



Sun Fire™ X4100 M2/X4200 M2 Server Windows Operating System Installation Guide

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Preface

This document contains instructions for installing the Windows Server 2003 or Windows Server 2008 operating system onto a Sun Fire X4100 M2 or X4200 M2 server.

Note – This information applies only to the Sun Fire X4100 M2 and Sun Fire X4200 M2 servers. It does not apply to the Sun Fire X4100 or Sun Fire X4200 servers.

Related Documentation

The document set for the Sun Fire X4100 M2 or X4200 M2 server is described in the Where To Find documentation at:

<http://docs.sun.com/app/docs/prod/sf.x4100m2#hic>

<http://docs.sun.com/app/docs/prod/sf.x4200m2#hic>

Translated versions of some of these documents are available at the web site described above in French, Simplified Chinese, Traditional Chinese and Japanese. English documentation is revised more frequently and might be more up-to-date than the translated documentation.

For all Sun hardware, Solaris and other documentation, go to:

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Typographic Conventions

Typeface*	Meaning	Examples
AaBbCc123	The names of commands, files, and directories; onscreen computer output	Use <code>dir</code> to list all files.
AaBbCc123	What you type, when contrasted with onscreen computer output	> ipconfig Password:
<i>AaBbCc123</i>	Book titles, new words or terms, words to be emphasized. Replace command-line variables with real names or values.	Read Chapter 6 in the <i>User's Guide</i> . These are called <i>class</i> options. You <i>must</i> have administrator privileges to do this. To delete a file, type <code>del filename</code> .
AaBbCc123	Titles of dialog boxes, text in dialog boxes, options, menu items and buttons.	1. On the File menu, click Extract All.

* The settings on your browser might differ from these settings.

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Sun Fire X4100 M2/X4200 M2 Server Windows Operating System Installation Guide, part number 820-5837-10

Getting Started

This chapter describes the information you need to know before installing the Microsoft Windows Server 2003 or Windows Server 2008 operating system on a Sun Fire X4100 M2 or X4200 M2 server. It contains important guidelines and information to help you in the installation process. Make sure to read the remainder of this chapter before beginning the Windows Server installation.

Note – This information applies only to the Sun Fire X4100 M2 and Sun Fire X4200 M2 servers. It does not apply to the Sun Fire X4100 or Sun Fire X4200 servers.

The following sections are included in this chapter:

- [“About Windows Server Installation” on page 1](#)
- [“Important Installation Considerations” on page 2](#)
- [“Supported Windows Operating Systems” on page 3](#)
- [“Assisted Installation Using Sun Installation Assistant \(SIA\)” on page 3](#)
- [“Manual Installation” on page 4](#)

About Windows Server Installation

The Sun Fire X4100 M2 or X4200 M2 server requires mass storage drivers not included with the Windows Server 2003 operating system. For Windows Server 2008, the required mass storage drivers are included with the Windows Server 2008 distribution media.

The following chapters in this document describe how to install the Windows Server 2003 and Windows Server 2008 operating system. The installation procedures apply to both the 32-bit and 64-bit versions of Microsoft Windows Server 2003 and Windows Server 2008.

Important Installation Considerations

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

- When you install the Windows operating system, any data on the boot drive, including any preinstalled operating system, will be overwritten.
- If you want to include your boot drive as part of a RAID configuration, you will need to configure a RAID volume on it using the LSI integrated RAID controller's setup utility (accessible during server boot) before you install the Windows operating system. For more details, see [Appendix A](#).
- A primary consideration during operating system installation is providing the mass storage drivers for the disk controller. Windows Server 2008 includes the mass storage drivers required for your server. Windows Server 2003 does not contain the mass storage drivers required for your server.
 - **If you install Windows using the Sun Installation Assistant (SIA)**, all required drivers are supplied at the time of installation. SIA can install Windows via a local or remote CD/DVD. For more about SIA, see "[Assisted Installation Using Sun Installation Assistant \(SIA\)](#)" on page 3.
 - **If you install Windows manually**, using the Microsoft Windows installation media, Windows Server 2003 requires that the mass storage drivers be delivered from a floppy disk. The Windows Server 2003 installation program can only read mass storage drivers from a floppy disk.
- For a manual installation, there are three methods that can be used to deliver the mass storage drivers for Windows Server 2003 installation:
 - Use a physical USB floppy drive connected to the Sun Fire server.
 - Use a remote KVMS (remote Keyboard, Video, Mouse, Storage—allows redirection of the server keyboard, video output, mouse and storage devices via a networked system) to redirect the floppy to a physical floppy drive on another system that is hosting the JavaRConsole (JavaRConsole system—a remote console run from a networked system).
 - Use a remote KVMS to redirect the floppy to a floppy image file on another system that is hosting the JavaRConsole.
- For a manual installation, there are also three methods for delivering the Windows Server 2003 or Windows Server 2008 distribution media for installation:
 - Use the physical CD/DVD drive connected to the Sun Fire server.
 - Use a remote KVMS to redirect the CD/DVD drive to a physical CD/DVD drive on the JavaRConsole system.
 - Use a remote KVMS to redirect the CD/DVD drive to a Windows CD/DVD image on the JavaRConsole system.

The installation procedures described in this document will guide you through the process of selecting an installation method for the mass storage driver and operating system media.

Note – If you use the RKVMS method for any of these installations, you will need to refer to the *Sun Integrated Lights Out Manager 2.0 User's Guide* (820-1188), for details on setting up the hardware needed for the installation.

Supported Windows Operating Systems

The Sun Fire X4100 M2 or X4200 M2 server supports the following Microsoft Windows operating systems at the time of publication of this document:

- Microsoft Windows Server 2003, SP1 or later, Standard Edition (32-bit)
- Microsoft Windows Server 2003, SP1 or later, Enterprise Edition (32-bit)
- Microsoft Windows Server 2003 R2 SP2, Standard x64 Edition (64-bit)
- Microsoft Windows Server 2003 R2 SP2, Enterprise x64 Edition (64-bit)
- Microsoft Windows Server 2008, Standard Edition (32 or 64-bit)
- Microsoft Windows Server 2008, Enterprise Edition (32 or 64-bit)
- Microsoft Windows Server 2008, Datacenter Edition (32 or 64-bit)

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

<http://www.sun.com/servers/entry/x4100/os.jsp>

<http://www.sun.com/servers/entry/x4200/os.jsp>

Assisted Installation Using Sun Installation Assistant (SIA)

The Sun Installation Assistant (SIA) is a tool supported for use with x64 Sun Fire and Sun Blade servers that assists in the installation of supported Linux and Microsoft Windows Server 2003 or Windows Server 2008 operating systems (OS). With SIA, you can install the OS, the appropriate drivers, and if necessary, additional system software by simply booting the SIA media and following the prompts.

SIA does not automate the OS installation process. You still need to follow the installation procedures for your OS, but you do not have to inventory your system hardware, search out and download device drivers most recently supported by Sun, nor will you need to create a separate driver CD. SIA does that work for you.

SIA Media Availability, Updates and Documentation

The Sun Installation Assistant CD/DVD ships with Sun servers that support the x64 processor architecture. For a complete list of supported Sun server platforms, refer to the SIA information page at:

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

In addition, an ISO CD image of the Sun Installation Assistant is available for download from the Sun Download page at:

<http://www.sun.com/download/index.jsp>

Updates to the SIA program can be obtained easily during the SIA installation by using the Remote Update option in the SIA.

Documentation describing how to use SIA can be found with the rest of the documentation for your server on the Sun documentation web site:

<http://docs.sun.com/app/docs/prod/sf.x4100m2#hic>

<http://docs.sun.com/app/docs/prod/sf.x4200m2#hic>

Manual Installation

This method is for more advanced users that are planning to manually install Microsoft Windows Server 2003 or Windows Server 2008 locally, or remotely, on one or more servers.

Note – If you plan to install Windows Server 2003 or Windows Server 2008 using a Preboot Execution Environment (PXE) server, refer to Chapter 9, “[Incorporating Sun Fire Server Drivers Into WIM or RIS Images](#)” on page 57.

To install Windows Server 2003 or Windows Server 2008 from CD media onto a your server, complete the following procedures in order:

1. [Downloading Server-Specific Driver Packages](#) (see Chapter 2).
2. [Selecting the Delivery Methods](#) (see Chapter 3).
3. [Prepare for Mass Storage Driver Delivery](#) (see Chapter 4).
4. [Configure the JavaRConsole System](#), only required if you are planning to install Windows from a remote console (see Chapter 5).
5. [Installing Windows Server 2003](#) (see Chapter 6).
6. [Installing Windows Server 2008](#) (see Chapter 7).
7. [Update the Critical Server-Specific Drivers](#) (see Chapter 8).

After completing these procedures, you will have successfully installed the Windows Server operating system.

Downloading Server-Specific Driver Packages

This chapter describes how to download the server-specific driver packages needed for Windows Server 2003 and Windows Server 2008 installation.

Note – If you have the Tools and Drivers CD, you can skip this chapter and proceed to [Chapter 3](#). You can use the CD for creation of the mass storage driver floppy disk and the installation of the other server-specific drivers. The latest version of the Tools and Drivers CD for your server is also available as a downloadable image on the Sun download site.

To download the drivers:

1. Go to the driver download site for your server.

<http://www.sun.com/servers/entry/x4100/downloads.jsp>

<http://www.sun.com/servers/entry/x4200/downloads.jsp>

2. Choose one of the following download options:

- **If you are installing using the Windows Server 2003 or Windows Server 2008 media, download `Windows.zip` to a hard drive location or media that will be accessible during the installation. Extract the following sub-packages contained in `Windows.zip`:**
 - `FloppyPack_x_x_x.zip` (contains the LSI integrated disk controller driver for your Sun Fire server). You will use this package to create driver media for your Windows Server 2003 installation, see [Chapter 3](#).
 - `InstallPack_x_x_x.exe` (program to update server-specific device drivers after installing Windows Server 2003 or Windows Server 2008)
 - `DriverPack_x_x_x.zip` (for experts only, server-specific driver archive for Windows Server, English). Download this file if you want to perform a PXE installation described in Chapter 9, “[Incorporating Sun Fire Server Drivers Into WIM or RIS Images](#)” on page 57.

- OptPack_x_x_x.zip (for experts only, supplemental software archive).
Download this file if you want to incorporate the supplemental software into a PXE installation.
- **If you are installing Windows Server using a PXE server (advanced installation), extract the contents of the DriverPack_x_x_x.zip file on the PXE server.**

Note – The _x_x_x number identifies the version of the package (for example, FloppyPack_1_1_4.zip).

