Sun Fire X4640 Server Windows Installation Guide

Part No: 821–0469
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ORACLE

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Contents

Preface

This preface describes related documentation, submitting feedback, and a document change history.

Product Information Web Site

For information about the Sun Fire X4640 server, go to the following web site:

`http://www.oracle.com/goto/x86`

Click "Previous Products" from the left nav menu.

At that site, you can find links to the documentation, parts lists and downloads.

Related Books

The following is a list of documents related to your Oracle Sun Fire X4640 server. These and additional support documents are available on the web at:

`http://docs.sun.com/app/docs/prod/server.x64#hic`

Document Group	Document	Description
Sun Fire X4640 Server-Specific Documentation	Sun Fire X4640 Server Product Documentation	Integrated HTML version of all starred (*) documents, including Search and Index.
	Sun Fire X4640 Server Getting Started Guide	Pictorial setup quick reference.

Document Group	Document	Description
	"Installation Overview" in *Sun Fire X4640 Server Installation Guide**	How to install, rack, and configure the server up to initial power-on.
	"Overview of the Sun Fire X4640 Server Product Notes" in *Sun Fire X4640 Server Product Notes**	Important late-breaking information about the Sun Fire X4640 server.
	"Introduction to Sun Installation Assistant" in *Sun Installation Assistant 2.3 through 2.4 User's Guide for x64 Servers**	A Sun tool used to perform an assisted installation of a supported Windows or Linux OS, upgrade firmware (regardless of OS), and other tasks.
	Introduction to Solaris OS and OpenSolaris Installation*	How to install the Solaris OS on your server.
	"Introduction to Linux Installation" in *Sun Fire X4640 Server Linux Installation Guide**	How to install a supported Linux OS on your server.
	"Introduction to Windows Installation" on page 9*	How to install supported versions of Microsoft Windows on your server.
	"Introduction to ESX Installation" in *Sun Fire X4640 Server ESX Installation Guide**	How to install supported versions of the ESX OS on your server.
	*Sun ILOM 3.0 Supplement for the Sun Fire X4640 Server**	Version-specific supplemental information for your server's *Integrated Lights Out Manager*.
	*Sun Fire X4640 Server Diagnostics Guide**	How to diagnose problems with your server.
	"Sun Fire X4640 Server Service Manual Overview" in *Sun Fire X4640 Server Service Manual**	How to service and maintain your server.
	Sun Fire X4640 Server Safety and Compliance Guide	Safety and compliance information about your server.
	4U Express Rail Rackmounting Kit Label	Pictorial label on racking your server
	Sun Fire X4640 System Overview Label	Pictorial label on servicing your server
	Sun Fire X4640 Top Cover Label	Pictorial label on removing components

Document Group	Document	Description
	Sun Fire X4640 CPU Matrix Label	Pictorial label on CPU module and fillers
Sun Integrated Controller Disk Management	*Sun x64 Server Disk Management Overview*	Information about managing your server's storage.
	Sun LSI 106x RAID Users Guide	Information about LSI RAID features
x64 Servers Applications and Utilities Reference Documentation	*Sun x64 Server Utilities Reference Manual*	How to use the available utilities included with your server.
Oracle Integrated Lights Out Manager (ILOM) 3.0 Documentation	*Oracle Integrated Lights Out Manager (ILOM) 3.0 Feature Updates and Release Notes*	Information about new ILOM features
	Oracle Integrated Lights Out Manager (ILOM) 3.0 Getting Started Guide	Overview of ILOM 3.0
	Oracle Integrated Lights Out Manager (ILOM) 3.0 Concepts Guide	Conceptual information on ILOM 3.0
	Oracle Integrated Lights Out Manager (ILOM) 3.0 Web Interface Procedures Guide	How to use ILOM through the web interface
	Oracle Integrated Lights Out Manager (ILOM) 3.0 CLI Procedures Guide	How to use ILOM through commands
	Oracle Integrated Lights Out Manager (ILOM) 3.0 Management Protocols Reference Guide	Information on management protocols

About This Documentation (PDF and HTML)

This documentation set is available in both PDF and HTML. The information is presented in topic-based format (similar to online help) and therefore does not include chapters, appendices or section numbering.

We Welcome Your Comments

Oracle is interested in improving its documentation and welcomes your comments and suggestions. To share your comments, go to `http://docs.sun.com` and click Feedback.

Change History

The following changes have been made to the documentation set.

- October 2009, initial publication
- January 2010, two documents revised
  - Service Manual - Revised DIMM population rules and addressed illustration issues
  - Product Notes - Revised software information and fixed bugs
- April 2010, one document revised
  - Installation Guide - Revised power specifications
- December 2010, two documents revised
  - Service Manual - Revised motherboard FRUID update instructions
  - Product Notes - Revised software information and fixed bugs

Introduction to Windows Installation

This document describes how to install the Microsoft Windows Server 2008 R2 (64–bit) operating system on Oracle's Sun Fire X4640 server. The following topics are included:

Description	Link
Experienced users: Manually install Windows on your server.	"Getting Started With Windows Server 2008 Installation" on page 13
Advanced users: Create a Windows image file for your server to be use with Windows Deployment Services.	"Incorporating Sun Fire Drivers Into a WIM Image" on page 41
Post installation: Install server-specific drivers and supplemental software.	"Updating Critical Drivers and Installing Supplemental Software" on page 31
Reference: Learn how to identify your active network ports in Windows. Learn how to upgrade system firmware using the Sun Installation Assistant.	■ "Identifying Network Interfaces in Windows" on page 49 ■ "Sun Installation Assistant (SIA)" on page 11

Sun Installation Assistant (SIA)

The Sun Installation Assistant (SIA) is a tool that helps you perform a variety of deployment and recovery tasks on your Sun x64 server. SIA can be launched from a bootable CD, a USB flash drive prepared with SIA software, or from a customized SIA image available on a PXE installation server.

SIA Task Overview

The following tasks can be performed using SIA:

Note – The available tasks are server-dependent and may vary.

- Upgrade your system BIOS, ILOM service processor firmware, and installed storage device firmware to the latest version (regardless of the OS on your server).
- Perform an assisted installation of a supported Linux operating system. SIA installs appropriate drivers and platform-specific software, eliminating the need to create a separate driver disk. You provide the licensed OS distribution media (from CD or network image file) and the SIA wizard guides you through the installation.

  Note – As of the release of this document, SIA can not be used to install Windows Server 2008 R2. You will need to perform a manual installation of Windows as described in this document.

- Update your SIA session with the latest firmware and drivers from Sun.

Obtaining SIA

The SIA is available as an option with most new x64 Sun servers. In addition, an ISO CD image of SIA is available for download from Sun. For a complete list of supported Sun server platforms, refer to the SIA information page at:

http://www.sun.com/systemmanagement/sia.jsp

Documentation describing how to use your version of SIA can be found on the Sun documentation web site:

http://docs.sun.com/app/docs/prod/install.x64svr

Getting Started With Windows Server 2008 Installation

This section describes how to get started installing the Microsoft Windows Server 2008 R2 (64–bit) operating system on a Sun Fire X4640 server.

Supported Windows Operating Systems

The Sun Fire X4640 server supports the following Microsoft Windows operating systems at the time of publication of this document:

- 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)

The updated list of supported operating systems is at the following server-specific URL:

`http://www.sun.com/servers/x64/x4640/os.jsp`

Windows Installation Considerations

Please note the following important considerations before beginning the Windows Server 2008 operating system installation on your Sun server.

