Sun Fire™ X2200 M2 Server Operating System Installation Guide

Contents

Preface

The *Sun Fire X2200 M2 Server Operating System Installation Guide* provides the information that you need to set up, power on, and configure the workstation hardware and software.

How This Book Is Organized

This guide is organized into the following chapters:

Chapter 1 contains instructions for preparing to install an operating system onto your Sun Fire X2200 M2 Server.

Chapter 2 contains the instructions for installing the Solaris 10 operating system.

Chapter 3 contains the instructions for installing a supported Linux operating system.

Chapter 4 contains the instructions for installing Windows Server 2003.

Chapter 5 contains instructions for installing VMware ESX.

Appendix A contains information about redirecting Solaris output to the serial console.

Appendix B contains information about performing a Windows Remote Installation Services (RIS) installation.

Appendix C contains information about the network interface configuration for supported Solaris and Linux operating systems.

Shell Prompts

Shell	Prompt
C shell	*machine-name*%
C shell superuser	*machine-name*#
Bourne shell and Korn shell	$
Bourne shell and Korn shell superuser	#

Typographic Conventions

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

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

Related Documentation

For a description of the documentation set for the Sun Fire X2200 M2 server, see the *Where To Find Documentation* sheet that is packed with your system. To access online documentation, go to:

http://docs.sun.com/app/docs/prod/sf.x2200m2#hic

All Sun hardware documentation is available at:

http://docs.sun.com/

Translated versions of some of these documents might also be available after the product's world-wide release date at docs.sun.com. Select a language from the drop-down list and browse or navigate to the High-End Servers and x64 document collection. Available translations for the Sun Fire servers include Simplified Chinese, Traditional Chinese, French, Japanese, and Korean.

English documentation is revised more frequently and might be more up-to-date than the translated documentation.

Documentation, Support, and Training

Sun Function	URL	Description
Solaris OS and Hardware Documentation	http://docs.sun.com	Download PDF and HTML documents, and order printed documents
Support and Training	http://www.sun.com/support/ http://www.sun.com/training/	Obtain technical support, download patches, and learn about Sun courses

Third-Party Web Sites

Sun is not responsible for the availability of third-party web sites mentioned in this document. Sun does not endorse and is not responsible or liable for any content, advertising, products, or other materials that are available on or through such sites or resources. Sun will not be responsible or liable for any actual or alleged damage or loss caused by or in connection with the use of or reliance on any such content, goods, or services that are available on or through such sites or resources.

Sun Welcomes Your Comments

Sun is interested in improving its documentation and welcomes your comments and suggestions. You can submit your comments by going to:

http://www.sun.com/hwdocs/feedback

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

Sun Fire X2200 M2 Server Operating System Installation Guide, 819-6599-14

CHAPTER **1**

Operating System Installation Overview

This chapter contains an overview of what you need to do if you plan to install a new operating system (OS) on your Sun Fire X2200 M2 server.

This chapter contains the following sections:

- Section 1.1, "Supported Operating Systems" on page 1-2
- Section 1.2, "OS Installation Tasks" on page 1-3
- Section 1.3, "Preparing for OS Installation" on page 1-4
- Section 1.4, "Choosing an OS Installation Method" on page 1-7

Note – If you have the Solaris™ 10 OS preinstalled on your Sun Fire X2200 M2 server, see the *Sun Fire X2200 M2 Server Installation Guide* for information about configuring the OS.

1.1 Supported Operating Systems

The Solaris 10 6/06 OS, or later version, might be preinstalled on your server, depending on your hard drive configuration. If you do not plan to use the Solaris 10 OS preinstalled on your Sun Fire X2200 M2 server, you can install an OS of your choosing.

The following minimum OS versions are supported for the Sun Fire X2200 M2 server:

Sun Fire X2200 M2 Server with AMD Opteron Dual-Core CPU	Sun Fire X2200 M2 Server with AMD Quad-Core CPU
• Solaris 10 6/06 64-bit	• Solaris 10 6/06 64-bit
• RHEL 3.7 32-bit and 64-bit	• RHEL 4.5 32-bit and 64-bit
• RHEL 4.3 32-bit and 64-bit	• RHEL 5.1 32-bit and 64-bit
• RHEL 5 32-bit and 64-bit	• SLES 10 SP1
• SLES 9 SP3 64-bit	• VMware ESX
• SLES 10 64-bit	• Microsoft Windows Server 2003 x64 Standard and Enterprise Edition1
• VMWare ESX Server 3.0.2	
• Microsoft Windows Server 2003 x64 Standard and Enterprise Edition1	

The most updated list of supported operating systems and certifications can be found at:

http://www.sun.com/servers/x64/x2200/os.jsp

You can order supported versions of Red Hat and SUSE operating systems from Sun at the following web site:

http://www.sun.com/software/linux/index.html

Instructions for installing these operating systems are provided in the media sets that are packaged with the OS software.

1.2 OS Installation Tasks

The following is an overview of the procedures that are needed to install a new OS.

Step	Task	Description and Relevant Procedure
1	Set up the display environment.	If you are *not* using the optional DVD drive for preparing the system for OS installation and installing the OS, see Section 1.3.1, "Accessing the Server Output During Installation" on page 1-4
2	Erase the primary boot disk.	If you have an OS preinstalled on the server, you need to remove it before installing a new operating system. See Section 1.3.2, "Erasing the Primary Boot Hard Disk" on page 1-4.
3	Set up the BIOS.	You need to make sure that the BIOS is set up for the OS that you plan to install. See Section 1.3.3, "Setting up the BIOS for OS Installation" on page 1-5.
4	Configure your server for RAID.	If you plan to configure your server for RAID operation, you need to perform some setup tasks before installing the operating system. See Section 1.3.4, "Configuring Your System for RAID" on page 1-6.
5	Install the operating system, update the drivers, and run OS updates, as necessary.	See Section 1.4, "Choosing an OS Installation Method" on page 1-7 and the chapter that corresponds to the OS that you want to install: • Solaris 10 OS Installation, Chapter 2 • Linux OS Installation, Chapter 3 • Windows Server 2003 Operating System Installation, Chapter 4

1.3 Preparing for OS Installation

This section describes how to prepare your server for OS installation:

1.3.1 Accessing the Server Output During Installation

If you are not using the local DVD drive and monitor for the Tools and Drivers CD or OS installation CD, you have these options for your display environment:

1. View system output serially, through the Embedded Lights Out Manager (ELOM) service processor (SP) SSH or through the physical port.

2. Use the remote KVMS feature of the ELOM

1.3.2 Erasing the Primary Boot Hard Disk

Depending on the hard drive (HD) configuration, your Sun Fire X2200 M2 server might have the Solaris 10 OS preinstalled. If you want to install a different OS or reinstall the Solaris 10 OS, use the Erase Primary Boot Hard Disk option on the Sun Fire X2200 M2 Server Tools and Drivers CD main menu. The Erase Primary Boot Hard Disk option allows you to erase a previously installed OS to make room for the new installation.

Caution – Selecting the Erase Primary Boot Hard Disk option from the Tools and Drivers CD erases all partitions on the hard drive, with the exception of the diagnostic partition. All user data is lost. Be sure to back up all data on the hard drive before performing this action.

▼ To Erase the Primary Boot Hard Disk

1. Back up all data that you want to save on the hard drive.

2. **Insert the Tools and Drivers CD into the server's optional DVD drive.**

   If you have a system that does not have a DVD drive, see the *Sun Fire X2200 M2 Server Service Manual* for instructions on booting the Tools and Driver from a PXE server.

3. **Boot the system from the Tools and Drivers CD.**

4. **When the Tools and Drivers CD main menu appears, select option 3, Erase Primary Boot Hard Disk.**

   This option erases all partitions currently located on the primary hard drive, *except* the diagnostic partition. The diagnostic partition is *not* erased.

1.3.3 Setting up the BIOS for OS Installation

If you plan to install an OS on the Sun Fire X2200 M2 Server, you need to make sure that the BIOS is set up correctly before you install the software. See the section for the procedure for your OS:

- Solaris 10 or Linux operating systems: See Section 1.3.3.1, "Setting Up the BIOS for a Solaris 10 or a Linux OS Installation" on page 1-5.
- For Windows Server 2003: See Section 1.3.3.2, "Setting Up the BIOS for Windows Server 2003 OS Installation" on page 1-6.

1.3.3.1 Setting Up the BIOS for a Solaris 10 or a Linux OS Installation

The default for the Installed OS option is Others. If the default has not been changed, you do not need to perform this setup for the for a Solaris or Linux operating system.

If the BIOS Installed OS option has been changed from the default, do the following for the Solaris 10, and Linux operating systems.

▼ To Set Up the BIOS for a Solaris 10 or Linux OS Installation

1. **Power on the server and when the Sun logo screen appears press the F2 key to enter the BIOS Setup Utility.**

   The BIOS Setup Utility main menu appears.

2. **Select the Advanced tab, and then select ACPI Configuration.**

3. **Change the Installed O/S option to Others.**

4. Press the F10 key to save your changes and exit the BIOS.

1.3.3.2 Setting Up the BIOS for Windows Server 2003 OS Installation

Use this procedure to set up the BIOS for an installation of Windows Server 2003.

▼ To Set Up the BIOS for Windows Server 2003 OS Installation

1. Power on the server, and press the F2 key at the Sun logo screen to enter the BIOS Setup menu.

2. Select the Advanced tab, and then select ACPI Configuration.

3. Change the Installed O/S option to Windows.

4. Press the F10 key to save your changes and exit the BIOS.

1.3.4 Configuring Your System for RAID

You have two RAID support options for Sun Fire X2200 M2 server. You can use the onboard Nvidia NVRAID option, which only supports the Windows OS, or, if you have an LSI SAS2042E-R PCIe card installed in your server, you can use the LSI option. See the following sections for more information on your RAID options:

- Nvidia NVRAID option: See Section 1.3.4.1, "RAID Support Using the Nvidia NVRAID" on page 1-6.
- LSI option: Section 1.3.4.2, "RAID Support Using LSI SAS3041E-R PCIe Card" on page 1-6

1.3.4.1 RAID Support Using the Nvidia NVRAID

The onboard Nvidia NVRAID only supports the Windows OS for a true hardware RAID. See Chapter 4 for information about configuring a Windows server to use Nvidia RAID.

1.3.4.2 RAID Support Using LSI SAS3041E-R PCIe Card

You can purchase an optional LSI PCIe card to enable RAID 0 and RAID 1, which is supported for all operating systems for SAS and SATA hard drives. You need the following for LSI RAID support:

- LSI SAS3041E-R card and cables
- 2 SATA or SAS hard disks

See the *Sun Fire X2200 M2 Server Service Manual* for instructions about how to install the LSI PCIe card and hard drives.

To configure RAID using the LSI SAS3041E-R PCIe card, see the chapter that corresponds to your OS:

- Solaris 10 OS Installation, Chapter 2
- Linux OS Installation, Chapter 3
- Windows Server 2003 Operating System Installation, Chapter 4

1.4 Choosing an OS Installation Method

This section contains an overview of the possible installation methods that you can use for the OS that you plan to install. See the specific section for details.

Method	Relevant Section
CD/DVD	Section 1.4.1, "Installing an OS Using a CD/DVD Drive" on page 1-8
Network/PXE	Section 1.4.2, "Installing an OS Using Network Installation (PXE/Jumpstart/RIS)" on page 1-8
RKVMS	Section 1.4.3, "Installing an OS Using Remote KVMS With Virtual CD-ROM" on page 1-9
Serial Redirection	Section 1.4.4, "Installing an OS Using Serial Redirection" on page 1-9

1.4.1 Installing an OS Using a CD/DVD Drive

This method includes installing the OS directly onto the server, using the server's onboard DVD, a USB connected drive, and a VGA monitor attached to the system.

For more details on CD/DVD installation for your specific operating system, see the instructions included in your installation software or the online documentation referenced in the specific OS chapters in this document.

1.4.2 Installing an OS Using Network Installation (PXE/Jumpstart/RIS)

This method includes setting up an installation on a host server, and then installing the OS using the PXE protocol over the network.

Network installation methods for supported operating systems include:

- AutoYast for SUSE Linux Enterprise Server (SLES)
- Kickstart for Red Hat
- Jumpstart for the Solaris 10 OS
- RIS for Windows

For more details about network installation for your specific OS, see the instructions included in your installation software or the specific OS chapters in this document.

Due to missing network interface card (NIC) drivers in some operating systems, the following is recommended for network installations:

Operating System	Recommended NIC
Solaris	Use the Broadcom NICs connectors labelled 0 and 1
RHEL	Use the Broadcom NIC connectors labelled 0 and 1
SLES	Use either Nvidia NIC connector labelled 2 and 3
Windows	Any of the Broadcom or Nvidia NIC connectors

For specific instructions on RIS installation for the Sun Fire X2200 M2 server, see Appendix B.

