



# Unattended Installation of Windows Operating Systems on Dell PowerEdge Servers by Using Lifecycle Controller

*This Dell Technical White Paper describes the capabilities of Lifecycle Controller to install an operating system in Manual and unattended mode (by using an OS configuration file) on the Dell PowerEdge servers.*

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## Executive Summary

Although we have many methods to install an operating system (OS) using embedded management software such as Lifecycle Controller (GUI), Remote Enablement using WS-Man, Systems Build and Update Utility, and default manual installation, the method of installing an OS requires manual intervention at some stage during deployment. Traditional or manual OS deployment by using Lifecycle Controller requires you to be present throughout the OS installation process. Lifecycle Controller (release 1.3 and later) provides an infrastructure for OS Deployment loaders to consume the OS configurations file for installation and continue OS deployment with minimal manual intervention.

This white paper aims to provide detailed information about the Unattended OS deployment feature available in Lifecycle Controller, such as WS-Man and RACADM.



## Introduction

The OS deployment feature in Lifecycle Controller enables you to install an OS and the relevant drivers by completing few easy tasks. Using the **OS Deployment** page, you can deploy:

- Dell-supported OS (the Dell-supported drivers are automatically installed)
- Customized OS (the Dell-supported drivers are automatically installed)
- Any other OS (necessary drivers must be manually installed)

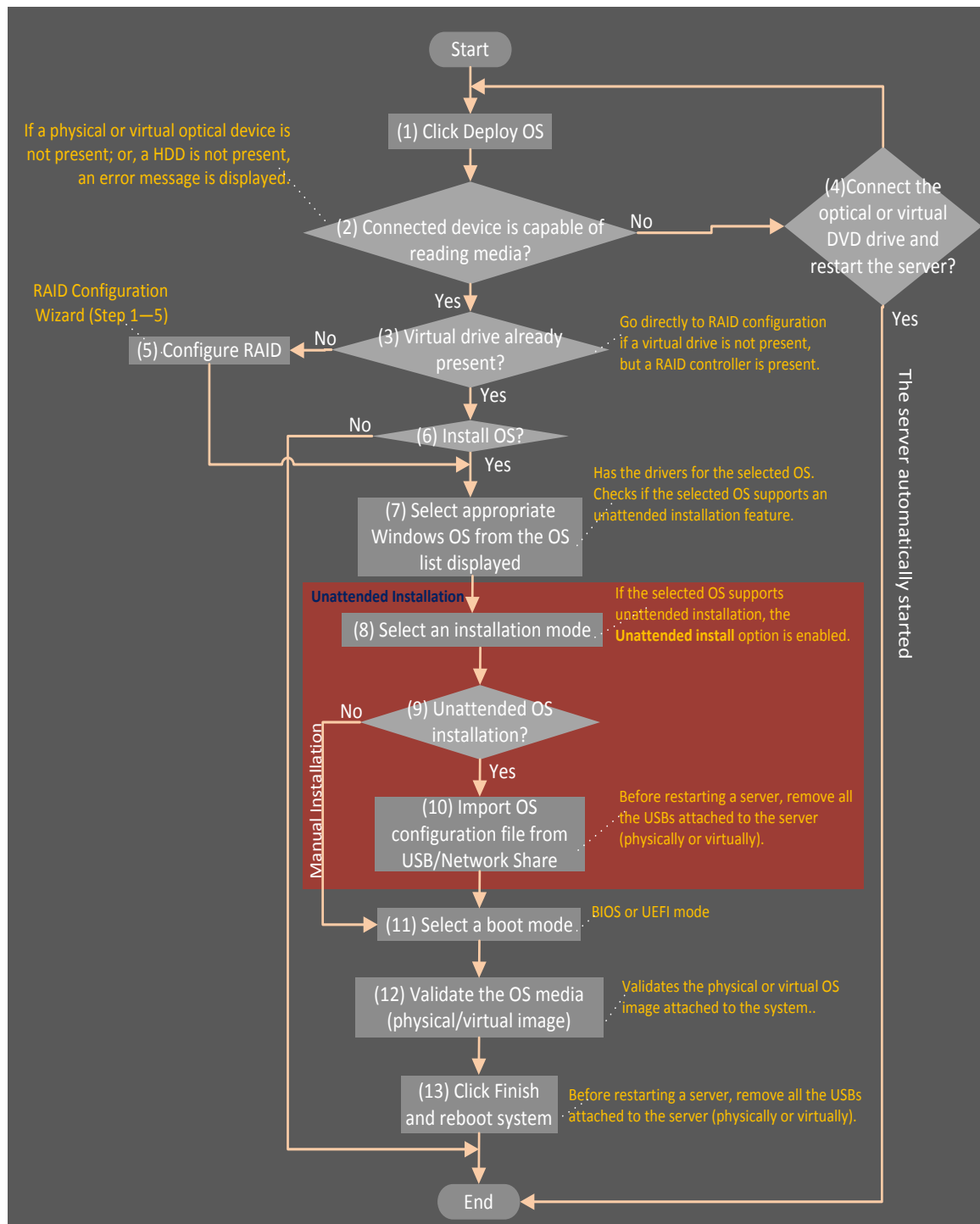
If a RAID is not already configured then the **OS Deployment** wizard in Lifecycle controller enables you to configure RAID before installing an OS.

Windows System Image Manager (WSIM) allows you to create OS configuration (.xml answer) files. The unattended installation feature of Lifecycle Controller consumes OS configuration or 'answer' file and makes the answer file available to OS loader, where, minimal user input (on the basis of OS configuration file) is required during the OS installation process.

**Note:** Currently, Lifecycle Controller version 1.4 limits this support only to Windows OSs for unattended installation.



# 1 Unattended OS Installation Using Lifecycle Controller— Process Flow chart



## 2 Unattended Installation of Operating System

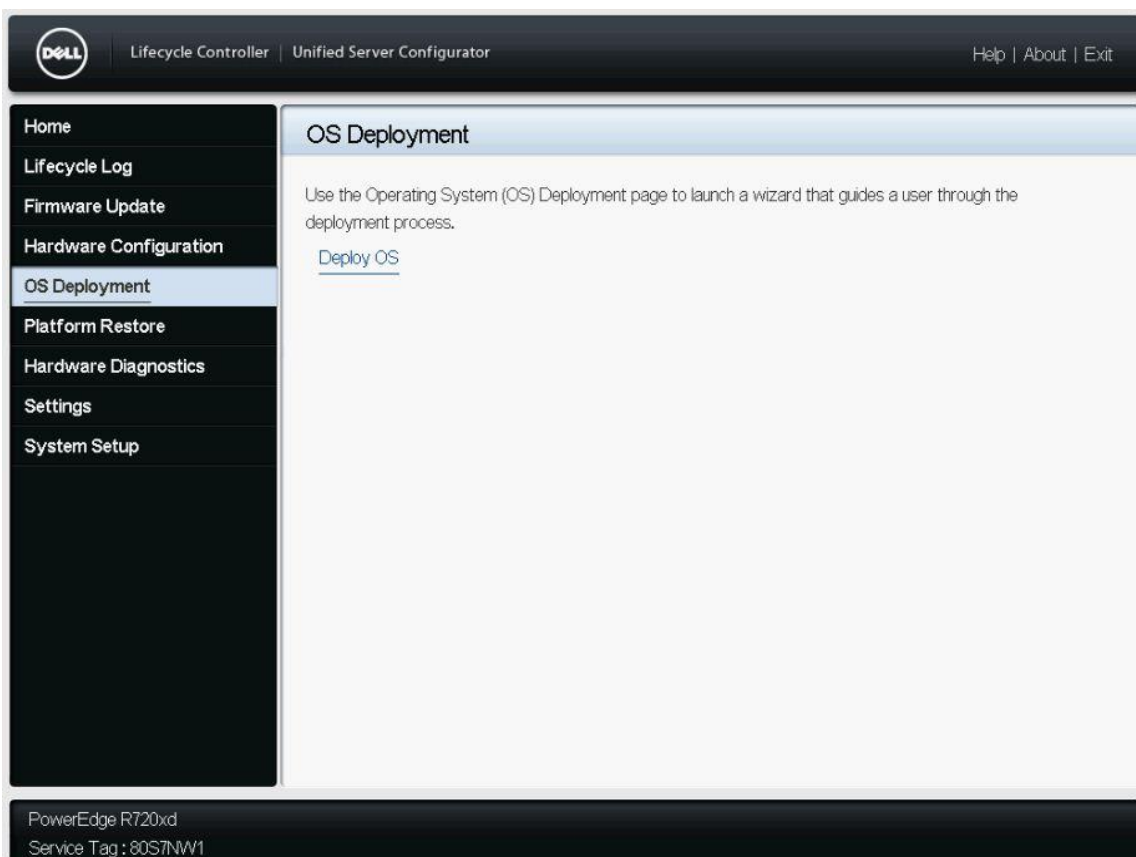
Before performing unattended OS installation, make sure that the following prerequisites are met:

- OS configurations file (also known as unattended file or .xml answer file) is created using Windows System Image Manager (WSIM) or similar tools provided by Windows. To create Operating system configurations file, refer to the Annexure section.
- OS configurations file is copied to a USB drive or Network share (CIFS/ NFS) for Lifecycle Controller to import.
- Optical DVD drive with OS media is connected to the server, or a virtual disk (.ISO image) is attached to the server (For more information, see the Attaching Virtual Media section).
- Software RAID controller is enabled or PERC controller is installed, and a minimum number of hard disk drives (HDDs) are available for creating a virtual disk. If the RAID is not already configured then the OS Deployment wizard in Lifecycle controller enables you to configure RAID before installing an OS.

To install an OS using the Unattended Install mode:

**Step 1:** During power-on-self-test (POST), start Lifecycle Controller by pressing <F10>.

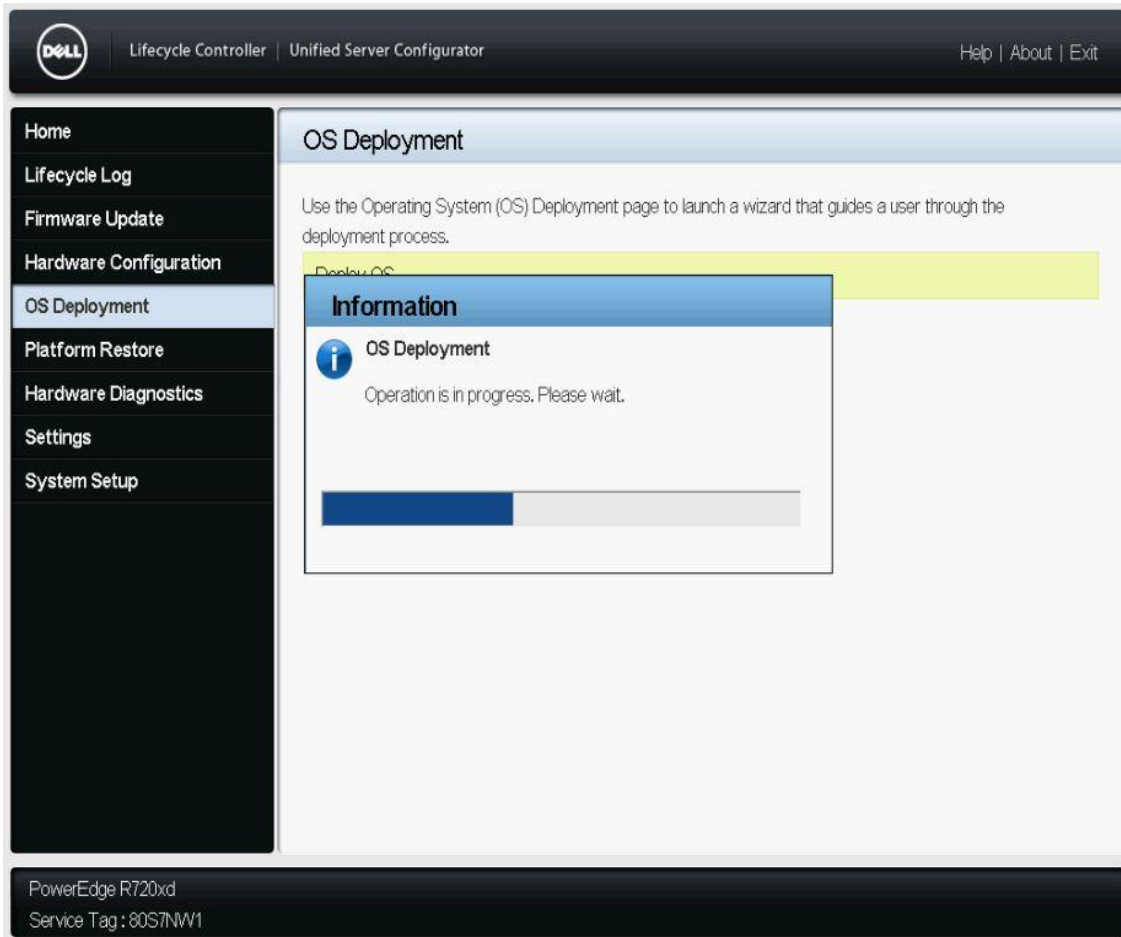
**Step 2:** After Lifecycle Controller is started, in the navigation menu, click **OS Deployment**.





**Step 3:** In the working pane, click **Deploy OS**.

OS deployment logic verifies whether or not an Optical DVD drive is connected to the server or a virtual DVD drive is attached to the server. Also, the presence of a virtual disk is checked. It is recommended that you have the necessary hard disk drives in the system.

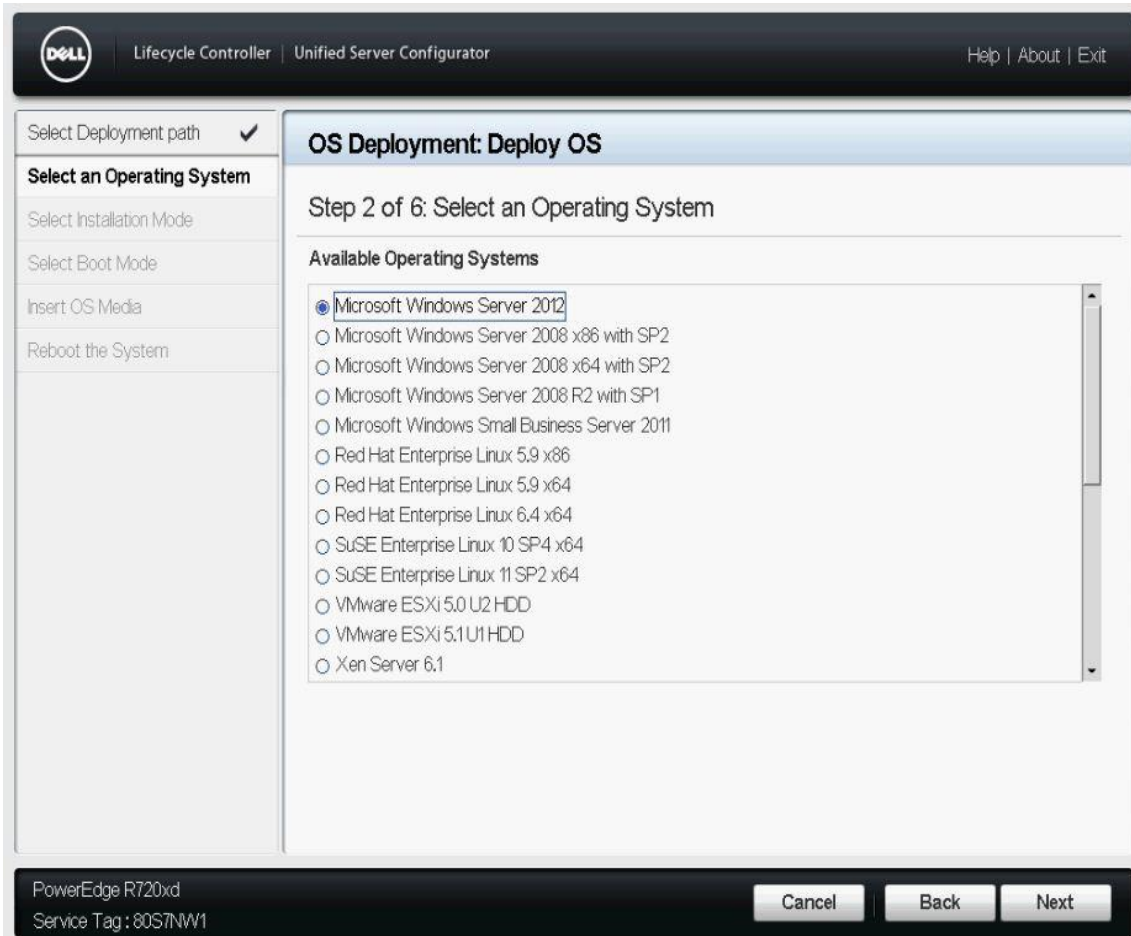


**Step 4:** After clicking **Deploy OS**, if an optical DVD drive is connected or a virtual DVD is attached and virtual disk is already present, then the **Step 1 of 6: Select Deployment Path** page is displayed. If a virtual disk is already configured, select **Go Directly to OS Deployment**, and then click **Next**. Alternatively, select **Configure RAID First** and click **Next** to configure RAID, after which continue installing an OS. For more information, see the “Configuring RAID” section in the white paper.

