

6. Select the enclosure group that the enclosure will be a part of. If you are creating a new enclosure group enter the information.

7. Select the license type to be applied to the devices within the enclosure being imported.
8. Enter the administrative credentials for the Virtual Connect domain to be imported.
9. **Click Test Compatibility.**

10. **Review the migration information and warnings. If acceptable, agree to the warnings.**
11. Select Add to begin the migration process. This process can take up to a half an hour to complete. To finalize the server profile assignment process please reboot the servers during your next scheduled maintenance window.

12. The Enclosure Group and Logical Interconnect Group resource names can be modified after the migration is complete. Which the Enclosure Group resource can be selected in Step 4 instead of creating a new Enclosure Group resource as long as the additional target enclosure Virtual Connect configuration match (Ethernet and FC Networks, and associated uplink ports.)

Import a Monitored Enclosure

In this section, you will go through the process on how to import an enclosure into the HPE OneView console. In order to successfully import an enclosure, the Onboard Administrator must be configured. At a minimum, both the Primary and Secondary OA must have a valid IP Address, Enclosure Bay IP Addressing or external DHCP Server supplying IP leases, and a valid Administrator-role account. During the Enclosure Import process, HPE OneView will automatically configure SNMP, NTP and the HPE SIM Single-Sign-On Certificate with the HPE OneView appliance IP Address and public SSL Certificate. The Enclosure Import process will also discover any device in the enclosure's Device Bays, and attempt to configure the supported iLO’s for management (SNMP, NTP, HPE SIM SSO Certificate, create a special user account _HPOneViewAdmin) and license the iLO’s and servers based on the License Intent setting in the Add Enclosure screen.

---

Note

If an enclosure is imported as a monitored enclosure then Virtual Connect Manager will still maintain control and management of the connectivity options.

---

1. Navigate to Enclosures in the Top Level Menu.
2. Click the Add Enclosure button.

3. Enter the IP address or FQDN of the Onboard Administrator for the enclosure that you are importing

4. Select the Add enclosure for monitoring option

5. Enter the login credentials for the Onboard Administrator of the enclosure being imported

6. Selecting the Add or Add+ button, the enclosure will be discovered, and the Onboard Administrator will be configured to be monitored by HPE OneView.
Once the enclosure information has been verified, the HPE OneView appliance will begin the discovery process. During this time, the appliance will validate if the OA firmware meets the minimum requirement. Clicking on the Details link will take you to the Activity view of the enclosure, where you can examine the task and subtask details.

During the import, HPE OneView configures Single Sign On, Network Time Protocol, power state and SNMP settings, as well as discovering the hardware types and updating environmental configurations.

7. After the Add Enclosure task has completed, the Enclosure State should read Monitored.
Changing the IP address of the HPE OneView Appliance

There may come a time when the IP address of the HPE OneView Appliance needs to be changed. Please follow these steps to ensure a smooth and easy transition for your Composable Infrastructure.

1. Select the main menu option in the upper left, and choose Settings.

2. On the settings page, select Networking.

3. In the networking page, select Edit from the Actions menu.

4. Enter the new IP address or FQDN for the HPE OneView Appliance.
5. Click OK.

Note
After clicking OK, the appliance will be configured using the new parameters. If you selected Static for the IP Address Assignment, you should be redirected to the new IP address. As this change is being applied the HPE OneView appliance will push the changes to the managed resources (storage devices, enclosures, etc.)

Changing the SNMP Read String of the HPE OneView Appliance

There may come a time when the SNMP Read string of the HPE OneView Appliance needs to be changed. Please follow these steps to ensure a smooth and easy transition for your Composable Infrastructure.

1. From the main menu, select Settings.
2. **On the settings page, select SNMP.**

3. **On the SNMP page, select Edit from the Actions menu.**

4. **Enter the new Read community string**

5. **Click OK to close the Edit SNMP Settings dialog window.**
Note
Changing the read string is recommended when running HPE System Insight Manager and HPE OneView in conjunction with each other. This is due to the fact that the OA only supports a single SNMP read string. When the enclosure is imported into HPE OneView, the read string on the OA will be overwritten if it doesn’t match that of the HPE OneView appliance.

Backing up the HPE OneView Appliance – Onetime method
HPE OneView allows for the backing up of the configuration and imported devices. This section will describe how to create a onetime backup of the HPE OneView Appliance

1. From the Top Level Menu, and select Settings
2. From the Settings page, find the Backup Section. Select Create Backup

3. The user will be taken to the backups page and the backup will immediately begin.

4. Once the backup is finished the user will be presented with the option to Download most recent backup

5. The file will be saved to the users Downloads folder.

Restoring a HPE OneView Appliance from Backup

HPE OneView allows for the restoration of the configuration and imported devices from a backup file. This section will describe how to restore the HPE OneView Appliance from backup.

1. From the Top Level Menu, and select Settings
2. From the Settings page, click **Backup**

3. From the Backup section, open the Actions Menu and select **Restore from backup**.

4. Scroll to the bottom of the Restore from Backup Dialog window
5. Select the backup file that the HPE OneView appliance will be restored to.

6. Click Restore
7. Confirm that you want to execute the restore process, then click Yes Restore

Before you begin the restore process, make sure you understand all the implications.

- I have read and understood all the implications.

Continue to restore from backup?

- Yes, restore
- Cancel

8. The restore process will begin.

Setting a remote Backup location and Schedule for Backups

HPE OneView allows for the scheduled backing up of the configuration and imported devices to a remote file store. This section will describe how to configure the settings of the remote backup of the HPE OneView Appliance

1. From the Top Level Menu, and select Settings
2. From the Settings page, select Backup

3. From the backup page, select Edit Backup Settings.

4. From the Edit Backup Settings dialog window, check the box Enable remote backup location

5. Select the Transfer Protocol to be used to upload your backup file to the remote location.

6. Enter the details for the host that the file will be uploaded to

7. In the Schedule section, use the drop down list to select the frequency of the backups
8. Select and configure the scheduled frequency of the backups

9. Select OK to apply the changes to the backup settings
10. The new settings will be tested for accuracy.

Setting up Remote Support for supported devices

HPE OneView contains support automation functionality for Gen 8 and newer devices. These devices will have cases for them created automatically through the remote support functionality. If Insight Online is enabled, then the information will be visible within the HPE Support Center.

Note: HPE OneView supports ProLiant BL, DL and Apollo G7 and newer devices however the Remote support functionality is not available on ProLiant G6 and G7 devices. To enable support automation on these devices please use Insight Remote Support.

1. From the Top Level Menu, and select Settings
2. From the Settings page, find the Remote Support Section and select Remote Support

3. On the Remote Support page, select Edit from the Actions menu

4. On the Edit Remote Support dialog window, check the box Enable Remote Support

5. In the Registration Information section of the Edit Remote Support dialog window, enter the Company Name
6. **Enter the Initial Contact Information**

7. **Enter the Default Data Center Address.** This needs to be where the servers are physically located because this is where the parts will be sent.
8. Click **Register with Hewlett Packard Enterprise**

9. Click **Yes, Register** to initialize the registration with Hewlett Packard Enterprise.

**(Optional) Setting up Insight Online**

Once an HPE OneView instance is registered with HPE then Insight Online can be enabled. Enabling Insight Online will make case, warranty and other information visible within the HPE Support Center.

1. From the Top Level Menu, and select **Settings**
2. From the Settings page, find the Remote Support Section and select Remote Support

3. On the Remote Support page, select Edit from the Actions menu

4. On the Edit Remote Support dialog window, scroll down to the HPE Insight Online section. Check the box Enable HPE Insight Online Integration.

5. Enter the passport account user name and password to register this HPE OneView instance with HPE Insight Online
6. Click OK to apply the changes

Viewing Reports

HPE OneView provides a pre-defined list of reports giving the administrators and users information based on HPE OneView inventory, configuration, health status and more. Reports can also be pulled from the HPE OneView appliance via REST APIs.

