Oracle® Server X8-8 Operating Systems Installation Guide

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Oracle Server X8-8 Operating Systems Installation Guide

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Using This Documentation

- **Overview** – Describes how to install supported operating systems on Oracle Server X8-8
- **Audience** – Technicians, administrators, and authorized service providers who need to perform the tasks or learn about the concepts in this document
- **Required knowledge** – Experience installing operating systems

Product Documentation Library

Documentation and resources for these products and related products are available at https://www.oracle.com/goto/x8-8/docs.

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

Preparing to Install an Operating System

This section provides a list of Oracle Server X8-8 supported operating systems (OS), where to obtain OS installation distributions, and provides an overview of the OS installation process.

- "Supported Operating Systems" on page 11
- "Installation Options" on page 12
- "Operating System Installation Process" on page 13
- "Selecting the Console Display" on page 13
- "Preparing the Boot Environment" on page 16
- "Selecting the Boot Media" on page 18
- "Selecting the Installation Target" on page 23
- "Configuring RAID" on page 25
- "Installing an Operating System Using Media" on page 26
- "Installing an Operating System Using PXE Network Boot" on page 29
- "Resetting or Powering the Server Off and On" on page 35

Supported Operating Systems

The following operating systems are supported on Oracle Server X8-8.

Supported OS	Where to Obtain OS Distribution
Oracle Linux 7 Update 6	https://edelivery.oracle.com/
Oracle VM Server 3.4.6	https://edelivery.oracle.com/
Oracle Solaris 11.4 SRU 9.2	https://www.oracle.com/webfolder/technetwork/hcl/index.html
Windows Server 2019 Windows Server 2016	https://technet.microsoft.com/en-us/windowsserver/default.aspx
VMware ESXi 6.7 Update 1	https://my.vmware.com/web/vmware/downloads

Installation Options

You can install a supported operating system (OS) on a single server or on multiple servers. The scope of this document is for single-server OS installations.

For a single-server installation, select a method for providing the installation distribution files. Use the following information to determine the local or remote OS installation method that best serves your needs.

Note - For the latest information on installation requirements for the supported operating systems, refer to the server Product Notes.

- Oracle Server X8-8 Product Notes at: `https://www.oracle.com/goto/x8-8/docs`

Installation Method	Additional installation Requirements
Local OS installation – Physical USB flash device or other media with installation files connected to the server front or back panel.	Installation media such as an attached USB flash device, DVD in a DVD drive, or DVD ISO image, and OS distribution media. For local installations, you deliver the installation media using a local USB flash drive, or DVD drive, attached directly to the server, controlled through a local server connection. For more information, see "Set Up the Boot Media for Local Installation" on page 21.
Remote OS installation – Redirected physical USB flash device or other media with installation files on a remote system running the Oracle ILOM Remote System Console Plus application.	Remote system with a browser, an attached USB flash device, or external DVD drive, OS distribution media, and network access to the server's management port (NET MGT). For remote installations, you deliver the installation media using the remote USB flash device, DVD drive, or DVD ISO image on an HDD or SSD. For more information, see "Set Up the Boot Media for Local Installation" on page 21.
PXE Image installation – Server Preboot eXecution Environment (PXE) launches the installer from a network interface.	PXE server with the OS installation image. For additional information, refer to "Installing an Operating System Using PXE Network Boot" on page 29.

To perform a manual installation, you deliver the OS distribution files on either a local or remote USB device, DVD drive, or DVD ISO image.

For all operating systems, you need to install any necessary drivers. The drivers for your server are available as either OS-specific and server-specific packages or as an ISO image file. To download the drivers, go to My Oracle Support at `https://support.oracle.com`.

Operating System Installation Process

Each operating system has specific steps to follow to complete the installation. See the operating systems sections in this guide for the specific OS Installation Task Maps.

The general process for all OS installations is as follows.

1. Review the server Product Notes.
2. Confirm the supported OS version.
3. Install the server hardware.
4. Set up the console display.
5. Prepare the boot environment.
6. Selecting the boot media.
7. Set up the installation target.
8. (Optional) Configure RAID.
9. Install the OS.

Selecting the Console Display

You can install the OS and administer the server from a local or remote console by establishing a network connection to the server service processor (SP). The server supports the following consoles:

- A local terminal connected to the serial management port (SER MGT). You can connect the terminal directly to the port, or connect it to a terminal emulator that is connected directly to the port. See “Set Up a Local Console” on page 13.
- Web-based client connection using the Oracle ILOM Remote System Console Plus application. For remote installation, connect to Oracle ILOM Remote Console Plus. See “Set Up a Remote Console (Web-based)” on page 14.
- Secure Shell (SSH) client connection to the network management port (NET MGT). See “Set Up a Remote Console (SSH)” on page 15.

▼ Set Up a Local Console

1. **Connect a terminal to the serial management (SER MGT) port directly, or through a terminal emulator.**

   Set the terminal device to 9600 baud, 8 bit, no parity, 1 stop bit (9600/8-N-1).

2. **Press Enter on the terminal device to create a connection between the serial console and the Oracle ILOM SP.**

3. **On the Oracle ILOM Login screen, log in to Oracle ILOM. At the Login prompt, type your Oracle ILOM user name and password.**

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

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

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

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

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

Related Information

- “Oracle Linux OS Installation” on page 39
- “Oracle VM Server Installation” on page 43
- “Oracle Solaris OS Installation” on page 49
- “Windows Server OS Installation” on page 53
- “VMware ESXi Installation” on page 59

▼ Set Up a Remote Console (Web-based)

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

   To log in to Oracle ILOM remotely using either the command-line interface (CLI) or the web interface, you must know the IP address of the server SP. For instructions on determining the server IP address, refer to “Modifying Network Settings” in *Oracle Server X8-8 Installation Guide*.

2. **On a remote system with network access to the server network management port (NET MGT), open a web browser and type the IP address for the server SP, and press Enter.**

3. **On the Oracle ILOM Login screen, log in to the Oracle ILOM web interface. At the Login prompt, type your Oracle ILOM user name and password.**

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

4. **On the Oracle ILOM Summary Information page, in the Actions panel, click the Remote Console Launch button.**

The Oracle ILOM Remote System Console Plus screen appears.

For details, refer to "Redirect Host Server Desktop or Storage Devices" in *Oracle Server X8-8 Installation Guide*.

Related Information

- "Oracle Linux OS Installation" on page 39
- "Oracle VM Server Installation" on page 43
- "Oracle Solaris OS Installation" on page 49
- "Windows Server OS Installation" on page 53
- "VMware ESXi Installation" on page 59

▼ Set Up a Remote Console (SSH)

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

   To log in to Oracle ILOM remotely using either the command-line interface (CLI) or the web interface, you must know the IP address of the server SP. For instructions on determining the server IP address, refer to "Modifying Network Settings" in *Oracle Server X8-8 Installation Guide*.

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

   `ssh root@`*hostname*

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

3. **On the Oracle ILOM Login screen, log in to Oracle ILOM. At the Login prompt, type your Oracle ILOM user name and password.**

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

   The Oracle ILOM CLI prompt (->) appears.

4. **Redirect the serial output from the server to the SSH client. At the CLI prompt, type:**

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

Related Information

- "Oracle Linux OS Installation" on page 39
- "Oracle VM Server Installation" on page 43

- "Oracle Solaris OS Installation" on page 49
- "Windows Server OS Installation" on page 53
- "VMware ESXi Installation" on page 59

Preparing the Boot Environment

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

For instructions on how to configure UEFI to support the installation, see "Verify the UEFI Optimal Defaults" on page 16.

For more information about changing boot properties, refer to *Oracle X8 Series Servers Administration Guide* at `https://www.oracle.com/goto/x86admindiag/docs`.

▼ Verify the UEFI Optimal Defaults

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

In the BIOS Setup Utility, you can set optimal defaults, and view and edit UEFI settings, as needed. By setting optimal defaults, you ensure that the server is operating efficiently with a configuration that is known to be good. In the BIOS Setup Utility, use the F2 key to set UEFI optimal defaults and view and edit UEFI settings. Review the optimal defaults in the *Oracle Server X8-8 Service Manual* or see "Setting Up BIOS Configuration Parameters" in *Oracle Server X8-8 Service Manual*.

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

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

- The USB device, hard disk drive (HDD) or solid state drive (SSD) is properly installed in the server. For instructions, refer to "Servicing Storage Drives (CRU)" in *Oracle Server X8-8 Service Manual*.
- A console connection is established to the server. For details, see "Selecting the Console Display" on page 13.

- For more information and detailed procedures, refer to "Reset the BIOS Firmware to Default Settings (BIOS)" in *Oracle X8 Series Servers Administration Guide* at https://www.oracle.com/goto/x86admindiag/docs.

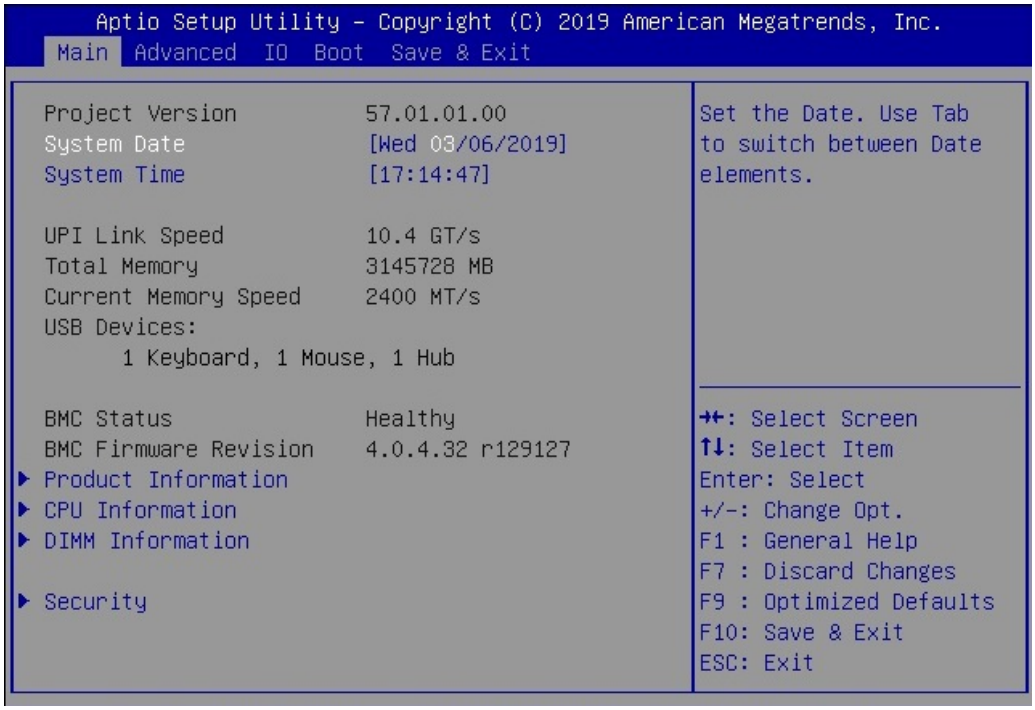
1. **Reset or power on the server.**

   See "Resetting or Powering the Server Off and On" on page 35.

