

Sun Server X4-2L

Installation Guide for Oracle Solaris Operating System



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Contents

Using This Documentation v

About Oracle Solaris Operating System Installs 1

Oracle Solaris OS Installation Task Map 1

Supported Operating Systems 2

Selecting the Console Display Option 3

Console Display Options 4

▼ Set Up the Local Console 4

▼ Set Up the Remote Console 5

Selecting the Boot Media Option 5

Boot Media Options Requirements 6

Local Boot Media Requirements 6

Remote Boot Media Requirements 6

▼ Set Up the Local Boot Media Option 6

▼ Set Up the Remote Boot Media Option 7

Selecting the Installation Target Option 7

Installation Target Options 8

▼ Set Up a Local Storage Drive (HDD or SSD) as the Installation Target
8

▼ Set Up a Fibre Channel Storage Area Network Device as the
Installation Target 8

Oracle Solaris OS Installation Options 9

Single-Server Installation Methods 9

Assisted Oracle Solaris Installation	10
Manual Oracle Solaris Installation	10
Oracle System Assistant Overview	11
Oracle System Assistant Tasks	12
Get Updates and Install OS Tasks	12
Obtaining Oracle System Assistant	12
Preparing to Install the Operating System	15
Setting Up BIOS	15
▼ Verify the BIOS Factory Defaults	16
▼ Switch Between Legacy BIOS and UEFI BIOS	19
Configuring RAID	21
Installing the Oracle Solaris Operating System	23
Before You Begin	23
Installing Oracle Solaris on a Single System Using Oracle System Assistant	25
▼ Install Oracle Solaris Using Oracle System Assistant	25
Installing the Oracle Solaris 10 or 11 Operating System on a Single System Using Media	29
▼ Install Oracle Solaris 10 Using Local or Remote Media	29
▼ Install Oracle Solaris 11 Using Local or Remote Media	31
▼ Install Oracle Solaris 10 or 11 Using PXE Network Boot	34
Post Installation Tasks for Oracle Solaris	39
Index	41

Using This Documentation

This installation guide contains procedures for installing the Oracle Solaris operating system, and initial software configuration procedures for bringing the Sun Server X4-2L from Oracle to a configurable and usable state.

This document is written for technicians, system administrators, authorized service providers, and users who have experience with installing operating systems.

This section describes how to get the latest software and firmware, documentation and feedback, and support and accessibility information.

- “Getting the Latest Software and Firmware” on page v
- “About This Documentation” on page vi
- “Related Documentation” on page vi
- “Feedback” on page vi
- “Access to Oracle Support” on page vii

Getting the Latest Software and Firmware

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

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

- Oracle System Assistant – This is a new factory-installed option for Oracle x86 servers. It has all the tools and drivers you need and is built into the server.
- My Oracle Support: <http://support.oracle.com>
- Physical media request

For more information, see *Sun Server X4-2L Installation Guide*, “Getting Server Firmware and Software Updates” on page 31.

About This Documentation

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

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

Related Documentation

Documentation	Link
All Oracle documentation	http://www.oracle.com/documentation
Sun Server X4-2L	http://www.oracle.com/goto/X4-2L/docs
<i>Oracle X4 Series Servers Administration Guide</i>	http://www.oracle.com/goto/x86AdminDiag/docs
Oracle Integrated Lights Out Manager (ILOM) 3.1	http://www.oracle.com/goto/ILOM/docs
Oracle Hardware Management Pack 2.2	http://www.oracle.com/goto/OHMP/docs

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About Oracle Solaris Operating System Installs

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

Description	Links
Learn about Oracle Solaris operating system installation steps.	“Oracle Solaris OS Installation Task Map” on page 1
Learn about the supported Oracle Solaris operating systems.	“Supported Operating Systems” on page 2
Learn about console display options and how to set them up.	“Selecting the Console Display Option” on page 3
Learn about boot media options and how to set them up.	“Selecting the Boot Media Option” on page 5
Learn about installation target options and how to set them up.	“Selecting the Installation Target Option” on page 7
Learn about operating system install options.	“Oracle Solaris OS Installation Options” on page 9
Learn about Oracle System Assistant.	“Oracle System Assistant Overview” on page 11

Related Information

- [“Installing the Oracle Solaris Operating System” on page 23](#)

Oracle Solaris OS Installation Task Map

These procedures describe the 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"> • <i>Sun Server X4-2L Installation Guide</i>, “Installing the Server Into a Rack” on page 41 • <i>Sun Server X4-2L Installation Guide</i>, “Cabling the Server” on page 79 • <i>Sun Server X4-2L Installation Guide</i>, “Connecting to Oracle ILOM” on page 87
2.	Obtain the Oracle Solaris installation media.	<p>You can download or order the installation media at:</p> <ul style="list-style-type: none"> • http://www.oracle.com/technetwork/server-storage/solaris10/downloads/index.html • http://www.oracle.com/technetwork/server-storage/solaris11/downloads/index.html
3.	Review the product notes.	<p><i>Sun Server X4-2L Product Notes</i> at: http://www.oracle.com/goto/X4-2L/docs</p>
4.	Set up the console, the 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 3 • “Selecting the Boot Media Option” on page 5 • “Selecting the Installation Target Option” on page 7
5.	Verify BIOS settings for new OS installations.	“Verify the BIOS Factory Defaults” on page 16
6.	Install the Oracle Solaris OS.	“Installing the Oracle Solaris 10 or 11 Operating System on a Single System Using Media” on page 29
7.	Perform the post installation tasks, if applicable.	“Post Installation Tasks for Oracle Solaris” on page 39

Additional Oracle Solaris OS documentation is available at:

- Oracle Solaris 10 1/13:
http://docs.oracle.com/cd/E26505_01/index.html
- Oracle Solaris 11.1: http://docs.oracle.com/cd/E26502_01/index.html

Related Information

- “Preparing to Install the Operating System” on page 15

Supported Operating Systems

The server supports the following Oracle Solaris operating system software.

