

Oracle® Server X5-8 Installation Guide for Oracle Solaris Operating System



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Using This Documentation

- **Overview** – This installation guide contains procedures for installing and configuring the Oracle Solaris operating system on your Oracle Server X5-8.
- **Audience** – Technicians, system administrators, authorized service providers, and users.
- **Required knowledge** – Experience installing operating systems.

This section describes how to get the latest firmware, software, and documentation for the Oracle Server X5-8. It also provides feedback links and a document change history.

- [“Oracle Server X5-8 Model Naming Convention” on page 7](#)
- [“Getting the Latest Firmware and Software” on page 7](#)
- [“Documentation and Feedback” on page 8](#)
- [“Contributors” on page 8](#)
- [“Change History” on page 8](#)

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

Oracle Server X5-8 Model Naming Convention

The Oracle Server X5-8 name identifies the following:

- X identifies an x86 product.
- The first number, 5, identifies the generation of the server.
- The second number, 8, identifies the maximum number of processors.

Getting the Latest Firmware and Software

Firmware, drivers, and other hardware-related software for each Oracle x86 server are updated periodically.

You can obtain the latest version in the following ways:

- Oracle System Assistant: This is a factory-installed option for Oracle x86 servers. It has all the tools and drivers you need and resides on a USB drive installed in most servers.
- You can download updates from My Oracle Support: <https://support.oracle.com>

Documentation and Feedback

Documentation	Link
All Oracle products	https://docs.oracle.com
Oracle Server X5-8	http://www.oracle.com/goto/X5-8/docs-videos
Oracle Integrated Lights Out Manager (ILOM). Refer to the Oracle ILOM documentation.	http://www.oracle.com/goto/ILOM/docs
Oracle Hardware Management Pack. Refer to the documentation for your supported version of Oracle Hardware Management Pack as listed in the <i>Product Notes</i> .	http://www.oracle.com/goto/ohmp/docs

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

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Change History

The following lists the release history of this documentation set:

- November 2015. Updates for Oracle Solaris 11.3.
- July 2015. Initial publication.

About Oracle Solaris Operating System Installs

This section contains an overview of the process to install a new Oracle Solaris operating system (OS) on your Oracle Server X5-8.

Note - If the Oracle Solaris OS factory option is preinstalled on your server, but you do not want to use it, you can install any other supported operating system or virtual machine software on your server.

If the Oracle Solaris OS was preinstalled, it was installed with the server UEFI/BIOS Boot Mode set to Legacy. If you choose to boot the server with the UEFI/BIOS Boot Mode set to UEFI, the preinstalled image will not be accessible. If you want to use the Oracle Solaris OS with the UEFI/BIOS Boot Mode set to UEFI, you must perform a fresh installation.

Description	Links
Review the supported Oracle Solaris operating systems.	“Supported Operating Systems” in Oracle Server X5-8 Product Notes “Supported Oracle Solaris Operating Systems” on page 10
Review Oracle Solaris operating system installation steps.	“Oracle Solaris OS Installation Task Map” on page 10
Review console display options and how to set them up.	“Selecting the Console Display Option” on page 11
Review boot media options and how to set them up.	“Selecting the Boot Media Option” on page 13
Review installation target options and how to set them up.	“Selecting the Installation Target Option” on page 17
Review operating system install options.	“Oracle Solaris OS Installation Options” on page 19
Review Oracle System Assistant.	“Oracle System Assistant” in Oracle X5 Series Servers Administration Guide

Related Information

- [“Installing the Oracle Solaris Operating System” on page 29](#)

Supported Oracle Solaris Operating Systems

The Oracle Server X5-8 currently supports the following Oracle Solaris operating systems.

- Oracle Solaris 11.2 with SRU10 or later (required)
- Oracle Solaris 11.3

The Oracle Solaris Hardware Compatibility List (HCL) identifies hardware that is compatible with the Oracle Solaris Operating System. To find the latest Oracle Solaris version supported for your server, go to the following site and search using your server model number:

<http://www.oracle.com/webfolder/technetwork/hcl/index.html>

Related Information

- [“Supported Operating Systems” in Oracle Server X5-8 Product Notes](#)

Oracle Solaris OS Installation Task Map

The following table lists and describes the high-level steps for installing the Oracle Solaris operating system 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">■ “Install the Server into the Rack” in Oracle Server X5-8 Installation Guide■ “Cabling the Server” in Oracle Server X5-8 Installation Guide■ “Connecting to Oracle ILOM” in Oracle Server X5-8 Installation Guide
2.	Review the product notes.	Oracle Server X5-8 Product Notes
	Review the Oracle Solaris versions supported on the server.	“Supported Operating Systems” in Oracle Server X5-8 Product Notes <i>Oracle Server X5-8 Product Notes at:</i> http://www.oracle.com/goto/X5-8/docs-videos “Supported Oracle Solaris Operating Systems” on page 10
3.	Obtain the Oracle Solaris installation software image.	Download an Oracle Solaris ISO or USB image and copy it to a DVD, a network location, or a flash drive. To download the image, go to: http://www.oracle.com/technetwork/server-storage/solaris11/downloads/index.html

Step	Description	Links
4.	Set up the console, the boot 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 11 ■ “Selecting the Boot Media Option” on page 13 ■ “Selecting the Installation Target Option” on page 17
5.	Verify and, if necessary, configure BIOS.	“Preparing the Boot Environment” on page 21
6.	Install the Oracle Solaris OS.	“Installing the Oracle Solaris Operating System” on page 29
7.	Perform the post installation tasks, if applicable.	“Post Installation Tasks for Oracle Solaris” on page 42

Additional Oracle Solaris OS documentation is available at:

<http://www.oracle.com/technetwork/documentation/solaris-11-192991.html>

Related Information

- [“Preparing to Install the Oracle Solaris Operating System” on page 21](#)

Selecting the Console Display Option

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

- [“Console Display Options” on page 11](#)
- [“Set Up the Local Console” on page 12](#)
- [“Set Up the Remote Console” on page 12](#)

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) through the network management port (NET MGT). The server supports two types of local consoles:

- A terminal or terminal emulator connected to the serial management port (SER MGT)
- A VGA monitor, USB keyboard, and USB mouse connected directly to the video port (VGA) and any of the four exterior USB connectors

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)
Use a Secure Shell (SSH) client to connect to the Oracle ILOM command line interface (CLI) to launch a text-based console session.

