



**Hewlett Packard
Enterprise**

HPE Helion CloudSystem 10.0 Update 1 and Update 2 Support Matrix

Abstract

This information is intended for Infrastructure Administrators using HPE Helion CloudSystem Software 10.0 Update 1 and Update 2, who are assigned to configure and provision compute resources for deployment and use in virtual data centers. This guide outlines the recommended and minimum hardware and software requirements and the solution integration tools that must be in place before installing Helion CloudSystem.

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Revision history

Edition	Publication date	Helion CloudSystem version	Edition notes
1	November 2016	10.0 Update 1	Initial edition
2	September 2017	10.0 Update 2	Changed document title to include version 10.0 Update 2 Added support for VMware vCenter/ESXi 6.5 in Helion CloudSystem 10.0 Update 2 in <u>VMware ESXi management hypervisor and compute host software requirements</u>

Software requirements

HPE Helion CloudSystem 10.0 Update 1 supports heterogeneous hypervisors.

- VMware ESXi or Red Hat Enterprise Linux KVM are supported management hypervisor environments.
- VMware ESXi, HPE Linux, RHEL KVM, and Hyper-V are supported simultaneously as compute hosts.

For ESXi compute hosts, you must use the same ESXi version within a cluster.

If you plan to use multiple compute host types, make sure that your configuration supports the options and features you require.

Helion CloudSystem management hypervisor and compute host software requirements

Software embedded in Helion CloudSystem and optional software

Table 1: Embedded and optional software

Software	Version	Notes
HPE Helion OpenStack	3.0.3	Based on OpenStack Cloud Software, Liberty release. This version is included in Helion CloudSystem Foundation and is not a separate installation.
HPE Cloud Service Automation (HPE CSA)	4.6.0001	This version is included in Helion CloudSystem Enterprise and is not a separate installation.
HPE Operations Orchestration	10.51	This version is included in Helion CloudSystem Enterprise and is not a separate installation.
HPE Operations Orchestration Studio	10.51	The executable file used to install this software is included in the HPE Helion CloudSystem Tools 10.0.1 Nov 2016 release zip, which is part of the Helion CloudSystem 10.0 Update 1 release.
(Optional) HPE OneView	3.0 2.00.07	Available from <u>HPE Software Depot</u> 3.0 is required to use features in Helion CloudSystem 10.0 Update 1 that integrate with HPE OneView managed servers. 2.00.07 can coexist with Helion CloudSystem in the same management environment.

Table Continued

Software	Version	Notes
(Optional) HPE Insight Control server provisioning (ICsp)	7.6 7.5 Update 2	Available from HPE Software Depot Under Product Category > Insight Management > Matrix Operating Environment ICsp supports physical provisioning. HPE OneView Advanced, HPE Helion CloudSystem, and ICsp can share the same ESXi management host.
(Optional) HPE Data Protector	9.07	Available from http://www.hpe.com/info/dataprotector <ul style="list-style-type: none"> • HPE Data Protector is supported with Helion CloudSystem to back up guest instances on ESXi compute hosts and attached VMDK Cinder block storage. • Using Data Protector to back up instances on RHEL KVM, HPE Linux, and Hyper-V compute hosts is not supported. • Restoring a guest instance to a cluster other than its original is not supported. • Restoring a deleted guest will not restore the VM. • After restoring an instance, attaching and detaching a volume return success, but the operations do not complete successfully.

Management hypervisor supported configurations

Table 2: Management hypervisor supported configurations

Management hypervisor	Compute host type	VLAN support	VxLAN support
ESXi or RHEL KVM	ESXi Use the same ESXi version for all hosts in the cluster.	Yes Use Central Virtual Routing	Yes Use Central Virtual Routing
	HPE Linux and RHEL KVM	Yes Use Central Virtual Routing	Yes Use either Central Virtual Routing or Distributed Virtual Routing
	Hyper-V	Yes Use Central Virtual Routing	No

VMware ESXi management hypervisor and compute host software requirements

This section contains the supported versions of VMware vCenter and ESXi operating systems in Helion CloudSystem management hypervisors and compute hosts.

NOTE:

- For customized HPE ESXi images, see [HPE ProLiant Servers with VMware](#).
 - For the VMware vSphere and vCloud suite build numbers table, see the [VMware Knowledge Base](#).
 - To verify VMware guest operating systems, see the [VMware Compatibility Guide](#).
-

VMware ESXi management hypervisor and compute cluster software requirements

NOTE:

VMware vCenter Server Appliance 6.5, VMware vCenter Server 6.5 for Windows, and ESXi 6.5 are supported in Helion CloudSystem 10.0 Update 2 only.

VMware vCenter Server Appliance 6.5*

*supported in Helion CloudSystem 10.0 Update 2 only (build 4602587 / installer build N/A)

- ESXi 6.5*
- ESXi 6.0 U2
- ESXi 6.0 U1b
- ESXi 6.0

VMware vCenter Server Appliance 6.0 U2

(build 3634788 / installer build 3634794)

- ESXi 6.0 U2
- ESXi 6.0 U1b
- ESXi 6.0

VMware vCenter Server Appliance 6.0 U1b

(build 3343019 / installer build 3339084)

- ESXi 6.0 U1b
- ESXi 6.0

VMware vCenter Server Appliance 6.0

(build 2559267 / installer build 2562643)

- ESXi 6.0

VMware vCenter Server Appliance 5.5 U3b

(build 3252642 / installer build 3254792)

- ESXi 5.5 U3b
- ESXi 5.5 U3
- ESXi 5.5 U2e
- ESXi 5.5 U2

VMware vCenter Server Appliance 5.5 U3

(build 3000347 / installer build 3000346)

- ESXi 5.5 U3
- ESXi 5.5 U2e
- ESXi 5.5 U2

VMware vCenter Server 6.5 for Windows*

*supported in Helion CloudSystem 10.0 Update 2 only (build 4602587 / installer build N/A)

- ESXi 6.5*
- ESXi 6.0 U2
- ESXi 6.0 U1b
- ESXi 6.0

VMware vCenter Server 6.0 U2 for Windows

(build 3634793 / installer build 3634788)

- ESXi 6.0 U2
- ESXi 6.0 U1b
- ESXi 6.0

VMware vCenter Server 6.0 U1b for Windows

(build 3343019 / installer build 3339083)

- ESXi 6.0 U1b
- ESXi 6.0

VMware vCenter Server 6.0 for Windows

(build 2559268 / installer build 2562643)

- ESXi 6.0

VMware vCenter Server 5.5 U3b for Windows

(build 3252642 / installer build 3254792)

- ESXi 5.5 U3b
- ESXi 5.5 U3
- ESXi 5.5 U2e
- ESXi 5.5 U2

VMware vCenter Server 5.5 U3 for Windows

(build 3000241 / installer build 3000346)

- ESXi 5.5 U3
- ESXi 5.5 U2e
- ESXi 5.5 U2

ⓘ IMPORTANT:

If your configuration includes vSphere Distributed Switches (VDS) or vSphere Standard Switches (VSS), and the VMware DRS feature is enabled, then there are no limitations when using Helion CloudSystem.

