

# Oracle® Server X6-2L Installation Guide for Windows Server Operating Systems

ORACLE®

Part No: E62183-02  
September 2016



**Part No: E62183-02**

Copyright © 2016, Oracle and/or its affiliates. All rights reserved.

This software and related documentation are provided under a license agreement containing restrictions on use and disclosure and are protected by intellectual property laws. Except as expressly permitted in your license agreement or allowed by law, you may not use, copy, reproduce, translate, broadcast, modify, license, transmit, distribute, exhibit, perform, publish, or display any part, in any form, or by any means. Reverse engineering, disassembly, or decompilation of this software, unless required by law for interoperability, is prohibited.

The information contained herein is subject to change without notice and is not warranted to be error-free. If you find any errors, please report them to us in writing.

If this is software or related documentation that is delivered to the U.S. Government or anyone licensing it on behalf of the U.S. Government, then the following notice is applicable:

U.S. GOVERNMENT END USERS: Oracle programs, including any operating system, integrated software, any programs installed on the hardware, and/or documentation, delivered to U.S. Government end users are "commercial computer software" pursuant to the applicable Federal Acquisition Regulation and agency-specific supplemental regulations. As such, use, duplication, disclosure, modification, and adaptation of the programs, including any operating system, integrated software, any programs installed on the hardware, and/or documentation, shall be subject to license terms and license restrictions applicable to the programs. No other rights are granted to the U.S. Government.

This software or hardware is developed for general use in a variety of information management applications. It is not developed or intended for use in any inherently dangerous applications, including applications that may create a risk of personal injury. If you use this software or hardware in dangerous applications, then you shall be responsible to take all appropriate fail-safe, backup, redundancy, and other measures to ensure its safe use. Oracle Corporation and its affiliates disclaim any liability for any damages caused by use of this software or hardware in dangerous applications.

Oracle and Java are registered trademarks of Oracle and/or its affiliates. Other names may be trademarks of their respective owners.

Intel and Intel Xeon are trademarks or registered trademarks of Intel Corporation. All SPARC trademarks are used under license and are trademarks or registered trademarks of SPARC International, Inc. AMD, Opteron, the AMD logo, and the AMD Opteron logo are trademarks or registered trademarks of Advanced Micro Devices. UNIX is a registered trademark of The Open Group.

This software or hardware and documentation may provide access to or information about content, products, and services from third parties. Oracle Corporation and its affiliates are not responsible for and expressly disclaim all warranties of any kind with respect to third-party content, products, and services unless otherwise set forth in an applicable agreement between you and Oracle. Oracle Corporation and its affiliates will not be responsible for any loss, costs, or damages incurred due to your access to or use of third-party content, products, or services, except as set forth in an applicable agreement between you and Oracle.

**Access to Oracle Support**

Oracle customers that have purchased support have access to electronic support through My Oracle Support. For information, visit <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info> or visit <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs> if you are hearing impaired.

**Référence: E62183-02**

Copyright © 2016, Oracle et/ou ses affiliés. Tous droits réservés.

Ce logiciel et la documentation qui l'accompagne sont protégés par les lois sur la propriété intellectuelle. Ils sont concédés sous licence et soumis à des restrictions d'utilisation et de divulgation. Sauf stipulation expresse de votre contrat de licence ou de la loi, vous ne pouvez pas copier, reproduire, traduire, diffuser, modifier, accorder de licence, transmettre, distribuer, exposer, exécuter, publier ou afficher le logiciel, même partiellement, sous quelque forme et par quelque procédé que ce soit. Par ailleurs, il est interdit de procéder à toute ingénierie inverse du logiciel, de le désassembler ou de le décompiler, excepté à des fins d'interopérabilité avec des logiciels tiers ou tel que prescrit par la loi.

Les informations fournies dans ce document sont susceptibles de modification sans préavis. Par ailleurs, Oracle Corporation ne garantit pas qu'elles soient exemptes d'erreurs et vous invite, le cas échéant, à lui en faire part par écrit.

Si ce logiciel, ou la documentation qui l'accompagne, est livré sous licence au Gouvernement des Etats-Unis, ou à quiconque qui aurait souscrit la licence de ce logiciel pour le compte du Gouvernement des Etats-Unis, la notice suivante s'applique :

U.S. GOVERNMENT END USERS: Oracle programs, including any operating system, integrated software, any programs installed on the hardware, and/or documentation, delivered to U.S. Government end users are "commercial computer software" pursuant to the applicable Federal Acquisition Regulation and agency-specific supplemental regulations. As such, use, duplication, disclosure, modification, and adaptation of the programs, including any operating system, integrated software, any programs installed on the hardware, and/or documentation, shall be subject to license terms and license restrictions applicable to the programs. No other rights are granted to the U.S. Government.

Ce logiciel ou matériel a été développé pour un usage général dans le cadre d'applications de gestion des informations. Ce logiciel ou matériel n'est pas conçu ni n'est destiné à être utilisé dans des applications à risque, notamment dans des applications pouvant causer un risque de dommages corporels. Si vous utilisez ce logiciel ou ce matériel dans le cadre d'applications dangereuses, il est de votre responsabilité de prendre toutes les mesures de secours, de sauvegarde, de redondance et autres mesures nécessaires à son utilisation dans des conditions optimales de sécurité. Oracle Corporation et ses affiliés déclinent toute responsabilité quant aux dommages causés par l'utilisation de ce logiciel ou matériel pour des applications dangereuses.

Oracle et Java sont des marques déposées d'Oracle Corporation et/ou de ses affiliés. Tout autre nom mentionné peut correspondre à des marques appartenant à d'autres propriétaires qu'Oracle.

Intel et Intel Xeon sont des marques ou des marques déposées d'Intel Corporation. Toutes les marques SPARC sont utilisées sous licence et sont des marques ou des marques déposées de SPARC International, Inc. AMD, Opteron, le logo AMD et le logo AMD Opteron sont des marques ou des marques déposées d'Advanced Micro Devices. UNIX est une marque déposée de The Open Group.

Ce logiciel ou matériel et la documentation qui l'accompagne peuvent fournir des informations ou des liens donnant accès à des contenus, des produits et des services émanant de tiers. Oracle Corporation et ses affiliés déclinent toute responsabilité ou garantie expresse quant aux contenus, produits ou services émanant de tiers, sauf mention contraire stipulée dans un contrat entre vous et Oracle. En aucun cas, Oracle Corporation et ses affiliés ne sauraient être tenus pour responsables des pertes subies, des coûts occasionnés ou des dommages causés par l'accès à des contenus, produits ou services tiers, ou à leur utilisation, sauf mention contraire stipulée dans un contrat entre vous et Oracle.

**Accès aux services de support Oracle**

Les clients Oracle qui ont souscrit un contrat de support ont accès au support électronique via My Oracle Support. Pour plus d'informations, visitez le site <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info> ou le site <http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs> si vous êtes malentendant.

# Contents

---

- Using This Documentation** ..... 7
  
- About Microsoft Windows Server Operating System Installs** ..... 9
  - Windows Server OS Installation Task Map ..... 9
  - Supported Windows Server Operating Systems ..... 10
  - Windows Server OS Installation Options ..... 11
    - Single-Server Installation Methods ..... 11
    - Manual Windows Server OS Installation ..... 12
    - Windows Deployment Services OS Installation ..... 12
  
- Preparing to Install the Windows Server Operating System** ..... 13
  - Selecting the Console Display Option ..... 13
    - Console Display Options ..... 13
      - ▼ Set Up the Local Console ..... 14
      - ▼ Set Up the Remote Console ..... 15
  - Preparing the Boot Environment ..... 16
    - ▼ Verify the UEFI Optimal Defaults ..... 16
    - ▼ Set the Boot Mode ..... 20
  - Selecting the Boot Media Option ..... 22
    - Boot Media Options Requirements ..... 22
      - ▼ Set Up the Boot Media for a Local Installation ..... 23
      - ▼ Set Up the Boot Media for a Remote Installation ..... 24
  - Selecting the Installation Target ..... 27
    - Installation Target Options ..... 27
      - ▼ Set Up a Local Storage Drive as the Installation Target ..... 27
      - ▼ Set Up a Fibre Channel Storage Area Network Device as the Installation Target ..... 28
  - Configuring RAID ..... 28

<b>Installing the Windows Server Operating System</b> .....	29
Before You Begin .....	29
Installing Windows Server on a Single System Manually .....	30
▼ Install Windows Server 2012 R2 Manually Using Local or Remote Media .....	30
▼ Install Windows Server 2012 R2 Using PXE Network Boot .....	47
<b>Post Installation Tasks for Windows Server OS</b> .....	53
Installing Device Drivers and Supplemental Software .....	53
▼ Install Server-Specific Device Drivers and Supplemental Software .....	53
Configuring Intel NIC Teaming .....	54
<b>Index</b> .....	57

## Using This Documentation

---

- **Overview** – This installation guide contains procedures for installing the Windows Server operating system, and initial software configuration procedures for bringing the Oracle Server X6-2L to a configurable and usable state.
- **Audience** – Technicians, system administrators, authorized service providers, and users.
- **Required knowledge** – Experience installing operating systems.

## Product Documentation Library

Documentation and resources for this product and related products are available at <http://www.oracle.com/goto/x6-2l/docs>.

## Feedback

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





# About Microsoft Windows Server Operating System Installs

---

This section contains an overview for installing a new Microsoft Windows Server 2012 R2 operating system (OS) on your server.

Description	Links
Review Windows Server operating system installation steps.	<a href="#">“Windows Server OS Installation Task Map” on page 9</a>
Review the supported Windows Server operating systems.	<a href="#">“Supported Windows Server Operating Systems” on page 10</a>
Review operating system installation options.	<a href="#">“Windows Server OS Installation Options” on page 11</a>

## Related Information

- [“Installing the Windows Server Operating System” on page 29](#)

## Windows Server OS Installation Task Map

The following table lists and describes the steps for installing the Windows Server operating system.

