Hewlett Packard Enterprise

Hyper Converged 250 System for VMware vSphere Installation Guide

Abstract

This document describes how to install the Hyper Converged 250 System for VMware vSphere and the ConvergedSystem 200–HC StoreVirtual system into a rack and configure it using the preinstalled OneView InstantOn software.

Part Number: 867788-003
Published: December, 2016
Edition: 8

Contents

Notices

Acknowledgments

Overview

The Hyper Converged 250 System for VMware vSphere® system ("the system") is a virtualization system that combines compute and storage resources in the same chassis. It is designed to be deployed easily and yet manage a variety of virtualized workloads in medium-sized businesses and enterprises.

IMPORTANT:

To ensure a successful deployment, review this installation guide first to gather the required information and prepare your networks. Failure to do so may result in deployment failure.

Installing a new system

Process overview:

Procedure

1. **Prepare for the installation**
2. Install the hardware — **HC 250 hardware** or **240–HC/242–HC hardware**
3. **Configure the new system**

Installing an expansion system

Process overview:

Procedure

1. **Prepare for the expansion**
2. Install the hardware — **HC 250 hardware** or **240–HC/242–HC hardware**
3. **Configure the expansion system**

Preparing for a new system installation

Complete the following preparation tasks in their entirety. Hewlett Packard Enterprise suggests you complete all preparation tasks and gather all required settings before beginning the deployment. Failure to complete all preparation and installation tasks in order will likely result in deployment failure.

Verifying physical hardware and connections

√	**Verify the following:**
	You have either: • Two 10 GbE network switches with four available ports per switch • Two 1 GbE network switches with eight available ports per switch **NOTE:** Hewlett Packard Enterprise does not provide the network switches as part of the product purchase. Ensure that you purchase the switches in advance or use existing switches.
	The switches are IPv6-capable and are enabled for IPv6. **NOTE:** IPv6 is not required on the 1 GbE switch that may be used for iLO connections.
	If you use VLANs, the switches are configured to allow untagged traffic.
	You have the network cables for the connections between the system and the network switches. Hewlett Packard Enterprise does not provide these cables. For example: • Eight 10 GbE DAC cables • Eight patch cables and 16 SFP+s • 16 CAT 5e (or better cables)
	You have two 220v power sources and power cables.
	You have a laptop or workstation that you can use to access OneView InstantOn on the Management VM on Node 1.

Network deployment

For each network type (ESX, vSphere vMotion, Storage), you need to choose only the first IP address in that group's range. Once that IP address is chosen, OneView InstantOn automatically increments and contiguously assigns the remaining IP addresses for that group.

Verifying network information

√	**Complete the following:**
	Confirm that you have the required number of contiguous IPv4 addresses for your configuration, as specified in the table below.
	Verify that the 192.168.42.0/24 IPv4 address range is reserved and not used by other devices on your network. The Hyper Converged system uses this IP address range for internal system communication.
	If you are deploying multiple systems at the same time, verify that you have the required number of IP addresses available for each system.
	For two-node systems: If you plan to expand to a three- or four-node system in the future, consider preallocating the IP addresses for those nodes now (recommended but not required). The benefit is that you can configure those expansion nodes with IP addresses matching the other node subnet ranges. If you choose not to preallocate IP addresses now, know that the expansion nodes will require IP addresses within the same subnet range used during initial system deployment.

The table below shows the number of contiguous IP addresses that are required for each network in two-node, three-node, and four-node configurations.

Table 1: Required number of contiguous IP addresses for a new system

Network type	Two-node	Three-node	Four-node
ESX network	3	4	5
vSphere vMotion network	2	3	4
Storage network	8	11	14
Total number of IP addresses	13	18	23

Recording starting IP addresses

In the following table, record the starting IP address, which is the first IP address in a group's range, for each network type.

Network type	Starting IP address
ESX network **NOTE:** When the IP addresses are assigned for the ESX network, the Management VM IP address is assigned first.	
vSphere vMotion network	
Storage network	

VLAN configuration (optional)

If VLANs are used, Hewlett Packard Enterprise recommends a minimum of three VLANs for the system. This does not include the number of VLANs that you may use for various production networks.

If your network only supports tagged packets on 1 GbE or 10 GbE switches, and you plan to use VLAN IDs, complete the steps in **Configuring VLAN IDs before deployment** on page 9. If you plan to configure VLAN IDs after deployment, see **Configuring VLAN IDs after deployment** on page 53.

VLAN configuration predeployment requirements

- Required for networks where only tagged packets are supported on one or more switches.
- VLAN IDs from 0 - 4,095 are allowed.
- Use the vSphere ESX CLI to set the VLAN ID for the vSwitch VMkernel port **ESXmgmt** and the vSwitch Virtual Machine port group **mgmtVMNetwork**.
- Configure the vSphere hosts (system nodes) in the following order:
  - Four-node system: vSphere host 4, 3, 2, 1
  - Three-node system: vSphere host 3, 2, 1
  - Two-node system: vSphere host 2, 1
- The Storage and vMotion VLAN IDs are configured during OneView InstantOn deployment of the new system.

Configuring VLAN IDs before deployment

If you are deploying more than one system chassis, complete the steps on each vSphere host in each system chassis.

Procedure

1. Enable the Secure Shell and the EXSi Shell via either iLO or direct connection using an SUV cable:
   a. Log in to vSphere host 4.
   b. To access **Customize System/View Logs**, press **F2**.

      The **Authorization Required** dialog box appears.
   c. Enter `root` for the login name and `hpcs200HC!` for the password. Press **Enter**.

      The **System Customization** menu appears.
   d. Select **Troubleshooting Mode Options** and press **Enter**.

      The **Troubleshooting Mode Options** menu appears.
   e. Select **Enable ESXi Shell** and press **Enter**.

      NOTE:

      If the ESXi Shell is already enabled, the menu option displays **Disable ESXi Shell**.
   f. Select **Enable SSH** and press **Enter**.
   g. To exit **Troubleshooting Mode Options**, press **Esc**.
   h. To exit **System Customization**, press **Esc**.
2. Add the VLAN ID via the ESXi Shell:
   a. To access the ESXi Shell, press **Alt**+**F1**.
   b. Enter the username and password.
   c. Enter the following commands, where **XXXX** is the VLAN ID:

      ```
      esxcli network vswitch standard portgroup set –p mgmtVMNetwork –v XXXX
      esxcli network vswitch standard portgroup set –p ESXmgmt –v XXXX
      ```

NOTE:

To query VLAN settings for all portgroups, enter the following command:

```
esxcli network vswitch standard portgroup list
```

3. To disable the Secure Shell and the ESXi Shell, repeat step 1 except select **Disable ESXi Shell** and **Disable SSH**.
4. Repeat steps 1–3 for each vSphere host.

Recording VLAN IDs

vMotion VLAN ID
Management VLAN ID (ESXi, Management VM) **NOTE:** You must set this VLAN as untagged (PVID) on the switch ports used by the system.
iSCSI VLAN ID (ESXi, Management VM, StoreVirtual VSA 2014)

Verifying the VLAN configuration

√	**Complete the following:**
	Configure the physical switch with the correct vMotion and iSCSI VLAN IDs before running OneView InstantOn.
	Set the Management VM VLAN ID as untagged (PVID) on the switch ports used by the system.

Verifying the switch configuration

√	**Complete the following:**
	Configure the network switch ports to pass IPv6 traffic at layer 2. **NOTE:** IPv6 is not required on the 1 GbE switch that may be used for iLO connections.
	Enable IPv4 multicast on the network switch ports.
	Configure the network switches to allow untagged IPv6 and IPv4 traffic on the network switch ports.

Recording iLO addresses

Although iLO is not required for daily use, Hewlett Packard Enterprise recommends that you configure it as part of the initial setup. iLO is required when recovering a node (see “Recovering a single node” in the user guide).

You must manually assign four IPv4 addresses. OneView InstantOn will not assign these IP addresses.

IP address 1
IP address 2
IP address 3 (not used/required in a 2-node configuration)
IP address 4 (not used/required in a 2-node or 3-node configuration)

Recording system information

General settings
Name of the StoreVirtual management group (required) **NOTE:** The default name is `HP-HyperConv-<xx>`, but you can change it. The guidelines for StoreVirtual management group names are: • Up to 127 characters • Must begin with a letter • Allowed characters: 0–9, a-z, A-Z, hyphen (-), underline (_), and any of the following special characters \ ! @ # % ^ & * ( ) + \ | \ ] } \ [{ ? . > <
DNS server IP address (required)
NTP (optional)
Mail settings (required)
Server IP address
Server port
Sender address
Recipient address

License considerations

NOTE:

- VMware vSphere Essentials is supported for three-node configurations only.
- VMware vSphere Essentials does not support vMotion. It will be necessary to manually migrate the Management VM from the local datastore to the SAN volume after deployment.
- To access help documentation and complete the installation with fully licensed StoreVirtual VSAs, access to the Internet is required.

VMware Centralized Management License	ESXi Host License	HC 250: Single chassis (two or three hosts)	HC 250: Single chassis (four hosts)	HC 250: Two, three, or four chassis (6 - 16 hosts)
VMware vSphere Essentials Kit	VMware vSphere Essentials	Not Supported	Not Supported	Not Supported
VMware vSphere Essentials Plus Kit	VMware vSphere Essentials Plus	Supported	Not Supported	Not Supported
VMware vCenter Server Standard	VMware vSphere Standard	Supported	Supported	Supported
VMware vCenter Server Standard	VMware vSphere Remote Office Branch Office and VMware vSphere Remote Office Branch Office Advanced [1]	Supported	Supported	Supported
VMware vCenter Server Standard	VMware vSphere Enterprise	Supported	Supported	Supported
VMware vCenter Server Standard	VMware vSphere Enterprise Plus	Supported	Supported	Supported

[1] VMware vSphere Remote Office Branch Office and VMware vSphere Remote Office Branch Office Advanced limit the number of Virtual Machines running per license pack. See **Virtual machine requirements** to determine how many Virtual Machines the HC 250 system consumes on each host.

Virtual Machine requirements

The number of Virtual Machine licenses required varies when using VMware vSphere Remote Office Branch Office and VMware vSphere Remote Office Branch Office Advanced.

Table 2: Number of VM licenses required per host for new system deployment and system expansion

System	Host number	Number of Virtual Machine licensed per host HC 250 system
System 1	Host 1 and Host 2	2 [1]
	Host 3 and Host 4	1
System 2	Host 1 and Host 2	2 [1]
	Host 3 and Host 4	1

Table Continued

System	Host number	Number of Virtual Machine licensed per host HC 250 system
System 3	Host 1 and Host 2	2 [1]
	Host 3 and Host 4	1
System 4	Host 1 and Host 2	2[1]
	Host 3 and Host 4	1

[1] *The HC 250 Management VM will run on either Host 1 or Host 2 of each system, depending on VMware host HA availability. Only one instance of the Management VM is running at any time, so only one Virtual Machine license is required within the HC 250 HA cluster to support the Management VM.*

Management group quorum considerations

If you are deploying a two-node system, OneView InstantOn displays the **Quorum Settings** field on the **Settings** screen. You must enter a NFS file share to serve as the Quorum Witness for the StoreVirtual management group.

Within a management group, managers are storage systems that govern the activity of all the storage systems in the group. Managers use a voting algorithm to coordinate storage system behavior. In this voting algorithm, a strict majority of managers (a quorum) must be running and communicating with each other to ensure the management group functions. An odd number of managers is recommended to ensure that a majority is easily maintained. An even number of managers can result in a state where no majority exists and potentially make the management group unavailable. Quorum Witness is the method to maintain quorum in a two-node system. For more information, see "Working with managers and quorum" in the StoreVirtual Storage user guide.

Quorum is configured by OneView InstantOn during deployment or expansion of a management group depending on the number of hosts.

Table 3: Number of hosts and managers

Number of hosts deployed or number of hosts after expansion	Quorum Witness	Virtual Manager	Regular Manager
2	Yes	NA	2
2	NA[1]	Yes[2]	2
3	No	No	3
4	No	No	3
5	No	No	5
>5	No	No	5

[1] When deploying a two-node system, if OneView InstantOn is unsuccessful in connecting to the NFS file share, a Virtual Manager is installed on the management group. In a two-node system, the Quorum Witness is considered the best method for maintaining high availability in the management group.

Number of hosts deployed or number of hosts after expansion	Quorum Witness	Virtual Manager	Regular Manager

[2] After deployment, open the CMC to verify the type of manager configured. If needed, use the CMC to configure the management group with the Quorum Witness.

Table Continued

Preparing for an expansion system

Complete the following preparation tasks in their entirety. Hewlett Packard Enterprise suggests you complete all preparation tasks and gather all required settings before beginning the deployment. Failure to complete all preparation and installation tasks in order will likely result in deployment failure.

Verifying physical hardware and connections

NOTE:

You do not need to connect directly to the system. You can connect over your network using the Management VM IP address set during the initial system configuration.

√	**Verify the following:**
	You have or either: • Two 10 GbE network switches with four available ports per switch • Two 1 GbE network switches with eight available ports per switch **NOTE:** Hewlett Packard Enterprise does not provide the network switches as part of the product purchase. Ensure that you purchase the switches in advance or use existing switches.
	The switches are IPv6-capable and are enabled for IPv6. **NOTE:** IPv6 is not required on the 1 GbE switch that may be used for iLO connections.
	If you use VLANs, the switches are configured to allow untagged traffic.
	You have the network cables for the connections between the system and the network switches. Hewlett Packard Enterprise does not provide these cables. For example: • Eight 10 GbE DAC cables • Eight patch cables and 16 SFP+s • 16 CAT 5e (or better cables)
	You have two 220v power sources and power cables.

Network deployment

For each network type (ESX, vSphere vMotion, Storage), you need to choose only the first IP address in that group's range. Once that IP address is chosen, OneView InstantOn automatically increments and contiguously assigns the remaining IP addresses for that group.

The following IP addresses from the initial system deployment are used for the expansion process:

- Management VM
- Storage cluster
- StoreVirtual CMC

NOTE:

For an expansion, it is recommended that the IP addresses used for the ESX, vSphere vMotion, and Storage networks and the iSCSI initiators are new and/or unused IP addresses from the same subnet used when the original (first) system was configured.

Verifying network information

√	**Complete the following:**
	Confirm that you have the required number of contiguous IPv4 addresses for your configuration, as specified in the table below.
	Verify that the 192.168.42.0/24 IPv4 address range is reserved and not used by other devices on your network. The Hyper Converged system uses this IP address range for internal system communication.
	If you are deploying multiple systems at the same time, verify that you have the required number of IP addresses available for each system.
	For two-node systems: If you plan to expand to a three- or four-node system in the future, consider preallocating the IP addresses for those nodes now (recommended but not required). The benefit is that you can configure those expansion nodes with IP addresses matching the other node subnet ranges. If you choose not to preallocate IP addresses now, know that that the expansion nodes will require IP addresses within the same subnet ranged used during initial system deployment.

The table below shows the number of contiguous IP addresses that are required for each network in two-node, three-node, and four-node configurations.

Table 4: Required number of contiguous IP addresses for a system expansion

Network type	Two-node	Three-node	Four-node
ESX network	2	3	4
vSphere vMotion network	2	3	4
Storage network	6	9	12
Total number of IP addresses	10	15	20

Recording starting IP addresses

In the following table, record the starting IP address, which is the first IP address in a group's range, for each network type.

Network type	Starting IP address
ESX network **NOTE:** When the IP addresses are assigned for the ESX network, the Management VM IP address is assigned first.	
vSphere vMotion network	
Storage network	

VLAN configuration (optional)

If VLANs are used, Hewlett Packard Enterprise recommends a minimum of three VLANs for the system. This does not include the number of VLANs that you may use for various production networks. For an expansion, use the same VLAN IDs that were configured for the first system.

If your network only supports tagged packets on 1 GbE or 10 GbE switches, and you plan to use VLAN IDs, complete the steps in **Configuring VLAN IDs before deployment**. If you plan to configure VLAN IDs after deployment, see **Configuring VLAN IDs after deployment**.

VLAN configuration pre-expansion requirements

- Required for networks where only tagged packets are supported on one or more switches.
- VLAN IDs from 0 - 4,095 are allowed.
- Use the vSphere ESX CLI to set the VLAN ID for the vSwitch VMkernel port **ESXmgmt** and the vSwitch Virtual Machine port group **mgmtVMNetwork**.
- Configure the vSphere hosts (system nodes) in the following order:
  - Four-node system: vSphere host 4, 3, 2, 1
  - Three-node system: vSphere host 3, 2, 1
  - Two-node system: vSphere host 2, 1
- Use the same VLAN ID for the vSwitch VMkernel port **ESXmgmt** and the vSwitch Virtual Machine port group **mgmtVMNetwork** as on the currently deployed system.
- The Storage and vMotion VLAN IDs are configured during OneView InstantOn deployment of the expansion system.

Configuring VLAN IDs before deployment

If you are deploying more than one system chassis, complete the steps on each vSphere host in each system chassis.

Procedure

1. Enable the Secure Shell and the EXSi Shell via either iLO or direct connection using an SUV cable:
   a. Log in to vSphere host 4.
   b. To access **Customize System/View Logs**, press **F2**.

      The **Authorization Required** dialog box appears.
   c. Enter `root` for the login name and `hpcs200HC!` for the password. Press **Enter**.

      The **System Customization** menu appears.
   d. Select **Troubleshooting Mode Options** and press **Enter**.

      The **Troubleshooting Mode Options** menu appears.
   e. Select **Enable ESXi Shell** and press **Enter**.

NOTE:

If the ESXi Shell is already enabled, the menu option displays **Disable ESXi Shell**.

f. Select **Enable SSH** and press **Enter**.
g. To exit **Troubleshooting Mode Options**, press **Esc**.
h. To exit **System Customization**, press **Esc**.

2. Add the VLAN ID via the ESXi Shell:
   a. To access the ESXi Shell, press **Alt**+**F1**.
   b. Enter the username and password.
   c. Enter the following commands, where **XXXX** is the VLAN ID:

```
esxcli network vswitch standard portgroup set –p mgmtVMNetwork –v XXXX
esxcli network vswitch standard portgroup set –p ESXmgmt –v XXXX
```

NOTE:

To query VLAN settings for all portgroups, enter the following command:

```
esxcli network vswitch standard portgroup list
```

3. To disable the Secure Shell and the ESXi Shell, repeat step 1 except select **Disable ESXi Shell** and **Disable SSH**.
4. Repeat steps 1–3 for each vSphere host.

Recording VLAN IDs

vMotion VLAN ID
Management VLAN ID (ESXi, Management VM) **NOTE:** You must set this VLAN as untagged (PVID) on the switch ports used by the system.
iSCSI VLAN ID (ESXi, Management VM, StoreVirtual VSA 2014)

Verifying the VLAN configuration

√	**Complete the following (unless already completed during initial installation):**
	Configure the physical switch with the correct vMotion and iSCSI VLAN IDs before running OneView InstantOn.
	Set the Management VM VLAN ID as untagged (PVID) on the switch ports used by the system.

Recording iLO addresses

Although iLO is not required for daily use, Hewlett Packard Enterprise recommends that you configure it as part of the initial setup. iLO is required when recovering a node (see “Recovering a single node” in the user guide).

You must manually assign four IPv4 addresses. OneView InstantOn will not assign these IP addresses.

IP address 1
IP address 2
IP address 3 (not used/required in a two-node configuration)
IP address 4 (not used/required in a two-node or three-node configuration)

Licensing

For licenses to install, see **License considerations**.

HC 250 hardware installation

Server warnings and cautions

WARNING:
This server is very heavy. To reduce the risk of personal injury or damage to the equipment:

- Observe local occupational health and safety requirements and guidelines for manual material handling.
- Get help to lift and stabilize the product during installation or removal, especially when the product is not fastened to the rails. Hewlett Packard Enterprise recommends that a minimum of two people are required for all rack server installations. A third person may be required to help align the server if the server is installed higher than chest level.
- Use caution when installing the server or removing the server from the rack; it is unstable when not fastened to the rails.

WARNING:
To reduce the risk of personal injury from hot surfaces, allow the drives and the internal system components to cool before touching them.

WARNING:
To reduce the risk of personal injury, electric shock, or damage to the equipment, remove the power cord to remove power from the server. The front panel Power On/Standby button does not completely shut off system power. Portions of the power supply and some internal circuitry remain active until AC power is removed.

CAUTION:
Protect the server from power fluctuations and temporary interruptions with a regulating uninterruptible power supply. This device protects the hardware from damage caused by power surges and voltage spikes and keeps the system in operation during a power failure.

CAUTION:
Do not operate the server for long periods with the access panel open or removed. Operating the server in this manner results in improper airflow and improper cooling that can lead to thermal damage.

Space and airflow requirements

To allow for servicing and adequate airflow, observe the following space and airflow requirements when deciding where to install a rack:

- Leave a minimum clearance of 85.09 cm (33.5 in) in front of the rack.
- Leave a minimum clearance of 76.2 cm (30 in) behind the rack.
- Leave a minimum clearance of 121.9 cm (48 in) from the back of the rack to the back of another rack or row of racks.

Hewlett Packard Enterprise nodes draw in cool air through the front door and expel warm air through the rear door. Therefore, the front and rear rack doors must be adequately ventilated to allow ambient room air to enter the cabinet, and the rear door must be adequately ventilated to allow the warm air to escape from the cabinet.

CAUTION:

To prevent improper cooling and damage to the equipment, do not block the ventilation openings.

When vertical space in the rack is not filled by a server or rack component, the gaps between the components cause changes in airflow through the rack and across the servers. Cover all gaps with blanking panels to maintain proper airflow.

CAUTION:

Always use blanking panels to fill empty vertical spaces in the rack. This arrangement ensures proper airflow. Using a rack without blanking panels results in improper cooling that can lead to thermal damage.

The 9000 and 10000 Series Racks provide proper server cooling from flow-through perforations in the front and rear doors that provide 64 percent open area for ventilation.

CAUTION:

When using a Compaq branded 7000 series rack, install the high airflow rack door insert (PN 327281-B21 for 42U rack, PN 157847-B21 for 22U rack) to provide proper front-to-back airflow and cooling.

CAUTION:

If a third-party rack is used, observe the following additional requirements to ensure adequate airflow and to prevent damage to the equipment:

- Front and rear doors—If the 42U rack includes closing front and rear doors, you must allow 5,350 sq cm (830 sq in) of holes evenly distributed from top to bottom to permit adequate airflow (equivalent to the required 64 percent open area for ventilation).
- Side—The clearance between the installed rack component and the side panels of the rack must be a minimum of 7 cm (2.75 in).

Temperature requirements

To ensure continued safe and reliable equipment operation, install or position the system in a well-ventilated, climate-controlled environment.

The maximum recommended ambient operating temperature (TMRA) for most server products is 35°C (95°F). The temperature in the room where the rack is located must not exceed 35°C (95°F).

CAUTION:

To reduce the risk of damage to the equipment when installing third-party options:

- Do not permit optional equipment to impede airflow around the server or to increase the internal rack temperature beyond the maximum allowable limits.
- Do not exceed the manufacturer’s TMRA.

Power requirements

Installation of this equipment must comply with local and regional electrical regulations governing the installation of information technology equipment by licensed electricians. This equipment is designed to operate in installations covered by NFPA 70, 1999 Edition (National Electric Code) and NFPA-75, 1992 (code for Protection of Electronic Computer/Data Processing Equipment). For electrical power ratings on options, refer to the product rating label or the user documentation supplied with that option.

WARNING:
To reduce the risk of personal injury, fire, or damage to the equipment, do not overload the AC supply branch circuit that provides power to the rack. Consult the electrical authority having jurisdiction over wiring and installation requirements of your facility.

CAUTION:
Protect the server from power fluctuations and temporary interruptions with a regulating uninterruptible power supply. This device protects the hardware from damage caused by power surges and voltage spikes and keeps the system in operation during a power failure.

Grounding requirements

This equipment must be grounded properly for proper operation and safety. In the United States, you must install the equipment in accordance with NFPA 70, 1999 Edition (National Electric Code), Article 250, as well as any local and regional building codes.

In Canada, you must install the equipment in accordance with Canadian Standards Association, CSA C22.1, Canadian Electrical Code.

In all other countries, you must install the equipment in accordance with any regional or national electrical wiring codes, such as the International Electrotechnical Commission (IEC) Code 364, parts 1 through 7. Furthermore, you must be sure that all power distribution devices used in the installation, such as branch wiring and receptacles, are listed or certified grounding-type devices.

Because of the high ground-leakage currents associated with this equipment, Hewlett Packard Enterprise recommends the use of a PDU that is either permanently wired to the building's branch circuit or includes a nondetachable cord that is wired to an industrial-style plug. NEMA locking-style plugs or those complying with IEC 60309 are considered suitable for this purpose. Using common power outlet strips to supply power to this equipment is not recommended.

Installing the hardware

Process overview:

Procedure

1. Set up and install the rack. For more information, see the Quick Deploy Rail System installation instructions that ship with the rack.
2. **Preparing the chassis**.
3. **Installing the chassis**.
4. **Component installation**.
5. **Cabling the system**.
6. **Configuring iLO**.

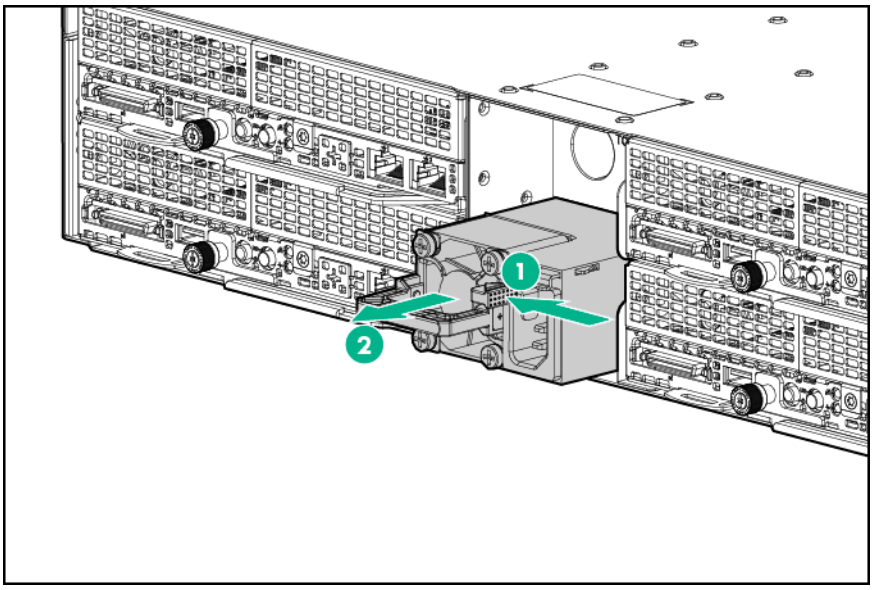
Preparing the chassis

Before installing the chassis into the rack, you must remove the nodes and the power supplies. Because a fully populated chassis is heavy, removing these components facilitates moving and installing the chassis.

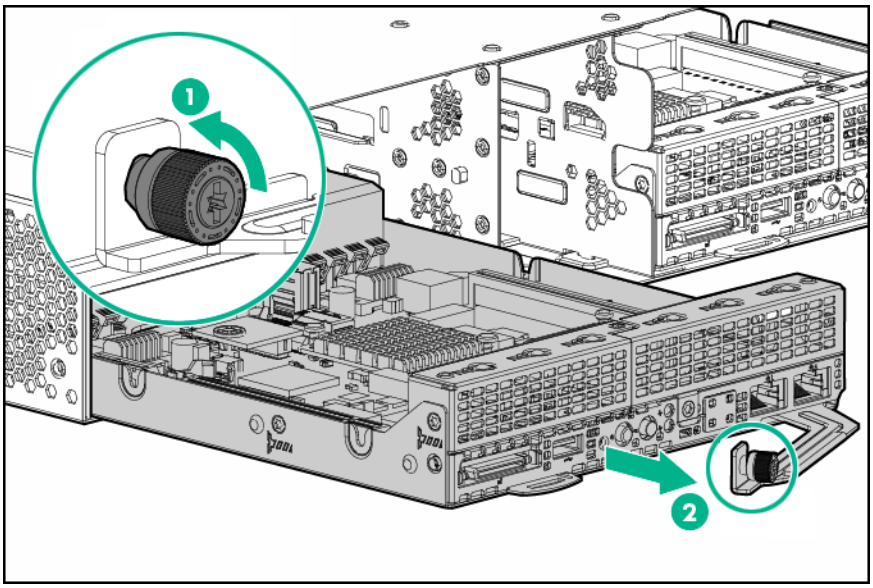
Procedure

1. Access the product rear panel.
2. Release the power cord from the relief strap.
3. Remove all power:

a. Disconnect the power cord from the power source.
b. Disconnect the power cord from the chassis.
c. Remove the power supply.



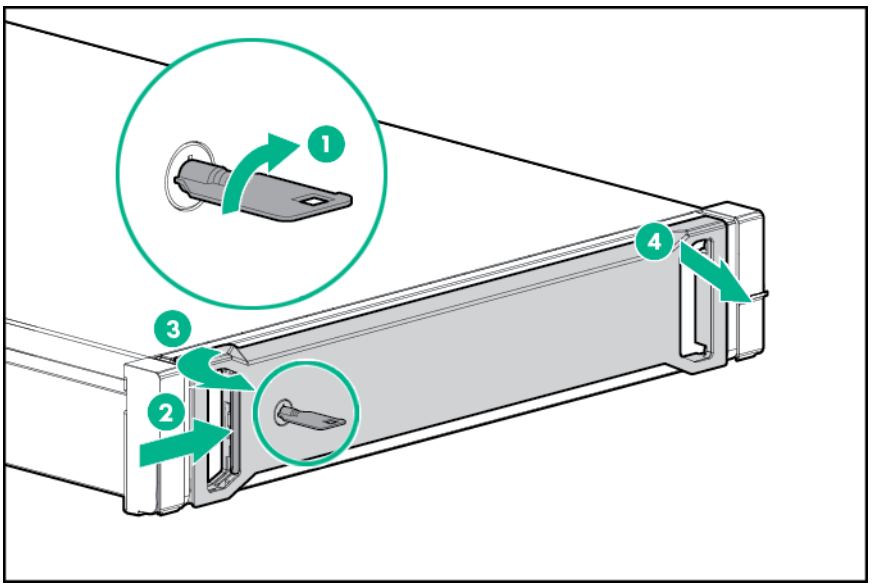
4. Disconnect all peripheral cables from the node.
5. Remove the node from the chassis:
   a. Loosen the thumbscrew.
   b. Pull back the handle and remove the node.



CAUTION:

To avoid damage to the device, do not use the removal handle to carry it.

6. If installed, remove the security bezel.



Installing the chassis

WARNING:

Always use at least two people to lift the chassis into the rack. If the chassis is being loaded into the rack above chest level, a third person must assist with aligning the chassis with the rails while the other two people support the weight of the chassis.

WARNING:

The chassis is very heavy. To reduce the risk of personal injury or damage to the equipment:

- Observe local occupational health and safety requirements and guidelines for manual material handling.
- Remove all installed components from the chassis before installing or moving the chassis.
- Use caution and get help to lift and stabilize the chassis during installation or removal, especially when the chassis is not fastened to the rack.

