Hewlett Packard Enterprise

HPE custom ESXi images for ProLiant servers

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Technical white paper

Introduction

VMware® ESXi is a "bare metal" full-function hypervisor solution from VMware. It is highly secure, has a small footprint, and is set to be the long-term hypervisor platform for future VMware releases. We are committed to continue making HPE ProLiant servers and the supported infrastructure the best platform for hosting VMware ESXi. As part of this commitment, we provide HPE custom ESXi images (custom images) that integrate the standard ESXi code with support for advanced ProLiant features for a seamless deployment experience. HPE custom ESXi images simplify configuring and deploying the ESXi hypervisor. Certain ProLiant servers require using a custom image to run the ESXi hypervisor. Using the custom images on other HPE ProLiant servers is optional but highly recommended.

This paper provides the information necessary for you to decide when and how to use an HPE custom ESXi image. Specifically, it explains the following topics:

- Advantages of using HPE custom ESXi images
- Contents of a custom image file
- Where you can get custom image files
- HPE plans for releasing new custom image files

For more information on custom image installation and deployment and using the VMware Image Builder and Auto Deploy functions, refer to the white paper "Deploying and updating VMware vSphere on HPE ProLiant Servers."

Advantages of using HPE custom images

VMware ESXi provides a simple, easy-to-install hypervisor, but does have limitations:

- You cannot add or update components during the installation process.
- ESXi will not install if at least one NIC driver does not load.
- You cannot install ESXi to SAN for a local disk boot or boot-from-SAN configuration if the required SAN device drivers are not in the ESXi installation image.

These limitations mean that if you are using the standard VMware ESXi image, you may have to take extra steps to add all the components you need. In some cases, you can't complete the installation at all. The following sections explain how HPE custom ESXi images overcome these limitations by including everything you need to install and manage ESXi on HPE ProLiant servers. Using HPE custom images in combination with the appropriate system ROM and component firmware ensures that you are implementing a fully tested and supported configuration.

Installing HPE CIM providers as part of initial deployments

HPE Common Information Model (HPE CIM) providers are key components of a fully managed ESXi server. They allow a management client such as HPE Systems Insight Manager (HPE SIM) to acquire and display server health information.

The standard VMware image does not include HPE CIM providers; therefore, using it on a server to be managed requires the following four-step installation process:

1. Download the VMware base image.
2. Download the HPE CIM providers' offline bundle.
3. Install the hypervisor using the VMware base image.
4. Install the HPE CIM providers using either VMware Update Manager or the ESXi host update command.

The HPE custom ESXi image, however, includes the HPE CIM providers and greatly simplifies installation with just a two-step process:

1. Download the HPE custom ESXi image.
2. Install the hypervisor and HPE CIM providers in one simple step.

By using the HPE custom ESXi image, you save time and reduce risk when deploying a well-managed server.

Note
Select HPE ProLiant Gen8 and newer servers offer agentless management support and may not require CIM providers.

Installing ESXi on ProLiant servers with new network device technology

HPE typically includes the latest generation of networking devices in our ProLiant servers. Often, the VMware base ESXi image doesn't include the drivers for these new network devices. You cannot install ESXi on these ProLiant servers without the device drivers. Using the HPE custom ESXi image that includes the device drivers solves that problem.

Refer to the HPE VMware server support matrix for up-to-date information about which servers require the custom image and which ones support it: hpe.com/servers/vmwarecert.

Installing ESXi to boot from SAN on ProLiant server

One common implementation for ESXi is a boot-from-SAN configuration. Installing ESXi in this configuration means that the enabling device drivers must be available in the ESXi installation images. To simplify installing a boot-from-SAN configuration on ProLiant servers, HPE includes the required drivers (FC, FCoE, and iSCSI) for both embedded and supported optional devices that provide SAN connectivity. The result is a seamless process for setting up a boot-from-SAN ESXi environment on ProLiant servers.

Refer to the HPE VMware server support matrix for up-to-date information about which servers and optional networking devices require the custom image and which ones support it: hpe.com/servers/vmwarecert.