▼ 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.

Note - The default speed of the serial management port is 9600 baud.

- 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, to establish a connection to the host serial port:

a. Type your Oracle ILOM user name and password.

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

b. At the Oracle ILOM prompt, type:

-> `start /HOST/console`

The serial management port output is automatically routed to the server SP serial 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 SP. For instructions on determining the

server's IP address, refer to [“Connecting to Oracle ILOM” in Oracle Server X5-8 Installation Guide](#).

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

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

b. Log in to the Oracle ILOM web interface.

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

The Oracle ILOM Summary Information page appears.

c. Redirect the video output from the server to the web client by launching the Oracle ILOM Remote System Console Plus application.

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

a. From a shell command line in a terminal window, 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.

b. Log in to Oracle ILOM.

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

c. Redirect the serial output from the server to the SSH client. Type:

`-> start /HOST/console`

Related Information

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

Selecting the Boot Media Option

You can start the server operating system installation by booting from 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 14
- “Set Up the Boot Media for a Local Installation” on page 15
- “Set Up the Boot Media for a Remote Installation” on page 15

Boot Media Options Requirements

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

- “Local Boot Media Requirements” on page 14
- “Remote Boot Media Requirements” on page 14

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.

Remote Boot Media Requirements

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

Supported OS remote boot media sources can include:

- An ISO image installed in a remote DVD drive, or a USB image installed in a flash drive
- An ISO image available in a location on the network that is setup for virtual redirection
- An ISO 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.

- PXE boot – Oracle Solaris 11 supports PXE boots. Once the PXE boot has been initiated, the Oracle Solaris 11 installation is accomplished using the Automated Installation (AI)

installer. For instructions for performing PXE network installations for the supported Oracle Solaris operating system, see [“Install Oracle Solaris Using PXE Network Boot” on page 38](#).

▼ 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 Oracle Solaris OS installation image into the server using one of the following options.

1. **Insert an external USB DVD drive into a server external USB port, and then insert a DVD containing the installation ISO image into the DVD drive.**

Note - For information about the location of the server's external USB ports, refer to [“Server Features and Components” in Oracle Server X5-8 Installation Guide](#).

2. **Insert an external USB flash drive that contains the Oracle Solaris installation USB image into a server external USB port.**

▼ Set Up the Boot Media for a Remote Installation

To install the OS from a remote location using the Oracle ILOM Remote System Console Plus application, perform these steps.

1. **Mount or present the Oracle Solaris installation software image so that it is accessible. For example:**
 - Place a **DVD-ROM** containing the ISO image into a DVD-ROM drive on a remote system.
 - Place the **ISO image** in a readily available network shared location or are mounted on the server service processor (SP).

For instructions on mounting an ISO 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.**

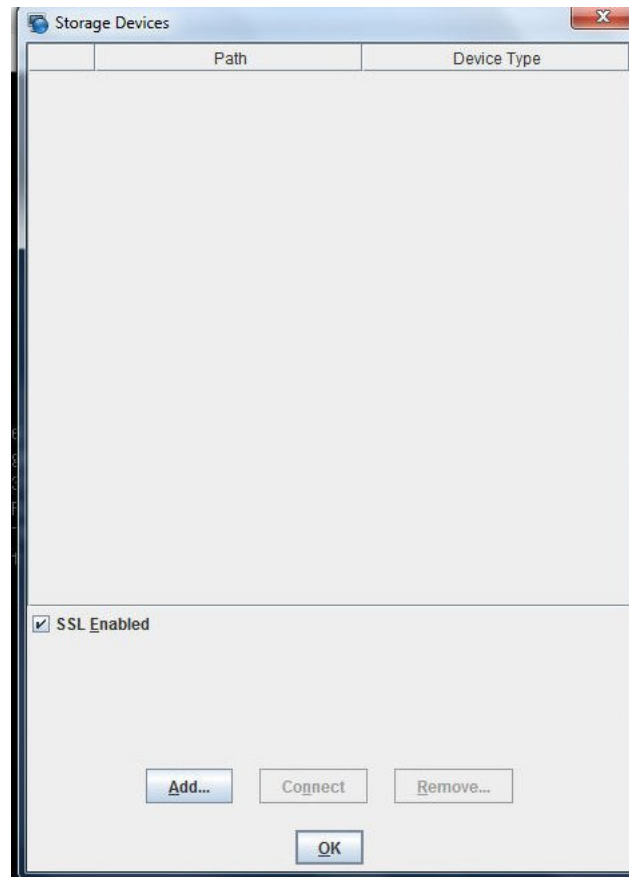
For more details, see the Setup Requirements for web-based client connection in [“Selecting the Console Display Option” on page 11](#).

3. In the remote console, do the following:

a. Click KVMS to display the KVMS drop-down menu.

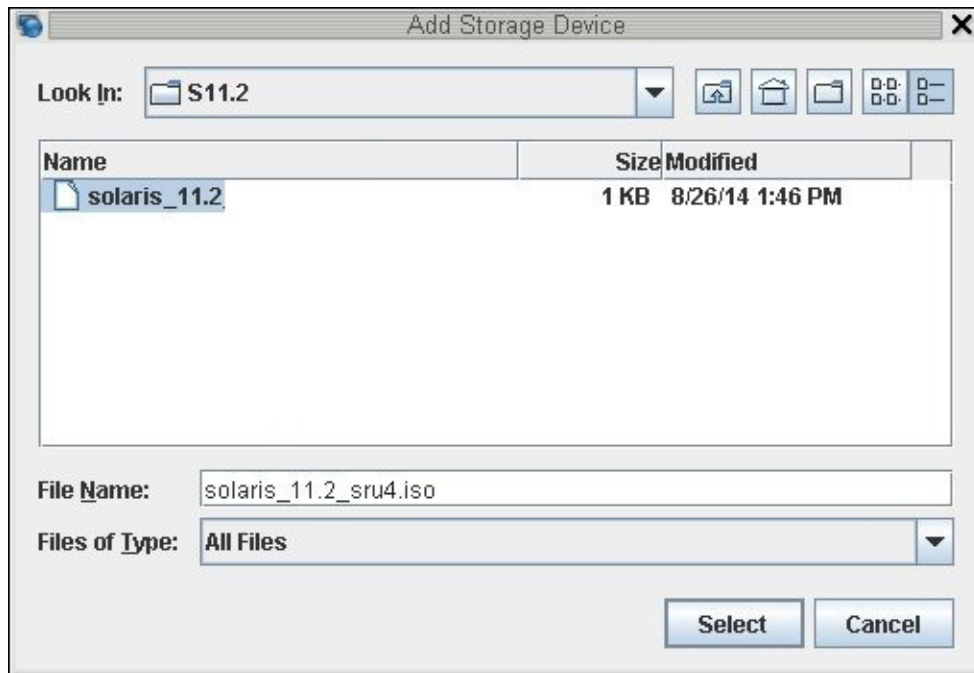
b. Click Storage.

