



**Hewlett Packard  
Enterprise**

## **HPE Synergy Software Overview Guide**

### **Abstract**

This document provides an overview and reference links for the relevant software configuration utilities used to support HPE Synergy. The supported tools and utilities configure and manage the system components, deploy operating systems, update the firmware, and provide remote support.

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# Contents

<b>About this document.....</b>	<b>5</b>
Using the HPE Synergy Software Overview Guide.....	5
HPE Synergy terminology.....	5
<b>Software overview.....</b>	<b>6</b>
Using software and configuration utilities for HPE Synergy.....	6
Server mode.....	6
Product QuickSpecs.....	6
<b>Configuring and managing system components.....</b>	<b>7</b>
Supported software for managing system components.....	7
Consoles used with HPE Synergy.....	7
HPE OneView.....	7
About HPE OneView.....	7
HPE OneView REST API.....	8
HPE OneView Global Dashboard User Guide and Help.....	8
Compute module hardware management features.....	8
Compute module hardware monitoring features.....	9
Firmware requirements.....	9
HPE iLO.....	10
iLO Federation.....	10
iLO Service Port.....	11
iLO RESTful API.....	11
RESTful Interface Tool.....	12
UEFI System Utilities.....	12
UEFI System Utilities for HPE Synergy Gen9 Compute Modules.....	12
UEFI System Utilities for HPE Synergy Gen10 Compute modules.....	13
HPE Smart Storage Administrator.....	15
Monitoring tools.....	16
Active Health System.....	16
Active Health System Viewer.....	17
Integrated Management Log.....	17
HPE InfoSight for servers .....	17
<b>OS deployment.....</b>	<b>19</b>
Supported OS deployment methods for HPE Synergy compute modules.....	19
HPE Synergy Image Streamer.....	19
Intelligent Provisioning.....	19
Scripting Toolkit for Windows and Linux.....	19
<b>Firmware update overview.....</b>	<b>20</b>
Updating the firmware.....	20
<b>Remote support.....</b>	<b>21</b>

Remote Support for HPE OneView.....	21
Troubleshooting within HPE OneView.....	21
Automatic Server Recovery.....	21
Redundant ROM support.....	21
Safety and security benefits.....	21
<b>HPE Synergy documentation resources.....</b>	<b>22</b>
HPE Synergy firmware update resources.....	23
<b>HPE Synergy document overview (documentation map).....</b>	<b>25</b>
<b>Websites.....</b>	<b>26</b>
<b>Support and other resources.....</b>	<b>27</b>
Accessing Hewlett Packard Enterprise Support.....	27
Accessing updates.....	27
Customer self repair.....	28
Remote support.....	28
Warranty information.....	28
Regulatory information.....	28
Documentation feedback.....	29
<b>Acronyms and abbreviations.....</b>	<b>30</b>

# About this document

## Using the HPE Synergy Software Overview Guide

The *HPE Synergy Software Overview Guide* is a task-based document that provides an overview and reference links to the supported software and configuration tools available for HPE Synergy.

There are various supported utilities for each of the tasks covered in this document, including:

- **Configuring and managing system components** on page 7
- **OS deployment** on page 19
- **Updating the firmware** on page 20
- **Remote support** on page 21

## HPE Synergy terminology

The terms used for HPE Synergy hardware components in the software tools might be different than the terms used in this document. For example, in the software, a compute module might be called server and a frame might be called enclosure.

For more information about HPE Synergy terminology, see the *HPE Synergy Glossary* on the Hewlett Packard Enterprise Information Library (<http://www.hpe.com/info/synergy-docs>).

# Software overview

## Using software and configuration utilities for HPE Synergy

**HPE Synergy** is the world's first platform architected for **Composable Infrastructure**—built from the ground up to bridge traditional and new IT with the agility, speed, and continuous delivery needed for today's applications. It is composed of various hardware configurations and managed by HPE OneView.

Unlike traditional servers, the compute modules, storage modules, and components that create an HPE Synergy system are completely managed by a single software platform, HPE OneView. Though other standard management, deployment, and update software utilities can still be used, the majority of the functionality is handled through HPE OneView.

## Server mode

The software and configuration utilities presented in this section operate in online mode, offline mode, or both.

<b>Software or configuration utility</b>	<b>Server mode</b>
<b>HPE OneView</b> on page 7	Online and Offline
<b>Active Health System Viewer</b> on page 17	Online and Offline
<b>Active Health System</b> on page 16	Online and Offline
<b>HPE iLO</b> on page 10	Online and Offline
<b>Integrated Management Log</b> on page 17	Online and Offline
<b>UEFI System Utilities</b> on page 12	Offline
<b>HPE Smart Storage Administrator</b> on page 15	Online and Offline
<b>HPE Synergy Image Streamer</b> on page 19	Online and Offline
<b>Intelligent Provisioning</b> on page 19	Online and Offline
<b>Scripting Toolkit for Windows and Linux</b> on page 19	Online
<b>Remote Support for HPE OneView</b> on page 21	Online

## Product QuickSpecs

For more information about product features, specifications, options, configurations, and compatibility, see the product QuickSpecs on the Hewlett Packard Enterprise website (<http://www.hpe.com/info/qs>).

# Configuring and managing system components

## Supported software for managing system components

- HPE OneView
- HPE OneView REST API
- HPE OneView PowerShell
- HPE OneView Python Scripts
- HPE OneView Global Dashboard
- HPE iLO
- iLO RESTful API
- UEFI System Utilities
- HPE Smart Storage Administrator

## Consoles used with HPE Synergy

### HPE Synergy Console

The HPE Synergy Console provides access to HPE OneView, frame health information, appliance maintenance consoles, serial console access to interconnect modules, and access to iLO Integrated Remote Console for compute modules within the frame. For more information, see the *HPE Synergy Frame Link Module User Guide* on the Hewlett Packard Enterprise website (<http://www.hpe.com/info/synergy-docs>).

