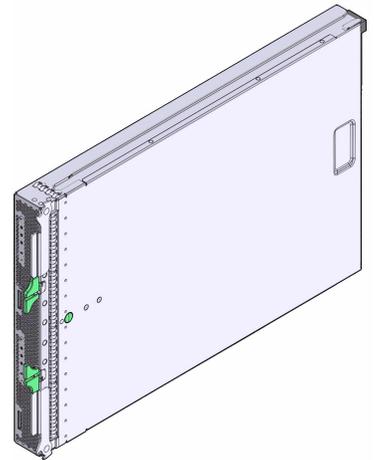


Sun Blade™ X6275 Server Module Operating System Installation Guide

For Solaris™ OS, OpenSolaris™, and Linux



Sun Microsystems, Inc.
www.sun.com

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Submit comments about this document at: <http://www.sun.com/hwdocs/feedback>

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Preface

This *Sun Blade X6275 Server Module Operating System Installation Guide* contains instructions for installing supported operating systems onto your server module.

Related Documents

To see a list of the Sun Blade™ X6275 server module documentation, refer to the *Getting Started Guide* that is packed with your system and also posted at the product's documentation site.

Translated versions of some of these documents are available at the web product documentation page in Simplified Chinese, French, and Japanese. English documentation is revised more frequently and might be more up-to-date than the translated documentation. See [TABLE P-1](#) for more information.

Sun Online

TABLE P-1 Sun Blade X6275 Server Module Online Pages

Sun Function	URL	Description
Sun Documentation	http://docs.sun.com	You can navigate to the Sun Blade X6275 server module document page and then download PDF and view HTML documents.
Support	http://www.sun.com/support/	Obtain technical support and download patches.
Training	http://www.sun.com/training/	Learn about Sun courses.

Sun Function	URL	Description
Warranty	http://www.sun.com/service/support/warranty/index.html	Obtain specific details regarding your warranty.
Feedback	http://www.sun.com/hwdocs/feedback/	Submit your comments. Please include the title and part number of your document with your feedback: <i>Sun Blade X6275 Server Module Operating System Installation Guide</i> , part number 820-6848-12
Product Updates	http://www.sun.com/download/	Find the Hardware Drivers section and click x64 Servers & Workstations. The Sun Blade X6275 server module site contains updates for firmware, drivers, and DVD/CD-ROM ISO images.

Overview

This chapter provides instructions for installing an operating system (OS) on a Sun Blade X6275 server module.

The Sun Blade X6275 server module consists of two nodes, each with its own service processor (SP), and each capable of supporting its own operating system. These nodes are fully independent of each other, and must be managed as if they were separate servers. Therefore, for each server module, you must perform a separate operating system installation on each node.

The Sun Blade X6275 supports multiple versions of Linux, Solaris OS, and OpenSolaris:

- Red Hat Linux—See [Chapter 2, “Installing Red Hat Enterprise Linux and CentOS”](#) on page 7.
- CentOS—See [Chapter 2, “Installing Red Hat Enterprise Linux and CentOS”](#) on page 7.
- SLES—See [Chapter 3, “Installing the SLES Operating System”](#) on page 17.
- Solaris OS—[Chapter 4, “Installing the Solaris™ Operating System”](#) on page 27.
- OpenSolaris—[Chapter 6, “OpenSolaris Operating System User Information”](#) on page 41.

Installing an OS onto a Sun Blade X6275 Server Module

Before installing an OS onto your Sun Blade X6275 server module, review the following sections for an understanding of the prerequisites and the decision-making process.

Prerequisites

Complete the following tasks before you begin the installation.

- Install the server hardware.
- (Optional) Configure the service processor.
- Gather needed information, such as IP address and netmask.

Things You Must Decide

Reference the table below for supported operating systems and the drivers required for installation.

Operating System	Minimum required OS	Drivers/patches to install after OS installation
Red Hat Linux Operating System	RHEL 5.3, 64 bit	IB* (OFED)
Red Hat Linux Operating System	RHEL 4.8, 64 bit	None
CentOS Linux Operating System	CentOS 5.3, 64 bit	IB*
SUSE Linux Enterprise Server (SLES)	SLES 10 SP2, 64 bit	IB* (OFED), nic (e1000e)
SUSE Linux Enterprise Server (SLES)	SLES 11, 64 bit	None
Solaris	Solaris 10 5/09, 64 bit	141782-02
OpenSolaris	OpenSolaris 2009.06, 64 bit	SRU2

*—IB is required for the Sun Blade X6275-IB. A detailed description of how to install the IB driver is provided in [“Installing OFED Software for InfiniBand Devices” on page 14.](#)

For a full list of supported operating systems, see <http://www.sun.com/servers/blades/x6275/>.

- Where will you install the OS?

You can install an OS onto a flash module or a USB flash disk.

Device	Information
Flash Module	See the <i>Sun Blade X6275 Server Module Service Manual</i> for instructions to access the flash module.
USB Flash Disk	The Sun Blade X6275 Server Module includes one internal USB port per node. When a USB flash disk is present, it appears as a disk device, and you can install an operating system onto it. To install a USB flash disk, refer to the <i>Sun Blade X6275 Server Module Service Manual</i> .

- Which installation method will you use?

Installation Method	CentOS	RHEL	SLES	Solaris
From distribution media (CD/DVD) on the server via USB-attached external CD/DVD drive	Yes	Yes	Yes	Yes
From distribution media (CD/DVD) via keyboard, video and monitor (RKVM) switch	Yes	Yes	Yes	Yes
From network using Preboot Execution Environment (PXE)	Yes	Yes	Yes	Yes

Note – The Sun Blade X6275 server module supports industry-standard RKVM with devices connected to it through a USB port or the service processor. For information about setting up USB connections to your system, see [“Using a Remote Control Application \(RKVM\)” on page 4](#).

- Will you need to update the operating system and drivers?