Oracle Solaris OS	Edition
Oracle Solaris 10	Release 10 1/13
Oracle Solaris 11	Release 11.1

If you requested that the Oracle Solaris operating system (OS) be preinstalled on your server when you ordered the server, Oracle Solaris 11.1 was preinstalled at the factory. If the Oracle Solaris OS 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. For an updated list of operating systems supported by the server, see the latest version of the *Sun Server X4-2L Product Notes* at <http://www.oracle.com/goto/X4-2L/docs>. You can also view a list of supported operating systems at <http://wikis.oracle.com/display/SystemsComm/Sun+Server+X4-2L+-+Operating+Systems>.

Note – If the Oracle Solaris 11.1 OS was preinstalled, it was installed with the server set to Legacy BIOS. If you choose to boot the server in UEFI BIOS Boot Mode, the preinstalled image is not accessible. Therefore, if you want to use the Oracle Solaris 11.1 OS with the UEFI/BIOS Boot Mode set to UEFI BIOS, you must perform a fresh installation of Oracle Solaris 11.1.

Related Information

- [“Installing the Oracle Solaris Operating System” on page 23](#)

Selecting the Console Display Option

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

- [“Console Display Options” on page 4](#)
- [“Set Up the Local Console” on page 4](#)
- [“Set Up the Remote Console” on page 5](#)

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, USB keyboard, and USB mouse connected directly to the video port (VGA) and the two rear 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 Console 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.
- 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.

b. At the Oracle ILOM 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) 3.1 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 or the web interface, you must know the IP address of the server SP. For instructions on determining the server's IP address, see the *Sun Server X4-2L Installation Guide*, "Determining the IP Address of the Server SP" on page 91.

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.

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

d. If necessary, enable device redirection (mouse, keyboard, etc.) in the Devices menu.

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 (`ssh root@hostname`, where *hostname* can be the DNS name or the IP address for the server SP).

b. Log in to Oracle ILOM.

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

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

Related Information

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

Selecting the Boot Media Option

You can start the 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 6
- "Set Up the Local Boot Media Option" on page 6

- [“Set Up the Remote Boot Media Option” on page 7](#)

Boot Media Options Requirements

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

- [“Local Boot Media Requirements” on page 6](#)
- [“Remote Boot Media Requirements” on page 6](#)

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

You can start the network install from a redirected boot storage device or another networked system that exports an OS image over the network using a Pre-Boot eXecution environment (PXE).

Supported OS remote boot media sources can include:

- DVD-ROM installation media
- DVD-ROM ISO installation image media
- PXE boot – Oracle Solaris 11 support PXE boots. However, 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 systems, see [“Install Oracle Solaris 10 or 11 Using PXE Network Boot” on page 34](#).

▼ Set Up the Local Boot Media Option

To set up the local boot media, you must insert a storage device that contains the Oracle Solaris 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 Oracle Solaris 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 contain a DVD drive, insert a USB flash drive that contains the Oracle Solaris 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, see the *Sun Server X4-2L Installation Guide*, “About Server Features and Components” on page 19.

▼ Set Up the Remote Boot Media Option

To install OS from media in a remote location, perform these steps.

1. **Mount or present the OS boot media so that it is accessible, for example:**
 - For DVD-ROM, insert media into the built-in or external DVD-ROM drive on a remote system.
 - For DVD-ROM ISO image, ensure that an ISO image is available on a shared network location.
2. **Establish a web-based client connection to the server Oracle ILOM SP and launch the Oracle ILOM Remote Console application.**

For more details, see the Setup Requirements for web-based client connection in “Selecting the Console Display Option” on page 3.
3. **In the Devices menu of the Oracle ILOM Remote Console application, specify the location of the boot media, for example:**
 - For DVD-ROM boot media, select CD-ROM.
 - For DVD-ROM ISO image boot media, select CD-ROM Image.

Selecting the Installation Target Option

This section describes how to set up installation targets.

- “Installation Target Options” on page 8
- “Set Up a Local Storage Drive (HDD or SSD) as the Installation Target” on page 8
- “Set Up a Fibre Channel Storage Area Network Device as the Installation Target” on page 8

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 FC storage device.

Note – SSDs are supported only on Oracle Engineered Systems.

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

- **Ensure that the HDD or SSD is properly installed and powered on.**

For more information about installing and powering on a HDD or SSD, see the [Sun Server X4-2L Service Manual, “Servicing Storage Drives and Rear Drives \(CRU\)”](#) on page 47.

▼ 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 the [Sun Server X4-2L Service Manual, “Servicing PCIe Cards \(CRU\)”](#) on page 79.

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.

Oracle Solaris OS Installation Options

You can choose to install an OS on a single server or on multiple servers. The scope of this document is for single server OS installations. The 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/ops-center/index.html
Single server	Install an OS to a single server using one of the following methods: <ul style="list-style-type: none">• Locally: OS installation is performed locally at the server. This option is recommended if you have just completed the physical installation of the server in the rack.• Remotely: OS installation is performed from a remote location. This option uses the Oracle ILOM Remote Console application to access the Oracle System Assistant or to perform a manual OS installation. Note - You should use Oracle System Assistant for single server Oracle Solaris installations; however, for this OS, Oracle System Assistant does not install recommended drivers or tools.

For more information about single-server OS installation methods, see:

- [“Single-Server Installation Methods” on page 9](#)

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.

Media Delivery Method	Additional Requirements
<p>Local assisted OS installation – Uses Oracle System Assistant. (Recommended)</p>	<p>A monitor, USB keyboard and mouse, a USB device, and Oracle Solaris distribution media. For more information, see “Assisted Oracle Solaris Installation” on page 10.</p>
<p>Remote assisted OS installation – Uses Oracle System Assistant. (Recommended)</p>	<p>Oracle ILOM Remote Console application, a redirected CD/DVD drive or ISO image file, and Oracle Solaris distribution media. For more information, see “Assisted Oracle Solaris Installation” on page 10.</p>
<p>Local using a CD/DVD drive – Uses a physical CD/DVD drive connected to the server.</p>	<p>A monitor, USB keyboard and mouse, a USB DVD drive, and Oracle Solaris distribution media. For local installations, you deliver the installation media using a local DVD drive or USB flash drive attached directly to the server.</p>
<p>Remote using a CD/DVD drive or DVD/ISO image – Uses a redirected physical CD/DVD drive on a remote system running the Oracle ILOM Remote Console application.</p>	<p>A remote system with a browser, an attached physical CD/DVD drive, Oracle Solaris distribution media, and network access to the server’s management port. For remote installations, you deliver the installation media using the remote DVD, USB flash drive, or DVD image.</p>

Assisted Oracle Solaris Installation

This is the recommended method for installing Oracle Solaris on your server. This method involves using Oracle System Assistant. You deliver the Oracle Solaris installation media on either a local or remote CD/DVD drive, USB device, or CD/DVD image. The 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, Oracle System Assistant does not install the recommended drivers or tools.

