

Sun Fire X4170 M2 and X4270 M2 Servers

Installation Guide for Windows Operating Systems



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Preface

This installation guide contains procedures for installing the Windows Server 2008 and Windows Server 2008R2 operating systems and initial software configuration procedures for bringing the Sun Fire X4170 M2 and X4270 M2 Servers from Oracle® to a configurable and usable state.

This document is written for technicians, system administrators, authorized service providers (ASPs), and users who have experience with installing operating systems.

The preface contains the following topics:

- “Product Information” on page vii
- “Related Documentation” on page viii
- “Documentation, Support, and Training” on page x
- “Typographic Conventions” on page x
- “Documentation Comments” on page x

Product Information

For information about the Sun Fire X4170 M2 and X4270 M2 Servers, go to the following web sites:

<http://www.oracle.com/goto/x4170m2>

<http://www.oracle.com/goto/x4270m2>

At these sites, you can find links and navigate to the following information and downloads:

- Product information and specifications
- Supported operating systems

- Software and firmware downloads
- Supported option cards
- External storage options
- Power calculator
- Systems Handbook

Related Documentation

The related documents listed in the following table are available online at:

- (<http://docs.sun.com/app/docs/prod/sf.x4170m2#hic>)
- (<http://docs.sun.com/app/docs/prod/sf.x4270m2#hic>)

Title	Content	Part Number	Format
<i>Sun Fire X4170 M2 and X4270 M2 Servers Product Notes</i>	Late-breaking information about the servers	821-0482	PDF HTML
<i>Sun Fire X4170 M2 and X4270 M2 Servers Getting Started Guide</i>	Basic installation information for setting up the servers	821-0480	PDF Print
<i>Sun Fire X4170 M2 and X4270 M2 Servers Installation Guide</i>	Detailed installation information for setting up the servers	821-0481	PDF HTML Print option
<i>Sun Fire X4170 M2 and X4270 M2 Servers Installation Guide for Linux, Virtual Machine Software, and Oracle Solaris Operating Systems</i>	Installation instructions for Linux, Oracle VM, VMware, and Oracle Solaris operating systems	821-0483	PDF HTML
<i>Sun Fire X4170 M2 and X4270 M2 Servers Installation Guide for Windows Operating Systems</i>	Installation instructions for the Windows Server operating systems	821-0484	PDF HTML
<i>Sun Fire X4170 M2 Server Service Manual</i>	Information and procedures for maintaining and upgrading the Sun Fire X4170 M2 Server	821-0486	PDF HTML
<i>Sun Fire X4270 M2 Server Service Manual</i>	Information and procedures for maintaining and upgrading the Sun Fire X4270 M2 Server	821-0488	PDF HTML

Title	Content	Part Number	Format
<i>Sun Installation Assistant 2.3 through 2.4 User's Guide for x64 Servers</i>	Instructions for using Oracle's Sun Installation Assistant to install the Windows and Linux operating systems	821-0694	PDF HTML
<i>Sun x64 Servers Diagnostics Guide</i>	Information for diagnosing and troubleshooting the servers	820-6750	PDF HTML
<i>Sun Server CLI Tools and IPMItool 2.0 User's Guide</i>	Instructions for using the Server Hardware Management Pack applications and utilities	821-1600	PDF HTML
Oracle Integrated Lights Out Manager (ILOM) 3.0 Documentation Collection (formerly called Sun Integrated Lights Out Manager)	ILOM features and tasks that are common to servers and server modules that support ILOM 3.0	820-5523	PDF
		820-6410	HTML
		820-6411	
		820-6412 820-6413	
<i>Oracle Integrated Lights Out Manager (ILOM) 3.0 Supplement for Sun Fire X4170 M2 and X4270 M2 Servers</i>	ILOM 3.0 information that is specific to the Sun Fire X4170 M2 and X4270 M2 Servers	821-0489	PDF HTML
<i>Sun Fire X4170 M2 and X4270 M2 Servers Safety and Compliance Guide</i>	Hardware safety and compliance information for the servers	821-0490	PDF
<i>Important Safety Information for Sun Hardware Systems</i>	Multilingual hardware safety and compliance information for all Sun hardware system	821-1590	Print

Translated versions of some of these documents are available at the web site URLs listed above this table. English documentation is revised more frequently and might be more up-to-date than the translated documentation.

Documentation, Support, and Training

Function	URL
Documentation	http://docs.sun.com
Support	http://www.sun.com/support/
Training	http://www.sun.com/training/

Typographic Conventions

Typeface	Meaning	Examples
AaBbCc12 3	The names of commands, files, and directories; on-screen computer output	Edit your <code>.login</code> file. Use <code>ls -a</code> to list all files. % You have mail.
AaBbCc12 3	What you type, when contrasted with on-screen computer output	% su Password:
<i>AaBbCc123</i>	Book titles, new words or terms, words to be emphasized. Replace command-line variables with real names or values.	Read Chapter 6 in the <i>User's Guide</i> . These are called <i>class</i> options. You <i>must</i> be superuser to do this. To delete a file, enter <code>rm filename</code> .

Documentation Comments

We are interested in improving product documentation and welcome your comments and suggestions. You can submit your comments by clicking the Feedback [+] link at: <http://docs.sun.com>.

Please include the title and part number of your document with your feedback:

Sun Fire X4170 M2 and X4270 M2 Servers Installation Guide for Windows Operating Systems, part number 821-0484-11

PART I Windows Server Installations

This section lists the topics that describe how to install the Windows 2008 (SP2 or R2) operating systems on your server.

Description	Link(s)
Novice or Experienced Users: Use SIA to perform an assisted installation of the Windows operating system. SIA provides the appropriate system drivers and platform-specific software.	<ul style="list-style-type: none">• Chapter 1, Assisted OS Installation With Sun Installation Assistant (SIA)
Experienced Users. Manually install the Windows operating system and the required system drivers.	<ul style="list-style-type: none">• Chapter 2, Getting Started• Chapter 3, Windows Server 2008 Installation• Chapter 4, Post Installation of Windows Server 2008
Experienced Users. Manually install the Windows operating system and the required system drivers.	<ul style="list-style-type: none">• Appendix A, Supported Installation Methods• Appendix B, Supported Operating Systems• Appendix C, BIOS Defaults For New Installs• Appendix D, Downloading the ISO Image for the Tools and Drivers DVD• Appendix E, Incorporating Device Drivers Into WDS Images

Assisted OS Installation With Sun Installation Assistant (SIA)

Oracle's SIA makes operating system installation easy. With SIA, all you need to begin is a licensed copy of Linux or Windows OS distribution media supported for your server. All software and required server-specific drivers are supplied by SIA. With a graphical wizard interface and flexible installation options, SIA brings simplicity, speed, and reliability to your server deployments.

To use SIA, simply boot the SIA program from the server's DVD drive, a USB flash drive, or from a network image. Check for the latest SIA updates available. Select your OS distribution from the menu and follow the on-screen instructions. SIA scans your system to ensure that it has the drivers it needs to configure your server components[1]. It also provides you the option of having SIA check for the latest drivers available. SIA will prompt you for the appropriate media as needed and any other required information during the OS installation process (such as license keys).

Note – [1] Some option card drivers are downloaded to the server, but require manual installation. Feature enhancements are made to SIA regularly; therefore, you should check the SIA information page for the latest SIA updates and supported features (<http://www.sun.com/systemmanagement/sia.jsp>).

Topics discussed in this chapter include:

- “SIA Task Overview” on page 4
- “How to Obtain SIA” on page 4
- “SIA Documentation Resources” on page 4

SIA Task Overview

You can perform the following tasks using SIA:

Note – The supported SIA installation and recovery tasks listed below are server-dependent and might vary.

- Perform an assisted installation of a Linux or Windows operating system on your x86 server. SIA provides the appropriate drivers and platform-specific software, eliminating the need to create a separate driver disk.
- Optionally create RAID-1 volumes on internal storage devices.
- Optionally upgrade your system Integrated Lights Out Manager (ILOM) service processor (SP), BIOS, and storage device firmware (regardless of the OS on your server).
- Optionally update your SIA session with the latest firmware and drivers.
- Optionally recover from a corrupt or inaccessible ILOM service processor.

How to Obtain SIA

SIA is provided on the SIA DVD with most x86 server platforms from Oracle. SIA is also available as a web download. Regular updates are made available to ensure that the latest OS versions are supported. To download the latest version of SIA for your server platform, refer to the SIA information page at:

(<http://www.sun.com/systemmanagement/sia.jsp>)

SIA Documentation Resources

If you have determined that you want to install a Windows or Linux operating system on your x86 server using SIA, refer to the following resources for detailed installation instructions and forum discussions.

- *Sun Installation Assistant 2.3 through 2.4 User's Guide for x64 Servers*
(<http://docs.sun.com/app/docs/prod/install.x64svr?l=en&a=view>)
- Sun BigAdmin Feature Article: *How to Use the Sun Installation Assistant*

http://www.sun.com/bigadmin/features/articles/install_assistant.jsp)

- General Installation Discussion Forum

<http://forums.sun.com/forum.jspa?forumID=832>)

Getting Started

This chapter describes how to get started installing the Microsoft Windows Server 2008 SP2 and the Microsoft Windows Server 2008 R2 operating systems manually on your server.

Note – The term “manually” refers to performing the installation by following the instructions provided in Chapters 2 through 4 of this guide, and not using the Sun Installation Assistant (SIA). If you prefer to perform an assisted Windows installation by using SIA, see [Chapter 1](#) of this guide.

Topics discussed in this chapter include:

- [“Supported Windows Server Operating Systems”](#) on page 8
- [“Windows Installation Prerequisites”](#) on page 9
- [“Windows Server Installation Task Overview”](#) on page 10
- [“SAS PCIe HBAs Requiring LSI Mass Storage Driver for Windows Server 2008 SP2”](#) on page 11

Supported Windows Server Operating Systems

The Sun Fire X4170 M2 and X4270 M2 Servers support the following Microsoft Windows operating systems:

Windows OS	Edition
• Windows Server 2008 SP2	• Standard Edition (64-bit) • Enterprise Edition (64-bit) • Datacenter edition (64-bit)
• Windows Server 2008 R2	• Standard Edition (64-bit) • Enterprise Edition (64-bit) • Datacenter edition (64-bit)

For a complete and updated list of all the supported operating systems on the Sun Fire X4170 M2 and X4270 M2 Servers, see the following web sites:

- (<http://www.oracle.com/goto/x4170m2>)
- (<http://www.oracle.com/goto/x4270m2>)

Windows Installation Prerequisites

Refer to the following important prerequisites before beginning the Windows Server 2008 operating system installation on your server.

TABLE 2-1 Windows Installation Prerequisites

Requirement	Description	For more information, see:
Established deployment method that enables you to boot the Windows install program	Guidelines for selecting a local or remote deployment method for installing a Windows operating system.	<ul style="list-style-type: none">• Appendix A
RAID volume creation	If you are using the LSI mass storage controller and you want to include your boot drive as part of a RAID configuration, you need to configure a RAID volume on it. Use the LSI integrated RAID controller setup utility before you install Windows.	<ul style="list-style-type: none">• <i>LSI MegaRAID Software SAS User's Guide</i> at: http://www.lsi.com/support/sun/
Verification of BIOS settings for new OS installations	Prior to installing the Windows Server 2008 operating system, you should verify that the BIOS factory-default properties are set.	<ul style="list-style-type: none">• Appendix C
Installation of server-specific device drivers and optional supplemental software	<p>After performing the Windows Server 2008 installation, you might need to:</p> <ul style="list-style-type: none">• Install server-specific device drivers to support additional hardware. <p>Note the Windows 2008 SP2 does not include the LSI mass storage drivers for the SAS PCIe host bus adapters (HBAs). If you have a SAS PCIe HBA option installed, the LSI mass storage driver for the SAS PCIe HBA option must be made accessible from the Tools and Drivers DVD during installation. For a list of supported SAS PCIe HBAs, see TABLE 2-2.</p> <ul style="list-style-type: none">• Install Windows Server optional supplemental software that is available for your x86 server.	<ul style="list-style-type: none">• Chapter 4• “SAS PCIe HBAs Requiring LSI Mass Storage Driver for Windows Server 2008 SP2” on page 11
Incorporate server-specific device drivers in a WIM image	Advanced users can incorporate the post installation system device drivers into WDS boot and install images.	<ul style="list-style-type: none">• Appendix E
Access to late-breaking information and patches for OS installations	Review the <i>Sun Fire X4170 M2 and X4270 M2 Servers Product Notes</i> for late-breaking information about supported operating system software and patches.	<ul style="list-style-type: none">• <i>Sun Fire X4170 M2 and X4270 M2 Servers Product Notes</i> (821-0482)

Windows Server Installation Task Overview

To manually install Windows Server 2008 (SP2 or R2), complete the following procedures in order:

1. Obtain the Tools and Driver DVD provided or download the latest drivers and utilities available for your server as described in [Appendix D](#).