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 Option

This section describes how to set up the installation target.

- [“Installation Target Options” on page 18](#)
- [“Set Up a Local Storage Drive \(HDD or SSD\) as the Installation Target” on page 18](#)

- [“Set Up a Fibre Channel Storage Area Network Device as the Installation Target” on page 18](#)

Installation Target Options

With the exception of the embedded Oracle System Assistant USB flash drive (which is reserved for Oracle System Assistant), you can install the operating system on any of the storage drives installed in the server. These include hard disk drives (HDDs) and solid state drives (SSDs).

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

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

- **Ensure that the target drive (HDD or SSD) is properly installed and powered on.**
For more information about installing and powering on a hard disk drive (HDD) or solid state drive (SSD), refer to [“Servicing Storage Drives” in Oracle Server X5-8 Service Manual](#).

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

1. **Ensure that the PCIe host bus adapter (HBA) is properly installed in the server.**
For more information about installing a PCIe HBA option, refer to [“Servicing PCIe Cards and the Dual PCIe Card Carriers \(DPCCs\)” in Oracle Server X5-8 Service Manual](#).
2. **Ensure that the storage area network (SAN) is installed and configured to make the storage device visible to the host on the server.**
For instructions, refer to the documentation supplied with the Fibre Channel HBA.

Oracle Solaris OS Installation Options

For single-server OS installations, Oracle System Assistant is recommended. For multiple-server OS installations, Oracle Enterprise Manager Ops Center is recommended. The scope of this document is for 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	<p>Install an OS to a single server using one of the following methods:</p> <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 access Oracle System Assistant or to perform a manual OS installation. <p>Note - You should use Oracle System Assistant for single-server Oracle Solaris installations. The Oracle Solaris distribution includes all needed drivers and tools so it is not necessary for Oracle System Assistant to install any drivers or tools.</p> <p>For more information about single-server OS installation methods, see: “Single-Server Installation Methods” on page 19</p>

Single-Server Installation Methods

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

Note - For the latest information on installation requirements for the Oracle Solaris operating system, refer to the *Oracle Server X5-8 Product Notes* at: <http://www.oracle.com/goto/X5-8/docs-videos>.

Tool	Requirements
Oracle System Assistant assisted installation	<ul style="list-style-type: none"> ■ An ISO image on a DVD or a network location, or a USB image on a flash drive. ■ For local installations a monitor, a USB keyboard and mouse, and a USB DVD drive if your ISO image is located on a DVD.

Tool	Requirements
See “Assisted Oracle Solaris Installation” on page 20.	<ul style="list-style-type: none">■ For remote installations, the Oracle ILOM Remote System Console Plus application. <p>Note - Oracle System Assistant does not support remote installations using a flash drive.</p>
Manual installation See “Manual Oracle Solaris Installation” on page 20	<ul style="list-style-type: none">■ An ISO image on a DVD or a network location, or a USB image on a flash drive.■ For local installations a monitor, a USB keyboard and mouse, and a USB DVD drive if your ISO image is located on a DVD.■ For remote installations a remote system with a browser, an attached DVD or flash drive, network access to the server's management port.

Assisted Oracle Solaris Installation

Assisted installation using Oracle System Assistant is the recommended method for installing a supported OS on your server. You deliver the Oracle Solaris installation media on either a local or remote DVD drive, USB device, or a network-accessible ISO image. Oracle System Assistant guides the installation process. Your server must support Oracle System Assistant, and it must be installed in the server.

Note - For Oracle Solaris operating systems, Oracle System Assistant does not install drivers or tools because all tools and drivers required by the server are included in the Oracle Solaris installation media. Oracle Solaris operating system installation provides all tools and drivers to the server.

Manual Oracle Solaris Installation

With this method, you deliver the Oracle Solaris installation software on either a local or remote DVD drive, a USB device, or a network-accessible ISO image. To install Oracle Solaris, use the installation wizard.

Preparing to Install the Oracle Solaris Operating System

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

Description	Links
Verifying and setting the server UEFI optimized defaults.	“Verify the UEFI Optimal Defaults” on page 22 “Reset the BIOS Firmware to Default Settings (BIOS)” in Oracle X5 Series Servers Administration Guide
Setting the boot mode.	“Set the Boot Mode” on page 24 “Viewing or Modifying the Current Boot Mode” in Oracle X5 Series Servers Administration Guide
Configuring RAID on the server.	“Configuring RAID” on page 27 “Configure Storage Drives for OS Installation” in Oracle Server X5-8 Installation Guide

Related Information

- [“Installing Oracle Solaris on a Single System Manually” on page 34](#)
- *Oracle X5 Series Servers Administration Guide* at: <http://www.oracle.com/goto/x86AdminDiag/docs>

Preparing the Boot Environment

Before you install the Oracle Solaris operating system, you should ensure that Unified Extensible Firmware Interface (UEFI) settings are configured to support the type of installation you plan to perform.

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

- [“Verify the UEFI Optimal Defaults” on page 22](#)

- [“Set the Boot Mode” on page 24](#)

For more information about UEFI firmware settings, setting UEFI optimal defaults, and changing boot properties, refer to the *Oracle X5 Series Servers Administration Guide* at <http://www.oracle.com/goto/x86AdminDiag/docs>.

UEFI is a specification that defines a software interface between an operating system and platform firmware. UEFI replaces the Basic Input/Output System (BIOS) firmware interface.

▼ Verify the UEFI Optimal Defaults

Note - This procedure is optional. If the server is newly installed and this is the first time an operating system is being installed, then UEFI 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 known-good configuration. You can review the optimal defaults in the *Oracle Server X5-8 Service Manual*.

Any changes you make in the BIOS Setup Utility using the F2 key persist 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 will be 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” in Oracle Server X5-8 Service Manual](#).
- A console connection is established to the server. For details, see [“Selecting the Console Display Option” on page 11](#).

