Sun Fire X4470 Server

Installation Guide for Windows Operating Systems

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Contents

Using This Documentation

This Windows operating system installation guide explains how to install and configure a Windows operating system on a Sun Fire X4470 Server from Oracle. This document is written for technicians, system administrators, authorized service providers (ASPs), and users who have experience with installing operating systems.

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Product Information

For information about the Sun Fire X4770 Server, go to the following web site:

(http://www.oracle.com/goto/x4470)

At that site, 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

Related Documentation

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

(http://docs.sun.com/app/docs/prod/sf.x4470#hic)

Title	Content	Part Number	Format
Sun Fire X4470 Server Product Notes	Late-breaking information about the server	821-0704	PDF HTML
Sun Fire X4470 Server Getting Started Guide	Basic installation information for setting up the server	821-0333	PDF Print
Sun Fire X4470 Server Installation Guide	Detailed installation information for setting up the server	821-0332	PDF HTML Print option
Sun Fire X4470 Server Installation Guide for Linux Operating Systems	Installation instructions for the Linux operating systems	821-1213	PDF HTML
Sun Fire X4470 Server Installation Guide for Windows Operating Systems	Installation instructions for the Windows Server operating systems	821-0701	PDF HTML
Sun Fire X4470 Server Installation Guide for Oracle Solaris Operating System	Installation instructions for the Oracle Solaris operating system	821-0700	PDF HTML
Sun Fire X4470 Server Installation Guide for Virtual Machine Software	Installation instruction for Oracle VM and VMware ESX/ESXi	821-1214	PDF HTML
Sun Fire X4470 Server Service Manual	Information and procedures for maintaining and upgrading the server	821-0703	PDF HTML
Sun Installation Assistant 2.3 through 2.4 User's Guide for x64 Servers	Instructions for using the Sun Installation Assistant to install the Windows and Linux operating systems	821-0694	PDF HTML
Oracle x86 Servers Diagnostics Guide	Information for diagnosing and troubleshooting the server	820-6750	PDF HTML

Title	Content	Part Number	Format
Sun Server CLI Tools and IPMItool 2.0 User's Guide	Instructions for using the Sun Server Hardware Management Pack applications and utilities	821-1600	PDF HTML
Oracle Lights Out Manager (ILOM) 3.0 Documentation Collection (formerly known as Sun Integrated Lights Out Manager Documentation Collection)	Documents covering ILOM features and tasks that are common to servers and server modules the support ILOM 3.0.	820-5523 820-6410 820-6411 820-6412 820-6413	PDF HTML
Oracle Integrated Lights Out Manager (ILOM) 3.0 Supplement for Sun Fire X4470 Server	ILOM 3.0 information that is specific to the Sun Fire X4470 Server	821-0702	PDF HTML
Sun Fire X4470 Safety and Compliance Guide	Hardware safety and compliance information for the server	821-0705	PDF
Important Safety Information for Sun Hardware Systems	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 product site documentation URL identified earlier in this section. English documentation is revised more frequently and might be more up-to-date than the translated documentation.

Documentation, Support, and Training

- Documentation: (http://docs.sun.com)
- Support: (http://www.sun.com/support/)
- Training: (http://www.sun.com/training/)

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Submit comments about this document by clicking the Feedback[+] link at (http://docs.sun.com). Include the title and part number of your document with your feedback:

Sun Fire X4470 Server Installation Guide for Windows Operating Systems, part number 821-0701-10

Product Downloads

To download the latest product software, go to the following web site:

(http://www.oracle.com/goto/x4470)

At that site, you can find links and navigate to the following items:

- Tools and Drivers DVD image
- Sun Installation Asssitance DVD image
- Sun Validation Test Suite (SunVTS) Update

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.	• Chapter 1, Assisted OS Installation With Sun Installation Assistant (SIA)
Experienced Users. Manually install the Windows operating system and the required system drivers.	• Chapter 2, Getting Started • Chapter 3, Windows Server 2008 Installation • Chapter 4, Post Installation of Windows Server 200
Experienced Users. Reference content for manual Windows operating system installations.	• 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)

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 CD 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 Sun x86 server from Oracle. 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's Integrated Lights Out Manger (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 ships with most x86 Oracle server platforms and is available in CD format or a web download. Regular updates are made available to ensure that the latest OS versions are supported. You can download, per your platform server, the latest version of SIA 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_assista
nt.jsp)

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 8
- "Windows Server Installation Task Overview" on page 9
- "SAS PCIe HBAs Requiring LSI Mass Storage Driver for Windows Server 2008 SP2" on page 10

Supported Windows Server Operating Systems

The Sun Fire X4470 Server supports 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 X4470 Server, go to the following web site and navigate to the Operating Systems link:

(http://www.oracle.com/goto/x44470)

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:
Server is set up and operational	The server is mounted and powered-on in the rack and communication to the SP has been established.	• *Sun Fire X4470 Server Installation Guide* (821-0332)
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.	• Appendix A

TABLE 2-1 Windows Installation Prerequisites *(Continued)*

Requirement	Description	For more information, see:
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.	• *LSI MegaRAID Software SAS User's Guide at:* (http://www.lsi.co m/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.	• Appendix C
Installation of server-specific device drivers and optional supplemental software	After performing the Windows Server 2008 installation, you might need to: • Install server-specific device drivers to support additional hardware. 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. • Install Windows Server optional supplemental software that is available for your x86 server.	• Chapter 4 • "SAS PCIe HBAs Requiring LSI Mass Storage Driver for Windows Server 2008 SP2" on page 10
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.	• Appendix E
Access to late-breaking information and patches for OS installations	Review the *Sun Fire X4470 Server Product Notes* for late-breaking information about supported operating system software and patches.	• *Sun Fire X4470 Product Notes* (821-0704)

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 x86 server platform 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 X4470 Server, see "SAS PCIe HBAs Requiring LSI Mass Storage Driver for Windows Server 2008 SP2" on page 10.