3. **Make sure that the driver packages are available as you begin the operating system installation. Proceed to [Chapter 3](#) to select the delivery methods.**

Selecting the Delivery Methods

In this chapter, you will decide on the delivery methods to provide the mass storage drivers and the Windows Server 2003 or Windows Server 2008 media for installation.

To select mass storage driver media and Windows Server 2003 or Windows Server 2008 distribution media delivery methods, complete the following procedures:

1. [Select a Mass Storage Drivers Method.](#)
2. [Select a Windows Server 2003 or Windows Server 2008 Distribution Media Method.](#)
3. **Make a note of the delivery methods you selected and proceed to [Chapter 4.](#)**

Select a Mass Storage Drivers Method

Select a method listed in [TABLE 3-1](#) that meets the need of your environment for providing the appropriate mass storage drivers for Windows Server 2003 installation. Make note of the method you have selected

Note – For Windows Server 2008, the Windows distribution media includes all drivers necessary to install Windows on the Sun Fire X4100 M2 or X4200 M2 server. If you are installing Windows Server 2003, you will need to supply mass storage drivers during the installation using one of the methods described below.

TABLE 3-1 Delivery Methods for Windows 2003 Mass Storage Drivers

Mass Storage Drivers Delivery Method	Additional Requirements	Ease of Configuration and Installation
Floppy Disk Local: Uses a physical USB floppy drive externally connected to a rear USB port on the server. Connecting the USB floppy drive to the front of the server will cause the installation to fail.	<ul style="list-style-type: none">External USB floppy drive listed as “Designed for Windows”* on the Windows Marketplace site: http://www.windowsservercatalog.com/marketplace/Floppy disk	Easy
Floppy Disk Remote: Uses a remote KVMS to redirect to a physical floppy drive on the system hosting the JavaRConsole.	<ul style="list-style-type: none">JavaRConsole system with network access to your Sun Fire server’s network management port and an attached floppy driveFloppy disk	Medium: Installation time will be minimally increased over the Floppy Disk Local method.
Floppy Image: Uses a remote KVMS to redirect to a floppy image file on the system hosting the JavaRConsole.	<ul style="list-style-type: none">JavaRConsole system with network access to your Sun Fire server’s management network portFloppy image file	Medium: Installation time will be minimally increased over the Floppy Disk Local method.

* If you do not use a USB floppy drive designed for Windows, it might appear that the drivers are installed during the OS installation, but when you reboot the system, the graphical part of the Windows setup will be unable to find the drivers again and the installation will fail with an error message.

Select a Windows Server 2003 or Windows Server 2008 Distribution Media Method

Select a method listed in [TABLE 3-2](#) that meets the need of your environment for providing the Windows Server 2003 or Windows Server 2008 distribution media for the Windows installation on your server. Make a note of the method that you selected.

TABLE 3-2 Delivery Methods for Windows Server Distribution Media

Windows OS Media Delivery Method	Additional Requirements	Ease of Configuration and Installation
Windows Local: Uses the servers CD/DVD drive or an external USB CD/DVD drive connected to the USB port on the server.	External USB CD/DVD drive listed as “Designed for Windows” [*] on the Windows Marketplace site: http://www.windowsservercatalog.com/marketplace/	Easy
Windows Remote: Uses a remote KVMS to redirect the CD drive to a physical CD drive on the system hosting the JavaRConsole.	JavaRConsole system with the network access to the Sun Fire server network management port and an attached CD/DVD drive	Medium: Installation time will be significantly increased over the Windows Local method.
Windows Image: Uses a remote KVMS to redirect the CD drive to a Windows media image file on the system hosting the JavaRConsole.	JavaRConsole system with network access to the Sun Fire server module management network port	Medium: Installation time will be significantly increased over the Windows Local method.

* If you do not use a USB floppy drive designed for Windows, it might appear that the drivers are installed during the OS installation, but when you reboot the system, the graphical part of the Windows setup will be unable to find the drivers again and the installation will fail with an error message.

Prepare for Mass Storage Driver Delivery

This chapter contains instructions on preparing the necessary mass storage drivers media for Windows Server 2003 installation.

Depending on the method selected in [Chapter 3](#), you will use one of the procedures in this chapter. See [TABLE 4-1](#).

TABLE 4-1 Mass Storage Driver Delivery Methods

Delivery Method	Section to Read
Floppy Disk Local	“Create a Floppy Disk” on page 13
Floppy Disk Remote	“Create a Floppy Disk” on page 13
Floppy Image	“Copy the Floppy Image File” on page 16

Create a Floppy Disk

For the *Floppy Disk Local* or *Floppy Disk Remote* delivery method, you need to create a floppy disk containing the mass storage drivers before proceeding with the Windows Server 2003 installation.

Ensure that the following system configurations and materials are readily available:

- System with a floppy drive
- Floppy disk
- The latest Tools and Drivers CD for your server, or `FloppyPack_x_x_x.zip` (See [“Downloading Server-Specific Driver Packages” on page 7](#) for details on obtaining `FloppyPack_x_x_x.zip`)

Note – The `_x_x_x` number identifies the version of the package (for example, `FloppyPack_1_1_4.zip`).

▼ To Create a Floppy Disk for the Sun Fire Server

Sun provides a wizard to help create the necessary floppy disk required for Windows Server 2003 installation. The Sun Mass-Storage Driver Disk Creation wizard may be started using one of the following methods: from the main menu of your server's Tools and Drivers CD, or from the `mkfloppy.exe` wizard. Directions for using either method are described below.

1. Start the Sun Mass-Storage Driver Disk Creation wizard using one of the following methods:

- Insert the Tools and Drivers CD into a Windows system with a CD/DVD drive. The CD will autostart. At the main menu, select **Make a Windows Server 2003 Mass Storage Driver Disk**, and then proceed to [Step 2](#).

--or--

- If you have downloaded `FloppyPack_x_x_x.zip` from the Sun download site (see [“Downloading Server-Specific Driver Packages”](#) on page 7), do the following to copy and extract the files:
 - i. On a system running Microsoft Windows software with a floppy drive, copy the `FloppyPack_x_x_x.zip` file to a temporary directory.
 - ii. Start Windows Explorer.
 - iii. Navigate to the folder where you placed the downloaded file.
 - iv. Select `FloppyPack_x_x_x.zip`.
 - v. On the File menu, click Extract All.

Note – If your version of Windows Explorer does not natively support compressed folders, use a third-party utility to extract the contents of the zip file. Make sure to maintain the directory structure of the folders after extracting them.

- vi. Extract the files into a new (empty) folder.
- vii. Start Windows Explorer and navigate to the folder containing the extracted files.

- viii. In Windows Explorer, open the directory containing the extracted files and double-click the `mkFloppy.exe` wizard, and then proceed to the next step.
2. At the Mass-Storage Driver Disk Creation wizard welcome page (see [FIGURE 4-1](#)), click Next and follow the instructions in the wizard to create the mass storage driver floppy disk for your server.
Insert a blank floppy disk into drive A: when prompted.

FIGURE 4-1 Mass-Storage Drivers Disk Creation Wizard Welcome Page



3. At the Format 3 1/2 Floppy page (see [FIGURE 4-2](#)), click the Start button to begin formatting.

FIGURE 4-2 Format 3 1/2 Floppy Page



4. When the floppy disk formatting is complete, click the Close button.

The Format 3 1/2 Floppy page closes and you are returned to the Mass-Storage Driver Disk Creation wizard.

5. Click Next and follow the instructions in the wizard to complete the creation of the mass storage driver floppy disk, and then do one of the following:

- If you are installing Windows remotely using the **Floppy Disk Remote** method, proceed to [Chapter 5](#) to setup your remote console.
- To begin installing Windows Server 2003 using the **Floppy Disk Local** method, proceed to [Chapter 6](#).

Copy the Floppy Image File

Use this procedure if you choose the *Floppy Image* method to install the mass storage drivers.

Ensure that a JavaRConsole system is available to host the driver files. This system must have access to the `FloppyPack.zip` driver package downloaded from the driver download site or on the Tools and Drivers CD (system software release 2.0, or later) as shown in [“Downloading Server-Specific Driver Packages”](#) on page 7.

▼ To Copy the Floppy Image File

To copy the floppy image file using a Windows system:

1. Prepare the driver files:

- If you are using the Tools and Drivers CD to access the floppy package, do the following:
 - i. Insert the CD into the JavaRConsole system.
 - ii. Navigate to the following directory:
`windows\w2k3\packages\FloppyPack\image`
and then proceed to [Step 2](#).
- If you have downloaded `FloppyPack.zip` from the download site, do the following to copy and extract the files:
 - i. Copy the `FloppyPack_x_x_x.zip` file to a temporary directory.
 - ii. Start Windows Explorer.
 - iii. Navigate to the temporary folder where you placed the downloaded file.
 - iv. Select `FloppyPack_x_x_x.zip`.
 - v. On the File menu, click Extract All.

Note – If your version of Windows Explorer does not natively support compressed folders, use a third-party utility to extract the contents of the zip file. Make sure to maintain the directory structure of the folders after extracting them.

- vi. Navigate to the folder where the extracted files reside.
 - vii. Navigate to the image folder, and then proceed to the next step.
- ### 2. Copy the `floppy.img` file to a folder on the JavaRConsole system that will be available during installation.
- Note the `floppy.img` file location.
- ### 3. To install Windows remotely using the Floppy Image method, proceed to [Chapter 5](#) to setup your remote console.

Configure the JavaRConsole System

This chapter describes how to set up the JavaRConsole system to deliver the mass storage drivers and Windows Server 2003 or Windows Server 2008 media for operating system installation.

Note – If you have chosen both the *Floppy Disk Local* (only required for Windows Server 2003 installations) and *Windows Local* delivery methods in [Chapter 3](#), proceed to [Chapter 6](#).

- You will need to set up a JavaRConsole system if you have chosen any one of the following mass storage driver or Windows Server 2003 or Windows Server 2008 media delivery methods described in [Chapter 3](#):
 - Floppy Disk Remote
 - Floppy Image
 - Windows Remote
 - Windows Image

Note – This procedure does not provide detailed instructions for setting up the JavaRConsole hardware. See the *Integrated Lights Out Manager (ILOM) Administration Guide* for your Sun Fire server for further information.

JavaRConsole System Requirements

The requirements for the JavaRConsole system are:

- Solaris, Linux, or Windows operating system is installed.
- The system must be connected to a network that has access to the Sun Fire server Ethernet management port.
- Java Runtime Environment (JRE) 1.5 or later is installed.
- If the JavaRConsole system is running on Solaris, volume management must be disabled for JavaRConsole to access the physical floppy and/or CD/DVD-ROM drives.
- If the JavaRConsole system is running on Windows Server 2003 or Windows Server 2008, Internet Explorer Enhanced Security must be disabled.