Step	Description	Links
1.	Review the product notes.	<i>Oracle Server X6-2L Product Notes</i> at: <a href="http://www.oracle.com/goto/X6-2L/docs">http://www.oracle.com/goto/X6-2L/docs</a>
2.	Install the server hardware.	<ul style="list-style-type: none"><li>■ <a href="#">“Installing the Server Into a Rack” in Oracle Server X6-2L Installation Guide</a></li><li>■ <a href="#">“Cabling the Server and Applying Power” in Oracle Server X6-2L Installation Guide</a></li></ul>
3.	Configure the Oracle ILOM service processor.	<ul style="list-style-type: none"><li>■ <a href="#">“Connecting to Oracle ILOM” in Oracle Server X6-2L Installation Guide</a></li></ul>

Step	Description	Links
4.	Review the Windows Server versions supported on the server.	<a href="#">“Supported Windows Server Operating Systems” on page 10</a>
5.	Obtain the Windows Server installation media.	<a href="http://technet.microsoft.com/en-us/windowsserver/default.aspx">http://technet.microsoft.com/en-us/windowsserver/default.aspx</a>
6.	Set up the console, the boot media, and the installation target that you will use to perform the installation.	<ul style="list-style-type: none"><li>■ <a href="#">“Selecting the Console Display Option” on page 13</a></li><li>■ <a href="#">“Selecting the Boot Media Option” on page 22</a></li><li>■ <a href="#">“Selecting the Installation Target” on page 27</a></li></ul>
7.	Verify and, if necessary, configure BIOS.	<a href="#">“Preparing the Boot Environment” on page 16</a>
8.	Install the Windows Server operating system.	<ul style="list-style-type: none"><li>■ <a href="#">“Install Windows Server 2012 R2 Manually Using Local or Remote Media” on page 30</a></li><li>■ <a href="#">“Install Windows Server 2012 R2 Using PXE Network Boot” on page 47</a></li></ul>
9.	Perform the post installation tasks, if applicable.	<a href="#">“Post Installation Tasks for Windows Server OS” on page 53</a>

### Related Information

- [“Preparing to Install the Windows Server Operating System” on page 13](#)

## Supported Windows Server Operating Systems

The Oracle Server X6-2L supports the following Microsoft Windows operating systems.

Windows OS	Edition
Windows Server 2012 R2	<ul style="list-style-type: none"><li>■ Standard Edition (64-bit)</li><li>■ Datacenter Edition (64-bit)</li></ul>

The Oracle Solaris Hardware Compatibility List (HCL) identifies the latest operating system version supported on Oracle hardware. To find the latest Windows version supported for the Oracle Server X6-2L, go to the following site and search using your server model number:

<http://www.windowsservercatalog.com/>

### Related Information

- [“Installing the Windows Server Operating System” on page 29](#)

# Windows Server OS Installation Options

You can choose to install the Windows Server OS on a single server or on multiple servers. For multiple-server OS installations, you can use Oracle Enterprise Manager Ops Center. The scope of this document is for single-server OS installations. The table below provides some information about installation options.

Option	Description
Multiple servers	You can use Oracle Enterprise Manager Ops Center to install an OS on multiple servers. For information, go to <a href="http://www.oracle.com/technetwork/oem/ops-center/index.html">http://www.oracle.com/technetwork/oem/ops-center/index.html</a> .
Single server	Install an OS to a single server using one of the following methods: <ul style="list-style-type: none"> <li>■ Locally: Perform the OS installation locally at the server. This option is recommended if you have just completed the physical installation of the server in the rack.</li> <li>■ Remotely: Perform the OS installation from a remote location. This option uses the Oracle ILOM Remote System Console Plus application to perform a manual OS installation.</li> </ul> <p>For more information about single-server OS installation methods, see <a href="#">“Single-Server Installation Methods” on page 11</a></p>

## Single-Server Installation Methods

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

Media Delivery Method	Additional Requirements
<b>Local using a DVD drive</b> – Uses a physical DVD drive connected to the server.	A monitor, USB keyboard and mouse, a USB DVD or flash drive, and Windows Server 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 <a href="#">“Manual Windows Server OS Installation” on page 12</a> .
<b>Remote using a DVD drive or a DVD ISO image</b> – Uses a redirected physical DVD drive on a remote system running the Oracle ILOM Remote System Console Plus application.	A remote system with a browser, an attached physical DVD or flash drive, Windows Server 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 <a href="#">“Windows Deployment Services OS Installation” on page 12</a> .
<b>WDS WIM image</b> – Uses a customized Windows Imaging Format (WIM) image on a Windows Deployment Services (WDS) server.	A server running WDS and a WIM image customized for your server. For more information, see <a href="#">“Windows Deployment Services OS Installation” on page 12</a> .

## Manual Windows Server OS Installation

With this method, you deliver the Windows Server distribution media on either a local or remote DVD drive, USB device, or DVD image. You also need to install any necessary drivers. 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. To install the OS, use the distribution media's installation wizard.

You also need to install any 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 [“Install Server-Specific Device Drivers and Supplemental Software” on page 53](#).

To access My Oracle Support, go to <https://support.oracle.com>.

## Windows Deployment Services OS Installation

You can install the Windows Server OS 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). Once this installation image file has been 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: <http://technet.microsoft.com/library/hh831620>.

# Preparing to Install the Windows Server Operating System

---

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

Description	Links
Review console display options and how to set them up.	<a href="#">“Selecting the Console Display Option” on page 13</a>
Setting up UEFI.	<a href="#">“Preparing the Boot Environment” on page 16</a>
Setting the boot mode.	<a href="#">“Set the Boot Mode” on page 20</a>
Review boot media options and how to set them up.	<a href="#">“Selecting the Boot Media Option” on page 22</a>
Review installation target options and how to set them up.	<a href="#">“Selecting the Installation Target” on page 27</a>
Configuring RAID on the server.	<a href="#">“Configuring RAID” on page 28</a>

## Related Information

- [“Installing Windows Server on a Single System Manually” on page 30](#)

## Selecting the Console Display Option

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

- [“Console Display Options” on page 13](#)
- [“Set Up the Local Console” on page 14](#)
- [“Set Up the Remote Console” on page 15](#)

## Console Display Options

You can install the OS and administer the server by attaching a local console directly to the server's service processor (SP). The server supports two types of local consoles:

- A terminal connected to the serial management port (SER MGT)  
You can connect the terminal directly to the port or connect it to a terminal emulator that is connected directly to the port.
- A VGA monitor, USB keyboard, and USB mouse connected directly to the video port (VGA) and any of the four exterior USB connectors

You can also install the OS and administer the server from a remote console by establishing a network connection to the server SP. There are two types of remote consoles:

- Web-based client connection using the Oracle ILOM Remote System Console Plus application
- Secure Shell (SSH) client connection to the network management port (NET MGT)

## ▼ Set Up the Local Console

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

Set the terminal device to 9600 baud, 8 bit, no parity, 1 stop bit.

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 CLI prompt (->) appears.

4. **Connect to the 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.

### Related Information

- Oracle Integrated Lights Out Manager (ILOM) 3.2 Documentation Library at: <http://www.oracle.com/goto/ilom/docs>

## ▼ Set Up the Remote Console

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

To log in to Oracle ILOM remotely using either the command-line interface (CLI) or the web interface, you must know the IP address of the server's service processor (SP). For instructions, refer to “[Modifying the Service Processor Network Settings Using Oracle ILOM](#)” in *Oracle Server X6-2L Installation Guide*.

### 2. If you are using a web-based client connection, perform these steps; otherwise go to the next step.

#### a. On a remote system with access to the server network management port (NETMGT), open a web browser.

#### b. In the web browser, type the IP address for the server SP, and then press Enter.

The Oracle ILOM Login prompt appears.

#### c. Log in to the Oracle ILOM web interface. At the Oracle ILOM 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 Summary Information page appears.

#### d. Redirect the video output from the server to the web client by launching the Oracle ILOM Remote System Console Plus application. In the **Actions** panel, click the **Remote Console Launch** button.

The Oracle ILOM Remote System Console Plus screen appears.

For more details, refer to the *Oracle ILOM Administrator's Guide for Configuration and Maintenance* at <http://www.oracle.com/goto/ilom/docs>.

### 3. If you are using an SSH client connection, perform these steps.

#### a. From a serial console, establish an SSH connection to the server SP. 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.

- b. **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.

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

-> `start /HOST/console`

### Related Information

- Oracle Integrated Lights Out Manager (ILOM) 3.2 Documentation Library at: <http://www.oracle.com/goto/ilom/docs>

## Preparing the Boot Environment

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

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

- [“Verify the UEFI Optimal Defaults” on page 16](#)
- [“Set the Boot Mode” on page 20](#)

For more information about changing boot properties, refer to the *Oracle X6 Series Servers Administration Guide* at <http://www.oracle.com/goto/x86admindiag/docs>.

### ▼ Verify the UEFI Optimal Defaults

---

**Note** - If the server is newly installed and this is the first time that 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, as well as view and edit UEFI settings as needed. By setting optimal defaults, you ensure that the server is operating efficiently with a



known and good configuration. You can review the optimal defaults in the *Oracle Server X6-2L Service Manual*.

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

In addition to using the F2 key to view or edit the system's BIOS settings, you can use F8 during the BIOS start-up to specify a temporary boot device. If you use F8 to set a temporary boot device, this change is only in effect for the current system boot. The permanent boot device specified using F2 will be in effect after booting from the temporary boot device.

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

- The server is equipped with a hard disk drive (HDD) or solid state drive (SSD).
- The HDD or SSD is properly installed in the server. For instructions, refer to [“Servicing Storage Drives and Rear Drives \(CRU\)” in Oracle Server X6-2L Service Manual](#).
- A console connection is established to the server. For details, see [“Selecting the Console Display Option” on page 13](#).

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

For example, do one of the following to reset the server:

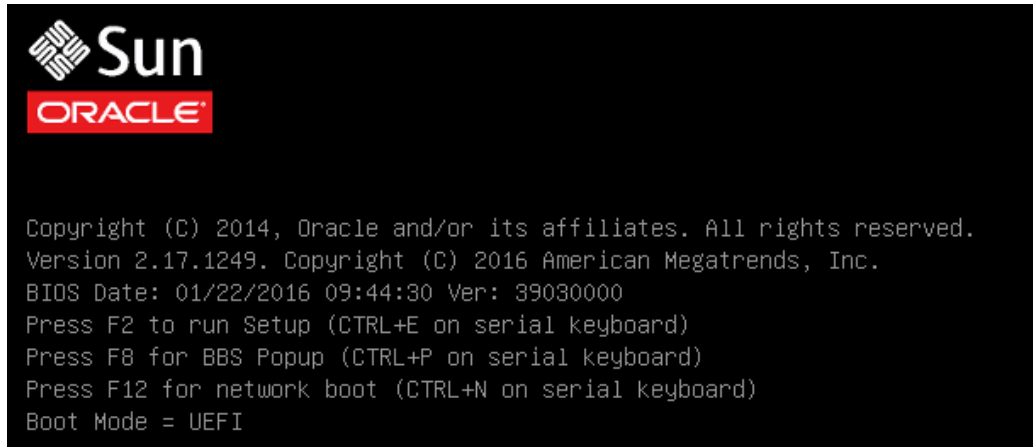
- **From the local server**, press the Power button on the front panel of the server for approximately 1 second to turn the server off, then press the Power button again to power on the server.
- **From the Oracle ILOM web interface**, click Host Management → Power Control, select Reset from the Select Action list box, then click Save.
- **From the Oracle ILOM CLI**, type: `reset /System`