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.

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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 options that are supported on the Sun Fire X4470 Server. 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.

Note – Some of the following SAS PCIe HBA option cards might not be available for purchase at the time of this publication. To determine which HBA option cards are supported and available for purchase on the Sun Fire X4470 Server, go to the following web site and navigate to the appropriate page: (http://www.oracle.com/goto/x4470).

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 SAS PCIe RAID HBA, Internal	SG-SAS6-R-INT-Z	LSI MegaRAID SAS 92xx-xx
Sun Storage 6 Gb SAS PCIe RAID HBA, External	SG-SAS6-R-EXT-Z	LSI MegaRAID SAS 92xx-xx
Sun Storage 6 Gb SAS PCIe HBA, Internal	SG-SAS6-INT-Z	LSI Adapter SAS 2008 Falcon
Sun Storage 6 Gb 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.

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 23

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 8.
- 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-docu
mentation.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

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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 23 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 34.

2. **Reset or power on the server.**

   For example:

   - **From the ILOM web interface**, select `Remote Power --> Remote Power Control` tab, 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 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.

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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 dialog that appears in your installation might differ depending on the type of disk controller installed in your server.

```
                  Please select boot device:

USB:ExtPort0:TEAC DV-W28SS-R
USB:IntPort:AMI Virtual CDROM
HDD:P0-SEAGATE ST95000NSSUN500G 092
PXE:IBA GE Slot 0700 v1335
PXE:IBA GE Slot 0701 v1335
PXE:IBA GE Slot 8100 v1335
PXE:IBA GE Slot 8101 v1335




            ↑ and ↓ to move selection
            ENTER to select boot device
            ESC to boot using defaults
```
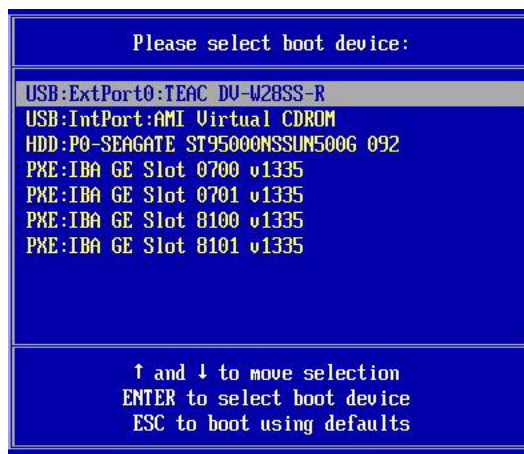
4. **In the Please Select Boot Device menu, select the menu option according to the Windows media installation method you elected to use, then press Enter.**

   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 dialog).

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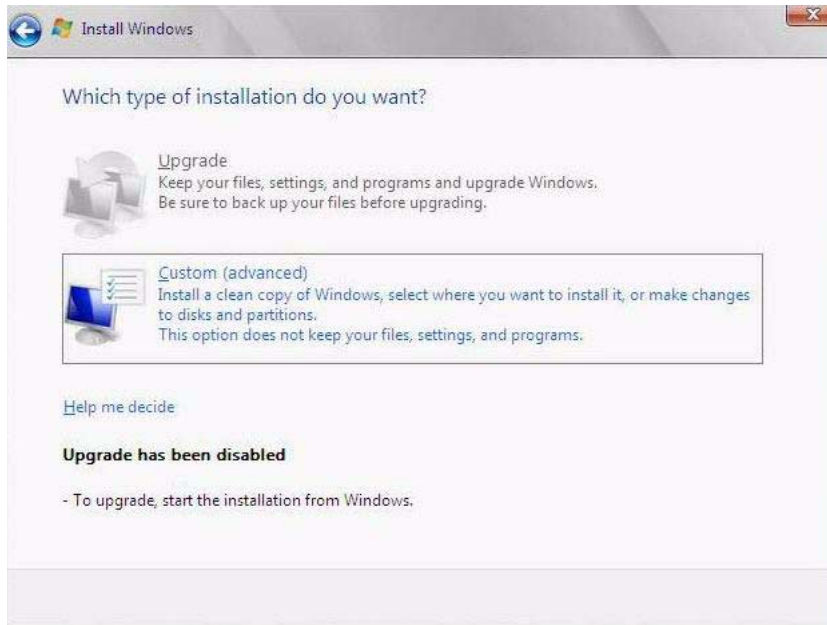
6. **In the Installation Type dialog, click** Custom (advanced)**.**

   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)	Perform one of the following: • If you do not see any storage targets listed and have a Sun Storage SAS PCIe RAID HBA option configured on your server, click Load Driver 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 Drive Options, 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 Next, then proceed to **Step 10**.

For Windows Server Edition	Task
Windows Server 2008 R2 (or subsequent Windows 2008 R2 release)	Perform one of the following: • 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 Drive Options, 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 Next, then proceed to **Step 10**.

