

Oracle® Server X6-2L Installation Guide for Linux Operating Systems



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Contents

Using This Documentation	7
Product Documentation Library	7
Feedback	7
 About Linux Operating System Installations	9
Oracle Linux 6.7 or 7.2 OS Installation Task Map	9
Supported Linux Operating Systems	10
Oracle Unbreakable Enterprise Kernel for Linux	11
Linux OS Installation Options	11
Single-Server Installation Methods	12
Manual Linux OS Installation	12
 Preparing to Install a Linux Operating System	13
Selecting the Console Display Option	13
Console Display Options	14
▼ Set Up the Local Console	14
▼ Set Up the Remote Console	15
Preparing the Boot Environment	16
▼ Verify the UEFI Optimal Defaults	17
▼ Set the Boot Mode	20
Selecting the Boot Media Option	22
Boot Media Options Requirements	22
▼ Set Up the Boot Media for a Local Installation	23
▼ Set Up the Boot Media for a Remote Installation	24
Selecting the Installation Target	26
Installation Target Options	27
▼ Set Up a Local Storage Drive (HDD, SSD, or RAID Volume) as the Installation Target	27

▼ Set Up a Fibre Channel Storage Area Network Device as the Installation Target	28
Configuring RAID	28
Installing a Linux Operating System	29
Installing Oracle Linux on a Single System Manually	29
Before You Begin	29
▼ Install Oracle Linux 6.7 OS Manually Using Local or Remote Media	30
▼ Install Oracle Linux 7.2 OS Using Local or Remote Media	52
▼ Install Oracle Linux 6.7 and 7.2 OS Using PXE Network Boot	57
Post Installation Tasks for Oracle Linux 6.7 or 7.2 OS	61
Installing Red Hat Enterprise Linux OS on a Single System Manually	62
RHEL 6.7 and 7.2 OS Installation Task Map	62
Before You Begin	63
▼ Install RHEL 6.7 and 7.2 OS Using Local or Remote Media	64
▼ Install RHEL 6.7 or 7.2 OS Using PXE Network Boot	68
Post Installation Tasks for RHEL 6.7 or 7.2 OS	71
Configuring Network Interfaces	73
NIC Connectors	73
Index	75

Using This Documentation

- **Overview** – This installation guide contains procedures for installing a Linux operating system, and initial software configuration procedures for bringing the Oracle Server X6-2L to a configurable and usable state.
- **Audience** – Technicians, system administrators, authorized service providers, and system users
- **Required knowledge** – Experience installing operating systems.

Product Documentation Library

Documentation and resources for this product and related products are available at <http://www.oracle.com/goto/x6-2l/docs>.

Feedback

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

About Linux Operating System Installations

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

Description	Links
Review the installation task map.	“Oracle Linux 6.7 or 7.2 OS Installation Task Map” on page 9
Review which Linux operating systems are supported.	“Supported Linux Operating Systems” on page 10
Review the Oracle Unbreakable Enterprise Kernel for Linux and where it can be used.	“Oracle Unbreakable Enterprise Kernel for Linux” on page 11
Review OS installation options.	“Linux OS Installation Options” on page 11

Related Information

- [“Installing a Linux Operating System ” on page 29](#)

Oracle Linux 6.7 or 7.2 OS Installation Task Map

The following table lists and describes the high-level steps for installing the Oracle Linux OS for a new installation.

Step	Description	Links
1.	Install the server hardware and configure the Oracle ILOM service processor.	<ul style="list-style-type: none">■ “Installing the Server Into a Rack” in Oracle Server X6-2L Installation Guide■ “Cabling the Server and Applying Power” in Oracle Server X6-2L Installation Guide■ “Connecting to Oracle ILOM” in Oracle Server X6-2L Installation Guide
2.	Review the Oracle Linux version supported on the server.	“Supported Linux Operating Systems” on page 10
3.	Obtain the Oracle Linux installation media.	You can download or order the installation media at: http://linux.oracle.com/pls/apex/f?p=117:1:3991604960223967
4.	Review the product notes.	Oracle Server X6-2L Product Notes at: http://www.oracle.com/goto/x6-2l/docs

Step	Description	Links
5.	Set up the console, the Oracle Linux media, and the installation target that you plan to use to perform the installation.	<ul style="list-style-type: none">■ “Selecting the Console Display Option” on page 13■ “Selecting the Boot Media Option” on page 22■ “Selecting the Installation Target” on page 26
6.	Set BIOS settings for new OS installations.	“Preparing the Boot Environment” on page 16
7.	Install the Oracle Linux OS.	<ul style="list-style-type: none">■ “Install Oracle Linux 6.7 OS Manually Using Local or Remote Media” on page 30■ “Install Oracle Linux 6.7 and 7.2 OS Using PXE Network Boot” on page 57
8.	Perform the post installation tasks.	“Post Installation Tasks for RHEL 6.7 or 7.2 OS” on page 71

Related Information

- [“Preparing to Install a Linux Operating System” on page 13](#)

Supported Linux Operating Systems

The server supports the following Linux operating system (OS).

Linux OS Version	Edition
Oracle	Oracle Linux 6.7 and 7.2 OS for x86 (64-bit) with the Oracle Unbreakable Enterprise Kernel for Linux Release 4 Note - Optionally, the Red Hat Compatible Kernel can be used on Oracle Linux 6.7 and 7.2 OS for x86 (64-bit).
Red Hat	Red Hat Enterprise Linux 6.7 and 7.2 for x86 (64-bit)

Additionally, you can install any other supported operating system or virtual machine software on your server. For an updated list of supported operating systems and virtual machine software, refer to the latest version of the *Oracle Server X6-2L Product Notes* at <http://www.oracle.com/goto/x6-2l/docs>.

The Oracle Solaris Hardware Compatibility List (HCL) identifies the latest operating system version supported on Oracle hardware. To find the latest versions of Linux supported for the server, go to the following sites and search using your server model number:

- Red Hat Enterprise Linux – <https://access.redhat.com/certifications>
- Oracle Linux – <http://linux.oracle.com/pls/apex/f?p=117:1:3991604960223967>

Related Information

- [“Installing a Linux Operating System ” on page 29](#)

Oracle Unbreakable Enterprise Kernel for Linux

Release 4 of the Oracle Unbreakable Enterprise Kernel for Linux is supported in this release of the server software. Release 4 is installed by default on Oracle Linux 6.7 and 7.2 OS and can be installed on Red Hat Enterprise Linux 6.7 and 7.2 OS.

Related Information

- Oracle Unbreakable Enterprise Kernel Release 4 for Linux: For the latest information about operating system compatibility and pointers to installation information, refer to *Oracle Unbreakable Enterprise Kernel Release 4 Release Notes* at:

https://docs.oracle.com/cd/E52668_01/E69348/html/index.html#

- [“Installing a Linux Operating System ” on page 29](#)

Linux OS Installation Options

You can choose to install an OS on a single server or on multiple servers. This document describes single server OS installations. The table below provides some information about these two installation options.

Option	Description
Multiple servers	You can use Oracle Enterprise Manager Ops Center to install an OS on multiple servers. For information, go to http://www.oracle.com/technetwork/oem/ops-center/index.html .
Single server	Install an OS on a single server using one of the following methods: <ul style="list-style-type: none">■ Locally: Perform the OS installation locally at the server. This option is recommended if you have just completed the physical installation of the server in the rack.■ Remotely: Perform the OS installation from a remote location. This option uses the Oracle ILOM Remote System Console Plus application to perform a manual OS installation.

Single-Server Installation Methods

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

Media Delivery Method	Additional Requirements
Local OS install using a DVD drive – Uses a physical DVD drive connected to the server.	A monitor, USB keyboard and mouse, a USB DVD drive, and OS distribution media. For more information, see “Manual Linux OS Installation” on page 12 .
Remote OS install using a DVD drive or a DVD ISO image – Uses a redirected physical DVD drive or DVD ISO image on a remote system running the Oracle ILOM Remote System Console Plus application.	A remote system with a browser, an attached physical DVD drive or ISO image file, OS distribution media, and network access to the server's management port. For more information, see “Manual Linux OS Installation” on page 12 .

Manual Linux OS Installation

To install the Linux OS manually, you deliver the Linux OS distribution media on either a local or remote DVD drive, USB device, or DVD image. You also need to install any necessary drivers. The drivers for your server are available on the My Oracle Support web site as either OS-specific and server-specific packages or as an ISO image file. To install the OS, use the distribution media's installation wizard.

To access My Oracle Support website, go to <https://support.oracle.com>.

Preparing to Install a Linux Operating System

This section describes how to prepare the server for installing the operating system.

Description	Links
Review console display options and how to set them up.	“Selecting the Console Display Option” on page 13
Verifying and setting the server UEFI optimized defaults.	“Preparing the Boot Environment” on page 16
Configuring boot mode.	“Set the Boot Mode ” on page 20
Review boot media options and how to set them up.	“Selecting the Boot Media Option” on page 22
Review installation target options and how to set them up.	“Selecting the Installation Target” on page 26
Configuring RAID on the server.	“Configuring RAID” on page 28

Related Information

- [“Installing Oracle Linux on a Single System Manually” on page 29](#)
- [“Installing Red Hat Enterprise Linux OS on a Single System Manually” on page 62](#)

Selecting the Console Display Option

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

- [“Console Display Options” on page 14](#)
- [“Set Up the Local Console” on page 14](#)
- [“Set Up the Remote Console” on page 15](#)

Console Display Options

You can install the OS and administer the server by attaching a local console directly to the server's service processor (SP). The server supports two types of local consoles:

- A terminal connected to the serial management port (SER MGT)
You can connect the terminal directly to the port or connect it to a terminal emulator that is connected directly to the port.
- A VGA monitor connected directly to the video port (VGA), and a USB keyboard and mouse connected to an exterior USB connector

You can also install the OS and administer the server from a remote console by establishing a network connection to the server SP. There are two types of remote consoles:

- Web-based client connection using the Oracle ILOM Remote System Console Plus application
- Secure Shell (SSH) client connection to the network management port (NET MGT)

▼ Set Up the Local Console

1. To connect a local console, do one of the following:

- Connect a terminal to the serial management port (SER MGT) either directly or through a terminal emulator. Set the terminal device to 9600 baud, 8 bit, no parity, 1 stop bit (9600/8-N-1).
- Connect a VGA monitor, keyboard, and mouse to the video port (VGA) and the USB ports.

2. For serial management port (SER MGT) connections only, press Enter on the terminal device to create a connection between the serial console and the Oracle ILOM SP.

The Oracle ILOM Login prompt appears.

3. Log in to Oracle ILOM. At the Login prompt, type your Oracle ILOM user name and password.

The default Oracle ILOM user name is root and the default password is changeme.

The Oracle ILOM command line interface (CLI) prompt (→) appears.

4. Connect to the host console. At the CLI prompt, type:

```
-> start /HOST/console
```

The serial management port output is automatically routed to the Linux host serial local console.

Related Information

- Oracle Integrated Lights Out Manager (ILOM) 3.2 Documentation Library at: <http://www.oracle.com/goto/ilom/docs>

▼ Set Up the Remote Console

1. View or establish an IP address for the server SP.

To log in to Oracle ILOM remotely using either the command-line interface (CLI) or the web interface, you must know the IP address of the server's service processor (SP). For instructions, refer to “[Logging In to or Out of Oracle ILOM](#)” in *Oracle Server X6-2L Installation Guide*.

2. If you are using a web-based client connection, perform these steps; otherwise go to the step 3.

a. In the browser address field, type the IP address for the server SP.

The Oracle ILOM Login prompt appears.

b. Log in to the Oracle ILOM web interface. At the Login prompt, type your Oracle ILOM user name and password.

The default Oracle ILOM user name is `root` and the default password is `changeme`.

The Oracle ILOM Summary Information page appears.

c. In the Actions panel, click the Remote Console Launch button.

The Oracle ILOM Remote Console Plus screen appears.

For details, refer to “[Redirecting the Host Console Using Oracle ILOM](#)” in *Oracle Server X6-2L Installation Guide*.

3. If you are using an SSH client connection, perform these steps.

a. From a serial console, establish an SSH connection to the server SP. Type:

```
ssh root@hostname
```

Where *hostname* can be the DNS name or the IP address for the server SP.

The Oracle ILOM Login prompt appears.

- b. Log in to Oracle ILOM. At the Login prompt, type your Oracle ILOM user name and password.**

The default Oracle ILOM user name is `root` and the default password is `changeme`.

The Oracle ILOM CLI prompt (`→`) appears.

- c. Redirect the video output from the server to the SSH client. At the CLI prompt, type:**

```
-> start /HOST/console
```

Related Information

- Oracle Integrated Lights Out Manager (ILOM) 3.2 Documentation Library at: <http://www.oracle.com/goto/ilom/docs>

Preparing the Boot Environment

Legacy BIOS Boot Mode is enabled by default. Because all supported Linux operating systems support both Legacy BIOS and Unified Extensible Firmware Interface (UEFI), you have the option of setting the boot mode to either Legacy BIOS or UEFI before you perform the OS installation. Before you install a Linux operating system, you should ensure that UEFI settings are configured to support the type of installation you plan to perform.

For detailed instructions for switching the BIOS mode from UEFI to Legacy BIOS, or vice versa, see the *Oracle X6 Series Servers Administration Guide* at <http://www.oracle.com/goto/x86admindiaq/docs>.

Note - After you have installed the operating system, if you decide you want to switch from Legacy BIOS to UEFI Boot Mode, or vice versa, you must reinstall the operating system.

The following topics provide specific instructions on how to configure UEFI to support the installation:

- [“Verify the UEFI Optimal Defaults” on page 17](#)
- [“Set the Boot Mode ” on page 20](#)

For more information about changing boot properties, refer to the *Oracle X6 Series Servers Administration Guide* at <http://www.oracle.com/goto/x86admindiaq/docs>.

▼ Verify the UEFI Optimal Defaults

Note - If the server is newly installed and this is the first time an operating system is being installed, the UEFI firmware is probably configured to its optimal default settings and you do not have to perform this procedure.

In the BIOS Setup Utility, you can set optimal defaults, as well as view and edit UEFI settings, as needed. By setting optimal defaults, you ensure that the server is operating efficiently with a configuration that is known to be good. You can review the optimal defaults in the *Oracle Server X6-2L Service Manual*.

Any changes you make in the BIOS Setup Utility using the F2 key are permanent until the next time you change them.

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

Before you begin, ensure that the following requirements are met:

- The server is equipped with a hard disk drive (HDD) or solid state drive (SSD).
- The HDD or SSD is properly installed in the server. For instructions, refer to [“Servicing Storage Drives and Rear Drives \(CRU\)” in Oracle Server X6-2L Service Manual](#).
- A console connection is established to the server. For details, see [“Selecting the Console Display Option” on page 13](#).

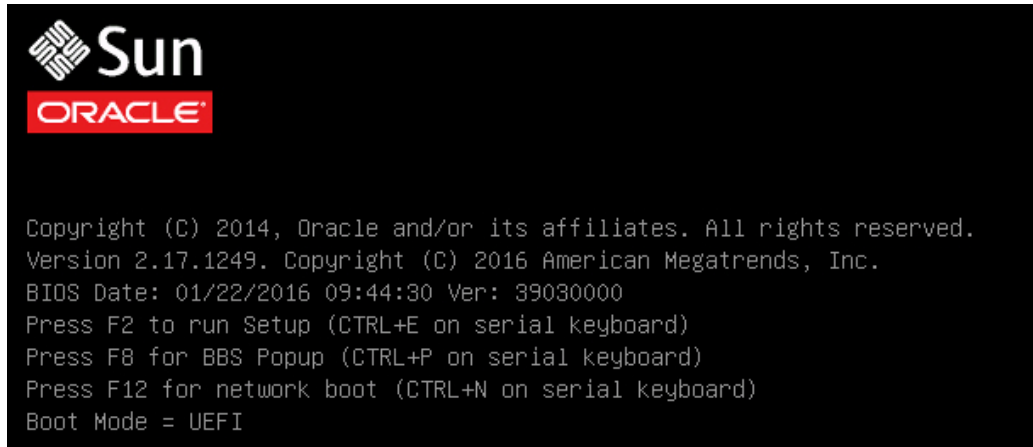
1. Reset or power on the server.