The screenshot displays the Dell Lifecycle Controller Unified Server Configurator interface. The top header includes the Dell logo, 'Lifecycle Controller | Unified Server Configurator', and links for 'Help | About | Exit'. The left sidebar, titled 'Select Deployment path', lists several options: 'Select an Operating System', 'Select Installation Mode', 'Select Boot Mode', 'Insert OS Media', and 'Reboot the System'. The main content area is titled 'OS Deployment: Deploy OS' and 'Step 1 of 6: Select Deployment path'. It features a 'Select OS Deployment Path' section with two radio buttons: 'Configure RAID First' (which is selected) and 'Go Directly to OS Deployment'. Below this, an information box with a blue 'i' icon states: 'RAID can be configured prior to OS Deployment; the current wizard will be restarted after the RAID wizard is completed. S110 storage controller support only Microsoft Windows Operating System installation.' The bottom status bar shows 'PowerEdge R720xd' and 'Service Tag : 80S7NW1', along with 'Cancel', 'Back', and 'Next' buttons.



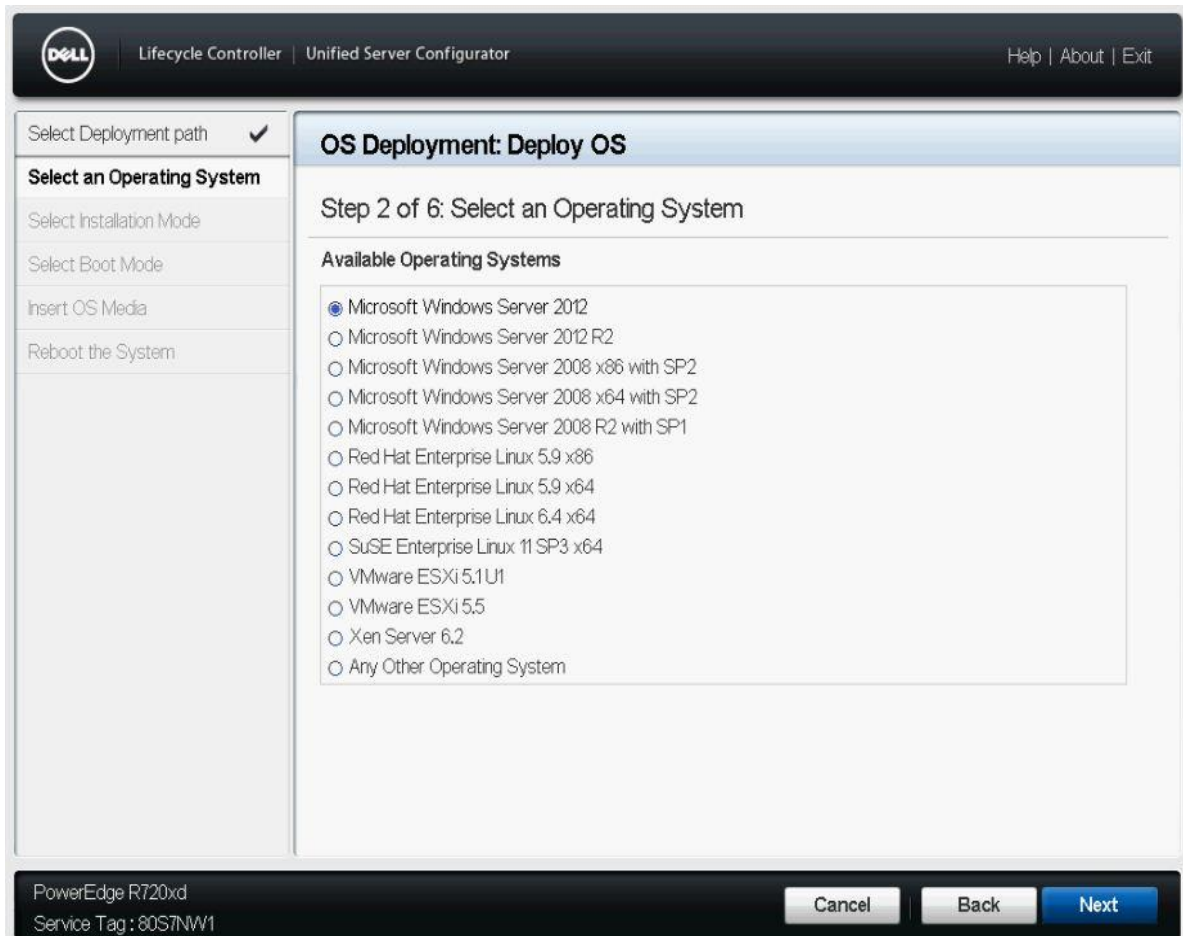
**Step 5:** Lifecycle Controller displays a list of Dell-supported OSs.



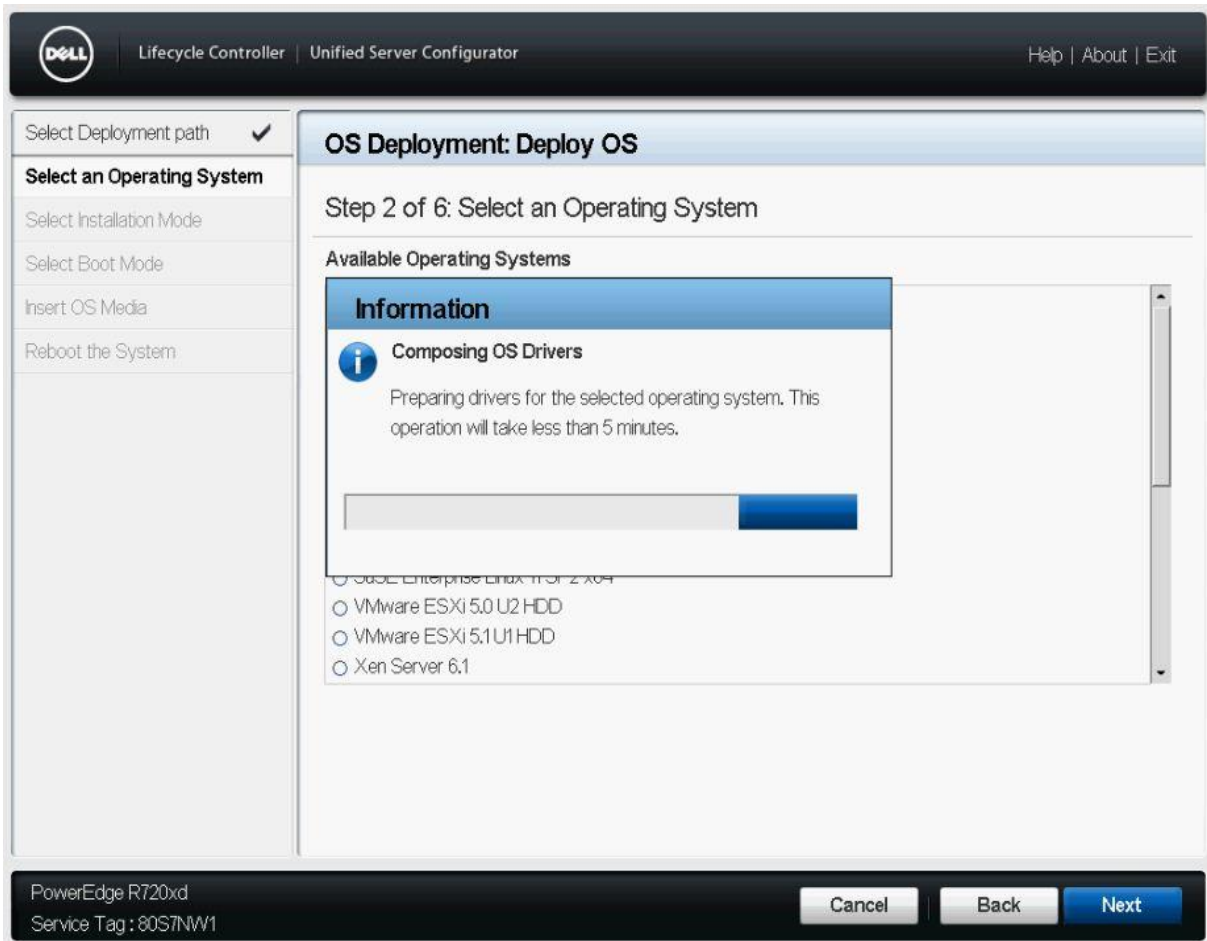
**Step 6:** Select the OS to be installed and click **Next**.

**Note:**

- a) The list of Dell-supported OS changes on the basis of driver packs updated on the system. To update to a latest driver pack, see the [Updating Driver Pack](#) section.
- b) For Citrix and ESXi operating systems, it is recommended to use Dell-customized OS images.
- c) The software RAID controller supports the installation of only Windows OSs.



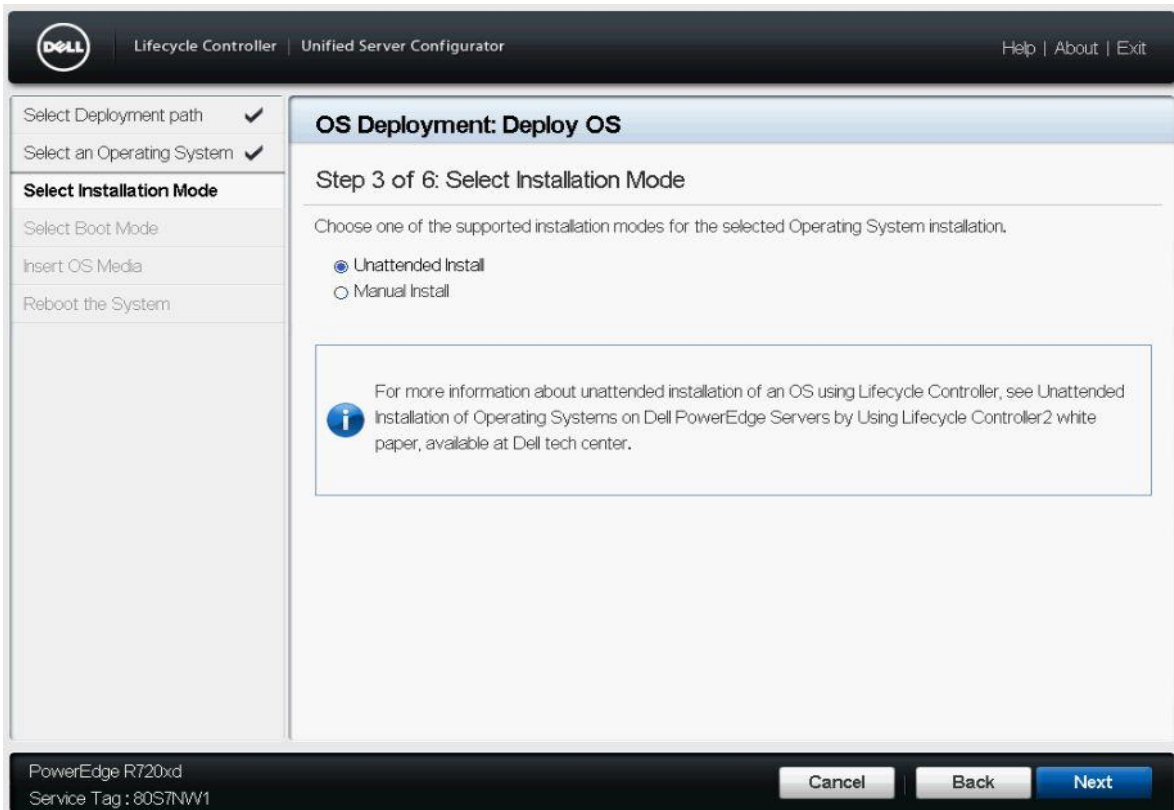
**Step 7:** After clicking Next the OS drivers for the selected OS will get copied to a temporary drive from which the OS installer picks up the driver for auto installation. This process will take few minutes to complete based on the number of drivers and their size.



**Step 8:** On the **Step 3 of 6: Select Installation Mode** page, select one of the supported installation modes for the selected OS Installation.

**Note:**

- a) Currently, Lifecycle Controller is limited to supporting unattended OS installation on Windows-based operating systems. If a Windows OS is selected for OS deployment, the **Unattended Install** option will be available.
- b) If you click **Manual Install**, and then click **Next**, the **Step 4 of 6: Select Boot Mode** page is displayed. Alternatively, if **Unattended install** is selected, the **Step 3a of 6: Select installation mode** page is displayed, where Lifecycle Controller provides option for importing OS configuration file from a USB drive or network share.



**Step 9:** On the **Step 3a of 6: Select Installation Mode** page, select either a USB drive or network share to import the OS configuration file, and then click **Next**.

**Prerequisite:**

- a) Lifecycle Controller will accept only an OS configuration file named "autounattend.xml".
- b) The OS configurations file must be created only by using Windows System Image Manager (WSIM) or similar tools provided by Microsoft. To create an OS configurations file, refer to Annexure.
- c) The OS configuration file will be copied from a USB or network share (CIFS or NFS) by Lifecycle Controller —based on the source you have selected.

**OS Deployment: Deploy OS**

Step 3a of 6: Select Installation Mode

Select and enter the location to import the operating system configuration file.

☒ **USB Drive**

Select Device: DELL (Virtual Floppy)

File Path: Autounattend.xml

☐ **Network Share**

☒ CIFS

☐ NFS

Share Name:

Domain and User Name:

Password:

File Path:

[Test Network Connection](#)

PowerEdge R720xd  
Service Tag : 80S7NW1

Cancel Back Next

**Note:** After you click **Next**, a message is displayed as shown in the sample screen shot here.



**Note:**

- a. If an incorrect file path is entered, or if file does not exist at the specified location, an error message will be displayed.



- b. If an invalid OS configuration file is detected, a warning message will be displayed. Make sure the OS configuration file is valid and named as "autounattend.xml".





**Step 10:** On the **Step 4 of 6: Select Boot Mode** page, Lifecycle Controller displays two Boot modes—UEFI and BIOS. Select an appropriate boot mode option and click **Next**.

**NOTE:** If a selected operating system does not support UEFI mode, then UEFI option is grayed out.

The screenshot shows the Dell Lifecycle Controller interface for OS deployment. The top bar includes the Dell logo, 'Lifecycle Controller', 'Unified Server Configurator', and links for 'Help', 'About', and 'Exit'. On the left, a sidebar lists steps: 'Select Deployment path' (checked), 'Select an Operating System' (checked), 'Select Installation Mode' (checked), 'Select Boot Mode' (active), 'Insert OS Media', and 'Reboot the System'. The main area is titled 'OS Deployment: Deploy OS' and 'Step 4 of 6: Select Boot Mode'. It instructs the user to 'Select one of the supported boot modes for installing the selected operating system.' Two radio buttons are present: 'UEFI' (unselected) and 'BIOS' (selected). An information box states: 'After the OS Deployment wizard exits, the BIOS boot mode is changed based on the selected installation mode.' The bottom bar shows 'PowerEdge R720xd' and 'Service Tag : 80S7NW1', along with 'Cancel', 'Back', and 'Next' buttons.

**Step 11:** On the **Insert OS Media** page, insert the operating system media, and then click **Next**.

The screenshot displays the Dell Lifecycle Controller Unified Server Configurator interface. The top header bar includes the Dell logo, the text 'Lifecycle Controller | Unified Server Configurator', and links for 'Help | About | Exit'. On the left, a navigation pane lists several steps: 'Select Deployment path' (checked), 'Select an Operating System' (checked), 'Select Installation Mode' (checked), 'Select Boot Mode' (checked), 'Insert OS Media' (selected), and 'Reboot the System'. The main content area is titled 'OS Deployment: Deploy OS' and shows 'Step 5 of 6: Insert OS Media'. It instructs the user to 'Insert the following media, then click Next:' and lists 'Microsoft Windows Server 2012'. At the bottom, a dark bar displays the server information 'PowerEdge R720xd' and 'Service Tag : 80S7NW1', along with 'Cancel', 'Back', and 'Next' buttons.

