

Sun Fire X4170 M2 and X4270 M2 Servers

Installation Guide for Linux, Virtual Machine
Software, and Oracle Solaris Operating Systems



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Using This Documentation

This installation guide contains procedures for installing the Linux, Virtual Machine Software, and Oracle Solaris operating systems and initial software configuration procedures for bringing the Sun Fire X4170 M2 and X4270 M2 Servers from Oracle to a configurable and usable state.

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

The preface contains the following topics:

- “Product Information” on page ix
- “Related Documentation” on page x
- “Documentation, Support, and Training” on page xi
- “Typographic Conventions” on page xii

Product Information

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

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

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

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

- Product information and specifications
- Supported operating systems
- Software and firmware downloads

Related Documentation

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

(<http://www.oracle.com/documentation>)

Title	Content	Format
<i>Sun Fire X4170 M2 and X4270 M2 Servers Product Notes</i>	Late-breaking information about the servers	PDF HTML
<i>Sun Fire X4170 M2 and X4270 M2 Servers Getting Started Guide</i>	Basic installation information for setting up the servers	PDF Print
<i>Sun Fire X4170 M2 and X4270 M2 Servers Installation Guide</i>	Detailed installation information for setting up the servers	PDF HTML
<i>Sun Fire X4170 M2 and X4270 M2 Servers Installation Guide for Linux, Virtual Machine Software, and Oracle Solaris Operating Systems</i>	Installation instructions for Linux, Virtual Machine Software, and Oracle Solaris operating systems	PDF HTML
<i>Sun Fire X4170 M2 and X4270 M2 Servers Installation Guide for Windows Operating Systems</i>	Installation instructions for the Windows Server operating systems	PDF HTML
<i>Sun Fire X4170 M2 Server Service Manual</i>	Information and procedures for maintaining and upgrading the Sun Fire X4170 M2 Server	PDF HTML
<i>Sun Fire X4270 M2 Server Service Manual</i>	Information and procedures for maintaining and upgrading the Sun Fire X4270 M2 Server	PDF HTML
<i>Oracle Hardware Installation Assistant 2.5 User's Guide for x86 Servers (The Sun Installation Assistant is now called the Oracle Hardware Installation Assistant.)</i>	Instructions for using Oracle's Hardware Installation Assistant to install the Windows and Linux operating systems	PDF HTML
<i>Sun x64 Servers Diagnostics Guide</i>	Information for diagnosing and troubleshooting the servers	PDF HTML

Title	Content	Format
<i>Sun Server CLI Tools and IPMItool 2.0 User's Guide</i>	Information for using applications and utilities common to x86 servers	PDF HTML
Oracle Integrated Lights Out Manager (ILOM) 3.0 Documentation Collection (formerly called Sun Integrated Lights Out Manager)	ILOM features and tasks that are common to servers and server modules that support ILOM 3.0	PDF HTML
<i>Oracle Integrated Lights Out Manager (ILOM) 3.0 Supplement for Sun Fire X4170 M2 and X4270 M2 Servers</i>	ILOM 3.0 information that is specific to the Sun Fire X4170 M2 and X4270 M2 Servers	PDF HTML
<i>Sun Fire X4170 M2 and X4270 M2 Servers Safety and Compliance Guide</i>	Hardware safety and compliance information for the servers	PDF
<i>Important Safety Information for Sun Hardware Systems</i>	Multilingual hardware safety and compliance information for all Sun hardware system	Print

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

Documentation, Support, and Training

These web sites provide additional resources:

- Documentation (<http://www.oracle.com/documentation>)
- Support (<https://support.oracle.com>)
- Training (<https://education.oracle.com>)

Typographic Conventions

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

PART I Linux Software Installation

This section lists the topics that describe how to install a Linux operating system on Oracle's Sun Fire X4170 M2 and X4270 M2 Servers.

Description	Links
Novice or Experienced Users: Use Oracle Hardware Installation Assistant to perform an assisted installation of the Linux operating system. The installation assistant provides the appropriate system drivers and platform-specific software.	Chapter 1 , Assisted OS Installation With Oracle Hardware Installation Assistant
Experienced Users. Manually install the Linux operating system and the required system drivers.	<ul style="list-style-type: none">• Chapter 2, Getting Started• Chapter 3, Installing Oracle Linux• Chapter 4, Installing SUSE Enterprise Linux• Chapter 5, Installing Red Hat Enterprise Linux
Reference: Refer to these topics, as needed, to perform or complete the Linux operating system installation.	<ul style="list-style-type: none">• Appendix A, Installation Methods• Appendix B, Supported Operating Systems• Appendix C, BIOS Defaults for New Installations• Appendix D, Downloading the ISO Image for the Tools and Drivers DVD.

Assisted OS Installation With Oracle Hardware Installation Assistant

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

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

Note – [1] Some option card drivers are downloaded to the server, but require manual installation. Feature enhancements are made to Oracle Hardware Installation Assistant regularly; therefore, you should check the Oracle Hardware Installation Assistant information page for the latest updates and supported features (<http://www.oracle.com/goto/hia>).

Topics discussed in this chapter include:

- “Oracle Hardware Installation Assistant Task Overview” on page 4
- “How to Obtain Oracle Hardware Installation Assistant” on page 4
- “Oracle Hardware Installation Assistant Documentation Resources” on page 5

Oracle Hardware Installation Assistant Task Overview

You can perform the following tasks using the Oracle Hardware Installation Assistant:

Note – The supported Oracle Hardware Installation Assistant installation and recovery tasks listed below are server-dependent and might vary.

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

How to Obtain Oracle Hardware Installation Assistant

The Oracle Hardware Installation Assistant is provided with most server platforms on the Oracle Hardware Installation Assistant DVD. It is also available as a web download. Regular updates are made available to ensure that the latest OS versions are supported. To download the latest version of Oracle Hardware Installation Assistant for your server platform, refer to the installation assistant's information page at:

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

Oracle Hardware Installation Assistant Documentation Resources

If you have determined that you want to install a Windows or Linux operating system on your x86 server using Oracle Hardware Installation Assistant, refer to the following document for detailed installation instructions.

- *Oracle Hardware Installation Assistant 2.5 User's Guide for x86 Servers*

Getting Started With Linux Operating System Installations

This chapter describes how to get started installing a Linux operating system manually on your server.

Note – The term “manually” refers to performing the installation by following the instructions provided in this guide, and not using the Oracle Hardware Installation Assistant. If you prefer to use the installation assistant to perform a Linux installation, see [Chapter 1](#) of this guide.

Topics discussed in this chapter include:

- “Supported Linux Operating Systems” on page 8
- “Linux Installation Prerequisites” on page 9
- “Linux Installation Task Overview” on page 10

Supported Linux Operating Systems

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

Linux OS	Edition
Oracle	Oracle Linux 5.5 for x86 (64-bit) and the Oracle Unbreakable Enterprise Kernel for Linux
Red Hat	Red Hat Enterprise Linux 5.5 and 6.0 for x86 (64-bit)
SUSE	<ul style="list-style-type: none">• SUSE Linux Enterprise Server 10 SP3• SUSE Linux Enterprise Server 11 (64-bit)• SUSE Linux Enterprise Server 11 SP1 (64-bit)

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

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

Linux Installation Prerequisites

Refer to the following important considerations before beginning the Linux operating system installation on your server.

TABLE 2-1 Prerequisites for Installing a Linux Operating System

Requirement	Description	For more information, see:
Server is set up and operational	The server is mounted and powered-on in the rack and communication to the SP has been established.	<ul style="list-style-type: none">• <i>Sun Fire X4170 M2 and X4270 M2 Servers Installation Guide</i>
Established deployment method that enables you to boot the Linux install program	Guidelines for deploying a Linux operating system installation.	<ul style="list-style-type: none">• Appendix A
RAID volume creation	If you want to include your boot drive as part of a RAID configuration, you need to configure a RAID volume on it. Use the LSI integrated RAID controller setup utility before you install Windows.	<ul style="list-style-type: none">• <i>LSI MegaRAID Software SAS User's Guide at:</i> (http://www.lsi.com/support/sun/)
Verification of BIOS settings for new OS installations	Prior to installing the Linux operating system, you should verify that the BIOS factory-default properties are set.	<ul style="list-style-type: none">• Appendix C
Linux vendor documentation	Gather the applicable vendor documentation for the Linux installation. The vendor documentation should be used in conjunction with the installation instructions provided in this guide.	<ul style="list-style-type: none">• (http://www.novell.com/documentation/suse)• (http://www.redhat.com/docs/manuals/enterprise/) <p>Note - Installation instructions for Oracle Linux and the Oracle Unbreakable Enterprise Kernel for Linux are provided in Chapter 3 of this document.</p>

TABLE 2-1 Prerequisites for Installing a Linux Operating System (Continued)

Requirement	Description	For more information, see:
Tools and Drivers DVD	Ensure that you have the Tools and Drivers DVD software that is provided for your server.	<ul style="list-style-type: none"> • (http://www.oracle.com/goto/x4170m2) • (http://www.oracle.com/goto/x4270m2)
SLES 11 - Prepare LSI Storage Floppy Image or Floppy Disk	The SLES 11 install media does not include the LSI device drivers for the Sun Storage 6 Gb/s SAS PCIe HBA options (SG-SAS6-INT-Z or SG-SAS6-EXT-Z). If you have one of these SAS PCIe HBA options installed, the LSI mass storage driver for the HBA option must be mounted from a floppy image or floppy disk during the installation.	<ul style="list-style-type: none"> • “SAS PCIe HBAs Requiring Storage Drivers for SLES 11 Installations” on page 11
Access to late-breaking information	Review the <i>Sun Fire X4170 M2 and X4270 M2 Servers Product Notes</i> for late-breaking information about supported operating system software and patches.	<ul style="list-style-type: none"> • <i>Sun Fire X4170 M2 and X4270 M2 Servers Product Notes</i>

Linux Installation Task Overview

To install a Linux operating system, complete the following tasks in the order specified:

1. Gather the Linux operating system installation media and documentation. You can download the Linux installation program from the appropriate vendor’s web site, for example:
 - For Oracle Linux, see (<http://edelivery.oracle.com/linux>)
 - For SUSE Linux Enterprise Server, see: (<http://www.novell.com>)
 - For Red Hat Enterprise Linux, see: (http://www.redhat.com/download/how_to_download.html)
2. If necessary, obtain the Tools and Driver DVD provided or download the latest drivers for your server as described in [Appendix D](#).

If you are installing SLES 11 and you have Sun Storage 6 Gb/s SAS PCIe HBA installed on your server, you must copy the LSI storage drivers for the HBA option to a floppy disk or floppy image prior to performing the SLES 11 installation. For more details, see “SAS PCIe HBAs Requiring Storage Drivers for SLES 11 Installations” on page 11
3. Choose and set up an installation method for deploying Linux as described in [Appendix A](#)

4. Follow the instructions for performing a manual installation of a Linux Server operating system as described in:
 - [Chapter 3](#) for Oracle Linux
 - [Chapter 4](#) for SUSE Linux Enterprise Server
 - [Chapter 5](#) for Red Hat Linux Enterprise Server
5. Follow the specific operating system instructions for performing the post installation tasks as described in:
 - [“Post Oracle Linux Installation Tasks”](#) on page 20
 - [“Post SLES Installation Tasks”](#) on page 37
 - [“Post RHEL Installation Tasks”](#) on page 44

SAS PCIe HBAs Requiring Storage Drivers for SLES 11 Installations

The SLES 11 installation media does not include the LSI mass storage driver for the following SAS PCIe HBA options described in [TABLE 2-2](#).

TABLE 2-2 SAS PCIe HBA Requiring LSI Mass Storage Drivers for SLES 11

SAS PCIe HBA Option	Option Number	Driver Required During Installation
Sun Storage 6 Gb SAS PCIe HBA, Internal	SG-SAS6-INT-Z	LSI Adapter SAS Falcon
Sun Storage 6 Gb SAS PCIe HBA, External	SG-SAS6-EXT-Z	LSI Adapter SAS Falcon

If you have one of the SAS PCIe HBA options (described in [TABLE 2-2](#)) installed on your server and you are installing SLES 11, the LSI mass storage driver for the HBA option must be mounted from a floppy disk or floppy image during the SLES 11 installation process.

Prior to starting the SLES 11 installation, use one of the following methods to prepare the LSI mass storage driver floppy disk or floppy image:

- **Mount Floppy Disk.** Use the LSI storage floppy image on the Tools and Drivers DVD to create a floppy disk. Then, mount the floppy disk as a device from the ILOM Remote Console.
- **Mount Floppy Image.** Copy the LSI storage floppy image on the Tools and Drivers DVD to a network location. Then, mount the floppy image from the ILOM Remote Console.

The LSI storage floppy image on the Tools and Driver DVD is located in the following directory: `Linux/SLES/SLES11/FloppyImages/64bit`

Instructions for loading the LSI mass storage driver during the SLES 11 installation are provided in Step 6 of the procedure [“Installing SLES 11 or SLES 11 SP1 Using Local or Remote Media”](#) on page 29.

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

Note – The SLES 11 installation media includes the required LSI mass storage drivers for the Sun Storage SAS PCIe **RAID** HBA options SG-SAS6-R-INT-Z and SG-SAS6-R-EXT-Z.

Installing Oracle Linux

This chapter provides information about installing Oracle Linux 5 for x86 (64-bit) and the Oracle Unbreakable Enterprise Kernel for Linux.

Note – It is highly recommended that you use the Oracle Hardware Installation Assistant to install the Oracle Linux operating system on your server. The installation assistant provides and installs the device driver(s), if required, for you. For more information about using Oracle Hardware Installation Assistant to install an operating system, see [Chapter 1](#).

This chapter includes the following topics:

- “Oracle Unbreakable Enterprise Kernel for Linux” on page 13
- “Installing Oracle Linux 5 Using Local or Remote Media” on page 14
- “Installing Oracle Linux 5 Using a PXE Network Environment” on page 19
- “Post Oracle Linux Installation Tasks” on page 20
- “Installing Oracle Unbreakable Enterprise Kernel for Linux Using Local or Remote Console” on page 21

Oracle Unbreakable Enterprise Kernel for Linux

The Oracle Unbreakable Enterprise Kernel for Linux is a recommended kernel that can be installed on top of Oracle Linux 5 Update 5 or Red Hat Enterprise Linux 5 Update 5. This new kernel is based on the 2.6.32 Linux Kernel and includes optimizations developed by Oracle to ensure stability and optimal performance. All patches added to the 2.6.32 mainline kernel are open source.