1. Reset or power on the server.

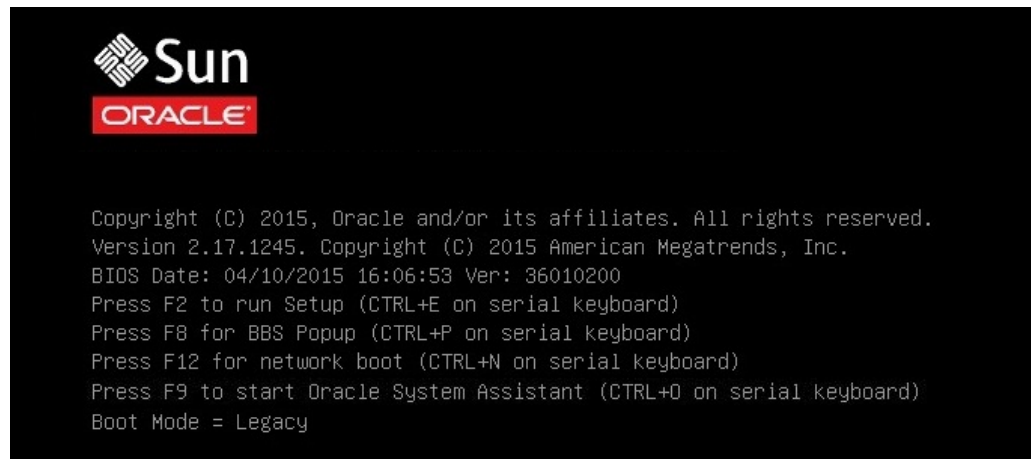
For example, do one of the following:

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

- **From the 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 BIOS screen might take a while to appear. Please be patient.

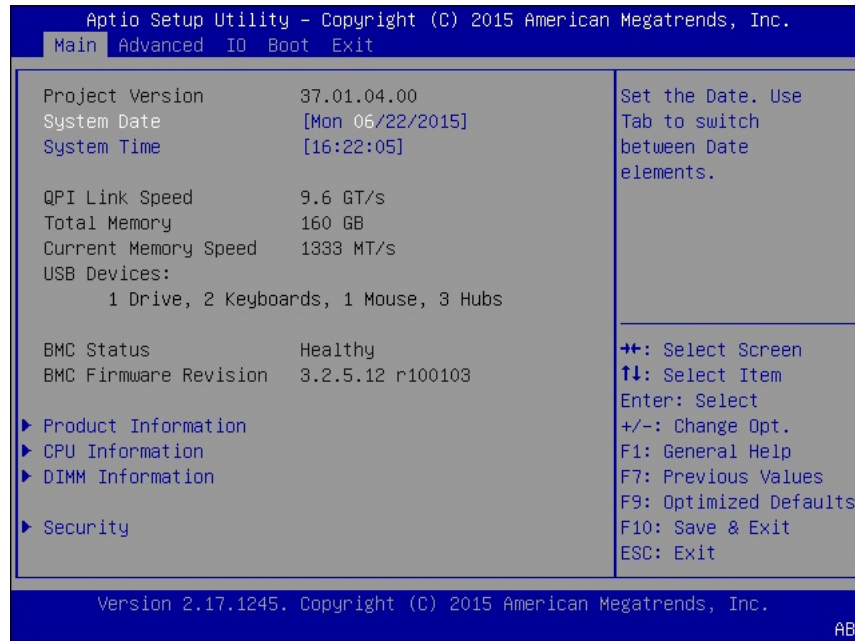


Note - The next events occur very quickly; therefore, focused attention is needed for the following steps. Watch carefully for these messages as they appear on the screen for a brief time. You might want to enlarge the size of your screen to eliminate scroll bars.

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.

Note - The BIOS Setup Utility screen might take a while to appear. Please be patient.



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 and Reset from the Exit menu.

▼ Set the Boot Mode

The server UEFI firmware supports both Legacy BIOS and UEFI boot modes. Legacy BIOS Boot Mode is enabled by default. Because Oracle Solaris supports both Legacy BIOS and

UEFI, you have the option of setting the boot mode to either Legacy BIOS or UEFI before you perform the OS installation.

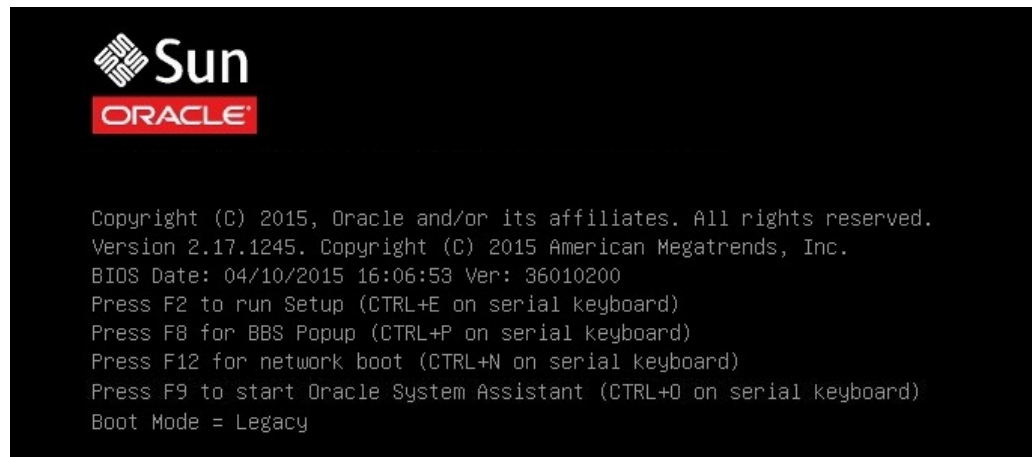
Note - After you have installed the Oracle Solaris operating system, if you decide you want to switch from Legacy BIOS Boot Mode to UEFI Boot Mode, or vice versa, you must remove all partitions and reinstall the operating system.