1. From the Top Level Menu, and select Reports

2. From the left hand menu, select the desired report. For this example we will select the Server Firmware Inventory Report.

3. The selected report will be displayed
Exporting Reports

Reports within HPE OneView can be exported to Excel XLSX or CSV files for use in other applications.

1. From the Top Level Menu, and select Reports

2. From the left hand menu, select the desired report. For this example we will select the Server Firmware Inventory Report.
3. The selected report will be displayed

4. From the Actions menu, select Save As.

5. Select the desired output format – Excel Workbook (*.xlsx) or CSV MS-DOS (*.csv) using the dropdown menu.
6. Click OK

7. The file will be saved in the Downloads folder of the local user

Printing Reports

Reports within HPE OneView can be printed in PDF format.

1. From the Top Level Menu, and select Reports

2. From the left hand menu, select the desired report. For this example we will select the Server Firmware Inventory Report.
3. The selected report will be displayed

4. From the browsers context menu select Print.

5. The file can now be printed or saved in PDF format.
Creating New Users

HPE OneView supports the methodology of differing roles within a Composable Infrastructure. In this section we will create a new user for the HPE OneView environment.

1. From the top level menu, select Users and Groups

2. Select the +Add User button.

3. Provide a login name, Full name (optional), then enter and confirm the password that will be used for the account.

4. Select the type of Role that this user will have.

Specialized accounts can be limited to Backup functions, Network functions or Server functions.
**Full accounts** are administrators for all segments.

*Read only* accounts will be able to view information within HPE OneView but not change any information.

5. **Select the functions available to the account**

6. **Contact Email, Office and Mobile Phone numbers can be added if desired.**

7. **Select Add or Add+ button to create the account.**

---

**Deleting Existing Users**

HPE OneView supports the methodology of differing roles within a Composable Infrastructure. In this section we will delete an existing user in the HPE OneView environment.
1. From the top level menu, select **Users and Groups**.

2. Select the user that needs to be deleted from the left hand menu.

3. Select **Remove** from the Actions menu.

4. Confirm your selection by selecting the **Yes, remove** button to delete the account.

---

**Creating Groups**

HPE OneView supports the methodology of differing roles within a Composable Infrastructure. In this section we will create a new group in the HPE OneView environment.

1. From the top level menu, select **Users and Groups**.
2. Open the Actions menu and select Add Groups

3. Select the Select Group button

4. Provide the credentials to authenticate and click Connect.
5. Once authenticated, select a group from the groups dialog window and click OK.

6. Assign the role that is needed for that directory group.

7. Click Add to close the Add Group Dialog window.
### Changing User Permissions

HPE OneView supports the methodology of differing roles within a Composable Infrastructure. In this section we adjust the permissions for a user within the for the HPE OneView environment.

1. **Select the Top Level Menu, select Users and Groups**

![Add Group](image)

2. **Select the user you want to edit from the left hand menu**
3. **Select Edit** from the Actions menu.

4. **Edit** the information that needs to be changed.

5. **Click the OK button** to save the changes that have been made.
Adding a Dashboard Panel to the HPE OneView Dashboard

HPE OneView allows the user to customize the Dashboard interface. The customization allows each user to pick the categories that will be presented to the user when they log in.

1. From the Top Level Menu, select Dashboard

2. From the dashboard, select the Pencil icon to open the Dashboard Actions menu
3. **Select Add from the Actions menu**

4. **From the Add Dashboard Panel menu, select the information to be presented.** In this example we will add a Dashboard Panel to show the reports available in HPE OneView. Click the down-arrow next to the resource drop-down list.

5. **Scroll down the list and select Reports**

6. **Click Add**
7. The Reports Dashboard panel is now available.

Removing a Dashboard Panel from the HPE OneView Dashboard

1. From the Top Level Menu, select Dashboard
2. Hover your mouse over the item to be removed

3. To remove the item, select the X that appears

4. The item is removed from the dashboard

Alerts and Monitoring

Prior to physical and power delivery configuration, HPE OneView provides a Utilization panel where a summary of the current usage of each metric available for a resource can be monitored. Each type of resource provides specific metrics that are collected from the management processor and displayed. The values depicted provide the value of the metric during the most recent five minute period.
Having configured the physical and power delivery topology of your environment, you can now begin to monitor and analyze its use of power and cooling resources. Power utilization monitoring allows you to identify and eliminate areas of waste while thermal monitoring helps reduce overcooling and fix hot spots.

1. **The Dashboard**, which is the default view when logging into the appliance, provides an overview of activity and alerts.

   ![Dashboard](image1)

2. From the top level menu, select **Server Hardware**

   ![Server Hardware Menu](image2)

3. Select the desired hardware resource from the left hand menu.

4. The **Utilization panel** located within the details pane shows the metrics available for monitoring for the resource. The utilization metrics available to be monitored depends on the resource type:
   - **Server hardware**: CPU, power (including power cap) and temperature
   - **Enclosures**: power (including power cap settings) and temperature
   - **Power Delivery Devices**: power
Note
If you wish to change the temperature and size parameters to be displayed in a localized fashion, you must set the default Language in your browser for HPE OneView to display them correctly.

5. Flyovers showing the past 24 hours' worth of CPU, Power or Temperature data are available by moving the pointer over the desired metric.

6. Selecting the Utilization panel heading or selecting Utilization from the view menu allows display and navigation of all available history of a specified metric.
7. Once selected, the details pane will show the first available metric for the device expanded. By default the last 24 hours of information is shown on the graph. However, the date bar below the graph allows selecting any available date range to be displayed.

8. HPE OneView allows you to view areas in your data center that are insufficiently cooled due to various reasons such as poor airflow, concentration of excessive heat output, or wrap-around airflow at the ends of aisles. Likewise, it is possible to determine areas that are being overcooling and wasting cooling resources. HPE OneView’s 3D visualization
of the data center shows the peak observed temperature of each rack the last 24 hours.

Viewing Activity, Alerts and Tasks

Various health alerts are recorded regarding the lifecycle management of your data center and IT equipment. This capability enables you to be notified of events that may arise such as:

- New blade server inserted
- Create/Delete/Modify Networks
- Firmware Update
- Pre-Failure warnings
- Uplink Status of Logical Interconnects
- New potential overload conditions precipitated by addition of new hardware
- Thermal capacity of devices in rack exceed specified thermal limit
- Lack of power delivery redundancy to devices attached to power delivery devices

1. From the Main Menu, select Activity.
2. This page is the master list of all activity within the appliance.

3. You can also expand the hardware resource (Server Hardware, Server Profile, Enclosure, Logical Interconnect, etc.) and look at the alert view to see the problem description. The details from the alert can most times be used to identify and help fix the problem.

Multi-use Commands

When making some changes or issuing some commands, it is possible to send those commands to multiple entities at one time. In this example we will power multiple servers on at once.

Issuing the Power On Command to Multiple Servers

1. Select the main menu option in the upper left, and choose Server Profiles.
2. If the left hand column, select the server profiles that you would like to manage. To select multiple items, hold down the control key while left clicking the desired server profiles.

3. From the Actions menu, select Power Off

4. Looking in the activity page, under Tasks, you can see that servers have now been powered off.
Migrating a Server Profile

Migrating a Server Profile allows the software defined server to be moved to a different piece of physical hardware. HPE OneView provides profile mobility between different adapters, different hardware generations and different blade models. Server profiles can also be migrated across enclosure groups.

1. From the Top level menu, select Server Profiles.

2. Select the server profile to be migrated

3. From the Actions menu, select Edit

4. The profile can be changed by editing either the specific Server Hardware bay assignment, by changing the Server Hardware Type and then selecting the Server Hardware Bay Assignment or by changing the Enclosure Group. Click Change next to either Server Hardware Type or Enclosure Group
5. From the Change Server Hardware Type and Enclosure Group dialog box, select the drop-down for the type of profile mobility needed. For example, select the Change next to Server Hardware Type.

