Creating an Answer File using Windows System Image Manager (Windows SIM) Tool

Windows Server 2008 R2 Answer Files

An answer file allows you to set specific setup options such as how to partition hard disk drives, the location of the Windows Server 2008 R2 image that is to be installed, and the product key. The Windows Server 2008 R2 answer file is usually called Autounattended.xml. This is the file name that the Windows Server 2008 R2 installation process automatically looks for on the local and attached media during setup in an attempt to initiate an unattended installation.

Windows Server 2008 R2 answer file uses XML format. As an administrator, you will almost always create this file using the Windows System Image Manager (Windows SIM) tool. The Windows SIM tool is included with the Windows Automated Installation Kit (Windows AIK or WAIK), which you can obtain from the Microsoft Download Center or download from the Microsoft Deployment Toolkit (MDT) Deployment Workbench. Although you can create an answer file using a text editor, the complex XML syntax of the unattended installation file makes the Windows AIK tools a more efficient use of your time. Another benefit of the Windows SIM tool is that it allows you to verify that an unattended answer file actually produces the desired result.

To create an answer file using the Windows SIM, perform the following steps:

1. Start the Windows SIM. This application can be downloaded as an update to the MDT, which can be downloaded from Microsoft's website (*http://technet.microsoft.com/en-us/solutionaccelerators/dd407791.aspx*).
2. Copy the file \Sources\Install.wim from the Windows Server 2008 R2 installation media to a temporary directory on the computer running Windows Server 2008 R2 on which you have installed the Windows AIK component of MDT 2010.

3. Click the File menu, and then click Select Windows Image. Navigate to the temporary directory where you copied Install.wim and select the file. This file contains all editions and versions of Windows Server 2008 R2 that can be installed from the installation media.
4. You will be prompted to select an image in the Windows Image file. Select Server Enterprise, or the image that you want to create an answer file for, and then click OK.
5. When prompted to create a catalog file, click Yes. When prompted by the User Account Control dialog box, click Continue. The Catalog file will be created.
6. From the File menu, select New Answer File.
7. By selecting the appropriate component in the Windows Image, you can configure the properties for that component. Figure 1-5 shows the configuration settings that allow the computer being installed to join the domain contoso.internal automatically with the specified set of credentials.

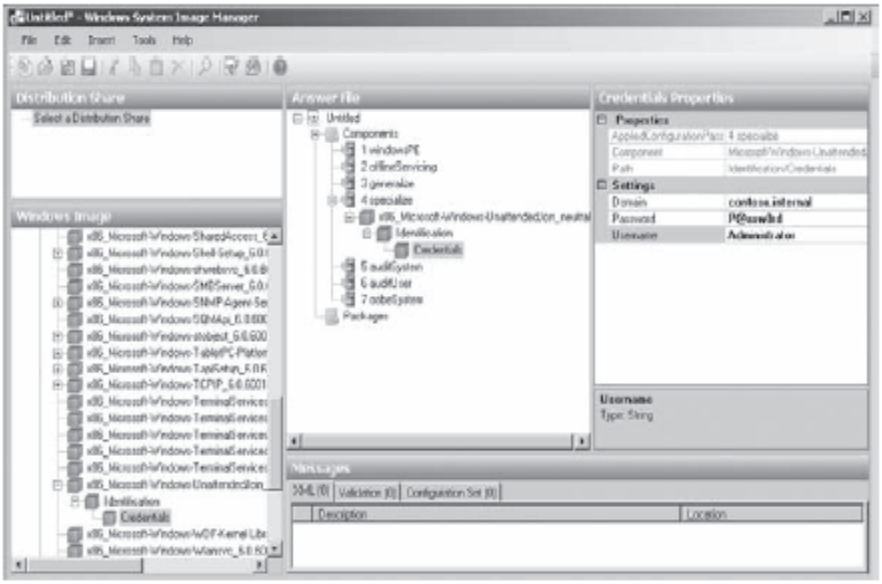

FIGURE 1-5 Creating the Autounattended.xml file in Windows SIM

8. When the answer file is saved, it is validated automatically against the operating system image that has been loaded.

EXAMPLE OF POPULATING THE ANSWER FILE

- In the Windows SIM **Windows Image** pane, expand the **Components** node to display available settings.

- On the expanded list of components, add the components in the table below to your answer file by right-clicking the component, and then selecting the appropriate configuration pass. This

action adds the component to your answer file in the specified configuration pass, or phase, of Windows installation. Adding the optional components allows you to more easily test your installation in Step 2, Building a Reference Installation.

