Netra Server X5-2 Operating System Installation Guide

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Contents

Using This Documentation

- **Overview** – Provides information about how to install the supported operating systems on the Netra Server X5-2 from Oracle.
- **Audience** – Technicians, system administrators, authorized service providers, and experienced users.
- **Required knowledge** – Advanced experience with installing operating systems.

Product Documentation Library

Documentation and resources for this product and related products are available at http://www.oracle.com/goto/netra-x5-2/docs.

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

Choosing an OS Installation Method

The server supports several different operating systems. A subset of the supported OSes are available preinstalled, depending on what was selected when the server was ordered. You can use the preinstalled OS, or install a fresh version of any of the supported OSes.

The OS installation process varies based on the OS and whether you want to use a preinstalled version or install a fresh version.

Description	Links
Configure the preinstalled Oracle Solaris OS or install a fresh version.	“Configuring the Preinstalled Oracle Solaris OS” on page 21 “OS Installation Task Map (Oracle Solaris)” on page 12 “Supported OS Versions and Documentation” on page 15
Configure the preinstalled Oracle VM software or install a fresh version.	“Configuring the Preinstalled Oracle VM 3. 3 Software” on page 27 “OS Installation Task Map (Oracle VM)” on page 12 “Supported OS Versions and Documentation” on page 15
Install a supported version of Linux.	“OS Installation Task Map (Linux)” on page 13 “Oracle Linux Support Kernel” on page 16 “Supported OS Versions and Documentation” on page 15
Install a supported version of VMware ESXi.	“OS Installation Task Map (VMware ESXi)” on page 14 “Supported OS Versions and Documentation” on page 15
Install a supported version of Windows OS.	“OS Installation Task Map (Windows)” on page 15 “Supported OS Versions and Documentation” on page 15
Choose an installation method.	“Understanding Installation Methods” on page 17

Related Information

- “Configuring the Preinstalled Oracle Solaris OS” on page 21
- “Configuring the Preinstalled Oracle VM 3. 3 Software” on page 27
- “Preparing to Install an OS” on page 31
- “Configuring RAID” on page 49

- “Installing a Supported OS” on page 65
- “Performing Post-Installation Tasks” on page 85

OS Installation Task Map (Oracle Solaris)

This table lists the tasks you perform for a new installation of the Oracle Solaris OS. If instead you plan to use a preinstalled version, see “Configuring the Preinstalled Oracle Solaris OS” on page 21.

Step	Description	Links
1.	Install the server hardware and configure the Oracle ILOM service processor.	*Server Installation*
2.	Determine which Oracle Solaris version to install.	“Supported OS Versions and Documentation” on page 15
3.	Choose an installation method.	“Understanding Installation Methods” on page 17
4.	Download or order the Oracle Solaris installation media.	For Oracle Solaris 11: `http://www.oracle.com/technetwork/server-storage/solaris11/downloads/index.html`
5.	Review the product notes.	*Netra Server X5-2 Product Notes*
6.	Prepare for the installation by configuring various installation options.	“Preparing to Install an OS” on page 31
7.	(Optional) Configure RAID.	“Configuring RAID” on page 49
8.	Install the Oracle Solaris OS.	“Installing a Supported OS” on page 65
9.	Perform post-installation tasks, if applicable.	“Performing Post-Installation Tasks” on page 85

Related Information

- “Configuring the Preinstalled Oracle Solaris OS” on page 21
- “Preparing to Install an OS” on page 31
- “Configuring RAID” on page 49
- “Installing a Supported OS” on page 65
- “Performing Post-Installation Tasks” on page 85

OS Installation Task Map (Oracle VM)

This table lists the tasks you perform for a new installation of the Oracle VM OS. If instead you plan to use a preinstalled version, see “Configuring the Preinstalled Oracle VM 3. 3 Software” on page 27.

Step	Description	Links
1.	Install your server hardware and configure the Oracle ILOM service processor.	*Server Installation*
2.	Determine which Oracle VM version to install.	"Supported OS Versions and Documentation" on page 15
3.	Choose an installation method.	"Understanding Installation Methods" on page 17
4.	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 these operating systems installed: ■ Oracle Linux 5.5, 64-bit and subsequent releases ■ Red Hat Enterprise Linux Release 6.6, 64-bit and subsequent releases	*Oracle VM Server Release Notes* and the *Oracle VM Manager Release Notes* at: `http://docs.oracle.com/cd/E50245_01/index.html`
5.	Obtain the Oracle VM installation media (optional) and the Oracle VM documentation. Use the Oracle VM documentation in conjunction with the installation procedures. **Note -** You do not need to download the image if you use OSA to install this OS.	■ ISO image of the Oracle VM installation program: `https://www.oracle.com/virtualization/index.html` ■ Oracle VM documentation: `http://docs.oracle.com/cd/E50245_01/index.html`
6.	Review the product notes.	*Netra Server X5-2 Product Notes*
7.	Prepare for the installation by configuring various installation options.	"Preparing to Install an OS" on page 31
8.	Install the Oracle VM Server and, if necessary, Oracle VM Manager.	"Installing a Supported OS" on page 65
9.	Perform post-installation tasks.	"Performing Post-Installation Tasks" on page 85

Related Information

- "Configuring the Preinstalled Oracle VM 3. 3 Software" on page 27
- "Preparing to Install an OS" on page 31
- "Installing a Supported OS" on page 65
- "Performing Post-Installation Tasks" on page 85

OS Installation Task Map (Linux)

Step	Description	Links
1.	Install your server hardware and configure the Oracle ILOM service processor.	*Server Installation*
2.	Determine which Linux version to install and access the documentation.	"Supported OS Versions and Documentation" on page 15
3.	Choose an installation method.	"Understanding Installation Methods" on page 17
4.	Obtain the Linux installation media. Use the documentation in conjunction with the installation procedures.	`https://www.oracle.com/linux/index.html`
5.	Review the product notes.	*Netra Server X5-2 Product Notes*
6.	Prepare for the installation by configuring various installation options.	"Preparing to Install an OS" on page 31

Step	Description	Links
7.	(Optional) Configure RAID.	“Configuring RAID” on page 49
8.	Install the Linux OS.	“Installing a Supported OS” on page 65
9.	Perform post-installation tasks.	“Performing Post-Installation Tasks” on page 85

Related Information

- “Preparing to Install an OS” on page 31
- “Configuring RAID” on page 49
- “Installing a Supported OS” on page 65
- “Performing Post-Installation Tasks” on page 85

OS Installation Task Map (VMware ESXi)

Step	Description	Links
1.	Install your server hardware and configure the Oracle ILOM service processor.	*Server Installation*
2.	Determine which versions are supported.	“Supported OS Versions and Documentation” on page 15
3.	Choose an installation method.	“Understanding Installation Methods” on page 17
4.	Obtain the VMware ESXi installation media and documentation.	ISO image of the VMware ESXi installation program: `http://www.vmware.com/download`
5.	Review the product notes.	*Netra Server X5-2 Product Notes*
6.	Prepare for the installation by configuring various installation options.	“Preparing to Install an OS” on page 31
7.	Install the VMware ESXi software.	“Installing a Supported OS” on page 65
8.	Perform post-installation tasks.	“Performing Post-Installation Tasks” on page 85

Related Information

- “Preparing to Install an OS” on page 31
- “Configuring RAID” on page 49
- “Installing a Supported OS” on page 65
- “Performing Post-Installation Tasks” on page 85

OS Installation Task Map (Windows)

Step	Description	Links
1.	Install your server hardware and configure the Oracle ILOM service processor.	*Server Installation*
2.	Determine which version of Windows to install.	"Supported OS Versions and Documentation" on page 15
3.	Choose an installation method.	"Understanding Installation Methods" on page 17
4.	Obtain the Windows installation media.	
5.	Review the product notes.	*Netra Server X5-2 Product Notes*
6.	Prepare for the installation by configuring various installation options.	"Preparing to Install an OS" on page 31
7.	Install the Windows OS.	"Installing a Supported OS" on page 65
8.	Perform post-installation tasks.	"Performing Post-Installation Tasks" on page 85

Related Information

- "Preparing to Install an OS" on page 31
- "Configuring RAID" on page 49
- "Installing a Supported OS" on page 65
- "Performing Post-Installation Tasks" on page 85

Supported OS Versions and Documentation

Note - For the latest information about supported OS versions refer to the *Netra Server X5-2 Product Notes*.

OS	Versions	Links to Documentation
Oracle Solaris 11	Release 11.2	`http://www.oracle.com/goto/solaris11/docs`
Oracle VM	Release 3.3	`http://www.oracle.com/technetwork/documentation/vm-096300.html`
Oracle Linux	Oracle Linux 6.6 for x86 (64-bit) with the Oracle Linux Support kernel or the Red Hat Compatible Kernel. See "Oracle Linux Support Kernel" on page 16 .	`http://www.oracle.com/technetwork/documentation/ol-1-1861776.html`
Red Hat Linux	RHEL 6.6 and 7.x for x86 (64-bit)	`http://www.redhat.com/en`

OS	Versions	Links to Documentation
		Note - You must first register at Red Hat for access to documentation.
SUSE Linux	SUSE Linux Enterprise Server 12 and 11 SP3 (64-bit).	http://www.suse.com/documentation/sles11/
VMware ESXi	5.x	https://www.vmware.com/support/pubs/
Windows Server	2008 R2 SP1 and 2012 R2 including: ■ Standard Edition (64-bit) ■ Enterprise Edition (64-bit) ■ Datacenter edition (64-bit)	https://www.microsoft.com

Related Information

- “OS Installation Task Map (Oracle Solaris)” on page 12
- “OS Installation Task Map (Oracle VM)” on page 12
- “OS Installation Task Map (Linux)” on page 13
- “OS Installation Task Map (VMware ESXi)” on page 14
- “OS Installation Task Map (Windows)” on page 15

Oracle Linux Support Kernel

Oracle Linux Support (formerly known as the Oracle Unbreakable Enterprise Kernel for Linux) is a kernel that is installed by default on Oracle Linux and can be installed on RHEL 6.6 and 7.0. This kernel is based on the 2.6.32 Linux kernel and includes optimizations developed by Oracle to ensure stability and optimal performance.

The Oracle Linux Support kernel installs directly on Oracle Linux 6.6 (by default) and on RHEL 6.6, so there is no need to upgrade to a new major release of the Linux OS to gain the benefits and features of this kernel. After you have installed this kernel, you still have the option of easily switching back to the Red Hat-compatible kernel.

For more information about Oracle Unbreakable Enterprise Linux, go to: http://www.oracle.com/us/technologies/linux/ubreakable-enterprise-kernel-linux-173350.html

Related Information

- “OS Installation Task Map (Linux)” on page 13

Understanding Installation Methods

These topics describe the installation methods available for the supported OSes.

Note - These installation methods describe how to install the OS on a single server. You can also install an OS on multiple servers using Oracle Enterprise Manager Ops Center. For details, refer to information at: `http://www.oracle.com/technetwork/oem/ops-center/index.html`

Description	Links
Use OSA to install these OSes: ■ Oracle VM ■ Supported Linux ■ Windows	"OSA for Guided OS Installations" on page 17
Use the OS media to locally or remotely install the OS on any of the supported OSes.	"OS Media for Manual Installations" on page 18
Use your PXE environment to install these OSes: ■ Oracle Solaris ■ Supported Linux ■ Windows	"PXE for Network Installations" on page 19

Related Information

- "OS Installation Task Map (Oracle Solaris)" on page 12
- "OS Installation Task Map (Oracle VM)" on page 12
- "OS Installation Task Map (Linux)" on page 13
- "OS Installation Task Map (VMware ESXi)" on page 14
- "OS Installation Task Map (Windows)" on page 15
- "Supported OS Versions and Documentation" on page 15

OSA for Guided OS Installations

You can use OSA to perform a guided installation of these OSes:

- Oracle VM
- Linux
- Windows

You supply the OS installation media, and OSA guides you through the installation process. OSA then fetches the appropriate drivers based on your server hardware configuration.

Note - The OSA Installation OS option is not available for all supported operating systems.

During the OS installation you can use OSA to update the OS drivers and other firmware components (such as BIOS, Oracle ILOM, HBAs, and expanders, if applicable).

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

Alternatively, you can install an OS manually using the media. See "OS Media for Manual Installations" on page 18.

Once the OS is installed, you can use OSA to perform a number of administrative tasks, even for OSes that OSA does not install. Some of these tasks include:

- Get the latest available system BIOS, Oracle ILOM, firmware, and drivers from Oracle (an Internet connection is required).
- Update system Oracle-certified device drivers for optional accessory cards and other system hardware.
- Configure RAID 0 or RAID 1 for servers that contain a supported LSI disk controller.
- Configure the SP, including modifying identification information; configuring network settings (IPv4 and IPv6) and DNS; adding, deleting, or modifying users; and setting the service processor clock.
- Display system overview and hardware inventory information.
- Set the keyboard language.
- Access a Linux shell terminal window allowing use of the runtime environment.
- Access Oracle HMP (using the Linux shell).

For more information about OSA refer to *Server Administration*.

Related Information

- "OS Installation Task Map (Oracle VM)" on page 12
- "OS Installation Task Map (Linux)" on page 13
- "OS Installation Task Map (Windows)" on page 15
- "Supported OS Versions and Documentation" on page 15

OS Media for Manual Installations

You provide the OS distribution media on either a local or remote CD/DVD, USB device, or CD/DVD image and perform the installation manually using the OS installation wizard.

You can use this method for every supported OS.

In some cases, you must install additional drivers. The drivers for your server are available on the server's internal OSA USB drive and from the My Oracle Support web site.

Related Information

- “OS Installation Task Map (Oracle Solaris)” on page 12
- “OS Installation Task Map (Oracle VM)” on page 12
- “OS Installation Task Map (Linux)” on page 13
- “OS Installation Task Map (VMware ESXi)” on page 14
- “OS Installation Task Map (Windows)” on page 15
- “Supported OS Versions and Documentation” on page 15

PXE for Network Installations

The server supports PXE OS installations for these OSes:

- Oracle Solaris
- Supported Linux
- Windows

Performing OS installations using PXE enables you to install certain OSes by booting the server over an established PXE-based network.

Your network environment must be configured to support PXE. This guide does not cover PXE configuration, however, this guide does provide instructions for initiating a OS installation in a PXE environment.

Related Information

- “OS Installation Task Map (Oracle Solaris)” on page 12
- “OS Installation Task Map (Linux)” on page 13
- “OS Installation Task Map (Windows)” on page 15
- “Supported OS Versions and Documentation” on page 15

Configuring the Preinstalled Oracle Solaris OS

These topics describe how to configure the Oracle Solaris OS that is preinstalled (if ordered) on your server. The preinstalled OS image contains all of the necessary drivers for your server.

Step	Description	Links
1.	Review RAID limitations on the preinstalled OS.	“Preinstalled OS RAID Limitations” on page 21
2.	Gather the information you need during the configuration process.	“Configuration Worksheet (Oracle Solaris)” on page 22
3.	Configure the preinstalled Oracle Solaris OS.	“Configure the Preinstalled Oracle Solaris OS” on page 24

Related Information

- “Choosing an OS Installation Method” on page 11
- “Configuring the Preinstalled Oracle VM 3. 3 Software” on page 27
- “Preparing to Install an OS” on page 31
- “Configuring RAID” on page 49
- “Installing a Supported OS” on page 65
- “Performing Post-Installation Tasks” on page 85

Preinstalled OS RAID Limitations

Configuring RAID for the server is optional. However, the Oracle Solaris preinstalled image can only be configured in a non-RAID configuration. If a RAID configuration is required, you must configure RAID on the server and then perform a fresh installation of the Oracle Solaris OS (or other OS) in the desired RAID configuration.

Related Information

- “Configuration Worksheet (Oracle Solaris)” on page 22
- “Configure the Preinstalled Oracle Solaris OS” on page 24

Configuration Worksheet (Oracle Solaris)

Use this configuration worksheet to gather the information you need to configure the Oracle Solaris OS. You need to collect only the information that applies to your application of the system.

Information for Installation		Description or Example	Your Values (* Denotes the default value)
Language		Select from the list of available languages for the OS.	English*
Locale		Select your geographic region from the list of available locales.	
Terminal		Select the type of terminal that you are using from the list of available terminal types.	
Network connection		Is the system connected to a network?	■ Networked ■ Nonnetworked*
DHCP		Can the system use Dynamic Host Configuration Protocol (DHCP) to configure its network interfaces?	■ Yes ■ No*
If you are not using DHCP, note the network address:	IP address	Supply the IP address for the system. Example: `192.168.100.1`	
	Subnet	Is the system part of a subnet? If yes, what is the netmask of the subnet? Example: `255.255.255.0`	`255.255.0.0`*
	IPv6	Do you want to enable IPv6 on this machine?	■ Yes ■ No*
Host name		Choose a host name for the system.	
Kerberos		Do you want to configure Kerberos security on this machine? If yes, gather this information: ■ Default realm: ■ Administration server: ■ First KDC: ■ (Optional) Additional KDCs:	■ Yes ■ No*
Name service	Name service	If applicable, which name service will this system use?	■ NIS+ ■ NIS ■ DNS ■ LDAP ■ None*
	Domain name	Provide the name of the domain in which the system resides.	DNS or NIS
	NIS+ and NIS	*If you chose NIS+ or NIS*, do you want to specify a name server, or let the installation program find one?	■ Specify One ■ Find One*

Information for Installation		Description or Example	Your Values (* Denotes the default value)
			If you choose NIS: ■ Specify a NIS domain, or ■ Indicate whether to specify a NIS server or search for one.
	DNS	*If you chose DNS*, provide IP addresses for the DNS server. You must enter at least one IP address, but you can enter up to three addresses. You can also enter a list of DNS domains to search when a DNS query is made. Search domain: Search domain: Search domain:	
	LDAP	*If you chose LDAP*, provide this information about your LDAP profile: ■ Profile name: ■ Profile server: If you specify a proxy credential level in your LDAP profile, gather this information: ■ Proxy-bind distinguished name: ■ Proxy-bind password:	
Default route		Do you want to specify a default route IP address, or let the OS installation program find one? The default route provides a bridge that forwards traffic between two physical networks. An IP address is a unique number that identifies each host on a network. You have these choices: ■ You can specify the IP address. An `/etc/defaultrouter` file is created with the specified IP address. When the system is rebooted, the specified IP address becomes the default route. ■ You can let the OS installation program detect an IP address. However, the system must be on a subnet that has a router that advertises itself by using the ICMP for router discovery. If you are using the CLI, the software detects an IP address when the system is booted. ■ You can select None if you do not have a router or do not want the software to detect an IP address at this time. The software automatically tries to detect an IP address on reboot.	■ Specify one ■ Detect One ■ None*
Time zone		How do you want to specify your default time zone?	■ Geographic region* ■ Offset from GMT

Information for Installation	Description or Example	Your Values (* Denotes the default value)
		■ Time zone file
Root password	Choose a root password for the system.	

