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Enterprise

HPE VMware ESXi and vSphere 5.x, 6.x and Updates Getting Started Guide

Abstract

This guide is intended to provide setup information for HPE VMware ESXi and vSphere.

Part Number: 818330-003
Published: April 2016
Edition: 1

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1 Navigation tips

Navigating to documentation on the HPE website

- From the URLs in this guide, you may need to make several selections to get to your specific server documentation.
- For online access to technical documentation, self-help resources, live chat assistance, community forums of IT experts, technical knowledge base, remote monitoring and diagnostic tools, go to [**www.hpe.com/support/hpesc**](http://www.hpe.com/support/hpesc).
- For the latest versions of selected technical documentation, go to ([**http://www.hpe.com/info/vmware/proliant-docs**](http://www.hpe.com/info/vmware/proliant-docs)).

2 Overview

Thank you for downloading HPE VMware ESXi and vSphere 5.X, 6.X and updates. HPE has seamlessly integrated VMware ESXi and vSphere, delivering active HPE ProLiant management and consolidated lifecycle management for a consistent, reliable ProLiant experience. For more information, go to the HPE website <http://www.hpe.com/info/vmware>.

HPE CIM (Common Information Module) provides proactively surface hardware monitoring data to deliver the most up-to-date server state information possible. HPE CIM providers and VMware ESXi and vSphere provide active hardware management using HPE SIM (Systems Insight Manager).

You can update VMware ESXi and vSphere using the standard VMware update tools. The integrated hypervisor installation is partitioned with redundant images, enabling a robust upgrade and recovery process.

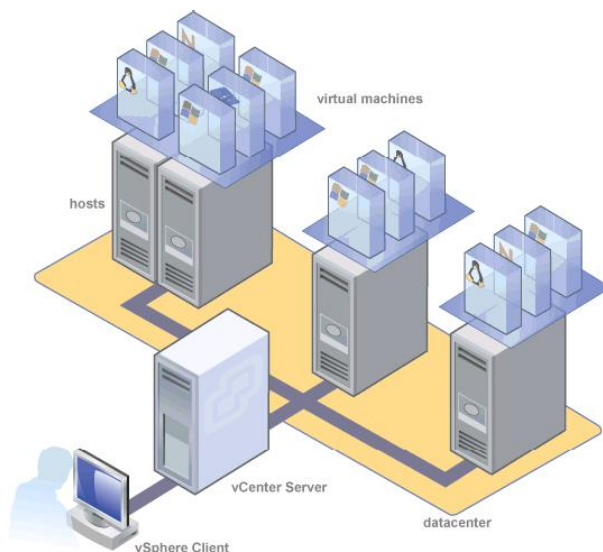
The *HPE VMware ESXi and vSphere 5.X, 6.X and Updates Getting Started Guide* is provided for ESXi and vSphere 5.X, 6.X and updates Standalone Edition or as a part of a HPE VMware vSphere fully licensed product.

The ESXi and vSphere Standalone Edition is well suited for single server virtualization installations and is managed using the free VMware vSphere Client management console. HPE Technical Software Support and Update Service is optional and can be purchased as a support pack.

The installation ISO includes a trial license for the standalone edition, found on the HPE website (<http://www.hpe.com/info/esxi/download>). To obtain a permanent license for the standalone edition, go to the VMware website (<https://www.vmware.com/tryvmware>) and register to obtain the serial number license.

You can also upgrade HPE VMware ESXi and vSphere Standalone Edition to any of the fully licensed products for VMware vSphere including Essentials, Essentials Plus, Standard, Enterprise, and Enterprise Plus editions. For more information on support offered for HPE VMware ESXi and vSphere Standalone Edition and the other licensed products, see the HPE website (<http://www.hpe.com/info/vmware>).

To learn more about license delivery and enabling enterprise entitlement, see “[Activating the standalone license](#)” (page 13) or “[Upgrading to a full license](#)” (page 14).



