

# **Sun Blade X4-2B Installation Guide for Linux Operating Systems**



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# Using This Documentation

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This section describes how to get the latest firmware and software for the system, documentation and feedback, and a document change history.

- “Sun Blade X4-2B Model Name ” on page 5
- “Getting the Latest Firmware and Software” on page 5
- “Documentation and Feedback” on page 6
- “About This Documentation” on page 6
- “Support and Training” on page 6
- “Access to Oracle Support ” on page 7
- “Contributors” on page 7
- “Change History” on page 7

## Sun Blade X4-2B Model Name

The name identifies the following: Sun Blade **X4-2B** Server Module

- 1: The alpha character, X, identifies an x86 product.
- 2: The first number, 4, identifies the generation of the server.
- 3: The second number, 2, identifies the number of processors.
- 4: The alpha character, B, identifies the product as a blade server.

## Getting the Latest Firmware and Software

Firmware, drivers, and other hardware-related software for each Oracle x86 server, server module (blade), and blade chassis are updated periodically.

You can obtain the latest version in one of three ways:

- Oracle System Assistant – This is a factory-installed option for Sun Oracle x86 servers. It has all the tools and drivers you need and resides on a USB drive installed in most servers.
- My Oracle Support – <http://support.oracle.com>
- Physical media request

For more information, see “Getting Server Firmware and Software Updates” in *Sun Blade X4-2B Installation Guide*.

# Documentation and Feedback

Documentation	Link
All Oracle products	<a href="http://www.oracle.com/documentation">http://www.oracle.com/documentation</a>
Sun Blade X4-2B server module	<a href="http://www.oracle.com/goto/X4-2B/docs">http://www.oracle.com/goto/X4-2B/docs</a>
X4 server series system administration	Oracle x86 Administration Guide for X4 Series Servers ( <a href="http://www.oracle.com/goto/x86AdminDiag/docs">http://www.oracle.com/goto/x86AdminDiag/docs</a> )
Oracle System Assistant	Oracle x86 Administration Guide for X4 Series Servers ( <a href="http://www.oracle.com/goto/x86AdminDiag/docs">http://www.oracle.com/goto/x86AdminDiag/docs</a> )
Oracle Integrated Lights Out Manager (ILOM) 3.1	<a href="http://www.oracle.com/goto/ILOM/docs">http://www.oracle.com/goto/ILOM/docs</a>
Oracle Hardware Management Pack	<a href="http://www.oracle.com/goto/OHMP/docs">http://www.oracle.com/goto/OHMP/docs</a>
Chassis Sun Blade 6000 modular system	<a href="http://www.oracle.com/goto/SB6000/docs">http://www.oracle.com/goto/SB6000/docs</a>

Provide feedback on this documentation at: <http://www.oracle.com/goto/docfeedback>.

## About This Documentation

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

You can generate a PDF that includes all information about a particular topic subject (such as hardware installation or product notes) can be generated by clicking the PDF button in the upper left corner of the HTML page.

## Support and Training

These web sites provide additional resources:

- Support: <http://support.oracle.com>
- Training: <http://education.oracle.com>

## Access to Oracle Support

Oracle customers have access to electronic support through My Oracle Support. For information, visit <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info> or visit <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs> if you are hearing impaired.

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## Change History

The following lists the release history of this documentation set:

- September 2013. Initial publication.
- November 2013. Software 1.0.1 update.
- March 2014. Software 1.1 update.





# About Linux OS Installation

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This section contains an overview for installing a new Linux operating system (OS) on your server.

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**Note** – If you have a Sun Blade X4-2B server module with preinstalled Oracle Linux, refer to the *Sun Blade X4-2B Server Module Installation Guide* for instructions on configuring the operating system.

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Use the following task table to assist you with installing a supported version of Linux on the Sun Blade X4-2B.

Step	Task	Link
1	Perform the initial server installation and setup procedures.	<a href="#">Sun Blade X4-2B Installation Guide</a>
2	Learn which Linux operating systems are supported.	<a href="#">“Supported Linux OS Versions and Latest Information” on page 10</a>
3	Review the latest server hardware and software information, including a list of supported operating systems.	<a href="#">Sun Blade X4-2B Product Notes</a>
4	Review the options for single-server or multiple-server OS installations.	<a href="#">“Linux OS Installation Options” on page 11</a>
5	Review the role of Oracle System Assistant in the OS installation process.	<a href="#">“Oracle System Assistant” on page 13</a>
6	Prepare for the OS installation by performing the necessary procedures.	<a href="#">“Preparing to Install the OS” on page 15</a>

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# Supported Linux OS Versions and Latest Information

Use this section to learn about the supported versions of the Linux OS and how to get the latest server-related information:

- [“Supported Linux Operating Systems” on page 10](#)

## Supported Linux Operating Systems

The server supports the following Linux operating systems:

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Linux OS Version	Edition
Oracle	Oracle Linux 5.9, 5.10, 6.3, 6.4 with the Oracle Unbreakable Enterprise Kernel 2 and 6.5 for x86 (64-bit) with the Oracle Unbreakable Enterprise Kernel 3 for Linux or the Red Hat Compatible Kernel
Red Hat	Red Hat Enterprise Linux 5.9, 5.10, 6.4, 6.5 for x86 (64-bit)
SUSE	SUSE Linux Enterprise Server 11 SP2 and SP3 (64-bit)

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For the latest supported versions, see:

<https://wikis.oracle.com/display/SystemsComm/Sun+Blade+Systems+Products#tab:Operating-Systems>

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**Note** – If the Oracle Linux 6.x OS was preinstalled, it was installed with the server set to Legacy BIOS Boot Mode. If you choose to boot the server in UEFI BIOS Boot Mode, the preinstalled image is not accessible. Therefore, if you want to use the Oracle Linux 6.x OS with the UEFI/BIOS Boot Mode set to UEFI BIOS, you must perform a fresh installation of Oracle Linux 6.x.

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**Note** – The most up-to-date information about the server is maintained in the *Sun Blade X4-2B Product Notes*. The *Product Notes* document contains detailed information about the supported operating systems, available firmware updates, and any hardware or software issues for the server. For more information, refer to the *Sun Blade X4-2B Product Notes* at: <http://www.oracle.com/goto/X4-2B/docs>

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### Related Information

- <http://www.oracle.com/goto/X4-2B/docs>

## Oracle Unbreakable Enterprise Kernel for Linux

The Oracle Unbreakable Enterprise Kernel Release 2 for Linux is a recommended kernel that is installed by default on Oracle Linux 5.9 and 6.3 and can be installed on Red Hat Enterprise Linux 5.9, 6.3, and 6.4.

The Oracle Unbreakable Enterprise Kernel Release 2 for Linux is the second major release of Oracle's heavily tested and optimized operating system kernel for Oracle Linux 5 and Oracle Linux 6. It is based on the 3.0.16 mainline Linux kernel and contains improvements and new features that have been incorporated into mainline Linux since the first version of the kernel.