Related Information

- "Preinstalled OS RAID Limitations" on page 21
- "Configure the Preinstalled Oracle Solaris OS" on page 24

▼ Configure the Preinstalled Oracle Solaris OS

When the server is started for the first time, you are prompted to configure the preinstalled Oracle Solaris OS.

Note - You can only perform this procedure if the server was ordered with the Oracle Solaris OS preinstalled.

1. **If you are not already logged in to Oracle ILOM, log in either through the serial management port or from the network management port.**
   Refer to *Server Administration*, accessing Oracle ILOM.

2. **If main power has not yet been applied to the server, power on or restart the server in one of these ways.**

   - **Power on the server –** Use one of these methods:
     - From the Oracle ILOM web interface System Information page, click Power State → Turn On.
     - From the Oracle ILOM CLI, type:

       ```
       -> start /System
       ```
   - **Restart the server –** Use one of these methods:
     - From the Oracle ILOM web interface, click Host Management → Power Control and select Reset from the Select Action list box. Then click Save and OK.
     - From the Oracle ILOM CLI, type:

       ```
       -> reset /System
       ```

   The server starts the boot process.

3. **From Oracle ILOM, start the remote console using one of these methods.**

   - **From the Oracle ILOM web interface**

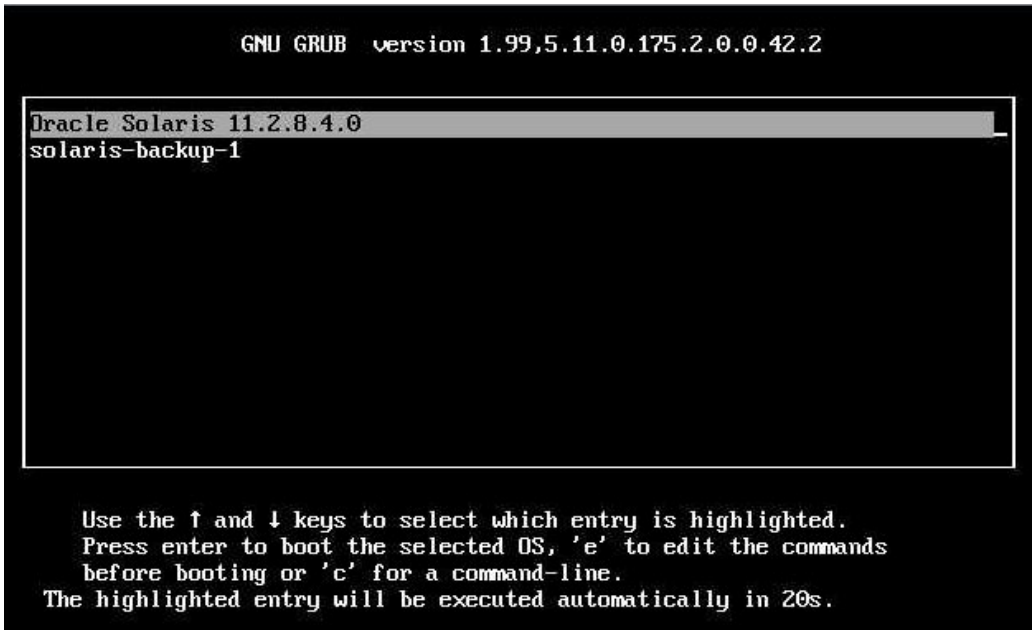
Navigate to the System Information → Summary page, click Launch for Remote Console in the Actions panel. Then click Turn On for the Power State.

- **From the Oracle ILOM CLI**

  Type:

```
-> start /HOST/console
Are you sure you want to start /HOST/console (y/n)? y
Serial console started.
```

After the server boots, the GRUB menu appears.



From the GRUB menu, you can choose whether you want to continue to direct the display to the serial port, or whether you want to direct the display to a device connected to the video port.

Note - If you do not press a key within the time limit, the GRUB menu disappears from the screen and the display is by default directed to the serial port. To pause at the GRUB menu, press any key other than Enter. Then select the option you want to use and Press Enter to continue.

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4. **Use the up and down arrow keys to select one of these display options.**

Note - The first two options and the last option listed on the screen are not supported.

- **Display output to the serial port – Select the appropriate option in the GRUB menu and press Enter.**

  This is the default option. If you do not select an option on the GRUB menu, after five seconds, the GRUB menu is no longer available and the system continues with the output directed to the serial port.

- **Display output to the video port – Select the appropriate option in the GRUB menu and press Enter.**

  If you choose this option, you must connect a device to the VGA connector on the server and an input device (USB keyboard or mouse).

5. **Follow the Oracle Solaris 11 installer on-screen prompts to configure the software.**

   Use the information gathered in "Configuration Worksheet (Oracle Solaris)" on page 22 to help you enter the system and network information as you are prompted.

   The screens that are displayed will vary, depending on the configuration option you select (for example, DHCP or static IP address).

   After you enter the system configuration information, the server completes the boot process and displays the Oracle Solaris login prompt.

   For detailed information about using the Oracle Solaris OS, access the documentation listed in `http://www.oracle.com/goto/solaris11/docs`.

Related Information

- "Preinstalled OS RAID Limitations" on page 21
- "Configuration Worksheet (Oracle Solaris)" on page 22

Configuring the Preinstalled Oracle VM 3. 3 Software

These topics describe how to configure the Oracle VM 3.3 software that is preinstalled (if ordered) on the server. The preinstalled image contains all of the necessary drivers for the server.

Step	Description	Links
1.	Gather necessary configuration information.	“Configuration Worksheet (Oracle VM Server)” on page 27
2.	Configure the preinstalled Oracle VM software.	“Configure the Preinstalled Oracle VM 3.3 OS” on page 28
3.	Get started using Oracle VM.	“Oracle VM 3.3 Overview” on page 30

Related Information

- “Choosing an OS Installation Method” on page 11
- “Configuring the Preinstalled Oracle Solaris OS” on page 21
- “Preparing to Install an OS” on page 31
- “Configuring RAID” on page 49
- “Installing a Supported OS” on page 65
- “Performing Post-Installation Tasks” on page 85

Configuration Worksheet (Oracle VM Server)

Use this configuration worksheet to gather the information you need to configure the Oracle VM Server.

Information for Configuration		Description or Example	Your Values
Oracle VM Server passwords	Root	Choose a root password. There are no restrictions on the characters or length.	

Information for Configuration		Description or Example	Your Values
	Oracle VM agent	Choose an Oracle VM agent password. The password must be at least six characters.	
Network interface		Supply the interface to be used to manage the server.	
Network configuration	Static IP address	Supply the IP address for the server. A static IP address is required. Example: `172.16.9.1`	
	Netmask	If the server is part of a subnet, supply the netmask of the subnet. Example: `255.255.0.0`	
	Gateway	If the server is accessed via a gateway, supply the IP address of the gateway.	
	DNS server	Supply the IP address for the domain name server (DNS). One (and only one) DNS is required.	
Hostname		Supply the fully qualified domain name for the server. Example: `foo.company.com`	

Related Information

- “Configure the Preinstalled Oracle VM 3.3 OS” on page 28
- “Oracle VM 3.3 Overview” on page 30

▼ Configure the Preinstalled Oracle VM 3.3 OS

These instructions only describe how to configure the preinstalled Oracle VM Server on your server. Oracle VM has other components that must be installed or already up and running to support the virtual machine environment.

For more information about Oracle VM requirements, refer to the Oracle VM documentation listed in `http://www.oracle.com/technetwork/server-storage/vm/documentation/index.html`.

1. **If you are not already logged in to Oracle ILOM, log in either through the serial management port or from the network management port.**

   Refer to *Server Administration*, accessing Oracle ILOM.

2. **If main power has not yet been applied to the server, power on or restart the server in one of these ways.**

- **Power on the server –** Use one of these methods:
  - From the Oracle ILOM web interface Summary Information page, click Turn On for the Power State in the Actions panel.
  - From the Oracle ILOM CLI, type:

    ```
    -> start /System
    ```
- **Restart the server –** Use one of these methods:
  - From the Oracle ILOM web interface, navigate to Host Management → Power Control and select Reset from the Select Action drop-down menu. Then click Save and OK.
  - From the Oracle ILOM CLI, type:

    ```
    -> reset /System
    ```

The server starts the boot process.

3. **From Oracle ILOM, start the remote console using one of these methods.**

   - **From the Oracle ILOM web interface**

     Navigate to the System Information → Summary page, click Launch for Remote Console in the Actions panel. Then click Turn On for the Power State.
   - **From the Oracle ILOM CLI**

     Type:

     ```
     -> start /HOST/console
     Are you sure you want to start /HOST/console (y/n)? y
     Serial console started.
     ```

   From the GRUB menu, you can choose whether you want to continue to direct the display to the serial port, or whether you want to direct the display to a device connected to the video port.

   Note - If you do not press a key within five seconds, the GRUB menu disappears from the screen and the display is by default directed to the serial port. To pause at the GRUB menu, press any key other than Enter. Then select the option you want to use and Press Enter to continue.

4. **Use the up and down arrow keys to select one of these display options.**

   Note - The first two options and the last option listed on the screen are not supported.

   - **Display output to the serial port – Select the appropriate option in the GRUB menu and press Enter.**

This is the default option. If you do not select an option on the GRUB menu, after five seconds, the GRUB menu is no longer available and the system continues with the output directed to the serial port.

- **Display output to the video port – Select the appropriate option in the GRUB menu and press Enter.**

  If you choose this option, you must connect a device to the VGA connector on the server and an input device (USB keyboard or mouse).

5. **Follow the Oracle VM installer on-screen prompts to configure the Oracle VM Server portion of the software.**

   After you have responded to all the prompts for system information, the server completes the boot process and displays the Oracle VM login prompt.

Related Information

- “Configuration Worksheet (Oracle VM Server)” on page 27
- “Oracle VM 3.3 Overview” on page 30

Oracle VM 3.3 Overview

Use this information to get started using Oracle VM:

- The default root password for the Oracle Linux VM is `ovsroot`.
- The default console password for the VMs is `oracle`.
- You configure the root password for the Oracle Solaris VM during the Oracle Solaris installation procedure. Refer to the Oracle Solaris OS documentation.

For complete information about using Oracle VM 3.3, refer to the Oracle VM 3.3 documentation listed in `http://www.oracle.com/goto/solaris11/docs`.

Related Information

- `http://www.oracle.com/technetwork/documentation/index.html#virtualization`.
- “Configuration Worksheet (Oracle VM Server)” on page 27
- “Configure the Preinstalled Oracle VM 3.3 OS” on page 28

Preparing to Install an OS

These topics describe how to prepare for a new installation of a supported OS.

Step	Description	Links
1.	Learn about console display options and set them up.	“Selecting the Console Display” on page 31
2.	Learn about boot media options and set them up.	“Selecting the Boot Media” on page 35
3.	Verify and configure server BIOS settings.	“Setting Up BIOS” on page 44
4.	Access installation utilities.	“Accessing Installation Utilities” on page 41
5.	Configure BIOS.	“Setting Up BIOS” on page 44

Related Information

- “Choosing an OS Installation Method” on page 11
- “Configuring RAID” on page 49
- “Installing a Supported OS” on page 65
- “Performing Post-Installation Tasks” on page 85

Selecting the Console Display

To use any of the OS installation methods, you must have access to the server.

These topics describe the options for connecting a console from which you perform the installation.

- “Console Display Options” on page 32
- “Set Up a Serial Console CLI Connection” on page 32
- “Set Up a KVM Console Connection” on page 33
- “Set Up an SSH Client Network Console Connection” on page 33
- “Set Up a Web-Based Client Console Connection” on page 34

Related Information

- “Selecting the Boot Media” on page 35
- “Preparing Your PXE Environment” on page 37
- “Accessing Installation Utilities” on page 41
- “Setting Up BIOS” on page 44

Console Display Options

You can install the OS and administer the server through 4 types of consoles:

- Serial console CLI connection
- Keyboard, Video, Mouse (KVM) console connection
- Web-based client connection using the Oracle ILOM Remote Console application
- SSH client network CLI connection

Related Information

- Oracle ILOM 3.2 documentation at: `http://www.oracle.com/goto/ILOM/docs`
- “Set Up a Serial Console CLI Connection” on page 32
- “Set Up a KVM Console Connection” on page 33
- “Set Up an SSH Client Network Console Connection” on page 33
- “Set Up a Web-Based Client Console Connection” on page 34

▼ Set Up a Serial Console CLI Connection

1. **Attach a terminal device to the server SER MGT port.**
   For details, refer to *Server Installation*, connecting cables.
2. **Press the Enter key.**
   The Oracle ILOM prompt appears.
3. **Log in to Oracle ILOM.**
   This is the factory default login account:
   - **User name** – `root`
   - **Password** – `changeme`
4. **Establish a connection to the host console.**

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

The serial output is automatically routed to the local console.

Related Information

- Oracle ILOM 3.2 documentation at: `http://www.oracle.com/goto/ILOM/docs`
- “Console Display Options” on page 32
- “Set Up a KVM Console Connection” on page 33
- “Set Up an SSH Client Network Console Connection” on page 33
- “Set Up a Web-Based Client Console Connection” on page 34

▼ Set Up a KVM Console Connection

1. **Attach a VGA monitor, keyboard, and mouse to the server.**
   For details, refer to *Server Installation*, connecting cables.
2. **Press the Enter Key.**
   The Oracle ILOM prompt appears.
3. **Log in to Oracle ILOM.**
   This is the factory default login account:
   - **User name** – `root`
   - **Password** – `changeme`

Related Information

- Oracle ILOM 3.2 documentation at: `http://www.oracle.com/goto/ILOM/docs`
- “Console Display Options” on page 32
- “Set Up a Serial Console CLI Connection” on page 32
- “Set Up an SSH Client Network Console Connection” on page 33
- “Set Up a Web-Based Client Console Connection” on page 34

▼ Set Up an SSH Client Network Console Connection

This procedure uses the Oracle ILOM CLI to remotely access the server console.

1. **Establish an IP address for the server SP.**

   Refer to *Server Administration*, configuring the NET MGT port.

2. **From a network console, establish an SSH connection to the server SP and log in to Oracle ILOM.**

   ```
   ssh root@hostname_or_IP_address
   Password: changme
   ->
   ```

   The Oracle ILOM CLI prompt is displayed..

3. **Establish a connection to the host console.**

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

Related Information

- Oracle ILOM 3.2 documentation at: `http://www.oracle.com/goto/ILOM/docs`
- “Console Display Options” on page 32
- “Set Up a Serial Console CLI Connection” on page 32
- “Set Up a KVM Console Connection” on page 33
- “Set Up a Web-Based Client Console Connection” on page 34

▼ Set Up a Web-Based Client Console Connection

This procedure uses the Oracle ILOM web browser to remotely access the server console.

1. **Establish an IP address for the server SP.**

   Refer to *Server Administration*, configuring the NET MGT port.

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

   The Oracle ILOM Please Log In page is displayed.

3. **Log in to Oracle ILOM.**

   This is the factory default login account:

   - **User name** – `root`
   - **Password** – `changeme`

4. **Navigate to the Remote Control → Redirection page.**

   The Redirection page is displayed.

5. **Select either video or serial redirection.**

6. **Click Launch Remote Console.**

   A separate window is displayed. The information displayed in the Remote Console differs based on the state of the host.

   - **Host is powered off** – Blank screen.
   - **Host is booting** – BIOS initialization windows are displayed. During this activity, you can enter various BIOS keys to enter the BIOS Setup utility or start OSA. See "Setting Up BIOS" on page 44.
   - **Host OS is booted** – A message appears prompting you to specify user credentials for the installed OS.

Related Information

- Oracle ILOM 3.2 documentation at: `http://www.oracle.com/goto/ILOM/docs`
- "Console Display Options" on page 32
- "Set Up a Serial Console CLI Connection" on page 32
- "Set Up a KVM Console Connection" on page 33
- "Set Up an SSH Client Network Console Connection" on page 33
- "Set Up a Web-Based Client Console Connection" on page 34

Selecting the Boot Media

Use one of these procedures to start the OS installation by booting from a local or remote installation media source.

Description	Links
Start the installation using a local CD/DVD-ROM device.	"Set Up Local Boot Media" on page 36
Start the installation using a remote CD/DVD-ROM device or ISO installation image.	"Set Up Remote Boot Media" on page 36

Related Information

- "Selecting the Console Display" on page 31
- "Preparing Your PXE Environment" on page 37
- "Accessing Installation Utilities" on page 41
- "Setting Up BIOS" on page 44

Set Up Local Boot Media

Local boot media requires that the server have a built-in or an externally attached CD/DVD-ROM device.

- **If your server does not contain a built-in CD/DVD-ROM device, attach the appropriate device to the server.**
  For more information about how to attach devices to the server refer to *Server Service*.

Related Information

- "Set Up Remote Boot Media" on page 36

Set Up Remote Boot Media

You can start the network installation from a redirected boot device such as a CD/DVD or ISO image. You must provide the installation media.

Note - Alternatively, you can start the network installation from a networked system that exports the installation over the network using a PXE environment. See "Preparing Your PXE Environment" on page 37.

---

1. **Insert the boot media into the device.**
   - **For a CD/DVD-ROM – Insert media into the built-in or external CD/DVD drive.**
   - **For a CD/DVD-ROM ISO image – Ensure that ISO images are readily available on a network shared location.**
2. **Establish a web-based remote console connection.**
   See "Set Up a Web-Based Client Console Connection" on page 34.
3. **In the KVMS menu of the Oracle ILOM Remote Console, click Storage...**
   The Storage Devices window opens.
4. **Click Add...**
   The Add Storage Device window opens.
5. **Locate the bootable image, and click Select.**
   The Storage Devices window is updated with the Path and Device Type.
6. **Click Connect.**

The image is mounted and available to the Oracle ILOM Remote Console.

Related Information

- “Set Up Local Boot Media” on page 36

Preparing Your PXE Environment

These topics describe how to set up your environment to support PXE OS installation of supported OSes. The server supports PXE-based installations for these OSes:

- Oracle Solaris
- Oracle Linux
- Red Hat Linux
- SUSE Linux
- Windows OS

Note - You only need to perform these setup tasks if you plan to perform an OS installation using PXE.

- “Prepare PXE (Oracle Solaris)” on page 37
- “Prepare PXE (Linux)” on page 38
- “Prepare PXE (Windows)” on page 40

Related Information

- “Selecting the Console Display” on page 31
- “Selecting the Boot Media” on page 35
- “Accessing Installation Utilities” on page 41
- “Setting Up BIOS” on page 44

▼ Prepare PXE (Oracle Solaris)

This procedure describes how to prepare your environment so you can install the Oracle Solaris OS using PXE.