Setting Up the JavaRConsole System

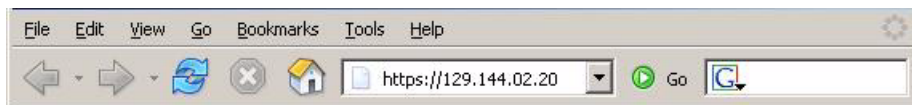
This section describes how to setup the JavaRConsole system to deliver the mass storage drivers during a remote Windows Server 2003 installation.

Note – This procedure assumes that the JavaRConsole system and ILOM service processor have been set up according to the instructions in the *Integrated Lights Out Manager (ILOM) Administration Guide* for your Sun Fire server.

▼ To Set Up the JavaRConsole System

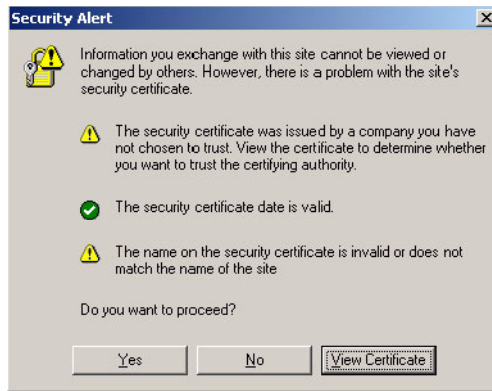
1. **Start the remote console application by typing the IP address of the Integrated Lights Out Manager (ILOM) service processor into a browser on the JavaRConsole system.**

FIGURE 5-1 URL Sample



The Security Alert dialog box displays.

FIGURE 5-2 Security Alert Dialog Box



2. Click Yes.

The ILOM login screen appears.

FIGURE 5-3 Login Screen

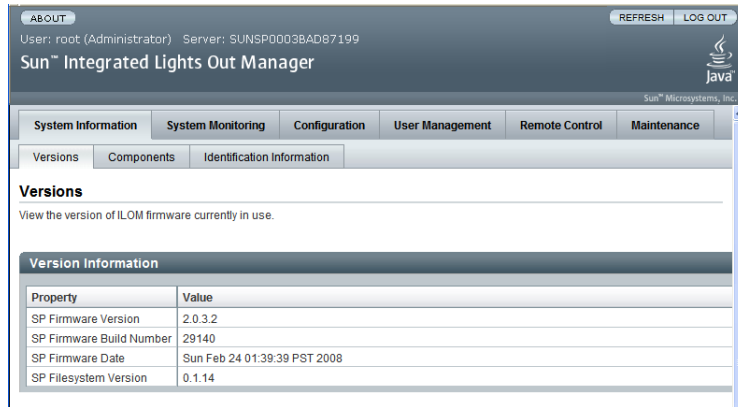


3. Enter the user name and password and click Log In.

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

The ILOM Version Information screen appears.

FIGURE 5-4 ILOM WebGUI Interface Version Information Screen

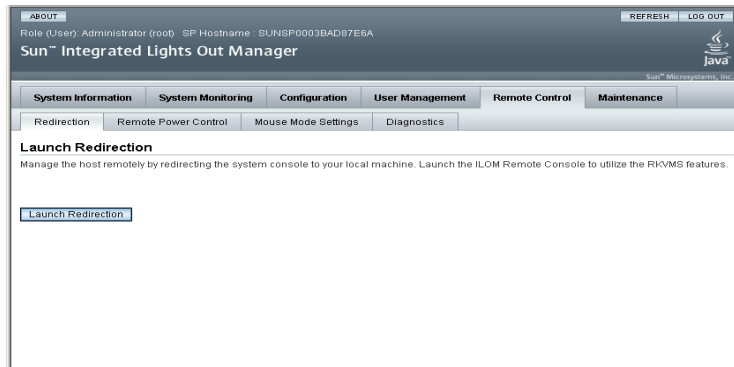


4. Click the Remote Control tab in the ILOM WebGUI.

The Launch Redirection screen appears.

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

FIGURE 5-5 ILOM WebGUI Launch Redirection Screen



5. Click Launch Redirection.

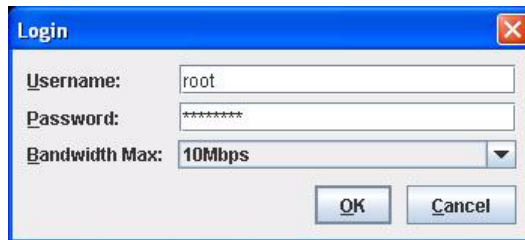
Note – When using Windows for JavaRConsole system redirection, an additional warning appears after clicking Launch Redirection. If the Hostname Mismatch dialog box is displayed, click the Yes button.

FIGURE 5-6 Hostname Mismatch Dialog Box



The Remote Control dialog box appears.

FIGURE 5-7 Remote Control Login Dialog Box

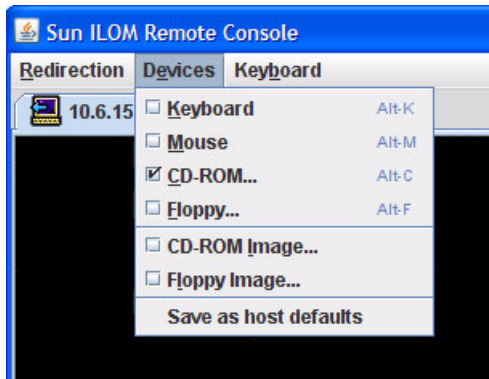


6. In the Remote Control Login dialog box, enter your user name and password and click OK.

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

After the login is successful, the JavaRConsole screen appears.

FIGURE 5-8 JavaRConsole Devices Menu



7. From the Devices menu, select Floppy and/or CD-ROM according to the delivery method you have chosen.

- **Floppy Disk Remote:** Select Floppy to redirect the server to the contents of the physical floppy drive attached to the JavaRConsole system.
- **Floppy Image:** Select Floppy Image to redirect the server to the mass storage drivers floppy image file located on the JavaRConsole system.
- **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 2003 or Windows Server 2008 will significantly increase the time necessary to perform the installation as the content of the CD-ROM is accessed over the network. The installation duration will depend on the network connectivity and traffic.

Installing Windows Server 2003

This chapter describes how to install the Windows Server 2003 operating system onto a Sun Fire X4100 M2 or X4200 M2 server using the Windows Server 2003 media.

Note – This information applies only to the Sun Fire X4100 M2 and Sun Fire X4200 M2 servers. It does not apply to the Sun Fire X4100 or Sun Fire X4200 servers.

Installation Requirements

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

For all installation methods:

- Complete the procedures in the previous chapters of this document (Chapters 2 through 5).
- If you want to configure your boot drive for RAID1 (mirroring), you will 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. Refer to [Appendix A](#) for more information.
- When using the *Floppy Disk Local* mass storage drivers installation method, connect the external USB floppy drive to the rear of the server. Connecting the USB floppy drive to a USB connector on the front of the server will cause the installation to fail.
- For information about specific details on Windows Server 2003 installation, refer to your Microsoft Windows documentation.

Note – The complete Microsoft Windows Server 2003 installation process is not documented in this section. This section documents only the steps that are specific for installing Windows Server 2003 on your Sun server.

For requirements specific to the mass storage driver and Windows Server 2003 media delivery methods that you have chosen, see [TABLE 6-1](#).

TABLE 6-1 Requirements for Each Installation Method

Method	Action or items required
Floppy Disk Local	Uses a physical USB floppy drive externally connected to a rear USB port on the server. Connecting the USB floppy drive to the front of the server will cause the installation to fail.
Floppy Disk Remote	Connect the floppy drive to the JavaRConsole system (if necessary) and insert the mass-storage drivers floppy disk into the floppy drive.
Floppy Image	Ensure that the <code>floppy.img</code> file is accessible from the JavaRConsole system.
Windows Local	Uses the server's CD/DVD or a USB external CD/DVD drive connected to the USB port on the server.
Windows Remote	Insert the Microsoft Windows Server 2003 installation media into the JavaRConsole system's CD or DVD-ROM drive.
Windows Image	Ensure that the Windows Server 2003 installation media is accessible from the JavaRConsole system.

Installing the Operating System

Follow these steps to install the Microsoft Windows Server 2003 software onto your Sun Sun Fire X4100 M2 or X4200 M2 server.

Note – The Solaris Operating System may be preinstalled on your server's boot disk. The Windows installation will format the boot disk and all data will be lost.

1. **Make sure that you have completed all of the requirements listed in [Installation Requirements](#).**

2. Power cycle your server.

The BIOS POST process begins.

3. Press F8 when the Press F8 for BBS POPUP prompt appears on the BIOS POST screen (see FIGURE 6-1).

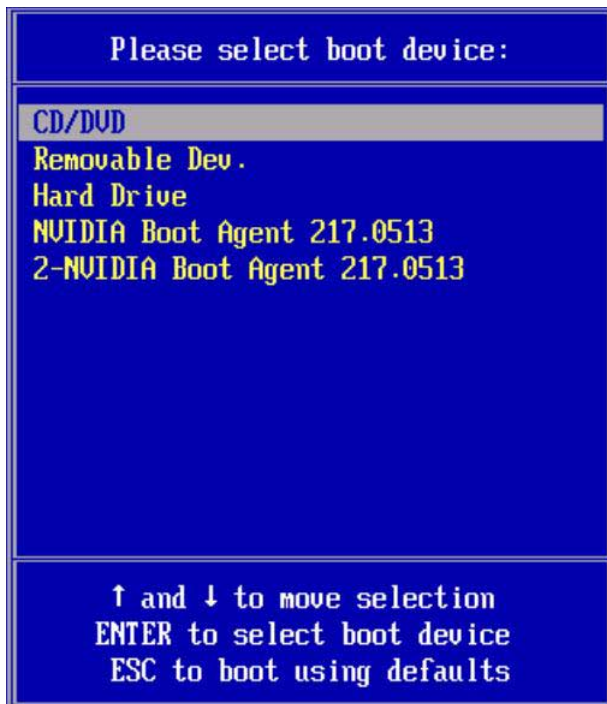
The BBS POPUP menu will allow you to select a boot device.

FIGURE 6-1 F8 Prompt Example

```
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)
```

4. Once the BIOS POST process is complete, the Boot Device menu appears (see FIGURE 6-2). If you have selected the Windows Local installation method, insert the Windows Server 2003 media CD in the server's CD/DVD drive now.

FIGURE 6-2 Boot Device Menu Example



5. **Select 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 Setup process begins.