WARNING:

To avoid risk of personal injury or damage to the equipment, do not stack anything on top of rail-mounted equipment or use it as a work surface when extended from the rack.

CAUTION:

Always plan the rack installation so that the heaviest item is on the bottom of the rack. Install the heaviest item first, and continue to populate the rack from the bottom to the top.

The chassis requires installation in a rack. To install the rack rails, see the Quick Deploy Rail System installation instructions that ship with the rack hardware kit.

You can install up to twenty-one chassis in a 42U, 1200 mm deep rack. If you are installing more than one chassis, install the first chassis in the bottom of the rack, and then install additional chassis by moving up the rack with each subsequent chassis. Plan the rack installation carefully, because changing the location of installed components might be difficult.

WARNING:

To reduce the risk of personal injury or damage to the equipment, be sure that:

- The rack is bolted to the floor using the concrete anchor kit.
- The leveling feet extend to the floor.
- The full weight of the rack rests on the leveling feet.
- The racks are coupled together in multiple rack installations.
- Only one component is extended at a time. If more than one component is extended, a rack might become unstable.

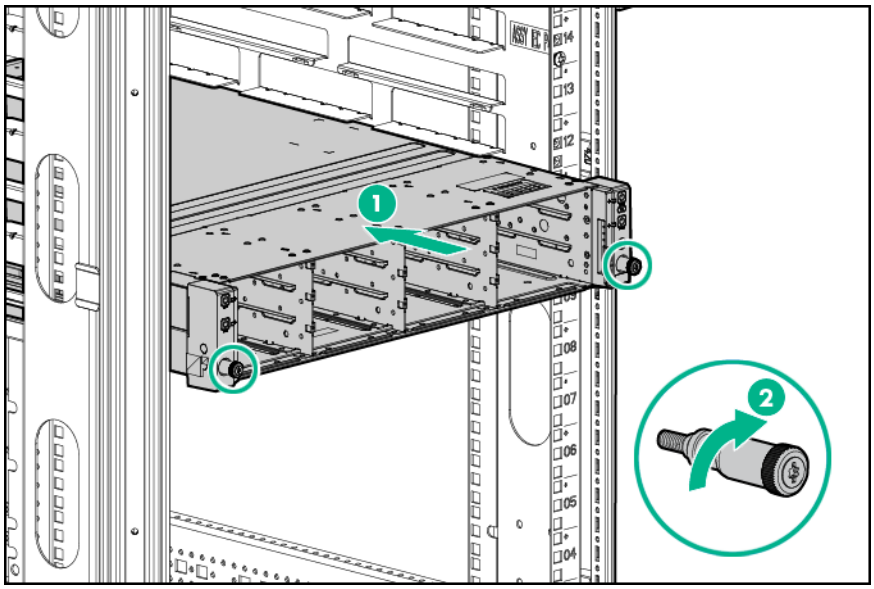
WARNING:

To reduce the risk of personal injury or equipment damage, be sure that the rack is adequately stabilized before installing the chassis.

CAUTION:

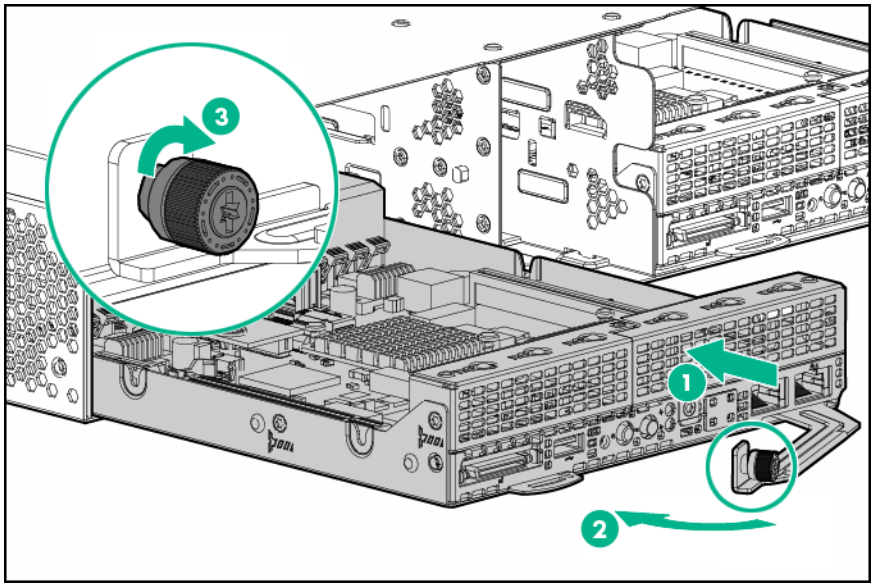
Be sure to keep the product parallel to the floor when installing the chassis. Tilting the product up or down could result in damage to the slides.

Install the chassis into the rack and tighten the thumbscrews.



Component installation

Installing a node into the 1U chassis



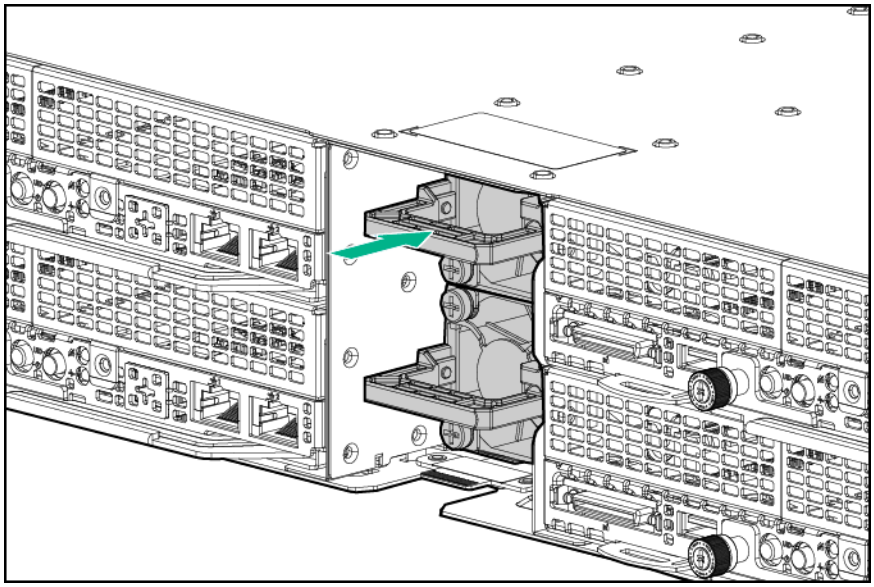
Installing the power supplies

CAUTION:

Do not mix power supplies with different efficiency and wattage in the chassis. Install only one type of power supply in a single chassis.

Procedure

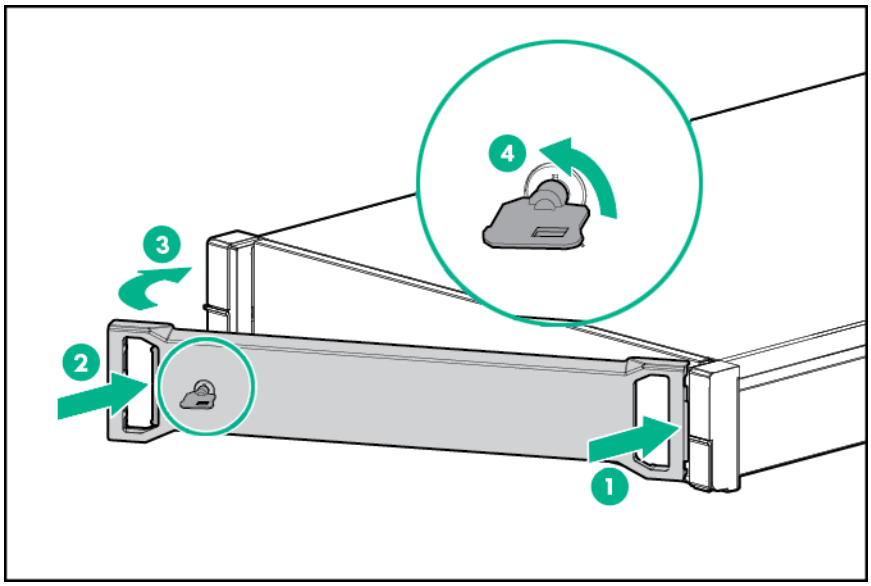
1. If installing a second power supply, remove the power supply blank.
2. Slide the power supplies into the power supply bays until they click into place.



Chassis options

Installing the security bezel

The security bezel helps prevent unauthorized physical access to the front panel components.



Disk drive numbering

Figure 1: Disk drive numbering (four-node system) on page 27 illustrates the drive numbering on the four-node HC 250 model:

- Node 1 corresponds to drives 1–1 through 1–6.
- Node 2 corresponds to drives 2–1 through 2–6.
- Node 3 corresponds to drives 3–1 through 3–6.
- Node 4 corresponds to drives 4–1 through 4–6.

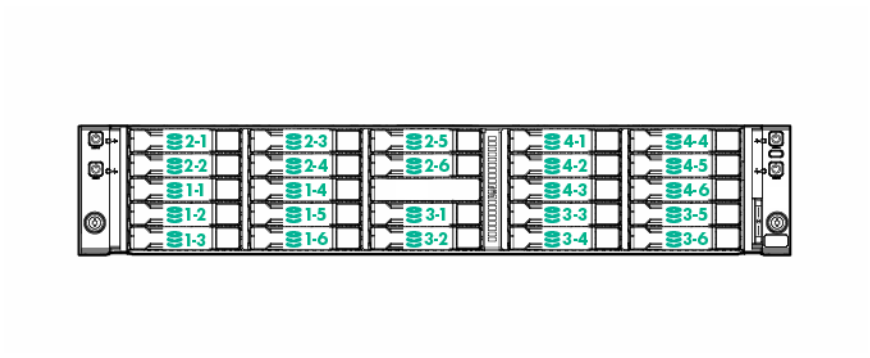


Figure 1: Disk drive numbering (four-node system)

Figure 2: Disk drive numbering (three-node system) on page 28 illustrates the drive numbering on the three-node HC 250 model and **Figure 3: Disk drive numbering (two-node system)** on page 28 illustrates the drive numbering on the two-node HC 250 model:

- Node 1 corresponds to drives 1–1 through 1–6.
- Node 2 corresponds to drives 2–1 through 2–6.
- Node 3 corresponds to drives 3–1 through 3–6.

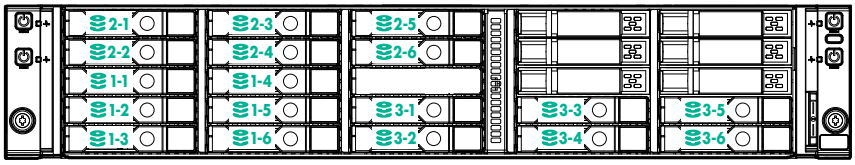


Figure 2: Disk drive numbering (three-node system)

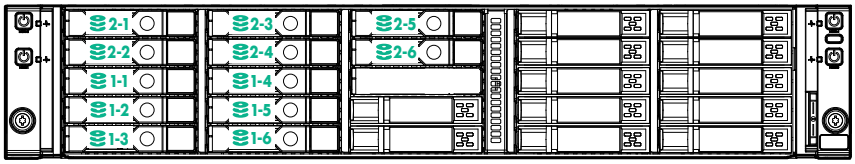


Figure 3: Disk drive numbering (two-node system)

Cabling the system

The figures in this section illustrate how to cable the system in your environment.

NOTE:

The connections between the system and the switches are examples only. You can connect the system to any available ports on your switches. Hewlett Packard Enterprise recommends two switches for resiliency.

After completing the network connections, be sure to connect the power cables to the system.

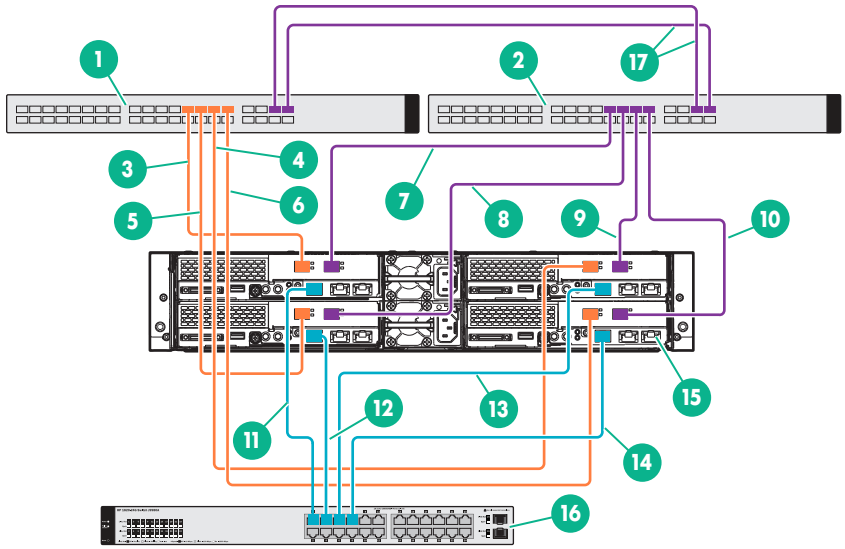


Figure 4: Cabling a four-node system (10 GbE ports)

1. 10 GbE Switch A (IPv6 enabled)
2. 10 GbE Switch B (IPv6 enabled)
3. Connect Node 4, Port 0 to Switch A, Port X
4. Connect Node 2, Port 0 to Switch A, Port X
5. Connect Node 3, Port 0 to Switch A, Port X
6. Connect Node 1, Port 0 to Switch A, Port X
7. Connect Node 4, Port 1 to Switch B, Port X
8. Connect Node 3, Port 1 to Switch B, Port X
9. Connect Node 2, Port 1 to Switch B, Port X
10. Connect Node 1, Port 1 to Switch B, Port X
11. Connect Node 4, iLO 4 to 1 GbE Switch, Port X
12. Connect Node 3, iLO 4 to 1 GbE Switch, Port X
13. Connect Node 2, iLO 4 to 1 GbE Switch, Port X
14. Connect Node 1, iLO 4 to 1 GbE Switch, Port X
15. Connect to the setup workstation or laptop
16. 1 GbE Switch
17. Interconnect switch links

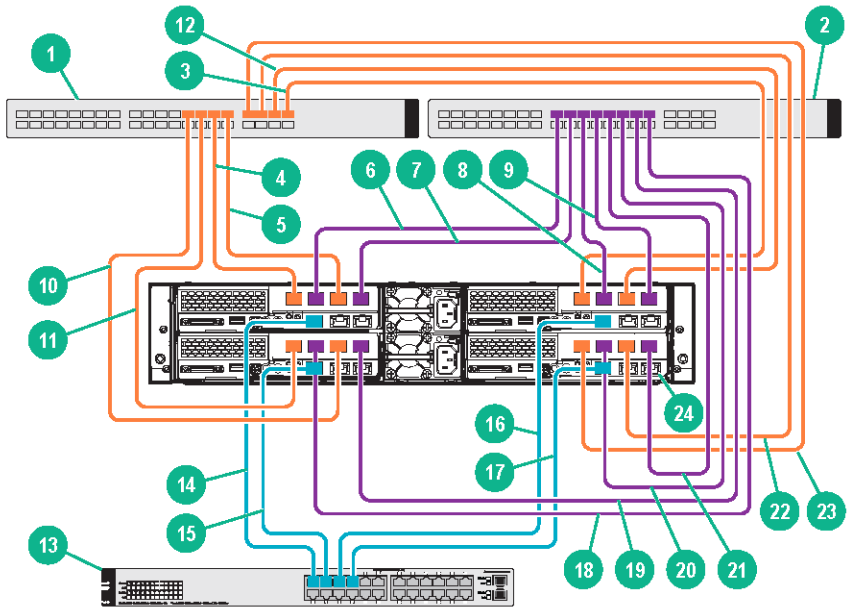


Figure 5: Cabling a four-node system (1 GbE ports)

1. 1 GbE Switch A (IPv6 enabled)
2. 1 GbE Switch B (IPv6 enabled)
3. Connect Node 2, Port 0 to Switch A, Port X
4. Connect Node 4, Port 0 to Switch A, Port X
5. Connect Node 4, Port 2 to Switch A, Port X
6. Connect Node 4, Port 1 to Switch B, Port X
7. Connect Node 4, Port 3 to Switch B, Port X
8. Connect Node 2, Port 1 to Switch B, Port X
9. Connect Node 2, Port 3 to Switch B, Port X
10. Connect Node 3, Port 3 to Switch A, Port X
11. Connect Node 3, Port 0 to Switch A, Port X
12. Connect Node 2, Port 2 to Switch A, Port X
13. 1 GbE Switch
14. Connect Node 4, iLO 4 to 1 GbE Switch, Port X
15. Connect Node 3, iLO 4 to 1 GbE Switch, Port X
16. Connect Node 2, iLO 4 to 1 GbE Switch, Port X
17. Connect Node 1, iLO 4 to 1 GbE Switch, Port X
18. Connect Node 3, Port 1 to Switch B, Port X
19. Connect Node 3, Port 3 to Switch B, Port X
20. Connect Node 1, Port 1 to Switch B, Port X
21. Connect Node 1, Port 3 to Switch B, Port X
22. Connect Node 1, Port 2 to Switch B, Port X
23. Connect Node 1, Port 0 to Switch A, Port X
24. Connect to the setup workstation or laptop

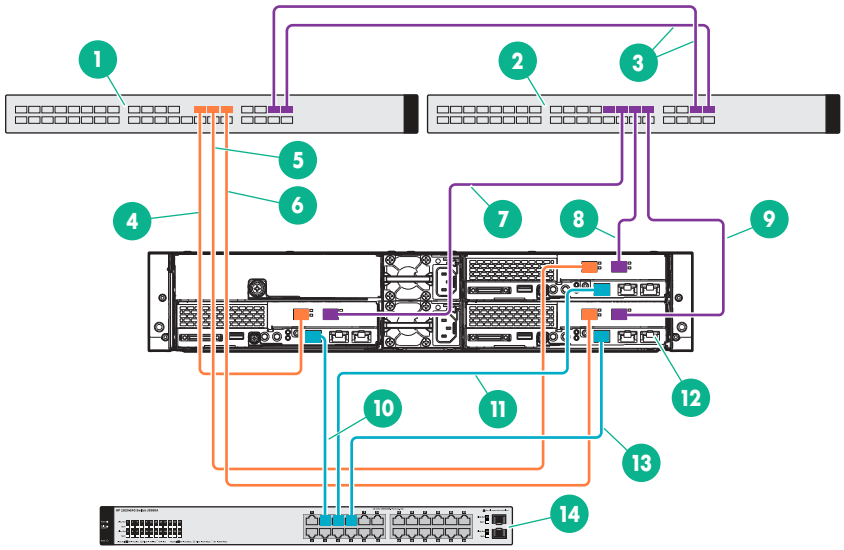


Figure 6: Cabling a three-node system (10 GbE ports)

1. 10 GbE Switch A (IPv6 enabled)
2. 10 GbE Switch B (IPv6 enabled)
3. Interconnect switch links
4. Connect Node 3, Port 0 to Switch A, Port X
5. Connect Node 2, Port 0 to Switch A, Port X
6. Connect Node 1, Port 0 to Switch A, Port X
7. Connect Node 3, Port 1 to Switch B, Port X
8. Connect Node 2, Port 1 to Switch B, Port X
9. Connect Node 1, Port 1 to Switch B, Port X
10. Connect Node 3, iLO 4 to 1 GbE Switch, Port X
11. Connect Node 2, iLO 4 to 1 GbE Switch, Port X
12. Connect to the setup workstation or laptop
13. Connect Node 1, iLO 4 to 1 GbE Switch, Port X
14. 1 GbE Switch

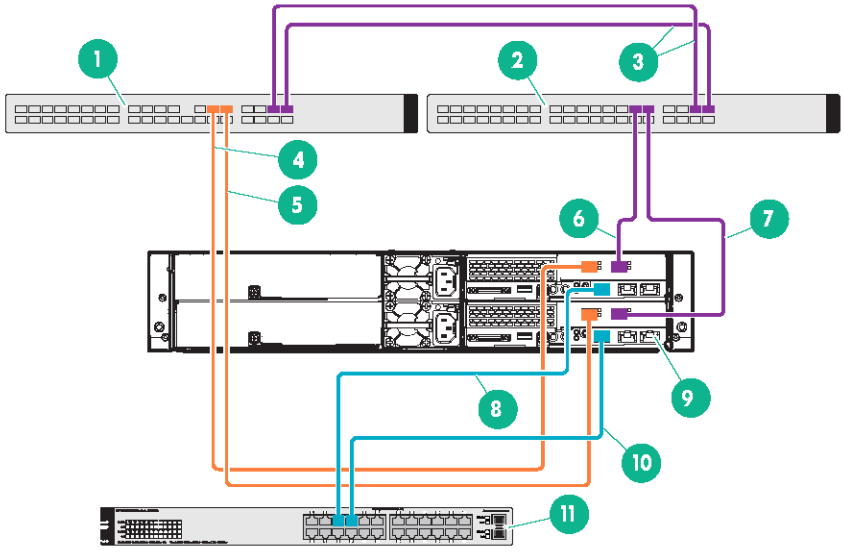


Figure 7: Cabling a two-node system (10 GbE ports)

1. 10 GbE Switch A (IPv6 enabled)
2. 10 GbE Switch B (IPv6 enabled)
3. Interconnect switch links
4. Connect Node 2, Port 0 to Switch A, Port X
5. Connect Node 1, Port 0 to Switch A, Port X
6. Connect Node 2, Port 1 to Switch B, Port X
7. Connect Node 1, Port 1 to Switch B, Port X
8. Connect Node 2, iLO 4 to 1 GbE Switch, Port X
9. Connect to the setup workstation or laptop
10. Connect Node 1, iLO 4 to 1 GbE Switch, Port X
11. 1 GbE Switch

Configuring iLO

For details about configuring iLO, see the HPE iLO 4 user guide at: **http://www.hpe.com/info/ilo/docs** .

Powering on the system

The system firmware initiates an automatic power-up sequence when the power cables are connected and the nodes are installed. The default power setting is set to always on. Do not change the default power setting unless instructed by Hewlett Packard Enterprise.

If the system does not automatically power up, you can use the following alternate methods:

- Use a virtual power button selection through iLO.
- Press and release the Power On/Standby button.

When the node goes from the standby mode to the full power mode, the node power LED changes from amber to green.

For more information about iLO, see **http://www.hpe.com/info/ilo**.

Related documentation

For more information about the hardware, see the HPE Apollo 2000 System user guide available at: **http://www.hpe.com/support/Apollo2000_UG_en**.

New system deployment

Configuring a new system

Process overview:

Procedure

1. **Configuring the Top-of-Rack switch**
2. **Configuring a laptop/workstation to access the system**
3. **Installing the VMware vCenter Server license (predeployment)**
4. **Deploying a new system**
5. **Installing licenses**
6. **Completing post-deployment tasks**

Type of vCenter setup

Each HC 250 node includes a built-in Management VM on which VMware vCenter Server is preinstalled. In OneView InstantOn, this is considered a **local** vCenter setup.

With OneView InstantOn version 1.2.0 or later, you can deploy the system storage to an external instance of VMware vCenter Server that you provide (meaning, the software is not installed on the HC 250 Management VM). In OneView InstantOn, this is considered as a **remote** vCenter setup. This remote setup allows you to centrally manage multiple remote sites/deployments while reducing vCenter licensing costs.

Because of a VMware restriction that prevents the renaming of the vCenter server, Hewlett Packard Enterprise recommends that you use a remote vCenter setup if you require a custom fully qualified domain name. For more information about the VMware restriction, see **https://kb.vmware.com/selfservice/search.do?cmd=displayKC&docType=kc&docTypeID=DT_KB_1_1&externalId=2130599**.

Remote vCenter setup options

There are two deployment options for the remote vCenter setup. One option is a Windows server on which VMware vCenter Server and OneView for VMware vCenter are installed and that is on the same 10 GbE network as the system (**Figure 8: Remote vCenter setup (option 1)** on page 33).

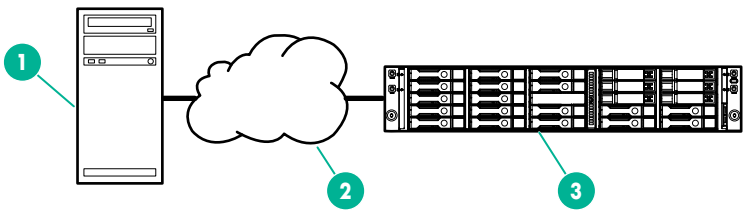


Figure 8: Remote vCenter setup (option 1)

1. Windows server running VMware vCenter Server and OneView for VMware vCenter

2. 10 GbE network

3. HC 250 system (with built-in Management VM)

If you have a vCenter Server Appliance (vCSA) or a Windows server running VMware vCenter Server, the vCenter instance should be on a local network with the Windows server running OneView for VMware vCenter. The Windows server is on the 10 GbE network with the system (**Figure 9: Remote vCenter setup (option 2)** on page 34). Currently, OneView for VMware vCenter is not supported on the vCSA.

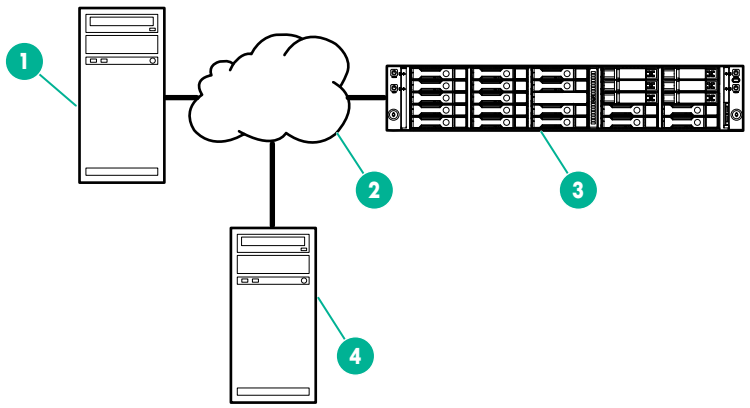


Figure 9: Remote vCenter setup (option 2)

1. Windows server running OneView for VMware vCenter

2. 10 GbE network

3. HC 250 system (with built-in Management VM)

4. vCenter Server Appliance (vCSA) or Windows server running VMware vCenter Server

NOTE:

During system deployment, you can select either the local or remote vCenter option. Once a selection is made, you must use the same selection (local or remote) when you add systems.

Prerequisites for remote vCenter setup

Before deploying the remote vCenter option, ensure that the following requirements are met on the remote server on which VMware vCenter Server and OneView for VMware vCenter are installed:

Procedure

1. Ensure that the existing VMware vCenter Server instance is not running on the Management VM of another Hyper Converged 250 system. Otherwise, problems could occur during deployment.
2. Verify that the remote server is configured on a network that is accessible to the 10 GbE network switches that are connected to the system. You will need the IP address for this remote server and the default port used for Single Sign-On (SSO).

3. Disable the firewalls, or enable the following ports for inbound and outbound access on the server running OneView for VMware vCenter. The ports do not have to be enabled on the server running VMware vCenter Server (if it is installed on a separate server).

   NOTE:

   - For more information about these ports, see “Default port values” in the OneView for VMware vCenter installation guide.
   - These firewall or port settings are only required during deployment of a new system installation or a system expansion. Once that deployment is complete, you can either re-enable the firewalls or disable port access.

   a. HPE HTTPS Port 3501 TCP

   b. HPE UIM Port 3504 TCP (must be accessible from the Management VM of the system running OneView InstantOn)

4. Install VMware vCenter Server v5.5 or v6.0. Hewlett Packard Enterprise recommends that you always install the latest updates of the software. To verify compatibility between ESXi and vCenter Server versions, see the Hyper Converged 250 System for VMware vSphere compatibility matrix at: **http://www.hpe.com/info/StoreVirtualcompatibility**.
5. Ensure you have the supported license types. See **License considerations**.
6. Install OneView for VMware vCenter v7.8.3. Hewlett Packard Enterprise recommends that you always install the latest updates of the software.

   To verify compatibility between ESXi and vCenter Server versions, see the Hyper Converged 250 System for VMware vSphere compatibility matrix at: **http://www.hpe.com/info/StoreVirtualcompatibility**.
7. Ensure that you have access to the OneView for VMware vCenter administrator credentials on the remote server. These credentials will be used by OneView InstantOn during deployment.
8. Ensure that the VMware vCenter Server user credentials provided in OneView InstantOn also have access to the OneView for VMware vCenter Storage Administrator Portal. Otherwise, OneView InstantOn deployment will not complete successfully. The credentials are entered on the vCenter screen.
9. Verify that the remote server can support the additional system hosts, datacenter, and Virtual Machines that will be installed or added (expanded).
10. For the first four-node system using the remote vCenter option, plan to reserve the following items according to VMware vCenter limits:

    a. Four hosts per VMware vCenter Server (three hosts for a three-node system, two hosts for a two-node system)

    b. Four hosts per datacenter (three hosts for a three-node system, two hosts for a two-node system)

    c. Five Virtual Machines per VMware vCenter Server (four VMs for a three-node system, three VMs for a two-node system)

    NOTE:

    See the VMware vCenter Server documentation to determine the supported limits for each version.

11. For the second four-node system in the initial deployment or an expansion system using the remote vCenter option, plan to reserve the following items according to VMware vCenter limits:

    a. Four hosts per VMware vCenter Server (three hosts for a three-node system, two hosts for a two-node system)

    b. Four hosts per datacenter (three hosts for a three-node system, two hosts for a two-node system)

    c. Four Virtual Machines per VMware vCenter Server (three VMs for a three-node system, two VMs for a two-node system)

Once all requirements are met, connect the remote server to the built-in Management VM as instructed in **Configuring a laptop/workstation to access the system**.

If you are deploying multiple systems, you only need to access one built-in Management VM on one system.

Configuring the Top-of-Rack switch

The system uses its expansion NIC interfaces for all network communication:

- Application network
- Storage networking
- Advanced virtualization services (vMotion, Fault Tolerance, etc.)
- System management

Before starting the installation using OneView InstantOn, you must decide to use a single network or multiple networks.

Single network

Procedure

1. All devices and services are on the same subnet. A single VLAN is optional. If VLAN is configured, configure the same VLAN ID on all ConvergedSystem 200–HC StoreVirtual devices and services.
2. Applications, storage, and vMotion services are configured using a single range of IP addresses within the same subnet.

Non-overlapping IP address ranges are required for management, vMotion, and Storage/iSCSI. Hewlett Packard Enterprise recommends separating these networks using VLANS.

Configure the switch ports connected to each node identically:

- If VLAN tagging is not used, then configure each switch port using the same native (PVID) VLAN ID.
- If VLAN tagging is used, then configure each switch port with the same native (PVID) VLAN ID and the same tagged VLAN IDs for the vSphere vMotion and Storage/iSCSI networks.
- If the VLAN IDs for the vSphere vMotion and Storage/iSCSI networks are the same, non-overlapping IP addresses in the same subnet are required.
- If the VLAN IDs for the vSphere vMotion and Storage/iSCSI networks are different, separate IP subnets are required.

Configuring a laptop/workstation to access the system

NOTE:

Instructions are provided for a Windows system. If you are using a non-Windows system, see the manufacturer's documentation for instructions.