Note - JumpStart eliminates most of the manual tasks of setting up the Oracle Solaris OS for the first time on multiple servers. For more information about using a JumpStart image, refer to the Oracle Solaris installation documentation.

1. **Ensure that the PXE boot JumpStart installation server is properly set up and accessible to your server on the network.**

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

2. **Ensure that the Oracle Solaris installation media is available for PXE boot.**

3. **Ensure that the JumpStart installation server has your server's MAC address of the network interface from which the server will boot.**

   As an example, if you want to PXE boot from NET0, you can obtain the server's MAC address by logging in to the SP as root, and typing:

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

4. **Install the OS.**

   See “Install an OS (PXE)” on page 80.

Related Information

- “Prepare PXE (Linux)” on page 38
- “Prepare PXE (Windows)” on page 40

▼ Prepare PXE (Linux)

This procedure describes the high-level steps that you perform to set up your PXE environment to support PXE booting for supported Linux OSes. For setup details, refer to the installation documentation for your OS.

1. **Follow the PXE network installation instructions from one of these resources:**

   - **Oracle Linux and Red Hat Linux – Follow the PXE network installation instructions in the *Red Hat Enterprise Linux: System Administration Guide* at:**

     `http://www.redhat.com/en`

   Note - You must first register at Red Hat for access to documentation.

- **SLES 11 SP3 – Go to:**

  http://www.suse.com/documentation/sles11/

2. **Configure the network (NFS, FTP, HTTP) server to export the installation tree.**

   You can configure your network to provide the ISO DVD image or use a KickStart image (network repository).

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

3. **Ensure that these items are configured.**

   a. **Configure the files on the TFTP server necessary for PXE booting.**

   b. **Configure your server's MAC network port address to boot from the PXE configuration.**

      As an example, if you want to PXE boot from NET0, you can obtain the server's MAC address by logging in to the SP as root, and typing:

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

   c. **Configure DHCP.**

4. **If you are using a KickStart image to perform the installation, ensure that these items are configured.**

   a. **Create a KickStart file.**

   b. **Create the boot media with the KickStart file or make the KickStart file available on the network.**

5. **Install the OS.**

   See "Install an OS (PXE)" on page 80.

Related Information

- "Prepare PXE (Oracle Solaris)" on page 37
- "Prepare PXE (Windows)" on page 40

Prepare PXE (Windows)

This procedure describes the high-level steps that you perform to set up your PXE environment to support PXE booting for supported Windows OSes using WDS. For setup details, refer to Microsoft's WDS documentation.

1. **Ensure that these items are configured.**

   a. **Configure the network (NFS, FTP, HTTP) server to export the installation tree.**

   b. **Configure the files on the TFTP server necessary for PXE booting.**

   c. **Configure your server's MAC network port address to boot from the PXE configuration.**

      As an example, if you want to PXE boot from NET0, you can obtain the server's MAC address by logging in to the SP as root, and typing:

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

   d. **Configure DHCP.**

2. **If you are using WDS to perform the installation, ensure that these items are configured.**

   a. **Add the required system device drivers to the `install.wim` image and, if necessary, the `boot.wim` image.**

      For instructions for adding drivers to the WIM installation images, refer to the Microsoft WDS documentation.

   b. **Obtain the WIM Administrator password.**

3. **Install the OS.**

   See “Install an OS (PXE)” on page 80.

Related Information

- “Prepare PXE (Oracle Solaris)” on page 37
- “Prepare PXE (Linux)” on page 38

Accessing Installation Utilities

Use these topics to initiate various installation tasks:

Related Information

- "Selecting the Console Display" on page 31
- "Selecting the Boot Media" on page 35
- "Preparing Your PXE Environment" on page 37
- "Setting Up BIOS" on page 44

▼ Initiate a BIOS Operation

This procedure resets the server.

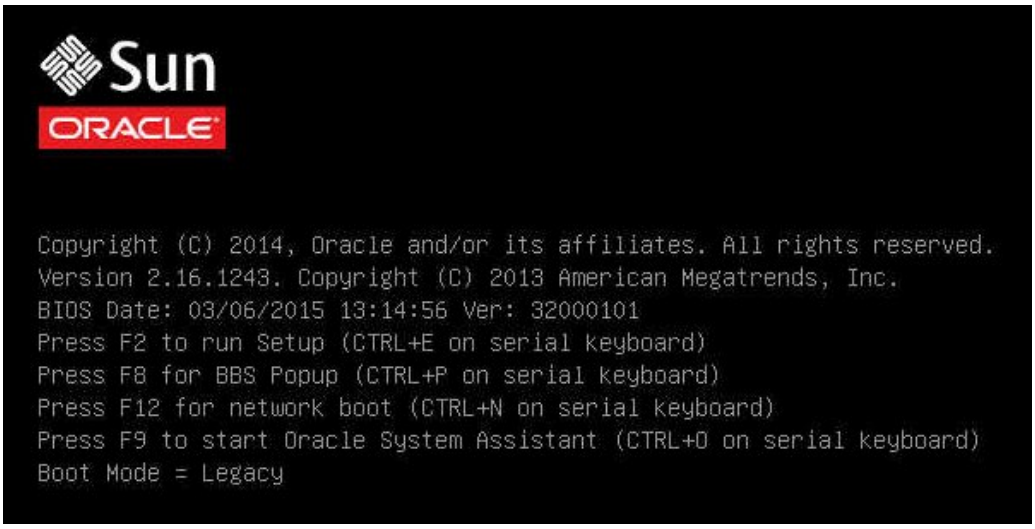
1. **Perform one of the following actions.**

Note - During the reset or power on, pay close attention to the screen so that you can interrupt the boot process at the correct time.

- **From the local server – Press the Power button 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 startup screen is displayed.



2. **Depending on your OS installation method, interrupt the boot process and continue to the appropriate procedure.**

   Use one of these keys:

Function Key	Control Key Sequence	Description	Installation Procedure
F1	Ctrl+Q	Access BIOS Setup help.	n/a
F2	Ctrl+E	Access the BIOS Setup utility during BIOS POST.	“Setting Up BIOS” on page 44
F7	Ctrl+D	Discard changes.	n/a
F8	Ctrl+P	Access the BIOS boot menu during BIOS POST.	“Installing a Supported OS” on page 65
F9	Ctrl+O	Start OSA during BIOS POST. (BIOS boots to OSA, bypassing the current Boot Priority List for this one-time boot.)	“Install an OS (OSA)” on page 65
F10	Ctrl+S	Save BIOS changes and exit.	n/a
F12	Ctrl+N	Activate a network boot during BIOS POST.	

Related Information

- “Start OSA” on page 43

▼ Start OSA

1. **Start OSA in one of two ways.**

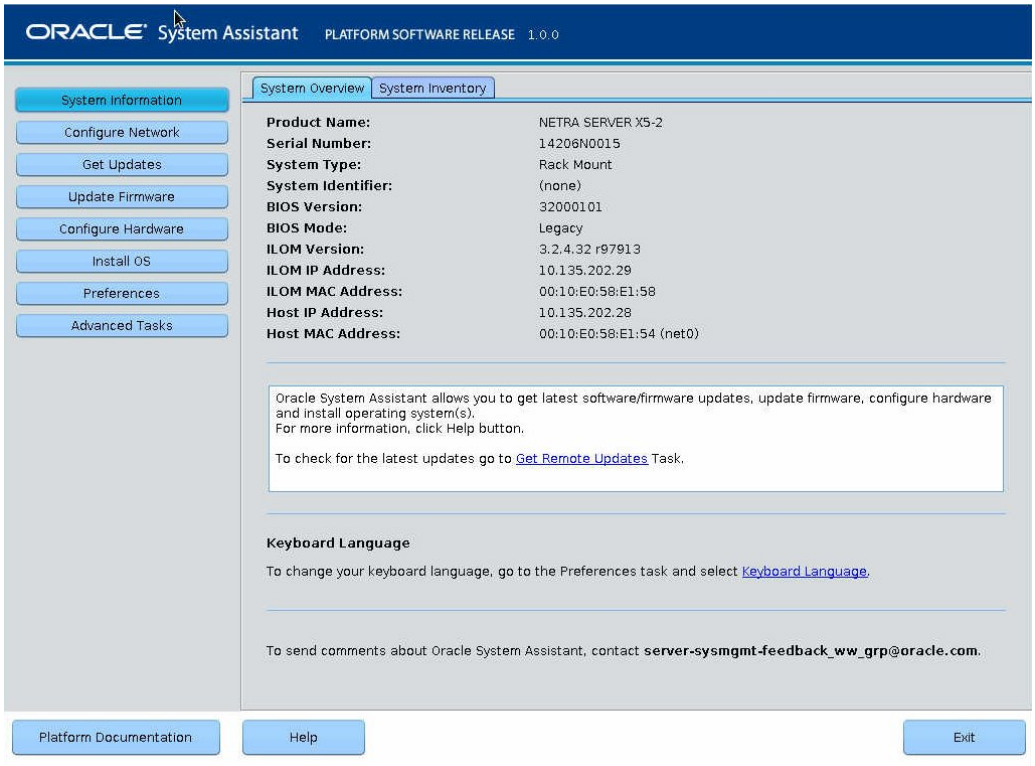
   - **From the Oracle ILOM web interface, navigate to the System Information → Summary page, click Launch for Oracle System Assistant in the Actions panel.**

   - **Reset or power on the server and press F9 during boot up.**

     See "Initiate a BIOS Operation" on page 41.

2. **Enlarge the size of your window to eliminate scroll bars.**

   The OSA main window appears.



3. **Use OSA to install and administer the server.**

   Use one of these procedures:

- “Configure RAID (OSA)” on page 52
- “Install an OS (OSA)” on page 65

Related Information

- “Initiate a BIOS Operation” on page 41

Setting Up BIOS

If the server is newly installed and this is the first time that an OS is installed, then the BIOS is set to default values that are optimized for the server.

You only need to change the BIOS if you want to perform these tasks.

Description	Links
Learn about BIOS.	“BIOS Overview (OS Installation)” on page 44 *Server Administration*, BIOS overview
Ensure that the BIOS settings are set to default values.	“Set BIOS Settings to Default Values” on page 45
Configure the server to use either Legacy BIOS mode or UEFI boot mode.	“Switch Between Legacy BIOS and UEFI BIOS Modes” on page 47

Related Information

- *Server Administration*, understanding administration resources and accessing administration tools

BIOS Overview (OS Installation)

BIOS firmware is built in to the server and provides the server with configuration information and programs that enable the server to boot.

The server's BIOS can be configured to operate in one of these two modes:

- **Legacy BIOS** (default) – Works with all of the supported OSes, but does not offer the latest BIOS features.
- **UEFI BIOS** – Provides the latest BIOS features, but only supports these OSes:
  - Oracle Enterprise Linux
  - Oracle Solaris

- Oracle VM
- SUSE Linux Enterprise Server
- RHEL
- Microsoft Windows

Some devices do not yet support UEFI-based BIOS and can only boot from Legacy BIOS. Depending on your situation, you might need to configure the server's BIOS for Legacy BIOS Mode or UEFI Boot Mode.

Once you choose a mode and install an OS, the server can only boot using the same mode that was used for the installation.

Ensure that the server's BIOS is configured for your desired mode before you install an OS.

Note - When switching between Legacy BIOS Mode and UEFI Boot Mode (either direction), the BIOS configuration settings for a given mode do not persist.

You can use these tools to view, configure, and reset default BIOS values:

- BIOS Setup utility
- OSA

Any changes you make in the BIOS Setup utility are permanent until 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 takes effect after booting from the temporary boot device.

Note - You can set the BIOS mode using OSA during the installation process. See “Install an OS (OSA)” on page 65.

Related Information

- “Set BIOS Settings to Default Values” on page 45
- “Switch Between Legacy BIOS and UEFI BIOS Modes” on page 47

▼ Set BIOS Settings to Default Values

Note - If the server is newly installed and this is the first time that an OS is installed, then the BIOS is configured to its default settings. You do not have to perform this task.

---

1. **Ensure that these requirements are met:**

   - A drive is properly installed in the server. Refer to *Server Service*.
   - A console connection is established to the server. For details, see "Selecting the Console Display" on page 31 .

2. **Access the BIOS Setup utility.**

   See "Initiate a BIOS Operation" on page 41.

3. **Press F9 to automatically load the optimized default settings.**

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

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

   The BIOS Setup utility screen appears with the cursor highlighting the first value in the System Time field.

5. **In the BIOS Setup utility, edit the values associated with the system time and 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. **Change the values in the highlighted fields using these keys:**

      - + (plus) increments the current value shown.
      - - (minus) decrements the current value shown.
      - Enter moves the cursor to the next value field.

6. **Press F10 to save changes and exit the BIOS Setup utility.**

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.

Related Information

- "BIOS Overview (OS Installation)" on page 44
- "Switch Between Legacy BIOS and UEFI BIOS Modes" on page 47

▼ Switch Between Legacy BIOS and UEFI BIOS Modes

The BIOS firmware supports both Legacy BIOS (the default) and UEFI. Because some OSes support both Legacy BIOS and UEFI BIOS and some only support Legacy BIOS, you have these options:

- If the OS being installed supports Legacy BIOS only, ensure that BIOS is set to Legacy mode before you install the OS.
- If the OS being installed supports both Legacy BIOS and UEFI BIOS, you can set the BIOS to either Legacy mode or UEFI mode. Set the BIOS mode before you install the OS.

Note - The Windows Server 2008 OSes support both Legacy and UEFI BIOS modes. You can choose which mode to use for the OS installation.

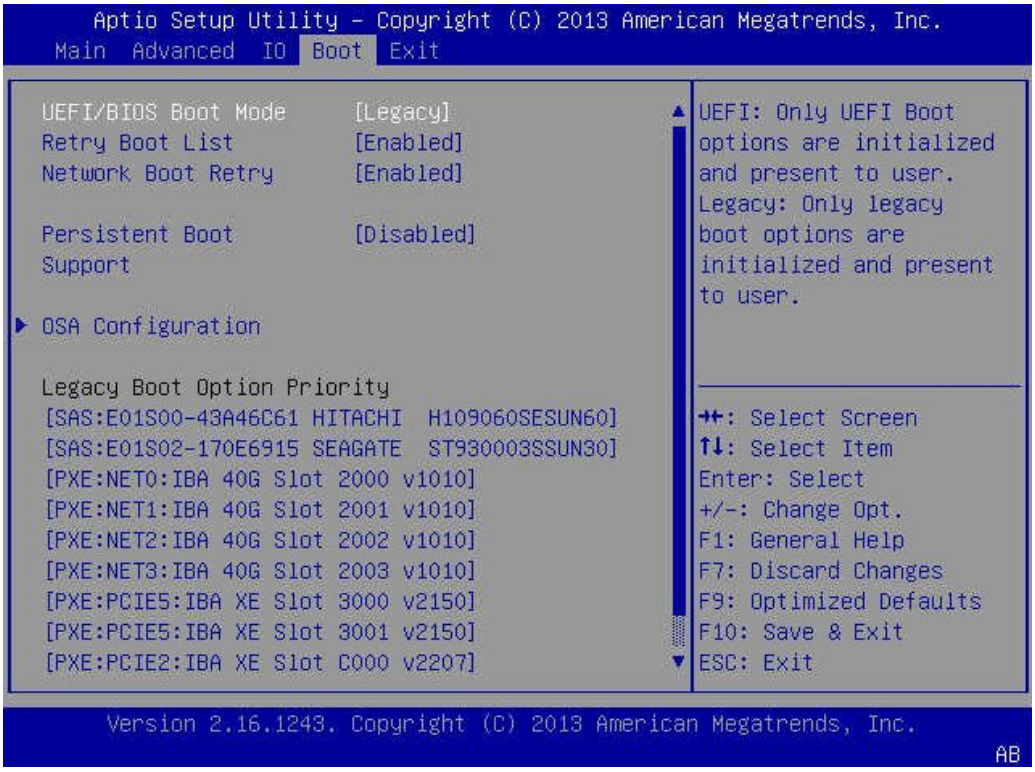
---

1. **Access the BIOS Setup utility.**

   See “Initiate a BIOS Operation” on page 41.

2. **Use the left and right arrow keys to display the Boot menu.**

The Boot menu is displayed.



3. **Select the UEFI/BIOS Boot Mode field and use the +/- keys to change the setting.**
4. **Press F10 to save the changes and exit the BIOS Setup utility.**

Related Information

- “BIOS Overview (OS Installation)” on page 44
- “Set BIOS Settings to Default Values” on page 45

Configuring RAID

These topics provide information on configuring the server drives into hardware RAID volumes.

Step	Description	Links
1.	Learn about RAID configuration options.	"HBA and RAID Support" on page 49 "RAID Configuration Requirements" on page 50 "Post-Installation RAID Volume Creation" on page 51
2.	Configure server drives into RAID volumes using OSA or using the LSI MegaRAID BIOS utilities.	"Configure RAID (OSA)" on page 52 "Configuring RAID Volumes (LSI BIOS Utilities)" on page 56

Related Information

- "Choosing an OS Installation Method" on page 11
- "Configuring the Preinstalled Oracle Solaris OS" on page 21
- "Configuring the Preinstalled Oracle VM 3. 3 Software" on page 27
- "Preparing to Install an OS" on page 31
- "Installing a Supported OS" on page 65
- "Performing Post-Installation Tasks" on page 85

HBA and RAID Support

Disk Controller	RAID Support
Sun 12Gb/s LSI SAS3008 SAS-3 On Board Controller	No RAID support
Sun Storage 12Gb/s SAS PCIe HBA, external 8 port	No RAID support
Sun Storage 12Gb/s SAS PCIe RAID HBA,internal 8 port 1 GB memory	Hardware 0, 1, 5, 6, 10, 50, or 60

Note - If you are using OSA to configure RAID, you can only configure RAID levels 0 or 1. To configure other RAID levels, you must use the BIOS Setup utility.

Related Information

- "RAID Configuration Requirements" on page 50
- "Post-Installation RAID Volume Creation" on page 51
- "Configuring RAID Volumes (LSI BIOS Utilities)" on page 56

RAID Configuration Requirements

Configuring drives into RAID volumes is an optional task.

You have these options:

- **Option 1** – If you intend to use the preinstalled version of Oracle Solaris OS, you cannot configure the server's drives into RAID volumes because the preinstalled OS does not support RAID configurations.

  For this option, skip this section and proceed to "Configuring the Preinstalled Oracle Solaris OS" on page 21.
- **Option 2** – If you are going to perform a fresh OS installation and you want to configure the multiple drives into one or more RAID volumes, you must configure the server's drives into RAID volumes before you install the OS.
  - If your server is equipped with OSA, proceed to "Configure RAID (OSA)" on page 52.
  - If your server is not equipped with OSA, proceed to "Configuring RAID Volumes (LSI BIOS Utilities)" on page 56.
- **Option 3** – If your server has the Oracle Storage 12 Gb SAS PCIe RAID HBA (see "HBA and RAID Support" on page 49) installed and you are going to perform a fresh OS install, but you do not want to configure multiple drives into RAID volumes, use this option.