1. Reset or power on the server.

For example, do one of the following:

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



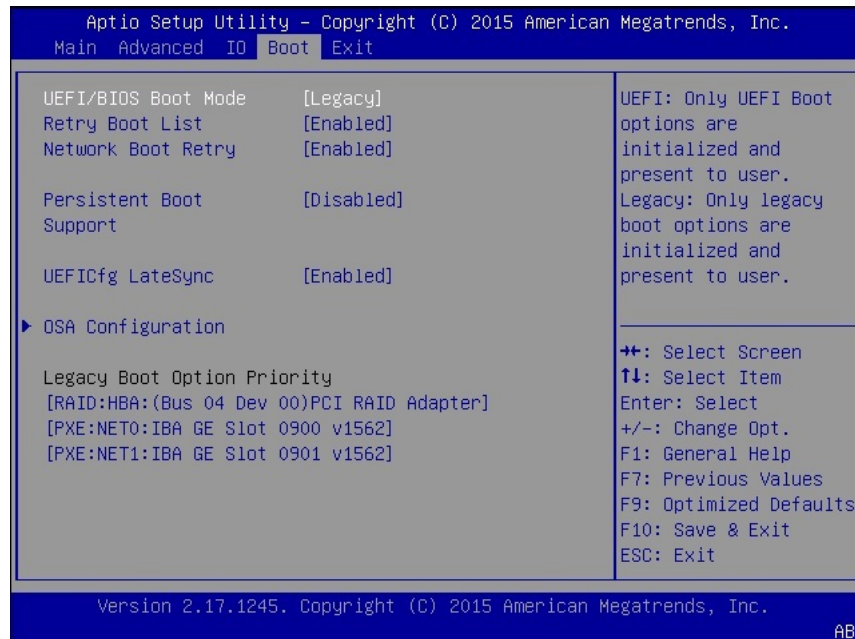
Note - The next steps occur very quickly so be ready to press the F2 function key.

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

After a few moments, 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.



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 X5 Series Servers Administration Guide* at <http://www.oracle.com/goto/x86AdminDiag/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.**
- 6. To save changes and exit BIOS, press the F10 key.**

Note - You must select the desired boot mode, Legacy BIOS or UEFI, before starting the operating system installation.

Configuring RAID

If you want to install Oracle Solaris OS to a redundant array of independent disks (RAID) volume, you must configure the RAID volume before you install the Oracle Solaris OS. For instructions for configuring RAID, refer to “[Configure Storage Drives for OS Installation](#)” in *Oracle Server X5-8 Installation Guide*.

Related Information

- “[Configure Storage Drives for OS Installation](#)” in *Oracle Server X5-8 Installation Guide*
- *Oracle X5 Series Servers Administration Guide* at: <http://www.oracle.com/goto/x86AdminDiag/docs>

Installing the Oracle Solaris Operating System

This section describes how to install the Oracle Solaris operating system on the Oracle Server X5-8.

Description	Links
Preinstallation requirements.	“Before You Begin” on page 29
Using Oracle System Assistant to install the Oracle Solaris operating system.	“Installing Oracle Solaris on a Single System Using Oracle System Assistant” on page 30
Using media to install the Oracle Solaris operating system.	“Installing Oracle Solaris on a Single System Manually” on page 34

Related Information

- [“About Oracle Solaris Operating System Installs” on page 9](#)
- [“Verify the UEFI Optimal Defaults” on page 22](#)
- [“Configuring RAID” on page 27](#)

Before You Begin

Ensure that the following requirements are met:

- If you want to configure RAID (redundant array of independent disks) on the server's storage drives, you must do so before you install the operating system. For instructions for configuring RAID, refer to [“Configure Storage Drives for OS Installation” in *Oracle Server X5-8 Installation Guide*](#).

Note - If you are using the Oracle Storage 12 Gb/s SAS PCIe RAID HBA Internal to manage your storage drives, you must create a RAID volume and make it bootable before installing the operating system; otherwise, the HBA will not be able to identify the server's storage drives.

- Verify that the UEFI firmware settings are set to the optimal defaults. For instructions on how to verify and, if necessary, set the UEFI firmware settings, see [“Verify the UEFI Optimal Defaults” on page 22](#).
- Set the UEFI 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 24](#).
- Configure the console display option. For more information about this option and setup instructions, see [“Selecting the Console Display Option” on page 11](#).
- Select and set up the boot media option. For more information about this option and setup instructions, see [“Selecting the Boot Media Option” on page 13](#).
- Determine and set up the storage drive to be used as the installation target option. For more information about this option and setup instructions, see [“Selecting the Installation Target Option” on page 17](#).
- Gather the Oracle Solaris operating system documentation so that you can use it in conjunction with the instructions provided in this section. Oracle Solaris OS documentation is available at:

For Oracle Solaris documentation: <http://www.oracle.com/technetwork/documentation/solaris-11-192991.html>

Installing Oracle Solaris on a Single System Using Oracle System Assistant

The Oracle System Assistant Install OS task is the recommended method for installing Oracle Solaris.

Note - Because the Oracle Solaris ISO file includes all needed drivers and tools, it is not necessary for Oracle System Assistant to install any drivers or tools.

- [“Install Oracle Solaris Using Oracle System Assistant” on page 30](#)

▼ Install Oracle Solaris Using Oracle System Assistant

Before You Begin Ensure that the following requirements are met:

- Perform the steps in [“Preparing to Install the Oracle Solaris Operating System” on page 21](#).
- If you want to configure the boot drive (that is, the storage drive onto which you are installing Oracle Solaris) for RAID, you must do so before you install Oracle Solaris. For

instructions on how to configure RAID on your server, refer to [“Configure Storage Drives for OS Installation” in Oracle Server X5-8 Installation Guide](#).

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

- **For an ISO image on a DVD**, insert the DVD into the local or external DVD-ROM drive.
- **For an ISO image on the network**, ensure that the Oracle Solaris ISO images are available and that the Oracle ILOM Remote System Console Plus application has mounted the ISO image.

For additional information about how to set up the installation media, see [“Selecting the Boot Media Option” on page 13](#).

2. To launch Oracle System Assistant directly from the Oracle ILOM web interface (recommended), perform the following steps; otherwise proceed to [Step 3](#).

a. Log in to the Oracle ILOM web interface.

The Oracle ILOM Summary Information page appears.

