

HP Factory-Installed Operating System Software for Windows Server® 2008 R2 Standard and Windows Server® 2012 Standard User Guide

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1 Navigation tips

Navigating in the HTML document

To navigate through the documentation sequentially:

- Click the Next arrow (→) for the next topic.
- Click Previous arrow (←) for the previous topic.

Navigating using the Internet browser toolbar:

- To return to the last page you viewed, click the **Back** button on the browser toolbar.

Navigating to documentation on the HP 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 <http://www.hp.com/support>.
- For the latest versions of selected technical documentation, go to <http://docs.hp.com>.

2 Notices

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Intended audience

This document is for the person who installs, administers, and troubleshoots servers and storage systems. HP assumes you are qualified in the servicing of computer equipment and trained in recognizing hazards in products with hazardous energy levels.

3 Overview

Introduction

❗ **IMPORTANT:**

- If your server has a factory-installed operating system, then do not boot from the HP SmartStart CD or Support Pack for Proliants or HP Intelligent Provisioning when powering up the server for the first time. The SmartStart CD or HP Intelligent Provisioning must only be used if it is necessary to reinstall the operating system.
- Complete the operating system installation before installing any additional hardware options.

This guide provides instructions for completing the installation of the following factory-installed operating systems:

- Microsoft® Windows Server™ 2008 R2 Standard.
- Microsoft® Windows Server™ 2012 Standard.

Features

The operating system is preloaded on the server disk drive before the server is shipped to you. Also, the latest drivers are downloaded onto the server disk drive and integrated with the preloaded operating system.

The normal server operating system installation process is shortened for a preloaded server operating system. This installation requires approximately 30 minutes, compared to the normal CD installation time of 90 minutes. The user-specific information such as the server name, IP address, and regional settings must be entered during the installation process.

The HP factory-installed software for Microsoft® Windows Server™ 2008 R2 Standard and Microsoft® Windows Server™ 2012 Standard are as follows:

- Ready to run – You are guided through a mini-setup wizard, after which any HP specific components are installed and, when possible, configured. After the required restarts of the operating system, the Microsoft® Windows Server™ 2008 R2 Standard or Microsoft® Windows Server™ 2012 Standard installation is complete and ready to perform necessary user configuration.
- Preconfigured with the networking protocols TCP/IP, and the SNMP service – These services are required for effective network management, and enable the HP Management Agents for Servers to communicate with HP Systems Insight Manager.
- Operating System Activation – If this product was purchased directly from HP, this product is pre-activated. HP has configured the operating system so that customer activation is not required. If this product was purchased from your local authorized reseller, you have 60-days from the installation of the product to complete product activation - online by phone directly with Microsoft. Please follow activation instructions upon installation of the operating system. In addition, Microsoft® is allowing extension of the 60-day activation period up to 240 days. For more information, see the Microsoft® knowledge base article (<http://support.microsoft.com/kb/948472>).
- Capable of out-of-the-box management of the server with the installation of the HP Management Agents for Servers – The HP Management Agents monitor server performance and configuration, as well as the performance of the operating system. The HP Management Agents help prevent problems before users are affected by issuing alerts when faults occur.
- Preconfigured with NTFS – Many new features in Microsoft® Windows Server™ 2008 R2 Standard and Microsoft® Windows Server™ 2012 Standard require NTFS, including the ability to promote the server to a domain controller to use Microsoft® Active Directory, and

NTFS offers greater security. Review the Microsoft® Windows Server™ 2008 R2 Standard or Microsoft® Windows Server™ 2012 Standard software documentation to properly configure the server and to understand how to use NTFS with Microsoft® Windows Server™ 2008 R2 Standard and Microsoft® Windows Server™ 2012 Standard, while concurrently using previous versions of Microsoft® Windows NT® in a network infrastructure.

For additional information about Microsoft® Windows Server™ 2008 R2 Standard and Microsoft® Windows Server™ 2012 Standard, see the HP website (<http://h18000.www1.hp.com/products/servers/software/factory-installed.html>) or the Microsoft website (<http://www.microsoft.com/windowsserver2008>).

4 Gathering information

Certificate of authenticity

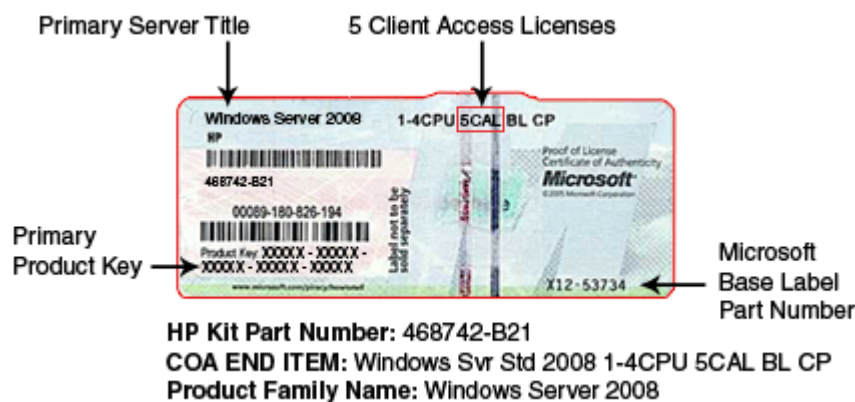
❗ **IMPORTANT:** Locate the COA label on the server, and record the product key for future reference.

The COA label is used for the following:

- Upgrade the factory-installed operating system using the Microsoft® Upgrade program for license validation.
- Reinstall the operating system because of a failure that has permanently disabled it.

The COA label location varies by server model. On rack-mounted server models, the COA label is located either on the front section of the right panel or on the right front corner of the top panel. On tower models, the COA label is located towards the rear of the top panel of the server.

NOTE: The product key shown below is a general representation and may not be for the specific product purchased.



NOTE: The product key is not needed at the time of the initial operating system installation because, the server comes from the factory with a product key already installed.

Record the product key in the space provided when the server is initially installed and the COA label is most easily accessible.