If your configuration includes vSphere Standard Switches (VSS) and VMware DRS is not enabled, then Helion CloudSystem virtual appliances must be manually distributed across the hosts in the management cluster.

VMware vSphere Metro Storage Cluster software requirements

vSphere Metro Storage Clusters, or stretched clusters, are ESXi clusters that are configured with host systems located in multiple locations.

Helion CloudSystem supports stretched clusters for the ESXi management cluster and ESXi compute clusters with the following requirements.

- All supported vCenter and ESXi versions in **VMware ESXi management hypervisor and compute host software requirements** are supported as stretched clusters.
- The Metro Cluster is installed and configured according to VMware specifications.

See **VMware vSphere Metro Storage Cluster Recommended Practices**.

- Cluster nodes are in an active-active configuration.
- Fully synchronous storage replication exists between the metro cluster sites.
- Two 10 Gb/sec dedicated links are required:
 - Stretched Layer 2 network
 - Synchronous storage replication network

HPE 3PAR Peer Persistence

For HPE 3PAR implementations, the following white papers are available as a guide for deploying the HPE 3PAR Peer Persistence technology with a stretched cluster.

- **Implementing vSphere Metro Storage Cluster using HPE 3PAR Peer Persistence**
- **Integrating VMware vSphere Metro Storage Cluster with HPE 3PAR Peer Persistence on HPE ConvergedSystem 700x**

Contact HPE Support for assistance in configuring your cloud with VMware vSphere Metro Storage clusters.

RHEL KVM management hypervisor software requirements

Table 3: RHEL KVM management hypervisor software requirements

Software version	Notes
Red Hat Enterprise Linux 7.2	<p>Required: Open vSwitch 2.3.1 must be manually installed <u>Open vSwitch 2.3.1 download</u>.</p> <p>Emulex be2net 10.6.0.3r (or higher) driver for HPE Emulex server adapters is required. This driver is installed by default in RHEL 7.2.</p>

RHEL KVM compute host software requirements

To verify Red Hat supported guest operating systems, see the **RedHat Customer Portal**.

Table 4: RHEL KVM compute host software requirements

Software version	Notes
Red Hat Enterprise Linux 7.2	<p>Emulex be2net 10.6.0.3r (or higher) driver for HPE Emulex server adapters is required. This driver is installed by default in RHEL 7.2.</p>

HPE Linux compute host software requirements

Table 5: HPE Linux compute host software requirements

Software version	Notes
Hewlett Packard Enterprise Linux 4.4	This version of HPE Linux is included in Helion CloudSystem and maintained by Hewlett Packard Enterprise.

Hyper-V compute host software requirements

Table 6: Hyper-V compute host software requirements

Software version	Notes
Microsoft Windows Server 2012 R2 with Hyper-V (Datacenter Edition)	To verify Hyper-V supported guest operating systems, see Supported guest operating systems .
Microsoft Windows Server 2012 R2 with Hyper-V (Standard Edition)	

Helion CloudSystem and OpenStack CLI requirements

Table 7: Helion CloudSystem and OpenStack CLIs

CLI	Execute on	Version
OpenStack CLI packages	Helion CloudSystem Deployer appliance and Cloud controller	OpenStack CLIs are included in Helion CloudSystem Foundation and are not a separate installation. For a list of all OpenStack Liberty commands, see OpenStack Documentation for Liberty releases .
Helion CloudSystem CLI packages	Helion CloudSystem Deployer appliance or Management appliance, depending on the CLI	Helion CloudSystem CLIs are included in Helion CloudSystem Foundation and are not a separate installation. See the <i>HPE Helion CloudSystem 10.0 Command Line Interface Guide</i> at Enterprise Information Library .

HPE CSA content support

Check the [HPE Live Network](#) for updated HPE CSA content packs and capsules. Content compatible with HPE CSA 4.6 is supported with Helion CloudSystem 10.0 Update 1.

Browser requirements

The following browsers are supported for the Helion CloudSystem installation.

Table 8: Supported browsers

Browser	Version
Microsoft Internet Explorer	11
Mozilla Firefox Personal Edition	40 and higher
Google Chrome	44 and higher

Language support in Helion CloudSystem user interfaces

Table 9: Supported languages

User interface	Language support
Helion CloudSystem Deployer	English
Operations Console	English
OpenStack user portal	English, Dutch (Netherlands), French, Japanese, Korean, Polish, Portuguese (Brazil), Russian, Spanish, Simplified Chinese, Traditional Chinese
Cloud Service Automation Management Console (CSA)	English, Japanese, Simplified Chinese
Marketplace Portal	English, Japanese, Simplified Chinese, Korean, French, German, Spanish, Portuguese, Dutch, Italian, Russian
Operations Orchestration Central	English, Japanese, Simplified Chinese
VMware vCenter Server	English

Hardware requirements

Hardware requirements for management hypervisors, virtual appliances, compute hosts, storage, and network equipment are provided in this chapter.

Management hypervisor hardware requirements

The hardware requirements for the physical management cluster depend on:

- The size of the cloud that you plan to deploy
See **Cloud configuration sizes**.
- The high availability option you configure for the cloud
See **High availability installation options**.

Cloud configuration sizes

Determine which size cloud you need—extra-small, small, medium, or large. The cloud is the total number of compute hosts, virtual machine instances, networks, and the Helion CloudSystem virtual appliances that manage the cloud.

Medium and large sizes are supported only in clouds configured with physical HA (**HA Option 1**) in a three host management cluster.

Definitions of cloud configurations

- **Extra-small:** Up to 5 compute nodes, 250 virtual machine instances, and 30 tenant and provider networks
- **Small:** Up to 20 compute hosts, 1000 virtual machine instances, and 125 tenant and provider networks
- **Medium (default):** Up to 80 compute hosts, 5000 virtual machine instances, and 500 tenant and provider networks
- **Large:** Up to 200 compute hosts, 10,000 virtual machine instances, and 1100 tenant and provider networks

High availability installation options

Determine the HA installation option you need. Hewlett Packard Enterprise recommends that you configure your cloud with physical and virtual HA (Option 1).