Note - The next step occurs very quickly; therefore, be ready to press the F2 key. Watch carefully for messages as they appear on the screen for a brief time. You might want to enlarge the size of your screen to eliminate scroll bars.

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

   The BIOS Setup Utility screen appears.



3. **Press the F9 key (Optimized Defaults) to load the optimal default settings.**

4. **In the prompt message, highlight `OK`, and press Enter.**

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

   Alternatively, select `Save Changes and Exit` from the Exit menu.

Related Information

- “Oracle Linux OS Installation” on page 39
- “Oracle VM Server Installation” on page 43
- “Oracle Solaris OS Installation” on page 49
- “Windows Server OS Installation” on page 53
- “VMware ESXi Installation” on page 59

Reset BIOS Configuration to Factory Defaults Using Oracle ILOM

Refer to "Reset BIOS Configuration to Factory Defaults" in *Oracle ILOM Administrator's Guide for Configuration and Maintenance Firmware Release 4.0.x* at `https://www.oracle.com/goto/ilom/docs` for Oracle ILOM web and CLI methods.

For example perform one of the following actions to reset the BIOS non-volatile data store parameters to factory defaults:

- From the web interface, click **`System Management > BIOS`**, then select **`Factory`** from the Reset To Defaults list box and click **`Save`**.
- From the CLI, type: `->set /System/BIOS reset_to_defaults=factory`

Oracle ILOM resets the BIOS Setup parameters in the non-volatile data store to factory defaults. The Reset To Defaults value reverts to None after the factory default parameters are applied.

Selecting the Boot Media

You can start the operating system installation to the server by booting the distribution files from either a local or remote source.

This section identifies the supported media sources and the setup requirements for each source.

- “Set Up the Boot Media for Local Installation” on page 21
- “Set Up the Boot Media for Remote Installation” on page 22
- “Local Boot Media Requirements” on page 19
- “Remote Boot Media Requirements” on page 19
- “Booting the Installation Media Using Oracle ILOM CLI” on page 19
- “Resources For Using Boot Media” on page 20

Note - The BIOS Setup Utility options for the Boot Order Priority List differ depending on the storage drive configuration.

Local Boot Media Requirements

Local boot media requires a built-in storage device on the server, or an external storage device attached to the server. For example, you can use an OS distribution that is on a local USB flash drive attached to the server.

Remote Boot Media Requirements

Verify that the system meets remote boot media requirements.

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

Supported OS remote boot media sources include:

- OS distribution on a remote USB removable flash drive
- OS distribution on a remote DVD-ROM
- OS distribution as an ISO image available in a location on the network that is set up for virtual redirection

Booting the Installation Media Using Oracle ILOM CLI

Use the Oracle ILOM Disk property to boot installation media from either a fixed hard disk drive (HDD) or a removable HDD, such as a USB flash device. For example, set the Oracle

ILOM Disk property to temporarily bypass the system BIOS boot order at the next host boot and to boot the first disk device as determined by the BIOS Utility boot order.

- Single server: -> **set /HOST/boot_device=disk**
- Multi-domain server: -> **set /Servers/PDomains/PDomain_n/HOST/boot_device=disk**

Use the Oracle ILOM CDROM property to boot installation media from either a CD or DVD. For example, set the Oracle ILOM CLI CDROM property to temporarily bypass the system BIOS boot order at the next host boot and to boot the system from the attached CD-ROM or DVD device.

- Single server: -> **set /HOST/boot_device=cdrom**
- Multi-domain server: -> **set /Servers/PDomains/PDomain_n/HOST/boot_device=cdrom**

For more information about how to boot installation media, refer to *Oracle ILOM Administrator's Guide for Configuration and Maintenance Firmware Release 4.x* at https://www.oracle.com/goto/ilom/docs.

Resources For Using Boot Media

For more information about how to prepare the boot media for OS Installation, refer to:

- Oracle Linux – "Obtaining and Preparing Installation Media" at https://docs.oracle.com/cd/E52668_01/E54695/html/ol7-install-media.html in *Oracle Linux 7 Installation Guide* at https://docs.oracle.com/cd/E52668_01/E54695/html/index.html

  Oracle Linux 7 Product Documentation Library at https://docs.oracle.com/cd/E52668_01/index.html.
- Oracle VM Server – "Installing Oracle VM Server on x86 Hardware" in *Installation and Upgrade Guide for Release 3.4* at https://docs.oracle.com/cd/E64076_01/E64078/html/vmiug-ovs-install-x86.html

  Oracle VM Server for x86 and Oracle VM Manager Documentation 3.4 Product Documentation Library at https://docs.oracle.com/cd/E64076_01/index.html.
- Oracle Solaris – *Manually Installing an Oracle Solaris 11.4 System* https://docs.oracle.com/cd/E37838_01/html/E69250/compareinstall.html#scrolltoc or "Automated Installations That Boot From Media" at https://docs.oracle.com/cd/E37838_01/html/E60976/media-1.html#scrolltoc in *Automatically Installing Oracle Solaris 11.4 Systems* listed in *Installing and Booting Oracle Solaris*.

  Oracle Solaris 11.4 Information Library athttps://docs.oracle.com/cd/E37838_01/index.html.

- Windows Server – *Install | Upgrade | Migrate to Windows Server 2019* at https://docs.microsoft.com/en-us/windows-server/get-started-19/install-upgrade-migrate-19

  Windows Server 2019 documentation and Windows Server 2016 documentation at https://docs.microsoft.com/en-us/windows-server/index.
- VMware ESXi – "About VMware ESXi Installation and Setup" at https://docs.vmware.com/en/VMware-vSphere/6.7/com.vmware.esxi.install.doc/GUID-B2F01BF5-078A-4C7E-B505-5DFFED0B8C38.html

  VMware ESXi 6.7 documentation at https://docs.vmware.com/en/VMware-vSphere/index.html.

▼ Set Up the Boot Media for Local Installation

1. **Obtain the OS distribution files for the installation.**

   See "Supported Operating Systems" on page 11.

2. **Insert the media that contains the OS distribution files into the server.**

   For example, insert the USB flash drive that contains the OS distribution files into the external USB port located on the back panel of the server.

   For more details, refer to:

   - **Location of the server's external USB port** – "Server Components" in *Oracle Server X8-8 Installation Guide*
   - **Attaching local devices to the server** – "Attach Devices to the Server" in *Oracle Server X8-8 Service Manual*
   - **Location of server cables** – "Server Features and Components" in *Oracle Server X8-8 Installation Guide*

3. **For more information about how to prepare the boot media, see "Resources For Using Boot Media" on page 20.**

Related Information

- "Oracle Linux OS Installation" on page 39
- "Oracle VM Server Installation" on page 43
- "Oracle Solaris OS Installation" on page 49
- "Windows Server OS Installation" on page 53
- "VMware ESXi Installation" on page 59

▼ Set Up the Boot Media for Remote Installation

Remote boot media enables you to boot the install over the network. You can start the OS installation from:

- A redirected boot storage device
- Another networked system that exports an ISO image over the network using a PreBoot eXecution environment (PXE)

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

1. **Mount or present the OS boot media so that it is accessible, for example:**
   - **USB flash device**, insert the media flash drive into an external USB port located on a remote system.
   - **DVD-ROM ISO image**, ensure that the ISO image(s) are readily available on a network shared location.
   - **DVD-ROM**, insert the media into an external DVD-ROM drive on a remote system.
   - DVD-ROM installation media image mounted on the server service processor (SP).

     For instructions on mounting an installation image onto the server SP, refer to "Setting Next Boot Device on x86 Host Server" in *Oracle ILOM Administrator's Guide for Configuration and Maintenance Firmware Release 4.x* at `https://www.oracle.com/goto/ilom/docs`. Alternatively, refer to the More Details link in the Oracle ILOM Remote Control → Remote Device web interface page.
2. **Establish a web-based client connection to the server SP and launch the Oracle ILOM Remote System Console Plus application on the remote system.**
   For instructions, see “Selecting the Console Display” on page 13.
3. **In the remote console, do the following:**
   a. **Click KVMS to display the KVMS drop-down menu.**
   b. **Click Storage.**
      The Storage Devices dialog box appears.
   c. **In the Storage Devices dialog box, click `Add`.**
      The Add Storage Device dialog box appears.
   d. **Browse to the ISO image, select it, and click `Select`.**

The Storage Devices screen appears and lists the ISO image.

e. **Select the ISO image, and click `Connect`.**

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

4. **For more information about how to prepare the boot media, see "Resources For Using Boot Media" on page 20.**

Related Information

- "Oracle Linux OS Installation" on page 39
- "Oracle VM Server Installation" on page 43
- "Oracle Solaris OS Installation" on page 49
- "Windows Server OS Installation" on page 53
- "VMware ESXi Installation" on page 59

Selecting the Installation Target

Before you boot the OS, select and prepare the installation target. See:

- "Installation Target Options" on page 23
- "Set Up a Local Storage Drive as the Installation Target" on page 24
- "Set Up a Fibre Channel Storage Area Network Device as the Installation Target" on page 24

Installation Target Options

You can install an OS on any of the optional NVMe storage drives, hard disk drives (HDDs), solid state drives (SSDs), and RAID volumes that are installed in the server and are valid installation targets. See "Supported Operating Systems" on page 11.

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

▼ Set Up a Local Storage Drive as the Installation Target

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

   For more information about installing and powering on a hard disk drive (HDD) or solid state drive (SSD), refer to "Servicing Storage Drives (CRU)" in *Oracle Server X8-8 Service Manual*.

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

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

   - "Configuring Storage Drives for Operating System Installation" in *Oracle Server X8-8 Installation Guide*
   - *Oracle X8 Series Servers Administration Guide* at `https://www.oracle.com/goto/x86admindiag/docs`

Related Information

- "Oracle Linux OS Installation" on page 39
- "Oracle VM Server Installation" on page 43
- "Oracle Solaris OS Installation" on page 49
- "Windows Server OS Installation" on page 53
- "VMware ESXi Installation" on page 59

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

1. **Ensure that the Fibre Channel PCIe host bus adapter (HBA) is properly installed in the server.**

   For more information about installing a PCIe HBA option, refer to "Servicing PCIe Cards and Carriers (CRU)" in *Oracle Server X8-8 Service Manual*.