In general, you need to perform updates once the operating system has been installed. For an update, see the appropriate chapter that corresponds to the OS you will install.

What to Do Next

The chapters in this guide provide detailed installation information. For relevant procedures, see the appropriate chapter of this guide for your particular OS.

You should also gather the installation, administration, and configuration documentation distributed with the operating system. These documents generally accompany the distribution media as printed manuals or are included as PDF files on the medium itself. In many cases, the latest versions of such documents are also downloadable from the web site of the OS vendor.

Using a Remote Control Application (RKVM)

The Sun Blade X6275 server module supports industry-standard RKVM with devices connected to it through the service processor. This ability allows you to mount and boot from a remote CD/DVD, or an ISO file image.

▼ To Mount a CD/DVD or Equivalent ISO Image

1. **Locate your installation CD/DVD or the equivalent ISO images.**
2. **To connect to the ILOM:**
 - a. **Open a web browser and use the ILOM IP address as a URL.**
 - b. **Enter an ILOM user name and password.**

The Versions screen appears.
3. **(For Linux only:) Change the mouse mode from absolute to relative as required for Linux OS mouse operation.**
 - a. **Click the Remote Control tab.**
 - b. **Click the Mouse Mode Settings tab.**
 - c. **Select Relative Mouse Mode.**
 - d. **Select Save.**

For ILOM 2.0: When clicking on Save, a warning message appears saying that the SP will be reset. Then [Step 4](#) is required. Wait for 2 minutes, then log into SP ILOM.
4. **Click the Remote Control tab.**

The Remote Control screen appears.

5. Click the Launch Redirection button.

The ILOM remote console appears.

6. On the Devices menu, select the following:

- CD ROM if you are using a physical CD/DVD.
- CD ROM Image if you are using an ISO file.

Depending on your selection, a dialog directs you to select either a CD/DVD drive or a file.

7. Select the CD/DVD drive or the ISO file.

The distribution media (or ISO file) is now mounted. When you power on the host, it appears in the BBS popup (boot list) menu as `Virtual CD/DVD`.

For more information about setting up a remote RKVM connection to your server with the ILOM Remote Console application, see the *Sun Integrated Lights Out Manager 2.0 User's Guide*, and *Sun Integrated Lights Out Manager 3.0 User's Guide (820-1188)*, or *Sun Integrated Lights Out Manager (ILOM) 3.0 Web Interface Procedures Guide (820-6411)*.

Dongle Cable Connections

If you choose to do a local installation, you must connect a dongle cable directly to the server module.

▼ To Connect the Dongle for a Local Installation

1. Connect a USB hub to one of the USB connectors on the dongle. See [FIGURE 1-1](#).
2. Connect a keyboard, mouse, and CD/DVD drive to the USB hub or to the other USB connector.
3. Connect a monitor to the VGA port.

FIGURE 1-1 Dongle Cable Connections

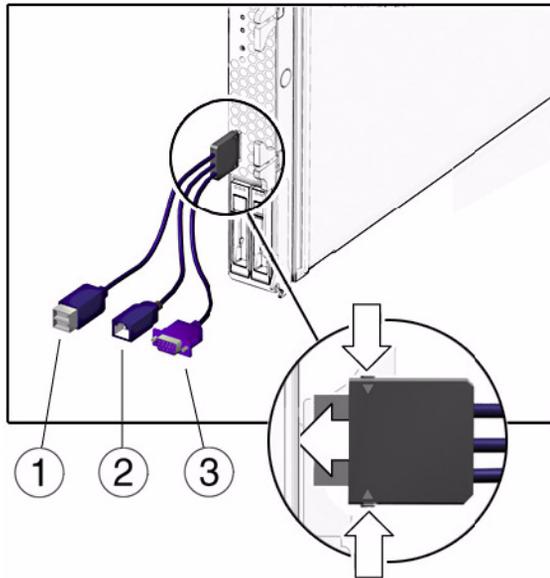


Figure Legend

-
- 1 Dual USB connectors.
 - 2 RJ-45 connector. This connector provides serial access to the ILOM.
 - 3 VGA video connector.
-

Installing Red Hat Enterprise Linux and CentOS

This chapter provides procedures for installing Red Hat Enterprise Linux (RHEL) and CentOS onto a Sun Blade X6275 server module.

If you have installed RHEL or CentOS software on other Intel servers, then you are already familiar with how to install the OS onto a Sun Blade X6275 server module.

The procedures in this chapter support three methods for installing the operating system onto your server. They include:

- Using the RHEL or CentOS distribution CD/DVD in a local CD/DVD drive.
- Using the RHEL or CentOS distribution CD/DVD in a remote CD/DVD drive, or an equivalent ISO file. You can access either using the ILOM's Remote Console application.
- Using a Preboot Execution Environment (PXE) image stored on a PXE server on your local network, or from an image stored elsewhere on your network.

This chapter contains the following sections:

- ["Installation Overview" on page 8](#)
- ["RHEL Installation and Administration Documentation" on page 9](#)
- ["Installing the RHEL OS or CentOS From the Distribution Media" on page 10](#)
- ["Installing RHEL or CentOS From a PXE Server" on page 12](#)
- ["Updating RHEL" on page 13](#)
- ["Updating CentOS" on page 13](#)
- ["Installing OFED Software for InfiniBand Devices" on page 14](#)

Installation Overview

The following list provides an outline of the installation procedure, including prerequisites. See the actual procedures for installation details.