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

---

**Note** - The BIOS screen might take a few moments to appear.

---



---

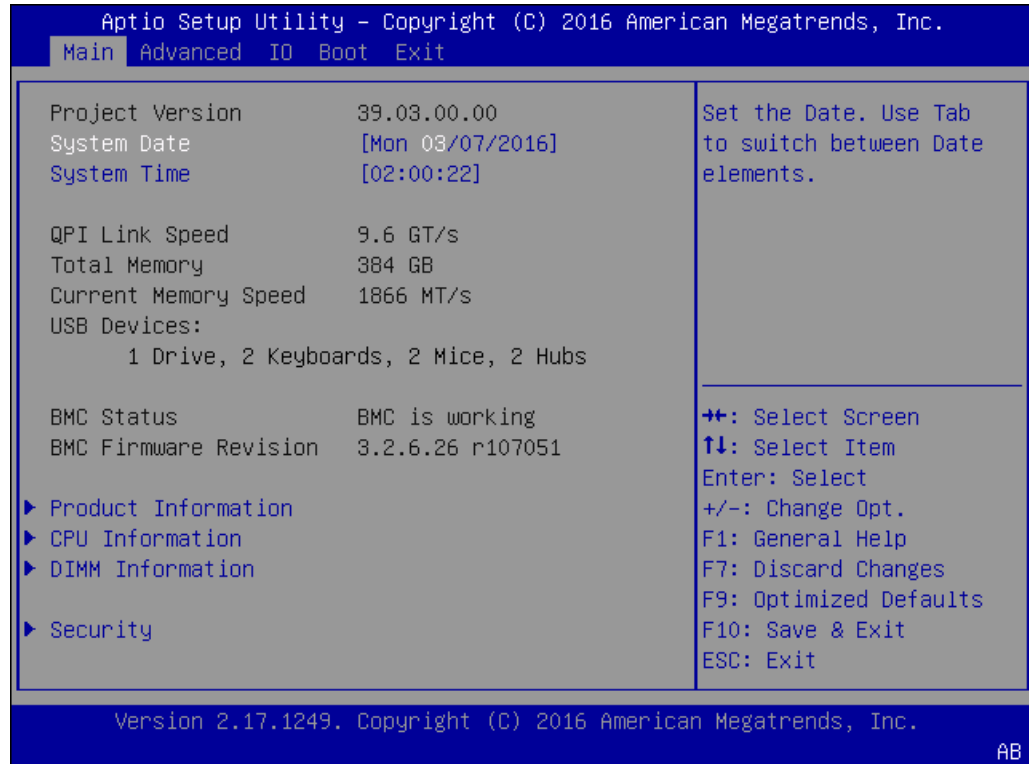
**Note** - The next events occur very quickly; therefore, be ready to press the F2 key. Watch carefully for messages as they appear on the screen for a brief time. You might want to enlarge the size of your screen to eliminate scroll bars.

---

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

[Setup Selected] and the Boot Mode (Legacy or UEFI) are displayed at the bottom of the BIOS screen, then the BIOS Setup Utility appears.

**Note** - The BIOS Setup Utility screen might take a while to appear. Please be patient.



**3. Press the F9 key to automatically load the optimal default settings.**

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

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

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

Alternatively, you can select Save and Exit from the Exit menu.

## ▼ Set the Boot Mode

The server is equipped with Unified Extensible Firmware Interface (UEFI), which supports both Legacy BIOS and UEFI boot modes. Legacy BIOS Boot Mode is enabled by default. Because the Windows Server 2012 R2 operating system supports both Legacy BIOS and UEFI, you have the option of setting the boot mode to either Legacy BIOS or UEFI before you perform the OS installation.

---

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

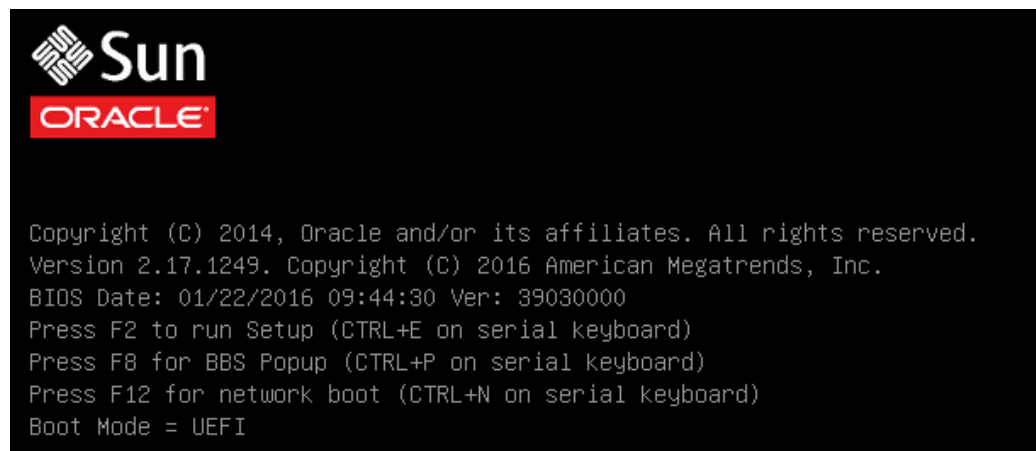
---

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

For example, do one of the following 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 web interface**, click Host Management → Power Control , select Reset from the Select Action list box, then click Save.
- **From the Oracle ILOM CLI**, type: `reset /System`

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



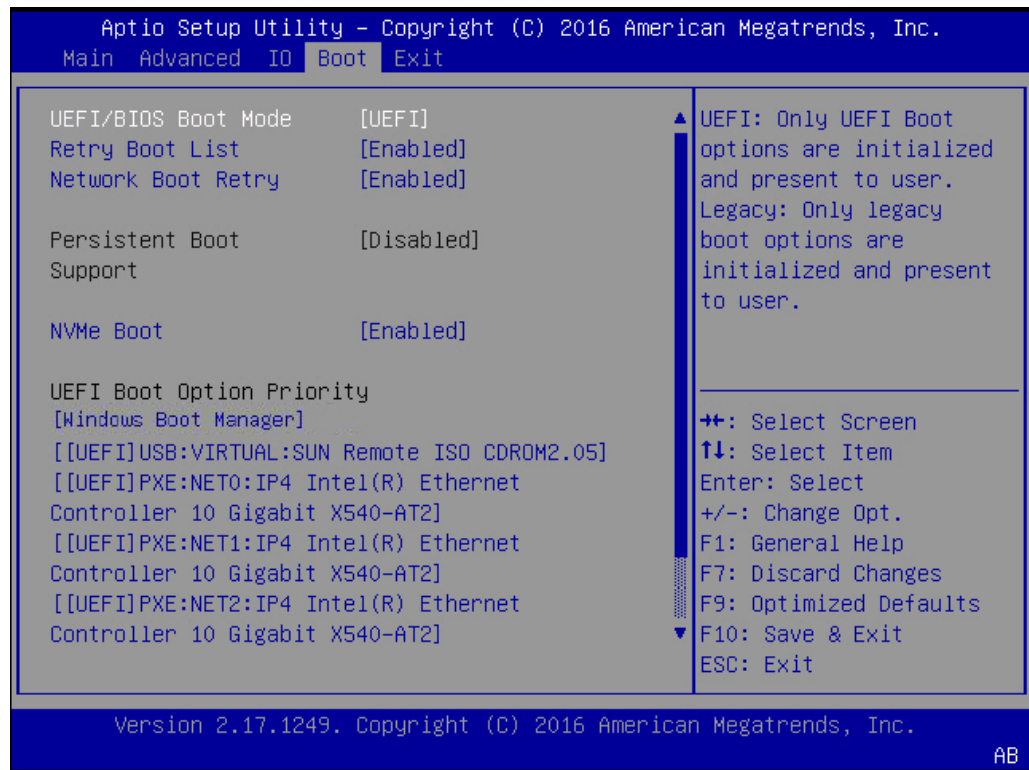
**Note** - The next events occur very quickly; therefore, be ready to press the F2 key. Watch carefully for messages as they appear on the screen for a brief time. You might want to enlarge the size of your screen to eliminate scroll bars.

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

After a few moments, the BIOS Setup Utility appears.

**3. In the BIOS Setup Utility, use the arrow keys to navigate to the Boot menu.**

The Boot menu screen appears. The UEFI/BIOS Boot Mode field displays the current boot mode.



---

**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 X6 Series Servers Administration Guide* at <http://www.oracle.com/goto/x86admindiag/docs>.

---

4. **Use the down arrow key to select the UEFI/BIOS Boot Mode field, and then press Enter.**
5. **Select your preferred boot mode, and then press Enter.**  
You must select the desired boot mode, Legacy or UEFI, before starting the operating system installation.
6. **To save changes and exit the BIOS, Setup Utility press the F10 key.**  
Alternately, you can select Save and Exit from the Exit Menu.

## Selecting the Boot Media Option

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

- [“Boot Media Options Requirements” on page 22](#)
- [“Set Up the Boot Media for a Local Installation” on page 23](#)
- [“Set Up the Boot Media for a Remote Installation” on page 24](#)

## Boot Media Options Requirements

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

- Local Boot Media Requirements
- Remote Boot Media Requirements

### 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.

Supported OS local boot media sources can include:

- DVD-ROM installation media
- USB removable flash drive media

## Remote Boot Media Requirements

Remote media requires 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 the ISO image over the network using a Pre-Boot eXecution Environment (PXE).

Supported OS remote boot media sources include:

- DVD-ROM installation media
- Remote USB removable flash drive installation media
- DVD 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 on the server SP, refer to the *Oracle ILOM Administrator's Guide for Configuration and Maintenance* at <http://www.oracle.com/goto/ilom/docs>. Alternatively, refer to the More Details link in the Oracle ILOM Remote Control → Remote Device web interface page.

- Automated installation image (requires PXE boot). For instructions for performing PXE network installations for the supported Windows Server operating systems, see “[Install Windows Server 2012 R2 Using PXE Network Boot](#)” on page 47.

## ▼ Set Up the Boot Media for a Local Installation

To set up the local boot media, you must insert a storage device that contains the Windows Server OS installation media into the server using one of the following options.

- 1. Obtain the Windows Server 2012 R2 OS installation media.**  
Obtain the Windows Server installation media from <http://technet.microsoft.com/en-us/windowsserver/default.aspx>.
- 2. If the server is equipped with an optional DVD drive, insert the Windows Server OS installation DVD into the DVD drive located on the front of the server; otherwise, proceed to the next step.**
- 3. If your server does not have a DVD drive, insert an external USB DVD drive or a USB flash drive that contains the Windows Server OS installation media into one of the external USB ports located on the front and rear of the server.**

---

**Note** - For information about the location of the server's external USB ports, refer to “[Server Features and Components](#)” in *Oracle Server X6-2L Installation Guide*.