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**NOTE:** To access HPE OneView, the frame must either have an HPE Synergy Composer installed or be claimed by HPE OneView.

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### Maintenance consoles

- HPE OneView Maintenance Console—For more information, see the HPE OneView documentation on the Hewlett Packard Enterprise website (<http://www.hpe.com/info/synergy-docs>).
- HPE Synergy Image Streamer maintenance console—For more information, see the HPE Synergy Image Streamer documentation on the Hewlett Packard Enterprise website (<http://www.hpe.com/info/synergy-docs>).

### Other consoles

Other consoles are available in HPE Synergy, but the ones discussed in this section are most commonly referenced in this document.

## HPE OneView

### About HPE OneView

HPE OneView—hosted on the HPE Synergy Composer appliance installed within an HPE Synergy 12000 Frame—enables you to comprehensively manage an HPE Synergy system throughout the hardware life cycle. Each HPE Synergy system is managed by an HPE Synergy Composer (or pair of Composers for high availability) running HPE OneView. HPE OneView makes it possible to easily monitor, configure, and manage physical and logical compute resources through either a GUI or by using REST APIs.

HPE OneView relies on a resource model that reduces complexity and simplifies the provisioning, management, and monitoring of your HPE Synergy system. This model includes logical resources—enclosures, interconnects, server profiles, templates, and groups—that, when applied to corresponding physical resources, provide flexible, repeatable configurations for use in your data center.

For more information about HPE OneView, see Hewlett Packard Enterprise website (<http://www.hpe.com/info/oneview>).

For support and documentation, including online help files, see the Hewlett Packard Enterprise Information Library (<http://www.hpe.com/info/oneview/docs>).

## HPE OneView REST API

The HPE Synergy Composer appliance module has a resource-oriented architecture that provides a uniform REST interface. Every resource has one URI (Uniform Resource Identifier) and represents a physical device or logical construct. You can use REST APIs to manipulate resources for HPE Synergy hardware components managed by HPE OneView, including:

- Subscribing to messages and activity notifications
- Managing frame and compute module settings
- Configuring networks, interconnects, and logical interconnect groups
- Managing system security

To view a complete list of resources, see the *HPE OneView REST API Reference Guide* on the [Hewlett Packard Enterprise website](#).

## HPE OneView Global Dashboard User Guide and Help

The HPE OneView Global Dashboard provides a unified view of health, alerting, and key resources managed by HPE OneView across multiple platforms and data center sites. The *HPE OneView Global Dashboard User Guide* is in the Hewlett Packard Enterprise Information Library ([www.hpe.com/info/synergy-docs](http://www.hpe.com/info/synergy-docs)). It provides instructions for installing, configuring, navigating, and troubleshooting the HPE OneView Global Dashboard.

## Compute module hardware management features

The HPE Synergy Composer appliance supports the following features on compute module hardware when added as managed:

- Power on or power off
- View inventory data
- Monitor power, cooling, and utilization — Might not be supported on all compute modules
- Monitor health and alerts
- Launch the iLO Integrated Remote Console
- SSO (single-sign-on) to iLO web interface
- Automatic firmware upgrade (iLO) to minimum supported version when added to the appliance—Available when an SPP is uploaded to the appliance, otherwise, the firmware will be put in an `Unmanaged` state.
- Rack visualization and editing
- Automatic discovery of server hardware type



- Remote support
- Server profile features, including:
  - BIOS settings
  - Firmware
  - Connections to networks
  - Boot order
  - Local storage
  - SAN storage

## Compute module hardware monitoring features

When you monitor compute module hardware, the appliance supports the following features:

- Power on or power off
- Monitor power, cooling, and utilization—Might not be supported on all compute modules
- Monitor health and alerts
- Launch the iLO Integrated Remote Console
- SSO (single-sign-on) to the HPE iLO web interface
- Automatic discovery of server hardware type

For information about changing a hardware component from monitored to managing, see the *HPE OneView User Guide for HPE Synergy* on the Hewlett Packard Enterprise website (<http://www.hpe.com/info/synergy-docs>).

## Firmware requirements

To add and manage new components, the component must meet the minimum firmware requirements.

For more information about the latest software and firmware requirements, supported hardware, and configuration maximums for HPE OneView, see the *HPE OneView Support Matrix for HPE Synergy* in the Hewlett Packard Enterprise Information Library (<http://www.hpe.com/info/synergy-docs>).

In addition, the HPE Synergy Software Release Information site (<http://www.hpe.com/info/synergy-sw-release-information>) provides an interactive resource for firmware update information. HPE Synergy firmware update resources are also available within HPE OneView.

## Supported web browsers and versions

The following web browsers have been tested and qualified for use with HPE OneView.

- Microsoft Internet Explorer Version 11
- Microsoft Edge
- Mozilla Firefox Version 64.x
- Mozilla Firefox ESR (Extended Support Release) Version 52.x
- Google Chrome Version 71.x



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**IMPORTANT:** Hewlett Packard Enterprise makes every effort to support newer versions of and updates to supported web browsers. However, newer versions do not always work as expected. There might be issues with the web browsers that preclude support with the current release of HPE OneView, or there might be a gap between the time when the web browsers are released and the time when browser support is available in HPE OneView. In these cases, Hewlett Packard Enterprise will endeavor to support the newer browser versions in the next maintenance release or full release of HPE OneView.

If you encounter a problem with a newer, untested version of a web browser, submit a report to your authorized support representative. In some cases, the short-term solution might be to revert to an earlier, supported web browser version.