For example, to reset the server, do one of the following:

- **From the local server**, press the Power button (for approximately 1 second) on the front panel of the server to turn the server off, then press the Power button again to power on the server.
- **From the Oracle ILOM web interface**, click Host Management → Power Control, select Reset from the Select Action list box, then click Save.
- **From the Oracle ILOM CLI**, type: `reset /System`

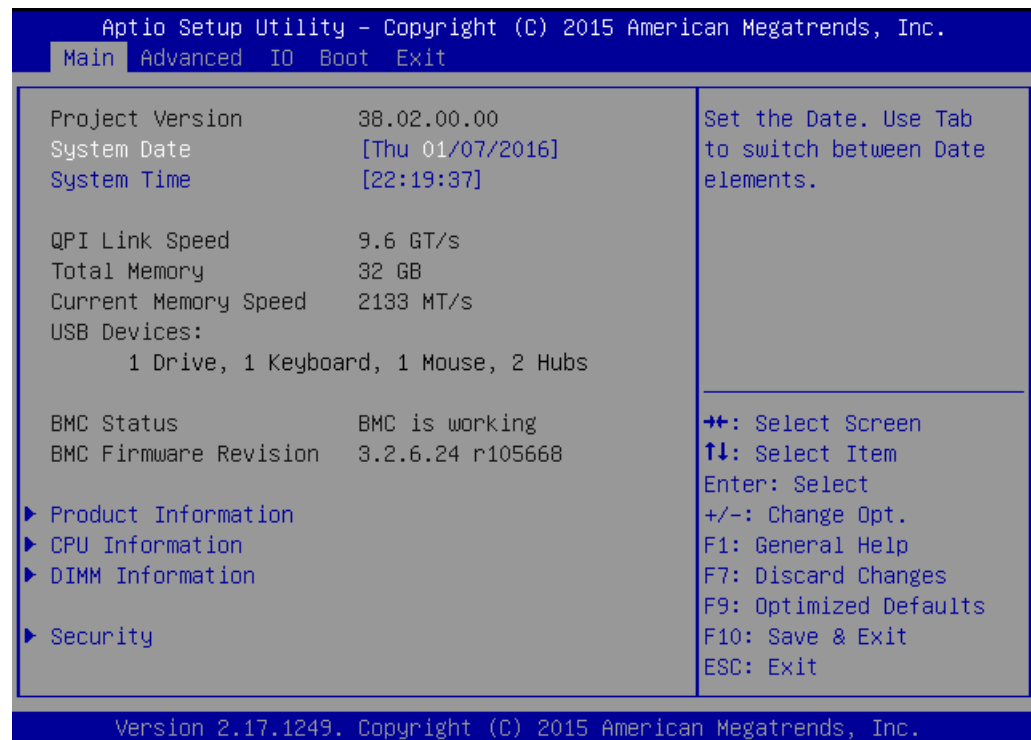
The server begins the boot process. After a few moments, the BIOS screen appears.

Note - The next steps occur very quickly; be ready to press the F2 key.



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

[Setup Selected] and the Boot Mode (Legacy or UEFI) are displayed at the bottom of the BIOS screen, then the BIOS Setup Utility appears.



3. Press the F9 key to automatically load the optimal default settings.

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

4. In the message, highlight OK, and then press Enter.

5. To save your changes and exit the BIOS Setup Utility, press the F10 key.

Alternatively, you can select Save Changes and Exit from the Exit menu.

▼ Set the Boot Mode

The server UEFI firmware supports both Legacy Boot Mode and UEFI Boot Mode. Legacy Boot Mode is enabled by default. Because all supported Linux operating systems support both Legacy BIOS and UEFI, you have the option of setting the boot mode to either Legacy or UEFI before you perform the OS installation.

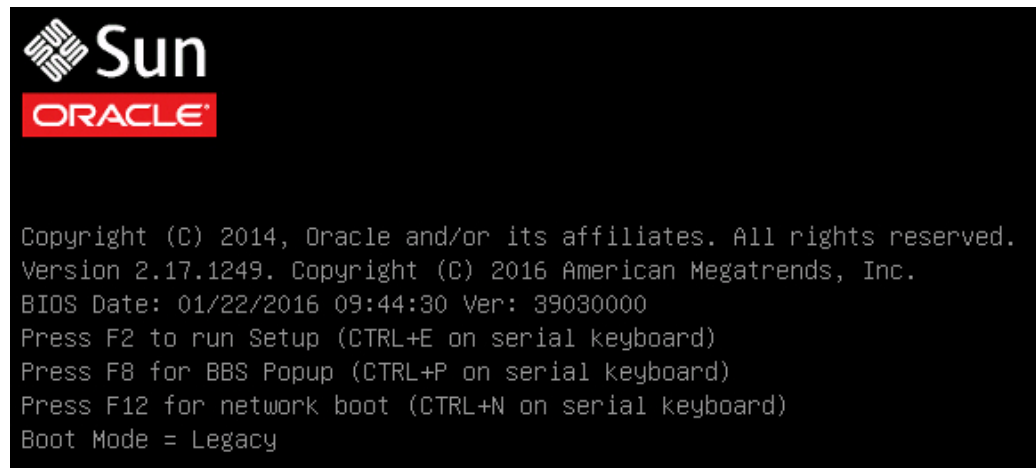
Note - After you have installed the operating system, if you decide to switch Legacy to UEFI Boot Modes, you must reinstall the operating system.

1. Reset or power on the server.

For example, to reset the server, do one of the following:

- **From the local server**, press the Power button on the front panel of the server (for approximately 1 second) to turn the server off, then press the Power button again to power on the server.
- **From the Oracle ILOM web interface**, click Host Management → Power Control, select Reset from the Select Action list box, then click Save.
- **From the Oracle ILOM CLI**, type: `reset /System`

The server begins the boot process and the BIOS screen appears.



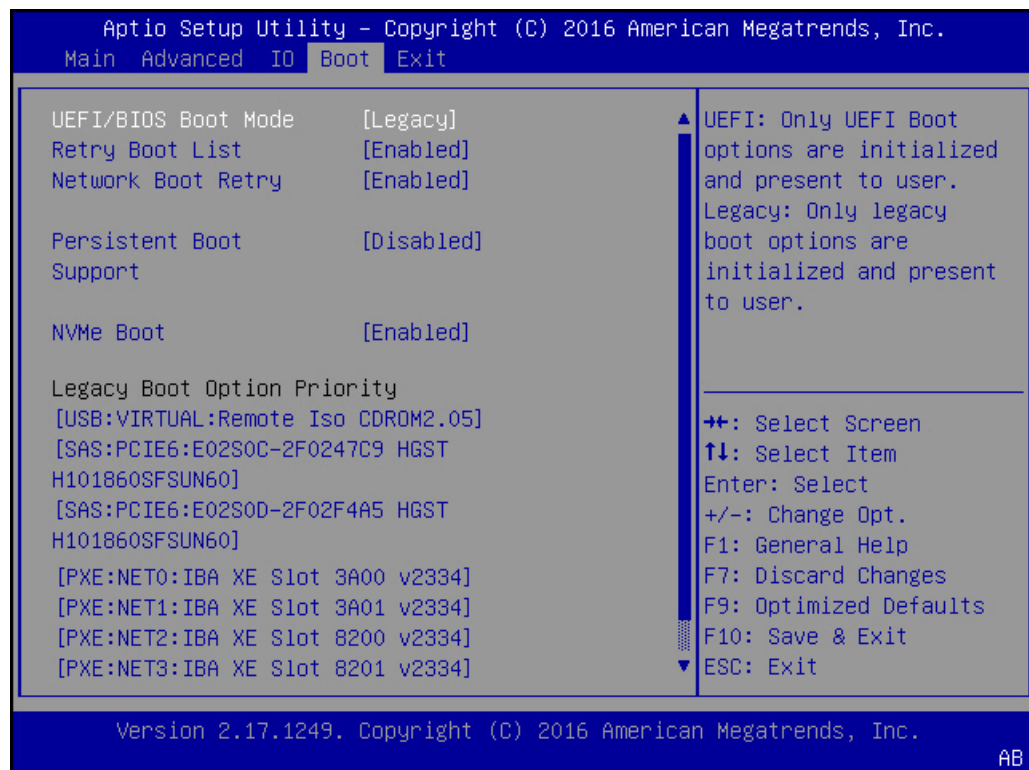
Note - The next steps occur very quickly, so be ready to press the F2 key.

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

[Setup Selected] and the Boot Mode (Legacy or UEFI) are displayed at the bottom of the BIOS screen, then the BIOS Setup Utility appears.

3. In the BIOS Setup Utility, use the arrow keys to navigate to the Boot menu.

The Boot Menu screen appears. The UEFI/BIOS Boot Mode field displays the current boot mode.



Note - The options in the boot order list differ depending on the storage drive configuration and whether you have enabled the Persistent Boot Support feature. For more information about Persistent Boot Support, refer to the *Oracle X6 Series Servers Administration Guide* at <http://www.oracle.com/goto/x86admindia/docs>.

4. **Use the down arrow key to select the UEFI/BIOS Boot Mode field, and then press Enter.**
5. **Select your preferred boot mode, and then press Enter.**
You must select the boot mode before starting the operating system installation.
6. **To save changes and exit the BIOS Setup Utility, press the F10 key.**
Alternatively, you can select Save Changes and Exit from the Exit menu.

Selecting the Boot Media Option

You can start the operating system installation to the server by booting a local or remote installation media source. This section identifies the supported media sources and the setup requirements for each source.

- [“Boot Media Options Requirements” on page 22](#)
- [“Set Up the Boot Media for a Local Installation” on page 23](#)
- [“Set Up the Boot Media for a Remote Installation” on page 24](#)

Boot Media Options Requirements

This section describes the requirements for using local and remote media.

- [“Local Boot Media Requirements” on page 22](#)
- [“Remote Boot Media Requirements” on page 23](#)

Local Boot Media Requirements

Local boot media requires a built-in storage device on the server, or an external storage device attached to the server.

The CD/DVD installation media can be made available in any of the following ways:

- The installation media CD/DVD can be installed on the server DVD drive.
- The installation media CD/DVD can be installed on an external DVD drive that is attached to the server.

- The installation media can be copied to a USB flash drive and installed in one of the server's external or internal USB ports.

Remote Boot Media Requirements

Remote boot media enable you to boot the install over the network. You can start the installation from a redirected boot storage device or another networked system that exports the ISO image over the network using a PreBoot eXecution Environment (PXE).

Supported OS remote boot media sources can include:

- CD/DVD-ROM installation media installed in remote DVD drive, and a remote USB removable flash drive installation media
- CD/DVD ISO image available in a location on the network that is setup for virtual redirection
- CD/DVD-ROM installation media image mounted on the server service processor (SP)
For instructions on mounting an installation image onto the server SP, refer to the *Oracle ILOM Administrator's Guide for Configuration and Maintenance* at <http://www.oracle.com/goto/ilom/docs>. Alternatively, refer to the More Details link in the Oracle ILOM Remote Control → Remote Device web interface page.
- The DVD/ISO image made available as a PXE network boot. The instructions for performing PXE network installations for the supported Linux operating systems are provided in the following sections:
 - “Install Oracle Linux 6.7 and 7.2 OS Using PXE Network Boot” on page 57
 - “Install RHEL 6.7 or 7.2 OS Using PXE Network Boot” on page 68

▼ Set Up the Boot Media for a Local Installation

To set up the local boot media, you must insert a storage device that contains the Linux OS installation media into the server using one of the following options.

1. **If the server is equipped with an optional DVD drive, insert the Linux OS installation DVD into the DVD drive located on the front of the server; otherwise, proceed to the next step.**
2. **If your server does not have a DVD drive, insert an external USB DVD drive or a USB flash drive that contains the Linux OS installation media into one of the external USB ports located on the front and rear of the server.**

Note - For information about the location of the server's external USB ports, refer to “[Server Features and Components](#)” in *Oracle Server X6-2L Installation Guide*.

▼ Set Up the Boot Media for a Remote Installation

To redirect the boot media from a remote storage device, perform the following steps:

1. Insert the boot media into the storage device, for example:

- **For CD/DVD-ROM**, insert the media into the built-in or external CD/DVD-ROM drive on a remote workstation.
- **For CD/DVD-ROM ISO image**, ensure that ISO image is readily available on a network shared location or is mounted on the server service processor (SP).

For instructions on mounting an installation image onto the server SP, refer to the *Oracle ILOM Administrator's Guide for Configuration and Maintenance* at <http://www.oracle.com/goto/ilom/docs>. Alternatively, refer to the More Details link in the Oracle ILOM Remote Control → Remote Device web interface page.

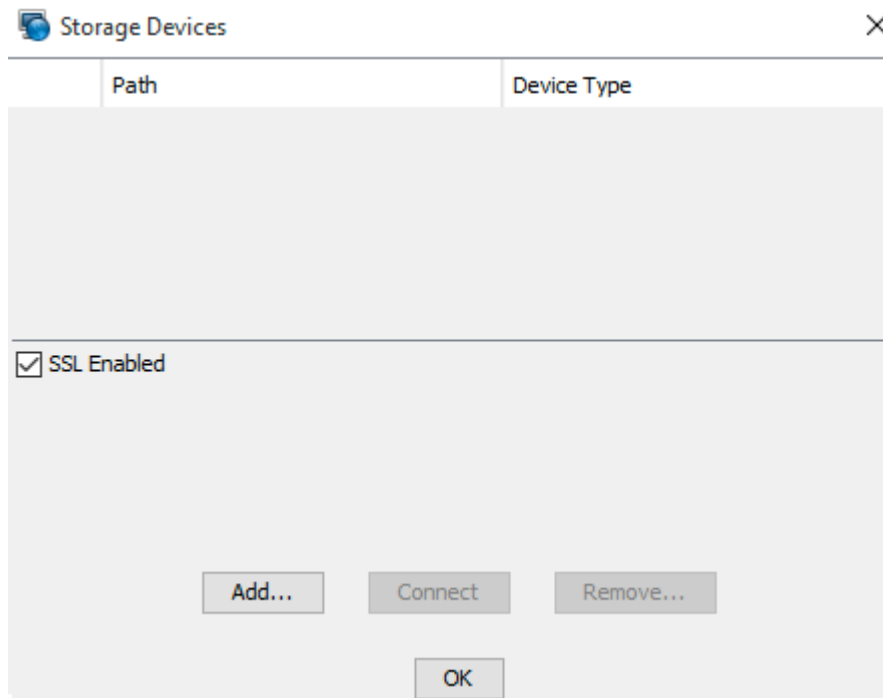
2. Establish a web-based client connection to the server Oracle ILOM SP and launch the Oracle ILOM Remote System Console Plus application.

For more details, see the setup requirements for web-based client connection in “[Selecting the Console Display Option](#)” on page 13.

3. In the remote console, do the following:

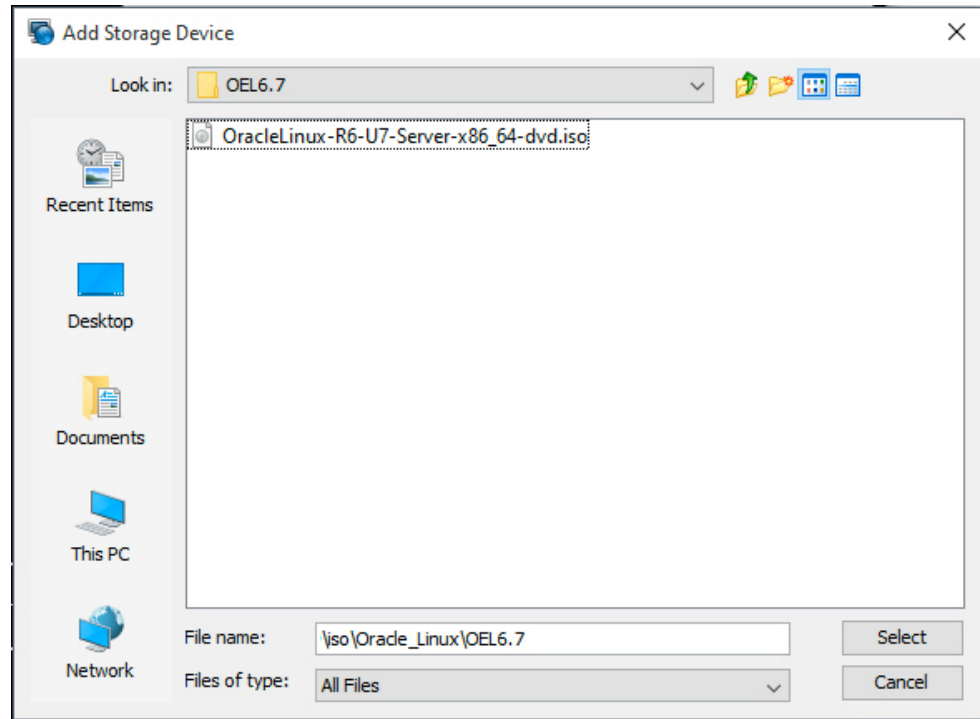
- a. **Click KVMS to display the KVMS drop-down menu.**
- b. **Click Storage.**

The Storage Devices dialog appears.