- When you install the Windows operating system, any data on the boot drive, including any preinstalled operating system, is overwritten.
- If you are using the on-board 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's setup utility (accessible by pressing Ctrl-C when prompted during server boot) *before* you install Windows. For more details, refer to the *Sun LSI 106x RAID User's Guide* for your server.

- Windows Server 2008 R2 includes the required mass storage drivers for initial Windows operating system installation. No separate drivers disk is required during initial installation. After installing the OS, upgrade server-specific device drivers to the full-featured, Sun-tested versions as described in "Updating Critical Drivers and Installing Supplemental Software" on page 31.
- You can install Windows using any one of the following methods, depending on whether you are an experienced or advanced user:
  - **Installing Windows manually.** For the experienced user, follow the instructions in this document to install Microsoft Windows from distribution media. You have the option of delivering the Windows distribution media locally (using the server's CD/DVD drive) or remotely (using a remote console with a redirected CD/DVD drive or CD/DVD image). See "Windows Installation Overview" on page 14.
  - **Installing Windows from a deployment server environment.** For the advanced user, you can create a customized Windows Server 2008 installation image (WIM) for your Sun Fire X4640 server on a system running Windows Deployment Services (WDS). Once this installation image file has been created, you can boot any Sun Fire X4640 server from its network card and select the image from the WDS system for unattended deployment. See "Incorporating Sun Fire Drivers Into a WIM Image" on page 41.
- After the initial Windows installation, install the driver updates and supplemental software to ensure you have access to the server's full Sun-tested feature set. See "Updating Critical Drivers and Installing Supplemental Software" on page 31.

Windows Installation Overview

To manually install Windows Server 2008, complete the following procedures in order:

1. Download required Sun software and server-specific drivers as described in "Downloading Server Software" on page 15.
2. Choose a method for delivering Windows media described in "Selecting a Media Delivery Method" on page 17.
3. If you are planning on installing Windows on your Sun server from a remote console, see "Configuring a Remote Console" on page 19.
4. When ready, follow the instructions described in "Installing Windows Server 2008" on page 25.
5. After the initial installation of Windows, follow the instructions described in "Updating Critical Drivers and Installing Supplemental Software" on page 31 to ensure your server is installed with the full Sun-supported feature set.

Downloading Server Software

Server software that contains updated drivers and utilities for your server's hardware components is available from the Sun web site. This software is required to complete the operating system installation. If a Tools and Drivers CD/DVD was included with your server, you should check the Sun site for later a version. If you have the latest Tools and Drivers CD/DVD, you can skip this section.

- "How to Download Server Software" on page 15

How to Download Server Software

1. **Go to the software download site for your server.**

   `http://www.sun.com/servers/x64/x4640/downloads.jsp`

2. **Choose one of the following download options:**

   - **If you are installing Windows from distribution media (CD/DVD or ISO image) download `Windows.zip` to an accessible location. Extract the following sub-packages contained in `Windows.zip`:**
     - `InstallPack_x_x_x.exe` (program to install all server-specific device drivers and supplemental software after the initial installation of Windows.)
   - **If you are installing Windows from a WDS deployment server (advanced installation), download `Windows.zip`. Extract the following sub-packages contained in `Windows.zip` to the appropriate Windows image (WIM) folder on the WDS server as described in "Incorporating Sun Fire Drivers Into a WIM Image" on page 41.**
     - `DriverPack_x_x_x.zip` (for experts only, server-specific driver archive for Windows Server, English).
     - `OptPack_x_x_x.zip` (for experts only, supplemental software archive).

3. **Make sure that the driver packages are available, as needed, during the installation and post–installation process.**

Selecting a Media Delivery Method

In this section, you need to select a method for providing the Windows installation media. The procedures for installing Windows differ depending on your media delivery method.

Windows Media Delivery Methods

Media Delivery Method	Additional Requirements
Windows local: Uses a physical CD/DVD drive on the server.	The server's internal CD/DVD drive, or an external CD/DVD drive directly connected to the server's USB port. To install Windows, refer to "Installing Windows Server 2008" on page 25.
Windows remote: Uses a redirected physical CD/DVD drive on a remote system running JavaRConsole.	A remote system with a browser, an attached physical CD/DVD drive, a Windows distribution DVD, and network access to the server's management port. To set up this method, refer to "Configuring a Remote Console" on page 19.
Windows image: Uses a redirected CD/DVD ISO image on a remote system running JavaRConsole.	A remote system with a browser, a Windows CD/DVD ISO image, and network access to the server's management port. To set up this method, refer to "Configuring a Remote Console" on page 19.
WDS WIM image: Uses a customized WIM image on a Windows Deployment Services server.	A server setup and running WDS and a WIM image customized for your server, refer to "Incorporating Sun Fire Drivers Into a WIM Image" on page 41.

Configuring a Remote Console

This section describes how to set up a remote console system using JavaRConsole to deliver the Windows Server media over the network for operating system installation on your Sun server.

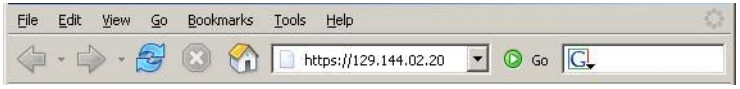
Note – If you have chosen the **Windows Local** delivery method, proceed to "Installing Windows Server 2008" on page 25.

▼ How to Set Up the JavaRConsole System

Before You Begin The following requirements must be met:

- The JavaRConsole system must be running Solaris, Linux, or Windows.
- The JavaRConsole system must be connected to a network that has access to the Sun server Ethernet management port.
- Java Runtime Environment (JRE) 1.5 or later must be installed.
- If the JavaRConsole system is running Solaris, volume management must be disabled for JavaRConsole to access the CD/DVD-ROM drive.
- If the JavaRConsole system is running Windows, Internet Explorer Enhanced Security must be disabled.
- The server's ILOM service processor has been configured according to the instructions in the *Integrated Lights Out Manager (ILOM)* documentation for your server.

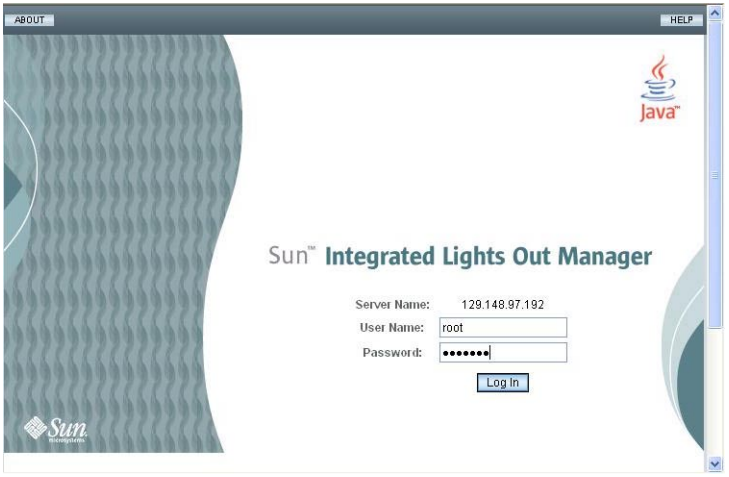
1 **Start the remote console application by typing the IP address of the Integrated Lights Out Manager (ILOM) service processor into a browser on the JavaRConsole system.**



The Security Alert dialog box appears.

2 Click Yes.

The ILOM login screen appears.



