

Sun Server X4-2

Installation Guide for Oracle VM



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Using This Documentation

This installation guide contains procedures for installing the Oracle VM Server software, and initial software configuration procedures for bringing the Sun Server X4-2 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
- “Support and Accessibility” 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 X4-2 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 X4-2	http://www.oracle.com/goto/X4-2/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

Feedback

You can provide feedback on this documentation at:

<http://www.oracle.com/goto/docfeedback>

Support and Accessibility

Description	Links
Access electronic support through My Oracle Support	http://support.oracle.com For hearing impaired: http://www.oracle.com/accessibility/support.html
Learn about Oracle's commitment to accessibility	http://www.oracle.com/us/corporate/accessibility/index.html

About Oracle VM Installs

This section contains an overview for installing Oracle VM on your server.

Description	Links
Learn about Oracle VM software installation steps.	“Oracle VM Installation Task Map” on page 1
Learn which Oracle VM software versions are supported.	“Supported Oracle VM Software” on page 3
Learn about console display options and how to set them up.	“Selecting the Console Display Option” on page 4
Learn about boot media options and how to set them up.	“Selecting the Boot Media Option” on page 6
Learn about installation target options and how to set them up.	“Selecting the Installation Target Option” on page 8
Learn about Oracle VM install options.	“Oracle VM Installation Options” on page 10
Learn about Oracle System Assistant.	“Oracle System Assistant Overview” on page 12

Related Information

- [“Installing Oracle VM” on page 23](#)

Oracle VM Installation Task Map

The following table describes the steps for installing the Oracle VM software.

Step	Description	Links
1.	Install your server hardware and configure the Oracle ILOM service processor.	<ul style="list-style-type: none"> • <i>Sun Server X4-2 Installation Guide</i>, “Installing the Server Into a Rack” on page 39 • <i>Sun Server X4-2 Installation Guide</i>, “Cabling the Server” on page 77 • <i>Sun Server X4-2 Installation Guide</i>, “Connecting to Oracle ILOM” on page 85
2.	Set up a second system with a static IP address on which you can install the Oracle VM Manager. This system must have one of the following operating systems installed: <ul style="list-style-type: none"> • Oracle Linux 5.5, 64-bit or subsequent releases • Red Hat Enterprise Linux Release 6, 64-bit or subsequent releases 	<p><i>Oracle VM Release Notes for Release 3.2.1</i>, <i>Oracle VM Installation and Upgrade Guide for Release 3.2.1</i>, and <i>Oracle VM User’s Guide for Release 3.2.1</i> at: http://docs.oracle.com/cd/E35328_01/index.html</p>
3.	Obtain the Oracle VM installation media and the Oracle VM documentation. The Oracle VM documentation should be used in conjunction with the install procedures referenced below in Step 7.	<ul style="list-style-type: none"> • An ISO image of the Oracle VM installation program is available as a download at: http://edelivery.oracle.com/oraclevm If you want to install the Oracle VM ISO image from a CD, burn the Oracle VM ISO file to a bootable CD. • The Oracle VM documentation is available for download at: http://docs.oracle.com/cd/E35328_01/index.html
4.	Review the product notes.	<p><i>Sun Server X4-2 Product Notes</i> at: http://www.oracle.com/goto/X4-2/docs</p>
5.	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 4 • “Selecting the Boot Media Option” on page 6 • “Selecting the Installation Target Option” on page 8

Step	Description	Links
6.	Verify BIOS settings for new OS installations.	“Verify the BIOS Factory Defaults” on page 15
7.	Install the Oracle VM Server and, if necessary, Oracle VM Manager.	For procedures for installing both the Oracle VM Server and the Oracle VM Manager, see “Installing Oracle VM on a Single System Using Media” on page 28
8.	Perform the post installation tasks, if applicable.	“Post Installation Tasks for Oracle VM” on page 32

Related Information

- [“Preparing to Install Oracle VM” on page 15](#)

Supported Oracle VM Software

The server supports the following Oracle VM software.

VM Software	Edition
Oracle VM	Release 3.2

If you requested that the Oracle VM software be preinstalled on the server when you placed your order, Oracle VM 3.2 was preinstalled at the factory. If the Oracle VM software 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 X4-2 Product Notes* at <http://www.oracle.com/goto/X4-2/docs>. You can also view a list of supported operating systems at <http://wikis.oracle.com/display/SystemsComm/Sun+Server+X4-2+-+Operating+Systems>.