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## Screen resolution

Minimum resolution: 1024 x 768

Recommended resolution: 1280 x 1024 or greater

## HPE iLO

iLO is a remote server management processor embedded on the system boards of HPE Synergy compute modules. HPE iLO enables the monitoring and controlling of servers from remote locations. HPE iLO management is a powerful tool that provides multiple ways to configure, update, monitor, and repair servers remotely. iLO (Standard) comes preconfigured on Hewlett Packard Enterprise servers without an additional cost or license.

Features that enhance server administrator productivity are licensed. For more information, see the HPE iLO licensing guide.

For HPE Synergy Gen9 compute modules, see the iLO 4 documentation on the Hewlett Packard Enterprise website (<http://www.hpe.com/info/ilo-docs>).

For HPE Synergy Gen10 compute modules, see the iLO 5 documentation on the Hewlett Packard Enterprise website (<http://www.hpe.com/support/ilo-docs>).

## iLO Federation

iLO Federation enables you to manage multiple compute modules from one system using the iLO web interface.

When configured for iLO Federation, iLO uses multicast discovery and peer-to-peer communication to enable communication between the systems in an iLO Federation group.

When an iLO Federation page loads, a data request is sent from the iLO system running the web interface to its peers, and from those peers to other peers until all data for the selected iLO Federation group is retrieved.

iLO supports the following features:

- Group health status—View compute module health and model information.
- Group Virtual Media—Connect URL-based media for access by the servers in an iLO Federation group.
- Group power control—Manage the power status of the compute modules in an iLO Federation group.
- Group power capping—Set dynamic power caps for the compute modules in an iLO Federation group.
- Group firmware update—Update the firmware of the compute modules in an iLO Federation group.
- Group license installation—Enter a license key to activate iLO licensed features on the compute modules in an iLO Federation group.
- Group configuration—Add iLO Federation group memberships for multiple iLO systems.

Any user can view information on iLO Federation pages, but a license is required for using the following features:

- Group Virtual Media
- Group power control
- Group power capping
- Group configuration
- Group firmware update

For HPE Synergy Gen9 compute modules, see the *HPE iLO 4 User Guide* on the Hewlett Packard Enterprise website (<http://www.hpe.com/info/ilo-docs>).

For HPE Synergy Gen10 compute modules, see the *HPE iLO 5 User Guide* on the Hewlett Packard Enterprise website (<http://www.hpe.com/support/ilo-docs>).

## iLO Service Port

The Service Port is a USB port with the label **iLO** on supported servers and compute modules.

To find out if your server or compute module supports this feature, see the server specifications document at the following website: <http://www.hpe.com/info/qs>.

When you have physical access to a server, you can use the Service Port to do the following:

- Download the Active Health System Log to a supported USB flash drive.  
When you use this feature, the connected USB flash drive is not accessible by the host operating system.
- Connect a client (such as a laptop) with a supported USB to Ethernet adapter to access the iLO web interface, remote console, CLI, iLO RESTful API, or scripts.

Hewlett Packard Enterprise recommends the HPE USB to Ethernet Adapter (part number Q7Y55A).

Some servers, such as the XL170r, require an adapter to connect a USB to Ethernet adapter to the iLO Service Port.

Hewlett Packard Enterprise recommends the HPE Micro USB to USB Adapter (part number 789904-B21).

When you use the iLO Service Port:

- Actions are logged in the iLO event log.
- The server UID flashes to indicate the Service Port status.  
You can also retrieve the Service Port status by using a REST client and the iLO RESTful API.
- You cannot use the Service Port to boot any device within the server, or the server itself.
- You cannot access the server by connecting to the Service Port.
- You cannot access the connected device from the server.

For more information about the iLO Service Port, see the iLO user guide at the following website: <http://www.hpe.com/support/ilo-docs>.

 For more information, see the [Anywhere Access to HPE ProLiant Gen10 Servers](#) video.

## iLO RESTful API

iLO includes the iLO RESTful API, which is Redfish API conformant. The iLO RESTful API is a management interface that server management tools can use to perform configuration, inventory, and monitoring tasks by sending basic HTTPS operations (GET, PUT, POST, DELETE, and PATCH) to the iLO web server.

To learn more about the iLO RESTful API, see the Hewlett Packard Enterprise website (<http://www.hpe.com/support/restfulinterface/docs>).

For specific information about automating tasks using the iLO RESTful API, see libraries and sample code at <http://www.hpe.com/info/redfish>.

📺 For more information, watch the [Redfish & How it works with HPE Server Management](#) video.

## RESTful Interface Tool

The RESTful Interface Tool (iLOREST) is a scripting tool that allows you to automate HPE server management tasks. It provides a set of simplified commands that take advantage of the iLO RESTful API. You can install the tool on your computer for remote use or install it locally on a server with a Windows or Linux Operating System. The RESTful Interface Tool offers an interactive mode, a scriptable mode, and a file-based mode similar to CONREP to help decrease automation times.

For more information, see the following website: <http://www.hpe.com/info/resttool>.

## UEFI System Utilities

The UEFI System Utilities is embedded in the system ROM. The UEFI System Utilities enable you to perform a wide range of configuration activities, including:

- Configuring system devices and installed options
- Enabling and disabling system features
- Displaying system information
- Selecting the primary boot controller
- Configuring memory options
- Selecting a language
- Launching other preboot environments such as the Embedded UEFI Shell and Intelligent Provisioning

For more information, see the UEFI System Utilities user guide for your product on the [Hewlett Packard Enterprise website](#).

To access mobile-ready online help for the UEFI System Utilities and UEFI Shell, scan the QR code at the bottom of the screen. For on-screen help, press the **F1** key.