3 Enter the user name and password and click Log In.

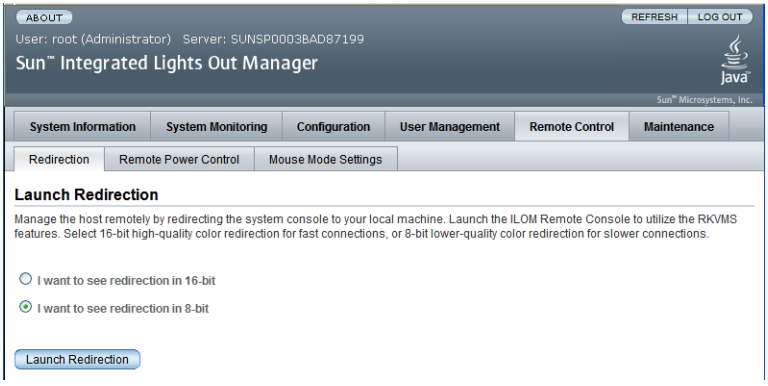
The default user name is **`root`** and default password is **`changeme`**.

The ILOM Version Information screen appears.

4 Click the Remote Control tab in the ILOM WebGUI.

The Launch Redirection screen appears.

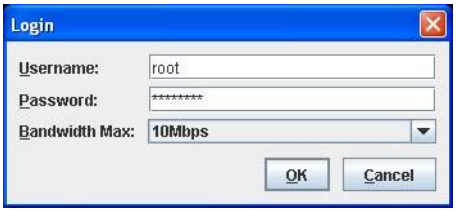
Note – Make sure that the mouse mode is set to Absolute mode in the Mouse Mode Settings tab.



5 Click 8-bit color or 16-bit color, then click Launch Redirection.

Note – When using a Windows system for JavaRConsole System redirection, an additional warning appears after clicking Launch Redirection. If the Hostname Mismatch dialog box is displayed, click the Yes button.

The Remote Control dialog box appears.

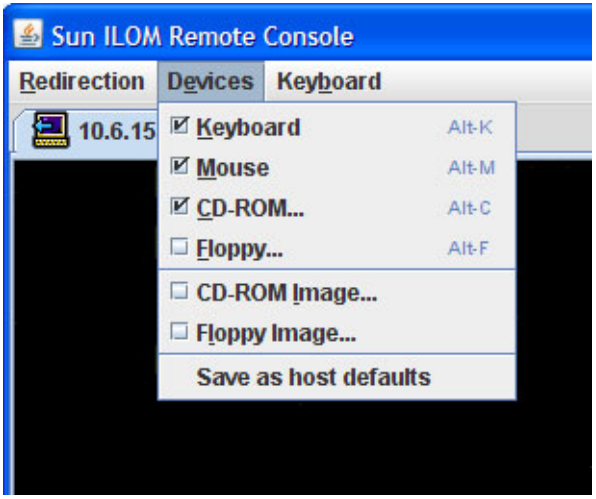


6 **In the Remote Control Login dialog box, enter your user name and password and click OK.**

The default user name is **root** and password is **changeme**.

After the login is successful, the JavaRConsole screen appears.

7 **From the Devices menu, select one CD item according to the delivery method you have chosen.**



- **CD-ROM Remote:** Select CD-ROM to redirect the server to the operating system software CD/DVD contents from the CD/DVD-ROM drive attached to the JavaRConsole system.

- **CD-ROM Image:** Select CD-ROM Image to redirect the server to the operating system software `.iso` image file located on the JavaRConsole system.

Caution – Using the CD-ROM Remote or CD-ROM Image options to install the Windows Server significantly increases the time necessary to perform the installation as the content of the CD-ROM is accessed over the network. The installation duration depends on the network connectivity and traffic.

Next Steps Proceed to "Installing Windows Server 2008" on page 25.

Installing Windows Server 2008

This section describes how to install the Windows Server 2008 operating system on your server using the Windows Server 2008 distribution media.

Note – If the Solaris operating system is preinstalled on your server's boot disk, the Windows installation will format the boot disk which erases any existing data on it.

- "How to Install Windows Server 2008" on page 25

▼ How to Install Windows Server 2008

Before You Begin

Before beginning the operating system installation, make sure that the following requirements are met:

- If you want to configure your boot drive for RAID1 (mirroring), you need to do so using the LSI Logic integrated RAID controller's setup utility (accessible by pressing Ctrl+C when prompted during server boot) before you install the Windows operating system. For more details, refer to the *Sun LSI 106x RAID User's Guide*.
- For your chosen Windows media delivery method, refer to the following requirements table.

Method	Action or Items Required
Windows local	Have the Microsoft Windows Server 2008 installation media available to insert in the server's CD/DVD-ROM drive when prompted.
Windows remote	Insert the Microsoft Windows Server 2008 installation media into the JavaRConsole system's DVD-ROM drive. Make sure you have selected "CD-ROM" from the JavaRConsole Device menu.
Windows image	Ensure that the Windows Server 2008 installation ISO image is accessible from the JavaRConsole system. Make sure you have selected "CD-ROM image" from the JavaRConsole Device menu.

1 **Power cycle your server.**

If you are using the **Windows Remote** or **Windows Image** method, you can do this through ILOM.

The BIOS POST process begins.

2 **Press F8 when the `Press F8 for BBS POPUP` prompt appears on the BIOS POST screen.**

The BBS POPUP menu allows you to select a boot device.

Note – BIOS POST messages, including the prompt for the BBS Popup menu, can go by quickly and you might miss them. If so, power cycle the server and hold down the F8 key during boot until the BBS Popup menu (shown in Step 3) appears.

```
Initializing USB Controllers .. Done.
Press F2 to run Setup (CTRL+E on Remote Keyboard)
Press F8 for BBS POPUP  (CTRL+P on Remote Keyboard)
Press F12 to boot from the network (CTRL+N on Remote Keyboard)
```

3 **Once the BIOS POST process is complete, the Boot Device menu appears. If you have selected the Windows Local installation method, insert the Windows media DVD in the server's DVD drive now.**

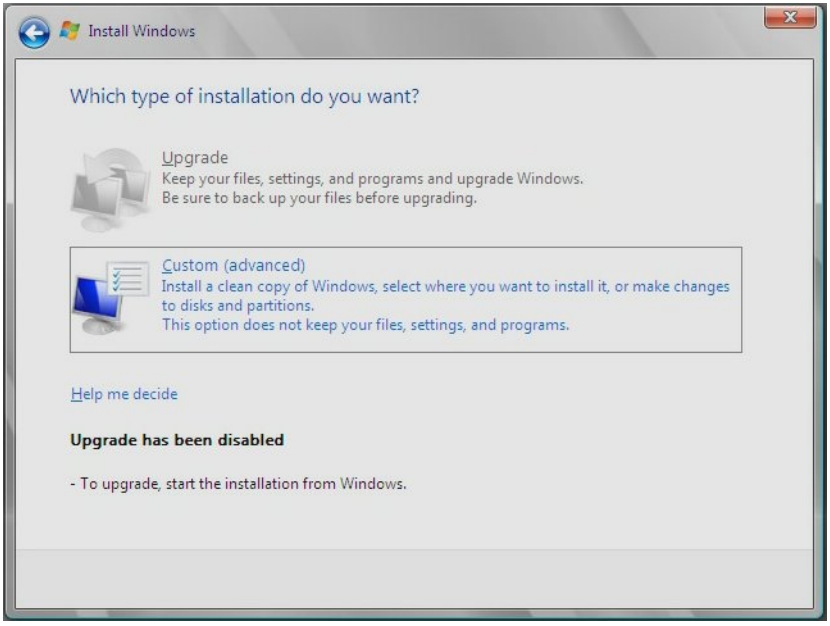
4 Do one of the following:

- **If you are using the Windows Local method, select `CD/DVD` from the Boot Device menu and press Enter.**
- **If you are using the Windows Remote or Windows Image method, select the virtual `CD/DVD` from the Boot Device menu and press Enter.**

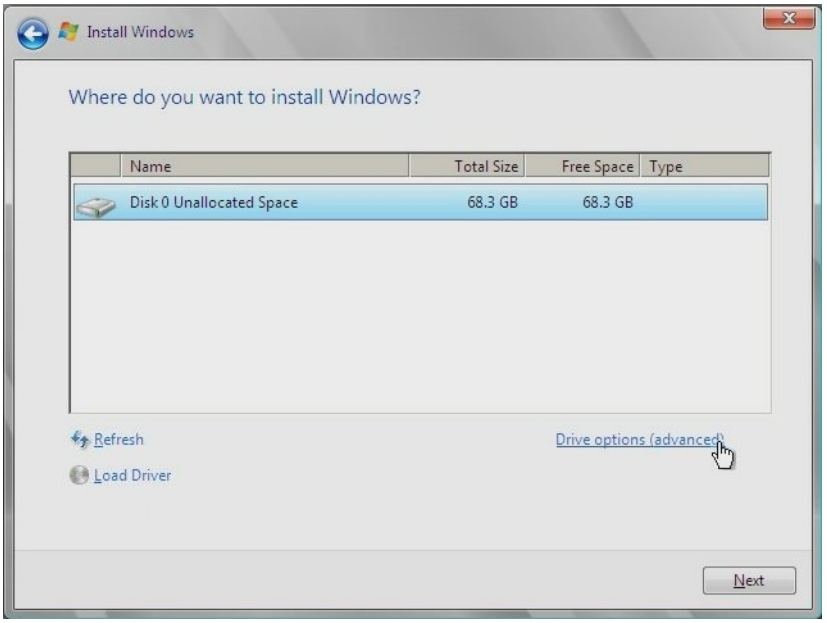
If prompted with `Press any key to boot from CD`, quickly press any key.

The Windows installation wizard starts.

5 Proceed through the installation wizard until you see the Installation Type page displayed, and then click Custom (advanced).



6 **At the Where to Install Windows page, do one of the following:**



- **If you *do not* want to override the Windows default partition settings, click Next and skip to Step 8**
- **If you *do* want to override the Windows default partition settings, click Driver Options (advanced) and proceed to the next step.**

Caution – Formatting or re-partitioning a pre-existing partition destroys all data on the partition.

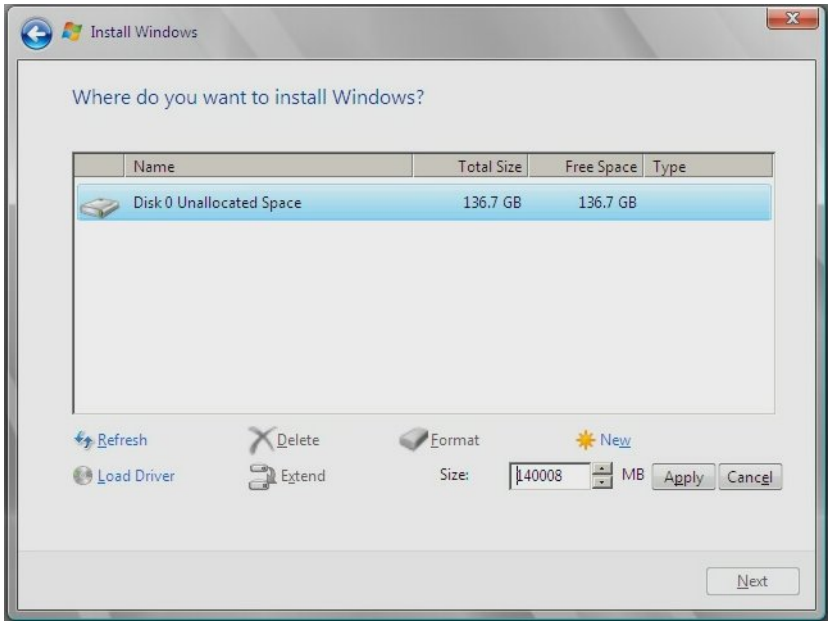
7 **At the Advanced Driver Options page, do the following:**

a. **Click Delete to delete the existing partition.**

b. **Click New to create the new partition.**

c. **Change size settings as needed, and then click Apply.**

d. Click Next and proceed to the next step.



8 The Windows installation begins.

The server will reboot multiple times during the installation process.

9 When Windows installation is complete, Windows starts and prompts you to change the user password. Click OK and proceed to setup your initial user login account.

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

Once you have created your initial account, the Windows Server 2008 desktop is displayed. The Windows Server 2008 interface is new; review the Microsoft documentation to familiarize yourself with the changes.

Next Steps Proceed to "Updating Critical Drivers and Installing Supplemental Software" on page 31.

Updating Critical Drivers and Installing Supplemental Software

This section describes how to update the Windows installation with critical device drivers and supplemental server component software.

▼ How to Update the Server-Specific Drivers

Before You Begin

The procedures in this section assume that you have already:

- Installed the Microsoft Windows Server operating system.
- From the Sun download site, obtained the `Windows.zip` and extracted `InstallPack_x_x_x.exe` to an accessible location as described in "How to Download Server Software" on page 15.
  —or—
  Obtained the latest Tools and Drivers CD/DVD for your server.

Note – The *_x_x_x* number identifies the version of the package (for example, `InstallPack_1_1_4.zip`).

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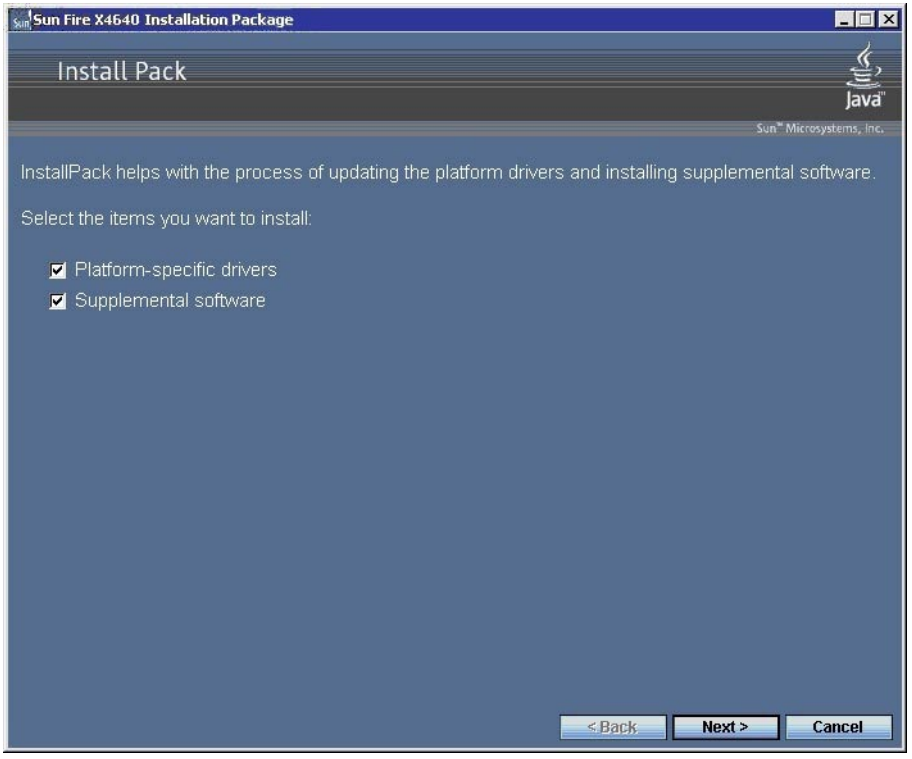
1 Start the installation software using one of the following methods:

- **Insert the Tools and Drivers CD into the server's CD/DVD drive. The CD autostarts. At the main menu, select Install Drivers and Supplemental Software.**

  —Or—

- **Navigate to the folder containing the `InstallPack_x_x_x.exe` file, and double-click it.**

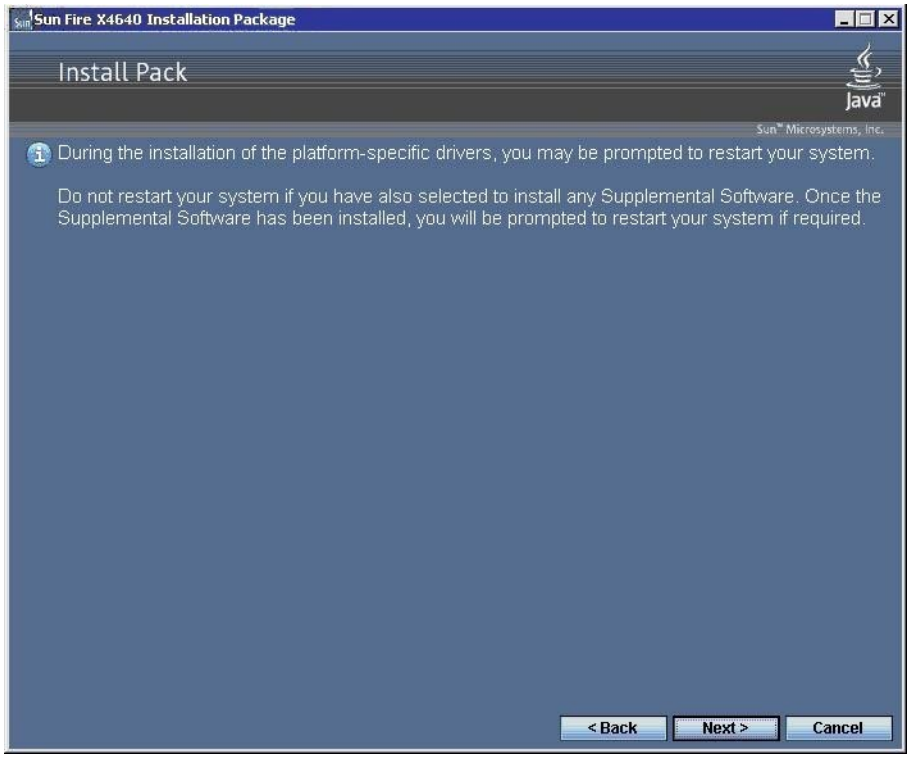
  The Sun Fire Install Package selection dialog box (shown below) appears.



2 **Click Next to accept the default settings.**

  You should always accept "platform-specific drivers" to ensure that the most recent, full-featured, Sun-tested drivers are installed.

The Install Pack notice dialog box appears.

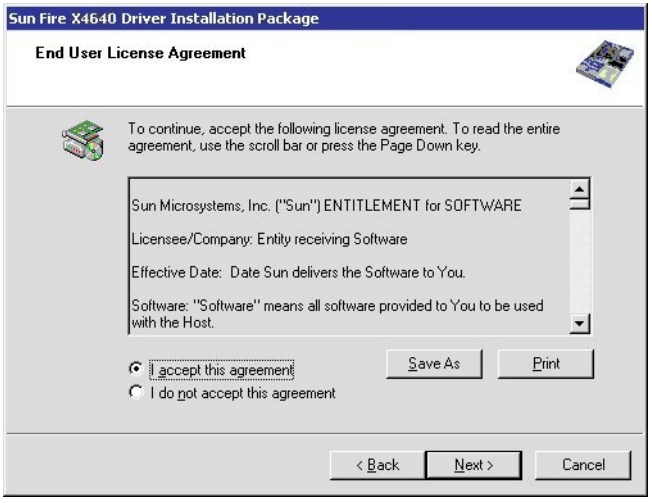


3 Review the Important Note and then click Next.

The Welcome to the Sun Fire Installation Wizard appears.

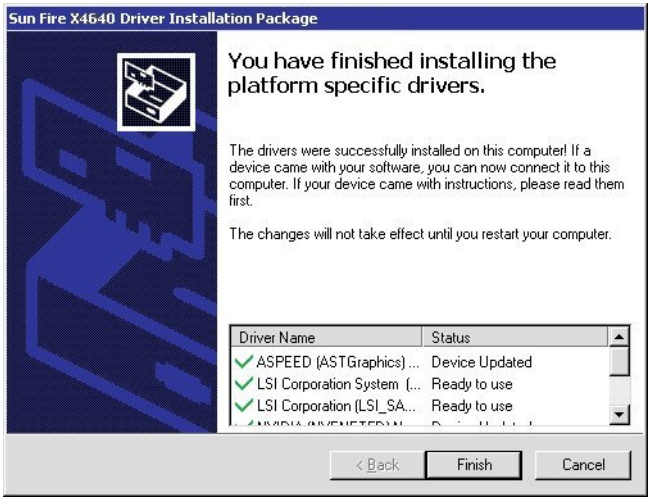
4 Click Next.

The End User License Agreement page appears.



5 **Select "I accept this agreement", and then click Next.**

The platform-specific drivers are installed. Verify that all drivers were successfully installed as indicated by the green check mark.



6 **Click Finish.**

The System Settings Change dialog box appears.

Note – If you plan on installing Supplemental Software (highly recommended), do not restart your system at this time.

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7 **Perform one of the following:**

- **If you accepted the default settings in Step 2, you must next install the supplemental software for your server. Click No at the System Settings Change dialog in order to prevent a server restart and proceed to "How to Install Supplemental Software" on page 36.**
- **If you are not installing the Supplemental Software, click Yes to restart your computer.**

▼ How to Install Supplemental Software

Before You Begin

There are several supplemental software components available for your Sun Fire server. You have two options for installation: **Typical**, where basic choices are made for you (as indicated in the table below), and **Custom**, which is a superset of Typical and includes all software components of Typical plus additional software components.

Note – If you have already installed the supplemental software, running the installation again does 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.

Available Components	Default Option
LSI MegaRAID Storage Manager—Allows you to configure, monitor, and maintain RAID on the LSI SAS 1064/1068 integrated RAID controller. Also installs an SNMP agent that captures SNMP data on the LSI SAS 1064/1068 integrated RAID controller. Requires the Windows Component for SNMP service for operation	Typical
IPMItool—Command line utility that reads the sensor data repository (SDR) and displays sensor values, System Event Log (SEL), 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).	Typical
AMD MCAT—Machine Check Analysis Tool (MCAT) is a command line utility that takes Windows System Event Log (.evt) file as an argument and decodes the MCA error logs into human readable format.	Custom
AMD Power Monitor—AMD Power Monitor is intended to show the current frequency, voltage, utilization and power savings of each core on each processor in the system.	Custom

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Note – As of the publication of this document, the server's PCI-X on-board network ports can not be used to initiate an Intel NIC team with Windows Server 2008 R2. Your Windows installation will use the generic Microsoft Intel NIC driver which does not include the teaming feature. However, if you want to include the on-board network ports as part of an Intel NIC team, you can install an optional Intel PCI-E network card (82571–based or newer) supported for Windows Server 2008 R2, install its driver (which provides Intel's Advanced Networking Services), and include the on-board network ports as part of a multi-vendor team initiated through the PCI-E network card.