HA installation options

- Option 1: **Physical HA**— Management cluster with three hosts (**recommended**)
Helion CloudSystem virtual appliances are deployed in trios and distributed across three physical servers. This configuration offers high availability and performance benefits for robust production use.
See **Management hypervisor hardware requirements: Physical HA**.
- Option 2: **Virtual HA** — Management cluster with a single host
Helion CloudSystem virtual appliances are deployed in trios on one physical server. This configuration is supported for small development, test, or production environments where physical high availability is not a requirement. Contact HPE Support for assistance if you want to expand to a three host HA configuration after deployment is complete.
For ESXi environments, it is possible to expand to a cluster configuration after deploying Helion CloudSystem.

For KVM environments, you can only expand to a cluster later if you originally created a shared volume that can handle three nodes.

See **Management hypervisor hardware requirements: Virtual HA**.

- Option 3: **Non-HA** — Management cluster with a single host

Helion CloudSystem virtual appliances are deployed as “singletons” on one physical server. If you use this configuration, you cannot expand to a three host HA configuration after deployment.

See **Management hypervisor hardware requirements: Non-HA**.

Management hypervisor storage configuration

- Configure **shared storage** for a three node management hypervisor (**HA Option 1**).
- Configure shared storage or local storage for a single node management hypervisor (**HA Option 2** and **HA Option 3**). Configure local storage only if you do not plan to add hosts to your management cluster later.

! IMPORTANT:

If the disk storage allocated for Helion CloudSystem is smaller than the recommended sizes and the disks become full, Helion CloudSystem virtual appliances will enter into pause mode.

Management hypervisor hardware requirements: Physical HA

Hardware requirements are defined for **each host** (physical server) in a **three host** management cluster.

The resource requirements target the failure scenario in which one host is down, and all Helion CloudSystem virtual appliances fail over to the remaining hosts.

Table 10: Management hypervisor hardware requirements: Memory per host

Installation Type	Memory per host		
	Extra-Small/Small	Med	Large
Helion CloudSystem Foundation and Enterprise	128 GB	192 GB	256 GB
Enterprise only	96 GB	128 GB	192 GB
Foundation only	128 GB	192 GB	256 GB

Table 11: Management hypervisor hardware requirements: CPU/Cores per host

Installation Type	CPU/Cores per host		
	Extra-Small/Small	Med	Large
Helion CloudSystem Foundation and Enterprise	2x6, 2.4 Ghz	2x8, 2.4 Ghz	2x12, 2.6 Ghz
Enterprise only	2x6, 2.4 Ghz	2x8, 2.4 Ghz	2x8, 2.6 Ghz
Foundation only	2x6, 2.4 Ghz	2x8, 2.4 Ghz	2x12, 2.6 Ghz

Table 12: Management hypervisor hardware requirements: Disk size

Installation Type	Disk size			
	Total disk size required in one volume that is shared among all hosts in the management hypervisor cluster			
	Extra-Small	Small	Med	Large
Helion CloudSystem Foundation and Enterprise	3.2 TB	4.6 TB	6.7 TB	11.6 TB
Enterprise only	2.7 TB	3.2 TB	3.7 TB	5.7 TB
Foundation only	2.5 TB	3.8 TB	5.4 TB	8.5 TB

Management hypervisor hardware requirements: Virtual HA

Hardware requirements are defined for a virtual HA management cluster containing **one host** (physical server) and trios of virtual appliances.

Hardware requirements are defined for **each host** (physical server) in a **three host** management cluster.

The resource requirements target the failure scenario in which one host is down, and all Helion CloudSystem virtual appliances fail over to the remaining hosts.

Table 13: Management hypervisor hardware requirements: Memory per host

Installation Type	Memory per host		
	Extra-Small/Small	Med	Large
Helion CloudSystem Foundation and Enterprise	256 GB	N/A	N/A
Enterprise only	192 GB		
Foundation only	256 GB		

Table 14: Management hypervisor hardware requirements: CPU/Cores per host

Installation Type	CPU/Cores per host		
	Extra-Small/Small	Med	Large
Helion CloudSystem Foundation and Enterprise	2x12, 2.6 Ghz	N/A	N/A
Enterprise only	2x8, 2.6 Ghz		
Foundation only	2x12, 2.6 Ghz		

Table 15: Management hypervisor hardware requirements: Disk size

Installation Type	Disk size			
	Total disk size required in one volume that is shared among all hosts in the management hypervisor cluster			
	Extra-Small	Small	Med	Large
Helion CloudSystem Foundation and Enterprise	3.2 TB	4.6 TB	N/A	N/A
Enterprise only	2.7 TB	3.2 TB		
Foundation only	2.5 TB	3.8 TB		

Management hypervisor hardware requirements: Non-HA

Hardware requirements are defined for a non-HA management cluster containing **one host** (physical server) and singleton virtual appliances.

Table 16: Management hypervisor hardware requirements: Memory per host

Installation Type	Memory per host		
	Extra-Small/Small	Med	Large
Helion CloudSystem Foundation and Enterprise	192 GB	N/A	N/A
Enterprise only	192 GB		
Foundation only	192 GB		

Table 17: Management hypervisor hardware requirements: CPU/Cores per host

Installation Type	CPU/Cores per host		
	Extra-Small/Small	Med	Large
Helion CloudSystem Foundation and Enterprise	2x6, 2.4 Ghz	N/A	N/A
Enterprise only	2x6, 2.4 Ghz		
Foundation only	2x6, 2.4 Ghz		

Table 18: Management hypervisor hardware requirements: Disk size

Installation Type	Disk size			
	Total disk size required in one volume that is shared among all hosts in the management hypervisor cluster			
	Extra-Small	Small	Med	Large
Helion CloudSystem Foundation and Enterprise	1.2 TB	1.8 TB	N/A	N/A
Enterprise only	900 GB	1.1 TB		
Foundation only	915 GB	1.5 TB		

Virtual appliance resource requirements

By default, the Helion CloudSystem Deployer UI and the `csdeploy` CLI create virtual appliances using **Medium** sizes.

- If you are deploying Helion CloudSystem using the recommended physical HA (**HP Option 1**) and you want to deploy a medium sized cloud, you do not need to make any changes to the installation configuration file.
- If you are deploying Helion CloudSystem using the recommended physical HA (**HP Option 1**) and you want to deploy a small or large cloud, change the memory and vCPU appliance-sizings settings in the `csdeploy` installation configuration file to the **Small** or **Large** settings for memory and CPU/cores defined in the table below.
- If you are deploying Helion CloudSystem in a Virtual HA or non-HA installation (**HA Option 2** or **HA Option 3**), then you must change the memory and vCPU appliance-sizings settings in the `csdeploy` installation configuration file to the **Small** settings for memory and CPU/cores defined in the table below.

You can change the memory and CPU/cores of your virtual appliances during or after installation. The management cluster must have sufficient resources to support the new configuration.