Oracle Unbreakable Enterprise Kernel for Linux has demonstrated its stability, reliability, and performance improvements in demanding environments. and it is the kernel used in Oracle's Exadata and Exalogic systems. Furthermore, the Oracle Unbreakable Enterprise Kernel for Linux is now used in all benchmarks on Linux that Oracle participates in, as well as in Oracle's Validated Configurations program.

Because the Oracle Unbreakable Enterprise Kernel for Linux installs directly on top of Oracle Linux 5 or Red Hat Enterprise Linux 5, there is no need to upgrade to a new major release of the Linux operating system to gain the benefits and features of this new kernel. And after you have installed this new kernel, you still have the option of easily switching back to the Red Hat Enterprise Linux kernel and, then, switching back and forth between the two kernels.

Oracle highly recommends deploying the Oracle Unbreakable Enterprise Kernel for Linux in your Linux environment, especially if you are running Oracle software. Oracle Unbreakable Enterprise Kernel for Linux is optional, however, and Oracle Linux continues to include a Red Hat compatible kernel, which is compiled directly from Red Hat Enterprise Linux (RHEL) source code, for customers who require strict RHEL compatibility. Oracle also recommends this new kernel for customers running third-party software and third-party hardware.

For more information about benefits and features of the Oracle Unbreakable Enterprise Kernel for Linux, go to:

<http://www.oracle.com/us/technologies/linux/ubreakable-enterprise-kernel-linux-173350.html>

Installing Oracle Linux 5 Using Local or Remote Media

The following procedure describes how to boot the Oracle Linux operating system installation from local or remote media. The procedure assumes that you are booting the Oracle Linux installation media from one of the following sources:

- Oracle Linux 5.5 (or subsequent release) CD or DVD set (internal or external CD/DVD)
- Oracle Linux 5.5 (or subsequent release) ISO DVD image (network repository)

Note – If you are booting the installation media from a PXE environment, refer to “Installing Oracle Linux 5 Using a PXE Network Environment” on page 19 for instructions.

Before You Begin

Prior to performing the installation, the following requirements must be met:

- All applicable installation prerequisites for installing an operating system should have been met. For further information about these prerequisites, see [Chapter 2](#).
- An installation method (for example: console, boot media, and install target) should have been chosen and established prior to performing the installation. For more information about these setup requirements, see [Appendix A](#).

After completing this procedure, you should review and perform the required post installation tasks described later in this chapter. For more details, see “[Post Oracle Linux Installation Tasks](#)” on page 20. You can also install the Oracle Unbreakable Enterprise Kernel for Linux on top of your Oracle Linux 5.5 and later distribution. For more information, see “[Installing Oracle Unbreakable Enterprise Kernel for Linux Using Local or Remote Console](#)” on page 21.

▼ Install Oracle Linux 5 Using Local or Remote Media

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

- **For Distribution CD/DVD.** Insert the Oracle Linux 5 Distribution media boot disc (CD labeled number 1 or the single DVD) into the local or remote USB CD/DVD-ROM drive.
- **For ISO images.** Ensure that the ISO images are available and that the boot disc image (CD labeled number 1 or DVD) has been selected in the ILOM Remote Console application (Devices menu --> CD-ROM Image).
- For additional information about how to set up the installation media, see “[Installation Boot Media](#)” on page 93.

2. Reset the power on the server.

For example:

- **From the ILOM web interface,** select the Remote Control --> Remote Power Control tab, then select Reset from the Select Action list box.
- **From the local server,** press the Power button (approximately 1 second) on the front panel of the server to power off the server, then press the Power button again to power on the server.
- **From the ILOM CLI on the server SP,** type: **reset /SYS**

The BIOS screen appears.

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

3. In the BIOS screen, press F8 to specify a temporary boot device for the Oracle Linux installation.

The Please Select Boot Device menu appears.

4. In the Boot Device menu, select either the external or virtual CD/DVD device as the first boot device, then press Enter.

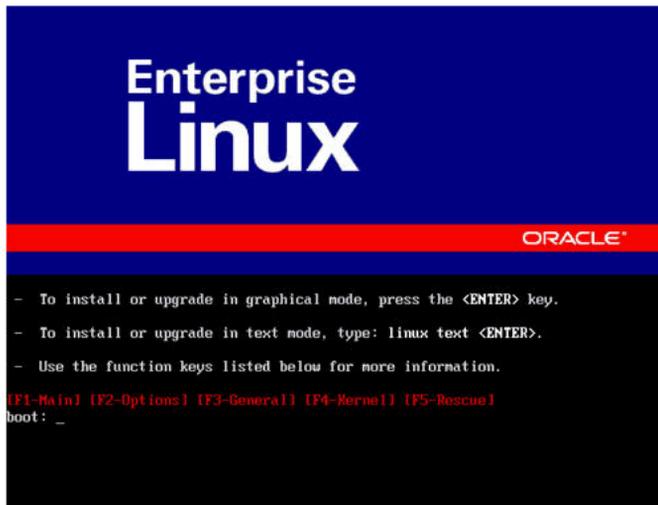
The device strings listed on Boot Device menu are in the format of: *device type, slot indicator, and product ID string.*

After a few seconds, the splash screen for the Oracle Linux 5 installation appears. The bottom half of the splash screen lists instructions, function keys, and the boot prompt.

5. In the Oracle Linux splash screen, press Enter to continue the normal user interactive installation.

Alternately, for text mode, enter the following command:

```
boot: linux text
```



6. In the Language screen, select the appropriate language, then click Next.



The Keyboard Type screen appears.

- 7. In the Keyboard Type screen, select the appropriate keyboard configuration, then click Next.**

The Installation Method screen appears.

- 8. In the Installation Method screen, select the appropriate installation method (Local CDROM or NFS Image), then click OK.**

The CD Found screen appears.

- 9. In the CD Found screen, click Skip.**

The Oracle Linux 5 screen appears.

- 10. In the Oracle Linux 5 screen, click Next.**

The Installation Number dialog appears.

- 11. In the Installation Number dialog, enter the "Installation number" or click Skip entering installation number, then click OK.**

The Disk Partition Setup screen appears.

- 12. In the Disk Partition Setup screen, do the following:**

- a. Select the option for Remove Linux partition on selected drives and create default layout or manually partition the disk using the Create custom layout option of Disk Druid, then click Next.**

Installing Oracle Linux 5 Using a PXE Network Environment

This section describes how to boot the Oracle Linux 5 from a PXE network environment. It assumes that you are booting the installation media from one of the following sources:

- Oracle Linux 5.5 CD or DVD set (internal or external CD/DVD)
- Oracle Linux 5.5 ISO DVD image or KickStart image (network repository)

Note – KickStart is an automated installation tool. It enables a system administrator to create a single image containing the settings for some or all installation and configuration parameters that are normally provided during a typical Oracle Linux installation. Typically, a KickStart image is placed on a single network server and read by multiple systems for installation.

Before You Begin

The following requirements must be met prior to performing the Oracle Linux PXE installation:

- If you are using a KickStart image to perform the installation, you must:
 - Create a KickStart file.
 - Create the boot media with the KickStart file or make the KickStart file available on the network.
- To use PXE to boot the installation media over the network, you must:
 - Configure the network (NFS, FTP, HTTP) server to export the installation tree.
 - Configure the files on the TFTP server necessary for PXE booting.
 - Configure the server's MAC network port address to boot from the PXE configuration.
 - Configure the Dynamic Host Configuration Protocol (DHCP).

Follow the PXE network installation instructions in the *Red Hat Enterprise Linux 4: System Administration Guide* at:

(<http://www.redhat.com/docs>)

▼ Install Oracle Linux 5 Using PXE Network Boot

1. **Ensure that the PXE network environment is properly set up and the Oracle Linux installation media is available for PXE boot.**
2. **Reset the power on the server.**

For example:

- **From the ILOM web interface**, select the Remote Control --> Remote Power Control tab, then select Reset from the Select Action list box.
- **From the local server**, press the Power button (approximately 1 second) on the front panel of the server to power off the server, then press the Power button again to power on the server.

- **From the ILOM CLI on the server SP**, type: `reset /SYS`

The BIOS screen appears.

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

3. **In the BIOS screen, press F8 to specify a temporary boot device.**

The Please Select Boot Device menu appears listing the available boot device.

4. **In the Boot Device menu, select the network port that is configured to communicate with your PXE network install server.**

The network bootloader loads and a boot prompt appears. After a few seconds the installation kernel will begin to load.

5. **To complete the installation, refer to Step 5 of “Install Oracle Linux 5 Using Local or Remote Media” on page 15.**

Post Oracle Linux Installation Tasks

After completing the Oracle Linux installation, you should review the following post installation tasks and, if necessary, perform the tasks that are applicable to your system.

- [“Configure Support for TPM” on page 21](#)
- [“Register Oracle Linux and Activate Automatic Updates” on page 21](#)

Configure Support for TPM

If you intend to use the Trusted Platform Module (TPM) feature set that is provided in Oracle Linux, you must configure your server to support this feature. For instructions, see the service manual for your server model:

- *Sun Fire X4170 M2 Server Service Manual*
- *Sun Fire X4270 M2 Server Service Manual*

Note – TPM enables you to administer the TPM security hardware in your server. For additional information about implementing this feature, refer to the TPM documentation available for Oracle Linux.

Register Oracle Linux and Activate Automatic Updates

After installing Oracle Linux, you should register your system and activate your subscription with Oracle to receive automatic updates to the software. For more details, see Oracle Linux Support at:

(<http://www.oracle.com/support/purchase.html>)

Installing Oracle Unbreakable Enterprise Kernel for Linux Using Local or Remote Console

Before You Begin

Before installing the Oracle Unbreakable Enterprise Kernel for Linux, you must have Oracle Linux 5, Update 5 or Red Hat Enterprise Linux 5, Update 5 installed on your server.

▼ Install Oracle Unbreakable Enterprise Kernel for Linux Using Local or Remote Console

1. Ensure that your system is running Oracle Linux 5, Update 5 or Red Hat Enterprise Linux 5, Update 5 before installing the Oracle Unbreakable Enterprise Kernel for Linux.
2. To download the Oracle Linux 5 Yum repository file to your system, enter the following commands:
 - a. `# cd /etc/yum.repos.d`
 - b. `# wget http://public-yum.oracle.com/public-yum-el5.repo`
3. Open the `/etc/yum.repos.d/etc/public-yum-el5.repo` file in an editor.
4. Edit both the `[el5_u5_base]` and `[ol5_u5_base]` stanzas and change `enable=0` to `enable=1` as follows:

```
[el5_u5_base]
name=Enterprise Linux $releasever U5 - $basearch - base
baseurl=http://publicyum.
oracle.com/repo/EnterpriseLinux/EL5/5/base/$basearch/
gpgkey=http://public-yum.oracle.com/RPM-GPG-KEY-oracle-el5
gpgcheck=1
enable=1

[ol5_u5_base]
name=Oracle Linux $releasever - U5 - x86_64 - base
baseurl=http://publicyum.
oracle.com/repo/OracleLinux/OL5/5/base/x86_64/
gpgkey=http://public-yum.oracle.com/RPM-GPG-KEY-oracle-el5
gpgcheck=1
enable=1
```

5. To update your system kernel, do one of the following
 - To update your system kernel to the Oracle Unbreakable Enterprise Kernel for Linux, enter the following command:
`# yum install kernel`
 - Or
 - To update your system kernel to the Oracle Unbreakable Enterprise Kernel for Linux and upgrade all the recommended packages associated with it, enter the following command:
`# yum install oracle-linux`

6. To run the newly installed Oracle Unbreakable Enterprise Kernel for Linux, reboot your system.

Note – For more information on the Oracle Unbreakable Enterprise Kernel for Linux, see the release notes at: (<http://oss.oracle.com/e15/docs>).

Installing SUSE Linux Enterprise Server

This chapter provides information about installing SUSE Linux Enterprise Server (SLES) 10 SP3, SLES 11, or SLES 11 SP1 (or subsequent release) for x86 (64-bit).

Note – It is highly recommended that you use the Oracle Hardware Installation Assistant to install the Oracle Linux operating system on your server. The installation assistant provides and installs the device driver(s), if required, for you. For more information about using Oracle Hardware Installation Assistant to install an operating system, see [Chapter 1](#).

This chapter includes the following topics:

- “Installing SLES 10, SLES 11, or SLES 11 SP1 Using Local or Remote Media” on page 25
 - “Installing SLES 10 SP3, SLES 11, or SLES 11 SP1 Using a PXE Network Environment” on page 35
 - “Post SLES Installation Tasks” on page 37
-

Installing SLES 10, SLES 11, or SLES 11 SP1 Using Local or Remote Media

The following procedure describes how to boot the SLES 10 SP3 or SLES 11 SP1 operating system from local or remote media. It assumes that you are booting the SLES 10 SP3, SLES 11, or SLES 11 SP1 installation media from one of the following sources:

- SLES 10 SP3, SLES 11, or SLES 11 SP1 (or subsequent release) CD or DVD set (internal or external CD/DVD)
- SLES 10 SP3, SLES 11, or SLES 11 SP1 (or subsequent release) ISO DVD image (network repository)

Note – If you are booting the installation media from a PXE environment, refer to [“Installing SLES 10 SP3, SLES 11, or SLES 11 SP1 Using a PXE Network Environment”](#) on page 35 for boot instructions.

To install SLES 10 SP3, SLES 11, or SLES 11 SP1 using local or remote media, refer to the following topics:

- [“Before You Begin”](#) on page 26
- [“Install SLES10 SP3 Using Local or Remote Media”](#) on page 26
- [“Installing SLES 11 or SLES 11 SP1 Using Local or Remote Media”](#) on page 29

For further details about installing SLES 10 SP3, SLES 11, or SLES 11 SP1, see the SUSE Linux Enterprise Server documentation collection from Novell at:

(<http://www.novell.com/documentation/suse>)

Before You Begin

Prior to performing the installation, the following requirements must be met:

- All applicable installation prerequisites for installing this operating system should have been met. For further information about these prerequisites, see [Chapter 2](#).
- An installation method (for example: console, boot media, and install target) for booting the SLES installation media should have been chosen and established prior to performing the installation. For more information about these setup requirements, see [Appendix A](#).