Your Server's Product Key

For more information about licensing Windows Server® operating system products on HP ProLiant servers, see *Microsoft® Windows® Server Licensing FAQ guide* (<http://h20195.www2.hp.com/v2/GetPDF.aspx/4AA2-7877ENW.pdf>).

5 Installation

Before installing the operating system

❗ **IMPORTANT:**

- Before powering up the server and configuring the operating system software, connect the server hardware as described in the server user guide. Do not install additional hardware devices until the software installation is complete.
 - After the installation of the operating system, if prompted for HP driver files, enter the path: C:\Drivers. Driver files are located in subdirectories in this path. To view the directory, click **Browse**.
 - To successfully complete the software installation, TCP/IP services must be installed, and the server must be connected to an active network connection.
 - Windows® Server 2008 R2 Standard and Windows® Server 2012 Standard operating systems ship with three to four partitions, 1 GB, 20 GB, 4 GB and 4 GB respectively. The 1 GB partition is system reserved and hidden. Do not delete or format this 1 GB system partition. Third and fourth partitions are created for the installation purpose and will be deleted automatically during initial operating system setup.
-

Installing the operating system

Windows Server 2008 R2 standard

To install Windows Server 2008 R2 Standard:

1. Power up the server. The **HP Welcome** screen appears.
2. If you had ordered for Multi lingual image, you will be prompted to select the desired language. Choose appropriate language and press the appropriate key to continue.
3. On the HP Welcome screen, if prompted for selecting the Service pack level then, choose the desired service pack level and press the appropriate key to continue.

NOTE: For all Gen8 servers, Service pack 1 is selected by default. Next, **Server software license** screen appears.

4. To accept the license agreements, press the appropriate key.
5. On the **OS Partition** screen, choose one of the following to set the operating system partition size:
 - **Typical disk** size option. Typical size cannot be altered as it is the minimum recommended value. The partition size is normally 20 GB or greater.
 - **Custom disk** size option. This option enables you to set the partition size between typical and maximum disk capacity.
6. Enter the administrator password and confirm to proceed.
7. Read the **Software license agreement** and press the appropriate key to accept and continue.
8. Follow the online prompts, making keyboard or mouse entries only when prompted by the system. During the software installation several status screens appear that describe the process.

-
- ⚠ **CAUTION:** The server requires a reboot at the end of the installation. Do not power down the server at any time during the installation process. Any power interruption during the installation process could prevent proper completion of the installation and prevent the operating system from restarting.
-

NOTE: You can view and print the EULA after the installation is completed by clicking **Start** and selecting **All Programs>Pre-Install Features>End-User License Agreement**.


Windows Server 2012 Standard


To install Windows Server 2012 Standard:

1. Power up the server.
2. You will be prompted to select the desired language. Choose the appropriate language and click **Continue**.
3. On the **HP Welcome** screen, if prompted for selecting the Service pack level, choose the desired service pack level and press the appropriate key to continue.

NOTE: For all Gen8 servers Service pack 1 is selected by default.

4. Click **Continue**.
5. Click **Microsoft EULA**.
6. Read the **Microsoft End User License Agreement for Microsoft Windows Pre-installation Environment**, select **Agree** to accept the Microsoft license agreement and click **Continue**.
7. Read the **HP End User License Agreement**, select **Agree** to accept the HP End User license agreement.
8. Click the **Ancillary License** to check all third party Ancillary Licensed software used by HP.
9. Click **Continue**.
10. On the **OS Partition** screen, choose one of the following to set the operating system partition size:
 - **Typical disk** size option. Typical size cannot be altered as it is the minimum recommended value. The partition size is normally 20 GB or greater.
 - **Custom disk** size option. This option enables you to set the partition size between typical and maximum disk capacity.
11. Click **Continue**.
12. On the **User Credentials** page, enter the administrator password and re-enter to confirm the password.
13. Click **Continue**.
14. Read the **Microsoft Operating System End User License Agreement** and select **Agree** to accept the Microsoft End User License Agreement.
15. Click **Continue**.
16. Click **Continue** to start installation.
17. Follow the online prompts, keyboard or mouse entries only when prompted by the system. During the software installation, several status screens appear that describe the process.

CAUTION:  The server requires a reboot at the end of the installation. Do not power down the server at any time during the installation process. Any power interruption during the installation process could prevent proper completion of the installation and prevent the operating system from restarting.

NOTE: You can view and print the EULA after the installation is completed by clicking  button from keyboard and right-click anywhere on the **Start** page and select **All Apps>Pre-Install Features>End-User License Agreement**.

Signed drivers

During the installation of the operating system, caution messages concerning unsigned software drivers might appear. The caution message states, *Digital signature is not found*, when drivers are about to be installed. When prompted, click **Yes** to accept the drivers and continue the installation. If you are prompted to reboot the server, click **No**. After the operating system installation is complete, download digitally signed drivers (<http://www.hp.com/support/files>).

Found New Hardware Wizard

The Found New Hardware Wizard might appear during the operating system installation. If this wizard appears, click **Cancel**.

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- ❗ **IMPORTANT:** Do **not** attempt to install the drivers during the operating system installation because the server might automatically reboot before the driver installation is completed. This action could result in the incorrect installation of a device.
-

To install drivers for unknown devices in device manager. After the operating system installation:

1. Click **Start>Administrative Tools>Computer Management**.
2. From the left column, select **Device Manager**.
3. Right-click the component displaying the yellow mark, and then select **Update Driver Software**.
4. Click **Browse my computer for Driver** option.
5. Enter the following path in the text box:
C:\Drivers
6. Click **Next**.
7. On the **Driver Files Search Results** screen, click **Next**.
8. To complete the **Found New Hardware** Wizard, click **Close**.

The setup process begins. Wait for the entire setup process to complete, including any requested restarts, before interrupting this process or powering down the server. After the setup process completes, you can configure the server.