- c. In the Storage Devices dialog, click Add.

The Add Storage Device dialog appears.



- d. **Browse to the ISO image, select it, and click select.**

The Storage Devices screen appears and lists the ISO image.

- e. **Select the ISO image and click Connect.**

The ISO image is mounted to the remote console and can be used to perform the OS installation.

Selecting the Installation Target

This section describes how to set up the installation target.

- [“Installation Target Options” on page 27](#)

- [“Set Up a Local Storage Drive \(HDD, SSD, or RAID Volume\) as the Installation Target” on page 27](#)
- [“Set Up a Fibre Channel Storage Area Network Device as the Installation Target” on page 28](#)

Installation Target Options

You can install the operating system on any of the storage drives installed in the server. Hard disk drives (HDDs), solid state drives (SSDs), NVMe Express (NVMe) storage drives, and RAID volumes are valid installation targets for a Linux OS.

For servers equipped with Fibre Channel (FC) PCIe host bus adapters (HBAs), you can choose to install the operating system to an external fibre channel storage device.

Note - NVMe drives are not supported on Red Hat Enterprise Linux operating systems and should not be used as installation targets.

▼ Set Up a Local Storage Drive (HDD, SSD, or RAID Volume) as the Installation Target

1. **Ensure that the target drive (HDD or SSD) is properly installed and powered on.**

For information about installing and powering on a HDD or SSD, refer to [“Servicing Storage Drives and Rear Drives \(CRU\)” in Oracle Server X6-2L Service Manual](#).

2. **Ensure that the target drives are configured to suit your environment.**

By default, each physical device on the server is confirmed as a logical RAID 0 volume. To implement an alternative configuration, refer to the following resources:

- [“Configuring Storage Drives for Operating System Installation” in Oracle Server X6-2L Installation Guide](#)
- *Oracle X6 Series Servers Administration Guide* at <http://www.oracle.com/goto/x86admindiag/docs>

▼ Set Up a Fibre Channel Storage Area Network Device as the Installation Target

1. **Ensure that the fibre channel PCIe HBA is properly installed in the server.**
For information about installing a fibre channel PCIe HBA option, refer to “[Servicing PCIe Cards \(CRU\)](#)” in *Oracle Server X6-2L Service Manual*.
2. **Ensure that the storage area network (SAN) is installed and configured to make the storage device visible to the server's host.**
For instructions, refer to the documentation supplied with the Fibre Channel HBA.

Configuring RAID

If you want to configure the server storage drives in a RAID configuration, configure RAID on your server before you install a Linux OS. For instructions for configuring RAID, refer to “[Configuring Storage Drives for Operating System Installation](#)” in *Oracle Server X6-2L Installation Guide*.

Note - The system does not recognize a drive unless it has been incorporated into a volume by the HBA. Therefore, the volume that the OS will be installed on must be set as the bootable volume prior to installing the OS.

Related Information

- *Oracle X6 Series Servers Administration Guide* at: <http://www.oracle.com/goto/x86AdminDiag/docs>

Installing a Linux Operating System

This section provides instructions for installing the Oracle Linux and Red Hat Enterprise Linux operating systems and system-specific drivers on the server.

Description	Links
Using media to install the Oracle Linux operating system on a single server.	“Installing Oracle Linux on a Single System Manually” on page 29
Using media to install the Red Hat Enterprise Linux operating system on a single server.	“Installing Red Hat Enterprise Linux OS on a Single System Manually” on page 62

Installing Oracle Linux on a Single System Manually

This section provides information about installing the Oracle Linux 6.5, 6.6, or 7 for x86 (64-bit) operating system.

- [“Before You Begin” on page 29](#)
- [“Install Oracle Linux 6.7 OS Manually Using Local or Remote Media” on page 30](#)
- [“Install Oracle Linux 7.2 OS Using Local or Remote Media” on page 52](#)
- [“Install Oracle Linux 6.7 and 7.2 OS Using PXE Network Boot” on page 57](#)
- [“Post Installation Tasks for RHEL 6.7 or 7.2 OS” on page 71](#)

Before You Begin

Ensure that the following requirements are met:

- If you want to configure the boot drive (that is, the storage drive onto which you are installing the OS) for RAID, you must do so before you install the Linux OS. For instructions on how to configure RAID on your server, refer to [“Configuring Storage Drives for Operating System Installation” in *Oracle Server X6-2L Installation Guide*](#).

Note - The system does not recognize a drive unless it has been incorporated into a volume by the HBA. Therefore, the volume that the OS will be installed on must be set as the bootable volume prior to installing the OS.

- Set the firmware to the desired boot mode, Legacy BIOS or UEFI. For instructions on how to set the UEFI boot mode, see [“Set the Boot Mode” on page 20](#).
- Verify that the UEFI firmware settings are set correctly. For instructions on how to verify and, if necessary, set the UEFI firmware settings, see [“Preparing the Boot Environment” on page 16](#).
- The console display option is selected and set up prior to performing the installation. For more information about this option, see [“Selecting the Console Display Option” on page 13](#).
- The boot media option is selected and set up prior to performing the installation. For more information about this option and setup instructions, see [“Selecting the Boot Media Option” on page 22](#).
- The installation target option is selected and set up prior to performing the installation. For more information about this option and setup instructions, see [“Selecting the Installation Target” on page 26](#).

▼ Install Oracle Linux 6.7 OS Manually Using Local or Remote Media

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

- Oracle Linux 6.7 DVD set (internal or external CD/DVD)
- Oracle Linux 6.7 ISO DVD image (network repository)

If you are booting the installation media from a PXE environment, refer to [“Install Oracle Linux 6.7 and 7.2 OS Using PXE Network Boot” on page 57](#) for instructions.

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

- **For Distribution DVD**, insert the Oracle Linux 6.7 distribution media boot disc (DVD) into the local or remote DVD-ROM drive.
- **For ISO image**, ensure that the Oracle Linux 6.7 ISO image is available and that the ISO image has been mounted in the Oracle ILOM Remote System Console Plus application using the KVMS menu.

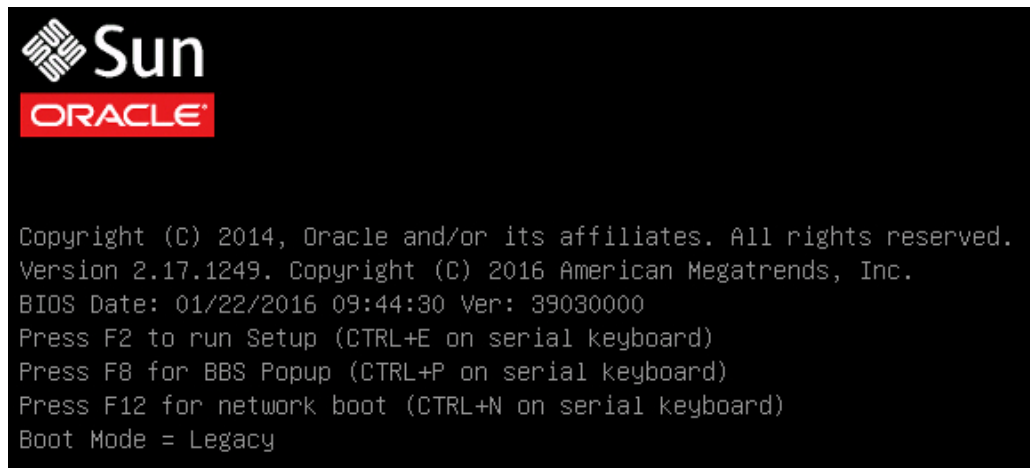
For additional information about how to set up the installation media, see [“Selecting the Boot Media Option” on page 22](#).

2. Reset or power on the server.

For example, do one of the following:

- **From the local server**, press the Power button on the front panel of the server (for approximately 1 second) to power off the server, then press the Power button again to power on the server.
- **From the Oracle ILOM web interface**, click Host Management → Power Control , select Reset from the Select Action list box, then click Save.
- **From the Oracle ILOM CLI**, type: `reset /System`

The server begins the boot process and the BIOS screen appears.

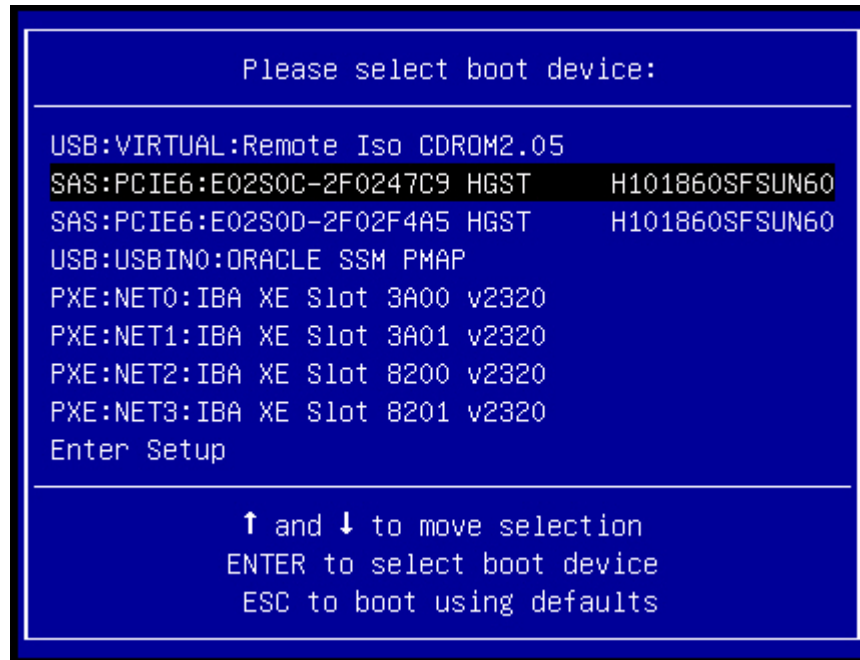


Note - The next event occurs very quickly; therefore, be ready to press the F8 key. Watch carefully for messages as they appear on the screen for a brief time. You might want to enlarge the size of your screen to eliminate scroll bars.

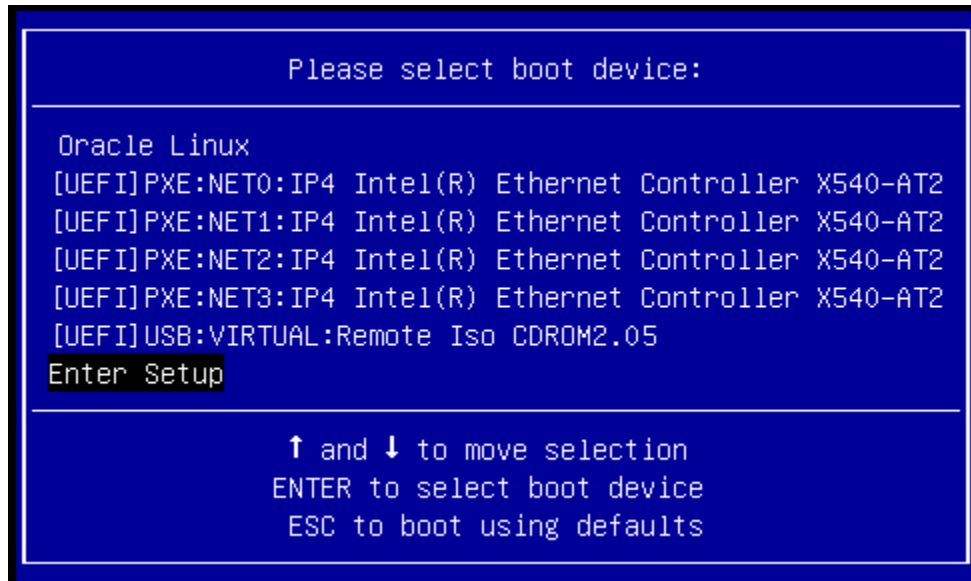
3. In the BIOS screen, press the F8 key to specify a temporary boot device for the Linux OS installation.

[Boot Pop Up Menu Selected] appears at the bottom of the BIOS screen, and then the Please Select Boot Device menu appears. The screen that appears will differ depending on whether you have the UEFI/BIOS Boot Mode configured for Legacy BIOS or UEFI.

- For Legacy BIOS Boot Mode, a screen similar to the following appears:



- For UEFI Boot Mode, a screen similar to the following appears:



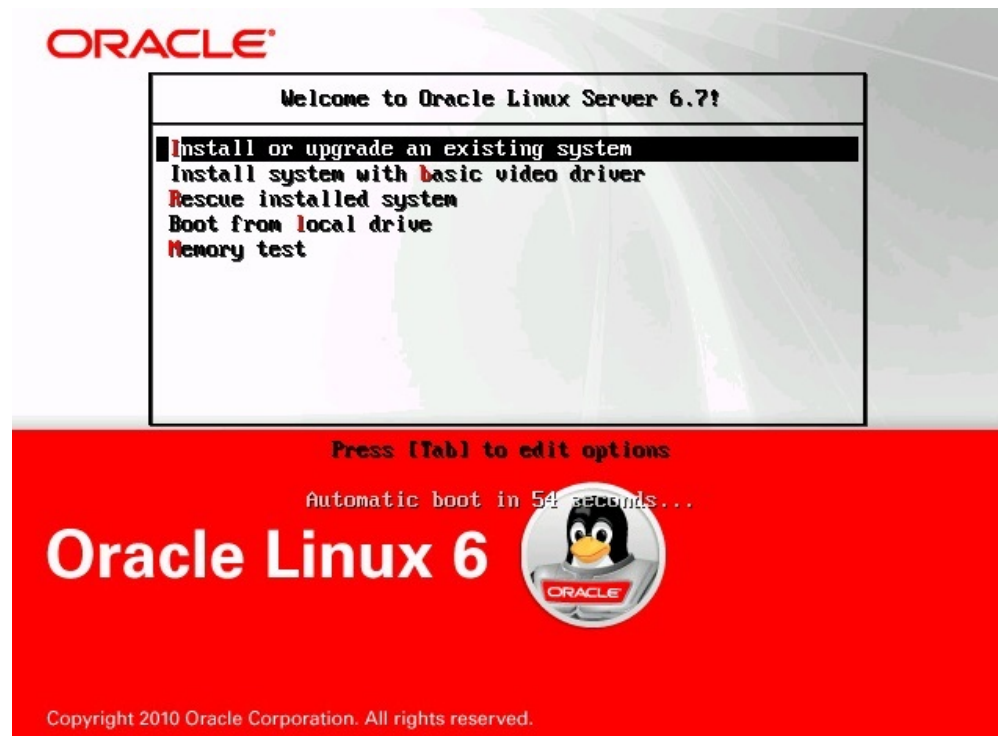
Note - The Please Select Boot Device menu that appears in your installation might differ depending on the type of disk controller and other hardware, such as PCIe network cards, installed in your server.

4. In the Please Select Boot Device menu, select the menu item according to the Linux OS media installation method and the BIOS mode you elected to use, then press Enter.

For example:

- To use the Oracle ILOM Remote System Console Plus application delivery method in Legacy BIOS Boot Mode, select USB:VIRTUAL:Remote Iso CDR0M2.04 from the Legacy BIOS screen.
 - To use the Oracle ILOM Remote System Console Plus application delivery method in UEFI Boot Mode, select [UEFI]USB:VIRTUAL:Remote Iso CDR0M2.04 from the UEFI screen.
5. The next screen displayed by the installation program depends on whether you selected the Legacy BIOS Boot Mode or the UEFI Boot Mode.