1. Verify that you have the correct hardware. You need:
 - Sun Blade X6275 server module.
 - If you are doing a local installation (not a RKVM session) you need:
 - i. USB keyboard and mouse
 - ii. USB CD/DVD drive
 - iii. Monitor
 - iv. Dongle connector to plug into the front slot of the server module.
2. Obtain a copy of the media, or the equivalent ISO file, from one of the following web sites:
 - <http://rhn.redhat.com>

A RHEL account is required to download the ISO images. An enterprise account is an account that the customer creates to access Red Hat's support network.
 - <http://www.centos.org/>
3. Obtain a copy of the Sun Blade X6275 Linux driver package from the Sun web site:
 - <http://www.sun.com/servers/blades/downloads.jsp>
4. Install the RHEL or CentOS software and the Sun Linux driver package. See:
 - “Installing the RHEL OS or CentOS From the Distribution Media” on page 10.
 - “Installing RHEL or CentOS From a PXE Server” on page 12.
5. Update the RHEL or CentOS software. See:
 - “Updating RHEL” on page 13.
 - “Updating CentOS” on page 13
6. Install the OFED software for InfiniBand devices.

See “Installing OFED Software for InfiniBand Devices” on page 14. If you are installing the OS from a PXE server, this is included in the initial procedure.

RHEL Installation and Administration Documentation

Before you install the RHEL software on a Sun Blade X6275 server module, consult the following documentation.

TABLE 2-1 Sources for RHEL Documentation

Document	Description	Where to Find
<i>Release Notes</i>	Contains late-breaking information about system requirements and system configuration for your version of the RHEL software.	http://www.redhat.com/docs/manuals/enterprise/
<i>Installation Guide</i>	Brief printed guide containing useful information to assist you during the installation of RHEL.	http://www.redhat.com/docs/manuals/enterprise/
<i>Deployment Guide</i>	Information on deploying, configuring, and administering your system.	http://www.redhat.com/docs/manuals/enterprise/
<i>LVM Administrator's Guide</i>	Information on administering Logical Volume Manager (LVM) to create logical storage volumes.	http://www.redhat.com/docs/manuals/enterprise/
<i>Cluster Administration</i>	Information on configuring and managing a cluster environment.	http://www.redhat.com/docs/manuals/enterprise/
<i>Virtualization Guide</i>	Information about configuring and administering a virtual server.	http://www.redhat.com/docs/manuals/enterprise/

CentOS Installation and Administration Documentation

Before you install the CentOS software on a Sun Blade X6275 server module, consult the following documentation:

TABLE 2-2 Sources for CentOS Documentation

Document	Description	Where to Find
<i>Product Notes</i>	Contains late-breaking information about system requirements and system configuration for your version of the CentOS software.	http://wiki.centos.org/Manuals/ReleaseNotes
<i>Installation Guide</i>	Full installation information for CentOS.	http://www.centos.org/docs/5/
<i>Deployment Guide</i>	Deployment Guide contains information on how to customize CentOS.	http://www.centos.org/docs/5/
<i>LVM Administrator's Guide</i>	Information on administering Logical Volume Manager (LVM) to create logical storage volumes.	http://www.centos.org/docs/5/
<i>Cluster Administration</i>	Information on configuring and managing a cluster environment.	http://www.centos.org/docs/5/
<i>Virtualization Guide</i>	Information about configuring and administering a virtual server.	http://www.centos.org/docs/5/

Installing the RHEL OS or CentOS From the Distribution Media

RHEL or CentOS provides both a text mode and an easy-to-use graphical interface for installing and configuring the operating system. At the boot prompt, you can select the interface that you want to use. Both options are shown later in this section.

▼ To Install the RHEL OS or CentOS From the Distribution Media

1. Connect your CD/DVD drive.

If you are using a CD/DVD drive connected to the USB:

- a. **Connect the USB CD/DVD drive into the USB port of the dongle.**
- b. **Insert the first RHEL or CentOS Distribution CD/DVD into the CD/DVD drive connected to the server module.**

If you are using a RKVM, mount the CD/DVD drive or an equivalent ISO image using RKVM, as described in “Using a Remote Control Application (RKVM)” on page 4.

2. Power on the system.

- a. **Press F8 during POST to access the BBS pop-up menu.**

A boot device list appears.

- b. **Select the CD/DVD drive from the boot list.**

- If you are connecting over USB, select USB CD/DVD.
- If you are connecting over a RKVM, select Virtual CD/DVD.

The server boots from the selected media and displays a `boot:` menu.

3. At the `boot` prompt, select one of the following:

- For text mode, type the following command:
`boot: linux text`
- For graphical mode, press Enter.

4. Refer to the *Installation Guide* to guide you through the remainder of the installation process.

- <http://www.redhat.com/docs/>
- <http://www.centos.org/docs/5/>

Note – Make sure your installation includes the development tools. You will need them later to install the drivers.

5. Update the operating system.

See “Updating RHEL” on page 13 or “Updating CentOS” on page 13.

6. Install the OFED software required for the InfiniBand network.

See “Installing OFED Software for InfiniBand Devices” on page 14.

Installing RHEL or CentOS From a PXE Server

This procedure describes how to configure your Sun Blade X6275 server module to initiate the request to download the boot image file from the Preboot Execution Environment (PXE)/DHCP server and how to install the RHEL or CentOS boot image on your Sun Blade X6275 server module.

Before You Begin

Before you configure your server to install RHEL or CentOS from a PXE server, you need to configure your network to support a PXE server.

▼ To Install RHEL or CentOS From a PXE Server

1. **Download the Sun Blade X6275 Linux driver package from the Sun web site:**

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

2. **Patch the PXE server with OFED software for the IB network interface.**
3. **Connect the PXE client to the same network as the PXE server, and power on the PXE client.**

The PXE client is the target Sun Blade X6275 server module to which you are installing RHEL or CentOS software.

4. **During the BIOS POST, press the F8 key and select the nic interface of your choice.**

The PXE client connects to the PXE server and attempts to obtain an IP address from the DHCP server.

5. **At the `boot:` prompt, type the label you gave the image when you installed the RHEL or CentOS image on the PXE server.**

The RHEL or CentOS install image is downloaded onto the target Sun Blade X6275 server module.

6. **Follow the system prompts to install or configure your operating system.**
7. **Update the operating system files.**

See “Updating RHEL” on page 13.