2. **Ensure that the storage area network (SAN) is installed and configured to make the storage device visible to the host on the server.**

   For instructions, refer to the documentation supplied with the Fibre Channel HBA.

Configuring RAID

If you want to configure the server storage drives in a redundant array of independent disks (RAID) configuration, configure the RAID volume before you install the OS. For instructions for configuring RAID, refer to "Configuring Storage Drives for Operating System Installation" in *Oracle Server X8-8 Installation Guide*.

HBA and RAID Support

Oracle Server X8-8 with SAS drives have these HBA and controller options:

- Oracle Storage 12 Gb/s SAS PCIe Host Bus Adapter, Internal – This SAS controller card does not support RAID.
- Oracle Storage 12 Gb SAS PCIe RAID Host Bus Adapter, Internal: 16 Port and 2 GB Memory – This SAS controller card provides support for RAID configurations that include RAID 0, 1, 5, 6, 10, 50, and 60.

Note - RAID 1e and RAID 10 are functionally equivalent. RAID 1e requires an odd number of drives (minimum three drives). RAID 10 requires an even number of drives (minimum four drives).

There are two RAID management utilities you can use with the internal SAS3 HBAs provided in the servers.

- Avago BIOS Configuration Utility
- Host Operating System MegaRAID Utility (storCLI Ultility)

RAID Configuration Requirements

Oracle Server X8-8 might be configured with an Oracle Storage 12 Gb SAS PCIe RAID HBA, Internal: 16 port and 2 GB memory (for factory installation) card. This HBA requires a RAID volume to install and boot an operating system (OS).

To install an OS, ensure that the drive where you install the OS is visible to the system. To make a drive visible, you must create a RAID volume on the drive. If you do not want to use a RAID array, configure the drive as a RAID 0 volume. All RAID levels are installed using options in the BIOS Setup Utility.

RAID Level	Number of Disks Required
0	1
1	2
5	3
6	3
10	4
50	6
60	6

RAID Volume Creation After OS Installation

Before installing an operating system, complete the RAID configuration. However, after installing an operating system, it is possible to create a RAID volume on non-boot disks.

Use these tools to create and manage the RAID resources in your server:

- **Oracle Hardware Management Pack 2.4** – Use the `raidconfig` commands contained in the Oracle Server CLI Tools component to create and manage RAID volumes on your server. Refer to the Oracle Hardware Management Pack 2.4 documentation at `https://www.oracle.com/goto/ohmp/docs`.
- **Avago MegaCLI or MegaRAID Storage Manager (Oracle Storage 12 Gb SAS PCIe RAID HBA)** – Use the Avago 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. Refer to HBA documentation at `https://docs.oracle.com/cd/E87591_01/index.html`.

Installing an Operating System Using Media

This section describes how to prepare the server for operating system installation using local or remote media.

Note - If you are booting the installation media from a PXE environment, see “Installing an Operating System Using PXE Network Boot” on page 29 for instructions.

▼ Install an OS Using Local or Remote Media

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

- USB device
- DVD (external DVD)
- ISO DVD image (network repository)

You can use the F8 key during BIOS startup to specify a temporary boot device; however, this change is only in effect for the current system boot. The permanent boot device specified using the F2 key is in effect after booting from the temporary boot device. See “Select a Temporary Boot Device” in *Oracle Server X8-8 Service Manual*.

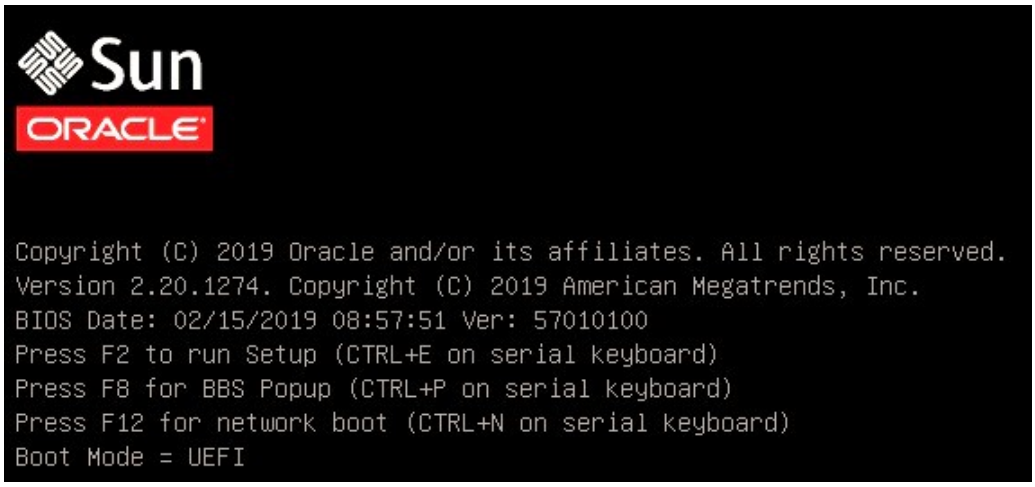
1. **Ensure that the installation media is available to boot.**

   For additional information about how to set up the install media, see “Selecting the Boot Media” on page 18.

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

   See “Resetting or Powering the Server Off and On” on page 35.

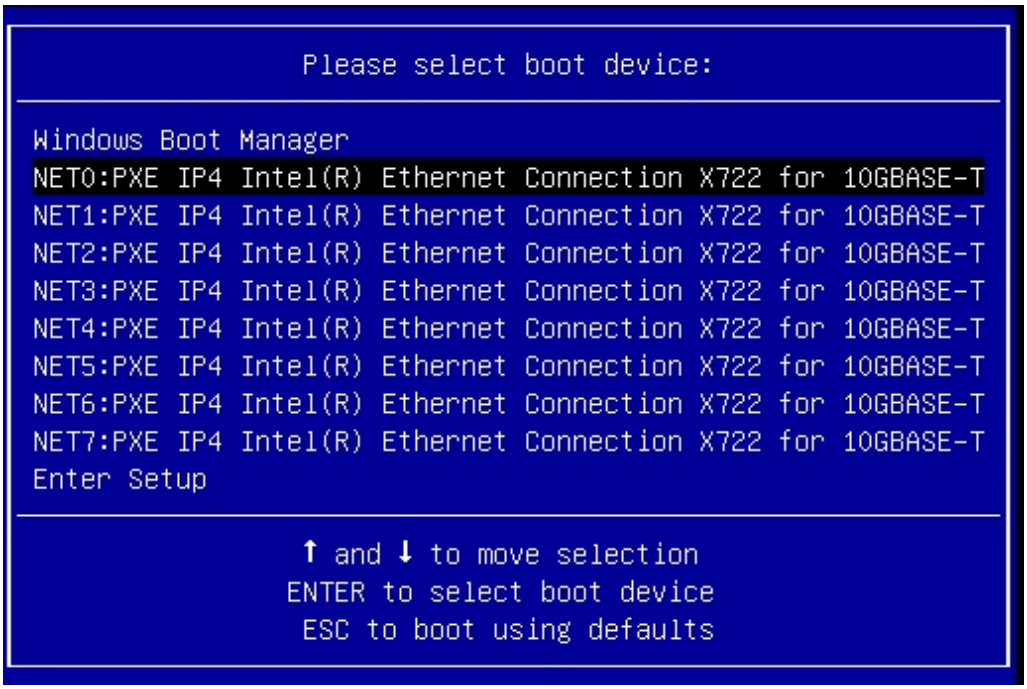
   The server begins the boot process and the BIOS screen appears.



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

3. **On the BIOS screen, press F8 to specify a temporary boot device for the OS installation.**

   The `Please Select Boot Device` menu appears. The `Please Select Boot Device` menu might differ depending on the type of disk controller, and other hardware, such as PCIe network cards, installed in your server. A screen similar to the following appears.



4. **On the `Please Select Boot Device` menu, select the OS media installation method and press Enter.**

   For example, if you elected to use the Oracle ILOM Remote System Console Plus delivery method, select `USB:SUN Remote ISO CDROM1.01`.

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

See the installation tasks table for the specific OS in this guide.

- “Oracle Linux OS Installation” on page 39
- “Oracle VM Server Installation” on page 43
- “Windows Server OS Installation” on page 53
- “VMware ESXi Installation” on page 59

Installing an Operating System Using PXE Network Boot

Before you can begin installing an operating system using PXE network boot on the server, you must ensure that the following requirements are met:

Operating System	Requirements

Oracle Linux 7 Update 6
 	
Oracle Linux 6
	■ To use a Kickstart image to perform the Oracle Linux OS installation:
	  ■ Create a Kickstart file.
	  ■ Create the boot media with the Kickstart file or make the Kickstart file available on the network.
	■ To use PXE to boot the installation media over the network:
	  ■ Configure the network (NFS, TFTP, FTP, HTTP) server to export the installation tree.
	  ■ Configure the files on the TFTP server necessary for PXE booting.
	  ■ Configure the server MAC network port address to boot from the PXE configuration.
	  ■ Configure the Dynamic Host Configuration Protocol (DHCP).
	  Note - Configuring a DHCP server might not be necessary, because only one DHCP server is needed in the local network.

Oracle VM Server 3.4.6 or later	To use PXE to boot Oracle VM Server installation media over the network: ■ Configure the network (NFS, TFTP, FTP, HTTP) server to export the installation tree. ■ Configure the files on the TFTP server necessary for PXE booting. ■ Configure the server MAC network port address to boot from the PXE configuration. ■ Configure the Dynamic Host Configuration Protocol (DHCP). **Note -** Configuring a DHCP server might not be necessary, because only one DHCP server is needed in the local network.
Oracle Solaris 11.4	To use PXE to boot Oracle Solaris OS installation media over the network, ensure that the Automated Installation (AI) image install server is set up and accessible to your server over the network.
Windows Server 2019 Windows Server 2016	To use PXE to boot Windows Server installation media over the network: ■ Configure the network (NFS, TFTP, HTTP) server to export the installation tree. ■ Configure the files on the TFTP server that are necessary for PXE booting. ■ Configure the server's MAC network port address to boot from the PXE configuration. ■ Configure Dynamic Host Configuration Protocol (DHCP).

Operating System	Requirements
	Note - Configuring a DHCP server might not be necessary, because only one DHCP server is needed in the local network. To use Windows Deployment Services (WDS) to perform a Windows Server installation, you must: ■ 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 Windows Imaging Files Format (WIM) installation image(s), see the Microsoft Windows Deployment Services documentation at `https://docs.microsoft.com/en-us/windows/desktop/wds/windows-deployment-services-portal`. ■ Obtain the WIM Administrator password. ■ See "Windows Deployment Services OS Installation" on page 54.
VMware ESXi 6.7 or later	To use PXE to boot VMware ESXi installation media over the network: ■ Configure the network (NFS, TFTP, HTTP) server to export the installation tree. ■ Configure the files on the TFTP server that are necessary for PXE booting. ■ Configure the server's MAC network port address to boot from the PXE configuration. ■ Configure Dynamic Host Configuration Protocol (DHCP). **Note -** Configuring a DHCP server might not be necessary, because only one DHCP server is needed in the local network.