- If you selected Legacy BIOS Boot Mode, the Welcome to Oracle Linux Server boot screen appears. For example, for Oracle Linux 6.7:



- If you selected UEFI Boot Mode, the Booting Oracle Linux Server boot screen appears. For example, for Oracle Linux 6.7:



6. For the purposes of this installation, do one of the following:

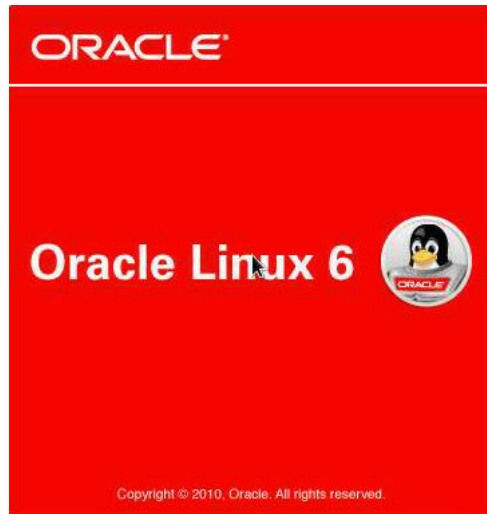
- To do the installation in the Legacy BIOS Boot Mode, accept the default and press Enter.
- To do the installation in UEFI Boot Mode, press Enter or allow the screen to timeout.

The Disc Found screen appears.



7. If this is the first time that you are doing an install from this media, you should consider selecting OK to test the media; otherwise, select skip and press Enter.

The Oracle Linux 6 splash screen appears.



8. **Scroll to the bottom of the Oracle Linux 6 splash screen and click Next.**

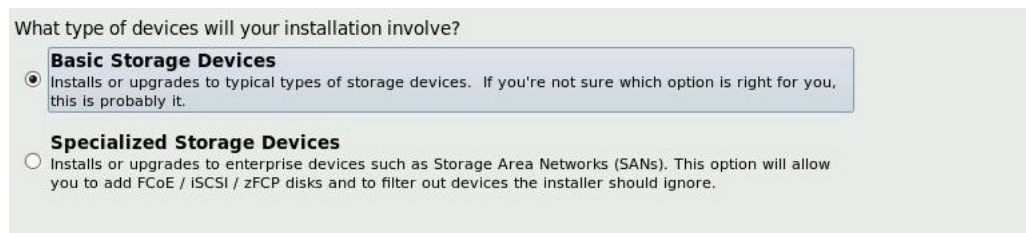
The "What language would you like to use during the installation process?" screen appears.

9. **Select the appropriate language and click Next.**

The "Select the appropriate keyboard for the system" screen appears.

10. **Select the appropriate keyboard configuration and click Next.**

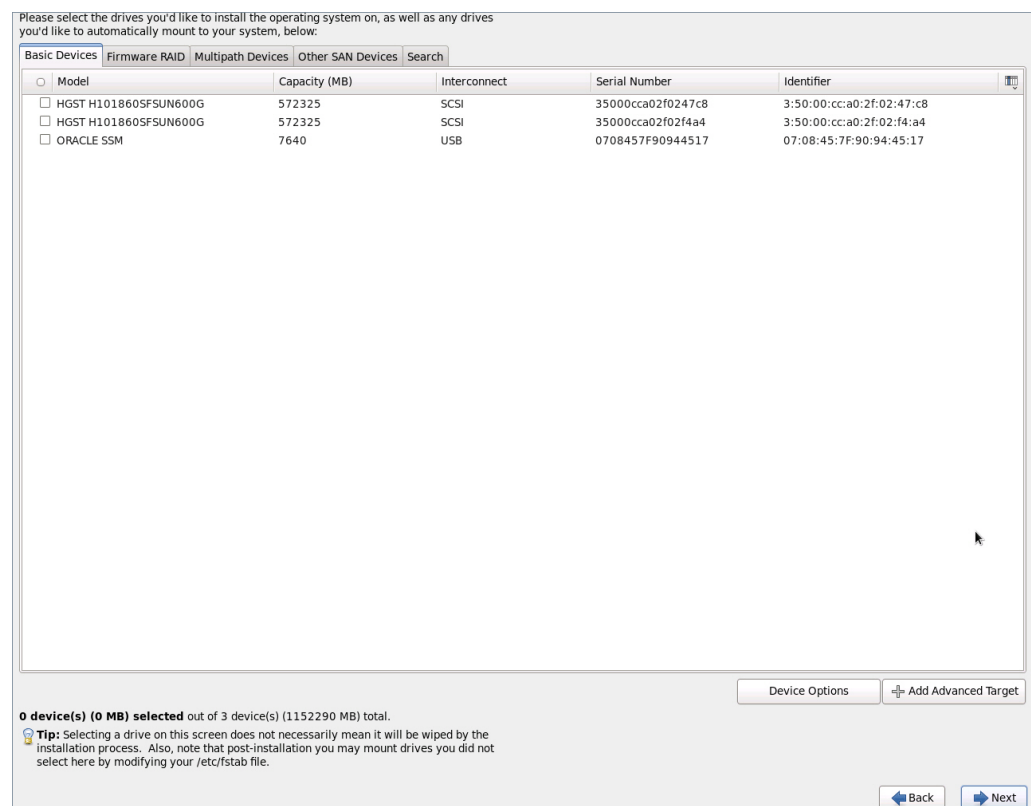
The "What type of devices will your installation involve?" screen appears.



11. In the above screen, select **Specialized Storage Devices**, then scroll to the bottom of the screen, and click **Next**.

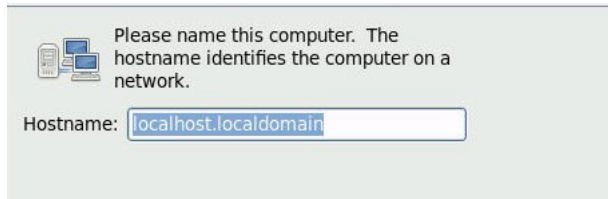
Note - Selecting Specialized Storage Devices enables you to deselect the Oracle SSM in the following screen. This makes the rest of the manual installation easier.

The "Please select the drive you'd like to install the operating system on" screen appears.



12. Select the storage drive on to which you want to install the operating system, scroll to the bottom of the screen, and click **Next**.

The "Please name this computer" screen appears.



13. Enter the host name and click Next.

The Select Time Zone screen appears.



14. Select the appropriate region and city and click Next.

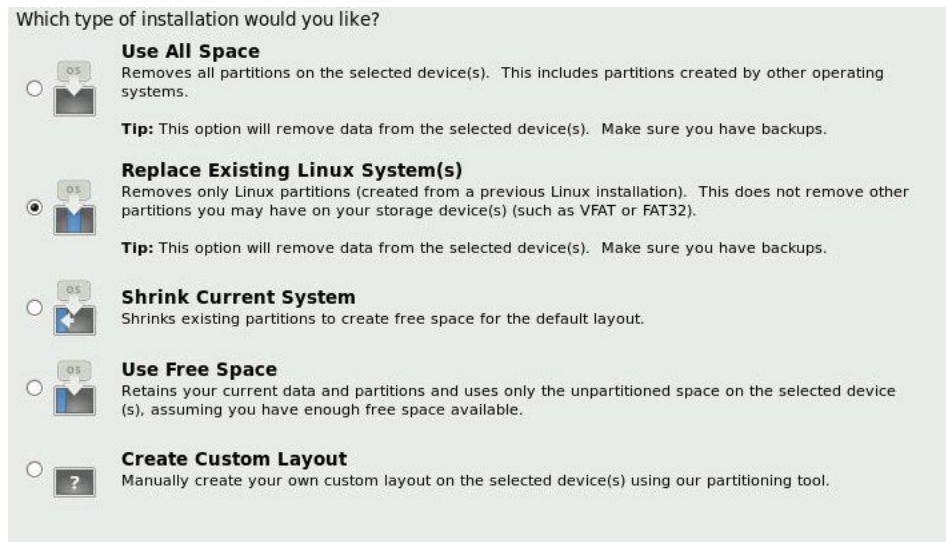
Note - If you want NTP Service, you can set that up after the operating system is installed.

The Root Password screen appears.

The screenshot shows the 'Root Password' screen during the Oracle Linux 6.7 installation. It features a red shield icon with a white 'X' on the left. To the right of the icon, the text reads: 'The root account is used for administering the system. Enter a password for the root user.' Below this text, there are two input fields. The first is labeled 'Root Password:' and the second is labeled 'Confirm:'. Both fields are empty and have a light blue border.

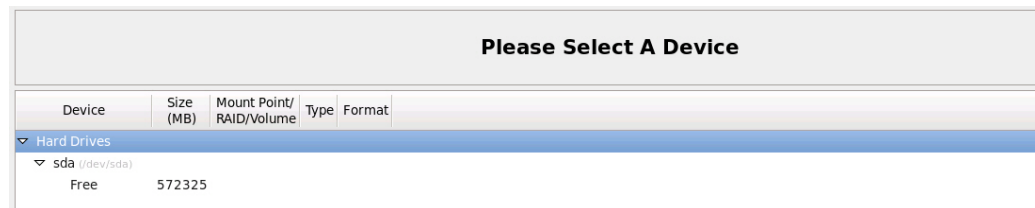
15. **Enter the root password, and click Next.**

The "What type of installation would you like?" screen appears.

The screenshot shows the 'Which type of installation would you like?' screen. At the top, the question is written in a light blue font. Below it, there are five radio button options, each with a small icon and a description. The first option is 'Use All Space' with a disk icon, described as removing all partitions on the selected device(s). The second option is 'Replace Existing Linux System(s)' with a disk icon, described as removing only Linux partitions. The third option is 'Shrink Current System' with a disk icon, described as shrinking existing partitions. The fourth option is 'Use Free Space' with a disk icon, described as retaining current data and using unpartitioned space. The fifth option is 'Create Custom Layout' with a question mark icon, described as manually creating a custom layout. The 'Replace Existing Linux System(s)' option is selected with a black dot in its radio button. Each option also includes a 'Tip' in a smaller font.

16. **In the above screen, select the appropriate option and click Next.**

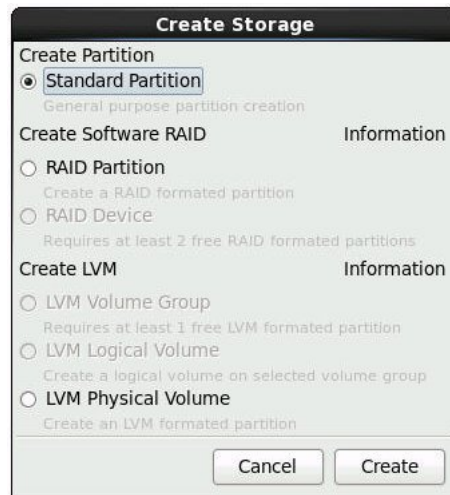
For example, if the storage drive on which you are installing operating system is blank and you select Create Custom Layout, the "Please Select a Device" screen appears.



17. To create partitions do the following:

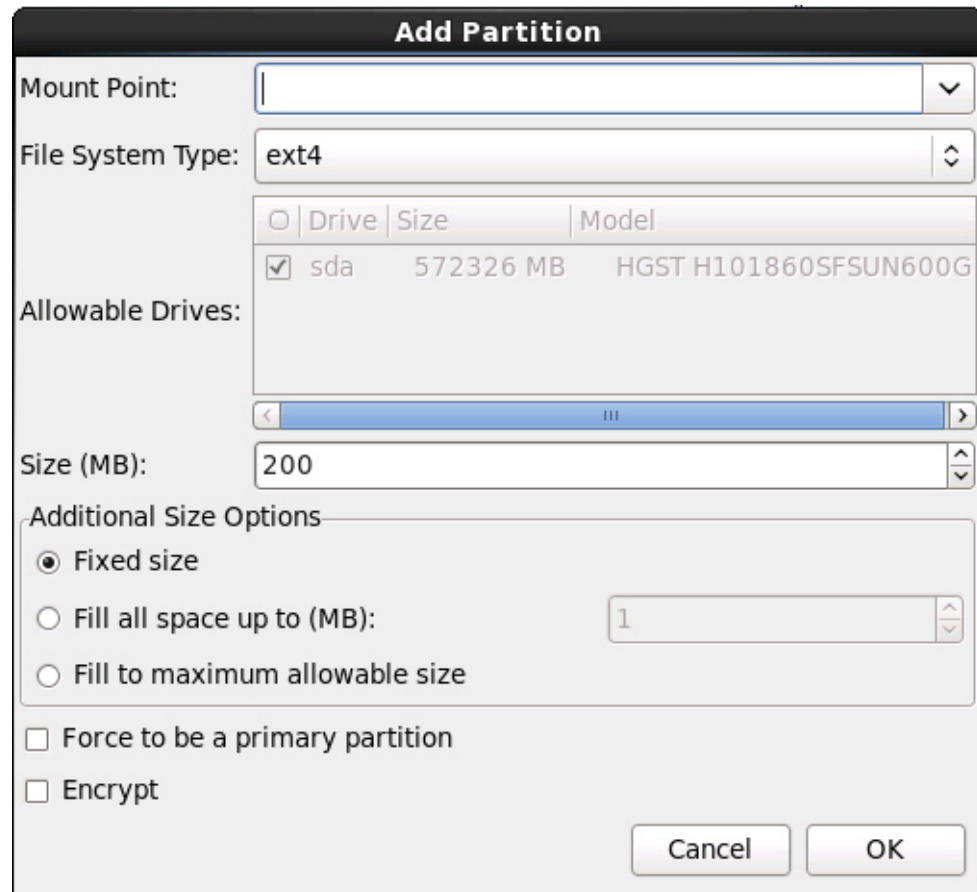
- a. **Scroll to the bottom of the screen, and click Create.**

The Create Storage dialog appears.



- b. **Select Standard Partition, and click Create.**

The Add Partition dialog appears.



The "Add Partition" dialog box is shown. It has a title bar "Add Partition". The "Mount Point:" field is empty. The "File System Type:" dropdown is set to "ext4". The "Allowable Drives:" section contains a table with columns "Drive", "Size", and "Model". The first row is checked and shows "sda", "572326 MB", and "HGST H101860SFSUN600G". Below the table is a scrollbar. The "Size (MB):" field is set to "200". The "Additional Size Options" section has three radio buttons: "Fixed size" (selected), "Fill all space up to (MB):" (with a value of "1" in the adjacent field), and "Fill to maximum allowable size". There are two checkboxes: "Force to be a primary partition" and "Encrypt", both of which are unchecked. At the bottom right are "Cancel" and "OK" buttons.

	Drive	Size	Model
<input checked="" type="checkbox"/>	sda	572326 MB	HGST H101860SFSUN600G

- c. In the dialog, set the Mount point to `/boot` and leave the File System Type set to `ext4` and the Size (MB) set to `200`.

The updated Add Partition dialog appears.

Add Partition

Mount Point:

File System Type:

Allowable Drives:

<input type="checkbox"/>	Drive	Size	Model
<input checked="" type="checkbox"/>	sda	572326 MB	HGST H101860SFSUN600G

Size (MB):

Additional Size Options

☒ Fixed size

☐ Fill all space up to (MB):

☐ Fill to maximum allowable size

☐ Force to be a primary partition

☐ Encrypt

Cancel OK

d. **Click ok.**

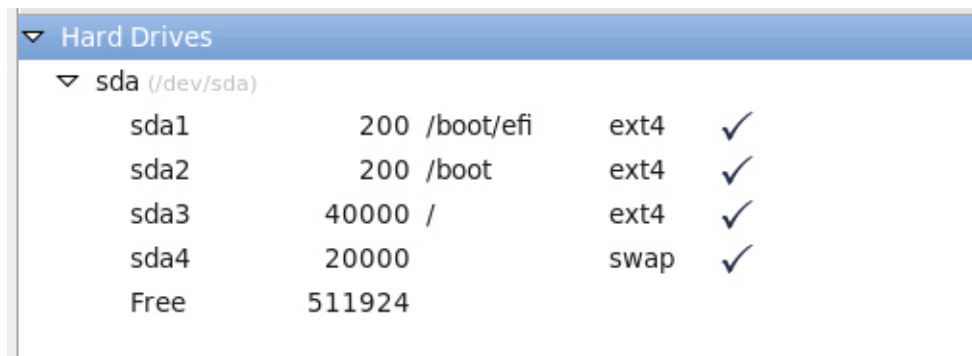
The partition is created.

e. **Repeat Step a through Step d above to create the following additional partitions:**

Mount Point	File System Type	Size (MB)
/boot/efi	EFI System Partition	200

Mount Point	File System Type	Size (MB)
Note - This partition can only be created if you selected the UEFI Boot Mode. It is not supported in Legacy BIOS Boot Mode.		
/	ext4	20000
None	swap	16384

The updated partitions screen appears.