To access the system, you need a laptop/workstation with a 1 GbE port that is capable of running Microsoft Windows Remote Desktop Services (for example, `mstsc.exe`).

Procedure

1. Disconnect the laptop/workstation from all networks.
2. Connect the 1 GbE laptop port to the system using a Cat5E cable. See callout 15 on the figure in the topic **Cabling the system**.
3. Configure the 1 GbE laptop/workstation port to use the static IP address 192.168.42.99 with subnet mask 255.255.255.0 (a gateway address is not required).

IMPORTANT:

Do not configure a laptop/workstation with an IP address of 192.168.42.100 or greater. IP addresses of 192.168.42.100 or greater are reserved for the Hyper Converged 250 system.

a. Access the Network and Sharing Center from the Windows desktop.

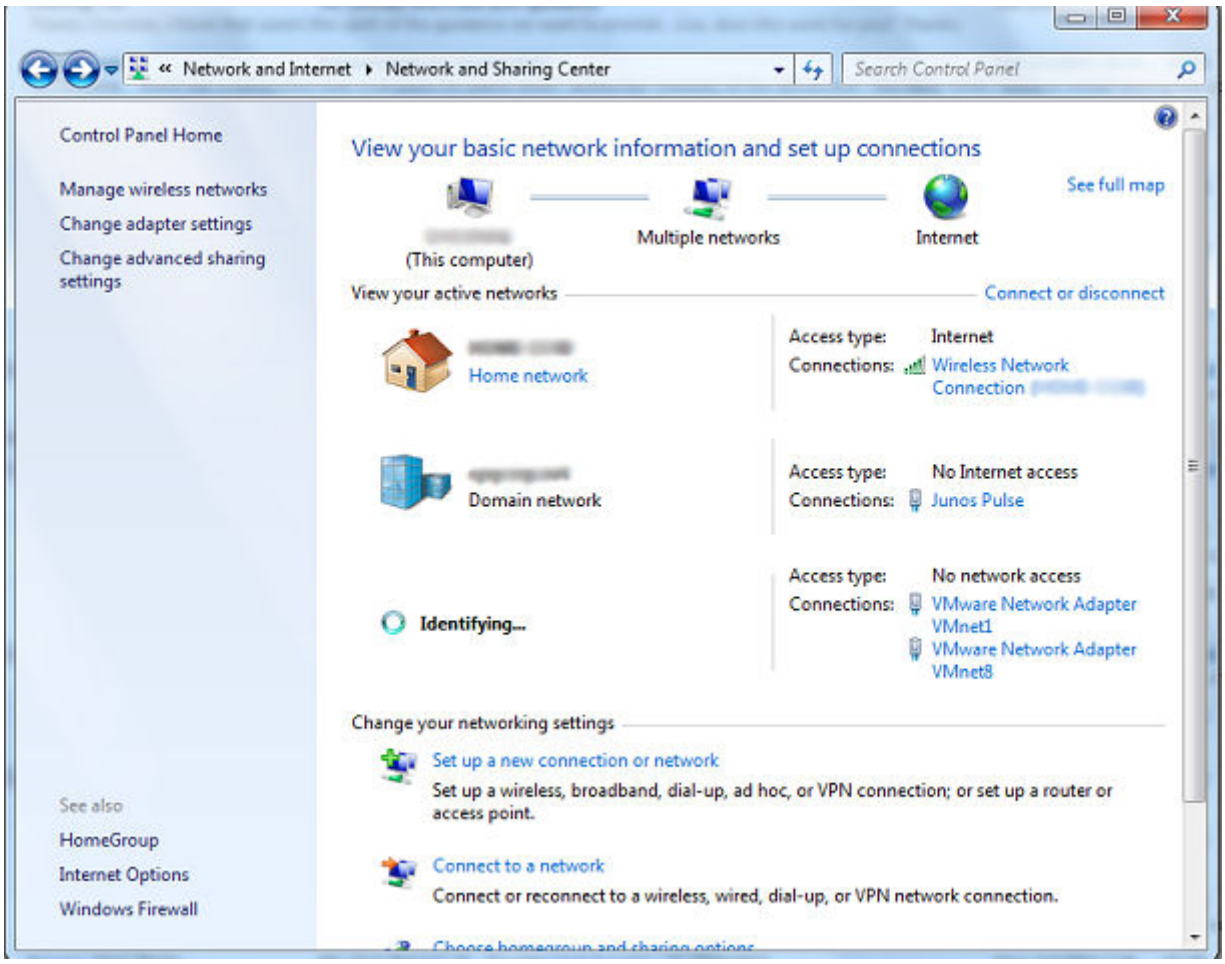


Figure 10: Network and Sharing Center

b. Navigate to the available network connections.

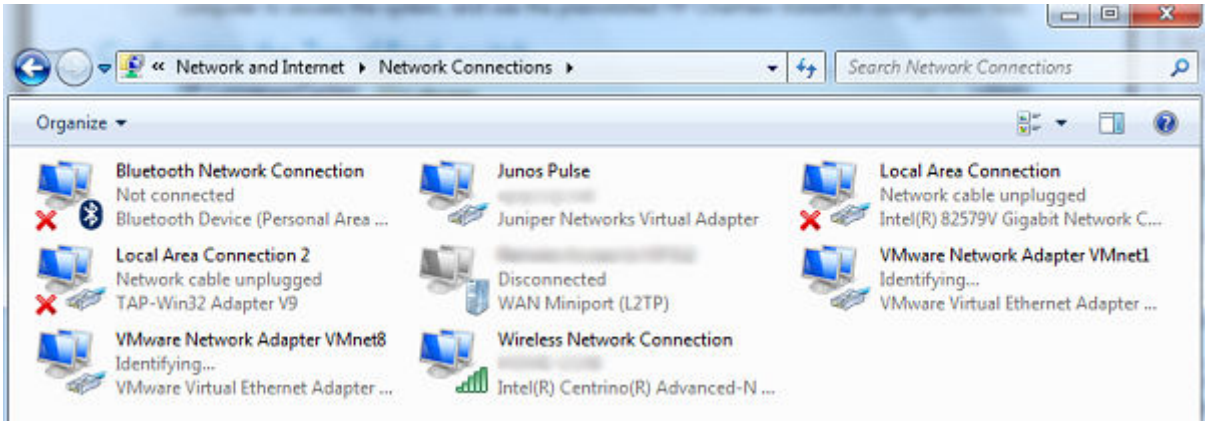


Figure 11: Network Connections

c. Right-click the appropriate NIC and select **Properties**.

d. Select **Internet Protocol Version 4**, and then select **Properties**.

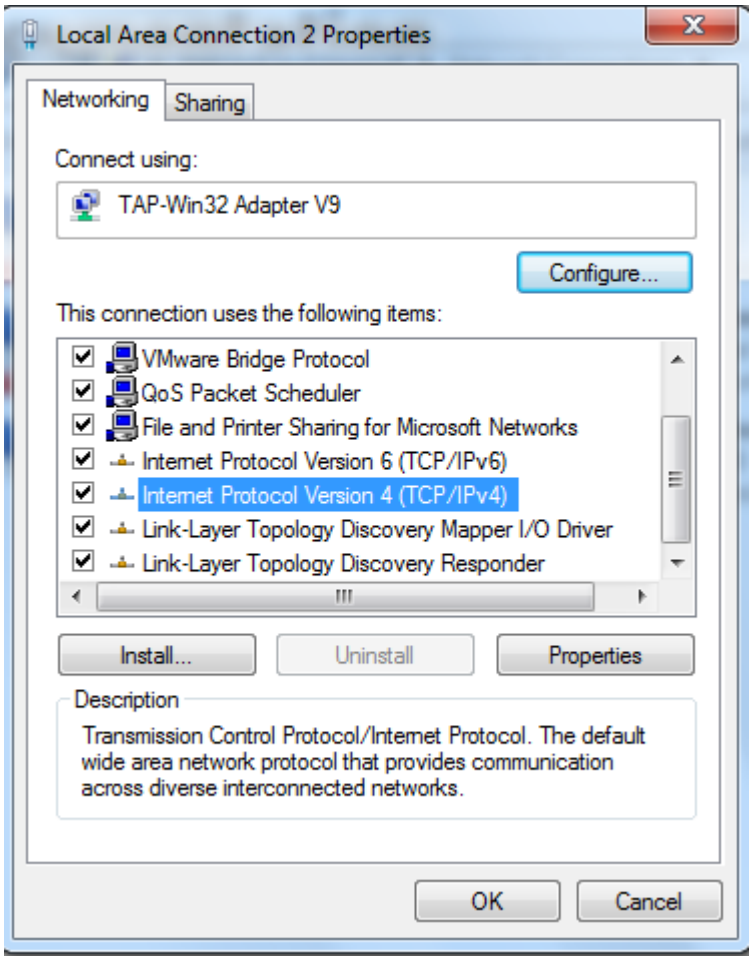


Figure 12: Local Area Connection Properties

e. Select **Use the following IP address** and enter the IP address and subnet mask. Click **OK**.

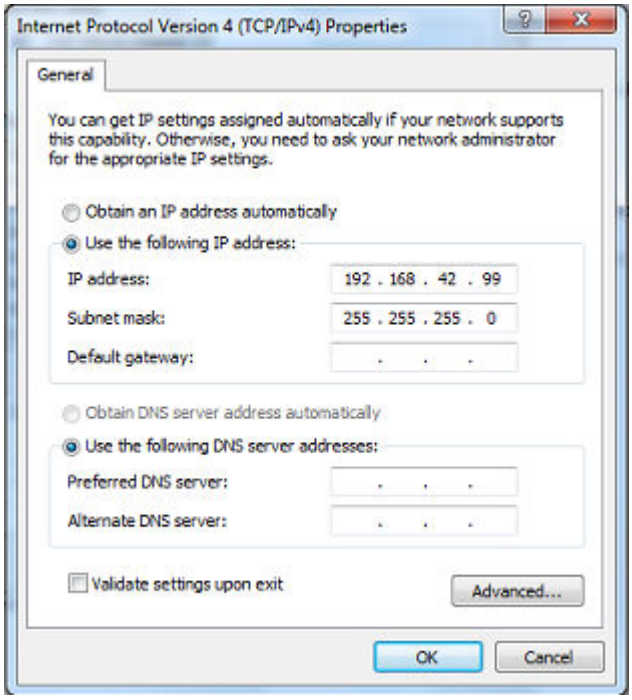


Figure 13: IP Protocol Version 4 (TCP/IPv4) Properties

4. From the laptop/workstation, locate and select **Remote Desktop Connection** from the Start menu. In the **Computer** box, enter 192.168.42.100, and then click **Connect**.

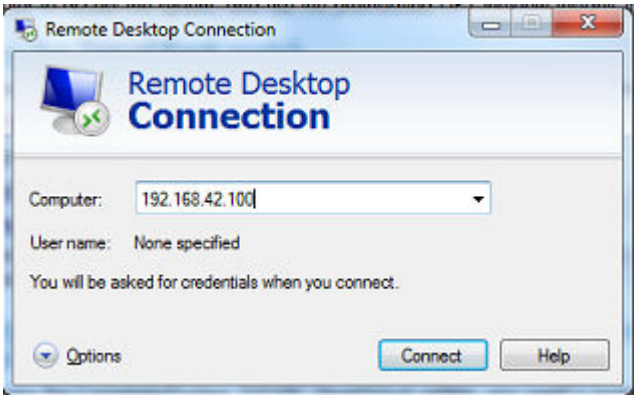


Figure 14: Remote Desktop Connection

5. In the **Windows Security** dialog box, enter the credentials:
   a. User name:
      `administrator`
   b. Password:
      `hpcs200HC!`

Installing the VMware vCenter Server license (predeployment)

OneView InstantOn version 1.2.0 or later includes a screen where you can apply your VMware vCenter license for either a local or remote vCenter configuration. This license is not included in your purchase of the system.

Alternatively, you apply the license using the VMware vSphere® Client:

NOTE:

Ensure that the vCenter license you purchased is for VMware vSphere 5.5 or 6.0.

Procedure

1. Log in to the Management VM using a laptop or workstation.
2. From the Start menu on the Windows desktop, select **VMware vSphere Client**.
3. To log in, enter the credentials: **`administrator@vsphere.local`** is the user name and **`hpcs200HC!`** is the password.
4. Select **Home**, and then select **Licensing** in the **Administrator** section.
5. Select the **Management** tab, and then select the **Manage vSphere Licenses…** tab.
6. In the **New License** box, enter the vSphere license number, and then select **Add License Keys**. Click **Next**.
7. Select the **vCenter Server** tab, and then select **HPCS200HC-SV-MG**. Select the license entered in step 6, and then click **Next**.

NOTE:

After you complete the steps to add the VMware vCenter license, log out of both the vCenter Client and the vCenter Web Client before starting OneView InstantOn.

When the license is successfully applied, it will display as assigned to HPCS200HC-SV-MG.

OneView InstantOn

OneView InstantOn, which is preinstalled on the system nodes, is the tool you use to configure the system. Once the system is configured, go to VMware vCenter to deploy virtual machines.

OneView InstantOn guidelines

- Do not run Windows Update or configure proxies during deployment. You can perform these tasks before and after deployment.
- Do not run OneView InstantOn while performing an HPE LeftHand OS upgrade.
- OneView InstantOn allows you to perform initial deployments and expansions of existing deployments. Following a successful deployment, you can launch the tool to expand the system or view the settings, the tool cannot be used to change settings or redeploy the system unless a quickreset has been performed. For more information, see **Quick-reset**.
- OneView InstantOn automatically starts when you log in to the Management VM on the system.
- When you hover in a text box, tool tips and error information appear. The information could take a few seconds to display.
- The InstantOn version shown in the figures in this document may be different from what is installed on your system. The content of the screens is the same.
- To navigate through OneView InstantOn, click **Next**, or click a location in the left navigation pane. The information that you input on a screen is automatically saved and you can go back to that screen and change or add information.

Deploying a new system

Procedure

1. Complete the steps in **Configuring a laptop/workstation to access the system**.
2. From the Management VM remote desktop session, open OneView InstantOn. On the Windows Start screen, select **Desktop**. If OneView InstantOn does not display, click the **HPE OneView InstantOn** shortcut on the desktop.

NOTE:

If the OneView InstantOn Simulation icon is displayed, do not select it. Select only the OneView InstantOn icon.

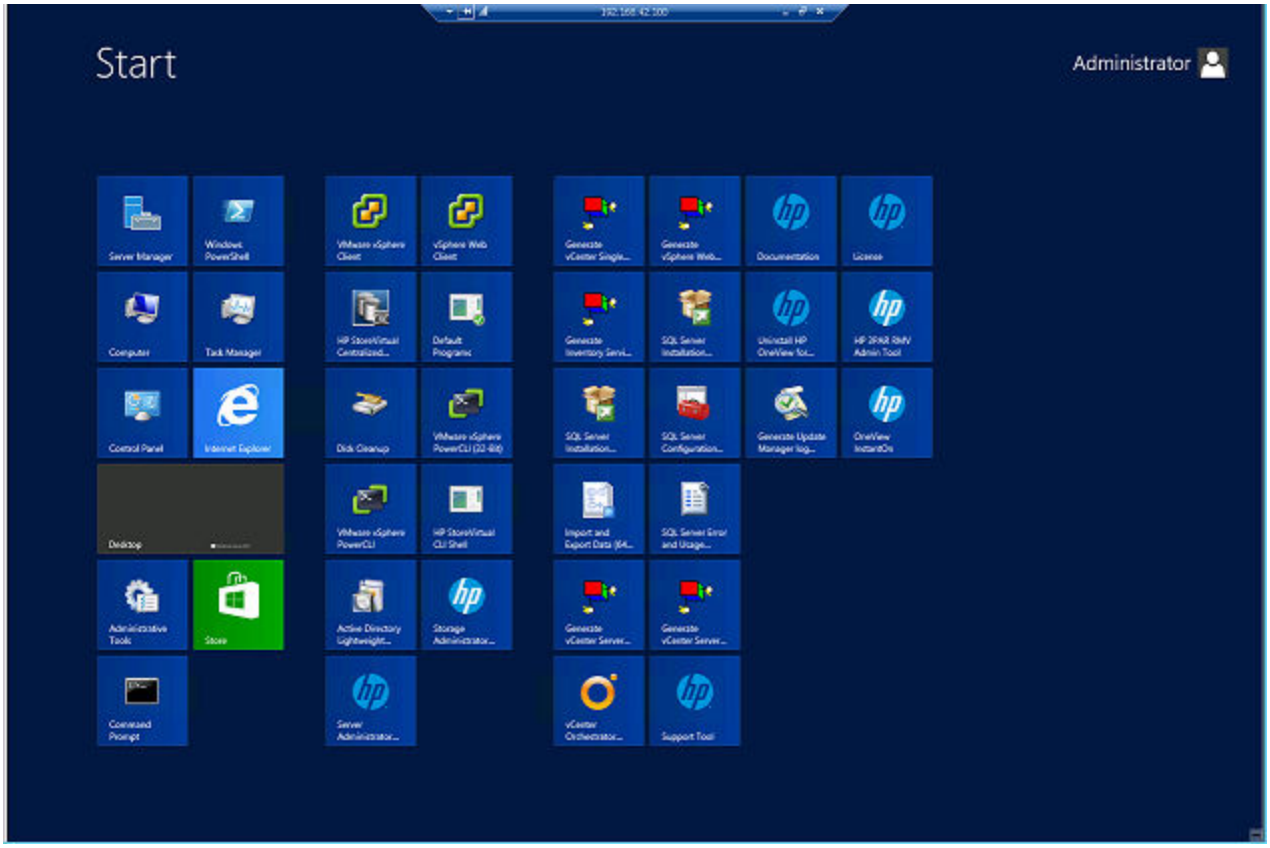


Figure 15: Windows Start Menu

3. Verify that you are using the latest version. The version displays on the screen in the upper-right corner. Compare this version to the latest version available at **http://www.hpe.com/info/HCupdates**. The latest version of OneView InstantOn includes all the updates in one package for the system. To install an updated version, see "Upgrading the system" in the user guide.
4. On the **Introduction** screen, accept the End User License Agreements, and then click **Next**.

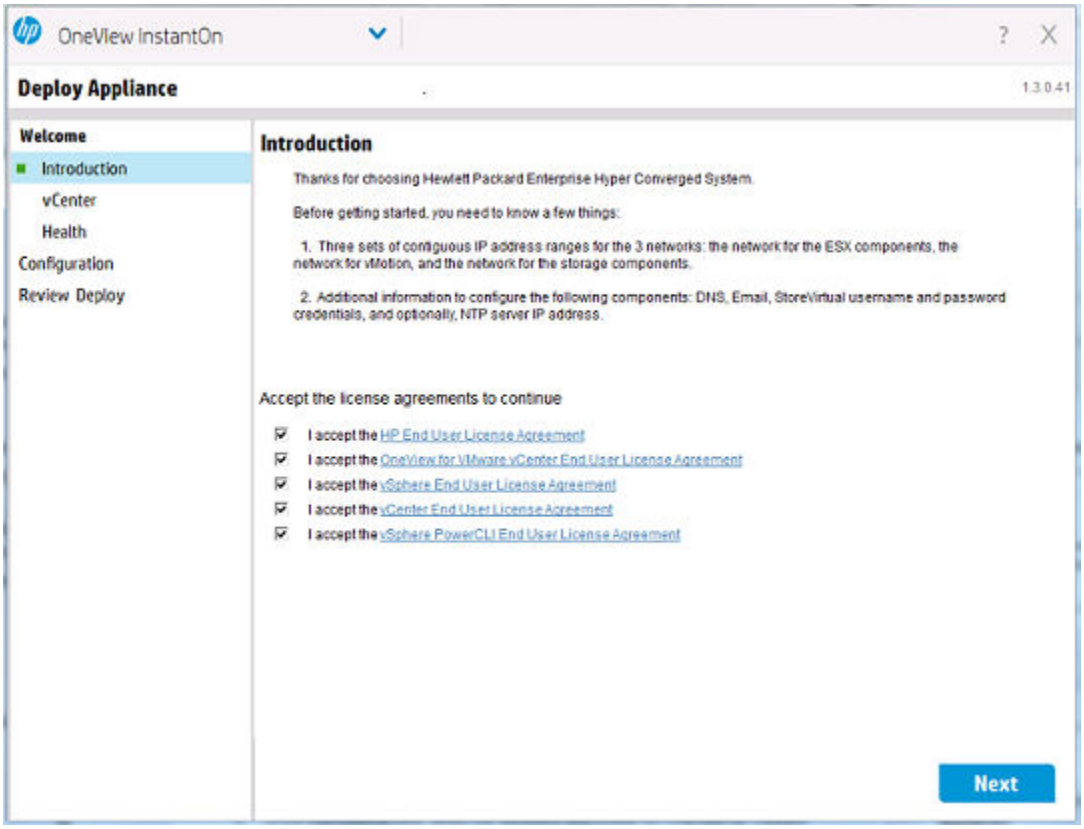


Figure 16: Introduction

5. On the **vCenter** screen, select the instance of VMware vCenter Server that you will be using. Select **Local** to use the vCenter software that shipped with the system. Select **Remote** to use the vCenter software that is already running on another server.
6. If you select **Local**:
   a. In the **License**section, enter the VMware vCenter license in the **Set Key** field. The health of the **License** section remains red until the license is successfully applied. Wait for the status to turn green before proceeding to the next screen.
   b. In the **Destination** field, select the datacenter and cluster on VMware vCenter Server that will be used for the system hosts and StoreVirtual VSA storage.

      You can also create a new cluster by clicking **New**. The **Create New vCenter Datacenter/ Cluster** window opens. Select the datacenter, enter the name of the new cluster, and click **Create**. Then, select this cluster name on the **vCenter** screen.
   c. Click **Next** to continue to the **Health** screen.

IMPORTANT:

- You cannot change the name of the datacenter or cluster after completing a new system installation or expansion. If you change the name and attempt to expand the system, expansion fails with the error message:

  `Unknown Cluster Deployment Status`
- Ensure that you follow VMware naming conventions when creating datacenter and cluster names. If special characters are used in the names, OneView InstantOn hangs.

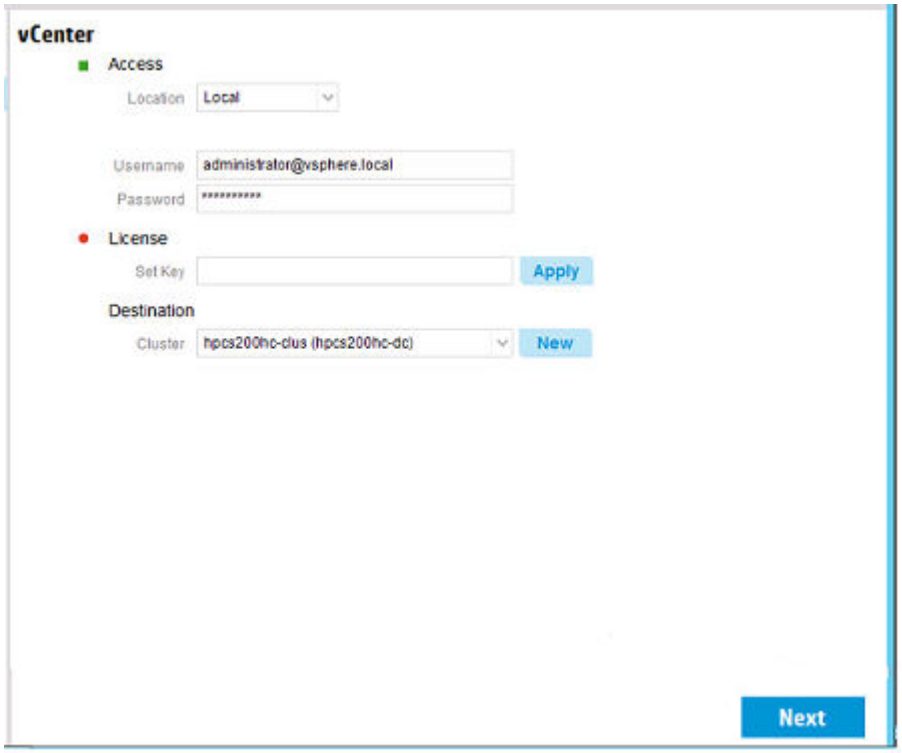


Figure 17: Selecting Local on the vCenter screen

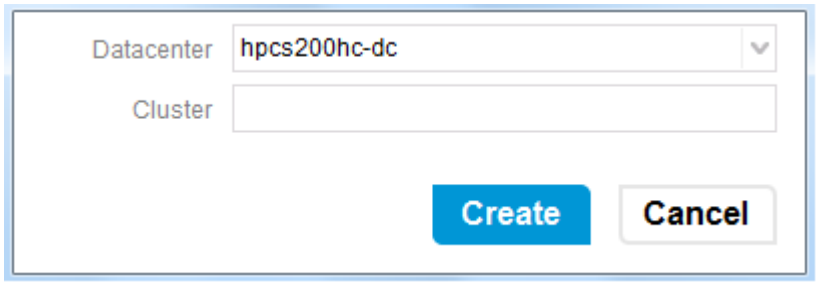


Figure 18: Create New vCenter Datacenter/Cluster window

7. If you select **Remote**:
   a. Under **Access**, enter the IP address of the remote server, the VMware vCenter credentials (username and password), and the SSO default port. OneView InstantOn verifies that the remote server can be accessed and that the remote instance of VMware vCenter Server is installed at the correct, minimum version. The health icon next to **Access** changes to green when verifications have completed successfully.
   b. In the **Management VM ESX Connectivity**section, enter the IPv4 IP address (subnet mask and gateway) for the Management VM on the system. This is the ESX network starting IP address that is noted in **Network deployment** and is used to establish communication between the Management VM and the remote server.

      NOTE:

      Some switched networks may require that you complete the **Management VM ESX Connectivity** section before the vCenter verification in the **Access** section is marked successful.

   c. Once the **Access** and **Management VM ESX Connectivity** sections report green status, you can apply a license for the remote instance of VMware vCenter if it is not already licensed. If it is already licensed, you can skip this field. If it is not already licensed, enter the VMware vCenter

license in the **Set Key**field. The health of the **License** section remains red until the license is successfully applied. Wait for the status to turn green before proceeding to the next screen.

d. Select the datacenter and cluster on the VMware vCenter Server instance on the remote server that will be used for the system hosts and StoreVirtual VSA storage. You can also create a new cluster by clicking **New**. The **Create New vCenter Datacenter/Cluster** window opens.

Select the datacenter, enter the name of the new cluster, and click **Create** .

Then, select this cluster name on the **vCenter** screen.

IMPORTANT:

- You cannot change the name of the datacenter or cluster after completing a new system installation or expansion. If you change the name and attempt to expand the system, expansion fails with the error message:

  ```
  Unknown Cluster Deployment Status
  ```

  .
- Ensure that you follow VMware naming conventions when creating datacenter and cluster names. If special characters are used in the names, it will cause OneView InstantOn to hang.

e. Click **Next** to continue to the **Health** screen.

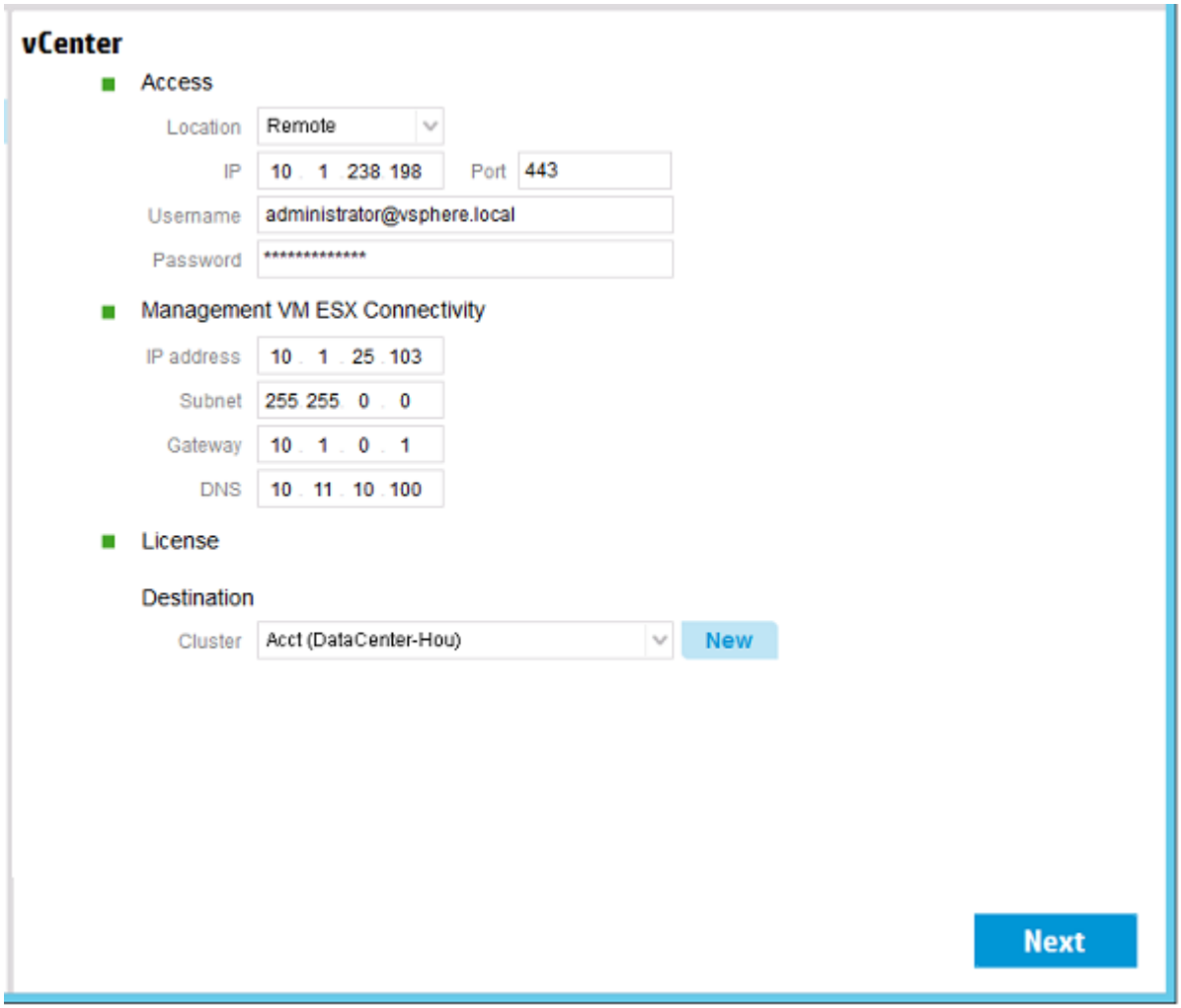


Figure 19: Selecting Remote on the vCenter screen

8. On the **Health** screen:
   a. Verify that the health is green for all system nodes and for vCenter availability. If the health icon is red, resolve issues before continuing. Possible issues are:
      - Incorrect cabling
      - Licenses are not applied
      - Incompatible software versions of installed components
      - Caching is disabled on the node
      - Nodes are seated improperly
   b. Select the systems you want to install. You can select systems with two, three, or four nodes. By default, the system from which you are accessing the Management VM to complete deployment is selected.
   c. Click **Next**.