1.4.3   Installing an OS Using Remote KVMS With Virtual CD-ROM

This method involves using a remote networked system and the Embedded Lights Out Manager (ELOM) web GUI's Remote Console application to install the OS on the Sun Fire X2200 M2 server. The CD/DVD drive of the remote system is used to access the OS media, and all output of the Sun Fire X2200 M2 server is displayed on the remote system (using Remote Console).

For more information about using the Remote Console application and remote keyboard, video, mouse, and storage (RKVMS), see the *Sun Fire X2200 M2 Server Embedded Lights Out Manager Administration Guide*.

1.4.4   Installing an OS Using Serial Redirection

This method includes directing the server output to a terminal over the serial port.

For detailed instructions for other operating systems, see the installation instructions for your OS or specific OS chapters in this document.

Solaris 10 OS Installation

This chapter includes information about installing the Solaris 10 operating system (OS) and system-specific drivers onto your server.

This chapter includes the following sections:

2.1 Installing the Solaris 10 OS

This document does not provide comprehensive instructions for installing the Solaris 10 OS, but this section provides guidelines for the tasks involved in the OS installation and the installation methods available.

This section contains the following subsections:

- Section 2.1.1, "OS Installation Overview" on page 2-2
- Section 2.1.3, "OS Installation Methods" on page 2-4

2.1.1 OS Installation Overview

The following procedures are for installing drivers if you are performing a fresh installation of the Solaris 10 operating system. You do not need to reinstall the drivers if you are using the preinstalled version of the operating system. See TABLE 2-1 for the task map for OS installation.

TABLE 2-1   Task Map for Initial Solaris OS Installation

Task	Description	Instructions
Set up your server.	Install your server hardware and configure the service processor.	*Sun Fire X2200 M2 Server Installation Guide*
Prepare your system for OS installation.	If necessary, erase the primary boot disk, set up the BIOS, and set up the LSI RAID configuration if the LSI RAID card is installed.	Chapter 1 and Section 2.1.2, "Configuring Your Solaris 10 OS System for RAID" on page 2-3.
Review the Sun Fire X2200 M2 Server Product Notes.	The product notes contain late-breaking news about the Solaris OS software and patches.	*Sun Fire X2200 M2 Server Product Notes*
Install the Solaris OS.	Choose an installation method and locate the installation instructions.	Section 2.1.3, "OS Installation Methods" on page 2-4
Install the system specific drivers from the Tools and Drivers CD.	Install the system-specific drivers needed to run the Solaris 10 OS on the Sun Fire X2200 M2 server.	Section 2.2, "Installing System-Specific Drivers" on page 2-14.
Install patches, if necessary.	Patches are available from the SunSolve Patch Portal at: http://www.sunsolve.sun.com	*Sun Fire X2200 M2 Server Product Notes* and Chapter A.

2.1.2 Configuring Your Solaris 10 OS System for RAID

If you don't have the LSI Logic SAS3041E-R card installed in your system, and you don't plan to install it, you can skip this section. If you have the LSI Logic SAS3041E-R card installed, follow the procedure below:

Note – The Sun Fire X2200 M2 Server supported versions of Solaris all have the LSI boot driver included in the OS software. The OS automatically recognizes the LSI boot drivers.

▼ To Configure Your Solaris 10 OS System for RAID

1. **Install the optional LSI Logic SAS3041E-R card (Sun part number SG-PCIE4SAS-Z).**

   See the *Sun Fire X2200 M2 Server Service Manual* for instructions on installing and cabling the card.

2. **Power on the server.**

3. **During the boot process, press Ctrl-C to enter the LSI utility when the LSI SAS card is recognized.**

4. **Create your RAID.**

   See the LSI Integrated RAID User's Guide at:

   `http://www.lsi.com/documentation/storage/hbas/sas/IR-SAS_UserGuide.pdf`

5. **Save your work and exit the utility.**

6. **Install the Solaris 10 OS.**

   See Section 2.1.3, "OS Installation Methods" on page 2-4.

7. **Download the LSI utilities for managing RAID from:**

   `http://lsi.com/storage_home/products_home/host_bus_adapters/sas_hbas/lsisas3041er/index.html`

2.1.3   OS Installation Methods

See the following list of installation methods to determine the type of installation that you want to do and the information source for the installation.

For this installation method...	see this section:
Direct Method	Section 2.1.3.1, "Installing the Solaris 10 OS Using the Direct Installation Method" on page 2-4
Jumpstart Network Installation Method	Section 2.1.3.2, "Installing the Solaris 10 OS Using the Jumpstart Network Installation Method" on page 2-5
RKVMS Installation Method	Section 2.1.3.3, "Installing Solaris 10 OS Using Remote KVMS" on page 2-13

See Section 1.4, "Choosing an OS Installation Method" on page 1-7 for a description of each method.

Note – The Solaris OS provides additional programs for installation, such as booting over a wide area network (WAN), but the Sun Fire X2200 M2 server supports only the methods listed in this document

Additional Solaris 10 documentation is available at `http://docs.sun.com/`.

2.1.3.1   Installing the Solaris 10 OS Using the Direct Installation Method

Installing the Solaris 10 OS using the direct installation method involves setting up the server to view the console and using CD/DVD OS installation media in a CD/DVD drive. To install Solaris 10 06/06 (or earlier version) from CD/DVD OS installation media, use the following procedure:

▼ To Install the Solaris 10 OS Using the Direct Installation Method

1. **Set up the server so you can view the console output, by doing one of the following:**

   ■ Attach a local keyboard, video monitor and mouse to the server.

   -or-

- Connect to the console of the server via remote KVMS (RKVMS) through the ELOM web GUI's Remote Console application. See

  -or-

- Connect to the console via the serial port. For a serial port console installation, do the following:

a. **Connect a terminal to the serial port on the service processor.**

   A terminal can be a VT100, a PC running terminal emulation, or a terminal server. Set the terminal to receive at 9600 baud.

b. **Redirect the console by doing one of the following:**

- Enter the BIOS Setup Utility and set the "External COM port" value to "System".

  -or-

- Use the CLI to change the SP `ConsoleMux` value:

  i. **Log in to the service processor's (SP) command-line interface (CLI) using a user account that has administrator privileges.**

     For information about logging in to the CLI, see the *Sun Fire X2200M2 Server Embedded Lights Out Manager Administration Guide*.

  ii. **At the CLI prompt, enter the following commands to set the `ConsoleMux` value.**

      ```
      -> cd /SP/AgentInfo
      -> set ConsoleMux=system
      ```

  iii. **Exit the CLI.**

       ```
       -> exit
       ```

2. **To complete the installation process, follow the procedures in the document located at:**

   http://docs.sun.com/app/docs/doc/817-0544

2.1.3.2   Installing the Solaris 10 OS Using the Jumpstart Network Installation Method

For basic instructions on setup and configuration for network installations go to:

http://docs.sun.com/app/docs/doc/817-5504

If you are using the Broadcom NICS (LAN-0 and LAN-1) for Jumpstart installation, see the following sections for further details on specific installation types:

-

- Section , "Local Console or Remote KVM" on page 2-12

If you are using the Nvidia NICs (LAN-2 or LAN-3) for Jumpstart installation, follow the procedure to apply a patch to update the Nvidia drivers in the miniroot of the install image:

- Section , "Apply a Patch for Solaris Jumpstart Installation" on page 2-6

Apply a Patch for Solaris Jumpstart Installation

If you choose to use Nvidia NICs (LAN-2 and LAN-3) for performing a Solaris Jumpstart installation, you need to apply a patch.

The patch number is 120012-14 and you can download it from:

http://sunsolve.sun.com

Note – This procedure is not needed unless you want to use the Nvidia NICs to perform a Solaris Jumpstart installation.

The system that you use as an installation server must include a CD-ROM drive and be part of the site's network and name service. If you use a name service, the system must already be in a name service, such as NIS, NIS+, DNS, or LDAP. If you do not use a name service, you must distribute information about this system by following your site's policies.

1. **On the system that is to become the installation server, log in as root (superuser).**

2. **Insert the Solaris 10 1/06 (or later version) media in the system's drive.**

3. **Create a directory for the CD image.**

```
# mkdir -p install_dir_path
```

install_dir_path specifies the directory where the CD image is to be copied.

4. **Change to the Tools directory on the mounted disc.**

```
# cd /cdrom/cdrom0/Solaris_10/Tools
```

5. **Copy the image in the drive to the install server's hard disk.**

```
# ./setup_install_server install_dir_path
```

install_dir_path specifies the directory where the CD image is to be copied.

Note – The `setup_install_server` command indicates whether you have enough disk space available for the Solaris 10 Software disc images. To determine available disk space, use the **`df -kl`** command.

6. **Change directories to root (/).**

```
# cd /
```

7. **Eject the Solaris 10 media.**

8. **Patch the files that are located in the miniroot on the net install image that was created by** `setup_install_server`.

Caution – Read the `patchadd -C` command README or contact your local Sun support office before running the `patchadd -C` command as instructed in this procedure.

To patch a Solaris 10 1/06 for x86 miniroot, your system must be running the Solaris 10 1/06 (or later) for x86 release.

a. **If the installation server is not running the Solaris 10 1/06 for x86 release, log in as superuser to another system on the network that is running the Solaris 10 1/06 for x86 release.**

- If your installation server is running the Solaris 10 1/06 for x86 release, continue to Step b.

- If you need to use a new server running the Solaris 10 1/06 for x86 release, complete the following steps:

  i. **Change to the Tools directory of the installation image that you created in Step 5.**

```
# cd install_server_path/install_dir_path/Solaris_10/Tools
```

   install_server_path specifies the path to the install server system on your network, for example, /net/installserver-1.

   install_dir_path specifies the directory where the CD image was copied.

  ii. **Create a new installation image, and place that image on the system that is running the Solaris 10 1/06 for x86 release.**

```
# ./setup_install_server remote_install_dir_path
```

   remote_install_dir_path specifies the path on the Solaris 10 1/06 for x86 system in which to create the new installation image.

This command creates a temporary installation image on the Solaris 10 1/06 for x86 system to enable you to patch this image.

b. Unpack the network installation boot archive.

```
# /boot/solaris/bin/root_archive unpackmedia \
install_dir_path  destination_dir
```

install_dir_path specifies the path to the x86 network installation image. If you created a new installation image in Step a, specify the path to the new image on the Solaris 10 1/06 x86 system.

destination_dir specifies the path to the directory to contain the unpacked boot archive.

c. Patch the unpacked boot archive.

```
# patchadd -C destination_dir  path_to_patch/120012-14
```

destination_dir specifies the path to the directory that contains the unpacked boot archive.

path_to_patch specifies the path to the patch that you want to add, for example, /var/sadm/spool.

120012-14 is the patch ID that you want to apply.

You can specify multiple patches with the patchadd -M option. For more information, see patchadd(1M).

> ⚠ **Caution –** Do not use the patchadd -C command unless you have read the Patch README instructions or have contacted your local Sun support office.

d. Pack the x86 boot archive.

```
# /boot/solaris/bin/root_archive packmedia \
install_dir_path  destination_dir
```

install_dir_path specifies the path to the x86 network installation image.

destination_dir specifies the path to the directory that contains the unpacked boot archive.

e. **If necessary, copy the patched miniroot to the installation image on the install server.**

   If you patched the miniroot on a remote Solaris 10 1/06 for x86 system, you must copy the patched miniroot to the install server.

```
# cp remote_install_dir_path/boot/x86.miniroot \
install_server_path/install_dir_path/boot/x86.miniroot
```

   install_server_path specifies the path to the install server system on your network.

   install_dir_path specifies the path to the x86 network installation image.

9. **Proceed with the instructions in "Serial Console" on page 9 or "Local Console or Remote KVM" on page 12.**

Serial Console

Please note the following before performing this procedure:

- This procedure is not needed unless you want to force the installation output to the serial port.
- These steps are only for the installation output. If you want the system output to be forced out the serial port after installation, you then need to either manually follow the steps in Appendix A or create a finish script that performs the steps.
- If you are using Nvidia NICs for the installation, you need to first apply a patch as instructed in Section , "Apply a Patch for Solaris Jumpstart Installation" on page 2-6.

The system that you use as an installation server must include a CD-ROM drive and be part of the site's network and name service. If you use a name service, the system must already be in a name service, such as NIS, NIS+, DNS, or LDAP. If you do not use a name service, you must distribute information about this system by following your site's policies.

1. **On the system that is to become the installation server, log in as root (superuser).**

2. **Insert the Solaris 10 1/06 (or later version) media in the system's drive.**

3. **Create a directory for the CD image.**

```
# mkdir -p install_dir_path
```

   install_dir_path specifies the directory where the CD image is to be copied.