Dell Lifecycle Controller | Unified Server Configurator Help | About | Exit

Select Deployment path ✓  
Select an Operating System ✓  
Select Installation Mode ✓  
Select Boot Mode ✓  
**Insert OS Media**  
Reboot the System

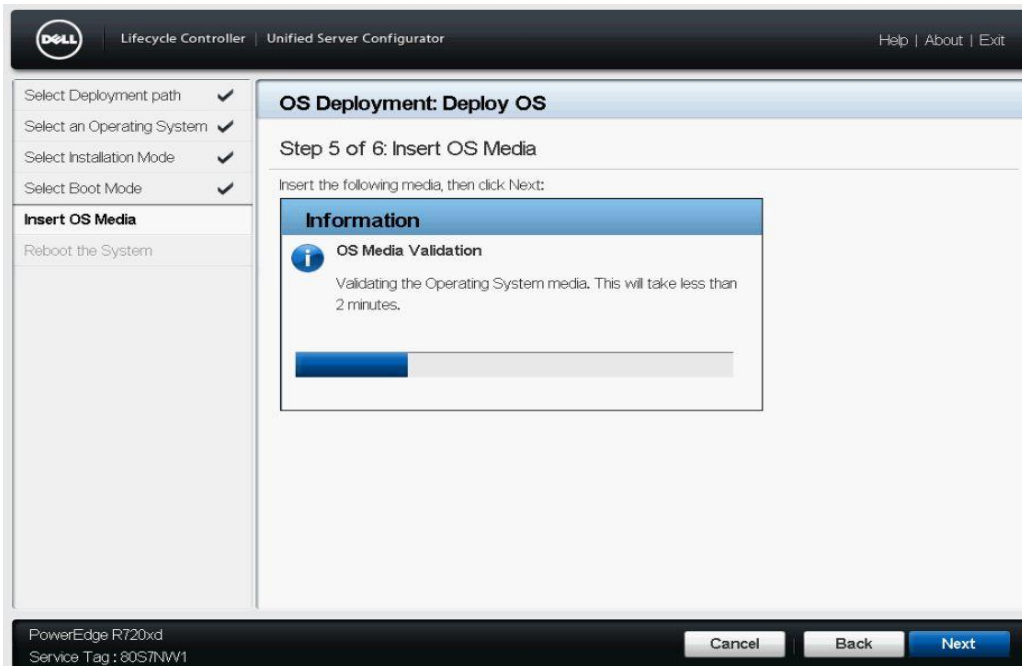
**OS Deployment: Deploy OS**  
Step 5 of 6: Insert OS Media

Insert the following media, then click Next:  
Microsoft Windows Server 2012

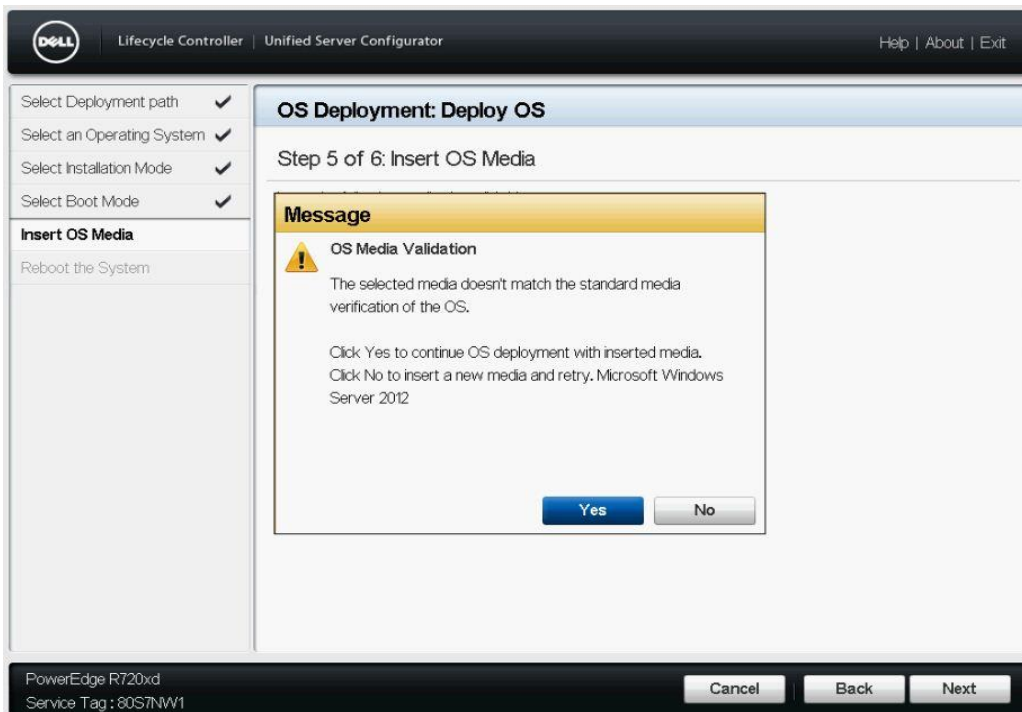
PowerEdge R720xd  
Service Tag : 80S7NW1

Cancel Back Next

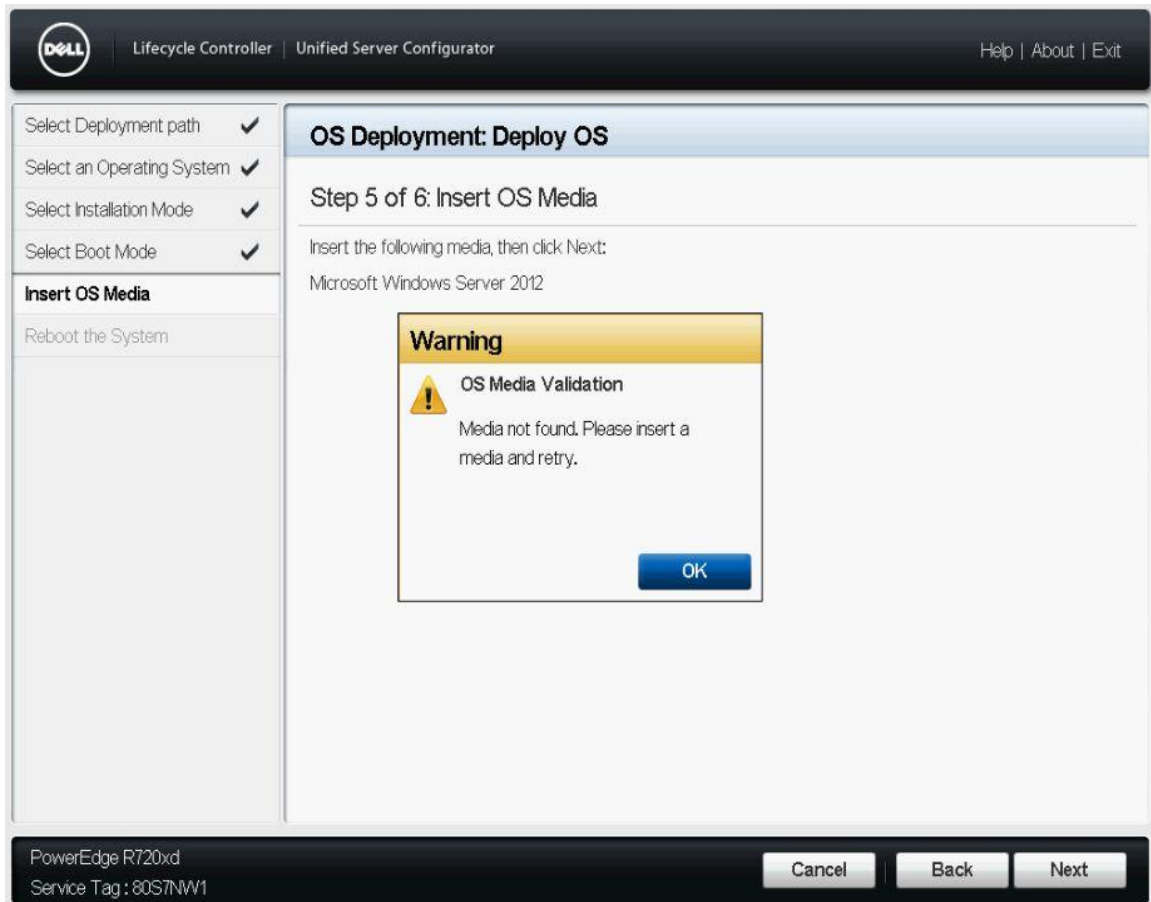




**Note:** If the inserted media is not matching with the OS you have selected, a message is displayed as shown in the screen shot here.



a) If media is not present then a message is displayed as given in the screen shot here.



**Step 12:** On the **Reboot the System** page, click **Finish** to begin the unattended OS installation process. This process will begin with a server reboot. Hereafter, your input is not required in case if you have selected unattended OS installation. However, if you have selected the manual installation method, you will be prompted by the OS installer for respective inputs. Follow the on-screen instructions to complete the OS installation.

The screenshot displays the Dell Lifecycle Controller Unified Server Configurator interface. The top header includes the Dell logo, 'Lifecycle Controller | Unified Server Configurator', and links for 'Help | About | Exit'. On the left, a sidebar lists configuration steps: 'Select Deployment path', 'Select an Operating System', 'Select Installation Mode', 'Select Boot Mode', 'Insert OS Media', and 'Reboot the System'. The 'Reboot the System' step is currently selected and highlighted. The main content area is titled 'OS Deployment: Deploy OS' and 'Step 6 of 6: Reboot the System'. It contains three numbered instructions: 1. Keep the following media in the system: Microsoft Windows Server 2012; 2. Selected Installation Mode: Manual Install; 3. Click Finish to continue with the installation. Below these instructions is an information box with a blue 'i' icon, stating: 'The system reboots to start the operating system installation. After reboot, you may be prompted to "Press Any Key" to boot to the operating system media and start installation. If a key is not pressed, the system bypasses the installation.' At the bottom, a dark bar shows 'PowerEdge R720xd' and 'Service Tag: 80S7NW1' on the left, and 'Cancel', 'Back', and 'Finish' buttons on the right.

Dell Lifecycle Controller | Unified Server Configurator Help | About | Exit

Select Deployment path ✓  
Select an Operating System ✓  
Select Installation Mode ✓  
Select Boot Mode ✓  
Insert OS Media ✓  
**Reboot the System**

### OS Deployment: Deploy OS

#### Step 6 of 6: Reboot the System

1. Keep the following media in the system:  
Microsoft Windows Server 2012
2. Selected Installation Mode:  
Manual Install
3. Click Finish to continue with the installation.

**i** The system reboots to start the operating system installation. After reboot, you may be prompted to "Press Any Key" to boot to the operating system media and start installation. If a key is not pressed, the system bypasses the installation.

PowerEdge R720xd  
Service Tag: 80S7NW1

Cancel Back **Finish**



## 3 Supported Operating Systems

Lifecycle Controller supports several OSs and list of the supported OSs are updated in every release of Lifecycle Controller. To get the latest supported OS list, update the Lifecycle Controller OS driver packs using the **Firmware Update** feature of Lifecycle Controller.

When installing an OS using Lifecycle Controller, the OS Deployment page extracts OS drivers of the selected OS from driver pack and copies them to a temporary folder location on the server. OS loader gets the drivers from this temporary location while installing the OS. This temporary location is deleted:

- After an 18-hour period
- When Lifecycle Controller is started
- When an AC power cycle is performed

**Note:** Lifecycle Controller has embedded drivers that are factory-installed. To get the latest supported OS list or latest Lifecycle Controller OS driver packs, update the latest Lifecycle Controller OS driver packs using the Firmware Update feature of Lifecycle Controller. The latest Lifecycle Controller driver packs are available on **support.dell.com**.

### 3.1 Configuring RAID

To configure a RAID:

1. In the left pane of Lifecycle Controller, click **OS Deployment**.
2. Click **Deploy OS**.
3. Select the **Configure RAID First** option and click **Next**. The RAID Configuration page is launched and displays the available storage controllers for configuration.
4. Select a storage controller and click **Next**. The supported RAID levels are displayed on the basis of hard drives available and the capability of the selected RAID controller.
5. Select the appropriate RAID level, click **Next** to complete RAID configuration wizard. After the RAID configuration is applied to the hard disk drives, The OS list page (**Step 2 of 6: Select an Operating System**) is displayed after the RAID is created. For more information about RAID configuration, see *Lifecycle Controller User's Guide* available at [dell.com/support/manuals](http://dell.com/support/manuals).

### 3.2 Updating Driver Pack

To update a driver pack:

1. On Lifecycle Controller main page, click **Settings**. Click **Network Settings**. Set appropriate network properties and click **Finish**. To get the latest driver packs, update the Lifecycle Controller OS driver packs using the Firmware Update feature of Lifecycle Controller. The latest driver packs are available on **support.dell.com**.

For more information about updating a driver pack, see *Lifecycle Controller User's Guide* available at [support.dell.com/support/manuals](http://support.dell.com/support/manuals), or the white paper *Lifecycle Controller Platform Update in Dell PowerEdge 12th Generation Servers*.



### 3.3 Selecting an Operating System not Available in the List

To install an operating system that is not available in the list:

1. Start Lifecycle Controller. On the **Step 2 of 5: Select an Operating System** page, select the option **Any Other Operating System** and click **Next**.
2. Provide the required drivers for installing an OS, because the drivers are not extracted from the embedded driver pack.
3. Insert the OS installation media, and then click **Next**.  
**NOTE:** Lifecycle Controller does not validate the media if **Any Other Operating System** option is selected.
4. Click **Finish** to reboot the system.

### 3.4 Attaching Virtual Media

To attach a virtual media:

1. Start virtual console from iDRAC GUI and attach the virtual media.
2. To add an ISO image, click **Add Image**, and then select the image file from the management station. The ISO image is displayed as an available device.
3. To add a folder that has the ISO image, click **Add Folder as Image**.

**Note:** For more information about attaching a virtual media, see the *iDRAC User's Guide* available at [dell.com/support/manuals](http://dell.com/support/manuals).

### 3.5 Conclusion

Using the unattended OS deployment feature in Lifecycle Controller allows you to install an OS with minimal user input. This feature reduces the number of errors that could be introduced during an OS installation process. This feature does not require you to be present during an OS installation process.



## Annexure

Windows System Image Manager (WSIM) is a tool provided by Microsoft for creating and editing OS configuration files used in the OS deployment. Windows System Image Manager creates and manages OS configuration files (unattended files or .xml answer files) in a graphical user interface (GUI). OS configuration files are XML-based files that are used during Windows setup to configure and customize the default Windows installation.

For example, you can use WSIM to create an answer file which partitions and formats a hard disk drive before installing Windows. You can use WSIM to change the default setting for the Internet Explorer home page. Finally, you can use WSIM to configure Windows to boot to Audit mode after the OS installation.

**Note:** WSIM is a Windows-provided tool and following description of WSIM is derived from the information available on the internet. Details here give one of the use-cases to create an OS configurations files (unattended files or .xml answer files) and will not be covering all the configuration parameters. Information provided in this white paper may change on the basis of changes made by Microsoft on the application. For more information about this application, go to the Microsoft site <http://technet.microsoft.com/en-us/library/hh824929.aspx>.