The install program for the Windows Server 2008 SP2 does not include the LSI drivers for the Sun Storage SAS PCIe HBA options. Therefore, if you have a SAS PCIe HBA configured on your server and you are installing Windows 2008 SP2, the LSI mass storage driver for the SAS PCIe HBA option must be made accessible from the Tools and Drivers DVD during the installation process.

For a list of SAS PCIe HBAs supported on the Sun Fire X4170 M2 and X4270 M2 Servers, see [“SAS PCIe HBAs Requiring LSI Mass Storage Driver for Windows Server 2008 SP2”](#) on page 11.

Note – Optionally, advanced users might prefer to incorporate the drivers into WDS images. For instructions on how to incorporate the drivers into WDS images, see [Appendix E](#).

2. Choose and set up an installation method for deploying the Windows Server installation as described in [Appendix A](#).
3. Follow the instructions for performing a manual installation of the Windows Server operating system as described in [Chapter 3](#).
4. Follow the instructions for performing the Windows Server post installation tasks as described in [Chapter 4](#).

SAS PCIe HBAs Requiring LSI Mass Storage Driver for Windows Server 2008 SP2

TABLE 2-2 identifies the SAS PCIe host bus adapter (HBA) options that are supported on the Sun Fire X4170 M2 and X4270 M2 Servers at the time of this publication. If you have one of these SAS PCIe HBA options configured on your server and you are installing Windows Server 2008 SP2, you will need to load the LSI mass storage driver for the PCIe HBA option from the Tools and Drivers DVD during installation.

TABLE 2-2 Supported SAS PCIe HBAs Requiring LSI Mass Storage Driver

Supported SAS PCIe HBAs	Option Number	Driver Required During Installation
Sun Storage 6 Gb/s SAS PCIe RAID HBA, Internal	SG-SAS6-R-INT-Z	LSI MegaRAID SAS 92xx-xx
Sun Storage 6 Gb/s SAS PCIe RAID HBA, External	SG-SAS6-R-EXT-Z	LSI MegaRAID SAS 92xx-xx
Sun Storage 6 Gb/s SAS PCIe HBA, Internal	SG-SAS6-INT-Z	LSI Adapter SAS 2008 Falcon
Sun Storage 6 Gb/s SAS PCIe HBA, External	SG-SAS6-EXT-Z	LSI Adapter SAS 2008 Falcon

Instructions for loading the LSI mass storage driver during the Windows Server 2008 SP2 installation are provided in Step 8 of the “[Install Windows Server 2008 \(SP2 or R2\) Using Local or Remote Media](#)” on page 14.

If you do not have a copy of the Tools and Drivers DVD, you can download the ISO image for the Tools and Driver DVD. For details, see [Appendix D](#).

For an up-to-date list of options supported on the Sun Fire X4170 M2 and X4270 M2 Servers, see:

- (<http://www.sun.com/servers/x64/X4170/optioncards.jsp>).
- (<http://www.sun.com/servers/x64/X4270/optioncards.jsp>).

Installing Windows Server 2008

This chapter provides information about manually installing the Windows Server 2008 SP2 or Windows Server 2008 R2 operating system.

Note – The term “manually” refers to performing the installation by following the instructions provided in Chapters 2 through 4 of this guide, and not using the Sun Installation Assistant (SIA). If you prefer to perform an assisted Windows installation by using SIA, see [Chapter 1](#) of this guide for details.

This chapter includes the following topics:

- [“Before You Begin” on page 13](#)
- [“Installing Windows Server Using Local or Remote Media” on page 14](#)
- [“Windows Server Installation Using a PXE Network Boot” on page 25](#)

Before You Begin

Ensure that the following requirements are met before you proceed with the instructions in this chapter for manually installing the Windows Server operating system.

- All applicable installation prerequisites for installing an operating system should have been met. For further information about these prerequisites, see [“Windows Installation Prerequisites” on page 9](#).
- An installation method (for example: console output, boot media, and install target) should have been chosen and established prior to performing the installation. For more information about these setup requirements, see [Appendix A](#).

- Use the Microsoft Windows Server 2008 (SP2 or R2) operating system documentation in conjunction with the Windows Server operating system instructions provided in this chapter. You can obtain a copy of Microsoft's Windows Server 2008 installation documentation at:
(<http://www.microsoft.com/windowsserver2008/en/us/product-documentation.aspx>)

After completing this procedure, you should review and perform the required post installation tasks described later in this guide. For more details, see [Chapter 4](#).

Installing Windows Server Using Local or Remote Media

The procedure in this section describes how to boot the Windows Server 2008 (SP2 or R2) operating system from local or remote media. It assumes that you are booting the Windows installation media from one of the following sources:

- Windows Server 2008 SP2 or Windows Server 2008 R2 (or subsequent release) CD or DVD
- Windows Server 2008 SP2 or Windows Server 2008 R2 (or subsequent release) ISO image

Note – The Windows Server 2008 (SP 2 or R2) ISO image can be used for remote installation or for creating an installation CD or DVD.

Note – If you are booting the installation media from a PXE environment, refer to [“Windows Server Installation Using a PXE Network Boot”](#) on page 25 for instructions.

▼ Install Windows Server 2008 (SP2 or R2) Using Local or Remote Media

1. Ensure that the installation media is available to boot.

- **For Distribution CD/DVD.** Insert the Windows 2008 Distribution media (CD labeled number 1 or the single DVD) into the local or remote USB CD/DVD-ROM drive.

- **For ISO image.** Ensure that the ISO images are available and that the ILOM Remote Console application is aware of the first ISO image location.

For additional information about how to set up the installation media, see [“Boot Media Options for Performing an OS Installation” on page 37.](#)

2. Reset or power on the server.

For example:

- **From the ILOM web interface,** select Remote Control --> Remote Power Control tab, then select Reset from the Select Action list box.
- **From the local server,** press the Power button on the front panel of the server to power off the server, then press the Power button again to power on the server.
- **From the ILOM CLI,** type: `reset /SYS`

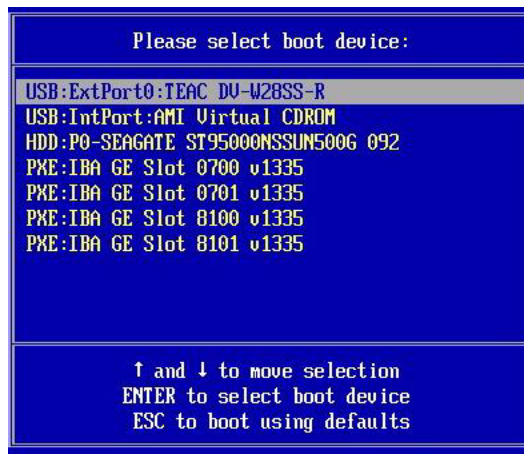
The BIOS screen appears.

Note – The next events occur very quickly; therefore, focused attention is needed for the following steps. Watch carefully for these messages as they appear on the screen for a brief time. You might want to enlarge the size of your screen to eliminate scroll bars.

3. In the BIOS power-on self-test screen, press F8 to specify a temporary boot device for the Windows installation.

The Please Select Boot Device menu appears.

Note – The menu that appears in your installation might differ depending on the type of disk controller installed in your server.



4. In the Please Select Boot Device menu, select the menu item according to the Windows media installation method you elected to use, then press Enter.

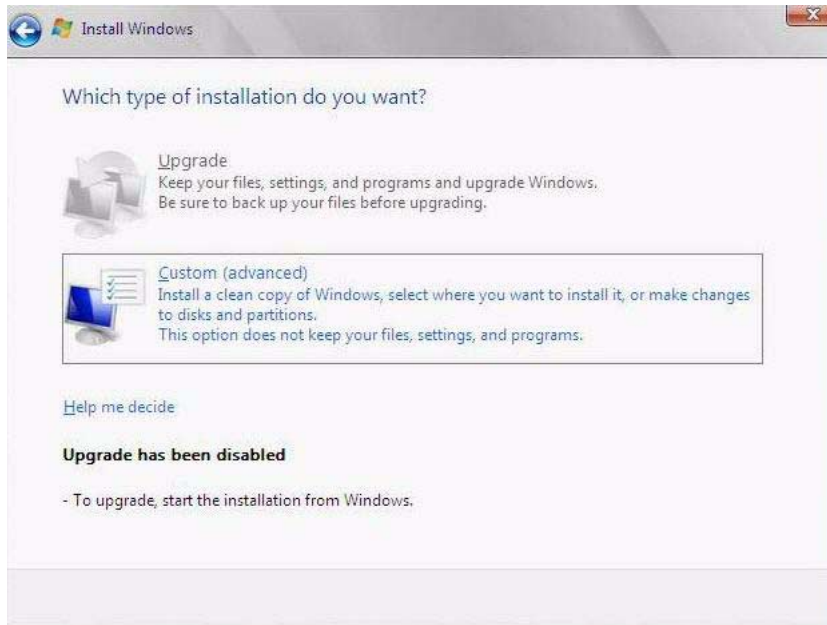
For example:

- If you elected to use the Windows local delivery method, select TEAC as the physical DVD device (or select CD/DVD if this option is shown in boot device menu).
- If you elected to use the ILOM Remote Console delivery method, select Virtual CDROM.

5. When prompted with Press any key to boot from CD, press any key.

The Windows installation wizard starts.

Continue the Windows installation wizard until the Installation Type dialog appears.



6. In the Installation Type dialog, click Custom (advanced).

The Where Do You Want to Install Windows dialog appears.



7. In the Where Do You Want to Install Windows dialog, perform one of the following tasks in the table below to specify a storage target for the Windows Server operating system edition.

For Windows Server Edition	Task
Windows Server 2008 SP2 (or subsequent Windows 2008 SP release)	<p>Perform one of the following:</p> <ul style="list-style-type: none"> • If you do not see any storage targets listed and have a Sun Storage SAS PCIe RAID HBA option configured on your server, click <code>Load Driver</code> then proceed to Step 8. - or - • If you see the storage target where you want to install the operating system but want to change the default partition settings associated with that target, select the target, click <code>Drive Options</code>, then proceed to Step 9. - or - • If you see the storage target where you want to install the operating system and do not want to change the default partition settings for that target, select the target and click <code>Next</code>, then proceed to Step 10.
Windows Server 2008 R2 (or subsequent Windows 2008 R2 release)	<p>Prior to proceeding with the Windows Server 2008 R2 installation, you must install the network driver for the on-board Intel 82576 Gigabit Network Device.</p> <ul style="list-style-type: none"> • Click <code>Load Driver</code>, then proceed to Step 8.

8. (Load Driver) In the Load Drive dialog, do the following:



- a. Ensure the driver(s) are accessible according to the installation method chosen (described in [Appendix A](#)).

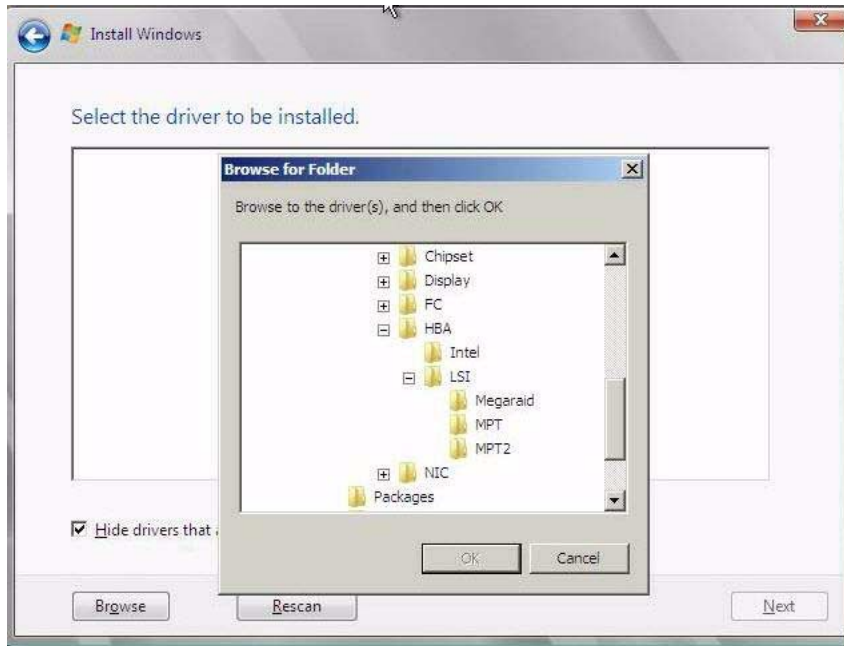
For example:

- **Floppy Disk Local.** Storage driver(s) on a floppy disk in floppy drive A on the server.
- **Floppy Disk Remote.** Storage driver(s) on a floppy disk in a floppy drive mounted as a device from the ILOM Remote Console.
- **Floppy Image.** Storage driver `floppy.img` file is mounted as a device from the ILOM Remote Console.
- **Non-floppy Media.** Storage driver(s) are on a local physical storage media (USB flash drive or CD/DVD) or virtual media mounted from the ILOM Remote Console.