VMware vSphere includes the following components:

- **Virtual machine** – A virtual machine is a software-based computer capable of running an operating system such as Microsoft® Windows® or GNU/Linux as if the operating system is installed on a physical machine.
- **Host** – A host is a physical machine running platform virtualization software such as ESXi and vSphere. Hosts provide processor, memory, storage, and network resources for one or more virtual machines.
- **vCenter Server** – vCenter Server continuously monitors your virtual infrastructure, automates system administration tasks, and centralizes remote management sessions. It coordinates the resources and activities of individual hosts to efficiently distribute virtual machines and tolerate hardware downtime across a data center.
- **vSphere Client** – vSphere Client is the primary interface for interacting with hosts and virtual machines. vSphere Client can manage a standalone host by connecting directly to the host, or manage multiple hosts by connecting to a vCenter Server machine.

Additional HPE components that complete your virtualization infrastructure:

- **Management network** – A management network enables the server administrator to manage discrete physical servers without relying on a general purpose communications network. This dedicated network enables a reliable connection to the hardware in the event of a network failure.
- **HPE OneView for VMware vCenter Server** – The HPE OneView extension for VMware vCenter Server delivers powerful HPE server host management capabilities to virtualization administrators, enabling comprehensive monitoring, remote control, and power optimization directly from the vCenter console. For more information, see the HPE website (<http://www.hpe.com/info/ovvcenter>).
- **Virtual machine communication network** – A virtual machine communication network is built on the traditional, general purpose communication network. As with physical servers, virtual machine traffic is brokered through a general purpose network if the virtual machines are on discrete servers. Virtual machine communication on the same physical server is handled by a virtual switch within the server.
- **HPE storage network** – A storage network enables virtual machines to access Storage Area Network (SAN) devices similarly to physical servers. The medium for a storage network can be Fibre Channel or Ethernet. HPE recommends HPE StorageWorks SAN solutions.
- **Virtual SAN Appliance** – HPE P4000 Virtual SAN Appliance Software (VSA) provides another way to implement a virtual server high availability solution without the need for separate external shared-storage devices. For more information, see the HPE website (<http://h20565.www2.hpe.com/portal/site/hpsc/public/psi/home/?sp4ts.oid=3936556>).

3 Configuration

HPE recommends using the ProLiant firmware as documented in the HPE ProLiant Server and Option firmware and driver support recipe at <http://vibsdepot.hpe.com>. For more information on server firmware, see the documentation available at: <http://www.hpe.com/info/spp>. HPE recommends using the HPE Custom Image available at (<http://www.hpe.com/info/esxideownload>).

NOTE: For information related to RBSU, see the *ROM-Based Setup Utility User Guide*.

VMware ESXi and vSphere 5.X, 6.X only supports the following installation destinations:

- Any HPE- supported hard drive
- Secure Digital (SD) memory card
- Flash media (USB flash drive)

NOTE: A flash device hosting ESXi and vSphere should not be used to store any other data.

For more information on supported flash devices, see the QuickSpecs VMware Virtualization Software For HPE ProLiant at

HPE website (<http://www.hpe.com/info/vmware>).

To configure a server using VMware ESXi and vSphere:

1. Download the installation ISO from the HPE website <http://www.hpe.com/info/esxideownload>.

NOTE: Some ProLiant servers require the use of the HPE Custom Image as it includes the network and storage drivers required to successfully install. This is documented in the HPE OS Support Matrix at <http://www.hpe.com/servers/vmwarecert>.

2. Burn the installation ISO to a CD, or move the ISO image to a location accessible using the virtual media capabilities of HPE iLO 2, iLO 3 or iLO 4.

NOTE: The CD is bootable. Boot the server and install the HPE VMware ESXi and vSphere product either to the hard drive or to flash media (USB flash drive or SD card). You must install the flash media into the internal port on the server.

3. Set up the server hardware, and if wanted, connect the server to the network.
4. If you install to flash media (USB flash drive or SD card), install the flash media into the internal port on the server.

For instructions on accessing the internal flash media (USB flash drive or SD card) port, see the server documentation.

For hardware requirements, see the server documentation.

5. Access the server console using one of the following ways:

- Locally – Use a local keyboard and monitor.
- Remotely – Use the iLO 2, iLO 3 or iLO 4 Integrated Remote Console remotely from a network client with a web browser.

Remote setup requires the HPE iLO 2, iLO 3 or iLO 4 Advanced Pack, which is sold separately for HPE ProLiant ML and DL servers. The remote graphics capability is included with BL servers.