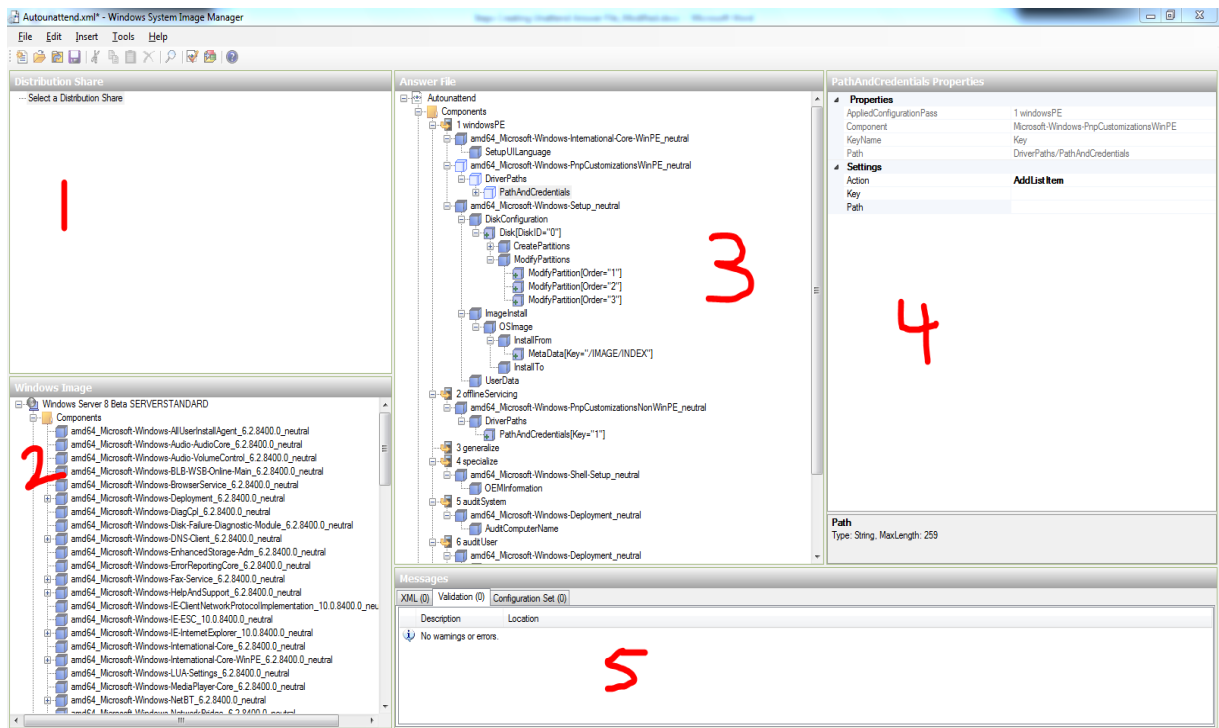


## 4 Creating an Answer File Using Windows System Image Manager (WSIM)

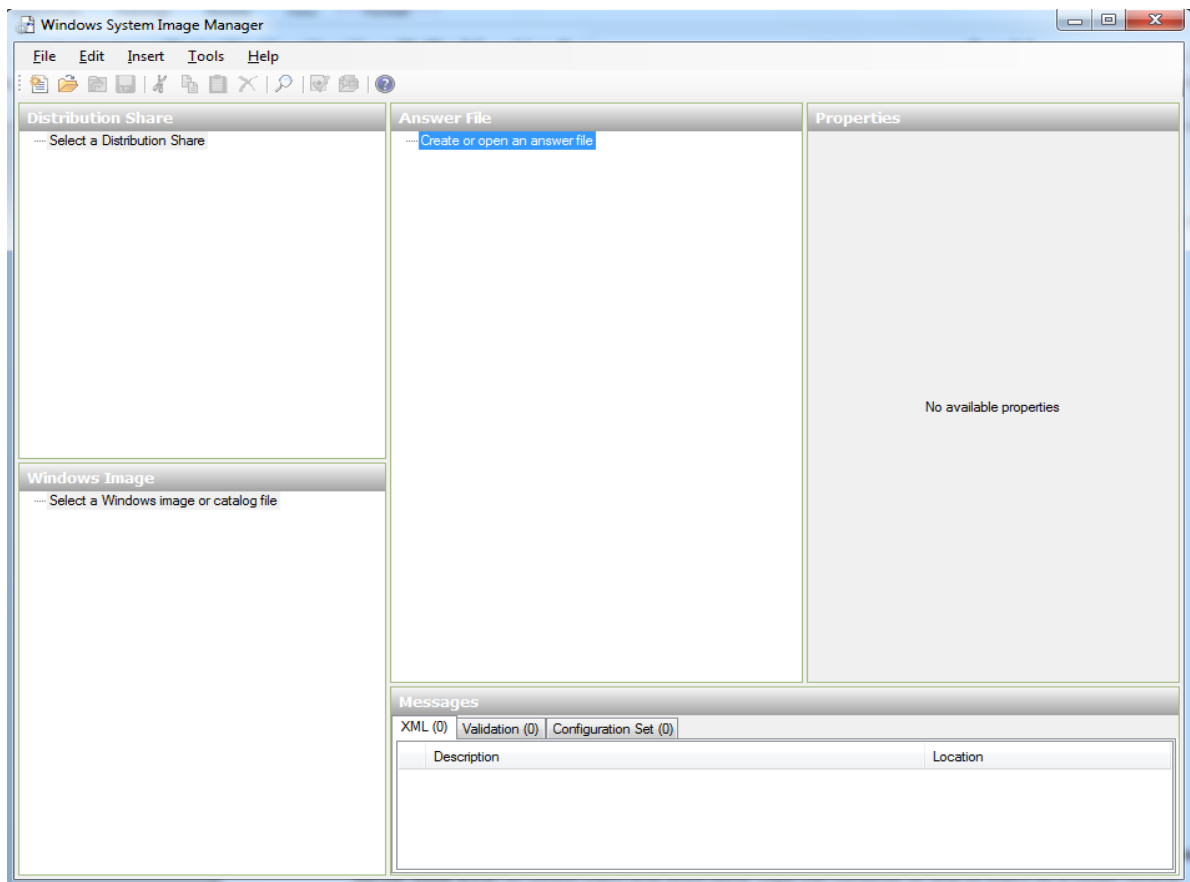
WSIM can be used to create an operating system configuration file. Windows Automated Installation Kit (AIK) can be downloaded from the Microsoft Download Center.

As shown in the sample screen shot here, there are mainly five panes in Windows SIM:

1. Distribution share
2. Windows image
3. Answer file
4. Properties
5. Messages



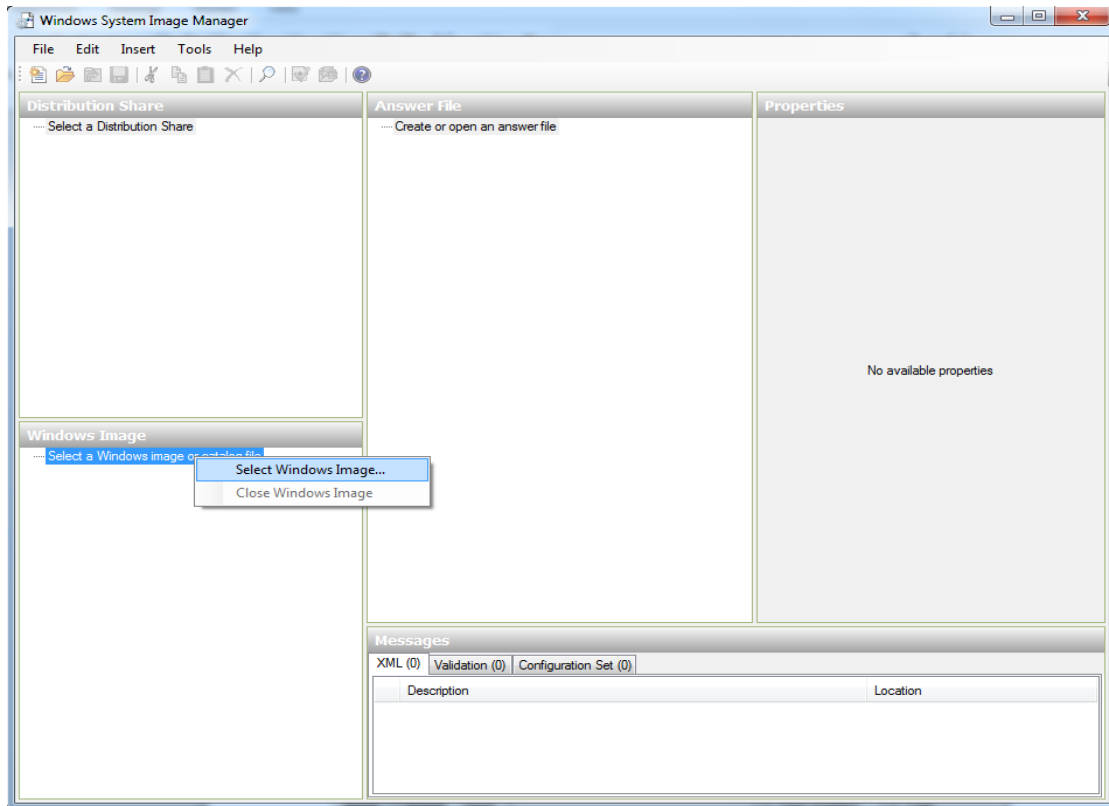
When WSIM is started for the first time, the panes will be blank.



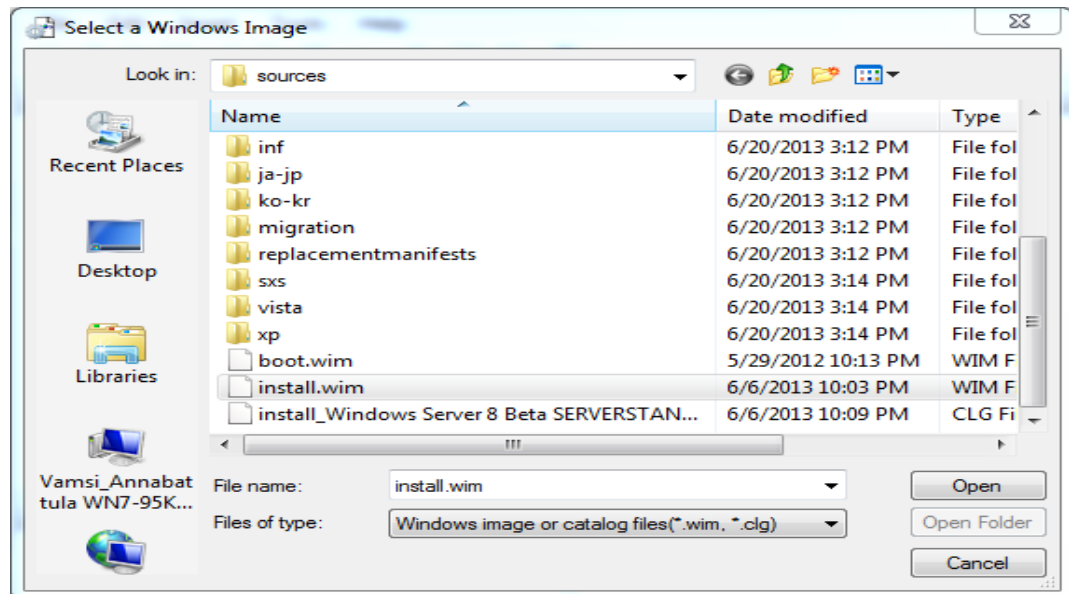
## 4.1 Adding Windows Image to WSIM

Before using WSIM, copy the contents of a Windows DVD to a local hard disk drive (for example, `c:\source\w2k8dvd`). Now, a local copy of a DVD is available, that can be used to point **install.wim** in **windows image** pane.

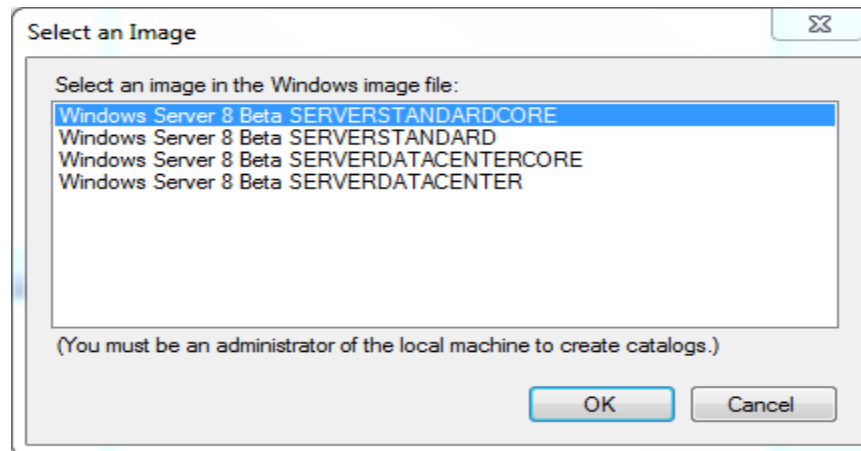
**Step 1:** In the **Windows** Image pane, right-click **Select a Windows Image or Install file**, and then click **Select Windows Image**.



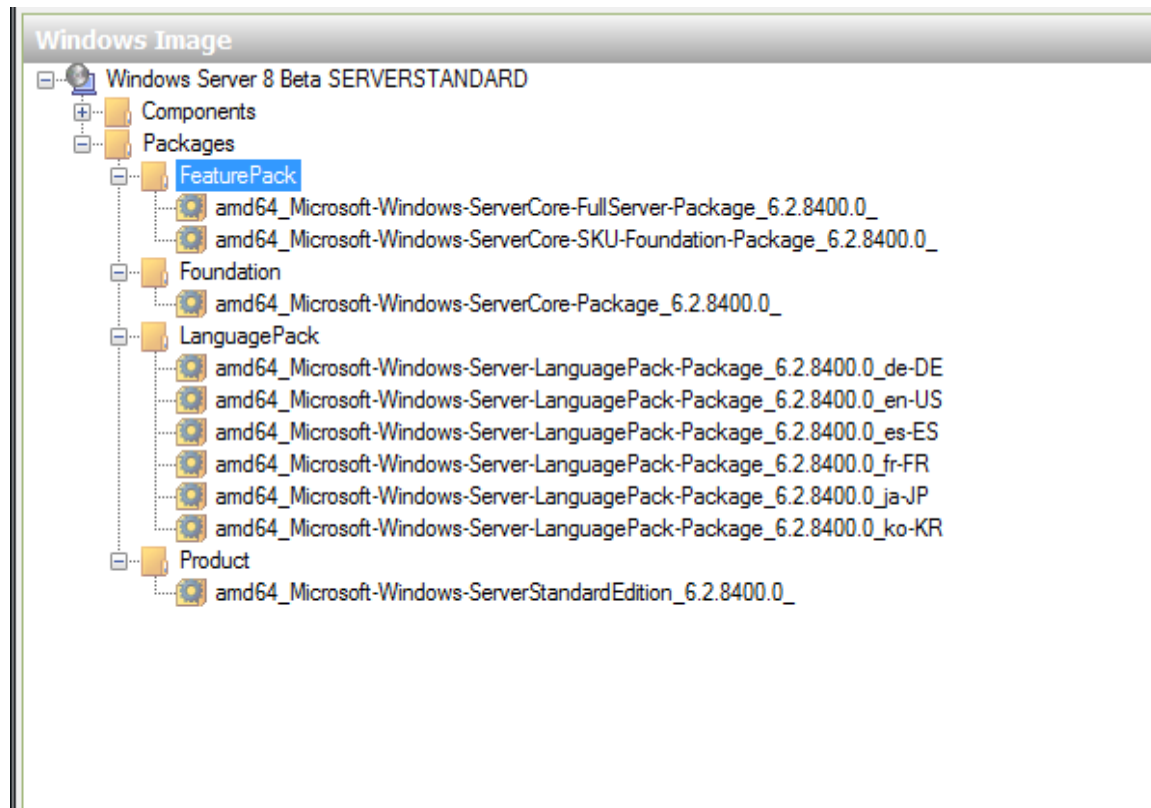
**Step 2:** Browse to the local folder that contains a copy of your Windows DVD. In the source directory, select the **install.wim** file, and then click.



**Step 3:** Clicking **Open** in the Select a Windows Image dialog box prompts you to select an Image file. For example, **Windows Server 8 Beta SERVERSTANDARD**.

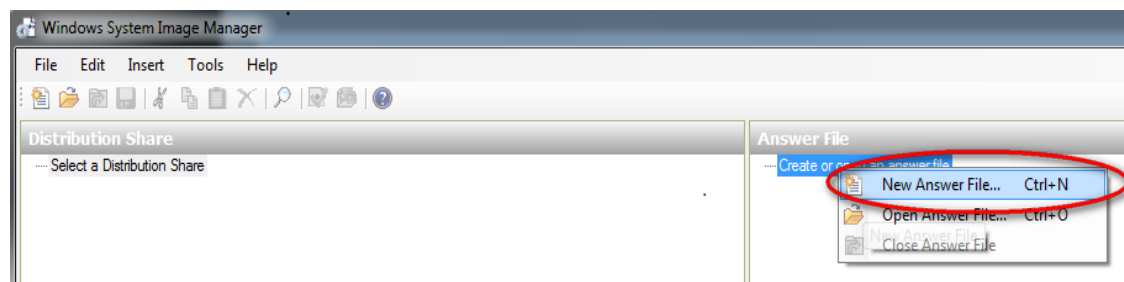


**Step 4:** Click **OK**. When you are prompted to create a Catalog file, click **Yes**. The catalog file contains descriptions about the components and packages the image contains. Therefore, it takes a few minutes to generate a catalog file. After the catalog file is created, Windows Image lists some new nodes called **Components** and **Packages**.

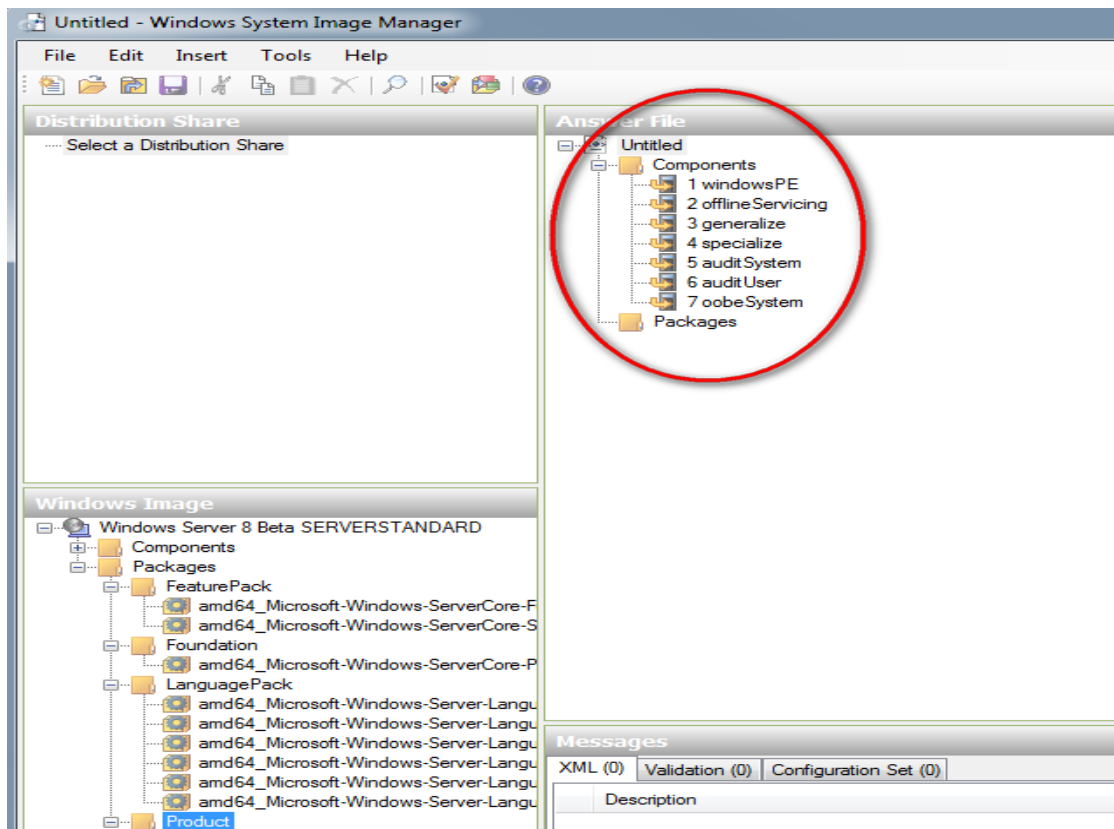


## 4.2 Creating New Answer File or OS Configuration File

**Step 1:** After Windows Image is loaded, an .xml answer file can be configured from the **Answer File** section. Right-click **Create or Open an Answer File** and click **New Answer File**.