- b. In the Load Driver dialog, click **Browse** to navigate to the appropriate driver media folder as described below.

- For systems configured with either of these SAS PCIe RAID HBA options SG-SAS6-R-INT or SG-SAS6-R-EXT-Z, navigate to the following directory on the Tools and Drivers DVD to load the appropriate LSI driver:
`windows/w2k8/drivers/64bit/hba/lsi/megaraid`
- For a system configured with either of these SAS PCIe HBA options SG-SAS6-INT or SG-SAS6-EXT-Z, navigate to the following directory on the Tools and Driver DVD to load the appropriate LSI driver:
`windows/w2k8/drivers/64bit/hba/lsi/mpt2`

- For Intel network driver installation (**required for Windows Server 2008 R2**), navigate to the following directory on the Tools and Driver DVD to load appropriate Intel driver:
windows/w2k8R2/drivers/64bit/NIC/Intel

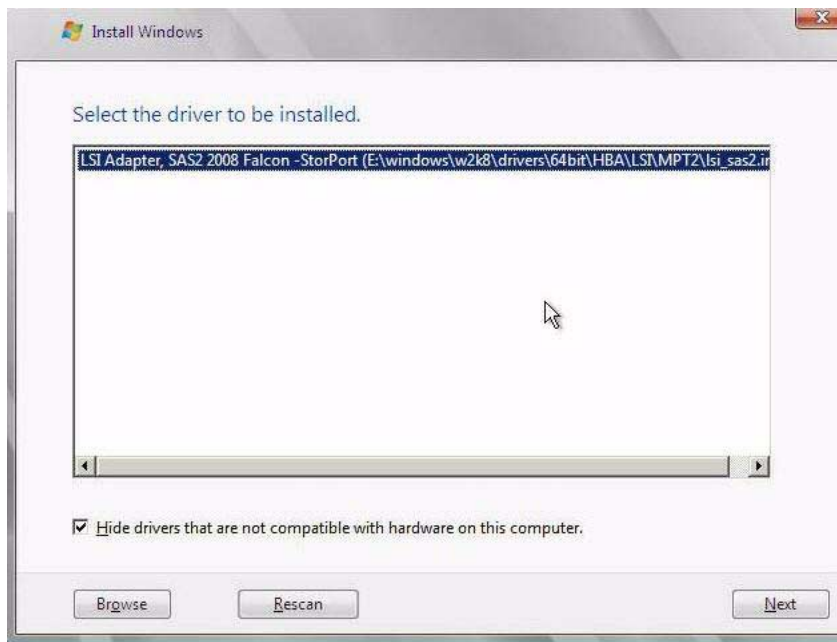
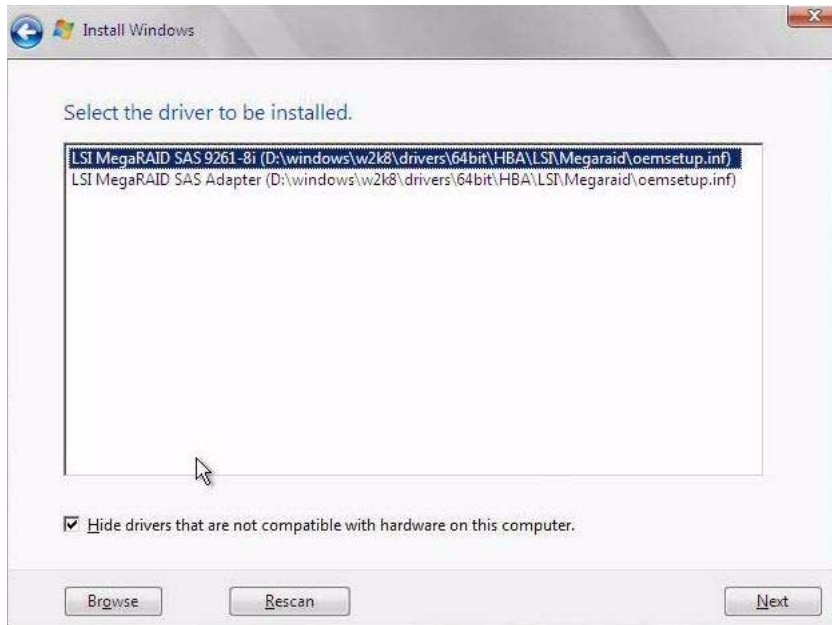


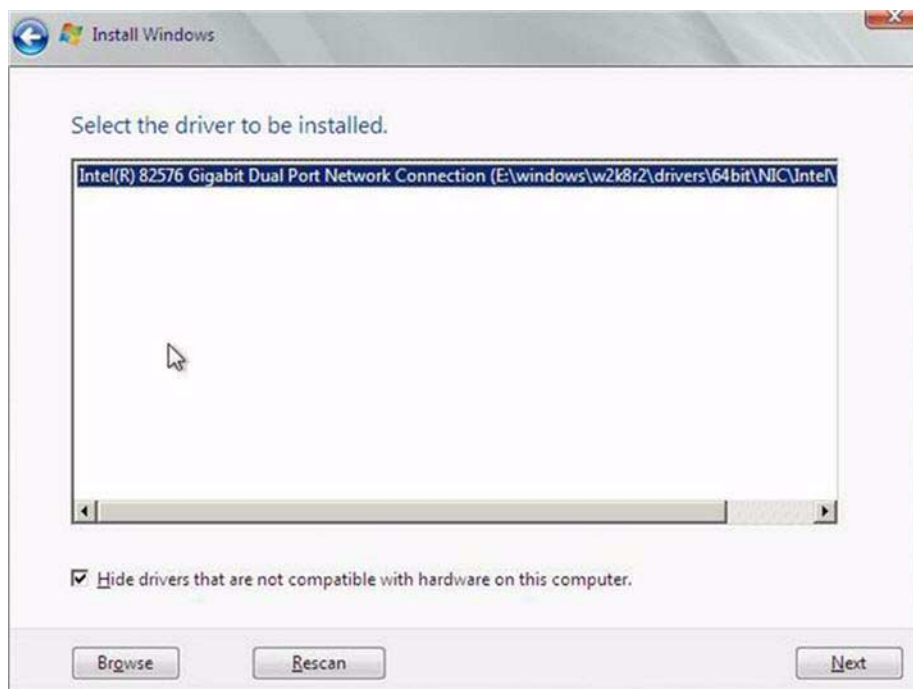
- c. **In the Browse for Folder dialog, select the appropriate driver, then click OK to load the driver.**

The selected driver appears in the Select the Driver to Be Installed dialog.

For example:

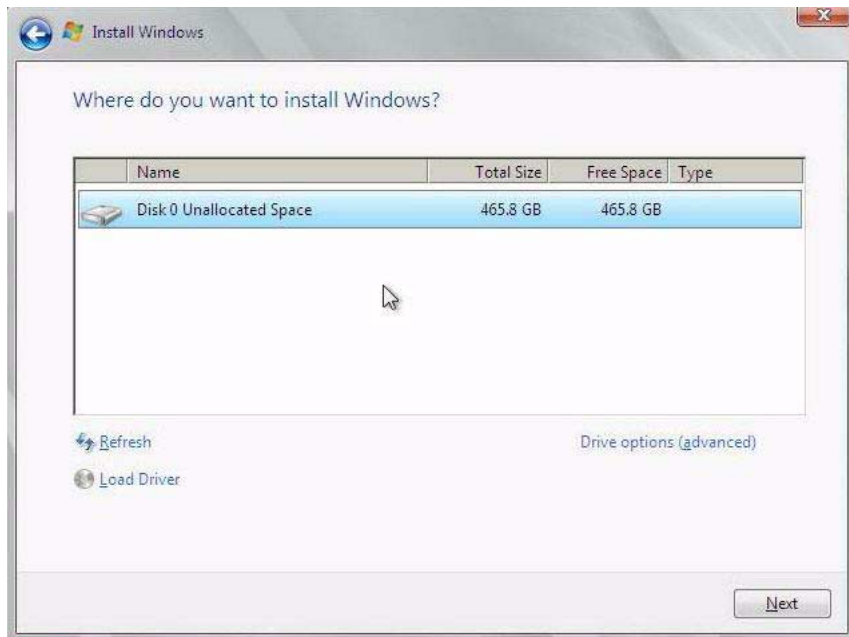
- Two example dialogs follow showing the selected driver to be installed for the two SAS PCIe HBA options. Note that the SAS PCIe HBA drivers are required only for Windows Server 2008 SP2 installations.
- A third example dialog follows showing the selected driver for the on-board Intel Gigabit Network Device Driver. Note that the Intel Gigabit Network Device driver is required only for Windows Server 2008 R2 installations.





d. In the **Select the Driver to Be Installed** dialog, click **Next** to install the driver.

The **Where Do You Want to Install Windows** dialog appears.

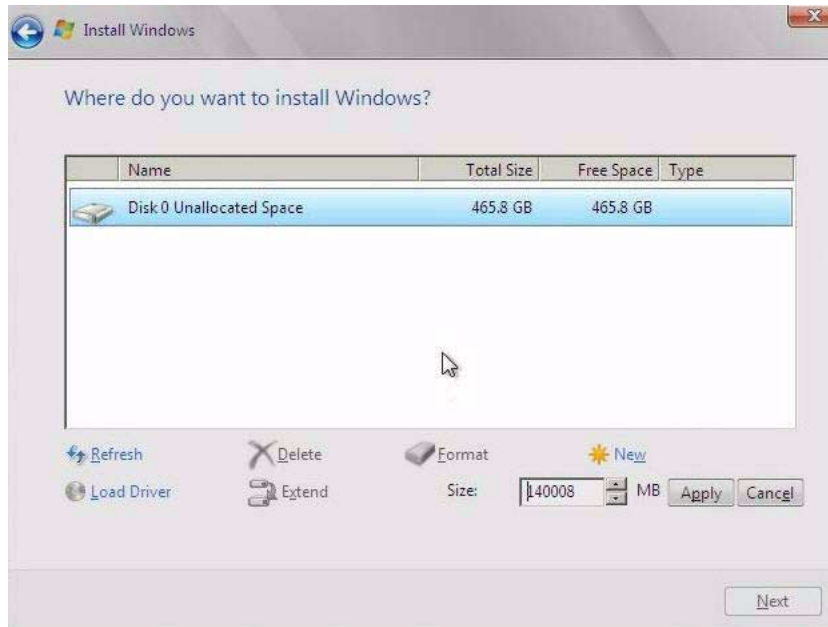


Note – If you previously removed or unmounted the Windows Server install media to load the drivers from the Tools and Drivers DVD, you might see the following message: **Windows Cannot be installed to this disk**. If this message appears, insert or re-mount the Windows install media, then click Refresh.

e. In the Where Do You Want to Install Windows dialog, do one of following:

- Select the storage target listed and click Next to install the operating system, then proceed to **Step 10**.
- or -
- Select the storage target listed and click Drive Options (Advanced) to view and change the default partition settings, then proceed to **Step 9**.
The partition settings for the selected target appear at the bottom of the Where Do You Want to Install Windows dialog.

9. (Partition Drive, advanced) In the lower portion of the Where Do You Want to Install Windows dialog, do the following:



- a. Click **Delete** to delete the selected storage target existing partition configuration.
A confirmation window appears.
 - b. Click **OK** to confirm the partition deletion.
 - c. Click **New** to create a new partition on the selected storage target.
 - d. In the **Size** scroll box, increase or decrease the partition size as needed, then click **Apply**.
The partition is created.
 - e. Click **Next** to install the operating system to the selected storage target.
10. The Windows installation program begins and will reboot the server multiple times during the installation process.
 11. When the Windows installation is complete, Windows starts and prompts you to change the user password.
 12. In the user password dialog, click **OK** and set up the initial user login account.