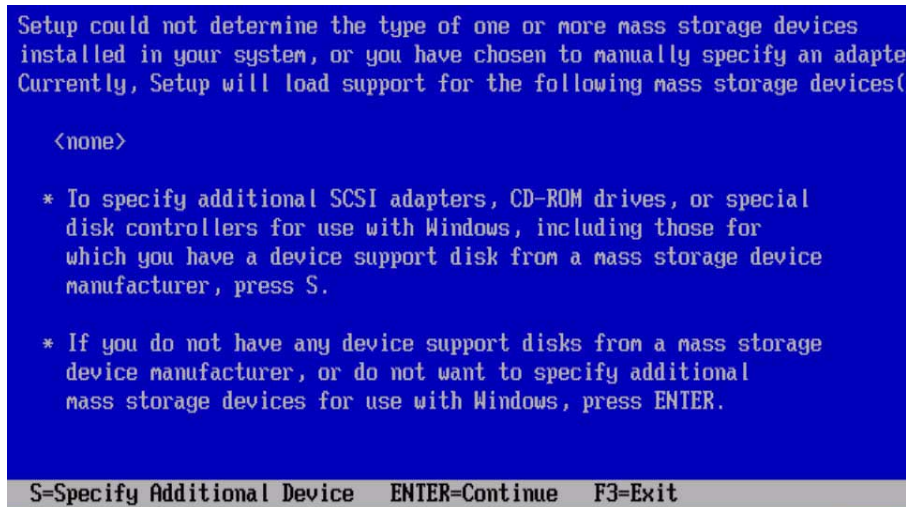
6. **Press F6 when you see the following prompt at the bottom of the screen during the Windows Setup process:**

Press F6 if you need to install a third party SCSI or RAID driver.

Note – The prompt is displayed in the early stages of Windows Setup and lasts for approximately five seconds and is easy to miss. If you do not press F6 while the prompt is being displayed, the screen allowing you to specify additional drivers is not displayed and the installation will fail. You will need to restart the system and go back to [Step 3](#).

After pressing F6, a screen will appear providing you with the option to specify additional mass storage devices.

FIGURE 6-3 Specify Additional Device Screen



7. **Make sure that the mass storage drivers are accessible according to the mass storage driver installation method that you have selected.**

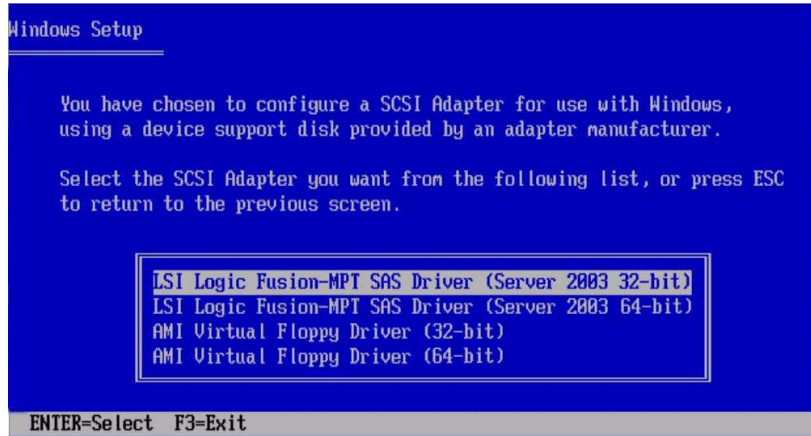
- **Floppy Disk Local:** Mass storage drivers floppy disk in floppy drive A attached to the server
- **Floppy Disk Remote:** Mass storage drivers floppy disk in the JavaRConsole server floppy drive

- **Floppy Image:** floppy.img available on the JavaRConsole system

8. Press S to specify additional devices.

A screen appears listing the available drivers. Refer to [FIGURE 6-4](#).

FIGURE 6-4 Select Mass Storage Adapter Screen



- 9. Select the appropriate version of the LSI Logic Fusion-MPT SAS Driver depending on the version of Windows Server 2003 you are installing (32-bit or 64-bit), then press Enter.**

Windows Setup will then display your selection.

- 10. Windows Setup lists the mass storage driver to be installed (example shown in [FIGURE 6-5](#)). Press Enter to continue.**

FIGURE 6-5 Example Specify Additional Device Screen

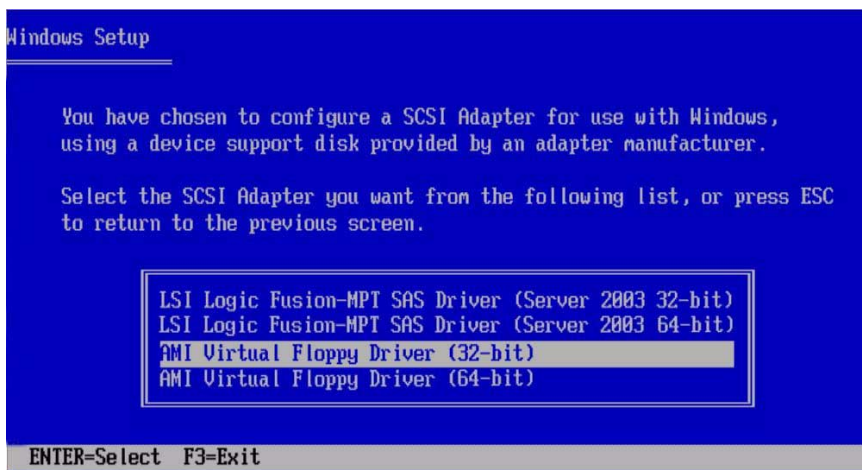


11. Do one of the following:

- If you are installing Windows using the Floppy Disk Local method, press Enter and skip to [Step 14](#).
- If you are installing Windows remotely using the Floppy Disk Remote or the Floppy Image delivery method, you will need to install the AMI virtual floppy driver. Press S.

Windows Setup will display a list of available drivers. Proceed to the next step.

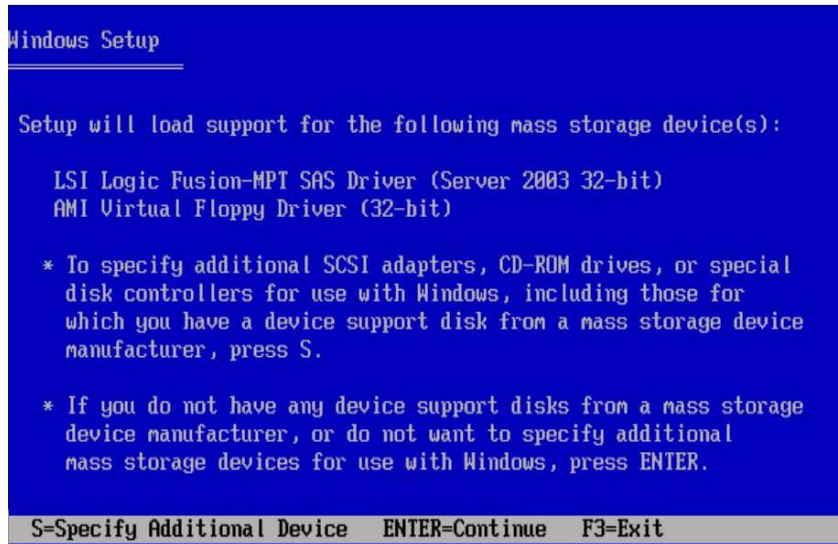
FIGURE 6-6 Select Mass Storage Adapter Screen



12. Select the appropriate version of the AMI Virtual Floppy Driver, depending on the version of Windows you are installing (32-bit or 64-bit), and then press Enter.

Windows Setup will display a screen showing both drivers you have selected (example shown in [FIGURE 6-7](#)).

FIGURE 6-7 Example Specifying Selected Drivers



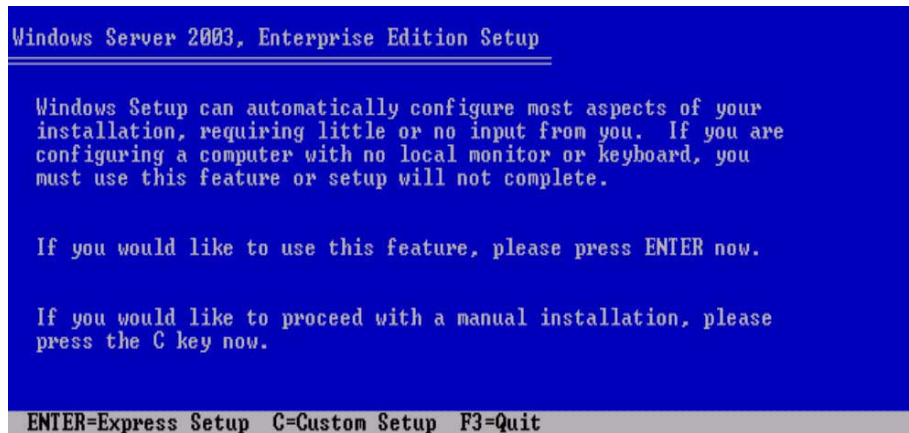
13. Confirm your choice and press Enter to continue.

The Welcome to Setup screen is displayed.

14. At the Welcome to Setup screen, press Enter to continue.

The Setup Selection screen is displayed.

FIGURE 6-8 Setup Selection Screen



15. Press either Enter to select Express Setup, or C to select Custom Setup.
16. Follow the on-screen instructions to complete the initial setup of Windows Server 2003 until you are prompted with the following message:
Remove disks or other media. Press any key to restart.
When this message appears you will need to complete one of the following steps, depending on which driver delivery method you have chosen, to complete the installation:
 - **Floppy Disk Local:** Remove the floppy disk from the floppy drive attached to the server.
 - **Floppy Disk Remote:** Remove the floppy disk from the JavaRConsole server.
 - **Floppy Image:** Deselect Floppy Image from the JavaRConsole Devices menu.Then, press any key to restart the system and complete the Windows Server 2003 Installation.
17. Proceed to [Chapter 8](#) “Updating the Critical Server-Specific Drivers.”

Installing Windows Server 2008

This chapter describes how to install the Windows Server 2008 operating system directly onto your server using the Windows Server 2008 media.

Note – This information applies only to the Sun Fire X4100 M2 and Sun Fire X4200 M2 servers. It does not apply to the Sun Fire X4100 or Sun Fire X4200 servers.

Installation Requirements

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

For all installation methods:

- Complete the procedures in the previous chapters of this document that apply (Chapters 2 through 5).
- If you want to configure your boot drive for RAID1 (mirroring), you will 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. Refer to [Appendix A](#) for more information.
- Verify that a keyboard and mouse are attached to the appropriate connections on your Sun Fire server.
- For information about specific details of the operating system installation, refer to your Microsoft Windows documentation.

Note – The complete Microsoft Windows Server 2008 installation process is not documented in this section. This section documents only the steps that are specific for installing Windows Server 2008 on your server.