Note – If Oracle VM was preinstalled, it was installed with the server set to Legacy BIOS Boot Mode. If you choose to boot the server in UEFI BIOS Boot Mode, the preinstalled image is not accessible and cannot be used. Oracle VM software does not support UEFI BIOS.

Related Information

- [“Installing Oracle VM” 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 login 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 login to Oracle ILOM remotely using either the command-line interface or the web interface, you must know the IP address of the server's service processor (SP). For instructions, see the *Sun Server X4-2 Installation Guide*, "Determining the IP Address of the Server SP" on page 89.
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) 3.1 Documentation Library at:
<http://www.oracle.com/goto/ILOM/docs>

Selecting the Boot Media Option

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

- “Boot Media Options Requirements” on page 6
- “Set Up the Local Boot Media Option” on page 7
- “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.

The only supported OS local boot media sources is CD/DVD-ROM installation media.

Remote Boot Media Requirements

Remote media requires you to boot the install over the network. You can start the network install from a redirected boot storage device or another networked system that exports the installation over the network using a Pre-Boot eXecution Environment (PXE).

Supported OS remote boot media sources can include:

- CD/DVD-ROM installation media

- CD/DVD-ROM ISO installation image
- Automated installation image (requires PXE boot)

▼ Set Up the Local Boot Media Option

To set up the local boot media, you must insert a storage device that contains the Oracle VM software 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 VM software 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 built-in storage device, attach an appropriate storage device the contains the Oracle VM software to the front or rear panel of the server.**

Note – For information about the location of the server’s external USB ports, see the [Sun Server X4-2 Installation Guide, “About Server Features and Components” on page 19](#).

▼ Set Up the Remote Boot Media Option

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

1. **Insert the boot media into the storage device, for example:**
 - **For CD/DVD-ROM**, insert media into the built-in or external CD/DVD-ROM drive on a remote workstation.
 - **For CD/DVD-ROM ISO image**, ensure that ISO image(s) are readily available on a network shared location.
 - **For device driver floppy IMG image**, ensure that IMG image, if applicable, is readily available on a network shared location or on a USB drive.
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 4](#).
3. **In the Devices menu of the Oracle ILOM Remote Console application, specify the location of the boot media, for example:**
 - **For CD/DVD-ROM boot media**, select CD-ROM.

- For CD/DVD-ROM ISO image boot media, select CD-ROM Image.
- For floppy device driver boot media, if applicable, select Floppy.
- For floppy image device driver boot media, if applicable, select Floppy Image.

Selecting the Installation Target Option

This section describes how to set up the installation target.

- [“Installation Target Options” on page 8](#)
- [“Set Up a Local Storage Drive \(HDD or SSD\) as the Installation Target” on page 9](#)
- [“Set Up a Fibre Channel Storage Area Network Device as the Installation Target” on page 9](#)

Installation Target Options

With the exception of the embedded Oracle System Assistant 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).

Note – SSDs are only supported on Oracle Engineered Systems.

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.

Important: Internal, Embedded Oracle System Assistant USB Flash Drive Should Not Be Used as a Boot or Storage Drive

The server ships with an embedded Oracle System Assistant USB flash drive. This drive contains the Oracle System Assistant, device drivers, and firmware for Oracle ILOM, BIOS, and supported IO devices. During the installation of all supported operating systems, this USB flash drive is detected as a SCSI disk with a single partition that is read/write capable and is displayed as `Oracle_SSM` in the list of drives. You should be careful not to overwrite this device when performing any of the following operations:

- Operating system installations
- Disk or partition formatting operations
- General disk, partition or filesystem maintenance

In the event that this USB flash drive is overwritten, the original contents can be restored. To restore the contents of the USB flash drive, obtain the Oracle System Assistant recovery and ISO update image and use it to perform a restore operation.

For instructions for downloading the Oracle System Assistant recovery and ISO update image and restoring the server's Oracle System Assistant flash drive, see the *Oracle X4 Series Servers Administration Guide* at:
<http://www.oracle.com/goto/x86AdminDiag/docs>

▼ 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 information about installing and powering on a HDD or SSD, see the *Sun Server X4-2 Service Manual*, "Servicing Storage Drives (CRU)" on page 47.