## UEFI System Utilities for HPE Synergy Gen9 Compute Modules

### Selecting the boot mode

#### Prerequisites

When booting to **UEFI Mode**, leave **UEFI Optimized Boot** enabled so that the system uses native UEFI graphic drivers.

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**NOTE:** The Legacy Boot Mode option is available for the m710x and m710x-L server blades.

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#### Procedure

1. From the **System Utilities** screen, select **System Configuration > BIOS/Platform Configuration (RBSU) > Boot Options > Boot Mode** and press **Enter**.
2. Select a setting and press **Enter**.

- a. **UEFI Mode** (default)—Configures the system to boot to a UEFI compatible operating system.
  - b. **Legacy Boot Mode**—Available for m710x and m710x-L server blades. Configures the system to boot to a traditional operating system in Legacy Boot compatibility mode.
3. Press **F10**.
  4. Reboot the server.

## Secure Boot configuration

Secure Boot is integrated in the UEFI specification on which the Hewlett Packard Enterprise implementation of UEFI is based. Secure Boot is implemented in the BIOS and does not require special hardware. Secure Boot ensures that each component launched during the boot process is digitally signed. Secure Boot also ensures that the signature is validated against a set of trusted certificates embedded in the UEFI BIOS. Secure Boot validates the software identity of the following components in the boot process:

- UEFI drivers loaded from PCIe cards
- UEFI drivers loaded from mass storage devices
- Preboot UEFI shell applications
- OS UEFI boot loaders

When enabled, only firmware components and operating systems with boot loaders that have an appropriate digital signature can execute during the boot process. Only operating systems that support Secure Boot and have an EFI boot loader signed with one of the authorized keys can boot. For more information about supported operating systems, see the UEFI System Utilities and Shell release notes for your compute module on the [Hewlett Packard Enterprise website](#).

A physically present user can customize the certificates embedded in the UEFI BIOS by adding or removing their own certificates.

When Secure Boot is enabled, the System Maintenance Switch does not restore all manufacturing defaults when set to the ON position. For security reasons, the following are not restored to defaults when the System Maintenance Switch is in the ON position:

- Secure Boot is not disabled and remains enabled.
- The Boot Mode remains in UEFI Boot Mode even if the default boot mode is Legacy Boot Mode.
- The Secure Boot Database is not restored to its default state.
- iSCSI Software Initiator configuration settings are not restored to defaults.

## UEFI System Utilities for HPE Synergy Gen10 Compute modules

HPE Synergy Gen10 compute modules with UEFI can provide the following:

- Support for boot partitions larger than 2.2 TB. Such configurations could previously only be used for boot drives when using RAID solutions.
- Secure Boot that enables the system firmware, option card firmware, operating systems, and software collaborate to enhance platform security.
- UEFI Graphical User Interface (GUI)

- An Embedded UEFI Shell that provides a preboot environment for running scripts and tools.
- Boot support for option cards that only support a UEFI option ROM.

## Selecting the boot mode

This server provides two **Boot Mode** configurations: UEFI Mode and Legacy BIOS Mode. Certain boot options require that you select a specific boot mode. By default, the boot mode is set to **UEFI Mode**. The system must boot in **UEFI Mode** to use certain options, including:

- Secure Boot, UEFI Optimized Boot, Generic USB Boot, IPv6 PXE Boot, iSCSI Boot, and Boot from URL
- Fibre Channel/FCoE Scan Policy

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**NOTE:** The boot mode you use must match the operating system installation. If not, changing the boot mode can impact the ability of the server to boot to the installed operating system.

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### Prerequisite

When booting to **UEFI Mode**, leave **UEFI Optimized Boot** enabled.

### Procedure

1. From the **System Utilities** screen, select **System Configuration > BIOS/Platform Configuration (RBSU) > Boot Options > Boot Mode**.
2. Select a setting.
  - **UEFI Mode** (default)—Configures the system to boot to a UEFI compatible operating system.
  - **Legacy BIOS Mode**—Configures the system to boot to a traditional operating system in Legacy BIOS compatibility mode.
3. Save your setting.
4. Reboot the server.

## Secure Boot

Secure Boot is a server security feature that is implemented in the BIOS and does not require special hardware. Secure Boot ensures that each component launched during the boot process is digitally signed and that the signature is validated against a set of trusted certificates embedded in the UEFI BIOS. Secure Boot validates the software identity of the following components in the boot process:

- UEFI drivers loaded from PCIe cards
- UEFI drivers loaded from mass storage devices
- Preboot UEFI Shell applications
- OS UEFI boot loaders

When Secure Boot is enabled:

- Firmware components and operating systems with boot loaders must have an appropriate digital signature to execute during the boot process.
- Operating systems must support Secure Boot and have an EFI boot loader signed with one of the authorized keys to boot. For more information about supported operating systems, see <http://www.hpe.com/servers/ossupport>.

You can customize the certificates embedded in the UEFI BIOS by adding or removing your own certificates, either from a management console directly attached to the server, or by remotely connecting to the server using the iLO Remote Console.

You can configure Secure Boot:

- Using the **System Utilities** options described in the following sections.
- Using the iLO RESTful API to clear and restore certificates. For more information, see the Hewlett Packard Enterprise website (<http://www.hpe.com/info/redfish>).
- Using the `secboot` command in the Embedded UEFI Shell to display Secure Boot databases, keys, and security reports.

## Launching the Embedded UEFI Shell

Use the **Embedded UEFI Shell** option to launch the Embedded UEFI Shell. The Embedded UEFI Shell is a preboot command-line environment for scripting and running UEFI applications, including UEFI boot loaders. The Shell also provides CLI-based commands you can use to obtain system information, and to configure and update the system BIOS.