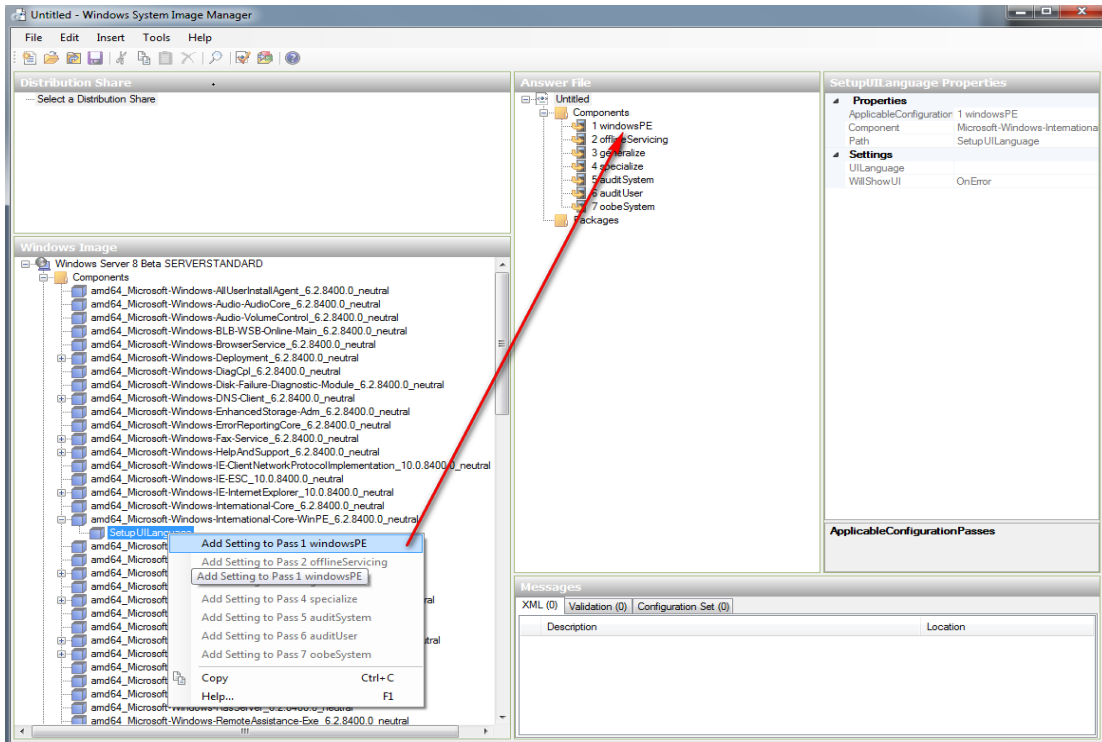


**Step 2:** To configure an .xml answer file, add components or packages from the **Windows Image** section to the .xml answer file.

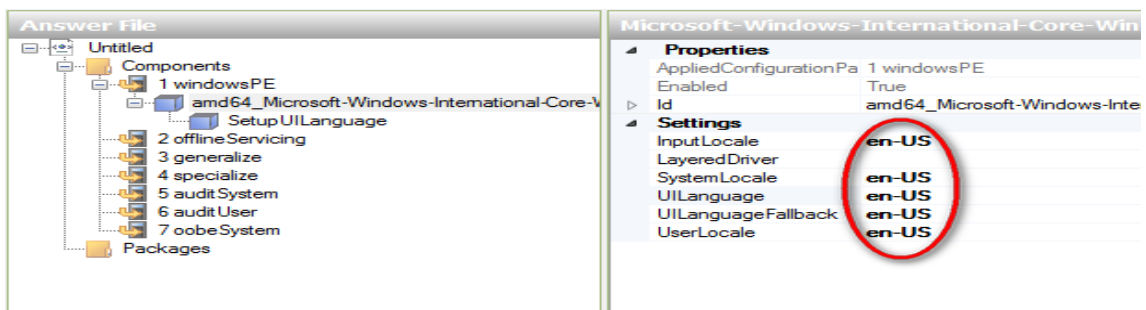


## 4.3 Setting Regional and Language Options

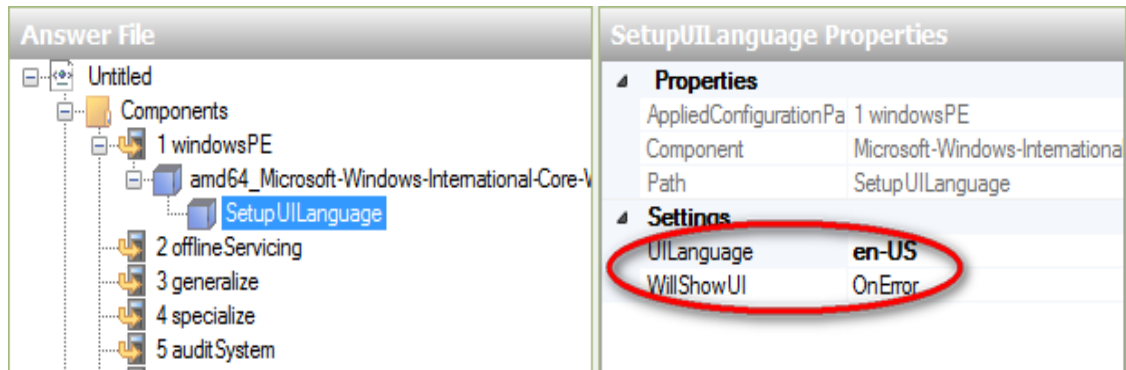
**Step 1:** In the **Windows Image** pane, expand the **Components** node and select **Microsoft-Windows-International-Core-WinPE**. For example, select **amd64\_Microsoft-Windows-International-Core-WinPE**, because a 64-bit image is chosen. If a 32-bit image is chosen, then **X86\_Microsoft-Windows-International-Core-WinPE** can be chosen. Right-click the option, and then click **Add Setting to Pass 1 Windows PE** as shown in the sample screen shot here.



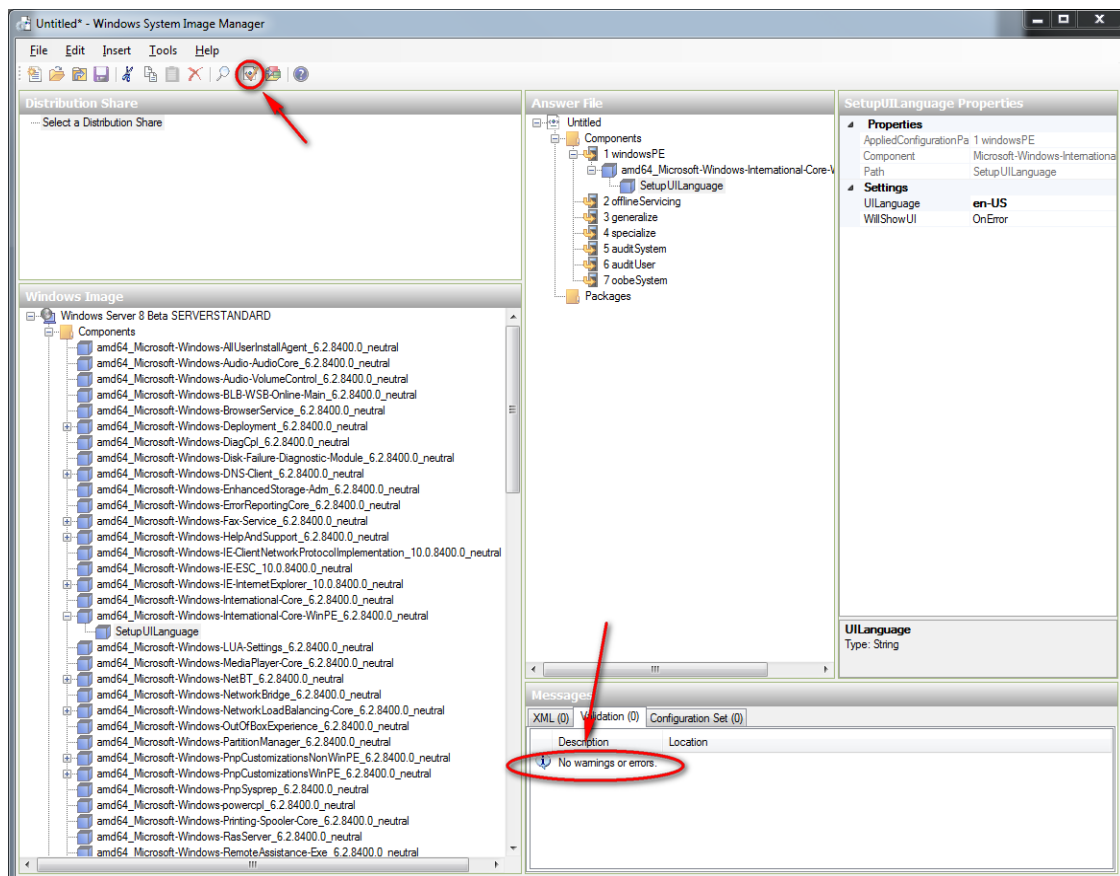
**Step 2:** In the **Answer File** pane, expand the newly added setting and enter **en-US** as the value for **InputLocale**, **SystemLocale**, **UILanguage**, **UILanguageFallback**, and **UserLocale** in the **Properties** pane.



**Step 3:** Expand **SetupUILanguage**; add the **en-US** value to the **UILanguage** option.



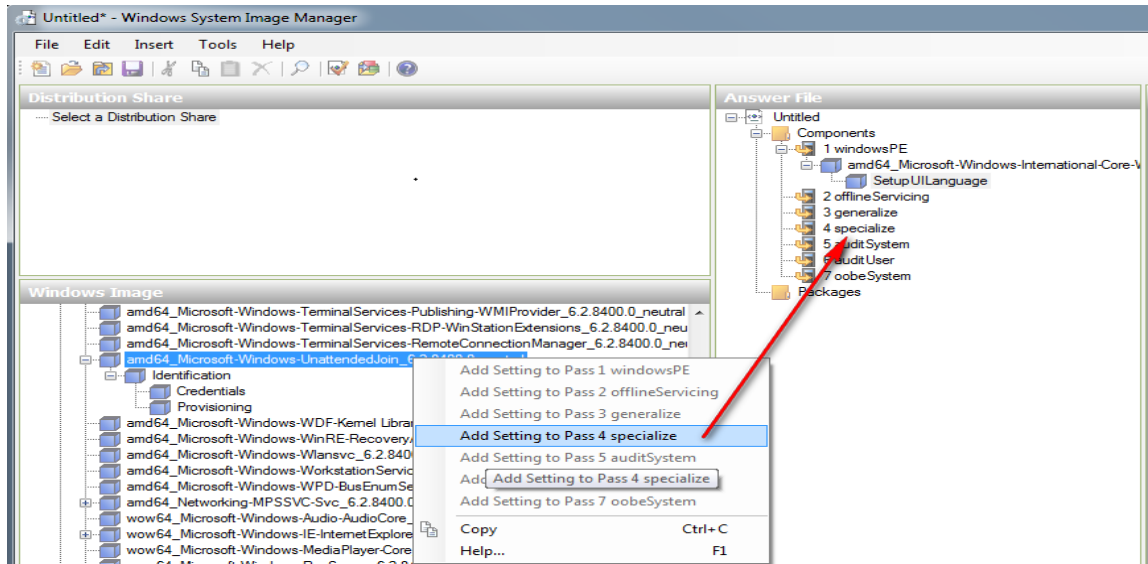
**Step 4:** The .xml answer file is created and configured for language and regional options. The **Validate answer File** feature can be used to validate the changes made and the **Messages** pane can be looked for any messages.



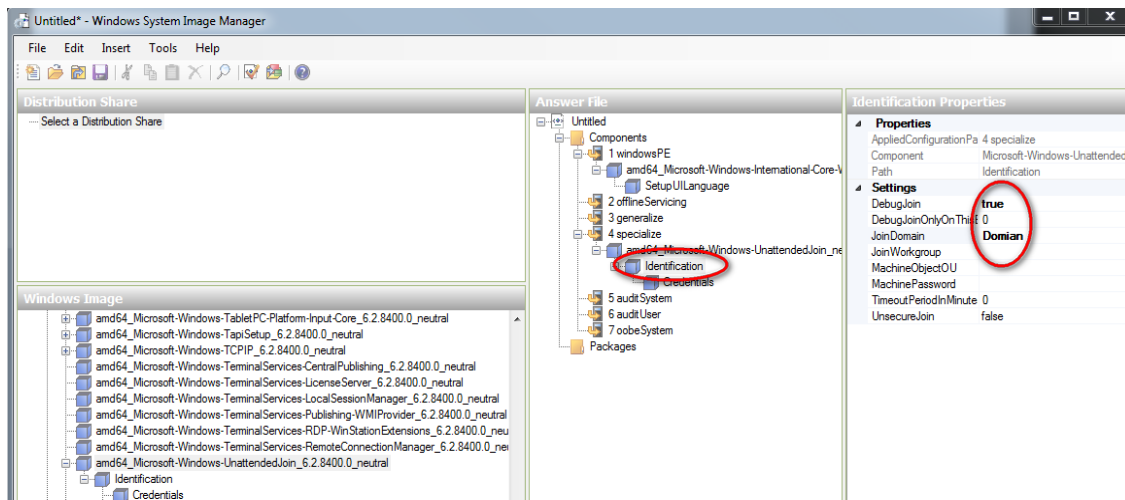


## 4.4 Joining a Domain

**Step 1:** In the **Components** section of **Windows Image** pane, right-click **Microsoft-Windows-UnattendedJoin**, and then select **Add Setting to Pass 4 Specialize**.



**Step 2:** In the **Answer File** pane, expand the newly-added setting. Select **Identification** and enter the domain name in the **JoinDomain** field. In addition, if **log domain join failures** (logs to c:\windows\panther\unattendGC\ ) need to be collected, then reset value of **DebugJoin** from false to **true**.

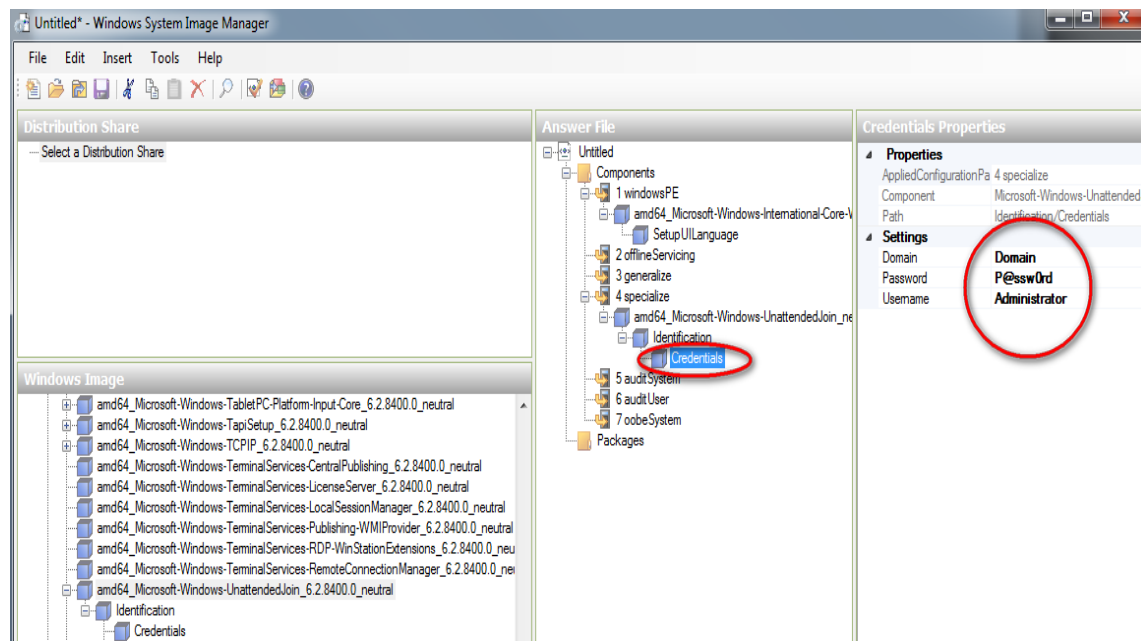


**Note:** If a server is unable to join the required domain, an error message will appear during the OS installation process. For example, **Windows could not parse or process the unattended .xml answer file for pass [specialize]** (See below). The settings specified in the answer file cannot be applied. The

error was detected while processing settings for component [Microsoft-Windows-UnattendedJoin]. The system is unable to join the domain because an incorrect password was entered for the.xml file.



