Sun Server X4-8 Installation Guide for Linux Operating Systems

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Sun Server X4-8 Installation Guide for Linux Operating Systems

Part No: E40309-05

Access to Oracle Support

Oracle customers that have purchased support 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.

Contents

Using This Documentation

This section describes how to get the latest firmware, software, and documentation for Oracle's Sun Server X4-8. It also provides feedback links and a document change history.

Sun Server X4-8 Model Naming Convention

The Sun Server X4-8 name identifies the following:

- X identifies an x86 product.
- The first number, 4, identifies the generation of the server.
- The second number, 8, identifies the number of processors.

Getting the Latest Firmware and Software

Firmware, drivers, and other hardware-related software for your server are updated periodically.

You can obtain the latest version in one of the following 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 – `https://support.oracle.com`

Documentation and Feedback

Documentation	Link
All Oracle products	https://docs.oracle.com
Sun Server X4-8	http://www.oracle.com/goto/X4-8/docs
Oracle Integrated Lights Out Manager (ILOM). Refer to the documentation for your supported version of Oracle ILOM as listed in the *Product Notes*.	http://www.oracle.com/goto/ILOM/docs
Oracle Hardware Management Pack. Refer to the documentation for your supported version of Oracle HMP as listed in the *Product Notes*.	http://www.oracle.com/goto/ohmp/docs

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

About This Documentation

The information in this documentation set is presented in topic-based format similar to online help. It does not include chapters, appendixes, or section numbering.

Contributors

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Change History

The following lists the release history of this documentation set:

- April 2014. Initial publication.
- June 2014. Changes for product release.
- July 2014. Revised procedures and topics, and added illustrations to the service manual. Added content and made editorial improvements to other manuals.

- September 2014. Added warm service for CMOD components, updates for Linux Fault Management Architecture (FMA), and added issues to Product Notes.
- December 2015. Technical updates.

About Linux OS Installation

Use the following task table to assist you with installing a supported version of Linux on the Sun Server X4-8.

Step	Task	Link
1	Perform the initial server installation and setup procedures.	*Sun Server X4-8 Installation Guide*
2	Review the latest server hardware and software information, including a list of supported operating systems.	*Sun Server X4-8 Product Notes*
3	Review the options for single-server or multiple-server OS installations.	"OS Installation Options" on page 12
4	Review the role of Oracle System Assistant in the OS installation process.	"Oracle System Assistant" on page 14
5	Prepare for the OS installation by performing the necessary procedures.	"Preparing to Install the OS" on page 17

Supported OS Versions and Latest Information

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

- "Supported Linux Operating Systems" on page 11

Supported Linux Operating Systems

At the time of the release of the server, the following Linux operating systems are supported:

Linux OS Version	Edition
Oracle Linux	Oracle Linux 5.10 and 6.5 (x64-bit), based on UEK R3 {Unbreakable Enterprise Kernel Release 3)
SUSE Linux Enterprise Server (SLES)	SLES 11 SP3
Red Hat Enterprise Linux (RHEL)	RHEL (x64-bit) 5.10 and 6.5

The *Sun Server X4-8 Product Notes* available at `http://www.oracle.com/goto/X4-8/docs` contains detailed information about the supported operating systems, available firmware updates, and any hardware or software issues for the server.

OS Installation Options

You can 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, refer to: `http://www.oracle.com/technetwork/oem/ops-center/index.html`
Single server	Installs an OS to a single server using one of the following methods: **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. **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. **Note -** Oracle System Assistant is the easiest method for single-server OS installations.

Related Information

- "Single-Server Installation Methods" on page 13
- "Oracle System Assistant" on page 14

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	More Information
Local OS installation using Oracle System Assistant	Monitor, USB keyboard and mouse, USB OSA device, and Linux installation media.	"Assisted OS Installation" on page 13
Remote OS installation using Oracle System Assistant	Oracle ILOM Remote Console application, redirected CD/DVD drive or ISO image file, and Linux installation media.	"Assisted OS Installation" on page 13
Local OS installation using physical CD/DVD drive connected to the server.	Monitor, USB keyboard and mouse, USB CD/DVD drive, and Linux installation media.	"Manual OS Installation" on page 14
Remote OS installation using a CD/DVD drive or CD/DVD ISO image	Oracle ILOM Remote Console using remote system with browser, attached physical CD/DVD drive, Linux installation media, and network access to the server management port.	"Manual OS Installation" on page 14

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 drivers when necessary. Oracle System Assistant must be installed in the server.