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1 **Do one of the following depending on the last step you performed in "How to Update the Server-Specific Drivers" on page 31:**

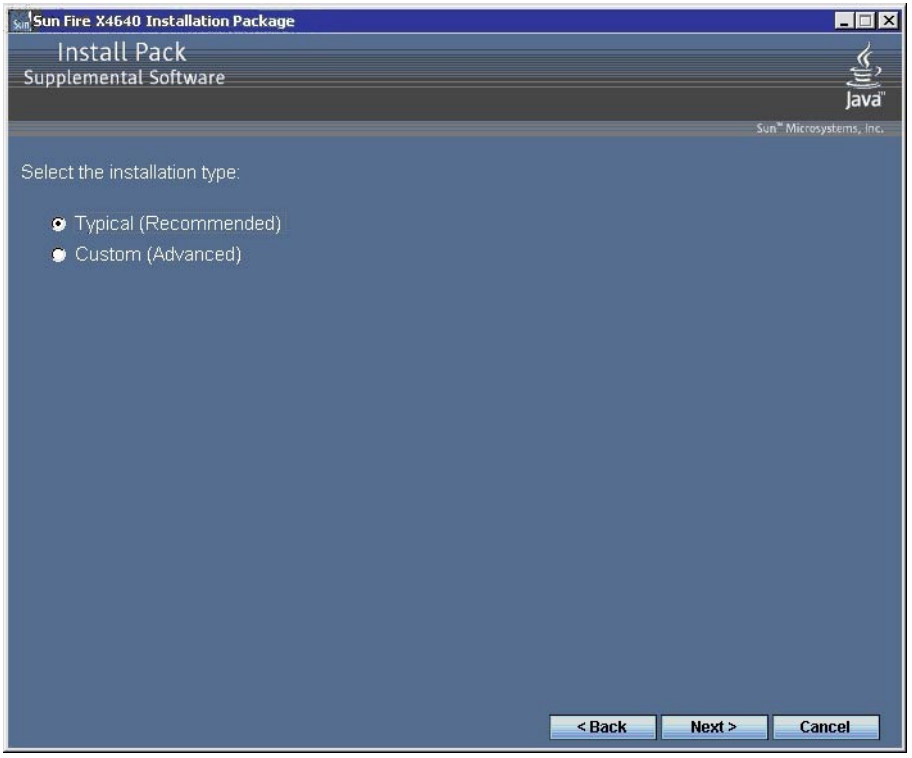
- **You have completed updating the server-specific drivers and the Installation Package Supplemental Software selection dialog box is now displayed (see below). Proceed to Step 2.**
- **You have restarted the server after updating the server-specific drivers. Perform the following to restart InstallPack and get to the Supplemental Software installation wizard:**

  a. **Relaunch InstallPack as described in Step 1 of "How to Update the Server-Specific Drivers" on page 31.**

  b. **At the InstallPack selection dialog, ensure that Supplemental Software is the only option selected.**

  c. **Click Next.**

  The Installation Package Supplemental Software selection dialog box is now displayed



2 **Click Next to accept the Typical settings, or select Custom to choose the options to install.**

Component installation wizards guide you through the installation of each of the selected supplemental software components.

3 **Once the supplemental software has been installed, click Finish.**

4 **Click Yes at the System Setting Change dialog box to restart your system. If you ran the Sun Fire Installation Package software from the Tools and Drivers CD, remove the CD now.**

See Also To learn more about Sun supplemental software, see "Additional Information for Supplemental Software" on page 39.

Additional Information for Supplemental Software

This section lists additional information about Sun supplemental software for your server. This information includes:

Managing RAID Using the MegaRAID Storage Manager (MSM)

The MSM program enables you to configure the LSI Logic integrated RAID controller, physical disk drives, and virtual disk drives on your system. The Configuration Wizard in the MSM program simplifies the process of creating disk groups and virtual disk drives by guiding you through several simple steps to create your storage configurations.

MSM works with the appropriate operating system (OS) libraries and drivers to configure, monitor, and maintain storage configurations attached to x64 servers. The MSM GUI displays device status in the form of icons, which represent the controllers, virtual disk drives, and physical disk drives on your system. Special icons appear next to the device icons on the screen to notify you of disk failures and other events that require immediate attention. System errors and events are recorded in an event log file and are displayed on the screen.

For information on using MSM, refer to the *Sun LSI 106x RAID User's Guide* for your server on the Sun product documentation web site at:

`http://docs.sun.com`

IPMItool

The IPMItool is a command line utility that reads the sensor data repository (SDR) and displays sensor values, System Event Log (SEL), Field Replaceable Unit (FRU) inventory information, gets and sets LAN configuration parameters, and performs chassis power control operations via the server's Service Processor. IPMItool is supplemental software and can be installed using the server's Tools and Drivers CD/DVD or using the `Installpack_`*`x_x_x`*`.exe` executable file (described earlier in this section).

Once installed, the IPMItool can be used to access your server's Service Processor (or another Sun server's Service Processor) in the following ways:

- Through the server's ILOM *(Integrated Lights Out Manager*) interface. For details on using ILOM, refer to your server's ILOM documentation.
- Through the server's Windows operating system using a command prompt. The IPMItool for Windows is used in conjunction with the Microsoft's IPMI System Management driver (bundled with Windows Server 2008 and installed when you install the OS).

For more information on standard IPMItool commands, see:

http://ipmitool.sourceforge.net/manpage.html

Incorporating Sun Fire Drivers Into a WIM Image

This section is intended for advanced system administrators who need to incorporate the server-specific drivers into a Windows Imaging Format (WIM) image. WIM files are then installed using Windows Deployment Services (WDS).

Note – This section is not a tutorial on WDS; it provides guidance on how to incorporate the server-specific drivers into a WIM image.

The Microsoft Windows Server 2008 R2 distribution image contains the all the drivers required for initial installation. However, Sun recommends that the following server-specific drivers be incorporated into your WIM image to ensure you have access to the maximum feature set.

- AMI Virtual Floppy driver
- ATI display driver
- LSI Fusion MPT RAID HBA driver

Proceed to the following sections to create and deploy your WIM image file.

- "How to Add Drivers to a WIM Image" on page 41
- "How to Deploy a WIM Image to Your Server" on page 44

▼ How to Add Drivers to a WIM Image

Before You Begin Before creating a WIM image, you need to do the following:

- The Windows Automated Installation Kit (Windows AIK or WAIK) must be installed. The kit can be downloaded from Microsoft. Sun recommends using version 2.0 or later of the WAIK.
- Read the Windows AIK documentation.
- Windows Remote Installation Services must be running on a Windows Server. Read the Windows Deployment Services snap-in documentation.
- Locate the `DriverPack.zip` and `OptPack.zip` files for Windows Server 2008 you downloaded as described in "How to Download Server Software" on page 15.