Caution - If you choose option 3, you must configure a single drive on a RAID volume and make that volume bootable. Otherwise, the internal HBA will not be able to identify the drive for the installation.

  - If your server is equipped with OSA, proceed to "Configure RAID (OSA)" on page 52 and configure RAID on a single drive.

- If your server is not equipped with OSA, proceed to “Configuring RAID Volumes (LSI BIOS Utilities)” on page 56 and configure RAID on a single drive.
- If your server has the Oracle Storage 12 Gb SAS PCIe RAID HBA (see “HBA and RAID Support” on page 49) installed and you want to create a RAID volume level 5, 6, 10, 50, or 60 using the drive on which you plan to install the OS, proceed to “Configuring RAID Volumes (LSI BIOS Utilities)” on page 56 and configure RAID on a single drive.

Note - OSA only supports RAID 0 or 1 for the Oracle Storage 12 Gb SAS PCIe RAID HBA.

- **Option 4** – If your server has the Oracle Storage 12 Gb SAS PCIe RAID HBA (see “HBA and RAID Support” on page 49) installed and you want to perform a fresh OS installation, but you do not want to configure the server's drives into RAID volumes, use this option.

  Proceed to install the OS. See “Installing a Supported OS” on page 65.

Related Information

- “HBA and RAID Support” on page 49
- “Configure RAID (OSA)” on page 52
- “Post-Installation RAID Volume Creation” on page 51
- “Configuring RAID Volumes (LSI BIOS Utilities)” on page 56
- “Installing a Supported OS” on page 65

Post-Installation RAID Volume Creation

RAID configuration is usually completed before installing an operating system. However, it is possible to create a RAID volume on nonboot disks after installing an operating system.

Use these resources for creating and managing the RAID resources in your server:

- **OSA** – You can use OSA to create RAID 0 or 1 level volumes and prepare drives for OS installation. See “Configure RAID (OSA)” on page 52.
- **Oracle HMP 2.2** – You can use the `raidconfig` commands contained in this software's Oracle Server CLI Tools component to create and manage RAID volumes on your server. Refer to the Oracle HMP documentation at `http://www.oracle.com/pls/topic/lookup?ctx=ohmp`.
- **(SGX-SAS6-INT-Z HBA only) LSI SAS2 Integration RAID Configuration Utility** – You can use the `sas2ircu` commands contained in the LSI SAS2 Integrated RAID Configuration Utility to configure and manage RAID volumes on your server.

You can download the SAS2IRCU software from the following location: http://www.avagotech.com/

- **(Oracle Storage 12 Gb SAS PCIe RAID HBA) LSI MegaCLI or MegaRAID Storage Manager** – You can use the LSI MegaCLI command-line tool or the MegaRAID Storage Manager graphical interface to configure and manage RAID volumes for Oracle Storage 12 Gb SAS PCIe RAID HBA.

Related Information

- "Configure RAID (OSA)" on page 52

▼ Configure RAID (OSA)

OSA is the easiest way to configure RAID on the server.

Note - If you are using OSA to configure RAID, you can only configure RAID volumes to level 0 or 1. To configure other RAID levels, you must use the LSI utilities.

---

1. **Start OSA.**

   See "Start OSA" on page 43.

   The OSA main window appears.

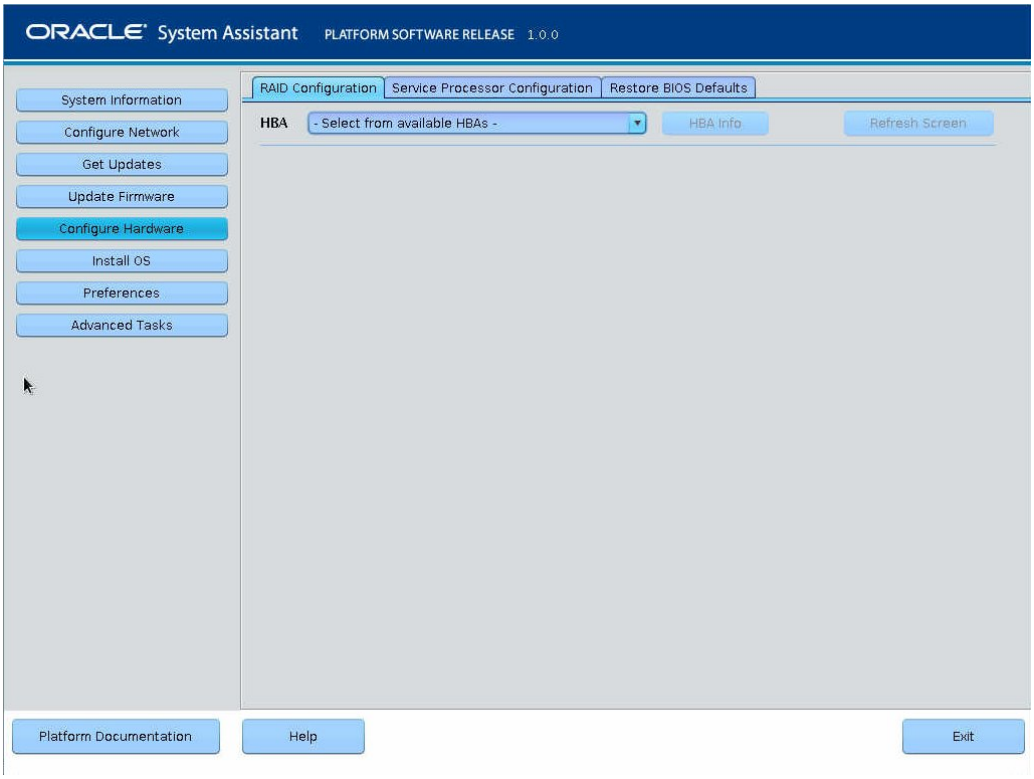
2. **Click Configure Hardware.**

   The Hardware Configuration window appears.

3. **Click the RAID Configuration tab.**

   The RAID Configuration window appears.

Note - Your screen might appear slightly different based on the type of HBA installed in your server.

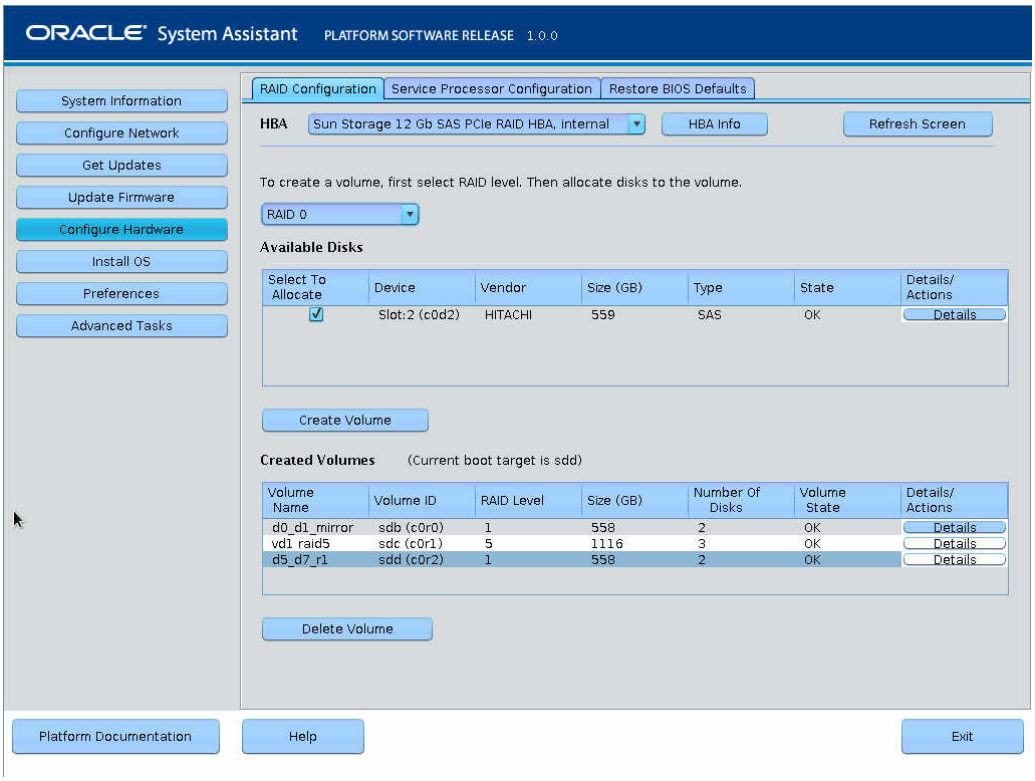


4. **From the HBA drop-down menu, select the HBA.**

   Select one of these:

   - SGXSAS6INTZ

- Oracle Storage 12 Gb SAS PCIe RAID

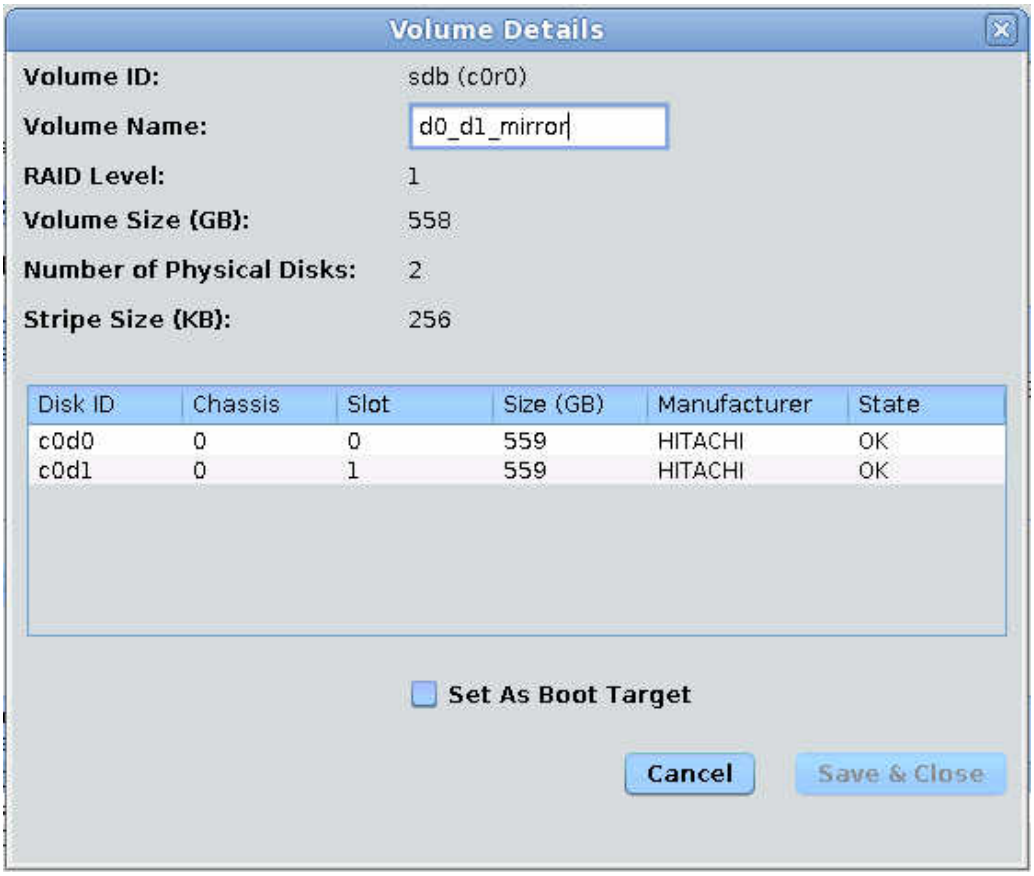


5. **From the RAID Level drop-down menu, select RAID-0 or RAID-1.**

6. **In the Available Disks table, select the drives that you want to add to the RAID configuration and click Create Volume.**

7. **Wait for the RAID volume to be created.**

The Volume Details dialog box appears.



8. **In the Volume Details dialog box, type the volume name and if desired, check the Set As Boot Target to make the volume bootable.**

Note - If the server has the SGX-SAS6-INT-Z HBA installed, setting the RAID volume to bootable is not required.

---

9. **Click Save & Close.**

   The RAID Configuration window reappears.

Note - If you want to delete a volume, select it and click Delete Volume.

---

10. **Click System Information to return to the OSA main screen.**

This completes the RAID configuration task.

Related Information

- “HBA and RAID Support” on page 49
- “RAID Configuration Requirements” on page 50
- “Post-Installation RAID Volume Creation” on page 51
- “Installing a Supported OS” on page 65

Configuring RAID Volumes (LSI BIOS Utilities)

You can use LSI's MegaRAID BIOS utilities that reside in the HBA firmware as described in these topics:

- “Create a RAID Volume” on page 56
- “Make a Virtual Drive Bootable (WebBIOS utility)” on page 57

Related Information

- “RAID Configuration Requirements” on page 50
- “Configure RAID (OSA)” on page 52

▼ Create a RAID Volume

The LSI SAS2 BIOS Configuration Utility resides in the HBA firmware. Use this procedure under either of these conditions:

- You want to configure RAID on the intended OS installation drive, regardless of the installed HBA, and the server does not have OSA or you do not want to use it.
- If your server has the Oracle Storage 12 Gb SAS PCIe RAID HBA internal 8 port 1 GB memory installed and you want to create a RAID volume level 5, 6, 10, 50, or 60 using the drive on which you plan to install the OS.

Note - OSA only supports RAID 0 or 1 for the Oracle Storage 12 Gb SAS PCIe RAID HBA.

- You do not want to create a RAID volume, but the intended OS installation drive has not been initialized and the server has the Oracle Storage 12 Gb SAS PCIe RAID HBA installed.

1. **Create one or more RAID volumes (virtual drives).**

   Refer to the instructions in LSI's *MegaRAID SAS Software User's Guide.*

2. **If you created m one virtual drive, make one virtual drive bootable.**

   For instructions, see “Make a Virtual Drive Bootable (WebBIOS utility)” on page 57.

Note - The *MegaRAID SAS Software User's Guide* does not include instructions for making a drive bootable.

Related Information

- “Make a Virtual Drive Bootable (WebBIOS utility)” on page 57

Making Virtual Drives Bootable

These topics describe how to make a virtual drive bootable from the installed HBA firmware.

- “Make a Virtual Drive Bootable (WebBIOS utility)” on page 57
- “Make a Virtual Drive Bootable (MegaRAID utility)” on page 60

Related Information

- “Create a RAID Volume” on page 56
- “Installing a Supported OS” on page 65

▼ Make a Virtual Drive Bootable (WebBIOS utility)

Perform this procedure to make a virtual drive bootable if you created more than one virtual drive, or RAID volume, using the LSI BIOS Configuration Utility on a server that has the Oracle Storage 12 Gb SAS PCIe RAID HBA installed.

You do *not* need to perform this procedure if any of these conditions are true:

- You used OSA to create a volume and to make the volume bootable.
- The SGX-SAS6-INT-Z HBA is installed on your server.
- You only created one virtual drive using the LSI SAS2 BIOS Configuration Utility.

Before you begin, create at least one virtual drive, or RAID volume, on the Oracle Storage 12 Gb SAS PCIe RAID HBA using the LSI BIOS Configuration Utility. See “Create a RAID Volume” on page 56.

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

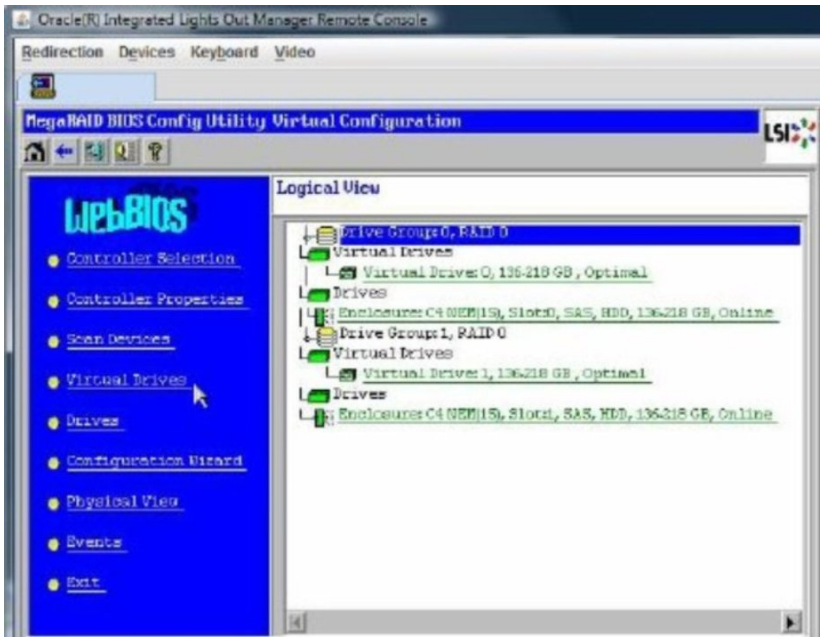
   See “Initiate a BIOS Operation” on page 41.

2. **To access the LSI WebBIOS utility, press the Ctrl+H keys during the server power-on sequence.**

   The Adapter Selection screen appears.

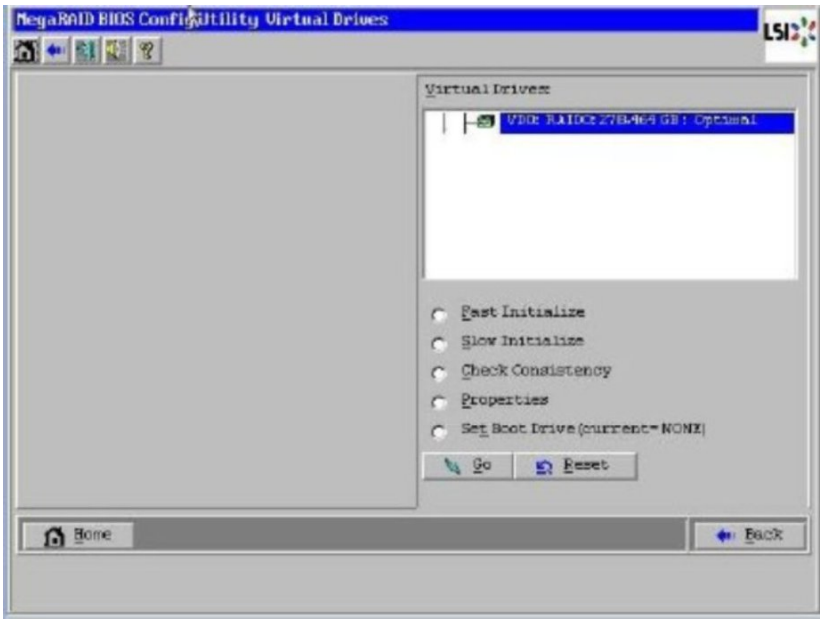
3. **In the Adapter Selection window, click Start.**

The LSI MegaRAID BIOS Config 1 Utility Virtual Configuration window appears.