6. From the dropdown list, select the desired Server Hardware Type

7. Click OK
8. **Accept and agree to the warning.**

Before changing the server hardware type or enclosure group, make sure you understand the implications of this change.

- I have read and understand all the implications.

Change server hardware type and/or enclosure group?

- Yes, change
- Cancel

9. **If the server profile is still assigned to hardware agree to unassign the hardware.**

This server profile has local storage configured. Data could be lost if the server hardware is repurposed. To preserve the local storage data, physically remove the disk drives or make a copy of the contents. Learn more.

Unassign server hardware from Enc1, bay 3?

- Yes, unassign
- Cancel

10. **Using the Server Hardware drop-down list, select the device bay that the server profile will be moved to**
11. Click OK to begin the profile migration
Add New Networks to a Logical Interconnect Group

1. Create the new Ethernet network in HPE OneView. The new network is called Add_Demo.

2. From the top level menu, select Logical Interconnect Groups.

3. Select the Logical Interconnect Group to be edited from the left hand menu.
4. From the Actions menu of the Logical Interconnect Group, select Edit.

5. Select the pencil icon to add the new Network(s) to an existing Uplink Set.

6. Scroll down to the networks section, select Add Networks.

7. Select the Add_Demo network and click Add.
8. Click OK to add the network to the Uplink Set

9. Click OK to update the Logical Interconnect Group
10. Now that the Logical Interconnect Group has been updated, the Logical Interconnects that were created from importing the Enclosure will report they are no longer consistent with the group. From the top level menu, select Logical Interconnects.

11. Select the Logical Interconnect that requires updating from the left hand menu. Notice that the Logical Interconnect Group is shown as being inconsistent with the Logical Interconnect Group.

12. Open the Actions menu, and then Update from group. Repeat for any other Logical Interconnects that require updating.
13. From the top level menu, select Network Sets

14. Select the desired Network Set from the left and menu

15. From the Actions menu of the Network Set, select Edit

16. In the Networks section, select Add Networks

17. Select the Add_Demo network and Click Add
18. Click OK to apply the changes to the Network Set

**Information**
Adding a Network to a Network Set does not require a Server to be powered off, and will deploy the updated Network Set configuration automatically.
**Edit Server Profile**

Once a profile has been applied, you can edit the profile to make changes, and fix issues that may have been encountered. It is possible to edit the existing Network Connections by modifying existing assigned Network and/or Bandwidth without needing to first Power Off the server. Other Server Profile edits will require the Server Profile to be Powered Off.

1. **Select Server Profiles** from the main menu.

2. **Select the server to be edited** from the left hand menu and verify that the Server is powered off.

3. **Select the Actions menu, then select Edit.**

4. **Make the necessary changes to the server profile** (i.e. Bandwidth adjustment, add a Network Connection, etc.)
5. **Click the OK button to save the changes to the Server Profile.**
6. Notice the server does not have its firmware reapplied, and only those changes are applied.

Changing the IP address of a managed resource (enclosure)

Occasionally situation arises where the IP address of a managed resource will need to be changed. In this example we will look at changing the IP address of an enclosure managed by HPE OneView.

1. Open the Onboard Administrator of the enclosure in question and change the IP address on the OA. Apply this change in the OA.

2. In the HPE OneView console, select the main menu option in the upper left, and choose Enclosures.

3. From the left hand menu select the enclosure that has had the IP address changed. The status of the enclosure will be red.
4. From the Enclosure's action menu, select **Refresh**

5. When the refresh process begins, it will detect that it can't communicate with the Onboard Administrator and will prompt the user for the new IP address.

6. After the refresh the enclosure should show a green status.

**Adding a New Enclosure**

1. Open the Top Level Menu and select **Enclosures**.
2. Click the **Add Enclosure** button.

3. Enter the **IP address** or the **Hostname** of the enclosure to be imported.

4. Select the **Add enclosure for Management** option.

5. Enter the **credentials** for the Onboard Administrator.

6. Select the **Enclosure Group** from the drop down list.
7. Select the desired license policy (Note: if the wrong license is selected the enclosure will need to be deleted from HPE OneView and re-added. This is not something that can be changed after being imported.)

8. Specify the **Firmware Baseline** from the drop-down list.
9. Selecting the Add or Add+ button, the enclosure will be discovered, and the OA firmware will be updated to the version within the SPP.

10. Once the enclosure information has been verified, the appliance will begin its discovery process. Clicking on the Details link will take you to the Activity view of the enclosure, where you can examine the task and subtask details.
During this time, the appliance will validate if the OA firmware meets the minimum requirement. If the firmware is out of date, the Activity window will display the sub-tasks generated. Below is a sample screenshot.

11. After the Add Enclosure task has completed, the Enclosure State should read Configured.
Adding a Ethernet Network

1. Select the Top Level Menu, and select Networks.

2. Once on the Networks screen, click the +Create Network button on the far left.

3. In the Create Network Dialog box enter the name of the network. The Name is not case-sensitive. The name can contain spaces and special characters.

4. Select Ethernet as the Type
5. **Select the VLAN type from the dropdown box**

6. **Enter the VLAN ID.**

7. **Select the Purpose of the network from the dropdown list. The Purpose drop-down selection is used by the HPE OneView for vCenter Plugin.**

8. **Assign the Preferred and Maximum bandwidth settings.**

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10 [http://community.hpe.com/t5/Converged-Data-Center/Finally-an-integrated-tool-based-on-how-I-work/ba-p/6792411#Vb85nPt95hF]
9. Enable any network options needed. *Smart Link* will automatically be selected by default. Selecting *Private Network* will mimic PVLAN behavior in that all assigned Network Connections will all be in an isolated network.

10. Click the Create button to create the new Ethernet Network and close the Create Network dialog box. You can also select the Create+ button to continue creating more Networks – e.g. Create the B-Side Ethernet Network.
Adding a Fibre Channel Network

1. From the Top Level Menu, select Networks, then select the +Create Network button.

2. In the Create Network dialog box, enter the Name of the Fibre Channel network.

3. Select Fibre Channel as the Network Type.
4. **Select Fabric Attach as the Fabric Type**

5. **Set the Preferred and Maximum Bandwidth.**

6. **Set the desired Login Redistribution and Link Stability interval to be used.**

7. **Click the Create button to create the new Ethernet Network and close the Create Network dialog box. You can also select the Create+ button to continue creating more Networks.**
Adding an Ethernet Uplink to a Logical Interconnect

1. From the Top Level Menu, select Logical Interconnect.

2. From the left hand menu, select the Logical Interconnect to be edited. Using the Actions menu, select Edit.
3. In the Edit window, select Add Uplink Set.

4. Enter a name for the Uplink Set

5. Select Ethernet as the Network Type

6. Select the Add Networks button
7. Select the network that will be added to the new Uplink Set, then click the Add button.

8. Select the Add uplink ports button.

9. Select the ports that will be used for the new uplink. Click the Add button.
10. **Click the Create button to create the new Ethernet Uplink**

11. **Click the OK button to enable the new Ethernet Uplink**

**Adding a Fibre Channel Uplink**

1. From the Top Level Menu, select *Logical Interconnect.*
2. From the left hand menu, select the Logical Interconnect to be edited. Using the Actions menu, select *Edit*.

![Logical Interconnect window](image)

3. In the Edit window, select *Add Uplink Set*.

![Add Uplink Set](image)

4. Enter a name for the Uplink Set

![Uplink Set name entry](image)

5. From the Type drop down list select *Fibre Channel*.
6. In the Networks section, select the desired SAN Fabric Name from the drop-down list.


8. In the Add Uplink Ports to Uplink dialog, select at least one port for the uplink then click Add.
9. Click the Create button to finalize the Fibre Channel Uplink.