Note – SSDs are only supported on Oracle Engineered Systems.

▼ 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 information about installing a PCIe HBA option, see the *Sun Server X4-2 Service Manual*, "Servicing PCIe Cards (CRU)" on page 86.

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 VM Installation Options

You can choose to install Oracle VM on a single server or on multiple servers. The scope of this document is for single server Oracle VM 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 operating system on multiple servers. For information, go to http://www.oracle.com/technetwork/ops-center/index.html
Single server	<p>Installs an Oracle VM to a single server using one of the following methods:</p> <ul style="list-style-type: none">• Locally: Oracle VM 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: Oracle VM 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 Oracle VM installation. <p>Note - You should use Oracle System Assistant for single server Oracle VM installations.</p>

Single-Server Installation Methods

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

Media Delivery Method	Additional Requirements
Local assisted Oracle VM installation – Uses Oracle System Assistant. (Recommended)	A monitor, USB keyboard and mouse, a USB device, and Oracle VM distribution media. For more information, see “ Assisted Oracle VM Installation ” on page 11.

Media Delivery Method	Additional Requirements
Remote assisted Oracle VM installation – Uses Oracle System Assistant. (Recommended)	Oracle ILOM Remote Console application, a redirected CD/DVD drive or ISO image file, and Oracle VM distribution media. For more information, see “Assisted Oracle VM Installation” on page 11 .
Local Oracle VM is installed using a CD/DVD drive – Uses a physical CD/DVD drive connected to the server.	A monitor, USB keyboard and mouse, a USB CD/DVD drive, and Oracle VM distribution media. For more information, see “Manual Oracle VM Installation” on page 11 .
Remote Oracle VM is installed using a CD/DVD drive or CD/DVD ISO image – Uses a redirected physical CD/DVD drive on a remote system running the Oracle ILOM Remote Console application.	A remote system with a browser, an attached physical CD/DVD drive, Oracle VM distribution media, and network access to the server’s management port. For more information, see “Manual Oracle VM Installation” on page 11 .

Assisted Oracle VM Installation

This is the recommended method for installing Oracle VM on your server. This method involves using Oracle System Assistant. You deliver the Oracle VM 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 and gathers and installs the needed drivers when necessary. Your server must support Oracle System Assistant, and it must be installed in the server.

Manual Oracle VM Installation

With this method, you deliver the Oracle VM 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 VM, 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, 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
- 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 13](#)
- [“Obtaining Oracle System Assistant” on page 13](#)

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 startup 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 X4-2 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 Oracle VM

This section describes how to prepare the server for installing Oracle VM.

Description	Links
Verify and set server BIOS settings to factory defaults.	“Verify the BIOS Factory Defaults” on page 15
Set BIOS VT-d option to disabled.	“Disable VT-d and SR-IOV in BIOS” on page 19
Configure RAID on the server.	“Configuring RAID” on page 21

Related Information

- [“Installing Oracle VM on a Single System Using Oracle System Assistant” on page 24](#)
- [“Installing Oracle VM on a Single System Using Media” on page 28](#)
- [“Installing Oracle VM Using Local or Remote Media” on page 28](#)

▼ Verify the BIOS Factory Defaults

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

In the BIOS Setup Utility, you can set optimal 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 X4-2 Service Manual, "Servicing Storage Drives \(CRU\)"](#) on page 47.
- A console connection is established to the server. For details, see ["Selecting the Console Display Option"](#) on page 4.

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**, select Host Management > Power Control, then select Reset from the Select Action list box.
- **From the Oracle ILOM CLI**, 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.