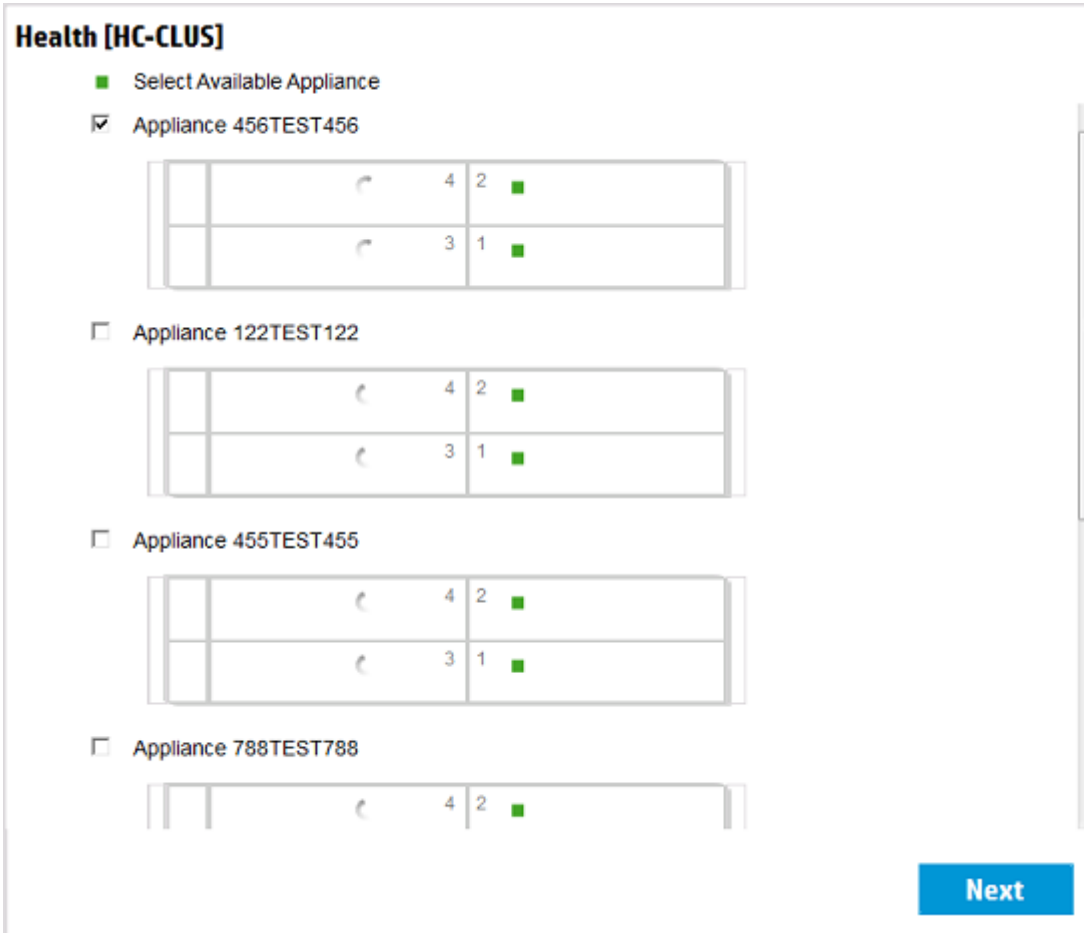


Figure 20: Health

9. On the **IP Assignments** screen, enter the appropriate information and then click **Next**. Whether you are installing one system or multiple systems, you need only enter the starting IP address. OneView InstantOn will automatically assign the remaining, contiguous IP addresses.

NOTE:

If you selected **Remote** on the **vCenter** screen, the **Starting IP address** field is prepopulated with the IP address you entered on the **vCenter** screen.

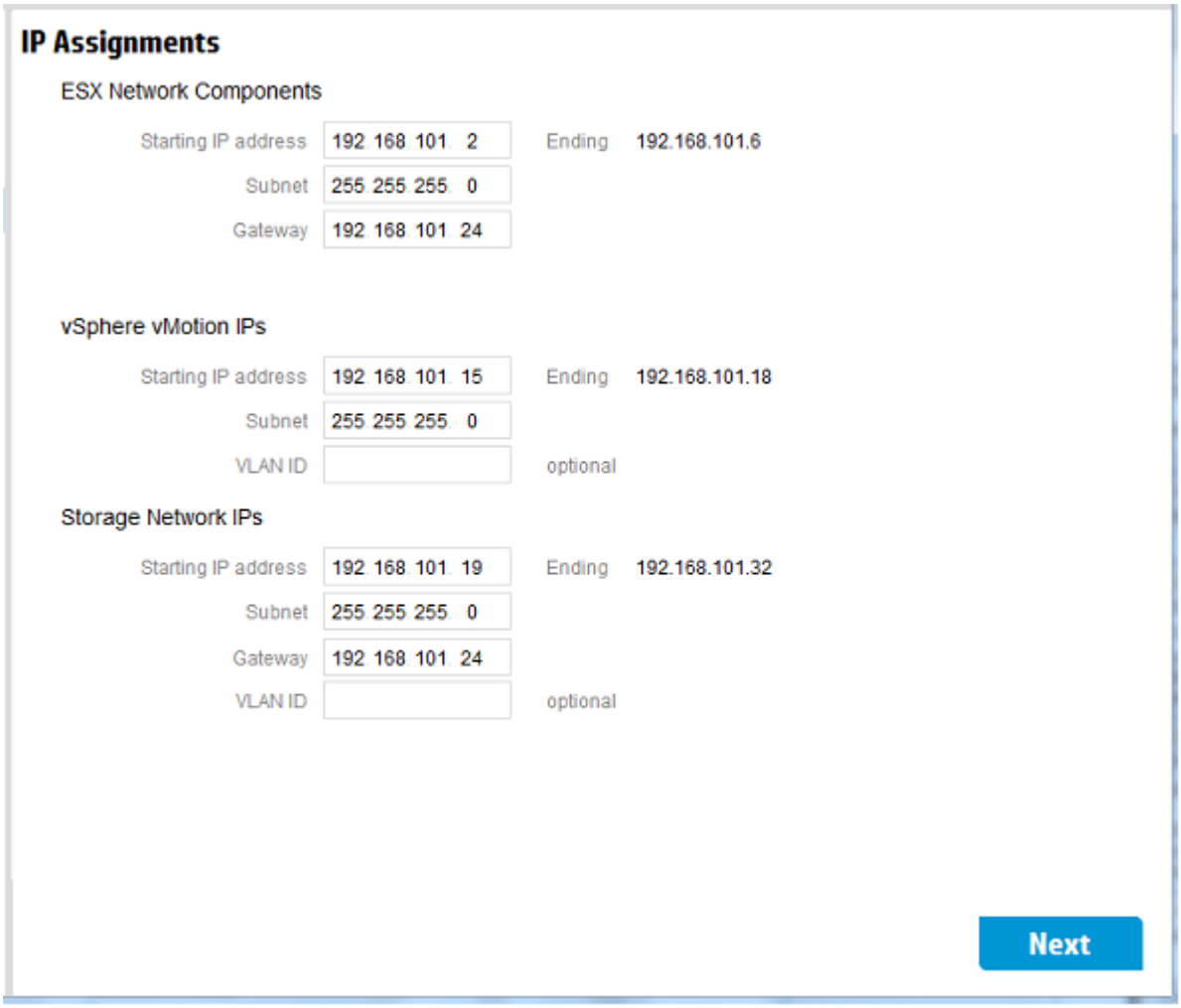


Figure 21: IP Assignments

10. On the **Credentials** screen, enter the preferred StoreVirtual credentials, and then click **Next**. You use these credentials to access the StoreVirtual Centralized Management Console when you apply the StoreVirtual licenses.
11. Credential requirements:
    a. The user name:
       - Must contain 3–30 characters
       - Must begin with a letter (a-z, A-Z)
       - May contain ASCII letters, numbers, asterisks (*), underscores (_) or hyphens (-)
       - Cannot contain the equal sign (=)
    b. The password:
       - Must contain 5–40 characters
       - May contain most ASCII characters, UTF-8 characters, and the multi-byte character set
       - Cannot contain spaces, periods (.), colons (:), semi-colons (;), forward or backward slashes (\ /) commas (,), single quotes (‘), or the equal sign (=)

NOTE:

You can change these credentials later using the StoreVirtual Centralized Management Console.

12. On the **Settings** screen, enter the preferred name for the StoreVirtual management group and cluster, domain name server address, and the network time protocol server address. Next, enter the mail settings information.
13. If you are deploying a two-node system, the **Quorum Settings** field displays on the **Settings** screen. Enter a NFS file share name. For more information, see **Management group quorum considerations**. Click **Next** to continue.

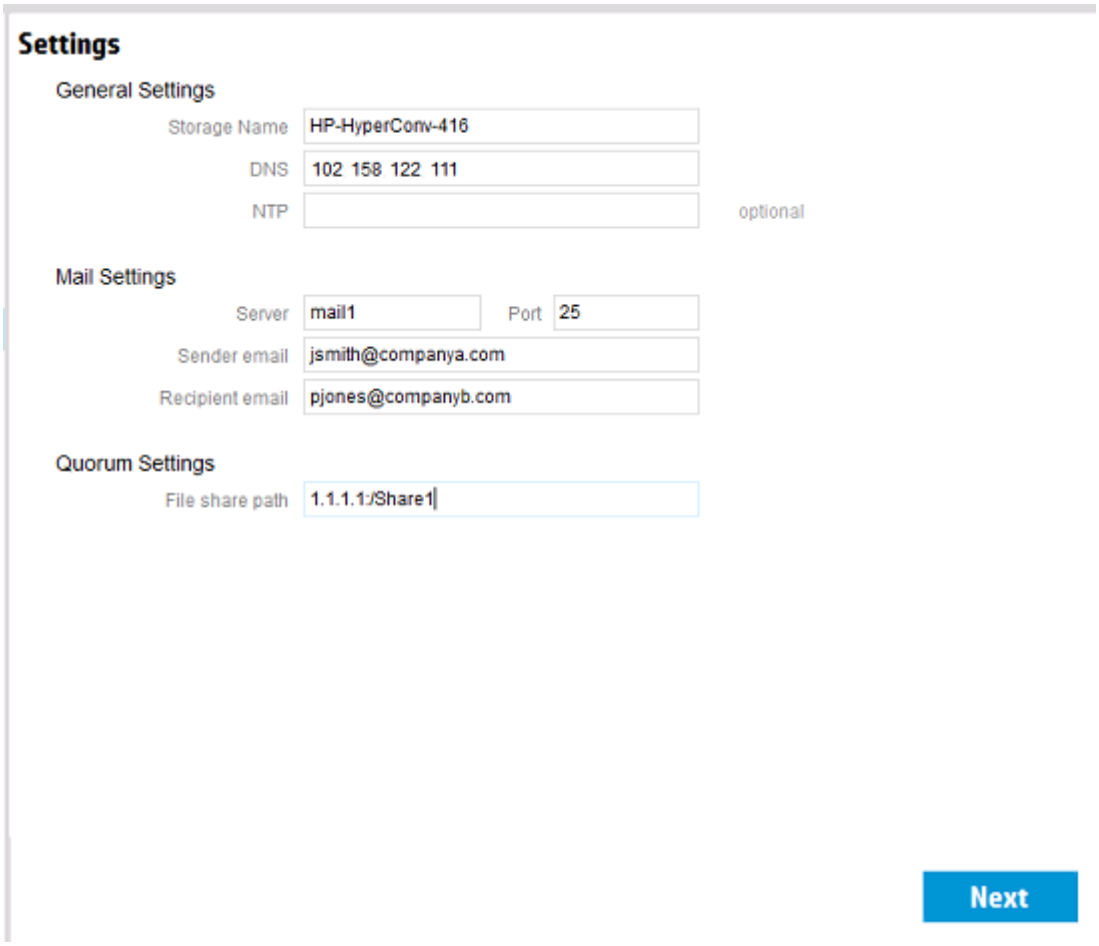


Figure 22: Settings

14. On the **Review Configuration** screen:
    a. Verify that the information you entered is correct.

       To make changes, select the applicable screen using the links in the left navigation pane.
    b. When you are ready to proceed, click **Deploy**.

> **IMPORTANT:**
>
> Do not close OneView InstantOn during the deployment process. If the deployment does not complete or hangs, see **Troubleshooting**.
>
> If you are deploying multiple systems, the time to complete deployment increases.

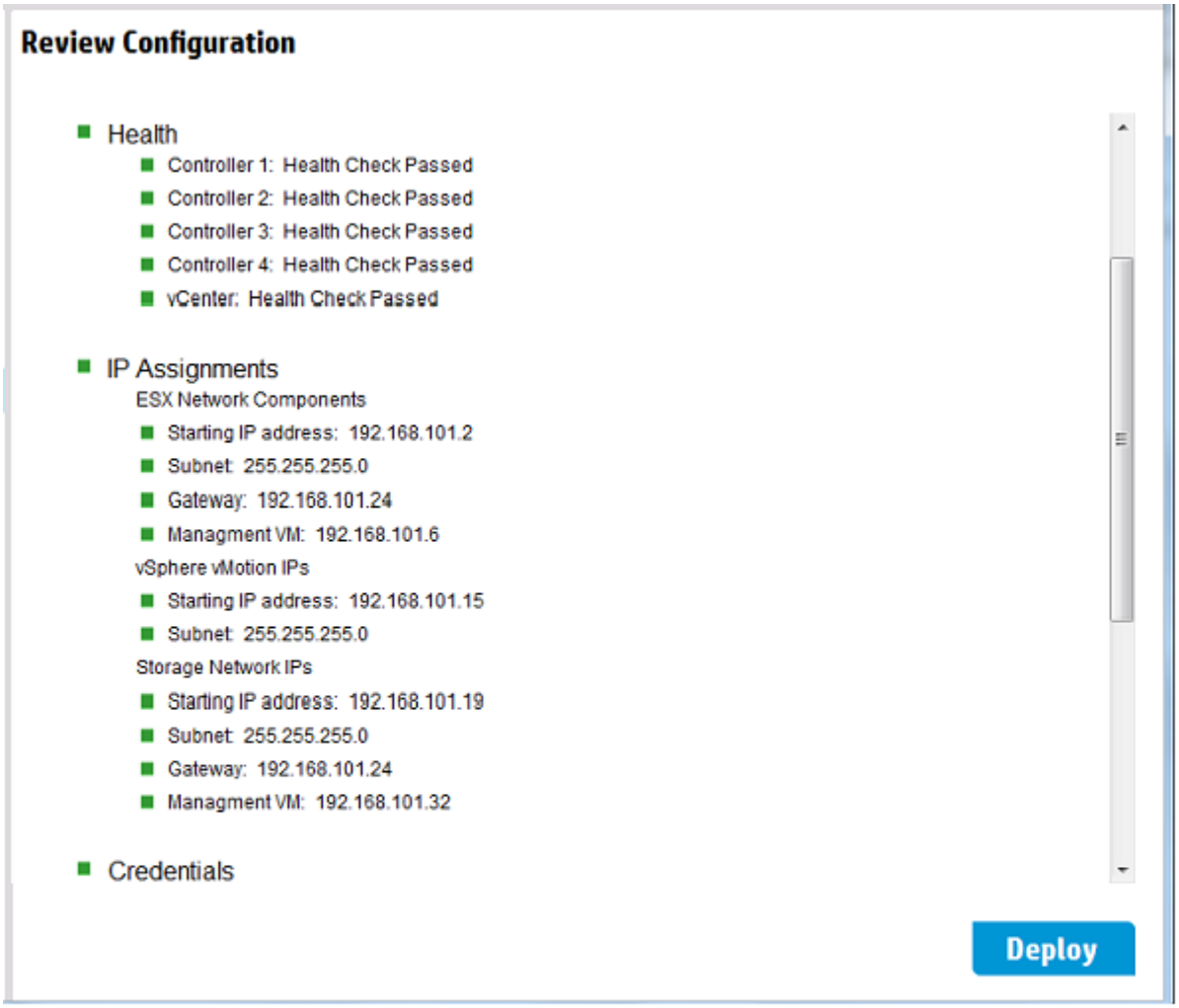


Figure 23: Review Configuration

15. After the deployment is complete, the **Next Steps** screen is displayed.

IMPORTANT:

If deployment fails, you can perform a quick reset if your configuration meets the requirements. For more information, see **Quick reset** .

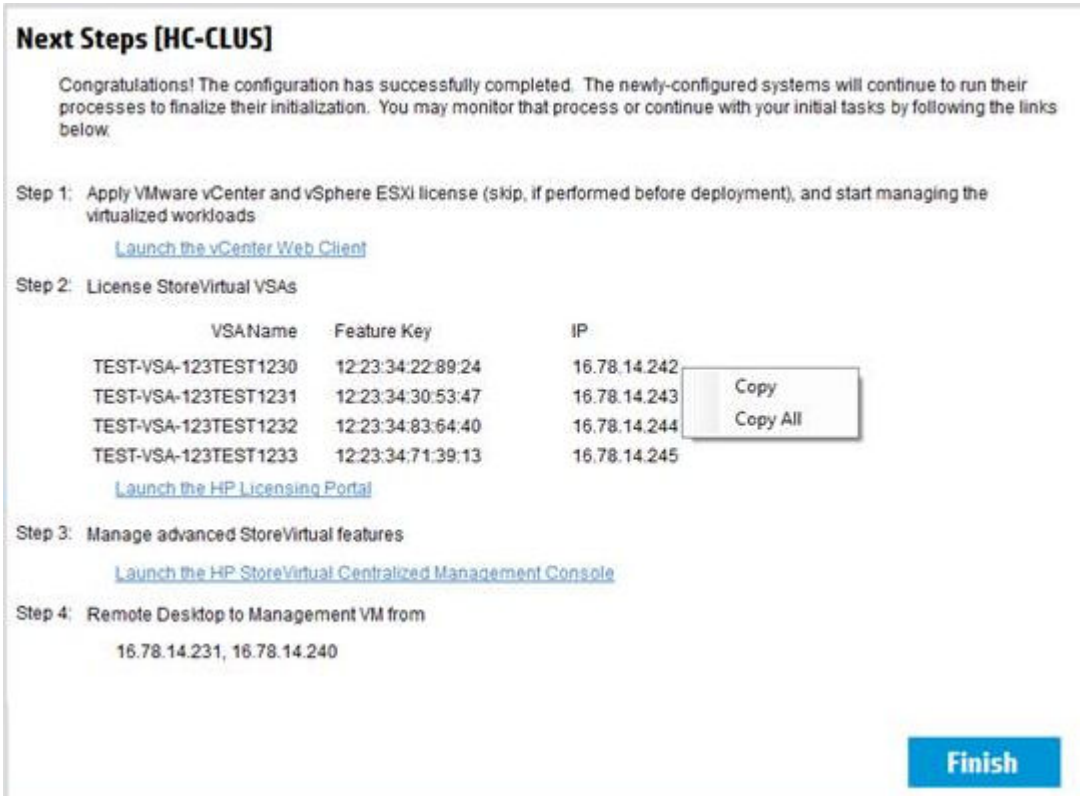


Figure 24: Next Steps

16. On the **Next Steps** screen, start the process of installing licenses (see **Installing licenses** on page 50). When finished, click **Finish** to close OneView InstantOn.

NOTE:

- To access help documentation and complete the installation with fully licensed StoreVirtual VSAs, access to the Internet is required.
- To access the licensing links after deployment, restart OneView InstantOn. The **Next Steps** screen automatically opens.

Even if the deployment is successful, there may still be some items that require attention. If that occurs, a "Warning" section appears on the **Next Steps** screen with information. For example, if there is an issue with Quorum Witness, the following message appears:

```
Warning:
Manual setting of Quorum file share is required.
```

Installing licenses

Installing the VMware vCenter Server license

NOTE:

If you installed the vCenter license prior to using OneView InstantOn, you do not need to reinstall the license.

OneView InstantOn version 1.2.0 or later requires that you select a local or remote vCenter instance before deployment.

If you selected the local vCenter option:

Procedure

1. Under **Step 1**, click **Launch the vCenter Web Client** to open the local instance of VMware vCenter. The default credentials: **`administrator@vsphere.local`** is the user name and **`hpcs200HC!`** is the password.

   NOTE:

   A certificate error displays when logging in to the vCenter Web client. **Troubleshooting**.

2. Enter the license keys in vCenter.

If you selected the remote vCenter option:

- Under **Step 1**, click **Launch the vCenter Web Client** to open the remote instance of VMware vCenter (this is the system information entered on the **vCenter** screen).
- Log in using the VMware vCenter credentials for this remote vCenter instance.
- Apply the VMware vSphere host licenses for each ESXi host being deployed.

Installing the VMware vSphere license

Procedure

1. From the Start menu on the Windows desktop, select **VMware vSphere Client**.
2. Log in using the default credentials: **`administrator@vsphere.local`** is the user name and **`hpcs200HC!`** is the password.
3. In the **Administrator** section, select **Home** > **Licensing**.
4. Select the **Management** tab, and then select the **Manage vSphere Licenses** tab.
5. In the **New License** box, enter the vSphere license key, and then select **Add License Keys**.
6. Click **Next**.
7. Select the **ESX** tab. On this tab, select each vSphere host in the **Assets** column. Then, in the **Product** column, select the vSphere license key entered in step 5.
8. After you apply the license to a vSphere host, the **Action** field for the host changes to a green check box. Apply the license for each vSphere host until all vSphere hosts show a green check box.
9. Once all hosts are assigned the license, click **Next**.

Installing StoreVirtual VSA licenses

Procedure

1. Under **Step 2** on the **Next Steps** screen, note the StoreVirtual VSA feature keys.
2. Click **Launch the HP Licensing Portal** (**https://myenterpriselicense.hpe.com**).
3. Log in to the licensing portal using your HP Passport credentials.
4. To obtain license keys, either:
   a. Manually enter the feature keys listed on the **Next Steps** screen.
   b. Copy the feature keys from the **Next Steps** screen:
      - Right-click between **Step 2** and **Step 3**and select a copy option.
      - Paste the information into a text editor.
      - Copy and paste from the text editor into the licensing portal.

NOTE:

The StoreVirtual VSA includes a temporary license for 60 days. If you do not obtain and install permanent license keys before the 60-day period expires, you will lose access to the iSCSI volumes.

5. Under **Step 3** on the **Next Steps** screen, click the link to open the StoreVirtual Centralized Management Console.
6. Enter the license keys you obtained from the licensing portal in step 4.

For more information about StoreVirtual licensing, see "Registering advanced features" in the StoreVirtual Storage user guide.

Completing post-deployment tasks

Changing default passwords

Hewlett Packard Enterprise recommends that you change the default passwords for Microsoft Windows, VMware vCenter, VMware vSphere, ESXi, and iLO.

To change the Microsoft Windows password, access Windows on the Management VM. To change the VMware vCenter password for the **`administrator@vsphere.local`** user, access the SSO vdcadmintool from the Management VM. To change the vSphere ESXi passwords, access the ESXi shell with the default root password (**`hpcs200HC!`**).

Managing storage

Storage management for the system differs from traditional VSA storage management because the recommended management interface for creating VMs, volumes, and datastores is OneView for VMware vCenter. Log in to the Management VM through the configured IP address and, using vSphere Web Client, access the OneView for VMware vCenter plug-in to provision and manage storage. For more information, see the OneView for VMware vCenter user guide at: **http://www.hpe.com/info/ovvcenter/docs**

Verifying Quorum Witness (two-node configurations)

If you deployed a two-node system, open the CMC and verify that the Quroum Witness is installed. If not, use the CMC to configure the management group with the Quorum Witness (see **Figure 25: Quorum Witness Information** on page 53).

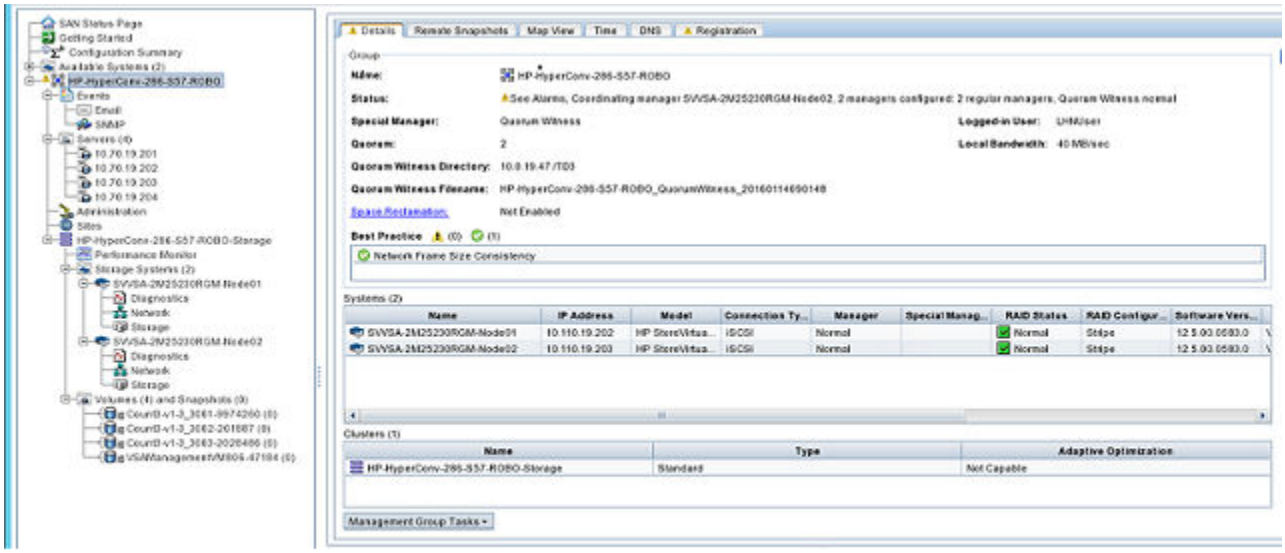


Figure 25: Quorum Witness Information

Configuring VLAN IDs after deployment

Prerequisites

The following prerequisites assume that the system was successfully deployed and configured without VLAN tagging. Ensure that the system is running, accessible, and in a healthy state before completing the following steps.

If you did not configure VLAN tags through OneView InstantOn, you can manually configure VLAN tagging using this procedure.

VLAN tagging is optional. If you decide to apply VLAN tagging, at a minimum, you must tag the `HostStorage2`, `HostStorage3`, `VSAeth0 vmkernel`, and the `vMotion` port groups and leave the `ESXmgmt` and `mgmtVMNetwork` port groups untagged. Alternatively, you can tag all port groups as described in the following procedure.

NOTE:

If you are using VLAN tagging, you must apply it to every node in the system.

Procedure

1. Access the Management VM using the 1 GbE connection on Node 1. See **Configuring a laptop/ workstation to access the system**.
2. Using the vSphere Web Client or VI Client, log in to the vCenter server running on the Management VM.
3. Validate that the Management VM is running on Node 1. If it is running on Node 2, perform a vMotion from Node 2 to Node 1.
4. Perform a Storage vMotion (Migrate) of the Management VM from its SAN datastore to the internal (local) datastore on Node 1.

NOTE:

Do not continue to the next section until the Management VM migration is completed. Applying VLAN changes while the Management VM is migrating will cause the migration to fail, and cause the system to be inaccessible.

VLAN IDs and network type

When using VLAN IDs in a flat network:

- The VLAN IDs for vMotion and iSCSI must be the same.
- The vMotion and iSCSI networks can be in the same subnet, but the IP addresses used must not overlap.

  Example:

  Host 1 IP configuration:

  vMotion: IP address 10.0.0.1, subnet 255.255.255.0, VLAN 66
  iSCSI: IP address 10.0.0.11, subnet 255.255.255.0, VLAN 66

  Host 2 IP configuration:

  vMotion: IP address 10.0.0.2, subnet 255.255.255.0, VLAN 66
  iSCSI: IP address 10.0.0.12, subnet 255.255.255.0, VLAN 66

  In this scenario, when Host 1 communicates with Host 2, it can use either the vMotion network or the iSCSI network.

When using VLAN IDs in a split network:

- The VLAN IDs for vMotion and iSCSI must be different.
- The IP address and subnet used for each VLAN ID (vMotion, iSCSI, Management) cannot overlap.

  Example:

  Host 1 IP configuration:

  vMotion: IP address 192.168.0.1, subnet 255.255.0.0, VLAN 58
  iSCSI: IP address 10.100.9.1, subnet 255.255.192.0, VLAN 51

  Host 2 IP configuration:

  vMotion: IP address 192.168.0.2, subnet 255.255.0.0, VLAN 58
  iSCSI: IP address 10.100.9.2, subnet 255.255.192.0, VLAN 51

  In this scenario, when Host 1 communicates with Host 2, it can use only the vMotion network or the iSCSI network, but not both.

Setting VLAN IDs

You must complete the prerequisites before continuing.

- From the laptop/workstation, launch the VMware vSphere Client from the Start menu.

  NOTE:

  Do not use the vSphere Web Client.

- Log in to Node 4 (for a four-node system), Node 3 (for a three-node system), or Node 2 (for a two-node system) by entering the IP address and credentials:
  - User name: **`root`**
  - Password: **`hpcs200HC!`**
- Access the **Configuration** tab and select **Networking**.
- Locate **vSwitch1** and click **Properties**.

IMPORTANT:

You must configure the VLAN ID on each port group following the exact sequence detailed in step 5. Review the step before proceeding.

The VLANs that are configured in step 5 must match the VLAN IDs that will be enabled on the physical network switches.

- In the **vSwitch1 Properties** window, configure the VLAN ID for each port group.
- You must set the port group VLAN IDs in the following order:
  - `vMotion`
  - `HostStorage2` and `HostStorage3`
  - `VSAeth0`
  - `mgmtVMNetwork vmkernel` (optional)
  - `ESXmgmt` (optional)

  NOTE:

  When setting the VLAN IDs for Node 1, skip the step (5d) of assigning a VLAN ID to the `mgmtVMNetwork`. The `mgmtVMNetwork` VLAN ID is set in step 9.

- Configuration rules:

  Port groups `mgmtVMNetwork` and `ESXmgmtmgmtVMNetwork`must use the same VLAN ID.

  - Port groups `VSAeth0`, `HostStorage2`, and `HostStorage3`must use the same VLAN ID.
  - Port group `vMotion` must use its own VLAN ID.

    NOTE:

    When the VLAN ID on the `ESXmgmt` port group is configured, you will lose access to the node. This is normal. You can safely continue to the next step.

- Repeat steps 2 through 5 for the remaining nodes. For a four-node system, complete the steps on Node 3, Node 2, and Node 1 (in that order). For a three-node system, complete the steps on Node 2 and Node 1 (in that order). For a two-node system, complete the steps on Node 1.
- Ask your network administrator to apply/enable the VLAN tags at the physical switch ports. After you complete this step, continue to step 8.
- Using the laptop/workstation, connect to the Management VM through Node 1, launch the VMware vSphere Client from the Start menu, and log in.
- Set the VLAN ID for `mgmtVMNetwork` on Node 1, otherwise you cannot access the Management VM.
- Complete the following verifications:
  - Validate that all components can be pinged through the expected IP addresses.
  - Verify that the following ESX components are healthy and that no datastores are disconnected:
    - ESXi Nodes
    - ESX cluster
    - Datastores
    - VMs
  - Clear any alarms that were triggered as a result of setting the VLAN IDs.
- Log out of the VMware vSphere Client. Disconnect the laptop/workstation.
- After enabling VLAN tags, perform a Storage vMotion (migrate) to move the Management VM back to its SAN datastore from the internal (local) datastore of Node 1.