NOTE: After you boot up the server, you must press the correct function key when prompted to enter setup mode to configure boot order, configure hardware virtualization, and configure iLO 2, iLO 3 and iLO 4 and the Smart Array controller. Familiarize yourself with the following steps and prompts; each prompt is available for only a few seconds during the boot process.

To enter ROM Based Setup Utility (RBSU):

- a. Boot the server.
 - b. On Gen8, press **F9**.
 - c. On Gen9:
 - 1) Press **F9**.
 - 2) Scroll to System Configuration and press **Enter**.
 - 3) Scroll to BIOS/Platform Configuration (RBSU) and press **Enter**.
-

6. If you are installing to flash media (USB flash drive or SD card), configure the flash device to boot before the hard drive. By default, flash media is configured to boot before the hard drive.
 - a. If you are not in RBSU, enter **RBSU**.
 - b.
 - 1) For Gen 8 and earlier, scroll down to Standard Boot Order (IPL), and then press **Enter**.
 - 2) For Gen9 to navigate to boot order screen, scroll to **Boot Options** and press **Enter**
 - If booted in **UEFI Mode**, scroll to **UEFI Boot Order**.
 - If booted in **Legacy Mode**, scroll to **Legacy BIOS Boot Order**.
 - c. To modify the boot order, select the device you want to move, and then press **Enter**. A menu appears to change the device boot order.
 - d. Ensure the flash media is set to boot before the hard drive.
7. Set UEFI Optimized Boot to Enable. This should be enabled by default.
 - a. If you are not in RBSU, enter RBSU.
 - b. Scroll down to **Boot Options** and press **Enter**.
 - c. Scroll down to **UEFI Optimized Boot** and press **Enter**.
 - d. At the next screen, select **Enable** then press **Enter**.
 - e. Save the configuration changes, and then exit. The server reboots.
8. Enable CPU virtualization.

For CPU-specific virtualization capabilities, you can select **Intel® Virtualization Technology** or **AMD® Virtualization**. You must perform this step for supporting Windows® 64-bit operating systems and all guest 64-bit operating systems such as Linux.

 - a. If you are not in RBSU, enter RBSU.
 - b. For Gen 8:
 - 1) Scroll down to **Processor Options**, and then press **Enter**.
 - 2) Scroll down to the supported processor (either Intel® Virtualization Technology or AMD® Virtualization), and then press **Enter**.

For Gen 9:

 - 1) Scroll to **System Options** and press **Enter**
 - 2) Scroll to **Virtualization Options** and press **Enter**
 - 3) Scroll to **Virtualization Technology** and press **Enter**.
 - c. At the next screen, select **Enable**, and then press **Enter**.
 - d. Save the configuration changes, and then exit. The server reboots.

9. VMware support for USB 3.0 varies across vSphere releases. Releases prior to vSphere 5.5 U3 and vSphere 6.0 do not have USB 3.0 support and therefore the USB 3.0 setting in RBSU must be configured to Auto or Disable.
 - a. If not in RBSU, enter RBSU.
 - b. Scroll down to **System Options** and press **Enter**.
 - c. Scroll down to **USB Options** and press **Enter**.
 - d. Scroll down to **USB 3.0 Mode** and press **Enter**. At the next screen, select **Auto** or **Disable** then press **Enter**.
 - e. Save the configuration changes, and then exit. The server reboots.
10. Starting with vSphere 5.5 U3 and vSphere 6.0, support for USB 3.0 is available and you can enable USB 3.0 in RBSU. To support USB 3.0 devices, enable the USB 3.0 setting in RBSU.
 - a. If not in RBSU, enter RBSU.
 - b. Scroll down to **System Options** and press **Enter**.
 - c. Scroll down to **USB Options** and press **Enter**.
 - d. Scroll down to **USB 3.0 Mode** and press **Enter**. At the next screen, select **Enable** then press **Enter**.
 - e. Save the configuration changes, and then exit. The server reboots.
11. Disable UEFI Secure Boot on servers that support UEFI boot. This is disabled by default. VMware ESXi does not support UEFI Secure Boot:
 - a. If you are not in RBSU, enter **RBSU**.
 - b. Scroll down to **Server Security** and press **Enter**.
 - c. Scroll down to **Secure Boot Configuration** and press **Enter**.
Scroll down to **Secure Boot Enforcement** and press **Enter**.
 - d. At the next screen, select **Disable**, and then press **Enter**.
 - e. Save the configuration changes, and then exit. The server reboots.
12. Change the default Power Profile (Optional).