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

a. **Ensure the storage 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 option cards SG-SAS6-R-INT-Z 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 option cards SG-SAS6-INT-Z 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`
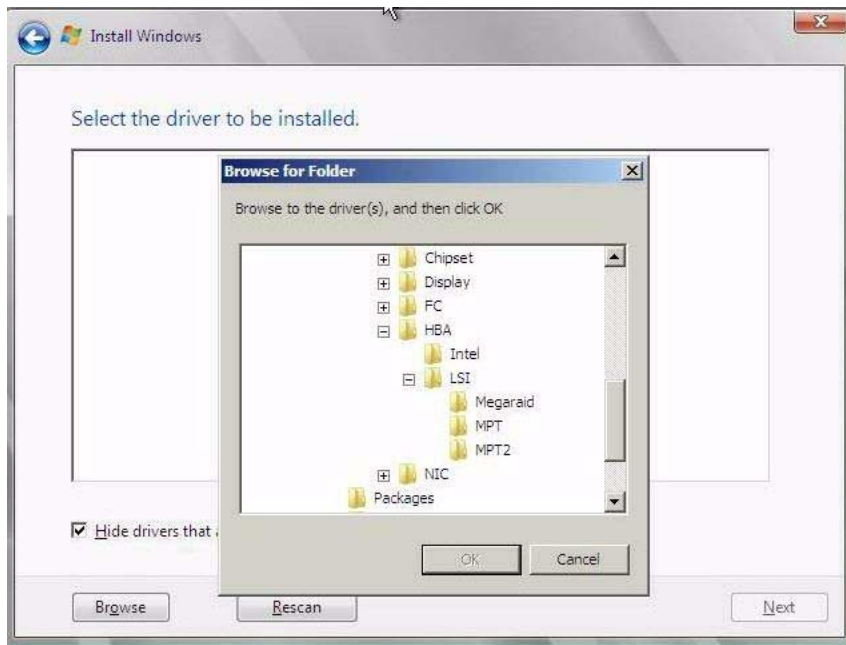
c. In the Browse for Folder dialog, select the appropriate driver, then click `OK` **to load the driver.**

The selected driver appears in the Select the Driver to Be Installed dialog. Example dialogs follow showing a selected mass storage driver for a SAS PCIe HBA.
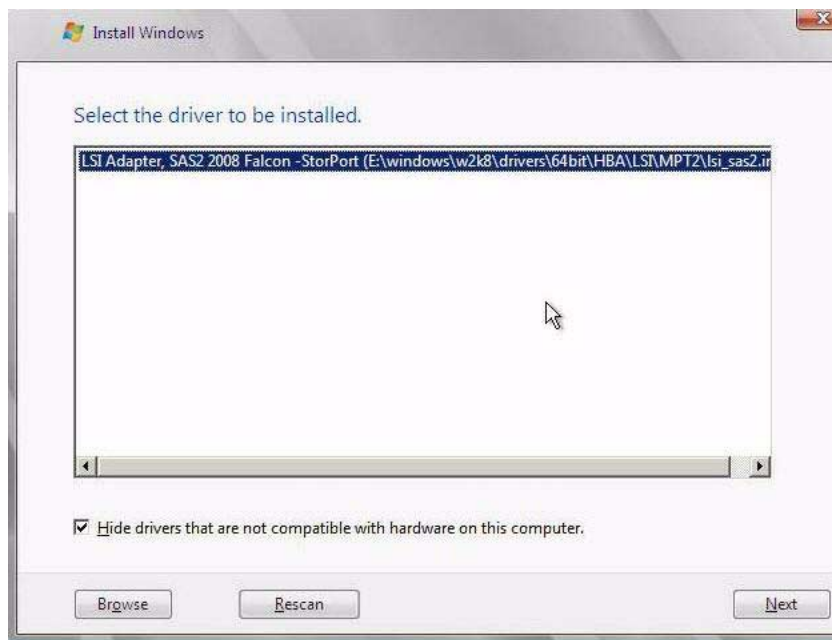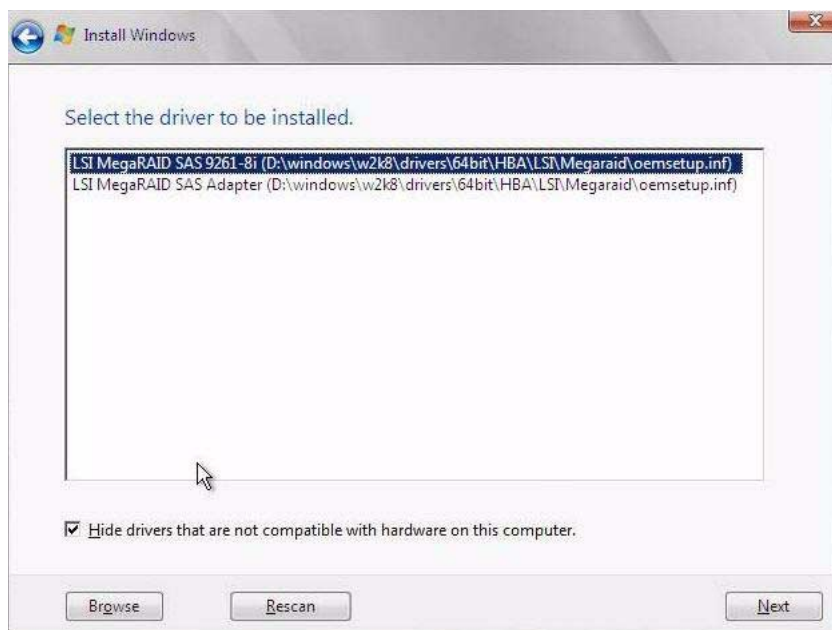
d. In the Select the Driver to Be Installed dialog, click `Next` **to install the driver.**