Related Information

- "Manual OS Installation" on page 14

- "Oracle System Assistant" on page 14

Manual OS Installation

With this method, you deliver the Linux installation 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 My Oracle Support as OS-specific and server-specific packages. To install the OS, use the installation media installation wizard.

Related Information

- "Assisted OS Installation" on page 13

Oracle System Assistant

Oracle System Assistant is a single-server system startup and maintenance tool for x86 Sun Servers and Sun Blades. Use the Oracle System Assistant tools suite for the quick and convenient startup and maintenance of a single server.

Oracle System Assistant components include:

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

Oracle System Assistant resides on the server and is maintained through online updates.

Related Information

- "Oracle System Assistant OS Installation Task" on page 14
- "Obtaining Oracle System Assistant" on page 15

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 15

Obtaining Oracle System Assistant

Oracle System Assistant might be 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 the Oracle X4 Series Servers Administration Guide (`http://www.oracle.com/goto/x86AdminDiag/docs`).

Related Information

- "Oracle System Assistant OS Installation Task" on page 14

Preparing to Install the OS

Use the steps in this section to prepare for OS installation. The tasks are listed in the following table.

Step	Task	Link
1	Review the OS installation task table.	"About Linux OS Installation" on page 11
2	Download OS installation media kits.	"Downloading Installation Media Kits" on page 17
3	Determine local or remote installation and set up for installation.	■ Local installation: "Set Up the Local Console" on page 18 ■ Remote installation: "Set Up the Remote Console" on page 19
4	Set up the BIOS.	"Setting Up BIOS" on page 23
5	Install the OS.	"Installing the Operating System" on page 27

Downloading Installation Media Kits

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

- "Download Oracle Linux Media Kits" on page 17
- "Download SLES Media Kits" on page 18
- "Download RHEL Media Kits" on page 18

▼ Download Oracle Linux Media Kits

1. **For Oracle Linux, go to:** `http://www.oracle.com/technetwork/server-storage/linux/downloads/default-150441.html`.

2. **Find and download Oracle Linux.**

▼ 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`.**

▼ 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`.**

Setting Up the Installation

- "Set Up the Local Console" on page 18
- "Set Up the Remote Console" on page 19

▼ Set Up the Local Console

Use this procedure to set up for a local installation. A local OS installation is performed at the server.

The preferred local installation method is Oracle System Assistant's Install OS task.

Before You Begin
- Install the server. Refer to the *Sun Server X4-8 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)
- To ensure that the server has the latest updates, server web access is recommended.

1. **Ensure that the server is in standby power.**

2. **Connect the video monitor to the video connector on the front of the server.**

3. **Connect the keyboard and mouse to one of the USB connectors on the front of the server.**

4. **Connect the CD/DVD drive to the other USB connector on the front of the server (if the server does not have a DVD drive built-in).**

Next Steps   "Downloading Installation Media Kits" on page 17

▼ Set Up the Remote Console

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

Note - Using the CD/DVD-ROM or CD/DVD-ROM image option to install the OS *significantly* increases the time necessary to perform the installation, as the content of the CD/DVD-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.

Before You Begin   The following requirements must be met:

- Install the server. Refer to the *Sun Server X4-8 Installation Guide*.
- The server service processor (SP) has been set up according to the instructions in the Oracle ILOM documentation for your server.

- The Oracle ILOM Remote Console Plus system is connected to a network that has access to the server Ethernet management port.
- Ensure that you have met the Java, browser, and configuration requirements to run Oracle ILOM Remote Console Plus on a remote client as described in the *Oracle ILOM Administrator's Guide for Configuration and Maintenance* for your server's version of Oracle ILOM at: http://www.oracle.com/goto/ILOM/docs.