4. Change to the Tools directory on the mounted disc.

```
# cd /cdrom/cdrom0/Solaris_10/Tools
```

5. Copy the image in the drive to the install server's hard disk.

```
# ./setup_install_server install_dir_path
```

install_dir_path specifies the directory where the CD image is to be copied.

Note – The setup_install_server command indicates whether you have enough disk space available for the Solaris 10 Software disc images. To determine available disk space, use the **df -kl** command.

---

6. Change directories to root (/).

```
# cd /
```

7. Eject the Solaris 10 OS media.

8. Edit the files that are located in the miniroot on the net install image that was created by setup_install_server**.**

To edit a Solaris 10 1/06 for x86 miniroot, your system must be running the Solaris 10 1/06 (or later) for x86 release.

a. If the installation server is not running the Solaris 10 1/06 for x86 release, log in as superuser to another system on the network that is running the Solaris 10 1/06 for x86 release.

- If your installation server is running the Solaris 10 1/06 for x86 release, continue to Step b.

- If you need to use a new server running the Solaris 10 1/06 for x86 release, complete the following steps:

  i. Change to the Tools directory of the installation image that you created in Step 5.

```
# cd install_server_path/install_dir_path/Solaris_10/Tools
```

install_server_path specifies the path to the install server system on your network, for example, /net/installserver-1.

install_dir_path specifies the directory where the CD image was copied.

    ii. **Create a new installation image, and place that image on the system that is running the Solaris 10 1/06 for x86 release.**

```
# ./setup_install_server remote_install_dir_path
```

        remote_install_dir_path specifies the path on the Solaris 10 1/06 for x86 system in which to create the new installation image.

        This command creates a temporary installation image on the Solaris 10 1/06 for x86 system to enable you to patch this image.

 b. **Unpack the network installation boot archive.**

```
# /boot/solaris/bin/root_archive unpackmedia \
install_dir_path  destination_dir
```

        install_dir_path specifies the path to the x86 network installation image. If you created a new installation image in Step a, specify the path to the new image on the Solaris 10 1/06 x86 system.

        destination_dir specifies the path to the directory to contain the unpacked boot archive.

 c. **Modify the System files to enable serial console redirection.**

   Make edits to the following files:

- Edit the following lines in the `/destination_dir/boot/solaris/bootenv.rc` file to read as follows:

```
setprop input-device ttyb
setprop output-device ttyb
setprop console ttyb
setprop ttyb-mode 115200,8,n,1,-
```

- Add the following line to the end of the `/destination_dir/kernel/drv/asy.conf` file:

```
name="asy" parent="isa" reg=1,0x2f8,8 interrupts=3;
```

    destination_dir specifies the path to the directory to contain the unpacked boot archive.

d. Pack the x86 boot archive.

```
# /boot/solaris/bin/root_archive packmedia \
install_dir_path  destination_dir
```

install_dir_path specifies the path to the x86 network installation image.

destination_dir specifies the path to the directory that contains the unpacked boot archive.

e. If necessary, copy the patched miniroot to the installation image on the install server.

If you patched the miniroot on a remote Solaris 10 1/06 for x86 system, you must copy the patched miniroot to the install server.

```
# cp remote_install_dir_path/boot/x86.miniroot \
install_server_path/install_dir_path/boot/x86.miniroot
```

install_server_path specifies the path to the install server system on your network.

install_dir_path specifies the path to the x86 network installation image.

9. Run the following command

```
# add_install_client -B console=ttyb, input-device=ttyb,\
output-device=ttyb
```

The output of the installation pushes to the serial port.

10. Install the Solaris 10 operating system.

Local Console or Remote KVM

This method includes directing the server output to the local console or to a remote console (RVKM) when the local CD/DVD drive is used. See the following instructions at:

http://docs.sun.com/app/docs/doc/817-5504

2.1.3.3 Installing Solaris 10 OS Using Remote KVMS

This method involves using a remote networked system and the SP ELOM web GUI's Remote Console application to install the OS onto the Sun Fire X2200 M2 server. The CD or DVD drive of the remote system is used to access the OS media. All output of the Sun Fire X2200 M2 server is displayed on the remote system (Remote Console).

For information about the Remote Console application and RKVMS, see the *Sun Fire X2200 M2 Server Embedded Lights Out Manager Administration Guide*.

Requirements for Remote KMVS installation include:

- Remote system connected to the network
- One of the following browsers on the remote system: Internet Explorer, Mozilla, or Firefox
- CD/DVD drive connected to the remote system
- Media for installing the OS of your choice
- SP of the Sun Fire X2200 M2 server set up as instructed in the *Sun Fire X2200 M2 Server Installation Guide*.
- User must be logged into the remote system as **root**.

▼ To Install Solaris 10 OS Using Remote KVMS

1. **On a remote system, open a browser and type the IP address of the ELOM SP for the Sun Fire X2200 M2 server on which you want to install the OS.**

   The login screen appears.

2. **Enter the user name and password for an account with administrator privileges, and click Log In.**

   The ELOM main menu appears.

3. **From the main menu, click the Remote Control tab, and click the Redirection submenu tab**

   The Redirection screen appears.

4. **To open a remote console window, click the Launch Redirection button.**

5. **Insert the OS CD/DVD to be installed on the Sun Fire X2200 M2 server into the local CD/DVD drive.**

6. **In the remote console window, select Storage, and then select Mount devices.**

   The Device Configuration windows appears.

7. **In the Storage 1 Source field, from the drop-down menu, select the CD/DVD drive to be used for installing the OS.**

8. **Click Submit.**

9. **Configure the BIOS to boot from the remote (virtual) CD or DVD.**

   a. **Go to the ELOM main page, and select Control -> Power Control -> Reset.**

      The Sun Fire X2200 M2 system restarts. You can view the POST progress from the Remote Console screen.

   b. **As the system is restarting, go back to the Remote Console screen and press F2 when the Sun Microsystems splash screen appears.**

      The BIOS setup utility appears.

   c. **Use the keyboard arrow keys to navigate to the Boot screen, and then select Boot Device Priority.**

   d. **Change the first boot driver to Virtual CD/DVD.**

Note – Make sure that the hard disk is still listed in the boot order.

---

   e. **Press F10 to save your changes and exit the BIOS.**

      The server boots from the virtual CD-ROM. The instructions for installing the OS are exactly the same as the instructions for using a local CD/DVD drive and monitor.

Note – After the OS is installed, remember to change back to the local CD-ROM in the BIOS if you want to use a CD or DVD device installed or connected to your system.

2.2　Installing System-Specific Drivers

The following methods can be used to install system-specific drivers onto your Solaris 10 Sun Fire X2200 M2 Server:

■ For a system *without* a CD/DVD drive and an attached monitor, use the procedure in Section 2.2.1, "Installing the Drivers Using RKVMS" on page 2-15.

■ For a system *with* a CD/DVD drive and an attached monitor, use use the procedure in .

2.2.1 Installing the Drivers Using RKVMS

Use this method to install the drivers on a system without a CD/DVD drive and an attached monitor.

▼ To Install the Drivers Using RKVMS

● **See the instructions in** .

For more information, see the *Embedded Lights Out Manager Administration Guide*.

2.2.2 Installing Drivers Using the Direct Method

If your server has an onboard or attached CD/DVD drive, you can install the drivers directly from the Sun Fire X2200 M2 Server Tools and Drivers CD.

▼ To Install the Drivers Using the Direct Method

1. **Log in to the Sun Fire X2200 M2 server as root (superuser).**

2. **Insert the Sun Fire X2200 M2 Server Tools and Drivers CD into the DVD drive.**

   The CD is automounted by the Solaris 10 Operating System.

3. **Change to the** `/cdrom/cdrom0/drivers/sx86` **directory by typing the following command:**

```
# cd /cdrom/cdrom0/drivers/sx86
```

4. **Run the install script by typing the following command:**

```
# sh install.sh
```

The networking and sound drivers are now installed. The script prompts you to reboot the system for changes to take effect.

5. **Reboot the server.**

6. **When Xserver choices are displayed, select the default** `Xorg`.

7. **When prompted for networking information about your system, enter the networking information for your server.**

Linux OS Installation

This chapter includes information about installing the Red Hat Enterprise Linux (RHEL) and SUSE Enterprise Linux System (SLES) operating systems and system-specific drivers onto your server.

This chapter includes the following sections:

3.1 Installing the OS

This section provides guidelines for installation methods and the tasks involved in the OS installation.

This section contains the following subsections:

- Section 3.1.1, "OS Installation Overview" on page 3-2
- Section 3.2, "Installing the System-Specific Drivers" on page 3-9
- Section 3.3, "Running Update Utilities" on page 3-11

3.1.1 OS Installation Overview

The following procedures are for installing drivers if you are performing a fresh installation of a Linux OS. You do not need to reinstall the drivers if you are using the preinstalled version of the OS.

See TABLE 3-1 for the task map for OS installation.

TABLE 3-1   OS Installation Task Map

Task	Installation Task	Instructions
Set up your server.	Install your server hardware and configure the service processor.	*Sun Fire X2200 M2 Server Installation Guide*
Prepare your system for OS installation.	If necessary, erase the primary boot disk and set up the BIOS, and set up the LSI RAID configuration, if the LSI RAID card is installed.	Chapter 1 and Section 3.1.2, "Configuring Your Linux OS System for RAID" on page 3-3.
Review the Sun Fire X2200 M2 Server Product Notes.	The product notes contain late-breaking news about the Solaris OS software and patches.	*Sun Fire X2200 M2 Server Product Notes*
Install the Linux OS.	Choose an installation method and locate the installation instructions.	Section 3.1.3, "OS Installation Methods" on page 3-4
Install the system-specific drivers from the Tools and Drivers CD.	Install the system-specific drivers needed to run the Linux OS on the Sun Fire X2200 M2 server.	Section 3.2, "Installing the System-Specific Drivers" on page 3-9
Run the up2date or SUSEWatcher utility.	Patches are available from the SunSolve Patch Portal at: http://www.sunsolve.sun.com	Section 3.3.1, "Running the up2date Utility for the RHEL OS" on page 3-11 or Section 3.3.2, "Running the SuSEWatcher Utility for the SLES OS" on page 3-11

3.1.2 Configuring Your Linux OS System for RAID

If you don't have the LSI Logic SAS3041E-R card installed in your system, and you don't plan to install it, you can *skip this section*. If you have the LSI Logic SAS3041E-R card installed, use the procedure below to configure RAID for your Linux OS system.

Note – The Sun Fire X2200 M2 Server supported versions of Linux all have the LSI boot driver included in the OS software. The OS automatically recognizes the LSI boot drivers.

▼ To Configure Your Linux OS System for RAID

1. **Install the optional LSI Logic SAS3041E-R card (Sun part number SG-PCIE4SAS-Z).**

   See the *Sun Fire X2200 M2 Server Service Manual* for instructions on installing and cabling the card.

2. **Power on the server.**

3. **During the boot process, press Ctrl-C to enter the LSI utility when the LSI SAS card is recognized.**

4. **Create your RAID.**

   See the LSI Integrated RAID User's Guide at:

   http://www.lsi.com/documentation/storage/hbas/sas/IR-SAS_UserGuide.pdf

5. **Save your work and exit the utility.**

6. **Install the Linux OS.**

   See Section 3.1.3, "OS Installation Methods" on page 3-4.

7. **Download the LSI utilities for managing RAID from the following site:**

   http://lsi.com/storage_home/products_home/host_bus_adapters/sas_hbas/lsisas3041er/index.html

3.1.3 OS Installation Methods

See the following list of installation methods to determine the type of installation that you want to do and the relevant procedure.

For this installation method...	see this procedure:
Direct Method	See Section 3.1.3.1, "Installing the Linux OS Using the Direct Installation Method" on page 3-4
PXE Network Installation Method	See Section 3.1.3.2, "Installing the Linux OS Using the PXE Network Installation Method" on page 3-6
RKVMS Installation Method	See Section 3.1.3.3, "Installing Linux Using RKVMS" on page 3-6
Serial Redirection and Installation Server Method	See Section 3.1.3.4, "Installing Linux Using Serial Redirection and an Installation Server" on page 3-8

See Section 1.4, "Choosing an OS Installation Method" on page 1-7 for a description of each methods.

3.1.3.1 Installing the Linux OS Using the Direct Installation Method

Installing the Linux OS using the direct installation method, involves setting up the server to view the console and using CD/DVD OS installation media in a locally attached CD/DVD drive. You can then install the OS using the instructions for basic installation in the document that corresponds to the OS you are installing:

- *Red Hat Enterprise Linux Installation Guide for the x86, Itanium, and AMD64 Architectures* at:

  http://www.redhat.com/docs/manuals/enterprise/

- *SUSE Linux Enterprise Server 9 Administration and Installation* at:

  http://www.novell.com/documentation/sles9/pdfdoc/sles_9_admin_
  guide/sles_9_admin_guide.pdf

▼ To Install Linux OS Using the Direct Installation Method

1. Set up the server so you can view the console output, by doing one of the following:

- Attach a local keyboard, video monitor and mouse to the server and go to Step 2.