### Prerequisites

**Embedded UEFI Shell** is set to **Enabled**.

### Procedure

1. From the **System Utilities** screen, select **Embedded Applications > Embedded UEFI Shell**.

The **Embedded UEFI Shell** screen appears.

2. Press any key to acknowledge that you are physically present.

This step ensures that certain features, such as disabling **Secure Boot** or managing the **Secure Boot** certificates using third-party UEFI tools, are not restricted.

3. If an administrator password is set, enter it at the prompt and press **Enter**.

The `Shell>` prompt appears.

4. Enter the commands required to complete your task.

5. Enter the `exit` command to exit the Shell.

## HPE Smart Storage Administrator

The HPE SSA is a configuration and management tool for HPE Smart Array controllers.

The HPE SSA exists in three interface formats: the HPE SSA GUI, the HPE SSA CLI, and HPE SSA Scripting. Although all formats support configuration tasks, some of the advanced tasks are available in only one format.

Some HPE SSA features include the following:

- Support for online array capacity expansion, logical drive extension, assignment of online spares, and RAID or stripe size migration
- Diagnostic and SmartSSD Wear Gauge functionality on the Diagnostics tab
- Access to additional features for supported controllers

For more information about HPE SSA, see the [Hewlett Packard Enterprise website](#).

## Monitoring tools

The following tools are used in HPE Synergy to facilitate monitoring:

- Active Health System
- Active Health System Viewer
- Integrated Management Log
- HPE InfoSight for servers

## Active Health System

The Active Health System monitors and records changes in the server hardware and system configuration.

The Active Health System provides:

- Continuous health monitoring of over 1600 system parameters
- Logging of all configuration changes
- Consolidated health and service alerts with precise time stamps
- Agentless monitoring that does not affect application performance

For HPE Synergy Gen9 compute modules, see the *HPE iLO 4 User Guide* on the Hewlett Packard Enterprise website (<http://www.hpe.com/info/ilo-docs>).

For HPE Synergy Gen10 compute modules, see the *HPE iLO 5 User Guide* on the Hewlett Packard Enterprise website (<http://www.hpe.com/support/ilo-docs>).

## Active Health System data collection

The Active Health System does not collect information about your operations, finances, customers, employees, or partners.

Examples of information that is collected:

- Server model and serial number
- Processor model and speed
- Storage capacity and speed
- Memory capacity and speed
- Firmware/BIOS and driver versions and settings

The Active Health System does not parse or change OS data from third-party error event log activities (for example, content created or passed through the OS).



## Active Health System Log

The data collected by the Active Health System is stored in the Active Health System Log. The data is logged securely, isolated from the operating system, and separate from customer data. Host resources are not consumed in the collection and logging of Active Health System data.

When the Active Health System Log is full, new data overwrites the oldest data in the log.

It takes less than 5 minutes to download the Active Health System Log and send it to a support professional to help you resolve an issue.

When you download and send Active Health System data to Hewlett Packard Enterprise, you agree to have the data used for analysis, technical resolution, and quality improvements. The data that is collected is managed according to the privacy statement, available at <http://www.hpe.com/info/privacy>.

You can also upload the log to the Active Health System Viewer. For more information, see the Active Health System Viewer documentation at the following website: <http://www.hpe.com/support/ahsv-docs>.

## Active Health System Viewer

Active Health System Viewer (AHSV) is an online tool used to read, diagnose, and resolve server issues quickly using AHS uploaded data. AHSV provides Hewlett Packard Enterprise recommended repair actions based on experience and best practices. AHSV provides the ability to:

- Read server configuration information
- View Driver/Firmware inventory
- Review Event Logs
- Respond to Fault Detection Analytics alerts
- Open new and update existing support cases

## Integrated Management Log

The IML records hundreds of events and stores them in an easy-to-view form. The IML timestamps each event with one-minute granularity.

You can view recorded events in the IML in several ways, including the following:

- From within HPE SIM
- From within the UEFI System Utilities
- From within the Embedded UEFI shell
- From within operating system-specific IML viewers:
  - For Windows: IML Viewer
  - For Linux: IML Viewer Application
- From within the iLO web interface
- From within Insight Diagnostics (for Gen9 servers only)

## HPE InfoSight for servers

The HPE InfoSight portal is a secure web interface hosted by HPE that allows you to monitor supported devices through a graphical interface.

HPE InfoSight for servers:

- Combines the machine learning and predictive analytics of HPE InfoSight with the health and performance monitoring of Active Health System (AHS) and HPE iLO to optimize performance and predict and prevent problems
- Provides automatic collection and analysis of the sensor and telemetry data from AHS to derive insights from the behaviors of the install base to provide recommendations to resolve problems and improve performance

For more information on getting started and using HPE InfoSight for servers, go to: <http://www.hpe.com/info/infosight-servers-docs>.

# OS deployment

## Supported OS deployment methods for HPE Synergy compute modules

- [HPE Synergy Image Streamer](#) on page 19
- [Intelligent Provisioning](#) on page 19
- [Scripting Toolkit for Windows and Linux](#) on page 19

## HPE Synergy Image Streamer

HPE Synergy Image Streamer is a management appliance used to deploy and customize operating systems for Synergy servers. Administrators build a library of templates and OS images that can be used for repeatable, reliable, and scalable deployment.

HPE OneView and Image Streamer create a stateless server environment where bootable images are separated from the physical servers. With this stateless server environment, you can quickly replace the physical servers without the need to redeploy the operating system.

Unified REST API access to Synergy Image Streamer enables programmatic control of its functions. Provisioning can be controlled from the HPE OneView UI or it can be seamlessly integrated into existing scripting processes.

## Intelligent Provisioning

Intelligent Provisioning is a single-server deployment tool embedded in HPE Synergy compute modules. Intelligent Provisioning simplifies compute module setup, providing a reliable and consistent way to deploy servers.