After completing this procedure, you should review and perform the required post installation tasks described later in this chapter. For more details, see [“Post SLES Installation Tasks”](#) on page 37.

▼ Install SLES10 SP3 Using Local or Remote Media

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

- **For Distribution CD/DVD.** Insert the SLES10 SP3 boot disc (CD labeled number 1 or DVD) into the local or remote USB CD/DVD-ROM drive.

- **For ISO images.** Ensure that the ISO images are available and that the boot disc image (CD labeled number 1 or DVD) has been selected in the ILOM Remote Console application (Devices menu --> CD-ROM Image).

For additional information about how to set up the install media, see [Appendix A](#).

2. Reset the power on the server.

For example:

- **From the ILOM web interface,** select the Remote Control --> Remote Power Control tab, then select Reset from the Select Action list box.
- **From the local server,** press the Power button (approximately 1 second) on the front panel of the server to power off the server, then press the Power button again to power on the server.
- **From the ILOM CLI on the server SP,** type: `reset /SYS`

The BIOS screen appears.

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

3. In the BIOS screen, press F8 to specify a temporary boot device for the SLES installation.

The Please Select Boot Device menu appears.

4. In the Boot Device menu, select either the external or virtual CD/DVD device as the first boot device, then press Enter.

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

After a few seconds the initial SUSE Linux boot screen appears.

5. In the initial SUSE boot screen, use the tab key to select the second option Installation, then press Enter.

This option continues the normal user interactive installation process.

The Language screen appears.

Note – The Language screen might take several minutes to appear.

6. In the Language screen, select the appropriate language option, then click Next.

The License Agreement screen appears.

7. In the SUSE Linux Novell License Agreement screen, click Accept.

The SUSE YaST installation program initializes. The YaST graphical installation screen appears.

Depending on the AutoYaST file configuration, the YaST Language Selection screen might appear.

8. If the YaST Language Selection screen appears, specify which language to use.

Depending on the AutoYaST file configuration, the YaST Installation Mode screen might appear.

9. If the YaST Installation Mode screen appears, select New Installation, then click OK to continue.

The system's hardware is detected. The YaST Installation Settings screen appears.

10. In the YaST Installation Settings screen, do the following:

a. Click the Partitioning option.

b. Select Create Custom Partition, then click OK.

c. Partition the disk as appropriate.

Refer to the YaST Partitioning instructions for more information.

Note – If Oracle Solaris OS or Oracle VM is preinstalled on the disk, you can choose to partition the disk to remove the preinstalled OS; or, you can choose to keep the preinstalled OS and partition the disk to support dual-boot operating systems.

11. Continue the basic installation setup until all the SLES OS files are installed and the system reboots.

12. After completing the basic installation setup, refer to the YaST documentation to perform the following tasks:

a. Create a password for your account.

b. Configure and test the Internet access and network settings.

c. Register the OS, then download available updates to the operating system.

Alternatively, see [“Updating the SLES Operating System” on page 37](#) to manually update your SLES 10 SP3 OS.

13. Review and, if necessary, perform the post installation tasks described later in this chapter.

Refer to [“Post SLES Installation Tasks” on page 37](#).

▼ Installing SLES 11 or SLES 11 SP1 Using Local or Remote Media

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

- **For Distribution CD/DVD.** Insert the SLES 11 or SLES 11 SP1 boot disc (CD labeled number 1 or DVD) into the local or remote USB CD/DVD-ROM drive.
- **For ISO images.** Ensure that the SLES 11 or SLES 11 SP1 ISO images are available and that the boot disc image (CD labeled number 1 or DVD) has been selected in the ILOM Remote Console application (Devices menu --> CD-ROM Image).

For additional information about how to set up the install media, see [Appendix A](#).

2. Reset the power on the server.

For example:

- **From the ILOM web interface,** select the Remote Control --> Remote Power Control tab, then select Reset from the Select Action list box.
- **From the local server,** press the Power button (approximately 1 second) on the front panel of the server to power off the server, then press the Power button again to power on the server.
- **From the ILOM CLI on the server SP,** type: `reset /SYS`

The BIOS screen appears.

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

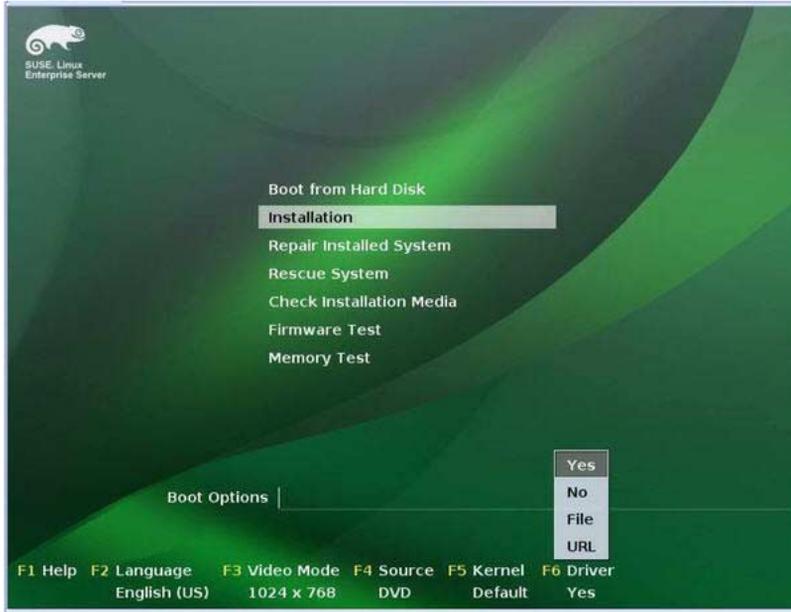
3. In the BIOS screen, press F8 to specify a temporary boot device for the SLES installation.

The Please Select Boot Device menu appears.

4. In the Boot Device menu, select either the external or virtual CD/DVD device as the first boot device, then press Enter.

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

After a few seconds the initial SUSE Linux boot screen appears.



5. In the initial SUSE boot installation screen, do one of the following:

- **If you are installing SLES 11 SP1**, use the tab key to select the second option Installation and press Enter.

The Welcome screen appears. **Proceed to Step 7.**

- or -

- **If you are installing SLES 11 on systems that do not have a Sun Storage 6 Gb SAS PCIe HBA configuration (SG-SAS6-INT-Z or SG-SAS6-EXT-Z)**, use the tab key to select the second option Installation and press Enter.

The Welcome screen appears. **Proceed to Step 7.**

- or -

- **If you are installing SLES 11 on systems that have a Sun Storage 6 Gb SAS PCIe HBA (SG-SAS6-INT-Z or SG-SAS6-EXT-Z) configuration**, press F6 to load the appropriate LSI mass storage driver.

The Driver Update Medium dialog appears. **Proceed to Step 6.**

Note – The floppy storage media for loading LSI mass storage driver should have been mounted prior to starting the SLES 11 installation. For details about mounting the LSI floppy storage media prior to installation, see [“SAS PCIe HBAs Requiring Storage Drivers for SLES 11 Installations”](#) on page 11.



6. (LSI storage driver for SAS PCIe HBA configurations only) To load the LSI mass storage driver for the Sun Storage 6 Gb SAS PCIe HBA option (SG-SAS6-INT-Z or SG-SAS6-EXT-Z), perform the following steps:

a. In the Driver Update Medium dialog, select the medium where the LSI floppy storage image is mounted, then click OK.

The driver is loaded then the Driver Update Medium dialog reappears.

b. In the Driver Update Medium dialog, click Back.

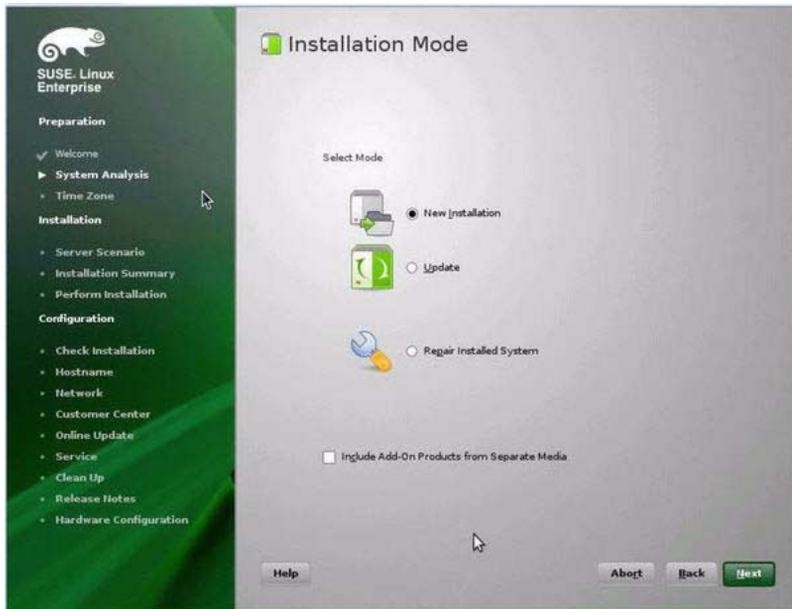
A message appears stating that the installation is being loaded then the SUSE Welcome screen appears.



7. In the Welcome screen, do the following

- Select the appropriate Language.
- Select the Keyboard Layout.
- Read the license agreement and select the check box for: I Agree to the License Terms.
- Click Next.

The System Probing screen appears with a progress bar. Upon completion of the system analysis, the Yast Installation Mode screen appears.



8. In the Installation Mode screen, select New Installation, then click Next.

The Clock and Time Zone screen appears.

9. In the Clock and Time Zone screen, select the appropriate region and time zone, then click Next.

The Server Base Scenario screen appears.

10. In the Server Base Scenario screen, select Physical Machine, then click Next.

The Installation Settings screen appears.



11. In the Installation Settings screen, do the following:

- Click **Next** to accept the installation settings shown.
- or -
- Click **Change** to edit the settings, then click **Next** to accept the installation settings.

Note – For more information about how to create custom partitions or edit other installation settings, refer to the Novell SLES 11 documentation.

The Confirm Package License screen appears.

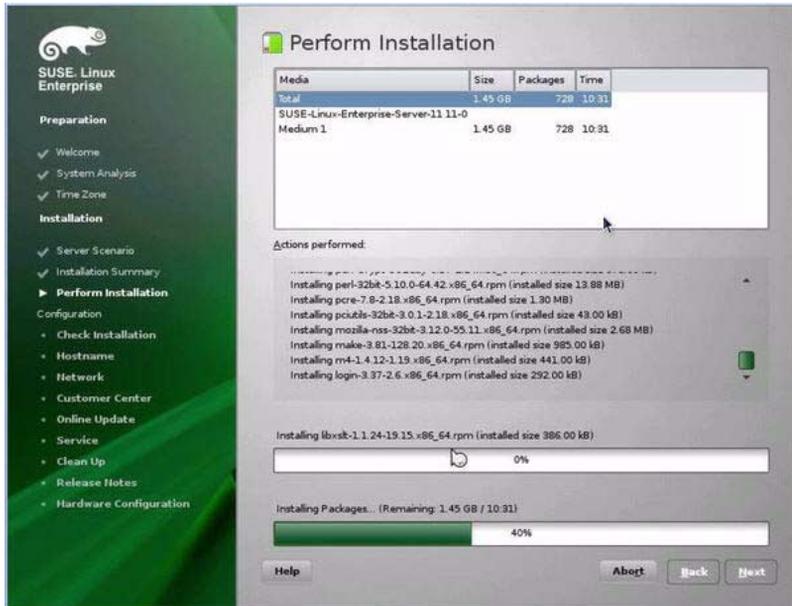
12. In the Confirm Package License screen, do the following:

- Read the License Agreement.
- Click **I Agree**.
- Click **Install**.

A Confirm Installation dialog appears.

13. In the Confirm Installation dialog, read the message and click **Install to start the installation.**

The Perform Installation dialog appears.



14. Continue the basic installation setup until all the SLES 11 OS files are installed and the system reboots.
15. After the completing the basic installation setup, refer to the SLES 11 documentation to perform the following tasks:
 - a. Create a password for your account.
 - b. Configure and test the Internet access and network settings.
 - c. Register the OS then download the latest updates available to the operating system.
16. Review and, if necessary, perform the post installation tasks described later in this chapter.

For details, see [“Post SLES Installation Tasks”](#) on page 37.

Installing SLES 10 SP3, SLES 11, or SLES 11 SP1 Using a PXE Network Environment

This section describes how to boot SLES 10 SP3, SLES 11, or SLES 11 SP1 from a PXE network environment. It assumes that you are booting the install media from one of the following sources:

- SLES 10 SP3, SLES 11, or SLES 11 SP1 (or subsequent release) CD or DVD set (internal or external CD/DVD)
- SLES 10 SP3, SLES 11, or SLES 11 SP1 (or subsequent release) ISO DVD image or AutoYaST image (network repository)

AutoYaST enables you to install the SLES operating system on multiple systems. For information about how to prepare an automated installation using AutoYaST, refer to the Novell SUSE documentation collection at:

<http://www.novell.com/documentation/suse>

Before You Begin

The following requirements must be met prior to performing the SLES 10 SP3 or SLES 11 SP1 installation from a PXE network boot environment:

- If you are using AutoYaST to perform the installation, you must:
 - Create the AutoYast profile.Follow the AutoYaST installation instructions in the SUSE Linux Enterprise Server (10 or 11) documentation.
- To use PXE to boot the installation media over the network, you must:
 - Configure the network (NFS, FTP, HTTP) server to export the installation tree.
 - Configure the files on the TFTP server necessary for PXE booting.
 - Configure the Sun Fire X4170 M2 and X4270 M2 Servers MAC network port address to boot from the PXE configuration.
 - Configure the Dynamic Host Configuration Protocol (DHCP).

Follow the setup instructions for booting SUSE media over the network in the SUSE Linux Enterprise documentation

After completing this procedure, you might need to perform the tasks for “[Post SLES Installation Tasks](#)” on page 37.