For requirements specific to the Windows media delivery method that you have chosen, see [TABLE 7-1](#).

TABLE 7-1 Requirements for Each Installation Method

Method	Action or items required
Windows Local	Uses the server's CD/DVD or a USB external CD/DVD drive connected to the USB port on the server.
Windows Remote	Insert the Microsoft Windows Server 2008 installation media into the JavaRConsole system's DVD-ROM drive.
Windows Image	Ensure that the Windows Server 2008 installation media is accessible from the JavaRConsole system.

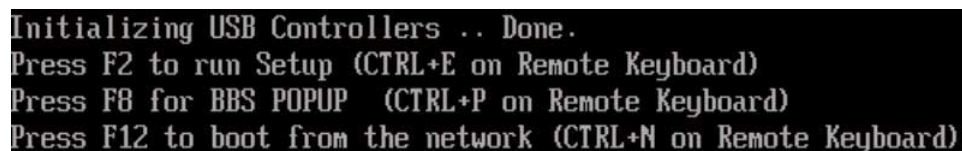
Installing the Operating System

Follow these steps to install the Microsoft Windows Server 2008 software onto your server.

Note – The Solaris Operating System may be preinstalled on your server's boot disk. The Windows installation will format the boot disk and all data will be lost.

- 1. Make sure that you have completed all of the requirements listed in “Installation Requirements” on page 33.**
- 2. Power cycle your server.**
The BIOS POST process begins.
- 3. Press F8 when the Press F8 for BBS POPUP prompt appears on the BIOS POST screen (see [FIGURE 7-1](#)).**
The BBS POPUP menu will allow you to select a boot device.

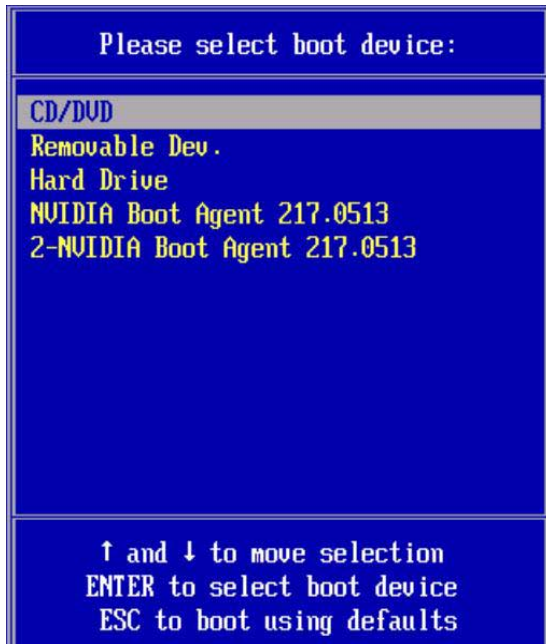
FIGURE 7-1 F8 Prompt Example



```
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)
```

4. Once the BIOS POST process is complete, the Boot Device menu appears (see [FIGURE 7-2](#)). If you have selected the Windows Local installation method, insert the Windows Server 2008 media DVD in the server's DVD drive now.

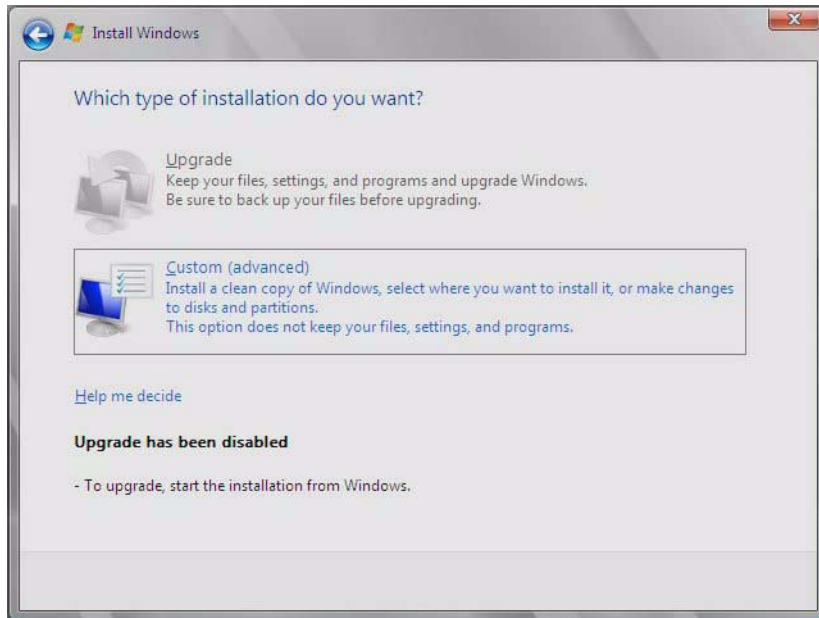
FIGURE 7-2 Boot Device Menu Example



5. **Select CD/DVD from the Boot Device menu and press Enter.**
If prompted with Press any key to boot from CD, quickly press any key.

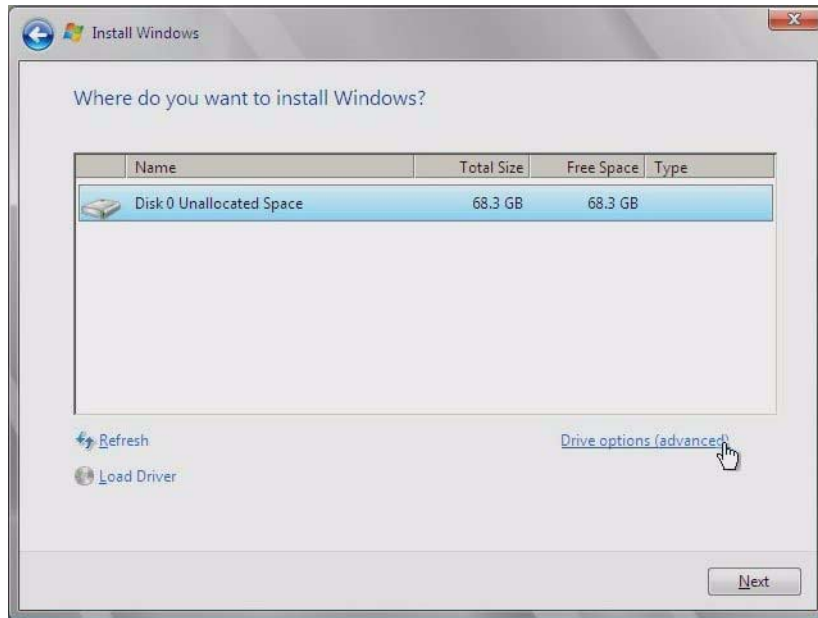
6. The Windows installation wizard starts. Proceed through the installation wizard until you see the Installation Type page displayed, and then click Custom (advanced).

FIGURE 7-3 Select Installation Type Page



7. You will then see the Where to Install Windows page (see FIGURE 7-4), do one of the following:

FIGURE 7-4 Where to Install Windows Page Example



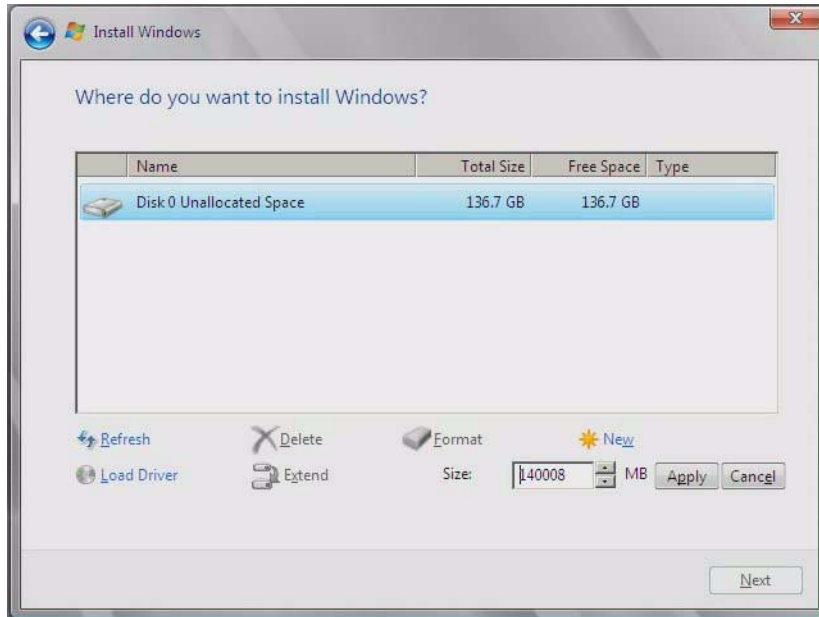
- If you *do not* want to override the Windows default partition settings, click Next and skip to [Step 9](#).
- If you *do* want to override the Windows default partition settings, click Driver Options (advanced) and proceed to the next step.



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

8. At the Advanced Driver Options page (see [FIGURE 7-5](#)), do the following:

FIGURE 7-5 Windows Partition Management Page



- 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.

9. The Windows installation begins.

The server will reboot multiple times during the installation process.

10. When Windows installation is complete, Windows starts and prompts you to change the user password. Click OK and proceed to setup the initial user 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 the initial user account is created, the Windows Server 2008 desktop is displayed.

11. Proceed to [Chapter 8](#) “Updating the Critical Server-Specific Drivers” to install server-specific software and the latest Sun-supported drivers.

Update the Critical Server-Specific Drivers

This chapter describes how to update the Windows Server 2003 or Windows Server 2008 installation with server-specific device drivers.

Note – This information applies only to the Sun Fire X4100 M2 and Sun Fire X4200 M2 servers. It does not apply to the Sun Fire X4100 or Sun Fire X4200 servers.

This chapter contains the following sections:

- [“Updating the Server-Specific Drivers” on page 42](#)
- [“Installing Supplemental Software” on page 46](#)
- [“Additional Information for Supplemental Software” on page 48](#)

The procedures in this chapter assume that you already:

- Installed the Microsoft Windows Server 2003 or Windows Server 2008 operating system.
- Have the latest Tools and Drivers CD for your server available.

--or--

- Downloaded `windows.zip` and extracted `InstallPack_x_x_x.exe` to a location accessible to the server as described in [“Prepare for Mass Storage Driver Delivery” on page 13](#).

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

Updating the Server-Specific Drivers

Sun provides a wizard to install Sun server-specific drivers and supplemental software. The Sun Installation Package wizard may be started using one of the following methods: from the main menu of your server's Tools and Drivers CD, or from the `InstallPack_x_x_x.exe` executable file. Directions for using either method are described below.