Updating RHEL

This procedure describes how to update the RHEL operating system.

Because software is constantly being updated, your distribution media might not contain the most up-to-date versions of the operating system.

Follow this procedure after your operating system is installed.

▼ To Update RHEL

1. 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 RHEL5.3 (or subsequent release).

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 in *Sun Blade X6275 Server Module Linux, VMware, and Solaris Operating Systems Guide* (820-6176).

Updating CentOS

This procedure describes how to update the CentOS operating system.

Because software is constantly being updated, your distribution media might not contain the most up-to-date versions of the operating system.

Follow this procedure after your operating system is installed.

▼ To Update CentOS

1. Use the `yum update` command.

The command `yum` is provided to help you install, update or to remove software. For more information about the `yum` command, see:

<http://www.centos.org/docs/5/html/yum/>

Installing OFED Software for InfiniBand Devices

This procedure describes how to install OFED software for RHEL 5.3 and CentOS 5.3 for InfiniBand devices. Follow this procedure after your operating systems is updated, as described in “Updating RHEL” on page 13 or “Updating CentOS” on page 13.

▼ To Install OFED Software

You can perform this procedure using an RKVM session. See “Using a Remote Control Application (RKVM)” on page 4 for details.

For additional information, see the Mellanox documentation located in the docs directory on the ISO image.

1. Download the Sun Blade X6275 Linux driver OFED package from the Sun web site to your host:

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

2. Mount the ISO image.

From the Tools and Drivers DVD: Copy the OFED ISO from the `/linux/drivers/ofed` directory and download it to your server. Run the `mount` command from the directory in which the file was copied.

From Linux tar file: You can download a Linux-only tar file that contains the driver, extract the contents, navigate to `/linux/drivers/ofed`, and run the `mount` command.

The `mount` command:

```
mount -o ro,loop ISO_image_name.iso /mnt
```

For example:

```
mount -o ro,loop <MLNX_OFED_LINUX-1.4-rhel5.3.iso /mnt
```

3. Run the installation script `mlnxofedinstall`. Use the command:

```
/mnt/mlnxofedinstall
```

The script displays a question.

4. Answer `y` to continue.

The installation starts. Messages about installing RPMs scroll by. When it is done, the installation is complete.

The installation performs the following actions:

- Discovers the currently installed kernel.
- Uninstalls any software stacks that are part of the standard operating system distribution or another vendor's commercial stack.
- Installs the `MLNX_OFED_LINUX` binary RPMs, if they are available for the current kernel.

Note – See the Mellanox documentation for information on how to add your kernel version.

- Identifies currently installed InfiniBand adapter and automatically upgrade the firmware.

The following is an example of the installation process:

```
linux-host# /mnt/mlnxofedinstall
This program will install the MLNX_OFED_LINUX package on your
machine.
Note that all other Mellanox, OEM, OFED, or Distribution IB
packages will be removed.
Do you want to continue?[y/N]: y

Uninstalling the previous version of OFED

Starting MLNX_OFED_LINUX-1.4 installation ...
```

The script displays messages about installing RPMs. When it is done, it displays text similar to the following:

```
Device (15b3:6732):
    07:00.0 InfiniBand: Mellanox Technologies MT26418 [ConnectX
IB DDR, PCIe 2.0 5GT/s] (rev a0)
    Link Width: 8x
    Link Speed: 5Gb/s
Installation finished successfully.
The firmware version 2.6.0 is up to date.
Note: To force firmware update use '--force-fw-update' flag.
Configuring /etc/security/limits.conf.
```

5. We recommend that you reboot your host when the installation is finished.
6. Configure the ib0 port IP address.

Installing the SLES Operating System

This chapter provides instructions for installing the SuSE Linux Enterprise Server (SLES) onto a Sun Blade X6275 server module.

There are three methods for installing the SLES 10 SP2 and SLES 11 OS onto your server. They include:

- Using the SLES distribution CD/DVD in a local CD/DVD drive.
- Using the SLES distribution CD/DVD in a remote CD/DVD drive, or an equivalent ISO file. You can access either using the ILOM's Remote Console application.
- Using a Preboot Execution Environment (PXE) image stored on a PXE server on your local network or from an image stored elsewhere on your network.

For a list of supported operating systems, see [“Things You Must Decide” on page 2](#).

This chapter contains the following sections:

- [“Installation Overview” on page 18](#)
- [“Installing the SLES OS From the Distribution Media” on page 20](#)
- [“Installing SLES From a PXE Server” on page 21](#)
- [“Updating the SLES Operating System” on page 22](#)
- [“Installing OFED Software for InfiniBand Devices” on page 23](#)

Installation Overview

The following list provides an outline of the installation procedure, including prerequisites. See the actual procedures for installation details.

1. Verify that you have the correct hardware. You need:
 - Sun Blade X6275 server module.
 - If you are doing a local installation (not a RKVM session) you need:
 - i. USB keyboard and mouse
 - ii. USB CD/DVD drive
 - iii. Monitor
 - iv. Dongle connector to plug into the front slot of the server module.
2. Obtain a copy of the SLES media and documentation:
 - SLES CD/DVD set or equivalent ISO file.
 - *SUSE Linux Enterprise Server 10 Installation and Administration Guide* or *SUSE Linux Enterprise Server 11 Installation and Administration Guide*.
3. **For SLES 10 only:** Obtain a copy of the Sun Blade X6275 Linux driver package from the Sun web site:
<http://www.sun.com/servers/blades/downloads.jsp>
These drivers are required for the Intel e1000e network interface and IB network interface. Refer to the README file in the package for more details.
4. Install the SLES software and the Sun Linux driver package. See either:
 - “Installing the SLES OS From the Distribution Media” on page 20.
 - “Installing SLES From a PXE Server” on page 21.
5. Update the SLES OS. See “Updating the SLES Operating System” on page 22.
6. If you are installing the SLES OS from distribution media, install the OFED software for InfiniBand devices. See “Installing OFED Software for InfiniBand Devices” on page 23. If you are installing the SLES OS from a PXE server, this is included in the initial procedure.