-
- ❗ **IMPORTANT:** The system might complete the driver installation after the first login. Do not perform any actions on the **Initial Configuration Task** screen. If additional drivers are loaded, the system completes the driver installation and automatically reboots. The next time the system presents a login prompt, log in and use the new operating system.
-

Automatic configuration

Some steps of the setup process are automatically configured, and these configuration screens do not appear. For information about changing any preconfigured information, see the *Operating system documentation*. Automatically configured parameters that may require later changes include:

- Licensing mode – By default, the server licensing mode is set to per-device or per-user with a five device or user count. For information about licensing, see the online help or the *Operating system documentation*.
- Administrator password – The administrator password is provided by the user during initial setup. For procedures to change the administrator password after the installation is complete, see “[Changing the administrator password for Windows Server 2008 R2 Standard](#)” (page 12).
- Dynamic disk upgrade – The operating system is preinstalled on an approximately 20 GB partition. On an array controller, the logical drive size is set to the maximum size of the drive. The logical drive of array controllers contains 10 to 15 MB of available space to support a dynamic disk upgrade.

NOTE: The dynamic disk upgrade is optional. For information about dynamic disk upgrades, see the *Operating system documentation*. After upgrading to dynamic disk, the emergency repair disk must be updated.

6 Post-installation tasks

Windows Server 2008 R2 Standard and Windows Server 2012 Standard

To log into the server after completing the initial software installation:

1. On the server console, press **Ctrl+Alt+Delete** button from keyboard and enter the password which you provided during initial setup.
2. By default, computer name is set to a default value, which can be changed as required.

Changing the administrator password for Windows Server 2008 R2 Standard

The administrator password can be changed by pressing the **Ctrl+Alt+Delete** keys and clicking **Change Password** or by completing the following steps:


1. Click **Start**, and select **All Programs>Administrative Tools>Computer Management**.
2. Expand the **System Tools** directory, and then expand the **Local User and Groups** directory.
3. Select the **Users** folder.
4. Right-click **Administrator**, which appears on the right side of the window, and select **Set Password**. A warning message appears.
5. Click **Proceed** to continue.
6. Enter the new password in the **New Password** field, and re-enter it in the **Confirm Password** field.
7. Click **OK**.
8. Click **OK** to complete the process.

△ CAUTION: Do not lose or forget the administrator password. This password is required to re-configure the server.

For more information about changing the administrator password, see the *Operating system documentation*.

Changing the administrator password for Windows Server 2012 Standard

The administrator password can be changed by pressing the **Ctrl+Alt+Delete** keys and click the **Change password** or by complete the following steps:

1. Press  button from the keyboard, and select **Administrative Tools>Computer Management**.
2. Expand the **System Tools** directory, and then expand the **Local Users and Groups** directory.
3. Select the **Users** folder.
4. Right-click **Administrator**, which appears on the right side of the window, and select **Set Password**. A warning message appears.
5. Click **Proceed** to continue.
6. Enter the new password in the **New Password** field, and re-enter it in the **Confirm Password** field.
7. Click **OK**.
8. Click **OK** to complete the process.

△ CAUTION: Do not lose or forget the administrator password. This password is required to re-configure the server.

For more information about changing the administrator password, see the *Operating system documentation*.

Altering regional settings for Windows Server 2008 R2 Standard

If the server is not operating under the default regional settings, alter the regional settings. The regional settings, controls the keyboard language and allows to set the local format for sorting and displaying time, date, numbers, and currency for a specified region.


To alter regional settings for Windows Server 2008 R2 Standard:

1. Click **Start**, and select **Control Panel**.
2. Double-click **Regional and Language Options**.
3. Click the **Administrative** tab.
4. To select the correct locale, click the **Change system locale** tab and then select the **locale** from the list.
5. Click the **Keyboard & Languages** tab, and then click **Change keyboards**. The **Input Languages** window appears.
6. To select the **Input Languages** window, click **Add**.
7. At the **Add Input Language** window, select the **Keyboard Layout/IME**, and then correct the Input Language.
8. Click **OK**.
9. From the list, select the correct Default input language.
10. To exit the **Text Services and Input Languages** window, click **OK**.
11. To exit the **Regional and Language Options** window, click **OK**.

Altering regional settings for Windows Server 2012 Standard

If the server is not operating under the default regional settings, alter the regional settings. The regional settings, controls the keyboard language and allows to set the local format for sorting and displaying time, date, numbers, and currency for a specified region.

To alter regional settings for Windows Server 2012 Standard:

1. Press  button from keyboard, and select **Control Panel**.
2. Make sure **View By** option is set to **Category** and click **Clock, Language, and Region** options.
3. Click **Region**.
4. Click **Administrative** tab.
5. To select the correct locale, click the **Change system locale** tab and then select **locale** from the list.
6. Click **OK**.
7. To select the **Input Languages** window, go to Control panel, select the **Clock, Language, and Region** options.
8. Click **Language**.
9. Click **Add a language** and select your desired language.
10. Click **Add**.
11. Close the **Control Panel**.

Installing Microsoft Internet Information Service (IIS) for Windows Server 2008 R2 Standard

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- ① **IMPORTANT:** The server must be connected to an active network connection to complete the installation of networking components, such as Microsoft® Internet Information Service and Active Directory.
-


To install Microsoft Internet Information Service (IIS) for Windows Server 2008 R2 Standard:

1. Click **Start**, and then select **Administrative Tools>Server Manager**.
2. In the left column, click **Roles**.

3. Select **Add Roles**, and then to proceed, click **Next**.
4. Select the **Web Server (IIS)** component check box.
5. To automatically install the dependencies for the service, click **Add required roles**.
6. Click **Next**.
7. Select the Roles Service as required and then click **Next**.
8. Click **Install**.
9. To complete the installation, click **Close**.