Note - Some of the screen images 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 Oracle ILOM Remote Console Plus system.**

   Answer any security prompts, as needed.

   The Oracle ILOM login screen appears.
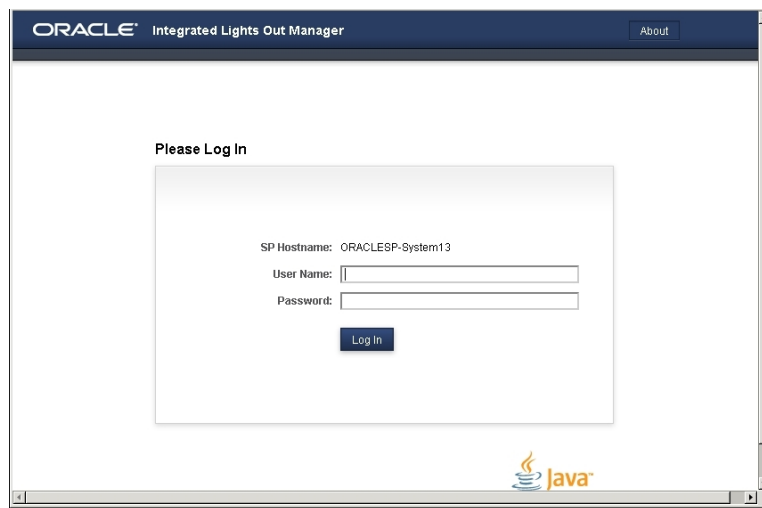
2. **Type the user name and password and click Log In.**

   To use the Oracle ILOM Remote Console Plus feature, you need to log in using an account that has Console role privileges.

The Oracle ILOM System Summary screen appears.

3. **Click the Remote Console Launch button.**

    Answer any prompts that might appear.

    The Oracle ILOM Remote Console Plus screen appears.

4. **To redirect storage media, perform the following actions:**

    a. **Verify you have full-control privileges for the redirection session. If not, click Take Full-Control in the KVMS menu.**

    Note - If you are the primary user with full-control privileges, the option for Take Full-Control is disabled in the KVMS menu.

b. Click Storage in the KVMS menu.
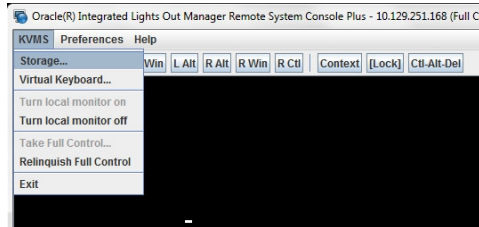
The Storage Device dialog box appears.
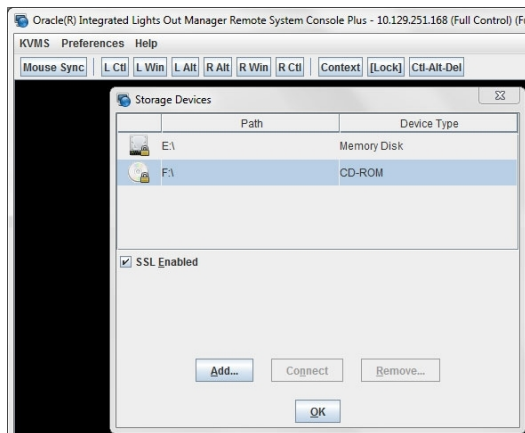
> **Note -** The Storage Device dialog box automatically displays storage drive devices (such as CD, DVD, floppy, and USB devices) detected on the Oracle ILOM Remote Console Plus client. If bootable media is not detected in the drive, a lock icon appears on the drive to indicate: 1) the drive is present, and 2) bootable media was not found in the drive.

c. To add a storage image (such as a CD/DVD image) to the Storage Device dialog box, click Add.

d. To redirect storage media from the Storage Device dialog box, select the storage media and click Connect.