Note

Expand the component list in the Windows Image pane until you see the lowest child node from the table below. For example, expand Microsoft-Windows-Setup to see the DiskConfiguration node. Expand the DiskConfiguration node until you see the Disk node. Continue expanding the tree under Microsoft-Windows-Setup until you see the CreatePartition node listed in the table below. Add this CreatePartition node to your answer file. This shortcut adds the setting and all parent settings to your answer file in one step.

Component	Configuration pass
Microsoft-Windows-Deployment\Reseal	**oobeSystem**
Microsoft-Windows-International-Core-WinPE\SetupUILanguage	**windowsPE**
Microsoft-Windows-Setup\DiskConfiguration\Disk\CreatePartitions\CreatePartition	**windowsPE**
Microsoft-Windows-Setup\DiskConfiguration\Disk\ModifyPartitions\ModifyPartition	**windowsPE**
Microsoft-Windows-Setup\DiskConfiguration\Disk\CreatePartitions\CreatePartition *	**windowsPE**
Microsoft-Windows-Setup\DiskConfiguration\Disk\ModifyPartitions\ModifyPartition *	**windowsPE**
Microsoft-Windows-Setup\ImageInstall\OSImage\InstallTo	**windowsPE**
Microsoft-Windows-Setup\UserData	**windowsPE**
Microsoft-Windows-Shell-Setup\OOBE	**oobeSystem**
Optional: Microsoft-Windows-IE-InternetExplorer	**specialize**

* This example uses a two-partition configuration. Add a second CreatePartition and a second ModifyPartition component to your answer file by right-clicking the component in the Windows SIM **Windows Image** pane, and then by selecting the appropriate configuration pass. This action adds a second instance of the CreatePartition and ModifyPartition components to your answer file.

3. All of the settings you added must appear in the Windows SIM **Answer File** pane. Under **Settings**, select the appropriate setting and, in the right-hand column, enter the appropriate value as specified in the following table.

Configuration pass	Component	Value
1 **WindowsPE**	Microsoft-Windows-International-Core-WinPE	`InputLocale` = <*Input Locale*> For example, en-US `SystemLocale` = <*System Locale*> For example, en-US `UILanguage` = <*UI Language*> For example, en-US `UserLocale` = <*User Locale*> For example, en-US
1 **WindowsPE**	Microsoft-Windows-International-Core-WinPE\SetupUILanguage	`UILanguage` = <*UI Language*> For example, en-US
1 **WindowsPE**	Microsoft-Windows-Setup\DiskConfiguration	`WillShowUI` = **OnError**
1 **WindowsPE**	Microsoft-Windows-Setup\DiskConfiguration\Disk	`DiskID` = **0** `WillWipeDisk` = **true**
1 **WindowsPE**	Microsoft-Windows-Setup\DiskConfiguration \Disk\CreatePartitions\CreatePartition	`Order` = **1** `Size` = **300** `Type` = **Primary**
1 **WindowsPE**	Microsoft-Windows-Setup\DiskConfiguration \Disk\CreatePartitions\CreatePartition	`Extend` = **true** `Order` = **2** `Type` = **Primary**
1 **WindowsPE**	Microsoft-Windows-Setup\DiskConfiguration \Disk\ModifyPartitions\ModifyPartition	`Active` = **true** `Format` = **NTFS** `Label` = **System**

		Order = **1** PartitionID = **1**
1 **WindowsPE**	Microsoft-Windows-Setup\DiskConfiguration\Disk\ModifyPartitions\ModifyPartition	Format = **NTFS** Label = **Windows** Order = **2** PartitionID = **2**
1 **WindowsPE**	Microsoft-Windows-Setup\ImageInstall\OSImage	InstallToAvailablePartition = **false** WillShowUI = **OnError**
1 **WindowsPE**	Microsoft-Windows-Setup\ImageInstall\OSImage\InstallTo	DiskID = **0** PartitionID = **2**
1 **WindowsPE**	Microsoft-Windows-Setup\UserData	AcceptEula = **true**
1 **WindowsPE**	Microsoft-Windows-Setup\UserData\ProductKey	Key = <*product key*> WillShowUI = **OnError**
4 **Specialize**	*Optional:* Microsoft-Windows-IE-InternetExplorer	Home_Page = <*Company Home Page*>
7 **oobeSystem**	Microsoft-Windows-Deployment\Reseal	ForceShutdownNow = **false** Mode = **Audit**
7 **oobeSystem**	Microsoft-Windows-Shell-Setup\OOBE	HideEULAPage = **true** ProtectYourPC = **3**

Important

These settings outline a basic unattended installation in which no user input is required during Windows Setup. When the installation is complete, the computer will reboot to audit mode. Audit mode is a stage of Windows Setup that enables you to quickly boot to the desktop, install additional applications and device drivers, and test the installation. Windows Welcome does not run in audit mode, but it will run the next time the computer restarts, once you have run the **sysprep** command with the **/oobe** option. Windows Welcome, also called Machine OOBE (out-of-box experience), prompts the end user to read the Microsoft Software License Terms and to configure the computer.