Example configuration for a four-node system

The VLAN IDs are configured in the following order of port groups:

Start with Nodes 2, 3, and 4

- vMotion vmkernel PortGroup
- HostStorage3 vmkernel PortGroup
- HostStorage2 vmkernel PortGroup
- VSAeth0 Virtual Machine PortGroup
- mgmtVMNetwork Virtual Machine PortGroup (Optional)
- ESXmgmt vmkernel PortGroup (Optional)

Node 1

- vMotion vmkernel PortGroup
- HostStorage3 vmkernel PortGroup
- HostStorage2 vmkernel PortGroup
- VSAeth0 Virtual Machine PortGroup
- ESXmgmt vmkernel PortGroup (Optional)
- mgmtVMNetwork Virtual Machine PortGroup (Optional)

Migrating the Management VM

If you applied the VMware vSphere Essentials license to the Hyper Converged system, the Management VM does not get migrated automatically from the local datastore to the SAN volume during OneView InstantOn deployment. The **Summary** tab in the vSphere Client shows that the relocation task status is `License not available to perform this operation`. The Management VM must be manually migrated and can be performed from either the local or remote VMware vCenter instance.

Procedure

1. Do one of the following:
   a. Local vCenter instance: Open the vSphere Client and access Node-1 ESX.
   b. Remote vCenter instance: Open the vSphere Client on the remote VMware vCenter instance and access Node-1 ESX.
2. Open the vSphere Client and access Node-1 ESX.
3. Shut down the Management VM.
4. Click **Browse Datastore** to navigate to the local datastore.
5. Select the **Management VM** folder and move it to the SAN volume.
6. Right-click the Management VM and select **Remove from inventory**. The Management VM is removed from the inventory of Node-1 ESX.
7. Click **Browse Datastore** to navigate to the SAN volume.
8. Right-click the `.vmx` file in the **Management VM** folder.
9. Click **Add to Inventory** to add the new Management VM entry from the SAN volume to Node-1 ESX.
10. Power on the Management VM.
11. On the **Summary** tab in the vSphere Client, verify that the relocation task successfully completed.

Expansion system deployment

When adding an expansion system, it is recommended to add one system at a time. It is expected, whether you are adding a system to an existing configuration or installing two new systems, that one system will be installed and configured and then the second system will be installed, configured, and added to the configuration of the first system. You can also add nodes to a system (if you purchased and installed a two-node or three-node system).

Configuring an expansion system

Process overview:

Procedure

1. **Deploying an expansion system**
2. **Installing licenses**
3. **Completing post-deployment tasks**

Expansion requirements

- Complete the preinstallation tasks in **Preparing for an expansion system** .
- The maximum number of nodes supported in a solution is 16.
- The maximum number of nodes supported in a chassis is four.
- Two 10 GbE or four 1 GbE network ports configured identically to the ports connected to the existing solution nodes. Hewlett Packard Enterprise strongly recommends that these ports be on the same network switch as the existing nodes.
- (Optional) One 1 GbE network port for iLO configured identically to the existing network ports connected to iLO on the existing nodes.
- Appropriate network cables to connect the 10 GbE or 1 GbE ports, and optionally, iLO.
- Required number of IP addresses for each expansion node:
  - One IP address for the ESX network on the same subnet as the existing nodes.
  - One IP address for the vSphere vMotion network on the same subnet as the existing nodes.
  - Three IP addresses for the Storage network on the same subnet as the existing nodes.

  For the specific number of IP addresses per number of expansion nodes, see **IP address requirements for expansion nodes**.
- When expanding by more than one node simultaneously, you must allocate a contiguous range of IP addresses for successful expansion. OneView InstantOn will assign IP addresses sequentially from the starting IP address provided.
- When changing a management group's configuration (such as adding a node), ensure that the StoreVirtual CMC user interface is closed while making the change. Otherwise, you must either restart the CMC or find the nodes again to ensure the CMC works properly with the affected management group.

Expansion scenarios

- If there are two nodes in the chassis, you can add up to two nodes.
- If there are three nodes in the chassis, you can add one node.
- If you are adding a chassis, add all nodes in the chassis at the same time.
- If you are adding multiple chassis, the total number cannot exceed four chassis.

Deploying an expansion system

Procedure

1. From your network, access the management VM, and then open OneView InstantOn. On the Windows Start screen, select **Desktop**. If OneView InstantOn does not display, click the **HPE OneView InstantOn** shortcut on the desktop.

   NOTE:

   If the OneView InstantOn Simulation icon is displayed, do not select it. Select only the OneView InstantOn icon.

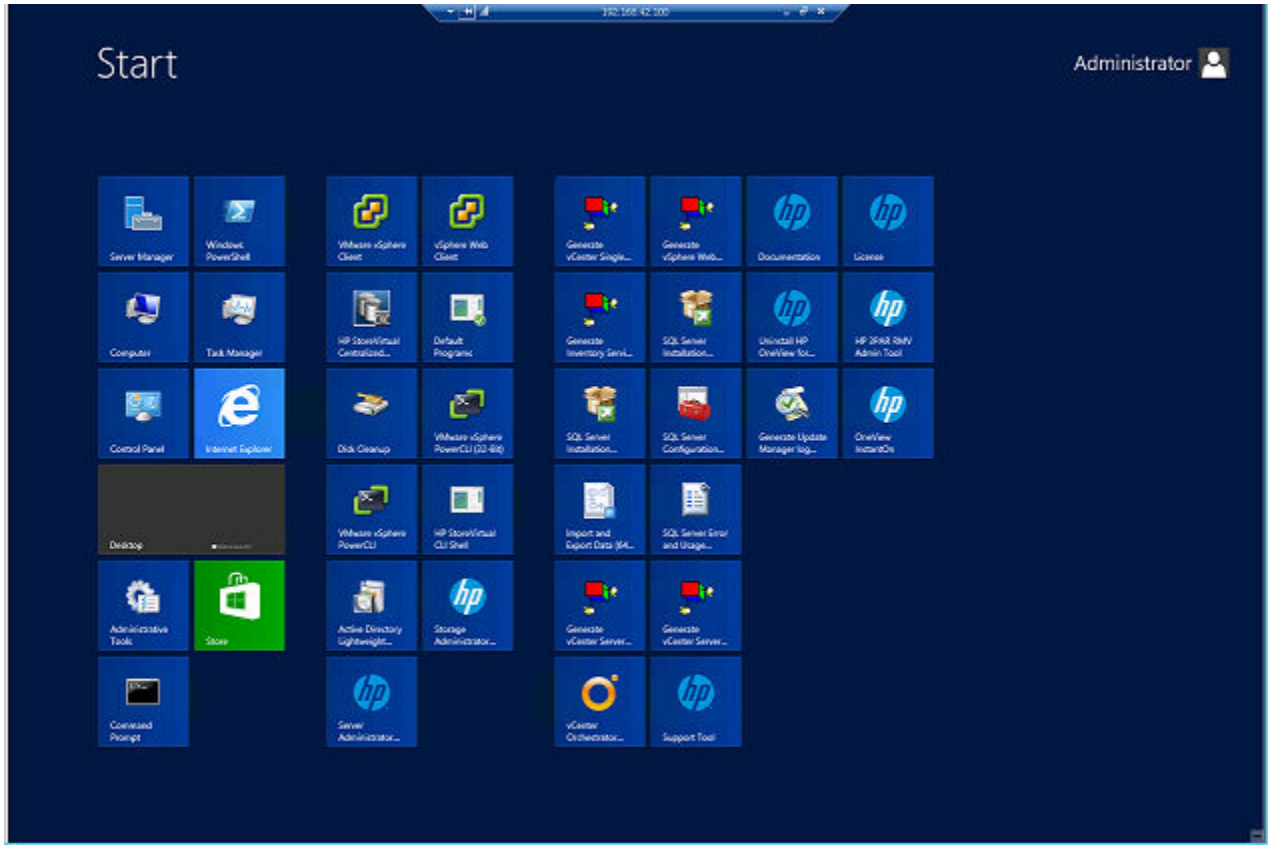


Figure 26: Windows Start Menu

2. On the **Introduction** screen, accept the End User License Agreements, and then click **Next**.
3. On the **vCenter** screen, enter the VMware vCenter password. All other information is automatically populated based on what was entered during the initial system installation. Click **Next** to continue to the **Health** screen.
4. On the **Health** screen.
   a. Select the nodes or systems you prefer to add and then click **Next**. If the health icon is red, resolve issues before continuing. Possible issues are:
      - Incorrect cabling
      - Licenses are not applied
      - Incompatible software versions of installed components

- Caching is disabled on the node
- Nodes are seated improperly

b. Select systems with two, three, or four nodes. By default, the system from which you are accessing the Management VM to complete expansion is selected.

c. Click **Next** to continue to the **IP Assignments** screen.

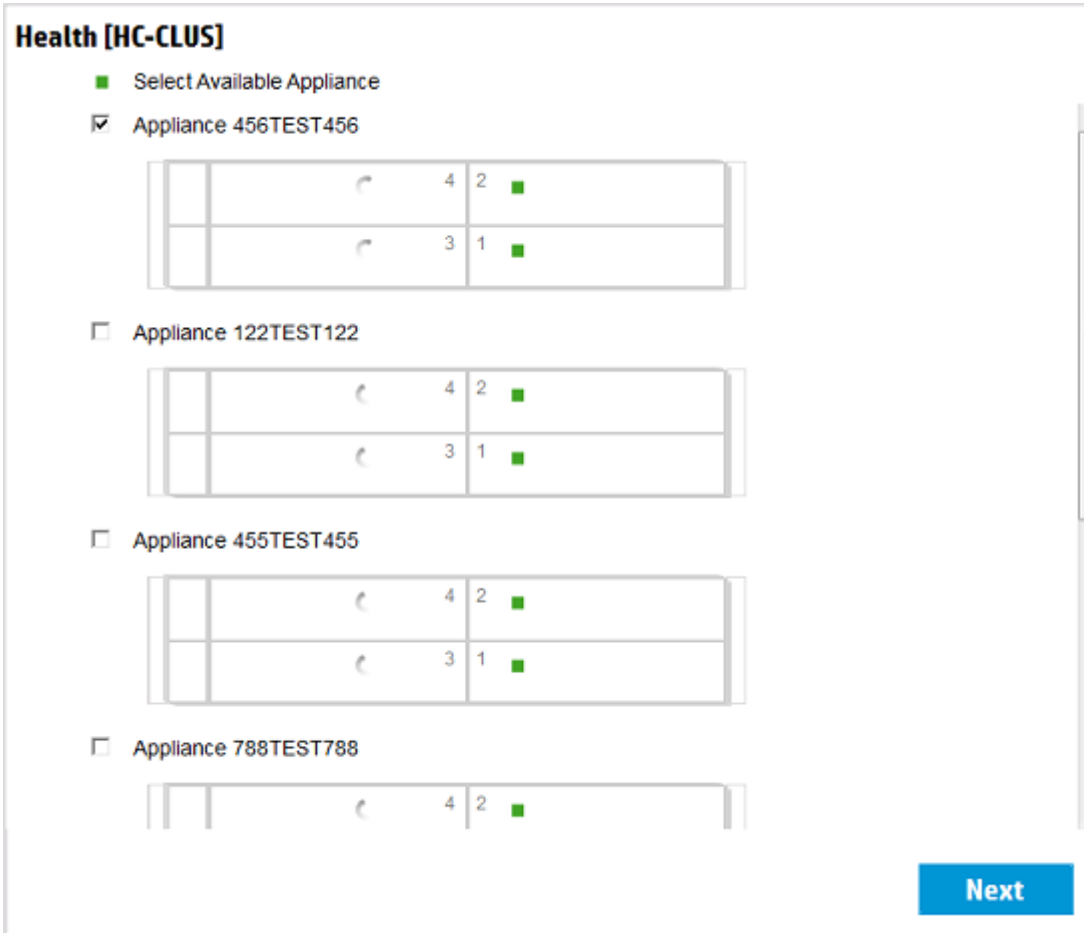


Figure 27: Health

5. On the **IP Assignments** screen, enter the appropriate information. Click **Next**. Note that whether you are adding (expanding) one system or multiple systems, you need only enter the starting IP address. OneView InstantOn will automatically assign the remaining, contiguous IP addresses.

NOTE:

- If you manually configured a VLAN ID for the management network, you must remove it while completing the system expansion. When the expansion is complete, you can add the VLAN ID again, as described in **Configuring VLAN IDs after deployment**.

  You can also pre-configure the VLAN IDs, as described in **Configuring VLAN IDs before deployment**.
- IP addresses for the expansion system or expansion nodes must be on the same subnet as the existing system.
- The Subnet and Gateway fields are automatically populated by OneView InstantOn, using data from the initial system configuration.

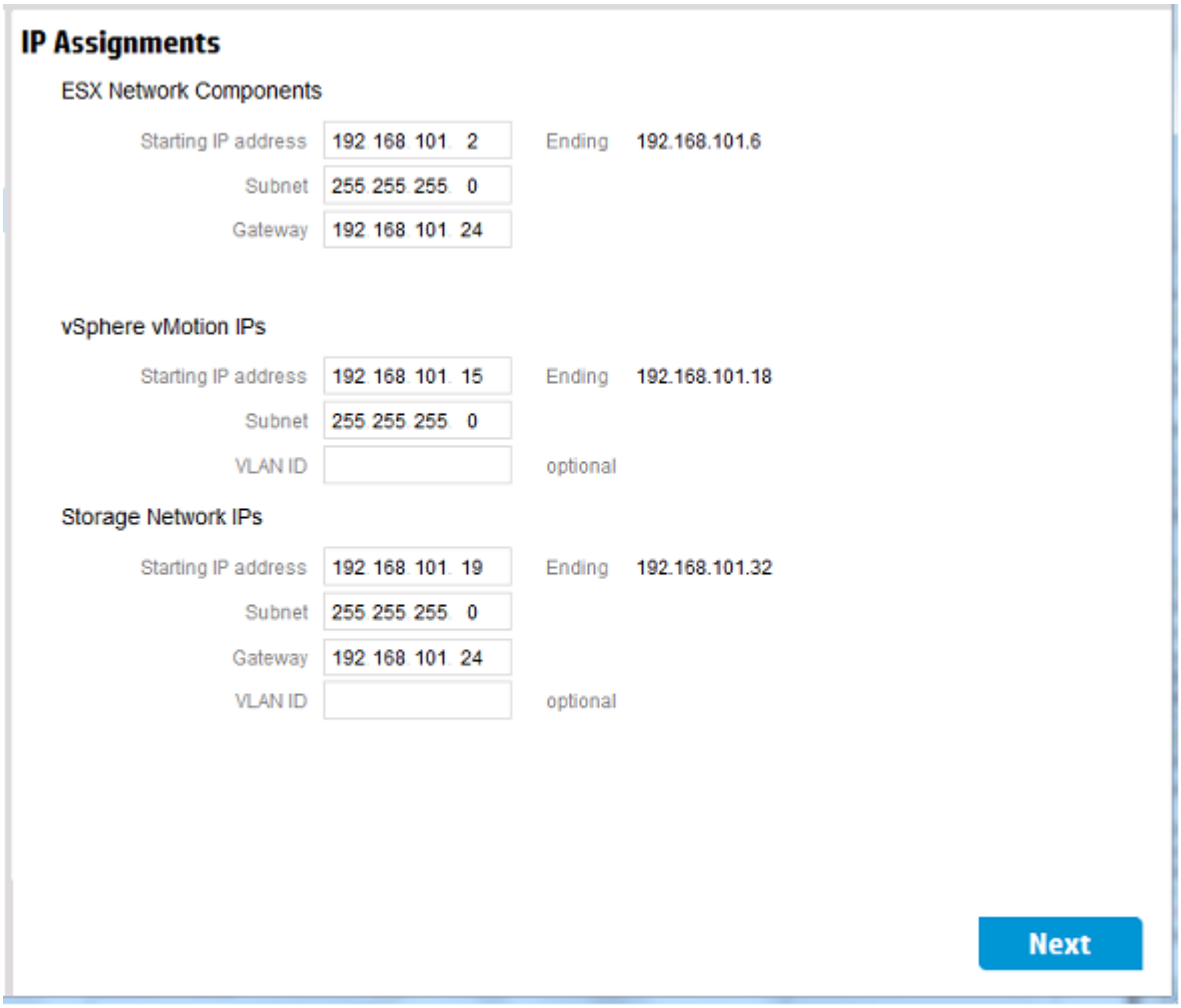


Figure 28: IP Assignments

6. On the **Credentials** screen, enter the StoreVirtual and vCenter credentials, and then click **Next**.
7. On the **Review Configuration** screen:
   a. Verify that the information you entered is correct.

      To make changes, select the applicable screen using the links in the left navigation pane.
   b. When you are ready to proceed, click **Deploy**.

IMPORTANT:

Do not close OneView InstantOn during the deployment process. If the deployment does not complete or hangs, see **Troubleshooting** .

If you are deploying multiple systems, the time to complete deployment increases.

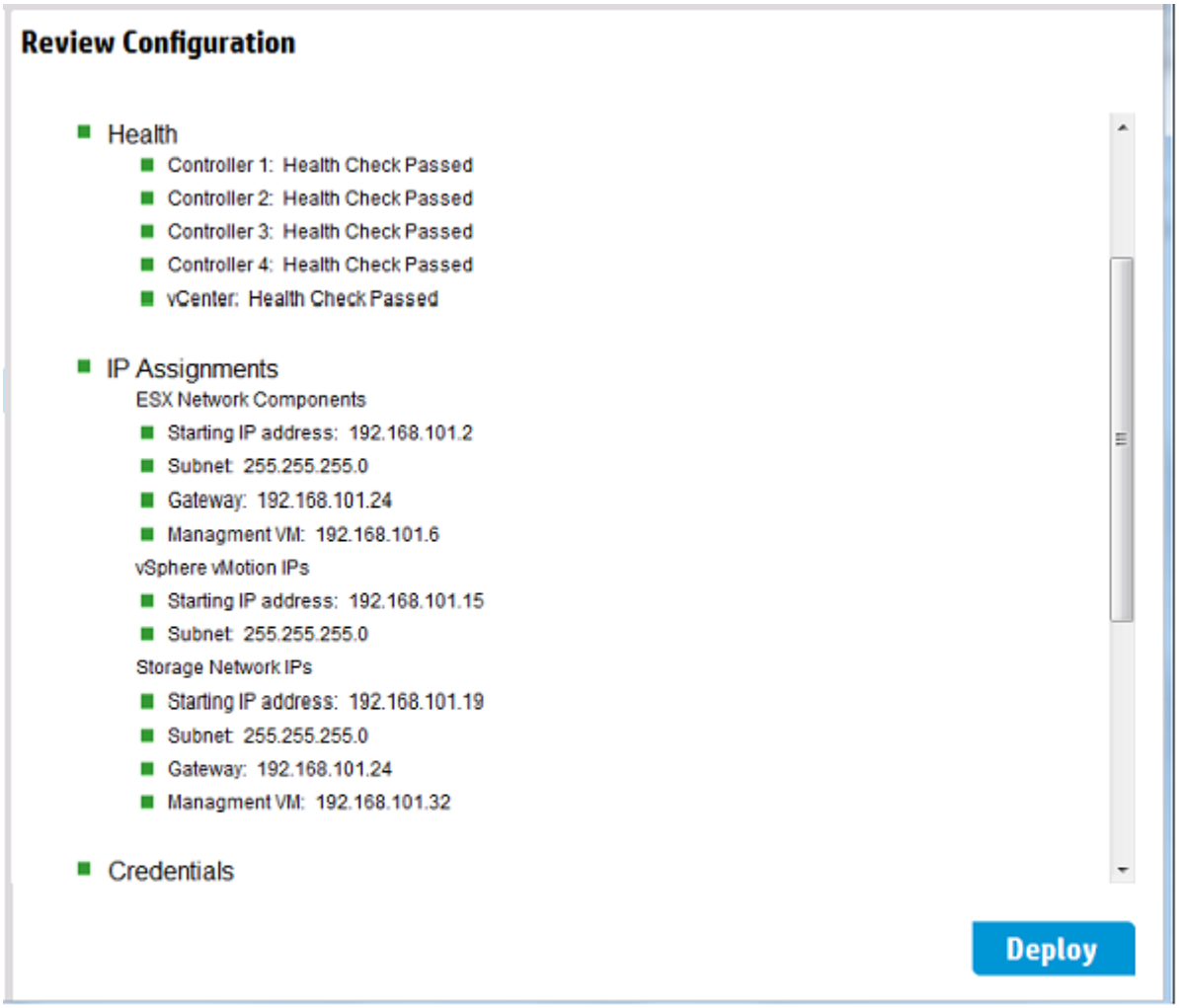


Figure 29: Review Configuration

8. After the deployment is complete, the **Next Steps** screen is displayed.

IMPORTANT:

If deployment fails, you can perform a quick reset if your configuration meets the requirements. For more information, see **Quick reset**.

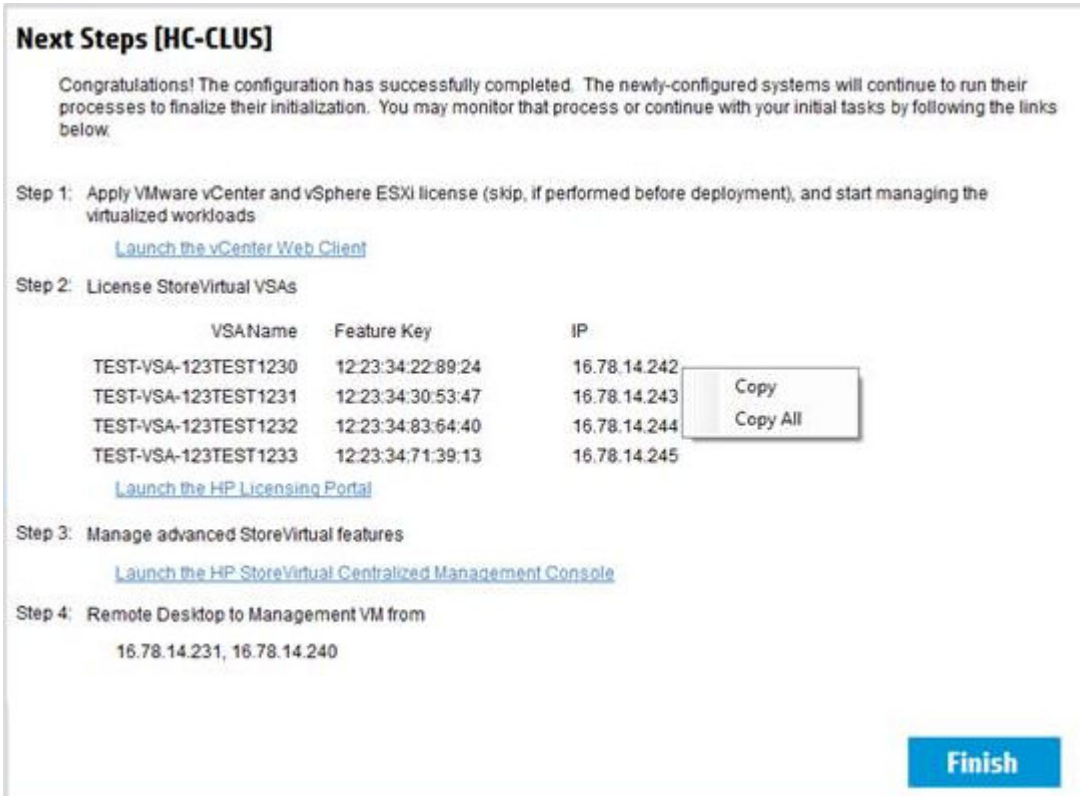


Figure 30: Next Steps

9. On the **Next Steps** screen, start the process of installing licenses (see **Installing licenses** on page 63). When finished, click **Finish** to close OneView InstantOn.

   NOTE:

   - To access help documentation and complete the installation with fully licensed StoreVirtual VSAs, access to the Internet is required.
   - To access the licensing links after deployment, restart OneView InstantOn. The **Next Steps** screen automatically opens.

10. Even if the deployment is successful, there may still be some items that require attention. If that occurs, a "Warning" section appears on the **Next Steps** screen with information. For example, if there is an issue with Quorum Witness, the following message appears:

    ```
    Warning:
    Manual setting of Quorum file share is required.
    ```

11. Before you use the storage of the expansion node or system, refresh the **HP Storage data** cache. The refresh ensures that OneView for VMware vCenter has information about the storage before you use it.
    a. Open the vSphere Web Client.
    b. Select the cluster that you created during system deployment.
    c. Select **Manage** > **HP Management**.
    d. Next to the **Actions** menu, double-click the **Refresh** icon. Click **Yes** when prompted to refresh data now.

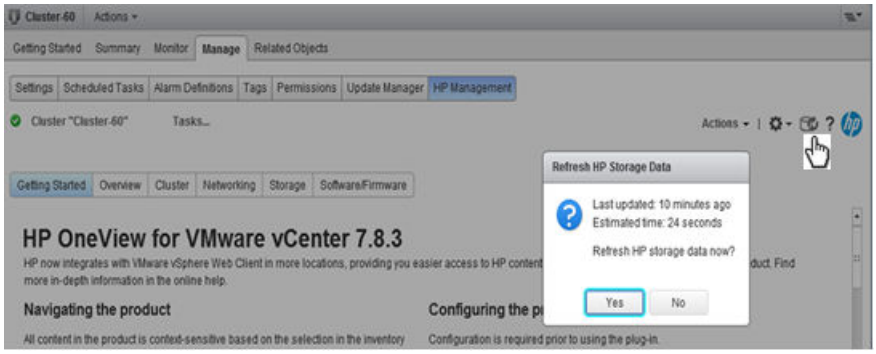


Figure 31: HP Storage Data refresh status

e. To verify the refresh, hover over the **Refresh** icon to display the last time the **HP Storage data** was updated. If prompted to refresh data, click **No**.

Installing licenses

Installing the VMware vSphere license

Procedure

1. From the Start menu on the Windows desktop, select **VMware vSphere Client**.
2. Log in using the default credentials: **`administrator@vsphere.local`** is the user name and **`hpcs200HC!`** is the password.
3. In the **Administrator** section, select **Home** > **Licensing**.
4. Select the **Management** tab, and then select the **Manage vSphere Licenses** tab.
5. In the **New License** box, enter the vSphere license key, and then select **Add License Keys**.
6. Click **Next**.
7. Select the **ESX** tab. On this tab, select each vSphere host in the **Assets** column. Then, in the **Product** column, select the vSphere license key entered in step 5.
8. After you apply the license to a vSphere host, the **Action** field for the host changes to a green check box. Apply the license for each vSphere host until all vSphere hosts show a green check box.
9. Once all hosts are assigned the license, click **Next**.

Installing StoreVirtual VSA licenses

Procedure

1. Under **Step 2** on the OneView InstantOn **Next Steps** screen, note the StoreVirtual VSA feature keys.
2. Click **Launch the HP Licensing Portal** (**https://myenterpriselicense.hpe.com**).
3. Log in to the licensing portal using your HP Passport credentials.
4. To obtain license keys, either:
   a. Manually enter the feature keys listed on the **Next Steps** screen.
   b. Copy the feature keys from the **Next Steps** screen:
      - Right-click between **Step 2** and **Step 3** and select a copy option.
      - Paste the information into a text editor.
      - Copy and paste from the text editor into the licensing portal.

NOTE:

The StoreVirtual VSA includes a temporary license for 60 days. If you do not obtain and install permanent license keys before the 60-day period expires, you will lose access to the iSCSI volumes.

5. Under Step 3 on the **Next Steps** screen, click the link to open the StoreVirtual Centralized Management Console.
6. Enter the license keys you obtained from the licensing portal in step 4.

For more information about StoreVirtual licensing, see "Registering advanced features" in the StoreVirtual Storage user guide.

Completing post-deployment tasks

Changing default passwords

Hewlett Packard Enterprise recommends that you change the default passwords for Microsoft Windows, VMware vCenter, VMware vSphere, ESXi, and iLO.

To change the Microsoft Windows password, access Windows on the Management VM. To change the VMware vCenter password for the **`administrator@vsphere.local`** user, access the SSO vdcadmintool from the Management VM. To change the vSphere ESXi passwords, access the ESXi shell with the default root password (**`hpcs200HC!`**).

Managing storage

Storage management for the system differs from traditional VSA storage management because the recommended management interface for creating VMs, volumes, and datastores is OneView for VMware vCenter. Log in to the Management VM through the configured IP address and, using vSphere Web Client, access the OneView for VMware vCenter plug-in to provision and manage storage. For more information, see the OneView for VMware vCenter user guide at: **http://www.hpe.com/info/ovvcenter/docs**

Configuring EVC settings

Before expanding your environment with a HC 250 system, you must configure the VMware EVC setting if your environment contains either 240–HC or 242–HC systems that were initially deployed using OneView InstantOn v1.0.

NOTE:

- The VMware EVC setting for the HC 250 system is set to Disabled mode during configuration using OneView InstantOn v1.1.0. You may configure the EVC setting to one of the Intel® processors after all HC 250 systems have been added to the environment. The VMware EVC setting is not recommended or required for configurations that contain only HC 250 systems.
- Configuring the EVC setting to Intel® **“Ivy Bridge” Generation** allows both the HC 250 and 240–HC/242–HC systems to be used in the same cluster. Additionally, VMware vCenter v5.5 only supports up to Intel® “Ivy Bridge” Generation (EVC level 5). VMware vCenter v6.0 adds support for Intel® “Haswell” Generation (EVC level 6).

Complete the following steps:

Procedure

1. Log in to the CMC (there is a link to the CMC on the Next Steps window of the OneView InstantOn) and wait for the status of the **VSAManagementVM1** volume to display **Normal**.
2. Using the CMC, start the Quorum Manager on three of the VSAs (system nodes) on the 240–HC/242–HC system. Ensure that you keep track of nodes running the Quorum Managers so you can reconfigure the managers to the same nodes after enabling EVC.
3. Log in to the vSphere client and power down the VSAs (system nodes) on each HC 250 system that you plan to add to the cluster. Do not power down the VSAs on the 240–HC/242–HC systems.
4. In the vSphere client, select Intel® **"Ivy Bridge" Generation** as the EVC baseline and enable it. For more information about this setting, see the VMware Knowledge Base article, "Enhanced vMotion Compatibility (EVC) processor support", which is available at: **http://kb.vmware.com/selfservice/microsites/search.do?language=en_US&cmd=displayKC&externalId=1003212**
5. In the vSphere client, power on the VSAs that were powered down in step 6.
6. In the CMC, restart the Quorum Manager on the VSAs that were started in step 5.

Configuring VLAN IDs after deployment

Prerequisites

The following prerequisites assume that the system was successfully deployed and configured without VLAN tagging. Ensure that the system is running, accessible, and in a healthy state before completing the following steps.

If you did not configure VLAN tags through OneView InstantOn, you can manually configure VLAN tagging using this procedure.