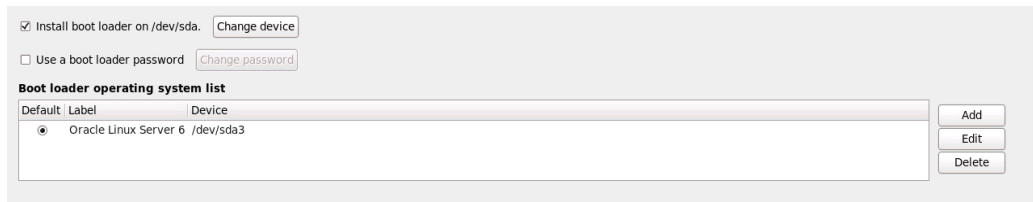
18. Click Next to apply the partitions.

The following dialog appears.



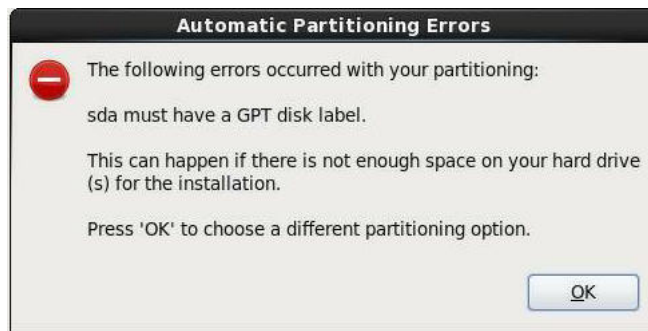
19. Click Write changes to disk.

If there are no disk partitioning errors, the Install Boot Loader screen appears and you should proceed to [Step 21](#). If there are disk partitioning errors, proceed to [Step 20](#)



20. **If there is a problem with the data format on the installation target disk, the Automatic Partitioning Errors screen appears.**

Note - The following screen appears if you are installing the operating system in UEFI Boot Mode, in which case GUID Partition Table (GPT) formatted disks are required. If you encounter disk formatting errors when you install the operating system in Legacy BIOS Boot Mode, a similar screen would be displayed indicating that the Master Boot Record (MBR) formatted disks are required.



If the above screens appears, the disk to which you are attempting to install Oracle Linux is formatted incorrectly and it needs to be reformatted.

Note - This error occurs if you attempt to do a UEFI Boot Mode OS install to a storage drive that was previously used to store data in Legacy BIOS format or vice versa. UEFI uses the GPT format, while Legacy BIOS formats storage drives in the MBR format. The storage drives that ship with the server are new, so they are unformatted. You will not encounter this error when installing to an unformatted disk.

To recover and reformat the disk without aborting the install, click the keyboard Back button on the install screen several times to return to the initial Oracle Linux splash screen shown in [Step 7](#) and perform these steps:

- a. **To start the recovery shell, type `Ctrl+Alt+F2`.**

The shell appears.

- b. **To reformat the disk in GPT format or MBR format as appropriate for this installation, enter the shell commands as shown on the following screen:**

```

anaconda root@localhost /]# parted /dev/sda
GNU Parted 2.1
Using /dev/sda
Welcome to GNU Parted! Type ???help' to view a list of commands.
(parted) p
Model: HITACHI H101860SFSUN600G (scsi)
Disk /dev/sda: 600GB
Sector size (logical/physical): 512B/512B
Partition Table: msdos (or gpt for Legacy BIOS Boot Mode)
Number  Start  End    Size   Type   File system  Flags
  1      1049kB  21.5GB  21.5GB  primary ext2
(parted) mklabel
New disk label type? gpt (or msdos for Legacy BIOS Boot Mode)
Warning: The existing disk label on /dev/sda will be destroyed and all data will be
lost.
Do you want to continue?
Yes/No? yes
(parted) p
Model: HITACHI H101860SFSUN600G (scsi)
Disk /dev/sda: 600GB
Sector size (logical/physical): 512B/512B
Partition Table: gpt
Number  Start  End    Size   File system  Name  Flags
(parted) g
Information: You may need to update /etc/fstab.
anaconda root@localhost /]#

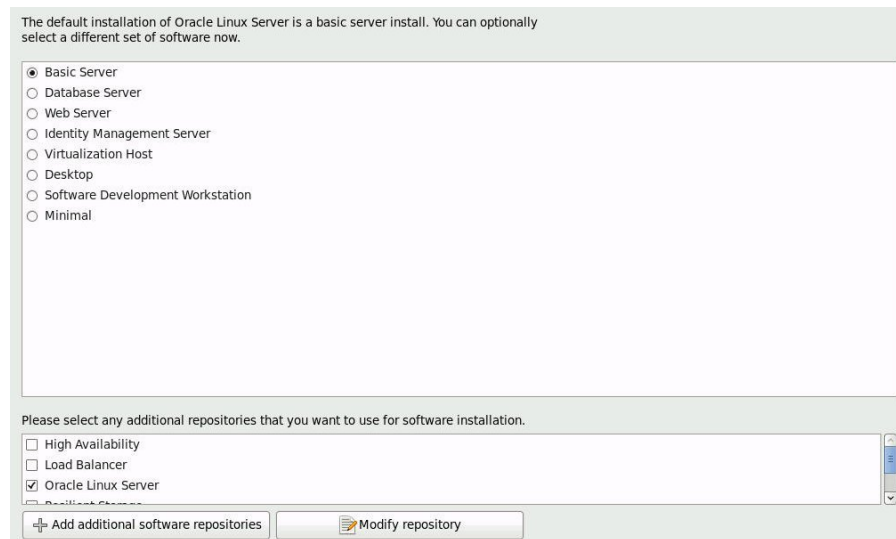
```

- c. **Type `Ctrl+Alt+F6` to return to the graphical installation screen and continue the installation from the point of the Oracle Linux splash screen (go to [Step 7](#)).**

Note - In most cases the values that you entered for this installation have been saved, so you do not have to reenter them.

21. **In the Install Boot Loader screen, select Install boot loader on `/dev/sda1`, and click Next.**

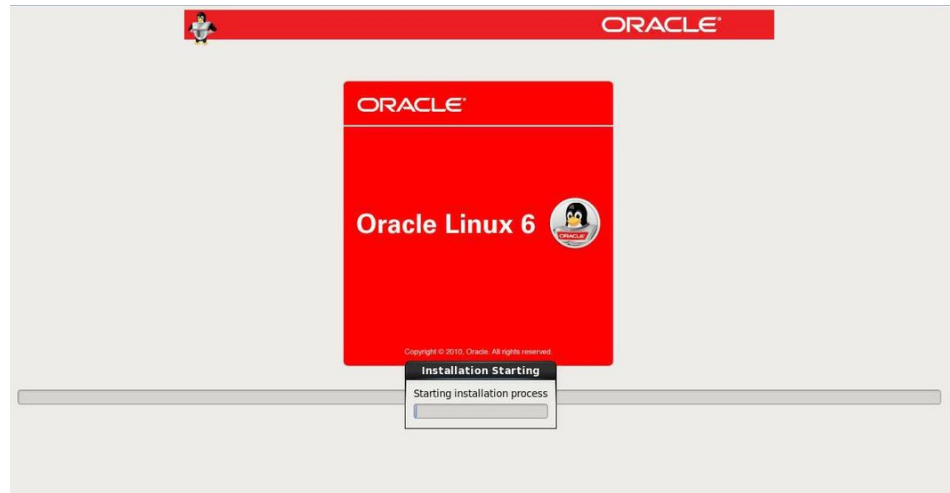
The "Select server software to install" screen appears.



While Basic Server is the default server software install, you can optionally select a different set of software. Additionally, at the bottom of this screen you can select Customize Now to do a custom install of the selected software.

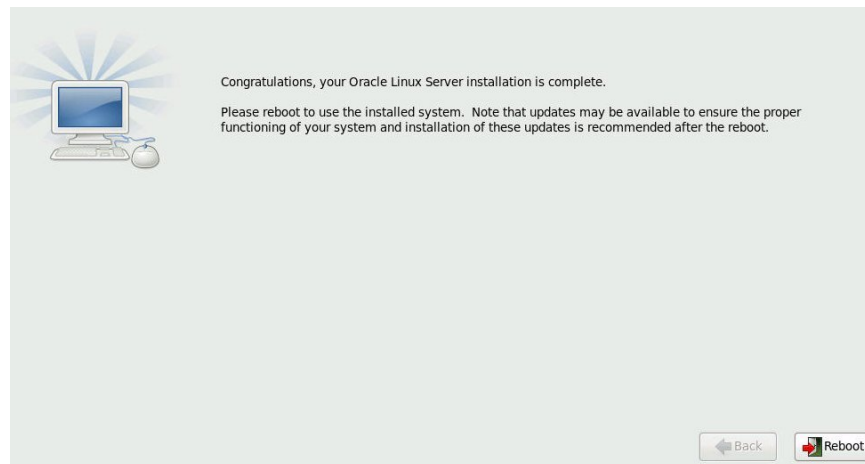
22. **For the purposes of this sample installation, accept the Basic Server default and click Next.**

The Starting Installation Process screen appears.



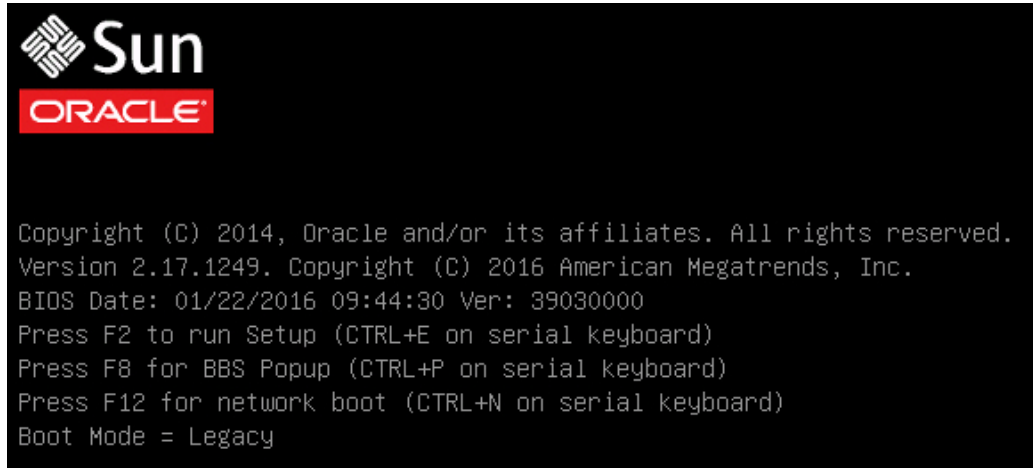
23. Wait until the Oracle Linux OS installation completes.

When the installation completes, the following screen appears.



24. To reboot the Oracle Linux installation, click Reboot.

The server reboots and the BIOS screen appears.



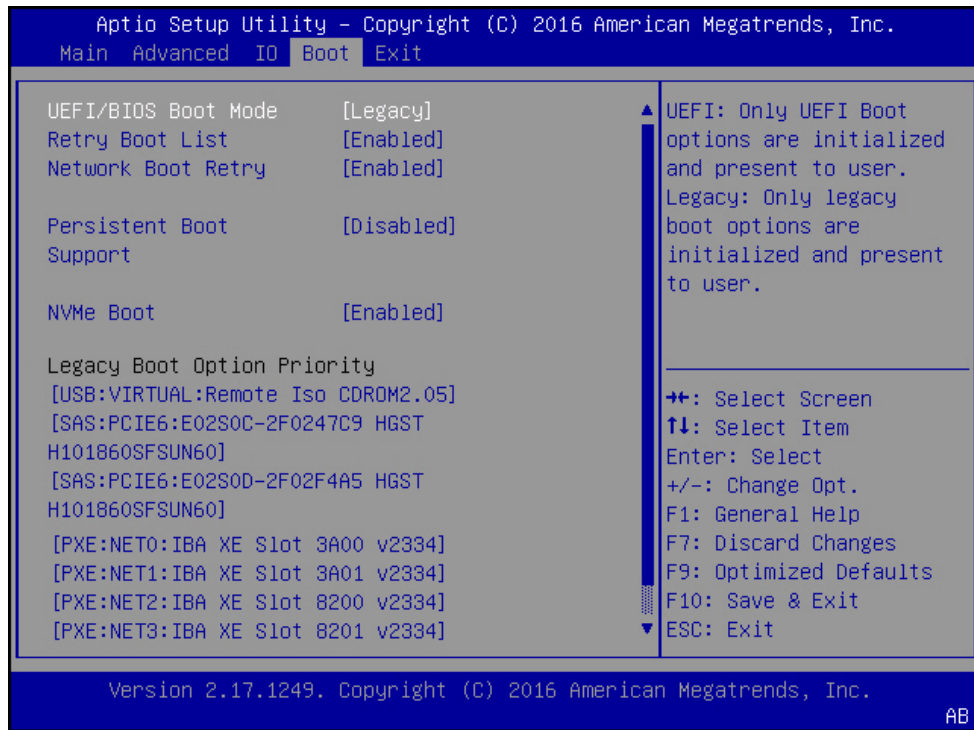
- 25. To access the BIOS Setup Utility so that you can set the server to boot from the operating system you just installed, press the F2 key.**

The BIOS Setup Utility screen appears with the Boot menu selected. The BIOS screen displayed and the actions required to proceed with installation depend on the UEFI/BIOS Boot Mode you selected for installing the OS.

- If you installed the OS in Legacy BIOS Boot Mode, proceed to [Step 26](#).
- If you installed the OS in UEFI Boot Mode, proceed to [Step 27](#).

- 26. If you installed the OS in Legacy BIOS Boot Mode, perform these steps and then proceed to [Step 28](#).**

- a. In the BIOS Setup Utility screen shown below, use the down arrow key to select [USB:VIRTUAL:Remote Iso CDR0M2.05] under the Legacy Boot Option Priority field, and press Enter.

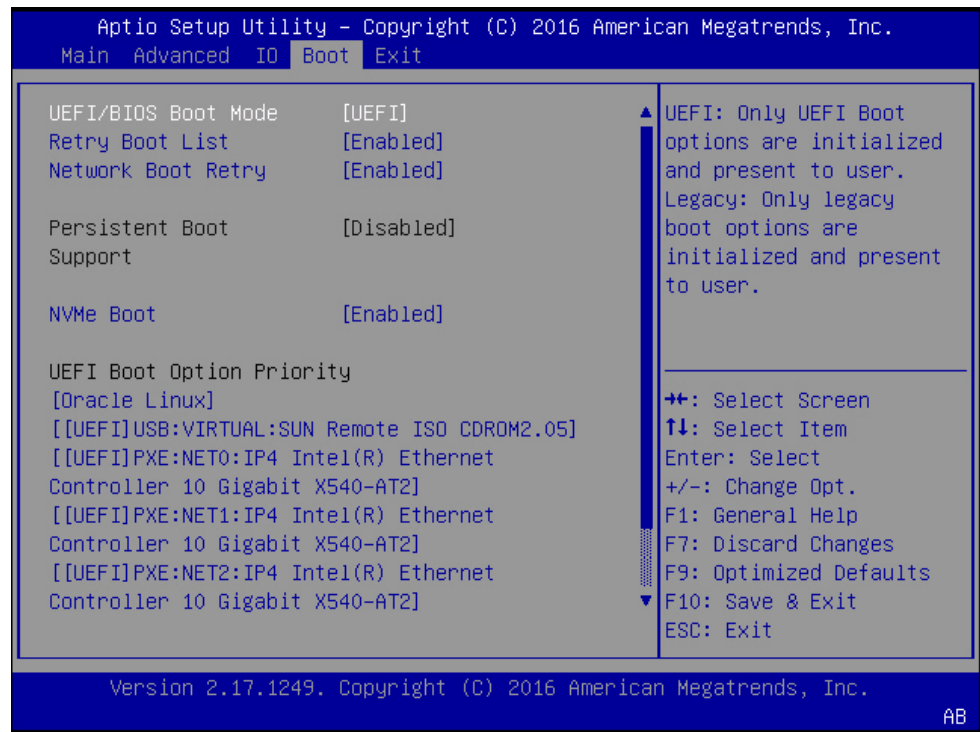


Note - The BIOS Boot screen that appears for your installation might differ depending on the type of disk controller and other hardware, such as PCIe network cards, installed in your server.