> **Note -** After clicking Connect in the Storage Device dialog, the label on the Connect button changes to Disconnect.

Setting Up BIOS

Before you install the operating system, 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 23
■ "Set the BIOS Boot Mode" on page 24

▼ Load BIOS Optimal Default Settings

> **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.

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 "Setting Up the Installation" on page 18.

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

▼ Set the BIOS Boot Mode

The BIOS firmware supports both legacy boot mode 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 boot modes and some support legacy boot mode only.

The following Linux OS versions (or newer) 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 boot mode before installing the OS:

- If the OS supports legacy BIOS boot mode only, ensure that BIOS is set to legacy mode before you do the OS installation.
- If the OS supports both legacy BIOS and UEFI BIOS boot modes, you have the option of setting BIOS to either legacy BIOS boot mode or UEFI BIOS boot 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 menu.**

   The Boot Menu screen appears.

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

5. **Press Enter and use the up or down arrow keys to select the 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 27

Installing the Operating System

This section describes the tasks for installing the OS. The tasks are listed in the following table.

Step	Task	Link
1	Prepare the server for OS installation.	"Preparing to Install the OS" on page 17
2	Install the OS using the selected method.	■ "Install a Linux OS (Oracle System Assistant)" on page 27 ■ "Install a Linux OS Manually" on page 31
3	Update server tools and drivers.	"Installing Server System Tools and Updating Drivers" on page 42
4	Update the OS to a new version.	"Updating a Linux OS to a New Version" on page 45

▼ Install a Linux OS (Oracle System Assistant)

The Oracle System Assistant Install OS task provides assisted installation of the Linux operating system.

Before You Begin

- Prepare the server storage drives. For more information, refer to *Sun Server X4-8 Installation Guide*.
- Perform the steps in "Preparing to Install the OS" on page 17.
- During the OS installation and configuration process, you might need to provide logical and physical network names. For more information, see "Install a Linux OS Manually" on page 31.
    - **Local installation**: Have the installation media available to insert into the attached physical CD/DVD-ROM drive when prompted.
    - **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.
    - **Installation using an ISO image**: Ensure that the the image 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.**

2. **Boot the server and watch the video monitor or Remote Console screen for the prompt to press the F9 key to start Oracle System Assistant.**

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

   The Oracle System Assistant main screen appears.
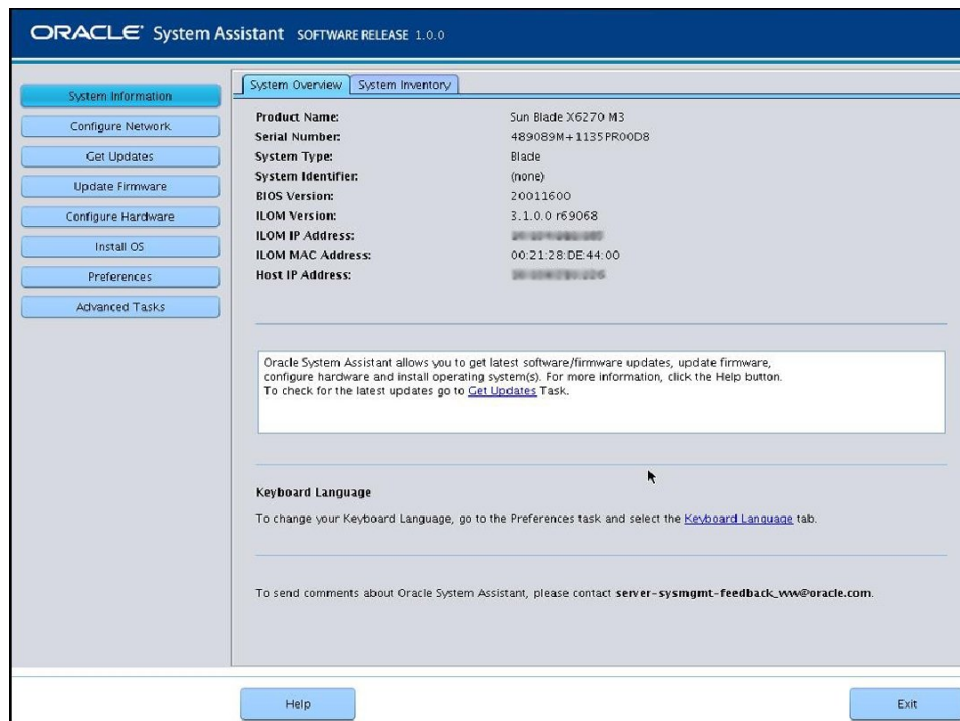
4. **To update the Oracle System Assistant application, click the Get Updates button.**