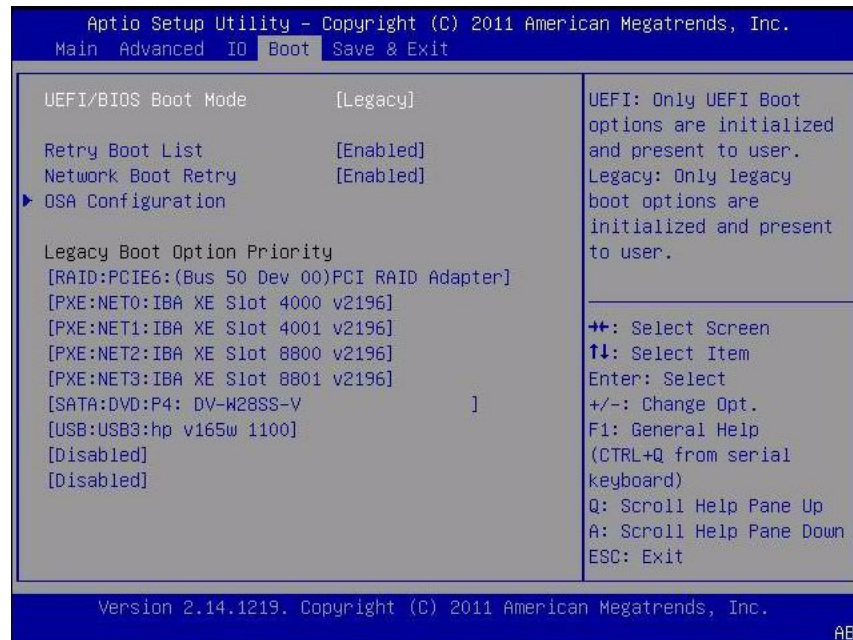
Use up or down arrow keys to change between the system time and date selection.

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 Legacy.

If necessary, use the up and down arrow keys to select the UEFI/BIOS Boot Mode field and use the + and - keys to toggle the setting to Legacy.

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

- 7. In the Boot Settings menu, use the down arrow key to select Boot Device Priority, 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.

The device strings listed on the Boot Device Priority list and Options menu are in the format of: *device type, slot indicator, and product ID string*.

- 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` and `Reset` from 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.

▼ Disable VT-d and SR-IOV in BIOS

You must disable Virtualization Technology for Directed I/O (VT-d) in BIOS before you can use Oracle VM. This is necessary because input/output memory management unit (I/O MMU) is not supported in Oracle VM 3.2. You must also disable Single Root I/O Virtualization (SR-IOV) in BIOS before you can use Oracle VM.

To disable the VT-d setting in BIOS, perform the following steps:

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**, select Host Management > Power Control, then select Reset from the Select Action list box.
- **From the Oracle ILOM CLI**, 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. Use the right arrow key to navigate to the IO menu.

The IO Menu screen appears.



4. Use the up and down arrow keys to navigate to the IO Virtualization menu option, and press Enter.

The IO Virtualization menu appears.



5. **Use the up and down arrow keys to navigate to the VT-d menu option, and press Enter.**
The VT-d dialog box appears.
6. **In the VT-d dialog box use the up or down arrow key to select Disabled and press Enter.**
VT-d option is now disabled.
7. **Use the up or down arrow keys to navigate to the SR-IOV menu option, and press Enter.**
The SR-IOV dialog box appears.
8. **In the SR-IOV dialog box, use the up and down arrow keys to select Disabled and press Enter.**
SR-IOV option is now disabled.
9. **Press the ESC key to return the IO Menu top level, and then save and exit BIOS.**

Configuring RAID

If you want to use a redundant array of independent disks (RAID), you must configure RAID on server's storage drives before you install Oracle VM. For instructions for configuring RAID, refer to the *Sun Server X4-2 Installation Guide*, "Configuring Server Drives for OS Installation" on page 113.

Related Information

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

Installing Oracle VM

This section provides instructions for installing Oracle VM onto the server.

Description	Links
Pre-installation requirements.	“Before You Begin” on page 23
Using Oracle System Assistant to install Oracle VM.	“Installing Oracle VM on a Single System Using Oracle System Assistant” on page 24
Using media to install the Oracle VM software on a single server.	“Installing Oracle VM on a Single System Using Media” on page 28
Performing post installation tasks.	“Post Installation Tasks for Oracle VM” on page 32

Before You Begin

Ensure that the following requirements are met:

- If you want to configure RAID on the server’s storage drives, you must do so before you install Oracle VM. For instructions for configuring RAID, see the [Sun Server X4-2 Installation Guide, “Configuring Server Drives for OS Installation” on page 113](#).

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 Oracle VM; otherwise, the HBA will not be able to identify the server’s storage drives.

- The console display 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 Console Display Option” on page 4](#).