The screenshot shows the Oracle ILOM v3.2.5.12 web interface. The left sidebar contains a navigation menu with options like Chassis View, System Information, Summary, Processors, Memory, Power, Cooling, Storage, Networking, PCI Devices, Firmware, Open Problems (0), System Log, Remote Control, Host Management, System Management, Power Management, ILOM Administration, and Site Map. The main content area is titled 'Summary Information' and includes a description: 'View system summary information. You may also change power state and view system status and fault information. [More details...](#)'

General Information

System Type	Rack Mount
Model	ORACLE SERVER X5-8
QPart ID	Q11159
Part Number	0FM-X441-36
Serial Number	00000-00-12345
Component Model	ORACLE SERVER X5-8
Component Part Number	000-0000-00
Component Serial Number	0000CNW000
System Identifier	OS-WIN-X5-8-P1-0-004
System Firmware Version	3.2.5.12
Primary Operating System	Not Available
Host Primary MAC Address	
ILOM Address	
ILOM MAC Address	

Actions

Power State: ON Turn Off

Locator Indicator: OFF Turn On

Oracle System Assistant
Version: 1.0.0.84274 Launch

System Firmware Update Update

Remote Console Launch

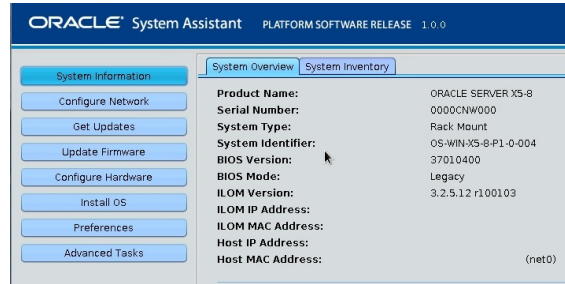
Status

Overall Status: OK Total Problem Count: 0

Subsystem	Status	Details	Inventory
Processors	OK	Processor Architecture: x86 64-bit Processor Summary: Eight Intel Xeon Processor E7 V3 Series	Processors: 8 / 8 (Installed / Maximum)
Memory	OK	Installed RAM Size: 176 GB	DIMMs: 11 / 192 (Installed / Maximum)
Power	OK	Permitted Power Consumption: 3754 watts Actual Power Consumption: 541 watts	PSUs: 4 / 4 (Installed / Maximum)
Cooling	OK	Inlet Air Temperature: 26 °C Exhaust Air Temperature: Not Supported	Chassis Fans: 16 / 16 (Installed / Maximum) PSU Fans: Not Supported
Storage	Not Available	Installed Disk Size: Not Available Disk Controllers: Not Available	Internal Disks: 1 / 8 (Installed / Maximum)
Networking	OK		Ethernet NICs: 2 (Installed)

b. In the Actions panel on the Oracle ILOM Summary Information page, click the Oracle System Assistant Launch button.

The Oracle System Assistant System Overview screen appears.



c. Proceed to [Step 4](#).

3. To launch Oracle System Assistant using the remote console, perform the following steps:

a. From the Oracle ILOM Summary Information page, click the Remote Console Launch button.

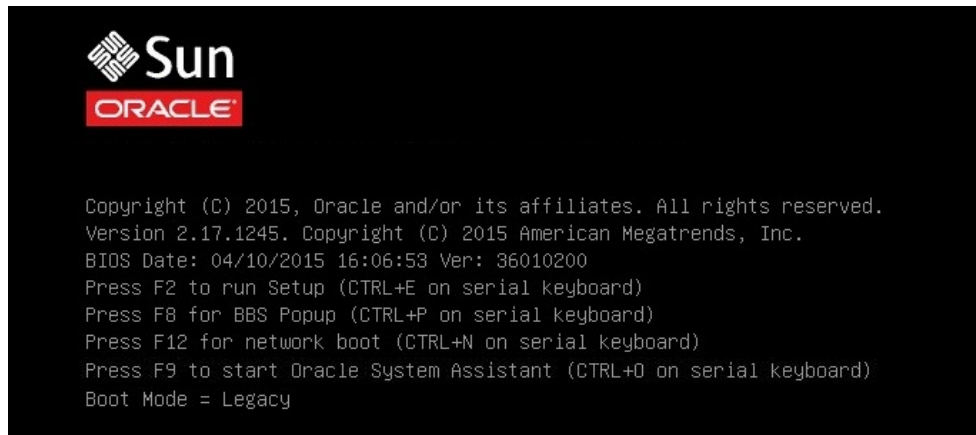
The Oracle ILOM Remote System Console Plus window appears.

b. Reset or power on the server.

For example, do one of the following:

- **From the local server**, press the Power button (approximately 1 second) on the front panel of the server to power off the server, then press the Power button again to power on the server.
- **From the 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 in the Oracle ILOM Remote System Console Plus application.



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

c. Press the F9 key to start Oracle System Assistant.

The Oracle System Assistant System Overview screen appears.

4. To update Oracle System Assistant to the latest software release version, click the Get Updates button in Oracle System Assistant.

This action ensures that the server has the latest version of Oracle System Assistant installed before you begin the OS installation.

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

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

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

6. To install the Oracle Solaris OS, click the Install OS button.

The Install Operating System screen appears.

7. **Select Oracle Solaris from the Supported OS drop-down list.**
8. **In the Current BIOS mode portion of the screen, select the BIOS mode (UEFI or Legacy BIOS) that you want to use for the OS installation.**
9. **In the Select Your Install Media Location portion of the screen, select the location of the installation media.**

This is the location of the OS media. The options are DVD and Network.

Note - Oracle System Assistant does not support Preboot eXecution Environment (PXE) installs.

10. **Click Installation Details.**
The Installation Details dialog appears.
11. **In the Installation Details dialog, deselect any items that you do not want to install.**
12. **At the bottom of the Install Operating System screen, click the Install OS button.**
13. **Follow the prompts until the installation is finished.**
The server boots.

Installing Oracle Solaris on a Single System Manually

This section provides guidelines for installing the Oracle Solaris operating system.

- [“Install Oracle Solaris Manually Using Local or Remote Media” on page 35](#)
- [“Install Oracle Solaris Using PXE Network Boot” on page 38](#)
- [“Post Installation Tasks for Oracle Solaris” on page 42](#)

Related Information

- [“About Oracle Solaris Operating System Installs” on page 9](#)

▼ Install Oracle Solaris Manually Using Local or Remote Media

This procedure describes how to boot the Oracle Solaris operating system (OS) installation from local or remote media. It assumes that you are booting the installation media from one of the following sources:

- Oracle Solaris ISO image on a DVD
- Oracle Solaris ISO image on a network repository

Note - If you are booting the installation media from a PXE environment, see [“Install Oracle Solaris Using PXE Network Boot” on page 38](#) for instructions.

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

- **For an ISO image on a DVD**, insert the DVD into the local or remote DVD drive.
- **For an ISO image on the network**, ensure that the Oracle Solaris 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.