The installation configuration file sets **each virtual appliance node in the appliance trio** to the values in the following table.

Table 19: Virtual appliance resource requirements

Virtual appliance	Memory per node (GB)			vCPUs per node		
	Extra-Small/Small	Med	Large	Extra-Small/Small	Med	Large
Deployer appliance (singleton)	4			4		
Management appliance	8	8	8	4	4	4
Monitoring appliance	16	32	64	8	12	12

Table Continued

Virtual appliance	Memory per node (GB)			vCPUs per node		
	Extra-Small/Small	Med	Large	Extra-Small/Small	Med	Large
Database appliance	8	8	16	4	8	8
Cloud controller	16	24	64	4	8	12
Network node appliance	8	32	64	4	8	10
Enterprise appliance	24	32	32	8	8	8

Disk requirements

When installing Helion CloudSystem Foundation and Enterprise, or just Helion CloudSystem Foundation, use the following disk size guidelines.

If you are only installing Helion CloudSystem Enterprise, see **Disk requirements (Enterprise-only)**.

Extra-small

The following table shows the disk size changes that were made to support the extra-small configuration requirements.

Virtual appliance name	filename	Disk size	Disk allocation
Deployer	N/A	Disk 0: 205 GB	Disk 0: root, installation files
Cloud controller	specs_controller.j2	Disk 0: 55 GB Disk 1: 25 GB	Disk 0: bare hLinux Disk 1: root, logs
Database-Rabbit	specs_db_rabbit.j2	Disk 0: 55 GB Disk 1: 25 GB Disk 2: 50 GB	Disk 0: bare hLinux Disk 1: root, logs Disk 2: Rabbit, MySQL
Enterprise	specs_enterprise.j2	Disk 0: 211 GB Disk 1: 5 GB	Disk 0: bare hLinux Disk 1: root
Management	specs_management.j2	Disk 0: 55 GB Disk 1: 25 GB	Disk 0: bare hLinux Disk 1: root, logs

Table Continued

Virtual appliance name	filename	Disk size	Disk allocation
Monitoring	specs_monitoring.j2	Disk 0: 55 GB Disk 1: 25 GB Disk 2: 50 GB Disk 3: 75 GB Disk 4: 50 GB	Disk 0: bare hLinux Disk 1: root, Crash, Zookeeper, logs Disk 2: Kafka Disk 3: Elastic Search Disk 4: VerticaDB
Network Node	specs_network.j2	Disk 0: 55 GB	Disk 0: bare hLinux

Small

The following table shows the disk size changes that were made to support the small configuration requirements.

Virtual appliance name	filename	Disk size	Disk allocation
Deployer	N/A	Disk 0: 205 GB	Disk 0: root, installation files
Cloud controller	specs_controller.j2	Disk 0: 55 GB Disk 1: 50 GB	Disk 0: bare hLinux Disk 1: root, logs
Database-Rabbit	specs_db_rabbit.j2	Disk 0: 55 GB Disk 1: 50 GB Disk 2: 100 GB	Disk 0: bare hLinux Disk 1: root, logs Disk 2: Rabbit, MySQL
Enterprise	specs_enterprise.j2	Disk 0: 211 GB Disk 1: 50 GB	Disk 0: bare hLinux Disk 1: root
Management	specs_management.j2	Disk 0: 55 GB Disk 1: 50 GB	Disk 0: bare hLinux Disk 1: root, logs

Table Continued

Virtual appliance name	filename	Disk size	Disk allocation
Monitoring	specs_monitoring.j2	Disk 0: 55 GB Disk 1: 100 GB Disk 2: 100 GB Disk 3: 150 GB Disk 4: 100 GB	Disk 0: bare hLinux Disk 1: root, Crash, Zookeeper, logs Disk 2: Kafka Disk 3: Elastic Search Disk 4: VerticaDB
Network Node	specs_network.j2	Disk 0: 55 GB	Disk 0: bare hLinux

Medium

The following table shows the disk size changes that were made to support the medium configuration requirements.

Virtual appliance name	filename	Disk size	Disk allocation
Deployer	N/A	Disk 0: 205 GB	Disk 0: root, installation files
Cloud controller	specs_controller.j2	Disk 0: 55 GB Disk 1: 100 GB	Disk 0: bare hLinux Disk 1: root, logs
Database-Rabbit	specs_db_rabbit.j2	Disk 0: 55 GB Disk 1: 100 GB Disk 2: 200 GB	Disk 0: bare hLinux Disk 1: root, logs Disk 2: Rabbit, MySQL
Enterprise	specs_enterprise.j2	Disk 0: 211 GB Disk 1: 200 GB	Disk 0: bare hLinux Disk 1: root
Management	specs_management.j2	Disk 0: 55 GB Disk 1: 100 GB	Disk 0: bare hLinux Disk 1: root, logs

Table Continued

Virtual appliance name	filename	Disk size	Disk allocation
Monitoring	specs_monitoring.j2	Disk 0: 55 GB Disk 1: 150 GB Disk 2: 150 GB Disk 3: 200 GB Disk 4: 150 GB	Disk 0: bare hLinux Disk 1: root, Crash, Zookeeper, logs Disk 2: Kafka Disk 3: Elastic Search Disk 4: VerticaDB
Network Node	specs_network.j2	Disk 0: 55 GB	Disk 0: bare hLinux

Large

The following table shows the disk size changes that were made to support the large configuration requirements.

Virtual appliance name	filename	Disk size	Disk allocation
Deployer	N/A	Disk 0: 205 GB	Disk 0: root, installation files
Cloud controller	specs_controller.j2	Disk 0: 55 GB Disk 1: 150 GB	Disk 0: bare hLinux Disk 1: root, logs
Database-Rabbit	specs_db_rabbit.j2	Disk 0: 55 GB Disk 1: 200 GB Disk 2: 400 GB	Disk 0: bare hLinux Disk 1: root, logs Disk 2: Rabbit, MySQL
Enterprise	specs_enterprise.j2	Disk 0: 211 GB Disk 1: 824 GB	Disk 0: bare hLinux Disk 1: root
Management	specs_management.j2	Disk 0: 55 GB Disk 1: 150 GB	Disk 0: bare hLinux Disk 1: root, logs

Table Continued

Virtual appliance name	filename	Disk size	Disk allocation
Monitoring	specs_monitoring.j2	Disk 0: 55 GB Disk 1: 200 GB Disk 2: 300 GB Disk 3: 300 GB Disk 4: 300 GB	Disk 0: bare hLinux Disk 1: root, Crash, Zookeeper, logs Disk 2: Kafka Disk 3: Elastic Search Disk 4: VerticaDB
Network Node	specs_network.j2	Disk 0: 55 GB	Disk 0: bare hLinux

Disk requirements (Enterprise-only)

When installing Helion CloudSystem Enterprise, use the following disk size guidelines.