- 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 6](#).
 - The installation target 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 Installation Target Option” on page 8](#).
 - 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 15](#).
 - For local installation, have the Oracle VM installation media available to insert into the attached physical CD/DVD-ROM drive when prompted.
 - For remote installation, insert the Oracle VM 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 a Oracle VM image, ensure that the 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.
 - Ensure that two systems with static IP addresses have been set up.
 - One system to install Oracle VM Server.
 - One system for Oracle VM Manager with either Oracle Linux (release 5.5, 64-bit, or a subsequent release) or Red Hat Enterprise Linux (release 6, 64-bit or a subsequent release).
 - For additional preinstallation tasks and requirements, refer to the “Installing Oracle VM Server on X86” section in the *Oracle VM Installation and Upgrade Guide for Release 3.2.1* at: http://docs.oracle.com/cd/E35328_01/index.html.
 - Gather the Oracle VM documentation library so that you can use it in conjunction with the instructions provided in this section. The Oracle VM 3.2.1 documentation library is available at:
http://docs.oracle.com/cd/E35328_01/index.html.
-

Installing Oracle VM on a Single System Using Oracle System Assistant

The Oracle System Assistant Install OS task is the recommended method for installing Oracle VM on the server.

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

▼ Install Oracle VM Using Oracle System Assistant

Before you begin this procedure, do the following:

- Perform the steps in [“Preparing to Install Oracle VM”](#) on page 15.
- If you want to configure the boot drive (that is, the storage drive onto which you are installing Oracle VM) for RAID, you must do so before you install Oracle VM. For instructions on how to configure RAID on your server, see the [Sun Server X4-2 Installation Guide](#), [“Configuring Server Drives for OS Installation”](#) on page 113.

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

- **For Distribution CD/DVD.** Insert the Oracle VM 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 6.

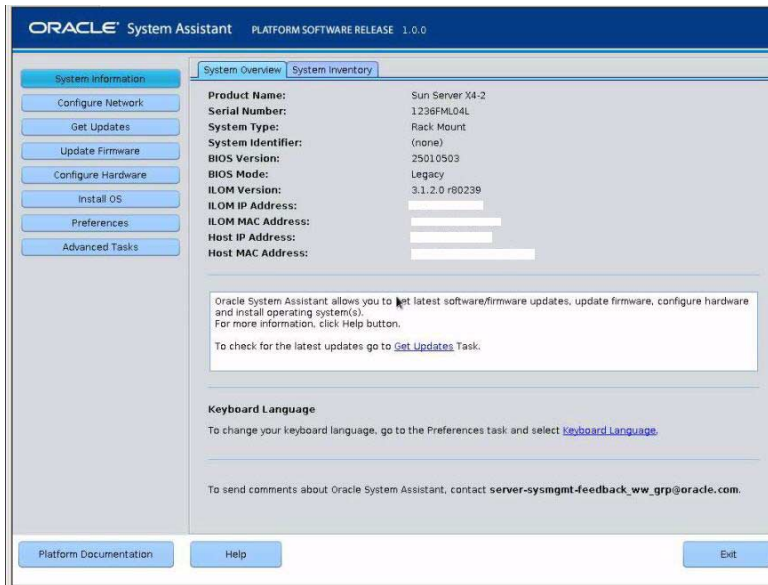
2. To launch Oracle System Assistant directly from the Oracle ILOM Interface (recommended), perform the following steps; otherwise proceed to [Step 3](#).

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

The screenshot displays the Oracle Integrated Lights Out Manager (ILOM) web interface. The top navigation bar includes the Oracle logo and the text 'Integrated Lights Out Manager'. Below the navigation bar, the 'Summary' page is active, showing system information. The 'General Information' section lists details such as System Type (Rack Mount), Model (Sun Server X4-2), Part Number (1237FM506L), System Identifier (-), System Firmware Version (3.1.2.0), Primary Operating System (Oracle System Assistant 1.0.0.80756), Host Primary MAC Address (-), ILOM Address (-), and ILOM MAC Address (-). The 'Actions' panel on the right contains buttons for Power State (ON/OFF), Locator Indicator (ON/OFF), Oracle System Assistant (Launch), System Firmware Update (Update), and Remote Console (Launch). The 'Status' section at the bottom provides an overview of system health, including Overall Status (OK), Total Problem Count (0), and a table of subsystems (Processors, Memory, Power, Cooling, Storage, Network/IO) with their respective status and details.