Note – Windows Server 2008 enforces stricter password schemes for user accounts. Password standards include restrictions on length, complexity, and history. For more details, click the Accessibility link at the account creation page.

After the initial user account is created, the Windows Server 2008 desktop appears.

13. Proceed to [Chapter 4](#) to perform the post installation tasks.

Windows Server Installation Using a PXE Network Boot

This section explains the initial information you will need to install the Windows Server 2008 (SP2 or R2) operating system over an established PXE-based network using a customer-provided Windows Imaging Format (WIM) image.

Topics included in this section:

- [“Before You Begin” on page 25](#)
- [“Install Windows Server 2008 \(SP2 or R2\) Using PXE” on page 26](#)

Note that the procedure presented in this section documents the initial steps to install Windows 2008 over the network using a Windows Deployment Services (WDS). Specifically, it explains the steps for selecting the server PXE network interface card that will communicate with your WDS installation server. For further information about using WDS to install the Windows Server 2008 operating system, see Microsoft’s Windows Deployment Services documentation.

Before You Begin

- To use PXE to boot the installation media over the network, you must:
 - Configure the network (NFS, FTP, HTTP) server to export the installation tree.
 - Configure the files on the TFTP server that are necessary for PXE booting.
 - Configure the server’s MAC network port address to boot from the PXE configuration.
 - Configure Dynamic Host Configuration Protocol (DHCP).
- To use WDS to perform the installation, you must:
 - Add the required system device drivers to the `install.wim` image and, if necessary, the `boot.wim` image.

For guidelines for adding drivers to the WIM installation image(s), see [Appendix E](#).

- Obtain the WIM Administrator password.

▼ Install Windows Server 2008 (SP2 or R2) Using PXE

1. Reset or power on the server.

- **From the ILOM web interface**, select Remote Control --> Remote Power Control tab, then select Reset from the Select Action list box.
- **From the local server**, press the Power button on the front panel of the server to turn off the server, then press the Power button again to power on the server.
- **From the ILOM CLI**, type: **reset /SYS**

The BIOS screen appears.

Note – The next events occur very quickly; therefore, focused attention is needed for the following steps. Watch carefully for these messages as they appear on the screen for a brief time. You might want to enlarge the size of your screen to eliminate scroll bars.

2. Press F8 to specify a temporary boot device.

The Please Select Boot Device menu appears.

3. In the Please Select Boot Device menu, select the appropriate PXE installation boot device and press Enter.

The PXE installation boot device is the physical network port configured to communicate with your network installation server.

The Boot Agent dialog appears.

4. In the Boot Agent dialog, press F12 for a network service boot.

5. Continue the normal Windows Server 2008 SP2 or 2008 R2 WDS network installation.

For additional information, consult Microsoft's Windows Deployment Services product documentation.

6. When the installation completes, proceed to [Chapter 4](#) to perform the post installation tasks.

Post Installation of Windows Server 2008

After completing the installation of the Windows Server 2008 (SP2 or R2) operating system and rebooting the server, you should review the following post installation tasks and, if necessary, perform the tasks that are applicable to your server.

- [“Installing Critical Device Drivers and Supplemental Software” on page 28](#)
- [“Installing Supplemental Software” on page 29](#)
- [“Configuring Support for TPM” on page 31](#)
- [“Configuring Intel NIC Teaming” on page 31](#)

Before You Begin

The procedures in this chapter assume that you have:

- Installed the Microsoft Windows Server operating system
- Obtained a copy of the Tools and Drivers DVD

If you do not have a copy of the Tools and Drivers DVD, you can download the latest ISO image of the Tools and Drivers DVD from the product download site. For Instructions see, [Appendix D](#).

Installing Critical Device Drivers and Supplemental Software

An installation wizard is provided on the Tools and Drivers DVD to install server-specific device drivers and Supplemental Software. The server-specific device drivers are provided to support optional hardware devices that can be installed on your server.

▼ Install Server-Specific Device Drivers

1. **Insert the Tools and Drivers DVD into a local or remote USB DVD drive and do one of the following:**

- **If the DVD automatically starts**, click **Install Drivers and Supplemental Software**.
- **If the DVD does not automatically start**, navigate to one of the following folders containing the appropriate `InstallPack` file (for example, `InstallPack_1_0_1.exe`), and double-click it.
 - `<DVD>/Windows/W2K8/Packages`
 - `<DVD>/Windows/W2K8R2/Packages`

The Server Installation Package dialog appears.

2. **In the Install Pack dialog, click `Next` to accept the default installable items.**

Note – You should always accept the “default installable items” to ensure that the most recent versions of the drivers are installed.

The Install Pack notice dialog appears.

3. **In the Install Pack notice dialog, read the message, then click `Next`.**

The Welcome to the Sun Fire Installation Wizard appears.

4. **In the Welcome to the Sun Fire Installation Wizard dialog, click `Next`.**

The End User License Agreement page appears.

5. **In the End User License Agreement page, select `I Accept This Agreement`, then click `Next`.**

The platform-specific drivers are installed. A green check mark verifies that each driver was installed successfully.

6. In the Driver Installation Pack dialog, click Finish.

The System Settings Change dialog appears.

Note – If you plan on installing Supplemental Software (highly recommended), do not restart your system at this time. Once the Supplemental Software has been installed, you will be prompted to restart the system.

7. Perform one of the following:

- If you accepted the default installable settings in [Step 2](#), click No to proceed to “Installing Supplemental Software” on page 29.
- If you are not installing the Supplemental Software, click Yes to restart your computer.

Installing Supplemental Software

There are several Supplemental Software components available for your Sun Fire X4170 M2 or X4270 M2 Server. You have two options for installation:

- Typical: Installs all Supplemental Software applicable for your server.
- Custom: Installs only the Supplement Software selected for installation.

TABLE 4-1 identifies the optional Supplemental Software components available for your server.

TABLE 4-1 Install Pack Optional Supplemental Software

Available Supplemental Software Components	Servers With LSI Integrated RAID Controller	Servers With Intel Integrated Disk Controller
LSI MegaRAID Storage Manager , click Yes to restart your computer Enables you to configure, monitor, and maintain RAID on the SAS internal RAID host bus adapter.	Typical	Not applicable
IPMITool command-line utility The IPMITool command-line utility reads the sensor data repository (SDR) and displays sensor values, system event log (SEL), and field-replaceable unit (FRU) inventory information; gets and sets LAN configuration parameters; and performs chassis power control operations via the BMC (also called the service processor (SP)).	Typical	Typical
Intel NIC Teaming Enables the network interfaces on a server to be grouped together into a team of physical ports called a virtual interface.	Typical	Typical

▼ Install the Supplemental Software



Caution – If you have already installed the Supplemental Software, running the installation again will not necessarily reinstall the Supplemental Software. It might result in the components being removed. Carefully review the dialog boxes during Supplemental Software installation to ensure that the results are as expected.

1. Do one of the following:

- If you *did not* select the **Supplemental Software** when you ran the procedure “Installing Critical Device Drivers and Supplemental Software” on page 28, refer back to that procedure and run it again, but this time accept the default settings in Step 2 (the default is to install the supplemental software), and select **No** in Step 7.
- If you *did* select **Supplemental Software** at the Server Installation Package dialog box in Step 2 of “Installing Critical Device Drivers and Supplemental Software” on page 28, and selected **No** in Step 7, the Install Pack Supplemental Software dialog appears. Proceed to Step 2.

2. In the **Install Pack Supplemental Software** dialog, click **Next** to accept the typical settings; or select **Custom** to choose the options to install (see descriptions of the Supplemental Software in [TABLE 4-1](#)).

The Component Installation wizard will guide you through the installation of each of the selected Supplemental Software components.

3. After the Supplemental Software has been installed, click **Finish**.
4. Click **Yes** at the **System Setting Change** dialog to restart your system.

If you ran the Sun Server Installation Package software from the Tools and Drivers DVD, remove the DVD from your system.

Configuring Support for TPM

If you intend to use the Trusted Platform Module (TPM) feature set that is provided in Windows 2008, you must configure the Sun Fire X4170 M2 and X4270 M2 Servers to support this feature. For instructions, see the configuring support for TPM information in the service manual applicable to your server:

- *Sun Fire X4170 M2 Server Service Manual* (821-0486)
- *Sun Fire X4270 M2 Server Service Manual* (821-0488)

Note – TPM enables you to administer the TPM security hardware in your server. For additional information about implementing this feature, refer to the Windows Trusted Platform Module Management documentation provided by Microsoft.

Configuring Intel NIC Teaming

For more information on setting up NIC teaming for your environment, refer to the Intel Connectivity web page on Advanced Networking Services Teaming at:

(<http://support.intel.com/support/network/sb/CS-009747.htm>)

Additionally, you can download the complete set of Intel Network Connections User Guides for your server's network adapters at:

(<http://support.intel.com/support/network/sb/cs-009715.htm>)

PART II

Windows Server System Administrator
References

Refer to the following system administrator references as needed to perform or complete the installation of the Windows Server 2008 (SP2 or R2) operating system.

Description	Link
Guidelines for selecting and setting up an installation environment for deploying the Windows Server installation program	Appendix A
A complete list of operating systems supported on the Sun Fire X4170 M2 and X4270 M2 Servers at the time of this publication	Appendix B
Instructions for ensuring that the BIOS default properties are set prior to performing the Windows Server installation	Appendix C
Instructions for downloading the latest version of the ISO image for the Tools and Drivers DVD	Appendix D
Instructions for advanced users who prefer to incorporate the server-specific drivers in a Windows Imaging Format (WIM) file	Appendix E

Supported Installation Methods

To determine which installation method is best for you when installing Windows on your server, consider the following options summarized in this appendix:

- “Console Outputs” on page 35
- “Installation Boot Media” on page 37
- “Installation Targets” on page 40

Console Outputs

TABLE A-1 lists the consoles you can use to capture the output and input of the operating system installation.

TABLE A-1 Console Options for Performing an OS Installation

Console	Description	Setup Requirement
Local console	<p>You can install the OS and administer the server by attaching a local console directly to the server SP.</p> <p>Examples of local consoles include:</p> <ul style="list-style-type: none">• Serial console• VGA console, with USB keyboard and mouse	<ol style="list-style-type: none">1. Attach a local console to the server. For details, see the “Setting Up the Server” in the <i>Sun Fire X4170 M2 and X4270 M2 Servers Installation Guide</i> (821-0481).2. At the ILOM prompt, type your ILOM user name and password.3. For serial console connections only, establish a connection to the host serial port by typing <code>start /SP/console</code>. The video output is automatically routed to the local console. <p>For further details about establishing a connection to the server SP, see the <i>Oracle Integrated Lights Out Manager (ILOM) 3.0 Concepts Guide</i> (820-6410).</p>

TABLE A-1 Console Options for Performing an OS Installation (*Continued*)

Console	Description	Setup Requirement
Remote console	<p>You can install the OS and administer the server from a remote console by establishing a network connection to the server SP.</p> <p>Examples of remote consoles include:</p> <ul style="list-style-type: none">• Web-based client connection using the ILOM Remote Console application• SSH client connection using a serial console	<ol style="list-style-type: none">1. View or establish an IP address for the server SP. For details, see the “Setting Up the Server” in the <i>Sun Fire X4170 M2 and X4270 M2 Servers Installation Guide</i> (821-0481).2. View or establish a connection between a remote console and the server SP:<ul style="list-style-type: none">• For web-based client connection, perform these steps: 1) In a web browser, type the IP address for the server SP; 2) log in to the ILOM web interface; 3) redirect the video output from the server to the web client by launching the ILOM Remote Console; 4) enable device redirection (mouse, keyboard, etc.) in the Device menu.• For SSH client connection, perform these steps: 1) From a serial console, establish an SSH connection to the server SP (<code>ssh root@hostname</code>, if using DNS, or <code>ssh root@ipaddress</code>); 2) log in to ILOM; 3) redirect the serial output from the server to the SSH client by typing <code>start /SP/console</code>. <p>For additional information about establishing a remote connection to the ILOM SP or using the ILOM Remote Console, see the <i>Oracle Integrated Lights Out Manager (ILOM) 3.0 Concepts Guide</i> (820-6410).</p>

Installation Boot Media

You can start the operating system installation to a server by booting a local or remote installation media source. [TABLE A-2](#) identifies the supported media sources and the setup requirements for each source.