  -or-

- Connect to the console of the server via remote KVMS (RKVMS) through the ELOM web GUI's Remote Console application. Go to Section 3.1.3.3, "Installing Linux Using RKVMS" on page 3-6.

  -or-

- Connect to the console via the serial port. For a serial port console installation, do the following:

a. **Connect a terminal to the serial port on the service processor.**

   A terminal can be a VT100, a PC running terminal emulation, or a terminal server. Set the terminal to receive at 9600 baud.

b. **Redirect the console by doing one of the following:**

- Enter the BIOS Setup Utility and set the "External COM port" value to "System".

  -or-

- Use the CLI to change the SP `ConsoleMux` value:

   i. **Log in to the service processor's (SP) command-line interface (CLI) using a user account that has administrator privileges.**

      For information about logging in to the CLI, see the *Sun Fire X2200M2 Server Embedded Lights Out Manager Administration Guide.*

   ii. **At the CLI prompt, enter the following commands to set the `ConsoleMux` value.**

       –> **`cd /SP/AgentInfo`**
       –> **`set ConsoleMux=system`**

   iii. **Exit the CLI**

        –> **`exit`**

2. **To complete the installation process, follow the procedures in the basic installation document for your OS.**

3.1.3.2 Installing the Linux OS Using the PXE Network Installation Method

See the instructions for network installation in the document that corresponds to the OS you are installing:

• *Red Hat Enterprise Linux Installation Guide for the x86, Itanium, and AMD64 Architectures*	• http://www.redhat.com/docs/manuals/enterprise/
• *SUSE Linux Enterprise Server 9 Administration and Installation*	• http://www.novell.com/documentation/sles9/pdfd oc/sles_9_admin_guide/sles_9_admin_guide.pdf

These are the guidelines for NIC ports available for PXE installation:

RHEL 3.7*	Only the Broadcom NICs (LAN-0 and LAN-1) are available for PXE installation
SLES 9 SP 3*	Only the Nvidia NICs (LAN-2 and LAN-3) are available for PXE installation
Later versions of RHEL and SLES	Support for all NICs, so PXE can be performed with any of the Ethernet ports with these versions

* For RHEL 3.7 and SLES 9 SP 3 operating systems, you need to install the drivers from the Tools and Drivers CD after installing the OS to obtain the full functionality of the NICs. See Appendix C for more information.

3.1.3.3 Installing Linux Using RKVMS

This method involves using a remote networked system and the SP ELOM web GUI's Remote Console application to install the OS onto the Sun Fire X2200 M2 server. The CD or DVD drive of the remote system is used to access the OS media. All output of the Sun Fire X2200 M2 server is displayed on the remote system (Remote Console).

For information about the Remote Console application and RKVMS, see the *Sun Fire X2200 M2 Server Embedded Lights Out Manager Administration Guide*.

Requirements for Remote KMVS Over IP installation include:

■ Remote system connected to the network

■ One of the following browsers on the remote system: Internet Explorer, Mozilla, or Firefox

■ CD/DVD drive connected to the remote system

■ Media for installing the OS of your choice

- SP of the Sun Fire X2200 M2 server set up as instructed in the *Sun Fire X2200 M2 Server Installation Guide*
- User must be logged into the remote system as **root**.

▼ To Install Linux Using RKVMS

1. **On a remote system, open a browser and type the IP address of the ELOM SP for the Sun Fire X2200 M2 server on which you want to install the OS.**

   The login screen appears.

2. **Enter the user name and password for an account with administrator privileges, and click Log In.**

3. **In the main ELOM window, click Launch to open a remote console window.**

4. **Insert the OS CD/DVD to be installed on the Sun Fire X2200 M2 server into the local CD/DVD drive.**

5. **In the remote console window, select Storage, and then select Mount devices.**

   The Device Configuration windows appears.

6. **In the Storage 1 Source field, from the drop-down menu, select the CD/DVD drive to be used for installing the OS.**

7. **Click Submit.**

8. **Configure the BIOS to boot from the remote (virtual) CD or DVD.**

   a. **Go to the ELOM main page, and select Control -> Power Control -> Reset.**

      The Sun Fire X2200 M2 system restarts and you can view the POST process from the Remote Console screen.

   b. **As the system is restarting, go back to the Remote Console screen and press F2 when the Sun Microsystems splash screen appears.**

      The BIOS setup utility appears.

   c. **Use the keyboard arrow keys to navigate to the Boot screen, and then select Boot Device Priority.**

   d. **Change the first boot driver to Virtual CD/DVD.**

Note – Make sure that the hard disk is still listed in the boot order.

---

e. **Press F10 to save your changes and exit the BIOS.**

The server boots from the virtual CD-ROM. The instructions for installing the OS are exactly the same as the instructions for using a local CD/DVD drive and monitor.

Note – After the OS is installed, remember to change back to the local CD-ROM in the BIOS if you want to use a CD or DVD device installed or connected to your system.

3.1.3.4 Installing Linux Using Serial Redirection and an Installation Server

If you have an installation server you can use the serial redirection method. This method involves using a terminal (or terminal emulator) connected to the server's serial port to select the PXE network installation option from the BIOS prompt.

▼ To Install Linux Using Serial Redirection and an Installation Server

1. **Connect a terminal to the serial port on the service processor.**

   A terminal can be a VT100, a PC running terminal emulation, or a terminal server.

2. **Set the terminal to receive at 9600 baud.**

3. **Set up your OS to boot from an installation server.**

See the instructions for serial redirection in the document that corresponds to the OS you are installing. There are OS specific changes that need to be performed in order for console redirection to work:

- *Red Hat Enterprise Linux Installation Guide for the x86, Itanium, and AMD64 Architectures*
  - http://www.redhat.com/docs/manuals/enterprise/

- *SUSE Linux Enterprise Server 9 Administration and Installation*
  - http://www.novell.com/documentation/sles9/pdfd oc/sles_9_admin_guide/sles_9_admin_guide.pdf

---

4. **Login to the SP's command-line interface (CLI) using an account with administrator privileges.**

5. **Type the following:**

```
-> start /SP/AgentInfo/console
```

6. **Boot the Sun Fire X2200 M2 server.**

   To boot via PXE, press F12 at the BIOS prompt.

7. **After the OS is installed, log into the server.**

3.2   Installing the System-Specific Drivers

The following methods can be used to install system-specific drivers onto your Sun Fire X2200 M2 Server:

■ For a system *without* a CD/DVD drive or monitor attached, use Section 3.2.1, "Installing the Drivers Using KVMS" on page 3-9.

■ For a system *with* a CD/DVD drive and monitor attached, use Section 3.2.2, "Installing Drivers Directly Onto the Sun Fire X2200 M2 Server" on page 3-9 .

3.2.1   Installing the Drivers Using KVMS

See the instructions in Section 3.1.3.3, "Installing Linux Using RKVMS" on page 3-6.

3.2.2   Installing Drivers Directly Onto the Sun Fire X2200 M2 Server

If your server has an onboard CD/DVD drive, you can install the drivers directly onto the server, using the Sun Fire X2200 M2 Server Tools and Drivers CD.

To install the video drivers and mount the diagnostic partition directly onto the server when running a Linux operating system:

1. **Log in to the Sun Fire X2200 M2 server as root (superuser).**

2. **Insert the Sun Fire X2200 M2 Server Tools and Drivers CD into the DVD drive and type:**

```
cd /mountpoint/drivers/linux/operating_system
```

mountpoint is the directory the CD is mounted.
operating_system is the type of Linux installed on the server (`red_hat` or `suse`).

- If the directory does not exist, the CD did not automount. You need to mount the CD and change to the correct directory as shown in Step 3 and Step 4.

- If you were able to access the *operating_system* directory, go to Step 5.

3. **If the CD does not automount, open a terminal window and mount the CD by typing the following command:**

```
# mount -o ro /dev/cdrom /mountpoint/device_type
```

/mountpoint/device_type is the appropriate mount point for the OS and optical drive type.

For example:

```
# mount -o ro /dev/cdrom /mnt/dvdrom
```

4. **Change to the** */mountpoint/*`drivers/linux/`*operating_system* **directory.**

mountpoint is the directory that the CD is mounted to.
operating_system is the type of Linux installed on the server.

For example:

```
# cd /mnt/dvdrom/drivers/linux/red_hat
```

Your OS options are `red_hat` or `suse`.

5. **Run the installation script by typing the following command:**

```
# sh install.sh
```

This script is not executed if the X server is running.

- If the script exits and you receive an error message, go to Step 6.

- If the script is executed correctly, go to Step 7.

6. **If the script exits and you receive an error message, perform the following steps to disable the X server:**

a. **Type the following at the system prompt:**

```
# init 3
```

b. **Log in as root (superuser).**

c. **Repeat** Step 4 **and** Step 5.

7. **Eject the CD after the driver installation is finished.**

8. **Reboot the server.**

3.3 Running Update Utilities

Choose the section that corresponds to the Linux OS that you have installed:

- For RHEL: See Section 3.3.1, "Running the `up2date` Utility for the RHEL OS" on page 3-11.
- For SLES: See Section 3.3.2, "Running the `SuSEWatcher` Utility for the SLES OS" on page 3-11.

3.3.1 Running the `up2date` Utility for the RHEL OS

Run the `up2date` utility *after* installing the OS and drivers from the Sun Fire X2200 M2 Server Tools and Drivers CD.

▼ To Run the `upd2date` Utility

1. **Set up the `up2date` utility on the server.**

   See the documentation included with your Red Hat Enterprise Linux media kit for details.

2. **Run the `up2date` program.**

   Select the kernel packages in the `available package updates` section.

3.3.2 Running the `SuSEWatcher` Utility for the SLES OS

Run the `SuSEWatcher` utility *after* installing the OS and drivers from the Sun Fire X2200 M2 Server Tools and Drivers CD.

▼ To Run the `SuSEWatcher` Utility.

1. Set up the `SuSEWatcher` utility on the server.

See the documentation included with your SLES 9 media kit for details.

2. Run the `SuSEWatcher` program.

Select the kernel packages in the `available package updates` section.

Windows Server 2003 Operating System Installation

This chapter includes information about installing the Windows Server 2003 operating system (OS) and drivers on your server.

This chapter includes the following sections:

4.1 Installing the Windows OS

This document does not provide comprehensive instructions for installing the Windows OS, but this section provides guidelines for the tasks involved in the OS installation and the installation methods available.

This section contains the following sections:

- Section 4.1.1, "Windows OS Installation Overview" on page 4-2.
- Section 4.1.2, "Windows OS Installation Methods" on page 4-3.

4.1.1 Windows OS Installation Overview

See TABLE 4-1 for the task map for OS installation.

TABLE 4-1 Task Map for Initial Solaris OS Installation

Task	Description	Instructions
Set up your server.	Install your server hardware and configure the service processor.	*Sun Fire X2200 M2 Server Installation Guide*
Prepare your system for OS installation.	If necessary, erase the primary boot disk and set up the BIOS. If you plan to configure RAID with your server, see the instructions for installing Windows for a RAID configuration.	Chapter 1 and Section 4.3, "Installing Windows Server 2003 for a RAID Configuration" on page 4-6
Review the Sun Fire X2200 M2 Server Product Notes.	The product notes contain late-breaking news about the Windows OS software and patches.	*Sun Fire X2200 M2 Server Product Notes*
Install the Windows OS.	Choose an installation method and locate the installation instructions.	Section 4.1.2, "Windows OS Installation Methods" on page 4-3
Install the system-specific drivers from the Tools and Drivers CD.	Install the system-specific drivers needed to run the Windows OS on the Sun Fire X2200 M2 server.	Section 4.3, "Installing Windows Server 2003 for a RAID Configuration" on page 4-6
Run Windows Update.	Run Windows Update to make sure that you have the latest Microsoft Windows features.	http://update.microsoft.com/ microsoftupdate/

4.1.2 Windows OS Installation Methods

See the following list of installation methods to determine the type of installation that you want to do and the information source for. the installation.

For this installation method...	see this procedure:
Direct Method	See Section 4.1.2.1, "Direct Installation Using DVD or CD-ROM Media" on page 4-3.
RIS Installation Method	See Section 4.1.2.2, "Network Installation Using RIS" on page 4-3.
RKVMS Installation Method	See Section 4.1.2.3, "Installing Windows Using RKVMS" on page 4-3.
Serial Redirection and PXE Installation Server Method	See Section 4.1.2.4, "Installing Windows Using Serial Redirection and an PXE Installation Server" on page 4-5

See Section 1.4, "Choosing an OS Installation Method" on page 1-7 for a description of each method.