▼ Install SLES 10 SP3, SLES 11, or SLES 11 SP1 Using PXE Network Boot

1. **Ensure that the PXE network environment is properly set up and the SLES installation media is available for PXE boot.**
2. **Reset the power on the server.**

For example:

- **From the ILOM web interface**, select the Remote Control --> Remote Power Control tab, then select Reset from the Select Action list box.
- **From the local server**, press the Power button (approximately 1 second) on the front panel of the server to power off the server, then press the Power button again to power on the server.
- **From the ILOM CLI on the server SP**, type: **reset /SYS**

The BIOS screen appears.

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

3. **In the BIOS screen, press F8 to specify a temporary boot device.**

The Please Select Boot Device menu appears listing the available boot device.

4. **In the Boot Device menu, select the PXE install boot device (physical port) that is configured to communicate with your network install server, then press Enter.**

The network bootloader loads and a boot prompt appears. Wait for the five second time-out and the installation kernel will begin to load.

The initial SUSE Linux boot screen appears.

5. **To continue the installation, proceed to one of the following sections:**

- For SLES 10 SP3 installations, continue the installation by following the instructions starting at [Step 5 in “Install SLES10 SP3 Using Local or Remote Media” on page 26.](#)
- For SLES 11 SP1 installations, continue the installation by following the instructions starting at [Step 5 in “Installing SLES 11 or SLES 11 SP1 Using Local or Remote Media” on page 29.](#)

Post SLES Installation Tasks

After completing the SLES 10 SP3, SLES 11, or SLES 11 SP1 installation, review the following post installation tasks and, if necessary, perform the tasks that are applicable to your system.

- “Updating the SLES Operating System” on page 37
- “Configure Support for TPM” on page 38

Updating the SLES Operating System

The SLES OS installation media might not contain the most up-to-date versions of the operating system. The following procedure describes how to update the SLES OS on your server.

▼ Update the SLES Operating System

1. **Log in to the SLES server as superuser.**
2. **Type the following command to run the YaST Online Update:**

```
# you
```

Note that YaST can operate in both text and graphical modes. These directions apply to both.
3. **If your server is behind a network firewall and you need to use a proxy server to access the Internet, you must first configure YaST with the correct proxy information.**
 - a. **Select the Network Services tab, then the Proxy screen on the right. Type the correct proxy URLs in both the HTTP and HTTPS fields.**

Note – In order for the on-line update service to function correctly through a network HTTP or HTTPS proxy, the following additional configuration step must be performed.

- b. **Exit the YaST utility and run the following command:**

```
rug set-prefs proxy-url proxy_URL
```

Where *proxy_URL* is the fully qualified URL of your proxy server (for example: `http://proxy.yourdomain:3128/`).

c. After successfully running the command, launch YaST again.

4. Register with the Novell Customer Center.

Note – You will need your Novell Customer Center user name and password, as well as an SLES product activation code.

a. Select the **Software** tab.

b. Select **Novell Customer Center Configuration** and follow the directions.

5. Once registered, select the **Online Update** tab to perform the software update.

Configure Support for TPM

If you intend to use the Trusted Platform Module (TPM) feature set that is provided in SLES, you must configure the server to support this feature. For instructions, see the service manual for your server model:

- *Sun Fire X4170 M2 Server Service Manual*
- *Sun Fire X4270 M2 Server Service Manual*

Note – TPM enables you to administer the TPM security hardware in your server. For additional information about implementing this feature, refer to the TPM documentation available for SUSE Linux Enterprise Server.

Installing Red Hat Enterprise Linux

This chapter provides information about installing Red Hat Enterprise Linux 5.5 and 6.0 for x86 (64-bit) and the Oracle Unbreakable Enterprise Kernel for Linux.

Note – It is highly recommended that you use the Oracle Hardware Installation Assistant to install the Red Hat Enterprise Linux operating system on your server. This installation assistant provides and installs the device driver(s), if required, for you. For more information about using Oracle Hardware Installation Assistant to install an operating system, see [Chapter 1](#).

This chapter includes the following topics:

- “Installing RHEL 5.5 or 6.0 Using Local or Remote Media” on page 39
 - “Installing RHEL 5 or 6.0 Using a PXE Network Environment” on page 42
 - “Post RHEL Installation Tasks” on page 44
 - “Installing the Oracle Unbreakable Enterprise Kernel for Linux” on page 45
-

Installing RHEL 5.5 or 6.0 Using Local or Remote Media

The following procedure describes how to boot the Red Hat Enterprise Linux (RHEL) 5.5 and 6.0 operating systems installation from local or remote media. The procedure assumes that you are booting the RHEL installation media from one of the following sources:

- RHEL 5.5 or 6.0 (or subsequent release) CD or DVD set (internal or external CD/DVD)
- RHEL 5.5 or 6.0 (or subsequent release) ISO DVD image (network repository)

Note – If you are booting the installation media from a PXE environment, refer to “Installing RHEL 5 or 6.0 Using a PXE Network Environment” on page 42 for instructions.

For further details about installing RHEL, see the RHEL documentation collection at:

(<http://www.redhat.com/docs/manuals/enterprise/>)

Before You Begin

Prior to performing the installation, the following requirements must be met:

- All applicable installation prerequisites for installing an operating system should have been met. For further information about these prerequisites, see [Chapter 2](#).
- An installation method (for example: console, boot media, and install target) should have been chosen and established prior to performing the installation. For more information about these setup requirements, see [Appendix A](#).

After completing this procedure, you should review and perform the required post installation tasks described later in this chapter. For more details, see “[Post RHEL Installation Tasks](#)” on page 44.

▼ Install RHEL 5 or 6.0 Using Local or Remote Media

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

- **For Distribution CD/DVD.** Insert the Red Hat 5.5 or 6.0 Distribution media boot disc (CD labeled number 1 or the single DVD) into the local or remote USB CD/DVD-ROM drive.
- **For ISO images.** Ensure that the ISO images are available and that the boot disc image (CD labeled number 1 or DVD) has been selected in the ILOM Remote Console application (Devices menu --> CD-ROM Image).

For additional information about how to set up the install media, see [Appendix A](#).

2. Reset the power on the server.

For example:

- **From the ILOM web interface,** select the Remote Control --> Remote Power Control tab, then select Reset from the Select Action list box.
- **From the local server,** press the Power button (approximately 1 second) on the front panel of the server to power off the server, then press the Power button again to power on the server.

- **From the ILOM CLI** on the server SP, type: `reset /SYS`

The BIOS screen appears.

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

- 3. In the BIOS screen, press F8 to specify a temporary boot device for the RHEL installation.**

The Please Select Boot Device menu appears.

- 4. In the Boot Device menu, select either the external or virtual CD/DVD device as the first boot device, then press Enter.**

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

After a few seconds, the splash screen for the RHEL 5 installation appears. The bottom half of the splash screen lists instructions, function keys, and the boot prompt.

- 5. In the Red Hat Enterprise Linux splash screen, click Next to continue the normal user interactive installation.**

Alternately, for text mode, enter the following command:

```
boot: linux text
```

- 6. Continue the basic Red Hat installation setup by following the on-screen instructions and Red Hat documentation.**

For detailed installation instructions, see the *Red Hat Enterprise Linux 5: Installation Guide* at:

(<http://www.redhat.com/docs/manuals/enterprise>)

Note – If Oracle Solaris OS or Oracle VM is preinstalled on the disk, you can choose to partition the disk to remove the preinstalled OS; or, you can choose to keep the preinstalled OS and partition the disk to support dual-boot operating systems.

- 7. After completing the basic Red Hat installation setup, perform the following post-installation tasks:**

- a. Configure your system for automatic updates.**

Refer to Red Hat documentation for more information.

- b. **If required, download and install the latest errata and bug fixes for RHEL 5.5.**

Refer to Red Hat documentation for more information.

- c. **Review and, if necessary, perform the post installation tasks described later in this chapter.**

Refer to “Post RHEL Installation Tasks” on page 44.

Installing RHEL 5 or 6.0 Using a PXE Network Environment

This section describes how to boot the RHEL 5 from a PXE network environment. It assumes that you are booting the install media from one of the following sources:

- RHEL 5.5 or 6.0 (or subsequent release) CD or DVD set (internal or external CD/DVD)
- RHEL 5.5 or 6.0 (or subsequent release) ISO DVD image or KickStart image (network repository)

Note – KickStart is Red Hat’s automated installation method. It enables a system administrator to create a single image containing the settings for some or all installation and configuration parameters that are normally provided during a typical Red Hat Linux installation. Typically, a KickStart image is placed on a single network server and read by multiple systems for installation.

Before You Begin

The following requirements must be met prior to performing the RHEL PXE installation:

- If you are using a KickStart image to perform the installation, you must:
 - Create a KickStart file.
 - Create a boot media with the KickStart file or make the KickStart file available on the network.

Follow the KickStart installation instructions in the *Red Hat Enterprise Linux 4: System Administration Guide* at: (<http://www.redhat.com/docs>).

- To use PXE to boot the installation media over the network, you must:
 - Configure the network (NFS, FTP, HTTP) server to export the installation tree.

- Configure the files on the TFTP server necessary for PXE booting.
- Configure the Sun Fire X4170 M2 and X4270 M2 Servers MAC network port address to boot from the PXE configuration.
- Configure the Dynamic Host Configuration Protocol (DHCP).

Follow the PXE network installation instructions in the *Red Hat Enterprise Linux 4: System Administration Guide* at:

(<http://www.redhat.com/docs>)

▼ Install RHEL 5 or 6.0 Using PXE Network Boot

1. Ensure that the PXE network environment is properly set up and the RHEL installation media is available for PXE boot.

2. Reset the power on the server.

For example:

- **From the ILOM Web interface**, select the Remote Control --> Remote Power Control tab, then select Reset from the Select Action list box.
- **From the local server**, press the Power button (approximately 1 second) on the front panel of the server to power off the server, then press the Power button again to power on the server.
- **From the ILOM CLI** on the server SP, type: **reset /SYS**

The BIOS screen appears.

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

3. In the BIOS screen, press F8 to specify a temporary boot device.

The Please Select Boot Device menu appears listing the available boot device.

4. In the Boot Device menu, select the network port that is configured to communicate with your PXE network install server.

The network bootloader loads and a boot prompt appears. After a few seconds the installation kernel will begin to load.

5. To complete the installation, refer to Step 5 of “Install RHEL 5 or 6.0 Using Local or Remote Media” on page 40.

Post RHEL Installation Tasks

After completing the RHEL installation, you should review the following post installation tasks and, if necessary, perform the tasks that are applicable to your system.

- “Register RHEL and Activate Automatic Updates” on page 44
- “Configure Support for TPM” on page 44

Register RHEL and Activate Automatic Updates

After installing RHEL, you should activate your RHEL subscription to receive automatic updates to the software. For more details, see Red Hat Linux Support at:

(<http://www.redhat.com/apps/support/>)

Configure Support for TPM

If you intend to use the Trusted Platform Module (TPM) feature set that is provided in RHEL, you must configure the server to support this feature. For instructions, see the service manual for your server model:

- *Sun Fire X4170 M2 Server Service Manual*
- *Sun Fire X4270 M2 Server Service Manual*

Note – TPM allows you to administer the TPM security hardware in your server. For additional information about implementing this feature, refer to the TPM documentation available for Red Hat Enterprise Linux.

Installing the Oracle Unbreakable Enterprise Kernel for Linux

After you have installed RHEL 5.5 or 6.0, you can install and use the Oracle Unbreakable Enterprise Kernel for Linux. For installation instructions, see [“Installing Oracle Unbreakable Enterprise Kernel for Linux Using Local or Remote Console”](#) on page 21.

PART II Virtual Machine Software Installations

This section lists the topics that describe how to install virtual machine software on your server.

Description	Link(s)
Requirements. Refer to Chapter 6 to identify the installation considerations and requirements.	<ul style="list-style-type: none">• Chapter 6, Getting Started
Procedures. Refer to the appropriate chapter to install Oracle VM or VMware ESX or ESXi.	<ul style="list-style-type: none">• Chapter 7, Oracle VM Installation• Chapter 8, VMware ESX or ESXi Installation
References. Refer to these topics, as needed, to perform or complete the virtual machine software installation.	<ul style="list-style-type: none">• Appendix A, Supported Installation Methods• Appendix B, Supported Operating Systems• Appendix C, BIOS Defaults For New Installs

Getting Started With Virtual Machine Software Installations

This chapter describes how to get started installing a supported version of the virtual machine software on your server.

Topics discussed in this chapter include:

- “Supported Virtual Machine Software” on page 49
- “VM Software Installation Considerations” on page 50
- “VM Software Installation Task Overview” on page 51

Supported Virtual Machine Software

The Sun Fire X4170 M2 and X4270 M2 Servers support the following virtual machine (VM) software.

VM Software	Edition
Oracle VM	Release 2.2.1
VMware ESX	Release 4.0 Update 2 Release 4.1
VMware ESXi	Release 4.0 Update 2 Release 4.1

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

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

VM Software Installation Considerations

Refer to the following important considerations before beginning the VM software installation on your server.