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

---
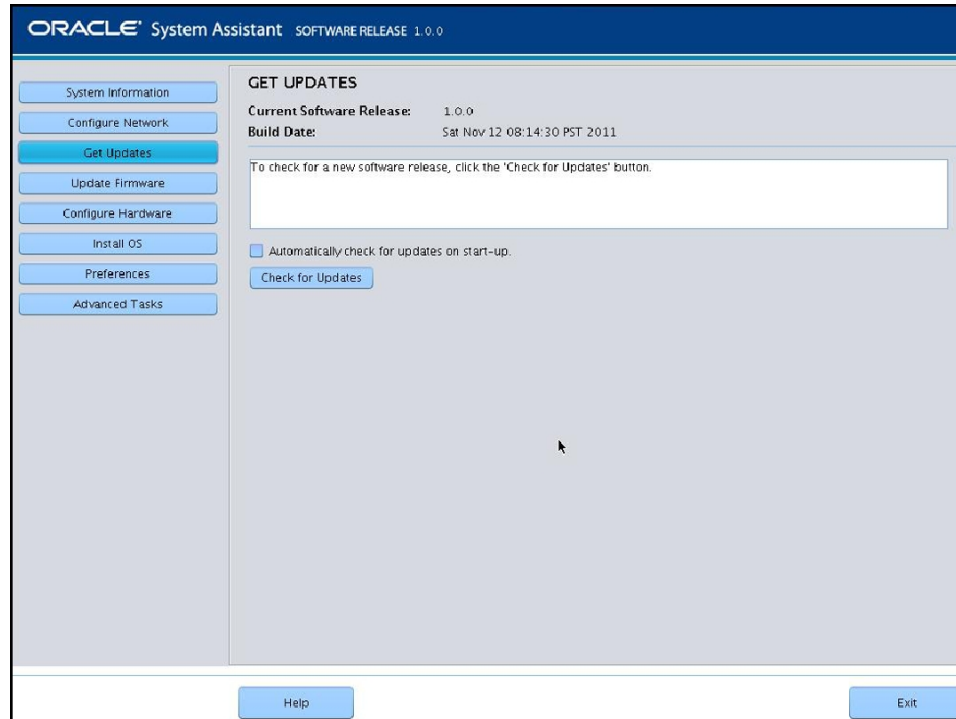
5. **To update the server firmware, click the Update Firmware button.**