▼ To Update the Server-Specific Drivers

1. Start the Sun Installation Package software using one of the following methods:

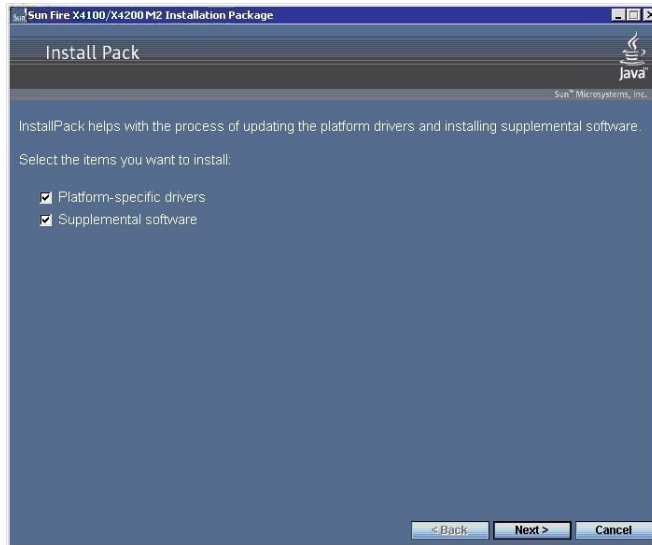
- Insert the Tools and Drivers CD into a CD/DVD drive connected to the server. The CD will autostart. At the main menu, select **Install Drivers and Supplemental Software**.

--or--

- If you downloaded the `InstallPack_x_x_x.exe` file from the Sun download site (as described in [“Downloading Server-Specific Driver Packages”](#) on page 7), ensure that it has been copied to a local drive on the server, and then run the `InstallPack_x_x_x.exe` application.

The Sun Install Package dialog box (shown below) displays.

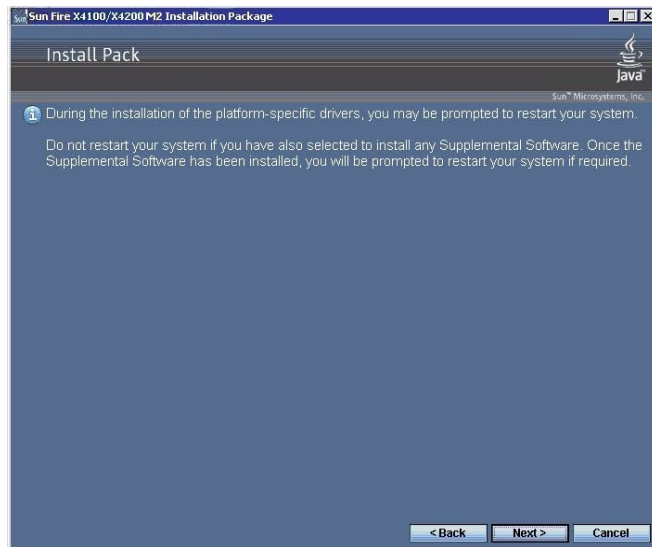
FIGURE 8-1 Sun Installation Package Dialog Box Example



2. Click Next to accept the default settings.

Note that you should always accept the “platform-specific drivers” to ensure that the most recent versions of the device drivers are installed. The Install Pack notice dialog box displays.

FIGURE 8-2 Install Pack Notice Dialog Box Example



3. Review the Important Note and then click Next.

The Welcome to the Sun Installation Wizard displays.

FIGURE 8-3 Sun Installation Wizard Example



4. Click Next.

The End User License Agreement page appears.

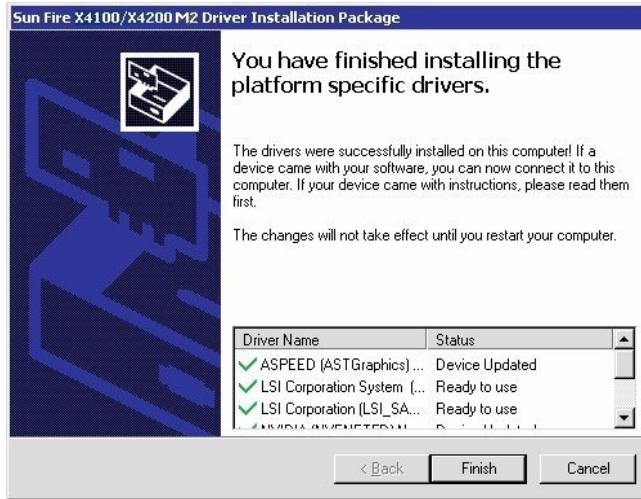
FIGURE 8-4 End User License Agreement Page



5. Select “I accept this agreement”, and then click Next.

The platform-specific drivers are installed (see [FIGURE 8-5](#)). A green check mark verifies that each driver has been successfully installed.

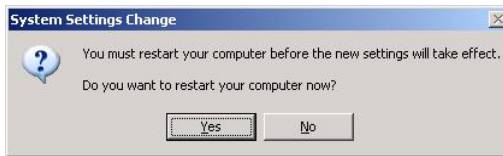
FIGURE 8-5 Finished Installing Page Example



6. Click Finish.

The System Settings Change dialog box displays (see [FIGURE 8-6](#)).

FIGURE 8-6 System Settings Change Dialog Box



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. If you accepted the default settings in [Step 2](#), click No to proceed to “[Installing Supplemental Software](#)” on page 46.

If you are not installing the Supplemental Software, click Yes to restart your computer.

Installing Supplemental Software

There are supplemental software components available for your Sun Fire X4100 M2 or X4200 M2 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 you can select.

TABLE 8-1 Install Pack Supplemental Software

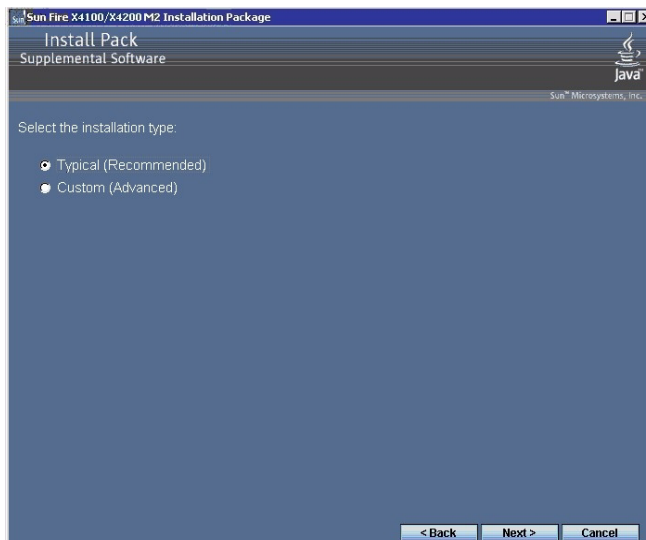
Available Components	Windows Server 2003	Windows Server 2008
LSI MegaRAID Storage Manager —Allows you to configure, monitor, and maintain RAID on the LSI SAS 1064/1068 integrated RAID controller.	Typical	Typical
LSI SAS-IR Storage SNMP Agent —Captures SNMP data on the LSI SAS 1064/1068 integrated RAID controller. Requires the Windows Component for SNMP service for operation.	Typical	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). For Windows Server 2003 installations, refer to “Completing the IPMITool Installation” on page 53	Typical	Typical
IPMI System Management Driver (Sun Microsystems) —Windows driver that reads the sensor data repository (SDR) and displays sensor values, System Event Log (SEL), Field Replaceable Unit (FRU) inventory information. Installs for Windows Server 2003 SP1 only, is not applicable for Windows Server 2003 R2 or Windows Server 2008.	Typical	Not applicable
Intel Teaming —NIC teaming features include fault tolerance, load balancing, link aggregation, and Virtual LAN (VLAN) tagging. After installation, refer to “Using Intel NIC Teaming” on page 48 .	Typical	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	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	Custom

▼ To Install Supplemental Software

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

If you selected **Supplemental Software** at the initial Installation Package page (see [FIGURE 8-1](#)) in [Step 2](#), and selected **No** in [Step 7](#), the Supplemental Software dialog box displays:

FIGURE 8-7 Supplemental Software Dialog Box



1. Click **Next** to accept the **Typical** settings, or select **Custom** to choose the options to install (see descriptions in [TABLE 8-1](#)).

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

2. Once the supplemental software has been installed, click **Finish**.
3. Click **Yes** at the **System Setting Change** dialog box to restart your system. If you ran the Sun Installation Package software from the Tools and Drivers CD, remove it now.

Proceed to the next section to learn more about Supplemental software.

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)” on page 48
- “Using Intel NIC Teaming” on page 48
- “Completing the IPMItool Installation” on page 53

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>

Using Intel NIC Teaming

Intel® PROSet for Windows Device Manager is an extension to the Windows Device Manager. When you install the NIC Teaming supplemental software for your Sun server, Intel PROSet software configuration tabs are automatically added to the network adapters listed in Device Manager.

Note – To determine which network interface ports are active on your system, refer to [Appendix B](#).

Multi-Vendor Teaming

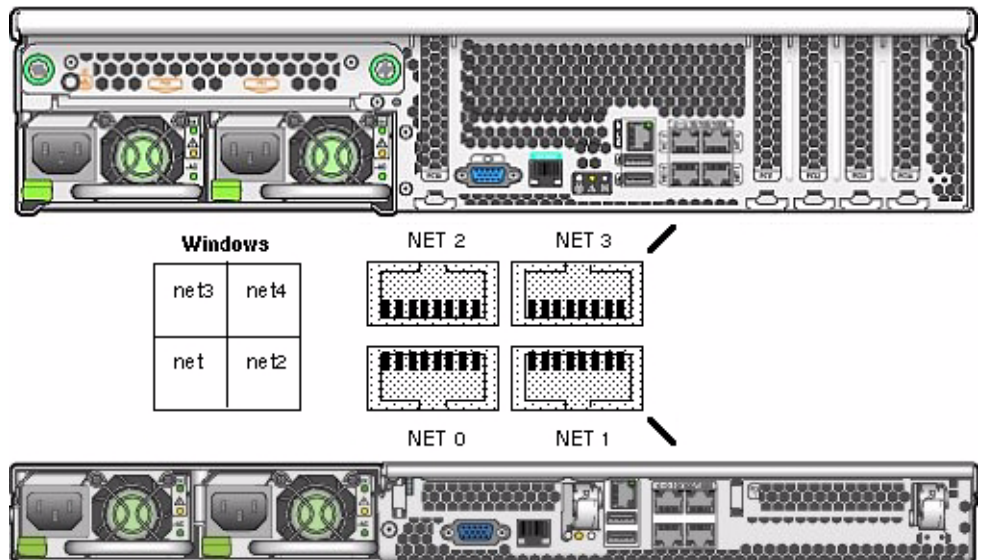
The Multi-Vendor Teaming (MVT) feature allows teaming with a combination of Intel and non-Intel adapters. This feature is currently available under Windows Server 2003 and Windows Server 2008.