---

## ▼ Set Up the Boot Media for a Remote Installation

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 <http://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 Oracle ILOM SP and launch the Oracle ILOM Remote System Console Plus application on the remote system.**

For more details, see “[Set Up the Remote Console](#)” on page 15.

**3. In the remote console, do the following:**

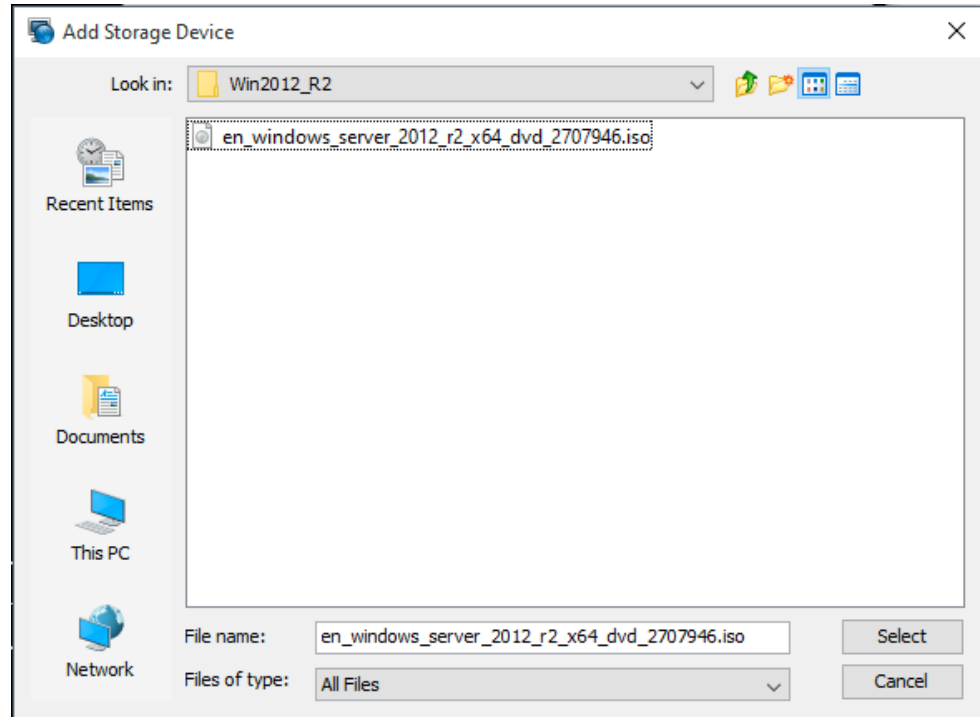
- a. **Click KVMS to display the KVMS drop-down menu.**
- b. **Click Storage.**



The Storage Devices dialog appears.

**c. In the Storage Devices dialog, click Add.**

The Add Storage Device dialog appears.



**d. Browse to the ISO image, select it, and then 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.

For details for performing a Windows Server installation using a PXE network boot, see [“Install Windows Server 2012 R2 Using PXE Network Boot”](#) on page 47.

## Selecting the Installation Target

This section describes how to set up the installation target.

- “Installation Target Options” on page 27
- “Set Up a Local Storage Drive as the Installation Target” on page 27
- “Set Up a Fibre Channel Storage Area Network Device as the Installation Target” on page 28

### Installation Target Options

With the exception of the optional NVMe storage drives (located in the server front panel), you can install the operating system 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 for the Windows Server operating system.

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

---

**Note** - NVMe drives are not supported on servers running the Windows Server operating system. If your server is equipped with NVMe drives, you have to install either the Oracle Solaris or Oracle Linux operating system to use those NVMe drives.

---

### ▼ Set Up a Local Storage Drive as the Installation Target

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

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

- “Server Features and Components” in *Oracle Server X6-2L Installation Guide*
- *Oracle X6 Series Servers Administration Guide* at <http://www.oracle.com/goto/x86admindiag/docs>

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

For information about installing and powering on a HDD or SSD, refer to “[Servicing Storage Drives and Rear Drives \(CRU\)](#)” in *Oracle Server X6-2L Service Manual*.

---

**Note** - NVMe drives cannot be used as installation targets. These drives do not support the installation and booting of operating systems.

---

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

1. **Ensure that the PCIe host bus adapter (HBA) is properly installed in the server.**  
For information about installing a PCIe HBA option, refer to “[Servicing PCIe Cards \(CRU\)](#)” in *Oracle Server X6-2L 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 RAID configuration, configure RAID (redundant array of independent disks) on your server before you install the Windows Server OS. For instructions for configuring RAID, refer to “[Configuring Storage Drives for Operating System Installation](#)” in *Oracle Server X6-2L Installation Guide*.

### Related Information

- *Oracle X6 Series Servers Administration Guide* at: <http://www.oracle.com/goto/x86admindiag/docs>

# Installing the Windows Server Operating System

---

This section describes how to install the Microsoft Windows Server operating system on the server.

Description	Links
Preinstallation requirements.	<a href="#">“Before You Begin” on page 29</a> <a href="#">“Preparing to Install the Windows Server Operating System” on page 13</a>
Using media to install the Windows Server operating system.	<a href="#">“Installing Windows Server on a Single System Manually” on page 30</a>

## Before You Begin

Ensure that the following requirements are met:

- If you want to configure RAID (redundant array of independent disks) on the server's storage drives, you must do so before you install the operating system. For instructions for configuring RAID, refer to [“Configuring Storage Drives for Operating System Installation” in Oracle Server X6-2L Installation Guide](#).

---

**Note** - If you are using the Oracle Storage 12 Gb/s SAS PCIe RAID HBA Internal to manage your storage drives, you must create a RAID volume and make it bootable before installing the operating system; otherwise, the HBA will not be able to identify the server's storage drives.

---

- Select and set up the console display option prior to performing the installation. For more information, see [“Selecting the Console Display Option” on page 13](#).
- Verify that the UEFI firmware settings are set to the optimal defaults. For instructions on how to verify and, if necessary, set the UEFI firmware settings, see [“Verify the UEFI Optimal Defaults” on page 16](#).

- Set the UEFI firmware to the desired boot mode, Legacy BIOS or UEFI. For instructions on how to set the UEFI boot mode, see [“Set the Boot Mode” on page 20](#).
- Select and set up the boot media option prior to performing the installation. For more information, see [“Selecting the Boot Media Option” on page 22](#).
- Select and set up the storage drive to be used as the installation target option prior to performing the installation. For more information, see [“Selecting the Installation Target” on page 27](#).
- Gather the Microsoft Windows Server Windows Server 2012 R2 operating system documentation so that you can use it in conjunction with the Windows Server operating system instructions provided in this section. You can obtain a copy of Microsoft Windows Server 2012 and 2012 R2 installation documentation at:  
<http://technet.microsoft.com/en-us/windowsserver/default.aspx>.

## Installing Windows Server on a Single System Manually

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

- [“Install Windows Server 2012 R2 Manually Using Local or Remote Media” on page 30](#)
- [“Install Windows Server 2012 R2 Using PXE Network Boot” on page 47](#)

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

This procedure describes how to boot the Microsoft Windows Server 2012 R2 operating system from local or remote media. It assumes that 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

---

**Note** - The Windows Server 2012 R2 ISO image can be used for remote installation or for creating an installation DVD.

---

---

**Note** - If you are booting the installation media from a PXE environment, see [“Install Windows Server 2012 R2 Using PXE Network Boot” on page 47](#) for instructions.

---

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

- **For Distribution DVD**, insert the Windows 2012 R2 Distribution media (single DVD) into the local or remote DVD-ROM drive.
- **For ISO image**, ensure that the Windows 2012 R2 ISO image is available and that the ISO image has been mounted in the Oracle ILOM Remote System Console Plus application using the KVMS menu.

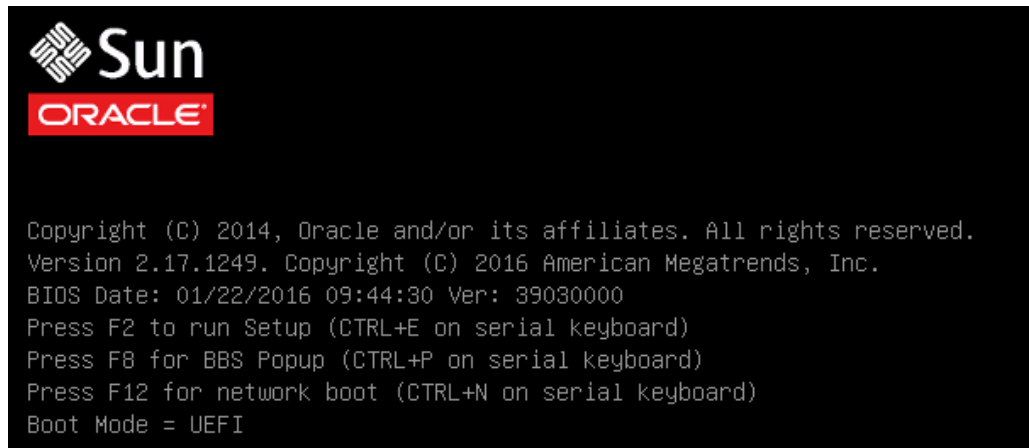
For additional information about how to set up the installation media, see [“Selecting the Boot Media Option” on page 22](#).

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

For example, do one of the following to reset the server:

- **From the local server**, press the Power button on the front panel of the server for approximately 1 second to power off the server, then press the Power button again to power on the server.
- **From the Oracle ILOM web interface**, click Host Management → Power Control and select Reset from the Select Action list box, then click Save.
- **From the Oracle ILOM CLI**, type: `reset /System`

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



---

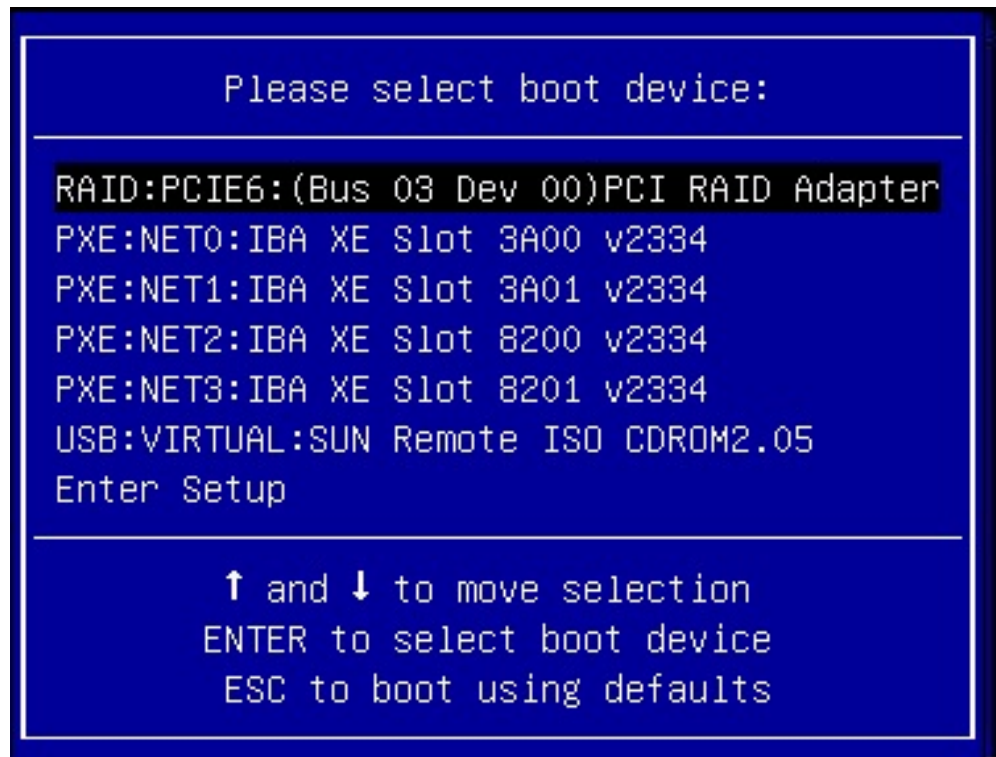
**Note** - The next events occur very quickly; therefore, be ready to press the F8 key. Watch carefully for messages as they appear on the screen for a brief time. You might want to enlarge the size of your screen to eliminate scroll bars.