▼ Install an OS Using PXE Network Boot

1. **Ensure that the PXE network environment is properly set up.**

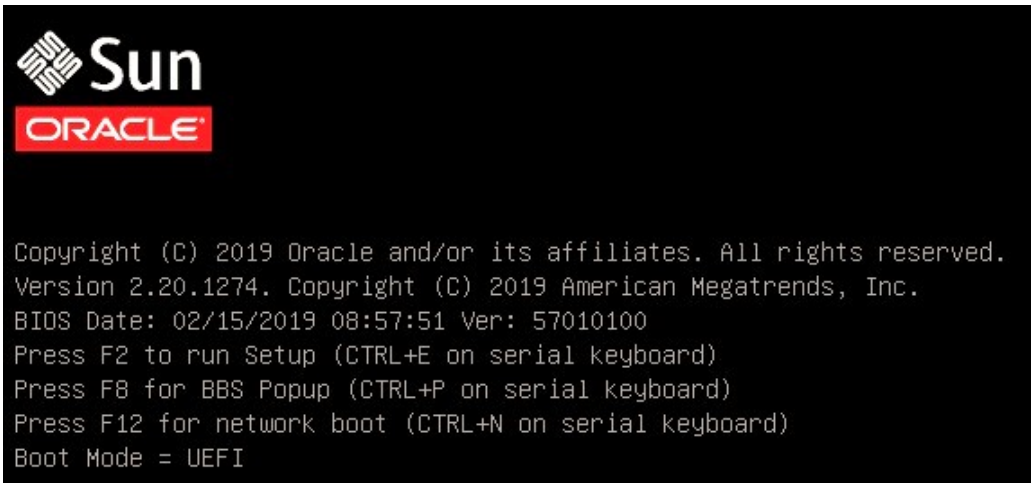
2. **If your server requires the MAC address of an install client, obtain the system MAC address by logging in to the Oracle ILOM SP as `root`, and type:**

```
-> show System/ host_primary_mac_address
  /System
    Properties:
        host_primary_mac_address = 00:10:e0:ba:be:54
```

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

   See "Resetting or Powering the Server Off and On" on page 35.

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



Note - The next step occurs very quickly; therefore, be ready to press the F2 key. Watch carefully for messages as they appear on the screen for a brief time. You might want to enlarge the size of your screen to eliminate scroll bars.

4. **Verify that PXE boot is enabled.**

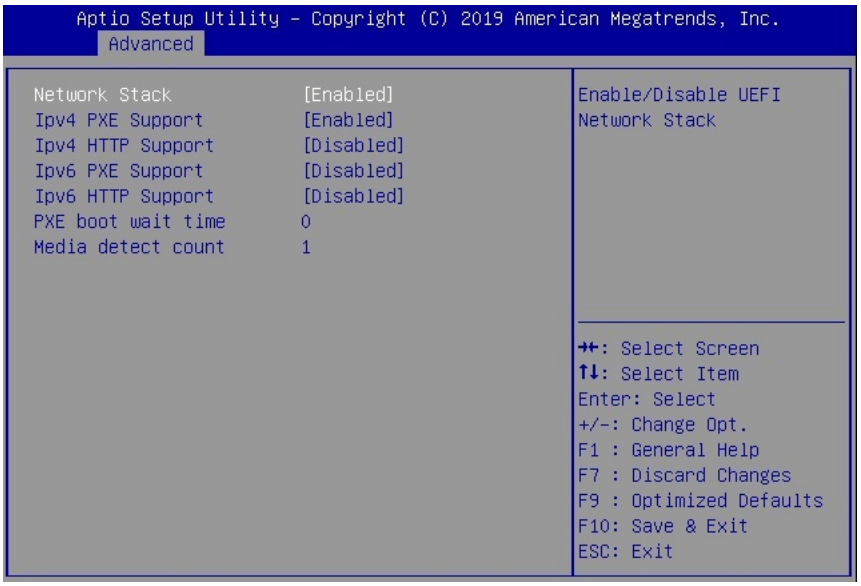
Note - PXE boot is enabled by default; however, this step directs you to verify that PXE boot is enabled in the event that it was disabled. After you verify that PXE boot is enabled, you can omit this step on subsequent PXE boots.

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

   b. **In the BIOS Setup Utility, select Advanced in the top menu bar.**

   c. **In the BIOS Setup Utility Advanced screen, select Network Stack.**

The BIOS Setup Utility Network Stack screen appears.



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

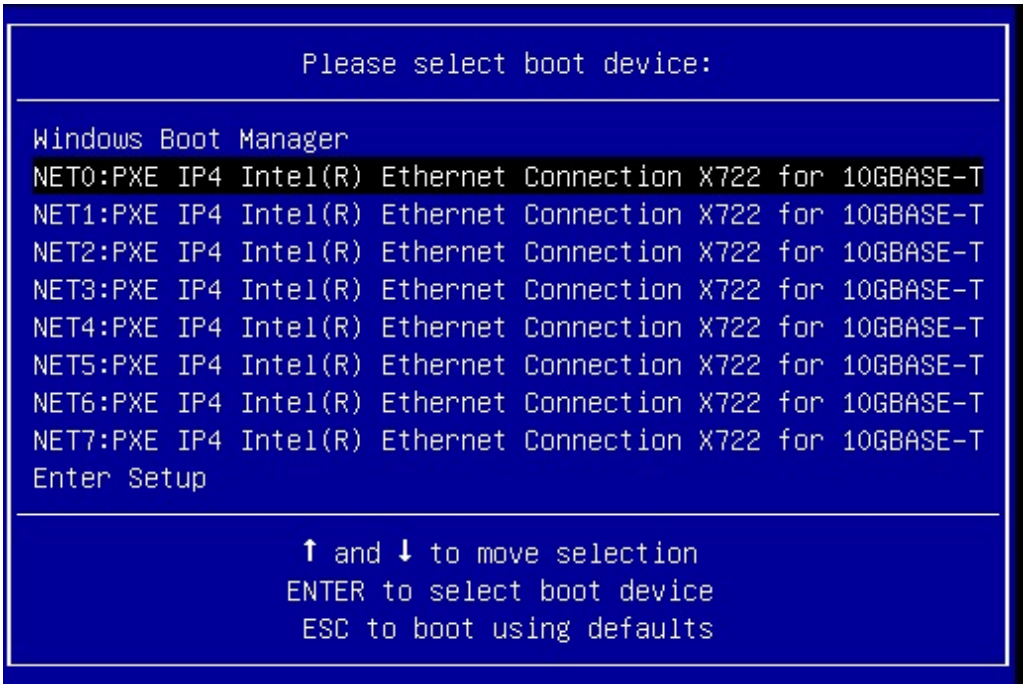
e. To save the changes and exit the BIOS Setup Utility, press the F10 key.

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

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

The Please Select Boot Device menu appears, listing the available boot devices.

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



6. **On the Please Select Boot Device menu, select the PXE boot port, and press Enter.**

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

7. **Follow the instructions to complete the PXE installation for your operating system.**

   Follow the onscreen prompts to complete the PXE installation.

Note - From this point on, the installation procedure for Oracle Linux is site specific as determined by the site Kickstart file.

Note - For Oracle Solaris, the GRUB 2 menu appears. Refer to "x86: Administering the GRand Unified Bootloader" in *Booting and Shutting Down Oracle Solaris 11.4 Systems* at Oracle Solaris 11.4 Information Library at https://docs.oracle.com/cd/E37838_01/index.html.

For instructions on completing the PXE installation, refer to *Resources For Using PXE Network Boot*.

Related Information

- “Oracle Linux OS Installation” on page 39
- “Oracle VM Server Installation” on page 43
- “Oracle Solaris OS Installation” on page 49
- “Windows Server OS Installation” on page 53
- “VMware ESXi Installation” on page 59

Resources For Using PXE Network Boot

For more information about how to use PXE Network Boot for OS Installation, refer to:

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

  Oracle Linux 7 Product Documentation Library at https://docs.oracle.com/cd/E52668_01/index.html.
- Oracle VM Server – "Installing Oracle VM Server on x86 Hardware" in *Installation and Upgrade Guide for Release 3.4* at https://docs.oracle.com/cd/E64076_01/E64078/html/vmiug-ovs-install-x86.html

  Oracle VM Server for x86 and Oracle VM Manager Documentation 3.4 Product Documentation Library at https://docs.oracle.com/cd/E64076_01/index.html.
- Oracle Solaris – *Booting and Shutting Down Oracle Solaris 11.4 Systems* at Oracle Solaris 11.4 Information Library at https://docs.oracle.com/cd/E37838_01/index.html.

  Automatically Installing Oracle Solaris 11.4 Systems at Oracle Solaris 11.4 Information Library at https://docs.oracle.com/cd/E37838_01/index.html.
- Windows Server – *Install | Upgrade | Migrate to Windows Server 2019* at https://docs.microsoft.com/en-us/windows-server/get-started-19/install-upgrade-migrate-19

  Windows Server 2019 documentation and Windows Server 2016 documentation at https://docs.microsoft.com/en-us/windows-server/index.

- VMware ESXi – "About VMware ESXi Installation and Setup" at https://docs.vmware.com/en/VMware-vSphere/6.7/com.vmware.esxi.install.doc/GUID-B2F01BF5-078A-4C7E-B505-5DFFED0B8C38.html

  VMware ESXi 6.7 documentation at https://docs.vmware.com/en/VMware-vSphere/index.html.

Install an OS Using PXE Network Boot (Oracle ILOM CLI)

Set the PXE property to temporarily bypass the system BIOS boot order at the next host boot and to boot the Oracle Server X8-8 over the network using the PXE boot specification.

- Single server – Type `-> set /HOST/boot_device=pxe`
- Multi-domain server – Type `-> set /Servers/PDomains/PDomain_n/HOST/boot_device=pxe`

Resetting or Powering the Server Off and On

Some OS installations require that the Oracle Server X8-8 be reset or powered on. Follow these instructions.

- “Reset the Server” on page 35
- “Power Cycle the Server” on page 36

Tip - For more server power control procedures, refer to “Controlling System Power” in *Oracle Server X8-8 Installation Guide*.

For additional Oracle Server X8-8 power control procedures, refer to the *Oracle Server X8-8 Service Manual* at https://www.oracle.com/goto/x8-8/docs.