**Step 3:** In the **Answer File** pane, click **Credentials** under **Identification**, and then enter the required domain, username, and password for the account which will join this computer to the domain.

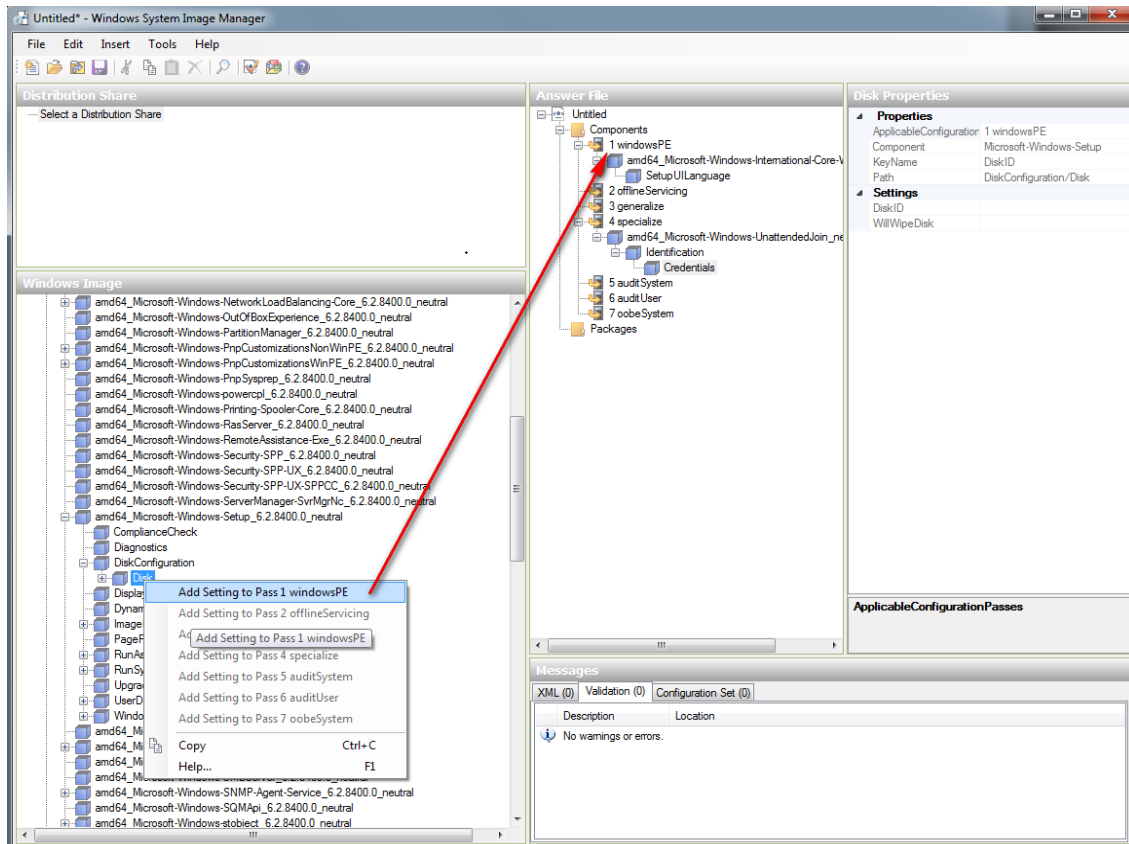


**Step 4:** Validate your .xml answer file by clicking the **Validate** icon. Check the **Messages** pane to make sure there are no warnings or errors.



## 4.5 Configuring Hard Disk Drive (HDD)

**Step 1:** Select **Microsoft-Windows-Setup** from the options in the **Components** section of the **Windows Image** section. Expand **DiskConfiguration**, right-click **Disk**, and then click **Add Setting to Pass 1 windowsPE**.

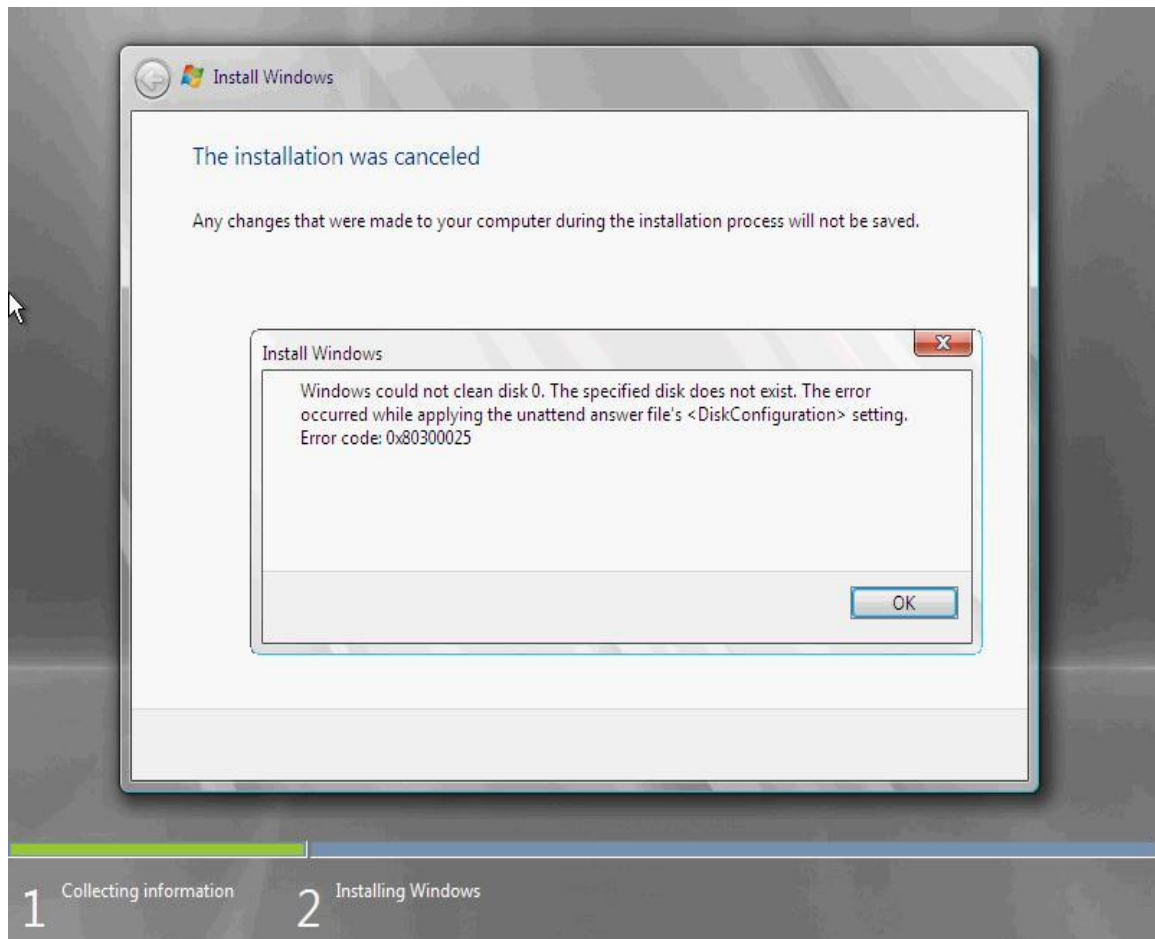


**Step 2:** Under **Settings**, set the **DiskID** value to "0".

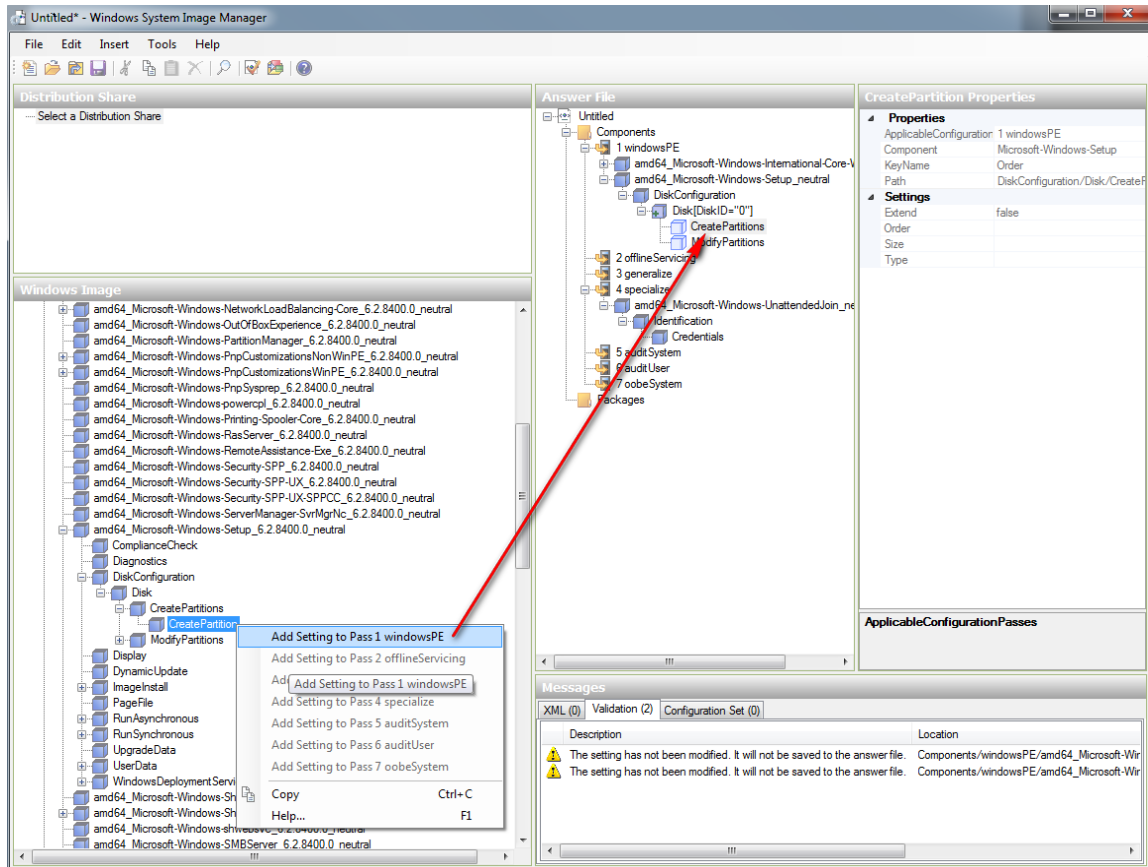


**Note:** While installing an OS, if the following message is displayed, make sure that the hard drive on which you want to install OS is set to '0'. Else, make sure to enter correct disk ID as shown in the screen

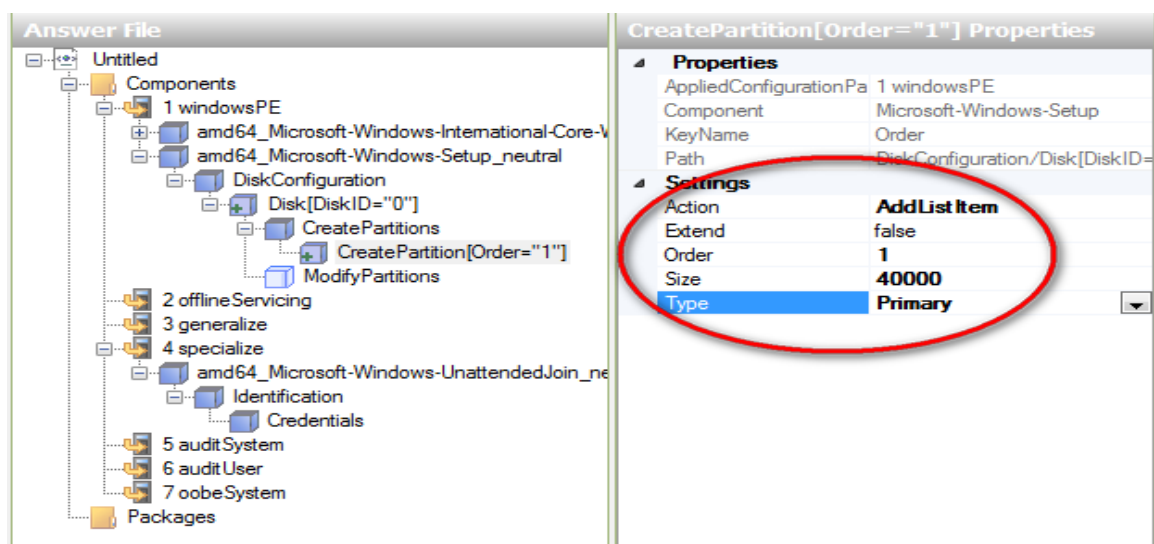
shot here. If an error is displayed even after DiskID is correctly set; reset the **WillWipeDisk** value to **true** in the **Properties** section.



**Step 3:** To part a hard disk drive to be of 40GB in size, add the **Microsoft-Windows-Setup\DiskConfiguration\Disk\CreatePartitions\CreatePartition** component to the **windowsPE** pass.

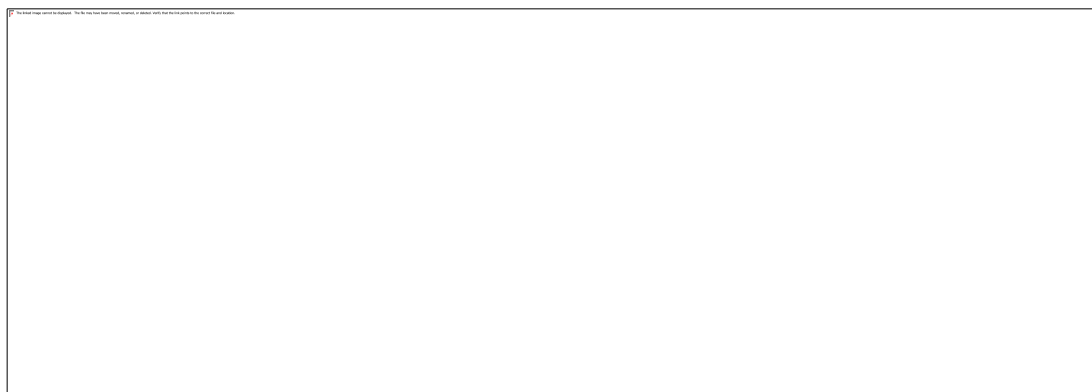


**Step 4:** If the boot mode is BIOS, set the values in **Settings**.



**Step 5:** If the boot mode is UEFI, you must create two types of partitions:

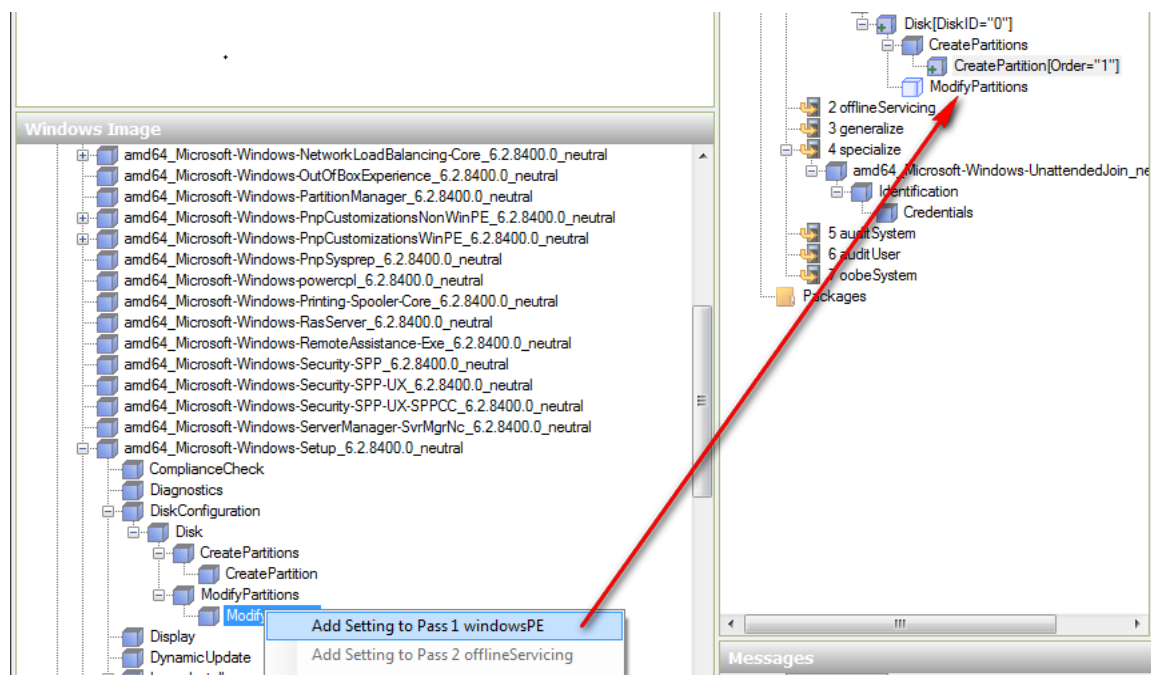
- a. To create the first partition, from the **Type** drop-down menu, select **EFI**, and then in the **Size** box, type an appropriate disk memory capacity (size) on the basis of recommendations by Microsoft at [http://technet.microsoft.com/en-us/library/cc766450\(v=ws.10\).aspx](http://technet.microsoft.com/en-us/library/cc766450(v=ws.10).aspx).