VLAN tagging is optional. If you decide to apply VLAN tagging, at a minimum, you must tag the `HostStorage2`, `HostStorage3`, `VSAeth0 vmkernel`, and the `vMotion` port groups and leave the `ESXmgmt` and `mgmtVMNetwork` port groups untagged. Alternatively, you can tag all port groups as described in the following procedure.

NOTE:

If you are using VLAN tagging, you must apply it to every node in the system.

Procedure

1. Access the Management VM using the 1 GbE connection on Node 1. See **Configuring a laptop/workstation to access the system**.
2. Using the vSphere Web Client or VI Client, log in to the vCenter server running on the Management VM.
3. Validate that the Management VM is running on Node 1. If it is running on Node 2, perform a vMotion from Node 2 to Node 1.
4. Perform a Storage vMotion (Migrate) of the Management VM from its SAN datastore to the internal (local) datastore on Node 1.

NOTE:

Do not continue to the next section until the Management VM migration is completed. Applying VLAN changes while the Management VM is migrating will cause the migration to fail, and cause the system to be inaccessible.

VLAN IDs and network type

When using VLAN IDs in a flat network:

- The VLAN IDs for vMotion and iSCSI must be the same.
- The IP address and subnet used for each VLAN ID (vMotion, iSCSI, Management) can overlap; meaning, there is not a distinct path that the request must follow.

  Example:

  Host 1 IP configuration:

  vMotion: IP address 10.0.0.1, subnet 255.255.255.0, VLAN 66
  iSCSI: IP address 10.0.0.11, subnet 255.255.255.0, VLAN 66

  Host 2 IP configuration:

  vMotion: IP address 10.0.0.2, subnet 255.255.255.0, VLAN 66
  iSCSI: IP address 10.0.0.12, subnet 255.255.255.0, VLAN 66

  In this scenario, when Host 1 communicates with Host 2, it can use either the vMotion network or the iSCSI network.

When using VLAN IDs in a split network:

- The VLAN IDs for vMotion and iSCSI must be different.
- The IP address and subnet used for each VLAN ID (vMotion, iSCSI, Management) cannot overlap.

  Example:

  Host 1 IP configuration:

  vMotion: IP address 192.168.0.1, subnet 255.255.0.0, VLAN 58
  iSCSI: IP address 10.100.9.1, subnet 255.255.192.0, VLAN 51

  Host 2 IP configuration:

  vMotion: IP address 192.168.0.2, subnet 255.255.0.0, VLAN 58
  iSCSI: IP address 10.100.9.2, subnet 255.255.192.0, VLAN 51

  In this scenario, when Host 1 communicates with Host 2, it can use only the vMotion network or the iSCSI network, but not both.

Setting VLAN IDs

You must complete the prerequisites before continuing.

- From the laptop/workstation, launch the VMware vSphere Client from the Start menu.

  NOTE:

  Do not use the vSphere Web Client.

- Log in to Node 4 (for a four-node system), Node 3 (for a three-node system), or Node 2 (for a two-node system) by entering the IP address and credentials:
  - User name: `root`
  - Password: `hpcs200HC!`
- Access the **Configuration** tab and select **Networking**.
- Locate **vSwitch1** and click **Properties**.

  IMPORTANT:

  You must configure the VLAN ID on each port group following the exact sequence detailed in step 5. Review the step before proceeding.

  The VLANs that are configured in step 5 must match the VLAN IDs that will be enabled on the physical network switches.

- In the **vSwitch1 Properties** window, configure the VLAN ID for each port group.

- You must set the port group VLAN IDs in the following order:
  - vMotion
  - HostStorage2 and HostStorage3
  - VSAeth0
  - mgmtVMNetwork vmkernel (optional)
  - ESXmgmt (optional)

    NOTE: When setting the VLAN IDs for Node 1, skip the step (5d) of assigning a VLAN ID to the mgmtVMNetwork. The mgmtVMNetwork VLAN ID is set in step 9.
- Configuration rules:
  - Port groups mgmtVMNetwork and ESXmgmt must use the same VLAN ID.
  - Port groups VSAeth0, HostStorage2, and HostStorage3 must use the same VLAN ID.
  - Port group vMotion must use its own VLAN ID.

    NOTE: When the VLAN ID on the ESXmgmt port group is configured, you will lose access to the node. This is normal. You can safely continue to the next step.
- Repeat steps 2 through 5 for the remaining nodes. For a four-node system, complete the steps on Node 3, Node 2, and Node 1 (in that order). For a three-node system, complete the steps on Node 2 and Node 1 (in that order). For a two-node system, complete the steps on Node 1.
- Ask your network administrator to apply/enable the VLAN tags at the physical switch ports. After you complete this step, continue to step 8.
- Using the laptop/workstation, connect to the Management VM through Node 1, launch the vSphere Web Client from the Start menu, and log in.
- Set the VLAN ID for mgmtVMNetwork on Node 1, otherwise you cannot access the Management VM.
- Complete the following verifications:
  - Validate that all components can be pinged through the expected IP addresses.
  - Verify that the following ESX components are healthy and that no datastores are disconnected:
    - ESXi Nodes
    - ESX cluster
    - Datastores
    - VMs
  - Clear any alarms that were triggered as a result of setting the VLAN IDs.
- Log out of the VMware vSphere Client. Disconnect the laptop/workstation.
- After enabling VLAN tags, perform a Storage vMotion (migrate) to move the Management VM back to its SAN datastore from the internal (local) datastore of Node 1.

Example configuration for a four-node system

The VLAN IDs are configured in the following order of port groups:

NOTE:

VLAN IDs for an expansion system typically match the VLAN IDs for the original system.

Start with Nodes 2, 3, and 4

- vMotion vmkernel PortGroup
- HostStorage3 vmkernel PortGroup
- HostStorage2 vmkernel PortGroup
- VSAeth0 Virtual Machine PortGroup
- mgmtVMNetwork Virtual Machine PortGroup (Optional)
- ESXmgmt vmkernel PortGroup (Optional)

Node 1

- vMotion vmkernel PortGroup
- HostStorage3 vmkernel PortGroup
- HostStorage2 vmkernel PortGroup
- VSAeth0 Virtual Machine PortGroup
- ESXmgmt vmkernel PortGroup (Optional)
- mgmtVMNetwork Virtual Machine PortGroup (Optional)

Troubleshooting

Certificate error displays during login to vCenter Web Client

Symptom

When launching the vCenter Web client on the **Next Steps** screen of the OneView InstantOn wizard, a certificate error is displayed when you attempt to log in.

Cause

A signed certificate is not installed.

Action

Procedure

1. After logging in, go to the **Home** tab of the vCenter Web client and select **HP Management Administration**.
2. On the **OneView for vCenter** window, select **Install a signed certificate**.
3. Follow the steps on the **Certificate Management** window that displays. You can choose to install a self-signed certificate or a certificate signed by a trusted authority.

Deployment process hangs during system configuration

Symptom

When configuring the system using OneView InstantOn, the deployment process hangs or does not complete.

Solution 1

Cause

A valid vCenter license has not been applied—this is indicated by the red status of the vCenter license on the **Health** screen.

Action

Procedure

1. Apply a valid vCenter and vSphere license in vCenter.
2. Close and restart vCenter.
3. OneView InstantOn detects the new license and allows deployment.

Solution 2

Action

Procedure

1. Verify that your firewall is configured correctly.
2. Ensure that the VLAN tags are configured correctly.

3. Ping the affected IPv4 addresses to investigate cause.
4. Ensure that the switches are configured correctly.
5. If the connection to a node does not open, troubleshoot that specific node.
6. If there are IP address conflicts, ensure that the IP addresses that are validated on the **IP Assignment** screen are not in use.
7. If you are unable to resolve the issue or you discover another issue, contact Hewlett Packard Enterprise Support.

Deployment process stalls with 57 seconds remaining and then times out after one hour

Symptom

When deploying a system with the remote vCenter setup, deployment stalls with 57 seconds remaining and with the repeated message, `Adding Host x.x.x.x to cluster`. When one hour passes, deployment fails with the message, `Deployment Failed`.

Cause

The VMware vCenter Server version running on the remote vCenter instance is incompatible with the VMware ESXi version running on the HC 250 nodes.

Action

Procedure

1. Contact Hewlett Packard Enterprise Support for assistance.

Network Connectivity Lost message displays on Host 1

Symptom

After completing the system setup process, VMware vCenter displays a `Network Connectivity Lost` message on Host 1.

Cause

The 1 GbE connection that was used for system setup has been removed.

Action

Procedure

1. This message can be safely ignored and cleared.

A Health Status warning displays for the ESX cluster

Symptom

After completing the system setup process, VMware vCenter displays a Health Status Warning for the ESX cluster.

Cause

The 1 GbE connection that was used for system setup has been removed.

Action

Procedure

1. This alert can be safely ignored and cleared.

Progress indicator for system configuration stops

Symptom

During system configuration, the progress indicator (countdown timer) in OneView InstantOn stops at various times.

Action

Procedure

1. Do not cancel or stop the deployment. System configuration is continuing and the countdown timer will resume shortly.

HPE service communication error message displays

Symptom

After completing an expansion, a Hewlett Packard Enterprise service communication error message displays in either OneView for VMware vCenter or the Storage Administrator Portal. To resolve this issue, you must restart several services. You can use either Windows Server Manager or a command line.

Solution 1

Action

Procedure

1. **From Windows service manager**
1. Go to the Services tab.
2. For each of the following services, right-click on the name and select **Restart** . The services must be restarted in the order listed.
   a. VMware VirtualCenter Server
   b. VMware VirtualCenter Management Web services
   c. HP OneView for vCenter Database
   d. Mosquitto Broker
   e. HP Common Services
   f. HP OneView for vCenter Host Configuration
   g. HP OneView for vCenter Server Module
   h. HP OneView for vCenter Storage Module
   i. HP OneView for vCenter UI Manager
   j. VMware vSphere Web Client

Solution 2

Action

Procedure

1. **From the command line**
1. Use the `sc stop` command to stop the services. Services can be stopped in any order.
   a. `sc stop vpxd`
   b. `sc stop vctomcat`
   c. `sc stop HPOV4VCDB`
   d. `sc stop mosquitto`
   e. `sc stop Hpcs`
   f. `sc stop HPOV4VCHC`
   g. `sc stop HPOV4VCSERVER`
   h. `sc stop HPOV4VCSTORAGE`
   i. `sc stop HPOV4VCUIM`
   j. `sc stop vspherewebc`
2. Use the `sc start` command to restart the services. The services must be restarted in the order listed.
   a. `sc start vpxd`
   b. `sc start vctomcat`
   c. `sc start HPOV4VCDB`
   d. `sc start mosquitto`
   e. `sc start Hpcs`
   f. `sc start HPOV4VCHC`
   g. `sc start HPOV4VCSERVER`
   h. `sc start HPOV4VCSTORAGE`
   i. `sc start HPOV4VCUIM`
   j. `sc start vspherewebc`

Refresh cache error message displays

Symptom

After completing an expansion, a refresh cache error message displays in either OneView for VMware vCenter or the Storage Administrator Portal. To resolve this issue, you must restart several services. You can use either Windows Server Manager or a command line.

Solution 1

Action

Procedure

1. **From Windows Server Manager**
1. Go to the Services tab.
2. For each of the following services, right-click on the name and select **Restart** . The services must be restarted in the order listed.
   a. VMware VirtualCenter Server
   b. VMware VirtualCenter Management Web services
   c. HP OneView for vCenter Database
   d. Mosquitto Broker
   e. HP Common Services
   f. HP OneView for vCenter Host Configuration
   g. HP OneView for vCenter Server Module
   h. HP OneView for vCenter Storage Module
   i. HP OneView for vCenter UI Manager
   j. VMware vSphere Web Client

Solution 2

Action

Procedure

1. **From the command line**
1. Use the `sc stop` command to stop the services. Services can be stopped in any order.
   a. `sc stop vpxd`
   b. `sc stop vctomcat`
   c. `sc stop HPOV4VCDB`
   d. `sc stop mosquitto`
   e. `sc stop Hpcs`
   f. `sc stop HPOV4VCHC`
   g. `sc stop HPOV4VCSERVER`
   h. `sc stop HPOV4VCSTORAGE`
   i. `sc stop HPOV4VCUIM`
   j. `sc stop vspherewebc`
2. Use the `sc start` command to restart the services. The services must be restarted in the order listed.
   a. `sc start vpxd`
   b. `sc start vctomcat`
   c. `sc start HPOV4VCDB`
   d. `sc start mosquitto`
   e. `sc start Hpcs`

f. `sc start HPOV4VCHC`

g. `sc start HPOV4VCSERVER`

h. `sc start HPOV4VCSTORAGE`

i. `sc start HPOV4VCUIM`

j. `sc start vspherewebc`

Invalid user name and password message displays in vCenter

Symptom

When you select **Local** on the vCenter window of OneView InstantOn, the default credentials for VMware vCenter are automatically populated in the **Username** and **Password** fields. The `Invalid Username and Password` error message appears.

Action

Procedure

1. Wait a few minutes and retry entering your user name and password.
2. Reboot the Management VM if the issue persists.

Manager is not running on all systems

Symptom

A manager is not running on all systems.

Cause

The system was expanded while a manager was offline.

Action

Procedure

1. In the StoreVirtual CMC, manually transfer a manager from system 1 to the newly added system.

Application performance on the Management VM decreases

Symptom

The application performance on the Management VM decreases.

Cause

OneView InstantOn is performing a system health check.

Action

Procedure

1. Wait for the OneView InstantOn health check to complete.

Online Help or Software Depot cannot be accessed

Symptom

When attempting to access Online Help or Software Depot (under Upgrades), the following error message appears: `The page cannot be displayed`.

Cause

The proxy server for Internet Explorer on the Management VM is not configured.

Action

Procedure

1. Configure the proxy server for Internet Explorer on the Management VM.

Updated Management VM IP address is not displayed

Symptom

A change to the Management VM IP address is not reflected on the **vCenter** screen for a remote vCenter configuration.

Cause

The Management VM IP address was changed in the **IP Assignments** screen after entering the IP address in the **vCenter** screen.

Action

Procedure

1. Go to the **Review Configuration** screen to verify the updated Management VM IP address. This issue does not affect deployment.

Node settings

Changing the settings associated with iLO4 configuration, power management, or boot mode may cause the product to behave unpredictably during deployment and runtime. Symptoms of incorrect node settings include degraded hardware alerts, a hung boot process, and issues with system management connectivity.

The following node settings are required.

Category	Setting	Value
iLO4 configuration	Network Interface Adapter	On
Power Management	Power Profile	Custom

Table Continued

Category	Setting	Value
Power Management	Power Regulator Mode	OS Control Mode
Boot Options	Boot Mode	Legacy BIOS Mode
10 GbE boot capability	FlexLom both Interface Adapter	Disabled
B140i and SATA Controller	Embedded SATA Controller	Enable SATA AHCI Support

Updating node boot options

Use the UEFI System utilities to verify and change the boot options on each node. For more information, see the UEFI System Utilities User Guide at this **Hewlett Packard Enterprise website**.

You must restart the node after every setting that you change, and for each node in your system.

Procedure

1. Connect to the node using a laptop/workstation or an iLO remote console session.

   For more information about connecting using a laptop/workstation, see "**Configuring a laptop/workstation to access the system**."
2. Power on, or restart the node.
3. During startup, press **F9** when prompted to enter the **System Utilities**.
4. Change the Boot Mode:
   a. From the **System Utilities** screen, select **System Configuration** > **BIOS/Platform Configuration (RBSU)** > **Boot Options** > **Boot Mode** and press **Enter**.
   b. Select **Legacy BIOS Mode** and press **Enter**.
   c. Press **F10**.
   d. Reboot the node.
5. During startup, press **F9** when prompted to enter the **System Utilities**.
6. Change the iLO4 Network Option:
   a. From the **System Utilities** screen, select **System Configuration** > **iLO 4 Configuration Utility** > **Network Options** and press **Enter**.
   b. Select **Network Interface Adapter** and press **Enter**.
   c. Select **ON** and press **Enter**.
   d. Press **F10**.
   e. Reboot the node.
7. During startup, press **F9** when prompted to enter the **System Utilities**.
8. Change the Power Profile and Power Regulator settings:
   a. From the **System Utilities** screen, select **System Configuration** > **BIOS/Platform Configuration (RBSU)** > **Power Management** > **Power Profile** and press **Enter**.
   b. Select **Custom** and press **Enter**.
   c. Press **F10**.
   d. Press **Esc** to return to the **Power Management** menu.
   e. Select **Power Regulator** and press **Enter**.
   f. Select **OS Control Mode** and press **Enter**
   g. Press **F10**.
   h. Reboot the node.
9. Disable 10GbE boot capability.

a. From the **System Utilities** screen, select**System Configuration** > **BIOS/Platform Configuration (RBSU)** > **Network Options** > **Network Options** > **Network boot options** and press **Enter**.
b. Select **FlexLom both Interface Adapter** and press **Enter**.
c. Select **Disabled** and press **Enter**.
d. Press **F10**.
e. Reboot the node.

10. Set B140i and SATA controller options.
    a. From the **System Utilities** screen, select **System Configuration** > **BIOS/Platform Configuration (RBSU)** > **PCI Device Enable/Disable** and press **Enter**.
    b. Select **Embedded SATA Controller** and press **Enter**
    c. Select **Disabled** and press **Enter**.
    d. Press **F10**.
    e. From the **System Utilities** screen, select **System Configuration** > **BIOS/Platform Configuration (RBSU)** > **System options** > **SATA Controller options** > **Embedded SATA Configuration** and press **Enter**.
    f. Select **Enable SATA AHCI Support** and press **Enter**.
    g. Press **F10**.
    h. Reboot the node.

Repeat these steps for each node in the system. For example, if you have a system with four nodes, complete these steps four times.

Quick-reset

Perform a quick-reset in the following circumstances:

- OneView InstantOn fails during initial system setup and no user-created virtual machines have been deployed.
- An existing system must be returned to the factory state for a specific reuse purpose (demo system).

IMPORTANT:

If your system includes user-created virtual machines (anything other than the StoreVirtual VSA VMs and the Management VM), shut down and remove the user-created virtual machines before starting a quick-reset. This includes the HPE-HC-mgmtui and HPE-HC-oneview VMs if they have been deployed. If you do not perform this step, the quick-reset might hang. The only way to resolve the issue is to repeat the quick-reset operation or complete the standard USB-based node recovery.

During a quick reset, a set of scripts is executed on all nodes of a Hyper Converged 250 system to return each node to the factory state. On each ESXi host, all virtual machines are removed and any existing datastores are unmounted and removed.

After executing a quick reset, run OneView InstantOn again to return your system to a functional state.

Quick reset guidelines

- The quick reset is compatible with ESXi version 5.5 and 6.0.
- If you perform a quick reset on a single node that is already part of a Hyper Converged system cluster, that node cannot be re-added to the cluster until you perform a complete unexpand routine.
- The quick reset deletes all user-created datastores and virtual machines. Hewlett Packard Enterprise recommends that you back up user-created virtual machines by moving them to another storage device or hypervisor.

- The quick reset does not upgrade your Hyper Converged system to a newer version, nor will it upgrade (or downgrade) the ESXi version.
- All logs are stored in `/scratch/log/quick_recovery/`.

Performing a quick reset

Procedure

1. From any node, issue the following python script: `python /vmfs/volumes/datastore1/recovery/quickreset/quickreset.py`

   NOTE:

   Be sure to use the actual datastore name in the script.

   The script identifies and displays the IP addresses of the nodes:

   ```
   Quick Reset recovery tool

   Review node IP Addresses:
   Node 01: 15.250.107.197  (this node)
   Node 02: 15.250.107.198
   Node 03: 15.250.107.199
   Node 04: 15.250.107.200
   Is this correct? (yes/no default=yes)
   ```

   Figure 32: Review node IP addresses

   Successfully identifying the IP addresses is based on the last octet incrementing by one for each node. See the figure in step 3 for an example.

   NOTE:

   `This node` indicates the node from which you are executing the script.

2. If the IP information is correct, press **Enter** or type `yes` and proceed to step 6. If the information is incorrect, type `no` and continue with step 3.
3. For each IP address, you are prompted to select one of the following options:
   - `yes` to accept what is shown.
   - `no` to change the IP address for the node. You are prompted to enter a new IP address.
   - `skip` to remove the node from processing. When `skip` is entered, the specified node is not reset.

   ```
   Node 01: 15.250.107.197  Correct? (yes/no/skip  default=yes) no
   Please enter new IP Address for Node 01: (default: 15.250.107.197)
   ```

   Figure 33: Prompt to enter IP address
4. Repeat step 3 for each node that is displayed.
5. Once all nodes are reviewed, the IP addresses of all nodes are displayed again. Type `yes` or press **Enter**.
6. The recovery process begins.

   The default order of processing is Node 01, Node 02, Node 03, Node 04. However, the node from which you are executing the script is run last, so that remote operations start first. For example, if you are executing the script from Node 02, the order will be Node 01, Node 03, Node 04, Node 02.
7. If an authenticity message displays when connecting to the remote nodes, type `yes` to continue.

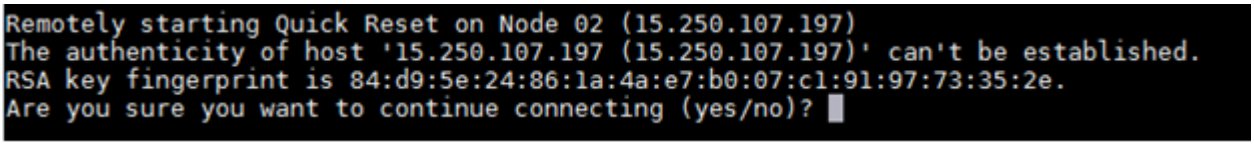


Figure 34: Authenticity message

8. When prompted, enter the password for each remote node. Depending on whether any nodes were skipped, you may enter up to three passwords.

   The remote quick reset starts.

   The quick reset process starts on the first remote node and progresses to each subsequent remote node.

   As the process continues, each subsequent node is reset.

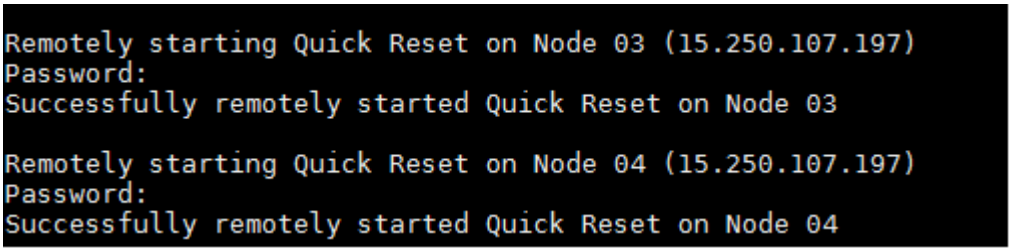


Figure 35: Progress of remote node reset

The local node is reset last.

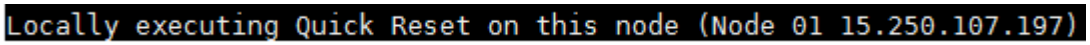


Figure 36: Progress of local node reset

When the quick reset has completed, the following message displays: `Quick Reset recovery tool complete`

The script ends and all nodes are returned to the factory state.

> **NOTE:**
>
> If you encounter an error during the quick reset, a message appears to explain how to continue manually. If the node cannot recover from the error, a USB reset of the node must be performed.

Error message about vSphere HA support displays after a quick reset

Symptom

You have completed a Quick Reset and redeployed the nodes using OneView InstantOn. Although deployment completes successfully and no issues are reported, the vSphere Web Client displays the following status for the **Relocate virtual machine** task:

```
The host is reporting errors in its attempts to provide vSphere HA support.
```

Figure 37: Status for the Relocate virtual machine task in the vSphere Web Client on page 80 shows how the status displays in the vSphere Web Client.

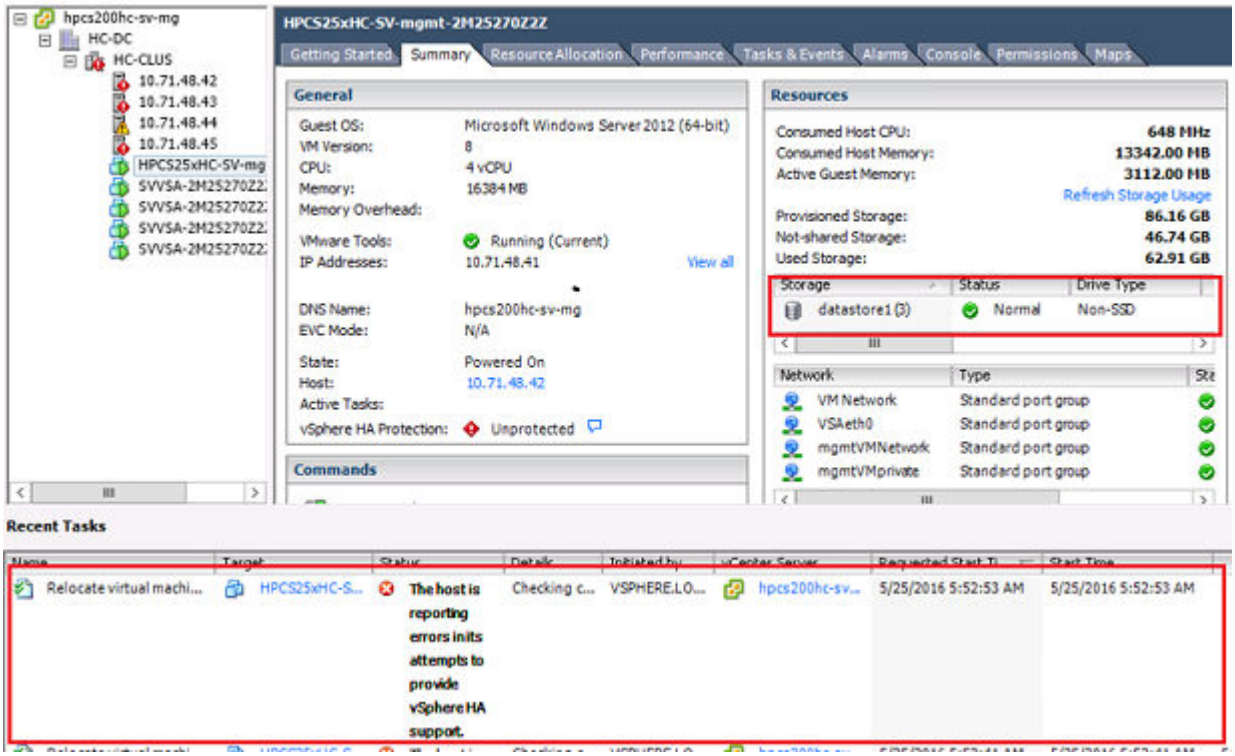


Figure 37: Status for the Relocate virtual machine task in the vSphere Web Client

Action

Procedure

1. Log in to the vSphere Web Client.
2. Select **Host and Clusters** on the Home page.
3. In the left Navigator pane, locate the applicable datacenter and cluster containing the nodes. Right-click the cluster and select **Settings**.
4. Navigate to vSphere HA under Services. vSphere HA is turned on by default.
5. Click **Edit** and clear the **Turn on vSphere HA** check box. Click **OK**.
6. Click **Edit** again and select the **Turn on vSphere HA** check box. Click **OK**.

Support and other resources

Accessing Hewlett Packard Enterprise Support

- For live assistance, go to the Contact Hewlett Packard Enterprise Worldwide website:

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

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

Information to collect

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

Requesting support for HPE ConvergedSystem and HPE Hyper Converged products

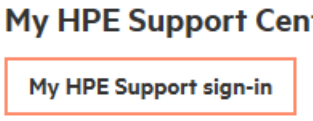
Prerequisites

- An active HPE Passport account.
- An active support contract and the contract Service Agreement ID (SAID).
- A Support Case Manager PIN is saved in **Edit SCM Settings**.

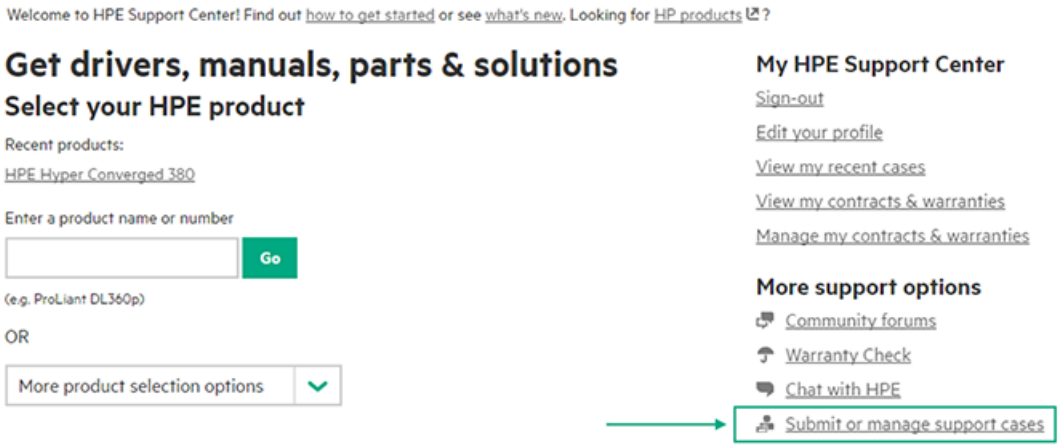
> **NOTE:**
>
> Customers in Germany, Austria, Switzerland, France, Japan, South Korea, and China should follow country-specific procedures for local language support.

Procedure

1. **On the HPESC website:**
1. Click **My HPE Support sign-in** and log in with your HPE Passport ID.



The Get drivers, manuals, parts & solutions screen is displayed.