Your Sun Fire X4100 M2 and X4200 M2 have both Intel and NVIDIA™ Ethernet network interface ports. The order in which the server's BIOS detects these ports during boot-up are as follows:

- NET 0 (NVIDIA CK8-04 NIC)
- NET 1 (NVIDIA IO-04 NIC)
- NET 2 (Intel NIC)
- NET 3 (Intel NIC)

The device naming for the Ethernet ports differ according to the OS. Windows identifies these ports for the Sun Fire X4100 M2 and X4200 M2 as shown in [FIGURE 8-8](#).

FIGURE 8-8 Sun Fire X4100 M2 and X4200 M2 Ethernet Ports



For server's running Windows, adapters that appear in the Intel PROSet teaming wizard can be included in a team.

During the configuration of a multi-vendor team, please note the following rules:

- In order to use MVT, you must have at least one Intel server adapter in the team, which must be designated as the primary adapter.
- A multi-vendor team can be created for any team type, but not for VLANs.
- All members in a MVT must operate on a common feature set (this can mean using the lowest common denominator if a higher performance feature/setting is not offered on all adapters in the team).
- For MVT teams, manually verify that the frame settings for the non-Intel adapter is the same as the frame settings for the Intel adapter.

▼ To Access Intel NIC Teaming Configuration Settings

To access the functions available for your server's network interface, do the following:

- 1. From the Taskbar, click Start, and then click Run.**

The run dialog box is displayed.

- 2. In the Open list, type `devmgmt.msc`, and then click OK.**

The Device Manager dialog box is displayed.

- 3. Expand the Network adapters group and select the first adapter.**

- 4. Right-click the selection and click Properties.**

The adapter properties dialog box is displayed.

FIGURE 8-9 Intel NIC Adapter Properties



5. To setup NIC teaming, click the Teaming tab.

The teaming options are displayed (see [FIGURE 8-9](#)).

6. Select Team with other adapters and then click New Team.

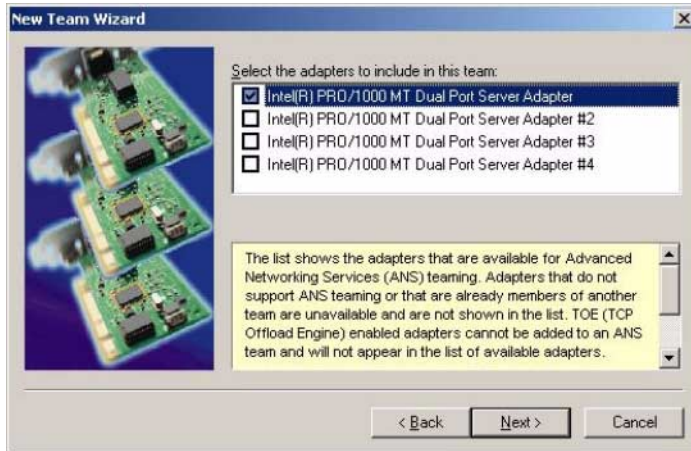
The New Team Wizard is displayed.

FIGURE 8-10 New Team Wizard



7. Click Next. The Adapter Selection page is displayed.

FIGURE 8-11 Adapter Selection Page



8. Select the adapters to be included in the team from the list of installed adapters and then click Next.

The wizard will guide you through the configuration and setup of your team.

Learning More About 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 may 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>

Completing the IPMItool Installation

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 may be installed using the server’s Tools and Drivers CD or using the `Installpack_x_x_x.exe` executable file (described earlier in this chapter).

Once installed, the IPMItool may 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. To use the IPMItool with Windows, it must be used in conjunction with the IPMI System Management driver (available with Windows Server 2003 R2 SP2, or as a Sun supplemental software component for Windows Server 2003 SP1). To make sure you have what you need to use the IPMItool with Windows Server 2003, refer to the requirements listed below.

Requirements

To use IPMItool, ensure that you have completed the requirements specified for your Windows Server 2003 version:

For Windows Server 2003 SP1:

- Install the IPMI tool as described in “[To Install Supplemental Software](#)” on page 47.
- Install the Sun IPMI System Management driver as described in “[To Install Supplemental Software](#)” on page 47.

- No configuration is required. IPMITool is ready for use.

For Windows Server 2003 R2 SP2:

- Install the IPMI tool as described in [“To Install Supplemental Software” on page 47.](#)
- Install Microsoft’s IPMI System Management driver in Windows Server 2003 R2 SP2.
- Configuration is required. Perform the steps described in [“To Install Microsoft’s IPMI System Management Driver \(Windows Server 2003 R2 SP2\)” on page 54.](#)

For Windows Server 2008:

- Install IPMI tool as described in [“To Install Supplemental Software” on page 47.](#)
- No configuration is required. IPMITool is ready for use.

▼ To Install Microsoft’s IPMI System Management Driver (Windows Server 2003 R2 SP2)

Do the following before attempting to use the IPMITool through the Windows operating system:

1. Install the Microsoft IPMI System Management driver:

a. In Control Panel, open Add/Remove Programs.

The Add/Remove Programs dialog is displayed.

b. Click Add/Remove Windows Components.

The Windows Components Wizard dialog is displayed.

c. Highlight Management and Monitoring Tools component, and then click Details.

The Management and Monitoring Tools page is displayed.

d. Do one of the following:

- If the Select the Hardware Management subcomponent check box is already selected, skip to [Step 2.](#)

- If the Select the Hardware Management subcomponent check box is not selected, select it. The “3rd Party Drivers” warning dialog appears.

e. Read the warning and then click OK.

The Management and Monitoring Tools page is displayed.

f. Click OK.

The Windows Components Wizard dialog is displayed.

g. Click Next.

The Hardware Management component is installed.

2. Instantiate the IPMI System Management driver.

3. On the Taskbar, click Start, and then click Run.

The Run dialog box is displayed.

4. In the Open list, type:

```
rundll32 ipmissetp.dll,AddTheDevice
```

and then click OK.

The IPMI System Management driver is instantiated.

5. To ensure that the IPMI System Management driver is installed, repeat steps 1a through 1c, above.

For information about using the IPMItool, refer to your *Sun Integrated Lights Out Manager 2.0 User's Guide* (820-1188). For more information on standard IPMItool commands, please see:

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

Incorporating Sun Fire Server Drivers Into WIM or RIS Images

This chapter is intended for advanced system administrators who need to incorporate the server-specific drivers into a Windows Imaging Format (WIM) image or a Remote Installation Service (RIS) image.

Note – This information applies only to the Sun Fire X4100 M2 and Sun Fire X4200 M2 servers. It does not apply to the Sun Fire X4100 or Sun Fire X4200 servers.

WIM files are installed using Windows Deployment Services (WDS). RIS images can be deployed using either WDS in legacy mode or RIS.

This chapter is not a tutorial on WDS or RIS; it provides guidance on how to incorporate the server-specific drivers into a WIM or RIS image.

- [“Determine Required Drivers” on page 58](#)
- [“Add Drivers to a WIM Image” on page 58](#)
- [“Adding Drivers to a RIS Image” on page 61](#)

Determine Required Drivers

The server-specific drivers that must be incorporated into a WIM or RIS image are shown in [TABLE 9-1](#).

TABLE 9-1 Server-specific Drivers Required for WIM or RIS Images

Driver/Device	Incorporate for Windows Server 2003		Incorporate for Windows Server 2008	
	32-bit	64-bit	32-bit	64-bit
AMD-8131/AMD-8132 HyperTransport IOAPIC Controller	Yes	Yes	No	No
AMD-8111 High Precision Event Timer	Yes	No	No	No
AMD-8131 HyperTransport PCI-X Tunnel	Yes	No	No	No
AMD K8 Processor	Yes	Yes	No	No
AMI Virtual Floppy	Yes	Yes	Yes	Yes
LSI 1064 Fusion-MPT RAID HBA	Yes	Yes	Yes	Yes
NVIDIA nForce PCI System Management	Yes	Yes	No	No
NVIDIA nForce4 HyperTransport Bridge	Yes	Yes	No	No
NVIDIA nForce4 Low Pin Count Controller	Yes	Yes	No	No
NVIDIA nForce4 Networking Controller	Yes	Yes	No	No
NVIDIA Network Bus Enumerator	Yes	Yes	No	No

Add Drivers to a WIM Image

For remote installation of Windows Server 2008 using a server running Windows Deployment Services, the LSI integrated RAID controller driver provided with Windows Server 2008 is sufficient to install the operating system.

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 are running on a Windows Server. Read the Windows Deployment Services snap-in documentation.
- Locate `DriverPack.zip` for Windows Server 2008, see [Downloading Server-Specific Driver Packages](#).

▼ To Add Drivers to the WIM Image

1. **Extract the contents of Windows Server 2008 `DriverPack.zip` to a network share (for example: `\\yourshare\share\DriverPack`), making sure to maintain the directory structure.**
2. **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.**
3. **Mount the Windows image you just exported. For example,**

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

The first Windows image in the `Install.wim` file is mounted to `C:\win_mount`
4. **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.**
5. **Add the `Microsoft-Windows-PnpCustomizationsNonWinPE` component to your answer file in the `offlineServicing` pass.**
6. **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.

- 7. 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>
```

- 8. 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\amd64</Path>
          <Credentials>
            <Domain>MyDomain</Domain>
            <Username>MyUserName</Username>
            <Password>MyPassword</Password>
          </Credentials>
        </PathAndCredentials>
      </DriverPaths>
    </component>
  </settings>
</unattend>
```

- 9. 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 more information about using Package Manager, see the Microsoft Windows AIK documentation. 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\.

10. 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`.

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

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

12. 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.

Adding Drivers to a RIS Image

For remote installation of Windows Server 2003 using a server running Windows Remote Installation Services, the LSI integrated disk controller driver provided with Windows Server 2003 is not sufficient to install the operating system. Sun recommends updating the RIS image with the LSI integrated disk controller driver available with `DriverPack.zip`.

Before you Begin

Before creating a RIS image, you need to do the following:

- Windows Remote Installation Services must be running on a Windows Server. Read the Windows Remote Installation Services documentation for more information.
- Locate `DriverPack.zip` for Windows Server 2003. For more information, see [Downloading Server-Specific Driver Packages](#).

▼ To Add Drivers to a RIS Image

In the following procedure, %RIS_Image% refers to the root of your Windows image on the RIS server.