TABLE A-2 Boot Media Options for Performing an OS Installation

Installation Media	Description	Setup Requirement
Local boot media	Local boot media requires a built-in storage device on the server, or an external storage device attached to the server. Supported OS local boot media sources can include: <ul style="list-style-type: none">• CD/DVD-ROM installation media, and, if applicable, floppy device driver media	<ol style="list-style-type: none">1. If your server does not contain a built-in storage device, attach the appropriate storage device to the front or rear panel of the server.2. For more information about how to attached local devices to the server, see “Setting Up the Server” in the in the <i>Sun Fire X4170 M2 and X4270 M2 Servers Installation Guide</i> (821-0481).

TABLE A-2 Boot Media Options for Performing an OS Installation *(Continued)*

Installation Media	Description	Setup Requirement
Remote boot media	<p>Remote media requires you to boot the install over the network. You can start the network install from a redirected boot storage device or another networked system that exports the installation over the network using a Pre-Boot eXecution environment (PXE).</p> <p>Supported OS remote media sources can include:</p> <ul style="list-style-type: none">• CD/DVD-ROM installation media, and, if applicable, floppy device driver media• CD/DVD-ROM ISO installation image and, if applicable, floppy ISO device driver media• Automated installation image (requires PXE boot)	<p>To redirect the boot media from a remote storage device, perform these steps:</p> <ol style="list-style-type: none">1. Insert the boot media into the storage device, for example: For CD/DVD-ROM, insert media into the built-in or external CD/DVD-ROM drive. For CD/DVD-ROM ISO image, ensure that ISO image(s) are readily available on a network shared location. For device driver floppy ISO image, ensure that ISO image, if applicable, is readily available on a network shared location or on a thumb drive.2. Establish a web-based client connection to the server ILOM SP and launch the ILOM Remote Console application. For more details, see the Setup Requirements for web-based client connection in TABLE A-1.3. In the Device menu of the ILOM Remote Console application, specify the location of the boot media, for example: For CD/DVD-ROM boot media, select CD-ROM. For CD/DVD-ROM ISO image boot media, select CD-ROM Image. For floppy device driver boot media, if applicable, select Floppy. For floppy image device driver boot media, if applicable, select Floppy Image. <p>For more information about the ILOM Remote Console, see the <i>Oracle Integrated Lights Out Manager (ILOM) 3.0 Concepts Guide</i> (820-6410).</p>

TABLE A-2 Boot Media Options for Performing an OS Installation *(Continued)*

Installation Media	Description	Setup Requirement
Remote Boot Media <i>(continued)</i>	<p>Note - An automated installation image enables you to perform the OS installation on multiple servers. By using an automated image, you can ensure configuration uniformity among many systems.</p> <p>Automated installations use a Pre-boot eXecution Environment (PXE) technology to enable the clients without an operating system to boot remotely to the automated install server that performs the installation of the operating system.</p>	<p>To perform the installation using PXE, perform these steps:</p> <ol style="list-style-type: none">1. Configure the network server to export the installation via PXE boot.2. Make the OS install media available for PXE boot. <p>If you are using an automated OS installation image, you will need to create and provide the automated OS install image, for example:</p> <ul style="list-style-type: none">• Solaris JumpStart Image• RHEL KickStart Image• SLES AutoYaST Image• Windows WDS Image <p>For detailed instructions for automating the installation setup process, consult the operating system vendor documentation.</p> <ol style="list-style-type: none">1. To boot the installation media, select the PXE boot interface card as the temporary boot device. <p>For details, see “Windows Server Installation Using a PXE Network Boot” on page 25.</p>

Installation Targets

TABLE A-3 identifies the supported installation targets you can use to install an operating system.

TABLE A-3 Installation Targets for OS Installation

Install Target	Description	Setup Requirement	Supported OS
Local hard disk drive (HDD) or Solid state drive (SSD)	You can choose to install the operating system to any of the hard disk drives or solid state drives installed in the server.	<ul style="list-style-type: none">• Ensure that the HDD or SSD is properly installed and powered-on in the server. For more information about installing and powering on an HDD or SDD, refer to the service manual applicable to your server: <ul style="list-style-type: none">• <i>Sun Fire X4170 M2 Server Service Manual</i> (821-0486)• <i>Sun Fire X4270 M2 Server Service Manual</i> (821-0488)	<ul style="list-style-type: none">• All supported operating systems listed in Appendix B.
Fibre Channel (FC) Storage Area Network (SAN) device	For servers equipped with Fibre Channel PCIe host bus adapters (HBAs), you can choose to install the operating system to an external FC storage device.	<ul style="list-style-type: none">• Ensure that the FC PCIe HBA is properly installed in the server. For more information about installing a PCIe HBA option in your server, refer to the service manual applicable to your server: <ul style="list-style-type: none">• <i>Sun Fire X4170 M2 Server Service Manual</i> (821-0486)• <i>Sun Fire X4270 M2 Server Service Manual</i> (821-0488)	<ul style="list-style-type: none">• All operating systems listed in Appendix B.

Supported Operating Systems

TABLE B-1 in this appendix describes the operating systems supported on the Sun Fire X4170 M2 and X4270 M2 Servers at the time this document was published.

For an up-to-date list of the latest operating systems supported on the servers, see the following web sites:

(<http://www.oracle.com/goto/x4170m2>)

(<http://www.oracle.com/goto/x4270m2>)

Supported Operating Systems

The Sun Fire X4170 M2 and X4270 M2 Servers support the installation and use of the following operating systems, or a subsequent release of the operating system.

TABLE B-1 Supported Operating Systems

Operating System	Supported Version	Additional Information
Windows	<ul style="list-style-type: none">• Microsoft Windows Server 2008 SP2, Standard Edition (64-bit)• Microsoft Windows Server 2008 SP2, Enterprise Edition (64-bit)• Microsoft Windows Server 2008 SP2, Datacenter Edition (64-bit)• Microsoft Windows Server 2008 R2, Standard Edition (64-bit)• Microsoft Windows Server 2008 R2, Enterprise Edition (64-bit)• Microsoft Windows Server 2008 R2, Datacenter Edition (64-bit)	<ul style="list-style-type: none">• Chapter 3
Linux	<ul style="list-style-type: none">• Oracle Enterprise Linux 5.4• SUSE Linux Enterprise Server (SLES) 10 SP 3 (64-bit)• SUSE Linux Enterprise Server (SLES) 11 (64-bit)• Red Hat Enterprise Linux Server (RHEL) 5.4 (64-bit)	<ul style="list-style-type: none">• <i>Sun Fire X4170 M2 and X4270 M2 Servers Installation Guide for Linux, Virtual Machine Software, and Oracle Solaris Operating Systems (821-0483)</i>
Solaris	<ul style="list-style-type: none">• Oracle Solaris 10 10/09	<ul style="list-style-type: none">• <i>Sun Fire X4170 M2 and X4270 M2 Servers Installation Guide for Linux, Virtual Machine Software, and Oracle Solaris Operating Systems (821-0483)</i>

TABLE B-1 Supported Operating Systems (Continued)

Operating System	Supported Version	Additional Information
Virtual Machine Software	<ul style="list-style-type: none">• Oracle VM 2.2.1• VMware ESX Server 4.0 Update 1• VMware ESXi Server 4.0 Update 1	<ul style="list-style-type: none">• <i>Sun Fire X4170 M2 and X4270 M2 Servers Installation Guide for Linux, Virtual Machine Software, and Oracle Solaris Operating Systems (821-0483)</i>

BIOS Defaults for New Installations

When installing a new operating system on a disk drive, you should verify that the following BIOS settings are properly configured before you perform the operating system installation:

- System time
- System date
- Boot order

Verification of BIOS Factory Defaults

In the BIOS Setup Utility, you can set optimal defaults, as well as view and edit BIOS settings as needed. Any changes you make in the BIOS Setup Utility (by pressing F2) are permanent until the next time you change them.

In addition to using the F2 key to view or edit the system's BIOS settings, you can use F8 during the BIOS start-up to specify a temporary boot device. If you use F8 to set a temporary boot device, this change is only in effect for the current system boot. The permanent boot device specified through F2 will be in effect after booting from the temporary boot device.

Before You Begin

Ensure that the following requirements are met prior to accessing the BIOS Setup Utility.

- The server is equipped with a hard disk drive (HDD) or solid state drive (SSD).
- The HDD or SSD is properly installed in the server. For details, see the service manual applicable to your server:

- *Sun Fire X4170 M2 Server Service Manual* (821-0486)
- *Sun Fire X4270 M2 Server Service Manual* (821-0488)
- A console connection is established to the server. For details, see [“Console Options for Performing an OS Installation”](#) on page 35.

▼ View or Edit BIOS Settings for New Installations

1. Reset the power on the server.

For example:

- **From the ILOM web interface**, select Remote Control --> Remote Power Control, then select the Reset option from the Select Action list box.
- **From the local server**, press the Power button on the front panel of the server to turn the server off, then press the Power button again to power-on the server.
- **From the ILOM CLI**, type: **reset /SYS**

The BIOS screen appears.

2. When prompted in the BIOS screen, press F2 to access the BIOS Setup Utility.

After a few moments, the BIOS Setup Utility appears.

3. To ensure that the factory defaults are set, do the following:

a. Press F9 to automatically load the optimal factory default settings.

A message appears prompting you to continue this operation by selecting OK or to cancel this operation by selecting CANCEL.

b. In the message, highlight OK then press Enter.

The BIOS Setup Utility screen appears with the cursor highlighting the first value in the system time field.

4. In the BIOS Setup Utility, do the following to edit the values associated with the system time or date.

a. Highlight the values you want to change.

Use up or down arrow keys to change between the system time and date selection

b. To change the values in the highlighted fields, use these keys:

- PLUS (+) to increment the current value shown
- MINUS (-) to decrement the current value shown
- ENTER to move the cursor to the next value field

5. To access the boot settings, select the `Boot` menu.

The Boot Settings menu appears.

6. In the Boot Settings menu, use the down arrow key to select `Boot Device Priority`, then press Enter.

The Boot Device Priority menu appears listing the order of the known bootable devices. The first device in the list has the highest boot priority.

7. In the Boot Device Priority menu, do the following to edit the first boot device entry in the list:

- a. Use the up and down arrow keys to select the first entry in the list, then press Enter.
- b. In the Options menu, use the up and down arrow keys to select the default permanent boot device, then press Enter.

Note – You can change the boot order for other devices in the list by repeating Steps 7a and 7b for each device entry you want to change.

The device strings listed on the Boot Device Priority menu and Options menu are in the format of: *device type*, *slot indicator*, and *product ID string*.

8. To save changes and exit the BIOS Setup Utility, press F10.

Alternatively, you can save the changes and exit the BIOS Setup Utility by selecting Save on the Exit menu. A message appears prompting you to save changes and exit setup.

In the message dialog, select OK, then press Enter.

Note – When using the ILOM Remote Console, F10 is trapped by the local OS. You must use the F10 option listed in the Keyboard drop-down menu that is available at the top of the console.

Downloading the ISO Image for the Tools and Drivers DVD

Use the download instructions in this appendix if a Tools and Driver DVD was not shipped with your server or, if you need to verify that the Tools and Drivers DVD shipped with your server contains the latest tools and firmware for your server.

ISO Image Download Procedure

Follow the steps in the procedure below to download the ISO image for the Tools and Drivers DVD.

▼ Download the Tools and Drivers DVD Image

1. Go to the software download site for your server platform:
 - (<http://www.oracle.com/goto/x4170m2>)
 - (<http://www.oracle.com/goto/x4270m2>)
2. Select and download the ISO image for the Tools and Drivers DVD to an accessible network location or local storage location.
3. Prepare the ISO image for installation by using one of the following methods:
 - Create a Tools and Drivers DVD using third-party software.
 - Use remote KVMs (ILOM Remote Console) to mount the ISO image.

Incorporating Device Drivers Into Windows Server 2008 WIM Images for Windows Deployment Services

This section is for advanced system administrators who need to incorporate Windows Server 2008 (SP2 or R2) device drivers into Windows Imaging Format (WIM) files.

This appendix assumes that the system administrator is using Microsoft's Windows Deployment Services (WDS) to deploy the installation of Windows Server 2008 (SP2 or R2) over a network.

Note – This appendix is not intended as a tutorial for WDS or Microsoft's Windows System Imaging Manager (WSIM). For detailed information about WDS or WSIM, refer to Microsoft's WDS and WSIM documentation.