Choosing the HPE Maximum Power Profile setting in RBSU increases I/O performance for your virtual machines in high traffic situations. However, this setting also causes the platform to consume maximum amount of energy. Please assess the needs of your configuration when choosing Power Profiles.

 - a. If you are not in RBSU, enter RBSU.
 - b. Select **Power Management Options**.
 - c. Select **HPE Power Profile**.
 - d. Select **Maximum Performance**.

NOTE: On older server models, you may see an option for HPE Static High Performance Mode instead of Maximum Performance. If that is the case, select that option. The Maximum Performance Power Profile on newer platforms contains this and other settings.

 - e. Save the configuration changes, and then exit. The server reboots.

13. To configure iLO 2, iLO 3 or iLO 4 network parameters, directory settings, global settings, and user accounts:

a. Boot server

For Gen 8:

1) Press **F8** to enter iLO configuration utility.

For Gen 9:

1) Press **F9**.

2) Scroll to iLO4 configuration utility and press **Enter**.

For more information, see the *HPE Integrated Lights-Out 2 User Guide*, *HPE Integrated Lights-Out 3 User Guide* or *HPE Integrated Lights-Out 4 User Guide*.

14. To create view, or delete a logical drive for the Smart Array Controller using local storage:

a. Boot server.

b. For Gen 8, press **F8**.

c. For Gen 9, press **F9**:

1) Scroll to the **Smart Array controller** and press **Enter**.

2) Scroll to HPE Smart Storage Administrator (HPE SSA) and press **Enter**.

For more information, see the *Configuring Arrays on HPE Smart Array Controllers Reference Guide*

15. For customers who do not want to use the HPE Dynamic Smart Array, the instructions for disabling in ROM Based Setup Utility (RBSU) are:

a. If not in RBSU, enter **RBSU**.

b. For SAS, go to **System Options**, select **HPE Smart Array B320i Raid Configuration** and change it to **DISABLED**.

c. For SATA, go to **System Options**, select **SATA Controller Options** and go to **Embedded SATA Configuration** and change it to **ENABLE SATA AHCI SUPPORT**.

4 Installation

Installing the software image locally

1. Place the installation CD into the CD-ROM drive, and then boot the server.
2. Follow the onscreen instructions to complete the installation.

Installing the software image remotely using iLO 2, iLO 3 or iLO 4

Installing the software image remotely using iLO 2

Verify that the server has the appropriate iLO 2 license to use Virtual Media.

HPE Blade System c-Class server blades include a license for Virtual Media. For other servers, the HPE iLO 2 Advanced Pack license is required and is sold separately. For more information, contact an HPE authorized reseller.

Following are the procedures to install the software image remotely using iLO 2:

1. via Virtual Media
2. via Remote Console

Virtual Media

1. Open a web browser on your local machine, and then log in to iLO 2 by entering the iLO specific IP Address and credentials.
2. Select the **Virtual Media** tab, and then select the **Virtual Media Applet**.
3. Choose one of the following options:
 - a. Local Media Drive—Proceed to step 4.
 - b. Local Image File—Proceed to step 5.
4.
 - a. Under the Virtual CD/DVD-ROM section, select **Local Media Drive**.
 - b. Enter the path or file name of the image (ISO file) in the text box, or click **Browse** to locate the image file.
 - c. Click **Connect**. The connected drive icon turns green.
5.
 - a. Under the Virtual CD/DVD-ROM section, select **Local Image File**.
 - b. Enter the path or file name of the image (ISO file) in the text box, or click **Browse** to locate the image file.
 - c. Click **Connect**. The connected drive icon turns green.
6. To complete the installation, follow the prompts generated by the installation CD. If performing restoration or recovery, when installation is complete, restore data from the backup files.
7. After the installation, go to the **Virtual Media Applet** and click on **Disconnect** under the Virtual CD/DVD-ROM section. The connected drive icon turns red.
8. (Optional) To discover and manage this server, configure HPE SIM or HPE Insight Control for VMware vCenter Server. For more information about hosting and managing a VMware ESXi and vSphere virtualization environment on ProLiant servers, see the HPE website (<http://www.hpe.com/info/vmware>).