Installing Microsoft Internet Information Service for Windows Server 2012 Standard

To install Microsoft Internet Information Service (IIS) for Windows Server 2012 Standard:

1. Press  button from keyboard, and then select **Administrative Tools>Server Manager**.
2. On the **Manage** menu, click **Add Roles and Features**.
3. On the **Before you begin** page, verify that your destination server and network environment are prepared for the role and feature you want to install. Click **Next**.
4. On the **Select installation type** page, select **Role-based or feature-based** installation and then, click **Next**.
5. On the **Select installation type** page, select a server from the server pool and then, click **Next**.
6. On the **Select installation type** page, Select **Web Server (IIS)**, then select **Include Management Tools** (if required), click **Add Features**.
7. Click **Next**.
8. Click **Next**.
9. Read the information and click **Next**.
10. Select all the required Role services to install for Web Server (IIS).
11. Click **Next**.
12. On the **Confirm installation selections** page, select **Restart the destination server automatically** if required, and then click **Install**.
13. When installation is finished, verify the installation by opening the **All Servers** page in **Server Manager**, selecting a server on which you installed Web Server (IIS), and viewing the **Roles and Features** title on the page for the selected server.

Installing Lights-Out management features

- ① **IMPORTANT:** The Microsoft® Hardware Wizard detects iLO controller as a Base System Device. The **Hardware** Wizard continues to appear until the driver installation is completed.

If you have purchased a server with an iLO controller installed, use the following procedure to complete the installation. Do not attempt to install the device driver until the operating system is installed.

1. In the **Found New Hardware Wizard** window, click **Locate and install driver software**.
2. Select **Search for a Suitable Driver for My Device**.
3. Click **Next**.
4. Select **Specify a Location**, and then clear the **Floppy Drive** and **CD-ROM** check boxes.
5. Click **Next**.
6. Enter the following path in the text box:
C:\Drivers
7. Click **OK**.
8. On the **Driver Files Search Results** screen, click **Next**, and then click **Finish**.

Configuring the disk drives

The primary logical drive, which contains the operating system, is the only drive on the server that is configured during the operating system installation. Additional space that is not partitioned is also located on the primary drive. This non-partitioned space and any additional disk drives on the server must be partitioned and formatted using **Disk Administrator** before they can be available for use.

If an array controller has been purchased with the server, see “[Configuring array controllers](#)” (page 25) for procedures.


1. Click **Start**, and then select **All Programs>Administrative Tools>Computer Management**.
2. Expand the **Storage** directory, and then select **Disk Management**. The disk and logical drive information appears on the right side of the window.
3. If the new logical drive created by the ACU does not appear on the bottom right side of the **Computer Management** window as an unallocated space, click **Action**, and then click **Rescan Disks**.
4. On the bottom right panel, right-click **Disk 1** and then select **Initialize Disk**.
5. On the Initialize Disk screen, select **Disk 1**, and then click **OK**. The disk is identified as a Basic disk.
6. Right-click the box containing the disk size, which is labeled **Unallocated**, and then select **New Volume (Simple, Spanned, Striped, Mirror)**.
7. On the New Partition Wizard screen, click **Next**.
8. To use the maximum disk space, click **Next** or at the **Specify Volume Size** screen, enter the size you want for the partition.
9. Click **Next** to accept the drive letter assigned by default at the Assign Drive Letter or Path screen. The **Format Partition** screen appears.
10. To format the drive, select the appropriate file system format (the default selection is NTFS) and the Allocation Unit Size.
 - a. Enter the Volume Label or accept the default label.
11. (Optional) Select **Perform a quick format** and **Enable file and folder compression**.
12. If the drive will not be formatted, select **Do not format this partition**.
13. Click **Next**.
14. On the **Completing the New Partition Wizard** screen, click **Finish**. The partition is formatted to the file system that was selected and is labeled **Healthy** at the completion of the format.

For more information on configuring the new disk drives and upgrading to dynamic disks, see the *Operating system documentation*.

Creating an additional page file

When additional memory or software applications are installed on the server, errors can occur in the event log, indicating that the C: drive is nearing capacity. To solve this problem, move applications located on the C: drive to another partition or create a page file. Creating the page file on a separate partition to support the amount of memory in the server is the most efficient solution.

After an additional page file is created, set the page file on the boot partition to the amount of memory in the server. For additional information about creating page files, see the Help file, which can be accessed by clicking **Start** and selecting **Help and Support** if your operating system is

Windows Server 2008 R2. But, If your operating system is Windows Server 2012, Press  button from the keyboard, right click anywhere on Start Page and click on **All Apps>Windows System >Help and Support**.

Installing tape drives

If you have purchased a tape drive for your server, you might need to manually install support for the tape drive.

1. Click **Start**, and then select **All Programs>Administrative Tools>Computer Management>Device Manager**. Device Manager displays all devices on the right side of the screen.
2. Select the tape device. The tape drive is listed in the **Other Devices** category under the ? (question mark) icon, which indicates an unknown device until the correct driver is installed.
3. Right-click the tape device, and then select **Properties**.
4. Click the **Driver** tab, and then click **Update Driver**. The **Update Device Driver Wizard** opens.
5. Click **Next**.
6. Select **Search for a suitable driver for my device**.
7. Click **Next**.
8. Select **Specify a location**, and then clear all the other options.
9. Click **Next**.
10. Enter the following path in the **Device Driver Wizard** field:
C:\DRIVERS
11. Click **OK**. The driver search results display the appropriate device.
12. If an incorrect device appears, click **Back**, and then reselect the correct device.
13. Click **Next** to install the driver.
14. To return to the **Computer Management** screen, click **Finish>Close**.

The tape driver installation is complete. The tape device now appears in the Tape Drive category on the **Computer Management** screen.

Event log errors

After the ProLiant Installation Utility is complete, event log error messages related to certain controller drivers might appear. These messages are expected at this time and do not affect the performance of the server or the operating system. Possible messages are as follows:

- The device, \Device\scsi\adpnl60ml, did not respond within the timeout period.
- The device, \Device\scsi\cpqfcalm1, did not respond within the timeout period.
- Unable to read IO control information from NBT device. Refer to article #Q257760 on the Microsoft® website (<http://www.microsoft.com>).

Backing up the server

After you complete the software installation and the server is operational, back up the server using a tape backup system in conjunction with approved tape backup software.