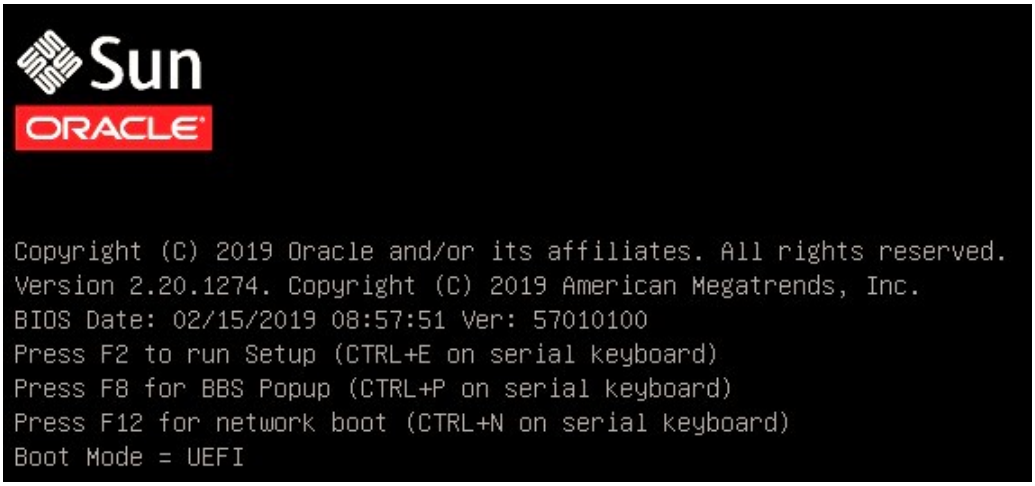
▼ Reset the Server

1. **To reset the server:**

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

- **From the Oracle ILOM CLI** – Type `-> reset /System`.
- **From the Oracle ILOM web interface** – Click Host Management → Power Control, select Reset from the Select Action list box, then click Save.

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



2. **When the server is reset, return to the OS installation task.**

- "Oracle Linux OS Installation" on page 39
- "Oracle VM Server Installation" on page 43
- "Oracle Solaris OS Installation" on page 49
- "Windows Server OS Installation" on page 53
- "VMware ESXi Installation" on page 59

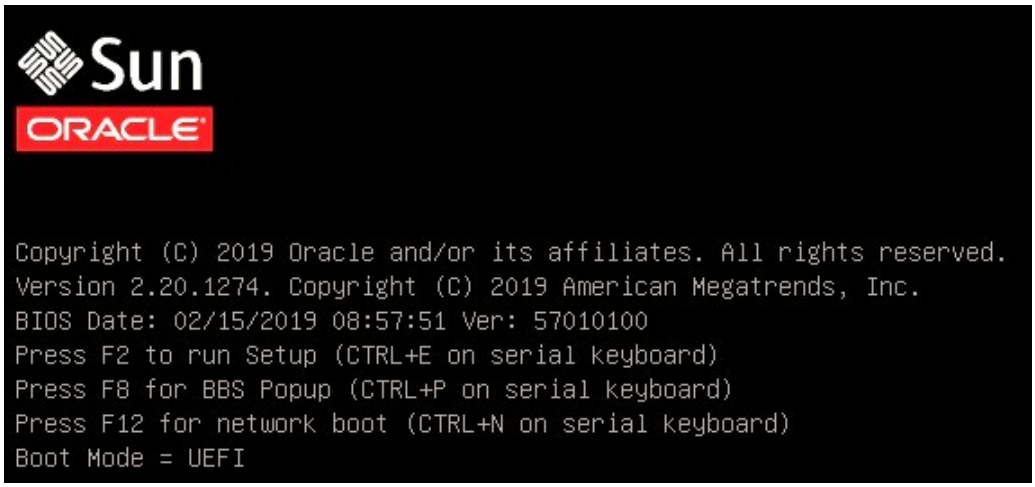
▼ Power Cycle the Server

1. **To power the server off then on:**

- **From the local server** – Press the Power button on the front panel of the server (for approximately 1 second) to turn the server off, then press the Power button again to power on the server.
- **From the Oracle ILOM CLI** – Type `stop /System`. To power on the system, type `start /System`

- **From the Oracle ILOM web interface** – Click Host Management → Power Control, select Graceful Shutdown and Power Off from the Select Action list box, then click Save. To power on the server, select Power State Turn On, then click Save.

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



2. **When the server is reset or powered on, return to the OS installation task.**

- “Oracle Linux OS Installation” on page 39
- “Oracle VM Server Installation” on page 43
- “Oracle Solaris OS Installation” on page 49
- “Windows Server OS Installation” on page 53
- “VMware ESXi Installation” on page 59

Oracle Linux OS Installation

This section provides instructions for installing Oracle Linux operating systems and system-specific drivers on Oracle Server X8-8.

- "Supported Oracle Linux Operating Systems" on page 39
- "Unbreakable Enterprise Kernel for Linux" on page 40
- "Oracle Linux OS Installation Tasks" on page 40

Supported Oracle Linux Operating Systems

Oracle Server X8-8 supports the following Linux operating systems at the initial release of the servers.

Linux OS Version	Edition
Oracle Linux	Oracle Linux 7 Update 6 OS for x86 (64-bit) with the Unbreakable Enterprise Kernel Release 5 Update 1

Note - Optionally, you can install the Red Hat Compatible Kernel on Oracle Linux 7 Update 6 OS for x86 (64-bit).

If Oracle Linux OS is installed on your server but you do not want to use it, you can install any other supported operating system or virtual machine software on your server. For updated information about Oracle Linux OS and a list of supported operating systems and virtual machine software, refer to the latest version of the server Product Notes at:

Oracle Server X8-8 Product Notes at: `https://www.oracle.com/goto/x8-2/docs`

The Oracle Linux and Oracle VM Hardware Certification List (HCL) identifies the latest operating system versions supported on Oracle hardware. To find the latest Oracle Linux versions supported for Oracle Server X8-8, go to `https://linux.oracle.com/pls/apex/f?p=117:1:0:` and search using your server model number.

Unbreakable Enterprise Kernel for Linux

Oracle Linux 7 with the Unbreakable Enterprise Kernel Release 5 is installed as the default OS. Unbreakable Enterprise Kernel Release 5 contains improvements and new features that have been incorporated into mainline Linux since the previous release of the Unbreakable Enterprise Kernel.

The minimum requirement is the Unbreakable Enterprise Kernel Release 5 Update 1, kernel 4.14.35-1844.2.5. Because Oracle Linux 7 Update 6 default installation is the Unbreakable Enterprise Kernel Release 5 Update 1, kernel 4.14.35-1818.3.3. Update to Unbreakable Enterprise Kernel Release 5 Update 1, kernel 4.14.35-1844.2.5 or later after the Oracle Linux 7 Update 6 installation.

For the latest information about operating system compatibility and pointers to installation information, refer to *Oracle Unbreakable Enterprise Kernel Release 5 Release Notes* at https://docs.oracle.com/cd/E93554_01/E95779/html/index.html.

Oracle Linux OS Installation Tasks

The following table describes the high-level steps for installing Oracle Linux software on Oracle Server X8-8.

To install the OS using Manual Installation or an Automated Installation using Kickstart, and for complete instructions to install the OS using either method, refer to the Oracle Linux 7 Documentation Library: https://docs.oracle.com/en/operating-systems/linux.html or https://docs.oracle.com/cd/E52668_01/index.html.

Task	Description	For Information
1	Review the server Product Notes for information updates.	*Oracle Server X8-8 Product Notes* at: https://www.oracle.com/goto/x8-2/docs
2	Install server hardware and connect to the Oracle ILOM service processor.	■ "Installing the Server Into a Rack" in *Oracle Server X8-8 Installation Guide* ■ "Connecting Cables and Applying Power" in *Oracle Server X8-8 Installation Guide* ■ "Using Oracle Integrated Lights Out Manager (ILOM)" in *Oracle Server X8-8 Installation Guide*
3	Confirm the Oracle Linux OS release that you want to install.	"Supported Oracle Linux Operating Systems" on page 39
4	Choose an Oracle Linux installation method. You can perform a Manual Installation or an Automated Installation using Kickstart.	Refer to this information in the Oracle Linux 7 Documentation Library at https://docs.oracle.com/cd/E52668_01/index.html.

Task	Description	For Information
	Note - Manual Installation is used in this example.	■ "Options for Installation" in *Installation Guide for Release 7* at https://docs.oracle.com/cd/E52668_01/E54695/html/ol7-install-options.html ■ For the latest information about operating system compatibility and pointers to installation information, refer to *Oracle Unbreakable Enterprise Kernel Release 5 Release Notes* at https://docs.oracle.com/cd/E93554_01/E95779/html/index.html.
5	Choose the Kernel software release. Optionally, you can install the Red Hat Compatible Kernel on Oracle Linux 7 Update 6 OS for x86 (64-bit).	Refer to *Oracle Unbreakable Enterprise Kernel Release 5 Release Notes* at https://docs.oracle.com/cd/E93554_01/E95779/html/index.html.
6	Verify that your system meets the requirements for Oracle Linux OS installation: ■ Minimum memory, disk space, and other system requirements. ■ Firmware is updated to the latest version.	Refer to this information in the Oracle Linux 7 Documentation Library at https://docs.oracle.com/cd/E52668_01/index.html. "System Requirements" in *Oracle Linux Installation Guide for Release 7* at https://docs.oracle.com/cd/E52668_01/E54695/html/ol7-install-requirements.html
7	Prepare to install the Oracle Linux OS:	■ Set up a console display: “Selecting the Console Display” on page 13 ■ Verify the optimal UEFI default settings: “Preparing the Boot Environment” on page 16 ■ Set up the boot media: “Selecting the Boot Media” on page 18 ■ Set up the installation target: “Selecting the Installation Target” on page 23 ■ (Optional) Configure RAID: “Configuring RAID” on page 25
8	Partition the system.	Refer to this information in the Oracle Linux 7 Documentation Library at https://docs.oracle.com/cd/E52668_01/index.html. "Configuring System Storage and Networking" in *Oracle Linux Installation Guide for Release 7* at https://docs.oracle.com/cd/E52668_01/E54695/html/ol7-install-storage-network.html
9	Download the Oracle Linux installation distribution files. You can obtain operating system and application software from the Oracle Software Delivery Cloud.	Refer to this information in the Oracle Linux 7 Documentation Library at https://docs.oracle.com/cd/E52668_01/index.html. "Obtaining and Preparing Installation Media" in *Oracle Linux Installation Guide for Release 7* at https://docs.oracle.com/cd/E52668_01/E54695/html/ol7-install-media.html To download the Oracle Linux distribution image, go to the Oracle Software Delivery Cloud at https://edelivery.oracle.com/ . For information, see https://edelivery.oracle.com/osdc/faces/Home.jspx.
10	Download the kernel required for the Oracle Linux OS installation.	Unbreakable Linux Network (ULN) web site at https://linux.oracle.com
11	Install the Oracle Linux OS either manually or using the automated KickStart utility. This example shows a manual installation.	Refer to this information in the Oracle Linux 7 Documentation Library at https://docs.oracle.com/cd/E52668_01/index.html.