---

**3. In the BIOS screen, press the F8 key to specify a temporary boot device for the Windows Server OS installation.**

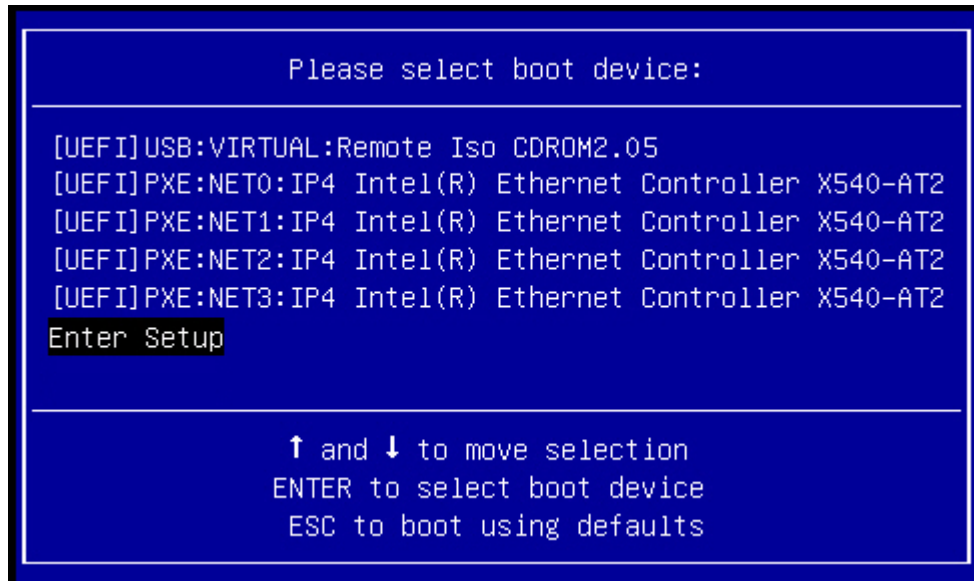
[Boot Pop Up Menu Selected] appears at the bottom of the BIOS screen. Then the Please Select Boot Device menu appears. The screen that appears will be different depending on whether you have the UEFI/BIOS Boot Mode configured for Legacy BIOS or UEFI.

- For Legacy BIOS Boot Mode, a screen similar to the following appears:



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





---

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

---

- 4. In the Please Select Boot Device menu, select the menu item according to the Windows media installation method and UEFI/BIOS boot mode you elected to use, then press Enter.**

For example, if you elected to use the Oracle ILOM Remote System Console Plus application delivery method, select USB:VIRTUAL: Remote Iso CDR0M2.05 from the Legacy BIOS Boot Mode screen or [UEFI]USB:VIRTUAL: Remote Iso CDR0M2.05 from the UEFI Boot Mode screen.

- 5. If prompted with Press any key to boot from CD, press any key.**

The Windows installation wizard starts and the Loading Files screen appears.



The Windows installation wizard continues until the Language Localization dialog appears.



6. **Select your language and other preferences, then click Next to continue.**  
The Install Now screen appears.

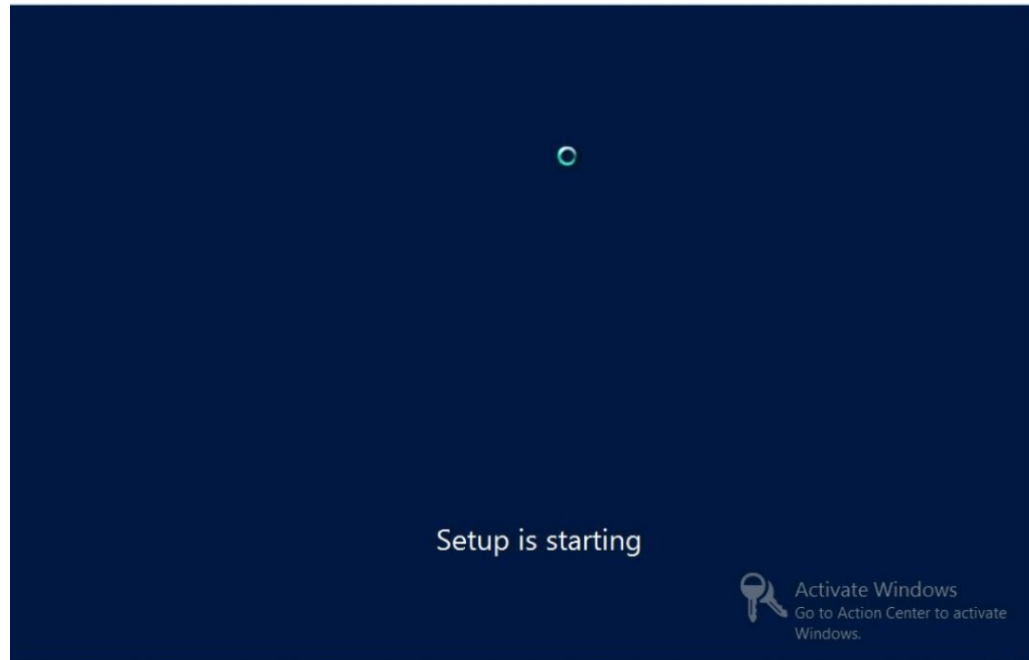
**Note** - The Install Now screen enables you to continue the installation or access an optional Repair menu (see lower left of the screen) for troubleshooting.

---

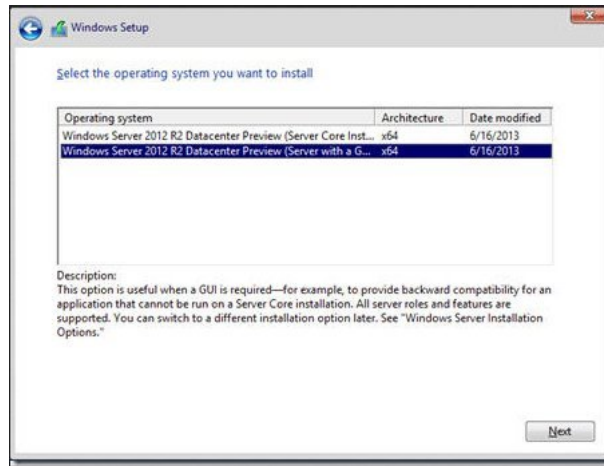


7. **Click Install now.**

The Setup Is Starting screen appears.



Then the Select the Operating System dialog appears.

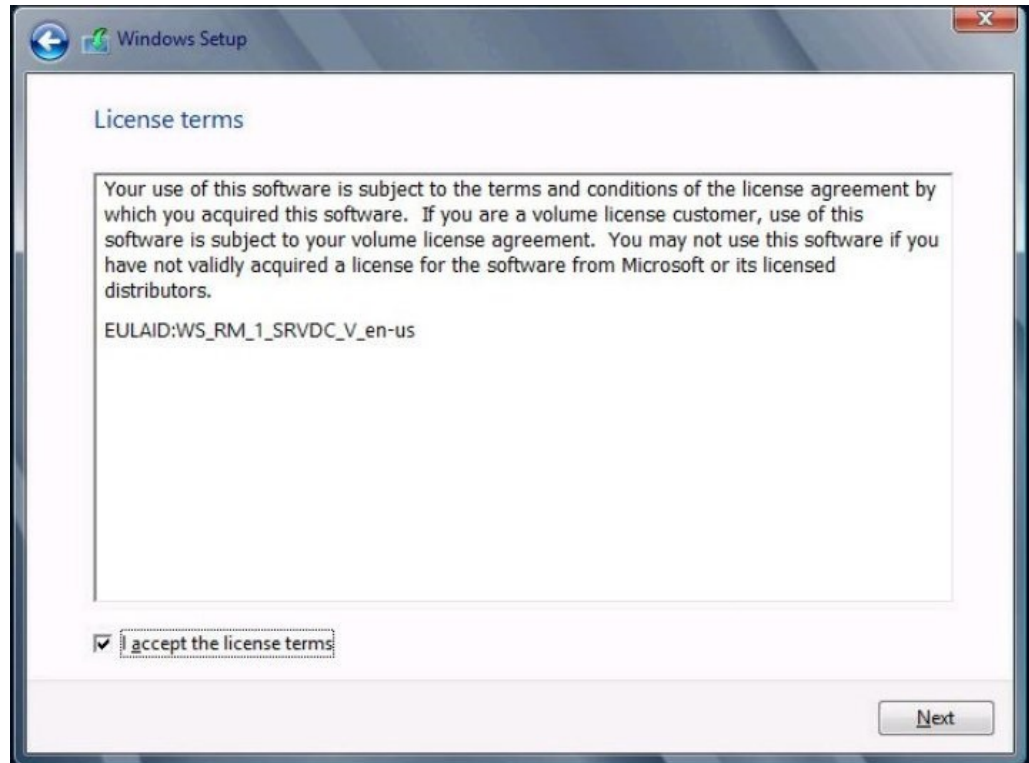


- 8. In the Select the Operating System dialog, select the desired operating system, then click Next to continue.**

For most installs, select Windows Server 2012 R2 Datacenter (Server with GUI) at the bottom of the list.