10. Click the OK button to create the new Fibre Channel Uplink Set by saving the Logical Interconnect.

Create Additional Storage Volume Templates

1. Navigate to Volume Templates from the Top Level Menu.
2. Click Create volume template button

3. In the Create Volume Template screen, enter a Name for the Volume template

4. Enter a description for the Volume Template

5. Using the storage pool drop down list, select the Storage pool

6. Using the Snapshot storage pool drop down list, select the snapshot storage pool (if different from the default)
7. In the Volume Properties section, select the **capacity** for the volume template.

8. Using the provisioning drop down list, select the **provisioning model** for the volume template.

9. **Select the sharing model** for the volume template.

10. Then click the **Create or Create+** button.
11. (Optional) If the Storage administrator would like to enforce volumes to be created from Storage Volume Templates, the **Require template for Volume Creation** Global Policy needs to be set, which is in the *Edit Settings* option of the *Actions* menu.

12. In the *Edit Settings* dialog box, check the option to **Require a template for volume creation**

13. Click **OK** to apply the setting
Create Additional Storage Volumes

1. **Navigate to Volumes from the Top Level Menu.**

2. **Click the Create volume button.**

3. **In the Create Volume screen, enter a Name for the volume**

4. **Enter a description for the volume**

5. **In the Create Volume screen, the options can be restricted if the Storage Administrator has forced Volume Creation to be provisioned from a Storage Volume Template. Otherwise, the administrator creating the Volume may choose whether it will be associated with an available Storage Volume Template.**
6. If not associated with a volume template, select the **Storage Pool** for the volume

7. If not associated with a volume template, select the **Snapshot storage pool** for the volume

8. Set the **Capacity** for the volume
9. **Select the sharing method.**

10. **Click Create or Create+ button to create the volume.**
Create Storage Snapshots

1. From the top level menu, select Volumes.

2. From the left hand menu, select the desired volume that will have the snapshot taken
3. From the Actions menu, select Create Snapshot.

4. In the Create Snapshot window, enter a description for the snapshot

A. (Optional) You will notice that a Name is already created using the variables of [Volume Name]_[Timestamp]. This can be changed by selecting inside of the Name dialog box and editing the data within.
5. Click Create to create the snapshot

Viewing Storage Snapshots

1. From the top level menu, select Volumes.

2. From the left hand menu, select a volume to view the snapshots associated with that volume.
3. Open the General menu for the volume

4. Select Snapshots from the menu.

5. Examine the details of the snapshots available

Deleting Storage Snapshots

1. From the top level menu, select Volumes.
2. From the left hand menu, select a volume to view the snapshots associated with that volume.

3. Open the General menu for the volume

4. Select Snapshots from the menu.

5. Click the X next to the snapshot information to delete the desired snapshot
6. Select Yes, delete on the delete snapshot confirmation dialog

7. Verify that the snapshot has been removed from the volume

Reverting to previous Storage Snapshots

1. From the top level menu, select Volumes.
2. From the left hand menu, select a volume to view the snapshots associated with that volume.

3. Open the General menu for the volume

4. Select Snapshots from the menu.

5. Select the Revert hyperlink
6. **Select Yes, revert on the Revert Snapshot confirmation dialog**

7. **The revert process will begin**

8. **Verify that the revert process completed successfully**

---

**Removing Networks from a Server Profile**

1. Using the Top Menu, select *Server Profiles*
2. Select the server profile you want to edit from the menu on the left

3. From the Actions menu, select Edit.

4. Scroll down to the connections section of the Server Profile Dialog
5. Remove the desired network from the server profile by selecting the X next to the network name.

6. Click the OK button to save the changes to the Server Profile.
Deleting a volume from HPE OneView

In this Use Case you will remove a volume from the HPE OneView.

1. From the Top Level Menu, select Volumes

2. Select the volume to be deleted from the menu on the left

3. From the Actions menu, select Delete.
4. **Select the desired type of volume deletion**

5. **Click the Yes, Delete button** remove the volume.

6. **Verify that the volume has been deleted**
Adding a New Blade to an Enclosure and Discovering New Server Hardware Types

As it was discussed in the first chapter, Deploying Your Appliance, Server Hardware Types are automatically discovered and defined by HPE OneView when a new server is added to the environment. This section outlines how to add a new server and the expected behavior. When a new blade is inserted into an HPE OneView managed enclosure, the OA will register a Blade Insertion SNMP event, which will be forwarded to HPE OneView. A discovery task will be created, which HPE OneView will attempt to configure the iLO for management.

1. Insert new blade into the enclosure
2. From the Top Level Menu, select Enclosures
3. From the left hand menu, select the desired enclosure
4. Select Activity using the General drop-down menu to see the Blade Inserted event.
5. View the event

6. After the blade is inserted and discovered, if the server is a new model, or has different connectivity layout (i.e. different FlexLOM or mezzanine options installed) than other managed servers, a new Server Hardware Type will be created. To see this, from the Top Level menu select Server Hardware Types.

Adding New Racks Based on Location Discovery Services

Racks are automatically created based on LDS. HPE ProLiant Servers or HPE BladeSystem enclosures mounted in HPE Intelligent Series Racks are automatically grouped in racks in the proper positions. The initial rack names are provided by the Rack Serial Number.

Adding Enclosures to Racks without Location Discovery Services

If no LDS is present, HPE BladeSystem enclosures automatically create an enclosing rack in HPE CI Mgmt. during the discovery process, based upon the name configured in the HPE BladeSystem Onboard Administrator.

- Use of BladeSystem management stacking link cables up/down for all enclosures in a rack is encouraged – it causes a single rack to be created per set of enclosures and the enclosures will be in the proper order in the rack. Specific slot positioning must be provided by adjusting the positioning in the UI or via REST
- If BladeSystem management stacking links are not used – one rack is created per enclosure. Manually change the HPE OneView configuration to put the enclosures into a single rack and delete any duplicated racks.

1. To view the rack an enclosure is located in, from the Top Level menu, select Enclosures.
2. Select the correct enclosure from the navigation pane on the left

3. The information in the General section of the details pane allows you to see the rack automatically created to house the enclosure.

Adding Rack Servers (DL’s) to Racks without Location Discovery Services

If LDS is not present, racks are not automatically created for DL servers. DL servers may be added to racks previously created via enclosure discovery or racks may be created manually and have servers added to them. For either option, begin by navigating to the Racks screen.

1. From the Top Level Menu, select Racks.
2. On the Racks screen, select the Add Rack button in the left panel.

3. Once on the Add Rack screen, enter a name for the Rack

4. In the General pane, enter the details about the rack (thermal limit, serial number, U-height and dimensions)

5. The Layout panel consists of a visual representation of the rack and its slots, a list of available devices and a search box to find the desire systems and enclosures. From this panel, you can add, remove, and rearrange devices within the rack and edit the device details. To place a device, drag and drop it in the desired location.
6. Once the rack has been configured, select Add to complete the setup or Add + if additional racks need to be created.

Adding a Service Pack for ProLiant (SPP) Bundle

1. From the Top Level Menu, select *Firmware Bundles*
2. To upload an SPP Bundle, click the +Add Firmware Bundle button

3. On the Add Firmware Bundle window, click on the Browse button, and select the SPP ISO to upload.

4. Once selected, click the Start Upload button. You can also drag-and-drop firmware bundles (SPPs) within Windows environments. You can navigate away from the Firmware Bundle screen to other areas within the UI, as the upload process is a background process within the browser.
5. The SPP upload will begin. You can click the Close button in the lower right, as that will only close the dialog box and not cancel the upload.

**Note**
Do not close the browser window until the Firmware Upload task has completed. You can click on the Close button in the Add Firmware Bundle dialog as the upload is a background thread within the web application.

6. After the SPP has been uploaded, you can examine the contents

![Firmware Bundle Contents](image)

**Updating the Firmware Baseline for Servers deployed with Server Profile Templates**

Server Profiles created from Templates in HPE OneView are monitored for compliance with the desired Template. When inconsistencies are detected the profile is flagged as no longer being compliant with the template.