The Boot Option #1 dialog appears.

- b. Select [SAS:PCIE6:E02S0C-2F0247C9 HITACHI H101860SFSUN60], and press Enter.
[SAS:PCIE6:E02S0C-2F0247C9 H101860SFSUN60] moves to the top position.
- c. Press the F10 key to save the change and exit the BIOS Setup Utility, then proceed to [Step 28](#).

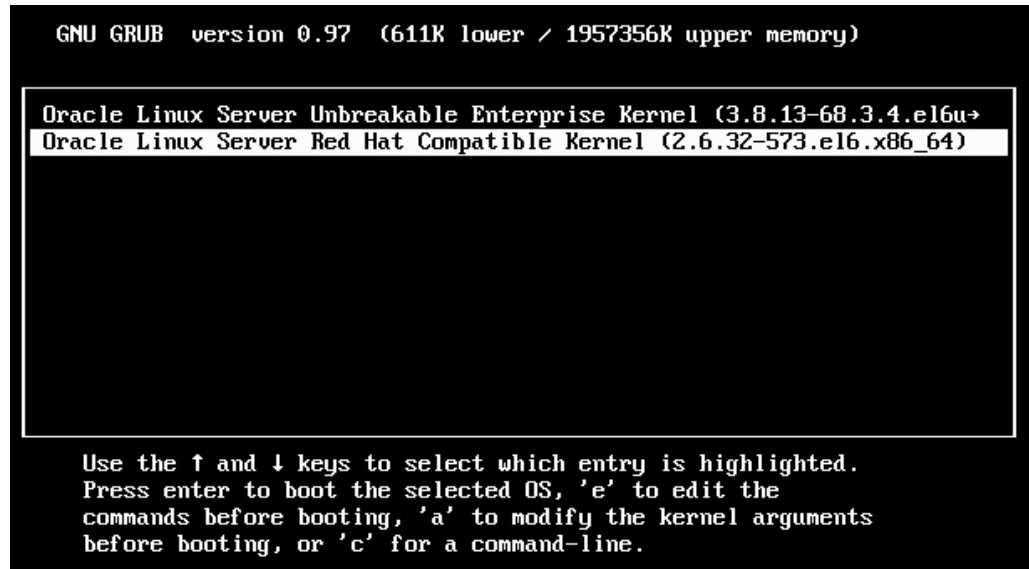
27. If you installed the OS in UEFI Boot Mode, perform these steps:
- In the BIOS Setup Utility screen shown below, verify that the boot entry name you created (in this case, [Oracle Linux]) is listed as the first option under UEFI Boot Option Priority field.



Note - The BIOS Boot screen that appears for your installation might differ depending on the type of disk controller and other hardware, such as PCIe network cards, installed in your server.

- Press the F10 key to exit the BIOS Setup Utility.
28. At first reboot after installing Oracle Enterprise Linux 6.7, press any key to enter the menu.

The GNU GRUB screen appears.



29. Choose Oracle Linux Server Red Hat Compatible Kernel (2.6.32-573.el6.x86_64)
30. Log in to Linux and make sure the Linux internet connection is active.
31. Confirm that the UEK entry appears in the `/etc/yum.repos.d/local.repo`

```
[UEK4]
name=UEK4
baseurl=http://public-yum.oracle.com/repo/OracleLinux/OL6/UEKR4/x86_64
enabled=1
gpgcheck=1
```

32. Run `yum update kernel-uek` or `yum update`

The update screen appears:

```
[root@hsgsh-dhcp-95-47 ~]# yum update kernel-uek
Loaded plugins: security, ulninfo
Setting up update process
UEK4
UEK4/primary
localrepo
Resolving Dependencies
--> Running transaction check
--> Package kernel-uek.x86_64 0:4.1.12-32.el6uek will be installed
--> Processing Dependency: kernel-firmware = 4.1.12-32.el6uek for package: kernel-uek-4.1.12-32.el6uek.x86_64
--> Processing Dependency: linux-firmware >= 20140911-0.1.git365e80c.0.7 for package: kernel-uek-4.1.12-32.el6uek.x86_64
--> Running transaction check
--> Package kernel-firmware.noarch 0:2.6.32-573.el6 will be obsoleted
--> Package kernel-uek-firmware.noarch 0:4.1.12-32.el6uek will be installed
--> Package linux-firmware.noarch 0:20140911-0.1.git365e80c.0.7.el6 will be obsoleting
--> Package ql2100-firmware.noarch 0:1.19.38-3.1.el6 will be obsoleted
--> Package ql2200-firmware.noarch 0:2.02.08-3.1.el6 will be obsoleted
--> Package ql23xx-firmware.noarch 0:3.03.27-3.1.el6 will be obsoleted
--> Package ql2400-firmware.noarch 0:7.04.00-1.0.1.el6 will be obsoleted
--> Package ql2500-firmware.noarch 0:7.05.00-1.0.1.el6 will be obsoleted
--> Package rt61pci-firmware.noarch 0:1.2-7.el6 will be obsoleted
--> Package rt73usb-firmware.noarch 0:1.8-7.el6 will be obsoleted
--> Finished Dependency Resolution
Dependencies Resolved

Package Arch Version Repository Size
-----
Installing:
kernel-uek x86_64 4.1.12-32.el6uek UEK4 50 M
linux-firmware noarch 20140911-0.1.git365e80c.0.7.el6 UEK4 19 M
replacing kernel-firmware.noarch 2.6.32-573.el6
replacing ql2100-firmware.noarch 1.19.38-3.1.el6
replacing ql2200-firmware.noarch 2.02.08-3.1.el6
replacing ql23xx-firmware.noarch 3.03.27-3.1.el6
replacing ql2400-firmware.noarch 7.04.00-1.0.1.el6
replacing ql2500-firmware.noarch 7.05.00-1.0.1.el6
replacing rt61pci-firmware.noarch 1.2-7.el6
replacing rt73usb-firmware.noarch 1.8-7.el6
Installing for dependencies:
kernel-uek-firmware noarch 4.1.12-32.el6uek UEK4 1.8 M

Transaction Summary
-----
Install 3 Package(s)
Total download size: 72 M
Is this ok [y/N]:
```

33. When the update is complete, reboot the server with the `reboot` command.

The server starts a new Oracle Unbreakable Enterprise Kernel.

▼ Install Oracle Linux 7.2 OS Using Local or Remote Media

This procedure describes how to install the Oracle Linux OS 7.2 from local or remote media. The procedure assumes that you are booting the Oracle Linux installation media from one of the following sources:

- Oracle Linux 7.2 DVD set (internal or external DVD)
- Oracle Linux 7.2 ISO DVD image (network repository)

If you are booting the installation media from a PXE environment, see [“Install Oracle Linux 6.7 and 7.2 OS Using PXE Network Boot” on page 57](#) for instructions.

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

- **For Distribution DVD**, insert the Oracle Linux 7.2 OS distribution media boot disc (DVD) into the local or remote DVD drive.

- **For ISO image**, ensure that the Oracle Linux 7.2 OS ISO image is available and that the ISO image has been mounted in the Oracle ILOM Remote System Console Plus application using the KVMS menu.

For additional information about how to set up the installation media, see [“Selecting the Boot Media Option” on page 22](#).

2. Reset or power on the server.

For example, to reset the server, do one of the following:

- **From the local server**, press the Power button on the front panel of the server (for approximately 1 second) to power off the server, then press the Power button again to power on the server.
- **From the Oracle ILOM web interface**, click Host Management → Power Control, select Reset from the Select Action list box, then click Save.
- **From the Oracle ILOM CLI**, type: `reset /System`

The server begins the boot process and the BIOS screen appears.

Note - The next event occurs very quickly; be ready to press the F8 key. Watch carefully for messages as they appear on the screen for a brief time. You might want to enlarge the size of your screen to eliminate scroll bars.

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

[Boot Pop Up Menu Selected] appears at the bottom of the BIOS screen, and then the Please Select Boot Device menu appears. The screen that appears differs depending on whether you have the UEFI/BIOS Boot Mode configured for Legacy BIOS or UEFI.

Note - The Please Select Boot Device menu that appears in your installation might differ depending on the type of disk controller and other hardware, such as PCIe network cards, installed in your server.

4. In the Please Select Boot Device menu, select the menu item according to the Linux OS media installation method and the BIOS mode you elected to use, then press Enter.

For example:

- **If you used the Oracle ILOM Remote System Console Plus application delivery method in Legacy BIOS Boot Mode**, select `USB:VIRTUAL:Remote Iso CDR0M2.04` from the Legacy BIOS screen.

- **If you used the Oracle ILOM Remote System Console Plus application delivery method in UEFI Boot Mode, select [UEFI]USB:VIRTUAL:Remote Iso CDR0M2.05 from the UEFI screen.**
5. **The next screen displayed by the installation program depends on whether you selected the Legacy BIOS Boot Mode or the UEFI Boot Mode.**
 - If you selected Legacy BIOS Boot Mode, the Welcome to Oracle Linux Server boot screen appears.
 - If you selected UEFI Boot Mode, the Booting Oracle Linux Server boot screen appears.
 6. **For the purposes of this installation, do one of the following:**
 - If you elected to do the installation in the Legacy BIOS Boot Mode, accept the default and press Enter.
 - If you elected to do the installation in the UEFI Boot Mode, press Enter or allow the screen to timeout.

The Disc Found screen appears. From this screen, you can choose whether to test the media before doing the install.

7. **If this is the first time that you are doing an install from this media, consider selecting OK to test the media; otherwise, select skip and press Enter.**

The Oracle Linux 7 splash screen appears.

8. **Proceed with Oracle Linux 7 OS installation and setup instructions, which are included within the Oracle Linux 7 Product Documentation Library at: http://docs.oracle.com/cd/E52668_01/index.html.**

Note - Oracle Linux 7 contains new features and functionality that produces behavior and results that vary from Oracle Linux 6. Please proceed carefully with your installation.

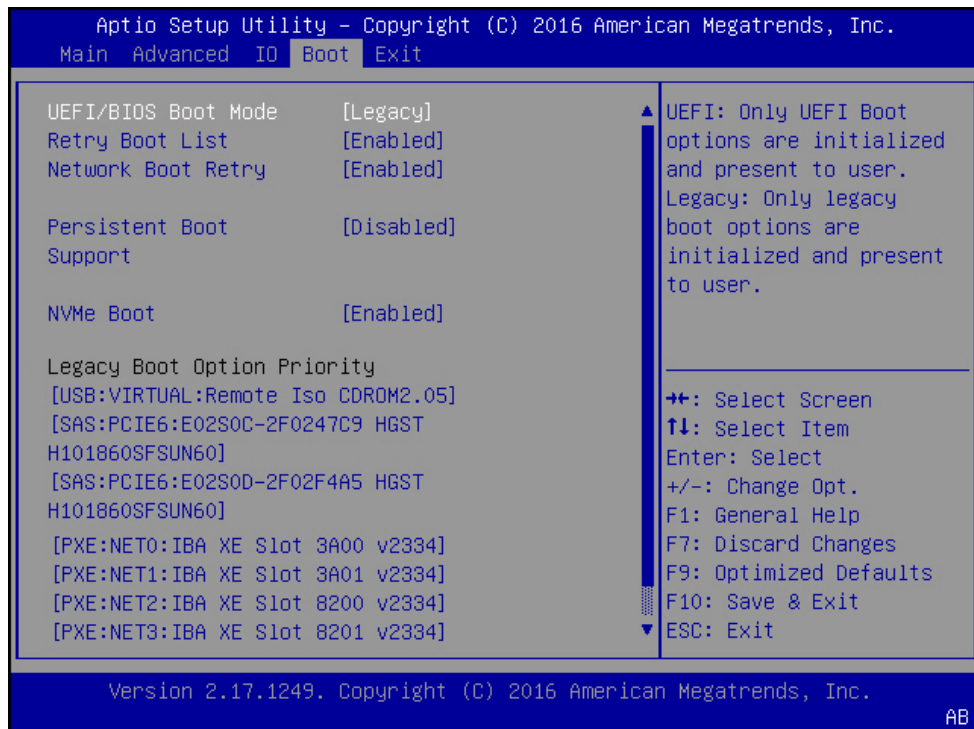
When the installation is complete, the server reboots and the BIOS screen appears.

9. **To access the BIOS Setup Utility so that you can set the server to boot from the operating system you just installed, press the F2 key.**

The BIOS Setup Utility screen appears with the Boot Menu selected. The BIOS screen displayed and the actions required to proceed with installation depend on the UEFI/BIOS Boot Mode you selected for installing the OS.

- If you installed the OS in Legacy BIOS Boot Mode, proceed to [Step 10](#).
- If you installed the OS in UEFI Boot Mode, proceed to [Step 11](#).

10. If you installed the OS in Legacy BIOS Boot Mode, perform these steps and proceed to [Step 12](#).
- a. In the BIOS Setup Utility screen shown below, use the down arrow key to select [USB:VIRTUAL:Remote Iso CDR0M2.05] under the Legacy Boot Option Priority field, and press Enter.



Note - The BIOS Boot screen that appears for your installation might differ depending on the type of disk controller and other hardware, such as PCIe network cards, installed in your server.

The Boot Option #1 dialog appears.

- b. Select [SAS:PCIE4:E01S06-43BB92B5 HITACHI H109030SESUN30], and press Enter.
- [SAS:PCIE4:E01S06-43BB92B5 HITACHI H109030SESUN30] moves to the top position.

- c. Press the F10 key to save the change and exit the BIOS Setup Utility, then proceed to [Step 12](#).

11. If you installed the OS in UEFI Boot Mode, perform these steps:

- a. In the BIOS Setup Utility screen, verify that the correct first option appears in the UEFI Boot Option Priority field.

Note - The BIOS Boot screen that appears for your installation might differ depending on the type of disk controller and other hardware, such as PCIe network cards, installed in your server.

- b. Press the F10 key to exit the BIOS Setup Utility.

12. Wait while the reboot continues.

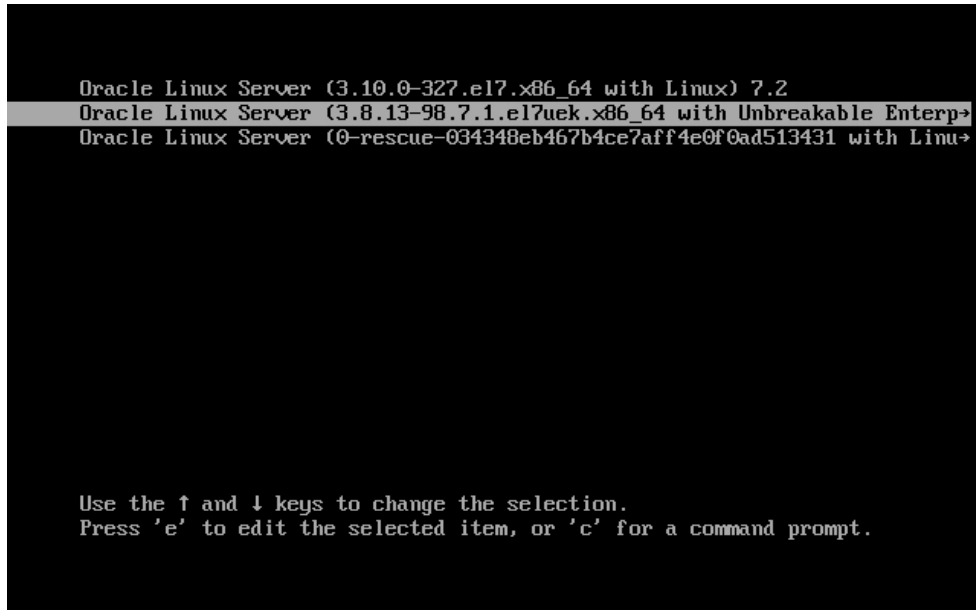
The following kernel screens appears.

```
Press any key to enter the menu
Booting Oracle Linux Server Unbreakable Enterprise Kernel (3.8.13-98.7.1.el6uek.x86_64)
in 2 seconds...
```

The Oracle Unbreakable Enterprise Kernel Release 3 for Linux is the default kernel.

13. If you do *not* want to change the default kernel, proceed to [Step 15](#); otherwise, proceed to [Step 14](#).
14. (Optional) If you are installing Oracle Linux 7 and you want to switch to the Red Hat compatible kernel, do the following:
 - a. Press any character key.