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

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

The Install Operating System screen appears.
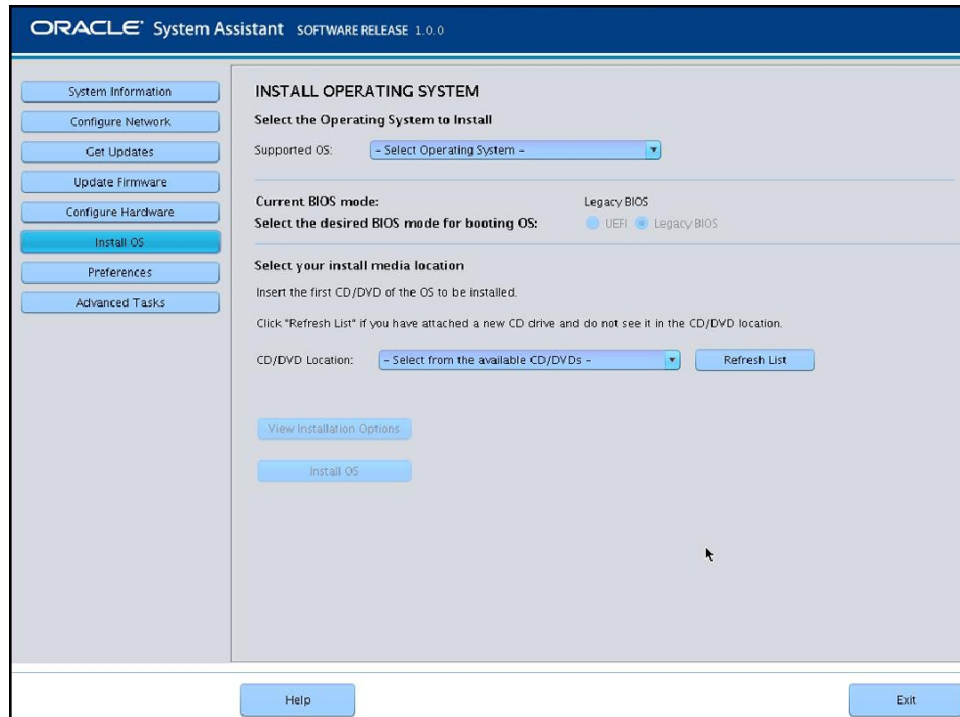
7. **Select the OS from the Select Operating System drop-down list.**

8. **Select the BIOS boot mode as required. See "Setting Up BIOS" on page 23.**

    For more information, refer to Oracle X4 Series Servers Administration Guide (`http://www.oracle.com/goto/x86AdminDiag/docs`).

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

    This is the location of the OS installation 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.

Install a Linux OS Manually

The easiest method for installing a Linux OS is to use Oracle System Assistant. For more information, 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 31
- "Install SLES Manually" on page 35
- "Install RHEL Manually" on page 39

▼ 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 *Sun Server X4-8 Installation Guide*.
- Select the server BIOS boot mode (Legacy or UEFI) as described in "Preparing to Install the OS" on page 17.
- Prepare for a local or remote installation as described in "Preparing to Install the OS" on page 17. Then perform one of the following installation methods:
  - **Local installation**: Have the OS installation media available to insert into the attached physical CD/DVD-ROM drive or USB port.

- **Remote installation**: Select one of the following OS installation media types:
    - If your OS installation media is a DVD-ROM or USB image, insert the media into the remote client's DVD-ROM drive or USB port and mount the media through the Oracle ILOM Remote Console KVMS > Storage menu.
    - If you are using an ISO image of the OS installation media, ensure that the image is mounted through the Oracle ILOM Remote Console KVMS > Storage menu.
- To complete the installation, download the following Oracle Linux installation articles:
    - For Oracle Linux 5, go to: `https://oracle-base.com/articles/linux/oracle-linux-5-installation`
    - For Oracle Linux 6, go to: `https://oracle-base.com/articles/linux/oracle-linux-6-installation`

1. **Power on or reboot the server.**

   If you are using the remote installation method, you can power on or reboot the server through Oracle ILOM.

   BIOS messages appear.

   Note - BIOS messages, including the BIOS menu selection list, can go by quickly. If you miss the messages, power cycle the server and hold down the F8 key during boot until the BBS Popup menu appears.

   ```
   Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.
   BIOS Date: 09/06/2011 12:12:06 Ver: 20011300
   Press F2 to run Setup (CTRL+E on serial keyboard)
   Press F8 for BBS Popup (CTRL+P on serial keyboard)
   Press F12 for network boot (CTRL+N on serial keyboard)
   Press F9 to start Oracle System Assistant
   ```

2. **Watch the screen until you see a list of selections and then press F8 to select "BBS Popup."**

   After a delay, a "select boot device" menu appears with a list of possible boot devices.

3. **Select a boot device from the list, as follows:**

   - **Local installation**: Insert the Linux installation media into the server's CD/DVD drive, select it from the list of devices and press Enter.
   - **Remote installation**: Select the client's remotely mounted virtual CD/DVD drive and press Enter.