### Related Information

- For the latest information about operating system compatibility and pointers to installation information for the Oracle Unbreakable Enterprise Kernel Release 2 for Linux, see the Oracle Unbreakable Enterprise Kernel Release 2 Release Notes at: <http://oss.oracle.com/ol6/docs/RELEASE-NOTES-UEK2-en.html>

## Linux OS Installation Options

You can choose to install an OS on a single server or on multiple servers. The scope of this document is for single-server OS installations. The following table provides some information about these two installation options.

Option	Description
Multiple servers	For information on using Oracle Enterprise Manager Ops Center for installing on multiple systems, see:  <a href="http://www.oracle.com/technetwork/oem/ops-center/index.html">http://www.oracle.com/technetwork/oem/ops-center/index.html</a>
Single server	Installs an OS to a single server using one of the following methods: <ul style="list-style-type: none"> <li>▪ Locally: OS installation is performed locally at the server. Use this option if you have just completed the physical installation of the server in the chassis. Additional hardware is required.</li> <li>▪ Remotely: OS installation is performed from a remote location. Use the Oracle ILOM Remote Console application to access Oracle System Assistant or to perform a manual OS installation.</li> </ul> <p><b>Note</b> – Oracle System Assistant is the easiest method for local or remote single-server OS installations.</p>

### Related Information

- “Single-Server Installation Methods” on page 12

- [“Oracle System Assistant” on page 13](#)

## Single-Server Installation Methods

Select a method for providing the Linux installation media. Use the following information to determine the local or remote OS installation that best serves your needs.

Media Delivery Method	Additional Requirements
<b>Local assisted OS installation</b> – Uses Oracle System Assistant.	A monitor, USB keyboard and mouse, a USB device, and Linux distribution media. For more information, see <a href="#">“Assisted OS Installation” on page 12</a> .
<b>Remote assisted OS installation</b> – Uses Oracle System Assistant.	Oracle ILOM Remote Console application, a redirected CD/DVD drive or ISO image file, and Linux distribution media. For more information, see <a href="#">“Assisted OS Installation” on page 12</a> .
<b>Local using a CD/DVD drive</b> – Uses a physical CD/DVD drive connected to the server.	A monitor, USB keyboard and mouse, a USB CD/DVD drive, and Linux distribution media. For more information, see <a href="#">“Manual OS Installation” on page 12</a> .
<b>Remote using a CD/DVD drive or CD/DVD ISO image</b> – Uses a redirected physical CD/DVD drive on a remote system running the Oracle ILOM Remote Console application.	A remote system with a browser, an attached physical CD/DVD drive, Linux distribution media, and network access to the server management port. For more information, see <a href="#">“Manual OS Installation” on page 12</a> .

### Assisted OS Installation

This is the easiest method for installing a supported OS on the server. This method involves using the Oracle System Assistant application. You deliver the Linux OS installation media on either a local or remote CD/DVD drive, USB device, or CD/DVD image, and Oracle System Assistant guides the installation process and installs the necessary drivers when necessary. The server must support Oracle System Assistant, and it must be installed in the server.

### Manual OS Installation

With this method, you deliver the Linux distribution media on either a local or remote CD/DVD drive, USB device, or CD/DVD image. You also need to supply the necessary drivers. The drivers for the server are available from the My Oracle Support site as OS-specific and server-specific packages. To install the OS, use the distribution media's installation wizard.

#### Related Information

- [“Oracle System Assistant” on page 13](#)

# Oracle System Assistant

Oracle System Assistant is delivered on a USB storage device embedded in the system as an integral part of your server and is ready to use as soon as you apply standby power. This embedded storage device includes everything you need to start using the server with your choice of supported operating system and hardware. You provide the operating system installation media, and Oracle System Assistant provides everything else. The components of Oracle System Assistant include:

- User interface access to startup and maintenance provisioning tasks (including Install OS task)
- Operating system drivers and tools
- Server-specific firmware
- Hardware Management Pack
- Server-related documentation

## Related Information:

- [“Oracle System Assistant OS Installation Task” on page 13](#)
- [“Obtaining Oracle System Assistant” on page 13](#)

## Oracle System Assistant OS Installation Task

The Oracle System Assistant Install OS task helps you to install a supported Linux OS. You supply the OS installation media, and Oracle System Assistant guides you through the installation process. It then installs the appropriate drivers based on the server hardware configuration.

You can access Oracle System Assistant locally or remotely. If you just completed the installation of the server, then using Oracle System Assistant locally (while physically present at the server) can be a fast and efficient method of starting up the server. Once the server is operational, you can conveniently access Oracle System Assistant remotely while still retaining full-featured functionality.

## Related Information

- [“Obtaining Oracle System Assistant” on page 13](#)

## Obtaining Oracle System Assistant

in most cases, Oracle System Assistant is already installed in the server. For more information about how to determine if the server has Oracle System Assistant or how to perform updates and recovery procedures, refer to:

Oracle X4 Series Servers Administration Guide (<http://www.oracle.com/goto/x86AdminDiag/docs>)

**Related Information**

- “Preparing to Install the OS” on page 15

# Preparing to Install the OS

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Use the steps in this section to prepare for OS installation.

Step	Task	Link
1	You must have already reviewed the OS installation task table.	“About Linux OS Installation” on page 9
2	Download OS installation media kits.	“Downloading Installation Media Kits” on page 15
3	Set up for the installation based on the selected installation method.	<ul style="list-style-type: none"><li>■ <b>For local installation:</b> “Set Up the Local Console” on page 16</li><li>■ <b>For remote installation:</b> “Set Up the Remote Console” on page 17</li></ul>
4	Prepare the BIOS by loading the optimal default values, and selecting a BIOS mode.	“Setting Up BIOS” on page 21
5	Install the OS.	“Installing the Operating System” on page 23

## Downloading Installation Media Kits

This section contains the following procedures for downloading Linux installation media:

- “Download Oracle Linux Media Kits” on page 15
- “Download SLES Media Kits” on page 16
- “Download RHEL Media Kits” on page 16

### ▼ Download Oracle Linux Media Kits

- 1 For Oracle Linux, go to the Oracle e-delivery site : <http://edelivery.oracle.com/linux>
- 2 Create an account (if you do not already have one).  
You need an account to download the updated ISO images.

- 3 Find and download Oracle Linux.

**Next Steps** [“Setting Up BIOS” on page 21](#)

## ▼ Download SLES Media Kits

- 1 Obtain your Novell account information.  
You need a Novell account to download the ISO images.
- 2 Download the SUSE Linux Enterprise Server media kit from <http://download.novell.com>.

**Next Steps** [“Setting Up BIOS” on page 21](#)

## ▼ Download RHEL Media Kits

- 1 Obtain your enterprise account information.  
You need an enterprise account to download the updated ISO images.
- 2 Download the Red Hat Enterprise Linux Update Media Kit from <http://rhn.redhat.com>.

**Next Steps** [“Setting Up BIOS” on page 21](#)

# Selecting the Installation Method

This section describes the options for connecting a console to perform the installation.

Choose the procedure that matches the installation method that you plan to use.