Task	Description	For Information
		■ "Installing Oracle Linux Manually" in *Oracle Linux Installation Guide for Release 7* at https://docs.oracle.com/cd/E52668_01/E54695/html/ol7-install-basic.html ■ "Automated Installation Using KickStart" in *Oracle Linux Installation Guide for Release 7* at https://docs.oracle.com/cd/E52668_01/E54695/html/ol7-install-kickstart.html
12	Reboot the server before using Oracle Linux OS.	"Resetting or Powering the Server Off and On" on page 35
13	Perform post-installation tasks. ■ Refer to the server Product Notes to review any issues or operating notes, ■ Register Oracle Linux and activate Automatic Updates. ■ (Optional) Register with the Unbreakable Linux Network (ULN). ■ Obtain errata information and updates from the Oracle Linux yum server. Individual RPM packages for released versions of Oracle Linux as well as update/errata packages can be obtained from the Oracle Linux yum server. ■ Update all install packages. **Note -** Update to Unbreakable Enterprise Kernel Release 5 Update 1, kernel 4.14.35-1844.2.5 or later after the Oracle Linux 7 Update 6 installation.	■ *Oracle Server X8-8 Product Notes* at: https://www.oracle.com/goto/x8-2/docs ■ Download patches from My Oracle Support at https://support.oracle.com ■ Unbreakable Linux Network web site at https://linux.oracle.com ■ Oracle Linux yum server site at https://yum.oracle.com Refer to this information in the Oracle Linux 7 Documentation Library at https://docs.oracle.com/cd/E52668_01/index.html. ■ *Release Notes for Oracle Linux 7 Update 6* at https://docs.oracle.com/cd/E52668_01/F10004/html/index.html ■ "Registering an Oracle Linux 7 System" in *Oracle Linux Administrator's Solutions Guide for Release 7* at https://docs.oracle.com/cd/E52668_01/E54669/html/ol7-about-uln.html ■ "Post-Installation Configuration" in *Oracle Linux Installation Guide for Release 7* at https://docs.oracle.com/cd/E52668_01/E54695/html/ol7-postinstall-config.html ■ *Oracle Linux Installation Guide for Release 7* at https://docs.oracle.com/cd/E52668_01/E54695/html/index.html

Oracle VM Server Installation

This section provides instructions for installing Oracle VM Server on Oracle Server X8-8.

- "Supported Oracle VM Server Operating Systems" on page 43
- "Oracle VM Server Overview" on page 44
- "Oracle VM OS Installation Tasks" on page 44

Supported Oracle VM Server Operating Systems

Oracle Server X8-8 supports the following Oracle VM Server operating systems at the initial release of the servers.

Oracle VM Server Version	Edition
Oracle VM Server	Release 3.4.6

If Oracle VM Server is installed on your server but you do not want to use it, you can install any other supported operating system or virtual machine software on your server. For updated information about Oracle VM Server and a list of supported operating systems and virtual machine software, refer to the latest version of the server Product Notes at:

Oracle Server X8-8 Product Notes at: `https://www.oracle.com/goto/x8-2/docs`

The Oracle Linux and Oracle VM Hardware Certification List (HCL) identifies the latest operating system versions supported on Oracle hardware. To find the latest Oracle VM Server versions supported for the Oracle Server X8-8, go to `https://linux.oracle.com/pls/apex/f?p=117:1:0:` and search using your server model number.

Oracle VM Server Overview

Oracle VM is a platform that provides a fully equipped environment with all the latest benefits of virtualization technology. Oracle VM allows you to deploy operating systems and application software in a supported virtualization environment. The Oracle VM architecture includes Oracle VM Manager and Oracle VM Server.

Oracle VM Manager manages Oracle VM Servers, virtual machines, and resources. Oracle VM Manager includes a web browser-based user interface and a command-line interface (CLI), enabling you to manage your infrastructure directly from the command line either with external scripts or by running manual command sequences. Each interface runs as a separate application to the Oracle VM Manager core and interfaces with this using the Web Services API.

Oracle VM Server is a self-contained virtualization environment designed to provide a lightweight, secure, server-based platform to run virtual machines on x86 hardware. Oracle VM Server is based upon an updated version of the underlying Xen hypervisor technology, and includes Oracle VM Agent. It also includes a Linux kernel with support for a broad array of devices and file systems. The Linux kernel is run as Dom0 to manage one or more DomU virtual machines, each of which could be Linux, Oracle Solaris, or Microsoft Windows. At least one Oracle VM Server is required, but several are needed to take advantage of clustering.

Oracle VM Agent is used to manage communication with Oracle VM Manager. Oracle VM Manager is a server side component that allows you to configure and manage your Oracle VM environment. Oracle VM Manager includes both a command line interface and a web-based user interface, which is a standard Application Development Framework (ADF) web application. Oracle VM Manager provides virtual machine management facilities, including creating virtual machines from installation media or from templates. It provides features such as power on, power off, deleting, importing, deploying, and live migration of virtual machines. Oracle VM Manager also manages resources, including ISO files, virtual machine templates, and shared virtual disks.

For information about the complete Oracle VM environment and installation instructions for other components of Oracle VM, refer to the Oracle VM 3.4.6 Documentation Library at https://docs.oracle.com/cd/E64076_01/index.html.

Oracle VM OS Installation Tasks

The following table describes the high-level steps for installing Oracle VM Server software.

For information about the complete Oracle VM environment and installation instructions for other components of Oracle VM, refer to the Oracle VM Server 3.4.6 documentation at https://docs.oracle.com/cd/E64076_01/index.html.

Task	Description	For Information
1	Review the server Product Notes for information updates.	*Oracle Server X8-8 Product Notes* at: https://www.oracle.com/goto/x8-2/docs
2	Install server hardware and connect to the Oracle ILOM service processor.	■ "Installing the Server Into a Rack" in *Oracle Server X8-8 Installation Guide* ■ "Connecting Cables and Applying Power" in *Oracle Server X8-8 Installation Guide* ■ "Using Oracle Integrated Lights Out Manager (ILOM)" in *Oracle Server X8-8 Installation Guide*
3	Confirm the Oracle VM Server release that you want to install.	"Supported Oracle VM Server Operating Systems" on page 43
4	Choose an Oracle VM Server installation method. You can perform a Manual Installation or an Automated Installation using Kickstart. **Note -** Manual Installation is used in this example.	Refer to these documents in the Oracle VM Server Documentation Library at https://docs.oracle.com/cd/E64076_01/index.html: ■ "Installing Oracle VM Server on x86 Hardware" in *Oracle VM Installation and Upgrade Guide for Release 3.4* at https://docs.oracle.com/cd/E64076_01/E64078/html/vmiug-ovs-install-x86.html ■ *Oracle VM Installation and Upgrade Guide for Release 3.4* at https://docs.oracle.com/cd/E64076_01/E64078/html/index.html ■ *Oracle VM Release Notes for 3.4.6* at https://docs.oracle.com/cd/E64076_01/E99523/html/index.html
5	Verify that your system meets the requirements for Oracle VM Server installation: ■ Minimum memory, disk space, and other system requirements. ■ Firmware is updated to the latest version.	Refer to these documents in the Oracle VM Server Documentation Library at https://docs.oracle.com/cd/E64076_01/index.html: ■ "Preinstallation Tasks and Requirements" in "Installing Oracle VM Server on x86 Hardware" in *Oracle VM Installation and Upgrade Guide for Release 3.4* at https://docs.oracle.com/cd/E64076_01/E64078/html/vmiug-ovs-install-x86.html#vmiug-server-preinstallation
6	Prepare to install the Oracle VM Server software:	■ Set up a console display: "Selecting the Console Display" on page 13 ■ Verify the optimal UEFI default settings: "Preparing the Boot Environment" on page 16 ■ Set up the boot media: "Selecting the Boot Media" on page 18 ■ Set up the installation target: "Selecting the Installation Target" on page 23 ■ (Optional) Configure RAID: "Configuring RAID" on page 25
7	Set up a second system with a static IP address on which you can install the Oracle VM Manager. This system must have one of the following operating systems installed: ■ Oracle Linux 7, 64-bit or later **Note -** The Oracle VM Server installation requires two passwords: one for the root Oracle	Refer to these documents in the Oracle VM Server Documentation Library at https://docs.oracle.com/cd/E64076_01/index.html: ■ For instructions about installing Oracle VM Manager, refer to the *Oracle VM Installation and Upgrade Guide for Release 3.4*. ■ *Oracle VM Release Notes for 3.4.6* at https://docs.oracle.com/cd/E64076_01/E99523/html/index.html

Task	Description	For Information
	VM Server account and one for the Oracle VM Agent.	
8	Install Oracle VM Manager.	Refer to these documents in the Oracle VM Server Documentation Library at https://docs.oracle.com/cd/E64076_01/index.html: ■ "Installing Oracle VM Manager" in *Oracle VM Installation and Upgrade Guide for Release 3.4* at https://docs.oracle.com/cd/E64076_01/E64078/html/vmiug-manager-installation.html
9	Download the Oracle VM Server installation distribution files. You can obtain operating system and application software from the Oracle Software Delivery Cloud.	Refer to these sections in the Oracle VM Server Installation Guide at https://docs.oracle.com/cd/E64076_01/index.html: ■ "Obtaining the Software" in "Preinstallation Tasks and Requirements" in "Installing Oracle VM Server on x86 Hardware" in *Oracle VM Installation and Upgrade Guide for Release 3.4* at: https://docs.oracle.com/cd/E64076_01/E64078/html/vmiug-ovs-install-x86.html#vmiug-server-get-software ■ "Preinstallation Tasks and Requirements" in "Installing Oracle VM Server on x86 Hardware" in *Oracle VM Installation and Upgrade Guide for Release 3.4* at: https://docs.oracle.com/cd/E64076_01/E64078/html/vmiug-ovs-install-x86.html#vmiug-server-preinstallation To download the Oracle VM Server distribution image, go to the Oracle Software Delivery Cloud at https://edelivery.oracle.com/ . For information, see https://edelivery.oracle.com/osdc/faces/Home.jspx.
10	Install Oracle VM Server either manually or using the automated KickStart utility.	Refer to these sections in the Oracle VM Server Installation Guide at http://docs.oracle.com/cd/E64076_01/index.html: ■ "Installing Oracle VM Server From a DVD-ROM" in "Installing Oracle VM Server on x86 Hardware" in *Oracle VM Installation and Upgrade Guide for Release 3.4* at https://docs.oracle.com/cd/E64076_01/E64078/html/vmiug-ovs-install-x86.html ■ "Performing a Kickstart Installation of Oracle VM Server" in "Installing Oracle VM Server on x86 Hardware" in *Oracle VM Installation and Upgrade Guide for Release 3.4* at https://docs.oracle.com/cd/E64076_01/E64078/html/vmiug-ovs-install-x86.html#vmiug-install-kickstart ■ "Installing Oracle VM Server on x86 Hardware" in *Oracle VM Installation and Upgrade Guide for Release 3.4* at https://docs.oracle.com/cd/E64076_01/E64078/html/vmiug-ovs-install-x86.html ■ "Installing Oracle VM Server" in *Oracle VM Installation and Upgrade Guide for Release 3.4* at https://docs.oracle.com/cd/E64076_01/index.html
11	Reboot the server before using Oracle VM Server.	"Resetting or Powering the Server Off and On" on page 35
12	Perform post-installation tasks.	■ *Oracle Server X8-8 Product Notes* at: https://www.oracle.com/goto/x8-2/docs