The GNU GRUB screen appears.



- b. For the Red Hat compatible kernel, select the second menu option, then press Enter.
15. After completing the Oracle Linux installation and rebooting the server with the desired Linux kernel, proceed to [“Post Installation Tasks for RHEL 6.7 or 7.2 OS” on page 71.](#)

▼ Install Oracle Linux 6.7 and 7.2 OS Using PXE Network Boot

This procedure describes how to boot Oracle Linux 6.7 and 7.2 OS from a PXE network environment. It assumes that you are booting the install media from a 6.7 or 7.2 KickStart image (network repository).

KickStart is an automated installation tool. It enables a system administrator to create a single image containing the settings for some or all installation and configuration parameters that are

normally provided during a typical Oracle Linux installation. Typically, a KickStart image is placed on a single network server and read by multiple systems for installation.

Before You Begin Ensure that the following requirements are met prior to performing the Oracle Linux PXE installation:

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

For more information on KickStart and PXE network installation on Oracle Linux 6, refer to the *Oracle Linux Installation Guide* at: http://docs.oracle.com/cd/E37670_01/index.html

For more information on KickStart and PXE network installation on Oracle Linux 7, refer to the *Oracle Linux 7 Installation Guide* at: http://docs.oracle.com/cd/E52668_01/E54695/html/index.html

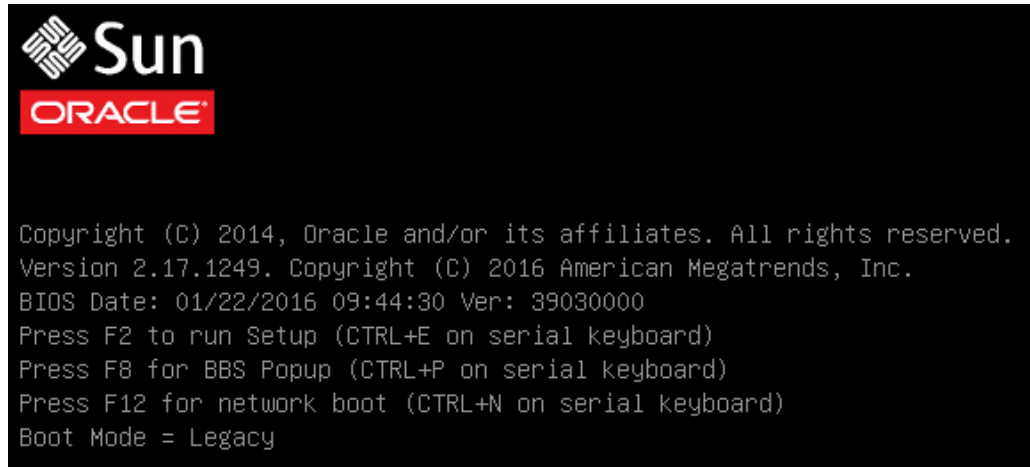
1. **Ensure that the PXE network environment is set up properly and the Oracle Linux installation media is available for PXE boot.**
2. **Reset or power on the server.**

For example, to reset the server, do one of the following:

- **From the local server**, press the Power button on the front panel of the server (for approximately 1 second) to turn the server off, then press the Power button again to power on the server.
- **From the Oracle ILOM web interface**, click Host Management → Power Control, select Reset from the Select Action list box, then click Save.
- **From the Oracle ILOM CLI**, type: `reset /System`

The server begins the boot process and the BIOS screen appears.

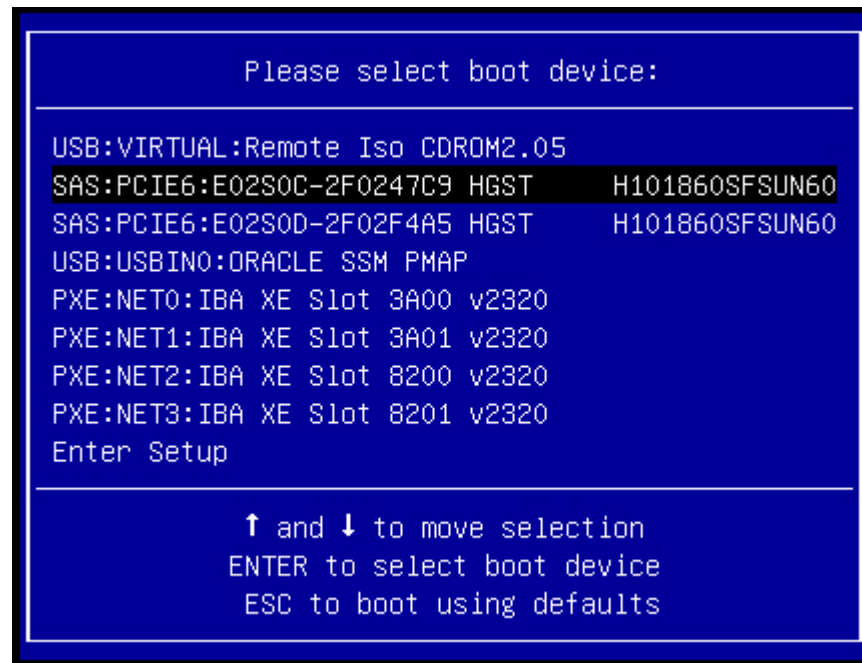
Note - The next event occurs very quickly; therefore, be ready to press the F8 key. Watch carefully for messages as they appear on the screen for a brief time. You might want to enlarge the size of your screen to eliminate scroll bars.



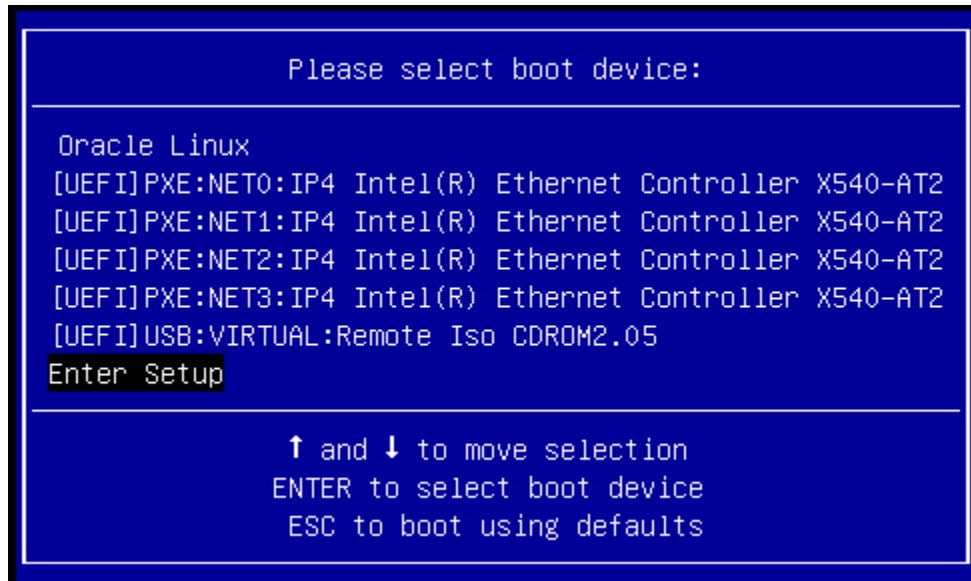
3. In the BIOS screen, press the F8 key to specify a temporary boot device for the Linux OS installation.

[Boot Pop Up Menu Selected] appears at the bottom of the BIOS screen, and then the Please Select Boot Device menu appears. The screen that appears differs depending on whether you have the UEFI/BIOS Boot Mode configured for Legacy BIOS or UEFI.

- For Legacy BIOS Boot Mode, the following screen appears:



- For UEFI Boot Mode, the following screen appears:



Note - The Please Select Boot Device menu that appears in your installation might differ depending on the type of disk controller and other hardware, such as PCIe network cards, installed in your server.

4. **In the Please Select Boot Device menu, select the PXE install boot device (physical network port) that is configured to communicate with your PXE network install server, then press Enter.**
The network bootloader loads and starts to execute.
5. **From this point on, the installation procedure is site specific as determined by the site KickStart file.**

Post Installation Tasks for Oracle Linux 6.7 or 7.2 OS

After installing Oracle Linux 6.7 and 7.2 OS, you should register your system and activate your subscription with Oracle to receive automatic updates to the software. This will ensure that the server is running the latest version of the operating system. For instructions, go to:

<http://www.oracle.com/technetwork/articles/servers-storage-admin/yum-repo-setup-1659167.html>

After you have updated your server with the latest updates, be sure to reboot your server before you use the operating system. In addition to ensuring that your server has the latest improvements to the Oracle Linux operating system, updating your server to the latest updates will ensure that it is running the latest version of the Unbreakable Enterprise Kernel (UEK) for Linux, which is needed for the proper operation of the optional NVMe storage drives, if installed.

Installing Red Hat Enterprise Linux OS on a Single System Manually

This section provides instructions for installing Red Hat Enterprise Linux (RHEL) 6.5, 6.6, or 7 OS for x86 (64-bit) and the Oracle Unbreakable Enterprise Kernel for Linux.

The following topics are covered:

- [“RHEL 6.7 and 7.2 OS Installation Task Map” on page 62](#)
- [“Before You Begin” on page 63](#)
- [“Install RHEL 6.7 and 7.2 OS Using Local or Remote Media” on page 64](#)
- [“Install RHEL 6.7 or 7.2 OS Using PXE Network Boot” on page 68](#)
- [“Post Installation Tasks for RHEL 6.7 or 7.2 OS” on page 71](#)

RHEL 6.7 and 7.2 OS Installation Task Map

The following table lists and describes the high-level steps for installing the Red Hat Enterprise Linux (RHEL) operating system.

Step	Description	Links
1.	Install your server hardware.	■ “Installing the Server Into a Rack” in <i>Oracle Server X6-2L Installation Guide</i> ■ “Cabling the Server and Applying Power” in <i>Oracle Server X6-2L Installation Guide</i>
2.	Configure the Oracle ILOM service processor.	■ “Connecting to Oracle ILOM” in <i>Oracle Server X6-2L Installation Guide</i>
3.	Review the Linux versions supported by the server.	“Supported Linux Operating Systems” on page 10
4.	Obtain the RHEL installation media.	Go to: https://access.redhat.com/certifications

Step	Description	Links
5.	Review the product notes.	<i>Oracle Server X6-2L Product Notes</i> at: http://www.oracle.com/goto/x6-2l/docs
6.	Set up the console, the RHEL media, and the installation target that you will use to perform the installation.	<ul style="list-style-type: none"> ■ “Selecting the Console Display Option” on page 13 ■ “Selecting the Boot Media Option” on page 22 ■ “Selecting the Installation Target” on page 26
7.	Set BIOS settings for new OS installations.	“Preparing the Boot Environment” on page 16
8.	Install the RHEL OS.	<ul style="list-style-type: none"> ■ “Install RHEL 6.7 and 7.2 OS Using Local or Remote Media” on page 64 ■ “Install RHEL 6.7 or 7.2 OS Using PXE Network Boot” on page 68
9.	Perform the post installation tasks.	“Post Installation Tasks for RHEL 6.7 or 7.2 OS” on page 71

Before You Begin

Ensure that the following requirements are met:

- If you want to configure the boot drive (that is, the storage drive onto which you are installing the OS) for RAID, you must do so before you install the Linux OS. Refer to [“Configuring Storage Drives for Operating System Installation” in *Oracle Server X6-2L Installation Guide*](#).

Note - The system does not recognize a drive unless it has been incorporated into a volume by the HBA. Therefore, the volume that the OS will be installed on must be set as the bootable volume prior to installing the OS.

- You have access to the host console display. For more information about this option and setup instructions, see [“Selecting the Console Display Option” on page 13](#).
- You have prepared the boot environment. For more information, see [“Preparing the Boot Environment” on page 16](#).
- You have verified that the UEFI firmware settings are set correctly. For instructions, see [“Verify the UEFI Optimal Defaults” on page 17](#).
- You have set the firmware to the desired boot mode, Legacy BIOS or UEFI. For instructions, see [“Set the Boot Mode ” on page 20](#).
- You have prepared the boot media. For more information, see [“Selecting the Boot Media Option” on page 22](#).
- You have selected the installation target option and ensured that it is properly installed. For more information, see [“Selecting the Installation Target” on page 26](#).

▼ Install RHEL 6.7 and 7.2 OS Using Local or Remote Media

This procedure describes how to boot the Red Hat Enterprise Linux (RHEL) 6.7 or 7.2 operating system installation from local or remote media. The procedure assumes that you are booting the RHEL installation media from one of the following sources:

- RHEL 6.7 or 7.2 DVD set (internal or external DVD)
- RHEL 6.7 or 7.2 ISO DVD image

If you are booting the installation media from a PXE environment, refer to “[Install RHEL 6.7 or 7.2 OS Using PXE Network Boot](#)” on page 68 for instructions.

For further details about installing a RHEL OS, see the RHEL documentation collection at <https://access.redhat.com/documentation/en/>.

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

- **For Distribution DVD**, insert the Red Hat 6.7 or 7.2 distribution media boot disc into the local or remote USB DVDdrive.
- **For ISO image**, ensure that the Red Hat 6.5, 6.6, or 7 ISO image is available and that the ISO image has been mounted in the Oracle ILOM Remote System Console Plus application using the KVMS menu.

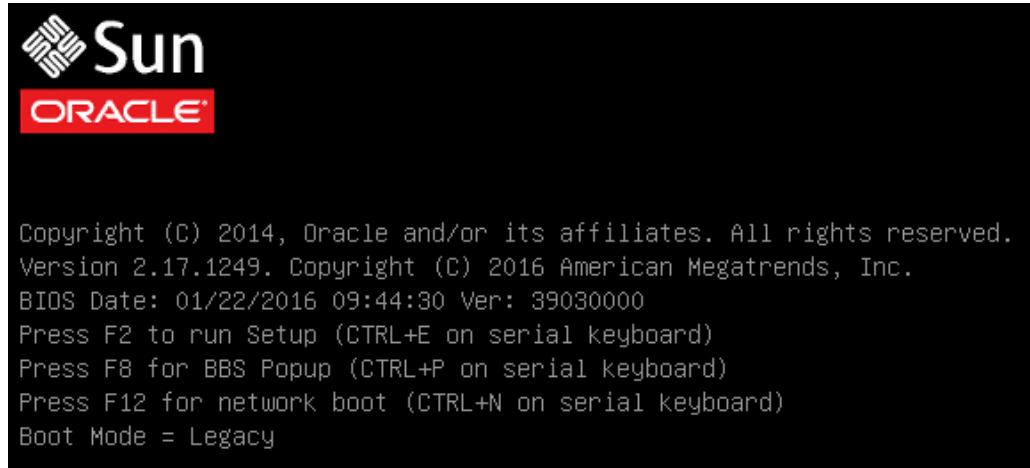
For additional information about how to set up the installation media, see “[Selecting the Boot Media Option](#)” on page 22.

2. Reset or power on the server.

For example, to reset the server, do one of the following:

- **From the local server**, press the Power button on the front panel of the server (for approximately 1 second) to turn the server off, then press the Power button again to power on the server.
- **From the Oracle ILOM web interface**, click Host Management → Power Control, select Reset from the Select Action list box, then click Save.
- **From the Oracle ILOM CLI**, type: `reset /System`

The server begins the boot process and the BIOS screen appears.