- [“Set Up the Local Console” on page 16](#)
- [“Set Up the Remote Console” on page 17](#)

## ▼ Set Up the Local Console

A local OS installation is performed at the server. The preferred procedure for a local installation method is to use the Oracle System Assistant's Install OS task. Use this procedure to set up for a local Oracle System Assistant assisted installation or a local manual (unassisted) installation.



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**Note** – For a local OS installation, additional hardware is required and server web access is recommended.

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- Before You Begin**
- Perform the server installation as described in the *Sun Blade X4-2B Installation Guide*
  - Obtain the following items:
    - Video monitor with 15-pin (DB-15) connector capabilities
    - USB keyboard and mouse
    - USB device (CD/DVD drive or thumb drive)
    - Multi-port dongle cable
  - To ensure that the server has the latest updates, server web access is recommended.
- 1 **Ensure the server is in standby power state.**
  - 2 **Attach the 3-cable dongle to the universal connector port (UCP) on the front of the server module.**
  - 3 **Connect the video monitor to the video connector on the 3-cable dongle.**
  - 4 **Connect the keyboard and mouse to one of the USB connectors on the front of the server (or to one of the USB connectors on the 3-cable dongle).**
  - 5 **Connect the CD/DVD drive to the other USB connector on the front of the server (or to one of the USB connectors on the 3-cable dongle).**

**Next Steps** [“Setting Up BIOS” on page 21](#)

## ▼ Set Up the Remote Console

A remote OS installation is performed using the Oracle ILOM Remote Console application and a redirected CD/DVD drive or CD ISO image. The easiest method for a remote installation is to use Oracle System Assistant's assisted Install OS task. Use this procedure to set up for a remote Oracle System Assistant assisted installation or a remote manual (unassisted) installation.

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**Note** – Using the CD-ROM or CD-ROM image option to install the OS significantly increases the time necessary to perform the installation as the content of the CD-ROM is accessed over the network. The installation duration depends on the network connectivity and traffic. This installation method also has a greater risk of issues due to transient network errors.

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**Before You Begin** The following requirements must be met:

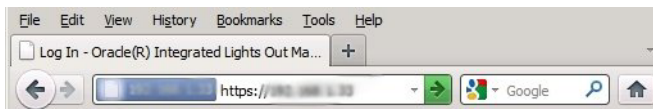
- You should have already performed the server installation as described in the *Sun Blade X4-2B Installation Guide*.
- The Remote Console system must be running on Solaris, Linux, or Windows.
- The Remote Console system must be connected to a network that has access to the Sun server Ethernet management port.
- Java Runtime Environment (JRE) 1.5 must be installed.
- If the Remote Console system is running Solaris, volume management must be disabled for Remote Console to access the CD/DVD-ROM drive.
- If the Remote Console system is running Windows, disable Internet Explorer Enhanced Security.
- The server service processor (SP) has been set up according to the instructions in the Oracle ILOM documentation for your server.
- You need the SP IP address to access Oracle ILOM.
- To ensure that the server has the latest updates, server web access is required.

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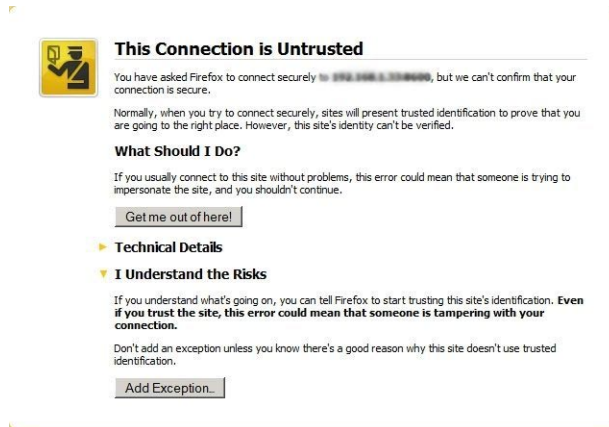
**Note** – Some of the screen shots shown in this procedure might differ from the screens you see.

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- 1 **To access Oracle ILOM, type the IP address of the service processor into a browser on the Remote Console system.**

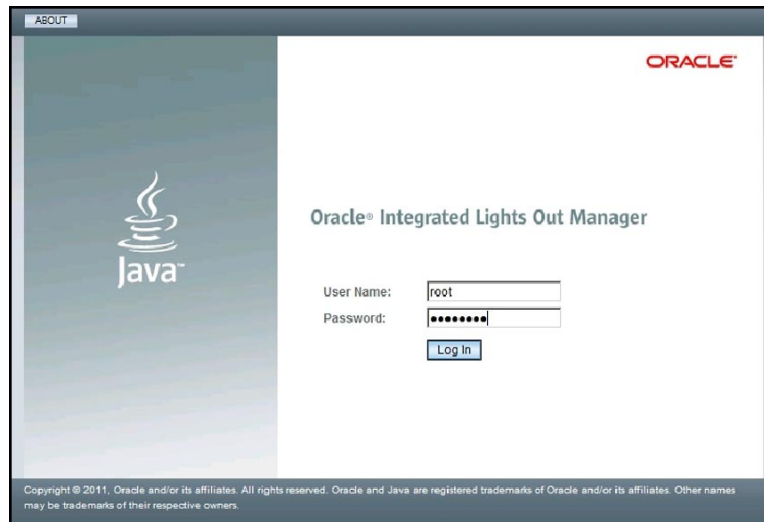


The Security Alert dialog box appears.



- 2 Click the I Understand the Risks link.
- 3 Click Add Exception.

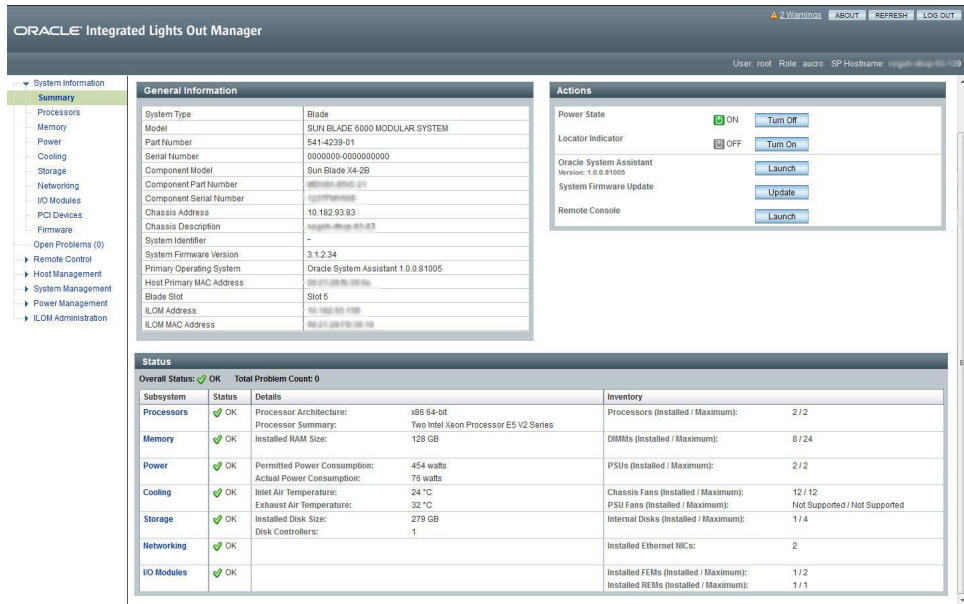
The Oracle ILOM login screen appears.