Topics in this section include:

- [“Getting Started” on page 52](#)
 - [“Location of Device Drivers on Tools and Drivers DVD” on page 52](#)
 - [“Which Device Drivers to Incorporate Into WIM Image\(s\)” on page 53](#)
 - [“Prerequisites and Task Overview” on page 54](#)
- [“Procedures for Incorporating Drivers Into WIM Image\(s\)” on page 57](#)
 - [“Create an ImageUnattend.xml Setup Script – Windows Server 2008 \(SP2 or R2\)” on page 57](#)
 - [“Add Device Driver\(s\) to Boot WIM – Windows Server 2008 SP2 Only” on page 62](#)
 - [“Map ImageUnattend.xml Setup Script to Windows Server 2008 \(SP2 or R2\) Install Image” on page 65](#)

Getting Started

Topics included in this section include:

- “Location of Device Drivers on Tools and Drivers DVD” on page 52
- “Which Device Drivers to Incorporate Into WIM Image(s)” on page 53
- “Prerequisites and Task Overview” on page 54

Location of Device Drivers on Tools and Drivers DVD

TABLE E-1 identifies the location of the device driver directories on the Tools and Drivers DVD.

Note – If you do not have a copy of the Tools and Drivers DVD, you can download the ISO image for the Tools and Driver DVD. For details, see [Appendix D](#)

TABLE E-1 Device Driver Directory Location on Tools and Drivers DVD

Device Drivers	Directory Location on Tools and Driver DVD
Intel Network Driver	<ul style="list-style-type: none">• For Windows 2008 R2: windows\W2K8R2\drivers\NIC\intel• For Windows 2008 SP2: windows\w2K8\drivers\NIC\intel
Aspeed Driver	<ul style="list-style-type: none">• For Windows 2008 R2: windows\W2K8R2\drivers\display\aspeed• For Windows 2008 SP2: windows\w2K8\drivers\display\aspeed

TABLE E-1 Device Driver Directory Location on Tools and Drivers DVD (*Continued*)

Device Drivers	Directory Location on Tools and Driver DVD
LSI MegRAID Driver: <ul style="list-style-type: none">• Sun Storage 6 Gb/s SAS PCIe RAID HBA, SG-SAS6-R-INT-Z• Sun Storage 6 Gb/s SAS PCIe RAID HBA, SG-SAS6-R-EXT-Z	<ul style="list-style-type: none">• windows/w2k8/drivers/64bit/hba/lsi/megaraid
LSI MPT2 Driver: <ul style="list-style-type: none">• Sun Storage 6 Gb/s SAS PCIe HBA, SG-SAS6-INT-Z• Sun Storage 6 Gb/s SAS PCIe HBA, SG-SAS6-EXT-Z	<ul style="list-style-type: none">• windows/w2k8/drivers/64bit/hba/lsi/mpt2
Intel ICH10 Controller	<ul style="list-style-type: none">• For Windows 2008 R2: windows\W2K8R2\drivers\64bit\HBA\intel• For Windows 2008 SP2: windows\w2K8\drivers\64bit\HBA\intel

Which Device Drivers to Incorporate Into WIM Image(s)

TABLE E-2 identifies the device drivers to incorporate in the Windows Server 2008 (SP2 or R2) WIM image(s). Note, the boot WIM image identified in the table is only required for Windows Server 2008 SP2 installations, and the install WIM image identified in the table is required for both Windows Server 2008 SP2 and Windows Server 2008 R2 installations.

Note – Some of the SAS PCIe HBA option cards listed in [TABLE E-2](#) might not be available for purchase at the time of this publication. To determine which SAS PCIe HBA options card are supported and available for purchase on the Sun Fire X4170 M2 and X4270 M2 Servers, go the one of the following Web sites, as appropriate for your server model, and navigate to the appropriate page:

(<http://www.oracle.com/goto/x4170m2>)

(<http://www.oracle.com/goto/x4270m2>)

TABLE E-2 Device Drivers to Add to WIM Image(s)

Device Drivers to Incorporate	Windows Server 2008 (SP2 and R2) Add to <code>install.wim</code>	Windows Server 2008 SP2 Only Add to <code>boot.wim</code>
Intel Network Drivers	X	X
Aspeed Graphic Driver	X	
SAS PCIe HBA option installed on server: <ul style="list-style-type: none"> • Sun Storage 6 Gb/s SAS PCIe RAID HBA, SG-SAS6-R-INT-Z • Sun Storage 6 Gb/s SAS PCIe RAID HBA, SG-SAS6-R-EXT-Z • Sun Storage 6 Gb/s SAS PCIe HBA, SG-SAS6-INT • Sun Storage 6 Gb/s SAS PCIe HBA, SG-SAS6-EXT-Z 	X	X
Intel ICH10 Controller	X	

Prerequisites and Task Overview

Prior to creating the device driver WIM image(s) for Windows Server 2008 (SP2 or R2), ensure that the following tasks are completed in the order specified.

1. Install and configure the Windows Deployment Services on a server in your network. For details, you can download *Microsoft's Windows Deployment Services Step-by-Step Guide* at:

(<http://www.microsoft.com/downloads/details.aspx?familyid=14CA18B1-B433-4F62-8586-B0A2096460EB&displaylang=en>).

2. Install the Windows Automated Installation Kit (WAIK). The WAIK contains applications to mount and modify WIM images as well as applications to create and modify XML unattended setup scripts.

Microsoft provides separate WAIK downloads for Windows Server 2008 SP2 and Windows Server 2008 R2. The URLs for these downloads are as follows:

- Windows Server 2008 SP2 at:
<http://www.microsoft.com/downloads/details.aspx?FamilyID=94BB6E34-D890-4932-81A5-5B50C657DE08&displaylang=en>
- Windows Server 2008 R2 at:
<http://www.microsoft.com/downloads/details.aspx?familyid=696DD665-9F76-4177-A811-39C26D3B3B34&displaylang=en>

3. Locate the Windows device drivers on the Tools and Driver DVD. For information about where the device drivers on the Tools and Drivers DVD are located, see [“Location of Device Drivers on Tools and Drivers DVD” on page 52](#).

4. Establish a network-shared device driver repository. For example:

- Create a device driver repository containing the Windows Server 2008 (SP2 or R2) device drivers.

Note that for Windows Server 2008 WDS installation environments, a device driver repository is provided, which you can modify. For Windows Server 2003 SP2 WDS installation environments, a device driver repository is not provided and you must manually create one. The following is an example of how you might want to set up the directory structure for a new device driver repository:

C:\unattend\drivers\{w2k8|w2k8R2}\catalogs\vendor\version

Where:

- unattend is the unattend device driver store
- drivers is the name for device driver directory
- {W2K8 or W2K8R2} is the name for Windows Server 2008 (SP2 or R2) device drivers directory
- catalogs is the name for Windows Server 2008 (SP2 or R2) catalog files
- vendor is the name of directory for device driver vendor
- version is the name of directory for device driver version

- Ensure that the directories (folders) in the device driver repository are shared and accessible to the Windows Deployment Services (WDS) during the network installation.

For example, the device driver repository network shares referenced in this appendix are setup as follows:

Repository Folder	Network Shares
C:\Unattended\Drivers\W2K8	\\wds-server\W2K8-Drivers
C:\Unattended\Drivers\W2K8R2	\\wds-server\W2K8R2-Drivers

- Extract the Windows Server 2008 device drivers on the Tools and Drivers DVD and place them into the device driver repository.

For details about where the Windows Server 2008 device drivers are located on the Tools and Driver DVD, see [“Location of Device Drivers on Tools and Drivers DVD”](#) on page 52.

If you do not have a copy of the Tools and Drivers DVD, you can download the ISO image for the Tools and Driver DVD. For details, see [Appendix D](#).

The following example demonstrates the directory structure of the device driver repository after copying a SAS PCIe HBA driver (example version number: 1.19.2.64) from the Tools and Drivers DVD to the device driver repository:

Operating System	Tools and Driver DVD	Device Driver Repository
Windows Server 2008 SP2	DVDDevice:\windows\W2K8\drivers\64bit\hba\lsi\mpt2	C:\unattend\drivers\W2K8\lsi\1.19.2.64
Windows Server 2008 R2	DVDDevice:\windows\W2K8R2\drivers\64bit\hba\lsi\mpt2	C:\unattend\drivers\W2K8R2\lsi\1.19.2.64

5. Create an `imageunattend.xml` Setup Script for Windows Server 2008 (SP2 or R2). For details, see [“Create an ImageUnattend.xml Setup Script – Windows Server 2008 \(SP2 or R2\)”](#) on page 57.
6. For Windows Server 2008 SP2 (only) installations, add the required boot device drivers described in [TABLE E-2](#) to `boot.wim`. For details about adding the device drivers to the `boot.wim`, see [“Add Device Driver\(s\) to Boot WIM – Windows Server 2008 SP2 Only”](#) on page 62.
7. Map the `imageunattend.xml` Setup Script to the Windows Server 2008 image. For details, see [“Map ImageUnattend.xml Setup Script to Windows Server 2008 \(SP2 or R2\) Install Image”](#) on page 65.
8. For Windows Server 2008 SP2 and Windows Server 2008 R2 installations, add the required device drivers described in [TABLE E-2](#) to the `install.wim` image.

Procedures for Incorporating Drivers Into WIM Image(s)

The following procedures presented are guidelines you can use to add device drivers to the WIM image file(s). These procedures should be performed in the order described.

- [“Create an ImageUnattend.xml Setup Script – Windows Server 2008 \(SP2 or R2\)” on page 57](#)
- [“Add Device Driver\(s\) to Boot WIM – Windows Server 2008 SP2 Only” on page 62](#)
- [“Map ImageUnattend.xml Setup Script to Windows Server 2008 \(SP2 or R2\) Install Image” on page 65](#)

Before you Begin

Prior to performing the procedures in this section, you should ensure that all the prerequisites as described in [“Prerequisites and Task Overview” on page 54](#) have been met.

▼ Create an ImageUnattend.xml Setup Script – Windows Server 2008 (SP2 or R2)

Follow these steps to create an ImageUnattend.xml Setup Script for a Windows Server 2008 (SP2 or R2) installation. After the setup script is generated, it will be saved to the device driver repository.

Note – The ImageUnattend.xml Setup Script (in a later procedure described in this section) will be mapped to a Windows Server 2008 (SP2 or R2) install image. After the setup script is mapped to the install image, the install image will install the specified device drivers during the Windows Server 2008 (SP2 or R2) network installation.

- 1. Insert the Windows Server 2008 (SP2 or R2) DVD media into the DVD reader of the system that is hosting the Windows Deployment Services.**

2. **Copy all the Windows Server 2008 (SP2 or R2) catalog files into the Catalogs folder of the device driver repository.**

For example:

```
copy DVDDrive:\source\*.clg C:\Unattend\Drivers\{WSK8|W28R2}\Catalogs
```

3. **Launch the Windows System Manager application and create a new ImageUnattend.xml Setup Script by doing the following:**

- a. **Click Start-->All Programs -->Microsoft Windows AIK -->Windows System Image Manager.**

- b. **In the Answer File pane, right-click and select New Answer File.**

- c. **If a message dialog appears asking to open a new Windows image now, click No.**

4. **Do the following to specify the Windows Server 2008 (SP2 or R2) Catalog file that matches the Windows Server 2008 (SP2 or R2) edition (Standard, Datacenter, or Enterprise) that you are installing:**

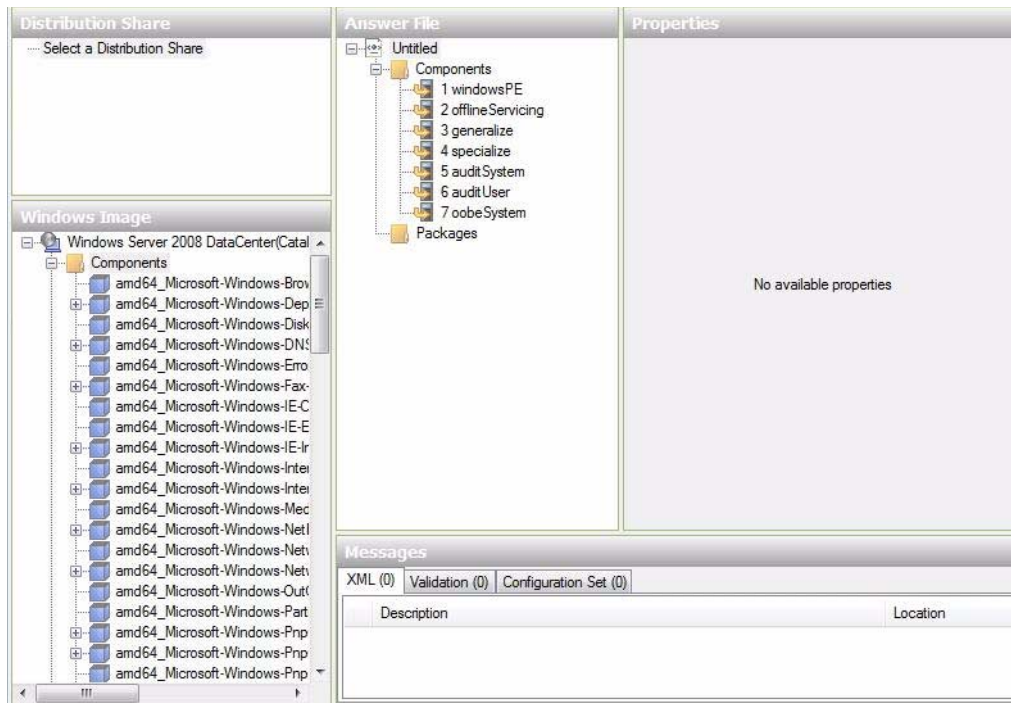
- a. **In the Windows Image pane, right-click and select Select Windows Image.**

- b. **In the Files Type list box, select Catalog files (*.clg), then click Browse to specify the Catalogs folder in the device driver repository.**

Ensure that you select the Catalog file that matches the Windows Server 2008 (SP2 or R2) edition you are installing.