Configuring network protocols

The TCP/IP and SNMP services are automatically installed. The HP Management Agents for servers require TCP/IP and SNMP services to communicate with HP Systems Insight Manager. To disable the SNMP service, see the *Operating system documentation*. Microsoft® Windows Server™ 2008 R2 Standard and Microsoft® Windows Server™ 2012 Standard require TCP/IP to be enabled.

Setting up Remote Access Server for Microsoft Windows Server 2008 R2 Standard

To setup Remote Access Server for Microsoft® Windows Server™ 2008 R2 Standard:


1. Click **Start**, and select **Control Panel**.
2. Click **Network and Internet**.

3. Double-click **Network and sharing section**.
4. Click **Setup a new Connection** or **Network**.
5. Complete the setup as prompted.

For more information on required networking parameters, see the *Operating system documentation*.

Setting up Remote Access Server for Microsoft Windows Server 2012 Standard

To setup Remote Access Server (RAS) for Microsoft® Windows Server™ 2012 Standard:

1. Click  button and select **Control Panel**.
2. Click **Network and Internet**.
3. Click **Network and Sharing Center**.
4. Click **Setup a new connection or network**.
5. Complete the setup as prompted.

For more information on required networking parameters, see the *Operating system documentation*.

Installing Java Virtual Machine

The Java™ Virtual Machine utility (<http://www.java.com>) must be downloaded and installed on your server to completely and properly view some web pages using Internet Explorer 6.0. For example, when viewing the Web Agent Help from the System Management Homepage, text that appears in the left column of the Help screen is not displayed properly if Java™ Virtual Machine is not installed.

Enabling BitLocker drive encryption

To instal BitLocker Drive Encryption on Windows® Server R2 Standard:

1. Add BitLocker feature from **Server manager** and reboot the server.
2. After the operating system boots, log in as administrator, go to **Control Panel**, click **Security**, and then click **BitLocker Drive Encryption**.
3. If the **User Account Control** dialog box appears, confirm the action and then click **Continue**. The BitLocker Drive Encryption page appears.
4. Click **Turn On BitLocker** on the operating system volume. The following warning appears:
BitLocker encryption might have a performance impact on your server. If TPM (Trusted Platform Module) is not initialized, the **TPM Security Hardware wizard** appears. Follow the directions to initialize the TPM. You must restart or shut down your computer for the changes to take place.
5. On the Save the recovery password page, the following options appear:
 - Save the password on a USB drive. This saves the password to a USB flash drive.
 - Save the password in a folder. This saves the password to a folder on a network drive or other location.
 - Print the password. This prints the password.Use one or more of these options to preserve the recovery password. For each option, select the option and follow the wizard steps to set the location for saving or printing the recovery password.
6. When you have finished saving the recovery password, click **Next**. Encrypt the selected disk volume page appears.

-
- ① **IMPORTANT:** The recovery password is required in the event the encrypted disk is moved to another computer, or changes are made to the system startup information. This password is so important that HP recommends that you make additional copies of the password and store it in a safe place apart from the computer to assure access to your data. Your recovery password is needed to unlock the encrypted data on the volume if BitLocker enters a locked state. This recovery password is unique to this particular BitLocker encryption. You cannot use it to recover encrypted data from any other BitLocker encryption session.
-


7. Confirm that the Run BitLocker System check box is selected, and then click **Continue**.
 8. Click **Restart Now**. The computer restarts and BitLocker verifies if the computer is BitLocker-compatible and ready for encryption. If it is not, an error message alerting you to the problem appears.
 9. If it is ready for encryption, the Encryption in Progress status bar appears. You can monitor the ongoing completion status of the disk volume encryption by dragging your mouse cursor over the BitLocker Drive Encryption icon in the notification area at the bottom of your screen.
- By completing this procedure, you have encrypted the operating system volume and created a recovery password unique to this volume. The next time you log in, you see no change. If the TPM ever changes or cannot be accessed and if there are changes to key system files, or if someone tries to start the computer from a product CD or DVD to circumvent the operating system, the computer switches to recovery mode until the recovery password is supplied.

For more information regarding BitLocker, see the Microsoft® website: (<http://technet.microsoft.com/en-us/library/cc732774.aspx>).

To install BitLocker Drive Encryption on Windows® Server 2012 Standard:

1. Add BitLocker feature from **Server manager** and reboot the server.
2. After the operating system boots, log in as administrator, go to **Control Panel**, click on **BitLocker Drive Encryption**, and then click **Turn on BitLocker** on the operating system volume.
3. If the **User Account Control** dialog box appears, confirm the action and then click **Continue**. The **BitLocker Drive Encryption** page appears.
4. One of the following warning appears:
 - a. BitLocker encryption may have a performance impact on your server. If your TPM (Trusted Platform Module) is not initialized, the **TPM Security Hardware** wizard appears. Follow the directions to initialize the TPM. You must restart or shut down your computer for the changes to occur.
 - b. If TPM (Trusted Platform Module) is not available then the following error message is displayed: This device cannot use a Trusted Platform Module. Your administrator must set the "Allow Bitlocker without a compatible TPM" option in the "Require additional authentication at startup" policy for OS volumes.

To solve this issue:

1. Press  +R to access the **Run** command.
2. Type MMC.
3. Click **File >Add/Remove Snap-in**.
4. Select **Group Policy Object Editor** under available snap-ins and click **Add** to selected snap-ins.
5. Make sure **Local computer** is selected and click **Finish**.
6. Click **OK**.
7. Expand **Local computer policy >Computer Configuration >Administrative Templates >Windows Components>BitLocker Drive Encryption>Operating System Drives**, then select the policy **Require additional authentication at startup** and enable it.
8. Click **Apply** and **OK**.

9. Collapse all the path.
 10. Click **File >Exit** (save the MMC console if required).
5. Repeat the step 2.
 6. On the **BitLocker Drive Encryption** page, select one of the following method to unlock your drive at startup:
 - Insert a USB flash drive.
 - Enter a Password.
 7. On **How do you want to back up your recovery key** page, the following options appear:
 - Save to a USB flash drive – Saves the password in the USB flash drive.
 - Save to a file – saves the password in the file on a network drive or other location.
 - Print the recovery key – Prints the password.