Subsystem	Status	Details	Inventory
Processors	OK	Processor Architecture: x86 64-bit Processor Summary: One Intel Xeon Processor 7500 Series	Processors (Installed / Maximum): 1 / 2
Memory	OK	Installed RAM Size: 8 GB	DIMMs (Installed / Maximum): 1 / 16
Power	OK	Permitted Power Consumption: 479 watts Actual Power Consumption: 154 watts	PSUs (Installed / Maximum): 2 / 2
Cooling	OK	Inlet Air Temperature: 26 °C Exhaust Air Temperature: 28 °C	Chassis Fans (Installed / Maximum): 8 / 8 PSU Fans (Installed / Maximum): Not Supported / Not Supported
Storage	OK	Installed Disk Size: 545 GB Disk Controllers: 1	Internal Disks (Installed / Maximum): 4 / 8
Network/IO	OK		Installed Ethernet NICs: 4

The Oracle System Assistant System 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.



Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.
BIOS Date: 05/11/2012 11:52:57 Ver: 18021000
Press F2 to run Setup (CTRL+E on serial keyboard)
Press F8 for BBS Popup (CTRL+P on serial keyboard)
Press F12 for network boot (CTRL+N on serial keyboard)
Press F9 to start Oracle System Assistant (CTRL+O on serial keyboard)

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 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 VM, 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 Legacy BIOS.

Oracle VM only supports Legacy BIOS; therefore, do not select UEFI.

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 VM 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.

Note – The Oracle VM and Drivers options are mandatory and cannot be deselected.

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 Oracle VM on a Single System Using Media

This section provides information about installing Oracle VM 3.2 for x86 (64-bit) software.

- [“Installing Oracle VM Using Local or Remote Media” on page 28](#)
- [“Post Installation Tasks for Oracle VM” on page 32](#)

Installing Oracle VM Using Local or Remote Media

The following procedure describes the steps for installing Oracle VM. The procedure assumes that you are booting the Oracle VM installation software from one of the following sources:

- Oracle VM 3.2 CD or DVD media set (internal or external CD or DVD)
- Oracle VM 3.2 ISO software image (network repository)

Note – The Oracle VM ISO image can be used for remote installation or for creating an installation CD or DVD.

Refer to the following procedure to install Oracle VM:

- [“Install Oracle VM Server Using Local or Remote Media” on page 29](#)

▼ Install Oracle VM Server Using Local or Remote Media

1. Ensure that the Oracle VM Server install media is available to boot.

- **For Distribution CD/DVD.** Insert the Oracle VM Server media boot disk into the local or remote CD/DVD-ROM drive.
- **For ISO images.** Ensure that the ISO images are available and that the boot disc image (CD labeled number 1 or DVD) has been selected in the Oracle ILOM Remote Console application (Devices menu > CD-ROM Image).

For additional information about how to set up the installation media, see [“Selecting the Boot Media Option” on page 6](#).

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 power off the server, then press the Power button again to power on the server.
- **From the Oracle ILOM web interface,** select 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.



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.

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

The Please Select Boot Device menu appears.

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

The device strings listed in the Boot Device menu are in the following format: *device type, slot indicator, and product ID string*.

After a few seconds, the splash screen for the Oracle VM Server appears.



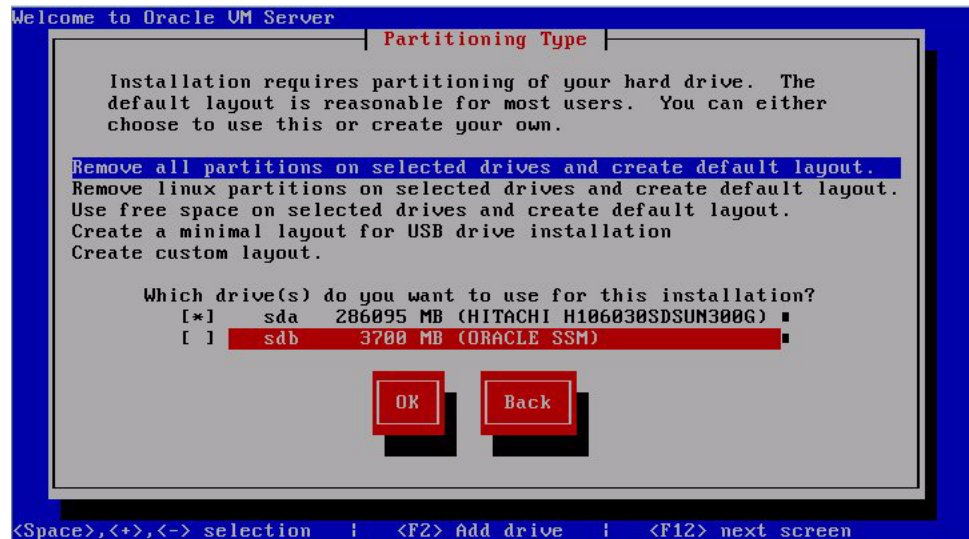
5. Press Enter to begin the installation.

