Oracle® Server X7-8 Operating Systems Installation Guide

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Using This Documentation

- **Overview** – Describes how to install supported operating systems on Oracle Server X7-8
- **Audience** – Technicians, administrators, and authorized service providers
- **Required knowledge** – Experience installing operating systems

Product Documentation Library

Documentation and resources for this product and related products are available at https://www.oracle.com/goto/x7-8/docs.

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About Oracle Operating Systems Installations

This section provides a list of supported operating systems, where to obtain installation media, and an overview of the options for installing an operating system.

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 Oracle installation media. Use the following information to determine the local or remote OS installation that best serves your needs.

Note - For the latest information on installation requirements for the supported operating systems, refer to the *Oracle Server X7-8 Product Notes* at `https://www.oracle.com/goto/x7-8/docs`.

Media Delivery Method	Additional Requirements
Local OS installation using a DVD drive – Physical DVD drive connected to the server.	Monitor, USB keyboard and mouse, a USB DVD or flash drive, and OS distribution media. For local installations, you deliver the installation media using a local DVD drive or USB flash drive attached directly to the server. For more information, see "Set Up the Boot Media for Local Installation" on page 21.
Remote OS installation using a DVD drive or DVD ISO image – Redirected physical DVD drive on a remote system running the Oracle ILOM Remote System Console Plus application.	Remote system with a browser, an attached physical DVD or flash 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 DVD, USB flash drive, or DVD ISO image. For more information, see "Set Up the Boot Media for Local Installation" on page 21.
PXE image – Server Preboot eXecution Environment (PXE)	PXE server with the Oracle OS installation image. For additional information, refer to "Installing an Operating System Using PXE Network Boot" on page 26.

Media Delivery Method	Additional Requirements
launches the installer from a network interface.	

Manual Operating System Installation

With this method, you deliver the Oracle OS distribution media on either a local or remote DVD drive, USB device, or DVD image. To install an operating system, you use the distribution media's installation wizard.

For all operating systems excluding Oracle Solaris, you need to install the necessary drivers. InstallPack is the recommended method for installing supported OS software on your server. The drivers for your server are available from the My Oracle Support web site as either OS-specific and server-specific packages or as an ISO image file. For instructions, see the post-installation tasks for your operating system.

Operating Systems Installation Task Map

This section provides an overview of the installation procedure.

Operating Systems Installation Procedure Overview

The following table describes the high-level steps for installing a supported operating system.

Step	Description	Links
1	Review the server product notes.	*Oracle Server X7-8 Product Notes*
2	Install the server hardware.	"Installing the Server Into a Rack" in *Oracle Server X7-8 Installation Guide*
3	Configure the Oracle ILOM service processor.	"Using Oracle ILOM" in *Oracle Server X7-8 Installation Guide*
4	Review the supported OS versions.	■ "Supported Oracle Solaris Operating Systems" on page 33 ■ "Supported Linux Operating Systems" on page 39 ■ "Supported Oracle VM Server Software" on page 50 ■ "Supported Windows Server Operating Systems" on page 55

Step	Description	Links
5	Set up the boot environment, console, boot media, and installation target that you will use to perform the installation.	■ "Selecting the Console Display" on page 15 ■ "Selecting the Boot Media Option" on page 20 ■ "Selecting the Installation Target" on page 22
7	*(Oracle VM only) 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 5 Update 5, 64-bit or later ■ Oracle Linux 6, 64-bit or later ■ Oracle Linux 7, 64-bit or later	*Oracle VM Release Notes for Release 3.4.4*, *Oracle VM Installation and Upgrade Guide for Release 3.4.4*, and *Oracle VM User's Guide for Release 3.4.4* at `http://www.oracle.com/technetwork/documentation/vm-096300.html`.
8	Install the OS.	■ "Oracle Solaris OS Installation" on page 33 ■ "Oracle Linux OS Installation" on page 39 ■ "Oracle VM Server Installation" on page 49 ■ "Windows Server OS Installation" on page 55
9	Perform the post installation tasks, if applicable.	■ "Post Installation Tasks for Oracle Solaris OS" on page 37 ■ "Post Installation Tasks for Oracle Linux OS" on page 46 ■ "Post Installation Tasks for Oracle VM Server Software" on page 52 ■ "Post Installation Tasks for Windows Server OS" on page 61

Preparing to Install an Operating System

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

To successfully prepare to install an operating system on the Oracle Server X7-8, complete the tasks below in the order they appear.

- "Selecting the Console Display" on page 15
- "Preparing the Boot Environment" on page 17
- "Selecting the Boot Media Option" on page 20
- "Selecting the Installation Target" on page 22
- "Configuring RAID" on page 24

Selecting the Console Display

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

- "Console Display Options" on page 15
- "Set Up a Local Console" on page 16

Console Display Options

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

- A local terminal connected to the serial management port (SER MGT). See "Set Up a Local Console" on page 16

  You can connect the terminal directly to the port, or connect it to a terminal emulator that is connected directly to the port.
- Web-based client connection using the Oracle ILOM Remote System Console Plus application
- Secure Shell (SSH) client connection to the network management port (NET MGT)

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.**
   The Oracle ILOM Login prompt appears.

3. **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 server's host serial local console.

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 Oracle ILOM Network Settings" in *Oracle Server X7-8 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, then press Enter.**
   The Oracle ILOM Login prompt appears.

3. **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`.
   The Oracle ILOM Summary Information page appears.

4. **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 X7-8 Installation Guide*.

▼ 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's IP address, refer to "Modifying Oracle ILOM Network Settings" in *Oracle Server X7-8 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.

   The Oracle ILOM Login prompt appears.

3. **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`**

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 18.

For more information about changing boot properties, refer to the *Oracle X7 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 X7-2 Service Manual*.

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

You can use F8 during the BIOS start-up to specify a temporary boot device; however, this change is only in effect for the current system boot. The permanent boot device specified using F2 is in effect after booting from the temporary boot device.

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

- The 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 X7-8 Service Manual*.
- A console connection is established to the server. For details, see "Selecting the Console Display" on page 15.
- For more information and detailed procedures, see *Reset the BIOS Firmware to Default Settings (BIOS)* in the *Oracle X7 Series Servers Administration Guide* at https://www.oracle.com/goto/x86admindiag/docs.