- 4 Type the user name and password and click Log In.

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

The Oracle ILOM System Summary screen appears.



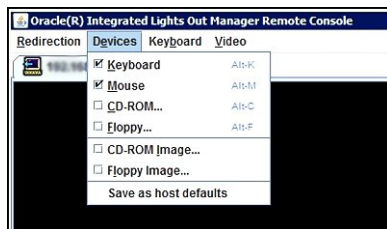
5 Click the Remote Console Launch button.

A dialog box for the `jnlpgenerator.jnlp` file appears.



6 Click Open.

The Remote Console screen appears.



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

- **CD-ROM Remote.** Select CD-ROM to redirect the server to the operating system software CD/DVD contents from the CD/DVD-ROM drive attached to the Remote Console system.
- **CD-ROM Image.** Select CD-ROM Image to redirect the server to the operating system software .iso image file located on the Remote Console system.

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**Next Steps** ■ [“Setting Up BIOS” on page 21](#)

## Setting Up BIOS

Before you install the operating system, you should ensure that BIOS settings are configured to support the type of installation you plan to perform. The following topics provide specific instructions on how to configure the BIOS to support the installation:

- [“Load BIOS Optimal Default Settings” on page 21](#)
- [“Select the BIOS Boot Mode” on page 22](#)

### ▼ Load BIOS Optimal Default Settings



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**Caution** – This procedure resets the BIOS settings to the default values and overwrites any previously customized settings. To retain customized settings, review each menu and make note of the customized values before loading the default values.

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The BIOS Setup Utility contains an option to load the optimal BIOS settings for the server. Perform this procedure on a newly installed server to ensure that the BIOS is set to the optimal default values.

- Before You Begin**
- The server is equipped with a properly installed storage drive.
  - A console connection is established to the server. For details, see [“Selecting the Installation Method” on page 16](#).

- 1 Power on the server.**  
POST messages appear on the console.
- 2 Watch the messages, and, when prompted, press F2 to access the BIOS Setup Utility.**  
The BIOS Setup Utility main screen appears.
- 3 To ensure that the factory defaults are set, press F9.**
- 4 To save the changes, and exit the BIOS Setup Utility, press F10.**

**Next Steps** ■ [“Select the BIOS Boot Mode” on page 22](#)

## ▼ Select the BIOS Boot Mode

The BIOS firmware supports both legacy BIOS and Unified Extensible Firmware Interface (UEFI) boot mode; the default setting is Legacy boot mode. Some operating systems support both legacy BIOS and UEFI BIOS and some support legacy BIOS only.

The following Linux OS versions support UEFI boot mode:

- Oracle Linux 6.x
- RHEL 6.x
- SLES 11.x

The following Linux OS versions *do not* support UEFI boot mode:

- Oracle Linux 5.x
- RHEL 5.x
- SLES 10.x

These are the options for setting the BIOS mode before installing the OS:

- If the OS supports legacy BIOS boot mode only, you must make sure that BIOS is set to legacy mode before you do the OS installation.
- If the OS supports both legacy BIOS and UEFI BIOS boot mode, you have the option of setting BIOS to either legacy mode or UEFI mode before you perform the OS installation.

### 1 Power on the server.

POST messages appear on the console.

### 2 Watch the messages, and, when the prompt appears, press F2 to access the BIOS Setup Utility.

The BIOS Setup Utility main screen appears.

### 3 In the BIOS Setup Utility, use the left or right arrow keys to navigate to the Boot screen.

The Boot Menu screen appears.

### 4 Use the down arrow key to select the UEFI/BIOS Boot Mode field.

### 5 Select the desired boot mode option supported by your OS.

Press Enter and use the up or down arrow keys to select the Legacy or UEFI BIOS Boot Mode option.

### 6 To save the changes, and exit the BIOS Setup Utility, press F10.

**Next Steps** [“Installing the Operating System” on page 23](#)

# Installing the Operating System

---

This section describes the procedures for installing the OS.

Step	Description	Link
1	You must have already reviewed the Preparing to Install the OS section.	<a href="#">“Preparing to Install the OS” on page 15</a>
2	If necessary, get logical and physical network names.	<a href="#">“Identifying Logical and Physical Network Interface Names” on page 23</a>
3	Install the OS using the selected method.	<ul style="list-style-type: none"><li>▪ <a href="#">“Install a Linux OS (Oracle System Assistant)” on page 27</a></li><li>▪ <a href="#">“Installing a Linux OS Manually” on page 32</a></li></ul>
4	Update server tools and drivers.	<a href="#">“Installing Server System Tools and Updating Drivers” on page 38</a>
5	Update the OS to a new version.	<a href="#">“Updating a Linux OS to a New Version” on page 40</a>

## Identifying Logical and Physical Network Interface Names

While configuring an operating system for a networked server, you might need to provide the logical name (assigned by the OS) and the physical name (MAC address) of each network interface.

This section explains how to obtain the needed logical information in these situations. It provides the following topics.

- [“Identify Logical and Physical Network Interface Names \(Oracle Linux or RHEL\)” on page 24](#)
- [“Identify Logical and Physical Network Interface Names \(SLES\)” on page 25](#)

## ▼ Identify Logical and Physical Network Interface Names (Oracle Linux or RHEL)

During installation and configuration of the Oracle or Red Hat Enterprise Linux OS, you reach a point where you must enter the logical and physical names (MAC addresses) of the network interfaces.

This section explains how to launch a user shell during the Linux configuration to obtain the logical and physical network interface names that you need to continue with the configuration.

- 1 At the boot prompt type: `Linux rescue` and then press Enter.**

The Choose a Language screen appears.

- 2 In the Choose a Language screen, select the appropriate language, and click OK.**

The Keyboard Type screen appears.

- 3 In the Keyboard Type screen, select the appropriate configuration, and then click OK.**

The Setup Network screen appears.

- 4 In the Setup Network screen, click No.**

The Rescue screen appears.

- 5 In the Rescue screen, click Skip.**

The user shell appears.

- 6 At the command prompt (`#`) in the user shell, type the following command to display all network interfaces, and then press Enter.**

```
# ifconfig -a
```

The output of the Linux named network interfaces appear.

If you have multiple network interfaces and the output of interfaces scrolls off the top of the screen, you can display the output per interface.