Extra-small

The following table shows the disk size changes that were made to support the extra-small configuration requirements.

Virtual appliance name	filename	Disk size	Disk allocation
Deployer	N/A	Disk 0: 205 GB	Disk 0: root, installation files
Database-Rabbit	specs_db_rabbit.j2	Disk 0: 55 GB Disk 1: 25 GB Disk 2: 50 GB	Disk 0: bare hLinux Disk 1: root, logs Disk 2: Rabbit, MySQL
Enterprise	specs_enterprise.j2	Disk 0: 211 GB Disk 1: 5 GB	Disk 0: bare hLinux Disk 1: root

Table Continued

Virtual appliance name	filename	Disk size	Disk allocation
Management	specs_management.j2	Disk 0: 55 GB Disk 1: 25 GB	Disk 0: bare hLinux Disk 1: root, logs
Monitoring	specs_monitoring.j2	Disk 0: 55 GB Disk 1: 25 GB Disk 2: 50 GB Disk 3: 75 GB Disk 4: 50 GB	Disk 0: bare hLinux Disk 1: root, Crash, Zookeeper, logs Disk 2: Kafka Disk 3: Elastic Search Disk 4: VerticaDB

Small

The following table shows the disk size changes that were made to support the small configuration requirements.

Virtual appliance name	filename	Disk size	Disk allocation
Deployer	N/A	Disk 0: 205 GB	Disk 0: root, installation files
Database-Rabbit	specs_db_rabbit.j2	Disk 0: 55 GB Disk 1: 50 GB Disk 2: 100 GB	Disk 0: bare hLinux Disk 1: root, logs Disk 2: Rabbit, MySQL
Enterprise	specs_enterprise.j2	Disk 0: 211 GB Disk 1: 50 GB	Disk 0: bare hLinux Disk 1: root

Table Continued

Virtual appliance name	filename	Disk size	Disk allocation
Management	specs_management.j2	Disk 0: 55 GB Disk 1: 50 GB	Disk 0: bare hLinux Disk 1: root, logs
Monitoring	specs_monitoring.j2	Disk 0: 55 GB Disk 1: 50 GB Disk 2: 50 GB Disk 3: 75 GB Disk 4: 50 GB	Disk 0: bare hLinux Disk 1: root, Crash, Zookeeper, logs Disk 2: Kafka Disk 3: Elastic Search Disk 4: VerticaDB

Medium

The following table shows the disk size changes that were made to support the medium configuration requirements.

Virtual appliance name	filename	Disk size	Disk allocation
Deployer	N/A	Disk 0: 205 GB	Disk 0: root, installation files
Database-Rabbit	specs_db_rabbit.j2	Disk 0: 55 GB Disk 1: 50 GB Disk 2: 100 GB	Disk 0: bare hLinux Disk 1: root, logs Disk 2: Rabbit, MySQL
Enterprise	specs_enterprise.j2	Disk 0: 211 GB Disk 1: 200 GB	Disk 0: bare hLinux Disk 1: root

Table Continued

Virtual appliance name	filename	Disk size	Disk allocation
Management	specs_management.j2	Disk 0: 55 GB Disk 1: 50 GB	Disk 0: bare hLinux Disk 1: root, logs
Monitoring	specs_monitoring.j2	Disk 0: 55 GB Disk 1: 50 GB Disk 2: 50 GB Disk 3: 75 GB Disk 4: 50 GB	Disk 0: bare hLinux Disk 1: root, Crash, Zookeeper, logs Disk 2: Kafka Disk 3: Elastic Search Disk 4: VerticaDB

Large

The following table shows the disk size changes that were made to support the large configuration requirements.

Virtual appliance name	filename	Disk size	Disk allocation
Deployer	N/A	Disk 0: 205 GB	Disk 0: root, installation files
Database-Rabbit	specs_db_rabbit.j2	Disk 0: 55 GB Disk 1: 50 GB Disk 2: 100 GB	Disk 0: bare hLinux Disk 1: root, logs Disk 2: Rabbit, MySQL
Enterprise	specs_enterprise.j2	Disk 0: 211 GB Disk 1: 824 GB	Disk 0: bare hLinux Disk 1: root

Table Continued

Virtual appliance name	filename	Disk size	Disk allocation
Management	specs_management.j2	Disk 0: 55 GB Disk 1: 50 GB	Disk 0: bare hLinux Disk 1: root, logs
Monitoring	specs_monitoring.j2	Disk 0: 55 GB Disk 1: 50 GB Disk 2: 50 GB Disk 3: 75 GB Disk 4: 50 GB	Disk 0: bare hLinux Disk 1: root, Crash, Zookeeper, logs Disk 2: Kafka Disk 3: Elastic Search Disk 4: VerticaDB

Glance image sizing

NOTE:

Glance images are stored on a shared cluster volume in the Management hypervisor. External storage for Glance images is not supported.

You set the size of the Glance disk when you deploy Helion CloudSystem. You can increase the size of the disk after installation. See “Expanding the Glance disk size” in the *HPE Helion CloudSystem 10.0 Update 1 Administrator Guide* at [Enterprise Information Library](#).

Table 20: Glance repository sizing guidelines

Glance repository	Linux images (4 GB each)	Windows images (16 GB each)	Snapshots (20 GB each)	TOTAL
Extra-Small	10	5	5	256 GB
Small	15	10	15	500 GB
Medium	20	15	40	1.2 TB
Large	25	30	500	10.1 TB

Finding supported servers for HPE Helion CloudSystem management hypervisors

Find the supported servers on which you can install the ESXi or KVM operating system for your management hypervisor.

Hewlett Packard Enterprise servers that support the ESXi and KVM operating systems listed in [Software requirements](#) on page 6 are supported as management hypervisors in Helion CloudSystem.

Procedure

1. Navigate to **Server operating systems & virtualization**.
2. Select the operating system (**Red Hat** or **VMware**) you plan to use as your management hypervisor.
3. Select the **Software version** of the operating system.
4. Scroll down to the table and verify that the server you plan to use is a supported server.

Verifying firmware compatibility

Procedure

1. Navigate to the HPE Support Center at <http://www.hpe.com/support/hpesc>.
2. Enter the supported server name in the product search box and click **Go**.
3. Click **Get drivers, software & firmware**.
4. Find the server link in the list and click the link.
5. Click the name of the operating system you plan to use.
6. Click **firmware**.
7. Verify the versions that support the server you plan to use.
8. If your firmware version is out of date, download the latest version.