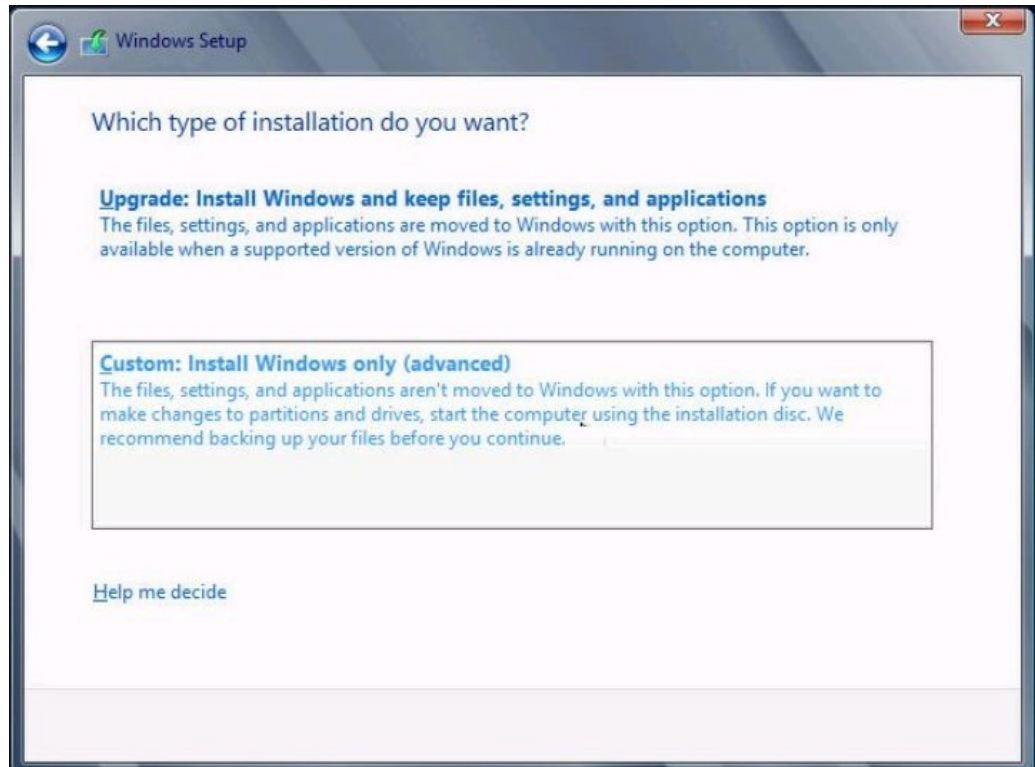
For more information on the different types of Windows operating systems, see the Windows Server 2012 R2 documentation at <http://technet.microsoft.com/en-us/windowsserver/default.aspx>.

The License Terms screen appears.



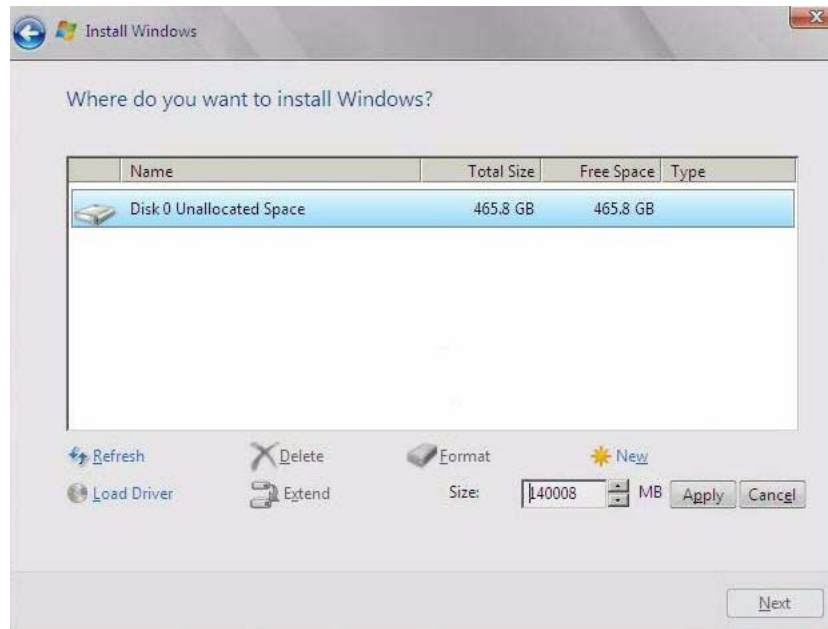
9. In the License Terms screen, check the **I accept the license terms** box, then click **Next** to continue.

The Which Type of Installation Do You Want dialog appears.



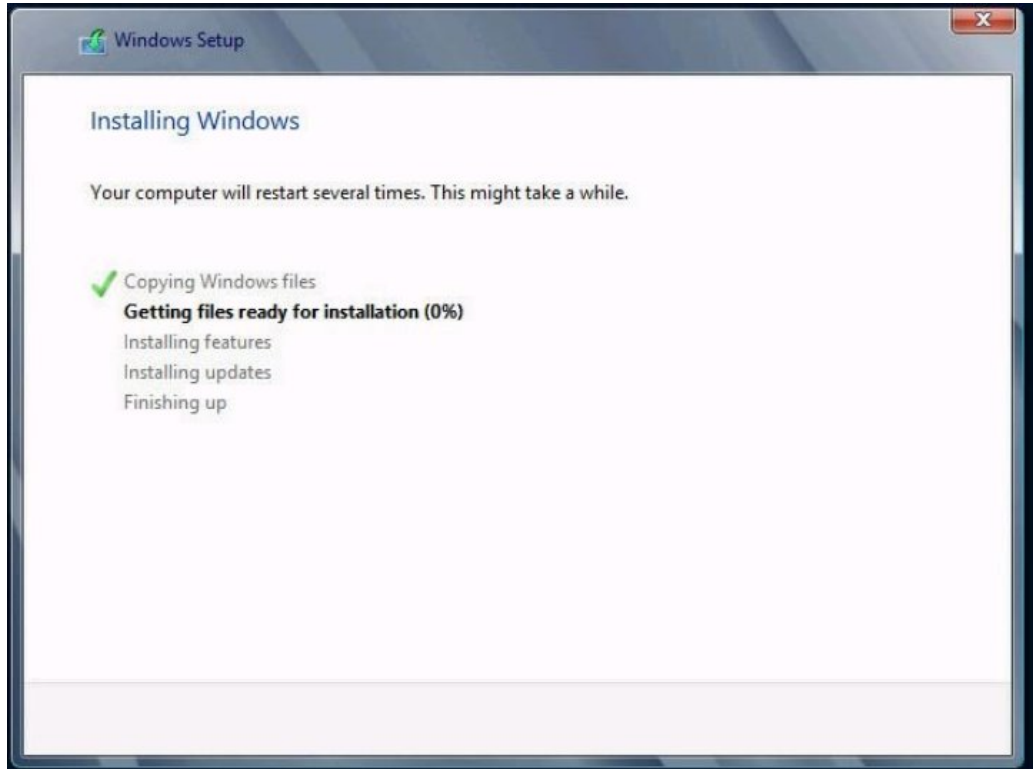


10. **(Partition Drive, advanced) In the lower portion of the Where Do You Want to Install Windows dialog, do the following:**



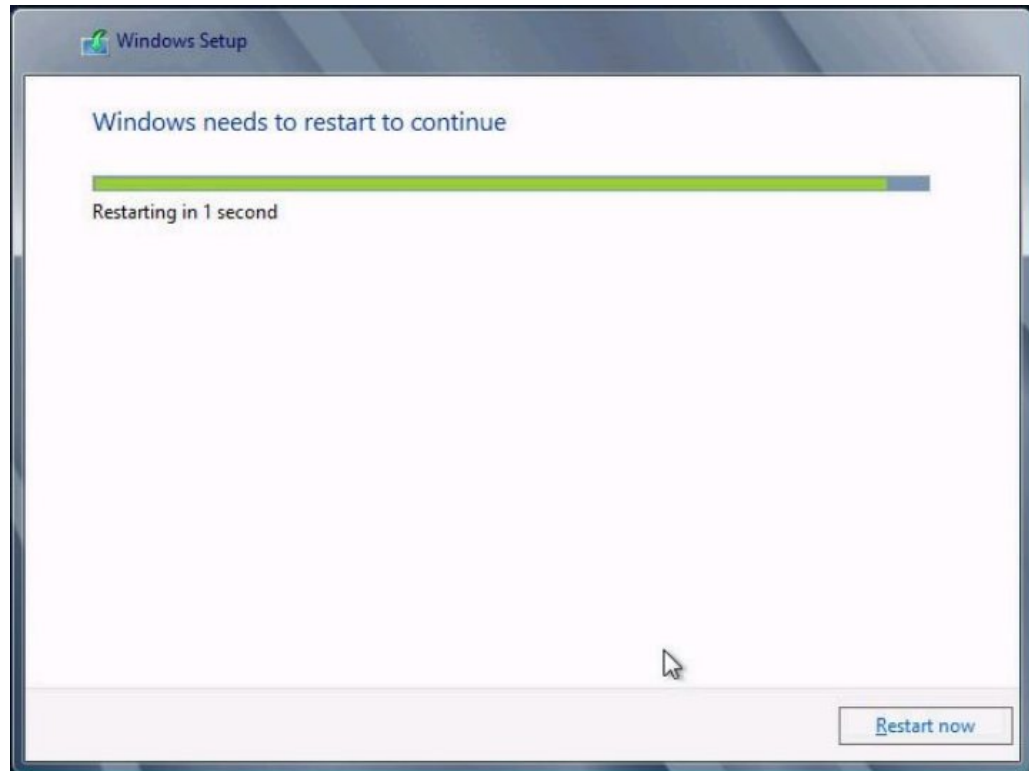
- a. **Click Delete to delete the selected storage target existing partition configuration.**  
A confirmation window appears
  - b. **Click OK to confirm the partition deletion.**
  - c. **If any additional partitions exist on the target disk, repeat Step a and Step b.**
11. **Select (highlight) the disk to which you want to install the Windows Server OS, then click Next.**

The Installing Windows screen appears.