Use one or more of these options to preserve the recovery password. For each option, select the option and follow the wizard steps to set the location for saving or printing the recovery password.
 8. After saving the recovery password, click **Next**. The **Encrypt the selected disk volume** page appears.
-
- ❗ **IMPORTANT:** The recovery password is required in the event the encrypted disk is moved to another computer, or changes are made to the system startup information. HP recommends to create additional copies of the password and store it in a secure place apart from the computer to assure access to your data. Your recovery password is required to unlock the encrypted data on the volume if the BitLocker enters into a locked state. This recovery password is unique to this particular BitLocker encryption. You cannot use it to recover encrypted data from any other BitLocker encryption session.
-
9. On **Choose how much of your drive to encrypt** page, select the **disk encryption** option and click **Next**.
 10. Confirm that the **Run BitLocker System** check box is selected, and then click **Continue**.
 11. Click **Restart Now**. The computer restarts and BitLocker verifies if the computer is BitLocker-compatible and ready for encryption. If it is not, an error message alerting you to the problem appears.
 12. If it is ready for encryption, the **Encryption in Progress** status bar appears. You can monitor the ongoing completion status of the disk volume encryption by dragging your mouse cursor over the **BitLocker Drive Encryption** icon in the notification area at the bottom of your screen.

By completing this procedure, it is ensured that you have encrypted the operating system volume and have created a recovery password unique to this volume. The next time you log in, you will see no change. If the TPM changes or cannot be accessed, and if there are changes to key system files, or if someone tries to start the computer from a product CD or DVD to circumvent the operating system then, the computer switches to recovery mode until the recovery password is supplied.

For more information regarding BitLocker, see the Microsoft® website (<http://technet.microsoft.com/en-us/library/cc732774.aspx>).

Installing Hyper-V (For Windows 2008 R2 Standard)


To install Hyper-V for Windows 2008 R2 Standard:

1. Click **Start**, and select **Administrative Tools>Server Manager**.
2. In the left column, click **Roles**.
3. Select **Add Roles** and click **Next** to proceed.
4. Select the check box for **Hyper-V** component and click **Next** to continue.

5. Click **Next**.
6. Follow the instructions and select the appropriate settings, click and then **Install** to start installation.
7. Click **Close** and then press **Yes** to restart the system to complete the installation.

Installing Hyper-V (For Windows Server 2012 Standard)

To install Hyper-V for Windows Server 2012 Standard:

1. Press  button from keyboard, click **Server Manager**.
2. On the **Manage** menu, click **Add Roles and Features**.
3. On the **Before you begin** page, verify that your destination server and network environment are prepared for the role and feature you want to install. Click **Next**.
4. On the **Select installation type** page, select **Role-based or feature-based installation** and then click **Next**.
5. On the **Select destination server** page, select a server from the server pool and then click **Next**.
6. On the **Select server roles** page, select **Hyper-V**.
7. To add the tools that you use to create and manage virtual machines, click **Add Features**. On the **Features** page, click **Next**.
8. Click **Next** until **Confirm installation selections** page is displayed.
9. On the **Confirm installation selections** page, select **Restart the destination server automatically if required**, and then click **Install**.
10. When installation is finished, verify the installation by opening the **All Servers** page in Server Manager, select a server in which you have installed Hyper-V, and view the **Roles and Features** tile on the page for the selected server.

7 Installing Windows Server 2008 R2 Standard and Windows Server 2012 Standard operating system on virtual machines using HP media

Installing guest operating systems on Windows Server 2008 R2/Windows Server 2012 Standard

For HP Factory installed ProLiant servers or ProLiant servers installed from HP-branded Windows Server® 2008 R2/Windows Server 2012 Media DVD:

To install guest operating systems on Microsoft® Hyper-V from HP-branded Windows Server® 2008 R2 or HP-branded Windows Server 2012 Media DVD in full-installation mode, perform the following:

1. Install HP-branded Windows Server® 2008 R2/Windows Server 2012 in full-installation mode on the host server.
2. Enable the Hyper-V server role using **Server Manager**.
3. Map appropriate HP branded Windows Server 2008 R2/Windows Server 2012 operating system media to the virtual machine created and start the operating system installation.

To install guest operating systems on Microsoft® Hyper-V in server-core mode, perform the following:

1. Install HP-branded Windows Server® 2008 R2/Windows Server 2012 in server-core mode on the host server.
2. Install Microsoft® Hyper-V by using the command: `start /w ocsetup Microsoft-Hyper-V`.
3. Click **Yes** to reboot the server to enable the changes.
4. Execute the following command from the command prompt if the guest operating system is HP-branded Windows Server® 2008 R2:

NOTE: In the following command line after the word "Hewlett-Packard" there are 17 blank spaces before the quotation mark that must be entered as part of the command.

```
Reg Add "HKLM\SOFTWARE\Microsoft\Windows  
NT\CurrentVersion\Virtualization" /v BiosLockString /t REG_SZ /d  
"Hewlett-Packard"
```

If prompted to overwrite the registry string, choose **Yes**.

5. Execute the following command from the command prompt if the guest operating system is HP-branded Windows Server 2012:

NOTE: In the following command line after the word "HP" there are 30 blank spaces before the quotation mark that must be entered as part of the command.

```
Reg Add "HKLM\SOFTWARE\Microsoft\Windows  
NT\CurrentVersion\Virtualization" /v BiosLockString /t REG_SZ /d  
"HP"
```

If prompted to overwrite the registry string, choose **Yes**.

6. Map appropriate HP branded Windows Server 2008 R2 or HP-branded Windows Server 2012 operating system media to the virtual machine created and start the operating system installation.