- 7 To view the output of each network interface, type the following at the command prompt, and then press Enter:**

```
# ifconfig eth#
```

where *eth#* is the interface number. For example, if you type:

```
# ifconfig eth0
```



the output for **eth0** appears:

```
eth0  Link encap:Ethernet  HWaddr 00:14:4F:8D:52:BE
      inet addr:10.182.92.196  Bcast:10.182.93.255  Mask:255.255.254.0
      inet6 addr: fe80::214:4fff:fe8d:52be/64  Scope:Link
      UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
      RX packets:14461296  errors:0  dropped:0  overruns:0  frame:0
      TX packets:1061312  errors:0  dropped:0  overruns:0  carrier:0
      collisions:0  txqueuelen:1000
      RX bytes:1282625453 (1.1 GiB)  TX bytes:118834056 (113.3 MiB)
      Interrupt:54  Base address:0xc000
```

- The **eth0** entry in the first column is the Oracle Linux logical named interface. This first column in the output identifies the logical names Oracle Linux or RHEL assigned to the network interface.
  - The **00:14:4F:8D:52:BE** entry in the second column (first row) is the physical MAC address of the network port.
- 8 Record the logical network interface name with the physical port MAC address for future reference. You need to refer to this record when configuring the network interfaces during the Oracle Linux or RHEL OS installation.
  - 9 When you are done, do one of the following to exit the user shell.
    - From Oracle ILOM, select Remote Control > Remote Power Control > Reset.
    - From the Oracle ILOM Remote Console in the Keyboard menu, select Control Alt Delete.
    - From other consoles, press Ctrl-Alt-Delete.
  - 10 Restart the OS installation program.

- Next Steps**
- “Install a Linux OS (Oracle System Assistant)” on page 27
  - “Installing a Linux OS Manually” on page 32

## ▼ Identify Logical and Physical Network Interface Names (SLES)

During installation and configuration of the SUSE Linux Enterprise Server OS, you reach a point where you must enter the logical and physical names (MAC addresses) of the network interfaces.

This section explains how to launch a user shell during the SUSE Linux OS configuration to obtain the logical and physical network interface names that you need to continue with the configuration.

**Before You Begin** Find and record the MAC addresses of all the physical ports from their labels.

**1 If you have not already done so, select Rescue System and press Enter.**

The message Loading Linux Kernel appears followed by the SUSE splash screen, and then the Choose a Keyboard Map screen appears.

**2 In the Choose a Keyboard Map screen, select the appropriate keyboard configuration, and click OK.**

The user shell launches, and the Rescue Login prompt appears.

**3 At the Rescue Login prompt, type root to log in, and then press Enter.**

The Rescue prompt appears.

**4 At the Rescue prompt (#), type the following command, and then press Enter to display all network interfaces (active and inactive).**

```
# ifconfig -a
```

The output of the Linux SUSE named and physical named network interfaces appear. Each interface found will list output similar to the following example:

```
eth0 Link encap:Ethernet HWaddr 00:14:4F:8D:52:BE
      inet addr:10.182.92.196 Bcast:10.182.93.255 Mask:255.255.254.0
      inet6 addr: fe80::214:4fff:fe8d:52be/64 Scope:Link
      UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
      RX packets:14463420 errors:0 dropped:0 overruns:0 frame:0
      TX packets:1061441 errors:0 dropped:0 overruns:0 carrier:0
      collisions:0 txqueuelen:1000
      RX bytes:1282809896 (1.1 GiB) TX bytes:118848836 (113.3 MiB)
      Interrupt:54 Base address:0xc000

eth1 Link encap:Ethernet HWaddr 00:14:4F:8D:52:BF
      BROADCAST MULTICAST MTU:1500 Metric:1
      RX packets:0 errors:0 dropped:0 overruns:0 frame:0
      TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
      collisions:0 txqueuelen:1000
      RX bytes:0 (0.0 b) TX bytes:0 (0.0 b)
      Interrupt:21 Base address:0x2000

eth2 Link encap:Ethernet HWaddr 00:14:4F:8D:52:C0
      BROADCAST MULTICAST MTU:1500 Metric:1
      RX packets:0 errors:0 dropped:0 overruns:0 frame:0
      TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
      collisions:0 txqueuelen:1000
      RX bytes:0 (0.0 b) TX bytes:0 (0.0 b)
      Interrupt:44 Base address:0x6000
```

```

eth3  Link encap:Ethernet  HWaddr 00:14:4F:8D:52:C1
      BROADCAST MULTICAST  MTU:1500  Metric:1
      RX packets:0 errors:0 dropped:0 overruns:0 frame:0
      TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
      collisions:0 txqueuelen:1000
      RX bytes:0 (0.0 b)  TX bytes:0 (0.0 b)
      Interrupt:47 Base address:0xa000

lo    Link encap:Local Loopback
      inet addr:127.0.0.1  Mask:255.0.0.0
      inet6 addr: ::1/128 Scope:Host
      UP LOOPBACK RUNNING  MTU:16436  Metric:1
      RX packets:44421 errors:0 dropped:0 overruns:0 frame:0
      TX packets:44421 errors:0 dropped:0 overruns:0 carrier:0
      collisions:0 txqueuelen:0
      RX bytes:4976408 (4.7 MiB)  TX bytes:4976408 (4.7 MiB)

```

- The `eth0` entry in the first column is the logical name of the Ethernet interface assigned by the operating system. The `lo` entry in the first column is the loopback interface.
- The `HWaddr 00:14:4F:8D:52:BE` entry in second column (first row) is the physical MAC address of the network port.

If you have multiple network interfaces and the output of interfaces scrolls off the top of the screen, you can display the output per interface.

```
# ifconfig eth#
```

where `eth#` is the interface number.

## 5 Record the SUSE logical network interface name with the physical port MAC address for future reference.

You will need to refer to this record when configuring the network interfaces during the Linux SUSE OS installation.

## 6 To exit the Rescue shell, do one of the following:

- From the Oracle ILOM web interface, select **Remote Control > Remote Power Control > Reset**.
- From other consoles, at the Rescue prompt (`#`), type `reboot`, and then press `Enter`.

## 7 Restart the SLES installation program.

- Next Steps**
- [“Install a Linux OS \(Oracle System Assistant\)” on page 27](#)
  - [“Installing a Linux OS Manually” on page 32](#)

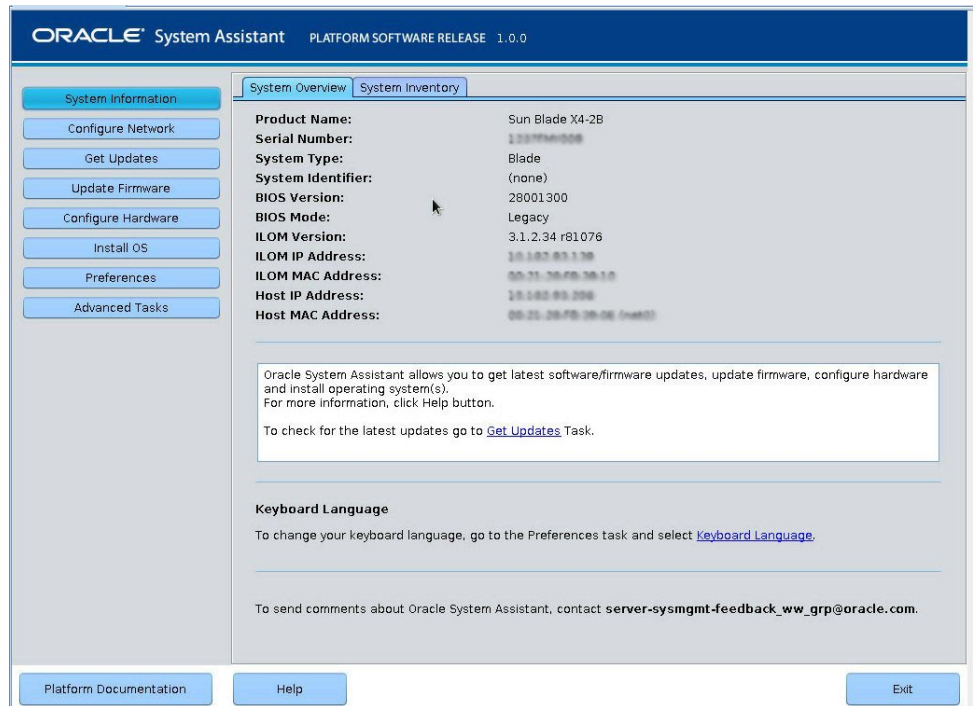
## ▼ Install a Linux OS (Oracle System Assistant)