TABLE 6-1 VM Software Installation Considerations

Consideration	Description	For more information, see:
Established deployment method that enables you to boot the virtual machine software install program.	Guidelines for deploying the VM software installation.	<ul style="list-style-type: none"> • Appendix A
Oracle VM installation hardware requirements	Oracle VM requires two systems with static IP addresses. <ul style="list-style-type: none"> • One system to install the Oracle VM Server. • One system for Oracle VM Manager with one of the following Linux operating systems installed: <ul style="list-style-type: none"> - Oracle Linux Release 4.5 or subsequent release - Red Hat Enterprise Linux Release 4 or subsequent release 	<ul style="list-style-type: none"> • Oracle VM Server Release Notes and the Oracle VM Manager Release Notes at: (http://download.oracle.com/docs/cd/E15458_01/index.htm)
RAID volume requirements	If you want to include your boot drive as part of a RAID configuration, you need to configure a RAID volume on it. Use the LSI integrated RAID controller setup utility before you install VM software.	<ul style="list-style-type: none"> • <i>LSI MegaRAID Software SAS User's Guide at:</i> (http://www.lsi.com/support/sun/)
Verification of BIOS settings for new OS installations	Prior to installing the VM software, you should verify that the BIOS factory-default properties are set.	<ul style="list-style-type: none"> • Appendix C
Access to late-breaking information and updates for OS installations	Review the <i>Sun Fire X4170 M2 and X4270 M2 Servers Product Notes</i> and the VM software release notes for late-breaking information about supported software and updates.	<ul style="list-style-type: none"> • <i>Sun Fire X4170 M2 and X4270 M2 Servers Product Notes</i> • Oracle VM 2.2.1 release notes at: (http://download.oracle.com/docs/cd/E15458_01/index.htm) • VMware ESX/ESXi 4.0 Update 1 and 4.1 release notes at: (http://www.vmware.com/support/pubs/vs_public.html)

VM Software Installation Task Overview

To install the virtual machine software, complete the following procedures in order:

1. Gather the media for installing the VM software.
 - An ISO image of the Oracle VM installation program is available as a download at: (<http://www.oracle.com/virtualization>)
 - An ISO image of the VMware ESX or ESXi installation program is available as a download at: (<http://www.vmware.com/download>)

Note – You can use the VM software ISO image for remote installation or for creating an installation CD or DVD.

2. Choose and set up an installation method for deploying the installation of the VM software as described in [Appendix A](#).
3. Follow the instruction for installing the VM software as describes in the following sections:
 - “Installing Oracle VM Using Local or Remote Media” on page 53
 - “Installing VMware ESX or ESXi Using Local or Remote Media” on page 57
4. Review and perform the applicable post installation tasks as described in the following sections:
 - “Oracle VM Post Installation Tasks” on page 56
 - “VMware ESX and ESXi Post Installation Tasks” on page 62

Installing Oracle VM

This chapter summarizes the necessary steps for installing Oracle VM.

This chapter includes the following topics:

- [“Installing Oracle VM Using Local or Remote Media” on page 53](#)
- [“Oracle VM Post Installation Tasks” on page 56](#)

Installing Oracle VM Using Local or Remote Media

The procedures in this section summarize the steps for installing the Oracle VM software. The procedures assume that you are booting the Oracle VM installation software from one of the following sources:

- Oracle VM 2.2.1 CD or DVD media set (internal or external CD or DVD)
- Oracle VM 2.2.1 ISO software image (network repository)

Note – The Oracle VM ISO image can be used for remote installation or for creating an installation CD or DVD.

Refer to the following procedures to install the Oracle VM software:

- [“Install Oracle VM Server From Local or Remote Media” on page 54](#)
- [“Install Oracle VM Manager” on page 55](#)

Before You Begin

Prior to performing the installation, the following requirements must be met:

- All applicable installation considerations for installing the Oracle VM Server and Manager should have been met. For details, see [Chapter 6](#).
- Gather the Oracle VM documentation. This documentation should be used in conjunction with the installation procedure presented in this chapter.

The Oracle VM documentation is available for download at:

(http://download.oracle.com/docs/cd/E15458_01/index.htm)

▼ Install Oracle VM Server From Local or Remote Media

1. Ensure that the Oracle VM Server install media is available to boot.

- **For Distribution CD/DVD.** Insert the Oracle VM Server media boot disk into the local or remote USB CD/DVD-ROM drive.
- **For ISO images.** Ensure that the ISO images are available and that the boot disc image (CD labeled number 1 or DVD) has been selected in the ILOM Remote Console application (Devices menu --> CD-ROM Image).

For additional information about how to set up the installation media, see [Appendix A](#).

2. Reset the power on the server.

For example:

- **From the ILOM web interface,** select Remote Control --> Remote Power Control, then select Reset from the Select Action list box.
- **From the local server,** press the Power button (approximately 1 second) on the front panel of the server to power off the server, then press the Power button again to power on the server.

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

3. In the BIOS screen, press F8 to specify a temporary boot device for the Oracle VM Server installation.

The Please Select Boot Device menu appears.

- 4. In the Please Select Boot Device menu, select either the external or virtual CD/DVD device as the first boot device, then press Enter.**

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

After a few seconds, the splash screen for the Oracle VM Manager installation program appears.

- 5. Follow the prompts to install Oracle VM Server and Oracle VM Agent.**

At this time the Oracle VM installation program installs the Oracle VM Server and the Oracle VM Agent.

- 6. Log in to Oracle VM Server as the root user, with the password you set during the installation.**

Note – The Oracle VM installation will require two passwords: one for the root VM Server account and one for the VM Agent. When necessary, refer to the *Oracle VM Server Installation Guide* at:

(http://download.oracle.com/docs/cd/E15458_01/index.htm)

- 7. Perform one of the following:**

- If you do not have an Oracle VM Manager configured to manage the Oracle VM Server, you will need to install the Oracle VM Manager.

To install Oracle VM Manager, see “[Install Oracle VM Manager](#)” on page 55.

- If you do have an Oracle VM Manager configured to manage the Oracle VM Server, proceed to “[Oracle VM Post Installation Tasks](#)” on page 56.

▼ Install Oracle VM Manager

- 1. Start up the supported Linux operating system on the system on which you want to install the Oracle VM Manager.**
- 2. Ensure that the Oracle VM Manager install media is mounted.**
- 3. As the root user, run the following script:**

```
# sh runInstaller.sh
```

- 4. Follow the prompts to install Oracle VM Manager.**

You will be required to log in to the management interface using the Oracle VM Agent password.

When necessary, refer to the *Oracle VM Server Installation Guide* for further details about how to complete the Oracle VM Manager installation.

- 5. After completing the Oracle VM Manager installation, do the following:**

- a. **Log in to the Oracle VM Management web interface as Admin.**
You will need to enter the password that was created during the installation of the Oracle VM Manager.
 - b. **In the web interface, use the options available to create and manage server pools, as well as create, configure, and manage the virtual machines.**
6. **Review and perform the applicable post installation tasks as described in “Oracle VM Post Installation Tasks” on page 56.**
-

Oracle VM Post Installation Tasks

After completing the Oracle VM software installation, review the following post installation tasks and, if necessary, perform the tasks that are applicable to your system.

- “Update the Oracle VM Software” on page 56
- “Manage Oracle VM Resources” on page 56

Update the Oracle VM Software

The Oracle VM installation media might not contain the most up-to-date versions of the software. If necessary, update the Oracle VM software with the latest updates. For download instructions, see this web site:

(<http://www.oracle.com/virtualization>)

Manage Oracle VM Resources

To learn how to configure, access, and manage Oracle VM resources, refer to the Oracle VM Documentation Library at:

(http://download.oracle.com/docs/cd/E15458_01/index.htm)

Installing VMware ESX or ESXi

This chapter summarizes the necessary steps for installing:

- VMware ESX 4.0 Update 2 and 4.1 (and subsequent releases)
- VMware ESXi 4.0. Update 2 and 4.1 (and subsequent releases)

This chapter includes the following topics:

- [“Installing VMware ESX or ESXi Using Local or Remote Media”](#) on page 57
- [“VMware ESX and ESXi Post Installation Tasks”](#) on page 62

Installing VMware ESX or ESXi Using Local or Remote Media

The procedures in this section describe how to install the VMware (ESX or ESXi) software from local or remote media. It assumes that you are booting the VMware installation media from one of the following sources:

- VMware ESX or ESXi 4.0 Update 2 or 4.1 CD or DVD (internal or external CD or DVD)
- VMware ESX or ESXi 4.0 Update 2 or 4.1 ISO image (network repository)

Note – The VMware ISO image can be used for remote installations or for creating an installation CD or DVD.

Refer to the following procedures to install the VMware software from local or remote media:

- [“Install VMware ESXi 4 From Local or Remote Media”](#) on page 58
- [“Install VMware ESX 4 From Local or Remote Media”](#) on page 59

Before You Begin

Prior to performing the installation, the following requirements must be met:

- All applicable installation considerations for installing the virtual machine software should have been met. For details, see “VM Software Installation Considerations” on page 50.
- Gather the VMware ESX or ESXi documentation. This documentation should be used in conjunction with the installation procedure presented in this chapter.

The VMware ESX and ESXi documentation is available at:

(http://www.vmware.com/support/pubs/vs_pubs.html)

- For VMware ESX installations, determine the network management interface you will use for the VM service console.

The VM service console and management interface require a network interface. The service console does not automatically use the first interface with a live connection. Therefore, you will need to select a network interface for the service console during installation since the network interface defaults to vmnic0.

▼ Install VMware ESXi 4 From Local or Remote Media

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

- **For Distribution CD/DVD.** Insert the VMware ESXi 4 Distribution media boot disc (CD labeled number 1 or the single DVD) into the local or remote USB CD/DVD-ROM drive.
- **For ISO images.** Ensure that the ISO images are available and that the boot disc image (CD labeled number 1 or DVD) has been selected in the ILOM Remote Console application (Devices menu --> CD-ROM Image).

For additional information about how to set up the installation media, see [Appendix A](#).

2. Reset the power on the server.

For example:

- **From the ILOM web interface,** select Remote Control --> Remote Power Control, then select Reset from the Select Action list box.
- **From the local server,** press the Power button (approximately 1 second) on the front panel of the server to power off the server, then press the Power button again to power on the server.

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

3. In the BIOS screen, press F8 to specify a temporary boot device for the VMware installation.

The Please Select Boot Device menu appears.

4. In the Boot Device menu, select either the external or virtual CD/DVD device as the first boot device, then press Enter.

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

After a few seconds, the splash screen for the VMware installation program appears.

5. To complete the installation, refer to the VMware ESXi 4 installation documentation.

You can access the VMware ESXi 4.0 installation documentation at:
(http://www.vmware.com/support/pubs/vs_pubs.html)

6. After installing VMware ESXi 4, proceed to “VMware ESX and ESXi Post Installation Tasks” on page 62.

▼ Install VMware ESX 4 From Local or Remote Media

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

- **For distribution CD/DVD.** Insert the VMware ESX 4 Distribution media boot disc (CD labeled number 1 or the single DVD) into the local or remote USB CD/DVD-ROM drive.
- **For ISO images.** Ensure that the ISO images are available and that the boot disc image (CD labeled number 1 or DVD) has been selected in the ILOM Remote Console application (Devices menu --> CD-ROM Image).

For additional information about how to set up the installation media, see [Appendix A](#).

2. Reset the power on the server.

For example:

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

- **From the local server**, press the Power button (approximately 1 second) on the front panel of the server to power off the server, then press the Power button again to power on the server.

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

3. In the BIOS screen, press F8 to specify a temporary boot device for the VMware installation.

The Please Select Boot Device menu appears.

4. In the Boot Device menu, select either the external or virtual CD/DVD device as the first boot device, then press Enter.

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

After a few seconds, the splash screen for the VMware installation program appears.

5. Continue the VMware installation program and, when necessary, refer to the VMware ESX 4 installation documentation.

You can access the VMware ESX 4.0 installation documentation at:
(http://www.vmware.com/support/pubs/vs_pubs.html)

6. When the Network Configuration dialog appears, perform the following steps:



- a. In the Network Adapter field, click the drop-down arrow and select the desired network adapter, then click Next.

In this dialog, a live network adapter (that is, an adapter connected to the network) must be specified for the VMware service console (`vmnic0`). Each network adapter that is live has a green check mark next to it as shown in the above dialog. Also, notice that the MAC address that is associated with the network port (for example: `NET0`, `NET1`, `NET2`, or `NET3`) appears. You can use the MAC address to determine which physical network port is present.

Alternatively using the ILOM command-line interface (CLI), you can determine the MAC addresses that are associated with the server's physical network ports. For example, in the ILOM CLI you would type the following command to determine the MAC address that is associated with the physical network port known as `NET0`:

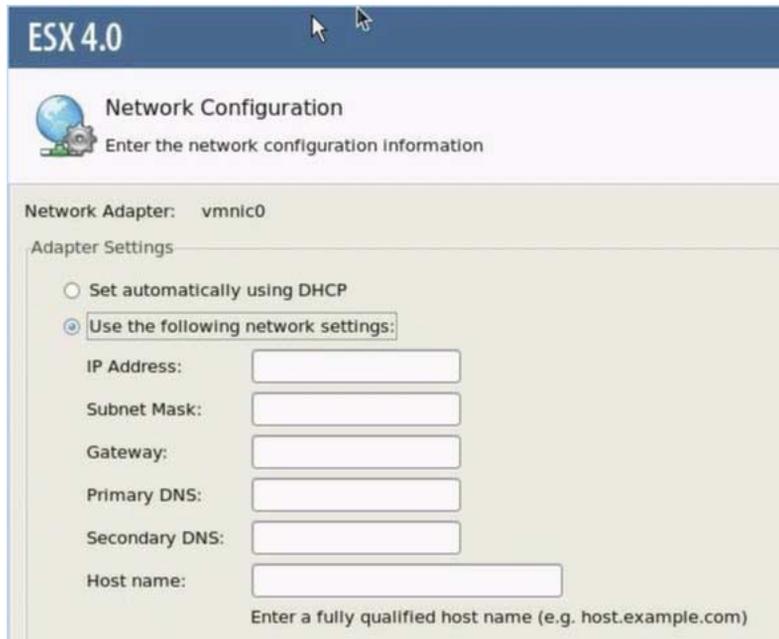
```
-> show /SYS/MB/NET0
```

In the sample output shown below, the MAC address for `NET0` is `00:14:4F:CA:B8:36`.

```
->show /SYS/MB/NET0
/SYS/MB/NET0
Targets:
Properties:    type = Network Interface
ipmi_name = MB/NET0
fru_name = GIGABIT ETHERNET CONTROLLERS
fru_manufacturer = INTEL
fru_part_number = 82575EB
fru_serial_number = 00:14:4F:CA:B8:36
fault_state = OK
clear_fault_action = (none)
```

Note – If you are unsure which network adapter to select, contact your network administrator.

The ESX 4 Network Configuration dialog appears enabling you to specify the network adapter settings.



b. In the Network Configuration dialog, do one of the following:

- **To auto-configure the network adapter**, select `Set automatically using DHCP`, then click `Next`.
- or -
- **To manually configure the network adapter**, select `Use the following network settings`, and specify the network settings in the appropriate fields, then click `Next`.