Manual Oracle Solaris Installation

With this method, you deliver the Oracle Solaris distribution media on either a local or remote CD/DVD drive, USB device, or CD/DVD image. You also need to install any necessary drivers. The drivers for your server are available on the server’s

internal Oracle System Assistant USB flash drive (which must be installed for the drivers to be accessible) and from the My Oracle Support web site as either OS-specific and server-specific packages or as an ISO image file. To install Oracle Solaris, use the distribution media's installation wizard.

Oracle System Assistant Overview

Oracle System Assistant is a single-server system management tool for Oracle x86 servers. Oracle System Assistant integrates Oracle's single system management products, and a selection of related software to provide a suite of tools that allow for the quick and convenient configuration and maintenance of your server.

You can access Oracle System Assistant locally, using a local console connection, or remotely, using the Oracle ILOM Remote Console application.

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

The components of Oracle System Assistant include:

- Oracle System Assistant application
- Oracle Hardware Management Pack
- User interface access to configuration and maintenance provisioning tasks (including Install OS task)
- Oracle System Assistant command-line environment
- With the exception of Oracle Solaris, operating system drivers and tools.
- Server-specific firmware
- Server-related documentation

Oracle System Assistant resides inside the server as an embedded storage device (USB flash drive) and is factory configured with a server-specific version of tools and drivers that is maintained as such through use of online updates.

For more information about Oracle System Assistant, see the following topics:

- ["Oracle System Assistant Tasks" on page 12](#)
- ["Get Updates and Install OS Tasks" on page 12](#)
- ["Obtaining Oracle System Assistant" on page 12](#)

Oracle System Assistant Tasks

Oracle System Assistant combines a selected set of the most common and useful single-server management provisioning tasks.

The following information and tasks allow for quick and convenient server setup and ongoing server management:

- System overview and system inventory information
- Online update acquisition for all components (including tools, drivers, and firmware)
- System firmware (BIOS and Oracle ILOM) and host bus adapter firmware updates
- RAID, Oracle ILOM, and BIOS configuration
- Assisted OS installation
- Network configuration
- Disable feature and embedded media integrity check
- Multilingual keyboard
- Oracle System Assistant shell terminal window allowing use of the runtime environment
- Oracle Hardware Management Pack access (using Oracle System Assistant shell)
- Oracle System Assistant recovery

Get Updates and Install OS Tasks

If you want to use Oracle System Assistant to update the OS drivers and other firmware components (such as BIOS, Oracle ILOM, HBAs, and expanders, if applicable), you should perform the Get Updates task before you install the OS.

Oracle System Assistant's Install OS task provides a guided installation of a supported OS. You supply the OS installation media, and Oracle System Assistant guides you through the installation process. It then fetches the appropriate drivers based on your server hardware configuration. The Install OS task is not available for all server supported operating systems.

Obtaining Oracle System Assistant

Since your server supports Oracle System Assistant, the Oracle System Assistant USB flash drive might be already installed in your server. If it is installed, you can update to the latest software release using the Oracle System Assistant Get Updates task. If Oracle System Assistant is installed in your server, but it has been corrupted or

overwritten, then download the Oracle System Assistant Updater image from the My Oracle Support web site. For download instructions, see *Sun Server X4-2L Installation Guide*, “Getting Server Firmware and Software Updates” on page 31.

For more information about how to determine if your server has Oracle System Assistant or how to perform updates and recovery procedures, refer to the *Oracle X4 Series Servers Administration Guide* at:
<http://www.oracle.com/goto/x86AdminDiag/docs>.

Related Information

- *Oracle X4 Series Servers Administration Guide* at:
<http://www.oracle.com/goto/x86AdminDiag/docs>

Preparing to Install the Operating System

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

Description	Links
Verify and set server BIOS settings to factory defaults.	“Verify the BIOS Factory Defaults” on page 16
Configure boot mode.	“Switch Between Legacy BIOS and UEFI BIOS” on page 19
Configure RAID setup on the server.	“Configuring RAID” on page 21

Setting Up BIOS

Before you install the Oracle Solaris operating system, you should ensure that BIOS settings are configured to support the type of installation you plan to perform.

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

- [“Verify the BIOS Factory Defaults” on page 16](#)
- [“Switch Between Legacy BIOS and UEFI BIOS” on page 19](#)

Related Information

- [“Installing the Oracle Solaris 10 or 11 Operating System on a Single System Using Media” on page 29](#)

▼ Verify the BIOS Factory Defaults

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

In the BIOS Setup Utility, you can set defaults, as well as view and edit BIOS settings, as needed. Any changes you make in the BIOS Setup Utility (through F2) are permanent until the next time you change them.

In addition to using F2 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 through F2 will be in effect after booting from the temporary boot device.

Ensure that the following requirements are met:

- The server is equipped with a hard disk drive (HDD) or solid state drive (SDD).
- The HDD or SDD is properly installed in the server. For instructions, see the [Sun Server X4-2L Service Manual](#), “Servicing Storage Drives and Rear Drives (CRU)” on page 47.
- A console connection is established to the server. For details, see “[Selecting the Console Display Option](#)” on page 3.