The Oracle System Assistant Install OS task provides assisted OS installation of a supported versions of the Linux OS.

- Before You Begin**
- Prepare the server storage drives. For more information, refer to the *Sun Blade X4-2B Installation Guide*.
  - Perform the steps in “Preparing to Install the OS” on page 15.
  - During the OS installation and configuration process, you might need to provide logical and physical network names. For more information, see “Identifying Logical and Physical Network Interface Names” on page 23.
  - For local installation, have the installation media available to insert into the attached physical CD/DVD-ROM drive when prompted.
  - For remote installation, insert the installation media into the Remote Console system's CD/DVD-ROM drive. Make sure you have selected CD-ROM from the Remote Console Device menu.
  - If you are using an ISO image, ensure that it is accessible from the Remote Console system. Make sure you have selected CD-ROM Image from the Remote Console Device menu.
- 1 Ensure that the server is in standby power mode.**
  - 2 Boot the server and watch the video monitor or Remote Console screen for the prompt to press the F9 key to enter Oracle System Assistant.**

### 3 When the prompt appears, press the F9 key.

The Oracle System Assistant main screen appears.



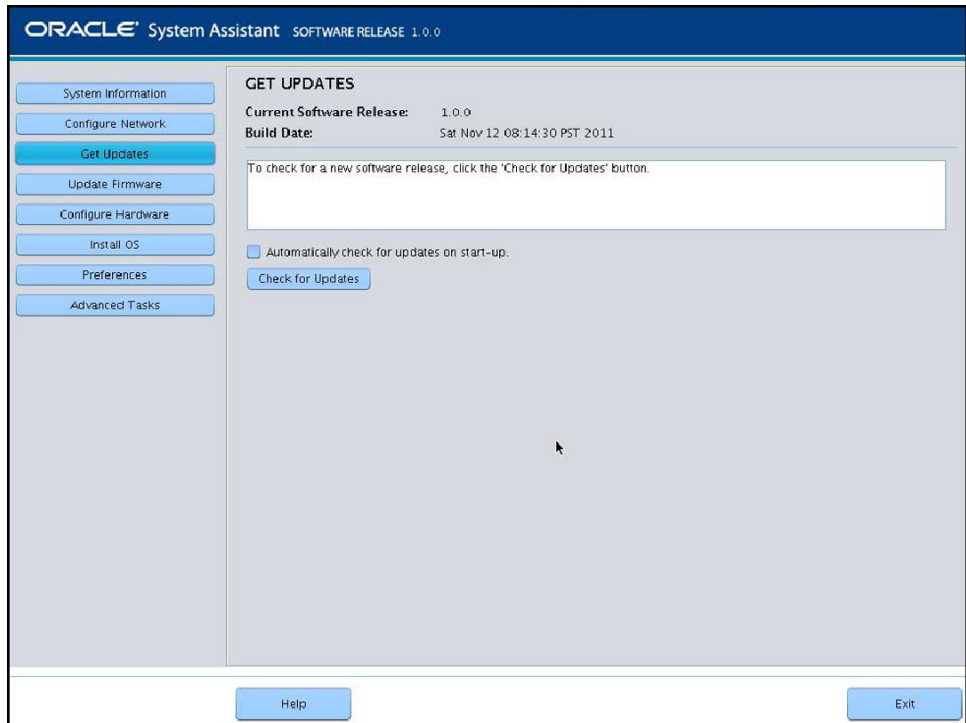
### 4 To update the Oracle System Assistant application, click the Get Updates button.

This action ensures that the application has the latest firmware and drivers before you begin the OS installation.

---

**Note** – Server web access is required to update Oracle System Assistant.

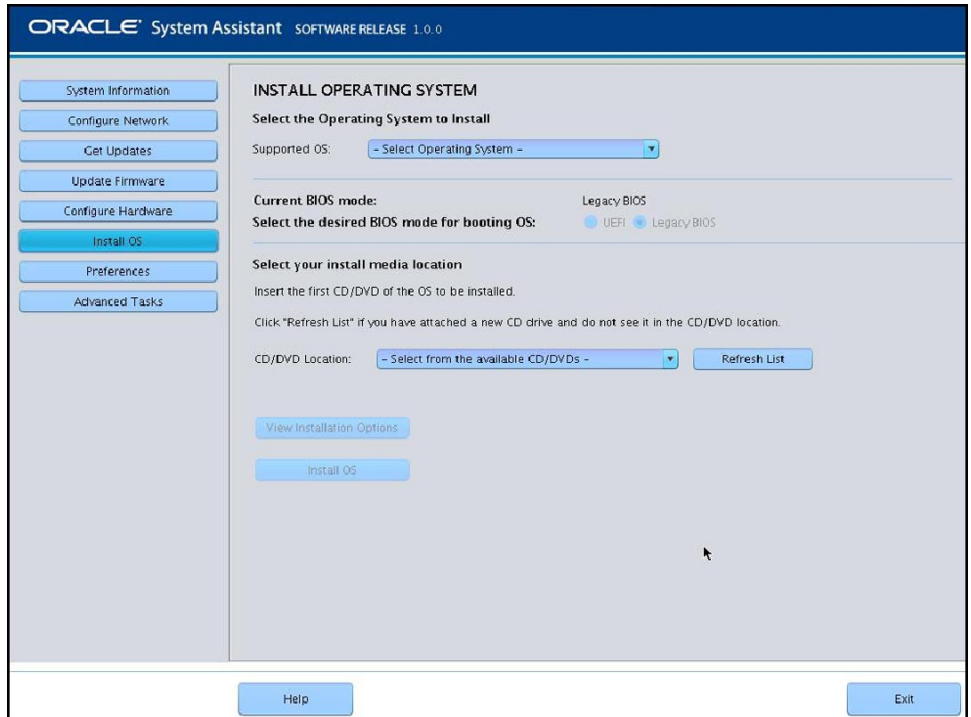
---



- 5 To update the server firmware, click the Update Firmware button.  
This action ensures that the server has the latest firmware before you begin the OS installation.