4. **Click Virtual Drives.**

The Virtual Drives window appears.



5. **Select the virtual drive that you want to make bootable.**

6. **Click Set Boot Drive, then click Go.**

   For information about administering RAID, refer to LSI's *MegaRAID SAS Software User's Guide* .

Related Information

- “Create a RAID Volume” on page 56
- “Installing a Supported OS” on page 65

▼ Make a Virtual Drive Bootable (MegaRAID utility)

Perform this procedure to make a virtual drive bootable if you created more than one virtual drive, or RAID volume, using the LSI BIOS Configuration Utility on a server that has the Oracle Storage 12 Gb SAS PCIe RAID HBA installed.

You do *not* need to perform this procedure if any of these conditions are true:

- You used OSA to create a volume and to make the volume bootable.
- The SGX-SAS6-INT-Z HBA is installed on your server.
- You only created one virtual drive using the LSI SAS2 BIOS Configuration Utility.

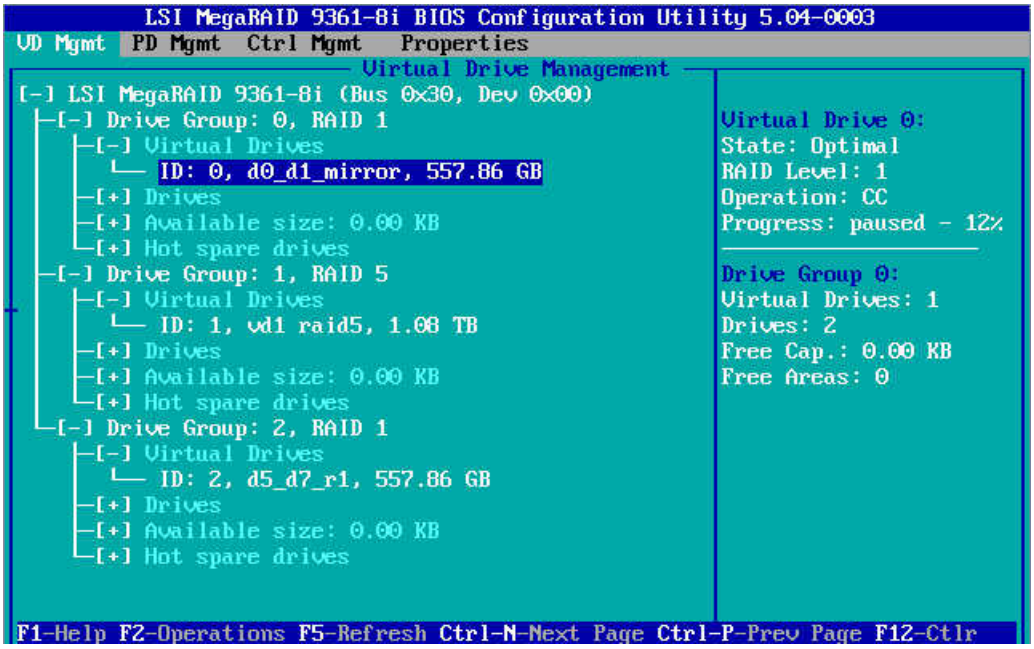
Before you begin, create at least one virtual drive, or RAID volume, on the Oracle Storage 12 Gb SAS PCIe RAID HBA using the LSI BIOS Configuration Utility. See "Create a RAID Volume" on page 56.

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

   See "Initiate a BIOS Operation" on page 41.

2. **To access the LSI WebBIOS utility, press the Ctrl+R keys when prompted during the server power-on sequence.**

   The MegaRAID utility VD Mgmt menu is displayed.

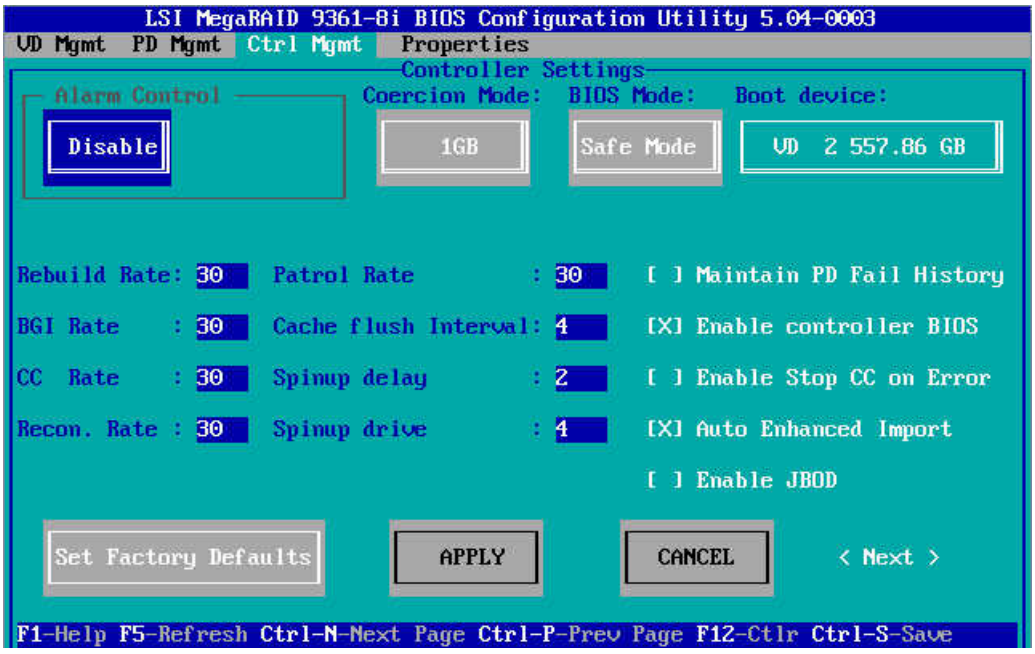


3. **In the drive tree, identify the virtual drive to be made bootable.**

   Record the `ID:` *x*, where *x* is the number of the virtual drive.

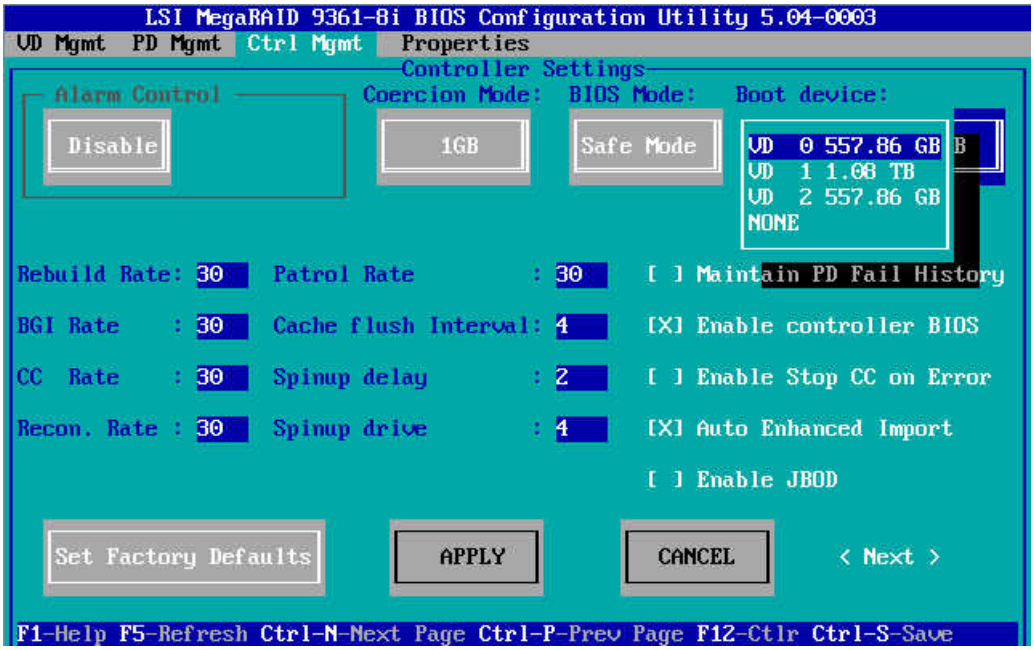
4. **Press the Ctrl+N keys and then the Ctrl+N keys again to select the Ctrl Mgmt tab.**

The Ctrl Mgmt menu is displayed.



5. **Press the down arrow key 3 times to highlight the Boot device block, and press Enter.**

The Boot device drop-down menu is displayed.



6. **Use the up and down arrow keys to highlight the desired virtual drive (`VD` *x*) and press Enter.**

   Where *x* is the value you recorded earlier.

7. **Press the up arrow key 6 times to highlight APPLY and press Enter.**

8. **Press the Ctrl+S keys to save the configuration.**

9. **Press Esc to exit the utility, then confirm the exit.**

   You are instructed to press Ctrl+Alt+Del to reboot the server.

10. **Press Ctrl+Alt+Del keys to reboot the server with the selected virtual drive.**

    For information about administering RAID, refer to LSI's *MegaRAID SAS Software User's Guide* .

Related Information

- “Create a RAID Volume” on page 56
- “Installing a Supported OS” on page 65

Installing a Supported OS

These topics describe how to initiate OS installation to get you to the point where you use the OS documentation to complete the installation.

Description	Links
Install the Oracle Solaris OS using media or PXE.	"Installing an OS (Media)" on page 71 "Install an OS (PXE)" on page 80
Install Oracle VM using OSA or media.	"Install an OS (OSA)" on page 65 "Installing an OS (Media)" on page 71
Install a supported Linux OS using OSA, or media, or PXE.	"Install an OS (OSA)" on page 65 "Installing an OS (Media)" on page 71 "Install an OS (PXE)" on page 80
Install VMware ESXi using media or PXE.	"Installing an OS (Media)" on page 71 "Install an OS (PXE)" on page 80
Install a Windows OS using OSA, media, or PXE.	"Install an OS (OSA)" on page 65 "Installing an OS (Media)" on page 71 "Install an OS (PXE)" on page 80

Related Information

- "Choosing an OS Installation Method" on page 11
- "Configuring the Preinstalled Oracle Solaris OS" on page 21
- "Configuring the Preinstalled Oracle VM 3. 3 Software" on page 27
- "Preparing to Install an OS" on page 31
- "Configuring RAID" on page 49
- "Performing Post-Installation Tasks" on page 85

▼ Install an OS (OSA)

Use this procedure to install one of these OSes using OSA:

- Oracle VM
- A supported Linux OS
- Windows

See “Supported OS Versions and Documentation” on page 15.

Caution - Loss of data. The OS installation overwrites the contents of the drives on which the OS is installed.

1. **Access the documentation for the OS you plan to install.**

   See “Supported OS Versions and Documentation” on page 15.

2. **Ensure that you have established a console connection.**

   See “Selecting the Console Display” on page 31.

3. **Ensure that the installation media is available.**

   - **For the distribution CD/DVD, insert the installation media into the local or remote CD/DVD-ROM drive.**
   - **For ISO images, 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” on page 35.

4. **(Optional) Configure RAID.**

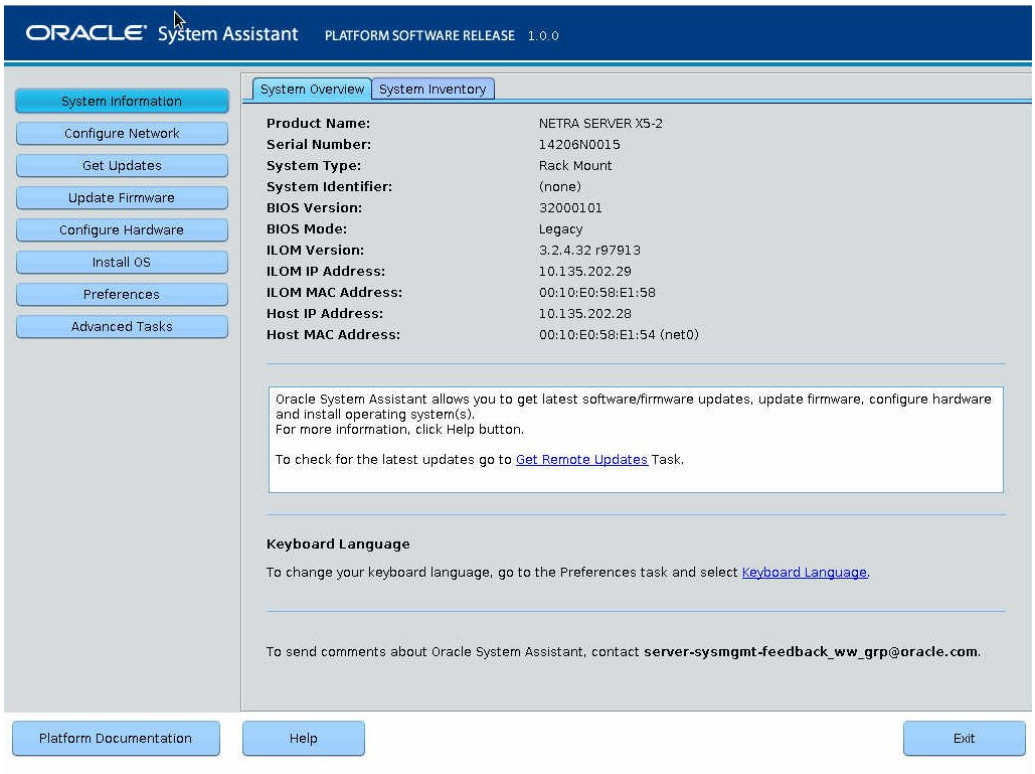
   If you want to configure the boot drive as a RAID volume, you must do so before you install an OS. See “Configuring RAID” on page 49.

5. **Start OSA using one of these methods.**

   - **From the Oracle ILOM web interface, navigate to the System Information → Summary page, click Launch for Oracle System Assistant in the Actions panel.**
   - **Reset or power on the server and press F9 during boot up.**

     See “Initiate a BIOS Operation” on page 41.

The OSA application is started, and the main screen appears.



6. **(Optional) Enlarge the size of your window to eliminate scroll bars.**

7. **(Optional) Update the OSA application by clicking Get Updates.**

   This action downloads the latest version of OSA from Oracle.

   Note - Server Internet access is required to perform this action.

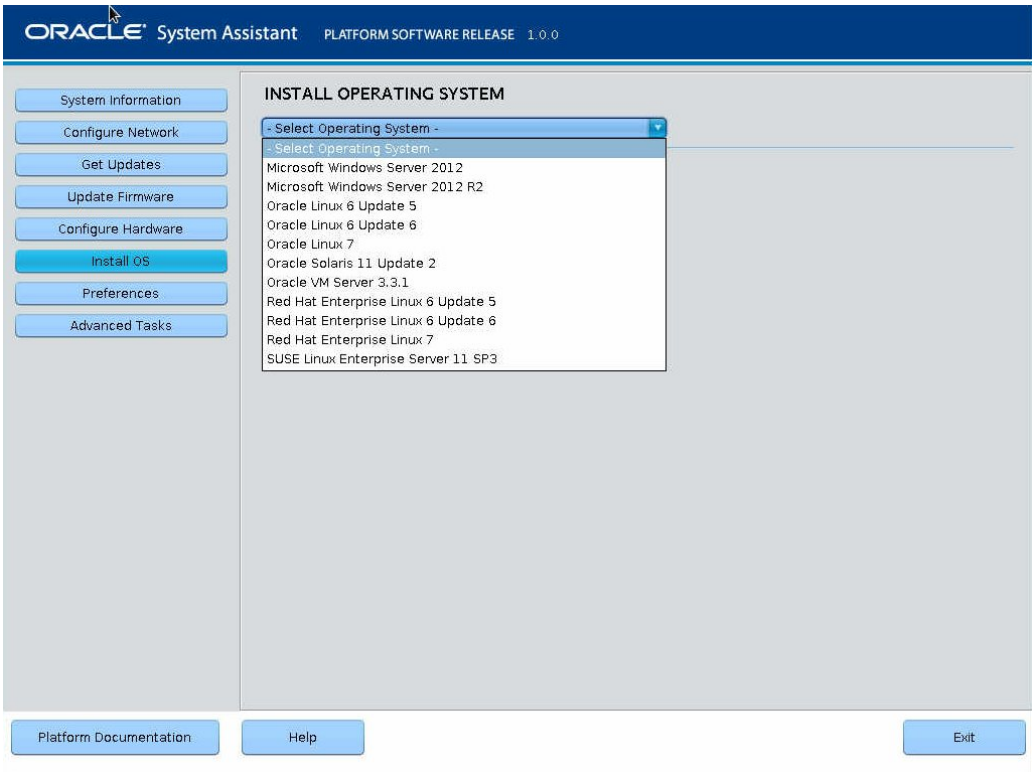
8. **(Optional) Update the server firmware by clicking Update Firmware.**

   This action downloads the latest versions of the server firmware, BIOS, and drivers.

   Note - Server Internet access is required to perform this action.

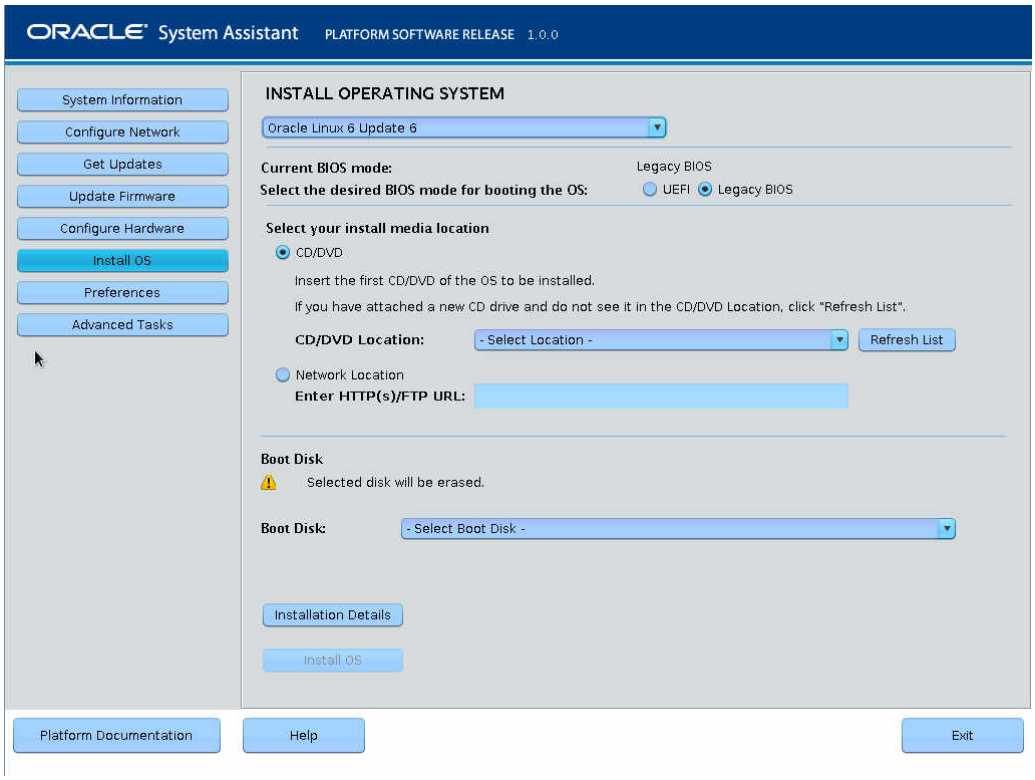
9. **Click Install OS.**

The OS Installation window is displayed.