Compute host hardware requirements

Compute host sizes vary according to your resource needs. Answer the following questions to help you determine the number of CPU cores and amount of memory and storage to allocate to each compute host.

- What flavor settings will the provisioned instances use?
- What oversubscription rate is supported for each compute resource? See the *HPE Helion CloudSystem 10.0 Update 1 Administrator Guide* in the **Enterprise Information Library**.
- How many instances will be hosted on each compute host?

Storage requirements for compute hypervisors

Refer to the hypervisor vendor (VMware ESXi, HPE Linux, Microsoft Hyper-V, or Red Hat Enterprise Linux KVM) documentation for minimum storage requirements to run the system in production.

If you are using the hypervisor as a compute host, additional storage is required to support:

- Flavors to be deployed
- Number of guest instances (running or stopped state)

Formula to determine compute hypervisor storage requirements

Maximum ephemeral disk size, calculated from the largest image flavor X

Number of active or stopped instances at any given time =

Additional required storage on compute hypervisor

Finding supported servers for compute hosts used in HPE Helion CloudSystem

Find the supported servers on which you can install the ESXi, HPE Linux, RHEL KVM, or Hyper-V operating system.

Hewlett Packard Enterprise servers that support the ESXi, HPE Linux, RHEL KVM, and Hyper-V operating systems listed in [Software requirements](#) on page 6 are supported as compute hosts in Helion CloudSystem.

Procedure

1. Navigate to [Server operating systems & virtualization](#).
2. Select the operating system (**VMware, Red Hat, or Microsoft Windows**) you plan to install on your compute host.
3. Select the **Software version** of the operating system.
4. Scroll down to the table and verify that the server you plan to use is a supported server.

Support for QLogic FCoE adapters on compute hosts

Helion CloudSystem 10.0 Update 1 supports the following QLogic based FCoE adapters on all compute hosts types (VMware ESXi, Red Hat KVM, HPE Linux, and Microsoft Hyper-V).

Using these FCoE adapters with RHEL KVM, HPE Linux, and Hyper-V compute hosts requires manual changes to the activation template and configuration files. See the *HPE Helion CloudSystem 10.0 Update 1 Administrator Guide* in the [Enterprise Information Library](#) .

- HP LPe1605 16Gb Fibre Channel HBA for BladeSystem c-Class
- HPE FlexFabric 20Gb 2-port 650FLB Adapter
- HPE FlexFabric 10Gb 2-port 554FLB Adapter

Supported servers from third-party vendors for compute hosts

In general, any server listed in the VMware, Microsoft Hyper-V, and Red Hat Enterprise Linux hypervisor compatibility guides is supported as a compute host in Helion CloudSystem, with the following limitation.

- VM guests cannot be moved from one third-party vendor's server to another.

See the following web sites for compatibility information.

- VMware compatibility: Use the search function at [VMware Compatibility Guide](#)
- Microsoft Hyper-V compatibility: Search for Hyper-V from the [Windows Server Catalog](#)
- Red Hat Enterprise Linux compatibility: Use the search function at [Red Hat Enterprise Linux ecosystem](#)

HPE Synergy, ConvergedSystems, and Hyper Converged support

Helion CloudSystem supports the following solutions:

- HPE Synergy
- HPE ConvergedSystems 700x for Cloud
- HPE ConvergedSystems 700 for VMware
- HPE Hyper Converged 250
- HPE Hyper Converged 380

Network equipment

- VxLAN-based Provider network in a CVR deployment requires the HPE FlexFabric 5930 or HPE FlexFabric 7000 physical switch.

For more information, see the *HPE Helion CloudSystem 10.0 Network Planning Guide* in the [Enterprise Information Library](#).

Storage requirements

HPE 3PAR storage system features

- Use FC (Fast Class) storage in 3PAR storage systems. NL (Near Line) storage is not compatible with the Helion CloudSystem management appliance.
- The REST API interface must be enabled to provision block storage from a 3PAR storage system.

Disk path selection

- In ESXi environments, use round-robin for path selection for the disk where Helion CloudSystem is installed. You must configure the path selection for each host.

See *Modifying path information for ESXi/ESX hosts* in the **VMware Knowledge Base**.

- In KVM environments, use round-robin for path_selector in the multipath configuration. You must configure the path selection for each host.

See *Multipaths Device Configuration Attributes* in the **RedHat Customer Portal**.

Instance (ephemeral) storage requirements

Table 21: Instance (ephemeral) storage requirements

Compute host type	Storage type	Supported version
ESXi	Virtual Machine Disk (VMDK block storage)	Helion CloudSystem supports all ESXi datastore storage supported by VMware. See VMware support documentation in VMware vSphere documents .
HPE Linux and RHEL KVM	Local Linux Filesystem	Helion CloudSystem supports all KVM backing storage configurations supported by Red Hat (for RHEL) and by Hewlett Packard Enterprise (for HPE Linux). See RHEL support documentation in Red Hat Enterprise Linux 7 documents .
Hyper-V	Local Windows System or CFS	Helion CloudSystem supports all Hyper-V backing storage configurations supported by Microsoft. See Microsoft support documentation in Microsoft Windows Server documents and Microsoft Hyper-V documents .

Block (Cinder) storage requirements

Table 22: Block (Cinder) storage requirements

Compute host type	Storage type	Supported versions
ESXi	Virtual Machine Disk (VMDK block storage)	<p>Helion CloudSystem supports all ESXi datastore storage supported by VMware.</p> <p>See VMware support documentation in VMware vSphere documents.</p>
HPE Linux and RHEL KVM	<p>HPE 3PAR Fibre Channel (FC) Driver</p> <p>HPE 3PAR iSCSI Driver</p> <p>HPE StoreVirtual 4000 (iSCSI protocol)</p> <p>HPE StoreVirtual VSA</p> <p>Ceph block storage</p>	<p>HPE 3PAR Fibre Channel and iSCSI Drivers</p> <ul style="list-style-type: none"> • Inform OS <ul style="list-style-type: none"> ◦ Inform OS 3.2.2 MU3 ◦ Inform OS 3.2.2 MU2 ◦ Inform OS 3.2.2 MU1 ◦ Inform OS 3.2.2 ◦ Inform OS 3.2.1 MU3 ◦ 3PAR Service Processor 4.4.0 ◦ 3PAR Management Console 4.70 ◦ StoreServ Management Console 2.1 ◦ SmartStart 1.5 <p>StoreVirtual 4000 series</p> <ul style="list-style-type: none"> • Driver (Helion Embedded) • SW solution on the management hypervisor: LHN P4000 • HW solution: 4000 hard drive array <p>StoreVirtual VSA</p> <ul style="list-style-type: none"> • HPE StoreVirtual Storage: LeftHand OS 11.5.1 <p>OpenStack Ceph block storage</p> <ul style="list-style-type: none"> • Firefly 0.80.11
Hyper-V	<p>HPE 3PAR iSCSI Driver</p> <p>HPE StoreVirtual 4000 (iSCSI protocol)</p> <p>HPE StoreVirtual VSA</p> <p>Ceph block storage</p>	<p>HPE 3PAR iSCSI Drivers</p> <ul style="list-style-type: none"> • Inform OS <ul style="list-style-type: none"> ◦ Inform OS 3.2.2 MU2 ◦ Inform OS 3.2.2. MU1 ◦ Inform OS 3.2.2 ◦ Inform OS 3.2.1 M3