Control passes to the OS installation program on the media.

4. **Identify logical and physical network interface names. Do the following:**

   a. **At the boot prompt, type `linux rescue` and then press Enter.**

      The Choose a Language screen appears.

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

      The Keyboard Type screen appears.

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

      The Setup Network screen appears.

   d. **In the Setup Network screen, click No.**

      The Rescue screen appears.

   e. **In the Rescue screen, click Skip.**

      The user shell appears.

   f. **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.

   g. **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:10.192.92.192  Bcast:10.192.92.255  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 refers to 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) refers to the physical MAC address of the network port.**

h. **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.**

5. **When you are done, reboot the server, and restart the OS installation program using the following command:**

   `# reboot`

6. **Repeat steps 2 and 3 to select the boot device that contains the OS media. Then proceed to step 5.**

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 from the boot prompt:**

     boot: `linux text`

   - **For 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 previous OS. If you wish to preserve the partition, you must install Oracle Linux on a different partition.

Next Steps

▼ Install SLES Manually

Before You Begin
- Prepare the server storage drives. For more information, refer to *Sun Server X4-8 Installation Guide*.
- You should have already selected your BIOS boot mode (Legacy or UEFI) as described in "Preparing to Install the OS" on page 17.
- You should have already done the preparation for a local or remote installation as described in "Preparing to Install the OS" on page 17. Then perform one of the following:
  - **Local installation**: Have the OS installation media available to insert into the attached physical CD/DVD-ROM drive or USB port.
  - **Remote installation**: If your OS installation media is a DVD-ROM or USB image, insert it into the remote client's DVD-ROM drive or USB port and mount it through the Oracle ILOM Remote Console KVMS > Storage menu.

    If you are using an ISO image of the OS installation media, ensure that the image is mounted through the Oracle ILOM Remote Console KVMS > Storage menu.
- Obtain the SLES OS installation guide available with the media kit.

> **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.

1. **Power on or reboot the server.**

   If you are using the remote installation method, you can power on or reboot the server through Oracle ILOM.

   BIOS messages appear.

> **Note -** BIOS messages, including the BIOS menu selection list, can go by quickly. If you miss the messages, power cycle the server and hold down the F8 key during boot until the BBS Popup menu appears.

```
Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.
BIOS Date: 09/06/2011 12:12:06 Ver: 20011300
Press F2 to run Setup (CTRL+E on serial keyboard)
Press F8 for BBS Popup (CTRL+P on serial keyboard)
Press F12 for network boot (CTRL+N on serial keyboard)
Press F9 to start Oracle System Assistant
```

2. **Watch the screen until you see a list of selections and then press F8 to select "BBS Popup."**

    After a delay, a "Select boot device" menu appears with a list of possible boot devices.

3. **Select a boot device from the list, as follows:**

    - **Local installation**: Insert the Linux installation media into the server's CD/DVD drive or USB port, select it from the list of devices and press Enter.
    - **Remote installation**: Select the client's remotely mounted virtual CD/DVD drive or USB image and press Enter.

    Control passes to the OS installation program on the media.

4. **Identify logical and physical network interface names. Do the following:**

    a. **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.

    b. **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.

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

       The Rescue prompt appears.

d. 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 network interface found lists 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 refers to the logical name of the Ethernet interface assigned by the operating system.

- The `lo` entry in the first column refers to the loopback interface.

- The `HWaddr 00:14:4F:8D:52:BE` entry in second column (first row) refers to 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.

e. Record the SUSE 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 Linux SUSE OS installation.

f. When you are done, reboot the server and restart the OS installation program using the following command:

g. Repeat steps 2 and 3 to select the boot device that contains the OS media. Then proceed to step 5.

5. When you are done, reboot the server and restart the OS installation program using the following command:

```
# reboot
```

6. Repeat steps 2 and 3 to select the boot device that contains the OS media. Then proceed to step 7.

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

Next Steps

▼ Install RHEL Manually

Before You Begin

- Prepare the server storage drives. For more information, refer to *Sun Server X4-8 Installation Guide*.