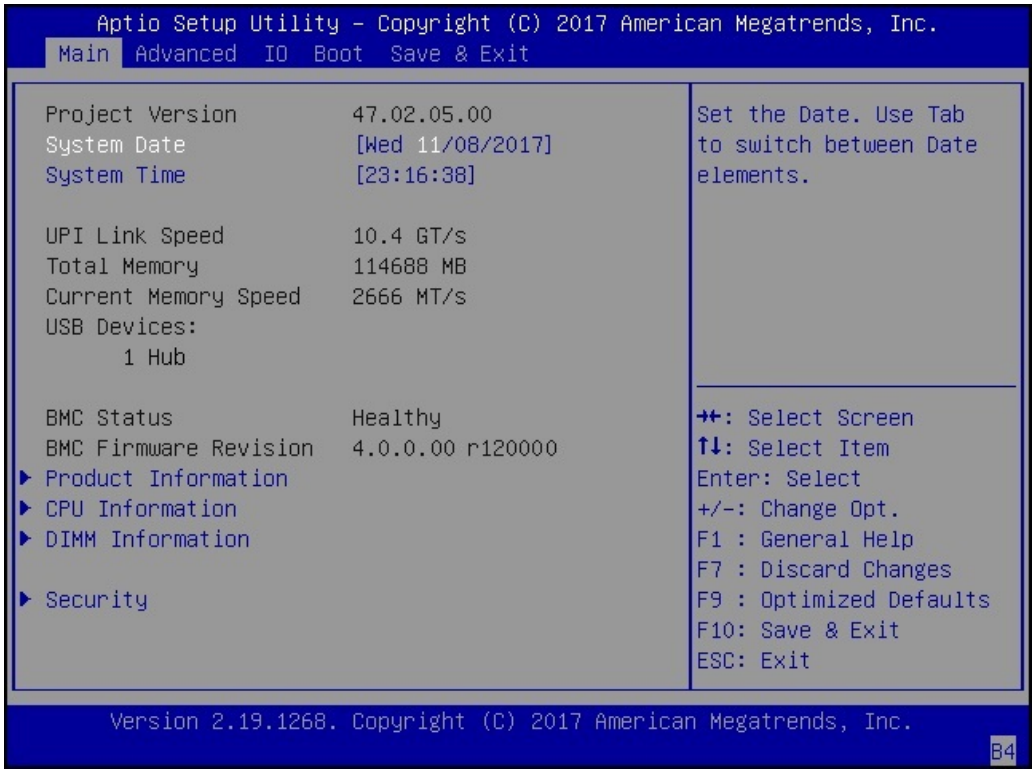
1. **Reset or power on the server.**

   See "Resetting or Powering on the Server" on page 31

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 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.

Selecting the Boot Media Option

You can start the operating system installation to the server by booting from a local or remote installation media 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 21

Note - The options in the boot order list differ depending on the storage drive configuration and whether you have enabled the Persistent Boot Support feature. For more information about Persistent Boot Support, refer to the *Oracle X7 Series Servers Administration Guide* at `https://www.oracle.com/goto/x86admindiag/docs`.

Local Boot Media Requirements

Local boot media requires a built-in storage device on the server, or an external storage device attached to the server.

Remote Boot Media Requirements

Verify that the system meets Remote Boot Media Requirements.

Boot media enables you to boot the install 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 source options include:

- DVD-ROM installation media installed in remote DVD drive
- DVD-ROM installation media installed in remote USB removable flash drive
- DVD-ROM ISO image available in a location on the network that is setup for virtual redirection
- 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 the *Oracle ILOM Administrator's Guide for Configuration and Maintenance* 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.

Set Up the Boot Media for Local Installation

1. **Obtain the installation media for the operating system to be installed.**

Operating System	Media	Link
Oracle Solaris	■ x86 Text Installer ■ x86 USB Text Installer ■ x86 Automated Installer Boot Image ■ x86 USB Automated Installer Boot Image	http://www.oracle.com/technetwork/server-storage/solaris11/downloads/index.html
Oracle Linux	■ ISO DVD image ■ Kickstart image	https://edelivery.oracle.com/osdc/faces/Home.jspx
Oracle VM Server	AI image	https://edelivery.oracle.com/osdc/faces/Home.jspx
Windows	■ DVD ■ ISO image	https://docs.microsoft.com/en-us/windows-server/windows-server-versions

2. **Insert the operating system installation media DVD into a DVD drive attached to the server.**

   If your server does not have a DVD drive, insert an external USB DVD drive or a USB flash drive that contains the operating system installation media into one of the external USB ports located on the front and back of the server.

   - For information about how to attach local devices to the server, refer to "Connecting Cables and Applying Power" in *Oracle Server X7-8 Installation Guide*.
   - For information about the location of the server's external USB ports, refer to "Server Features and Components" in *Oracle Server X7-8 Installation Guide*.

Set Up the Boot Media for Remote Installation

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

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:**
   - **For DVD-ROM**, insert the media into the built-in or external DVD-ROM drive on a remote system.
   - **For DVD-ROM ISO image**, ensure that the ISO image(s) are readily available on a network shared location or are mounted on the server service processor (SP).

   For instructions on mounting an installation image onto the server SP, refer to the *Oracle ILOM Administrator's Guide for Configuration and Maintenance* at `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 15.

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.

Selecting the Installation Target

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

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

Installation Target Options

Depending on the operating system, you can install an OS on the optional NVMe storage drives or on any of the storage drives installed in the server. Hard disk drives (HDDs), solid state drives (SSDs), and RAID volumes are valid installation targets.

You can install these operating systems on NVMe drives:

- Oracle Solaris
- Oracle Linux
- Oracle VM
- Windows Server

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

▼ Set Up a Local Storage Drive 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 X7-8 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 X7-8 Installation Guide*
   - Oracle X7 Series Server Administration Guide at `https://www.oracle.com/goto/x86admindiag/docs`

▼ 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 X7-8 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 X7-8 Installation Guide*.

HBA and RAID Support

The servers provide hardware RAID support through on-board SAS3 RAID HBAs. Each controller enables you to create up to two logical disk volumes consisting of two or more redundant disk drives. The following table identifies the hardware RAID controllers built into each server.

Server	Controller Description	Supported RAID Levels
X7-8	Two on-board SAS3 HBAs	0, 1, 1e, 10

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

There are three sets of RAID management utilities you can use with the on-board SAS3 HBAs provided in these servers.

- Intel Rapid Storage Technology Enterprise (RSTe)
- Avago BIOS Configuration Utility
- Host Operating System MegaRAID Utility (storCLI Ultility)

RAID Configuration Requirements

Your server is equipped 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, a RAID volume must be created 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 with BIOS.

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

Post-Installation RAID Volume Creation

Before installing an operating system, complete the RAID configuration. However, after installing an operating system, it is possible to create a RAID volume on nonboot 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.
- **(Oracle Storage 12 Gb SAS PCIe RAID HBA) Avago MegaCLI or MegaRAID Storage Manager** – 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.

Installing an Operating System Using PXE Network Boot

This section provides instructions for installing a supported operating system using PXE network boot.

Before You Begin

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

Operating System	Requirements

Solaris 11.3 (with SRU 23)	■ To use PXE to boot the 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.
	■ If your AI server requires the MAC address of an install client, you can obtain your system's MAC address by logging in to the Oracle ILOM SP as `root`, and typing:
	`-> show /System host_primary_mac_address`
	`/System`
	`Properties:`
	`host_primary_mac_address = 00:10:e0:c3:b6:f4`

Oracle Linux	■ If you are using a Kickstart image to perform the 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). For more information on Kickstart and PXE network installation on Oracle Linux 6, refer to the *Oracle Linux Installation Guide* at https://docs.oracle.com/cd/E37670_01/index.html. For more information on Kickstart and PXE network installation on Oracle Linux 7, refer to the *Oracle Linux 7 Installation Guide* at https://docs.oracle.com/cd/E52668_01/E54695/html/index.html.
Oracle VM	■ To use PXE to boot the installation media over the network: ■ Configure the network (NFS, TFTP, FTP, HTTP) server to export the installation tree.