Remote Console

1. Open a web browser on your local machine, and then log in to iLO 2 by entering the iLO specific IP Address and credentials.
2. Select **Virtual Media**.
3. Click on any of these options:
 - Integrated Remote Console
 - Integrated Remote Console Fullscreen

- Remote Console
 - Remote Serial Console
4. Select the **Virtual Media** tab, and then click **Mount** beside **Image**.
 5. Enter the path or file name of the image (ISO file) in the text box, or browse to locate the image file.
 6. To complete the installation, follow the prompts generated by the installation CD. If performing restoration or recovery, when installation is complete, restore data from the backup files.
 7. After the installation, go to the **Virtual Media** and click on **Unmount**.

Installing the software image remotely using iLO 3 and iLO4

1. Verify that the server has the appropriate iLO 3 or iLO 4 license to use the Virtual Media, open a web browser on your local machine, and then log in to iLO 3 or iLO 4 by entering the iLO specific IP Address.
 HPE Blade System c-Class server blades include a license for Virtual Media. For other servers, the HPE iLO 3 or iLO 4 Advanced Pack license is required and is sold separately. For more information, contact an HPE authorized reseller.
2. Expand the **Remote Console** from the left navigation screen and select the **Remote Console**. Under **Integrated Remote Console** select **Launch** or select **Launch** under the **Java Integrated Remote Console** to access the system KVM from a Java applet-based console.
3. An **Application Run – Security Warning** dialog box may appear, click **Run** to download the Integrated Remote Console.
4. For mounting the ISO image file on:
 - the iLO 4 Java or iLO3 and iLO 4 **Integrated Remote Console**: Go to **Virtual Drives** menu and select the **Image File CD-ROM/DVD** check box, enter the path or file name of the image (ISO file) in the text box, or browse to locate the ISO image file, and click **Open** to mount the file.
 - the iLO3 **Java Integrated Remote Console**: From the **Virtual Drives** menu, go to **CD/DVD** and select **Virtual Image** or select **D:** (if the image is burned on a CD/DVD), enter the path or file name of the image (ISO file) in the text box, or browse to locate the ISO image file, and click **Open** to mount the file.
5. To complete the installation, follow the prompts generated by the installation CD. If performing restoration or recovery, when installation is complete, restore data from the backup files.
6. After the installation:
 - For iLO 4 Java or iLO3 and iLO 4 **Integrated Remote Console**: Go to the **Virtual Drives** menu and unselect the **Image File CD-ROM/DVD** check box.
 - For iLO3 **Java Integrated Remote Console**: From the **Virtual Drives** menu, go to **CD/DVD** and unselect **Virtual Image** or unselect **D:**.

For more information about VMware and setting up your virtualized environment, see the VMware website (<http://www.vmware.com/products/vsphere-hypervisor>).

For more information on vSphere 5.x, 6.x deployment, see *Deploying and updating VMware vSphere on HPE ProLiant Servers* at <http://www.hpe.com/info/vmware/proliant-docs>.

5 Activating the standalone license

When downloading the ESXi and vSphere image from HPE or VMware, the installation ISO includes a trial serial number. To obtain a permanent license serial number:

1. Register at the VMware website (<https://www.vmware.com/tryvmware/>).
2. Download the serial number.
3. Use the vSphere Client to insert the license serial number.

6 Upgrading to a full license

If you purchase a license for VMware vSphere Essentials, Essentials Plus, Standard, Enterprise or Enterprise Plus or their respective Acceleration kits, follow the instructions included in your package to redeem and apply the license.

7 Updating VMware ESXi and vSphere 5.X and 6.X

Updates and patches for VMware ESXi and vSphere are provided and delivered by VMware. These updates and patches include the latest ESXi and vSphere software from VMware. Updates to HPE value-add components are provided and delivered by HPE and are available from the HPE Online Depot at: <http://vibsdepot.hpe.com>.

The updates and patches are delivered and installed by VMware Update Manager (VUM). For more information on this process, see the *VUM Administration Guide* (www.vmware.com/support/pubs).

8 Recovering from a system failure

If you encounter a system failure and need to reinstall the software, see [“Installation” \(page 11\)](#)

- ① **IMPORTANT:** Using the installation CD completely erases all existing data and user configuration. All preconfigured settings, user data and license information is lost. After reinstalling the software you must reapply your licenses.
-