For non HP-branded Windows Server® 2008 R2 Media DVD

To install guest operating systems on Microsoft® Hyper-V using HP-branded Media in full-installation mode, perform the following:

1. Install Windows Server® 2008 R2 or HP-branded Windows Server 2012 in full-installation mode on the host server.
2. Execute the following command from the command prompt if the guest operating system is HP-branded Windows Server® 2008 R2:

NOTE: In the following command line after the word "Hewlett-Packard" there are 17 blank spaces before the quotation mark that must be entered as part of the command.

```
Reg Add "HKLM\SOFTWARE\Microsoft\Windows  
NT\CurrentVersion\Virtualization" /v BiosLockString /t REG_SZ /d  
"Hewlett-Packard"
```

If prompted to overwrite the registry string, choose **Yes**.

3. Execute the following command from the command prompt if the guest operating system is HP-branded Windows Server 2012:

NOTE: In the following command line after the word "HP" there are 30 blank spaces before the quotation mark that must be entered as part of the command.

```
Reg Add "HKLM\SOFTWARE\Microsoft\Windows  
NT\CurrentVersion\Virtualization" /v BiosLockString /t REG_SZ /d  
"HP"
```

If prompted to overwrite the registry string, choose **Yes**.

4. Enable the **Hyper-V server role** using Server Manager.
5. Map appropriate HP branded Windows Server® 2008 R2 or HP-branded Windows Server 2012 operating system media to the virtual machine created and start the operating system installation.

To install guest operating systems on Microsoft® Hyper-V using HP-branded Media in server-core mode, perform the following:

1. Install Windows Server® 2008 R2/Windows Server 2012 in server-core mode on the host server.
2. Install Microsoft® Hyper-V by using the command: `start /w ocsetup Microsoft-Hyper-V`.
3. Click **Yes** to reboot the server to enable the changes.
4. Execute the following command from the command prompt if the guest operating system is HP-branded Windows Server® 2008 R2:

NOTE: In the following command line after the word "Hewlett-Packard" there are 17 blank spaces before the quotation mark that must be entered as part of the command.

```
Reg Add "HKLM\SOFTWARE\Microsoft\Windows  
NT\CurrentVersion\Virtualization" /v BiosLockString /t REG_SZ /d  
"Hewlett-Packard"
```

If prompted to overwrite the registry string, choose **Yes**.

5. Execute the following command from the command prompt if the guest operating system is HP-branded Windows Server 2012.

NOTE: In the following command line after the word "HP" there are 30 blank spaces before the quotation mark that must be entered as part of the command.

```
Reg Add "HKLM\SOFTWARE\Microsoft\Windows  
NT\CurrentVersion\Virtualization" /v BiosLockString /t REG_SZ /d  
"HP"
```

6. Map appropriate HP branded Windows Server® 2008 R2 or HP-branded Windows Server 2012 operating system media to the virtual machine created and start the operating system installation.

For Smart Start/Intelligent Provisioning assisted installation for either HP-branded or non HP-branded Windows Server® 2008 R2 Media DVD

1. After the operating system installation is complete, run the following command from the command prompt:

NOTE: In the following command line after the word "Hewlett-Packard" there are 17 blank spaces before the quotation mark that must be entered as part of the command.

```
Reg Add "HKLM\SOFTWARE\Microsoft\Windows  
NT\CurrentVersion\Virtualization" /v BiosLockString /t REG_SZ /d  
"Hewlett-Packard"
```

If prompted to overwrite the registry string, choose **Yes**.

2. Execute the following command from the command prompt if the guest operating system is HP-branded Windows Server 2012.

NOTE: In the following command line after the word "HP" there are 30 blank spaces before the quotation mark that must be entered as part of the command.

```
Reg Add "HKLM\SOFTWARE\Microsoft\Windows  
NT\CurrentVersion\Virtualization" /v BiosLockString /t REG_SZ /d  
"HP"
```

If prompted to overwrite the registry string, choose **Yes**.

3. Enable the Hyper-V server role using **Server Manager**.
4. Map HP branded or non HP branded Windows Server® 2008 R2 or HP-branded Windows Server 2012 operating system media to the virtual machine created and start the operating system installation.

Installation on VMware Virtual machines

1. For installation and configuring VMware on Windows® 2008 R2 Standard and Windows® 2012 Standard, see the [VMware documentation](#).
2. After creating a Virtual machine, go to the path where it is created and open the <VM guest name>.vmx file with note pad and add the following line:

```
smbios.ReflectHost = "TRUE"
```

3. Save and close the file.
4. Map HP branded Windows® OS Media to the virtual machine created and start OS installation.

8 Post-installation tasks for HP ProLiant 300 series servers

Web-based Management utility (HP System Management Homepage)

Use a local administrator account and password when logging into the Web-based Management utility (shortcut link available on the desktop of the Administrator Profile). The account login name must be entered in the following format:

domain name\login name


It is necessary to modify the display resolution to a higher mode to properly view the Management page.

Installing the HP Management Agents

- ① **IMPORTANT:** For security reasons, first obtain a 64-bit encrypted password certificate to set your password. The password certificate can be obtained from an HP Systems Insight Manager Certificate Server. For information about how to set and acquire the certificate, see the [HP Insight Management Agents User Guide](#).

To install the HP Management Agents, complete the following steps:

1. If your operating system is Windows Server 2008 R2, click **Start**, and select **All Programs>Pre-install Features>HP Service Pack for ProLiant**.

If your operating system is Windows Server 2012, Press  button from keyboard, right click anywhere in the **Start** page, then click **All Apps>Pre-Install Features>HP Service Pack for ProLiant**.
2. On **Welcome** Screen, Click **Next**.
3. Click **Next** on **Source Selections** page.
4. Select **localhost** check box and click on **Enter Credentials** button.
5. On **Enter Credentials for Host** page, choose **Use Local Host's Current Domain Credentials** and click **OK**.
6. After completing **Self discovery of components**, click **Next**.
7. Click **Select Components**.
8. Ensure that you install **SNMP service** prior to installing **HP Insight Management Agent for Windows Server** .
9. Select **HP Insight Management Agent for Windows Server** check box and click **OK**.
10. Click **Install** on **Review/Install Updates** page.

For more information about the HP Management Agents, see the [HP Insight Management Agents User Guide](#).