1 Extract the contents of the `DriverPack.zip` and `OptPack.zip` packages to a temporary folder.

2. **Create a network share accessible to the WDS server to which the drivers will be copied. For example:**

   *yourshare**share*\`DriverPack`

3. **Create a folder structure under the `DriverPack` folder on the network share and copy over the specific 64–bit driver files from the downloaded packages. For example:**

Copy Contents of Package Folder	To Network Share Driver Folder
DriverPack\amd64\ami	Driverpack\amd64\ami
DriverPack\amd64\ati	DriverPack\amd64\ati
DriverPack\amd64\lsi	DriverPack\amd64\lsi

4. **Select the service image to update and export the image.**

   a. **Click Start, click Administrative Tools, and then click Windows Deployment Services.**

   b. **Find the image to service. Right-click the image and then click Disable.**

   c. **Right-click the image and click Export Image. Follow the Wizard directions to export the image to the location of your choice.**

5. **Mount the Windows image you just exported. For example,**

   ```
   imagex /mountrw C:\windows_distribution\sources\install.wim 1 C:\win_mount
   ```

   The first Windows image in the `Install.wim` file is mounted to `C:\wim_mount`

6. **Use Windows System Image Manager (Windows SIM, available in Windows AIK) to create an answer file that contains the paths to the device drivers that you intend to install.**

   See the Microsoft documentation for the Windows Automated Installation Kit for the details of starting the Windows SIM application.

7. **Add the `Microsoft-Windows-PnpCustomizationsNonWinPE` component to your answer file in the `offlineServicing` pass.**

8. **Expand the `Microsoft-Windows-PnpCustomizationsNonWinPE` node in the answer file. Right-click `DevicePaths`, and then select Insert New PathAndCredentials.**

   A new PathAndCredentials list item appears.

9 In the `Microsoft-Windows-PnpCustomizationsNonWinPE` component, specify the path to the architecture folder in the DriverPack folder on the network share and the credentials used to access the network share.

For example, the path and credentials for a 64-bit image might be:

```
<Path>\\yourshare\share\DriverPack\amd64</Path>
<Credentials>
   <Domain>MyDomain</Domain>
   <Username>MyUserName</Username>
   <Password>MyPassword</Password>
</Credentials>
```

10 Save the answer file and exit Windows SIM. The answer file must be similar to the following sample. The sample assumes the architecture is 64-bit.

```
<?xml version="1.0" ?>
<unattend xmlns="urn:schemas-microsoft-com:asm.v3" xmlns:wcm=
"http://schemas.microsoft.com/WMIConfig/2002/State">
   <settings pass="offlineServicing">
      <component name="Microsoft-Windows-PnpCustomizationsNonWinPE"
processorArchitecture="amd64" publicKeyToken="31bf3856ad364e35"
language="neutral" versionScope="nonSxS">
         <DriverPaths>
            <PathAndCredentials wcm:keyValue="1">
               <Path>\\yourshare\share\DriverPack\x64</Path>
               <Credentials>
                  <Domain>MyDomain</Domain>
                  <Username>MyUserName</Username>
                  <Password>MyPassword</Password>
               </Credentials>
            </PathAndCredentials>
         </DriverPaths>
      </component>
   </settings>
</unattend>
```

11 Use Package Manager to apply the unattended installation answer file to the mounted Windows image. Specify a location for the log file to create. For example,

```
pkgmgr /o:"C:\wim_mount\;C:\wim_mount\Windows" /n:"C:\unattend.xml"
/l:"C:\pkgmgrlogs\logfile.txt"
```

The `.inf` files referenced in the path in the answer file are added to the Windows image. A log file is created in the directory `C:\Pkgmgrlogs\`.

For more information about using Package Manager, see the Microsoft Windows AIK documentation.

12 Review the contents of the `%WINDIR%\Inf\` directory in the mounted Windows image to ensure that the `.inf` files were installed.

Drivers added to the Windows image are named `oem*.inf`. This is to ensure unique naming for new drivers added to the computer. For example, the files `MyDriver1.inf` and `MyDriver2.inf` are renamed `oem0.inf` and `oem1.inf`.

13 **Unmount the `.wim` file and commit the changes. For example:**

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

14 **Replace the service image and enable the image.**

a. **If the Windows Deployment Services snap-in is not running, click Start, click Administrative Tools, and then click Windows Deployment Services.**

b. **Find the image to service. Right-click the image and then click Replace Image. Follow the Wizard directions to replace the service image with the Windows image that was updated.**

c. **Right-click the service image and then click Enable.**

The service image is now available and all the server-specific drivers are added to the image.

Next Steps To deploy your image, proceed to "How to Deploy a WIM Image to Your Server" on page 44.

▼ How to Deploy a WIM Image to Your Server

1 **Reset or power on the server, for example:**

- **From the ILOM web interface, select Reset on the Remote Power Control tab.**

—Or—

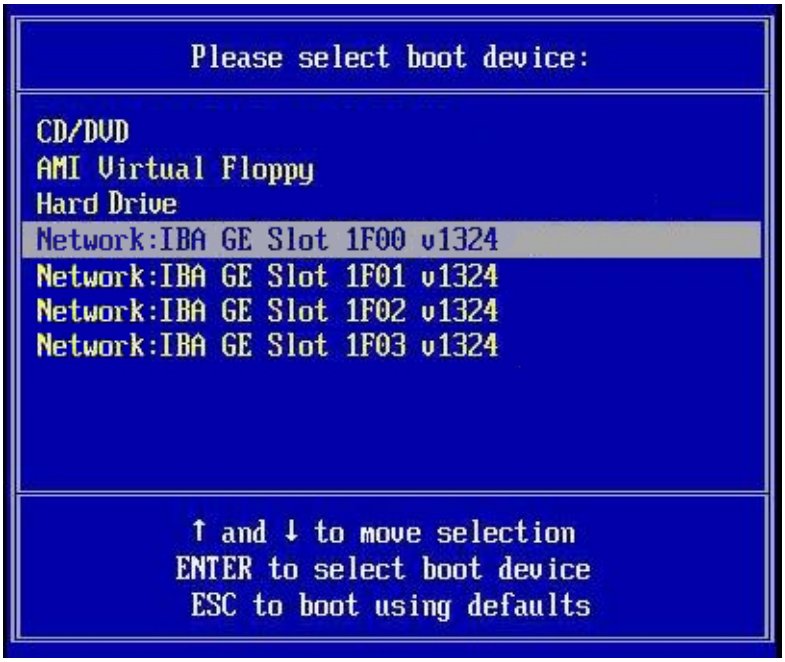
- **Press and hold the Power button on the front panel of the server for approximately four seconds to power it off, and then press the Power button again to power it on.**

  The BIOS screen appears.

2 **Press F8 to specify a temporary boot device.**

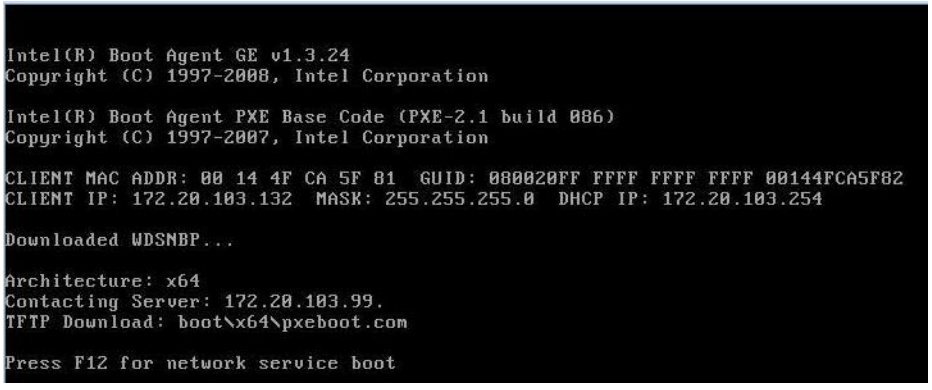
  The Select Boot Device menu appears.