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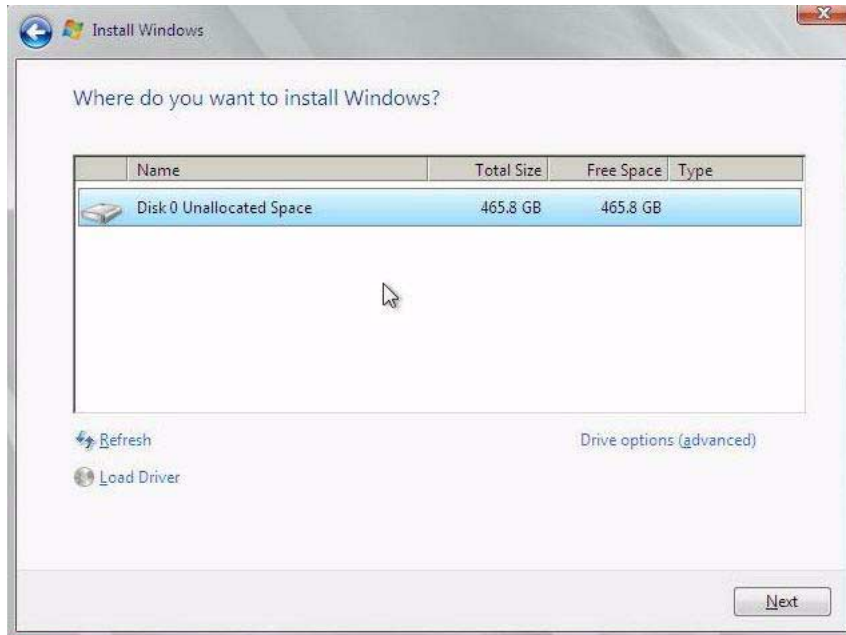
e. **In the Where Do You Want to Install Windows dialog, do one of following:**

   ■ 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:**
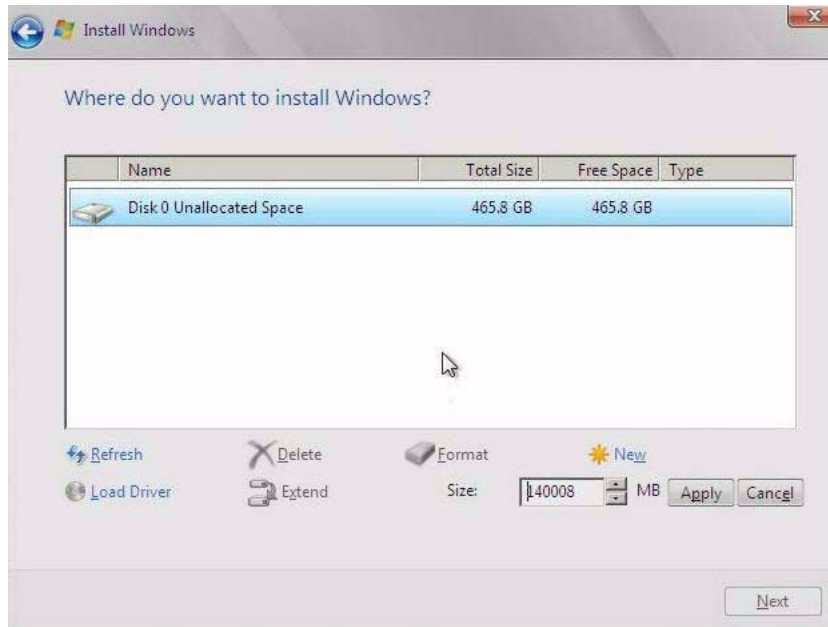
a. **Click** `Delete` **to delete the selected storage target existing partition configuration.**

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 stronger 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 23
- "Install Windows Server 2008 (SP2 or R2) Using PXE Network Boot" on page 24

Note that the procedure presented in this section documents the initial steps to install Windows Server 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 Network Boot

1. **Reset or power on the server.**

   - **From the ILOM web interface**, select Remote Power -->Remote Power Controltab, then select Reset from the Host Action list box.

   - **From the local server**, press the Power button (approximately 1 second) 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.

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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 26
- "Installing Supplemental Software" on page 27
- "Configuring Support for TPM" on page 29
- "Configuring Intel NIC Teaming" on page 29

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 Supplement 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 27.
   - **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 X4470 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 IMPItool 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

TABLE 4-1   Install Pack Optional Supplemental Software *(Continued)*

Available Supplemental Software Components	Servers With LSI Integrated RAID Controller	Servers With Intel Integrated Disk Controller
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 26, 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. Then proceed to Step 2 of this procedure.

   - 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 26, and selected **No** in Step 7, the Install Pack Supplemental Software dialog appears. Proceed to Step 2 of this procedure.

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 Server 2008, you must configure the Sun Fire X4470 Server to support this feature. For instructions, see the configuring support for TPM information in the *Sun Fire X4470 Server Service Manual* (821-0703).

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 X4470 Server 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

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	You can install the OS and administer the server by attaching a local console directly to the server SP. Examples of local consoles include: • Serial console • VGA console, with USB keyboard and mouse	1. Attach a local console to the server. For details, see the "Attaching Devices" in the *Sun Fire X4470 Server Installation Guide* (821-0332). 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 `start /SP/console`. The video output is automatically routed to the local console. For further details about establishing a connection to the server SP, see the *Oracle Integrated Lights Out Manager (ILOM) 3.0 Concepts Guide* (820-6410).

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

Console	Description	Setup Requirement
Remote console	You can install the OS and administer the server from a remote console by establishing a network connection to the server SP. Examples of remote consoles include: • Web-based client connection using the ILOM Remote Console application • SSH client connection using a serial console	1. View or establish an IP address for the server SP. For details, see the *Sun Fire X4470 Server Installation Guide* (821-0332). 2. View or establish a connection between a remote console and the server SP: • 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 (ssh root@*ipaddress*); 2) log in to ILOM; 3) redirect the serial output from the server to the SSH client by typing start /SP/console. For additional information about establishing a remote connection to the ILOM SP or using the ILOM Remote Console, see the *Oracle Integrated Lights Out Manager (ILOM) 3.0 Concepts Guide* (820-6410).

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: • CD/DVD-ROM installation media, and, if applicable, floppy device driver media	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 "Attaching Devices" in the *Sun Fire X4470 Server Installation Guide* (821-0332).

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

Installation Media	Description	Setup Requirement
Remote boot media	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). Supported OS remote media sources can include: • 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)	To redirect the boot media from a remote storage device, perform these steps: 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 USB 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. For more information about the ILOM Remote Console, see the *Oracle Integrated Lights Out Manager (ILOM) 3.0 Concepts Guide* (820-6410).