4.1.2.1 Direct Installation Using DVD or CD-ROM Media

See the instructions for basic installation in *Installing Windows Server 2003 R2* at:

http://technet2.microsoft.com/WindowsServer/en/Library/

4.1.2.2 Network Installation Using RIS

See the instructions for RIS installation in *Installing Windows Server 2003 R2* in Appendix B.

4.1.2.3 Installing Windows Using RKVMS

This method involves using a remote networked system and the SP ELOM web GUI's Remote Console application to install the OS onto the Sun Fire X2200 M2 server. The CD or DVD drive of the remote system is used to access the OS media. All output of the Sun Fire X2200 M2 server is displayed on the remote system (Remote Console).

For information about the Remote Console application and RKVMS, see the *Sun Fire X2200 M2 Server Embedded Lights Out Manager Administration Guide*.

Requirements for remote KMVS (RKVMS) installation include:

1. Remote system connected to the network

2. One of the following browsers on the remote system: Internet Explorer, Mozilla, or Firefox

3. CD/DVD drive connected to the remote system

4. Media for installing the OS of your choice

5. SP of the Sun Fire X2200 M2 server set up as instructed in the *Sun Fire X2200 M2 Server Installation Guide*.

▼ To Install Windows Using RKVMS

1. **On a remote system, open a browser and type the IP address of the SP ELOM for the Sun Fire X2200 M2 server on which you want to install the OS.**

   The login screen appears.

2. **Enter the user name and password for an account with administrator privileges, and click Log In.**

3. **From the ELOM main menu, click the Remote Control tab.**

   The Remote Control submenu appears.

4. **Click the Redirection tab.**

   The Launch Redirection screen appears.

5. **To open a remote console window, click the Launch Redirection button.**

6. **Insert the OS installation CD/DVD into the local CD/DVD drive.**

7. **In the remote console window, select Storage, and then select Mount devices.**

   The Device Configuration windows appears.

8. **In the Storage 1 Source field, click the drop-down menu, and select the CD/DVD drive to be used for installing the OS.**

9. **Click Submit.**

10. **Configure the BIOS to boot from the remote (virtual) CD/DVD.**

a. **Go to the ELOM main page and select Control -> Power Control -> Reset.**

The Sun Fire X2200 M2 system restarts and you can view the POST process from the Remote Console screen.

b. **As the system is restarting, go back to the Remote Console screen and press F2 when the Sun Microsystems splash screen appears.**

The BIOS setup utility appears.

c. **Use the keyboard arrow keys to navigate to the Boot screen and select Boot Device Priority.**

d. **Change the first boot driver to Virtual CD/DVD.**

Note – Make sure that the hard disk is still listed in the boot order.

---

e. **Press F10 to save your changes and exit the BIOS.**

The server boots from the virtual CD-ROM. The instructions for installing the OS are exactly the same as the instructions for using a local CD/DVD drive and monitor.

Note – After the OS is installed, remember to change back to the local CD-ROM in the BIOS if you want to use a CD or DVD device installed or connected to your system.

4.1.2.4 Installing Windows Using Serial Redirection and an PXE Installation Server

If you have an installation server you can use the serial redirection method. This method involves using a terminal (or terminal emulator) connected to the server's serial port to select the PXE network installation option from the BIOS prompt.

▼ To Install Windows Using Serial Redirection and an PXE Installation Server

1. **Connect a terminal to the serial port on the service processor.**

A terminal can be a VT100, a PC running terminal emulation, or a terminal server.

2. **Set the terminal to receive at 9600 baud.**

3. **Set up your OS to boot from an installation server.**

   See the instructions for serial redirection in Installing Windows Server 2003 R2 at:

   http://technet2.microsoft.com/WindowsServer/en/Library

4. **Log in to the SP ELOM command-line interface (CLI) as a user with administrator privileges.**

   The CLI prompt appears:

   –>

5. **Type the following:**

   ```
   –> start /SP/AgentInfo/console
   ```

6. **To boot via PXE:**

   a. **Boot the Sun Fire X2200 M2 server.**

   b. **Watch the screen and when prompted, press F12.**

7. **After the OS is installed, log into the server.**

4.2 Running Windows Update

To run Windows Update, follow the instructions at the Windows Update download site:

http://windowsupdate.microsoft.com

4.3 Installing Windows Server 2003 for a RAID Configuration

The Sun Fire X2200 M2 Server Tools and Drivers CD v1.2 (or later) contains Broadcom NIC, AST2000 display, Nvidia chipset (SATA and NIC), NVRAID, and LSI RAID drivers for Windows 2003.

If you are installing RAID drivers, you need to:

1. Configure the BIOS.

2. Install the drivers using one of the following methods:

- Use the 2003Reburn script to create a new Windows 2003 CD containing the necessary drivers.

  -or-

- Create a boot diskette.

3. Install Windows 2003.

   The procedure that you use for installing Windows 2003 for RAID depends on whether or not your server has the LSI SAS3041E-R PCIe card:

   - If your server does *not* have the LSI SAS3041E-R PCIe card, use the procedure for Nvidia RAID.
     See Section 4.3.1, "Installing Windows Server 2003 Server With NVRAID Drivers" on page 4-7.

   - If your server has the LSI SAS3041E-R PCIe card, see Section 4.3.4, "Installing Windows 2003 Server With LSI RAID Drivers" on page 4-11.

4.3.1 Installing Windows Server 2003 Server With NVRAID Drivers

Before installing Windows Server 2003 with NVRAID drivers, you need to:

1. **Configure the BIOS for NVRAID.**

   See "To Configure the BIOS for NVRAID" on page 4-7.

2. **After the BIOS is configured, use one of the following methods to install Windows Server 2003 with NVRAID drivers:**

   - Install Windows Server 2003 using CD media by creating a special Windows Server 2003 installation CD from the official Windows Server 2003 CD. See Section 4.3.2, "Creating a 2003Reburn CD using a Solaris or Linux OS-Based System" on page 4-8.

     -or-

   - Create a boot diskette containing the NVRAID drivers to use during Windows installation. See Section 4.3.3, "Installing NVRAID Drivers With Windows Using a Boot Diskette" on page 4-10.

▼ To Configure the BIOS for NVRAID

1. **Reboot the server and press the F2 key when you see the Sun logo screen.**

   The BIOS Setup Utility screen appears.

2. **Select Advanced -> ACPI settings.**

3. **Change the OS version to Windows.**

4. **Select Advanced -> IDE Configuration -> RAID setup.**

5. **Enable all selections for RAID.**

6. **Press the F10 key to save your changes and exit.**

7. **While the system is rebooting, press the F10 key to enter the NVRAID BIOS.**

8. **Select 0 or 1 to create a RAID array.**

9. **Exit the BIOS.**

10. **Go to one of the following sections for the appropriate procedure:**
    - Section 4.3.2, "Creating a 2003Reburn CD using a Solaris or Linux OS-Based System" on page 4-8.

    -or-

    - Section 4.3.3, "Installing NVRAID Drivers With Windows Using a Boot Diskette" on page 4-10.

4.3.2 Creating a 2003Reburn CD using a Solaris or Linux OS-Based System

The Sun Fire X2200 M2 Server Tools and Drivers CD contains a script that allows you to create a new Windows Server 2003 CD with the necessary NVRAID drivers. After creating the new CD, you can boot from the CD and install Windows Server 2003 in the usual way. This new CD automatically installs the drivers, making it unnecessary to use a USB diskette drive to install the NVRAID drivers.

For specific and current information about the 2003Reburn script, see the description at the top of the script, which is located in /utilities/reburn on the Tools and Drivers CD.

Requirements for creating a 2003Reburn CD:

1. A system running one of the following operating systems:
    - Solaris OS for x86 Platforms
    - Solaris OS (SPARC® Platform Edition)
    - Red Hat Enterprise Linux 3 or 4
    - SUSE Linux Enterprise System (SLES) 9

2. CD burner and a blank CD-R or CD-RW

3. The Windows Server 2003 CD (retail media only—not an OEM version)

4. The Sun Fire X2200 M2 Server Tools and Drivers CD

▼ To Create a 2003Reburn CD Using the Solaris or Linux OS-Based System

1. **On a system running the Solaris OS x86, the Solaris OS (SPARC Platform Edition), RHEL 3, RHEL 4, or SLES 9, insert the Sun Fire X2200 M2 Server Tools and Drivers CD into a CD/DVD drive.**

2. **Log in as root (superuser).**

3. **Create a temporary directory with at least 1.2 GB of space.**

   For example:

   ```
   # mkdir /files
   ```

4. **Copy the** `2003REBURN_`*version*`.zip` **file to that directory.**

   version is the current version of `2003Reburn`.

   For example:

   ```
   # cp /utilities/reburn/2003reburn_1.0.zip /files
   ```

5. **Eject the Tools and Drivers CD and insert your retail Windows 2003 32-bit CD.**

6. **Unzip the** `2003Reburn_`*version*`.zip` **file.**

   For example:

   ```
   # unzip -q 2003Reburn_1.0.zip
   ```

7. **Run the** `2003Reburn` **script.**

   For example:

   ```
   #./files/2003Reburn -b
   ```

Note – If your system does not have the ability to burn CDs, run the command *without* the –b option. An ISO image is created which can be saved to a system with a CD burner.

The script displays the driver files it expects to be located in the current directory. When all four driver files have been downloaded into that directory, the script creates a new ISO image and then automatically burns that ISO image onto a CD if the system has a CD burner.

8. **After the CD has been created, install Windows Server 2003 the Sun Fire X2200 M2 server, using the newly created CD.**

4.3.3 Installing NVRAID Drivers With Windows Using a Boot Diskette

This section explains how to create a boot diskette for the Nvidia RAID drivers using the Sun Fire X2200 M2 Server Tools and Drivers CD and how to install the drivers onto your server.

To install the Nvidia drivers using a boot diskette, you need the following:

■ A Windows system with a CD/DVD drive and a diskette drive

■ A USB floppy drive and a blank diskette

■ A Sun Fire X2200 M2 Server Tools and Drivers CD

■ A Windows 2003 CD (retail media only—not an OEM version)

To install RAID drivers with a boot diskettes, perform the following steps:

1. Create a RAID drivers boot diskette.

   See "To Create a RAID Drivers Boot Diskette" on page 4-10.

2. Install the Windows OS using the boot diskette.

   See "To Install the Windows OS Using the Boot Diskette" on page 4-11.

▼ To Create a RAID Drivers Boot Diskette

1. **On a Windows system, insert the Sun Fire X2200 M2 Server Tools and Drivers CD.**

2. **Insert a blank diskette into the Windows system.**

3. **Copy the contents of the** `sataraid` **directory on the Tools and Drivers CD to the floppy diskette:**

   > **Copy d: \drivers\windows*OS*\chipset\IDE\xinxp\SATARAID a:**

   OS is `2003_32` or `2003_64`.

▼ To Install the Windows OS Using the Boot Diskette

1. **Attach a USB diskette drive to the Sun Fire X2200 M2 server.**

2. **Insert a Windows 2003 32-bit or 64-bit installation CD into the DVD drive.**

3. **Press the F6 key to install the third-party RAID driver.**

4. **Press the S key, and then press Enter, to specify additional drivers and insert the diskette.**

5. **Select the Nvidia NForce Storage Controller.**

6. **Press the S key, and then press Enter, to specify additional drivers.**

7. **Select the Nvidia RAID CLASS DRIVER.**

8. **Press the Enter key to continue the Windows 2003 installation.**

9. **When the OS installation is finished, install the NVDIA display and chipset drivers as explained in** Section 4.4, "Installing the Ethernet and Chipset Drivers" on page 4-15**.**

4.3.4 Installing Windows 2003 Server With LSI RAID Drivers

This section describes how to install Windows 2003 Server if you have the SAS3041E-R PCIe card installed in your Sun Fire X2200 M2 server.

▼ To Install Windows Server 2003 Server With LSI RAID Drivers

1. **Configure the LSI BIOS.**

   See "To Configure the LSI RAID Card for RAID" on page 4-12.

2. **Use one of the following procedures:**

   - To install Windows Server 2003 using CD media by creating a special Windows Server 2003 installation CD from the official Windows Server 2003 CD, see Section 4.3.5, "Creating a 2003Reburn CD Using Solaris or Linux" on page 4-12.

     -or-

- To install LSI RAID drivers with Windows using a boot diskette, see Section 4.3.6, "Installing LSI RAID Drivers With Windows Using a Boot Diskette" on page 4-14.