1. Reset or power on the server.

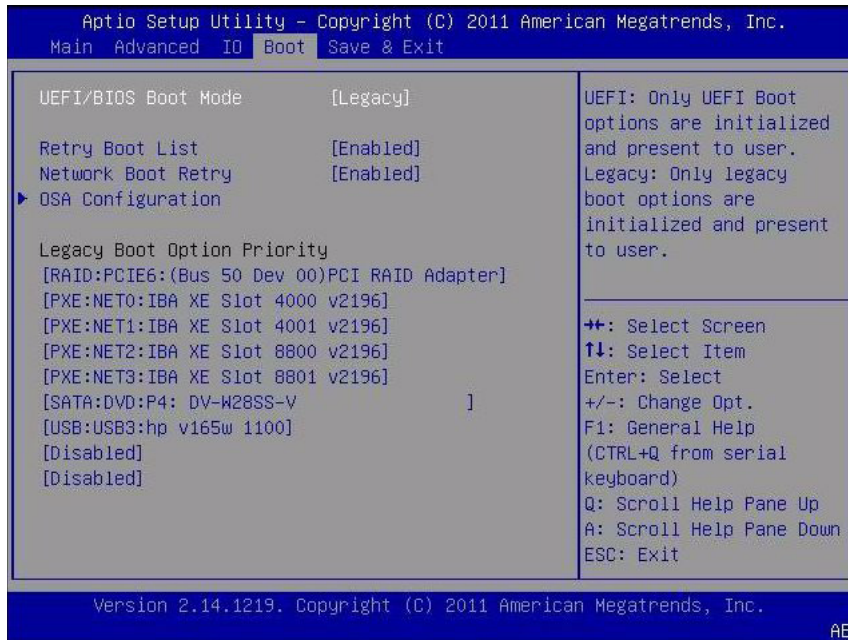
For example, to reset the server:

- **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 and select Reset from the Select Action list box.
- **From the Oracle ILOM CLI on server SP**, type: **reset /System**

The BIOS screen appears.



2. **When prompted in the BIOS screen, press F2 to access the BIOS Setup Utility.**
After a few moments, the BIOS Setup Utility appears.
3. **To ensure that the factory defaults are set, do the following:**
 - a. **Press F9 to automatically load the factory default settings.**
A message appears prompting you to continue this operation by selecting OK or to cancel this operation by selecting CANCEL.
 - b. **In the message, highlight OK then press Enter.**
The BIOS Setup Utility screen appears with the cursor highlighting the first value in the system time field.
4. **In the BIOS Setup Utility, do the following to edit the values associated with the system time or date.**
 - a. **Highlight the values you want to change.**
Use up or down arrow keys to change between the system time and date selection.
 - b. **To change the values in the highlighted fields use these keys:**
 - PLUS (+) to increment the current value shown
 - MINUS (-) to decrement the current value shown
 - ENTER to move the cursor to the next value field
5. **To access the boot settings, select the Boot menu.**
The Boot menu appears.



6. In the Boot menu, verify that the UEFI/BIOS Boot Mode is set to the appropriate value for your installation.

To change the boot mode, use the up and down arrow keys to select the UEFI/BIOS Boot Mode field and use the + and - keys to toggle between UEFI and Legacy.

Note – The UEFI/BIOS Boot Mode must be set to Legacy when installing Oracle Solaris 10 1/13, because Oracle Solaris 10 1/13 does not support UEFI BIOS.

7. In the Boot menu, use the down arrow key to select Boot Device Priority, and then press Enter.

The Boot Device Priority menu appears listing the order of the known bootable devices. The first device in the list has the highest boot priority.

8. In the Boot Device Priority menu, do the following to edit the first boot device entry in the list:

- a. Use the up and down arrow keys to select the first entry in the list, then press Enter.
- b. In the Options menu, use the up and down arrow keys to select the default permanent boot device, then press Enter.

Note – You can change the boot order for other devices in the list by repeating Steps 8a and 8b for each device entry you want to change.

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

Alternatively, you can save the changes and exit the BIOS Setup Utility by selecting **Save Changes** and **Reset** on the **Save & Exit** menu. A message appears prompting you to save changes and exit setup. In the message dialog, select **OK**, then press **Enter**.

Note – When using the Oracle ILOM Remote Console, F10 is trapped by the local OS. You must use the F10 option listed in the Keyboard drop-down menu that is available at the top of the Remote Console application.

▼ Switch Between Legacy BIOS and UEFI BIOS

The BIOS firmware supports both Legacy BIOS and Unified Extensible Firmware Interface (UEFI). The default setting is Legacy BIOS. Because some operating systems support both Legacy BIOS and UEFI BIOS and some support Legacy BIOS only, users have the following options:

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

Note – Currently, Oracle Solaris 11.1 is the only supported Oracle Solaris operating system that supports UEFI BIOS. Oracle Solaris 10 1/13 does not support UEFI BIOS.

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

1. Reset or power on the server.

For example, to reset the server:

- **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 and select Reset from the Select Action list box.
- From the Oracle ILOM CLI, type the following command from the prompt:

-> **reset /System**

The BIOS screen appears.

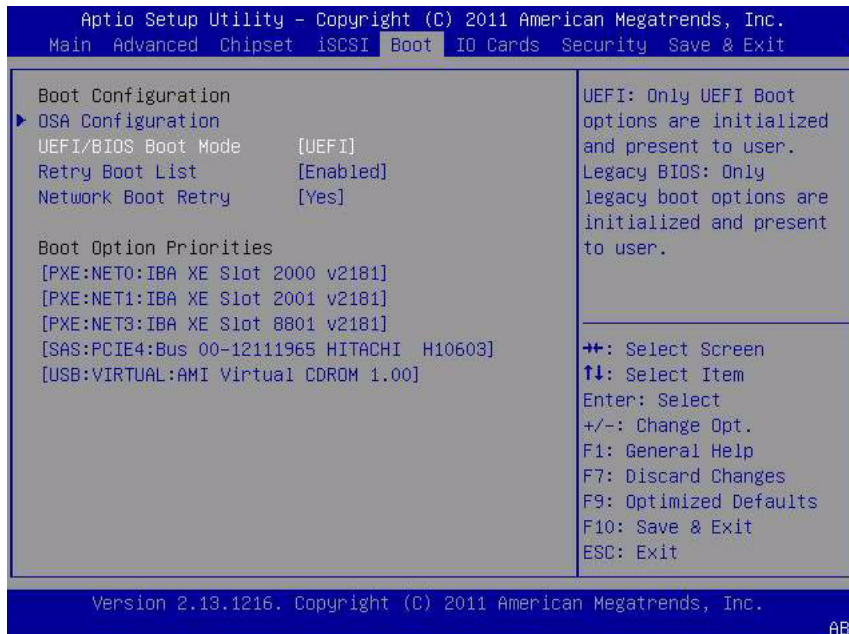


2. When prompted in the BIOS screen, press F2 to access the BIOS Setup Utility.

After a few moments, the BIOS Setup Utility appears.