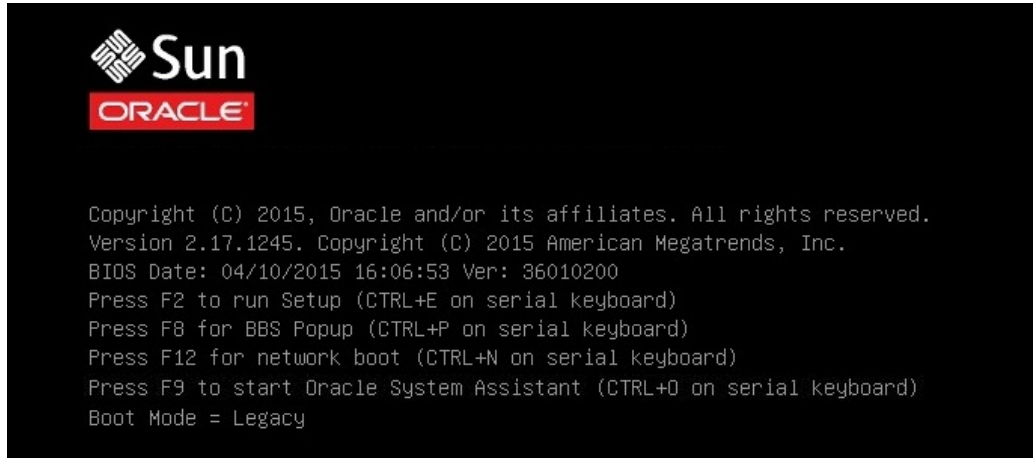
For additional information about how to set up the install media, see [“Selecting the Boot Media Option” on page 13](#).

2. Reset or power on the server.

For example, do one of the following:

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



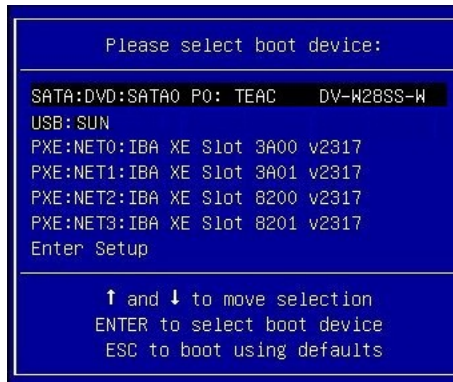
Note - The next event occurs very quickly; therefore, focused attention is needed for the following steps. Please watch carefully for these messages as they appear on the screen for a brief time. You might want to enlarge the size of your screen to eliminate scroll bars.

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

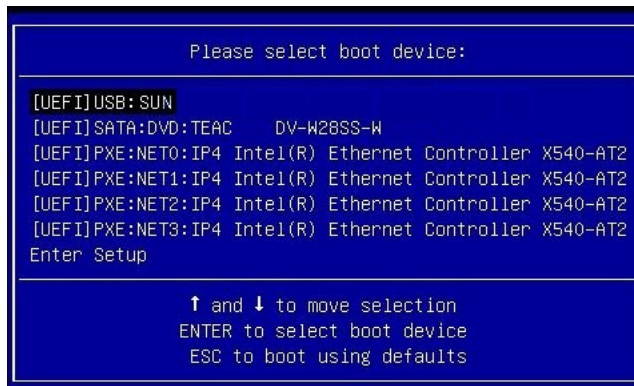
[Boot Pop Up Menu Selected] appears at the bottom of the BIOS screen.

Then the Please Select Boot Device menu appears. The screen that appears is different depending on whether you have the UEFI/BIOS Boot Mode configured for Legacy BIOS Boot Mode or UEFI Boot Mode.

- 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 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 Solaris OS media installation method and the UEFI/BIOS Boot Mode you elected to use, and then press Enter.

For example:

- If you elected to use the Oracle ILOM Remote System Console Plus application method in Legacy BIOS Boot Mode, select SATA:DVD:SATA0 P0: TEAC DV-W28SS-W from the Legacy BIOS Boot Mode version of the Please Select Boot Device menu screen.
- If you elected to use the remote console delivery method in UEFI Boot Mode, select [UEFI]USB:SUN from the UEFI Boot Mode version of the Please Select Boot Device menu screen.

The GRUB menu appears.

5. **Follow the on-screen prompts to complete the Oracle Solaris installation.**

For instructions for completing the Oracle Solaris installation, refer to the Oracle Solaris installation documentation at <http://www.oracle.com/technetwork/documentation/solaris-11-192991.html>.

Related Information

- [“Install Oracle Solaris Using PXE Network Boot” on page 38](#)

▼ Install Oracle Solaris Using PXE Network Boot

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

Before You Begin

The following requirements must be met prior to starting the Oracle Solaris PXE boot installation.

- To use PXE to boot the installation media over the network, ensure that the Automated Installation (AI) image install server is setup and accessible to your server over the network.
- If your AI server requires the MAC address of an install client, you can obtain your system's MAC address by logging in to the Oracle ILOM SP as root, and typing:

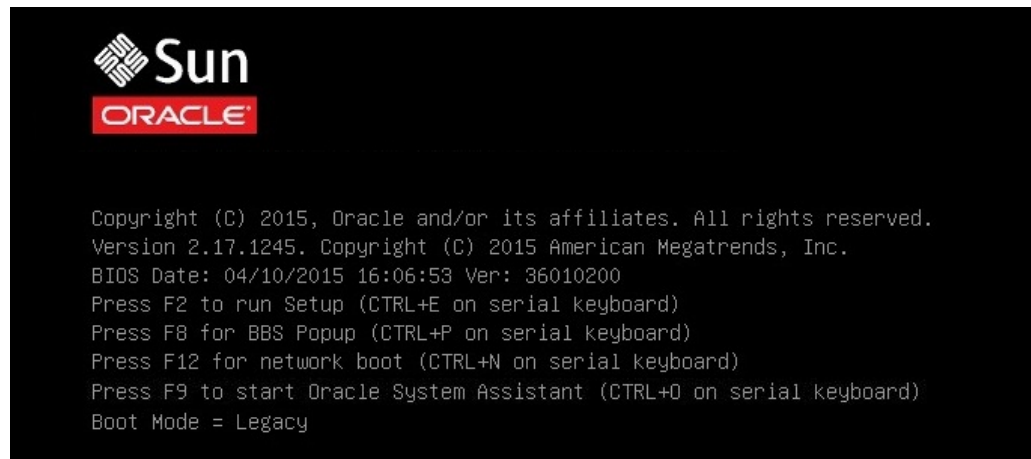
```
-> show /SYS/MB/NET0 fru_macaddress
/SYS/MB/NET0
Properties:
  fru_macaddress = 00:21:28:e7:77:24
```

1. **Reset or power on the server.**

For example, do one of the following:

- **From the local server**, press the Power button (approximately 1 second) on the front panel of the server to turn the server off, then press the Power button again to power on the server.
- **From the 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 system begins the boot process and the BIOS screen appears.