Operating System	Requirements

	■ 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).
	■ If your server requires the MAC address of an install client, you can obtain your system MAC address by logging in to the Oracle ILOM SP as `root`, and typing:
	`-> show System/ host_primary_mac_address`
	`/System`
	`Properties:`
	`host_primary_mac_address = 00:10:e0:ba:be:54`

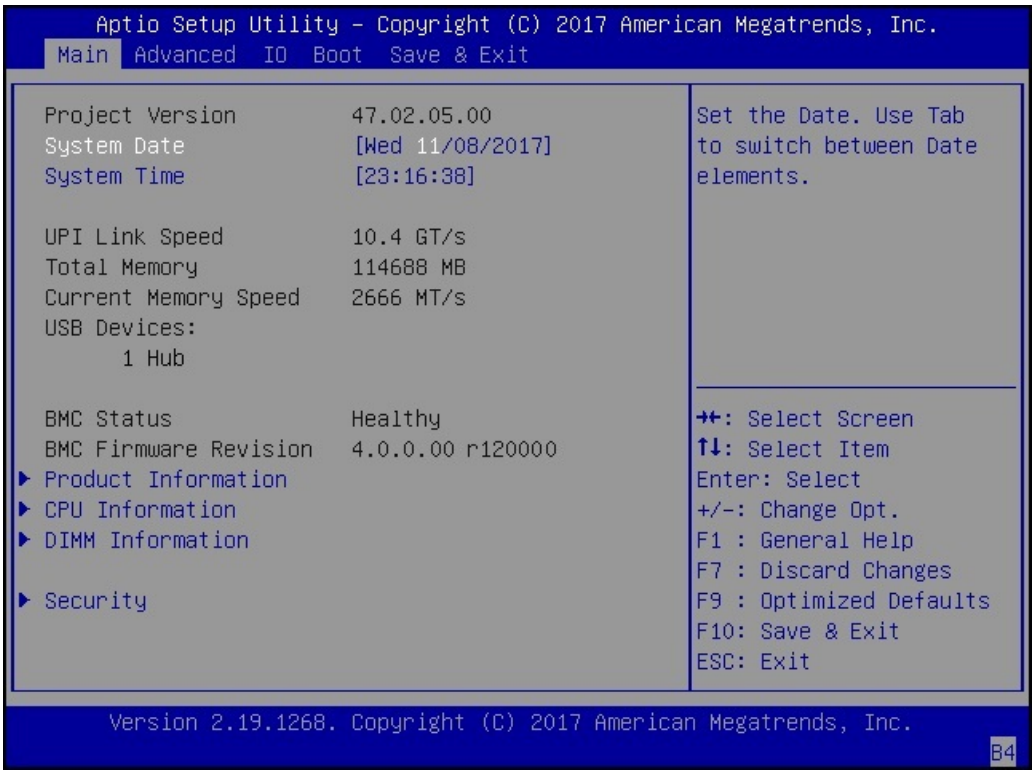
Windows Server 2012 R2 or Windows Server 2016	■ Configure the network (NFS, TFTP, HTTP) server to export the installation tree. ■ Configure the files on the TFTP server that are necessary for PXE booting. ■ Configure the server's MAC network port address to boot from the PXE configuration. ■ Configure 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. To use Windows Deployment Services (WDS) to perform the 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. ■ Obtain the WIM Administrator password.

▼ Install an Operating System Using PXE Network Boot

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

2. **Reset or power on the server. See “Resetting or Powering on the Server” on page 31.**

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.

3. **Verify that PXE boot is enabled. For Oracle Oracle Linux, skip to Step 4.**

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.**

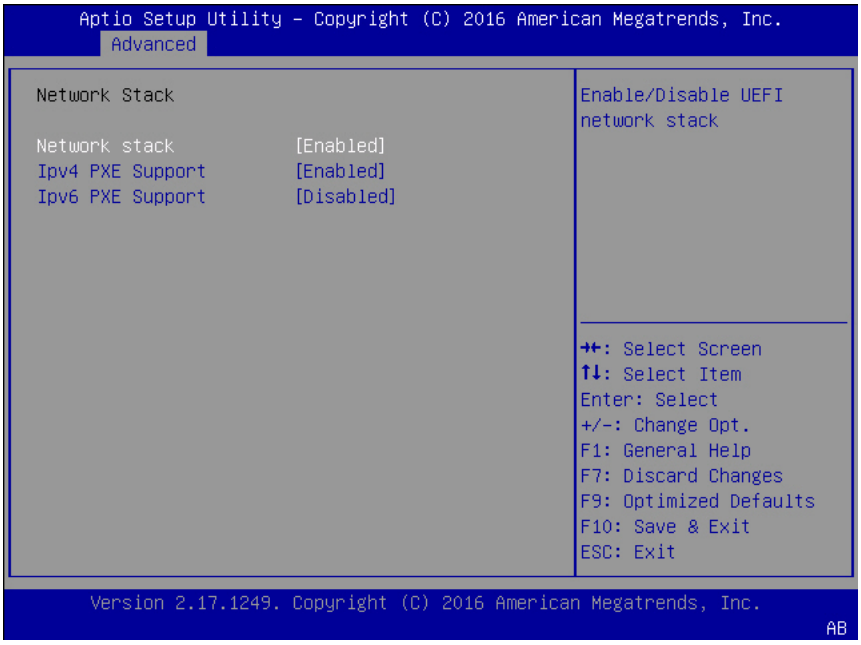
      The BIOS Setup Utility appears.

b. Select Advanced in the top menu bar.

The BIOS Setup Utility Advanced screen appears.

c. 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.

4. 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.

5. **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.

   For Oracle Solaris, the GRUB menu appears.

6. **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.

For instructions on completing the PXE installation, refer to

- *Creating a Custom Oracle Solaris 11.3 Installation Image* at `https://docs.oracle.com/cd/E53394_01/index.html`.
- *Oracle VM Installation and Upgrade Guide for Release 3.4* at `https://docs.oracle.com/cd/E64076_01/index.html`.
- Step 6 of "Install Windows Server 2012 R2 or Windows Server 2016 OS Manually Using Local or Remote Media" on page 57

7. **Follow the instructions the post installation tasks for your operating system.**

   - “Post Installation Tasks for Oracle Solaris OS” on page 37
   - “Post Installation Tasks for Oracle Linux OS” on page 46
   - “Post Installation Tasks for Oracle VM Server Software” on page 52
   - “Post Installation Tasks for Windows Server OS” on page 61