▼ To Configure the LSI RAID Card for RAID

1. Reboot the server and press Ctrl-C when prompted.

2. Follow the LSI User's Guide on how to build a RAID.

See the LSI Integrated RAID User's Guide at:

`http://www.lsi.com/documentation/storage/hbas/sas/IR-SAS_UserGuide.pdf`

3. Save your changes and exit the utility.

4. Continue with the appropriate section and procedure:
- Section 4.3.5, "Creating a 2003Reburn CD Using Solaris or Linux" on page 4-12
- Section 4.3.6, "Installing LSI RAID Drivers With Windows Using a Boot Diskette" on page 4-14

4.3.5 Creating a 2003Reburn CD Using Solaris or Linux

The Sun Fire X2200 M2 Server Tools and Drivers CD v1.2 (and later) contains a script that allows you to create a new Windows Server 2003 CD with the necessary LSI RAID drivers. After creating the new CD, you can boot from the CD and install Windows Server 2003 in the usual way. This new CD automatically installs the drivers, making it unnecessary to use a USB diskette drive to install the LSI RAID drivers.

For specific and current information about the `2003Reburn` script, see the description at the top of the script, which is located in `/utilities/reburn` on the Tools and Drivers CD.

To create the 2003Reburn CD, the following is needed:

- A system running Solaris OS for x86 Platforms, Solaris OS (SPARC® Platform Edition), Red Hat Enterprise Linux 3 or 4, or SUSE Linux Enterprise System (SLES) 9
- CD burner and a blank CD-R or CD-RW
- A Windows Server 2003 CD (retail media only—not an OEM version)
- A Sun Fire X2200 M2 Server Tools and Drivers CD V1.2 (or later)

▼ To Create a 2003Reburn CD Using Solaris or Linux

1. **On a system running the Solaris OS x86, the Solaris OS (SPARC Platform Edition), RHEL 3, RHEL 4, or SLES 9, insert the Sun Fire X2200 M2 Server Tools and Drivers CD into a CD/DVD drive.**

2. **Log in as root (superuser).**

3. **Create a temporary directory with at least 1.2 GB of space.**

   For example:

   ```
   # mkdir /files
   ```

4. **Copy the** 2003REBURN_*version*.zip **file to that directory.**

   version is the current version of 2003Reburn.

   For example:

   ```
   # cp /utilities/reburn/2003reburn_1.1.zip /files
   ```

5. **Eject the Tools and Drivers CD and insert your retail Windows 2003 32-bit CD.**

6. **Unzip the** 2003Reburn_*version*.zip **file.**

   For example:

   ```
   # unzip -q 2003Reburn_1.1.zip
   ```

7. **Run the** 2003Reburn **script.**

   For example:

   ```
   #./files/2003Reburn -b
   ```

Note – If your system does not have the ability to burn CDs, run the command *without* the -b option. An ISO image is created which can be saved to a system with a CD burner.

The script displays the driver files it expects to be located in the current directory. When all four driver files have been downloaded into that directory, the script creates a new ISO image and then automatically burns that ISO image onto a CD if the system has a CD burner.

8. **After the CD has been created, install Windows Server 2003 the Sun Fire X2200 M2 server, using the newly created CD.**

4.3.6 Installing LSI RAID Drivers With Windows Using a Boot Diskette

This section explains how to create a boot diskette for the LSI RAID drivers using the Sun Fire X2200 M2 Server Tools and Drivers CD and how to install the drivers onto your server.

Note – LSI RAID boot drivers are only needed for Windows 2003. All other supported Operating Systems have LSI RAID boot drivers included.

To install the LSI RAID drivers using a boot diskette, you need the following:

- A Windows system with a CD and diskette drive
- A blank diskette
- A Sun Fire X2200 M2 Server Tools and Drivers CD
- A USB floppy drive
- A Windows 2003 CD (retail media only—not an OEM version)

▼ To install RAID Drivers With Windows Using a Boot Diskette:

1. **Create a RAID Drivers boot diskette.**

    See "To Create a RAID Drivers Boot Diskette" on page 4-14.

2. **Install the Windows OS using the boot diskette created in** Step 1.

    See, "To Install the Windows OS Using the Boot Diskette" on page 4-15.

▼ To Create a RAID Drivers Boot Diskette

1. **On a Windows system, insert the Sun Fire X2200 M2 Server Tools and Drivers CD.**

2. **Insert a blank diskette into the Windows system.**

3. **Copy the contents of the** `LSI_RAID` **directory on the Tools and Drivers CD to the floppy diskette:**

    > **Copy d: \drivers\windows\LSI_RAID***OS***\ a:**

    OS is `32bit` or `64bit`.

▼ To Install the Windows OS Using the Boot Diskette

1. **Attach a USB diskette drive to the Sun Fire X2200 M2 server.**

2. **Insert a Windows 2003 32-bit or 64-bit installation CD into the CD/DVD drive.**

3. **Press the F6 key to install the third-party RAID driver.**

4. **Press the S key, and then press Enter, to specify additional drivers and insert the diskette.**

5. **Select the LSI Logic Fusion-MPT SAS Driver (Server 2003 OS).**

   OS is the version of the OS that you are installing (32-bit or 64-bit).

6. **Press the Enter key to continue the Windows 2003 installation.**

7. **When the OS installation is finished, install the Nvidia display and chipset drivers as explained in** Section 4.4, "Installing the Ethernet and Chipset Drivers" on page 4-15**.**

4.4 Installing the Ethernet and Chipset Drivers

The following procedures describe how to install the Windows Ethernet and chipset drivers from the Sun Fire X2200 M2 Server Tools and Drivers CD. Choose one of the following procedures to install the drivers:

■ Install Ethernet and Chipset Drivers Using RKVMS. See, "To Install the Drivers Using RKVMS" on page 4-16.

   -or-

■ Install Ethernet and Chipset Drivers Directly From the Tools and Drivers CD. See, "To Install the Windows Server 2003 drivers Directly from the Tools and Drivers CD" on page 4-16.

Note – If you used the 2003Reburn option to create a Windows 2003 CD that contains the drivers, you do not need to install these drivers.

▼ To Install the Drivers Using RKVMS

1. **Setup the RKVMS as described in the instructions in** Section 4.1.2.3, "Installing Windows Using RKVMS" on page 4-3.

2. **When RKVMS is setup, insert the Tools and Drivers CD into the CD/DVD drive.**

3. **To install the drivers, use the steps described in the next procedure,** "To Install the Windows Server 2003 drivers Directly from the Tools and Drivers CD" on page 4-16.

▼ To Install the Windows Server 2003 drivers Directly from the Tools and Drivers CD

1. **Insert the Sun Fire X2200 M2 Server Tools and Drivers CD into the DVD drive.**

2. **Install the chipset drivers:**

   a. **Use Windows Explorer to navigate to the following directory on the Tools and Drivers CD:**

   ```
   D:\drivers\windows\OS\chipset
   ```

   OS is 2003_32 or 2003_64.

   b. **Double-click on the** `.exe` **file and install the drivers using the installation wizard.**

3. **Install the Broadcom Ethernet drivers.**

   a. **Use Windows Explorer to navigate to the following directory on the Tools and Drivers CD:**

   ```
   D:\drivers\windows\broadcomNIC
   ```

   b. **Double-click the** `Launch.exe` **file.**

   c. **Click Install Driver.**

   d. **Install the drivers using the installation wizard.**

4. **Install the AST2000 VGA drivers.**

   a. **Open the Windows Device Manager.**

   b. **Update the device driver as follows:**

i. **Right-click on the display driver and select Update.**

   The Hardware Update Wizard appears.

  ii. **Select No, Not at This Time, and click Next.**

 iii. **In the next dialog box, select Install From a List or Specific Location, and click Next.**

  iv. **Select browse and point to the following directory on the Tools and Drivers CD:**

   `D:\drivers\windows\`*OS*`\video`

   v. **Click OK, and then click Next.**

   The AST2000 driver installs.

5. **Reboot the server.**

Installing VMware

This chapter explains the procedure to install VMware ESX Server 3.0.2 (and later) on the Sun Fire X2200 M2 servers and includes the following sections:

- Section 5.1, "About VMware" on page 5-2
- Section 5.2, "Planning Network Interfaces" on page 5-3
- Section 5.3, "Installing VMware ESX Server From a CD/DVD" on page 5-4
- Section 5.4, "Installing VMware ESX Server From Local Media" on page 5-5

5.1 About VMware

You can install the VMware ESX Server software from a local CD/DVD drive, a remote CD/DVD drive, or the network. The most common methods to install VMware on your server are:

1. Installation from downloaded image (from the VMware website) burned onto CD/DVD media.

2. Automatic kickstart installation from VMware software (installation tree) stored on a Preboot Execution Environment (PXE) network server.

You can find detailed information and procedures concerning VMware virtualization software at:

http://www.vmware.com/support/pubs

5.1.1 VMware Installation and Administration Documentation

Before you begin installing VMware ESX Server software on a Sun Fire X2200 M2 server, consult the following documents for VMware ESX Server install, at:

http://www.vmware.com/support/pubs/vi_pubs.html

- *Introduction to Virtual Infrastructure*
- *Quick Start Guide*
- *Installation and Upgrade Guide*
- *Basic System Administration*
- *Virtual Infrastructure Web Access Administrator's Guide*
- *Server Configuration Guide*
- To prepare for PXE install, see the VMware I*nstallation and Upgrade Guide for Virtual Infrastructure 3*. Chapter 6, "Remote and Scripted Installations."

5.1.2 Task Map for VMware ESX Server Installation

Consult the following table to determine which sections in this document are relevant to the installation tasks that you want to perform.

Installation Task	Relevant Section
Collect information about your system.	Section 5.1.1, "VMware Installation and Administration Documentation" on page 5-2.
Download ISO image and burn to CD.	Section t, "To Install VMware ESX Server From a CD/DVD" on page 5-4.
Begin installing the VMware ESX software using a local or network-attached CD or virtual CD drive.	Section t, "To Install VMware ESX Server From Local Media" on page 5-5.
Identify a specific network interface.	Section 5.2, "Planning Network Interfaces" on page 5-3.
Complete the VMware ESX Server 3 software installation.	See: http://www.vmware.com/support/pubs/vi_pubs.html
Update the ESX Server 3 software if necessary.	Section 5.4.1, "VMware Updates and Patches" on page 5-7.

5.2 Planning Network Interfaces

The Virtual Infrastructure 3 service console and management interface is dependent on a network interface. The service console does not automatically use the first interface with a live connection. If you do not physically connect all network interfaces, a live interface must be associated with the service console for host management.

See your *Sun Fire X2200 M2 Server Service Manual* for detailed information concerning network interface cabling and the BIOS considerations of these interfaces.

By default, vmnic0 is assigned for service console communications.

5.3　Installing VMware ESX Server From a CD/DVD

The following procedure applies to installing VMware ESX Server from a local CD-ROM, or a virtual CD-ROM redirected from Java Console.

5.3.1　Before You Begin

1. Read the required documents for VMware ESX Server.

2. If no internal CD/DVD drive is available, use the network-attached virtual CD/DVD drive (or a USB CD-ROM).

▼ To Install VMware ESX Server From a CD/DVD

1. **From a network-connected system with CD-burning capabilities, download the ISO image from:**

   http://www.vmware.com/

2. **Burn the image to a CD.**

Note – If Java Remote Console is used to redirect a CD drive or image, you can select "Host Device" as the device type.

---

3. **Install the ESX Server software on the Sun Fire X2200 M2 system.**

4. **Update the ESX Server software if necessary.**

   Download available updates from:

   http://www.vmware.com/support/

   The process is detailed in the following sections.

5.4 Installing VMware ESX Server From Local Media

Installing VMware ESX Server 3.0.2 and later on your Sun Fire X2200 M2 server, requires:

1. USB keyboard, mouse connected to rear USB ports of Sun Fire server, or access through a remote console.

2. Monitor connected to Sun Fire server (not required if you are using remote KVMS)

3. If there is no built-in CD-ROM, choose either one of the following:

   ■ External USB CD/DVD drive connected to the server.

   -or-

   ■ Virtual CD drive redirected through remote console (only if no physical drive is present).

4. CD-ROM of VMware ESX media

5. The *Installation and Upgrade Guide for VMware Infrastructure*

▼ To Install VMware ESX Server From Local Media

1. **Turn on the Sun Fire system.**

2. **Insert the media into CD-ROM drive. The server boots from the CD and display a boot prompt.**

   `boot:`

3. **Choose the interface that you would like to work with:**

   ■ To work in graphical mode, press Enter.