3. In the BIOS Setup Utility, select Boot from the top menu bar.

The Boot Menu screen appears.



4. Select the UEFI/BIOS Boot Mode field and use the +/- keys to switch the setting to the desired mode, Legacy BIOS or UEFI.
5. To save changes and exit BIOS, press the F10 key.

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 starting the Oracle Solaris OS install process. For instructions for configuring RAID, see the *Sun Server X4-2L Installation Guide*, “Configuring Server Drives for OS Installation” on page 115.

Related Information

- *Oracle X4 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 server.

Description	Links
Pre-installation requirements.	“Before You Begin” on page 23
Using Oracle System Assistant to install Oracle Solaris	“Installing Oracle Solaris on a Single System Using Oracle System Assistant” on page 25
Using media to install Oracle Solaris.	“Installing the Oracle Solaris 10 or 11 Operating System on a Single System Using Media” on page 29

Related Information

- [“About Oracle Solaris Operating System Installs” on page 1](#)
- [“Verify the BIOS Factory Defaults” on page 16](#)
- [“Configuring RAID” on page 21](#)

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, see the *Sun Server X4-2L Installation Guide*, [“Configuring Server Drives for OS Installation” on page 115](#).

Note – If the server is equipped with the Sun Storage 6 Gb SAS PCIe RAID, Internal HBA (SGX-SAS6-R-INT-Z), 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.

- The console display options should have been selected and set up prior to performing the installation. For more information about this option and setup instructions, see [“Selecting the Console Display Option” on page 3](#).
- The boot media option should have been 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 5](#).
- The storage drive to be used as the installation target option should have been determined and set up prior to starting this installation procedure. For more information about the installation target storage drive and setup instructions, see [“Selecting the Installation Target Option” on page 7](#).
- Verify that the BIOS settings are set to the defaults. For instructions on how to verify and, if necessary, set the BIOS settings, see [“Verify the BIOS Factory Defaults” on page 16](#).
- If you are performing a local installation, have the Oracle Solaris installation media available to insert into the attached physical CD/DVD-ROM drive when prompted.
- If you are performing a remote installation, insert the Oracle Solaris installation media into the Oracle ILOM Remote Console system’s CD/DVD-ROM drive. Ensure that you have selected CD-ROM from the Oracle ILOM Remote Console system’s Devices menu.
- If you are using an Oracle Solaris image, ensure that the Oracle Solaris ISO image is accessible from the Oracle ILOM Remote Console system. Ensure that you have selected CD-ROM Image from the Oracle ILOM Remote Console system’s Devices menu.
- Gather the Oracle Solaris operating system documentation so that you can use it in conjunction with the instructions provided in this chapter. Oracle Solaris OS documentation is available at:
 - Oracle Solaris 10 1/13 documentation:
http://docs.oracle.com/cd/E26505_01/index.html
 - For Oracle Solaris 11.1 documentation:
http://docs.oracle.com/cd/E26502_01/index.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 on the server.

- [“Install Oracle Solaris Using Oracle System Assistant” on page 25](#)

▼ Install Oracle Solaris Using Oracle System Assistant

Before you begin this procedure, do the following:

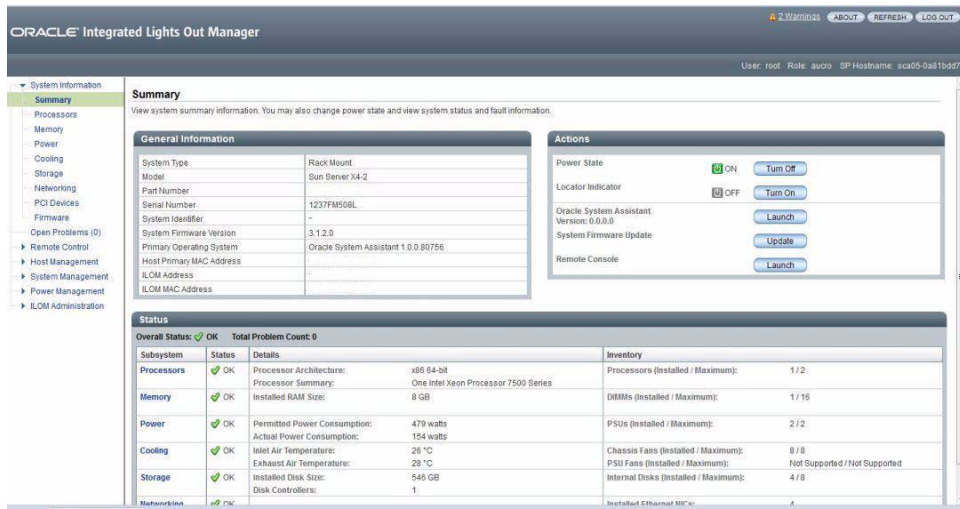
- Perform the steps in [“Preparing to Install the Operating System” on page 15](#).
- If you want to configure the boot drive (that is, the storage drive onto which you are installing Oracle Solaris) for RAID, you must do so before you install Oracle Solaris. For instructions on how to configure RAID on your server, see the *Sun Server X4-2L Installation Guide*, [“Configuring Server Drives for OS Installation” on page 115](#).

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

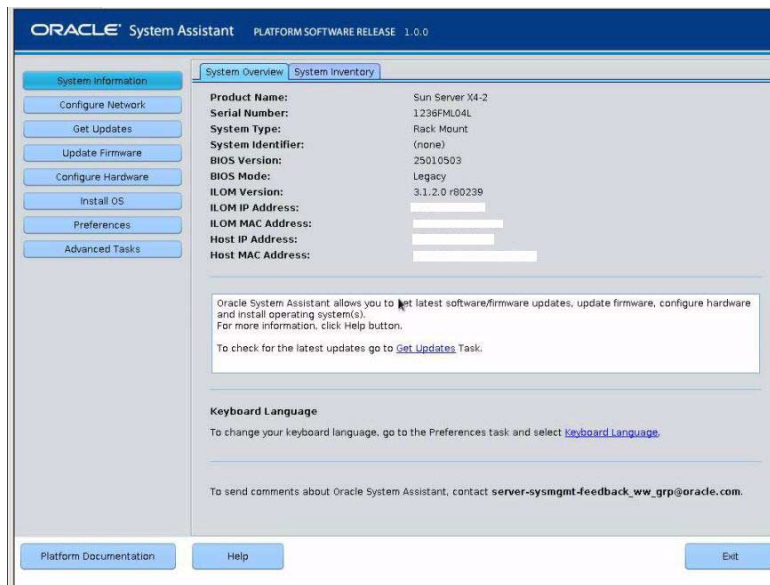
- **For Distribution CD/DVD.** Insert the Oracle Solaris media (CD labeled number 1 or the single DVD) into the local or external CD/DVD-ROM drive.
- **For ISO image.** Ensure that the ISO images are available and that the Oracle ILOM Remote Console application is aware of the first ISO image location.
For additional information about how to set up the installation media, see [“Selecting the Boot Media Option” on page 5](#).