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

Installation Media	Description	Setup Requirement
Remote Boot Media (*continued*)	**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. 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.	To perform the installation using PXE, perform these steps: 1. Configure the network server to export the installation via PXE boot. 2. Make the OS install media available for PXE boot. If you are using an automated OS installation image, you will need to create and provide the automated OS install image. For example: - Solaris Jumpstart image - SLES AutoYAST image - Windows WDS image For detailed instructions for automating the installation setup process, consult the operating system vendor documentation. 3. To boot the installation media, select the PXE boot interface card as the temporary boot device. For details, see the applicable PXE-based operating system installation procedure described in this guide.

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.	• 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 *Sun Fire X4470 Server Service Manual* (821-0703).	• 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.	• 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 *Sun Fire X4470 Server Service Manual* (821-0703). • The SAN must be installed and configured to make the storage visible to the host. For instructions, refer to the documentation supplied with the FC HBA.	• 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 X4470 Server at the time this document was published.

For an up-to-date list of the latest operating systems supported on the Sun Fire X4470 Server, go to the following web site and navigate to the appropriate page:

(http://www.oracle.com/goto/x4470)

Supported Operating Systems

The Sun Fire X4470 Server supports 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	• 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)	• Chapter 3

TABLE B-1 Supported Operating Systems *(Continued)*

Operating System	Supported Version	Additional Information
Linux	• Oracle Enterprise Linux 5.5 (64-bit) • SUSE Linux Enterprise Server (SLES) 11 (64-bit) • Red Hat Enterprise Linux (RHEL) 5.5 (64-bit)	• *Sun Fire X4470 Server Installation Guide for Linux Operating Systems* (821-1213)
Oracle Solaris	• Oracle Solaris 10 10/09	• *Sun Fire X4470 Server Installation Guide for Oracle Solaris Operating System* (821-0700)
Virtual Machine Software	• Oracle VM 2.2 • VMware ESX Server 4.0 Update 1 • VMware ESXi Server 4.0 Update 1	• *Sun Fire X4470 Server Installation Guide for Virtual Machine Software* (821-1214)

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 *Sun Fire X4470 Server Service Manual* (821-0703).

- A console connection is established to the server. For details, see "Console Options for Performing an OS Installation" on page 33.

▼ 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 `Reset` from the `Select Action` list box.
   - **From the local server**, press the Power button (approximately 1 second) on the front panel of the server module 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 Sun Fire x4470 Server web site and navigate to the appropriate page to download the Tools and Driver DVD:**

   (http://www.oracle.com/goto/x4470)

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

Topics included in this section include:

-
-
-

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 – To obtain the latest device drivers available for the Sun Fire X4470 Server, download the Tools and Drivers DVD from the Sun Fire X4470 Server web site at: (http://www.oracle.com/goto/x4470)

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

Device Drivers	Directory Location on Tools and Driver DVD

Intel Network Driver	• For Windows 2008 R2:
	  `windows\W2K8R2\drivers\NIC\intel`
	• For Windows 2008 SP2:
	  `windows\w2K8\drivers\NIC\intel`

Aspeed Driver	• 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: • Sun Storage 6 Gb SAS PCIe RAID HBA, SG-SAS6-R-INT-Z • Sun Storage 6 Gb SAS PCIe RAID HBA, SG-SAS6-R-EXT-Z	• `windows/w2k8/drivers/64bit/hba/lsi/` `megaraid`
LSI MPT2 Driver: • Sun Storage 6 Gb SAS PCIe HBA, SG-SAS6-INT-Z • Sun Storage 6 Gb SAS PCIe HBA, SG-SAS6-EXT-Z	• `windows/w2k8/drivers/64bit/hba/lsi/` `mpt2`

Intel ICH10 Controller	• 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 that the `boot` WIM image identified in TABLE E-2 is only required for Windows Server 2008 SP2 installations, and the `install` WIM image identified in TABLE E-2 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 option cards are supported and available for purchase on the Sun Fire X4470 Server, go to the following web site and navigate to the appropriate page:
(http://www.oracle.com/goto/x4470).

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

Device Drivers to Incorporate	Windows Server 2008 (SP2 and R2) **Add to** install.wim	Windows Server 2008 SP2 Only **Add to** boot.wim
Intel Network Drivers	X	X
Aspeed Graphic Driver	X	
SAS PCIe HBA option card* installed on server: • Sun Storage 6 Gb SAS PCIe RAID HBA, SG-SAS6-R-INT-Z • Sun Storage 6 Gb SAS PCIe RAID HBA, SG-SAS6-R-EXT-Z • Sun Storage 6 Gb SAS PCIe HBA, SG-SAS6-INT • Sun Storage 6 Gb 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 .

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 48.

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 53.

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 57.

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 60.

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.