Compute host type	Storage type	Supported versions
		<p>Due to an issue in the Microsoft iSCSI Initiator, HPE 3PAR Inform OS 3.2.2 MU3 is not supported with Microsoft Windows Server 2012 R2 Hyper-V compute nodes.</p> <p>StoreVirtual 4000 series</p> <ul style="list-style-type: none"> • SW solution on the management hypervisor: LHN P4000 • HW solution: 4000 hard drive array <p>StoreVirtual VSA</p> <ul style="list-style-type: none"> • HPE StoreVirtual Storage LeftHand OS 11.5.1 <p>OpenStack Ceph block storage</p> <ul style="list-style-type: none"> • Firefly 0.80.11

Object (Ceph) storage requirements

For additional requirement details, see [HPE Helion OpenStack 3.0 documentation](#) and navigate to **HPE Helion OpenStack 3.0 > Planning > Recommended Hardware Minimums**.

Table 23: Object (Ceph) storage requirements

Storage type	Storage component	Notes
OpenStack Ceph object storage	3 Object Storage Nodes (CEPH-OSD) (required)	Monitoring component for Ceph nodes is installed on each node of the Cloud controller trio. Additional CPU and RAM capacity is needed on the Cloud Controller if Ceph is deployed in your cloud.
Firefly 0.80.11	2 Rados Gateway nodes for object storage functionality using the S3/Swift API (optional)	

Object (Swift) storage requirements

For additional details on requirements, see [HPE Helion OpenStack 3.0 documentation](#) and navigate to **HPE Helion OpenStack 3.0 > Planning > Recommended Hardware Minimums**. Scroll down to the section titled, "Recommended minimum hardware requirements for entry-scale Swift model."

Table 24: Object (Swift) storage requirements

Storage type	Object storage component	Notes
Scale out OpenStack Swift object storage	3 Swift Proxy Nodes (minimum)	OpenStack Swift was performance tested with ProLiant SL230 Gen8 servers as the Proxy Nodes and ProLiant SE1170 G7 servers as the Object Storage Nodes. Other servers, including HPE Apollo 4530 and non-HPE servers, are also supported. See <u>HPE Helion Ready Solution Catalog</u> for tested and certified HPE and non-HPE servers.
	3 Swift Object Storage Nodes (minimum)	
	Management Network (Configured during cloud installation)	
	External-API Network (Configured during cloud installation)	

Helion CloudSystem scale limitations

Scaling limitations for cloud resources, networking, and storage are provided in the following tables.

Helion CloudSystem Foundation scaling limits

Table 25: Helion CloudSystem Foundation scaling limits

Configured resource	Maximum number supported
Managed virtual machine instances	10,000 (Mixed ESXi, RHEL KVM, HPE Linux, and Hyper-V) 10,000 (Mixed RHEL KVM and HPE Linux) 8000 (ESXi only) 2000 (Hyper-V only)
Managed compute hosts	200 (Mixed ESXi, RHEL KVM, HPE Linux, and Hyper-V) 200 (Mixed RHEL KVM and HPE Linux) 200 (ESXi only) 40 (Hyper-V only)
OpenStack user portal users	256 (Total number of users logged in at one time) 1100 (Total number of users)
OpenStack user portal users simultaneously creating virtual machine instances	25 (Total number of concurrent connections)
Private IP addresses	10,000
Floating IP addresses	10,000
Tenant VxLAN and VLAN networks	1100
Security Group rules	3300
Virtual machine instances in a single security group	60
Virtual machine instance creation per hour	1500

Table Continued

Configured resource	Maximum number supported
Block storage volumes (created)	10,000
Block storage volumes (attached)	10,000 <ul style="list-style-type: none"> • 10,000 3PAR volumes attached to RHEL KVM and HPE Linux compute hosts • 5,000 VMFS volumes attached to ESXi compute hosts • 2,000 3PAR volumes attached to Hyper-V compute hosts • 10,000 VSA volumes attached to RHEL KVM and HPE Linux compute hosts • 2,000 VSA volumes attached to Hyper-V compute hosts

Helion CloudSystem Enterprise scaling limits

Table 26: Helion CloudSystem Enterprise scaling limits

Configured resource	Maximum number supported
Simultaneous HPE CSA Marketplace Portal users	160
Concurrent subscription (service) requests	21
Total subscriptions	7500
Subscription throughput per hour	63
HPE Helion CloudSystem clouds with one Helion CloudSystem Enterprise	4

L2 gateway scaling limits

Table 27: L2 gateway scaling limits

Configured resource	Maximum number supported
L2 gateway connections	300

Support and other resources

Websites

General websites

Hewlett Packard Enterprise Information Library

www.hpe.com/info/EIL

Single Point of Connectivity Knowledge (SPOCK) Storage compatibility matrix

www.hpe.com/storage/spock

Storage white papers and analyst reports

www.hpe.com/storage/whitepapers

Locate Hewlett Packard Enterprise authorized resellers

In the United States, see the U.S. partner and store locator website:

www.hpe.com/support/service_locator

In other locations, see the Contact Hewlett Packard Enterprise website:

www.hpe.com/contact

HPE Datacenter Care for the Cloud

www.hpe.com/services/dccloud

For additional websites, see [Support and other resources](#).

Software technical support and update service

Purchased Helion CloudSystem products include one year of 24 x 7 HPE Software Technical Support and Update Service, and HPE Helion CloudSystem products with HPE OneView or ordered with a Converged System include three-year 24x7 Software Technical Support and Update Service. This service provides access to HPE technical resources for assistance in resolving software implementation or operation problems.

This service also provides access to software updates and reference manuals, either in electronic form or on physical media as they are made available from HPE. Customers who purchase an electronic license to use are eligible for electronic updates only.

With this service, Helion CloudSystem customers will benefit from expedited problem resolution as well as proactive notification and delivery of software updates. For more information, see the following website:

www.hpe.com/services/insight

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

Registration for Software technical support and update service

If you received a license entitlement certificate, registration for this service will take place upon online redemption of the license certificate/key.