10. **Select an OS from the drop-down menu.**

The page updates with installation parameters.



11. Configure the installation parameters in the Operating System Installation pane.

a. Select a BIOS mode.

See “Setting Up BIOS” on page 44.

Note - Oracle VM only supports Legacy BIOS mode.

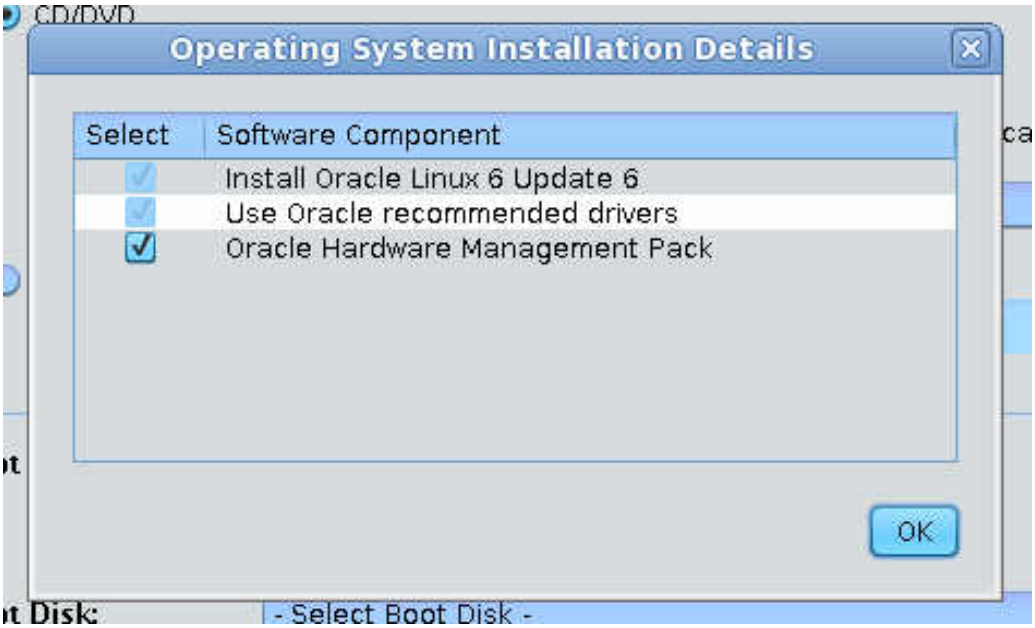
---

b. Select your installation media location.

c. Select the boot disk.

12. Click Installation Details.

The Operating System Installation Details window is displayed.



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

Note - Some components are mandatory and cannot be deselected.

14. **Click OK.**

15. **Click Install OS.**

16. **Either confirm your selection of boot device by clicking Yes, or change boot devices by clicking No and selecting another device.**

Caution - Loss of data. The OS installation overwrites the contents of the drives on which the OS is installed.

17. **Continue the installation by following the on-screen instructions.**

Refer to the documentation for your OS.

When the installation is finished, the server boots.

Related Information

- “Supported OS Versions and Documentation” on page 15
- “OS Installation Task Map (Oracle VM)” on page 12
- “OS Installation Task Map (Linux)” on page 13“OS Installation Task Map (Windows)” on page 15
- “Installing an OS (Media)” on page 71
- “Install an OS (PXE)” on page 80

Installing an OS (Media)

You can install any of the supported OSes using the OS media and these topics:

Step	Description	Links
1.	Install a supported OS using local or remote media.	“Installing an OS (Media)” on page 71
2.	(Windows only) Install HBA drivers during the OS installation.	“Install HBA Drivers (Windows)” on page 75

Related Information

- “Supported OS Versions and Documentation” on page 15
- “Install an OS (OSA)” on page 65
- “Install an OS (PXE)” on page 80
- “OS Installation Task Map (Oracle Solaris)” on page 12
- “OS Installation Task Map (Oracle VM)” on page 12
- “OS Installation Task Map (Linux)” on page 13
- “OS Installation Task Map (VMware ESXi)” on page 14
- “OS Installation Task Map (Windows)” on page 15

▼ Install an OS (Media)

This procedure describes how to install an OS from local or remote media. You can install any of the supported OSes using this method.

1. **Access the documentation for the OS you plan to install.**

See “Supported OS Versions and Documentation” on page 15.

2. **Ensure that you have established a console connection.**

   See “Selecting the Console Display” on page 31.

3. **Ensure that the installation media is available.**

   - **For the distribution CD/DVD, insert the installation media into the local or remote CD/DVD-ROM drive.**
   - **For ISO images, ensure that the ISO images are available and that the Oracle ILOM Remote Console application is aware of the first ISO image location. Ensure that you have selected CD-ROM Image from the Oracle ILOM Remote Console KVMS → Storage... menu.**

   For additional information about how to set up the installation media, see “Selecting the Boot Media” on page 35.

4. **(Optional) Configure BIOS.**

   By default the server uses Legacy BIOS mode. For some OSes, you can change the BIOS to UEFI mode. If you want to change the BIOS mode, do so before installing the OS. See “Setting Up BIOS” on page 44.

5. **(Optional) Configure RAID.**

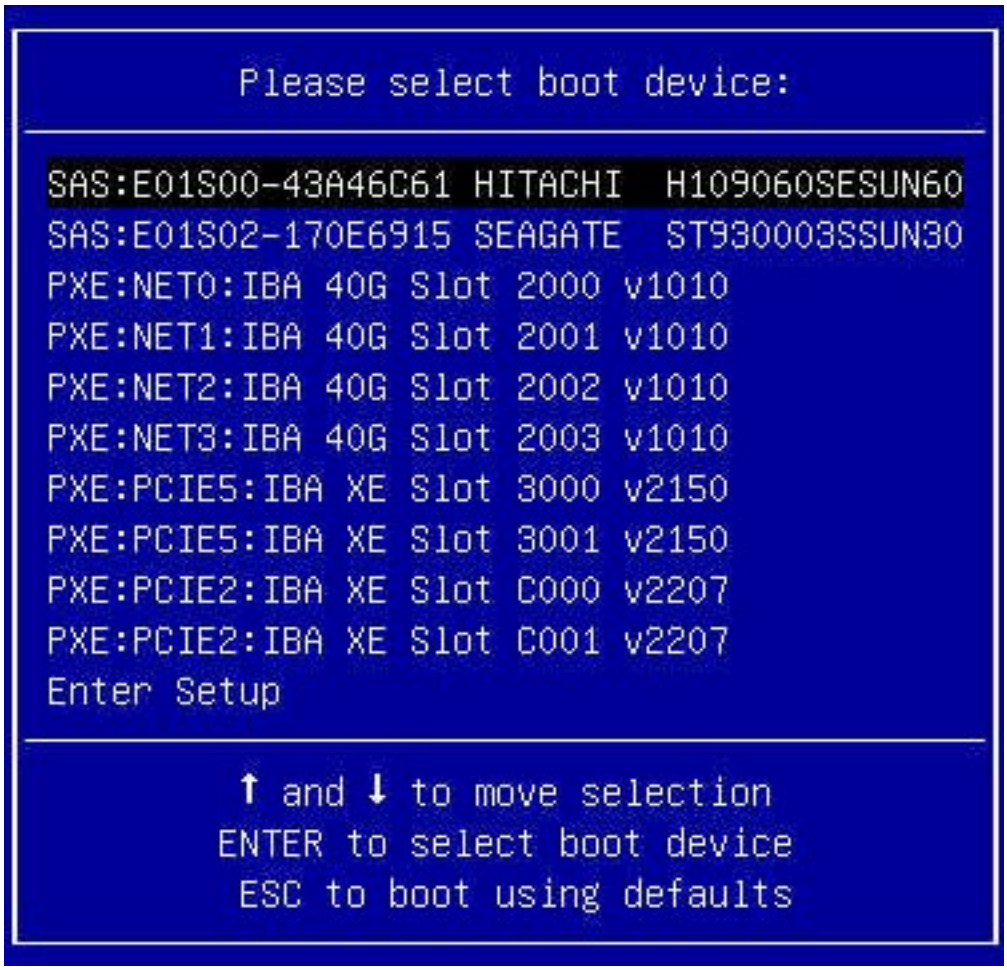
   If you want to configure the boot drive as a RAID volume, you must do so before you install an OS. See “Configuring RAID” on page 49.

6. **Reset or power on the server and press F8 during boot up.**

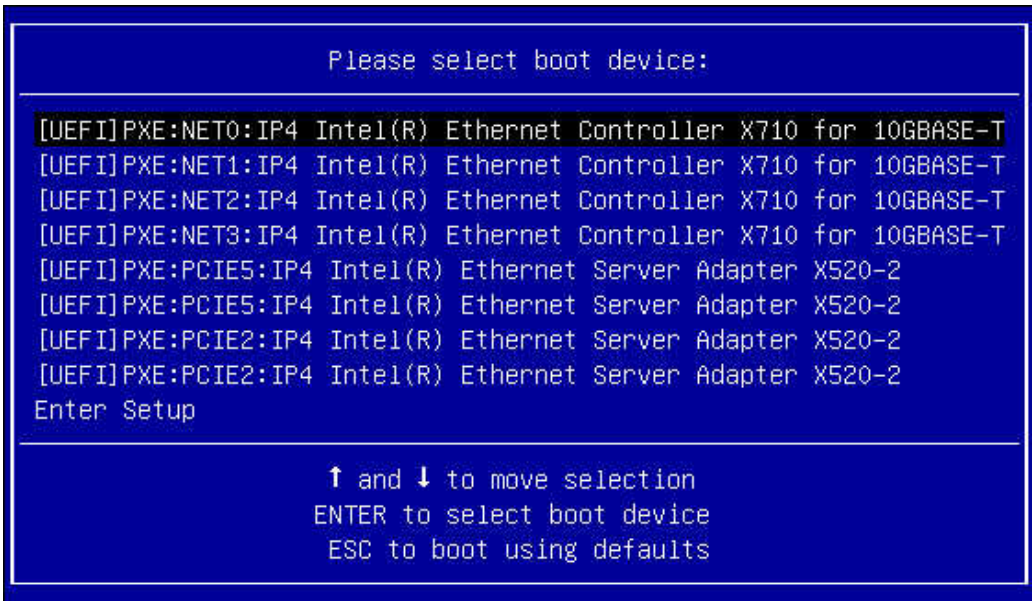
   See “Initiate a BIOS Operation” on page 41.

   The Please Select Boot Device menu appears.

For example, this is the menu when BIOS is set to Legacy mode:



For example, this is the menu when the BIOS is set to UEFI mode:



Note - The menu that is displayed differs depending on your BIOS configuration, OS you are installing, and the devices installed in your server.

7. **In the Please Select Boot Device menu, select the item according to the OS media you are using.**

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

   In most cases, you select one of these:

Media Location	BIOS Mode	Select
Local	Legacy	SATA:HDD:P4 DV-W28SS-V
	UEFI	[UEFI]USB2:USB USB CD/DVR Drive
Remote	Legacy	USB:VIRTUAL:AMI VIRTUAL CDROM 1.00
	UEFI	[UEFI]USB:VIRTUAL:USB USB CD/DVD Drive

The next set of windows and menus displayed varies depending on the type of OS you are installing.

8. **When prompted, press any key to boot from CD/DVD.**

9. **Continue the installation by following the on-screen instructions.**
   Refer to the documentation for your OS.

10. **(Optional) If you are installing Windows, install the HBA drivers.**
    See “Install HBA Drivers (Windows)” on page 75.

11. **Determine if you need to perform post-installation tasks.**
    See “Performing Post-Installation Tasks” on page 85.

Related Information

- “Install HBA Drivers (Windows)” on page 75
- “OS Installation Task Map (Oracle Solaris)” on page 12
- “OS Installation Task Map (Oracle VM)” on page 12
- “OS Installation Task Map (Linux)” on page 13
- “OS Installation Task Map (VMware ESXi)” on page 14
- “OS Installation Task Map (Windows)” on page 15

▼ Install HBA Drivers (Windows)

Perform these steps during the actual Windows OS installation, to ensure that the drivers for your HBA are installed.

Note - If you used OSA to install the Windows OS, you do not need to perform this procedure because OSA installs the required HBA drivers.

---

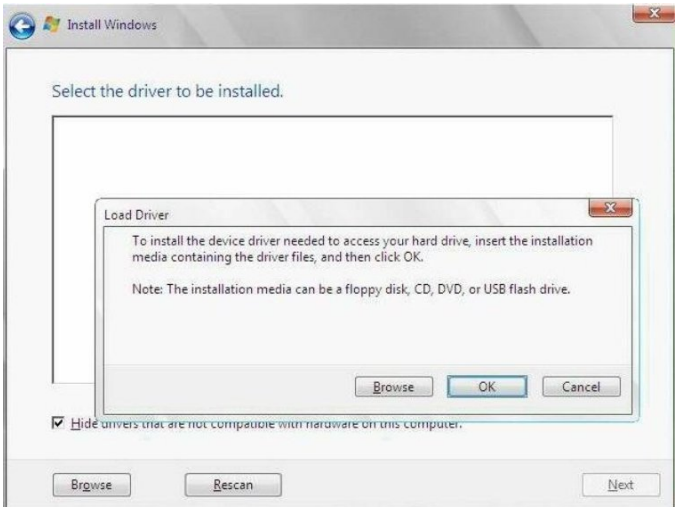
1. **In the Installation Type window, click Custom (Advanced).**

The Where Do You Want to Install Windows window appears.

2. **Perform one of these tasks.**

   - **If you do not see any storage targets listed, click Load Driver, then proceed to Step 3.**
   - **If you see the storage target where you want to install the OS but want to change the default partition settings associated with that target, select the target, click Drive Options (advanced), then proceed to Step 4.**
   - **Otherwise, select the storage target listed, and go to Step 5**

3. **In the Load Drive dialog box, perform these steps.**



   a. **Ensure that the drivers are accessible according to the installation method chosen.**

      See “Selecting the Boot Media” on page 35.

      For example:

      - Drivers are on a disk mounted as a device from the Oracle ILOM Remote Console.
      - Storage drivers are on a local physical storage media such as the OSA USB drive (if installed), which is mounted internally in the server's chassis, a CD/DVD, or virtual media mounted from the Oracle ILOM Remote Console.

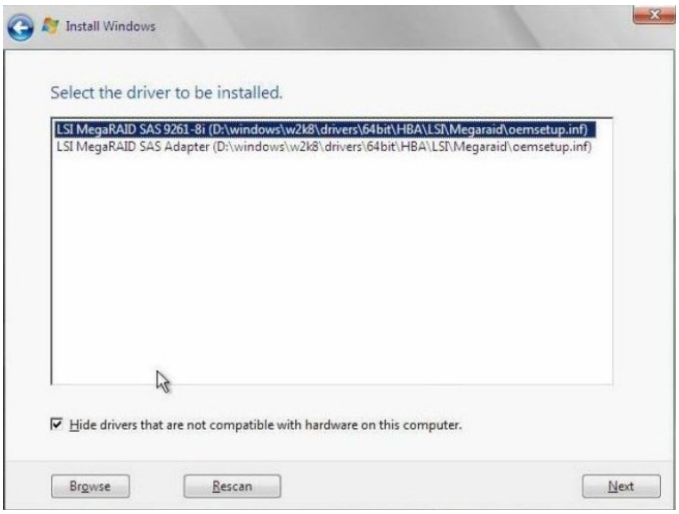
   b. **In the Load Driver dialog box, click Browse to navigate to the appropriate driver media folder on the OSA USB drive.**

      The drivers are located in the `windows` sub-directory.

   c. **In the Browse for Folder dialog box, select the appropriate driver, then click OK to load the driver.**

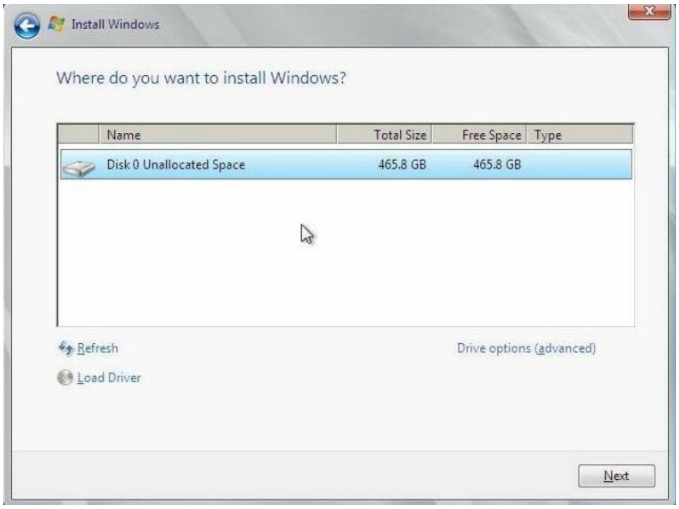
      The selected driver appears in the Select the Driver to Be Installed window.

For example:



d. In the Select the Driver to Be Installed window, click Next to install the driver.

The Where Do You Want to Install Windows window appears.