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 50 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
   ```
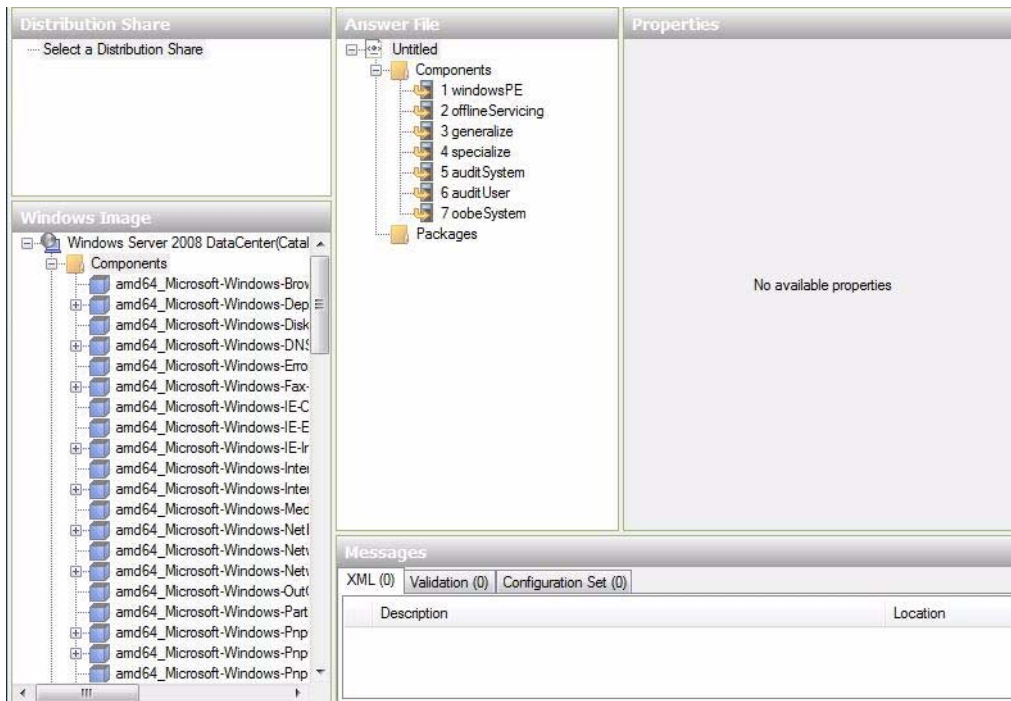
3. **Launch the Windows System Manager application and create a new** `ImageUnattend.xml` **Setup Script by doing the following:**

   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
```

Distribution Share	Answer File	Properties

Select a Distribution Share	⊟ ☝ Untitled
	  ⊟ 📁 Components
	    🗔 1 windowsPE
	    🗔 2 offlineServicing
	    🗔 3 generalize
	    🗔 4 specialize
	    🗔 5 auditSystem
	    🗔 6 auditUser
	    🗔 7 oobeSystem
	  📁 Packages	

Windows Image

⊟ 💿 Windows Server 2008 DataCenter(Catal ▲
  ⊟ 📁 Components
    amd64_Microsoft-Windows-Brow
    amd64_Microsoft-Windows-Dep ≡
    ⊞ amd64_Microsoft-Windows-Disk
    amd64_Microsoft-Windows-DNS
    ⊞ amd64_Microsoft-Windows-Erro
    amd64_Microsoft-Windows-Fax-
    ⊞ amd64_Microsoft-Windows-IE-C
    amd64_Microsoft-Windows-IE-E
    ⊞ amd64_Microsoft-Windows-IE-Ir
    amd64_Microsoft-Windows-Inter
    ⊞ amd64_Microsoft-Windows-Inter
    amd64_Microsoft-Windows-Mec
    ⊞ amd64_Microsoft-Windows-Netl
    amd64_Microsoft-Windows-Netv
    ⊞ amd64_Microsoft-Windows-Netv
    amd64_Microsoft-Windows-Out(
    amd64_Microsoft-Windows-Part
    ⊞ amd64_Microsoft-Windows-Pnp
    ⊞ amd64_Microsoft-Windows-Pnp
    amd64_Microsoft-Windows-Pnp ▼

No available properties

Messages

XML (0) | Validation (0) | Configuration Set (0)

Description	Location

5. **Do the following to set the component packages to** `pass 2 offlineServing`.

a. **In the Windows Image pane, click and expand the** `architecture_Microsoft-Windows-PnPCustomizationNonWinPE_vers ion`.

b. **Right -click** `PathAndCredientials` **and select** `Add Setting to Pass 2 OfflineServing`.
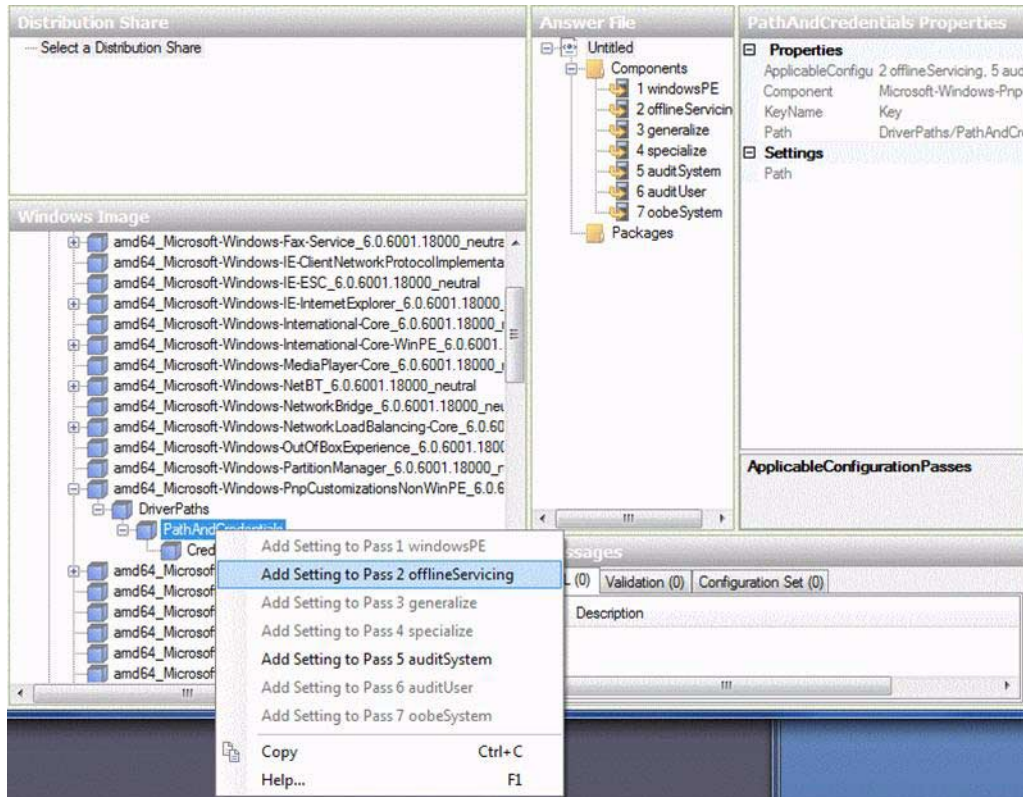
6. **Repeat Step 5 for each device driver you want installed during the Windows Server 2008 (SP2 or R2) installation.**