- You should have already selected your BIOS boot mode (Legacy or UEFI) as described in "Preparing to Install the OS" on page 17.

- You should have already done the preparation for a local or remote installation as described in "Preparing to Install the OS" on page 17. Then perform one of the following:

  - **Local installation**: Have the OS installation media available to insert into the attached physical CD/DVD-ROM drive or USB port.

  - **Remote installation**: Perform one of the following:

    - If your OS installation media is a DVD-ROM or USB image, insert it into the remote client's DVD-ROM drive or USB port and mount it through the Oracle ILOM Remote Console KVMS > Storage menu.

    - If you are using an ISO image of the OS installation media, ensure that the image is mounted through the Oracle ILOM Remote Console KVMS > Storage menu.

- Review the OEM OS installation guide available with the media kit.

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.

---

1. **Power on or reboot the server.**

   If you are using the remote installation method, you can power on or reboot the server through Oracle ILOM.

   BIOS messages appear.

> **Note -** BIOS messages, including the BIOS menu selection list, can go by quickly. If you miss the messages, power cycle the server and hold down the F8 key during boot until the BBS Popup menu appears.

```
Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.
BIOS Date: 09/06/2011 12:12:06 Ver: 20011300
Press F2 to run Setup (CTRL+E on serial keyboard)
Press F8 for BBS Popup (CTRL+P on serial keyboard)
Press F12 for network boot (CTRL+N on serial keyboard)
Press F9 to start Oracle System Assistant
```

2. **Watch the screen until you see a list of selections and then press F8 to select "BBS Popup."**

   After a delay, a "Select boot device" menu appears with a list of possible boot devices.

3. **Select a boot device from the list, as follows:**

   - For a local installation, insert the Linux installation media into the server's CD/DVD drive, select it from the list of devices and press Enter.
   - For a remote installation, select the client's remotely mounted virtual CD/DVD drive and press Enter.

   Control passes to the OS installation program on the media.

4. **Identify logical and physical network interface names. Do the following:**

   a. **At the boot prompt, type `linux rescue` and then press Enter.**

      The Choose a Language screen appears.

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

      The Keyboard Type screen appears.

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

      The Setup Network screen appears.

   d. **In the Setup Network screen, click No.**

The Rescue screen appears.

e. **In the Rescue screen, click Skip.**

The user shell appears.

f. **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.

g. **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 refers to the Linux logical named interface. This first column in the output identifies the logical names Linux or RHEL assigned to the network interface.**

- **The `00:14:4F:8D:52:BE` entry in the second column (first row) refers to the physical MAC address of the network port.**

h. **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.

5. **When you are done, reboot the server and restart the OS installation program using the following command:**

   `# reboot`

6. **Repeat steps 2 and 3 to select the boot device that contains the OS media. Then proceed to step 7.**

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 from the boot prompt:**

     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.**

Next Steps

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

Server system tools are available with Oracle System Assistant software and the downloaded Linux OS software package. They include Oracle Hardware Management Pack, LSI MegaRAID Storage Manager, and MegaCLI.

> **Note -** Oracle Linux 6.5 or newer supports the Oracle Linux Fault Management Architecture (FMA) software, which includes a host-based command-line interface that allows you to view and act on faults from the host operating system using fault management commands similar to those available from the Oracle ILOM Fault Management shell. It is available on Hardware Management Pack 2.3.0.

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 *Sun Server X4-8 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/goto/ohmp/docs.
- For LSI MSM and MegaCLI, refer to: http://www.lsi.com/sep/Pages/oracle/sg_x_sas6-r-rem-z.aspx.

▼ 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 USB drive and the downloaded OS-specific software package.

1.   Do one of the following:

- **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 *Sun Server X4-8 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 45
- "Update the SLES Operating System Version" on page 46
- "Update the RHEL Operating System Version" on page 47

▼ Update the Oracle Linux Operating System Version

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

● **Choose 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 update
```

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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