If a change, the firmware baseline for example, were made then the user can update a single profile or all via the server profile template. This will bring the selected templates back in compliance with the Server Profile Template.

1. Ensure that the firmware bundle is uploaded to the HPE OneView appliance
2. From the main menu, select Server Profile Templates.

![Server Profile Templates](image)

3. From the left hand menu, select the server profile to be updated.
4. From the actions menu, select the **Edit**.

5. In the **Firmware** section of the **Edit Profile** page, select the Firmware baseline to be used for the Server Profile Template.

6. Select the method to deploy the firmware baseline update. If either of the options using the **HPE Smart Update Tools** is selected then the firmware or driver updates will be done while the systems are online. If the **firmware only** option is selected then the firmware will be updated offline using Intelligent Provisioning.
7. Click OK to apply the changes.

8. Notice that the Server Profiles are not shown as being inconsistent with the Server Profile Template. Click the Server Profiles doughnut to view the server profiles using this template.
9. Select the server profiles within the server profile template to be updated with the new firmware baseline.

10. From the actions menu, select Update from Template

11. Select, Yes, Update when the Update From Template Dialog box appears

12. The selected server profiles will now be updated with the changes to the server profile template.

**Updating the Firmware Baseline for Single Servers with Profiles Assigned**

1. Ensure that the firmware bundle is uploaded to the HPE OneView appliance
2. Select the main menu option in the upper left, and choose Server Profiles.
3. **Select the server profile to be modified, then select *Edit* from the actions menu.**

4. In the **General** section of the **Edit Profile page**, select the *Firmware baseline* to be used for the Server Profile from the dropdown box.
5. Select the method to deploy the firmware baseline update. If either of the options using the **HPE Smart Update Tools** is selected then the firmware or driver updates will be done while the systems are online. If the **firmware only** option is selected then the firmware will be updated offline using Intelligent Provisioning.

6. Click OK to apply the changes.
Managing Multiple Firmware Images in the Same Enclosure

Because HPE supports its SPP bundles for 12 months, it may be necessary to have different servers within the same enclosure on different SPP bundles. This enables a customer to update the infrastructure ahead of time and update the servers during their normal maintenance window.

1. Select the Top Level Menu, and navigate to Firmware Bundles in the console.

2. To upload an SPP Bundle, click the +Add Firmware Bundle button.

3. On the Add Firmware Bundle window, click on the Browse button, and select the SPP ISO to upload.
4. Once selected, click the **Start Upload** button. You can also drag-and drop firmware bundles (SPPs) within Windows environments. You can navigate away from the Firmware Bundle screen to other areas within the UI, as the upload process is a background process within the browser.

5. The SPP upload will begin. You can click the **Close** button in the lower right, as that will only close the dialog box and not cancel the upload.

6. From the Top Level menu, select **Logical Enclosures**

7. Select the correct enclosure from the navigation pane, then select **Update Firmware** from the actions menu.
8. On the Update firmware screen select the correct Firmware Baseline.

9. Leave the default actions for the Update firmware for Shared infrastructure and profiles

10. Click OK to begin the firmware update.

11. Verify that the logical enclosure firmware update is complete
12. Select the Top Level Menu, and navigate to Logical Interconnect in the console.

13. Select the desired Logical Interconnect for the enclosure from the navigation pane.

14. Select Update Firmware from the actions menu.

15. On the Logical Interconnect Update firmware screen select the option to Update Firmware option then select the correct Firmware Baseline.
16. Click OK to apply the firmware.

17. Verify that the Logical Interconnect firmware update is complete.

18. Next, navigate to Server Profiles from the top level menu. Select the correct Server Profile from the navigation pane.
19. **Verify the Server Power is Off**

20. **Select Edit from the actions menu.**

21. **On the Edit Server Profile screen select the correct firmware baseline from the Firmware Baseline drop-down box to be used for this Server Profile.**
22. Click OK to apply the firmware.

23. Verify that the firmware update on the Server Profile is complete

Deleting a Service Pack for ProLiant (SPP) Bundle

1. From the Top Level Menu, select Firmware Bundles
2. Select the firmware bundle to be removed.

3. From the actions menu select Remove.

4. From the Remove HPE Service Pack dialog box, select Remove Bundle

5. Confirm that the firmware bundle was removed from the HPE OneView appliance

Modifying Virtual ID Pools

HPE OneView has the ability to pool address ranges just like Virtual Connect Enterprise Manager does today. However, HPE OneView provides many more address ranges by using Locally Administered Addresses\(^\text{11}\), including Auto Generated pools that can greatly expand the pool capacity. By default, there are ~1 million ID's per MAC and WWN pools.

1. From the Main Menu, select Settings.

\(^{11}\) http://en.wikipedia.org/wiki/MAC_address, review Address Details section.
2. **On the Settings window, you will see a section called Addresses and Identifier. Click the heading for Addresses and Identifiers**

![Settings window](image)

3. **From the Actions Menu, select Edit**

![Edit screen](image)

4. **Select the Add auto-generated button to create a new range of addresses for the pool, or add a custom range.**
REST API

REST (Representational State Transfer) is a web service format that uses basic Create, Read, Update and Delete (CRUD) operations that are performed on resources using HTTP POST, GET, PUT and DELETE. To learn more about general REST concepts, see:

http://en.wikipedia.org/wiki/Representational_state_transfer

HPE OneView has a resource-oriented architecture that provides a uniform REST interface. Every resource has one Uniform Resource Identifier (URI) and represents a physical device or logical construct, and may be manipulated using REST APIs. To view the list of resources, see HPE Composable Infrastructure Controller REST API Reference located in the Online Help of the appliance [https://{ip}/help/cic/en/content/images/api/].

Resource operations

Basic Create, Read, Update and Delete (CRUD) operations are performed on the appliance resources via the standard HTTP POST, GET, PUT and DELETE methods. RESTful interfaces are based on the World Wide Web standards, thus most modern web servers can support these operations without modification.

Restful APIs are stateless. The resource state is maintained by the resource manager and is reported as the resource representation. Any application state must be maintained by the client and it may manipulate the resource locally, but until a PUT or POST is made, the resource as known by the resource manager is not changed.

Table 13. REST HTTP Operations

<table>
<thead>
<tr>
<th>Operation</th>
<th>HTTP Verb</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Create</td>
<td>POST URI &lt;Payload = Resource data&gt;</td>
<td>New resources are created using the POST operation and including relevant data in the payload. On Success the Resource URI is returned.</td>
</tr>
<tr>
<td>Read</td>
<td>GET URI</td>
<td>Returns the requested resource representation(s)</td>
</tr>
</tbody>
</table>
Update PUT URI <Payload = Update data> Update an existing resource using the update data.

Delete DELETE URI Delete the addressed resource

URI format
All the appliance URIs point to resources and the client does not need to modify or create URIs. The URI for specific resource is static and follows this format: https://{appl}/rest/{resource name}. The three parts are described below.

<table>
<thead>
<tr>
<th>Table 14. URI Format</th>
</tr>
</thead>
<tbody>
<tr>
<td>https://{appl}</td>
</tr>
<tr>
<td>/rest</td>
</tr>
<tr>
<td>/(resource name)</td>
</tr>
</tbody>
</table>

Data transfer format
The appliance resources support JSON (JavaScript Object Notation) as the standard for exchanging data using a REST API. If JSON is not specified in the REST API call, then the default is JSON.

To learn more about JSON, go to www.json.org.

Accessing the ReST API with PowerShell
The HPE OneView PowerShell Library is available for download at http://hewlettpackard.github.io/POSH-HPOneView/, both the source code and a pre-built installer. The library requires at least the Windows Management Framework 3.0 (aka PowerShell 3.0) to be installed, and the .Net 4.0 Client Framework. Windows Management Framework 4.0 (aka PowerShell 4.0) that ships with Windows 8.1/8.1 Update is supported. The HPE OneView POSH Library Installer will assist you with the installation of these two required components if not found on the system.