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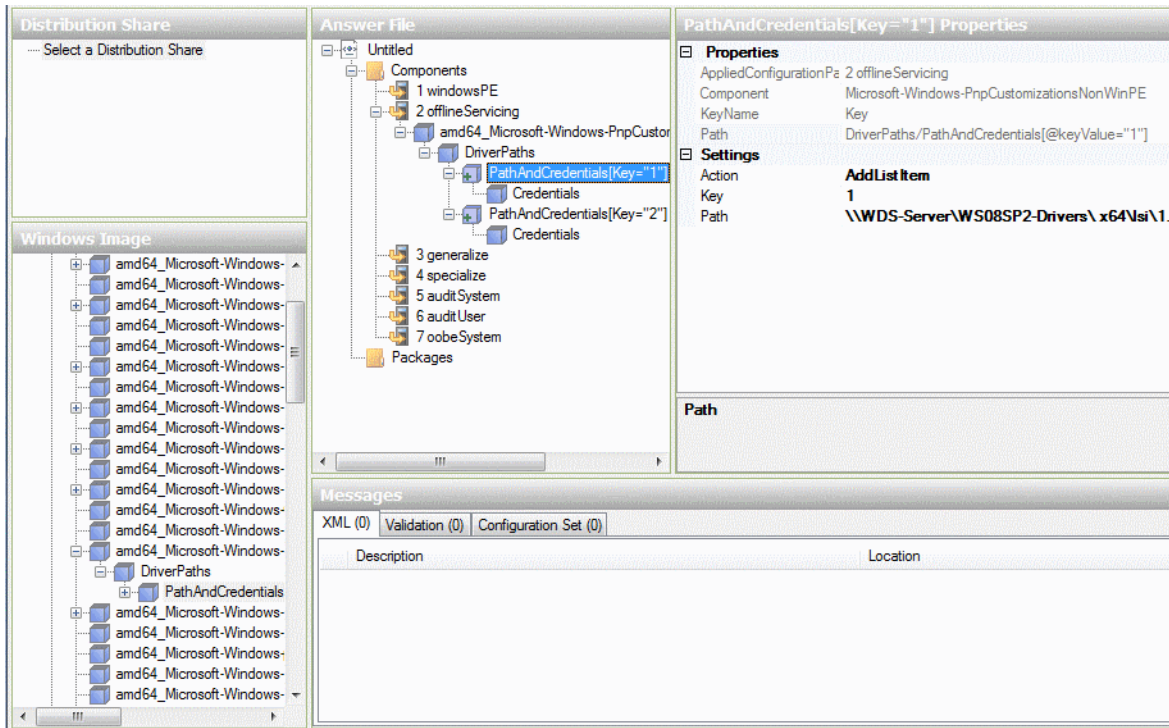
d. Repeat Steps 7a through 7c for each device driver you want installed during the Windows Server 2008 (SP2 or R2) installation.

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 60.

    ■ For Windows Server 2008 SP2 installations, proceed to "Add Device Driver(s) to Boot WIM – Windows Server 2008 SP2 Only" on page 57 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.**
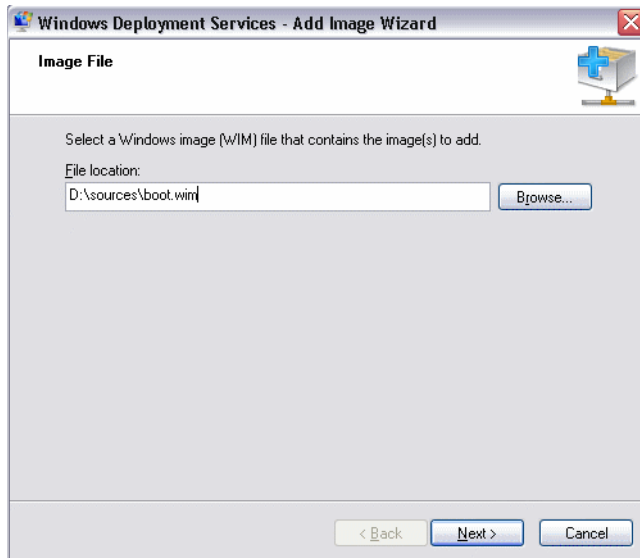
2. **Perform the following to launch the Windows Deployment Services Administration tool and import the Windows Server 2008 SP2 Boot WIM.**

   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.`

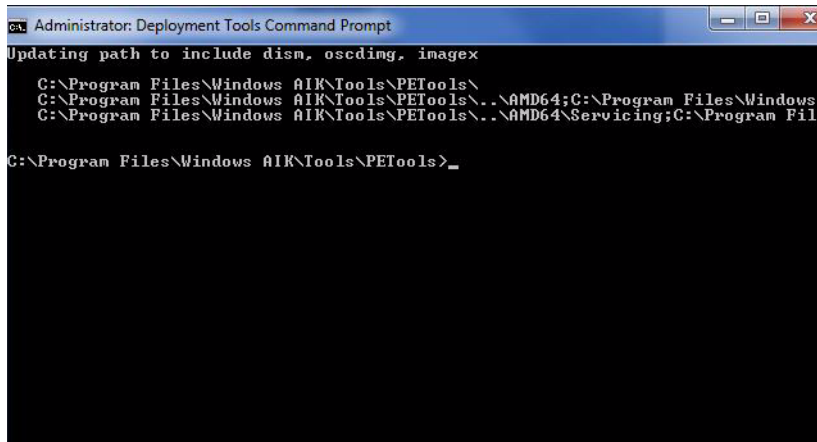3. **To import the Windows Server 2008 SP2 boot image, click** `Next` **twice then click** `Finish`**.**

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`.