   -or-

   ■ To work in text mode, enter the following command:

   `esx text`

4. **From your network-connected system go to:**

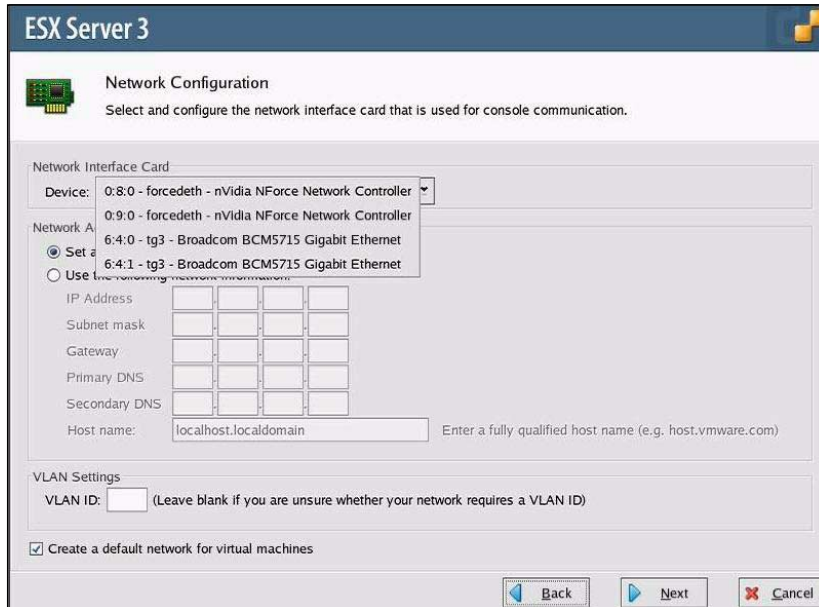   http://www.vmware.com/support/pubs/vi_pubs.html

5. **Locate the** *Installation and Upgrade Guide for VMware Infrastructure***.**

   Use the document to guide you through the installation process.

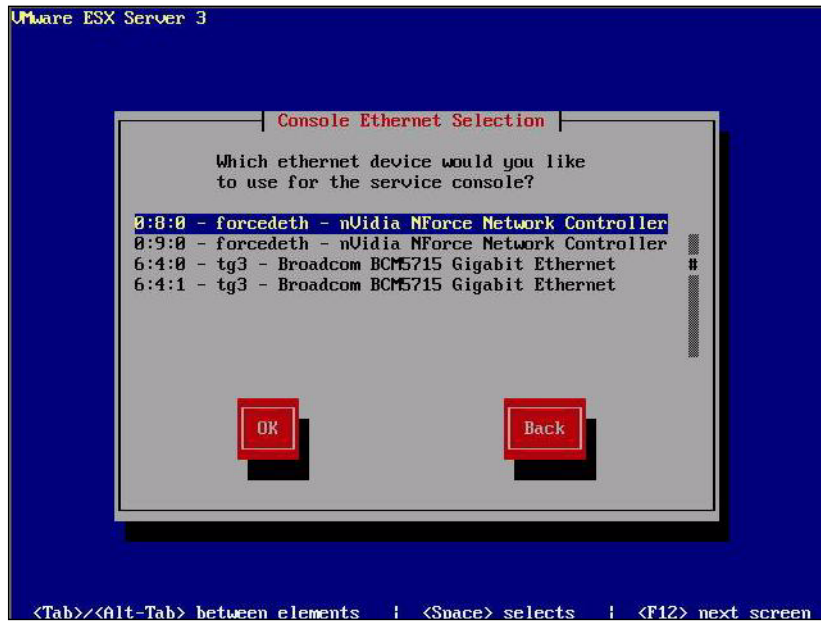6. **Identify the Sun Fire-specific network interface.**

   In the service console window on the Sun Fire system, identify the available network configuration alternatives (see FIGURE 5-1and FIGURE 5-2).

FIGURE 5-1   ESX Server 3 Network Configuration Graphical Mode Dialog Box

FIGURE 5-2 ESX Server 3 Network Configuration Text Mode Dialog Box

During ESX Server install network configuration, the interfaces are shown as these adapters if no extra or optional network controllers are installed in the Sun Fire X2200 M2 server:

```
vmnic0 = "0:8:0 - forcedeth - nVidia NForce Network Controller"
vmnic1 = "0:9:0 - forcedeth - nVidia NForce Network Controller"
vmnic2 = "6:4:0 - tg3 - Broadcom BCM5715 Gigabit Ethernet"
vmnic3 = "6:4:1 - tg3 - Broadcom BCM5715 Gigabit Ethernet"
```

7. Complete the VMware installation.

This is detailed in the *Installation and Upgrade Guide for VMware Infrastructure* available at http://www.vmware.com/support/pubs/vi_pubs.html.

5.4.1   VMware Updates and Patches

When VMware ESX Server images are available for updates you can download from:

http://www.vmware.com/support/

Redirecting the Solaris OS Output to the Serial Port

The following procedure shows how to redirect the Solaris operating system (OS) output from the Sun Fire X2200 M2 server to a serial console. Use these instructions to redirect OS output after the software is installed.

Note – To redirect the server output to the console during OS installation, see the instructions in Chapter 2.

▼ To Redirect the Solaris OS Output to the Serial Port

1. **After the Solaris OS is installed, log in to the server as root (superuser).**

2. **Make edits to the following files:**

   a. **Edit and save the following lines in the** `/boot/solaris/bootenv.rc` **file to read as follows:**

   ```
   setprop console 'ttyb'
   setprop ttyb-mode 115200,8,n,1,-
   ```

   b. **Edit the following line in the** `/boot/grub/menu.lst` **file to read as follows:**

   ```
   kernel /platform/i86pc/multiboot -B console=ttyb
   ```

c. **Add and save the following line to the end of the** `/kernel/drv/asy.conf`
file:

```
name="asy" parent="isa" reg=1,0x2f8,8 interrupts=3;
```

d. **Edit and save the following line in the**
`/var/svc/manifest/system/console-login.xml` **file as follows:**

```
propval name='label' type='astring' value='115200'/
```

3. **Reboot the system with the following command:**

```
reboot -- -r
```

You should then be sent back to the CLI prompt:
–>

4. **(If necessary) Login in to the service processor's command-line interface (CLI)**

The CLI prompt appears:
–>

For information about logging in to and using the CLI, see the *Embedded Lights
Out Manager Administration Guide for the Sun Fire X2200M2 and X2100M2 Servers.*

5. **Navigate to the /SP/AgentInfo namespace:**

```
-> cd /SP/AgentInfo
```

6. **Run the following command:**

```
start console
```

You should now begin to see console output of the system starting up.

Performing a Windows RIS Installation

This appendix contains instructions for performing a Remote Installation Services (RIS) network installation for the Windows Server 2003 operating system (OS) onto the Sun Fire X2200 M2 server. Choose the section that corresponds to the version of Windows Server 2003 that you wish to install:

■ Section B.0.1, "Installing Windows Server 2003 SP1 32-Bit Using RIS" on page B-1.

■ Section B.0.1, "Installing Windows Server 2003 SP1 32-Bit Using RIS" on page B-1.

B.0.1   Installing Windows Server 2003 SP1 32-Bit Using RIS

▼ To Install Windows Server 2003 SP1 32-Bit Using RIS

1. **Install RIS support on a Windows Server 2003 system. For a complete set of instructions on how to install RIS on Windows Server 2003 go to:**

   `http://support.microsoft.com/default.aspx?scid=kb;en-us;325862`

2. **Install Windows Server 2003 SP1 32-bit on the RIS server by doing the following:**

   a. **Insert Windows Server 2003 SP1 32-bit CD into the RIS server's CD-ROM drive.**

   b. **Click Start, and select Run.**

c. **Type** `risetup.exe` **into the Run field.**

The Welcome to the Remote Installation Services Setup Wizard window appears.

d. **Click Next.**

e. **Select "Add a new OS image to this remote installation server", and then click Next.**

f. **Select the drive location that has the Windows 2003 SP1 32-bit CD in it, and then click Next.**

g. **Type a descriptive name for the stored Windows 2003 SP1 32-bit CD, and then click Next.**

For example: **SunFire_X2200_M2_Windows_2003_SP1_32bit**

h. **Type a Friendly description and Help text for the end user, and then click Next to continue.**

i. **Select "Use the old client installation screens", and then click Next.**

j. **Review the settings, and then click Finish to install the image.**

k. **Click Done when the image is installed to the server.**

3. **Update the RIS image created in** Step 2 **with the RIS Broadcom Ethernet drivers for Windows 2003 SP1 32-bit.**

The RIS Broadcom Ethernet drivers can be found on the Tools and Drivers CD version 1.0 or later.

a. **Insert the Tools and Drivers CD into the RIS server.**

b. **Copy the Windows 2003 SP1 32-bit RIS Broadcom Ethernet driver files locally to the RIS server as follows:**

```
> copy cdrom_drive:\drivers\windows\RIS\2003_32\broadcom\*
C:\temp\broadcom
```

cdrom_drive specifies the media drive that contains the Tools and Drivers CD.

c. **Copy all the files in** `c:\temp\broadcom` **directory to the RIS image on the RIS server. For example:**

```
> copy C:\temp\broadcom\*.* D:\RemoteInstall\Setup\English\
Images\image_dir\i386
```

image_dir specifies the directory on the RIS server that contains the RIS image.

4. **Update the RIS image created in** Step 2 **with the RIS Nvidia Ethernet drivers for Windows 2003 SP1 32-bit.**

   The RIS Nvidia Ethernet drivers can be found on the Tools and Drivers CD version 1.0 or later.

   a. **Insert the Tools and Drivers CD into the RIS server and copy the Windows 2003 SP1 32-bit RIS Nvidia Ethernet driver files locally to the RIS server by typing the following:**

   ```
   > copy cdrom_drive:\drivers\windows\RIS\2003_32\nvidia\*
   C:\temp\nvidia
   ```

   cdrom_drive specifies the media drive that contains the Tools and Drivers CD.

   b. **Copy all the files in** `c:\temp\nvidia` **to the RIS image on the RIS server. For example:**

   ```
   > copy C:\temp\nvidia\*.* D:\RemoteInstall\Setup\English\Images\
   image_dir\i386
   ```

   image_dir specifies the directory on the RIS server that contains the RIS image.

5. **Modify the** `ristndrd.sif` **file with the following additions.**

   The `ristndrd.sif` file can be found at **D:\RemoteInstall\Setup\Englsh\Images**image_dir**\i386\templates**.

   image_dir specifies the directory on the RIS server that contains the RIS image.

   a. **Change the following entries:**

   ```
   [Unattended]
   OemPreinstall = yes

   [GuiUnattended]
   AdminPassword = password
   ```

   b. **Remove the following entries:**

   ```
   [Identification]
   JoinDomain = %MACHINEDOMAIN%
   DoOldStyleDomainJoin = Yes
   ```

c. **Add the following entries**

```
[Unattended]
DriverSigningPolicy = Ignore
OemPnPDriversPath = "\drivers\nic\nvidia;\drivers\nic\broadcom; /
\drivers\sata_ide;\drivers\smbus;\drivers\video"

[MassStorageDrivers]
"NVIDIA RAID CLASS DRIVER (required)"="OEM"
"NVIDIA nForce Storage Controller (required)"="OEM"

[OEMBootFiles]
nvatabus.sys
nvraid.cat
nvraid.inf
nvraid.sys
txtsetup.oem

[UserData]
ProductKey = XXXXX-XXXXX-XXXXX-XXXXX-XXXXX

[Identification]
JoinWorkgroup = WORKGROUP
```

6. **Add the** `$oem$` **directory and its subdirectories to the RIS image.**

   a. **Add the** `$oem$` **subdirectory to the RIS image located at**
      `d:\RemoteInstall\Setup\English\Images\`*image_dir*
      image_dir specifies the directory on the RIS server that contains the RIS image.

   b. **Create the following subdirectories under the** `$oem$` **directory.:**
      $1
      $$
      textmode

   c. **Create the following subdirectory under the** `$1` **directory:**
      drivers

   d. **Create the following subdirectories under the** `drivers` **directory:**
      nic
      sata_ide
      smbus
      video

e. **Create the following subdirectories under the** `nic` **directory:**

   broadcom

   nvidia

f. **Create the following subdirectories under the** `$$` **directory:**

   OemDir

7. **Copy driver files into the** `$oem$` **directory tree as follows:**

   The Tools and Drivers CD has the Windows 2003 SP1 32-bit drivers located at *cdrom_drive***:\drivers\windows\2003_32**

```
> Copy cdrom_drive:\drivers\windows\2003_32\chipset\ide\winxp\
sataraid\*.dll D:\remoteinstall\setup\english\images\image_dir\
$oem$\$$\OemDir

> Copy cdrom_drive:\drivers\windows\2003_32\chipset\ide\winxp\
sataraid\* D:\remoteinstall\setup\english\images\image_dir\$oem$\
textmode

> Copy cdrom_drive:\drivers\windows\2003_32\chipset\ide\winxp\
sata_ide\* D:\remoteinstall\setup\english\images\image_dir\$oem$\
$1\drivers\sata_ide

> Copy cdrom_drive:\drivers\windows\2003_32\chipset\ethernet\*
D:\remoteinstall\setup\english\images\image_dir\$oem$\$1\drivers\
nic\nvidia

> Copy cdrom_drive:\drivers\windows\2003_32\chipset\smbus\* D:\
remoteinstall\setup\english\images\image_dir\$oem$\$1\drivers\smbus

> Copy cdrom_drive:drivers\windows\2003_32\broadcomnic\win2003\ia32\
* D:\remoteinstall\setup\english\images\image_dir\$oem$\$1\drivers\
nic\broadcom

> Copy cdrom_drive:\drivers\windows\2003_32\video\* D:\
remoteinstall\setup\english\images\image_dir\$oem$\$1\drivers\video
```