SLES Installation and Configuration Documentation

TABLE 3-3 lists resources to help you install SLES onto your server. These documents are located at:

<http://www.novell.com/documentation/sles10/>

<http://www.novell.com/documentation/sles11/>

TABLE 3-3 SLES Installation Resources

Document	Description
Installation Quick Start	Provides information on a quick install of SLES.
Release Notes	Provides late-breaking release-specific information about the SLES version on your distribution CD/DVDs.
Deployment Guide	Provides information on installation and deployment of the server.
Administration Guide	Provides information for a SLES server that is in operation.
Linux Audit Self Start	Provides initial information on enabling call auditing for the first time.
Security Guide	Provides information on security administration for a SLES system.
High Availability Extension Guide	Provides administration information for high availability Linux clusters.
Administration Guide	Provides administration information for the SLES server.
Virtualization with Xen Administration Guide	Provides overview information installation procedures on virtualization on the SLES server.
AppArmor Quick Start guide	Provides information on configuring AppArmor profiles.
Novell Customer Center	Provides user information on managing your Novell products.
SLES Library	Provides a library of white papers.

Installing the SLES OS From the Distribution Media

SLES provides an easy-to-use graphical interface for installing and configuring the operating system. Whether you are using distribution CD/DVDs to install SLES from a locally attached CD/DVD drive or from an ISO file on a remote CD/DVD drive attached via RKVM, the installation procedure is fundamentally the same.

▼ To Install SLES From the Distribution Media

1. Connect your CD/DVD drive.

- If you are using a CD/DVD drive connected to the USB:
 - a. **Connect the USB CD/DVD drive to the USB port of the dongle for the corresponding node.**
 - b. **Insert the first SLES Distribution CD/DVD into the CD/DVD drive connected to the server module.**
- If you are using a RKVM, mount the CD/DVD drive or an equivalent ISO image using RKVM, as described in [“Using a Remote Control Application \(RKVM\)”](#) on page 4.

2. Power on the system.

- a. **Press F8 during POST to access the BBS pop-up menu.**

A boot device list appears.
- b. **Select the CD/DVD drive from the boot list.**
 - If you are connecting over a physical USB CD/DVD drive, select `USB CD/DVD`.
 - If you are connecting over a RKVM, select `Virtual CD/DVD`.The server boots from the selected media and displays a `boot:` menu.

3. Follow the installation instructions provided with the *SUSE Linux Enterprise Server 10 Installation and Administration Guide* to complete the installation of the system software.

Note – Make sure your installation includes the development tools. You will need them later to install the drivers.

4. Download the Sun Blade X6275 Linux driver package from the Sun web site to your host:
<http://www.sun.com/servers/blades/downloads.jsp>
5. For SLES 10 only: Download and install the Intel 82567 e1000e driver:
 - a. Transfer the e1000e driver from the Sun Blade X6275 Linux driver package.
 - b. Untar or decompress the file.
 - c. Follow the instructions in the `readme` file to install the driver. You can also build an rpm file.
6. Update the OS, as described in “Updating the SLES Operating System” on page 22.
7. For SLES 10 SP2: Install the OFED software required for the InfiniBand network.
See “Installing OFED Software for InfiniBand Devices” on page 23.

Installing SLES From a PXE Server

This procedure describes the final step of installing the SLES boot image on your Sun Blade X6275 server module.

Before You Begin

Before you configure your server to install SLES from a Preboot Execution Environment (PXE) server, you need to do the following:

- Configure your network to support a PXE server.
- Install a SLES image on that PXE server.

▼ To Install SLES From a PXE Server

1. Download the Sun Blade X6275 Linux driver package from the Sun web site:
<http://www.sun.com/servers/blades/downloads.jsp>
2. For SLES 10 SP2: Patch the PXE images server with the Intel 82567 e1000e driver.

3. For SLES 10 SP2: Patch the PXE server with OFED software for the IB network interface.
4. Connect the PXE client to the same network as the PXE server.
5. Press the F8 key and select the nic interface of your choice.
6. At the `boot:` prompt, type the label you gave the image when you installed the image on the PXE server.
The install image is downloaded onto the target Sun Blade X6275 server module.
7. When you are prompted at the boot prompt, type the label you gave the image when you installed the SLES image on the PXE server.
For information about how to configure SLES, refer to *SUSE Linux Enterprise Server 10 Installation and Administration Guide* or to *SUSE Linux Enterprise Server 11 Installation and Administration Guide* on the SLES distribution media.
8. Perform an online software update to update the operating system files.

Updating the SLES Operating System

The operating system installation media shipping with SLES software might not contain the most up-to-date versions of the software. Since the media was released, there might have been many updates to the SLES operating system that you should install. This procedure describes how to update the operating system on your Sun Blade X6275 server module after you have installed it from a PXE server or from distribution CD/DVDs.

▼ To Configure Your SLES Operating System to Work With A Proxy Server

Note – If you are behind a network firewall and need to use a proxy server to access the Internet, you must configure YaST with the correct proxy information.

1. Open the YaST utility.
2. Select the **Network Services** tab on the left, and then the **Proxy** screen on the right. Enter the correct proxy URLs in both the **HTTP** and **HTTPS** fields.

Note – For the online update service to function correctly through a network HTTP proxy, the following additional configuration step must be performed.

3. Exit the YaST utility and enter 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/`).

▼ To Update Your SLES Operating System Online

1. Log in as the superuser.

2. Type the following command to run the YaST Online Update:

```
# you
```

3. Register with the Novell Customer Center. Select the Software tab on the left, and then select Novell Customer Center Configuration and follow the directions.