Task	Description	For Information
	■ Refer to the server Product Notes to review any issues or operating notes, ■ Register Oracle VM Server and activate Automatic Updates. ■ Obtain errata information and updates. ■ Update all install packages.	■ Download patches from My Oracle Support at https://support.oracle.com Refer to these sections in the Oracle VM Server Documentation Library at http://docs.oracle.com/cd/E64076_01/index.html: ■ "Installing Oracle VM Server on x86 Hardware" in *Oracle VM Installation and Upgrade Guide for Release 3.4* at https://docs.oracle.com/cd/E64076_01/E64078/html/vmiug-ovs-install-x86.html ■ *Oracle VM Installation and Upgrade Guide for Release 3.4* at https://docs.oracle.com/cd/E64076_01/E64078/html/index.html ■ *Oracle VM Release Notes for 3.4.6* at https://docs.oracle.com/cd/E64076_01/E99523/html/index.html

Oracle Solaris OS Installation

This section provides an overview of the tasks required to install the Oracle Solaris operating system.

- "Supported Oracle Solaris Operating Systems" on page 49
- "Installation Methods" on page 49
- "Oracle Solaris OS Installation Tasks" on page 50

Supported Oracle Solaris Operating Systems

Oracle Server X8-8 supports the following Oracle Solaris operating system software at the initial release of the server.

Oracle Solaris OS	Edition
Oracle Solaris 11	Release 11.4

For updated information about Oracle Solaris and a list of operating systems supported by the server, refer to the latest versions of the Product Notes at: https://www.oracle.com/goto/x8-8/docs

The Oracle Solaris Hardware Compatibility List (HCL) identifies the latest operating system version supported on Oracle hardware. To find the latest Oracle Solaris version supported for Oracle Server X8-8, go to the following site and search using your server model number: http://www.oracle.com/webfolder/technetwork/hcl/index.html

Installation Methods

You can perform a manual Text Installation or an Automated Installation of Oracle Solaris OS on Oracle Server X8-8.

- **Manual Text installation** uses the Text Installer to install Oracle Solaris manually. A Text Installation is a manual installation method that can operate with a minimum of memory and also enables you to select, create, or modify disk partitions while you are installing the Oracle Solaris operating system. For detailed Oracle Solaris Text Installation instructions, refer to *Manually Installing an Oracle Solaris 11.4 System* at https://docs.oracle.com/cd/E37838_01/.
- **Automated Installation** uses the Automated Installer (AI) to execute a "hands-free" operating system installation and client-specific configuration. For detailed Oracle Solaris Automated Installation instructions, refer to *Automatically Installing Oracle Solaris 11.4 Systems* at https://docs.oracle.com/cd/E37838_01/.

  Two methods of Automated Installation are available:

  - **Using an install media** – This method does not require an AI server. You use the media containing the AI image to boot the system and start the installation.
  - **Using an AI server to install on multiple systems** – This method requires more preparations to set up the AI server.

For complete Oracle Solaris Installation instructions, refer to documents listed in the Oracle Solaris 11.4 Documentation Library under *Installing and Booting Oracle Solaris* at https://docs.oracle.com/cd/E37838_01/.

Oracle Solaris OS Installation Tasks

The following table lists the high-level tasks for installing the Oracle Solaris OS using the Text Installer method on Oracle Server X8-8.

To install the OS using the Automated Installer method, and for complete instructions to install the OS using either method, refer to the Oracle Solaris 11.4 Information Library at https://docs.oracle.com/cd/E37838_01/.

Task	Description	For Information
1	Review the server Product Notes for information updates.	https://www.oracle.com/goto/x8-8/docs
2	Install server hardware and connect to the Oracle ILOM service processor.	■ "Installing the Server Into a Rack" in *Oracle Server X8-8 Installation Guide* ■ "Connecting Cables and Applying Power" in *Oracle Server X8-8 Installation Guide* ■ "Using Oracle Integrated Lights Out Manager (ILOM)" in *Oracle Server X8-8 Installation Guide*
3	Confirm the Oracle Solaris OS release that you want to install.	"Supported Oracle Solaris Operating Systems" on page 49

Task	Description	For Information
	Verify the latest Oracle Solaris SRU.	
4	Choose an installation method. You can use the Text Installer or the Automated Installer. **Note -** Text Installer is used in this example.	Refer to these documents in the Oracle Solaris 11.4 Documentation Library at: https://docs.oracle.com/cd/E37838_01/: ■ *Manually Installing an Oracle Solaris 11.4 System* at https://docs.oracle.com/cd/E37838_01/html/E69250/compareinstall.html#scrolltoc ■ *Automatically Installing Oracle Solaris 11.4 Systems* at https://docs.oracle.com/cd/E37838_01/html/E60976/compareinstall.html#scrolltoc.
5	Verify that your system meets the requirements for OS installation: ■ Minimum memory, disk space, and other system requirements. ■ Firmware is updated to the latest version.	Refer to these documents in the Oracle Solaris 11.4 Documentation Library at: https://docs.oracle.com/cd/E37838_01/: ■ *System Requirements for OS Installations* at https://docs.oracle.com/cd/E37838_01/html/E69250/sysreq.html#scrolltoc. ■ *Oracle Solaris 11.4 Release Notes* at https://docs.oracle.com/cd/E37838_01/. ■ *Firmware Downloads and Release History for Oracle Systems* at http://www.oracle.com/technetwork/systems/patches/firmware/release-history-jsp-138416.html
6	Prepare to install the Oracle Solaris OS:	■ Set up a console display: “Selecting the Console Display” on page 13 ■ Verify the optimal UEFI default settings: “Preparing the Boot Environment” on page 16 ■ Set up the boot media: “Selecting the Boot Media” on page 18 ■ Set up the installation target: “Selecting the Installation Target” on page 23 ■ (Optional) Configure RAID: “Configuring RAID” on page 25
7	Partition your system. The Text Installer can install the Oracle Solaris OS on an entire disk or on a partition.	Refer to these documents in the Oracle Solaris 11.4 Documentation Library at: https://docs.oracle.com/cd/E37838_01/: "Partitioning Your System" at https://docs.oracle.com/cd/E37838_01/html/E69250/partsys.html#scrolltoc.
8	Download the Oracle Solaris Text Installer image.	Refer to these documents in the Oracle Solaris 11.4 Documentation Library at: https://docs.oracle.com/cd/E37838_01/: ■ "Text Installation Tasks" at https://docs.oracle.com/cd/E37838_01/html/E69250/gofxn.html#scrolltoc. ■ To download the Text Installer image, go to http://www.oracle.com/technetwork/server-storage/solaris11/downloads/index.html.
9	Perform a Text Installation.	Refer to these documents in the Oracle Solaris 11.4 Documentation Library at: https://docs.oracle.com/cd/E37838_01/: "How to Perform a Text Installation" at https://docs.oracle.com/cd/E37838_01/html/E69250/texttask.html#scrolltoc.
10	Reboot the server before using Oracle Solaris OS.	“Resetting or Powering the Server Off and On” on page 35
11	Perform post-installation tasks.	Download patches from My Oracle Support at https://support.oracle.com

Task	Description	For Information
	Download patches from My Oracle Support. Use the Oracle Solaris Image Packaging System (IPS) to: ■ List and search software packages. ■ Install, update, and remove software. ■ Upgrade to a new Oracle Solaris release.	Refer to these documents in the Oracle Solaris 11.4 Documentation Library at: https://docs.oracle.com/cd/E37838_01/: ■ *Updating Systems and Adding Software in Oracle Solaris 11.4* at https://docs.oracle.com/cd/E37838_01/html/E60979/index.html.

Windows Server OS Installation

This section provides instructions for installing a Microsoft Windows Server OS on Oracle Server X8-8.

- "Supported Windows Server Operating Systems" on page 53
- "Windows Deployment Services OS Installation" on page 54
- "Mass Storage Device Drivers for Windows Server OS" on page 54
- "Windows Server OS Installation Tasks" on page 54
- "Download and Install OS Updates" on page 56
- "Configuring NIC Teaming" on page 57

Supported Windows Server Operating Systems

Oracle Server X8-8 supports the following Microsoft Windows operating systems at the initial release of the servers.

Windows Server OS	Edition
Windows Server 2019	■ Windows Server 2019 Standard Edition (64-bit) ■ Windows Server 2019 Datacenter Edition (64-bit)
Windows Server 2016	■ Windows Server 2016 Standard Edition (64-bit) ■ Windows Server 2016 Datacenter Edition (64-bit)

For updated information about the Windows Server OS and a list of supported operating systems, refer to the latest Product Notes for your server:

Oracle Server X8-8 Product Notes at: `https://www.oracle.com/goto/x8-8/docs`

The Windows Server Catalog identifies the latest operating system version supported on Oracle hardware. To find the latest Windows version supported for Oracle Server X8-8, go to the following site and search using your server model number: `https://www.windowsservercatalog.com/`

Windows Deployment Services OS Installation

You can install Windows Server 2019 or Windows Server 2016 from a deployment server environment. For the advanced user, you can create a customized Windows Imaging Format (WIM) image for your server on a system running Windows Deployment Services (WDS). After this installation image file is created, you can boot your server from its network card and select the image from the WDS system for unattended deployment.

For more information about WDS, go to: **`https://www.faqforge.com/windows-server-2016/configure-windows-deployment-services-server-2016/`**.