- b. To create the second partition, from the **Type** drop-down menu, select **MSR**, and then in the **Size** box, type an appropriate disk size on the basis of recommendations by Microsoft at [http://technet.microsoft.com/en-us/library/cc766450\(v=ws.10\).aspx](http://technet.microsoft.com/en-us/library/cc766450(v=ws.10).aspx).

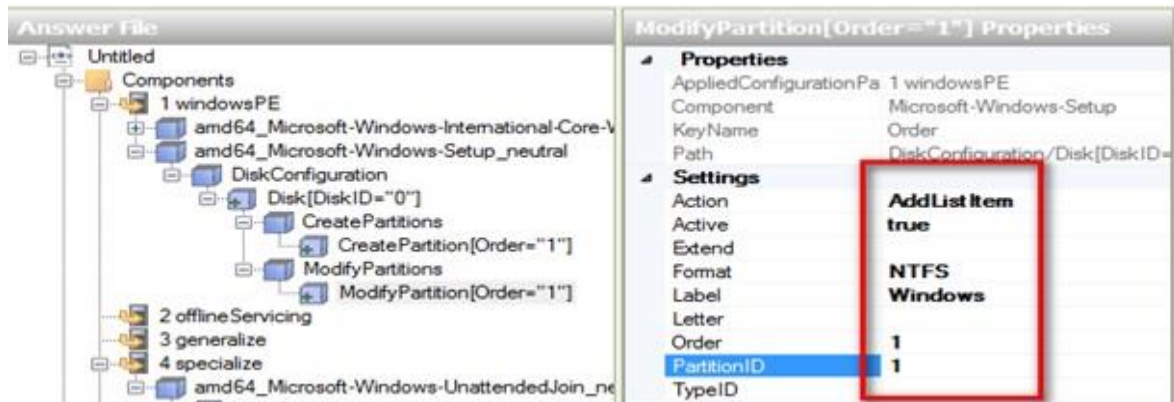


**Step 6:** Add the **Microsoft-Windows-Setup\DiskConfiguration\Disk\ModifyPartitions\ModifyPartition** node to the **windowsPE** pass.

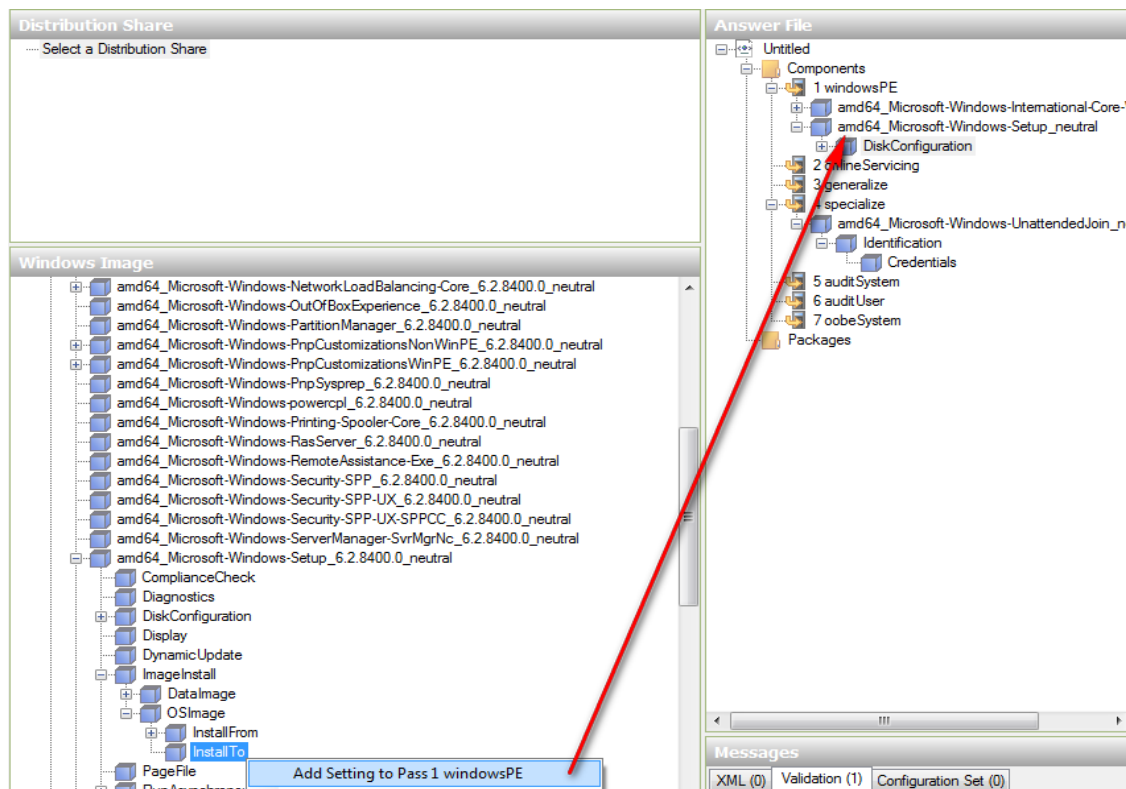




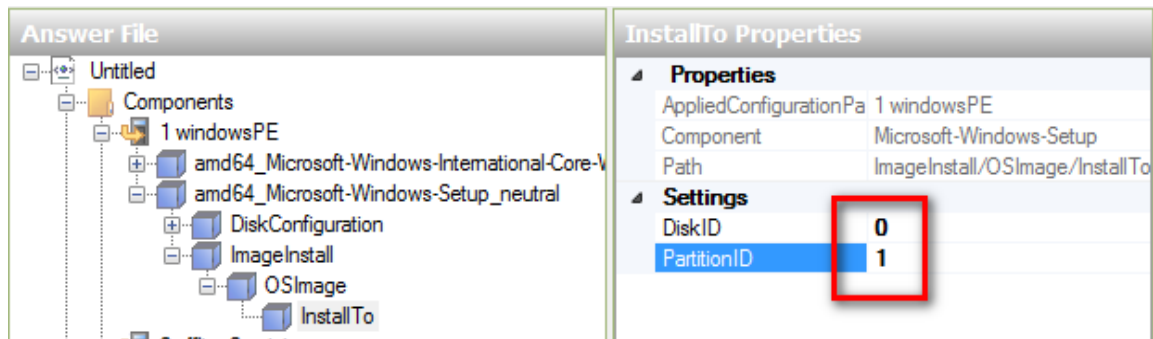
**Note:** While editing your settings, make sure to set order and partition ID. If not set, the operation cannot be successfully completed. Also, set **Active** to **true** and **Format** to **NTFS**.



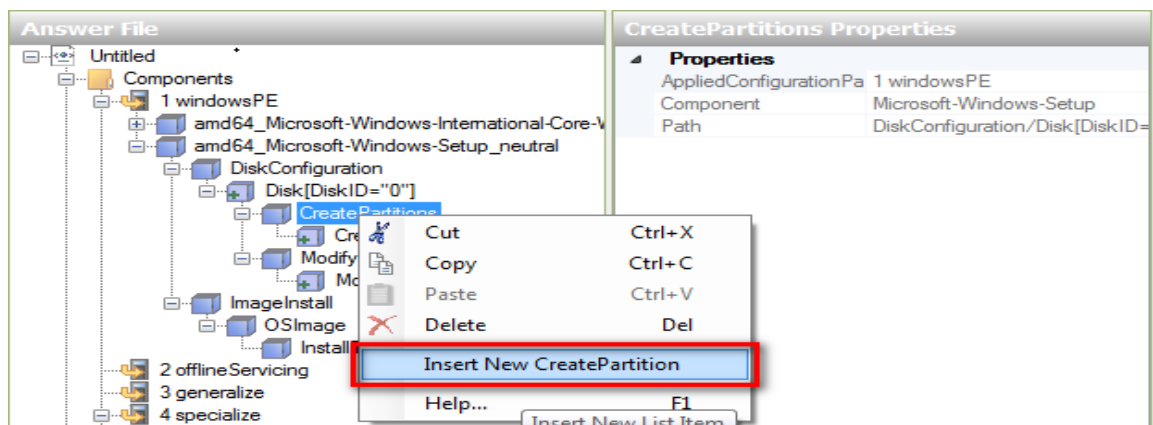
**Step 7:** As hard drives are sorted, indicate Windows about the location where the OS must be installed. Add the **Microsoft-Windows-Setup\ImageInstall\OSImage\InstallTo** node to the **windowsPE** configuration pass.



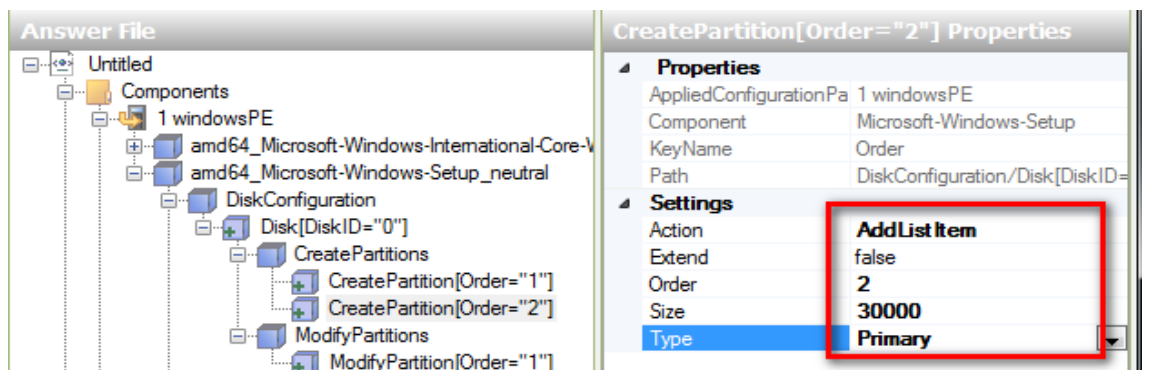
**Step 8:** Set the **DiskID** value to '0' and PartitionID to '1'.



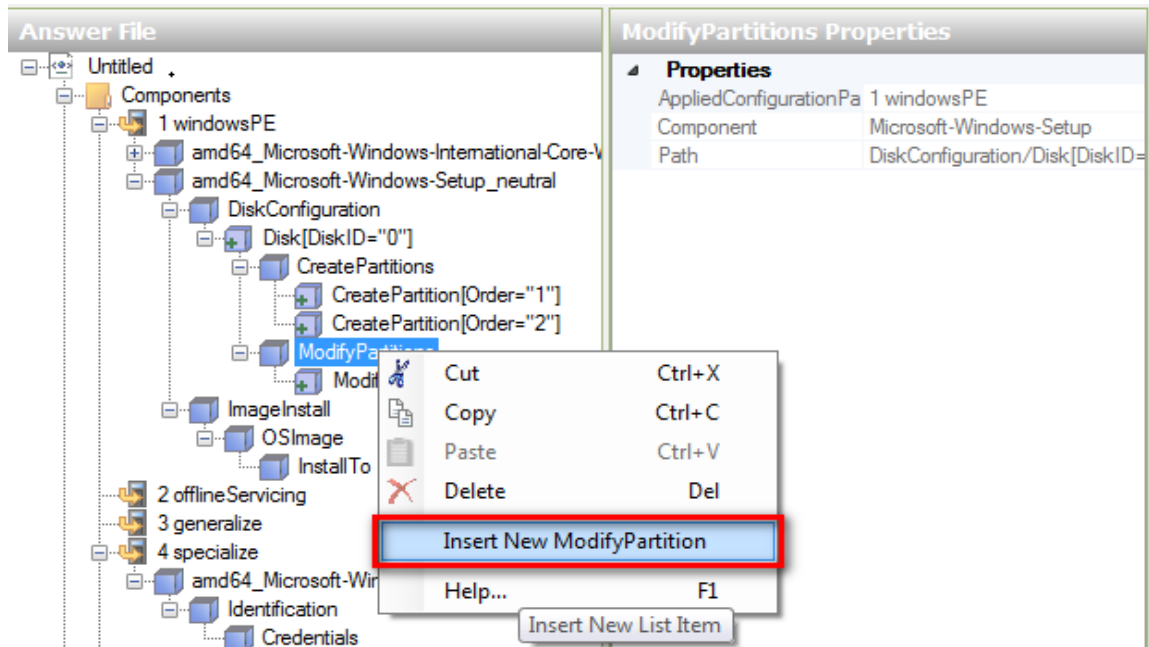
**Step 9:** To add more partitions, right-click **CreatePartitions**, and then select **Insert New CreatePartition**.



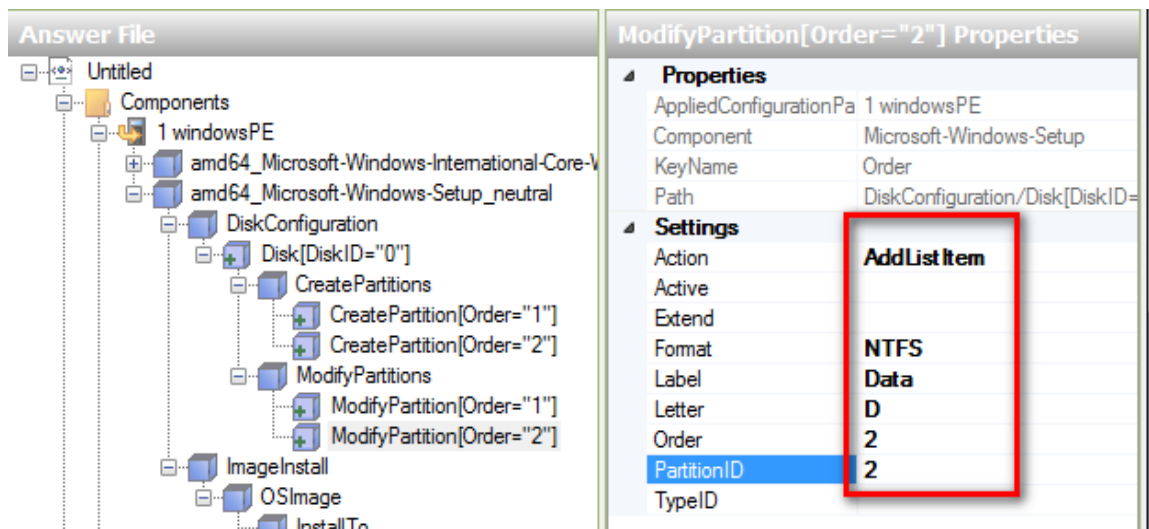
**Step 10:** In the **Settings** section, enter the values for **Order**, **Size**, and **Type** (do not set **Extend** to 'true', if **Size** is set to a value).



**Step 11:** The hard drive partition must be modified after creating a new partition. Right-click **ModifyPartitions** and click **Insert New Modify Partition**.