Use your Novell Customer Center user name and password, as well as a SLES product activation code.

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

Installing OFED Software for InfiniBand Devices

This procedure applies to SLES 10 SP2. (IB drivers are bundled with SLES 11.)

▼ To Install OFED Software

You can perform this procedure using an RKVM session. See [“Using a Remote Control Application \(RKVM\)”](#) on page 4 for details.

For additional information, see the Mellanox documentation located in the docs directory on the ISO image.

1. Download the Sun Blade X6275 Linux driver package from the Sun web site to your host:

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

2. Mount the ISO image.

From the Tools and Drivers DVD: Copy the OFED ISO from the `/linux/drivers/ofed` directory and run the mount command from the directory in which the file was copied.

From Linux tar file: You can download a Linux-only tar file that contains the driver, extract the contents, navigate to `/linux/drivers/ofed`, and run the mount command.

The mount command:

```
mount -o ro,loop ISO_image_name.iso /mnt
```

For example:

```
mount -o ro,loop <MLNX_OFED_LINUX-1.4-sles10.sp1_sp2.iso /mnt
```

3. Run the installation script `mlnxofedinstall`.

Use the command:

```
/mnt/mlnxofedinstall
```

The script displays a question.

4. Type `y` to continue.

The installation starts. Messages about installing RPMs scroll by. When it is done, the installation is complete.

The installation performs the following actions:

- Discover the currently installed kernel.
- Uninstall any software stacks that are part of the standard operating system distribution or another vendor's commercial stack.
- Install the `MLNX_OFED_LINUX` binary RPMs, if they are available for the current kernel.

Note – See the Mellanox documentation for information on how to add your kernel version.

- Identify currently installed InfiniBand adapter and automatically upgrade the firmware.

The following display shows an example of the installation process:

```
linux-host# /mnt/mlnxofedinstall
This program will install the MLNX_OFED_LINUX package on your
machine.
Note that all other Mellanox, OEM, OFED, or Distribution IB
packages will be removed.
Do you want to continue?[y/N]: y

Uninstalling the previous version of OFED

Starting MLNX_OFED_LINUX-1.4 installation ...
```

The script displays messages about installing RPMs. When it is done, it displays text similar to the following:

```
Device (15b3:6732):
    07:00.0 InfiniBand: Mellanox Technologies MT26418 [ConnectX
IB DDR, PCIe 2.0 5GT/s] (rev a0)
    Link Width: 8x
    Link Speed: 5Gb/s
Installation finished successfully.
The firmware version 2.6.0 is up to date.
Note: To force firmware update use '--force-fw-update' flag.
Configuring /etc/security/limits.conf.
```

- 5. We recommend that you reboot your host when the installation is finished.**
- 6. Configure the ib0 port IP address.**

Installing the Solaris™ Operating System

This chapter provides instructions for installing the Solaris 10 5/09 Operating System (Solaris 10 OS) on a Sun Blade X6275 server module.

There are three methods for installing the Solaris 10 OS onto your server. They include:

- Using the Solaris 10 OS distribution CD/DVD in a local CD/DVD drive.
- Using the Solaris 10 OS distribution CD/DVD in a remote CD/DVD drive, or an equivalent ISO file. You can access either using the ILOM's Remote Console application.
- Using a Preboot Execution Environment (PXE) image stored on a PXE server on your local network or from an image stored elsewhere on your network.

This chapter contains the following sections:

- [“Installation Overview” on page 28](#)
- [“Installing the Solaris 10 OS From the Distribution Media” on page 28](#)
- [“Installing the Solaris 10 OS Using a PXE Network Environment” on page 30](#)
- [“Updating Solaris” on page 31](#)

Installation Overview

The following list provides an outline of the installation procedure, including prerequisites. See the actual procedures for installation details.

1. Verify that you have the correct hardware. You need:
 - Sun Blade X6275 server module.
 - If you are doing a local installation (not a RKVM session) you need:
 - i. **USB keyboard and mouse**
 - ii. **USB CD/DVD drive**
 - iii. **Monitor**
 - iv. **Dongle connector to plug into the front slot of the server module.**
2. Obtain a copy of the Solaris 10 distribution media from the Solaris CD/DVD, equivalent ISO file, or network repository.
3. Install the OS. See the following:
 - [“Installing the Solaris 10 OS From the Distribution Media” on page 28.](#)
 - [“Installing the Solaris 10 OS Using a PXE Network Environment” on page 30.](#)
4. Patch and update the OS. See the following:
 - [“Updating Solaris” on page 31](#)

Installing the Solaris 10 OS From the Distribution Media

Solaris provides an easy-to-use graphical interface for installing and configuring the operating system. Whether you are using a CD/DVD to install Solaris from a locally attached CD/DVD drive or from an ISO file on a remote CD/DVD drive attached via RKVM, the installation procedure is fundamentally the same.

▼ To Install the Solaris OS From the Distribution Media

1. Connect your CD/DVD drive.

If you are using a CD/DVD drive connected to the USB:

- a. Connect the USB CD/DVD drive into the USB port of the dongle.
- b. Insert the Solaris OS distribution CD/DVD into the CD/DVD drive connected to the server module.

If you are using a RKVM, mount the CD/DVD drive or an equivalent ISO image using RKVM, as described in [“Using a Remote Control Application \(RKVM\)”](#) on page 4.

For additional information about how to set up the install media, see [“Installing an OS onto a Sun Blade X6275 Server Module”](#) on page 1.

2. Power on the system.

- a. Press F8 during POST to access the BBS pop-up menu.

A boot device list appears.

- b. Select the CD/DVD drive from the boot list.

- If you are connecting over USB, select USB CD/DVD.
- If you are connecting over a RKVM, select Virtual CD/DVD.

The server boots from the selected media and displays a boot: menu.

3. At the boot prompt, select one of the following:

- For text mode, type the following command:
boot: **solaris text**
- For graphical mode, press Enter.