Implementing a validated and supported configuration

We recommend using the custom ESXi image to ensure you are utilizing HPE validated drivers and additions for ProLiant servers and server options. Each custom ESXi image has a supported Service Pack for ProLiant (SPP) release or set of SPP releases that provide updated system ROM and component firmware. For more information on the driver, firmware, and SPP associations, see the HPE ProLiant server and option firmware and driver support recipe at vibsdepot.hpe.com. We update the recipe documents with each SPP and OS release.

Content of an HPE custom ESXi image

The HPE custom ESXi image starts with the same base image that VMware provides to customers. We use VMware tools and processes to add the following components to the image:

- HPE CIM providers, which simplify deployment of a managed server.
- Required device drivers (NIC, FC, FCoE, iSCSI, and storage), which enable installing the ESXi image on ProLiant servers with new network technology or options.
- VMware command line (ESXCLI) extension to enable:
  - control boot devices
  - manage HPE Integrated Lights-Out (iLO) configuration and users
  - manage HPE Smart Array controllers and physical and logical drives
  - cause the HPE CIM providers to generate test indications and SNMP traps
- Agentless Management Service to support HPE ProLiant Gen8 and newer agentless management. See the Resources section for details.

HPE develops the HPE CIM providers. They undergo extensive testing in HPE labs and pass a VMware-provided compatibility test.
HPE develops the ESXCLI command extensions and they undergo testing in HPE labs. HPE network and storage device partners develop the device drivers and work jointly with HPE to ensure the quality of the devices in ProLiant servers. Once quality assurance testing completes successfully, the drivers go through the VMware I/O Vendor Program (IOVP) certification process. All drivers included in the custom image have passed the IOVP certification, and VMware has digitally signed them. These drivers are listed on the VMware Hardware Compatibility List.

The server support matrix from HPE is available at hpe.com/servers/vmwarecert.

The components of the HPE custom ESXi image changes for each release of the HPE custom ESXi image. You can view the contents of latest HPE custom ESXi images for each VMware release at hpe.com/support/VMwareESXi/images.

Releasing new HPE custom ESXi images

HPE releases new custom ESXi images based on the need to update any of the critical components of the image. Two key events drive the need for a new or updated image:

- VMware releases a major, minor, or updated ESXi release.
- HPE introduces a server that requires a driver that is not included in the current HPE custom ESXi image.

New images for a VMware release

VMware typically releases major, minor, or updated releases of ESXi several times a year. For example, these ESXi releases from VMware would result in a new custom image from HPE:

- 5.0 (major release from VMware)
- 5.1 (minor release from VMware)
- 5.1 U1 (update release from VMware)

HPE does not deliver a new custom image based on VMware patches or hot fixes as these are generally applied after installation and don't affect the installation image itself. HPE supports application of VMware patches and hot fixes to the HPE custom image. See the Deploying and updating VMware vSphere on HPE ProLiant Servers white paper for information on how to apply patches or hot fixes to the HPE custom image.

Images for new HPE servers

When HPE introduces a new server (or server generation), we build and release new ESXi images with updated NIC, FCoE, and iSCSI drivers as necessary to support those servers. The new images also support existing ProLiant servers.

Acquiring HPE custom ESXi images

You can download HPE custom ESXi images from the HPE Software Depot website: hpe.com/info/esxidownload.

From this site, you can download the specific version of ESXi that you require as an ISO or as a depot.zip.

Note

The ESXi custom image that you download does not include a license. You must purchase the license from HPE or VMware.

Conclusion

HPE provides the custom ESXi images as a convenience and enabler for our customers. Using an HPE custom ESXi image is the fastest and easiest way to install VMware ESXi on a ProLiant server. In some cases, it is the only way. We recommend using the HPE custom ESXi image as a best practice for installing ESXi.

Resources

Deploying and updating VMware vSphere on HPE ProLiant Servers white paper

Considerations for choosing Agentless Management

HPE VMware server support matrix
hpe.com/servers/vmwarecert

HPE VMware software depot
vibsdepot.hpe.com

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4AA4-7584ENW, March 2016, Rev. 2