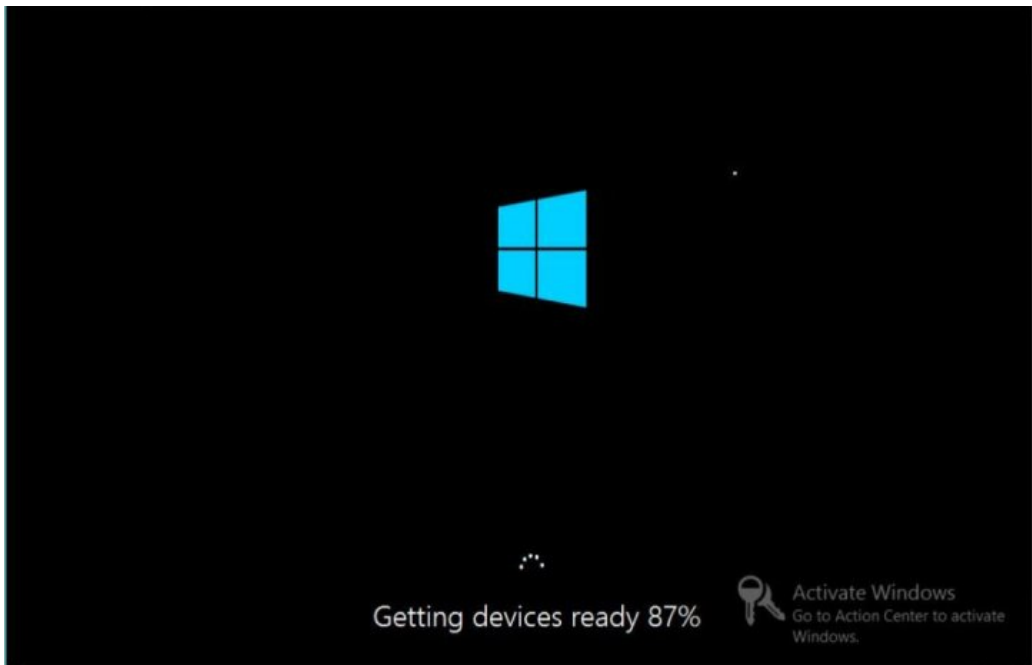
The setup and installation process begins and files are copied to the target.

The Windows Needs to Restart to Continue screen appears.

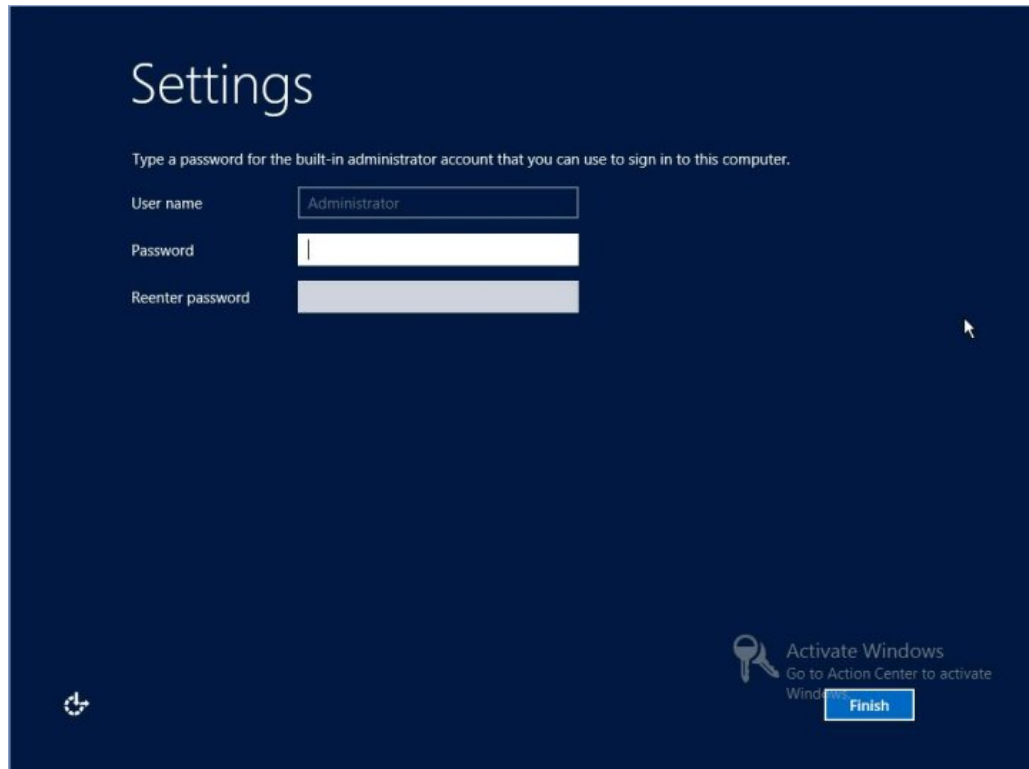


The system reboots.

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



After the devices are configured, the system reboots again and the Settings screen appears.



- 13. Enter the Administrator user name and password, then click Finish.**

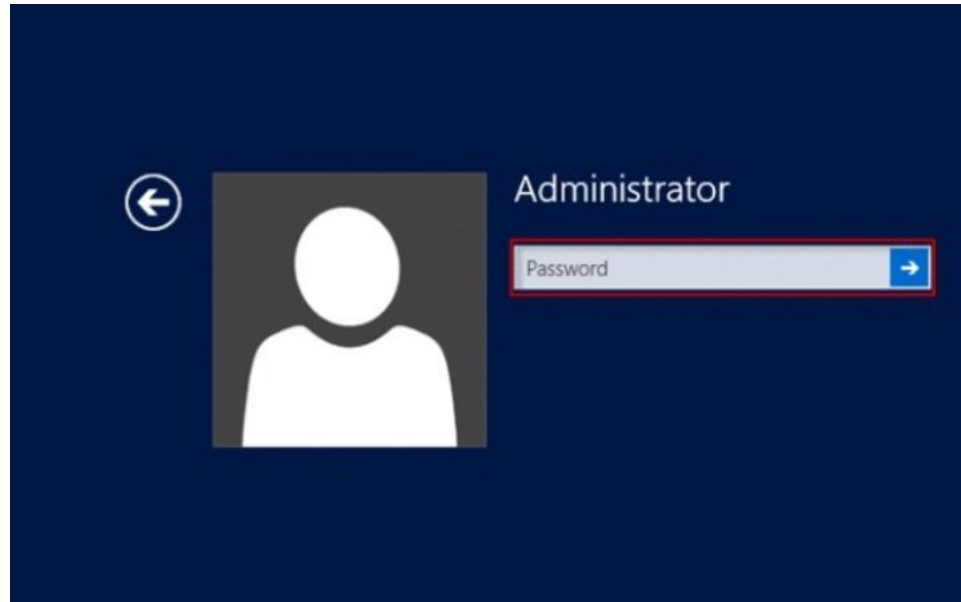
The Finalizing Your Settings screen appears.

This screen indicates that the Windows OS has been installed.



14. After the installation completes, type **Ctrl+Alt+Delete** to log in.

The Administrator login screen appears.



15. **Enter the Administrator password, then click the arrow to log in.**  
The Windows Server desktop appears.  
This completes the installation.
16. **Proceed to [“Post Installation Tasks for Windows Server OS” on page 53](#) and perform the post installation tasks.**

## ▼ **Install Windows Server 2012 R2 Using PXE Network Boot**

This section explains the initial information you will need and provides the instructions you need to follow to install the Windows Server 2012 R2 operating system over an established PXE-based network using a customer-provided Windows Imaging Format (WIM) image.

Note that the procedure documents the initial steps to install Windows Server over the network using Windows Deployment Services (WDS). Specifically, it explains the steps for selecting the

server PXE network interface card that will communicate with your WDS installation server. For further information about using WDS to install Windows Server 2012 R2, see Microsoft's Windows Deployment Services documentation at <https://technet.microsoft.com/en-us/library/jj648426.aspx>.

**Before You Begin** To use PXE to boot the installation media over the network, you must:

- Configure the network (NFS, TFTP, DHCP) 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 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 WIM installation image(s), see the Microsoft Windows Deployment Services documentation.
- Obtain the WIM Administrator password.

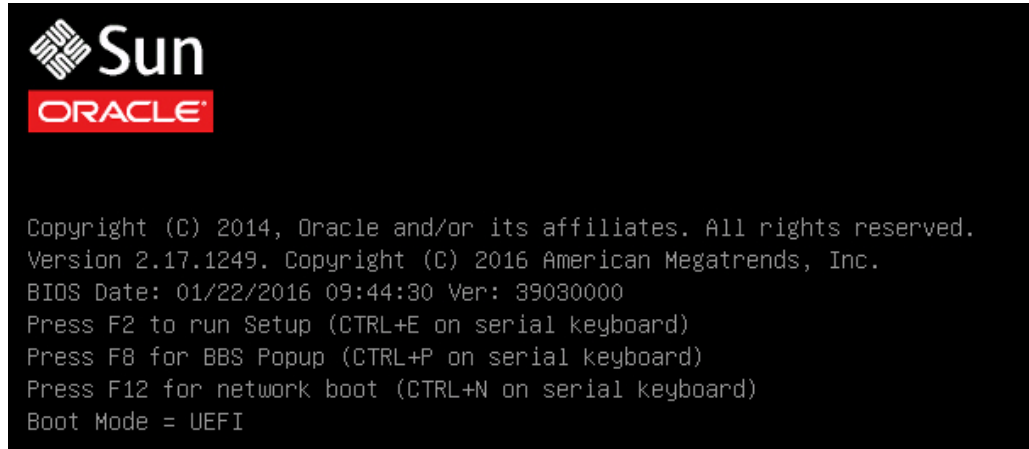
1. **Ensure that the PXE network environment is properly set up and the Windows installation media is available for PXE boot.**
2. **Reset the server.**

For example, to reset the server:

- **From the local server**, press the Power button on the front panel of the server for approximately 1 second to power off the server, then press the Power button again to power on the server.
- **From the Oracle ILOM web interface**, click Host Management → Power Control, and select Reset from the Select Action list box, then click Save.
- **From the Oracle ILOM CLI**, type: `reset /System`



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



---

**Note** - The next events occur 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. To verify that PXE boot is enabled, perform the following steps:**

---

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

---

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

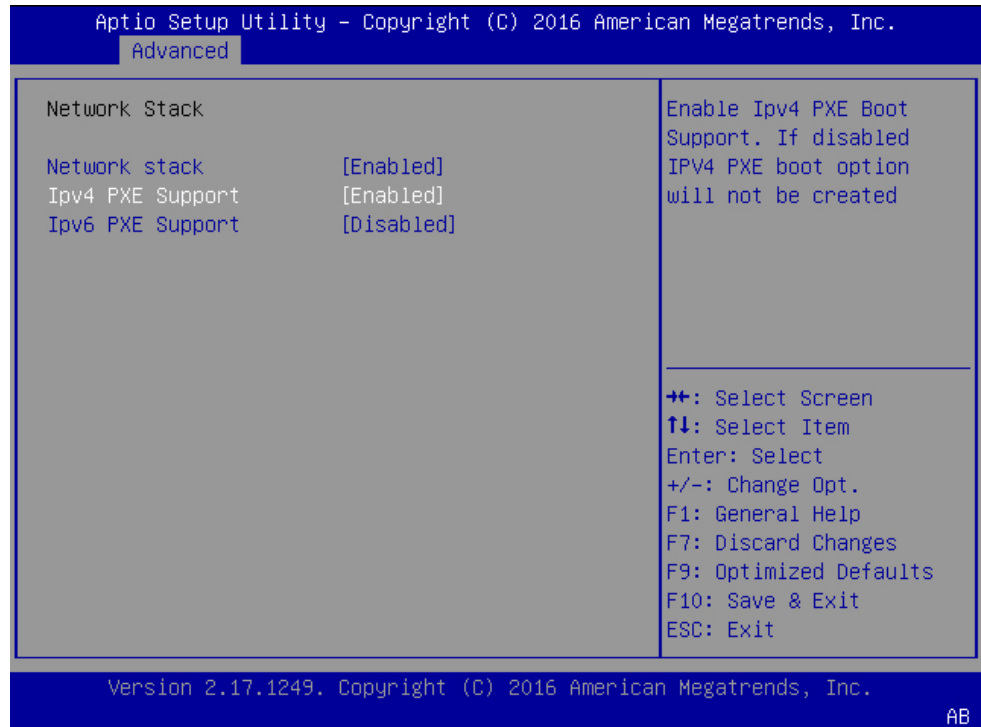
The BIOS Setup Utility appears.