▼ Resetting or Powering on the Server

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

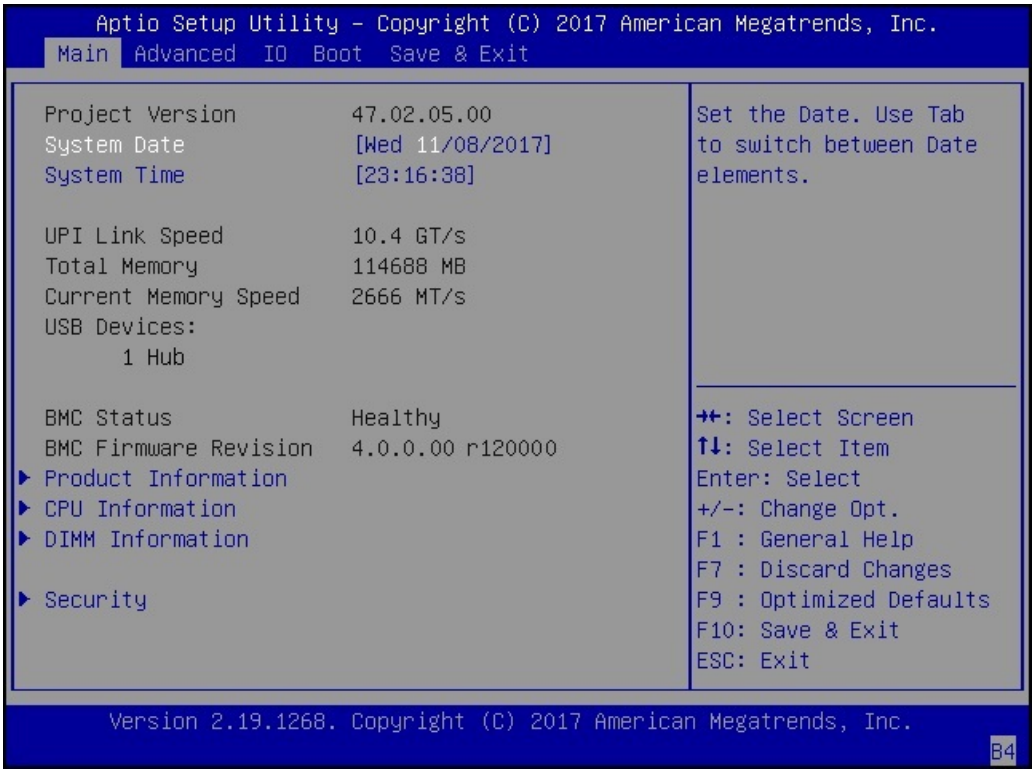
   - **From the local server**:

     Press the On/Standby button on the front panel of the server (for approximately 1 second) to turn the server off, then press the On/Standby button again to power on the server.

     From the Oracle ILOM CLI:To gracefully shut down the server, type **`stop /System`**. To power on the server, type **`start /System`**.
   - **From the Oracle ILOM CLI**: To reset the server, 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.

Note - Depending on the system you are power cycling, make sure to specify either SMOD0 System A or SMOD0 System B.

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



Tip - For server power control procedures, refer to "Controlling System Power" in *Oracle Server X7-8 Installation Guide*.

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

Oracle Solaris OS Installation

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

Supported Oracle Solaris Operating Systems

Oracle Server X7-8 supports the following Oracle Solaris operating system software at the initial release of the server.

Oracle Solaris OS	Edition
Oracle Solaris 11	Release 11.3 (with SRU 23)

For updated information about Oracle Solaris and a list of operating systems supported by the server, refer to the latest version of the *Oracle Server X7-8 Product Notes* at `https://www.oracle.com/goto/x7-8/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 X7-8, go to the following site and search using your server model number at `http://www.oracle.com/webfolder/technetwork/hcl/index.html`.

Installing Oracle Solaris OS

This section describes how to install the Oracle Solaris operating system on Oracle Server X7-8.

- "Install Oracle Solaris OS Using Local or Remote Media" on page 34

- "Install an Operating System Using PXE Network Boot" on page 27
- "Post Installation Tasks for Oracle Solaris OS" on page 37

▼ Install Oracle Solaris OS Using Local or Remote Media

This procedure describes how to boot the Oracle Solaris 11.3 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:

- Oracle Solaris 11.3 (with SRU 23) DVD (external DVD)
- Oracle Solaris 11.3 (with SRU 23) ISO DVD image (network repository)

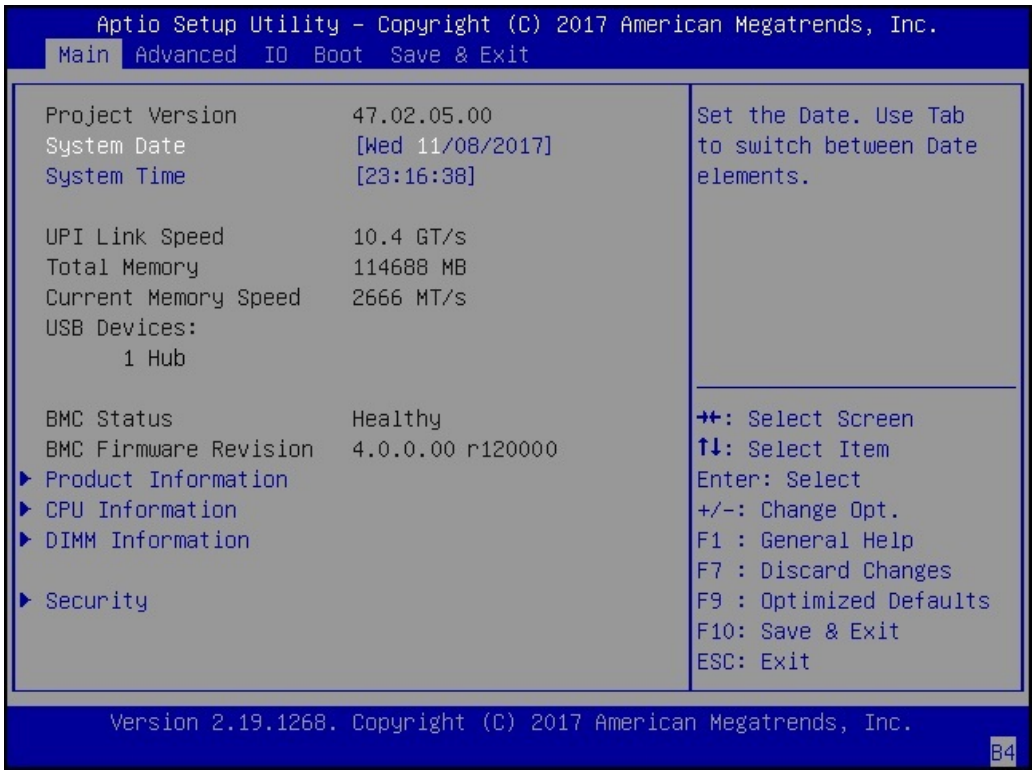
1. **Ensure that the installation media is available to boot.**

Note - If you are booting the installation media from a PXE environment, see "Install an Operating System Using PXE Network Boot" on page 27 for instructions.

For additional information about how to set up the install media, see "Selecting the Boot Media Option" on page 20.