Installing the Network Teaming and Configuration Utility

The CPQTEAM Utility enables multiple NICs to be teamed together. You must run the HP Software update manager to install the CPQTEAM utility.

During the CPQTEAM software installation process, a message might appear, stating that the CPQTEAM.DLL file is needed. A default path appears in the message box. Click **OK** to accept the path and continue with the installation.

Using HP Software Update Manager (HPSUM)

The HPSUM for the operating system is automatically installed when the server software is installed. This software contains device drivers and utilities that take advantage of specific capabilities offered with ProLiant server products. These drivers are provided for use with ProLiant hardware only.

To launch HPSUM:

1. For Windows Server 2008 R2 operating system, click **Start**, and then select **All Programs>Pre-Install Features>HP Service Pack for ProLiant**.

For Windows Server 2012 operating system, Press  button from the keyboard and right click anywhere in the **Start** page, then click **All Apps>Pre-Install Features>HP Service Pack for ProLiant**.

2. Follow the on-screen instructions when the setup program is launched.

To manually launch the setup program:

1. Click **Start>Run**.
2. Enter the following path in the text box:

C:\HPSUM\SETUPEX.EXE

3. Click **OK**.
4. After the setup program is launched, follow the on-screen instructions.

Configuring array controllers

If an array controller was purchased with the server, run the online ACU to set up the remaining physical drives for use.

- ⓘ **IMPORTANT:** Microsoft® Internet Explorer is required to run the ACU. Internet Explorer is used to interface with the array controller. For the page to display properly, the server IP address must be included in the trusted sites list. Internet Explorer must be restarted after adding the IP address to the trusted sites list for the settings to take effect.

To configure array controllers:

1. For Windows Server 2008 R2 operating system, click **Start**, and select **All Programs>HP System Tools>HP Array Configuration Utility>HP Array Configuration Utility**.

For Windows Server 2012 operating system, Press  button from the keyboard and right click anywhere in the **Start** page, then click **All Apps>HP System Tool>HP Array Configuration utility>HP Array Configuration utility**.

2. Select whether you want to enable remote administration when prompted.
3. Click **OK**.
4. When prompted for the Web-based Management password, enter the credentials for either the local administrator account or a local user account in the following format:

domain name\login name

5. Configure the remaining physical drives into logical drives, and run Disk Administrator to partition and format the additional drive space.

For more information about using the ACU, see the [HP Online Help](#).

Using Management Agents

The Management Agents for servers are installed during the setup process. For more information about the Management Agents, see the [HP Insight Management Agents User Guide](#).

A Troubleshooting

Reinstalling the operating system

If the server operating system becomes corrupt, reinstall it using the SmartStart CD or HP Intelligent Provisioning, the HP Management CD, and the HP branded version of the Microsoft® Windows® operating system CD.

To reinstall the operating system, boot the server from the SmartStart CD or HP Intelligent Provisioning and follow the on-screen installation path instructions.

⚠ CAUTION: Booting from the SmartStart CD permanently erases any disk partitions and data currently on the disk drive.

For information about using SmartStart or HP Intelligent Provisioning, see the documentation included in the ProLiant Essentials Foundation Pack provided with the server.

The operating system can also be reinstalled by booting the server from the HP branded version of the Microsoft® Windows® operating system CD. During the installation process, you might be prompted to press the F6 key to supply the appropriate storage driver. If so, the storage driver can be obtained from the SmartStart CD or from the [HP Technical Support website](#).

B Technical support

Before you contact HP

Be sure to have the following information available before you call HP:

- Technical support registration number (if applicable).
- Product serial number
- Product model name and number
- Product identification number
- Applicable error messages
- Add-on boards or hardware
- Third-party hardware or software
- Operating system type and revision level

HP contact information

For the name of the nearest HP authorized reseller and HP technical Support World Wide:

- See the Contact HP worldwide (in English) webpage: (<http://welcome.hp.com/country/us/en/wwcontact.html>).

For HP technical support:

- In the United States, for contact options see the Contact HP United States webpage (http://welcome.hp.com/country/us/en/contact_us.html).
 - If you have purchased a Care Pack (service upgrade), see the HP website (<http://www.hp.com/services/carepack>).

Customer self repair

What is customer self repair?

HP's customer self-repair program offers you the fastest service under either warranty or contract. It enables HP to ship replacement parts directly to you so that you can replace them. Using this program, you can replace parts at your own convenience.

A convenient, easy-to-use program:

- An HP support specialist will diagnose and assess whether a replacement part is required to address a system problem. The specialist will also determine whether you can replace the part.
- For specific information about customer replaceable parts, refer to the maintenance and service guide on the HP website (<http://www.hp.com/support>).

HP customer support

HP customer support offers Software Support, and Integrated Hardware and Software Support services. For more information, see the following links:

- Software Support Services (<http://www.hp.com/services/swtechnology>) – Three incidents and 9 x 5 standard telephone support are included for the operating system and a wide range of Microsoft® applications.
- Hardware Support (<http://www.hp.com/services/hardwaresupport>) – A range of hardware support services are available for the server.

- Support Plus (<http://www.hp.com/services/swsupport>) – One year of integrated hardware and software support is included for the server.
 - 90-day getting started software telephone support – For ProLiant servers, technical advisory support, including installation assistance, is available for HP preinstalled third-party software from the HP website (<http://www.hp.com>) or by telephone for 90 days from the date of purchase.
-
- ⓘ **IMPORTANT:** Support applies only to the original HP hardware and software configuration shipped to the customer.
-

C Acronyms and abbreviations

ACU	Array Configuration Utility
COA	Certificate of Authenticity
CPQTEAM	Network Teaming and Configuration
EULA	End User License Agreement
HPSUM	HP Software Update Manager
iLO	Integrated Lights-Out
IP	Internet Protocol
NIC	Network Interface Controller
NTFS	NT File System
PCI	Peripheral Component Interface
RAS	Remote Access Service
SNMP	Simple Network Management Protocol
TCP/IP	Transmission Control Protocol/Internet Protocol

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