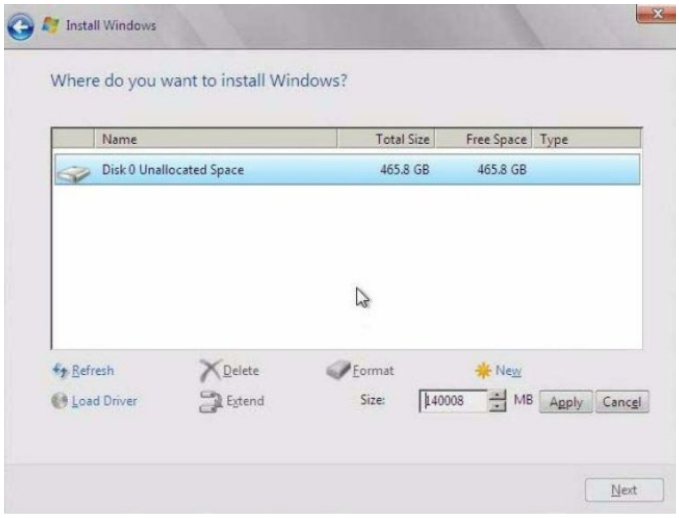


Note - If you previously removed or unmounted the Windows OS installation media to load the drivers from the internal OSA USB drive, you might see this message: “Windows Cannot be installed to this disk.” If this message appears, insert or re-mount the Windows installation media, then click Refresh.

e. In the Where Do You Want to Install Windows window, perform one of these actions:

- **If you see the storage target where you want to install the OS but want to change the default partition settings associated with that target, select the target, click Drive Options (advanced), then proceed to Step 4.**
- **Otherwise, go to Step 5.**

4. In the lower portion of the Where Do You Want to Install Windows window, perform these steps.



a. Click Delete to delete the selected storage target existing partition configuration.

A confirmation window appears.

b. Click OK to confirm the partition deletion.

c. If any additional partitions exist on the target drive, repeat Step a and Step b.

d. **Go to Step 5.**

5. **Click Next to install the OS to the selected storage target.**

   The Windows installation program begins and will reboot the server multiple times during the installation process.

6. **Change the user password when prompted.**

   When the installation is complete, Windows starts and prompts you to change the user password.

7. **In the User Password dialog box, click OK and set up the initial user login account.**

   After the initial user account is created, the Windows OS desktop appears.

8. **Perform post-installation tasks.**

   See "Performing Post-Installation Tasks" on page 85.

Related Information

- "Installing an OS (Media)" on page 71
- "OS Installation Task Map (Windows)" on page 15

▼ Install an OS (PXE)

This procedure describes how to install a supported OS using a PXE network environment.

The server supports a PXE installations for these OSes:

- Oracle Solaris
- Linux
- Windows

See "Supported OS Versions and Documentation" on page 15.

Note - Once you reset the server, events occur very quickly. Pay close attention to the screen so that you can interrupt the boot process at the correct time.

---

1. **Access the documentation for the OS you plan to install.**

   See "Supported OS Versions and Documentation" on page 15.

2. **Ensure that the PXE network environment is set up.**

   See “Preparing Your PXE Environment” on page 37.

3. **Ensure that you have established a console connection.**

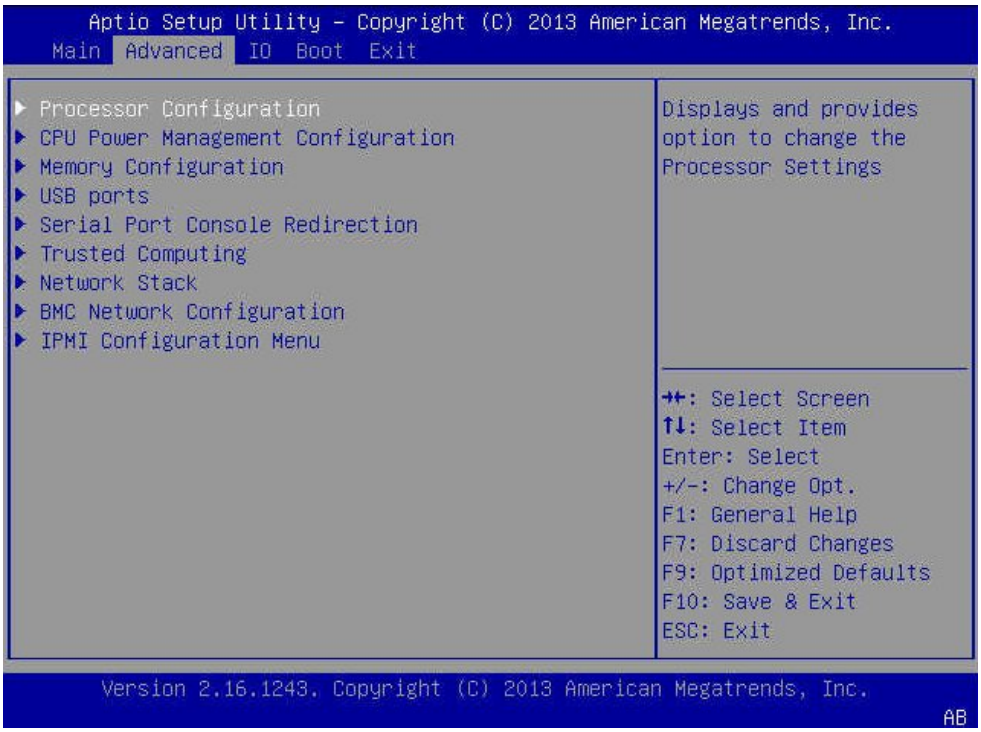
   See “Selecting the Console Display” on page 31.

4. **Access the BIOS Setup utility.**

   See “Initiate a BIOS Operation” on page 41.

5. **(Optional) If you are installing Oracle Solaris, enable the Launch PXE OpROM BIOS option.**

   a. **Use the left and right arrow keys to display the Advanced menu.**



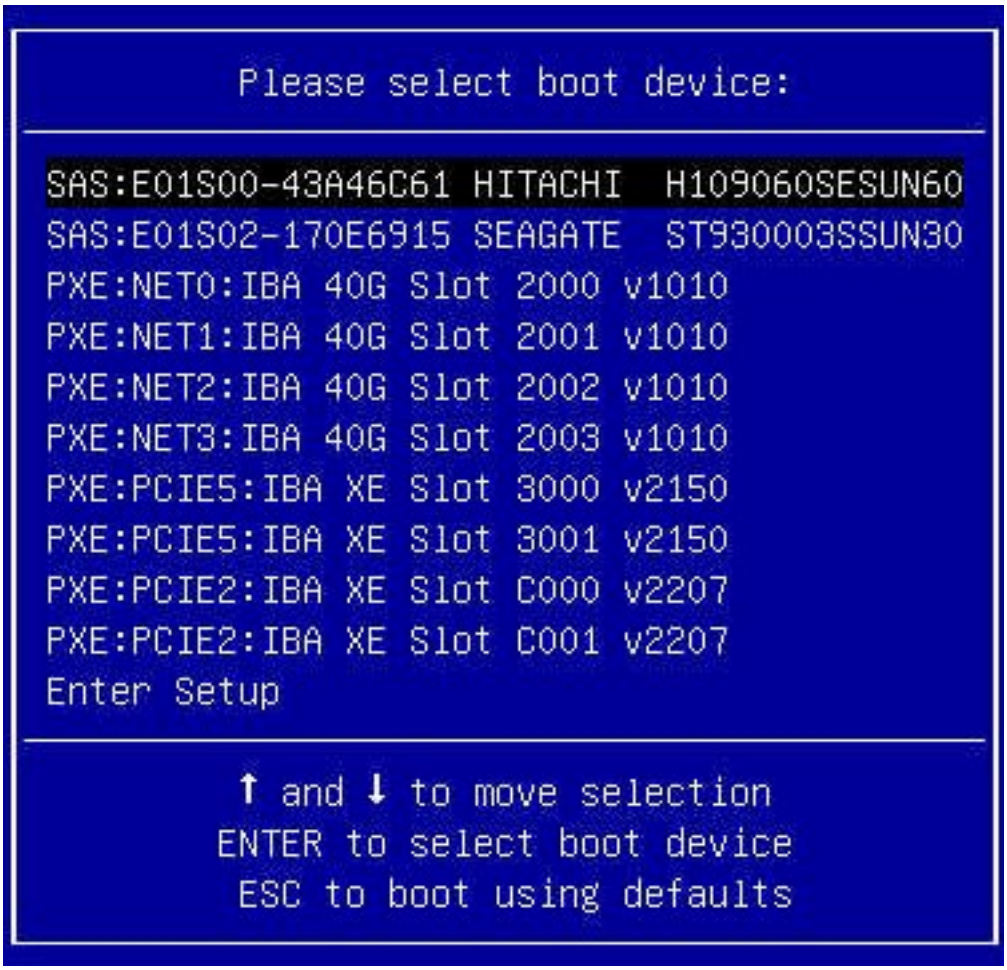
   b. **Set the Launch PXE OpROM setting to Enabled.**

   c. **Press F10 to save the changes and exit the BIOS Setup utility.**

This action causes the server to reset. After resetting, the BIOS window displays again.

6. **When prompted, press F8 to specify a temporary boot device.**

   The Please Select Boot Device dialog box appears.



7. **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 installation server.

8. **Follow the on-screen prompts to complete the OS installation.**

   For instructions on completing OS installation, refer to the OS installation documentation. See "Supported OS Versions and Documentation" on page 15.

Note - For Windows OS installations, you might need to ensure that the HBA drivers are installed during the installation. See “Install HBA Drivers (Windows)” on page 75.

9. **Determine if you need to perform post-installation tasks.**

   See “Performing Post-Installation Tasks” on page 85.

Related Information

- “Supported OS Versions and Documentation” on page 15
- “OS Installation Task Map (Oracle Solaris)” on page 12
- “OS Installation Task Map (Linux)” on page 13
- “OS Installation Task Map (Windows)” on page 15

Performing Post-Installation Tasks

After completing the OS installation, review these post-installation topics to see if any apply to your installation.

Description	Links
For all supported OSes, optionally assign the server's boot drive priorities.	“(Optional) Assign Boot Drive Priorities” on page 85
For Oracle VM installations, access information to install and use an Oracle VM server.	“Install the VM Manager” on page 87
For Oracle Linux installations, configure Linux to use a particular kernel.	“(Optional) Choose an Oracle Linux Kernel” on page 87
For Red Hat Linux, install the Oracle Linux Support kernel.	“(Optional) Install the Oracle Linux Support Kernel” on page 89
Perform VMware ESXi post-installation tasks.	“Performing VMware ESXi Post-Installation Tasks” on page 90
Perform Windows OS post-installation tasks.	“Performing Windows Post-Installation Tasks” on page 93

Related Information

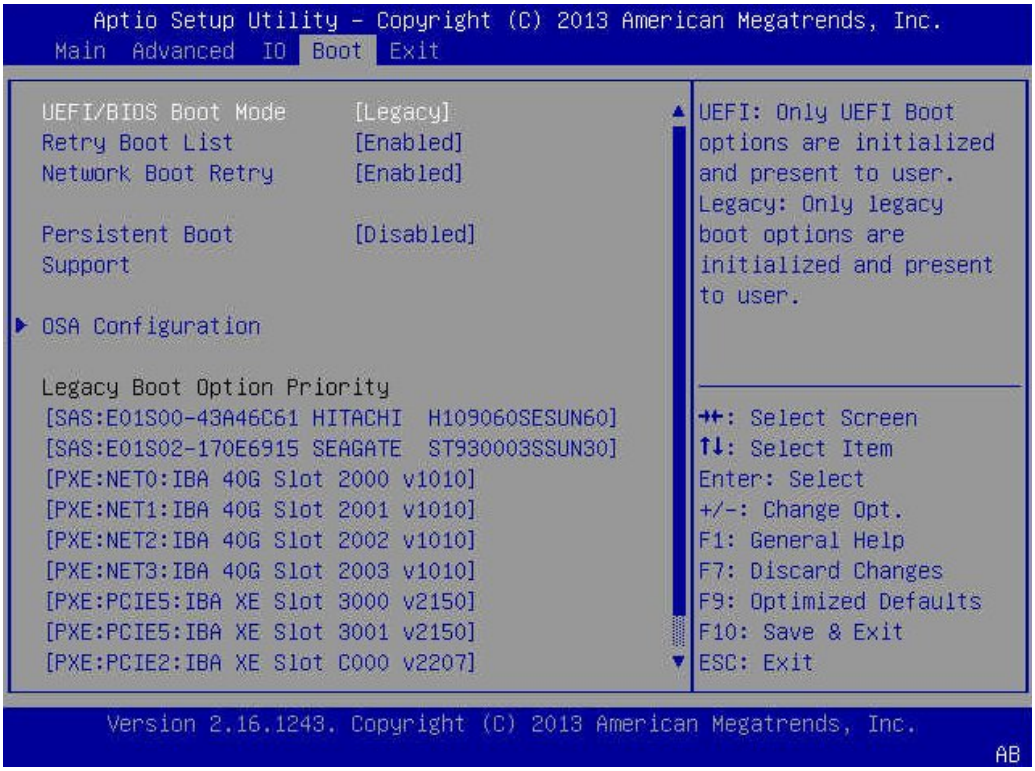
- “Choosing an OS Installation Method” on page 11
- “Configuring the Preinstalled Oracle Solaris OS” on page 21
- “Configuring the Preinstalled Oracle VM 3. 3 Software” on page 27
- “Preparing to Install an OS” on page 31
- “Configuring RAID” on page 49
- “Installing a Supported OS” on page 65

▼ (Optional) Assign Boot Drive Priorities

Use this procedure if you want to assign the server's boot priorities.

1. **Access the BIOS Setup utility.**
   See "Initiate a BIOS Operation" on page 41.

2. **Use the left and right arrow keys to display the Boot menu.**



3. **Change the order of the drives under Boot Option Priority to suit your needs.**
   Use the enter key to select the drive, the up and down arrow keys to move the drive to the top of the boot priority list, and the escape key to deselect the drive.

4. **Press F10 to save the changes and exit the BIOS Setup utility.**

Related Information

- "OS Installation Task Map (Oracle Solaris)" on page 12
- "OS Installation Task Map (Oracle VM)" on page 12
- "OS Installation Task Map (Linux)" on page 13
- "OS Installation Task Map (VMware ESXi)" on page 14
- "OS Installation Task Map (Windows)" on page 15

- "Install an OS (OSA)" on page 65
- "Installing an OS (Media)" on page 71
- "Install an OS (PXE)" on page 80

▼ Install the VM Manager

- **If you do not have an Oracle VM Manager configured to manage the Oracle VM Server, you must install the Oracle VM Manager.**

  Refer to the *Oracle VM Manager Installation Guide* at: `http://download.oracle.com/docs/cd/E20065_01/index.htm`

Related Information

- "OS Installation Task Map (Oracle VM)" on page 12

Performing Linux Post-Installation Tasks

Use these topics to perform post-installation tasks:

- "(Optional) Choose an Oracle Linux Kernel" on page 87
- "(Optional) Install the Oracle Linux Support Kernel" on page 89

Related Information

- "OS Installation Task Map (Linux)" on page 13

▼ (Optional) Choose an Oracle Linux Kernel

Oracle Linux supports two kernels:

- Oracle Linux Support, also known as the Unbreakable Enterprise Kernel (default)
- Red Hat Compatible Kernel

If you want to switch to the Red Hat Compatible Kernel or back to the Oracle Linux Support kernel, perform these steps.

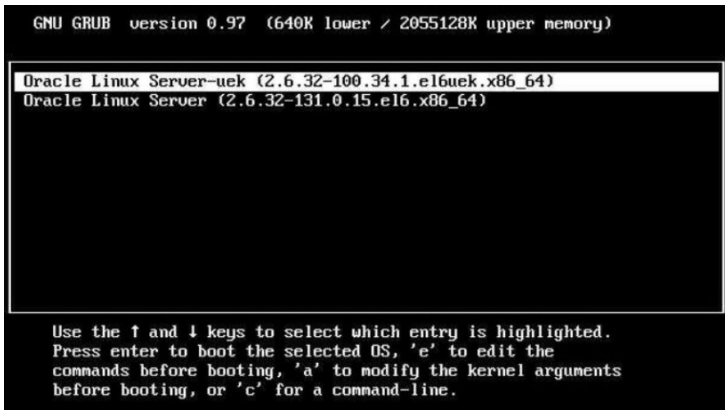
1. **Reboot the server.**

As the server boots, the kernel window appears.

Note - Pay close attention to the screen so that you can interrupt the boot process at the correct time.

2. **Press any key.**

   The kernel select window appears.



3. **Select a kernel and press Enter.**

   - **For the Oracle Linux Support kernel – Select Oracle Linux Server-uek.**
   - **For the Red Hat Compatible kernel – Select Oracle Linux Server-base.**

   The server boots using the selected kernel.

Related Information

- “OS Installation Task Map (Linux)” on page 13
- “(Optional) Install the Oracle Linux Support Kernel” on page 89

▼ (Optional) Install the Oracle Linux Support Kernel

After you have installed the RHEL OS, you have the option of installing and using the Oracle Linux Support kernel (formerly known as the Oracle Unbreakable Enterprise Kernel for Linux). See "Oracle Linux Support Kernel" on page 16.

1. **Ensure that your system is running before installing the Oracle Linux Support kernel.**

2. **As the `root` user, perform these steps to download and edit the Oracle Linux 6 Yum repository file:**

   a. **Type.**

   ```
   # cd /etc/yum.repos.d
   # wget http://public-yum.oracle.com/public-yum-el6.repo
   ```

   b. **Open the `/etc/yum.repos.d/public-yum-el6.repo` file in an editor.**

   c. **Edit the `[public_ol6_u5_base]` stanza and change `enabled=0` to `enabled=1`.**

   ```
   [public_ol6_u5_base]
   name=Oracle Linux $releasever Update 5 installation media copy ($basearch)
   baseurl=http://public-yum.oracle.com/repo/OracleLinux/OL6/5/base/$basearch/
   gpgkey=file:///etc/pki/rpm-gpg/RPM-GPG-KEY-oracle
   gpgcheck=1
   enable=1
   ```

3. **Update the system kernel using one of these methods.**

   - **Update the kernel.**

     ```
     # yum install kernel
     ```

   - **Update the kernel and upgrade all the recommended packages associated with it.**

     ```
     # yum install oracle-linux
     ```

4. **Reboot the server.**

Note - For more information on the Oracle Linux Support kernel, refer to the release notes at: `http://www.oracle.com/technetwork/server-storage/linux/documentation/index.html`.

Related Information

- “OS Installation Task Map (Linux)” on page 13

Performing VMware ESXi Post-Installation Tasks

After completing the VMware ESXi installation, perform these tasks:

- “Configure Network Adapter Settings (VMware ESXi)” on page 90
- “Determine the MAC Address of a Connected Server Network Port (VMware ESXi)” on page 92

Related Information

- “OS Installation Task Map (VMware ESXi)” on page 14

▼ Configure Network Adapter Settings (VMware ESXi)

Note - This task is necessary only if you installed VMware ESXI and you are using static IP addressing. If you are using DHCP, this task is not necessary.