2. **Reset or power on the server. See "Resetting or Powering on the Server" on page 31.**

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. **When the BIOS screen appears, press F8 to specify a temporary boot device for the Oracle Solaris OS installation.**

   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.

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

   For example, if you elected to use the Oracle ILOM Remote System Console Plus delivery method in UEFI Boot Mode, select `USB:SUN`.

   The GRUB menu appears.

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

   For instructions on completing the Oracle Solaris 11.3 with SRU 23 installation, refer to the Oracle Solaris 11.3 installation documentation at `https://docs.oracle.com/cd/E53394_01/index.html`.

Related Information

- “Installing an Operating System Using PXE Network Boot” on page 26

Post Installation Tasks for Oracle Solaris OS

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

Download and Install OS Updates

After installing and rebooting the Oracle Solaris operating system, review the Oracle Solaris instructions on how to determine whether updates are available and how to install them. Refer to the Oracle Solaris 11.3 documentation web site at`https://docs.oracle.com/cd/E53394_01/index.html`.

The Oracle Solaris installation media might not contain the most up-to-date versions of the software. If necessary, update the Oracle Solaris operating system with the latest updates. To download Oracle Solaris OS patches (updates), go to the My Oracle Support website at `https://support.oracle.com`.

Manage Oracle Solaris OS Resources

To learn how to configure, access, and manage Oracle Solaris resources, refer to the Oracle Solaris 11.3 documentation web site at `https://docs.oracle.com/cd/E53394_01/index.html`.

Oracle Linux OS Installation

This section provides instructions for installing the Oracle Linux operating system and system-specific drivers on the server.

- "Supported Linux Operating Systems" on page 39
- "Oracle Unbreakable Kernel for Linux" on page 40
- "Installing Oracle Linux OS" on page 40

Supported Linux Operating Systems

Oracle Server X7-8 supports the following Linux operating systems at the initial release of the servers.

Linux OS Version	Edition
Oracle Linux	Oracle Linux 6.9 and 7.3 OS for x86 (64-bit) with the Oracle Unbreakable Kernel Release 4 **Note -** Optionally, you can install the Red Hat Compatible Kernel on Oracle Linux 6.9 and 7.3 OS for x86 (64-bit).

If the 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 Linux OS and a list of supported operating systems and virtual machine software, refer to the latest version of the *Oracle Server X7-8 Product Notes* at `https://www.oracle.com/goto/x7-8/docs`.

The Oracle Linux Hardware Compatibility List (HCL) identifies the latest operating system versions supported on Oracle hardware. To find the latest Oracle Linux versions supported for the Oracle Server X7-8, go to `https://linux.oracle.com/pls/apex/f?p=117:1:3991604960223967` and search using your server model number.

Oracle Unbreakable Kernel for Linux

Release 4 of the Oracle Unbreakable Kernel (UEK) for Linux is installed by default on Oracle Linux 6.9 and 7.3 OS and can be installed on Red Hat Enterprise Linux 6.9 and 7.3 OS. Oracle Unbreakable Kernel Release 4 contains improvements and new features that have been incorporated into mainline Linux since Release 3 of the Oracle Unbreakable Kernel.

For the latest information about operating system compatibility and pointers to installation information, refer to *Oracle Unbreakable Enterprise Kernel Release 4 Release Notes* at `https://docs.oracle.com/cd/E52668_01/E69348/html/index.html#`.

Installing Oracle Linux OS

This section provides information about installing the Oracle Linux 6.9 or 7.3 for x86 (64-bit) operating system.

- "Install Oracle Linux 6.9 OS Using Local or Remote Media" on page 40
- "Install Oracle Linux 7.3 OS Using Local or Remote Media" on page 44
- "Post Installation Tasks for Oracle Linux OS" on page 46

▼ Install Oracle Linux 6.9 OS Using Local or Remote Media

This procedure describes how to install the Oracle Linux 6.9 OS from local or remote media. The procedure assumes that you are booting the Oracle Linux installation media from one of the following sources:

- Oracle Linux 6.9 DVD set
- Oracle Linux 6.9 ISO DVD image (network repository)

If you are booting the installation media from a PXE environment, see "Installing an Operating System Using PXE Network Boot" on page 26 for instructions.

1. **Access the host console.**

   For instructions, see "Selecting the Console Display" on page 15.

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

   For instructions, see "Selecting the Boot Media Option" on page 20.

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

   For details, see "Resetting or Powering on the Server" on page 31.

   Note - The next event occurs very quickly; therefore, be ready to press F8 to display the BBS Popup. 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. **On the BIOS screen, press F8 to specify a temporary boot device for the Linux OS installation.**

   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.

5. **On the Please Select Boot Device menu, select an option according to the Linux OS media installation method you elected to use, and press Enter.**

   For example, to use the Oracle ILOM Remote System Console Plus application delivery, select `[UEFI]USB:VIRTUAL:Remote Iso CDROM2.04`.

6. **On the Booting Oracle Linux Server 6.9 boot screen, press Enter or allow the screen to time out.**

7. **In the Disc Found dialog box, if this is the first time that you are doing an install from this media, consider selecting `OK` to test the media; otherwise, select `Skip` and press Enter.**

8. **On the Oracle Linux 6 splash screen, scroll to the bottom, and click `Next`.**

9. **Follow the on-screen prompts to complete the Oracle Linux installation up to the point where you create partitions.**

   For instructions on completing the Oracle Linux 6.9 installation up to the point where you create partitions, refer to the Oracle Linux 6 installation documentation at https://docs.oracle.com/cd/E37670_01/.

10. **To create partitions, for each mount point, use the following file system type and size.**

Mount Point	File System Type	Size (MB)
/boot/efi	EFI System Partition	200
/	ext4	20000
None	swap	16384

11. **Format the disk. To recover and reformat the disk without aborting the install, click the keyboard Back button on the install screen several times to return to the initial Oracle Linux splash screen and perform these steps:**

    a. **To start the recovery shell, type Ctrl+Alt+F2.**

    b. **To reformat the disk in GPT format or MBR format for this installation, enter the following shell commands:**

```
anaconda root@localhost /]# parted /dev/sdb
GNU Parted 2.1
Using /dev/sda
Welcome to GNU Parted! Type ???help' to view a list of commands.
(parted) p
Model: HITACHI H101860SFSUN600G (scsi)
Disk /dev/sda: 600GB
Sector size (logical/physical): 512B/512B
Partition Table: msdos (or gpt for Legacy BIOS Boot Mode)
Number Start End Size Type File system Flags
1 1049kB 21.5GB 21.5GB primary ext2
(parted) mklabel
New disk label type? gpt (or msdos for Legacy BIOS Boot Mode)
Warning: The existing disk label on /dev/sda will be destroyed and all data will be
```

```
lost.
Do you want to continue?
Yes/No? yes
(parted) p
Model: HITACHI H101860SFSUN600G (scsi)
Disk /dev/sda: 600GB
Sector size (logical/physical): 512B/512B
Partition Table: gpt
Number Start End Size File system Name Flags
(parted) g
Information: You may need to update /etc/fstab.
anaconda root@localhost /]#
```

c. **Press `Ctrl+Alt+F6` to return to the graphical installation screen and continue the installation from the point of creating a partition (go to Step 10).**

Note - In most cases, the values that you entered for this installation were saved, so you do not have to reenter them.