7. Complete the VMware ESX 4 Server installation and, when necessary, refer to the VMware ESX 4 Server installation documentation.

8. After completing the installation, proceed to [“VMware ESX and ESXi Post Installation Tasks”](#) on page 62.

VMware ESX and ESXi Post Installation Tasks

After completing the ESX or ESXi installation, review the following post installation tasks and, if necessary, perform the tasks that are applicable to your system.

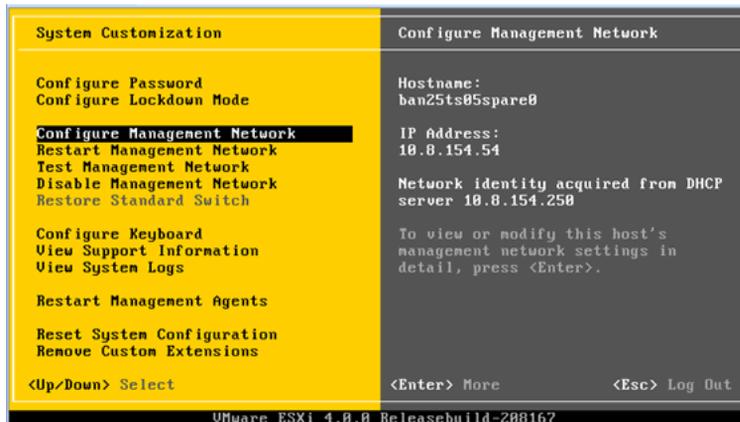
- “Configure Network Adapters for VMware ESXi Installations” on page 63
- “Local Storage Drive Not Seen After Performing VMware ESXi Installation” on page 65
- “Update the ESX or ESXi Software” on page 66
- “Manage VMware Resources” on page 66

Configure Network Adapters for VMware ESXi Installations

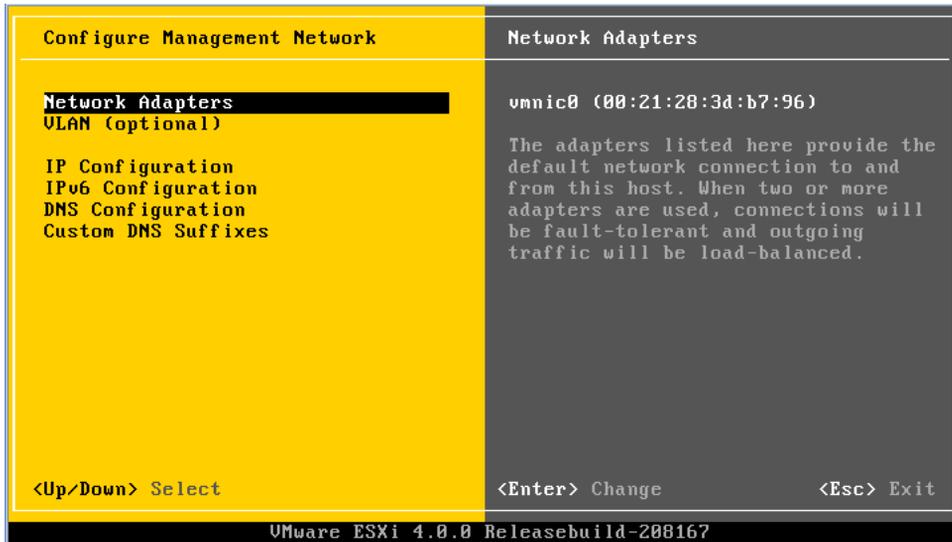
The following procedure describes how to configure the VMware ESXi settings for the network adapter(s) installed on your server. These instructions also include steps for discovering the physical port location of each network adapter installed on your server.

▼ Configure Network Adapter Settings

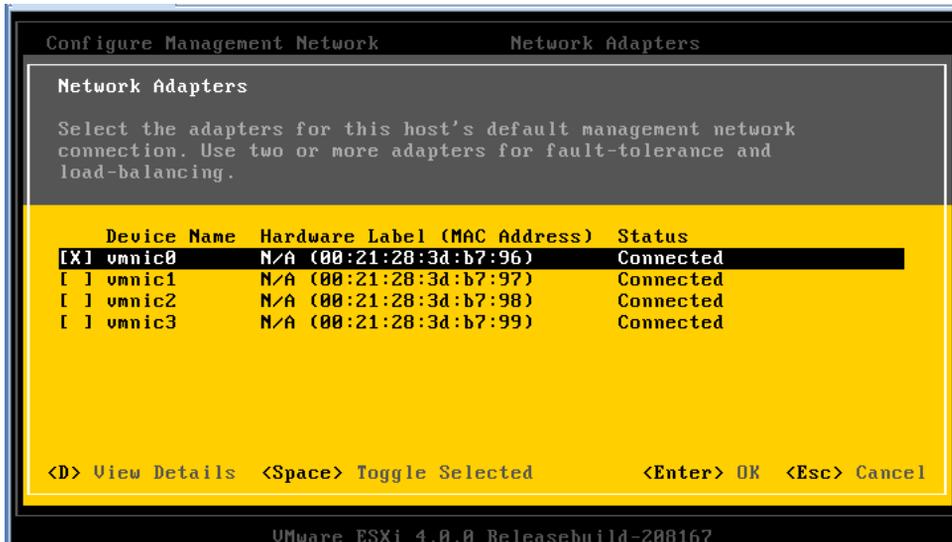
1. Log in to the VMware ESXi Server.
2. Access the System Customization dialog and select Configure Management Network.



The Configure Management Network dialog appears.



- In the Configuration Management Network dialog, select Network Adapters. The Network Adapters dialog appears.



- In Network Adapters dialog, select a live network adapter (that is, an adapter connected to the network) for the VMware service console (vmnic0), then press Enter.

A live network adapter (that is, an adapter connected to the network) must be specified for the VMware service console (vmnic0). Notice that the MAC address that is associated with the server's physical network port (for example: NET0,

NET1, NET2, or NET3) is displayed in the Hardware Label column. Therefore, you can use the MAC address to determine which of the server's physical network ports are being displayed. For example, to determine the MAC address for each server network port, enter the following command in the ILOM command-line interface (CLI) for each server network port:

```
-> show /SYS/MB/NET $n$ 
```

Where n is 0, 1, 2, or 3

If the network adapter shown in the above dialog were associated for network port NET0, then the CLI command **show /SYS/MB/NET0**, would produce the following output, where the fru_serial_number field lists the MAC address.

```
-> show /SYS/MB/NET0  
/SYS/MB/NET0  
Targets:  
Properties:  
type = Network Interface ipmi_name = MB/NET0  
fru_name = GIGABIT ETHERNET CONTROLLERS  
fru_manufacturer = INTEL  
fru_part_number = 82576EB  
fru_serial_number = 00:21:28:3D:B7:96  
fru_extra_2 = 00:21:28:3D:B7:96  
fault_state = OK  
clear_fault_action = (none)
```

Note – If you are unsure of which network adapter to select, contact your network administrator.

Local Storage Drive Not Seen After Performing VMware ESXi Installation

If your local storage drive on the server is attached to a Sun Storage 6 Gb SAS PCIe Host Bus Adapter (SG-SAS6-INT-Z or SG-SAS6-EXT-Z), the VMFS datastore on the local storage drive is not visible after performing the VMware ESXi installation. In this case, perform the following procedure to make the existing VMFS datastore on the local storage drive visible and ready for use.

▼ Make Local VMFS Datastore Visible to VSphere Client

1. Connect to the VMware ESXi server by using the VSphere Client.

2. In the VSphere Client interface add the ESXi host to the datacenter of your choice.
3. Select the ESXi host that you added to the datacenter in Step 2, then click the Configuration tab.
4. In the Configuration tab, do the following:
 - a. In the Hardware box, select Storage, then click the Add Storage link.
 - b. Verify that the Disk/LUN Storage Type is selected, then click Next.
 - c. Select the vmhba entry that corresponds to the local disk, then click Next.
 - d. Select Use Free Space, then click Next.
 - e. Create a datastore name (for example, local_storage), then click Next.
 - f. Adjust the maximum file size if needed, then click Next.
 - g. Verify that the proposed disk layout is acceptable, then click Finish.

The local VMFS datastore is visible and ready for use.

Update the ESX or ESXi Software

The VMware ESX or ESXi installation media might not contain the most up-to-date versions of the software.

If necessary, update the ESX or ESXi Server software with the latest updates and patches. For download instructions, see this web site:

[\(http://support.vmware.com/selfsupport/download/\)](http://support.vmware.com/selfsupport/download/)

It is recommended to install patch ESX400-201002001 for ESX or patch ESXi400-201002001 for ESXi.

Manage VMware Resources

To learn more about configuring and managing VMware resources, refer to the VMware documentation at:

[\(http://www.vmware.com/support/pubs/vs_pages/vsp_pubs_esxi40_i_vc40.html\)](http://www.vmware.com/support/pubs/vs_pages/vsp_pubs_esxi40_i_vc40.html)

PART III Oracle Solaris Installation

This section lists the topics that describe how to install the Oracle Solaris Operating System on your server.

Description	Links
Novice or Experienced Users. Review the installation considerations prior to performing the Oracle Solaris Operating System installation.	Chapter 9, Getting Started for Oracle Solaris Installations
Experienced Users. Perform the Oracle Solaris 10 Operating System installation and post installation tasks.	Chapter 10, Installing Oracle Solaris 10
Reference. Refer to these topics, as needed, to perform or complete the Oracle Solaris Operating System installation.	<ul style="list-style-type: none">• Appendix A, Installation Methods• Appendix B, Supported Operating Systems• Appendix C, BIOS Defaults for New Installations• Appendix D, Downloading the ISO Image for the Tools and Drivers DVD.

Getting Started With Oracle Solaris Operating System Installations

This chapter describes how to get started installing the Oracle Solaris Operating System on Oracle's Sun Fire X4170 M2 and X4270 M2 Servers.

Topics discussed in this chapter include:

- "Supported Oracle Solaris Operating Systems" on page 69
- "Installation Considerations" on page 70
- "Installation Task Overview" on page 71

Supported Oracle Solaris Operating Systems

The Sun Fire X4170 M2 and X4270 M2 Servers support the following Solaris Operating Systems:

- Oracle Solaris 10 10/09
- Oracle Solaris 10 9/10

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

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

Solaris Documentation Collections

The installation instructions in this guide describe the initial steps for booting and launching the Solaris installation. For additional details about how to install the Solaris Operating System on your server, refer to the following documentation collection:

(<http://www.oracle.com/technetwork/server-storage/solaris/documentation/index.html>)

Installation Considerations

Refer to the following important considerations before beginning the operating system installation on your x86 server.

Consideration	Description	For more information, see:
Selecting a local or remote deployment method for manually installing the operating system	You can install the operating system using any of the supported deployment methods: <ul style="list-style-type: none">• Local install using an internal or external storage device and attached KVMS.• Network install using either the ILOM Remote Console or a custom JumpStart installation.	<ul style="list-style-type: none">• Appendix A, Supported Installation Methods• <i>Sun Solaris 10 09/10 Installation Guide: Network-Based Installations</i>• <i>Sun Solaris 10 09/10 Installation Guide: Custom JumpStart and Advanced Installations</i>
RAID volume creation	If you want to include your boot drive as part of a RAID configuration, you need to configure a RAID volume on it. Use the LSI integrated RAID controller setup utility before you install the operating system.	<ul style="list-style-type: none">• <i>LSI MegaRAID SAS Software User's Guide</i> at: (http://www.lsi.com/support/sun/)
Verification of BIOS settings for new OS installations	Prior to installing the operating system you should verify that the BIOS factory-default properties are set.	<ul style="list-style-type: none">• Appendix C
Installation of optional supplemental software	After performing the operating system installation, you might need to install critical Solaris patches pertaining to your system. Solaris patches can contain new features, enhancements, or fixes to known problems.	<ul style="list-style-type: none">• “Post Oracle Solaris Installation Tasks” on page 86
Access to late-breaking information and patches for OS installations	Review the <i>Sun Fire X4170 M2 and X4270 M2 Servers Product Notes</i> for late-breaking information about supported operating system software and patches.	<ul style="list-style-type: none">• <i>Sun Fire X4170 M2 and X4270 M2 Servers Product Notes</i>

Installation Task Overview

To install the Solaris 10 10/09 Operating System, complete the following procedures in order:

1. Obtain the Solaris10 10/09 Operating System installation media.
The DVD media for the Solaris Operating System is shipped with your server. You can download or order the installation media at:
<http://www.oracle.com/technetwork/server-storage/solaris/downloads/index.html>
2. Obtain the Tools and Driver DVD provided, or download the latest drivers and utilities available for your server as described in [Appendix D](#).
3. Choose and set up an installation method for deploying the Solaris installation as described in [Appendix A](#).
4. Follow the instructions for performing the Solaris installation as described in [Chapter 10](#).
5. Follow the instructions for performing Solaris post installation tasks as described in [“Post Oracle Solaris Installation Tasks”](#) on page 86.

Installing Oracle Solaris 10

This chapter provides information about installing the Oracle Solaris 10 10/09 Operating System (Solaris 10 OS) on Sun Fire X4170 M2 and X4270 M2 Servers.

This chapter includes the following topics:

- [“Installing Solaris 10 Using Local or Remote Media” on page 73](#)
- [“Installing Oracle Solaris 10 Using a PXE Network Environment” on page 81](#)
- [“Post Oracle Solaris Installation Tasks” on page 86](#)

For information describing how to configure the preinstalled Oracle Solaris 10 OS image, see the *Sun Fire X4170 M2 and X4270 M2 Servers Installation Guide* for setup instructions.

Installing Solaris 10 Using Local or Remote Media

The following procedure describes how to boot the Oracle Solaris Operating System installation from local or remote media. It assumes that you are booting the installation media from one of the following sources:

- Oracle Solaris 10 9/10 (or subsequent release) DVD set (internal or external DVD)
- Oracle Solaris 10 9/10 (or subsequent release) ISO DVD image (network repository)

Note – If you are booting the installation media from a PXE environment, refer to [“Installing Oracle Solaris 10 Using a PXE Network Environment” on page 81](#) for instructions.

Before You Begin

The following requirements should be met prior to starting the installation procedure in this section.