Mass Storage Device Drivers for Windows Server OS

If you configured a mass storage device where you want to install Microsoft Windows Server 2019 or Windows Server 2016, load the driver for the device when you install the operating system. See “Install Server-Specific Device Drivers and Tools” on page 57.

In the following table, identify the mass storage device and driver that are supported on your server. For instructions on loading the mass storage driver during the Windows Server 2019 or Windows Server 2016 installation, see `https://docs.microsoft.com/en-us/windows-hardware/drivers/print/device-installation`. You can download a ZIP file that includes the drivers. For download instructions, refer to “Getting Firmware and Software” in *Oracle Server X8-8 Installation Guide*.

Supported Device	Model Number	Driver Required During Installation
Oracle Storage 12 Gb SAS PCIe RAID HBA, Internal: 16 Port and 2 GB Memory	7116970	Avago MegaRAID SAS 9361-16i (megasas2.inf)
Oracle Flash Accelerator F640 PCIe Card	7115454	Intel-NVMe-7
Oracle Storage Dual-Port 32 Gb Fibre Channel PCIe Low Profile Host Bus Adapter, Emulex	7115459	Emulex LightPulse HBA - Storport Miniport Driver (oemsetup.inf)
Oracle Storage Dual-Port 32 Gb Fibre Channel PCIe Low Profile Host Bus Adapter, Qlogic	7115460	QLogic 32Gb Fibre Channel Adapter(ql2x00.inf)

Windows Server OS Installation Tasks

The following table describes the high-level steps for installing Windows Server.

For more information on Windows operating systems, see the Windows Server 2019 and Windows Server 2016 documentation at https://docs.microsoft.com/en-us/windows-server/.

Task	Description	For Information
1	Review the server Product Notes for information updates.	*Oracle Server X8-8 Product Notes* at: https://www.oracle.com/goto/x8-8/docs
2	Install server hardware and connect to the Oracle ILOM service processor.	■ "Installing the Server Into a Rack" in *Oracle Server X8-8 Installation Guide* ■ "Connecting Cables and Applying Power" in *Oracle Server X8-8 Installation Guide* ■ "Using Oracle Integrated Lights Out Manager (ILOM)" in *Oracle Server X8-8 Installation Guide*
3	Confirm the Windows Server release that you want to install.	"Supported Windows Server Operating Systems" on page 53
4	Choose a Windows Server installation method.	Refer to these documents in the Windows Server Documentation Library at: https://docs.microsoft.com/en-us/windows-server/ ■ https://docs.microsoft.com/en-us/windows-server/get-started-19/get-started-19 ■ https://docs.microsoft.com/en-us/windows-server/get-started/server-basics
5	Verify that your system meets the requirements for Windows Server installation: ■ Minimum memory, disk space, and other system requirements. ■ Firmware is updated to the latest version.	■ *Windows Server Release Notes* at https://docs.microsoft.com/en-us/windows-server/.
6	Prepare to install Windows Server:	■ Set up a console display: "Selecting the Console Display" on page 13 ■ Verify the optimal UEFI default settings: "Preparing the Boot Environment" on page 16 ■ Set up the boot media: "Selecting the Boot Media" on page 18 ■ Set up the installation target: "Selecting the Installation Target" on page 23 ■ (Optional) Configure RAID: "Configuring RAID" on page 25
7	Partition your system. The Installer can install Windows Server on an entire disk or on a partition.	"Partitioning Your System" in *Manually Installing Windows Server* at https://docs.microsoft.com/en-us/windows-server/.
8	Download the Windows Server image.	To download the most recent version of the Windows Server software, go to the web site at https://docs.microsoft.com/en-us/windows-server/.
9	Perform a Windows Server Installation.	■ Refer to Windows Server installation documentation at https://docs.microsoft.com/en-us/windows-server/. ■ https://docs.microsoft.com/en-us/windows-server/get-started-19/install-upgrade-migrate-19
10	Perform post-installation tasks.	■ Download patches from My Oracle Support at https://support.oracle.com

Task	Description	For Information
	Use the Windows Server OS to update Windows Server.	■ "Download and Install OS Updates" on page 56 ■ "Install Server-Specific Device Drivers and Tools" on page 57 ■ "Configuring NIC Teaming" on page 57 ■ To learn how to configure, access, and manage Windows Server resources, refer to Windows Server 2019 documentation at https://docs.microsoft.com/en-us/windows-server/.

Download and Install OS Updates

Install the device drivers and supplemental software from the most recent Windows OS Pack for Windows Server 2016.

Drivers example:

- Broadcom-HBA-MegaRAID-SAS3
- Broadcom-NIC-25GbE
- Emulex-FC-32GbE
- Intel-Chipset-pkg
- Intel-HBA-RSTe
- Intel-NIC-1gbe
- Intel-NIC-10GbE
- Intel-NIC-40GbE
- Intel-NVMe-7
- LSI-HBA-MPT3
- QLogic-FC-32GbE

Tools example:

- Intel-Chipset
- Intel-NIC-PROSet
- Intel-RSTe-Manager
- LSI-MSM
- StorCLI
- bnxtnvm

▼ Install Server-Specific Device Drivers and Tools

The following procedure describes how to install the device drivers and supplemental software tools for Windows Server 2019 or Windows Server 2016.

1. **Install device drivers and tools manually.**
2. **Download the most recent Windows OS Pack.**
3. **View the readme.html or version.txt in Windows OS Pack.**
4. **Open Windows OS Pack in a file browser.**
5. **Select the drivers from the Windows 2019 or Windows 2016 `Driver` folder for server installation.**

   Note - Verify that the most recent versions of the drivers are installed.

6. **Select the tools from the Windows 2019 or Windows 2016 `Tools` folder for server installation.**

   Note - Verify that the most recent versions of the tools are installed.

Configuring NIC Teaming

Microsoft integrates NIC Teaming support into Windows Server 2019 and Windows Server 2016.

To configure NIC teaming in Windows Server 2019 , refer to the following Microsoft User Guide: `https://docs.microsoft.com/en-us/windows-server/get-started-19/install-upgrade-migrate-19`

To configure NIC teaming in Windows Server 2016, refer to the following Microsoft User Guide: `https://gallery.technet.microsoft.com/Windows-Server-2016-839cb607`

VMware ESXi Installation

This section provides instructions for installing VMware ESXi on Oracle Server X8-8.

- "Supported VMware ESXi Operating Systems" on page 59
- "VMware ESXi OS Installation Tasks" on page 60

VMware ESXi allows you to deploy operating systems and application software in a supported virtualization environment. VMware ESXi is a managed virtualization environment that provides a lightweight, secure, server platform for running virtual machines, also known as domains. These virtual machines could be Linux, Oracle Solaris, or Microsoft Windows.

Supported VMware ESXi Operating Systems

Oracle Server X8-8 supports the following VMware ESXi operating systems at the initial release of the servers.

VMware ESXi Version	Edition
VMware ESXi	Release 6.7 Update 1

If VMware ESXi is installed on your server but you do not want to use it, you can install any other supported operating system or virtual machine software on your server. For updated information about VMware ESXi and a list of supported operating systems and virtual machine software, refer to the latest version of the server Product Notes at:

Oracle Server X8-8 Product Notes at: `https://www.oracle.com/goto/x8-8/docs`

The VMware ESXi Hardware Certification List (HCL) identifies the latest operating system versions supported on Oracle hardware. To find the latest VMware ESXi versions supported for the Oracle Server X8-8, go to `https://www.vmware.com/resources/compatibility/search.php` and search using your server model number.

VMware ESXi OS Installation Tasks

The following table describes the high-level steps for installing VMware ESXi software.

For information about the complete VMware ESXi environment and installation instructions for other components of VMware ESXi, refer to the VMware ESXi documentation at https://docs.vmware.com/en/VMware-vSphere/index.html.

Task	Description	For Information
1	Review the server Product Notes for information updates.	*Oracle Server X8-8 Product Notes* at: https://www.oracle.com/goto/x8-8/docs
2	Install server hardware and connect to the Oracle ILOM service processor.	■ "Installing the Server Into a Rack" in *Oracle Server X8-8 Installation Guide* ■ "Connecting Cables and Applying Power" in *Oracle Server X8-8 Installation Guide* ■ "Using Oracle Integrated Lights Out Manager (ILOM)" in *Oracle Server X8-8 Installation Guide*
3	Confirm the VMware ESXi release that you want to install.	"Supported VMware ESXi Operating Systems" on page 59
4	Choose an installation method. You can use the manual Installer or the automated Installer. **Note -** Manual Installation is used in this example.	Refer to these documents in the VMware ESXi Documentation Library at https://docs.vmware.com/en/VMware-vSphere/index.html ■ *Manually Installing VMware ESXi* ■ *Automatically Installing VMware ESXi*
5	Verify that your system meets the requirements for VMware ESXi installation: ■ Minimum memory, disk space, etc. ■ Firmware is updated to the latest version.	Refer to these documents in the VMware ESXi Documentation Library at https://docs.vmware.com/en/VMware-vSphere/index.html *VMware ESXi Release Notes*
6	Prepare to install VMware ESXi:	■ Set up a console display: "Selecting the Console Display" on page 13 ■ Verify the optimal UEFI default settings: "Preparing the Boot Environment" on page 16 ■ Set up the boot media: "Selecting the Boot Media" on page 18 ■ Set up the installation target: "Selecting the Installation Target" on page 23 ■ (Optional) Configure RAID: "Configuring RAID" on page 25
7	Partition your system. The Installer can install VMware ESXi on an entire disk or on a partition.	Refer to these documents in the VMware ESXi Documentation Library at https://docs.vmware.com/en/VMware-vSphere/index.html "Partitioning Your System" in *Manually Installing VMware ESXi* at https://docs.vmware.com/en/VMware-vSphere/index.html.
8	Download the VMware ESXi image.	An ISO image of the VMware ESXi installation program is available as a download at https://my.vmware.com/web/vmware/downloads.
9	Perform an VMware ESXi Installation.	Refer to these documents in the VMware ESXi Documentation Library at https://docs.vmware.com/en/VMware-vSphere/index.html

Task	Description	For Information
		VMware ESXi Release Notes
10	Reboot the server before using VMware ESXi.	"Resetting or Powering the Server Off and On" on page 35
11	Perform post-installation tasks. Download patches from My Oracle Support. Use the VMware ESXi to: ■ List and search software packages. ■ Install, update, and remove software. ■ Upgrade to a new VMware ESXi release.	Download patches from My Oracle Support at `https://support.oracle.com` Refer to these documents in the VMware ESXi Documentation Library at `https://docs.vmware.com/en/VMware-vSphere/index.html` ■ *VMware ESXi Release Notes*

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