**b. Select Advanced in the top menu bar.**

The BIOS Setup Utility Advanced screen appears.

**c. Select Network Stack from the list of available options.**

The BIOS Setup Utility Network Stack screen appears.



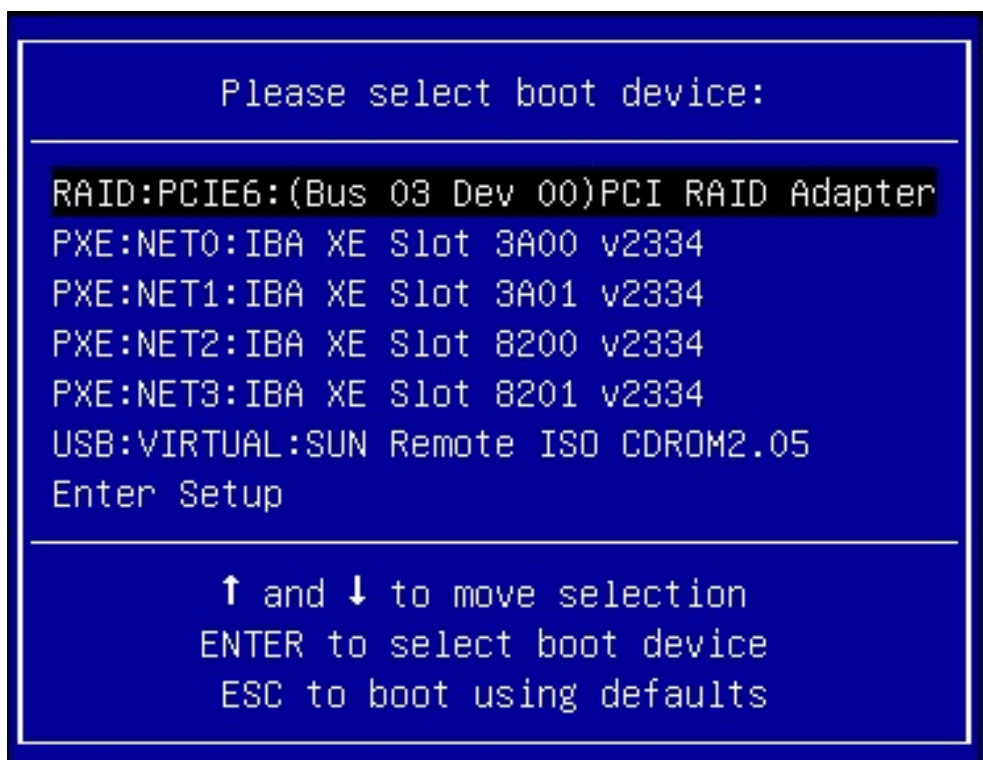
- d. If necessary, set the appropriate PXE Support setting (either IPv4 or IPv6) to Enabled.
- e. To save the changes and exit the BIOS Setup Utility, press the F10 key.

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

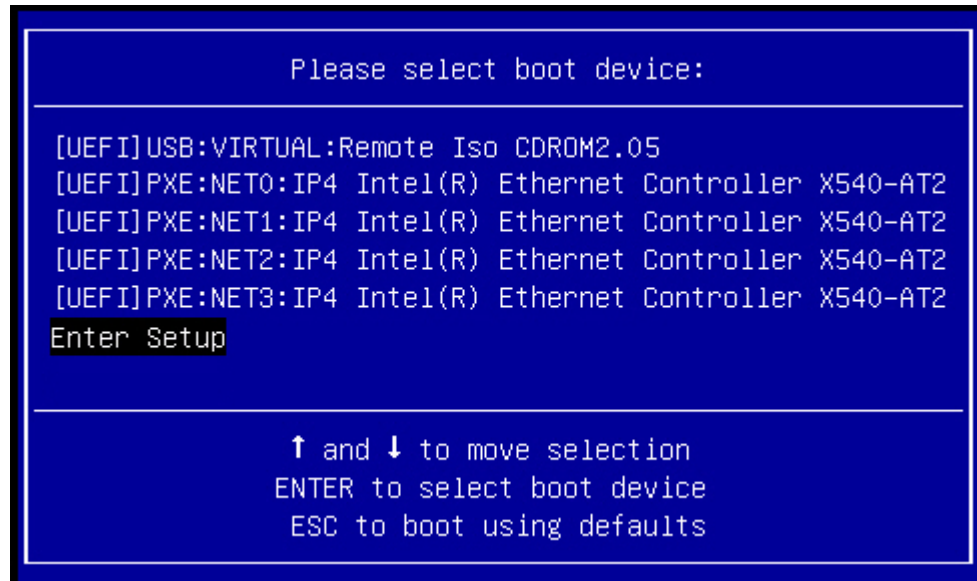
4. In the BIOS screen, press the F8 key to specify a temporary boot device or press F12 to network boot (PXE).

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

- For Legacy BIOS Boot Mode, a screen similar to the following appears:



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



---

**Note** - The boot device menu that appears in your installation might differ depending on the type of disk controller, such as PCIe network cards, installed in your server.

---

5. **In the Please Select Boot Device menu, select the network port that is configured to communicate with your PXE network install server.**  
The network bootloader loads and a boot prompt appears. After a few seconds the installation kernel will begin to load.
6. **To complete the installation, refer to [Step 5 of “Install Windows Server 2012 R2 Manually Using Local or Remote Media” on page 30.](#)**

## Post Installation Tasks for Windows Server OS

---

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

Description	Link
Install device drivers and supplemental software.	<a href="#">“Installing Device Drivers and Supplemental Software” on page 53</a>
Configure NIC teaming.	<a href="#">“Configuring Intel NIC Teaming” on page 54</a>

### Installing Device Drivers and Supplemental Software

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. This application is available for download from My Oracle Support at <https://support.oracle.com>.

You can use InstallPack, which is included in the OS (operating system) 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 X6-2L Installation Guide](#).

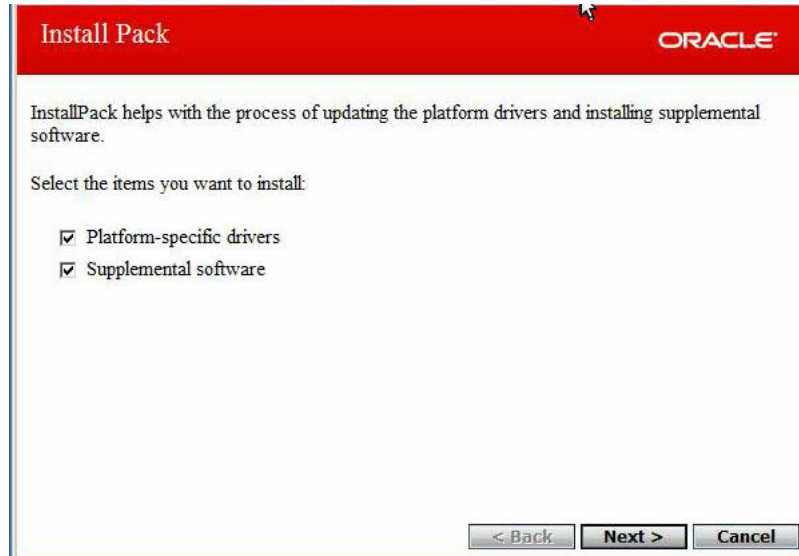
The following procedure describes how to use InstallPack to install the device drivers and supplemental software.

- [“Install Server-Specific Device Drivers and Supplemental Software” on page 53](#)

#### ▼ Install Server-Specific Device Drivers and Supplemental Software

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

The Install Pack dialog appears.



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

---

**Note** - You should always accept the default installable items to ensure that the most recent versions of the drivers are installed.

---

The Install Pack notice dialog appears.

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

## Configuring Intel NIC Teaming

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

<http://www.intel.com/support/network/sb/CS-009747.htm>

Additionally, you can download the complete set of Intel Network Connections User Guides for your server's network adapters at:

<http://www.intel.com/support/network/sb/cs-009715.htm>





# Index

---

## B

- BIOS
  - procedure for editing and viewing settings, 17
  - setting the boot mode, 20
  - verification of optimized defaults settings, 16
- boot media
  - requirements, 22
- boot media option
  - selecting options, 22

## C

- configuration
  - Intel NIC teaming, 54
  - RAID, 28
- console display options
  - selecting options, 13

## I

- install boot media, 22
- installation
  - manual, 12
  - options, 11
  - Oracle Enterprise Manager Ops Center, 11
  - selecting installation type, 38
  - selecting language, 35
  - selecting specific operating system, 35
  - single server, 11, 11
  - task map, 9
  - using local or remote media , 30
  - using media, 30
  - using PXE network boot, 47

- installation methods
  - boot media options, 22
- installation target
  - options, 27
  - setting up Fibre Channel storage area network (SAN) device, 28
  - setting up local storage drive, 27
- installation target option
  - selecting options, 27
- installing operating system
  - overview, 9
  - supported operating systems, 10
- InstallPack
  - installing supplemental software, 53
- Intel NIC teaming configuration
  - post installation , 54
- ISO images, 31

## L

- local boot media
  - requirements, 22
  - setting up, 23
- local console
  - setting up, 14

## O

- overview of operating system installation, 9

## P

- post installation

- configuring Intel NIC teaming, 54
- installing device drivers, 53
- installing supplemental software, 53
- tasks overview, 53

PXE installation, 48

supported operating systems, 10

## **R**

### **RAID**

- configuring, 28

remote boot media

- requirements, 23
- setting up, 24

remote console

- setting up, 15

## **S**

server, resetting power, 48

software

- installation options, 11

supplemental software

- installing, 53

supported operating systems, 10, 10

## **T**

task map

- installation, 9

## **U**

### **UEFI**

- setting up, 16

## **W**

windows deployment services, 12

Windows OS

- ISO images, 31