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

After completing this procedure, you should review and perform the required post installation tasks described later in this chapter. For more details, see “[Post Oracle Solaris Installation Tasks](#)” on page 86.

▼ Install Oracle Solaris 10 Using Local or Remote Media

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

- **For Distribution DVD.** Insert the Oracle Solaris 10 DVD into the local or remote DVD drive.
- **For ISO image.** Ensure that the ISO images are available and that the ILOM Remote Console application is aware of the first ISO image location.

For additional information about how to set up the install media, see [Appendix A](#).

2. Reset the power on the server.

For example:

- **From the ILOM web interface,** select the Remote Control --> Remote Power Control tab, then select Reset from the Select Action list box.
- **From the local server,** press the Power button (approximately 1 second) on the front panel of the server to turn the server off, then press the Power button again to power on the server.
- **From the ILOM CLI on server SP,** type: **reset /SYS**

The BIOS screen appears.



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```
AMIBIOS (C) 2006 American Megatrends, Inc.  
BIOS Date: 11/19/08 15:40:21 Ver: 08.00.15  
Sun BIOS Revision: 07.01.30.00  
Sun Fire X4170 Server CPU Power (TDP Limit) = 95 Watts  
Product Serial Number:0000000000  
CPU : Genuine Intel(R) CPU @ 0000 @ 2.67GHz  
Speed : 2.66 GHz Count : 16  
  
Press F2 to run Setup (CTRL+E on Remote Keyboard)  
Press F12 if you want to boot from the network (CTRL+N on Remote Keyboard)  
Press F8 for BBS POPUP (CTRL+P on Remote Keyboard)  
QPI Operational Speed at : 6.4GT/s  
BMC Firmware Revision: 2.0.2.9  
Initializing USB Controllers ..  
  
(C) American Megatrends, Inc.
```

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

3. In the BIOS screen, press F8 to specify a temporary boot device for the Solaris installation.

The Please Select Boot Device menu appears.



4. In the Boot Device menu, select either the external or virtual DVD device as the first (temporary) boot device, then press Enter.

In the sample Boot Device menu shown in Step 3, the virtual DVD device is specified as the first boot device.

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

Note – If you are performing the Solaris installation from a redirected DVD using the ILOM Remote Console application, select `AMI Virtual CDROM`, which is listed as an option in the Boot Device menu when you install from a redirected DVD.

The GRUB menu appears.

```
GNU GRUB version 0.95 (689K lower / 2087424K upper memory)

kernel /I86PC.Solaris_10-54/multiboot kernel/unix -B install_media=12→
module /I86PC.Solaris_10-54/x86.miniroot

Use the ↑ and ↓ keys to select which entry is highlighted.
Press 'b' to boot, 'e' to edit the selected command in the
boot sequence, 'c' for a command-line, 'o' to open a new line
after ('O' for before) the selected line, 'd' to remove the
selected line, or escape to go back to the main menu.
```

5. In the GRUB menu, select `Solaris_10 os`, then press `Enter`.

Note – In the GRUB menu, if you want to redirect the install output to a serial console, press “e” to edit the GRUB menu. To support a serial console, append `,console=tttya` to the boot flags on the kernel line.

The system loads the Solaris disk image into memory. This process can take several minutes. When it completes, the Install Type menu appears.

```
WARNING: There will be no MCA support on chip 0 core 0 strand 5 (cmi_hdl_create
returned NULL)

WARNING: There will be no MCA support on chip 1 core 0 strand 5 (cmi_hdl_create
returned NULL)

WARNING: There will be no MCA support on chip 0 core 0 strand 7 (cmi_hdl_create
returned NULL)

WARNING: There will be no MCA support on chip 1 core 0 strand 7 (cmi_hdl_create
returned NULL)

Configuring devices.
/

1. Solaris Interactive (default)
2. Custom JumpStart
3. Solaris Interactive Text (Desktop session)
4. Solaris Interactive Text (Console session)
   (Select option 3 or 4 to install a ZFS root file system)
5. Apply driver updates
6. Single user shell

Enter the number of your choice.
Automatically continuing in 27 seconds
```

6. In the Install Type menu, choose the type of interface that you want to use to perform the installation.
 - Graphical User Interface (default) – Type 1 then press Enter.
 - Text Installer From Desktop Session – Type 3 then press Enter.
 - Text Installer From Console Session – Type 4 then press Enter.

Note – The screens that are displayed on your system might vary depending on the type of interface you chose to configure in Step 6. The following sample screens appearing in this procedure are based on the default Graphical User Interface (GUI) option (option 1).

The system discovers and configures the devices and interfaces. If the system discovers a keyboard, the Configure Keyboard Layout menu appears.

```
Done mounting Live image
USB keyboard
 1. Albanian                23. Lithuanian
 2. Belarusian             24. Latvian
 3. Belgian                25. Macedonian
 4. Brazilian              26. Malta_UK
 5. Bulgarian              27. Malta_US
 6. Canadian-Bilingual    28. Norwegian
 7. Croatian               29. Polish
 8. Czech                  30. Portuguese
 9. Danish                 31. Russian
10. Dutch                  32. Serbia-And-Montenegro
11. Finnish                33. Slovenian
12. French                 34. Slovakian
13. French-Canadian       35. Spanish
14. Hungarian              36. Swedish
15. German                 37. Swiss-French
16. Greek                  38. Swiss-German
17. Icelandic              39. Traditional-Chinese
18. Italian                40. TurkishQ
19. Japanese-type6        41. TurkishF
20. Japanese               42. UK-English
21. Korean                 43. US-English
22. Latin-American
To select the keyboard layout, enter a number [default 43]:
```

7. In the Configure Keyboard Layout menu, select the appropriate keyboard layout, then press Enter.

The system configures the keyboard layout selection and searches for configuration files.

If you selected a GUI installation in the previous steps, the next two steps (Step 8 and Step 9) confirm that the GUI is functioning. If you did not select a GUI interface previously, skip to Step 10.

```
Discovering additional network configuration...

Starting Solaris Interactive (graphical user interface) Installation.

You must respond to the first question within 30 seconds
or the installer proceeds in a non-window environment
(console mode).

If the screen becomes blank or unreadable the installer
proceeds in console mode.

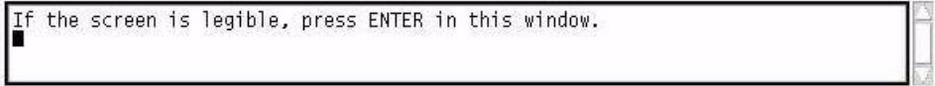
If the screen does not properly revert to console mode,
restart the installation and make the following selection:

Solaris Interactive Text (Console session)

Press ENTER to continue.
```

8. In the Discovering Network Configuration and Starting Solaris Interactive Installation screen, press Enter.

A second screen appears to confirm that the GUI is functioning.



If the screen is legible, press ENTER in this window.

9. In the screen that is confirming the text shown is legible, press Enter.

The Language Selection menu appears.

10. In the Language Selection menu, type the selected language ID number (0-9), then press Enter.

After a few moments the Welcome screen appears.

Note – The sample screen shown below reflects the GUI installation program. If you are running a text-based installation interface, the text-based Welcome screen (not shown) will appear.



11. In the Welcome screen, click `Next` to begin the installation.

If you preconfigured all of the system information, the installation program does not prompt you to enter any configuration information. If you did not preconfigure all the system information, the installation program prompts you for this information on several configuration screens.

12. Continue the normal Solaris installation and, if necessary, refer to the Solaris documentation for additional details.

After the installation completes, the system will automatically reboot (if you previously selected this option during the configuration procedure) and displays the Solaris login prompt.

Note – If you did not configure the system to automatically reboot when the installation completes, you must manually reboot the system.

13. Proceed to the section “[Post Oracle Solaris Installation Tasks](#)” on page 86 to perform the post Solaris installation tasks.

Installing Oracle Solaris 10 Using a PXE Network Environment

The following procedure describes how to boot the Solaris Operating System installation from a PXE network environment. It assumes that you are booting the installation media from one of the following sources:

- Solaris 10 10/09 DVD set (internal or external DVD)
- Solaris 10 10/09 ISO DVD image or Solaris JumpStart image (network repository)

Note – JumpStart can help you eliminate some or most of the manual tasks of setting up the Solaris Operating System for the first time on multiple servers. For more information about using a JumpStart image, see the *Solaris 10 10/09 Installation Guide: Custom JumpStart and Advanced Installations*.

Before You Begin

The following requirements must be met prior to starting the Solaris 10 PXE installation:

- To use PXE to boot the installation media over the network, you should have completed the following tasks:
 - PXE boot install server setup to export the installation.

Note – The PXE network boot does not work properly over subnets that include multiple DHCP servers. Therefore, you should set up only one DHCP server on the subnet that includes the client system that you want to install.

- Sun Fire X4170 M2 and X4270 M2 Servers MAC network port address configured as a client system on the PXE boot install server.

For further information about setting up and installing Solaris 10 from the network, see the *Solaris 10 10/09 Installation Guide: Network-Based Installations*.

- If your install media source is a JumpStart installation image, the image must be properly prepared and ready for installation. Information concerning how to properly set up and deploy a JumpStart installation is outside the scope of this guide.

For details about creating a Solaris JumpStart image, see the *Solaris 10 10/09 Installation Guide: Custom JumpStart and Advanced Installations*.

After completing the following procedure, you should review and perform the required post installation tasks described later in this chapter. For more details, see “Post Oracle Solaris Installation Tasks” on page 86.

▼ Install Solaris 10 Using PXE Network Boot

1. Ensure that the PXE network environment is properly set up and the Oracle Solaris installation media is available for PXE boot.

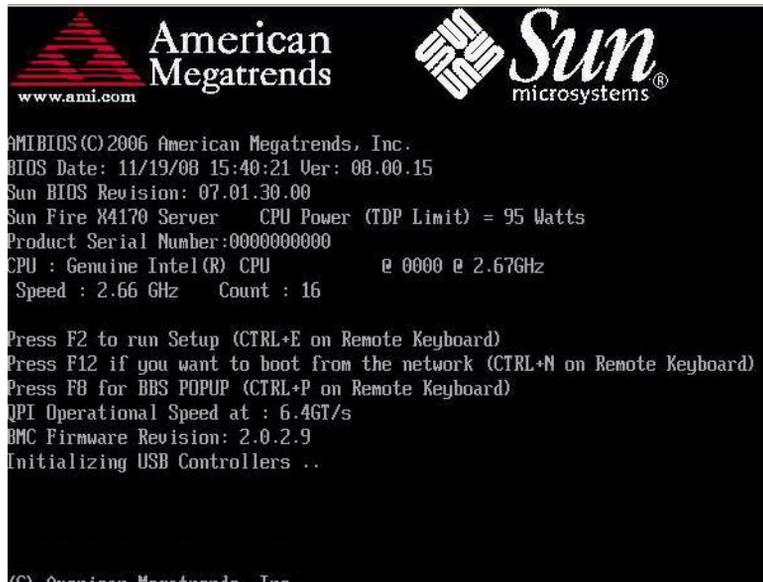
For details, see “Planning to Install Over the Network” in the *Solaris 10 10/09 Installation Guide: Network-Based Installations*.

2. Reset the power on the server.

For example:

- **From the ILOM web interface**, select the Remote Control --> Remote Power Control tab, then select Reset from the Select Action list box.
- **From the local server**, press the Power button (approximately 1 second) on the front panel of the server to turn the server off, then press the Power button again to power on the server.
- **From the ILOM CLI on server SP**, type: **reset /SYS**

The BIOS screen appears.



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

3. In the BIOS screen, press F8 to specify a temporary boot device.

The Please Select Boot Device menu appears.

4. In the Boot Device menu, select the appropriate PXE boot port, then press Enter.

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

The GRUB menu appears.

5. In the GRUB menu, select `Solaris_10 os`, then press Enter.

Note – In the GRUB menu, if you want to redirect the install output to a serial console, press “e” to edit the GRUB menu. To support a serial console, append **,console=ttya** to the boot flags on the kernel line.

The system loads the Solaris disk image into memory. This process can take several minutes. When it completes, the Install Type menu appears.

6. In the Install Type menu, choose the type of interface that you want to use to perform the installation.

- **Graphical User Interface (default)** – Type 1 then press Enter.
- **Text Installer From Desktop Session** – Type 3 then press Enter.
- **Text Installer From Console Session** – Type 4 then press Enter.

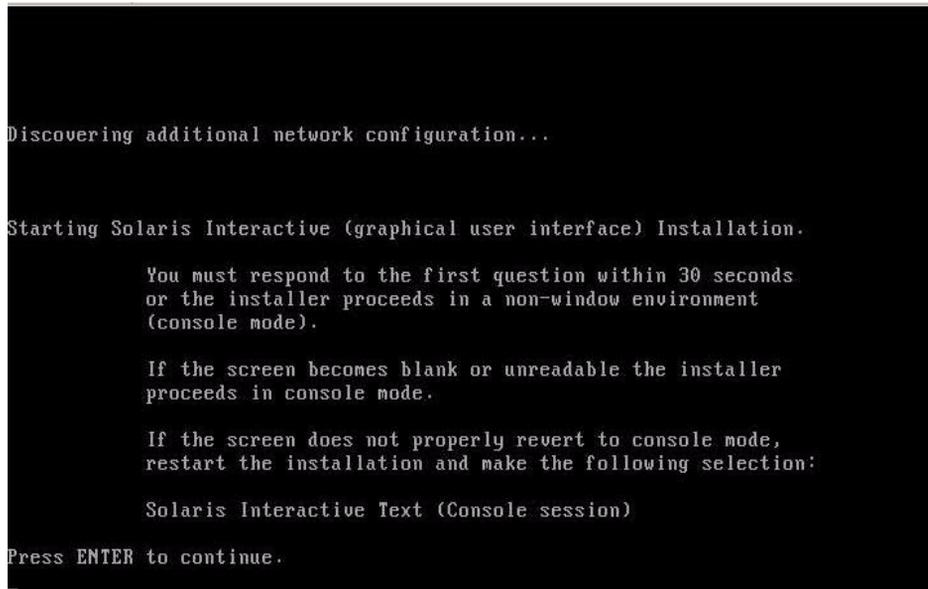
Note – The screens that are displayed on your system might differ depending on the type of interface you chose to configure in Step 6. The sample screens appearing in this procedure are based on the default Graphical User Interface (GUI) option (option 1).

The system discovers and configures the devices and interfaces. If the system discovers a keyboard, the Configure Keyboard Layout menu appears.

- 7. In the Configure Keyboard Layout menu, select the appropriate keyboard layout, then press Enter.**

The system configures the keyboard layout selection and searches for configuration files.

If you selected a GUI installation in the previous steps, the next two steps (Step 8 and Step 9) confirm that the GUI is functioning. If you did not select a GUI interface previously, skip to Step 10.

A screenshot of a terminal window with a black background and white text. The text reads: "Discovering additional network configuration..." followed by "Starting Solaris Interactive (graphical user interface) Installation." Below this, there are three paragraphs of instructions: "You must respond to the first question within 30 seconds or the installer proceeds in a non-window environment (console mode).", "If the screen becomes blank or unreadable the installer proceeds in console mode.", and "If the screen does not properly revert to console mode, restart the installation and make the following selection:". The final line of text is "Solaris Interactive Text (Console session)" followed by "Press ENTER to continue." at the bottom.