**6 To install the OS, click the Install OS button.**

The Install OS screen appears.



**7 From the Select Operating System drop-down list, select the OS.**

**8 Select the BIOS boot mode.**

For more information. See [“Setting Up BIOS” on page 21](#) .

**9 In the Select your install media location section, indicate the location of the installation media .**

This is the location of the OS distribution media. If you attached a CD/DVD drive, you might need to click the Refresh button to see it in the drop-down list.

**10 To select a device, click View Installation Options.**

This is the device on which you install the OS.



**Caution** – Loss of data. The OS installation erases the contents of the disk. All data on the selected disk is erased.

**11 To begin the OS installation, click Install OS.**

**12 Follow the prompts until the installation is finished.**

The server boots.

**Next Steps**    “Installing Server System Tools and Updating Drivers” on page 38

## Installing a Linux OS Manually

The easiest method for installing a Linux OS is to use the Oracle System Assistant application. For more, see “Install a Linux OS (Oracle System Assistant)” on page 27.

Use the procedures in the following sections to install a Linux OS manually—without the assistance of Oracle System Assistant:

- “Install Oracle Linux Manually” on page 32
- “Install SLES Manually” on page 34
- “Install RHEL Manually” on page 36

### ▼ Install Oracle Linux Manually

Use this procedure to install the Oracle Linux OS without the use of Oracle System Assistant.

- Before You Begin**
- Prepare the server storage drives. For more information, refer to the *Sun Blade X4-2B Installation Guide*.
  - Perform the steps in the section “Preparing to Install the OS” on page 15.
  - To complete this installation, you need the following Oracle Linux installation articles:
    - For Oracle Linux 5, go to:  
<http://www.oracle-base.com/articles/linux/OracleEnterpriseLinux5Installation.php>
    - For Oracle Linux 6, go to:  
<http://www.oracle-base.com/articles/linux/OracleLinux6Installation.php>
- 1 Download the OS-specific ZIP package file from My Oracle Support.**  
See “Getting Server Firmware and Software Updates” in *Sun Blade X4-2B Installation Guide*.
  - 2 Unzip the file to a location accessible to the server.**  
These are the OS-specific drivers and supplemental software (tools) for the server. For information about the folder file system structure, refer to *Oracle X4 Series Servers Administration Guide*.
  - 3 Insert the Linux distribution DVD, or access the ISO image distribution media.**



#### 4 Power on or reset the server.

BIOS messages appear on the console.



#### 5 When you see a message offering a series of selections, press F8.

After a delay, a menu offers a selection of boot devices (see the following example).



#### 6 Select a boot device from the list.

To boot from a physical CD/DVD or from an ISO image, select CD/DVD.

Control passes to the OS installation program on the media.

#### 7 Do one of the following at the boot prompt, depending on which type of interface you want to use:

- **Text mode:**

Type the following command: `boot: linux text.`

- **Graphical mode:**

Press Enter at the boot prompt.

- 8 To complete the installation, refer to the version-specific installation article listed at the beginning of this procedure.**

---

**Note** – If you already have an operating system besides Linux installed (for example, the Oracle Solaris OS), it appears as a partition during the installation process. If you choose to install Oracle Linux on that partition, it overwrites the OS. If you wish to preserve the partition, you must install Oracle Linux on a different partition.

---

**Next Steps** [“Installing Server System Tools and Updating Drivers” on page 38](#)

## ▼ Install SLES Manually

**Before You Begin**

- Prepare the server storage drives. For more information, refer to the *Sun Blade X4-2B Installation Guide*.
- Perform the steps in the section, [“Preparing to Install the OS” on page 15](#).
- While configuring an operating system for a networked server, you must provide the logical names (assigned by the OS) and the physical name (MAC address) of each network interface. See [“Identifying Logical and Physical Network Interface Names” on page 23](#) for details.
- Obtain the SLES OS installation guide available with the media kit.

- 1 Download the OS-specific ZIP package file from My Oracle Support.**

Refer to: [“Getting Server Firmware and Software Updates” in \*Sun Blade X4-2B Installation Guide\*](#).

- 2 Unzip the file to a location accessible to the server.**

These are the OS-specific drivers and supplemental software (tools) for the server. For information about the file system structure, refer to [Oracle X4 Series Servers Administration Guide \(http://www.oracle.com/goto/x86AdminDiag/docs\)](http://www.oracle.com/goto/x86AdminDiag/docs).

- 3 Insert the Linux distribution DVD, or access the ISO image distribution media.**

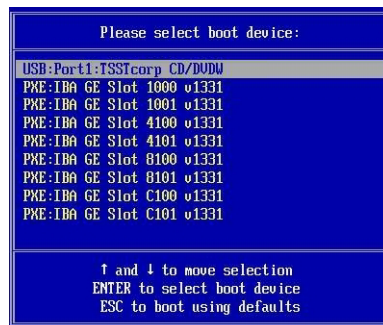
#### 4 Power on or reset the server.

BIOS messages appear on the console.



#### 5 When you see a message offering a series of selections, press F8.

After a delay, a menu offers a selection of boot devices (see the following example).



#### 6 Select a boot device from the list.

To boot from a physical CD/DVD or from an ISO image, select CD/DVD.

Control passes to the OS installation program on the media.

#### 7 Follow the instructions provided with the OS installation guide to complete the installation of the system software.

---

**Note** – If you already have an operating system besides Linux installed (for example, the Solaris OS), it appears as a partition during the installation process. If you choose to install SLES on that partition, it overwrites the OS. If you wish to preserve the partition, you must install SLES on a different partition.

---

**Next Steps**    “Installing Server System Tools and Updating Drivers” on page 38

## ▼ Install RHEL Manually

- Before You Begin**
- Prepare the server storage drives. For more information, refer to the *Sun Blade X4-2B Installation Guide*.
  - Perform the steps in the section, “Preparing to Install the OS” on page 15.
  - While configuring an operating system for a networked server, you must provide the logical names (assigned by the OS) and the physical name (MAC address) of each network interface. See “Identifying Logical and Physical Network Interface Names” on page 23 for details.
  - OEM OS installation guide available with the media kit.

### 1 Download the OS-specific ZIP package file from My Oracle Support.

Refer to: “Getting Server Firmware and Software Updates” in *Sun Blade X4-2B Installation Guide*.

### 2 Unzip the file to a location accessible to the server.

These are the OS-specific drivers and supplemental software (tools) for the server.

For information about the file system structure, refer to *Oracle X4 Series Servers Administration Guide* (<http://www.oracle.com/goto/x86AdminDiag/docs>).

### 3 Insert the Linux distribution DVD or access the ISO image distribution media.

### 4 Power on or reset the server.

BIOS messages appear on the console.



**5 When you see a message offering a series of selections, press F8.**

After a delay, a menu offers a selection of boot devices (see the following example).



**6 Select a boot device from the list.**

To boot from a physical CD/DVD or from an ISO image, select CD/DVD.

Control passes to the OS installation program on the media.