4. Refer to the *Installation Guide* to guide you through the remainder of the installation process.

Note – Make sure your installation includes the development tools. You will need them later to install the drivers.

5. Update the operating system.

See [“Updating Solaris”](#) on page 31.

Installing the Solaris 10 OS Using a PXE Network Environment

The following procedure describes how to boot the Solaris operating system installation from a PXE network environment.

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 Installation Guide: Custom JumpStart and Advanced Installations* (817-5506).

▼ To Install Solaris 10 Using a Network PXE Boot

1. **Download the Sun Blade X6275 Solaris driver package from the Sun web site:**

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

2. **Connect the PXE client to the same network as the PXE server, and power on the PXE client.**

The PXE client is the target Sun Blade X6275 server module to which you are installing the software.

3. **During the BIOS POST, press the F8 key and select the nic interface of your choice.**

The PXE client connects to the PXE server and attempts to obtain an IP address from the DHCP server.

4. **At the `boot:` prompt, type the label you gave the image when you installed the Solaris OS image onto the PXE server.**

The install image is downloaded onto the target Sun Blade X6275 server module.

5. **Follow the system prompts to install or configure your operating system.**

6. **Update the operating system files.**

See “Updating Solaris” on page 31.

Updating Solaris

To update Solaris by downloading the appropriate firmware or patches for your system, go to this web site:

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

▼ To Install the InfiniBand Patch (141782-02)

1. **Download the patch to host from www.sun.com.**
2. **Open a terminal window and change directories to the location to which the patch was saved.**
3. **Type:** `patchadd -d . pkgname`
4. **Reboot.**
5. **Configure `ibd0` port.**

Installing OpenSolaris™

This chapter provides information about installing the OpenSolaris 2009.06 Operating System (OpenSolaris OS) on the Sun Blade X6275 Server Module.

This chapter includes the following topics:

- “OpenSolaris Operating System User Information” on page 33
- “Using the OpenSolaris Installation Program” on page 34
- “Reinstalling the OpenSolaris Operating System” on page 34
- “Task Map for OpenSolaris Installation” on page 35
- “Installing OpenSolaris OS Using Local or Remote Media” on page 36
- “Post OpenSolaris Installation Tasks” on page 39

For information describing how to configure the preinstalled OpenSolaris OS image, see the *Sun Blade X6275 Server Module Installation Guide* (820-6977) for setup instructions.

OpenSolaris Operating System User Information

This chapter provides pointers to information about the OpenSolaris Operating System.

OpenSolaris User Documentation

You can access the various collections of the OpenSolaris OS user documentation at:

<http://opensolaris.org/os/documentation/>

OpenSolaris Training

Sun provides flexible training options that accommodate your personal schedule and learning style. The training options include instructor-led, web-based online, CD-ROM, and Live Virtual Class. For OpenSolaris Training and Certification options at a glance, go to:

<http://www.opensolaris.com/learn/subscriptions/>

Using the OpenSolaris Installation Program

The documentation listed in this section provides instructions for using the OpenSolaris installation program and is available at the following web site:

<http://dlc.sun.com/osol/docs/content/2009.06/getstart/index.html>

Note – The Sun Blade X6275 Server Module requires OpenSolaris 2009.06 for X6275-IB support.

Reinstalling the OpenSolaris Operating System

If you want to reinstall the OpenSolaris OS or install a different version of the OpenSolaris OS, refer to *Getting Started With OpenSolaris 2009.06* at:

<http://dlc.sun.com/osol/docs/content/2009.06/getstart/>

Download OpenSolaris Operating System

To download the OpenSolaris operating system, go to:

<http://opensolaris.org/os/TryOpenSolaris/>

Task Map for OpenSolaris Installation

Use [TABLE 5-1](#) to preview the installation process defined as a series of tasks. The table identifies and describes the tasks required, and provides pointers to the instructions for performing that task.

TABLE 5-1 Task Map for the OpenSolaris Installation

Step	Task	Description	Relevant Topic(s)
1	Review installation prerequisites.	Verify that all applicable requirements are met for installing an operating system to the Sun Blade X6275 Server Module.	<ul style="list-style-type: none">• “OS Installation Prerequisites” in <i>Sun Fire X4170, X4270, and X4275 Servers Linux, VMware, Solaris, and OpenSolaris Operating Systems Installation Guide</i> (820-5828).
2	Choose an installation method.	Evaluate and select an installation method that meets the needs of your infrastructure.	<ul style="list-style-type: none">• “Installation Methods” in <i>Sun Fire X4170, X4270, and X4275 Servers Linux, VMware, Solaris, and OpenSolaris Operating Systems Installation Guide</i> (820-5828).
3	Ensure that the BIOS factory defaults are set.	Verify that the factory default settings in the BIOS are set prior to performing the operating system installation.	<ul style="list-style-type: none">• “Verify BIOS Settings for New Installs” in <i>Sun Fire X4170, X4270, and X4275 Servers Linux, VMware, Solaris, and OpenSolaris Operating Systems Installation Guide</i> (820-5828).
4	Gather OpenSolaris 2009.06 installation media.	The OpenSolaris OS is shipped with the CD and DVD media and documentation that you will need to install the OpenSolaris OS for both SPARC and x86 platforms. For the Sun Blade X6275 Server Module, use the media for x86 platforms.	<ul style="list-style-type: none">• You can download or order the media for the OpenSolaris OS at: http://opensolaris.org/os/downloads/
5	Perform the OpenSolaris OS installation.	The installation instructions in this chapter describe the initial steps for booting the installation media and launching the OpenSolaris installation program. For further information about installing OpenSolaris, refer to the Getting Started with OpenSolaris 2009.06 web site at: http://dlc.sun.com/osol/docs/content/2009.06/getstart/	<ul style="list-style-type: none">• “Installing OpenSolaris OS Using Local or Remote Media” in <i>Sun Fire X4170, X4270, and X4275 Servers Linux, VMware, Solaris, and OpenSolaris Operating Systems Installation Guide</i> (820-5828).