Intelligent Provisioning prepares the system for installing original, licensed vendor media and Hewlett Packard Enterprise-branded versions of OS software. Intelligent Provisioning also prepares the system to integrate optimized server support software from the SPP. SPP is a comprehensive systems software and firmware solution for HPE Synergy compute modules. These components are preloaded with a basic set of firmware and OS components that are installed along with Intelligent Provisioning.

After the compute module is running, you can update the firmware to install additional components. You can also update any components that have been outdated since the server was manufactured.

To access Intelligent Provisioning:

- From the POST screen, press **F10**.
- From the iLO web interface using **Always On**. **Always On** allows you to access Intelligent Provisioning without rebooting your HPE Synergy Gen10 compute module.

## Scripting Toolkit for Windows and Linux

The STK for Windows and Linux is a server deployment product that delivers an unattended automated installation for high-volume server deployments. The STK is designed to support ProLiant servers. The toolkit includes a modular set of utilities and important documentation that describes how to apply these tools to build an automated server deployment process.

The STK provides a flexible way to create standard server configuration scripts. These scripts are used to automate many of the manual steps in the server configuration process. This automated server configuration process cuts time from each deployment, making it possible to scale rapid, high-volume server deployments.

For more information or to download the STK, see the [Hewlett Packard Enterprise website](#).

# Firmware update overview

## Updating the firmware

The following instructions provide an overview of the firmware update process for HPE Synergy. For more information, see the *HPE OneView for Synergy Firmware and Driver Update Guide* in the Hewlett Packard Enterprise Information Library ([www.hpe.com/info/synergy-docs](http://www.hpe.com/info/synergy-docs)).

The following components require updates:

- HPE Synergy Composer
- HPE Synergy Image Streamer
- Shared infrastructure (frame link modules, interconnect modules, and I/O adapters)
- Compute modules

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 **IMPORTANT:** Hewlett Packard Enterprise recommends that you update the components in the following order:

1. HPE Synergy Composer
  2. HPE Synergy Image Streamer
  3. Infrastructure components and compute modules
- 

### Procedure

1. Download the HPE Synergy software release from the Hewlett Packard Enterprise website (<http://www.hpe.com/downloads/synergy>).
2. Ensure that you have fulfilled all critical prerequisites.
3. Perform a backup of your HPE Synergy components before updating your firmware.
4. Update the firmware for HPE Synergy Composer.
5. Update the firmware for HPE Synergy Image Streamer.
6. Update shared infrastructure and stage firmware on compute modules using the orchestrated update method initiated through a logical enclosure.
7. Reboot during a maintenance window to activate firmware on compute modules.

# Remote support

## Remote Support for HPE OneView

When Remote Support is enabled in your HPE OneView management configuration, any alert or error recorded on a component within the management ring is automatically logged and sent to Hewlett Packard Enterprise or an authorized support partner. In the event of a hardware malfunction that is covered under warranty, a replacement part is shipped.

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**NOTE:** To enable Remote Support in HPE OneView, see the instructions in the HPE OneView Help for HPE Synergy on the [Hewlett Packard Enterprise website](#).

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Register with Hewlett Packard Enterprise to allow automatic case creation for hardware failures on compute modules or frames, and to enable **Proactive Care**. When enabled, all eligible devices are automatically enabled for remote support.

## Troubleshooting within HPE OneView

HPE OneView graphical user interface includes alert notifications and options for troubleshooting within HPE OneView. The UI provides multiple views of HPE Synergy components, including colored icons to indicate resource status and potential problem resolution in messages.

You can also use the Enclosure view and Map view to quickly see the status of all discovered HPE Synergy hardware.

## Automatic Server Recovery

ASR is a feature that causes the system to restart when a catastrophic operating system error occurs, such as a blue screen, ABEND, or panic. A system fail-safe timer, the ASR timer, starts when the System Management driver, also known as the Health Driver, is loaded. When the operating system is functioning properly, the system periodically resets the timer. However, when the operating system fails, the timer expires and restarts the server.

ASR increases server availability by restarting the server within a specified time after a system hang. You can disable ASR from the System Management Homepage or through UEFI System Utilities.

## Redundant ROM support

The compute module enables you to upgrade or configure the ROM safely with redundant ROM support. The compute module has a single ROM that acts as two separate ROM images. In the standard implementation, one side of the ROM contains the current ROM program version, while the other side of the ROM contains a backup version.

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**NOTE:** The compute module ships with the same version programmed on each side of the ROM.

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## Safety and security benefits

When you flash the system ROM, the flashing mechanism writes over the backup ROM and saves the current ROM as a backup, enabling you to switch easily to the alternate ROM version if the new ROM becomes corrupted for any reason. This feature protects the existing ROM version, even if you experience a power failure while flashing the ROM.

# HPE Synergy documentation resources

The Hewlett Packard Enterprise Information Library (<https://www.hpe.com/info/synergy-docs>) provides a comprehensive, one stop location for all HPE Synergy documentation, including installation instructions, user guides, maintenance and service guides, best practices, and links to additional resources. The Library supports filtering to improve findability.