2. Under **More support options**, click **Submit or manage support cases**.

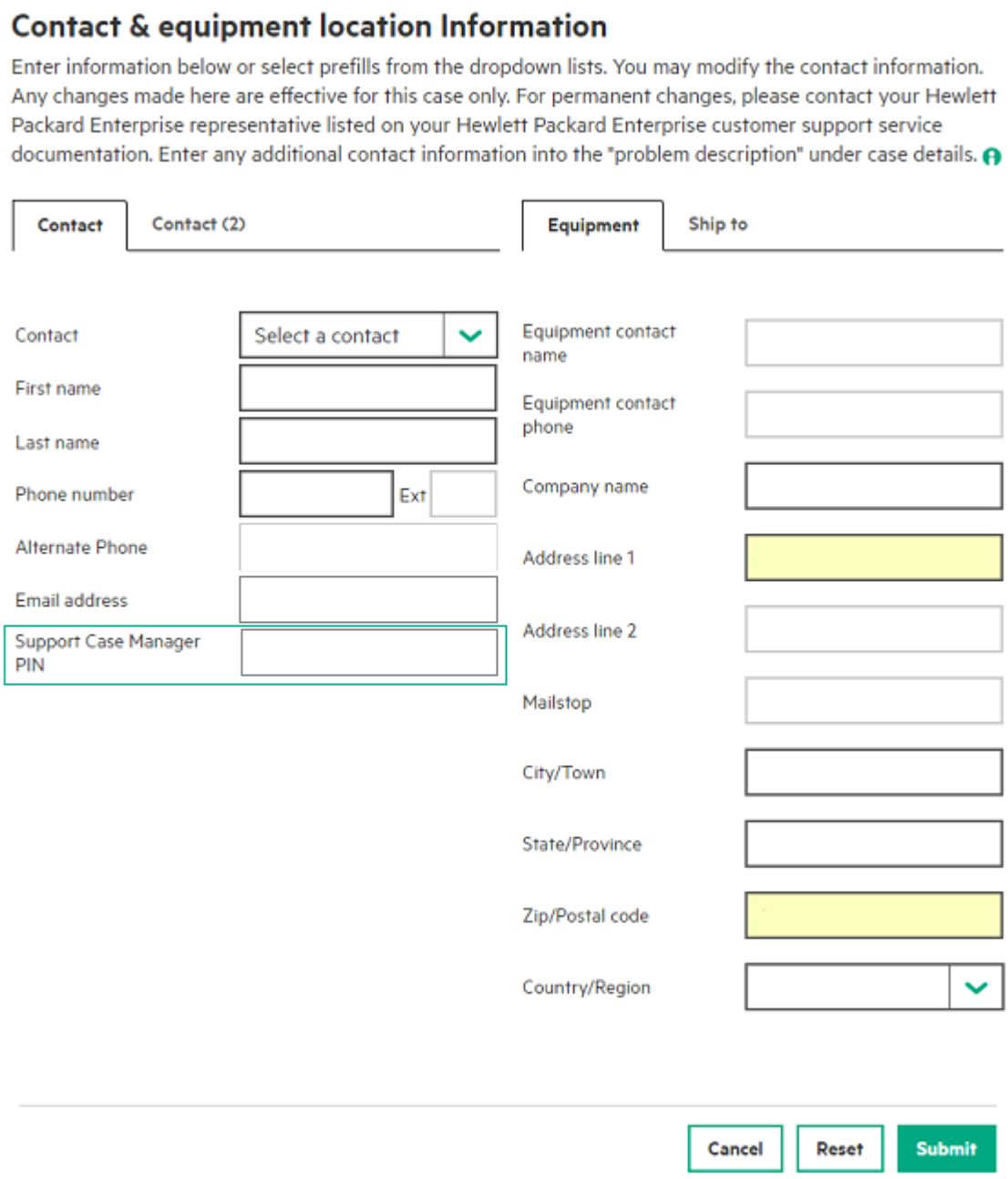
   The Support Case Manager screen is displayed.
3. Under **Submit a case**, enter your Service Agreement Identifier (SAID) then click **Submit case**.

   The Support Case Manager is displayed.
4. In the **Action** column, click the **Submit a case** button in the solution row.

   The Case details page is displayed.
5. Enter detailed information about your request then click **Submit**.

   The Contact & equipment location Information screen is displayed.
2.
6. Verify, change, or enter the information in the Contact & equipment location Information screen then click **Submit**.

> **NOTE:** The PIN, in the Support Case Manager PIN field, is the default PIN set in your SCM Settings. If necessary, edit the PIN field to contain the correct Support Case Manager PIN.
>
> For a list of PINs, see **Support Case Manager PINs**.



Your request is submitted. A member of the support team will contact you within two hours of receiving your case.

Support Case Manager PINs

Solution	PIN
ConvergedSystem product with SAP HANA	SAPHANA
All other ConvergedSystem and Hyper Converged products	HP_CLOUD_SOL

Customer self repair

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

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

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

Remote support

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

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

Remote support and Proactive Care information

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

Proactive Care customer information

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

Warranty information

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

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

Additional warranty information

HPE ProLiant and x86 Servers and Options	**www.hpe.com/support/ProLiantServers-Warranties**
HPE Enterprise Servers	**www.hpe.com/support/EnterpriseServers-Warranties**
HPE Storage Products	**www.hpe.com/support/Storage-Warranties**
HPE Networking Products	**www.hpe.com/support/Networking-Warranties**

Regulatory information

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

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

Additional regulatory information

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

www.hpe.com/info/reach

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

www.hpe.com/info/ecodata

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

www.hpe.com/info/environment

Belarus Kazakhstan Russia marking

EAC

Manufacturer and Local Representative Information

Manufacturer information:

- Hewlett Packard Enterprise Company, 3000 Hanover Street, Palo Alto, CA 94304 U.S.

Local representative information Russian:

- Russia:

  ООО «Хьюлетт Паккард Энтерпрайз», Российская Федерация, 125171, г. Москва, Ленинградское шоссе, 16А, стр.3, Телефон/факс: +7 495 797 35 00

- Belarus:

  ИООО «Хьюлетт-Паккард Бел», Республика Беларусь, 220030, г. Минск, ул. Интернациональная, 36-1, Телефон/факс: +375 17 392 28 20

- Kazakhstan:

  ТОО «Хьюлетт-Паккард (К)», Республика Казахстан, 050040, г. Алматы, Бостандыкский район, проспект Аль-Фараби, 77/7, Телефон/факс: + 7 727 355 35 52

Local representative information Kazakh:

- Russia:

ЖШС "Хьюлетт Паккард Энтерпрайз", Ресей Федерациясы, 125171,
Мәскеу, Ленинград тас жолы, 16А блок 3, Телефон/факс: +7 495 797 35 00

- Belarus:

  «HEWLETT-PACKARD Bel» ЖШС, Беларусь Республикасы, 220030, Минск қ.,
  Интернациональная көшесі, 36/1, Телефон/факс: +375 17 392 28 20

- Kazakhstan:

  ЖШС «Хьюлетт-Паккард (К)», Қазақстан Республикасы, 050040, Алматы қ.,
  Бостандық ауданы, Әл-Фараби даңғ ылы, 77/7, Телефон/факс: +7 727 355 35 52

Manufacturing date:

The manufacturing date is defined by the serial number.

CCSYWWZZZZ (serial number format for this product)

Valid date formats include:

- YWW, where Y indicates the year counting from within each new decade, with 2000 as the starting point; for example, 238: 2 for 2002 and 38 for the week of September 9. In addition, 2010 is indicated by 0, 2011 by 1, 2012 by 2, 2013 by 3, and so forth.
- YYWW, where YY indicates the year, using a base year of 2000; for example, 0238: 02 for 2002 and 38 for the week of September 9.

Turkey RoHS material content declaration

Türkiye Cumhuriyeti: EEE Yönetmeliğine Uygundur

Ukraine RoHS material content declaration

Обладнання відповідає вимогам Технічного регламенту щодо обмеження використання деяких небезпечних речовин в електричному та електронному обладнанні, затвердженого постановою Кабінету Міністрів України від 3 грудня 2008 № 1057

Websites

Website	Link
Hewlett Packard Enterprise Information Library	**www.hpe.com/info/enterprise/docs**
Hewlett Packard Enterprise Support Center	**www.hpe.com/support/hpesc**
Contact Hewlett Packard Enterprise Worldwide	**www.hpe.com/assistance**
Subscription Service/Support Alerts	**www.hpe.com/support/e-updates**
Software Depot	**www.hpe.com/support/softwaredepot**
Customer Self Repair	**www.hpe.com/support/selfrepair**

Table Continued

Website	Link
HPE Hyper Converged Systems software updates	**http://www.hpe.com/info/hcupdates**
Insight Remote Support documentation	**www.hpe.com/info/insightremotesupport/docs**
HPE StoreVirtual documentation	**www.hpe.com/support/StoreVirtualManuals**
HPE OneView for VMware vCenter documentation	**www.hpe.com/info/ovvcenter/docs**
HPE Converged System documentation	**www.hpe.com/info/convergedsystem/docs**
HPE Apollo 2000 System documentation	**http://www.hpe.com/support/Apollo2000_UG_en**
HPE ProLiant t2500 Chassis documentation	**http://www.hpe.com/support/t2500_Chassis_MSG**

Documentation feedback

Hewlett Packard Enterprise is committed to providing documentation that meets your needs. To help us improve the documentation, send any errors, suggestions, or comments to Documentation Feedback (**docsfeedback@hpe.com**). When submitting your feedback, include the document title, part number, edition, and publication date located on the front cover of the document. For online help content, include the product name, product version, help edition, and publication date located on the legal notices page.

System reference

All hardware and software components are pre-integrated and pre-installed for a simple installation. The HC 250 system is available in a two-node, three-node, or four-node configuration.

System hardware

- All systems include:
  - 2U chassis with two, three, or four nodes
  - 1 x iLO Management port per node
  - 2 power cables (1 for each power supply), 220V AC cables
  - Rail kit
  - 2U security bezel guard
- Hyper Converged 250 (and ConvergedSystem 250-HC StoreVirtual):
  - HPE Smart Array P440 Controller with 4 GB Flash-backed Write Cache per node
  - Network adapter with two 10 GbE ports per node or four 1 GbE ports per node
  - One or two CPUs, depending on the model purchased. See the QuickSpecs for details.
  - 128 GB, 256 GB, or 512 GB of memory per node (512 GB is only applicable in a dual CPU configuration).
  - System configurations vary depending on the system model purchased. There are options for all SSD storage, hybrid storage (HDD and SSD), and HDD only. See the QuickSpecs for details.
- ConvergedSystem 240–HC system:
  - HPE SmartArray P430 Controller with 2 GB Flash-backed Write Cache per node
  - Network adapter with two 10 GbE ports per node
  - Dual 2.0 GHz/8 core per node CPU
  - 128 GB of memory per node
  - 6 x 1.2 TB SFF 10K RPM HDDs per node
- ConvergedSystem 242–HC system:
  - HPE SmartArray P430 Controller with 2 GB Flash-backed Write Cache per node
  - Network adapter with two 10 GbE ports per node
  - Dual 2.8 GHz/10 core per node CPU
  - 256 GB of memory per node
  - 2 x 400 GB SFF SSDs per node
  - 4 x 1.2 TB SFF 10K RPM HDDs per node

240-HC/242-HC hardware

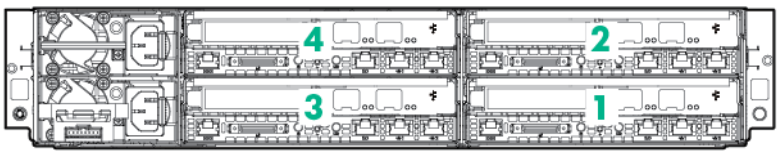


Figure 38: Node layout of the ConvergedSystem 240-HC/242-HC StoreVirtual system

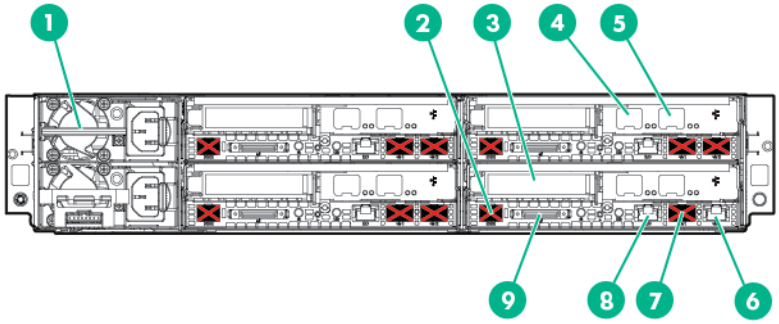


Figure 39: Rear view of the ConvergedSystem 240-HC/242-HC StoreVirtual system

NOTE:

- Unused ports are covered to ensure a simpler installation experience and are not intended for use. The exception is the Factory/USB port, which is used for reset/recovery procedures.
- Port identification is shown only on Node 1. However, port identification is the same on the other nodes.

1. Dual 1500W/220V power supplies
2. Serial connector (Do not use)
3. Smart Array RAID Controller
4. 10 GbE NIC Port 0
5. 10 GbE NIC Port 1
6. 1 GbE port (for connection to a laptop/ workstation for setup)
7. Factory/USB port (only used for reset/recovery)
8. Dedicated management port (iLO 4)
9. SUV Connector (Serial USB Video Connector)

HC 250 hardware

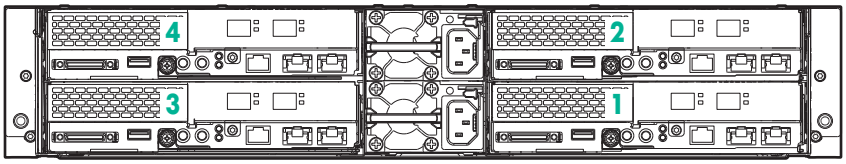


Figure 40: Layout of the four-node HC 250 system

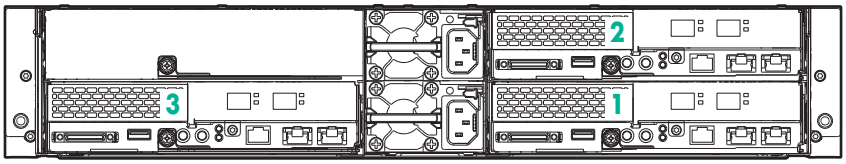


Figure 41: Layout of the three-node HC 250 system

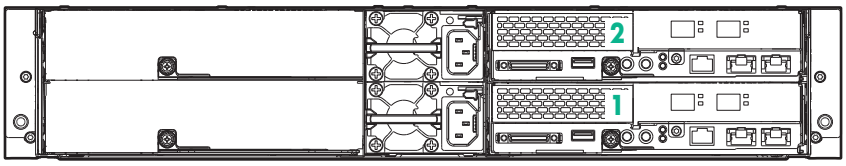


Figure 42: Layout of the two-node HC 250 system

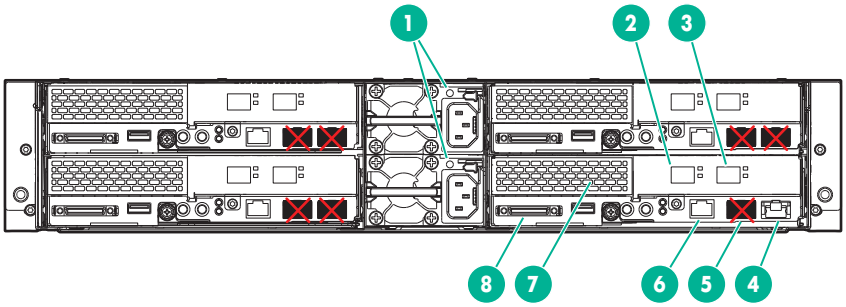


Figure 43: Rear view of the four-node HC 250 system (two 10 GbE ports per node)

NOTE:

- Unused ports are covered to ensure a simpler installation experience and are not intended for use. The exception is the Factory/USB port, which is used for reset/recovery procedures.
- Port identification is shown only on Node 1. However, port identification is the same on the other nodes.

1. Dual 1400W power supplies	2. 10 GbE NIC Port 0
3. 10 GbE NIC Port 1	4. 1 GbE port (for connection to a laptop/ workstation for setup)
5. Factory/USB port (only used for reset/recovery)	6. Dedicated management port (iLO 4)
7. Smart Array RAID Controller	8. SUV Connector (Serial USB Video Connector)

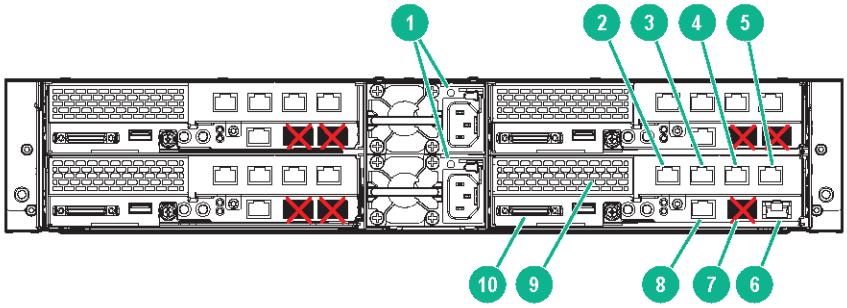


Figure 44: Rear view of the four-node HC 250 system (four 1 GbE ports per node)

1. Dual 1400W power supplies	2. 1 GbE NIC Port 0
3. 1 GbE NIC Port 1	4.1 GbE NIC Port 2
5. 1 GbE NIC Port 3	6. 1 GbE port (for connection to a laptop/ workstation for setup)
7. Factory/USB port (only used for reset/recovery)	8. Dedicated management port (iLO 4)
9. Smart Array RAID Controller	10. SUV Connector (Serial USB Video Connector)

NOTE:

- Four 1 GbE ports are available on the two-node and three-node systems, but only the four-node system is illustrated.
- Unused ports are covered to ensure a simpler installation experience and are not intended for use. The exception is the Factory/USB port, which is used for reset/recovery procedures.
- Port identification is shown only on Node 1. However, port identification is the same on the other nodes.

System software

- Management VM
  - HPE StoreVirtual Application Aware Snapshot Manager
  - HPE StoreVirtual Centralized Management Console (CMC)
  - HPE StoreVirtual SNMP MIBs
  - HPE StoreVirtual Command Line Interface for Windows
  - HPE OneView for VMware vCenter
  - HP Smart Update Manager (HP SUM)
  - Microsoft Windows Server 2012
  - VMware vCenter®

    5.5 U3 or vCenter 6.0 U2 is loaded on the Management VM depending on what version was ordered (a license is required to use this product and is not included with the system)
  - HPE OneView InstantOn
  - VMware vSphere® CLI
  - VMware vSphere PowerCLI
- System nodes

- VMware vSphere® 5.5 U3 or VMware vSphere® 6.0 U2
- HPE StoreVirtual VSA 2014 (LeftHand OS 12.6)
- HPE iSCSI Target Periodic Rescan for VMware vSphere® 5.5
- HPE Discovery Agent
- Service Pack for ProLiant 2015.06
- HPE iLO Advanced

System documentation (in box)

Documentation

- *HPE Hyper Converged 250 System for VMware* vSphere® *Read This First*
- Printed license information–Microsoft Windows and HPE StoreVirtual VSA
- Quick Deploy Rail System Installation Instructions
- Warranty document

IP address requirements for expansion nodes

The number of network addresses required for a system expansion depends on the number of nodes added in the expansion.

Table 5: IP address requirements for expansion nodes

Number of expansion nodes	Number of ESX network IP addresses	Number of vSphere vMotion network IP addresses	Number of Storage network IP addresses
1	1	1	3
2	2	2	6
3	3	3	9
4	4	4	12
5	5	5	15
6	6	6	18
7	7	7	21
8	8	8	24
9	9	9	27
10	10	10	30
11	11	11	33
12	12	12	36

Table Continued

Number of expansion nodes	Number of ESX network IP addresses	Number of vSphere vMotion network IP addresses	Number of Storage network IP addresses
13	13	13	39
14	14	14	42

Network reference

The default Hyper Converged network configuration is for 10 GbE network interfaces in a flat network where all network traffic types exist on one network. If your network configuration has 1 GbE network interfaces, or you require separate VLANs for each traffic type, review this appendix for details about the various traffic types and for an example of how to separate them.

VLAN configuration example

The vSwitch VMkernel ports and Virtual Machine port groups are on Virtual Switch **vSwitch1**, which has two teamed 10 GbE NICs. 1 GbE **vmk0/Virtual Switch 0** is mapped to the 1 GB NIC (Port 1).

In this example, the vSwitch VMkernel ports and Virtual Machine port groups are assigned the following VLAN IDs:

- VLAN ID 59 – vSwitch VMkernel port **ESXmgmt** and Virtual Machine port group **mgmtVMNetwork**
- VLAN ID 51 – vSwitch VMkernel ports **HostStorage2** and **HostStorage3** and Virtual Machine port group **VSAeth0**
- VLAN ID 58 – vSwitch VMkernel port **vMotion**

Figure 45: Ports and port groups before assigning VLAN IDs on page 94 The following images show the the vSwitch VMkernel ports and Virtual Machine port groups as they ship from the factory with all VLAN IDs set to zero (0) and then the same ports and port groups after VLAN IDs are assigned.

Name	Virtual Switch	Active Clients	VLAN ID
ESXmgmt	vSwitch1	1	0
HostStorage2	vSwitch1	1	0
HostStorage3	vSwitch1	1	0
Management Network	vSwitch0	1	0
VM Network	vSwitch0	1	0
VSAeth0	vSwitch1	1	0
mgmtVMNetwork	vSwitch1	1	0
mgmtVMprivate	vSwitch2	1	0
vMotion	vSwitch1	1	0

Figure 45: Ports and port groups before assigning VLAN IDs

```
~ # esxcli network vswitch standard portgroup set -p mgmtVMNetwork -v 59
~ # esxcli network vswitch standard portgroup set -p ESXmgmt -v 59
~ # esxcli network vswitch standard portgroup set -p HostStorage2 -v 51
~ # esxcli network vswitch standard portgroup set -p HostStorage3 -v 51
~ # esxcli network vswitch standard portgroup set -p VSAeth0 -v 51
~ # esxcli network vswitch standard portgroup set -p vMotion -v 58
~ # esxcli network vswitch standard portgroup list
Name                Virtual Switch  Active Clients  VLAN ID
------------------  --------------  --------------  -------
ESXmgmt             vSwitch1                     1       59
HostStorage2        vSwitch1                     1       51
HostStorage3        vSwitch1                     1       51
Management Network  vSwitch0                     1        0
VM Network          vSwitch0                     1        0
VSAeth0             vSwitch1                     1       51
mgmtVMNetwork       vSwitch1                     1       59
mgmtVMprivate       vSwitch2                     1        0
vMotion             vSwitch1                     1       58
```

Figure 46: Ports and port groups after assigning VLAN IDs

Network mapping

The following two images illustrate how the traffic types (vMotion, StoreVirtual, ESXi, Management, iSCSI) correspond to the physical network ports.

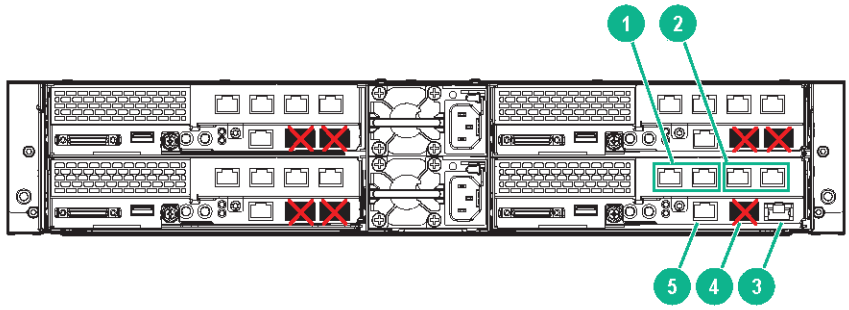


Figure 47: Network usage for 1 GbE ports

1. ESXi, Management, vMotion
2. StoreVirtual VSA, iSCSI
3. OneView InstantOn
4. Factory (also used for reset/recovery)
5. Dedicated management port (iLO)

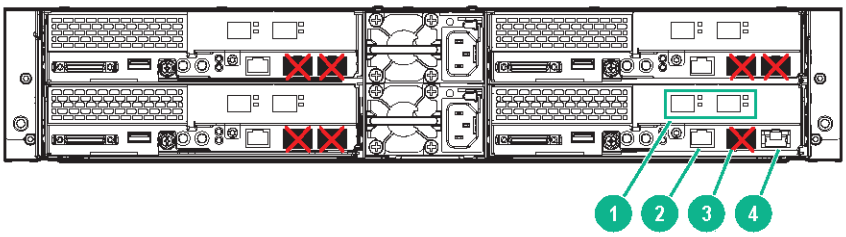


Figure 48: Network usage for 10 GbE ports

1. vMotion, StoreVirtual VSA, ESXi, Management, iSCSI	2. Dedicated management port (iLO)
3. Factory (also used for reset/recovery)	4. OneView InstantOn

The following two images show the vSwitch configuration from the vSphere management interface, which groups the physical adapters with the Virtual Machine port groups and VMkernels.

These figures give the impression that all virtual resources share the physical adapters equally. However, the reality is more complicated due to factors such as failover policies and other VMware restrictions.

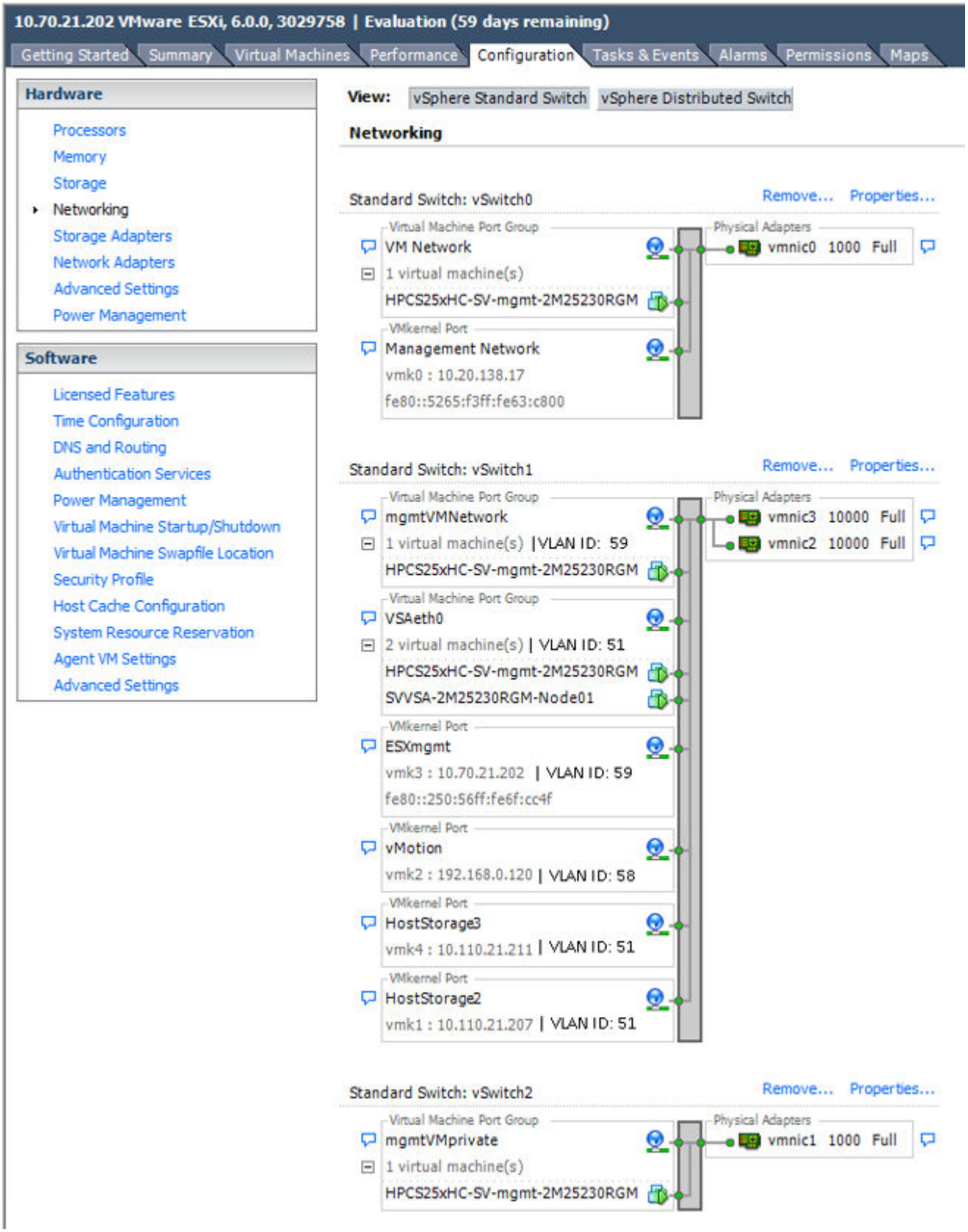


Figure 49: 10 GbE HC 250 vSphere network configuration

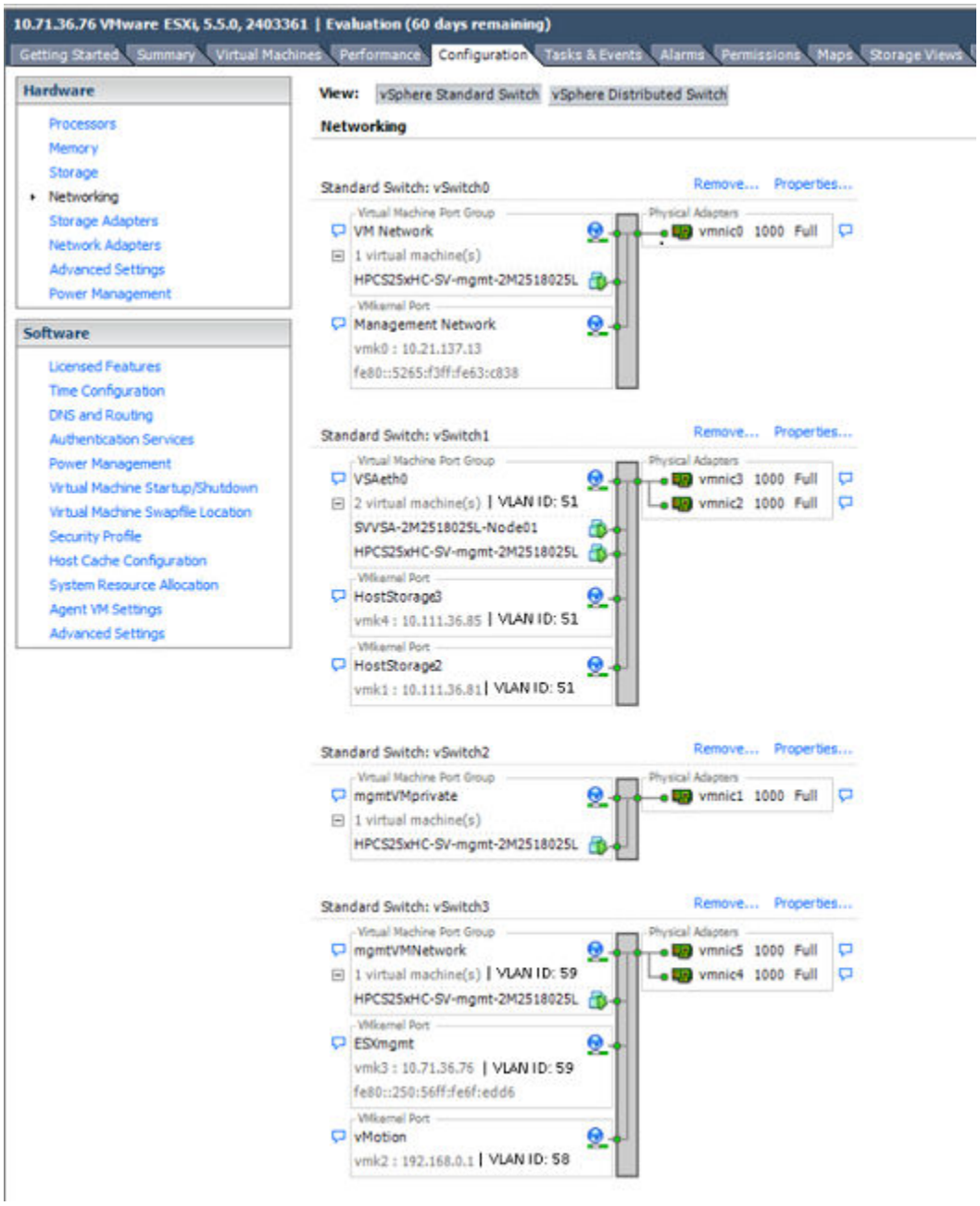


Figure 50: 1 GbE HC 250 vSphere network configuration

The following two tables identify each virtual component and show the relationship between all virtual devices and how the physical adapters are used with them (NIC teaming, active adapter). The first table shows the information for a 10 GbE system. The second table shows the same information for a 1 GbE system.