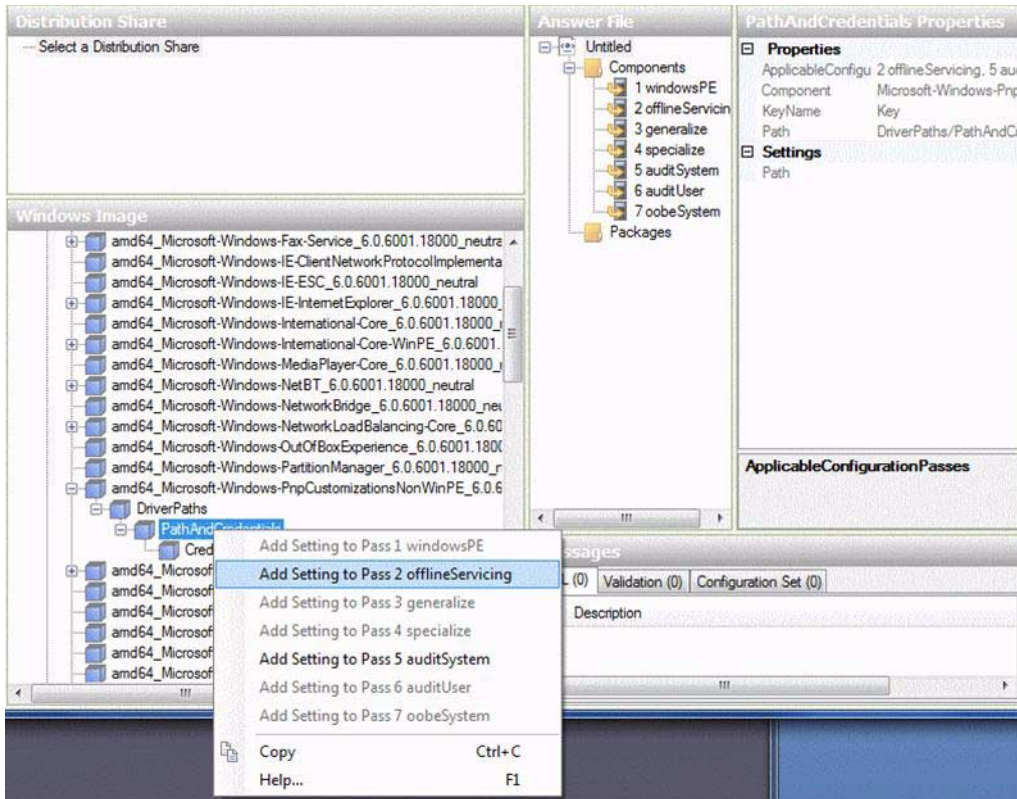
For example, for Windows Server 2008 SP2 Datacenter, select:

```
C:\Unattend\Drivers\{W2K8|W2K8R2}\Catalogs\install_Windows_Server_2008_SERVERDATACENTER.clg
```



5. Do the following to set the component packages to pass 2 offlineServicing.

- a. In the **Windows Image** pane, click and expand the `architecture_Microsoft-Windows-PnPCustomizationNonWinPE_version`.
- b. **Right-click** `PathAndCredentials` and **select** `Add Setting to Pass 2 OfflineServicing`.



6. Repeat Step 5 for each device driver you want installed during the Windows Server 2008 (SP2 or R2) installation.

Refer to [TABLE E-2](#) for the list of device drivers to include in the install.wim file.

7. Do the following to specify an installation key value.

- a. In the Answer File pane, click and expand**
2 offlineServicing, architecture_Microsoft-Windows-PnPCustomizationsNonWinPE_version.
- b. Click and expand PathAndCredentials and enter a sequence key value as well as the UNC device driver path in the repository.**

For example, to add the device driver for the Sun Storage PCIe SAS RAID HBA option, enter:

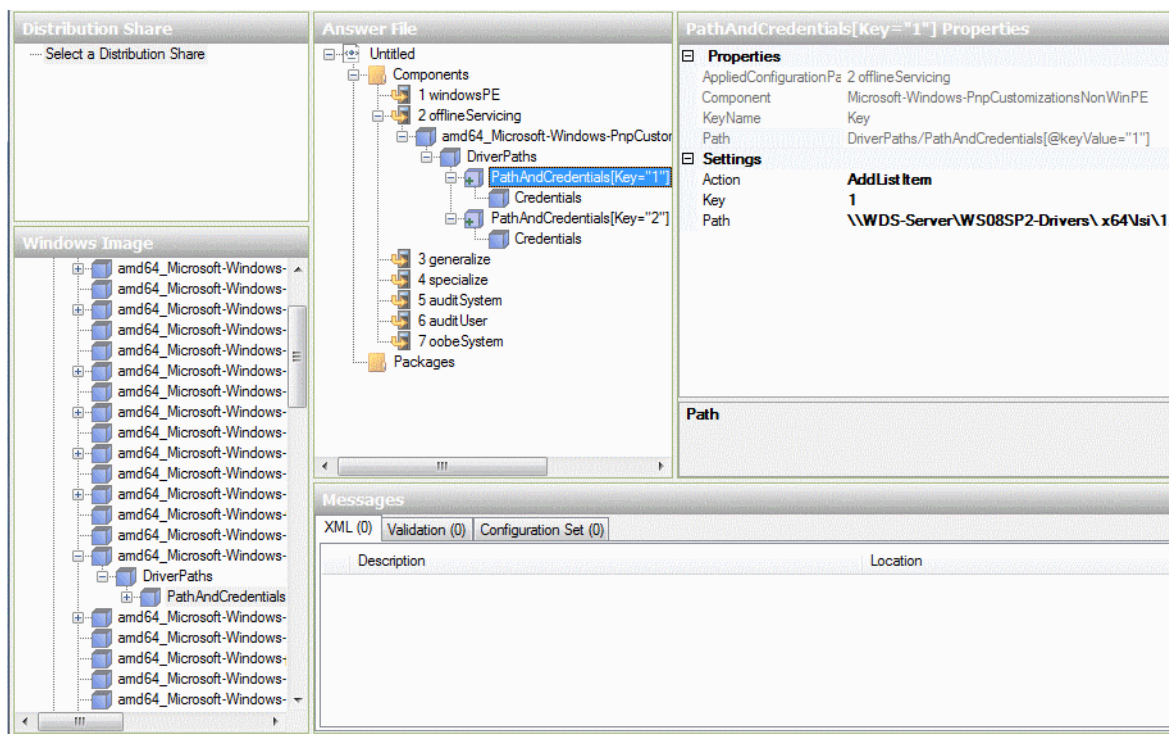
Key 1

Path \\wds-server\W2K8-Drivers\Lsi\1.19.2.64

- c. In the Credential section for each `PathAndCredentials` component, click and expand the component to insert the UNC domain, logon, and password (if required), which allow access to the device drivers stored in the repository.

For example:

Domain	UNC_domain
Password	UNC_password
Username	UNC_username



- d. Repeat Steps 7a through 7c for each device driver you want installed during the Windows Server 2008 (SP2 or R2) installation.

8. Validate the `ImageUnattend.xml` file using the Windows System Image Manager application:

- In the Windows System Image Manager application, click the `Tools` menu and select `Validate Answer File`.

A message appears in the Message pane indicating that No Warnings or Errors are found.

9. **Save the .xml Setup Script as ImageUnattend.xml using the Windows System Image Manager application:**
 - a. **In the Windows System Image Manager application, click the File menu and select Save Answer File as.**
 - b. **Save the .xml Setup Script in the device driver repository as:**
`c:\Unattend\Drivers\W2K8\Catalogs\ImageUnattend.xml`
 - c. **Exit the Windows System Image Manager application.**
10. **The creation of the ImageUnattend.xml Setup Script is complete, proceed to one of the following:**
 - For Windows Server 2008 R2 installation, proceed to “[Map ImageUnattend.xml Setup Script to Windows Server 2008 \(SP2 or R2\) Install Image](#)” on page 65.
 - For Windows Server 2008 SP2 installations, proceed to “[Add Device Driver\(s\) to Boot WIM – Windows Server 2008 SP2 Only](#)” on page 62 prior to mapping the ImageUnattend.xml Setup Script to the install.wim image.

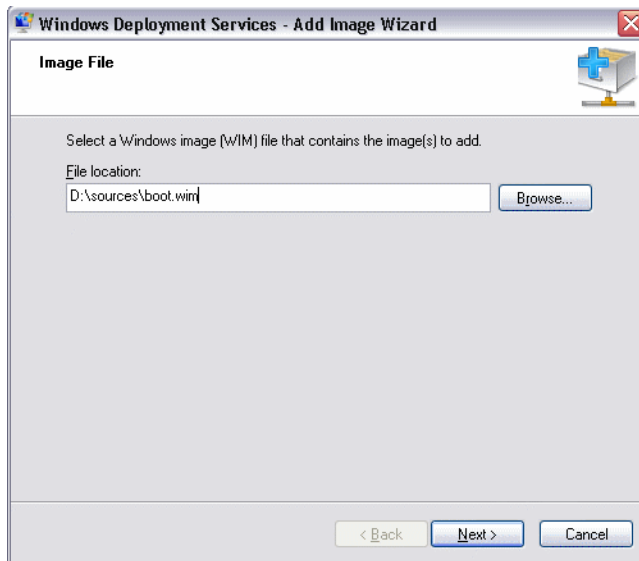
▼ Add Device Driver(s) to Boot WIM – Windows Server 2008 SP2 Only

Note – If you are performing a Windows Server 2008 R2 installation, skip this procedure. Device drivers are not required at boot time for Windows Server 2008 R2 installations.

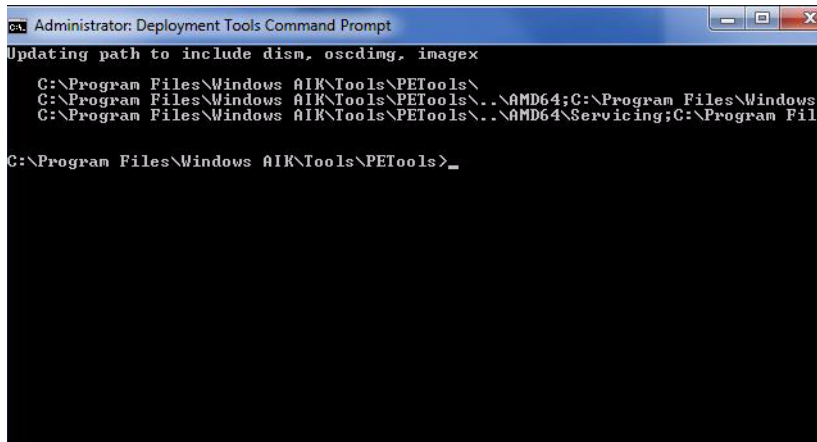
For Windows Server 2008 SP2 installations only, perform the following steps to add the appropriate PCIe SAS HBA LSI device driver (MegaRAID or MPT2) to the boot.wim image. Note that if the required PCIe SAS HBA device driver (as described in [TABLE E-1](#) and [TABLE E-2](#)) is not added to the boot.wim image, the Windows Server 2008 SP2 installation will fail.