```
Discovering additional network configuration...

Starting Solaris Interactive (graphical user interface) Installation.

    You must respond to the first question within 30 seconds
    or the installer proceeds in a non-window environment
    (console mode).

    If the screen becomes blank or unreadable the installer
    proceeds in console mode.

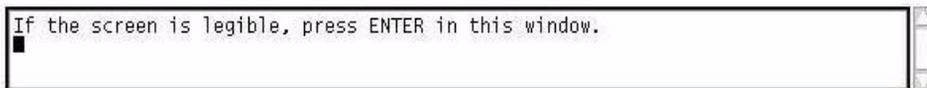
    If the screen does not properly revert to console mode,
    restart the installation and make the following selection:

    Solaris Interactive Text (Console session)

Press ENTER to continue.
```

- 8. In the Discovering Network Configuration and Starting Solaris Interactive Installation screen, press Enter.**

A second screen appears to confirm that the GUI is functioning.

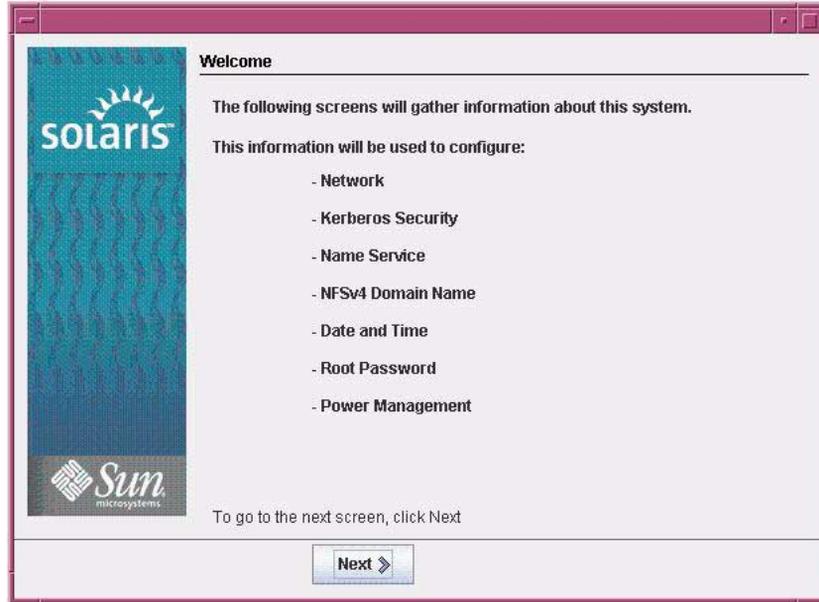
A screenshot of a small rectangular window with a white background and a black border. The text inside the window reads: "If the screen is legible, press ENTER in this window." followed by a small black square cursor.

```
If the screen is legible, press ENTER in this window.
█
```

- 9. In the screen that is confirming the text shown is legible, press Enter.**
The Language Selection menu appears.
- 10. In the Language Selection menu, type the selected language ID number (0-9), then press Enter.**

After a few moments the Welcome screen appears.

Note – The sample screen shown below reflects the GUI installation program. If you are running a text-based installation interface, the text-based Welcome screen (not shown) will appear.



11. In the Welcome screen, click Next to begin the installation.

If you preconfigured all of the system information, the installation program does not prompt you to enter any configuration information. If you did not preconfigure all the system information, the installation program prompts you for this information on several configuration screens.

12. Continue the normal Solaris installation and, if necessary, refer to the Solaris documentation for additional details.

After the installation completes, the system will automatically reboot (if you previously selected this option during the configuration procedure) and displays the Solaris login prompt.

Note – If you did not configure the system to automatically reboot when the installation completes, you must manually reboot the system.

13. Proceed to the section “Post Oracle Solaris Installation Tasks” on page 86 to perform the post Solaris installation tasks.

Post Oracle Solaris Installation Tasks

After completing the Solaris installation and rebooting the Solaris Operating System, review the following post installation tasks and, if necessary, perform the tasks that are applicable to your system.

- “Install Critical Oracle Solaris Patches” on page 86
- “Install RAID Management Software” on page 87

Install Critical Oracle Solaris Patches

The following table identifies the critical Oracle Solaris patches available to install on your system. Review this table to determine which patches, if any, are currently required for installation on your system.

TABLE 10-1 Critical Solaris Patches

Critical Solaris Patch	Description	Download Patch
142901-03	This patch reduces boot time considerably.	
143524-01	This patch provides fixes for systems with the Sun Storage 6 Gb SAS PCIe HBA, Internal.	
142260-02	This patch provides performance fixes for solid state drives (SSDs) and flash devices.	(http://support.oracle.com)
143355-02	This patch provides performance fixes for the 10 GbE Intel NIC (1109A).	
142085-03	This patch provides fixes for the qlc QLogic FC HBA driver.	
136914-01	This patch provides a fix for Fault Management Architecture (FMA) failures that occur when memory DIMM sizes are mixed.	
142676-02	This patch provides fixes for the Sun Storage 6 Gb SAS PCIe HBA.	

Install RAID Management Software

If you have a Sun Storage 6 Gb SAS PCIe RAID HBA installed on your server, you should install the Sun RAID management software, which is available on the Tools and Drivers DVD. If you do not install the RAID management software on your system, the Solaris OS will not be able to detect and report disk errors.

For more details about installing the RAID management software, refer to the documentation shipped with the HBA or the *LSI MegaRAID SAS Software User's Guide* at:

(<http://www.lsi.com/support/sun/>)

PART IV System Administrator References

Refer to the following system administrator references as needed to perform or complete the software installation.

Description	Link
Guidelines for selecting and setting up an installation environment for deploying the software installation program	Appendix A, Installation Methods
A complete list of operating systems supported on the Sun Fire X4170 M2 and X4270 M2 Servers at the time of this publication	Appendix B, Supported Operating Systems
Instructions for ensuring that the BIOS default properties are set prior to performing the software installation	Appendix C, BIOS Defaults for New Installations
Instructions for downloading the ISO image for the Sun Fire X4170 M2 and X4270 M2 Servers Tools and Drivers DVD	Appendix D, Downloading ISO Image for Tools and Drivers DVD

Supported Installation Methods

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

- [“Console Outputs” on page 91](#)
- [“Installation Boot Media” on page 93](#)
- [“Installation Targets” on page 96](#)

Console Outputs

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

TABLE A-1 Console Options for Performing an OS Installation

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

Installation Boot Media

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

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

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

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

Installation Media	Description	Setup Requirement
Remote boot media	<p>Remote media requires you to boot the install over the network. You can start the network install from a redirected boot storage device or another networked system that exports the installation over the network using a Pre-Boot eXecution environment (PXE).</p> <p>Supported OS remote media sources can include:</p> <ul style="list-style-type: none"> • CD/DVD-ROM installation media, and, if applicable, floppy device driver media • CD/DVD-ROM ISO installation image and, if applicable, floppy ISO device driver media • Automated installation image (requires PXE boot) 	<p>To redirect the boot media from a remote storage device, perform these steps:</p> <ol style="list-style-type: none"> 1. Insert the boot media into the storage device, for example: <ul style="list-style-type: none"> For CD/DVD-ROM, insert media into the built-in or external CD/DVD-ROM drive. For CD/DVD-ROM ISO image, ensure that ISO image(s) are readily available on a network shared location. For device driver floppy ISO image, ensure that ISO image, if applicable, is readily available on a network shared location or on a USB drive. 2. Establish a web-based client connection to the server ILOM SP and launch the ILOM Remote Console application. For more details, see the Setup Requirements for web-based client connection in TABLE A-1. 3. In the Devices menu of the ILOM Remote Console application, specify the location of the boot media, for example: <ul style="list-style-type: none"> For CD/DVD-ROM boot media, select CD-ROM. For CD/DVD-ROM ISO image boot media, select CD-ROM Image. For floppy device driver boot media, if applicable, select Floppy. For floppy image device driver boot media, if applicable, select Floppy Image. <p>For more information about the ILOM Remote Console, see the <i>Oracle Integrated Lights Out Manager (ILOM) 3.0 Concepts Guide</i>.</p>

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

Installation Media	Description	Setup Requirement
Remote Boot Media <i>(continued)</i>	<p>Note - An automated installation image enables you to perform the OS installation on multiple servers. By using an automated image, you can ensure configuration uniformity among many systems.</p> <p>Automated installations use a Pre-boot eXecution Environment (PXE) technology to enable the clients without an operating system to boot remotely to the automated install server that performs the installation of the operating system.</p>	<p>To perform the installation using PXE, perform these steps:</p> <ol style="list-style-type: none"><li data-bbox="743 302 1215 354">1. Configure the network server to export the installation via PXE boot.<li data-bbox="743 361 1300 701">2. Make the OS install media available for PXE boot. If you are using an automated OS installation image, you will need to create and provide the automated OS install image, for example:<ul style="list-style-type: none"><li data-bbox="768 487 1033 510">- Solaris JumpStart Image<li data-bbox="768 517 1019 539">- RHEL KickStart Image<li data-bbox="768 546 1019 569">- SLES AutoYaST Image<li data-bbox="768 576 1011 598">- Windows WDS ImageFor detailed instructions for automating the installation setup process, consult the operating system vendor documentation.<li data-bbox="743 708 1300 855">3. To boot the installation media, select the PXE boot interface card as the temporary boot device. For details, see the applicable PXE-based operating system installation procedure described earlier in this guide.

Installation Targets

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

TABLE A-3 Installation Targets for OS Installation

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

Supported Operating Systems

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

For an up-to-date list of the latest operating systems supported on the Sun Fire X4170 M2 and X4270 M2 Servers, see the following web sites:

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

Supported Operating Systems

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

TABLE B-1 Supported Operating Systems

Operating System	Supported Version	For Additional Information, See
Windows	<ul style="list-style-type: none">• Microsoft Windows Server 2008 SP2, Standard Edition (64-bit)• Microsoft Windows Server 2008 SP2, Enterprise Edition (64-bit)• Microsoft Windows Server 2008 SP2, Datacenter Edition (64-bit)• Microsoft Windows Server 2008 R2, Standard Edition (64-bit)• Microsoft Windows Server 2008 R2, Enterprise Edition (64-bit)• Microsoft Windows Server 2008 R2, Datacenter Edition (64-bit)	<ul style="list-style-type: none">• <i>Sun Fire X4170 M2 and X4270 M2 Servers Installation Guide for Windows Operating Systems</i>
Linux	<ul style="list-style-type: none">• Oracle Linux 5.5 (64-bit) and Oracle Unbreakable Enterprise Kernel for Linux• SUSE Linux Enterprise Server (SLES) 10 SP3 (64-bit)• SUSE Linux Enterprise Server (SLES) 11 SP1 (64-bit)• Red Hat Enterprise Linux (RHEL) 5.5 and 6.0 (64-bit)	<ul style="list-style-type: none">• Chapter 3 for Oracle Linux• Chapter 4 for SLES• Chapter 5 for RHEL
Solaris	<ul style="list-style-type: none">• Oracle Solaris 10 9/10	<ul style="list-style-type: none">• Chapter 9
Virtual Machine Software	<ul style="list-style-type: none">• Oracle VM 2.2.1• VMware ESX Server 4.0 Update 2 and 4.1• VMware ESXi Server 4.0 Update 2 and 4.1	<ul style="list-style-type: none">• Chapter 7 for Oracle VM• Chapter 8 for VMware

BIOS Defaults for New Installations

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

- System time
 - System date
 - Boot order
-

Verification of BIOS Factory Defaults

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

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

Before You Begin

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

- The server is equipped with a hard disk drive (HDD) or solid state drive (SDD).
- The HDD or SDD is properly installed in the server. For instructions, see the service manual for your server model:

- *Sun Fire X4170 M2 Server Service Manual*
- *Sun Fire X4270 M2 Server Service Manual*
- A console connection is established to the server. For details, see [TABLE A-1](#).

▼ View or Edit BIOS Settings for New Installations

1. Reset the power on the server.

For example:

- **From the ILOM web interface**, select `Remote Control` --> `Remote Power Control`, then select `Reset` from the `Select Action` list box.
- **From the local server**, press the `Power` button (approximately 1 second) on the front panel of the server to power off the server, then press the `Power` button again to power on the server.

The BIOS screen appears.

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

After a few moments, the BIOS Setup Utility appears.

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

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

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

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

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

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

a. Highlight the values you want to change.

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

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

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

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

The Boot Settings menu appears.

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

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

7. In the **Boot Device Priority** menu, do the following to edit the first boot device entry in the list:
 - a. Use the up and down arrow keys to select the first entry in the list, then press **Enter**.
 - b. In the **Options** menu, use the up and down arrow keys to select the default permanent boot device, then press **Enter**.

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

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

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

Alternatively, you can save the changes and exit the **BIOS Setup Utility** by selecting **Save** on the **Exit** menu. A message appears prompting you to save changes and exit setup. In the message dialog, select **OK**, then press **Enter**.

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

Downloading the ISO Image for the Tools and Drivers DVD

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

ISO Image Download Procedure

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

▼ Download the Tools and Drivers DVD Image

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

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