<b>Document:</b>	<b>Provides:</b>
<b>HPE Synergy Solution</b>	
Start Here Poster	First-time setup procedure of an HPE Synergy solution, from hardware installation to HPE OneView configuration.
Release Notes	Release descriptions, new features, documentation updates, and issues and suggested actions for products like HPE Synergy, HPE Synergy Image Streamer, and HPE OneView.
Migration Guide	Information about migrating from HPE Synergy Composer to HPE Synergy Composer2 and from HPE Synergy Frame Link Module to HPE Synergy 4-port Frame Link Module.
Validating HPE Synergy appliance firmware: Preparing an HPE Synergy appliance for first-time setup	Procedures for preparing an HPE Synergy appliance for initial use in a system.
Appliance User Guide	Outlines appliance module management, configuration, and security.
Cabling Guide	Cabling examples for management network, HPE Synergy Image Streamer, interconnects, and power.
Configuration and Compatibility Guide	An overview of HPE Synergy management and fabric architecture, detailed hardware component identification, and configuration requirements for hardware components.
Frame Link Module User Guide	Management, configuration, and security information for the HPE Synergy 4-Port Frame Link Module, HPE Synergy Frame Link Module, and HPE Synergy Management Console.
Power Management Overview Guide	For individuals wanting to gain additional details on how HPE Synergy manages power usage in an HPE Synergy 12000 Frame.
Troubleshooting Guide	Information for resolving common problems and courses of action for fault isolation and identification, issue resolution, and maintenance.
Error Message Guide	Information for resolving issues associated with specific error messages.
Documentation Map	A descriptive map to filter and locate the HPE Synergy documentation you need.
Glossary	Terminology, descriptions, and drawings to provide an understanding of the product and to help familiarize with the HPE Synergy ecosystem.
<b>HPE Synergy Image Streamer</b>	
Deployment workflow	Interactively describes the various steps involved in setting up HPE Synergy Image Streamer for OS deployment and has pointers to the different documents that contain detailed instructions on the steps.

*Table Continued*

<b>Document:</b>	<b>Provides:</b>
Support Matrix	The latest software and firmware requirements, supported hardware, and configuration maximums for HPE Synergy Image Streamer.
User Guide	The OS deployment process using HPE Synergy Image Streamer, features of HPE Synergy Image Streamer, and purpose and life cycle of HPE Synergy Image Streamer artifacts. Also includes authentication, authorization, and troubleshooting information for HPE Synergy Image Streamer.
GitHub	The repository ( <a href="https://github.com/HewlettPackard">github.com/HewlettPackard</a> ) contains sample artifacts and documentation on how to use the sample artifacts. Also contains technical white papers explaining deployment steps that can be performed using HPE Synergy Image Streamer.
Help	Information about basic HPE Synergy Image Streamer concepts and user interface based tasks.
<b>HPE OneView for HPE Synergy</b>	
Support Matrix for HPE Synergy	The latest software and firmware requirements, supported hardware, and configuration maximums for HPE OneView.
User Guide and Help for HPE Synergy	Resource features, planning tasks, configuration quick start tasks, navigational tools for the graphical user interface, and more support and reference information for HPE OneView.
Global Dashboard User Guide and Help	Instructions for installing, configuring, navigating, and troubleshooting the HPE OneView Global Dashboard.
Troubleshooting resources	Troubleshooting screens within the tool, online help, and a troubleshooting chapter in the user guide.

## HPE Synergy firmware update resources

<b>HPE OneView for HPE Synergy:</b>	<b>Provides:</b>
Firmware and Driver Update Guide	Information on how to update the firmware and recommended best practices to update firmware and drivers through HPE OneView.

The HPE Synergy Software Release Information site (<http://www.hpe.com/info/synergy-sw-release-information>) provides an interactive resource for firmware update information. HPE Synergy firmware update resources are also available within HPE OneView.

**HPE SYNERGY SOFTWARE RELEASE INFORMATION**

**SOFTWARE OVERVIEW**

FIRMWARE COMPARISON TOOL

FIRMWARE FEATURE TABLE

UPGRADE PATHS TABLE

VMWARE SUPPORT

RESOURCES

# HPE Synergy Software Overview

HPE Synergy Software Releases are available for customers to download and use on products which are under an active HPE Warranty or an HPE Support Agreement. Access to the software releases requires validation via the HPE Support Center.

HPE Synergy Software Releases are comprised of HPE Synergy Management combinations (a versioned set of Composer and Image Streamer software) and HPE Synergy Custom SPP's. Combinations of specific releases have been developed, tested, and released together. For Composer and Image Streamer, a choice of paired release downloads is provided: firmware updates to existing images, and complete images for recovery (in the event that re-imaging of the system is needed).

**IMPORTANT:**

Updated System ROM firmware in HPE Synergy Custom SPP 2019.03.20190514 addresses potential issues of uncorrectable memory errors or boot time memory training issues with Intel Xeon Scalable Performance Bronze and Silver processors. (This issue is not unique to HPE servers.) HPE recommends that any customer experiencing a memory issue immediately update their system ROM before replacing any components. For more information, see [Customer Notice a00072625en\\_us](#)

HPE SYNERGY MANAGEMENT combinations	HPE SYNERGY CUSTOM SPPs			
	JUNE Core SPP 2018.06.0	SEPT Core SPP 2018.09.0	NOV Core SPP 2018.11.0	MAR Core SPP 2019.03.1
<b>HPE Synergy 5.0 Release</b>				
Composer (HPE OneView) 5.0 Image Streamer 5.0	2018.06.20180709	2018.09.20180919	2018.11.20190205 2018.11.20181205	2019.03.20190730 2019.03.20190612 2019.03.20190514 2019.03.20190401
<b>HPE Synergy 4.20 Release</b>				
Composer (HPE OneView) 4.20.01.01 Image Streamer 4.20.00			2018.11.20190205	2019.03.20190612

**Figure 1: HPE Synergy Software Release Information**

<b>HPE Synergy Software Release Information site:</b>	<b>Provides:</b>
Firmware Comparison Tool	A list of HPE Synergy Management Combinations to use to compare HPE Synergy Custom SPPs supported by the selected HPE Synergy Management Combination.
Firmware Feature Table	A list of firmware features to use to compare HPE Synergy Custom SPPs supported by the selected HPE Synergy Management Combination.
Upgrade Paths Table	Information on HPE Synergy Composer and HPE Synergy Image Streamer upgrade paths and HPE Synergy Management Combinations.
VMware Support	Information and requirements for using the VMware vSphere OS with HPE Synergy Custom SPPs.