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

- a. In the Actions panel on the Oracle ILOM web interface (shown below), click the Oracle System Assistant Launch button.



The Oracle System Assistant Overview screen appears.



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

3. To launch Oracle System Assistant using the Oracle ILOM Remote Console and BIOS, perform the following steps:

a. From the Oracle ILOM web interface, click Summary > Launch Remote Console.

The Oracle ILOM Remote Console screen appears.

b. Reset or power on the server.

For example:

- **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 and select Reset from the Select Action list box.
- **From the Oracle ILOM CLI**, type: **reset /System**

The BIOS screen appears in the Oracle ILOM Remote Console.



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.

c. Press the F9 key.

The Oracle System Assistant System Overview screen appears.

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

This action ensures that the server has the latest software release package 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 Oracle Solaris, click the Install OS button.**

The Install Operating System screen appears.

7. **From the Supported OS drop-down list, select your OS.**

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 installation.**

Note – Oracle Solaris 10 1/13 only supports Legacy BIOS; therefore, if you are installing Oracle Solaris 10, do not select UEFI. Oracle Solaris 11.1 supports both BIOS modes, UEFI and Legacy BIOS.

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

This is the location of the OS distribution media.

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

10. **In the Select boot disk portion of the screen, select device to which Oracle Solaris will be installed.**

11. **Click View Installation Options.**

The Installation Options dialog appears.

12. **In the Installation Options dialog, deselect any items that you do not want to install.**

13. **At the bottom of the Install OS screen, click the Install OS button.**

14. **To confirm your selection of boot device, click Yes.**

To change boot devices, click No, and select another device.

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

The server boots.

Installing the Oracle Solaris 10 or 11 Operating System on a Single System Using Media

Note – Oracle System Assistant does not support Oracle Solaris OS installs.

These topics provide guidelines for installing the Oracle Solaris 10 or 11 OS.

- [“Install Oracle Solaris 10 Using Local or Remote Media”](#) on page 29
- [“Install Oracle Solaris 11 Using Local or Remote Media”](#) on page 31
- [“Install Oracle Solaris 10 or 11 Using PXE Network Boot”](#) on page 34
- [“Post Installation Tasks for Oracle Solaris”](#) on page 39

Related Information

- [“About Oracle Solaris Operating System Installs”](#) on page 1

▼ Install Oracle Solaris 10 Using Local or Remote Media

The following procedure describes how to boot the Oracle Solaris 10 operating system installation from local or remote media. It assumes that you are booting the installation media from one of the following sources:

- Oracle Solaris 10 1/13 DVD set (internal or external DVD)
- Oracle Solaris 10 1/13 ISO DVD image (network repository)

Note – Oracle Solaris 10 1/13 does not support UEFI BIOS. Therefore, you must ensure that the BIOS mode is set to Legacy BIOS before installing Oracle Solaris 10 1/13.

Note – If you are booting the installation media from a PXE environment, refer to [“Install Oracle Solaris 10 or 11 Using PXE Network Boot”](#) on page 34 for instructions.

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

- **For Distribution DVD.** Insert the Oracle Solaris 10 DVD into the local or remote DVD drive.
- **For ISO image.** Ensure that the ISO image is available and that the boot disc image has been selected in the Oracle ILOM Remote Console application.

For additional information about how to set up the install media, see [“Selecting the Boot Media Option”](#) on page 5.

2. Reset or power on the server.

For example, to reset the server:

- **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 and select Reset from the Select Action list box.
- **From the Oracle ILOM CLI on the server SP,** type: `reset /System`

The BIOS screen appears.



Note – The next events occur 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.

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

The Please Select Boot Device menu appears.

```
Please select boot device:
SAS:PCIE2:Bus 00-1210B4BD HITACHI H10603
SAS:PCIE2:Bus 00-120F90A1 HITACHI H10603
PXE:NET0:IBA XE S1ot 0400 v2181
PXE:NET1:IBA XE S1ot 0401 v2181
PXE:NET2:IBA XE S1ot 8200 v2181
PXE:NET3:IBA XE S1ot 8201 v2181
USB:VIRTUAL:AMI Virtual CDROM 1.00
Enter Setup

↑ and ↓ to move selection
ENTER to select boot device
ESC to boot using defaults
```

- 4. In the Boot Device menu, select either the external or virtual DVD device as the first (temporary) boot device, then press Enter.**

In the sample Boot Device menu shown in [Step 3](#), the virtual DVD device is specified as the boot device.

Note – If you are performing the Oracle Solaris installation from a redirected DVD using the Oracle ILOM Remote Console application, select `AMI Virtual CDROM`, which is listed as an option in the Boot Device menu when you install from a redirected DVD.

The GRUB menu appears.

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

For instructions for completing the installation for Oracle Solaris 10 1/13, refer to the Oracle Solaris installation documentation at:

http://docs.oracle.com/cd/E26505_01/index.html

Related Information

- “Install Oracle Solaris 10 or 11 Using PXE Network Boot” on page 34

▼ Install Oracle Solaris 11 Using Local or Remote Media

The following procedure describes how to boot the Oracle Solaris 11 operating system installation from local or remote media. It assumes that you are booting the installation media from one of the following sources:

- Oracle Solaris 11.1 DVD set (internal or external DVD)

- Oracle Solaris 11.1 ISO DVD image (network repository)

Note – If you are booting the installation media from a PXE environment, refer to [“Install Oracle Solaris 10 or 11 Using PXE Network Boot”](#) on page 34 for instructions.