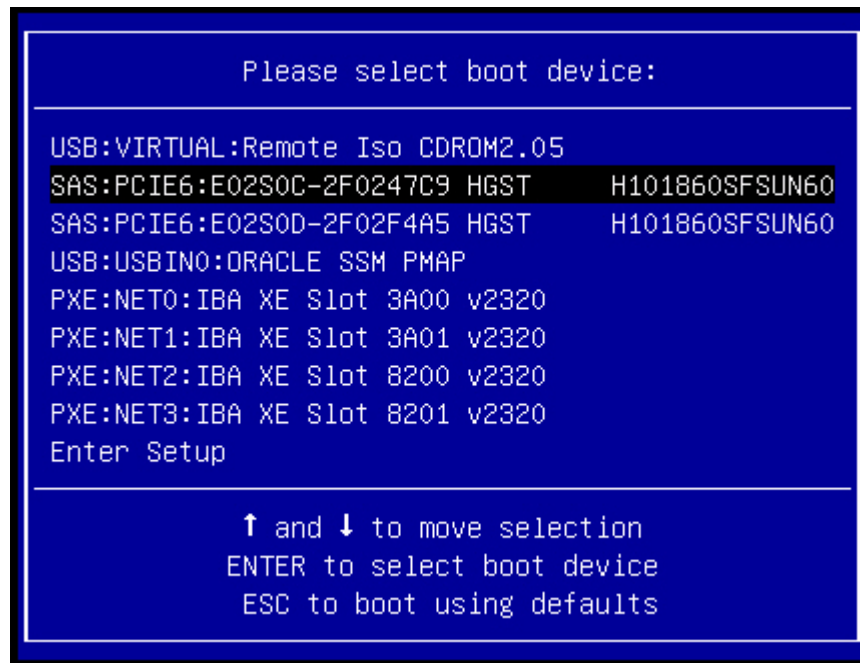


Note - The next event occurs very quickly; therefore, be ready to press the F8 key. Watch carefully for messages as they appear on the screen for a brief time. You might want to enlarge the size of your screen to eliminate scroll bars.

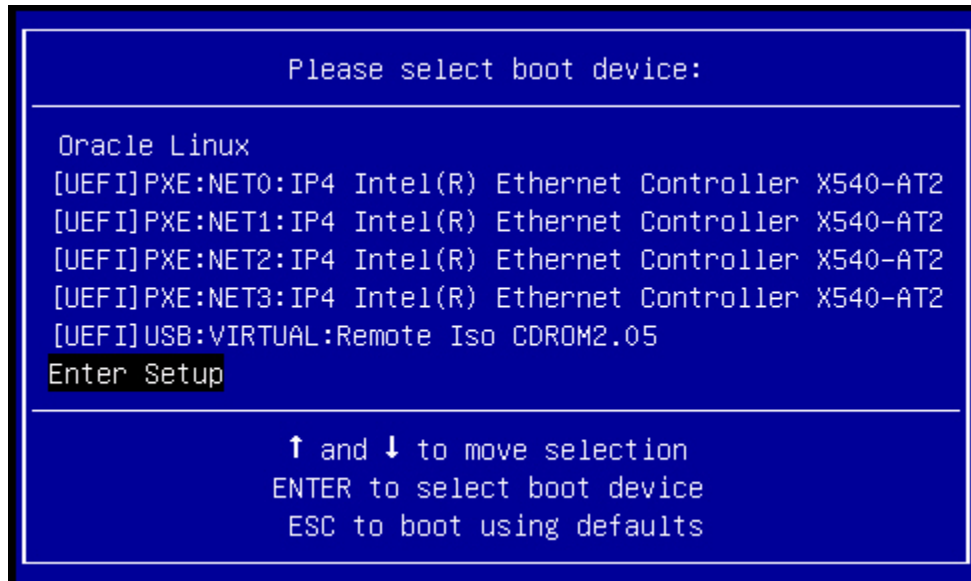
3. In the BIOS screen, press the F8 key to specify a temporary boot device for the RHEL installation.

[Boot Pop Up Menu Selected] appears at the bottom of the BIOS screen, and then the Please Select Boot Device menu appears. The screen that appears will differ depending on whether you have the UEFI/BIOS Boot Mode configured for Legacy BIOS or UEFI.

- For Legacy BIOS Boot Mode, a screen similar to the following appears:



- For UEFI Boot Mode, a screen similar to the following appears:



Note - The Please Select Boot Device menu that appears in your installation might differ depending on the type of disk controller and other hardware, such as PCIe network cards, installed in your server.

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

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

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

Alternately, for text mode, enter the following command:

```
boot: linux text
```

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

For detailed installation instructions, see the Red Hat Enterprise Linux Installation Guides at:

<https://access.redhat.com/documentation/en/>

7. **After completing the basic Red Hat installation setup, perform the post installation tasks listed in “[Post Installation Tasks for RHEL 6.7 or 7.2 OS](#)” on page 71.**

▼ **Install RHEL 6.7 or 7.2 OS Using PXE Network Boot**

This procedure describes how to boot the Red Hat Enterprise Linux (RHEL) 6.7 or 7.2 from a PXE network environment. It assumes that you are booting the install media from RHEL 6.7 or 7.2 KickStart image (network repository).

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

Ensure that the following requirements are met prior to performing the RHEL PXE installation:

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

Follow the PXE network installation instructions in the Red Hat Enterprise Linux Administration Guides at:

<https://access.redhat.com/documentation/en/>

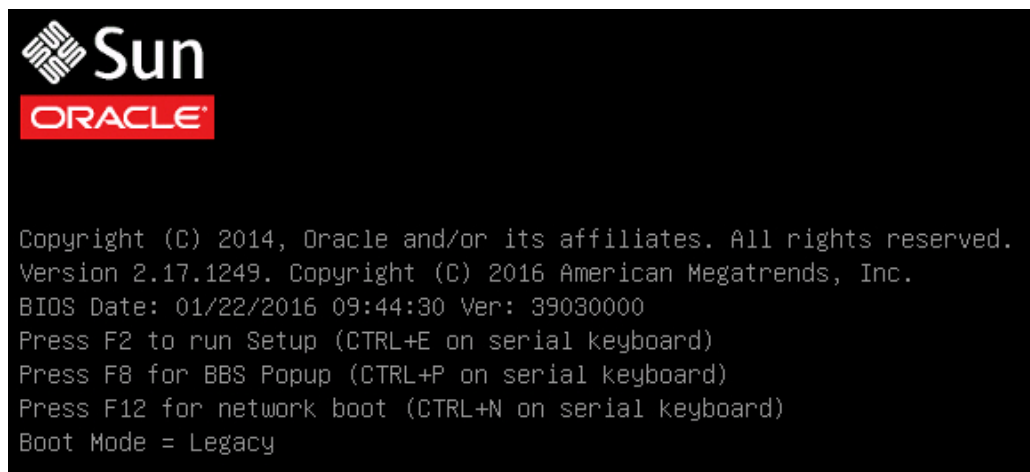
Before You Begin

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

For example, to reset the server do one of the following:

- **From the local server**, press the Power button on the front panel of the server (for approximately 1 second) to turn the server off, then press the Power button again to power on the server.
- **From the Oracle ILOM web interface**, click Host Management → Power Control, select Reset from the Select Action list box, then click Save.
- **From the Oracle ILOM CLI**, type: `reset /System`

The server begins the boot process and the BIOS screen appears.

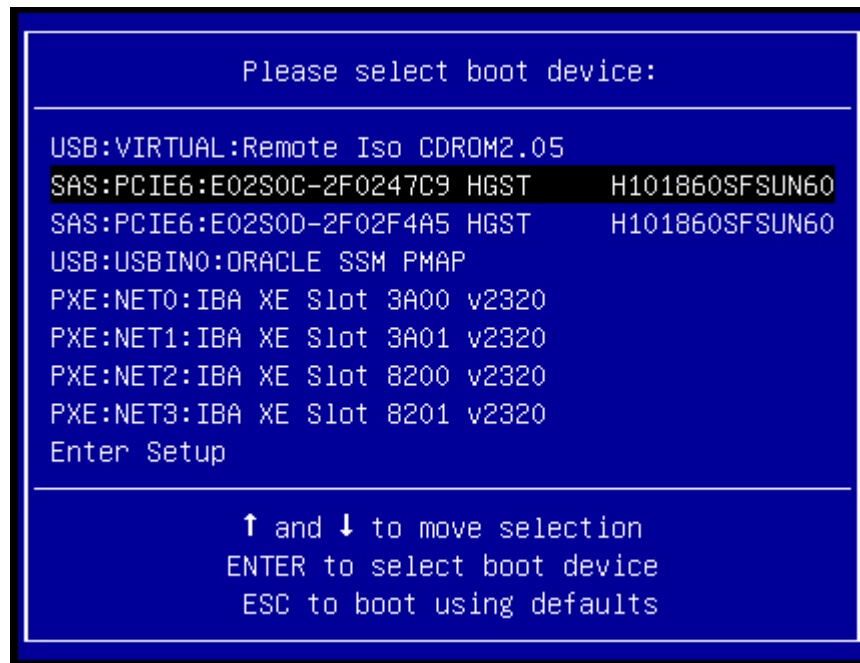


Note - The next event occurs very quickly; therefore, be ready to press the F8 key. Watch carefully for messages as they appear on the screen for a brief time. You might want to enlarge the size of your screen to eliminate scroll bars.

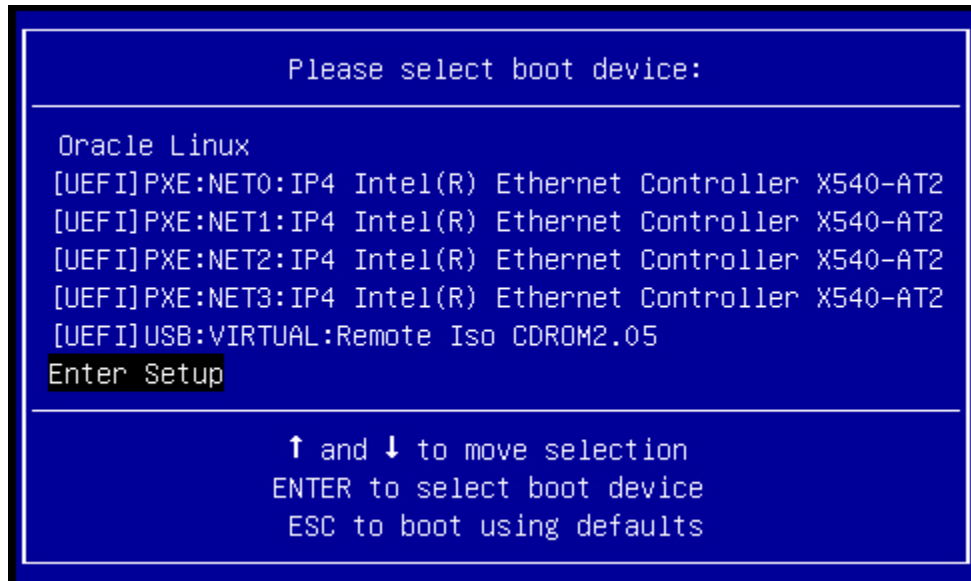
3. In the BIOS screen, press the F8 key to specify a temporary boot device for the RHEL installation.

[Boot Pop Up Menu Selected] appears at the bottom of the BIOS screen, and then the Please Select Boot Device menu appears. The screen that appears will differ depending on whether you have the UEFI/BIOS Boot Mode configured for Legacy BIOS or UEFI.

- For Legacy BIOS Boot Mode, a screen similar to the following appears:



- For UEFI Boot Mode, a screen similar to the following appears:



Note - The Please Select Boot Device menu that appears in your installation might differ depending on the type of disk controller and other hardware, such as PCIe network cards, installed in your server.

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

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

5. **From this point on, the installation procedure is site specific as determined by the site KickStart file.**

Post Installation Tasks for RHEL 6.7 or 7.2 OS

After completing the Red Hat Enterprise Linux (RHEL) 6.7 or 7.2 installation, you should review the following post installation tasks and perform the tasks that are applicable to your system.

- “Register RHEL and Activate Automatic Updates” on page 72
- “Download and Install OS Updates” on page 72
- “(Optional) Install Oracle Unbreakable Enterprise Kernel for Linux on RHEL OS” on page 72

Register RHEL and Activate Automatic Updates

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

<http://www.redhat.com/en/services/support>

Download and Install OS Updates

If required, download and install the latest errata and bug fixes for the RHEL OS. Refer to the Red Hat documentation for more details:

https://access.redhat.com/search/#/documentation?q=&documentation_product=&language=en

(Optional) Install Oracle Unbreakable Enterprise Kernel for Linux on RHEL OS

After you have installed the Red Hat Enterprise Linux 6.7 or 7.2, you have the option of installing and using the Oracle Unbreakable Enterprise Kernel Release 4 for Linux. For instructions for installing Oracle Unbreakable Enterprise Kernel Release 4 for Linux, go to:

<https://oss.oracle.com/ol6/docs/RELEASE-NOTES-UEK3-en.html>

Configuring Network Interfaces

This section contains information about:

- [“NIC Connectors” on page 73](#)

NIC Connectors

The network interface card (NIC) connectors are labeled physically on the server as follows.

TABLE 1 Intel NIC Connector Label

Intel NIC Connector Label	Interface Type (Oracle Linux 6.7 and Red Hat Enterprise Linux 6.7)	Interface Type (Oracle Linux 7.2 and Red Hat Enterprise Linux 7.2)
net0	First interface (eth0)	First interface (eno0)
net1	Second interface (eth1)	Second interface (eno1)
net2	Third interface (eth2)	Third interface (eno2)
net3	Fourth interface (eth3)	Fourth interface (eno3)

Note - NET 2 and NET 3 are nonfunctional in single-processor systems.

Index

B

- BIOS
 - editing and viewing settings, 17
- BIOS Setup Utility, 17
- boot device
 - temporary, 31
- boot disc image
 - Oracle Linux OS, 30
 - Oracle Linux OS 7.2, 52
- boot disk image
 - RHEL OS, 64
- boot media options, 22
 - local boot media requirements, 22
 - remote boot media requirements, 23
- Boot menu
 - selections, 48

C

- configuration
 - network interfaces, 73
 - RAID, 28
- console display
 - connecting, 14
 - local, 14
 - remote, 15
 - selecting display options, 14

D

- documentation
 - for Oracle Linux, 54

- for Oracle X6 Series Servers Administration Guide, 16
- for Red Hat Enterprise Linux, 68

H

- Hardware Compatibility List (HCL), 10

I

- install boot media, 22
- installation
 - using media
 - Linux OS, 12
- installation methods
 - boot media options, 22
 - local, 12, 22
 - remote, 23
 - remote server, 12
 - single server, 12
- installation options, 11
- installation target
 - Fibre Channel Storage Area Network (SAN) device, 28
 - local storage drive, 27
 - options, 27
 - selecting, 26
- installation task map
 - Oracle Linux OS, 9
 - RHEL OS, 62
- installation using KickStart
 - RHEL OS, 57, 68
- installation using local or remote media

- Oracle Linux OS, 30
- Oracle Linux OS 7.2, 52
- installing operating system
 - overview, 9
 - supported operating systems, 10
- ISO images
 - Oracle Linux OS, 30, 53
 - RHEL OS, 64

K

- KickStart
 - RHEL OS, 68

L

- local boot media
 - requirements, 22
 - setting up, 23
- local console
 - setting up, 14
- local installation
 - setting boot media, 22

M

- My Oracle Support, 12

N

- network interface
 - labeling, 73

O

- operating system updating
 - Oracle Linux OS, 61
- Oracle Linux 6.7 OS
 - local or remote media installation, 30
- Oracle Linux OS
 - reset power on server, 58

- Oracle Linux OS 6.7
 - ISO images, 30
- Oracle Linux OS 7.2
 - ISO images, 53
 - local or remote media installation, 52
 - reset power on server, 53
- Oracle Linux OS installation
 - task map, 9
- overview of operating system installation, 9

P

- post installation tasks
 - download and install updates
 - RHEL OS, 72
 - installing Oracle Unbreakable Enterprise kernel
 - Oracle Linux OS, 61
 - RHEL OS, 72
 - operating system updating
 - RHEL OS, 71
 - Oracle Linux OS, 61
 - product registration
 - Oracle Linux OS, 61
 - RHEL OS, 72
 - RHEL OS, 71
 - updating operating system
 - Oracle Linux OS, 61
- power on server, 31
- PXE network boot
 - Oracle Linux OS, 57
 - RHEL OS, 57, 68
- PXE network installation
 - RHEL OS, 68

R

- RAID
 - configuring, 28
- RAID volume, as installation target, 27
- Red Hat Enterprise Linux (RHEL) OS
 - installation task map, 62
 - ISO image, 64
 - ISO images, 64

- powering on server, 64, 68
- remote boot media
 - requirements, 23
 - setting up, 24
- remote console
 - setting up, 15
- reset server, 31

S

- server
 - resetting power, 31
- supported operating systems, 10, 10

T

- task map
 - Oracle Linux, 9
 - RHEL OS, 62
- temporary boot device
 - Oracle Linux OS, 31, 53, 59
 - RHEL OS, 65, 69

U

- UEFI
 - prerequisites, 17
 - setting the Boot Mode, 16
 - setting the boot mode, 20
 - verifying optimal default settings, 17