Please visit the HPE OneView Online Documentation page (https://github.com/HewlettPackard/POSH-HPOneView/wiki), or use the get-help PowerShell cmdlet, for all available CMDLETs and the associated help.

Using PowerShell

Note
The following example assumes the HPE OneView POSH Library is installed with the available install package.

The HPE OneView PowerShell Library is a self-contained module that you first need to import, or add to your PowerShell Session Profile. After the module has been successfully imported, you must first execute Connect-HPOVmgmt in order to authenticate to the appliance. You can then execute other cmdlets to perform the desired action.

1. **Execute Import-Module HPOneView**
   
   A. **Example:**
   
   ```powershell
   PS C:\Users\User> Import-Module HPOneView.120
   Welcome to the HPE OneView POSH Library, v1.20.0.0009
   -----------------------------------------------
   To get a list of available CMDLETs in this library, type : Get-Help hpov
   To get help for a specific command, type: get-help [verb]-HPOV[noun]
   To get extended help for a specific command, type: get-help [verb]-HPOV[noun] -full
   To update the offline help for this module, type: Update-Help -module HPOneView.120
   Module sample scripts are located at: C:\Users\User\WindowsPowerShell\Modules\HPOneView.120\Samples
   
   If you need further help, please consult one of the following:
   * Get-Help about_HPOneView.120
   * Online documentation at https://github.com/HewlettPackard/POSH-HPOneView/wiki
   * Online Issues Tracker at https://github.com/HewlettPackard/POSH-HPOneView/issues
   ```
2. Execute the Connect-HPOVmgmt CMDLET
   A. Example
      
      ```powershell
      [HPONEVIEW]: [Not Connected] PS> Connect-HPOVmgmt -appliance appliance.example.com –user Administrator –password password
      [HPONEVIEW]: administrator@appliance.example.com PS>
      ```

3. Once you have authenticated to the appliance, you can execute different CMDLETs provided by the library
   A. Example
      
      ```powershell
      [HPONEVIEW]: administrator@appliance.example.com PS> New-HPOVNetwork –Type “Ethernet” –Name “Blue” –VLANID 100
      Creating Blue Ethernet Network
      ```

Accessing the ReST API with Python

Python comes with a few libraries that can complete REST requests like httpplib2 and urllib2, these libraries are rather difficult to use and require a lengthy learning curve. Another python library called "Requests" has solved the learning curve, cleaned up REST requests and made them very easy to use. For a full comparison take a look at http://isbullsh.it/2012/06/Rest-api-in-python/

This overview of using Python to create REST requests will feature the Requests library.

The full HPE OneView Python Library can be found at https://github.com/HewlettPackard/python-hpOneView.

Requests

Requests (http://docs.python-requests.org/en/latest/) is an easy to use REST request Python library.

How to get Requests

To get requests follow the steps on the Requests website here: http://docs.python-requests.org/en/latest/user/install/#install

The best method would be to use pip (the python package manager) to install requests:

```sh
> pip install requests
```

Creating and executing a request

To execute a request is very simple. First look at the following code:

```python
uri = '/rest/login-sessions'
method = 'POST'
data = {
    'userName': username,
    'password': password,
}
headers = {
    'Accept': 'application/json',
    'Content-Type': 'application/json',
    'Accept-Language': 'en_US',
}
url = 'https://' + hostname + uri
response = requests.request(method, url, data=json.dumps(data), headers=headers, verify=False)
```

A request is made up for 4 items:

- **Method** - HTTP Method (e.g. POST, PUT, GET, etc.)
- **URL** - URL for the new Request object.
- **Body** (or data) - Any data we want to pass in
- **Headers** - HTTP headers, including request type and authentication key

Example: Logging In

Below is a fully working example of using Python + Requests to login to an appliance and collect the session ID:

```bash
#!/usr/bin/env python
# © Copyright 2013 Hewlett-Packard Development Company, L.P.
```
import json
import requests

def main(hostname, username, password):
    uri = '/rest/login-sessions'
    method = 'POST'
    data = {
        'userName': username,
        'password': password,
    }
    headers = {
        'Accept': 'application/json',
        'Content-Type': 'application/json',
        'Accept-Language': 'en_US',
    }
    url = 'https://' + hostname + uri
    response = requests.request(method, url, data=json.dumps(data), headers=headers, verify=False)

    if response.status_code == 200:
        print(response.json()['sessionID'])
    else:
        print(response.json()['errorCode'] + ': ' + response.json()['message'])

if __name__ == '__main__':
    hostname = 'host.domain.com'
    username = 'administrator'
    password = 'password'
    main(hostname, username, password)

Creating a Support Dump

As with any product, occasionally there will be a situation that will require you to engage support. HPE OneView provides a Support Dump option to help with this process. There are two Support Dump options, and each contain different information: the Appliance and Logical Interconnects.

1. From the Top Level menu, select Settings.

2. In the Appliance section, click Create Support Dump. It may take a minute or two to collect the Support Dump logs. The Support Dump may also be very large. This Support Dump collects information about the Appliance.
3. In the create support dump dialog, select Yes, Create

4. Wait while the support dump is created

5. The SDMP file will be downloaded via your browser.
6. Contact your HPE Support Representative and provide the information collected above.
Appendix A: Sample HPN 5900CP FCF Switch Configuration

In this appendix, you will find a sample HPE 5900CP switch configuration setup as an FCoE FCF.