If you do not press a key, after one minute, the installer automatically starts. The installer is only available in text mode.

6. Refer to the “Installing Oracle VM Server on X86” section in the *Oracle VM Installation and Upgrade Guide for Release 3.2.1* at: http://docs.oracle.com/cd/E35328_01/index.html and follow the on-screen prompts to install Oracle VM Server and Oracle VM Agent.

The *Oracle VM Installation and Upgrade Guide for Release 3.2.1* provides step-by-step instructions for installing Oracle VM.

7. As you progress through the on-screen prompts, the Partitioning Type screen appears.



Note – Although the next step is described in the *Oracle VM Installation and Upgrade Guide for Release 3.2.1* at: http://docs.oracle.com/cd/E35328_01/index.html, it is included here because you must exercise caution when you select the drive onto which to install Oracle VM.

8. In the Partitioning Type screen, do the following:

- a. Select one of following partition layouts:

- Remove all partitions and create default layout.
- Remove all Linux partitions on select drives and create default layout.
- Use the free space on selected drives and create default layout.
- Create a minimal layout for USB drive installation.
- Create a custom layout.

A default layout will satisfy the requirements of most users.

b. Select the drive(s) you want to use for the installation.



Caution – In the Partitioning Type screen shown above, the Oracle SSM drive is the Oracle System Assistant USB flash drive. You might have to scroll to the bottom of the screen to see this drive. You should *never* select the Oracle SSM drive as the software installation drive. Installing Oracle VM to the Oracle SSM drive will overwrite the Oracle System Assistant software and Oracle System Assistant will have to be restored. For instructions for restoring Oracle System Assistant, see the *Oracle X4 Series Servers Administration Guide* at:
<http://www.oracle.com/goto/x86AdminDiag/docs>.

c. Click OK to continue the installation.

9. To complete the installation, refer back to the *Oracle VM Installation and Upgrade Guide for Release 3.2.1* at:
http://docs.oracle.com/cd/E35328_01/index.html and follow the instructions.

Note – The Oracle VM installation will require two passwords: one for the root Oracle VM Server account and one for the Oracle VM Agent.

10. After completing the installation of Oracle VM Server and Oracle VM Agent, do one of the following:

- If you *do not* have an Oracle VM Manager configured to manage the Oracle VM Server, you will need to install it before proceeding to “[Post Installation Tasks for Oracle VM](#)” on page 32.

For instructions for installing Oracle VM Manager, see the *Oracle VM Installation and Upgrade Guide for Release 3.2.1* at:

http://docs.oracle.com/cd/E35328_01/index.html.

- If you already have an Oracle VM Manager configured to manage the Oracle VM Server, proceed to “[Post Installation Tasks for Oracle VM](#)” on page 32.

Post Installation Tasks for Oracle VM

After completing Oracle VM software installation, review the following post installation tasks and, if necessary, perform the tasks that are applicable to your system.

- “[Update Oracle VM Software](#)” on page 33
- “[Manage Oracle VM Resources](#)” on page 33

Update Oracle VM Software

The Oracle VM installation media might not contain the most up-to-date versions of the software. If necessary, update the Oracle VM software with the latest updates. For download instructions, go to this web site:

<http://edelivery.oracle.com/oraclevm>

Manage Oracle VM Resources

To learn how to configure, access, and manage Oracle VM resources, refer to the Oracle VM 3.2.1 Documentation Library at:

http://docs.oracle.com/cd/E35328_01/index.html

Configuring Network Interfaces

This section contains information about:

- [“NIC Connectors” on page 35](#)

NIC Connectors

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

TABLE: NIC Connector Label

NIC Connector Label	Interface Type
net0	First interface (ixgbe 0)
net1	Second interface (ixgbe 1)
net2	Third interface (ixgbe 2)
net3	Fourth interface (ixgbe 3)

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

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