---

12. **On the Install boot loader screen, select `Install boot loader on /dev/sdb1`, and click `Next`.**

13. **On the Select Server screen, for the purposes of this sample installation, accept the `Basic Server` default option and click `Next`.**

14. **After the installation completes, reboot the installation.**

15. **Press `F2` to access the BIOS Setup Utility so that you can set the server to boot from the operating system you just installed.**

16. **Verify that the boot entry name you created (in this case, [`Oracle Linux`]) is listed as the first option in the UEFI Boot Option Priority field.**

17. **Press F10 to exit the BIOS Setup Utility and reboot the installation.**

18. **Press any key to display the GNU GRUB menu.**

19. **Select `Oracle Linux Server Red Hat Compatible Kernel (2.6.32-696.el6.x86_64)` and press `Enter`.**

20. **Log in to Linux and perform these steps:**

    a. **Configure the network connection.**

b. **Verify that the Linux Internet connection is active.**

21. **Confirm that the UEK entry appears in: `/etc/yum.repos.d/public-yum-ol6.repo`**

22. **Update to Oracle Unbreakable Kernel Release 4 by running `yum update kernel-uek` or `yum update`.**

23. **When the update is complete, reboot the server with the `reboot` command to start the server with the new Oracle Unbreakable Enterprise Kernel.**

▼ Install Oracle Linux 7.3 OS Using Local or Remote Media

This procedure describes how to install the Oracle Linux OS 7.3 from local or remote media. The procedure assumes that you are booting the Oracle Linux installation media from one of the following sources:

- Oracle Linux OS 7.3 DVD set (internal or external DVD)
- Oracle Linux OS 7.3 ISO DVD image (network repository)

If you are booting the installation media from a PXE environment, see “Installing an Operating System Using PXE Network Boot” on page 26 for instructions.

1. **Access the host console.**

   For instructions, see “Selecting the Console Display” on page 15.

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

   For instructions, see “Selecting the Boot Media Option” on page 20.

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

   For details, see “Resetting or Powering on the Server” on page 31.

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

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

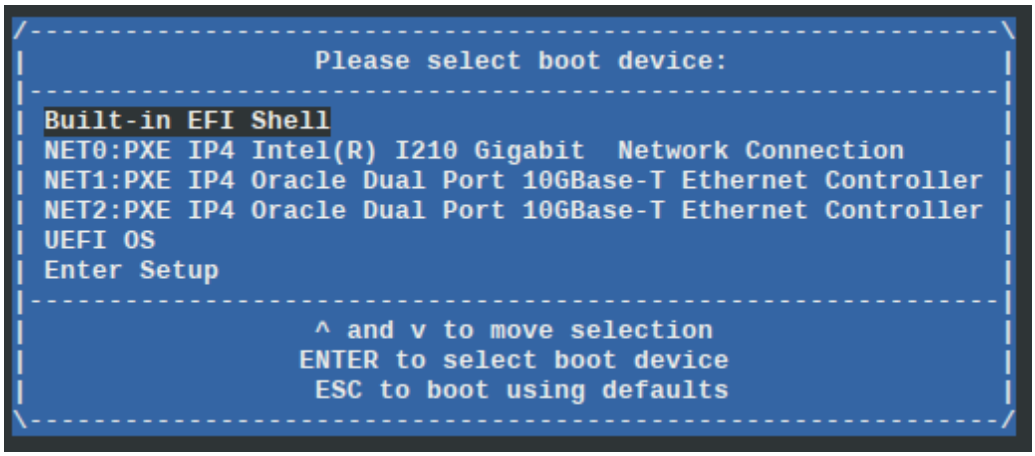
---

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

5. **On the Please Select Boot Device menu, select the option according to the Linux OS media installation method, and press `Enter`.**

   For example, if you used the Oracle ILOM Remote System Console Plus application delivery method, select `[UEFI]USB:VIRTUAL:Remote Iso CDROM2.05`.

   In UEFI Boot Mode, a screen similar to the following appears:



6. **On the Booting Oracle Linux Server boot screen, press `Enter` or allow the screen to time out.**

7. **On the Disc Found screen, if this is the first time that you are doing an install from this media, consider selecting `OK` to test the media; otherwise, select `Skip` and press `Enter`.**

8. **On the Oracle Linux 7 splash screen, proceed with Oracle Linux 7.3 installation instructions, which are located at the Oracle Linux 7.3 Product Documentation Library: `https://docs.oracle.com/cd/E52668_01/index.html`**

Note - Oracle Linux 7 contains new features and functionality that produces behavior and results that vary from Oracle Linux 6. Please proceed carefully with your installation.

When the installation is complete, the server reboots and the BIOS screen appears.

9. **Press `F2` to access the BIOS Setup Utility so that you can set the server to boot from the operating system you just installed.**

   The BIOS Setup Utility screen appears with the Boot Menu selected.

10. **Verify that the correct first option appears in the UEFI Boot Option Priority field.**

11. **Press `F10` to exit the BIOS Setup Utility.**

12. **Wait while the reboot continues.**

    The Oracle Unbreakable Kernel Release 4 for Linux is the default kernel.

13. **On the kernel screen, if you do *not* want to change the default kernel, proceed to Step 16; otherwise, proceed to Step 14.**

14. **(Optional) If you are installing Oracle Linux 7.3 and you want to switch to the Red Hat compatible kernel, do the following.**

    a. **Press any character key.**

    b. **On the GNU GRUB menu, for the Red Hat compatible kernel, select the second menu option, and press Enter.**

15. **Perform Steps 15 through 19 in the task, "Install Oracle Linux 6.9 OS Using Local or Remote Media" on page 40.**

    Note - In Step 21 in the task, "Install Oracle Linux 6.9 OS Using Local or Remote Media" on page 40, confirm that the UEK entry appears in: `/etc/yum.repos.d/public-yum-ol7.repo`.

16. **After completing the Oracle Linux installation and rebooting the server with the Linux kernel, proceed to "Post Installation Tasks for Oracle Linux OS" on page 46.**

Post Installation Tasks for Oracle Linux OS

After installing Oracle Linux 6.9 or 7.3 OS, review the following post installation tasks:

- Register Oracle Linux and activate automatic updates
- Download and install OS updates

Register Oracle Linux and Activate Automatic Updates

After installing Oracle Linux, register your system and activate your subscription with Oracle to receive automatic updates to the software. This ensures that the server is running the latest version of the operating system. For instructions, go to the Unbreakable Linux Network web site at `https://linux.oracle.com/pls/apex/f?p=101:101:380183653327:::::`.

Download and Install OS Updates

If required, download the latest errata and bug fixes for Oracle Linux OS. Refer to the *Oracle Server X7-8 Product Notes* at `https://www.oracle.com/goto/x7-8/docs`.