8. **Modify the** `txtsetup.oem` **file**

   a. **In a text editor, open the** `D:\RemoteInstall\Setup\English\Images\image_dir\$oem$\textmode\txtsetup.oem` **file.**

      image_dir specifies the directory on the RIS server that contains the RIS image.

   b. **Comment out the** `dll` **files in the** `[Files.scsi.RAIDClASS]` **and** `[Files.scsi.BUSDRV]` **sections by adding a semicolon to the beginning of each line.**

c. **Save and exit the file.**

9. **Start and stop the Remote Installation Service (BINLSVC) on the RIS server by typing the following at a command prompt:**

   > `net Stop binlsvc`

   > `net Start binlsvc`

10. **Install the image onto the Sun Fire X2200 M2 server.**

B.0.2   Installing Windows Server 2003 SP1 64-Bit Using RIS

▼ To Install Windows Server 2003 SP1 64-Bit Using RIS

1. **Install RIS support on a Windows Server 2003 system. For a complete set of instructions on how to install the RIS on Windows Server 2003 go to:**

   http://support.microsoft.com/default.aspx?scid=kb;en-us;325862

2. **Install Windows Server 2003 SP1 64-bit on the RIS server by doing the following:**

   a. **Insert Windows Server 2003 SP1 64-bit CD into the RIS server's CD-ROM drive.**

   b. **Select Start -> Run.**

   c. **Type `risetup.exe` into the Run field.**

   The Welcome to the Remote Installation Services Setup Wizard window appears.

   d. **Click Next.**

   e. **Select "Add a new OS image to this remote installation server", and then click Next.**

   f. **Select the drive location that has the Windows 2003 SP1 64-bit CD in it, and then click Next.**

   g. **Type a descriptive name for the stored Windows 2003 SP1 64-bit CD, and then click Next.**

   For example: `SunFire_X2200_M2_Windows_2003_64bit`

h. **Type a Friendly description and Help text for the end user, and then click Next.**

i. **Select "Use the old client installation screens, and overwrite the old ones, and then click Next".**

j. **Review the settings in the Review Settings window, and then click Finish.**

k. **Click Done when the image is installed to the server.**

3. **Update the RIS image created in** Step 2 **with the RIS Broadcom Ethernet drivers for Windows 2003 SP1 64-bit.**

The RIS Broadcom Ethernet drivers can be found on the Tools and Drivers CD version 1.0 or later.

a. **Insert the Tools and Drivers CD into the RIS server.**

b. **Copy the Windows 2003 SP1 64-bit RIS Broadcom Ethernet driver files locally to the RIS server as follows:**

```
> copy cdrom-drive:\drivers\windows\RIS\2003_64\broadcom\*
C:\temp\broadcom
```

cdrom_drive specifies the media drive which contains the Tools and Drivers CD.

c. **Copy all the files in** `c:\temp\broadcom` **directory to the RIS image on the RIS server. For example:**

```
> copy C:\temp\broadcom\*.* D:\RemoteInstall\Setup\English\
Images\image_dir\amd64
```

image_dir specifies the directory on the RIS server that contains the RIS image.

4. **Update the RIS image created in** Step 2 **with the RIS Nvidia Ethernet drivers for Windows 2003 SP1 64-bit.**

The RIS Nvidia Ethernet drivers can be found on the Tools and Drivers CD version 1.0 (or later).

a. **Insert the Tools and Drivers CD into the RIS server and copy the Windows 2003 SP1 64-bit RIS Nvidia Ethernet driver files locally to the RIS server by doing the following:**

```
> copy cdrom drive:\drivers\windows\RIS\2003_64\nvidia\*
C:\temp\nvidia
```

cdrom_drive specifies the media drive which contains the Tools and Drivers CD.

b. Copy all the files in `c:\temp\nvidia` **to the RIS image on the RIS server.**
For example:

```
> copy C:\temp\nvidia\*.* D:\RemoteInstall\Setup\English\Images\
image_dir\amd64
```

image_dir specifies the directory on the RIS server that contains the RIS image.

5. Modify the `ristndrd.sif` **file with the following additions.**

The `ristndrd.sif` file can be found at **D:\RemoteInstall\Setup\Englsh**
Images*image_dir***\amd64\templates**.
image_dir specifies the directory on the RIS server that contains the RIS image.

a. Change the following entries:

```
[Unattended]
OemPreinstall = yes

[GuiUnattended]
AdminPassword = password
```

b. Remove the following entries:

```
[Identification]
JoinDomain = %MACHINEDOMAIN%
DoOldStyleDomainJoin = Yes
```

c. Add the following entries

```
[Unattended]
DriverSigningPolicy = Ignore
OemPnPDriversPath = "\drivers\nic\nvidia;\drivers\nic\broadcom; /
\drivers\sata_ide;\drivers\smbus;\drivers\video"

[MassStorageDrivers]
"NVIDIA RAID CLASS DRIVER (required)"="OEM"
"NVIDIA nForce Storage Controller (required)"="OEM"

[OEMBootFiles]
nvatax64.sys
nvraid.cat
nvrdx64.inf
nvrdx64.sys
txtsetup.oem

[UserData]
ProductKey = XXXXX-XXXXX-XXXXX-XXXXX-XXXXX

[Identification]
JoinWorkgroup = WORKGROUP
```

6. Add the oem directory and its subdirectories to the RIS image.

   a. Add the oem subdirectory to RIS image located at:

      d:\RemoteInstall\Setup\English\Images*image_dir*

      image_dir specifies the directory on the RIS server that contains the RIS image.

   b. Create the following subdirectories under the oem directory:

      $1

      $$

      textmode

   c. Create the following subdirectory under the $1 directory:

      drivers

   d. Create the following subdirectories under the drivers directory:

      nic

      sata_ide

      smbus

      video

e. **Create the following subdirectories under the** `nic` **directory:**

   broadcom

   nvidia

f. **Create the following subdirectory under the** `$$` **directory:**

   OemDir

7. **Copy driver files into the** `$oem$` **directory tree as follows:**

   The Tools and Drivers CD has the Windows 2003 SP1 64-bit drivers located at *cdrom_drive*:\drivers\windows\2003_64

   cdrom_drive specifies the media drive which contains the Tools and Drivers CD.

```
> Copy cdrom_drive:\drivers\windows\2003_64\chipset\ide\win64\
sataraid\*.dll D:\remoteinstall\setup\english\images\image_dir\
$oem$\$$\OemDir

> Copy cdrom_drive:\drivers\windows\2003_64\chipset\ide\win64\
sataraid\* D:\remoteinstall\setup\english\images\image_dir\$oem$\
textmode

> Copy cdrom_drive:\drivers\windows\2003_64\chipset\ide\win64\
sata_ide\* D:\remoteinstall\setup\english\images\image_dir\$oem$\
$1\drivers\sata_ide

> Copy cdrom_drive:\drivers\windows\2003_64\chipset\ethernet\*
D:\remoteinstall\setup\english\images\image_dir\$oem$\$1\drivers\
nic\nvidia

> Copy cdrom_drive:\drivers\windows\2003_64\chipset\smbus\* D:\
remoteinstall\setup\english\images\image_dir\$oem$\$1\drivers\smbus

> Copy cdrom_drive:drivers\windows\2003_64\broadcomnic\win2003\x64\
* D:\remoteinstall\setup\english\images\image_dir\$oem$\$1\drivers\
nic\broadcom

> Copy cdrom_drive:\drivers\windows\2003_64\video\* D:\
remoteinstall\setup\english\images\image_dir\$oem$\$1\drivers\video
```

8. **Modify the** `txtsetup.oem` **file.**

   a. **In a text editor, open the** `D:\RemoteInstall\Setup\English\Images\`
      image_dir\oem\textmode\txtsetup.oem **file.**

      image_dir specifies the directory on the RIS server that contains the RIS image.

   b. Comment out the `dll` files in the `[Files.scsi.RAIDClASS]` and `[Files.scsi.BUSDRV]` sections by adding a semicolon at the beginning of each line.

   c. Save and exit the file.

9. Start and stop the Remote Installation Service (BINLSVC) on the RIS server by typing the following at a command prompt:

   > `net Stop binlsvc`

   > `net Start binlsvc`

10. Install the image onto the Sun Fire X2200 M2 server.

Network Interface Configuration

The network interface card (NIC) connectors are labeled physically on the Sun Fire X2100 M2 server as follows:

TABLE C-1   NIC Connector Label

NIC Connector Label	Interface Type
net0	First Broadcom interface
net1	Second Broadcom interface
net2	Second Nvidia interface
net3	First Nvidia interface

Some NICs will not be detected by the OS until the `install.sh` script from the Sun Fire X2200 M2 Server Tools and Drivers CD is run. Also, the ifconfig interface that is assigned to the NIC according to the operating system (OS) that you have installed might change after the drivers from the Sun Fire X2200 M2 Server Tools and Drivers CD are installed.

See the following sections for ifconfig assignments for each supported Linux or Solaris operating system. Later versions of the operating systems listed in the following sections have built-in support for both Broadcom and Nvidia NICs.

C.0.1   Red Hat Enterprise Linux (RHEL) 4.3

Before the Tools and Drivers CD drivers are installed, the Nvidia interfaces are not detected for RHEL 4.3, and cannot be used for PXE installation. Later versions of RHEL 4 contain support for both Nvidia and Broadcom.

After installing the drivers from the Tools and Drivers CD, the Nvidia NICs are detected and the interface order remains the same for the Broadcom NICs The order of the ifconfig interfaces is show in TABLE C-2.

TABLE C-2   Red Hat Enterprise Linux 4 Update 3

ifconfig interface	Physical interface
Before Tools and Drivers CD update	
eth2	net0
eth3	net1
After Tools and Drivers CD update	
eth0	net3
eth1	net2
eth2	net0
eth3	net1

C.0.2   Red Hat Enterprise Linux 3.7

Before the Tools and Drivers CD drivers are installed, the Nvidia interfaces are not detected in RHEL 3.7 and cannot be used for PXE installation. Later versions of RHEL 3 contain support for both Nvidia and Broadcom.

After installing the drivers from the Tools and Drivers CD, the Nvidia NICs are detected and configured. The order of the ifconfig interface changed as shown in TABLE C-3.

TABLE C-3   Red Hat Enterprise Linux 3 Update 7

ifconfig interface	Physical interface
Before Tools and Drivers CD update	
eth0	net0
eth1	net1
After Tools and Drivers CD update	
eth0	net3
eth1	net2
eth2	net0
eth3	net1

C.0.3   Solaris 10 6/06 (Build 9a)

Before the Tools and Drivers CD drivers are installed, the Nvidia interfaces are not detected. The Broadcom interfaces are bge0 and bge1. After installing the drivers from the Tools and Drivers CD, the Nvidia NICs (nge0 and nge1) are detected and configured. The order of the ifconfig interface changed as shown in TABLE C-4.

TABLE C-4   Solaris 10 6/06 (Build 9)

ifconfig interface	Physical interface
Before Tools and Drivers CD update	
bge0	net0
bge1	net1
After Tools and Drivers CD update	
nge0	net3
nge1	net2
bge0	net0
bge1	net1

C.0.4   SUSE Linux Enterprise Server (SLES) 9 SP 3

Before the Tools and Drivers CD drivers are installed, the Broadcom interfaces are not detected for SLES 9 SP3 and cannot be used for PXE installation. Later versions of SLES contain support for both Nvidia and Broadcom.

After installing the drivers from the Tools and Drivers CD, the Broadcom NICs are detected. No change is seen on the Nvidia interface order. The order of the ifconfig interface changed as shown in TABLE C-5.

TABLE C-5   SLES 9 SP 3

ifconfig interface	Physical interface
Before Tools and Drivers CD update	
eth0	net3
eth1	net2
After Tools and Drivers CD update	
eth0	net3

TABLE C-5   SLES 9 SP 3

ifconfig interface	Physical interface
eth1	net2
eth2	net0
eth3	net1

Index