# version 7.1.045, Release 2307
# sysname HPN5900CP_FCF1
# irf mac-address persistent timer
# irf auto-update enable
undo irf link-delay
irf member 1 priority 1
#
ldp global enable
#
system-working-mode advance
password-recovery enable
#
fcoe-mode fcf
#
vsan 1
#
vsan 100
#
vsan 200
#
vsan 300
#
vsan 400
#
vsan 500
zone default-zone permit
#
vsan 600
#
vlan 1
#
vlan 100
fcoe enable vsan 100
#
vlan 200
fcoe enable vsan 200
#
vlan 300
fcoe enable vsan 300
#
vlan 400
fcoe enable vsan 400
#
vlan 500
fcoe enable vsan 500
#
vlan 600
fcoe enable vsan 600
#
qos map-table dot1p-lp
import 0 export 0
import 2 export 0
import 3 export 1
import 4 export 0
import 5 export 0
import 6 export 0
import 7 export 0
#
traffic classifier DCBX operator or
if-match acl 4000
#
traffic behavior DCBX
remark dot1p 3
#
qos policy DCBX
classifier DCBX behavior DCBX mode dcbx
#
stp global enable
#
interface NULL0
#
interface FortyGigE1/0/49
port link-mode bridge
#
interface FortyGigE1/0/50
port link-mode bridge
#
interface FortyGigE1/0/51
port link-mode bridge
#
interface FortyGigE1/0/52
port link-mode bridge
#
interface M-GigabitEthernet0/0/0
ip address 16.71.148.39 255.255.252.0
#
interface Ten-GigabitEthernet1/0/9
port link-mode bridge
description To vSAN100 Avon FCoE
port link-type trunk
port trunk permit vlan 1 100
priority-flow-control auto
priority-flow-control no-drop dot1p 3
lldp tlv-enable dot1-tlv dcbx
qos trust dot1p
qos wrr be group 1 byte-count 15
qos wrr af1 group 1 byte-count 15
qos wrr af2 group sp
qos wrr af3 group sp
qos wrr af4 group sp
qos wrr ef group sp
qos wrr cs6 group sp
qos wrr cs7 group sp
qos apply policy DCBX outbound
#
interface Ten-GigabitEthernet1/0/10
port link-mode bridge
description To vSAN100 Avon FCoE
port link-type trunk
port trunk permit vlan 1 100
priority-flow-control auto
priority-flow-control no-drop dot1p 3
lldp tlv-enable dot1-tlv dcbx
qos trust dot1p
qos wrr be group 1 byte-count 15
qos wrr af1 group 1 byte-count 15
qos wrr af2 group sp
qos wrr af3 group sp
qos wrr af4 group sp
qos wrr ef group sp
qos wrr cs6 group sp
qos wrr cs7 group sp
qos apply policy DCBX outbound
#
interface Ten-GigabitEthernet1/0/11
port link-mode bridge
description To vSAN300 Avon FCoE
port link-type trunk
port trunk permit vlan 1 300
priority-flow-control auto
priority-flow-control no-drop dot1p 3
lldp tlv-enable dot1-tlv dcbx
qos trust dot1p
qos wrr be group 1 byte-count 15
qos wrr af1 group 1 byte-count 15
qos wrr af2 group sp
qos wrr af3 group sp
qos wrr af4 group sp
qos wrr ef group sp
qos wrr cs6 group sp
qos wrr cs7 group sp
qos apply policy DCBX outbound
#
interface Ten-GigabitEthernet1/0/12
port link-mode bridge
description To vSAN300 Avon FCoE
port link-type trunk
port trunk permit vlan 1 300
priority-flow-control auto
priority-flow-control no-drop dot1p 3
lldp tlv-enable dot1-tlv dcbx
qos trust dot1p
qos wrr be group 1 byte-count 15
qos wrr af1 group 1 byte-count 15
qos wrr af2 group sp
qos wrr af3 group sp
qos wrr af4 group sp
qos wrr ef group sp
qos wrr cs6 group sp
qos wrr cs7 group sp
qos apply policy DCBX outbound
#
interface Ten-GigabitEthernet1/0/45
port link-mode bridge
#
interface Ten-GigabitEthernet1/0/46
port link-mode bridge
#
interface Ten-GigabitEthernet1/0/47
port link-mode bridge
#
interface Ten-GigabitEthernet1/0/48
port link-mode bridge
#
interface Fc1/0/1
#
interface Fc1/0/2
#
interface Fc1/0/3
#
interface Fc1/0/4
#
interface Fc1/0/5
#
interface Fc1/0/6
#
interface Fc1/0/7
#
interface Fc1/0/8
#
interface Fc1/0/13
#
interface Fc1/0/14
#
interface Fc1/0/15
port access vsan 100
#
interface Fc1/0/16
port access vsan 200
#
interface Fc1/0/17
#
interface Fc1/0/18
#
interface Fc1/0/19
#
interface Fc1/0/20
#
interface Fc1/0/21
#
interface Fc1/0/22
#
interface Fc1/0/23
#
interface Fc1/0/24
#
interface Fc1/0/25
#
interface Fc1/0/26
#
interface Fc1/0/27
#
interface Fc1/0/28
#
interface Fc1/0/29
port access vsan 200
#
interface Fc1/0/30
port access vsan 200
#
interface Fc1/0/31
port access vsan 100
#
interface Fc1/0/32
port access vsan 100
#
interface Fc1/0/33
#
interface Fc1/0/34
#
interface Fc1/0/35
interface Fc1/0/36
#
interface Fc1/0/37
  port access vsan 300
#
interface Fc1/0/38
#
interface Fc1/0/39
  port access vsan 500
#
interface Fc1/0/40
  port access vsan 600
#
interface Fc1/0/41
#
interface Fc1/0/42
#
interface Fc1/0/43
#
interface Fc1/0/44
#
interface Vfc9
  port trunk vsan 100
  bind interface Ten-GigabitEthernet1/0/9
#
interface Vfc10
  port trunk vsan 100
  bind interface Ten-GigabitEthernet1/0/10
#
interface Vfc11
  port trunk vsan 300
  bind interface Ten-GigabitEthernet1/0/11
#
interface Vfc12
  port trunk vsan 300
  bind interface Ten-GigabitEthernet1/0/12
#
scheduler logfile size 16
#
line class aux
  user-role network-admin
#
line class vty
  user-role network-operator
#
line aux 0
  user-role network-admin
#
line vty 0 15
  authentication-mode scheme
  user-role network-admin
  user-role network-operator
  idle-timeout 0 0
#
line vty 16 63
  user-role network-operator
#
  ip route-static 0.0.0.0 0 16.71.148.1
#
snmp-agent
  snmp-agent local-engineid 800063A2807848593E27C600000001
  snmp-agent log all
snmp-agent sys-info contact Gary
snmp-agent sys-info location Gary's 5900 in Fort Collins
snmp-agent sys-info version v3
snmp-agent group v3 AuthPriv privacy write-view Viewdefault
snmp-agent group v3 admin write-view All2View
snmp-agent mib-view included All2View iso
snmp-agent mib-view included AllView snmp
snmp-agent usm-user v3 admin admin
snmp-agent usm-user v3 user2 AuthPriv cipher authentication-mode sha
$5$c3$Ab59L60oVtFqqCqllMf4cWTeX0XWOdjBuRhAOHucM8FH6FX3yM= privacy-mode aes128
$5$c3$PyZHaO3tBpxOyP8ZTclauuQJ6VgRYmTJxmwD8Q50n3ohLA==

# ssh server enable
#
ntp-service source M-GigabitEthernet0/0/0
ntp-service unicast-server 16.110.135.123
#
# acl number 4000 name DCBX
# rule 0 permit type 8906 ffff
# rule 5 permit type 8914 ffff
#
# user-profile gary
#
# radius scheme system
# user-name-format without-domain
#
# domain system
#
# domain default enable system
#
# role name level-0
description Predefined level-0 role
#
# role name level-1
description Predefined level-1 role
#
# role name level-2
description Predefined level-2 role
#
# role name level-3
description Predefined level-3 role
#
# role name level-4
description Predefined level-4 role
#
# role name level-5
description Predefined level-5 role
#
# role name level-6
description Predefined level-6 role
#
# role name level-7
description Predefined level-7 role
#
# role name level-8
description Predefined level-8 role
#
# role name level-9
description Predefined level-9 role
#
# role name level-10
description Predefined level-10 role
# role name level-11
description Predefined level-11 role
#
# role name level-12
description Predefined level-12 role
#
# role name level-13
description Predefined level-13 role
#
# role name level-14
description Predefined level-14 role
#
user-group system
#
local-user root class manage
password hash
$h$6$Tax11rbZMQx6sAG8$3HM+5G1XjJpd6GJaMYka+3Hi83NFqDMSCvvCZSdulELTB0e2C6QqOtoerEP4JoAYw9yqtcu80
yhUSDWXvv+CQ==
service-type ftp
service-type ssh telnet http https
authorization-attribute user-role network-admin
authorization-attribute user-role network-operator
#
return
## Appendix

### Features from Previous HPE OneView releases

The following list outlines features introduced in previous releases:

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>New Hardware Support</strong></td>
<td>ProLiant Gen9 Servers</td>
</tr>
<tr>
<td><strong>HPE OneView Standard Licensing</strong></td>
<td>No Cost Software License – included with G6, G7, Gen8 &amp; Gen9 purchase</td>
</tr>
<tr>
<td></td>
<td>Hardware Fault Monitoring - Server disk, memory, processor, adapters, power and temperature</td>
</tr>
<tr>
<td></td>
<td>Hardware Inventory – search, report and export</td>
</tr>
<tr>
<td><strong>HPE OneView Advanced Licensing</strong></td>
<td>Partner integrations</td>
</tr>
<tr>
<td></td>
<td>Full Composable Infrastructure Profiles</td>
</tr>
<tr>
<td></td>
<td>Right to Use License for Insight Control Server Provisioning for OS provisioning</td>
</tr>
<tr>
<td><strong>Automated Virtual Connect Migration</strong></td>
<td>Automated migration from a Virtual Connect Manager configuration to a HPE OneView managed configuration</td>
</tr>
<tr>
<td></td>
<td>Automated Validation and incompatibilities report of configuration</td>
</tr>
<tr>
<td></td>
<td>Simple “Push button” import</td>
</tr>
<tr>
<td><strong>System Health Monitoring</strong></td>
<td>Agentless, touch free monitoring</td>
</tr>
<tr>
<td></td>
<td>Auto SNMP Trap configuration and registration</td>
</tr>
<tr>
<td></td>
<td>Alert filtering and email notification</td>
</tr>
<tr>
<td><strong>Reporting</strong></td>
<td>Predefined list of reports</td>
</tr>
<tr>
<td></td>
<td>Reports are exportable to CSV or MS Excel</td>
</tr>
<tr>
<td></td>
<td>Reports are printable as a PDF file</td>
</tr>
<tr>
<td><strong>Customizable Dashboard</strong></td>
<td>Users can create, delete or customize searches and queries to the HPE OneView Dashboard</td>
</tr>
<tr>
<td><strong>Extended Control and Automation of 3PAR StoreServ</strong></td>
<td>Ephemeral Volumes for a hypervisor like experience with hardware</td>
</tr>
<tr>
<td></td>
<td>Import attached volumes without downtime</td>
</tr>
<tr>
<td></td>
<td>Flexible Zone Aliases automatically created based on server, array port and port groups</td>
</tr>
<tr>
<td><strong>HPE 5900CP Support</strong></td>
<td>Automated FC SAN zoning</td>
</tr>
<tr>
<td><strong>HPE Operations Analytics for HPE OneView</strong></td>
<td>Recreates history with beautiful visualizations</td>
</tr>
<tr>
<td></td>
<td>Self-calibrates via machine learning</td>
</tr>
<tr>
<td></td>
<td>Stores, indexes and understands operations data</td>
</tr>
<tr>
<td><strong>Automated Storage Provisioning</strong></td>
<td>Add/remove 3PAR storage systems and storage pools</td>
</tr>
<tr>
<td></td>
<td>Create/Delete 3PAR volumes on demand</td>
</tr>
<tr>
<td></td>
<td>Attach/export 3PAR volumes to Server Profiles</td>
</tr>
<tr>
<td><strong>Automated SAN Zoning</strong></td>
<td>Add/remove Brocade fabrics for automated zoning</td>
</tr>
<tr>
<td></td>
<td>Zoning is fully automated via Server Profile volume attachment</td>
</tr>
<tr>
<td></td>
<td>Quickly and easily establish connectivity from Virtual Connect to 3PAR via Direct Attach</td>
</tr>
<tr>
<td>Feature</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>SAN Storage in Server Profiles</td>
<td>Automatically attach private/shared standalone volumes to server profiles and zone the SAN fabric or Direct Attach</td>
</tr>
<tr>
<td>DL Server Profile Support</td>
<td>For supported rack mount servers, enable the user to apply a profile that specifies an SPP firmware bundle and configure BIOS policies.</td>
</tr>
<tr>
<td>Native FC module support</td>
<td>Manage Native FC connections in the server profile</td>
</tr>
<tr>
<td>New Virtual Connect Module Support</td>
<td>Support for the HPE FlexFabric 20Gb/40Gb F8 module</td>
</tr>
<tr>
<td>New appliance Hypervisor support</td>
<td>Provide more hypervisor choices by supporting the deployment of the HPE OneView Management Appliance on Microsoft Server 2012 Hyper-V</td>
</tr>
<tr>
<td>Localization</td>
<td>Japanese and Chinese localizations</td>
</tr>
<tr>
<td>Enclosure Visualization</td>
<td>Fan and Power Supply visualization and support for c7000 enclosures</td>
</tr>
<tr>
<td>Virtual Connect Networking</td>
<td>Support for VLAN tunneling and untagged traffic</td>
</tr>
<tr>
<td></td>
<td>Easily create networks in bulk</td>
</tr>
<tr>
<td>Partner Integrations</td>
<td>HPE OneView for VMware vCenter with vCops and Log Insight</td>
</tr>
<tr>
<td></td>
<td>HPE OneView for Microsoft System Center with Hyper-V cluster provisioning</td>
</tr>
<tr>
<td></td>
<td>HPE OneView for RHEV</td>
</tr>
<tr>
<td>VC-Style Active/Active Networking</td>
<td>Configure Active/Active Uplink Sets for increased bandwidth utilization.</td>
</tr>
<tr>
<td>Server Profile Connection Online Updates</td>
<td>Update existing Network Connections within the Server Profile while the server is still powered on, both Network/Network Set assignment and bandwidth allocation.</td>
</tr>
<tr>
<td>Local SmartArray Configuration</td>
<td>Define the embedded SmartArray logical disk configuration as part of your Server Profile.</td>
</tr>
<tr>
<td>Virtual Appliance</td>
<td>Rapidly deploy appliance OVF with single setup screen</td>
</tr>
<tr>
<td>Firmware Updates</td>
<td>On appliance repository, search, and management network only. No need to inventory host OS.</td>
</tr>
<tr>
<td>Enclosure Groups</td>
<td>Configure a new enclosure just like the last one in seconds</td>
</tr>
<tr>
<td>Logical Interconnect Groups</td>
<td>VC module configuration with uplinks</td>
</tr>
<tr>
<td>Server Hardware Types</td>
<td>Inventory of your standardized hardware configurations</td>
</tr>
<tr>
<td>Enhanced Server Profiles</td>
<td>VC classic connectivity plus FW, BIOS, and boot configuration</td>
</tr>
<tr>
<td>Network Sets</td>
<td>Centralized VLAN configuration for Server Profile Network Connections</td>
</tr>
<tr>
<td>Enabling 3PAR Flat SAN</td>
<td>Dramatically reduce traditional FC SAN infrastructure with VC FlexFabric modules</td>
</tr>
<tr>
<td>Onboard Administrator and iLO Single Sign-On and Alert Management</td>
<td>Reduce the number of steps to manage the Management Processors.</td>
</tr>
<tr>
<td>Manage DL Servers</td>
<td>Add DL ProLiant rack mount servers for inventory and health</td>
</tr>
<tr>
<td>Alert and Monitor Systems in the Datacenter</td>
<td>iLO 4 traps automatically configured on import, no OS agents required</td>
</tr>
<tr>
<td>Environmental Management</td>
<td>Model and analyze power, cooling and location of your HPE IT equipment</td>
</tr>
<tr>
<td>Secure Appliance</td>
<td>Integrate the appliance into your Active Directory or OpenLDAP infrastructure</td>
</tr>
<tr>
<td>Visualizing the Datacenter</td>
<td>Visualize your data center's layout and rack power consumption</td>
</tr>
<tr>
<td>Map View</td>
<td>Understand how things are connected from the data center down to the device</td>
</tr>
<tr>
<td><strong>Smart Search</strong></td>
<td>Quickly find the information you are looking for. Need to locate an HPE OneView Managed Address? Type it in the Search Field to find the Server Profile it's assigned to.</td>
</tr>
</tbody>
</table>
Additional Resources

HPE Enterprise Information Library - HPE OneView
- HPE OneView Online Help
- HPE OneView Release Notes
- HPE OneView Support Matrix
- HPE OneView Installation Guide
- HPE OneView User Guide
- HPE OneView REST API Reference
- HPE OneView Firmware Management White Paper
- Introduction to HPE OneView concepts for HPE Virtual Connect Customers
- Transitioning a Virtual Connect Configuration to HPE OneView

http://www.hpe.com/info/VirtualConnect
- Virtual Connect Command Line User Guide
- Virtual Connect Enterprise Manager User Guide
- Virtual Connect Enterprise Manager Command Line User Guide

http://www.hpe.com/info/oneviewcommunity
- HPE OneView Community Forums
- https://github.com/HewlettPackard/POSHPOneView
- HPE OneView PowerShell Library
- https://github.com/HewlettPackard/python-hpOneView
- HPE OneView Python Library

Learn more at
http://www.hpe.com/info/OneView