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

- **For Distribution DVD.** Insert the Oracle Solaris 11 DVD into the local or remote DVD drive.
- **For ISO image.** Ensure that the ISO image is available and that the boot disc image has been selected in the Oracle ILOM Remote Console application.

For additional information about how to set up the install media, see [“Selecting the Boot Media Option”](#) on page 5.

2. Reset or power on the server.

For example, to reset the server:

- **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 and select Reset from the Select Action list box.
- **From the Oracle ILOM CLI on the server SP,** type: `reset /System`

The BIOS screen appears.



Note – The next events occur 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.

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

The Please Select Boot Device menu appears. The screen that appears will be different depending on whether you have BIOS configured for Legacy BIOS or UEFI BIOS.

- For Legacy BIOS, the following screen appears:

```
Please select boot device:
-----
SAS:PCIE4:Bus 00-434A35D1 SEAGATE ST9300
SAS:PCIE4:Bus 00-1210B5E5 HITACHI H10603
SATA:HDD:P4: DV-W2BSS-V
USB:USBIN:ORACLE SSM PMAP
PXE:NET0:IBA XE Slot 4000 v2193
PXE:NET1:IBA XE Slot 4001 v2193
Enter Setup

↑ and ↓ to move selection
ENTER to select boot device
ESC to boot using defaults
```

- For UEFI, the following screen appears:

```
Please select boot device:
-----
[UEFI]USB:VIRTUAL:USB USB CD/DVD Drive
[UEFI]PXE:NET0:Intel(R) Ethernet Controller 10 Gigabit X540-AT2
[UEFI]PXE:NET1:Intel(R) Ethernet Controller 10 Gigabit X540-AT2
[UEFI]PXE:PCIE2:Intel(R) Ethernet Server Adapter X520-2
[UEFI]PXE:PCIE2:Intel(R) Ethernet Server Adapter X520-2
[UEFI]PXE:NET2:Intel(R) Ethernet Controller 10 Gigabit X540-AT2
[UEFI]PXE:NET3:Intel(R) Ethernet Controller 10 Gigabit X540-AT2
[UEFI]Built-in EFI Shell
Enter Setup

↑ and ↓ to move selection
ENTER to select boot device
ESC to boot using defaults
```

Note – Your 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 menu item according to the Solaris OS media installation method and the BIOS mode you elected to use, and then press Enter.

For example:

- If you elected to use the Solaris OS local console delivery method in Legacy BIOS, select `SATA:HDD:P4 DV-W28SS-V` from the Legacy BIOS screen.
- If you elected to use the Oracle ILOM Remote Console delivery method in UEFI BIOS mode, select `[UEFI]USB:VIRTUAL:USB USB CD/DVD Drive` from the UEFI BIOS screen.

The GRUB menu appears.

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

For instructions for completing the Oracle Solaris 11.1 installation, refer to the Oracle Solaris 11.1 installation documentation at:

http://docs.oracle.com/cd/E26502_01/index.html

Related Information

- “Install Oracle Solaris 10 or 11 Using PXE Network Boot” on page 34

▼ Install Oracle Solaris 10 or 11 Using PXE Network Boot

The following procedure describes how to install the Oracle Solaris 10 or 11 operating system from a PXE network environment.

The following requirements must be met prior to starting the Oracle Solaris 10 or 11 PXE boot installation.

- To use PXE to boot the installation media over the network, you should have completed the following tasks:
 - For Oracle Solaris 10, ensure that the PXE/boot JumpStart install server is properly setup and accessible to your server on the network.
 - For Oracle Solaris 11, ensure that the Automated Installation (AI) image install server is setup and accessible to your server over the network.

Note – JumpStart or Automated Installer can help you eliminate some or most of the manual tasks of setting up the Oracle Solaris operating system for the first time on multiple servers. JumpStart installs Oracle Solaris 10 and earlier versions of the Oracle Solaris OS. Automated Installer installs the Oracle Solaris 11 OS.

For more information about using a JumpStart image in Oracle Solaris 10, see http://docs.oracle.com/cd/E26505_01/html/E28039/index.html.

For more information about using Automated Installer, see the Oracle Solaris 11 Information Library, *Transitioning From Oracle Solaris 10 JumpStart to Oracle Solaris 11 Automated Installer* at

http://docs.oracle.com/cd/E23824_01/html/E21799/index.html.

Note – The PXE network boot does not work properly over subnets that include multiple DHCP servers. Therefore, you should set up only one DHCP server on the subnet that includes the client system that you want to install.

- Ensure that the Oracle Solaris 10 or 11 installation media is available for PXE boot. For details, see one of the following documents:
 - **For Oracle Solaris 10 1/13**, see “Planning to Install Over the Network” in the *Oracle Solaris 10 1/13 Installation Guide: Network-Base Installations* at: http://docs.oracle.com/cd/E26505_01/index.html
 - **For Oracle Solaris 11.1**, see *Creating a Custom Oracle Solaris 11.1 Installation Image* at: http://docs.oracle.com/cd/E26502_01/index.html
- Ensure that the Automated Installation install server has the MAC address of the network interface from which the system will PXE boot. As an example, if you want to PXE boot from NET0, you can obtain its 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
```

- Ensure that the BIOS mode configured on your system is compatible with the Oracle Solaris operating system you are installing. For more details refer to “Switch Between Legacy BIOS and UEFI BIOS” on page 19.

1. Reset or power on the server.

For example, to reset the server:

- **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 and select Reset from the Select Action list box.
- **From the Oracle ILOM CLI on server SP**, type: `reset /System`
The BIOS screen appears.



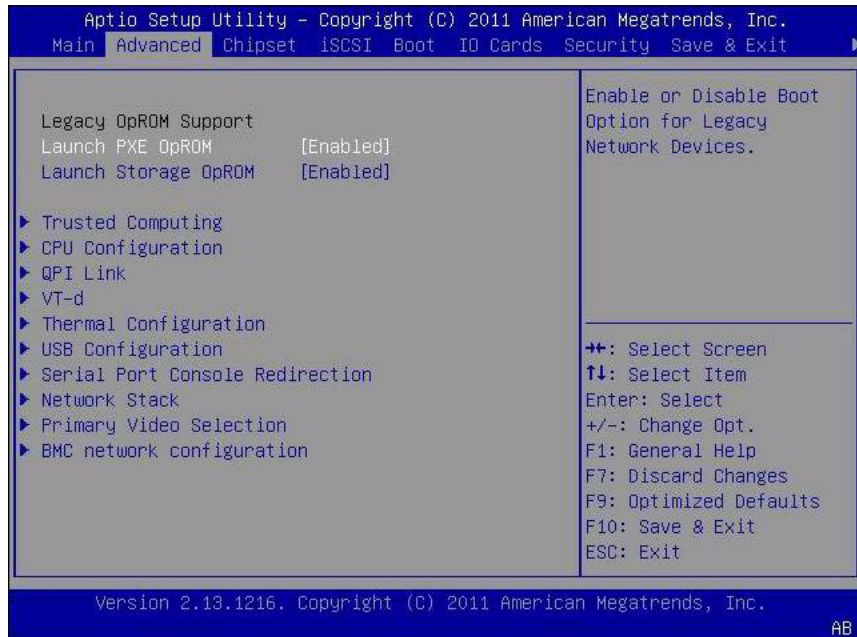
Note – The next events occur very quickly; therefore, focused attention is needed for the following steps. Please watch carefully for these messages as they appear on the screen for a brief time.

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 F2 to access the BIOS Setup Utility.

The BIOS Setup Utility appears.



b. Select Advanced in the top menu bar.

c. Set the Launch PXE OpROM setting to Enabled.

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

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

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

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

- For Legacy BIOS, the following screen appears:

```

Please select boot device:

SAS:PCIE4:Bus 00-1210B675 HITACHI H10603
USB:USBIN:ORACLE SSM PMAP
SAS:PCIE4:Bus 00-12111DED HITACHI H10603
SAS:PCIE4:Bus 00-BC1EB8A4 LSI Logica
SAS:PCIE4:Bus 00-87BF55D5 LSI Logica
SAS:PCIE4:Bus 00-1210B4D9 HITACHI H10603
SAS:PCIE4:Bus 00-120FACA1 HITACHI H10603
PXE:NET0:IBA XE Slot 2000 v2193
PXE:NET1:IBA XE Slot 2001 v2193
Enter Setup

↑ and ↓ to move selection
ENTER to select boot device
ESC to boot using defaults

```

- For UEFI mode, the following screen appears:

```

Please select boot device:

[UEFI]USB:VIRTUAL:USB USB CD/DVD Drive
[UEFI]PXE:NET0:Intel(R) Ethernet Controller 10 Gigabit X540-AT2
[UEFI]PXE:NET1:Intel(R) Ethernet Controller 10 Gigabit X540-AT2
[UEFI]PXE:PCIE2:Intel(R) Ethernet Server Adapter X520-2
[UEFI]PXE:PCIE2:Intel(R) Ethernet Server Adapter X520-2
[UEFI]PXE:NET2:Intel(R) Ethernet Controller 10 Gigabit X540-AT2
[UEFI]PXE:NET3:Intel(R) Ethernet Controller 10 Gigabit X540-AT2
[UEFI]Built-in EFI Shell
Enter Setup

↑ and ↓ to move selection
ENTER to select boot device
ESC to boot using defaults

```

Note – Your Please Select Boot Device menu options might differ depending on the type of disk controller installed in your server.

4. In the 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 the following documents:

- For Oracle Solaris 10 1/13, see “Planning to Install Over the Network” in the *Oracle Solaris 10 1/13 Installation Guide: Network-Based Installations* at: http://docs.oracle.com/cd/E26505_01/index.html
 - For Oracle Solaris 11.1, see *Creating a Custom Oracle Solaris 11.1 Installation Image* at: http://docs.oracle.com/cd/E26502_01/index.html
6. Proceed to the section “Post Installation Tasks for Oracle Solaris” on page 39 to perform post installation tasks.

Related Information

- “Install Oracle Solaris 10 Using Local or Remote Media” on page 29

Post Installation Tasks for Oracle Solaris

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

- For Oracle Solaris 10 1/13, go to:
http://docs.oracle.com/cd/E26505_01/index.html
- For Oracle Solaris 11.1, go to:
http://docs.oracle.com/cd/E26502_01/index.html

Index

A

Automated Installer
Oracle Solaris OS, 35

B

BIOS
procedure for editing and viewing settings, 16
switching between Legacy and UEFI BIOS
Solaris OS, 19
verification of factory defaults settings, 16
verifying factory default settings, 16
boot device menu, 31
boot media
requirements, 6

C

console
selecting display option, 3
console display options, 4

D

DHCP servers, recommended number for
subnets, 35

H

Hardware Management Pack, 11

I

install boot media, 5
installation
task map, 1
using Oracle System Assistant
Oracle VM, 25
installation method
manual
Oracle VM, 10

using Oracle System Assistant
Oracle VM, 10

installation methods
boot media options, 5
installation option
single server, 9
installation target
fibre channel storage area network (SAN)
device, 8
local storage drive, 8
options, 8
installing operating system
overview, 1
supported operating systems, 2
installing Oracle Solaris OS
on a single system using media, 29
using local or remote media, 29, 31
using remote media from a PXE-based
network, 34

J

JumpStart utility
Oracle Solaris OS, 35

L

local boot media
requirements, 6
setting up, 6
local console
setting up, 4

O

operating system
installation options, 9
versions supported, 2
Oracle ILOM Remote Console application
Oracle Solaris OS install, 31

Oracle Solaris documentation web sites, 24

Oracle Solaris OS

JumpStart utility, 35

Oracle ILOM Remote Console application, 31

post installation tasks, 39

PXE install restrictions, 35

temporary boot device, 30, 33

Oracle Solaris OS install

using local or remote media, 29, 32

Oracle System Assistant

application OS installation task

Oracle VM, 12

embedded storage device, 11

obtaining, 12

overview, 11

tasks

Oracle VM, 12

overview of operating system installation, 1

P

post installation tasks

Oracle Solaris OS, 39

power on server, 30, 32

product notes

web site, 3

PXE installation

Oracle Solaris OS, 34

R

RAID

configuring, 21

remote boot media

requirements, 6

setting up, 7

remote console

setting up, 5

S

software

installation options, 9

versions supported, 2

supported operating systems, 2

T

task map, 1

temporary boot device

Oracle Solaris OS, 30, 33