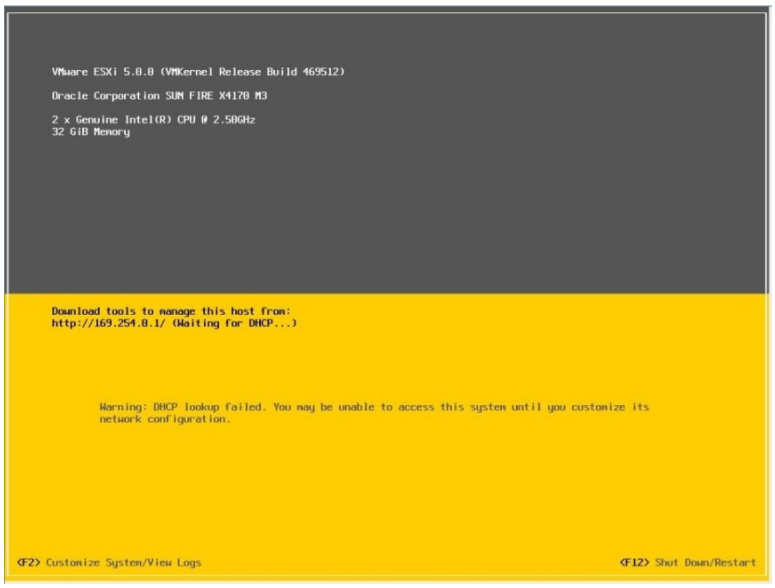
For VMware ESXi installations, you must determine the network management interface that you will use for the VM service console.

The VM service console and management interface require a network interface. The service console does not automatically use the first interface with a live connection. Therefore, you must select a network interface for the service console during installation because the network interface defaults to `vmnic0`.

This procedure describes how to configure the VMware ESXi settings for the network adapters installed on your server.

1. **After completing the VMware ESXi software installation wait for the server to reboot.**

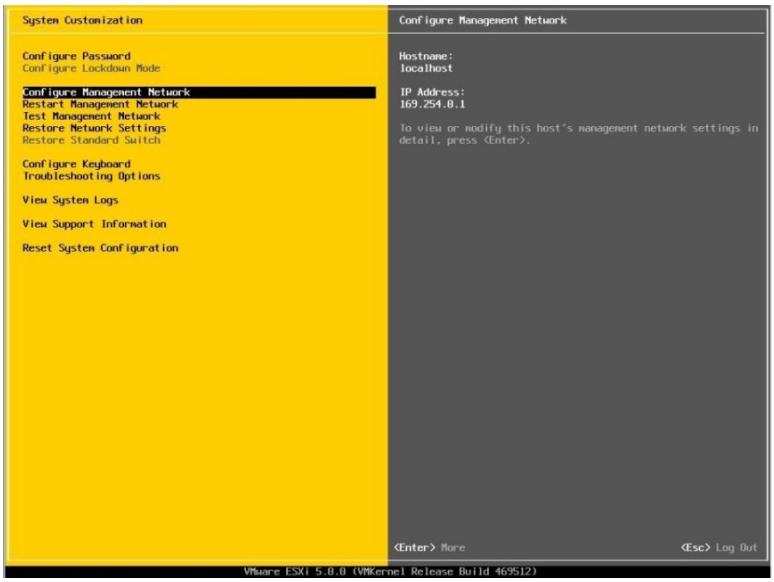
This window appears:



2. **Press F2 to select Customize System/View Logs.**

3. **Log in to the VMware ESXi server.**

4. **Access the System Customization dialog and select Configure Management Network.**



To complete this task, refer to the VMware documentation.

5. **Determine the MAC address of connected ports.**

See "Determine the MAC Address of a Connected Server Network Port (VMware ESXi)" on page 92.

Related Information

- "Determine the MAC Address of a Connected Server Network Port (VMware ESXi)" on page 92

▼ Determine the MAC Address of a Connected Server Network Port (VMware ESXi)

The server has four network ports, NET0, NET1, NET2, and NET3. When any of these ports are connected to the network, VMware ESXi assigns a MAC address to each port.

Use this procedure to determine the MAC address for each server network port.

- **Type this command in the Oracle ILOM CLI for each server network port.**

```
-> show /System/Networking/Ethernet_NICs/Ethernet_NIC_n
```

where is *n* is 0, 1, 2, or 3.

For example:

```
-> show /System/Networking/Ethernet_NICs/Ethernet_NIC_0
/System/Networking/Ethernet_NICs/Ethernet_NIC_0
  Targets:
  Properties:
    health = OK
    health_details = -
    location = NET0 (Ethernet NIC 0)
    manufacturer = INTEL
    part_number = X540
    serial_number = Not Available
    mac_addresses = 00:21:28:3D:B7:96
  Commands:
    cd
    show
->
```

Related Information

- “Configure Network Adapter Settings (VMware ESXi)” on page 90

Performing Windows Post-Installation Tasks

Depending on the method you used to install the Windows OS, you might need to perform these tasks.

Description	Links
Perform post-installation tasks if you used OSA to install the Windows OS.	“(Optional) Configure TPM Support (Windows)” on page 96
Perform post-installation tasks if you manually installed the Windows OS with media or PXE.	“Supplemental Software Component Options (Windows)” on page 94 “Install Server-Specific Device Drivers and Supplemental Software (Windows)” on page 95 “(Optional) Configure TPM Support (Windows)” on page 96

Related Information

- “OS Installation Task Map (Windows)” on page 15

Supplemental Software Component Options (Windows)

OSA makes several supplemental software components available for the server.

If you used OSA to install the Windows OS, the supplemental software was automatically installed.

If you manually installed the Windows OS, you can install the supplemental software. See “Install Server-Specific Device Drivers and Supplemental Software (Windows)” on page 95.

You have two options:

- **Typical** – Installs all supplemental software applicable for your server.
- **Custom** – Installs only selected supplemental software.

OSA makes these optional supplemental software components available for your server.

- **LSI MegaRAID Storage Manager** – Enables you to configure, monitor, and maintain RAID on the SAS internal RAID HBA.
- **HMP** – provides tools to help you manage and configure your server enabling you to do these things:
  - Use a management agent at the OS level to enable in-band monitoring of your server hardware over SNMP. You can use this information to integrate your server into your data center management infrastructure.
  - Use a management agent to enable in-band monitoring of your server's storage devices, including RAID arrays. You can view this information from the Oracle ILOM web interface or CLI.
  - Use a BIOS configuration tool, which runs on the host OS and configures the host BIOS CMOS settings, host boot order, and some SP settings.
  - Use IPMItool to access the servers service processor using the IPMI protocol and perform management tasks.
- **Intel NIC Teaming** – Enables the network interfaces on a server to be grouped together into a team of physical ports called a link aggregated group.

  For more information on setting up Intel NIC teaming for your environment, refer to the Intel Connectivity web page on Advanced Networking Services Teaming at:

  `http://support.intel.com/support/network/sb/CS-009747.htm`

Related Information

- “Install Server-Specific Device Drivers and Supplemental Software (Windows)” on page 95
- “(Optional) Configure TPM Support (Windows)” on page 96

▼ Install Server-Specific Device Drivers and Supplemental Software (Windows)

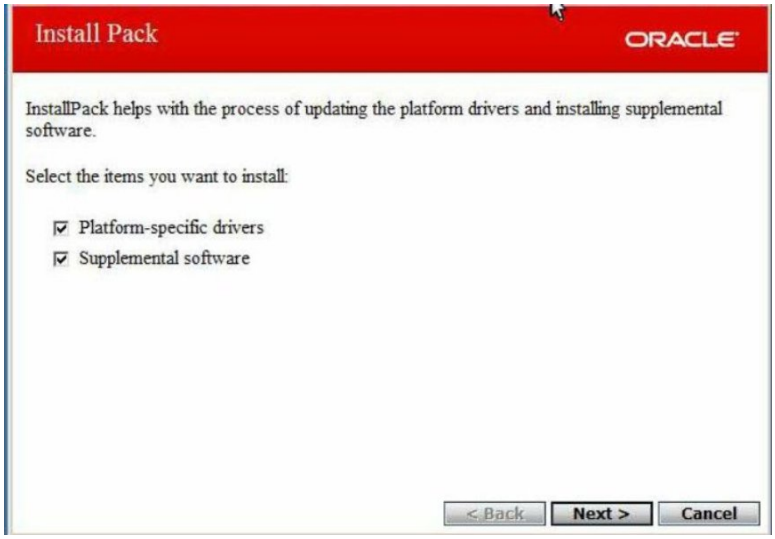
If you used OSA to install the Windows OS, then the required platform-specific device drivers and supplemental software are installed for you.

However, if you did not use OSA, you can use Install Pack to install the platform-specific device drivers and supplemental software.

The Install Pack application provides an installation wizard for installing platform-specific device drivers and supplemental software. This application is included in OSA.

1. **Click on the Install Pack wizard executable, `InstallPack.hta`.**

   The Install Pack window appears.



2. **In the Install Pack window, click Next to accept the default installable items.**

Note - Always accept the default installable items to ensure that the most recent versions of the drivers are installed.

The Install Pack notice dialog box appears.

3. **Follow the prompts to complete the installation of the device drivers and supplemental software.**

Related Information

- “Supplemental Software Component Options (Windows)” on page 94
- “(Optional) Configure TPM Support (Windows)” on page 96

▼ (Optional) Configure TPM Support (Windows)

If you intend to use the Windows 2008 TPM feature set on Oracle's Netra Server X5-2, you must configure the server to support this feature.

Note - TPM enables you to administer the TPM security hardware in your server. For additional information about implementing this feature, refer to the Windows TPM Management documentation provided by Microsoft.

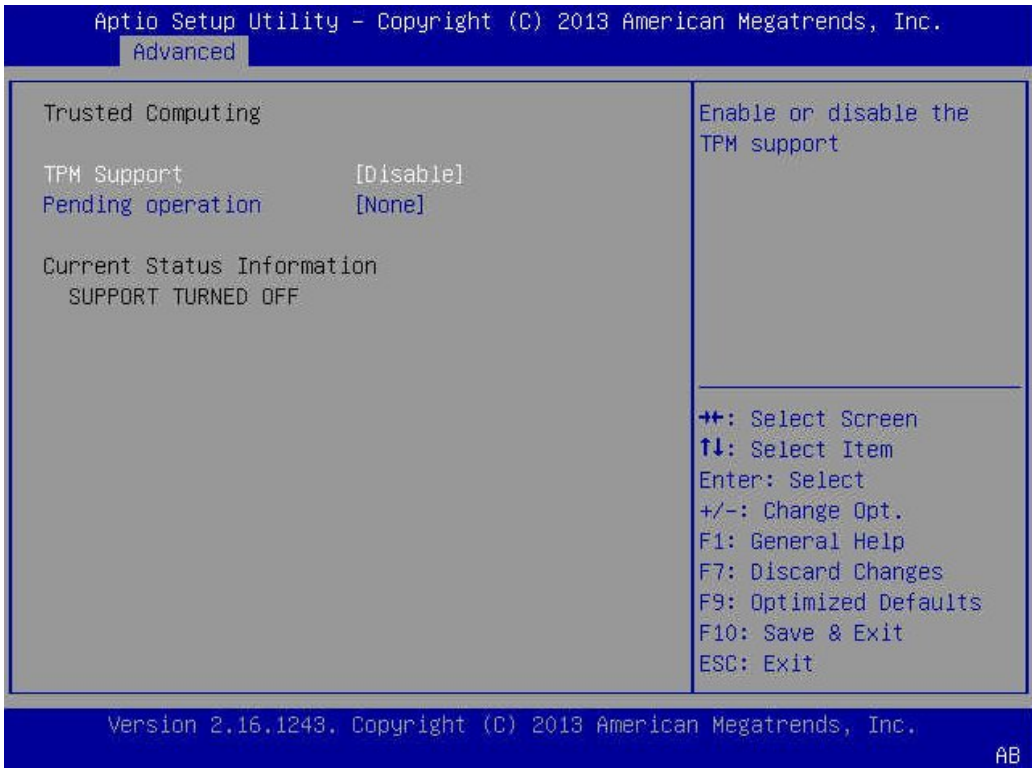
1. **Access the BIOS Setup utility.**

   See “Initiate a BIOS Operation” on page 41.

2. **Use the left and right arrow keys to display the Advanced menu.**

3. **Use the up and down arrow keys to select Trusted Computing and press Enter.**

The TPM Configuration menu is displayed.

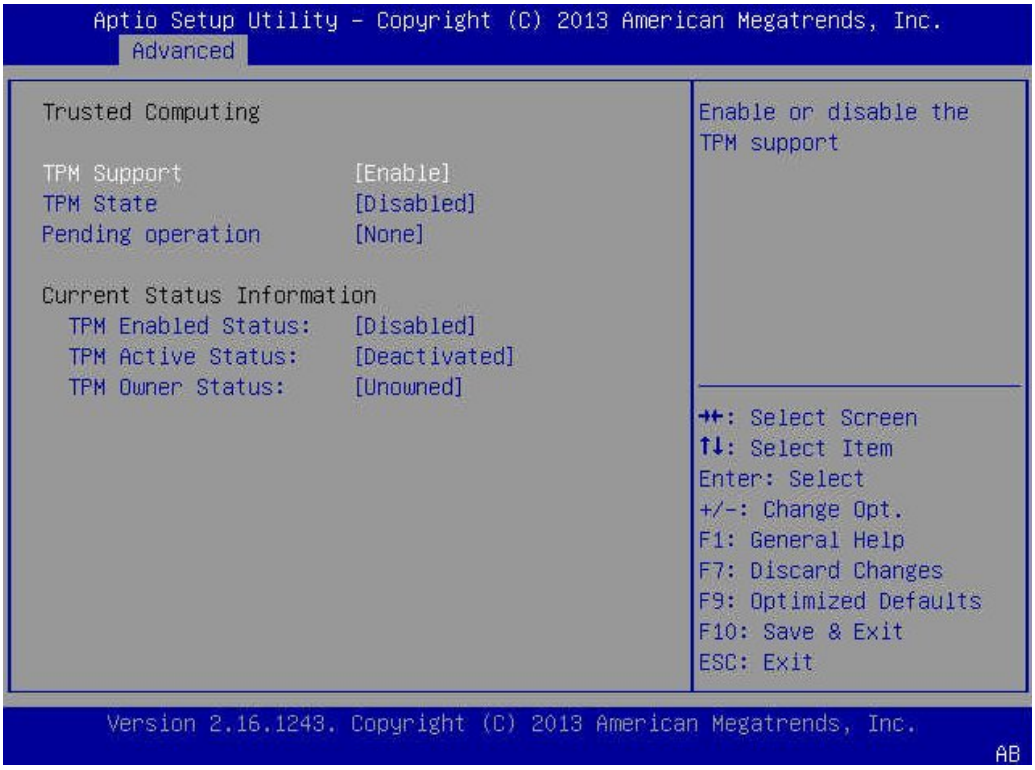


4. **Select TPM Support and press Enter.**

   The TPM Support dialog box is displayed.

5. **In the dialog box, set TPM Support to Enable and press Enter.**

The updated TPM Configuration menu is displayed.



6. **Press F10 to save the changes and exit the BIOS Setup utility.**

Related Information

- “Supplemental Software Component Options (Windows)” on page 94
- “Install Server-Specific Device Drivers and Supplemental Software (Windows)” on page 95

Glossary

A

ACPI Advanced Configuration and Power Interface.

ANSI SIS American National Standards Institute Status Indicator Standard.

ASF Alert standard format.

ASR Automatic system recovery.

AWG American wire gauge.

B

BAT basic assurance test.

BIOS Basic Input Output System.

BMC Baseboard management controller.

BOB Memory buffer on board.

C

chassis Refers to the server enclosure. For server modules, refers to the modular system enclosure.

CMA Cable management arm.

D

DHCP Dynamic Host Configuration Protocol.

DTE Data terminal equipment.

E

ECC Error-correcting code.

EIA Electronics Industries Alliance.

ESD Electrostatic discharge.

F

FRU Field-replaceable unit.

G

GPT GUID partition table.

GRUB GRand Unified Bootloader. A GNU implementation that supports booting multiple OSs on a computer.

H

HBA Host bus adapter.

HMP Hardware Management Pack.

host The part of the server with the CPU and other hardware that runs the Oracle Solaris OS and other applications. The term *host* is used to distinguish the primary computer from the SP. *See* SP.

I

ICMP Internet Control Message Protocol.

ID PROM Chip that contains system information for the server or server module.

IDE Integrated Development Environment.

IP Internet Protocol.

K

KVM Keyboard, video, mouse. Refers to using a switch to enable sharing of one keyboard, one display, and one mouse with more than one computer.

L

LRDIMM Load Reduced DIMM.

LwA Sound power level.

M

MAC Machine access code.

MAC address Media access controller address.

MBR Master boot record.

MSGID Message identifier.

N

NEBS Network Equipment-Building.

NET MGT Network management port. An Ethernet port on the server SP.

NIC Network interface card or controller.

NMI Nonmaskable interrupt.

NVMe A specification for accessing solid-state drives (SSDs) attached through the PCI Express (PCIe) bus. "NVM" is an acronym for non-volatile memory, which is used in SSDs.

O

OBP OpenBoot PROM.

Oracle ILOM Oracle Integrated Lights Out Manager. Oracle ILOM firmware is preinstalled on a variety of Oracle systems. Oracle ILOM enables you to remotely manage your Oracle servers regardless of the state of the host system.

Oracle Solaris OS Oracle Solaris operating system.

OS Operating system.

OSA Oracle System Assistant.

P

PCI Peripheral component interconnect.

PDB Power distribution board.

PMR Physical media request.

POST Power-on self-test.

PROM Programmable read-only memory.

PSH Predictive self healing.

PXE Preboot eXecution environment.

Q

QSFP Quad small form-factor pluggable.

R

RDIMM Registered DIMM.

REM RAID expansion module. Sometimes referred to as an HBA *See* HBA. Supports the creation of RAID volumes on drives.

RHEL Red Hat Enterprise Linux.

S

SAN Storage area network.

SAS Serial attached SCSI.

SATA Serial advanced technology attachment.

SCC System configuration chip.

SER MGT Serial management port. A serial port on the server SP, the server module SP, and the CMM.

SLES SUSE Linux Enterprise Server.

SMART Self-Monitoring, Analysis, and Reporting Technology.

SNMP Simple Network Management Protocol.

SP Service processor. In the server or server module, the SP is a card with its own OS. The SP processes Oracle ILOM commands providing lights out management control of the host. *See* host.

SRU Support Repository Update. Used to updated the Oracle Solaris OS.

SSD Solid-state drive.

SSH Secure shell.

T

TIA Telecommunications Industry Association (Netra products only).

Tma Maximum ambient temperature.

TPM Trusted Platform Module.

U

U.S. NEC United States National Electrical Code.

UCP Universal connector port.

UEFI Unified Extensible Firmware Interface.

UI User interface.

UL Underwriters Laboratory Inc.

UTC Coordinated Universal Time.

UUID Universal unique identifier.

V

VM Virtual machine.

W

WDS Windows Deployment Services.

WIM Windows Imaging Format.

WWN World wide name. A unique number that identifies a SAS target.

Index