1. **Insert the Windows Server 2008 SP2 DVD media into the DVD reader of the system that is hosting the Windows Deployment Services.**
2. **Perform the following to launch the Windows Deployment Services Administration tool and import the Windows Server 2008 SP2 Boot WIM.**
 - a. **Click Start -->All Programs -->Windows Deployment Services.**
 - b. **Right-click Boot Images and select Add a Boot Image, then click Browse to specify the Windows Server 2008 SP2 boot WIM file.**
For example: `DVDDrive:\sources\boot.wim`

c. Click Open then Next.



3. To import the Windows Server 2008 SP2 boot image, click Next twice then click Finish.
4. Disable the Windows Server 2008 SP2 boot WIM using the Windows Deployment Services Administration:
 - Click and expand Boot Images, right-click Microsoft Windows Server (Setup) x64, then select Disable.
5. Launch and run the Deployment Tools Command Prompt as Administrator.
For example:
 - Click Start-->All Programs-->Microsoft Windows AIK, then right-click Deployment Tools Command Prompt, and select Run as Administrator.



```
Administrator: Deployment Tools Command Prompt
Updating path to include dism, oscding, imagex
C:\Program Files\Windows AIK\Tools\PETools\
C:\Program Files\Windows AIK\Tools\PETools\
C:\Program Files\Windows AIK\Tools\PETools\
C:\Program Files\Windows AIK\Tools\PETools\..\AMD64;C:\Program Files\Windows AIK\Tools\PETools\..\AMD64\Servicing;C:\Program Files\Windows AIK\Tools\PETools\..\AMD64\Servicing
C:\Program Files\Windows AIK\Tools\PETools>_
```

6. In the Deployment Tools Command Prompt, perform the following:

- a. Use the `mkdir` command to create a temporary directory mount point to mount the Windows Server 2008 SP2 boot WIM image.

For example:

```
mkdir C:\Mnt
```

- b. Use the `cd` command to change the directory to the folder containing the Windows Server 2008 SP2 boot WIM.

For example:

```
cd DVDDrive:\RemoteInstall\Boot\x64\images
```

- c. Use the `imagex` command to mount the Windows Server 2008 SP2 boot WIM with read/write permissions to the temporary directory mount point.

For example:

```
imagex /mountrw boot.wim 2 C:\Mnt
```

- d. Use the `cd` command to change the directory to the device driver repository containing the Windows Server 2008 SP2 device driver for the Sun Storage 6 Gb/s SAS PCIe RAID HBA option (SG-SAS-R-INT-Z or SG-SAS-R-EXT-Z):

For example, to change to the directory containing the LSI device driver for the Sun Storage 6 Gb/s SAS PCIe RAID HBA option (SG-SAS-R-INT-Z or SG-SAS-R-EXT-Z), type:

```
cd C:\Unattend\Drivers\W2K8\lsi\1.19.2.64
```

- e. Use the `peimg` command to add the LSI MegaRAID device driver for the Sun Storage 6 Gb/s SAS PCIe RAID HBA option (SG-SAS-R-INT-Z or SG-SAS-R-EXT-Z) to the Windows Server 2008 SP2 boot WIM image.

For example, to add the LSI MegaRAID device driver for the Sun Storage 6 Gb/s SAS PCIe RAID HBA option (SG-SAS-R-INT-Z or SG-SAS-R-EXT-Z), type:

```
peimg /INF=*.inf C:\Mnt\Windows
```

- f. Repeat Steps 7d and 7e for each additional device driver (as described in [TABLE E-2](#)) that is required in the boot WIM image:

- Sun Storage 6 Gb/s SAS PCIe HBA option (SG-SAS-INT-Z or SG-SAS-EXT-Z).
- Intel Network Driver

- g. Use the `imagex` command to unmount and commit the modified Windows Server 2008 SP2 boot WIM image.

For example:

```
imagex /unmount/commit C:\Mnt
```

7. To enable the Windows Server 2008 SP2 boot WIM image, do the following.

- a. Launch the Windows Deployment Services administration tool.

Click Start-->All Programs-->Windows Deployment Services.

- b. In the Windows Deployment Services (WDS) Administration tool, click and expand **Boot Images**.

- c. Right-click **Microsoft Windows Server (Setup) x64** and select **Enable**.

8. The modifications to include the device drivers into the `boot.wim` image are complete, exit the Deployment Tools Command Prompt and the WDS Administration tool, then proceed to [“Map ImageUnattend.xml Setup Script to Windows Server 2008 \(SP2 or R2\) Install Image”](#) on page 65.

▼ Map ImageUnattend.xml Setup Script to Windows Server 2008 (SP2 or R2) Install Image

Follow the steps in this procedure to map the `ImageUnattend.xml` Setup Script (created in an earlier procedure in this section) to the Windows Server 2008 (SP2 or R2) `install.wim`.

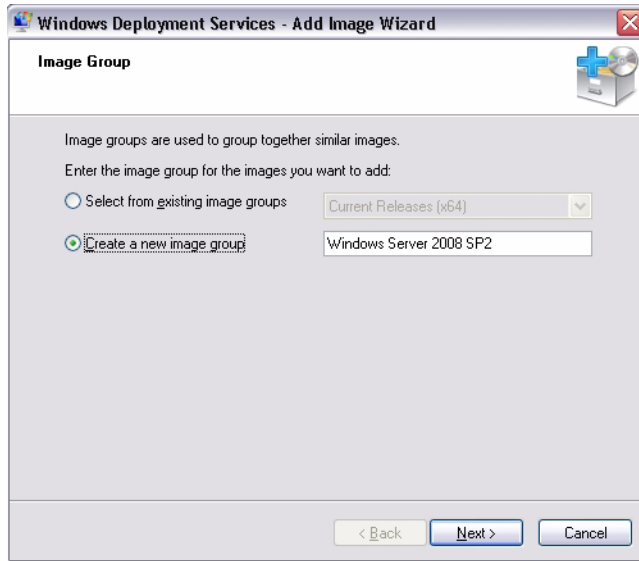
1. Insert the Windows Server 2008 SP2 DVD media into the DVD reader of the system that is hosting the Windows Deployment Services.

2. Perform the following to launch the Windows Deployment Services Administration tool and import the Windows Server 2008 SP2 install WIM.

a. Click Start-->All Programs-->Windows Deployment Services.

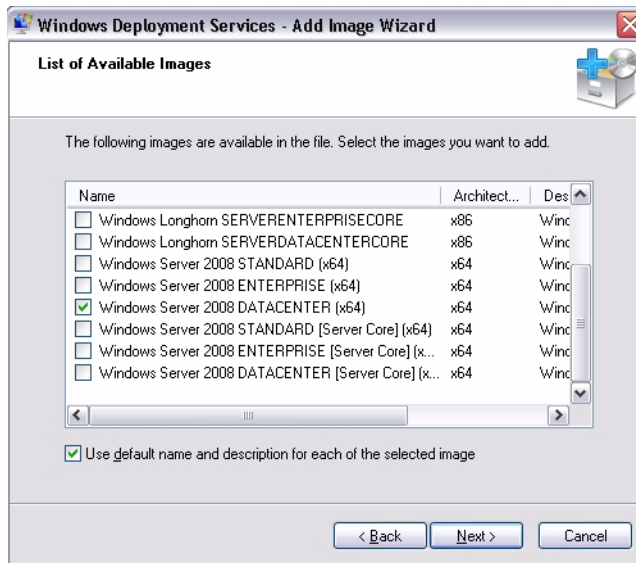
b. Right-click Install Images **and select** Add Install Image.

Note that if no image groups exist, create a new image group named Windows Server 2008 SP2 or Windows Server 2008 R2 and click Next.



c. Click Browse **to select the** Windows Server 2008 SP2 Install WIM image **located at:** DVDDrive:\sources\install.wim; **then proceed by clicking** Open **then** Next.

d. Select the Windows Server 2008 (SP2 or R2) edition (Data Center, Standard, or Enterprise) **to import into** Windows Deployment Services, **then click** Next.



e. To import the specified Windows Server 2008 (SP2 or R2) edition install image, click **Next** twice, then click **Finish**.

3. Launch the Deployment Tools Command Prompt as Administrator, for example:

- Click Start-->All Programs-->Microsoft Windows AIK, then right-click Deployment Tools Command Prompt, and select Run as Administrator.

4. In the Deployment Tools Command Prompt, perform the following:

- a. Use the **cd** command to change the directory to the folder containing the Windows Server 2008 SP2 install WIM image.

For example, the Windows Server 2008 SP2 Datacenter (x64) edition WIM image would be located at:

```
cd Drive:\RemoteInstall\images\Windows Server 2008 SP2
```

- b. Use the **mkdir** command to create a directory with the exact same spelling and case as the imported Windows Server 2008 (SP2 or R2) WIM image.

```
mkdir install
```

Note – Selecting the defaults when importing the install image for Windows Server 2008 (SP2 or R2) will create an installation WIM file called `install.wim`.

- c. Use the `cd` command to change the directory to the imported Windows Server 2008 (SP2 or R2) folder, then use the `mkdir` command to create an Unattend directory.

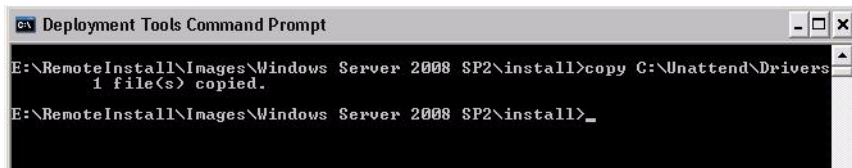
For example:

```
cd install  
mkdir Unattend
```

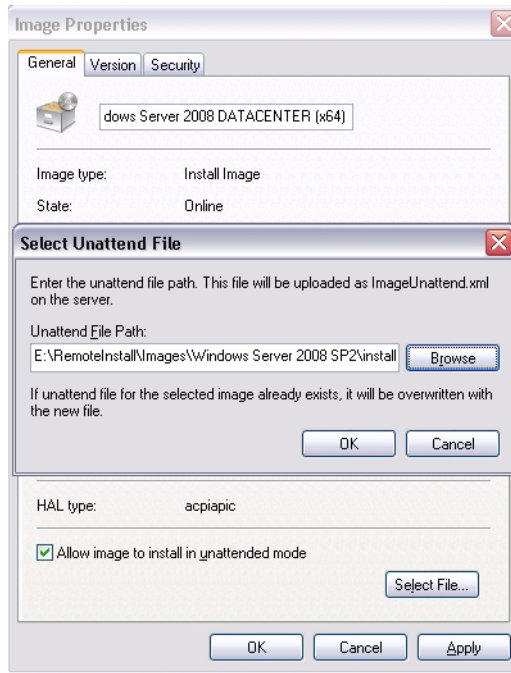
- d. Use the `cd` command to change the directory to the Unattend directory, then use the `copy` command to copy the ImageUnattend.xml Setup Script (created in an earlier procedure in this appendix) to the Unattend directory.

For example:

```
cd Unattend  
copy C:\Unattend\Drivers\{W2K8|W2k8R2}\Catalogs\  
ImageUnattend.xml
```



5. Perform the following steps to open the Windows Server 2008 (SP2 or R2) image properties.
 - a. **Launch the Windows Deployment Services Administration tool.**
Click Start-->All Programs-->Windows Deployment Services.
 - b. **In the Windows Deployment Services (WDS) Administration tool, click and expand the Windows Server 2008 (SP2 or R2) image group.**
 - c. **Right-click Microsoft Windows Server (SP2 or R2) and select Properties.**
6. Perform the following steps to map the ImageUnattend.xml Setup Script to the Windows Server 2008 (SP2 or R2) image.
 - a. **In the General Tab of the Windows Server 2008 (SP2 or R2) image properties, check Allow image to install in unattended mode and click Select File.**
 - b. **Browse to the following location (specified in Step 4d) then click OK.**
Drive: \RemoteInstall\images\{W2K8|W2K8R2}\install\Unattend
ImageUnattend.xml



- c. Click OK to map the ImageUnattend.xml Setup Script to the Windows Server 2008 (SP2 or R2) WIM image.

The Windows Server 2008 (SP2 or R2) WIM image is ready to be installed using Windows Deployment Services.

- d. Exit the Deployment Tools Command Prompt and the Windows Deployment Services Administration tool.

7. To deploy the Windows Server 2008 (SP2 or R2), refer to the following procedure:

[“Install Windows Server 2008 \(SP2 or R2\) Using PXE” on page 26.](#)

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