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 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 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 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 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 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 60**.**

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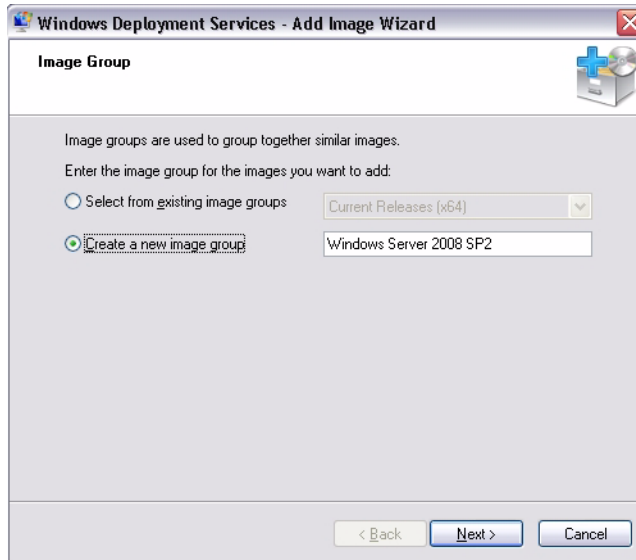
c. **Click** `Browse` **to select the Windows Server 2008 SP2 Install WIM image located at:** `DVDDrive:\sources\install.wim`**; then proceed by clicking** `Open` **then** `Next`**.**

d. **Select the Windows Server 2008 (SP2 or R2) edition (Data Center, Standard, or Enterprise) to import into Windows Deployment Services, then click** `Next`**.**
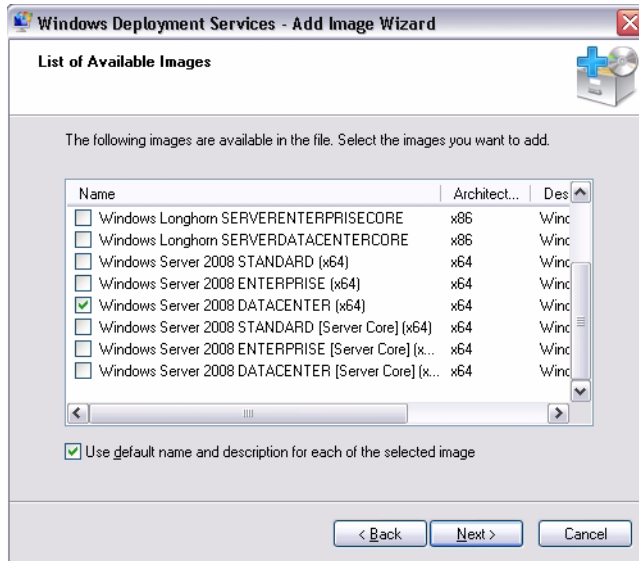
e. **To import the specified Windows Server 2008 (SP2 or R2) edition install image, click** Next **twice, then click** Finish**.**

3. **Launch the Deployment Tools Command Prompt as Administrator.**

   Fore 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.**
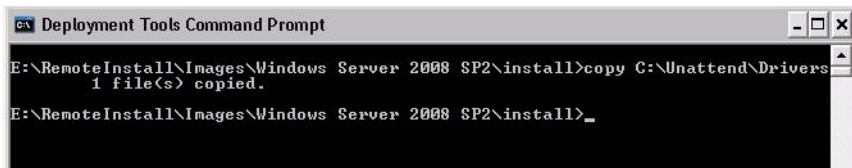
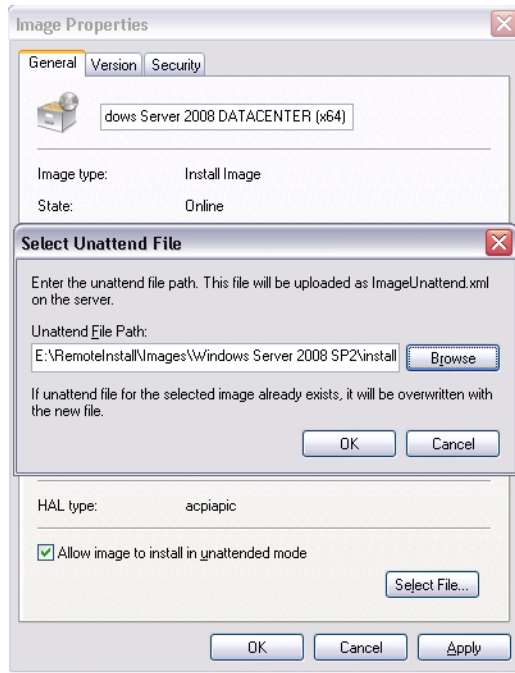For example:

```
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
```

Image Properties

General | Version | Security

dows Server 2008 DATACENTER (x64)

Image type: Install Image

State: Online

Select Unattend File

Enter the unattend file path. This file will be uploaded as ImageUnattend.xml on the server.

Unattend File Path:

E:\RemoteInstall\Images\Windows Server 2008 SP2\install   [Browse]

If unattend file for the selected image already exists, it will be overwritten with the new file.

[OK]   [Cancel]

HAL type: acpiapic

☑ Allow image to install in unattended mode

[Select File...]

[OK]   [Cancel]   [Apply]

---

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 the 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 Network Boot" on page 24.

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