**7 Do one of the following at the boot prompt, depending on which type of interface you want to use:**

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

**8 Refer to the *Red Hat Enterprise Linux Installation Guide* to guide you through the remainder of the installation process.**

---

**Note** – If you already have an operating system besides Linux installed (for example, the Solaris OS), it appears as a partition during the installation process. If you choose to install RHEL on that partition, it overwrites the OS. If you wish to preserve the partition, you must install RHEL on a different partition.

---

**Next Steps**    [“Installing Server System Tools and Updating Drivers” on page 38](#)

# Installing Server System Tools and Updating Drivers

These procedures describe how to access server system tools and update system drivers using the software available with Oracle System Assistant or the downloaded OS-specific software package:

- “Install Server System Tools” on page 38
- “Update or Install System Drivers” on page 39

## ▼ Install Server System Tools

Server system tools, which include Oracle Hardware Management Pack, LSI MegaRAID Storage Manager, and MegaCLI are available with Oracle System Assistant software and the downloaded system software package from the My Oracle Support site. Use this procedure to install the tools.

### 1 Do one of the following:

- **If your system does *not* have Oracle System Assistant:**

- a. **Download the latest server system tools and drivers package from the My Oracle Support site.**

For more information, refer to: “Getting Server Firmware and Software Updates” in *Sun Blade X4-2B Installation Guide*.

- b. **Unzip the downloaded tools and drivers package to the server.**

- c. **Within the unzipped directory file system, navigate to the Linux OS Tools folder:**

`Linux/OS_name/version/Tools/tool`

where *OS\_name* is the installed OS, such as OL (Oracle Linux), RHEL (Red Hat), or SLES (SUSE); *version* is the version of the installed Linux OS, and *tool* is the tool, such as MSM, MegaCLI, or hmp-tools.

- **If your system has Oracle System Assistant:**

- a. **From the OS, open a file browser, and navigate to the Oracle System Assistant USB device.**

The USB device is named: ORACLE\_SSM

- b. **Navigate to the appropriate Linux OS Tools folder using the following path structure:**

`Linux/OS_name/version/Tools/tool`

where *OS\_name* is the installed OS as OL (Oracle Linux), RHEL (Red Hat), or SLES (SUSE), *version* is the version of the installed Linux OS, and *tool* is the tool as MSM, MegaCLI, or hmp-tools.

## 2 To install the software tools, refer to the .txt file located in the tool's directory.

For more information, refer to the following documents:

- For Oracle Hardware Management Pack, refer to:  
<http://www.oracle.com/pls/topic/lookup?ctx=ohmp>
- For LSI MSM, refer to:  
[http://www.lsi.com/sep/Pages/oracle/sg\\_x\\_sas6-r-rem-z.aspx](http://www.lsi.com/sep/Pages/oracle/sg_x_sas6-r-rem-z.aspx)

**Next Steps** [“Update or Install System Drivers” on page 39](#)

## ▼ Update or Install System Drivers

Oracle System Assistant installs most supported drivers *during* the OS installation process. To install or update individual drivers or to update all drivers *after* the OS installation, use the .rpm file or the Linux OS InstallPack application, respectively. The InstallPack application and the .rpm files are available with the Oracle System Assistant software on the internal USB stick and the downloaded OS-specific software package.

### 1 Determine a method to access supported drivers:

- **If your system has Oracle System Assistant:**
  - a. **From the OS, navigate to the Oracle System Assistant USB device.**  
The USB device is named: ORACLE\_SSM
  - b. **Navigate to the Linux OS folder using the following path structure:**  
*Linux/OS\_name/version*  
where *OS\_name* is the installed OS as OL (Oracle Linux), RHEL (Red Hat), or SLES (SUSE), and *version* is the version of the installed Linux OS.
- **If your system does *not* have Oracle System Assistant:**
  - a. **Download the latest server system tools and drivers package from the My Oracle Support site.**  
For more information, refer to: [“Getting Server Firmware and Software Updates” in Sun Blade X4-2B Installation Guide.](#)

b. **Unzip the downloaded tools and drivers package to the server.**

c. **Within the unzipped directory file system, navigate to the Linux OS InstallPack folder:**

`Linux/OS_name/version/InstallPack`

where *OS\_name* is the installed OS as OL (Oracle Linux), RHEL (Red Hat), or SLES (SUSE), and *version* is the version of the installed Linux OS.

**2 Do one of the following:**

- **To update or install all supported drivers, navigate to the InstallPack directory and run the `InstallPack.py` file.**

`Linux/OS_name/version/InstallPack`

Follow the InstallPack application instructions to complete the driver update.

- **To update or install other drivers, navigate to the driver directory and double-click the `.rpm` files.**

`Linux/OS_name/version/Drivers/driver` where *driver* is the directory name containing the driver.

## Updating a Linux OS to a New Version

Use the procedures in the following sections to update a Linux OS to a new version:

- “Update the Oracle Linux Operating System Version” on page 40
- “Update the SLES Operating System Version” on page 41
- “Update the RHEL Operating System Version” on page 42

### ▼ Update the Oracle Linux Operating System Version

**Before You Begin** You must already have Oracle Linux installed on the server.

- **Determine a method for updating the Oracle Linux operating system:**
  - **For Oracle Unbreakable Linux Network (ULN) installations, create local yum repositories and configure yum and up2date to install update packages from them.**  
Go to <http://public-yum.oracle.com/>.
  - **For Oracle Linux installations without Unbreakable Linux Network support, use the Oracle Public yum server and a yum client to install updates.**  
Go to <http://public-yum.oracle.com/>.



---

**Note** – This yum server is offered without support of any kind. If you require errata, security patches, and other updates, you should use the Oracle Unbreakable Linux Network (ULN) at <http://linux.oracle.com/>.

---

## ▼ Update the SLES Operating System Version

This procedure uses YaST to update SLES.

YaST can operate in both text and graphical modes. These directions apply to both.

**Before You Begin** Obtain a Novell Customer Center user name and password and a SLES product activation code.

**1 Log in as superuser.**

**2 Open the YaST Online Update service:**

```
# you
```

The YaST user window appears.

**3 If you are behind a network firewall and need to use a proxy server to access the Internet, configure YaST with the correct proxy information:**

a. Click the Network Services tab.

b. Click the Proxy screen on the right of the display.

c. Enter the correct proxy URLs in both the HTTP and HTTPS fields.

d. Exit YaST.

e. Enter the following command:

```
# rug set-prefs proxy-url proxy URL
```

where *proxy URL* is the fully qualified URL of the proxy server. For example:

```
http:// proxy.yourdomain:3128/
```

f. Restart YaST.

**4 To register with the Novell Customer center:**

a. Click the Software tab.

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

This requires your Novell Customer Center user name and password and a SLES product activation code.

**5 To perform the software update, select the Online Update tab.**

## ▼ **Update the RHEL Operating System Version**

**Before You Begin** You must already have RHEL installed on the server.

The server must have access to the web.

**1 Run the yum update program.**

```
# yum
```

**2 Answer the questions and make your choices before the packages are downloaded and installed.**

You should periodically update the system using yum.

For more information, refer to the man page. Type:

```
# man yum
```

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