3 **From the Select Boot Device menu, use the arrow keys to select the appropriate PXE bootable network interface and press Enter.**



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

4 **When the Boot Agent dialog appears, press F12 for a network service boot.**



5. **Select the appropriate boot image from the boot menu.**
   You only see the image selection menu if you have more than one image on the server.
6. **Follow the instructions in the Windows Deployment Services user interface.**
7. **When the installation is complete, the server restarts.**
   Perform additional setup as required for your server.

Identifying Network Interfaces in Windows

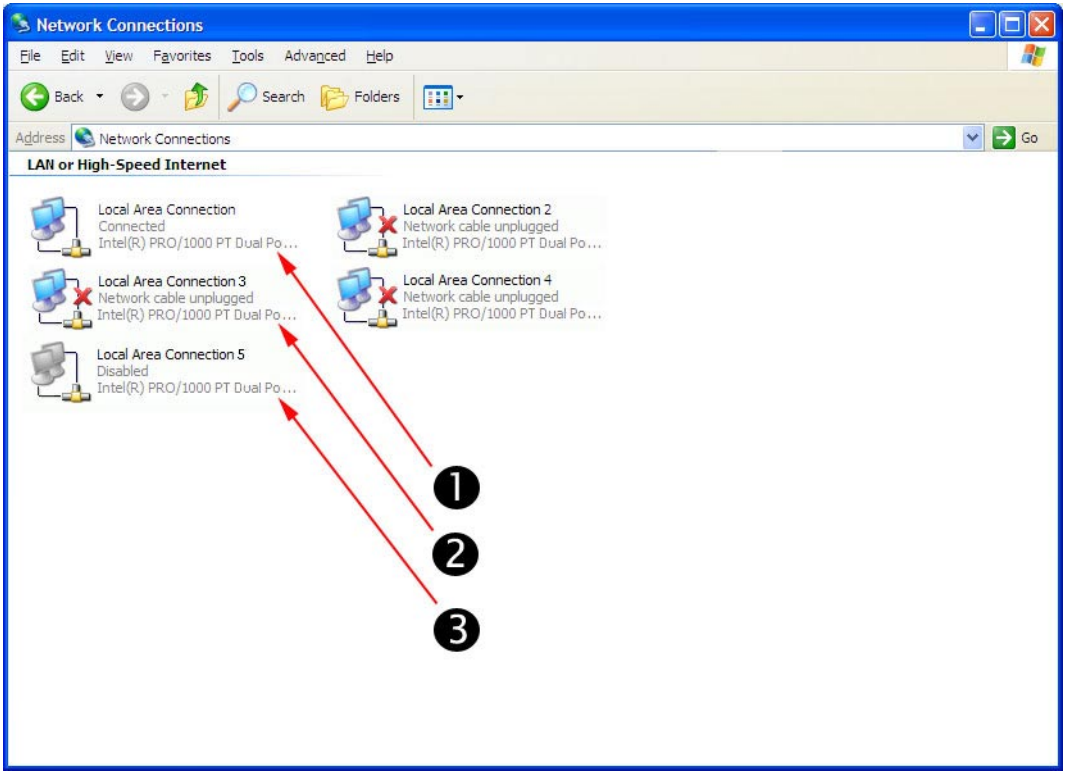
This section provides information on identifying your server's network interface settings in Windows.

▼ To Determine the Server's Active Network Data Ports

You can determine which network data ports are actively connected to a network by using Microsoft's **Network Connections** folder, you can visually determine which server network ports are actively connected to a network. To access the **Network Connections** folder, follow this step:

- **Click Start -> Settings -> Control Panel-> Network Connections.**

  The Network Connections folder appears identifying the actively connected data ports.



Callout	Description
1	An active port connection.
2	A red X marks the port connections that are currently inactive.
3	The port has been manually disabled (right-click to re-enable).

▼ Confirm Physical Port MAC Addresses and Match Them to Windows Device Names

To confirm the MAC addresses of installed network interface ports and to match them to the Windows Device Friendly Names, you need to open a command prompt and run `ipconfig /all`, as described below:

1. **Click -> Start -> Run.**

   The Run dialog box appears.

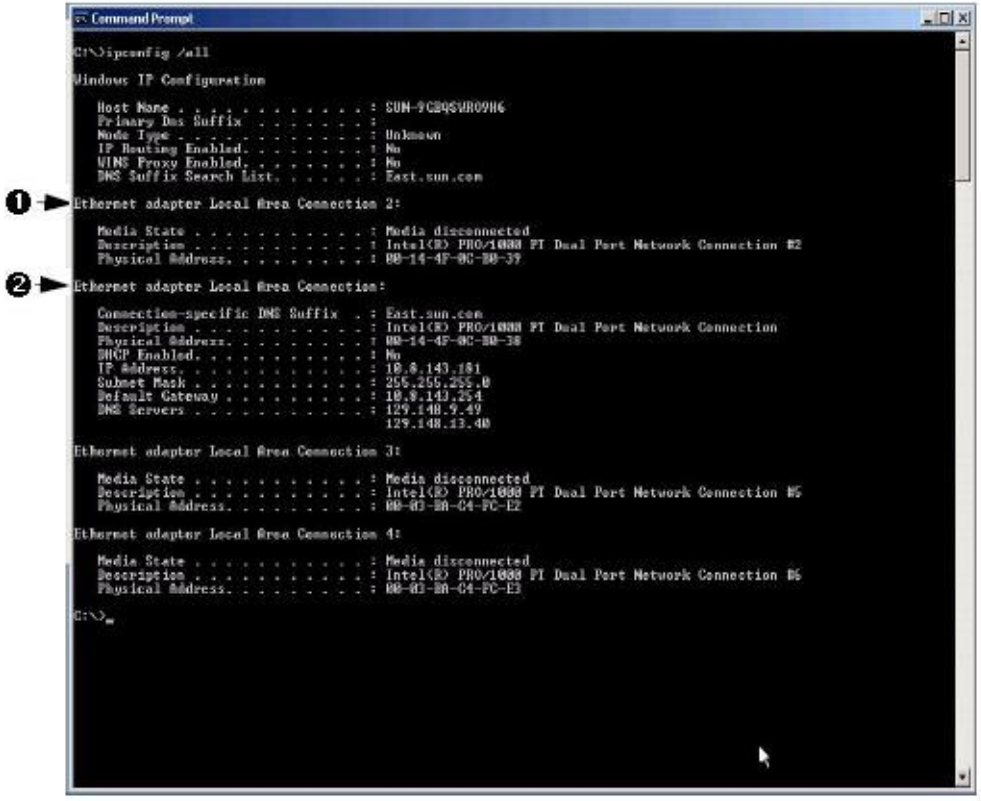
2. **In the Run dialog box, type `cmd` then click OK.**

   The cmd.exe DOS window appears.

3. **In the cmd.exe DOS window, enter the following command at the prompt: `ipconfig /all`**

   The output from the `ipconfig /all` command identifies the installed network interface ports by the connection name in the order of enumeration.

   The output does not necessarily follow an alpha or numeric order. You can customize the connection name in the Network Connections folder. For details, see Microsoft's documentation. The output below illustrates how the Windows operating system, by default, assigns logical names to network interfaces.



Callout	Description
1	Second Ethernet adapter port.
2	First Ethernet adapter port.

In the sample output:

- `Ethernet Adapter Local Area Connection` is the Windows default logical name (friendly name) assigned to a network interface.

  Note that the first Ethernet Adaptor Local Area Connection appears with a null value. This entry identifies the connection-specific DNS suffix (for example, east.sun.com) and the physical MAC address for that port.
- `Ethernet Adapter Local Area Connection 2` identifies a disconnected media state, a description, and the physical MAC address for that port.
- The numeric value following the Windows logical friendly name refers to the network connection number.

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