1. Create the following directories in RIS_Image (root of your Windows image on the RIS server.):

- \$OEM\$\textmode
- \$OEM\$\\$1\Sun\Drivers

2. Extract the contents of DriverPack.zip to a temporary location, making sure to maintain the directory structure.

3. Update the RIS_Image with the platform-specific drivers:

- **For 32-bit, copy the contents of the DriverPack\i386 folder to the %RIS_Image%\\$OEM%\\$1\Sun\Drivers folder, making sure to maintain the directory structure.**
- **For 64-bit, copy the contents of the DriverPack\amd64 folder to the %RIS_Image%\\$OEM%\\$1\Sun\drivers folder, making sure to maintain the directory structure.**

4. Copy the contents of the %RIS_Image%\\$OEM%\\$1\Sun\Drivers\lsi folder to the %RIS_Image%\\$OEM%\textmode folder. (After copying the contents, you can delete the %RIS_Image%\\$OEM%\\$1\Sun\Drivers\lsi folder).

5. Copy the contents of the %RIS_Image%\\$OEM%\\$1\Sun\Drivers\RIS folder to the %RIS_Image%\\$OEM%\textmode folder. (After copying the contents, you can delete the %RIS_Image%\\$OEM%\\$1\Sun\Drivers\RIS folder).

6. Create an answer file using the method described in the Microsoft TechNet article "Creating an Answer File with Setup Manager". The article can be found at:

<http://technet2.microsoft.com/WindowsServer/en/library/78421630-6fcc-4604-a888-bd9c84244a5b1033.msp>

7. Make the changes listed in TABLE 9-2 to the .sif file that is used for installation.

For readability, the OemPnpDriversPath information has been shown on multiple lines. The information must be entered on a single line.

TABLE 9-2 Sun Fire X4100 M2 and X4200 M2 Server .sif File Entries

Windows Server 32-bit	Windows Server 64-bit
[Unattended]	[Unattended]
OemPreinstall = yes	OemPreinstall = yes
OemPnpDriversPath="\Sun\Drivers\ amd\cpu;\Sun\Drivers\amd\8131\ ioapic;\Sun\Drivers\ami;\Sun\ Drivers\ati;\Sun\Drivers\nvidia\ ethernet;\Sun\Drivers\nvidia\ smbus"	OemPnpDriversPath="\Sun\Drivers\ amd\cpu;\Sun\Drivers\amd\8132\ ioapic;\Sun\Drivers\ami;\Sun\ Drivers\nvidia\ethernet;\Sun\ Drivers\nvidia\smbus"
[MassStorageDrivers]	[MassStorageDrivers]
"LSI Logic Fusion-MPT SAS Driver (32-bit)" = OEM	"LSI Logic Fusion-MPT SAS Driver (64-bit)" = OEM
[OEMBootFiles]	[OEMBootFiles]
lsi_sas.inf	lsi_sas.inf
lsi_sas.sys	lsi_sas.sys
lsinodrv.inf	lsinodrv.inf
s2k332.cat	s2k3am64.cat
txtsetup.oem	txtsetup.oem

8. Stop and start the Remote Installation Service (BINLSVC) on the RIS server.

To do this, type the following commands at the command prompt and press Enter after each command:

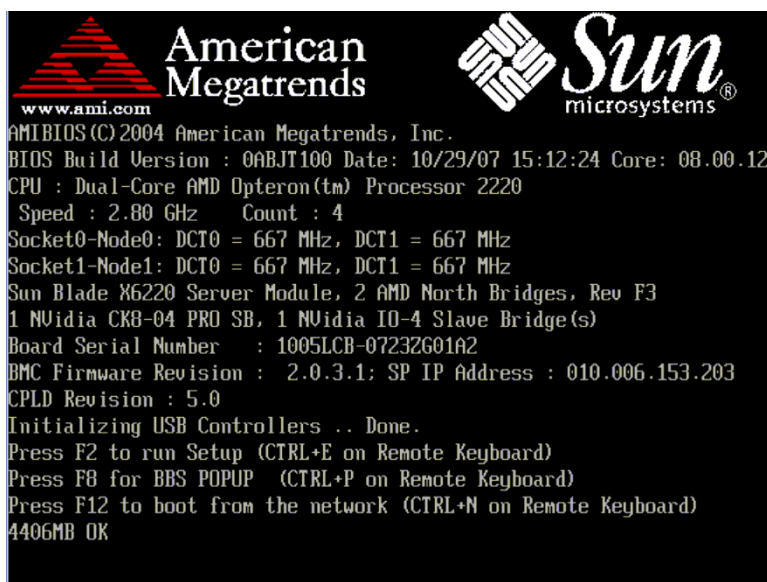
```
net stop binlsvc
net start binlsvc
```


Configuring RAID for Any Operating System from the BIOS

If you want to install your OS on disks that are part of a RAID, there is an LSI RAID configuration utility that is entered from the server's BIOS and can be used for any operating system.

1. Power off your server and then power it back on. The BIOS screen appears. Watch for the LSI Logic Corp. screen.

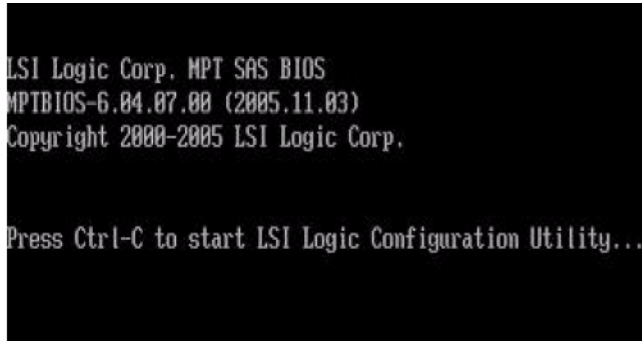
FIGURE A-1 Opening Screen of the Server BIOS



Watch for the LSI Logic prompt to press Ctrl+C.

2. When the BIOS screen shows the LSI Logic Corp. message, press Ctrl+C to start the LSI Logic Configuration Utility (see [FIGURE A-2](#)).

FIGURE A-2 BIOS Screen Showing LSI Logic Corp. Message



3. Follow the on-screen instructions to create a mirrored RAID.

You can choose between RAID 1 (two mirrored disks with an optional hot spare) or RAID 1E (three or more mirrored disks with one or two hot spares).

4. Exit the LSI RAID configuration utility.

5. Install your OS on this RAID volume.

Note – The LSI RAID configuration utility is described in detail in the *Sun LSI 106x RAID User's Guide* (820-4933), which is in the collection of documents for your Sun server on the Sun documentation web site.

Configure Windows Network Communication Settings With Multiple Network Interfaces

This appendix provides information you should consider when configuring the Windows network communication settings with multiple server network interfaces.

Topics in this appendix include:

- [“Determine Which Network Data Ports Are Actively Connected to a Network”](#) on page 68.
- [“Confirm Physical Port MAC Addresses and Match Them to Window Device Names”](#) on page 69.

▼ Determine Which Network Data Ports Are Actively Connected to a Network

By using Microsoft's Network Connections folder, you can visually determine which network interface 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.

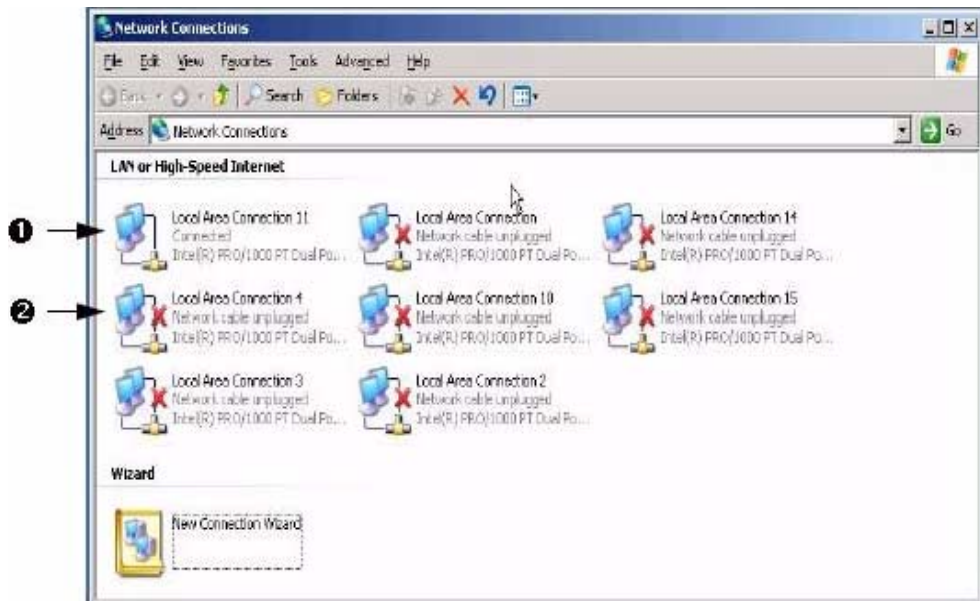


Illustration Key

1. An active port connection.
2. A red X marks the port connections that are currently inactive.

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

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

To open a Windows command prompt and run `ipconfig /all` follow these steps:

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, type `ipconfig /all`.**

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

Note – 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.

```
C:\>ipconfig /all

Windows IP Configuration

Host Name . . . . . : SUN-9C84S0R09H6
Primary Dns Suffix . . . . . :
Node Type . . . . . : Unknown
IP Routing Enabled. . . . . : No
WINS Proxy Enabled. . . . . : No
DNS Suffix Search List. . . . . : East.sun.com

1 -> Ethernet adapter Local Area Connection 2:

Media State . . . . . : Media disconnected
Description . . . . . : Intel(R) PRO/1000 PT Dual Port Network Connection #2
Physical Address. . . . . : 00-14-4F-00-20-39

2 -> Ethernet adapter Local Area Connection:

Connection-specific DNS Suffix . : East.sun.com
Description . . . . . : Intel(R) PRO/1000 PT Dual Port Network Connection
Physical Address. . . . . : 00-14-4F-00-20-38
DHCP Enabled. . . . . : No
IP Address. . . . . : 10.8.143.181
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . : 10.8.143.254
DNS Servers . . . . . : 129.148.9.49
                        129.148.13.40

Ethernet adapter Local Area Connection 3:

Media State . . . . . : Media disconnected
Description . . . . . : Intel(R) PRO/1000 PT Dual Port Network Connection #5
Physical Address. . . . . : 00-03-00-04-FC-E2

Ethernet adapter Local Area Connection 4:

Media State . . . . . : Media disconnected
Description . . . . . : Intel(R) PRO/1000 PT Dual Port Network Connection #6
Physical Address. . . . . : 00-03-00-04-FC-E3

C:\>
```

Illustration Key

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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