Using your Software technical support and update service

Once registered, you will receive a service contract in the mail containing the Customer Service phone number and your Service Agreement Identifier (SAID). You will need your SAID when calling for technical support. Using your SAID, you can go to the HPE Support Center at www.hpe.com/support/hpesc to view your contract online.

Consulting and installation services

HPE provides a complete range of consulting, installation, and support services to ensure successful deployment and operation of your HPE Helion CloudSystem infrastructure. For more information, go to www.hpe.com/us/en/services/consulting/cloud.html.

HPE Datacenter Care for Cloud

Part of the HPE Helion Professional Services portfolio, HPE Datacenter Care for HPE Cloud offers a flexible relationship, one that will support your Helion CloudSystem hardware and software operating environment. For more information, go to www.hpe.com/services/dccloud.

Management security

HPE is proactive in its approach to the quality and security of all its management software. Sign up for the latest downloadable security updates at www.hpe.com/support/e-updates.

Join the discussion

The HPE Support Center at www.hpe.com/support/hpesc is a community-based, user-supported forum for HPE customers to participate in discussions among the customer community about HPE products.

Related documents

The latest versions of Helion CloudSystem manuals and white papers, including HPE CSA and Operations Orchestration (OO), can be downloaded from the Enterprise Information Library at www.hpe.com/info/CloudSystem/docs.

HPE Helion CloudSystem documents

- *HPE Helion CloudSystem 10.0 Update 1 Administrator Guide*
- *HPE Helion CloudSystem 10.0 Command Line Interface Guide*
- *HPE Helion CloudSystem 10.0 Update 2 ESXi Installation Guide*
- *HPE Helion CloudSystem 10.0 Update 2 KVM Installation Guide*
- *HPE Helion CloudSystem 10.0 Network Planning Guide*
- *HPE Helion CloudSystem 10.0 Update 2 Release Notes*
- *HPE Helion CloudSystem 10.0 Update 1 Support Matrix*
- *HPE Helion CloudSystem 10.0 Update 1 Troubleshooting Guide*

Online help for the Helion CloudSystem Operations Console is available by clicking the help control button (a question mark symbol) in the Operations Console user interface.

HPE Helion OpenStack documents

The latest version of Helion OpenStack information is viewable from HPE Helion Documentation at docs.hpcloud.com, including information about the following products:

- HPE Helion OpenStack
- HPE Helion Eucalyptus

HPE Insight Management documents

The latest versions of HPE Matrix Operating Environment manuals, white papers, and the HPE Insight Management Support Matrix can be downloaded from the Enterprise Information Library at www.hpe.com/info/matrixoe/docs including the following documents:

- *HPE Matrix Operating Environment Release Notes*
- *HPE Insight Management Support Matrix*

- *HPE Matrix Operating Environment Infrastructure Orchestration User Guide*
- *Cloud bursting with HPE CloudSystem Matrix infrastructure orchestration*

Third-party documents

OpenStack

- OpenStack documentation for the Liberty release is located at docs.openstack.org/liberty

With few exceptions (such as installation information), OpenStack documents are always set to display the current release stream on the OpenStack document website.

- *Cloud Administrator Guide*
- *Virtual Machine Image Guide*
- *API Quick Start*
- *Admin User Guide*
- *End User Guide*
- *Command reference*
 - Keystone commands
 - Glance commands
 - Neutron commands
 - Nova commands
 - Cinder commands

VMware

- [VMware vSphere documents](#)

Microsoft

- [Microsoft Windows Server documents](#)
- [Microsoft Hyper-V documents](#)

Red Hat

- [Red Hat Enterprise Linux 7 documents](#)

HPE 3PAR StoreServ documents

The latest versions of 3PAR StoreServ Storage manuals are available from the Storage tab at the top of the [Enterprise Information Library](#).

3PAR StoreServ Storage manuals can also be downloaded from the Hewlett Packard Enterprise Support Center, including the following documents:

- *HPE 3PAR StoreServ Storage Concepts Guide*
- *HPE 3PAR StoreServ Storage Troubleshooting Guide*

HPE StoreVirtual VSA documents

The latest versions of VSA StoreVirtual Storage manuals are available from the Storage tab at the top of the [Enterprise Information Library](#).

VSA StoreVirtual Storage manuals can also be downloaded from the Hewlett Packard Enterprise Support Center, including the following document:

- *HPE StoreVirtual Storage User Guide*

HPE ProLiant servers documents

The HPE Integrated Lights-Out QuickSpecs contain support information and are available from the QuickSpecs website:

www.hp.com/go/qs

The following ProLiant servers documentation is available:

- ProLiant BL BladeSystem servers:
www.hpe.com/info/blades
- ProLiant DL, ML, and SL servers:
www.hpe.com/info/rackservers

Support and other resources

Accessing Hewlett Packard Enterprise Support

- For live assistance, go to the Contact Hewlett Packard Enterprise Worldwide website:
<http://www.hpe.com/assistance>
- To access documentation and support services, go to the Hewlett Packard Enterprise Support Center website:
<http://www.hpe.com/support/hpesc>

Information to collect

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

Accessing updates

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

Hewlett Packard Enterprise Support Center

www.hpe.com/support/hpesc

Hewlett Packard Enterprise Support Center: Software downloads

www.hpe.com/support/downloads

Software Depot

www.hpe.com/support/softwaredepot

- To subscribe to eNewsletters and alerts:
www.hpe.com/support/e-updates
- To view and update your entitlements, and to link your contracts and warranties with your profile, go to the Hewlett Packard Enterprise Support Center **More Information on Access to Support Materials** page:
www.hpe.com/support/AccessToSupportMaterials

! **IMPORTANT:**

Access to some updates might require product entitlement when accessed through the Hewlett Packard Enterprise Support Center. You must have an HPE Passport set up with relevant entitlements.

Customer self repair

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

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

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

Remote support

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

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

Remote support and Proactive Care information

HPE Get Connected

www.hpe.com/services/getconnected

HPE Proactive Care services

www.hpe.com/services/proactivecare

HPE Proactive Care service: Supported products list

www.hpe.com/services/proactivecaresupportedproducts

HPE Proactive Care advanced service: Supported products list

www.hpe.com/services/proactivecareadvancedsupportedproducts

Proactive Care customer information

Proactive Care central

www.hpe.com/services/proactivecarecentral

Proactive Care service activation

www.hpe.com/services/proactivecarecentralgetstarted

Warranty information

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

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

Additional warranty information

HPE ProLiant and x86 Servers and Options

www.hpe.com/support/ProLiantServers-Warranties

HPE Enterprise Servers

www.hpe.com/support/EnterpriseServers-Warranties

HPE Storage Products

www.hpe.com/support/Storage-Warranties

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

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.