TABLE 5-1 Task Map for the OpenSolaris Installation (*Continued*)

Step	Task	Description	Relevant Topic(s)
6	Install driver(s), post installation, if necessary.	If the OpenSolaris OS does not include the necessary device drivers to support your system, you might need to install additional device drivers.	<ul style="list-style-type: none">• “Install System Device Drivers to Support Additional Hardware” on page 39
7	Install SRUs, post installation, if necessary.	If necessary, download and install OpenSolaris Support Repository Updates (SRUs). SRUs provide critical fixes to the OpenSolaris OS.	<ul style="list-style-type: none">• “Install Support Repository Updates” on page 39

Installing OpenSolaris OS Using Local or Remote Media

The following procedure describes how to boot the OpenSolaris 2009.06 Operating System installation from local or remote media. It assumes that you are booting the installation media from one of the following sources:

- OpenSolaris 2009.06 (or subsequent release) Live CD/DVD (internal or external CD/DVD)
- OpenSolaris 2009.06 (or subsequent release) Live CD ISO image (network repository)

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 “OS Installation Prerequisites” in *Sun Fire X4170, X4270, and X4275 Servers Linux, VMware, Solaris, and OpenSolaris Operating Systems Installation Guide* (820-5828).
- An installation method (for example: console, boot media, and installation target) should have been chosen and established prior to performing the installation. For information about these setup requirements, see “Installation Methods” in *Sun Fire X4170, X4270, and X4275 Servers Linux, VMware, Solaris, and OpenSolaris Operating Systems Installation Guide* (820-5828).

Note that the following procedure explains the initial steps for booting the installation media and launching the OpenSolaris installation program.

After completing this procedure, you should review and perform the required post installation tasks described later in this chapter. For more details, see “[Post OpenSolaris Installation Tasks](#)” on page 39.

▼ Install OpenSolaris OS Using Local or Remote Media

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

Note – For the Sun Fire X4275 Server, which has neither a CD/DVD-ROM drive nor a USB connector on the front panel, use the ILOM Remote Console to redirect the boot media from a remote storage device. For instructions, see “Remote Boot Media” in *Sun Fire X4170, X4270, and X4275 Servers Linux, VMware, Solaris, and OpenSolaris Operating Systems Installation Guide* (820-5828).

- **For distribution CD/DVD.** Insert the OpenSolaris 2009.06 Distribution Media (CD labeled 1 or the single DVD) into the local or remote CD/DVD-ROM drive.
- **For ISO image.** Ensure that the ISO images are available and that the Sun ILOM Remote Console application is aware of the first ISO image location.

For additional information about how to set up the installation media, see “Boot Media Options for Performing the OS Installation” in *Sun Fire X4170, X4270, and X4275 Servers Linux, VMware, Solaris, and OpenSolaris Operating Systems Installation Guide* (820-5828).

2. Reset the power on the server.

For example:

- **From the ILOM web interface,** select the Remote Control --> Remote Power Control tab, then select the Power Cycle option from the Host action drop-down 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 module.
- **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 power-on self-test screen, press F8 to specify a temporary boot device for the OpenSolaris 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 (temporary) boot device, then press Enter.**

In the sample Boot Device menu shown in [Step 3](#), the CD/DVDW 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: product ID string

Note – If you are performing the OpenSolaris installation from the Sun ILOM Remote Console application, select the AMI Virtual CDRom, or CDRom image as the first boot device.

The GRUB menu appears.

- 5. In the GRUB menu, select `OpenSolaris 2009.06`, then press Enter.**

Note – In the GRUB menu, if you want to redirect the installation output to a serial console, press “e” to edit the GRUB menu to support a serial console (`-B console = ttya`).

The system loads the OpenSolaris disk image into memory. This process can take several minutes.

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

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

The system configures the keyboard layout selection and searches for configuration files. The Select Desktop Language menu appears.

- 7. In the Select Desktop Language menu, select the appropriate desktop language, then press Enter to continue.**

After a few moments the OpenSolaris 2009.06 desktop appears.

- 8. In the OpenSolaris desktop, double-click the Install OpenSolaris icon to begin the OS installation.**

The OpenSolaris Installer Welcome screen appears.

- 9. In the Welcome screen, click Next to begin the installation.**

The OpenSolaris installation program displays several configuration screens.

10. Follow the on-screen instructions to complete the OpenSolaris installation.

For additional information, refer to the Getting Started with OpenSolaris 2009.06 web site at:

<http://dlc.sun.com/osol/docs/content/2009.06/getstart>

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

11. Proceed to the section “Post OpenSolaris Installation Tasks” on page 39 to perform the post OpenSolaris configuration tasks.

Post OpenSolaris Installation Tasks

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

- “Install System Device Drivers to Support Additional Hardware” on page 39
- “Install Support Repository Updates” on page 39
- “Enable the Option for Wake On LAN” on page 40 (optional)

Install System Device Drivers to Support Additional Hardware

The Device Driver Utility enables you to connect to the Image Packaging System (IPS) and use it to search for device drivers for the devices on your system that do not have a driver attached with them.

To start the Device Driver Utility, click the Device Driver Utility icon on the OpenSolaris desktop.

Install Support Repository Updates

A Support Repository Update (SRU) contains the latest released bug fixes for your OpenSolaris release.

Directions for accessing and installing SRUs can be found at:

<http://sunsolve.sun.com/show.do?target=opensolaris>

Enable the Option for Wake On LAN

After installing the operating system, you might want to consider enabling the Wake On LAN (WOL) option in the BIOS Setup utility. This feature enables you to power on the server from another location over the network. For details about the requirements for enabling WOL, see "Wake On LAN" in the *Sun Blade X6275 Server Module Service Manual* (820-6849).

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