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

2. To verify that PXE boot is enabled, perform the following steps:

Note - PXE boot is enabled by default; however, this step directs you to verify that PXE boot is enabled in the event that it was disabled. Once you have verified that PXE boot is enabled, you can omit this step on subsequent PXE boots.

a. Press the F2 key to access the BIOS Setup Utility.

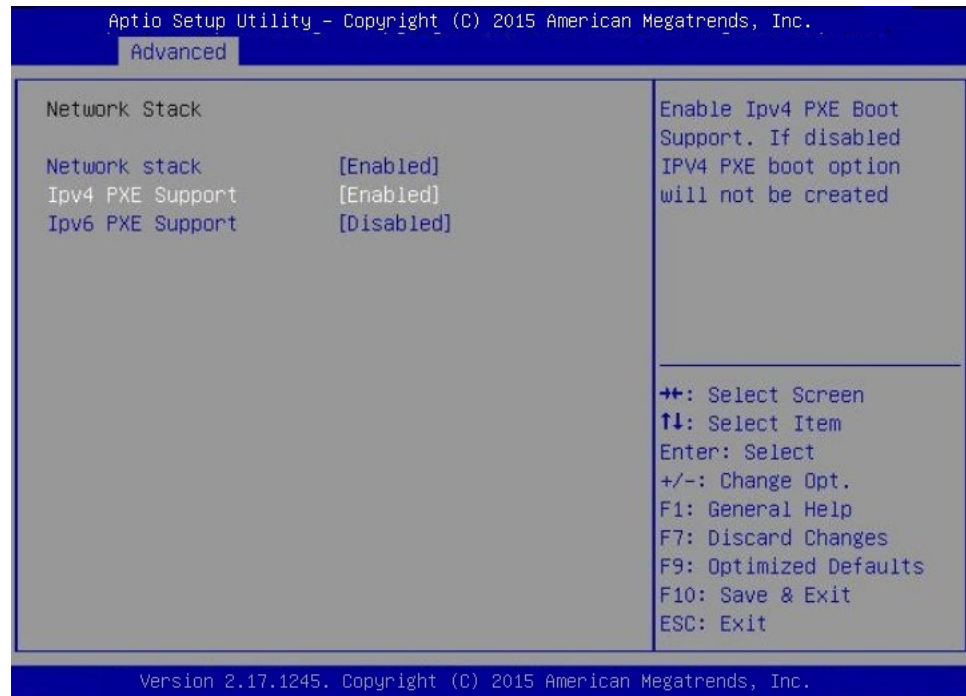
The BIOS Setup Utility appears.

b. Select Advanced in the top menu bar.

The BIOS Setup Utility Advanced screen appears.

c. **Select Network Stack from the list of available options.**

The BIOS Setup Utility Network Stack screen appears.



d. **If necessary, set the appropriate PXE Support setting (either IPv4 or IPv6) to Enabled.**

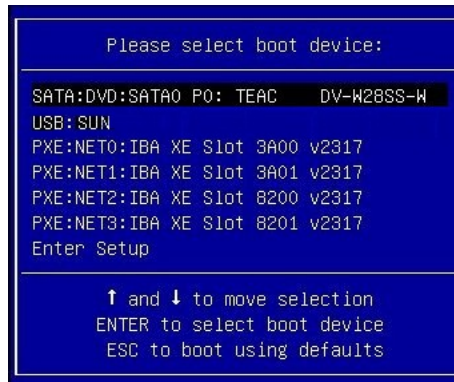
e. **To save the changes and exit the BIOS Setup Utility, press the F10 key.**

This causes the server to reset. After resetting, the BIOS screen appears again.

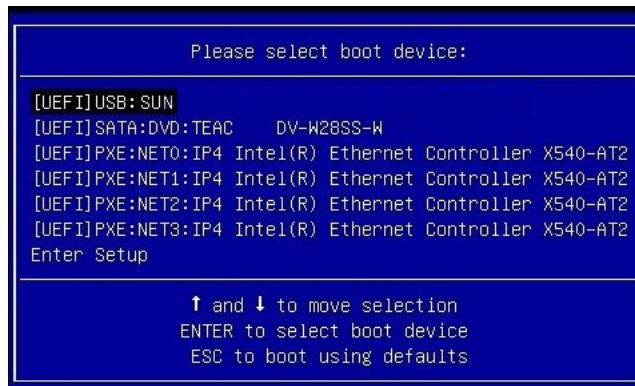
3. **In the BIOS screen, press the F8 key to specify a temporary boot device or press the F12 key to network boot (PXE).**

The Please Select Boot Device menu appears, listing the available boot devices. The screen that appears is different, depending on whether you have UEFI/BIOS configured for Legacy BIOS Boot Mode or UEFI Boot Mode.

- 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 options might differ depending on the type of disk controller installed in your server.

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

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

The GRUB menu appears.

5. Follow the on-screen prompts to complete the PXE installation.

For instructions for completing the PXE installation, refer to:

- For Oracle Solaris 11.2: *Creating a Custom Oracle Solaris 11.2 Installation Image* at http://docs.oracle.com/cd/E36784_01/html/E36804/index.html.
- For Oracle Solaris 11.3: *Creating a Custom Oracle Solaris 11.3 Installation Image* at http://docs.oracle.com/cd/E53394_01/html/E54748/index.html.

6. Proceed to the section “[Post Installation Tasks for Oracle Solaris](#)” on page 42 to perform post installation tasks.

Related Information

- “[Post Installation Tasks for Oracle Solaris](#)” on page 42

Post Installation Tasks for Oracle Solaris

After installing and rebooting the Oracle Solaris operating system, review the Oracle Solaris documentation for instructions to determine whether updates are available and how to install them. See the Oracle Solaris documentation web site at:

<http://www.oracle.com/technetwork/documentation/solaris-11-192991.html>

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