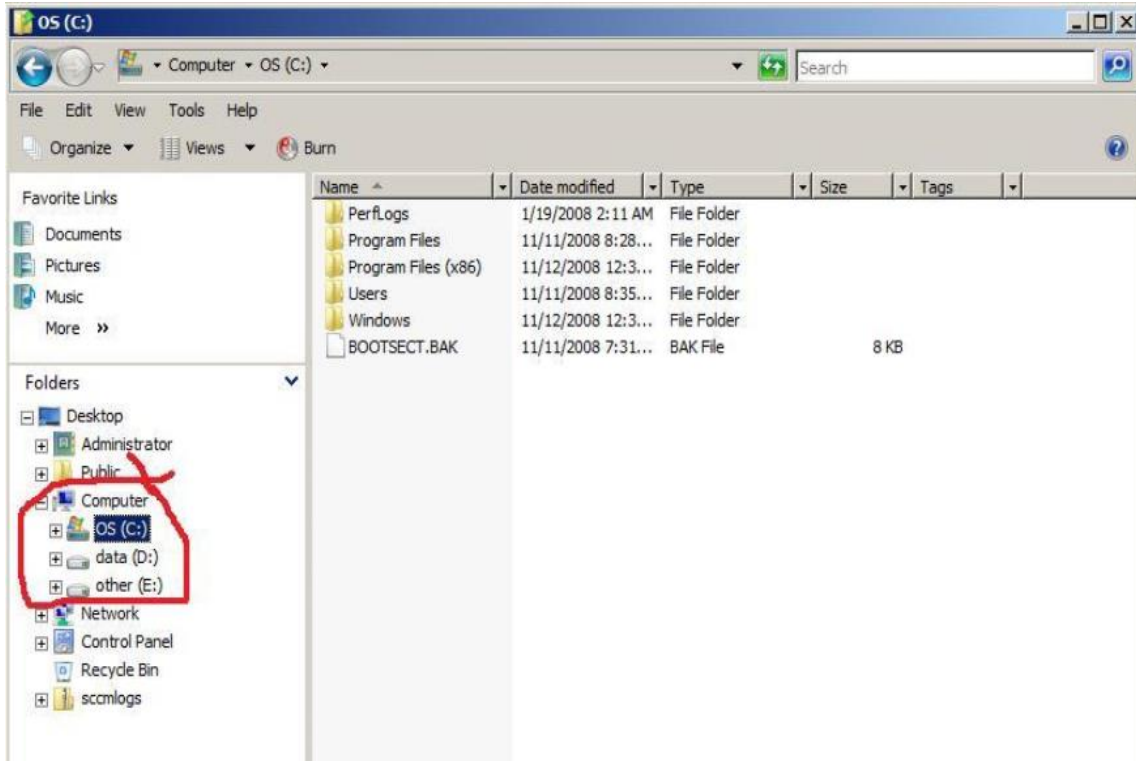


**Step 12:** Change attributes in the **Properties** section. Make sure that you enter correct values **Order** and **PartitionID**.



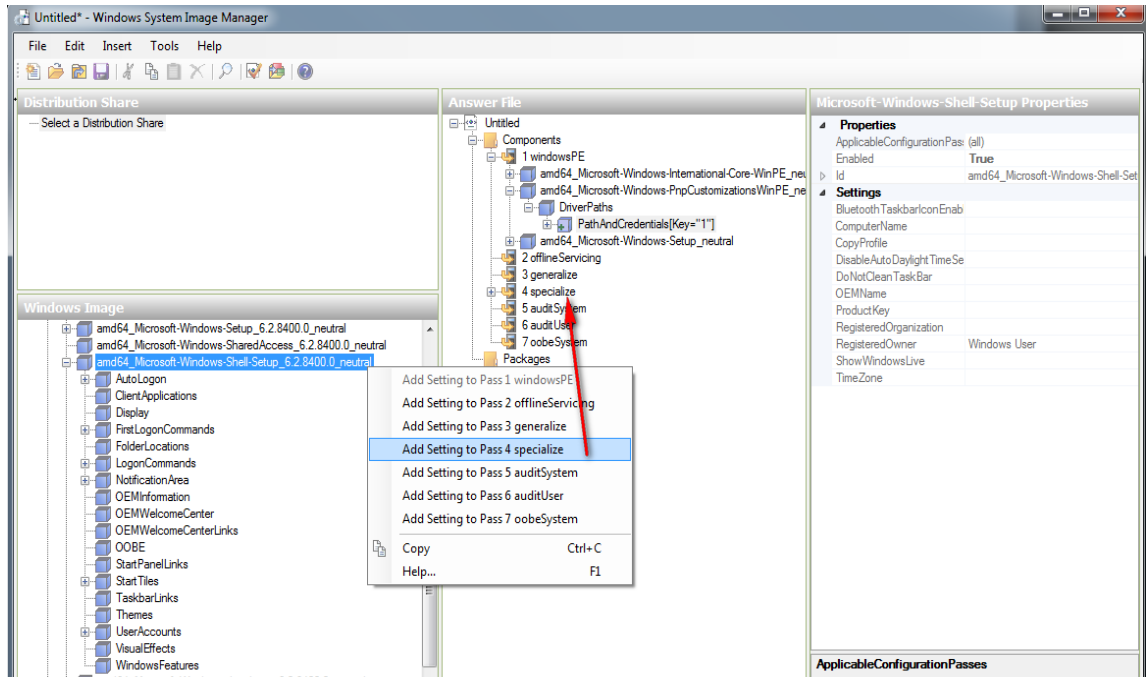
**Step 13:** Validate your answer file by clicking the **Validate** button, and then check the results of validation in the **Messages** section.

**Step 14:** After the deployment is complete, see the partitions listed in Explorer.

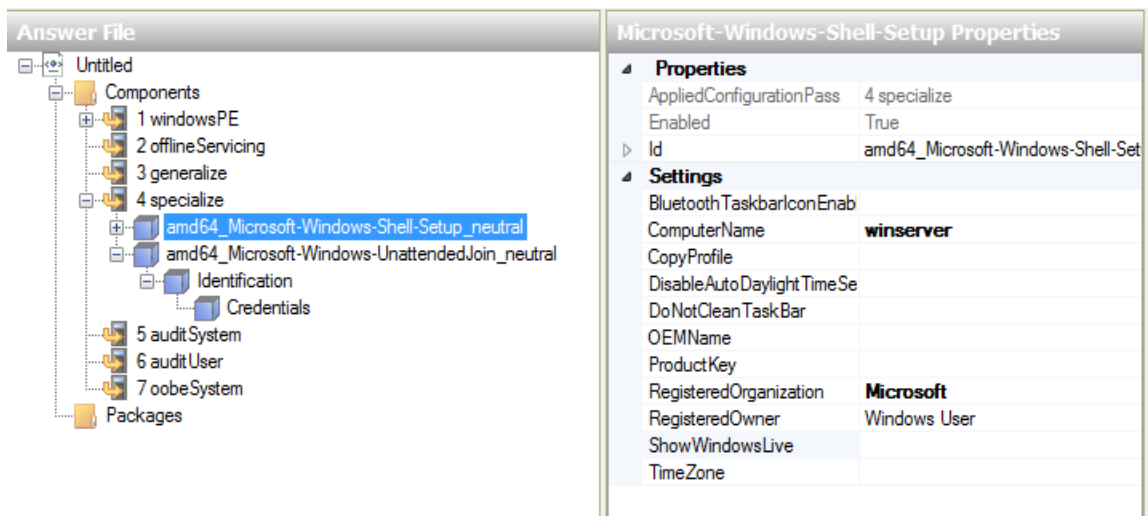


## 4.6 Changing Computer Name

**Step 1:** Add the **Microsoft-Windows-Shell-Setup** component from the **Windows Image** pane to the **Pass 4 Specialize** section of the **Answer file** pane.

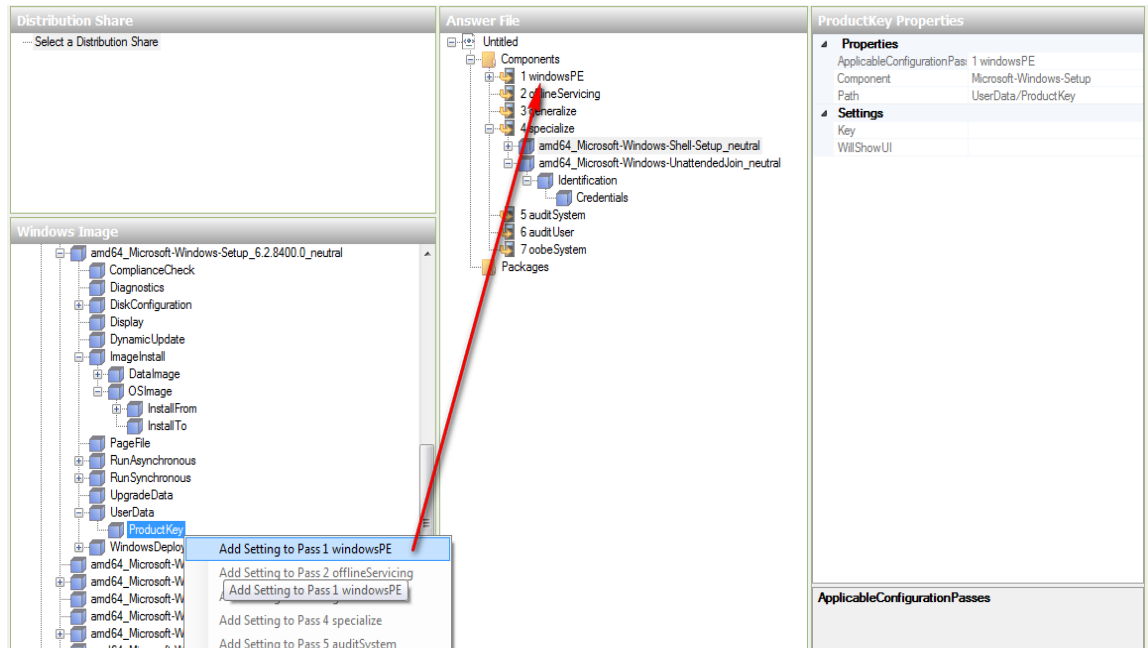


**Step 2:** Add a computer name, and then validate your answer file.

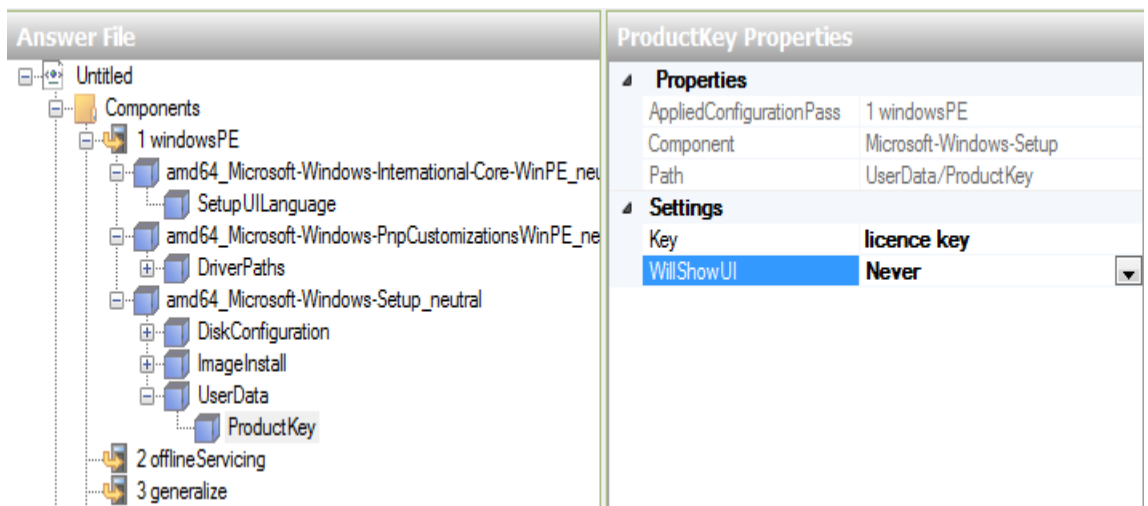


## 4.7 Adding Product Key

**Step 1:** Add the product key **Microsoft-Windows-Setup\UserData\ProductKey** to the **WindowsPE** configuration pass.



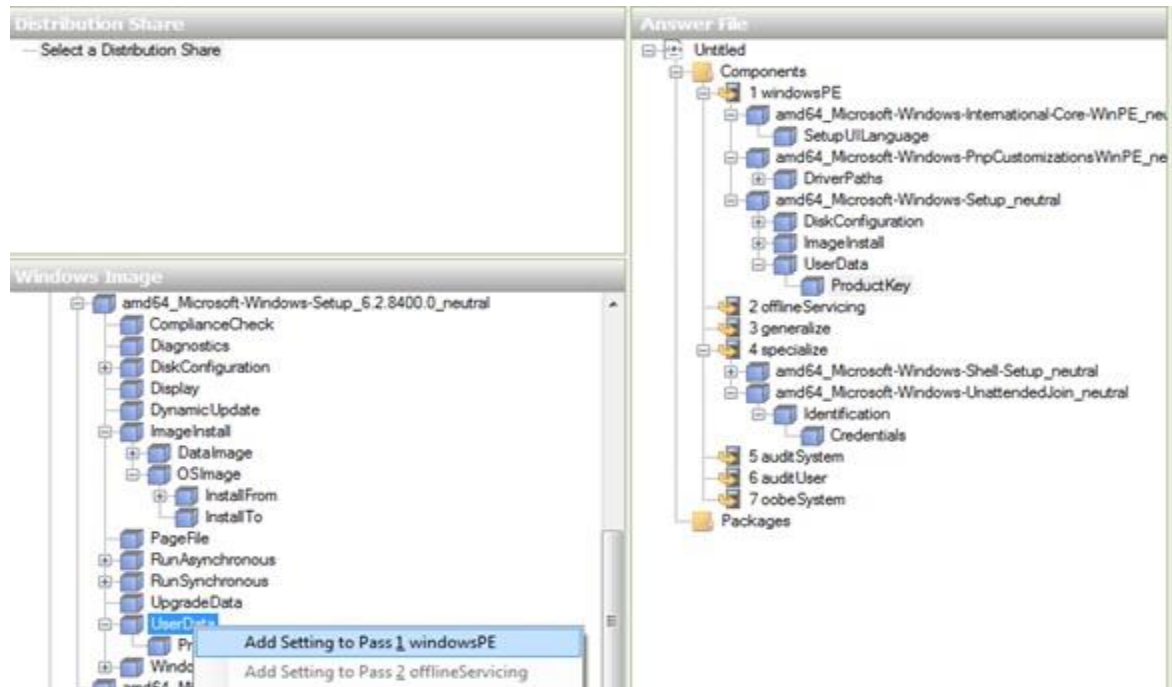
**Step 2:** Enter your key along with all the hyphens (-) symbols and set the **WillShowUI** value to **Never**.



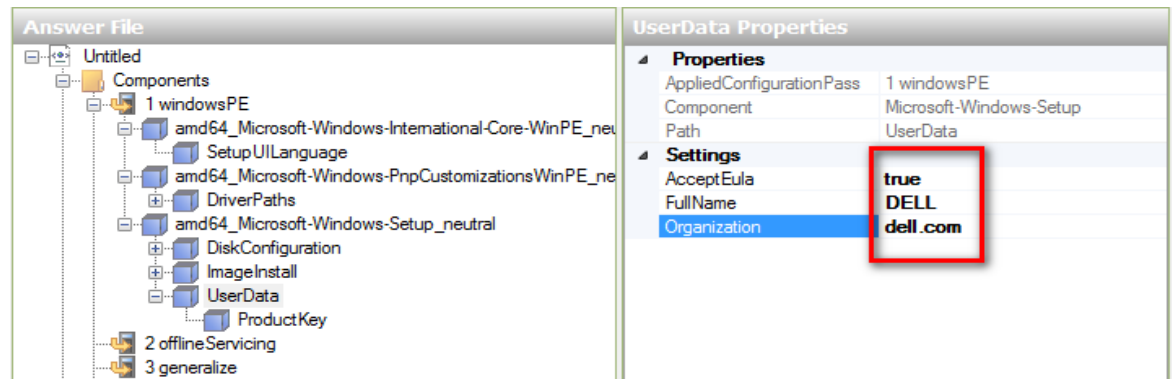
**Step 3:** Click **Validate** to check your answer file.

## 4.8 Editing Full Name and Organization Details

**Step 1:** Add the **Microsoft-Windows-Setup\UserData\** component to the **WindowsPE** configuration pass.



**Step 2:** Set the AcceptEULA, Fullname, and Organization name in **Properties** pane.



**Step 3:** Click the **Validate** icon to check your .xml answer file.



## Further References

1. Unattended Installation Technical Reference: [http://technet.microsoft.com/en-us/library/cc785417\(v=ws.10\).aspx](http://technet.microsoft.com/en-us/library/cc785417(v=ws.10).aspx).
2. Unattended Windows Setup Reference: <http://technet.microsoft.com/en-us/library/ff699026.aspx>.
3. Windows System Image Manager (Windows SIM) Technical Reference: <http://technet.microsoft.com/en-us/library/hh824929.aspx>.
4. Step-by-Step: Basic Windows Deployment for IT Professionals: [http://technet.microsoft.com/en-us/library/dd349348\(WS.10\).aspx](http://technet.microsoft.com/en-us/library/dd349348(WS.10).aspx).
5. What is Windows SIM and how can I use it ? : <http://www.windows-noob.com/forums/index.php?/topic/575-what-is-windows-sim-and-how-can-i-use-it/>.
6. Windows System Image Manager (WSIM): <http://www.windows-noob.com/forums/index.php?/forum/59-windows-system-image-manager-wsim/>