After you update your server with the latest updates, be sure to reboot your server before you use the operating system. In addition to ensuring that your server has the latest improvements to the Oracle Linux operating system, update your server with the latest updates to ensure that it is running the latest version of the UEK for Linux.

Oracle VM Server Installation

This section provides instructions for installing Oracle VM Server on Oracle Server X7-8.

- "Oracle VM Server Overview" on page 49
- "Supported Oracle VM Server Software" on page 50
- "Installing Oracle VM Server Software" on page 50
- "Post Installation Tasks for Oracle VM Server Software" on page 52

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 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.

At least one Oracle VM Server is required, but several are needed to take advantage of clustering. On x86-based systems, Oracle VM Server is based on an updated version of the underlying Xen hypervisor technology, and includes Oracle VM Agent. Oracle VM Agent is used to manage communication with Oracle VM Manager.

This document explains how to install Oracle VM Server on your Oracle Server X7-8. For information about the complete Oracle VM environment and installation instructions for other components of Oracle VM, refer to the Oracle VM documentation at `https://docs.oracle.com/cd/E64076_01/index.html` .

Supported Oracle VM Server Software

Oracle Server X7-8 servers support the following Oracle VM Server Software at the initial release of the servers.

Oracle VM Server OS Version	Edition
Oracle VM Server	Oracle VM Server 3.4.4 OS for x86 (64-bit)

If the Oracle VM Server software 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 software and a list of operating systems supported by the server, refer to the latest version of the *Oracle Server X7-8 Product Notes* at `https://www.oracle.com/goto/x7-8/docs`.

The Hardware Certification List (HCL) also identifies the latest operating system version supported on Oracle hardware. To find the latest version of Oracle VM Server supported on the Oracle Server X7-8, go to the following site and search using your server model number:

`https://linux.oracle.com/pls/apex/f?p=117:1:3991604960223967`

Installing Oracle VM Server Software

This section provides information about installing Oracle VM Server 3.4.4 (with Unbreakable Enterprise Kernel 4) software.

- "Install Oracle VM Server Software Using Local or Remote Media" on page 50

▼ Install Oracle VM Server Software Using Local or Remote Media

Before you begin, review the installation prerequisites in "Preparing to Install an Operating System" on page 15.

1. **Access the host console.**

   For instructions, see "Selecting the Console Display" on page 15.

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

   For instructions, see "Selecting the Boot Media Option" on page 20.

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

   For details, see "Resetting or Powering on the Server" on page 31.

   Note - The next events occur very quickly; therefore, be ready to press F8 to display the BBS Popup. 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. **On the BIOS screen, press F8 to specify a temporary boot device for the Oracle VM Server installation.**

5. **On the Please Select Boot Device menu, select either the external or virtual CD/DVD device as the boot device, and press `Enter`.**

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

6. **Press `Enter` to begin the installation.**

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

7. **Follow the step-by-step instructions for installing Oracle VM Server in the *Oracle VM Installation and Upgrade Guide for Release 3.4* at `https://docs.oracle.com/cd/E64076_01/index.html`.**

8. **Follow the onscreen prompts to install Oracle VM Server and Oracle VM Server Agent.**

   Note - Although the next step is described in the *Oracle VM Installation and Upgrade Guide for Release 3.4* at `https://docs.oracle.com/cd/E64076_01/index.html`, it is included here because you must exercise caution when you select the drive onto which to install Oracle VM Server.

   ---

9. **On the Partitioning Type screen, perform the following steps:**

   a. **Select a partition layout:**

- Use entire drive
- Replace existing Linux system
- Use free space
- Create custom layout

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

c. Select OK to continue the installation.

10. To complete the installation, refer to the Oracle VM Server installation documentation and follow the instructions.

Refer to the *Oracle VM Installation and Upgrade Guide for Release 3.4* at `https://docs.oracle.com/cd/E64076_01/index.html`.

Note - The Oracle VM Server installation requires two passwords: one for the root Oracle VM Server account and one for the Oracle VM Agent.

---

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

- If you *do not* have an Oracle VM Manager configured to manage the Oracle VM Server, install it before proceeding to "Post Installation Tasks for Oracle VM Server Software" on page 52.

  For instructions about installing Oracle VM Manager, refer to the *Oracle VM Installation and Upgrade Guide for Release 3.4* at `https://docs.oracle.com/cd/E64076_01/index.html`.
- If you already have an Oracle VM Manager configured to manage the Oracle VM Server, proceed to "Post Installation Tasks for Oracle VM Server Software" on page 52.

Post Installation Tasks for Oracle VM Server Software

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

- "Download and Install Software Updates" on page 53
- "Manage Oracle VM Server Software Resources" on page 53

Download and Install Software Updates

The Oracle VM Server installation media might not contain the most up-to-date versions of the software. If necessary, update the Oracle VM Server software with the latest updates. To download the most recent version of the software, go to the Oracle Software Delivery Cloud web site at https://edelivery.oracle.com/oraclevm.

Manage Oracle VM Server Software Resources

To learn how to configure, access, and manage Oracle VM Server resources, refer to the Oracle VM Server Release 3.4 Documentation Library at https://docs.oracle.com/cd/E64076_01/index.html.

Windows Server OS Installation

This section provides instructions for installing the Microsoft Windows Server operating system on Oracle Server X7-8.

- "Supported Windows Server Operating Systems" on page 55
- "Windows Deployment Services OS Installation" on page 56
- "Mass Storage Device Drivers for Windows Server OS" on page 56
- "Installing Windows Server OS" on page 56
- "Post Installation Tasks for Windows Server OS" on page 61

Supported Windows Server Operating Systems

Oracle Server X7-8 supports the following Microsoft Windows operating systems at the initial release of the servers.

Windows Server OS	Edition
Windows Server 2012 R2	■ Windows Server 2012 R2 Standard Edition (64-bit) ■ Windows Server 2012 R2 Datacenter Edition (64-bit)
Windows Server 2016	■ Windows Server 2016 Standard Edition (64-bit) ■ Windows Server 2016 Datacenter Edition (64-bit)

Note - For updated information about Windows Server OS and a list of supported operating systems, refer to the latest *Oracle Server X7-8 Product Notes* at `https://www.oracle.com/goto/x7-8/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 X7-8, go to the following site and search using your server model number `https://www.windowsservercatalog.com/`.

Windows Deployment Services OS Installation

You can network install Windows Server using Windows Deployment Services (WDS). For the advanced user, create a Windows Image Format (WIM) file for WDS and then network boot and install Windows Server. 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://docs.microsoft.com/en-us/windows-server/windows-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 2012 R2 or Windows Server 2016, load the driver for the device when you install the operating system.

In the following table, identify the device and driver that are supported on your server. For instructions on loading the mass storage driver during the Windows Server 2012 R2 or Windows Server 2016 installation, see "Install Windows Server 2012 R2 or Windows Server 2016 OS Manually Using Local or Remote Media" on page 57. You can download a ZIP file that includes the drivers. For download instructions, refer to "Getting Firmware and Software Updates" in *Oracle Server X7-8 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)
Intel RSTe AHCI RAID Controller	Onboard device	Intel C600+/C220+ series chipset SATA RAID Controller (iaStorE.inf)

Installing Windows Server OS

This section provides instructions for installing the Windows Server 2012 R2 (64-bit) operating system.