Table 6: 10 GbE HC 250 network and switch reference

vSwitch Portgroup Name	VMKernel Port #	Portgroup Name	NIC Teaming	VLAN Configured in OneView InstantOn	Active Adapter
vSwitch0	vmk0	Management Network	vmnic0/Active	No [1]	vmnic0
vSwitch0	vmk0	VM Network	vmnic0/Active	No [2]	vmnic0
vSwitch2	NA	mgmtVMPrivate	vmnic1/Active	No	vmnic1 [3]
vSwitch1	vmk3	ESXmgmt	vmnic2/Active vmnic3/Standby	No [4]	vmnic2 & vmnic3
vSwitch1	vmk3	mgmtVMNetwork	vmnic2/Active vmnic3/Standby	No	vmnic2 & vmnic3
vSwitch1	vmk2	vMotion	vmnic2/Active vmnic3/Standby	Yes	vmnic2 & vmnic3
vSwitch1	vmk1	HostStorage2	vmnic2/Active vmnic3/Unused	Yes	vmnic2 & vmnic3
vSwitch1	vmk4	HostStorage3	vmnic3/Active vmnic2/Unused	Yes	vmnic2 & vmnic3
vSwitch1	NA	VSAeth0	vmnic2/Active vmnic3/Active	Yes	vmnic2 & vmnic3

[1] The 1 GbE port 1 adapter is not used during deployment of the HC 250. Do not connect the adapter to the network during deployment.

[2] The 1 GbE port 2 network is used for initial deployment. A VLAN is not required for direct cable connection between the HC 250 and the workstation/laptop.

[3] The 1 GbE port 2 adapter is used for initial deployment of the HC 250

[4] You can configure the ESX host VLAN tags before or after deployment. If configured before deployment, create VLAN tags on the **ESXmgmt** and **mgmtVMNetwork** portgroups.

Table 7: 1 GbE HC 250 network and switch reference

vSwitch Portgroup Name	VMKernel Port #	Portgroup Name	NIC Teaming	VLAN Configured in OneView InstantOn	Active Adapter
vSwitch0	vmk0	Management Network	vmnic0/Active	No [1]	vmnic0
vSwitch0	vmk0	VM Network	vmnic0/Active	No [2]	vmnic0
vSwitch2	NA	mgmtVMPrivate	vmnic1/Active	No	vmnic1 [3]
vSwitch3	vmk3	ESXmgmt	vmnic4/Active vmnic5/Active	No [4]	vmnic4 & vmnic5
vSwitch3	NA	mgmtVMNetwork	vmnic4/Active vmnic5/Active	No	vmnic4 & vmnic5
vSwitch3	vmk2	vMotion	vmnic4/Active vmnic5/Active	Yes	vmnic4 & vmnic5
vSwitch1	vmk1	HostStorage2	vmnic2/Active vmnic3/Unused	Yes	vmnic2
vSwitch1	vmk4	HostStorage3	vmnic3/Active vmnic2/Unused	Yes	vmnic3
vSwitch1	NA	VSAeth0	vmnic2/Active vmnic3/Active	Yes	vmnic2 & vmnic3

[1] The 1 GbE port 1 adapter is not used during deployment of the HC 250. Do not connect the adapter to the network during deployment.

[2] The 1 GbE port 2 network is used for initial deployment. A VLAN is not required for direct cable connection between the HC 250 and the workstation/laptop.

[3] The 1 GbE port 2 adapter is used for initial deployment of the HC 250

[4] You can configure the ESX host VLAN tags before or after deployment. If configured before deployment, create VLAN tags on the **ESXmgmt** and **mgmtVMNetwork** portgroups.

CS 240-HC/242-HC hardware installation

The CS 240-HC/242-HC hardware is the predecessor to the HC 250 hardware. The documentation about the installation of the CS 240-HC/242-HC hardware is provided in this appendix for reference.

Server warnings and cautions

WARNING:
This server is very heavy. To reduce the risk of personal injury or damage to the equipment:

- Observe local occupational health and safety requirements and guidelines for manual material handling.
- Get help to lift and stabilize the product during installation or removal, especially when the product is not fastened to the rails. Hewlett Packard Enterprise recommends that a minimum of two people are required for all rack server installations. A third person may be required to help align the server if the server is installed higher than chest level.
- Use caution when installing the server or removing the server from the rack; it is unstable when not fastened to the rails.

WARNING:
To reduce the risk of personal injury from hot surfaces, allow the drives and the internal system components to cool before touching them.

WARNING:
To reduce the risk of personal injury, electric shock, or damage to the equipment, remove the power cord to remove power from the server. The front panel Power On/Standby button does not completely shut off system power. Portions of the power supply and some internal circuitry remain active until AC power is removed.

CAUTION:
Protect the server from power fluctuations and temporary interruptions with a regulating uninterruptible power supply. This device protects the hardware from damage caused by power surges and voltage spikes and keeps the system in operation during a power failure.

CAUTION:
Do not operate the server for long periods with the access panel open or removed. Operating the server in this manner results in improper airflow and improper cooling that can lead to thermal damage.

Space and airflow requirements

To allow for servicing and adequate airflow, observe the following space and airflow requirements when deciding where to install a rack:

- Leave a minimum clearance of 85.09 cm (33.5 in) in front of the rack.
- Leave a minimum clearance of 76.2 cm (30 in) behind the rack.
- Leave a minimum clearance of 121.9 cm (48 in) from the back of the rack to the back of another rack or row of racks.

Hewlett Packard Enterprise nodes draw in cool air through the front door and expel warm air through the rear door. Therefore, the front and rear rack doors must be adequately ventilated to allow ambient room

air to enter the cabinet, and the rear door must be adequately ventilated to allow the warm air to escape from the cabinet.

CAUTION:

To prevent improper cooling and damage to the equipment, do not block the ventilation openings.

When vertical space in the rack is not filled by a server or rack component, the gaps between the components cause changes in airflow through the rack and across the servers. Cover all gaps with blanking panels to maintain proper airflow.

CAUTION:

Always use blanking panels to fill empty vertical spaces in the rack. This arrangement ensures proper airflow. Using a rack without blanking panels results in improper cooling that can lead to thermal damage.

The 9000 and 10000 Series Racks provide proper server cooling from flow-through perforations in the front and rear doors that provide 64 percent open area for ventilation.

CAUTION:

When using a Compaq branded 7000 series rack, install the high airflow rack door insert (PN 327281-B21 for 42U rack, PN 157847-B21 for 22U rack) to provide proper front-to-back airflow and cooling.

CAUTION:

If a third-party rack is used, observe the following additional requirements to ensure adequate airflow and to prevent damage to the equipment:

- Front and rear doors—If the 42U rack includes closing front and rear doors, you must allow 5,350 sq cm (830 sq in) of holes evenly distributed from top to bottom to permit adequate airflow (equivalent to the required 64 percent open area for ventilation).
- Side—The clearance between the installed rack component and the side panels of the rack must be a minimum of 7 cm (2.75 in).

Temperature requirements

To ensure continued safe and reliable equipment operation, install or position the system in a well-ventilated, climate-controlled environment.

The maximum recommended ambient operating temperature (TMRA) for most server products is 35°C (95°F). The temperature in the room where the rack is located must not exceed 35°C (95°F).

CAUTION:
To reduce the risk of damage to the equipment when installing third-party options:

- Do not permit optional equipment to impede airflow around the server or to increase the internal rack temperature beyond the maximum allowable limits.
- Do not exceed the manufacturer’s TMRA.

Power requirements

Installation of this equipment must comply with local and regional electrical regulations governing the installation of information technology equipment by licensed electricians. This equipment is designed to operate in installations covered by NFPA 70, 1999 Edition (National Electric Code) and NFPA-75, 1992

(code for Protection of Electronic Computer/Data Processing Equipment). For electrical power ratings on options, refer to the product rating label or the user documentation supplied with that option.

WARNING:
To reduce the risk of personal injury, fire, or damage to the equipment, do not overload the AC supply branch circuit that provides power to the rack. Consult the electrical authority having jurisdiction over wiring and installation requirements of your facility.

CAUTION:
Protect the server from power fluctuations and temporary interruptions with a regulating uninterruptible power supply. This device protects the hardware from damage caused by power surges and voltage spikes and keeps the system in operation during a power failure.

Grounding requirements

This equipment must be grounded properly for proper operation and safety. In the United States, you must install the equipment in accordance with NFPA 70, 1999 Edition (National Electric Code), Article 250, as well as any local and regional building codes.

In Canada, you must install the equipment in accordance with Canadian Standards Association, CSA C22.1, Canadian Electrical Code.

In all other countries, you must install the equipment in accordance with any regional or national electrical wiring codes, such as the International Electrotechnical Commission (IEC) Code 364, parts 1 through 7. Furthermore, you must be sure that all power distribution devices used in the installation, such as branch wiring and receptacles, are listed or certified grounding-type devices.

Because of the high ground-leakage currents associated with this equipment, Hewlett Packard Enterprise recommends the use of a PDU that is either permanently wired to the building's branch circuit or includes a nondetachable cord that is wired to an industrial-style plug. NEMA locking-style plugs or those complying with IEC 60309 are considered suitable for this purpose. Using common power outlet strips to supply power to this equipment is not recommended.

Installing the hardware

Process overview:

Procedure

1. Set up and install the rack. For more information, see the Quick Deploy Rail System installation instructions that ship with the rack.
2. **Preparing the chassis**.
3. **Installing the chassis**.
4. **Component installation**.
5. **Cabling the system**.
6. **Configuring iLO**.
7. **Powering on the system**.

Preparing the chassis

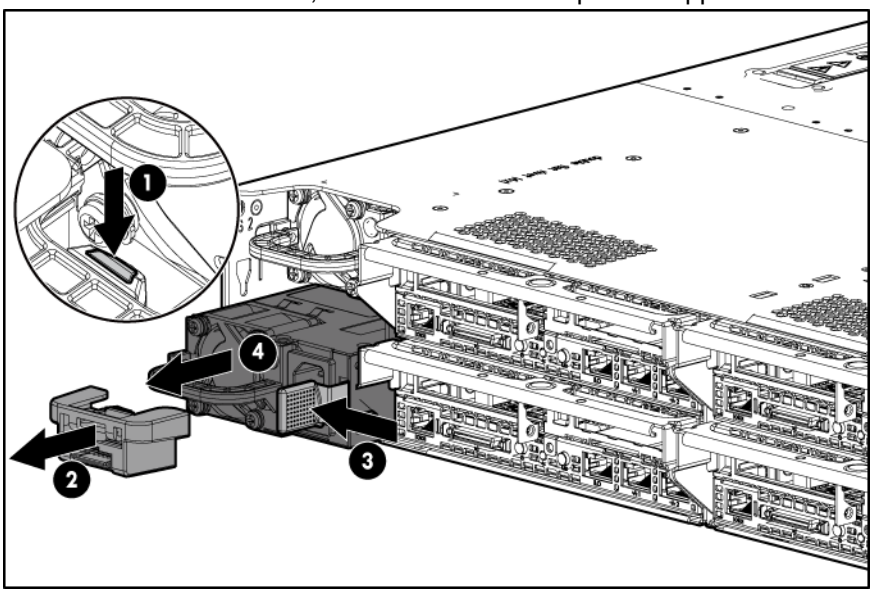
Before installing the chassis into the rack, you must remove the nodes and the power supplies. Because a fully populated chassis is heavy, removing these components facilitates moving and installing the chassis.

IMPORTANT:

The nodes must be re-installed in the same slot from which they were removed. Match the labels on top of the chassis with the pull-out tabs on the node.

Procedure

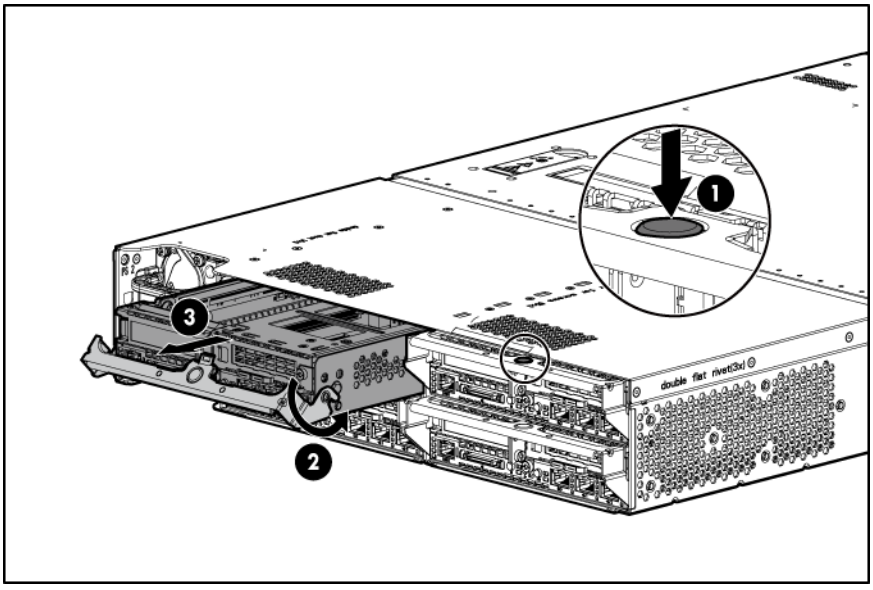
1. Remove the RCM module, and then remove the power supplies from the chassis.



CAUTION:

To avoid damage to the node, always support the bottom of the node when removing it from the chassis.

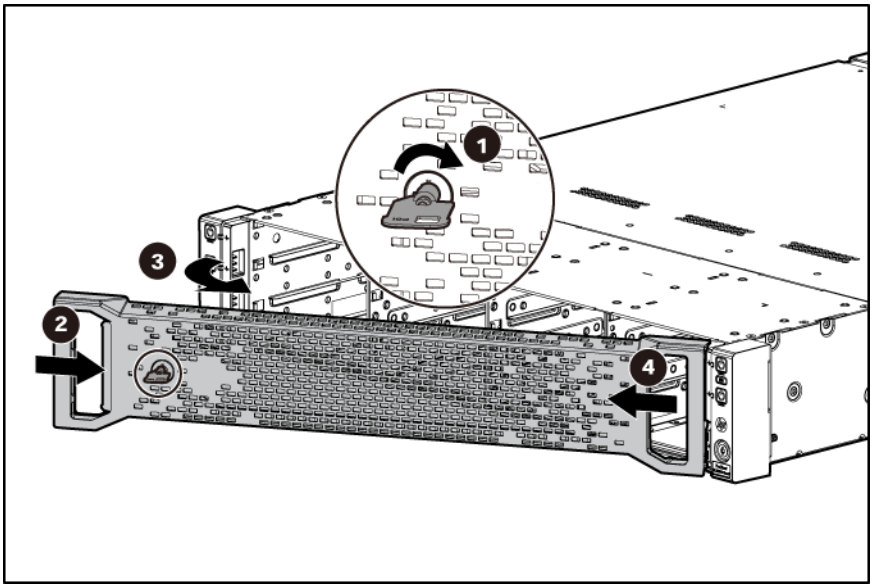
2. Remove a 1U node.



CAUTION:

To avoid damage to the device, do not use the removal handle to carry it.

3. If installed, remove the security bezel.



Installing the chassis

WARNING:

Always use at least two people to lift the chassis into the rack. If the chassis is being loaded into the rack above chest level, a third person must assist with aligning the chassis with the rails while the other two people support the weight of the chassis.

WARNING:

The chassis is very heavy. To reduce the risk of personal injury or damage to the equipment:

- Observe local occupational health and safety requirements and guidelines for manual material handling.
- Remove all installed components from the chassis before installing or moving the chassis.
- Use caution and get help to lift and stabilize the chassis during installation or removal, especially when the chassis is not fastened to the rack.

WARNING:

To avoid risk of personal injury or damage to the equipment, do not stack anything on top of rail-mounted equipment or use it as a work surface when extended from the rack.

CAUTION:

Always plan the rack installation so that the heaviest item is on the bottom of the rack. Install the heaviest item first, and continue to populate the rack from the bottom to the top.

CAUTION:

Hewlett Packard Enterprise has not tested or validated the ConvergedSystem 200–HC StoreVirtual system with any third-party racks. Before installing the ConvergedSystem 200–HC StoreVirtual system in a third-party rack, be sure to properly scope the limitations of the rack. Before proceeding with the installation, consider the following:

- You must fully understand the static and dynamic load carrying capacity of the rack and be sure that it can accommodate the weight of the ConvergedSystem 200–HC StoreVirtual system.
- Be sure sufficient clearance exists for cabling, installation and removal of the chassis, and actuation of the rack doors.

The chassis requires installation in a rack. To install the rack rails, see the Quick Deploy Rail System installation instructions that ship with the rack hardware kit.

You can install up to seven chassis in a 36U, 1200 mm deep rack. If you are installing more than one chassis, install the first chassis in the bottom of the rack, and then install additional chassis by moving up the rack with each subsequent chassis. Plan the rack installation carefully, because changing the location of installed components might be difficult. Sites for expansion systems can be geographically disparate, such as a primary data site and a back-up site in another building or on another campus. Sites can exist within the same building on different floors or in different labs on the same floor. Sites can be two different racks in the same server room or even two groups of systems in the same rack.

WARNING:

To reduce the risk of personal injury or damage to the equipment, be sure that:

- The rack is bolted to the floor using the concrete anchor kit.
- The leveling feet extend to the floor.
- The full weight of the rack rests on the leveling feet.
- The racks are coupled together in multiple rack installations.
- Only one component is extended at a time. If more than one component is extended, a rack might become unstable.

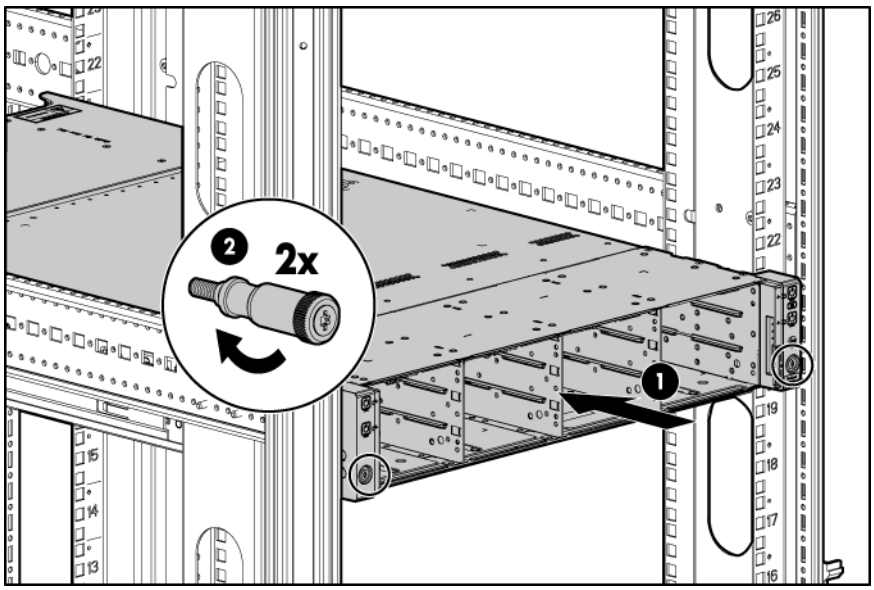
WARNING:

To reduce the risk of personal injury or equipment damage, be sure that the rack is adequately stabilized before installing the chassis.

CAUTION:

Be sure to keep the product parallel to the floor when installing the chassis. Tilting the product up or down could result in damage to the slides.

Install the chassis into the rack and tighten the thumbscrews.

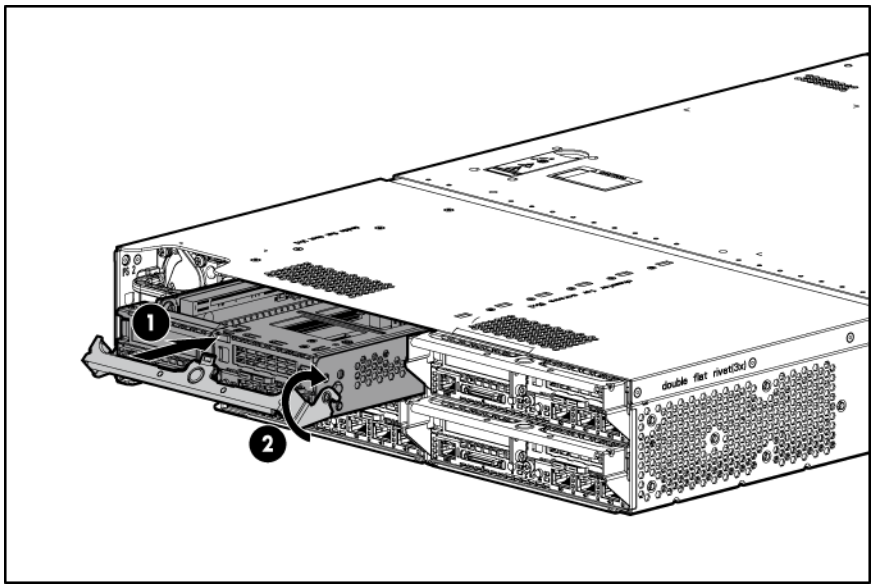


Component installation

Installing a node into the 1U chassis

NOTE:

The nodes must be re-installed in the same slot from which they were removed. Match the labels on top of the chassis with the pull-out tabs on the nodes.

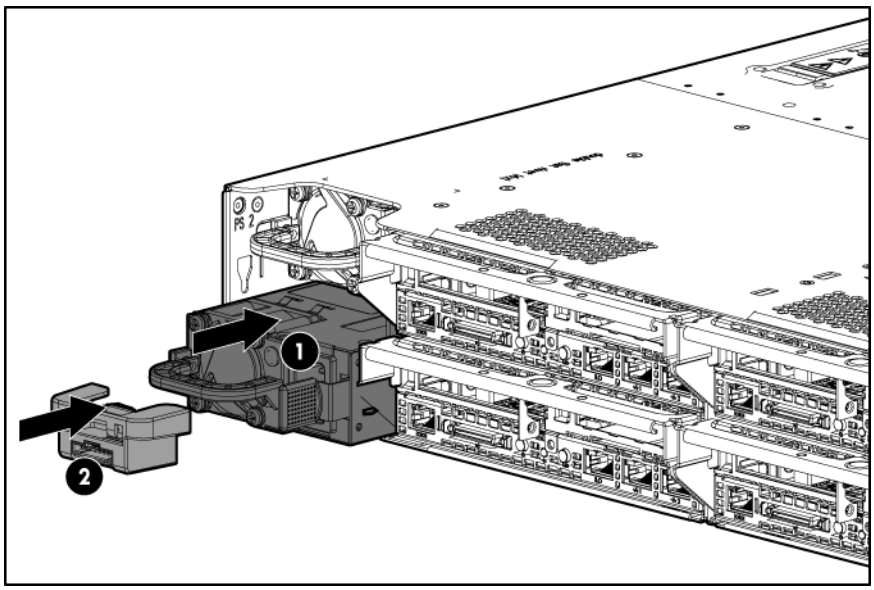


Installing the power supplies

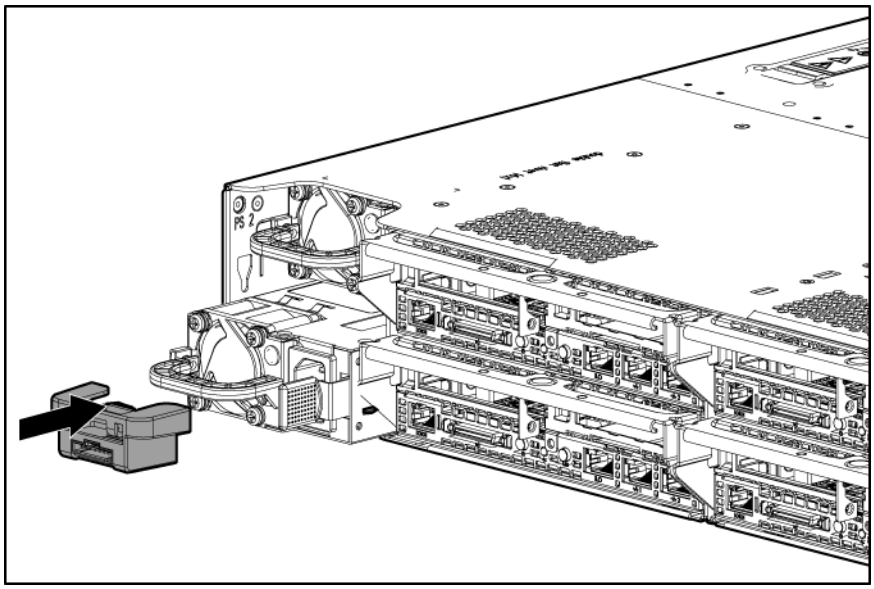
CAUTION:

Do not mix power supplies with different efficiency and wattage in the chassis. Install only one type of power supply in a single chassis.

Slide the power supply into the power supply bay until it clicks into place.



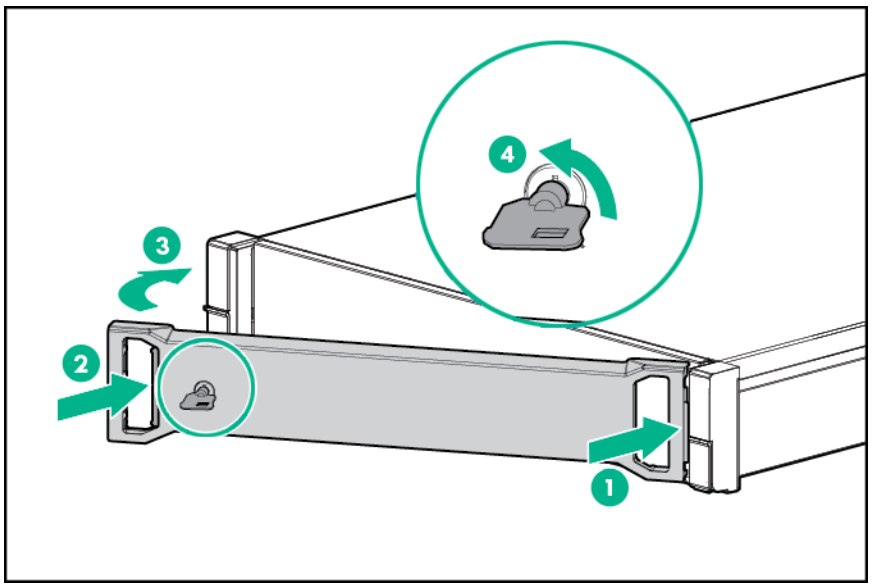
Installing the RCM module



Chassis options

Installing the security bezel

The security bezel helps prevent unauthorized physical access to the front panel components.



Disk drive numbering

Figure 51: Disk drive numbering on page 109 illustrates the disk drive numbering for the 240–HC and 242–HC models. Drives are numbered from left to right in each box.

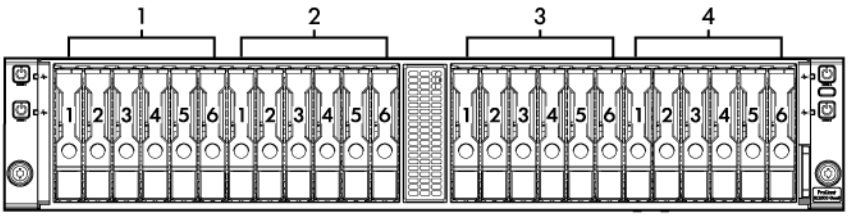


Figure 51: Disk drive numbering

1. Drives for Node 1
2. Drives for Node 2
3. Drives for Node 3
4. Drives for Node 4

Cabling the system

Figure 52: Connecting the cables on page 110 illustrates how to cable the system in your environment.

NOTE:

The connections between the system and the switches are examples only. You can connect the system to any available ports on your switches. Hewlett Packard Enterprise recommends two switches for resiliency.

After completing the network connections, connect the power cables to the system.

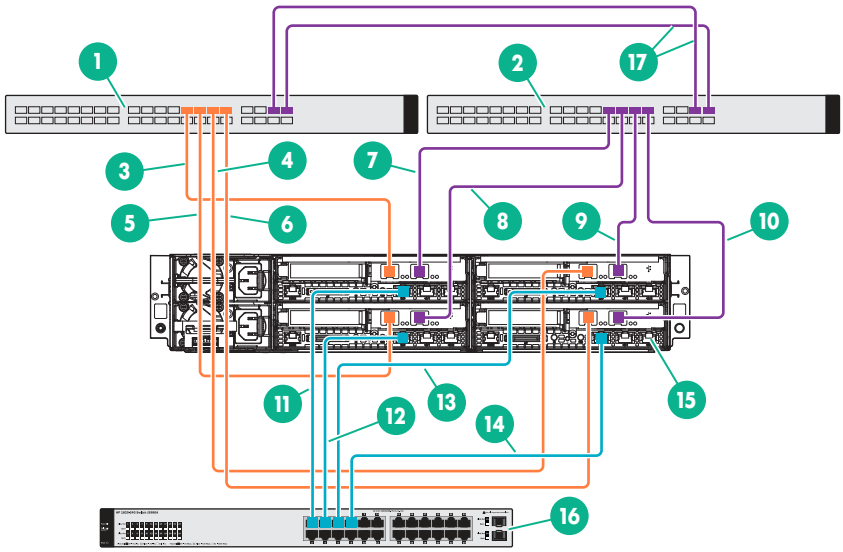


Figure 52: Connecting the cables

1. 10 GbE Switch A (IPv6 enabled)
2. 10 GbE Switch B (IPv6 enabled)
3. Connect Node 4, Port 0 to Switch A, Port X
4. Connect Node 2, Port 0 to Switch A, Port X
5. Connect Node 3, Port 0 to Switch A, Port X
6. Connect Node 1, Port 0 to Switch A, Port X
7. Connect Node 4, Port 1 to Switch B, Port X
8. Connect Node 3, Port 1 to Switch B, Port X
9. Connect Node 2, Port 1 to Switch B, Port X
10. Connect Node 1, Port 1 to Switch B, Port X
11. Connect Node 4, iLO 4 to 1 GbE Switch, Port X
12. Connect Node 3, iLO 4 to 1 GbE Switch, Port X
13. Connect Node 2, iLO 4 to 1 GbE Switch, Port X
14. Connect Node 1, iLO 4 to 1 GbE Switch, Port X
15. Connect to the setup workstation or laptop
16. 1 GbE Switch
17. Interconnect switch links

Configuring iLO

For details about configuring iLO, see the HPE iLO 4 user guide at: **http://www.hpe.com/info/ilo/docs** .

Powering on the system

The system firmware initiates an automatic power-up sequence when the power cables are connected and the nodes are installed. The default power setting is set to always on. Do not change the default power setting unless instructed by Hewlett Packard Enterprise.

If the system does not automatically power up, you can use the following alternate methods:

- Use a virtual power button selection through iLO.
- Press and release the Power On/Standby button.

When the node goes from the standby mode to the full power mode, the node power LED changes from amber to green.

For more information about iLO, see **http://www.hpe.com/info/ilo**.

Related documentation

For more information about the hardware, see the HPE ProLiant t2500 Chassis maintenance and service guide available at:

http://www.hpe.com/support/t2500_Chassis_MSG