# HPE Synergy document overview (documentation map)

[www.hpe.com/info/synergy-docs](http://www.hpe.com/info/synergy-docs)

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## Planning

- *HPE Synergy Migration Guide*
- *HPE Synergy 12000 Frame Site Planning Guide*
- *HPE Synergy Configuration and Compatibility Guide*
- *HPE OneView Support Matrix for HPE Synergy*
- *HPE Synergy Image Streamer Support Matrix*
- *Setup Overview for HPE Synergy*
- *HPE Synergy Software Overview Guide*

## Installing hardware

- *HPE Synergy Start Here Poster* (included with frame)
- *HPE Synergy 12000 Frame Setup and Installation Guide*
- *Rack Rails Installation Instructions for the HPE Synergy 12000 Frame* (included with frame)
- *HPE Synergy 12000 Frame Rack Template* (included with frame)
- Hood labels
- User guides
- *HPE Synergy Cabling Guide*
- *HPE OneView Help for HPE Synergy — Hardware setup*

## Configuring for managing and monitoring

- *HPE OneView Help for HPE Synergy*
- *HPE OneView User Guide for HPE Synergy*
- *HPE OneView API Reference for HPE Synergy*
- User Guides
- *HPE Synergy Firmware Comparison Tool*
- *HPE Synergy Upgrade Paths* (website)

## Managing

- *HPE OneView User Guide for HPE Synergy*
- *HPE Synergy Image Streamer Help*
- *HPE Synergy Image Streamer User Guide*
- *HPE Synergy Image Streamer API Reference*
- *HPE Synergy Image Streamer deployment workflow*
- *HPE Synergy 4-Port Frame Link Module User Guide*
- *HPE Synergy Frame Link Module User Guide*

## Monitoring

- *HPE OneView User Guide for HPE Synergy*
- *HPE OneView Global Dashboard User Guide*

## Maintaining

- Product maintenance and service guides
- *HPE OneView for Synergy Firmware and Driver Update Guide*
- *HPE OneView Help for HPE Synergy*
- *HPE OneView User Guide for HPE Synergy*
- *HPE Synergy Appliances Maintenance and Service Guide*

## Troubleshooting

- *HPE OneView alert details*
- *HPE Synergy Troubleshooting Guide*
- *Error Message Guide for HPE ProLiant Gen10 servers and HPE Synergy*
- *Integrated Management Log Messages and Troubleshooting Guide for HPE ProLiant Gen10 and HPE Synergy*
- *HPE OneView API Reference for HPE Synergy*
- *HPE Synergy Image Streamer API Reference*

# Websites

## **General websites**

### **Hewlett Packard Enterprise Information Library**

**<http://www.hpe.com/info/EIL>**

### **Storage white papers and analyst reports**

**<http://www.hpe.com/storage/whitepapers>**

### **Insight Remote Support**

**<http://www.hpe.com/info/insightremotesupport/docs>**

## **Product websites**

### **HPE Synergy Enterprise Information Library**

**<http://www.hpe.com/info/Synergy-docs>**

# 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/info/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](http://www.hpe.com/support/hpesc)

### Hewlett Packard Enterprise Support Center: Software downloads

[www.hpe.com/support/downloads](http://www.hpe.com/support/downloads)

### Software Depot


[www.hpe.com/support/softwaredepot](http://www.hpe.com/support/softwaredepot)

- To subscribe to eNewsletters and alerts:

[www.hpe.com/support/e-updates](http://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](http://www.hpe.com/support/AccessToSupportMaterials)

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-  **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.
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## 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](http://www.hpe.com/services/getconnected)

#### HPE Proactive Care services

[www.hpe.com/services/proactivecare](http://www.hpe.com/services/proactivecare)

#### HPE Proactive Care service: Supported products list

[www.hpe.com/services/proactivecaresupportedproducts](http://www.hpe.com/services/proactivecaresupportedproducts)

#### HPE Proactive Care advanced service: Supported products list

[www.hpe.com/services/proactivecareadvancedsupportedproducts](http://www.hpe.com/services/proactivecareadvancedsupportedproducts)

#### Proactive Care customer information

##### Proactive Care central

[www.hpe.com/services/proactivecarecentral](http://www.hpe.com/services/proactivecarecentral)

##### Proactive Care service activation

[www.hpe.com/services/proactivecarecentralgetstarted](http://www.hpe.com/services/proactivecarecentralgetstarted)

## Warranty information

To view the warranty information for your product, see the links provided below:

#### HPE ProLiant and IA-32 Servers and Options

[www.hpe.com/support/ProLiantServers-Warranties](http://www.hpe.com/support/ProLiantServers-Warranties)

#### HPE Enterprise and Cloudline Servers

[www.hpe.com/support/EnterpriseServers-Warranties](http://www.hpe.com/support/EnterpriseServers-Warranties)

#### HPE Storage Products

[www.hpe.com/support/Storage-Warranties](http://www.hpe.com/support/Storage-Warranties)

#### HPE Networking Products

[www.hpe.com/support/Networking-Warranties](http://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](http://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](http://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](http://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](http://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](mailto: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.

# Acronyms and abbreviations

**API**

application program interface

**AHSV**

Active Health System Viewer

**HPE SSA**

HPE Smart Storage Administrator

**iLO**

Integrated Lights-Out

**IML**

Integrated Management Log

**SPP**

Service Pack for ProLiant

**STK**

Scripting Toolkit

**SUM**

Smart Update Manager

**UEFI**

Unified Extensible Firmware Interface