- "Install Windows Server 2012 R2 or Windows Server 2016 OS Manually Using Local or Remote Media" on page 57
- "Post Installation Tasks for Windows Server OS" on page 61

▼ Install Windows Server 2012 R2 or Windows Server 2016 OS Manually Using Local or Remote Media

This procedure describes how to boot the Microsoft Windows Server 2012 R2 or Windows Server 2016 operating system from local or remote media. It assumes you are booting the Windows Server installation media from one of the following sources:

- Windows Server 2012 R2 DVD
- Windows Server 2012 R2 ISO image (remote installation or for creating an installation DVD)
- Windows Server 2016 DVD
- Windows Server 2016 ISO image (remote installation or for creating an installation DVD)

If you are booting the installation media from a PXE environment, see "Installing an Operating System Using PXE Network Boot" on page 26 for instructions.

1. **Access the host console.**

   See "Selecting the Console Display" on page 15.

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

   See "Selecting the Boot Media Option" on page 20.

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

   See "Resetting or Powering on the Server" on page 31.

Note - The next events occur very quickly; therefore, be ready to press F8 to display the BBS Popup. 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. **On the BIOS screen, press F8 to specify a temporary boot device for the Windows Server OS installation.**

   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.

5. **On the Please Select Boot Device menu, select an option according to the Windows media installation method you want to use, and press `Enter`.**

   For example, if you elected to use the Oracle ILOM Remote System Console Plus application delivery method, select `[UEFI]USB:VIRTUAL: Remote Iso CDROM2.05`.

6. **If prompted with `Press any key to boot from CD`, press any key.**

7. **In the Language Selection dialog box, select a language and other preferences, and click `Next` to continue.**

8. **Click `Install now`.**

9. **In the Select the Operating System dialog box, select the operating system, and click `Next` to continue.**

   - **Windows Server 2012 R2** – For most installs, select Windows Server 2012 R2 Datacenter (Server with a GUI) at the bottom of the list.
   - **Windows Server 2016** – For most installs, select Windows Server 2016 Datacenter (Desktop Experience) at the bottom of the list.

For more information on the different types of Windows operating systems, see the Windows Server 2012 R2 or Windows Server 2016 documentation at `https://docs.microsoft.com/en-us/windows-server/windows-server-versions`.

10. **On the License Terms screen, select the `I accept the license terms` check box, and click `Next` to continue.**

11. **In the Which Type of Installation Do You Want dialog box, for all new installations, click `Custom: Install Windows only (advanced).`**

12. **In the Where to Install Windows dialog box, perform one of the following tasks:**

    - If you do not see any storage targets listed and configured a device on your server, click `Load Driver` to display the Load Driver dialog, and proceed to Step 13.
    - If you see the storage target where you want to install the operating system but want to change the default partition settings associated with that target, proceed to Step 14.
    - If you see the storage target where you want to install the operating system and do not want to change the default partition settings for that target, proceed to Step 15.

13. **If you selected Load Driver in the Load Driver dialog box, do the following:**

    a. **Ensure that the drivers are accessible according to the installation method chosen (described in "Selecting the Boot Media Option" on page 20).**

       For example:

       - Storage drivers are on a disk mounted as a device from the remote console.
       - Storage drivers are on a local physical storage media, such as a USB flash drive (if installed), which is mounted internally in the server chassis; a CD/DVD; or virtual media mounted from the remote console.

    b. **In the Load Driver dialog box, click `Browse` to navigate to the media folder that contains the drivers you configured for the boot device, as identified in "Mass Storage Device Drivers for Windows Server OS" on page 56.**

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

    d. **In the Select the Driver to Install dialog box, click `Next` to install the driver.**

Note - If you previously removed or unmounted the Windows Server install media to load the drivers, you might see the following message: `Windows Cannot be installed to this disk.` If this message appears, insert or re-mount the Windows install media, then click Refresh.

e. In the Where Do You Want to Install Windows dialog box, do one of following:

- If any partitions exist on your target disk, allow the setup process to create the appropriate partitions. To delete preexisting partitions, proceed to Step 14.
- Select the storage target listed and click `Next` to install the operating system, then proceed to Step 15.

14. If you want to delete partitions, do the following:

a. Select the target.

b. Click `Delete` to delete the selected storage target existing partition configuration. If the Delete option does not appear, click `Drive Options (Advanced).`

A confirmation window appears.

c. Click `OK` to confirm the partition deletion.

d. If any additional partitions exist on the target disk, repeat Steps a, b, and c.

15. In the Where Do You Want to Install Windows dialog box, select (highlight) the disk to which you want to install Windows Server OS and click `Next`.

The Installing Windows screen appears.

The setup and installation process begins and files are copied to the target.

The Windows Needs to Restart to Continue screen appears. The Windows installation restarts automatically and continues the installation process.

The system reboots.

16. After the system reboots, wait while the Getting Devices Ready screen appears, the system reboots again, and the Windows Installation Wizard configures the device settings.

17. On the Customize Settings screen, enter the Administrator user name and password, and click `Finish` to display the Finalizing Your Settings screen.

18. **After the installation completes, press `Ctrl+Alt+Delete` to log in.**

19. **On the Administrator login screen, enter the Administrator password, and click the arrow to log in.**

    The Windows Server desktop appears.

    This completes the installation.

20. **Proceed to "Post Installation Tasks for Windows Server OS" on page 61 and perform the post installation tasks.**

Post Installation Tasks for Windows Server OS

After completing a manual installation of the Windows Server 2012 R2 or Windows Server 2016 and rebooting the server, review the following post installation tasks and, if necessary, perform the tasks that are applicable to your server.

- "Download and Install OS Updates" on page 61
- "Configuring NIC Teaming" on page 62

Download and Install OS Updates

The InstallPack application provides an installation wizard for installing platform-specific device drivers and supplemental software. This application is available for download from My Oracle Support at `https://support.oracle.com`.

You can use InstallPack, which is included in the Software Release OS Pack, to install the platform-specific device drivers and supplemental software. For instructions on obtaining the OS Pack, refer to "Getting Firmware and Software Updates" in *Oracle Server X7-8 Installation Guide*.

The following procedure describes how to use InstallPack to install the device drivers and supplemental software.

▼ Install Server-Specific Device Drivers and Supplemental Software

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

2. **In the Install Pack dialog box, 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.

3. **In the Install Pack notice dialog box, follow the on-screen prompts to complete the installation of the device drivers and supplemental software.**

Configuring NIC Teaming

Microsoft integrated NIC Teaming support into Windows Server 2012 R2 and Windows Server 2016. To configure NIC teaming in Windows Server, refer to the following Microsoft User Guides:

- https://gallery.technet.microsoft.com/windows-server-2012-r2-nic-85aa1318
- https://gallery.technet.microsoft.com/Windows-Server-2016-839cb607

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