For more information about audit mode, see the Customize Windows in Audit Mode topic in the Windows® Automated Installation Kit (Windows AIK) User's Guide or http://go.microsoft.com/fwlink/?LinkId=121506.

For more information about Sysprep.exe, see the Sysprep Technical Reference topic in the Waik.chm or http://go.microsoft.com/fwlink/?LinkId=121713.

Validate and Save Settings

In this step, you validate the settings in your answer file, and then save them to a file.

1. In Windows SIM, click **Tools**, and then click **Validate Answer File**.

   The setting values in the answer file are compared with the available settings in the Windows image.

2. If the answer file validates successfully, a "No warnings or errors" message appears in the **Messages** pane at the bottom of the **Windows SIM** window. Otherwise, error messages appear in the **Messages** pane.

3. If an error occurs, double-click the error message in the **Messages** pane to navigate to the incorrect setting. Change the setting to fix the error, and then validate again by clicking **Validate Answer File**. Repeat this step until the answer file validates.

4. On the **File** menu, click **Save Answer File**. Save the answer file as **Autounattend.xml**.

5. Copy the Autounattend.xml file to the root directory of a USB flash drive (UFD).

You now have a basic answer file that automates Windows Setup.

Step 2: Building a Reference Installation

A reference computer has a customized installation of Windows that you plan to duplicate onto one or more destination computers. You can create a reference installation by using the Windows product DVD and an answer file.

For a related video demonstration, see Step 2: Build a Reference Installation.

To install Windows from the product DVD

1. Turn on the reference computer and insert the Windows 7 product DVD and the UFD containing the answer file you created in the previous step (Autounattend.xml).

   Important

   When using a UFD, insert the drive into the primary set of USB ports for the computer. For a desktop computer, this is typically in the back of the computer.

2. Restart the computer by pressing the CTRL+ALT+DEL keys. To boot from the CD/DVD-ROM disc, you may have to override the boot order. During initial boot, select the appropriate function key to override the boot order.

   Windows 7 Setup (Setup.exe) will begin automatically. By default, Windows Setup will search the root directory of all removable media for an answer file called Autounattend.xml.

3. After Setup finishes, you can validate that all customizations were applied. For example, if you included the optional Microsoft-Windows-IE-InternetExplorer component and set the `Home_Page` setting in your answer file, you can verify it now by opening Internet Explorer.

4. Prepare the computer for the end user. Use the **sysprep** command with the **/generalize** option to remove hardware-specific information from the Windows installation, and the **/oobe** option to configure the computer to boot to Windows Welcome upon the next restart. In the **System Preparation Tool (Sysprep)** window that is displayed on the desktop in audit mode:

    1. Select **Enter System Out Of Box Experience (OOBE)** from the System Cleanup Action list
    2. Select **Generalize**
    3. Select **Shutdown** from the **Shutdown Options** list
    4. Click **OK**

    Note

    You can also run the Sysprep tool from a command prompt by typing:
    `c:\windows\system32\sysprep\sysprep.exe /oobe /generalize /shutdown`

Sysprep.exe prepares the image for capture by cleaning up various user- and computer-specific settings, as well as log files. The reference installation now is complete and ready to be imaged.

Caution

When you run the **sysprep /generalize** command, out-of-box device drivers are removed from the Windows image. If you add out-of-box device drivers during installation and you intend to capture the Windows image, set the `PersistAllDeviceInstalls` setting of the Microsoft-Windows-PnpSysprep component to **True** in the answer file. When you do this, Sysprep does not remove the detected device drivers.

You now have a computer that you can use as your reference computer. When deploying a large number of computers, it may be more efficient to capture an image of the reference installation, and then deploy that image onto other new computers. Alternatively, you can repeat Step 2 for each new computer.

To continue with this installation as a reference for image-based deployment, follow steps 3-5.

Step 3: Creating Bootable Windows PE Media

In this step, you create a bootable Windows PE RAM disk on a CD-ROM disc by using the Copype.cmd script. Windows PE RAM enables you to start a computer for the purposes of

deployment and recovery. Windows PE RAM boots directly into memory, enabling you to remove the Windows PE media after the computer boots. Once you have booted into Windows PE, you can use the ImageX tool to capture, modify, and apply file-based disk images.

create a Windows PE CD that can be used to boot a computer to the Windows Preinstallation Environment

Designed to prepare a computer for a windows installation

1. Expand Windows AIK from the Program menu
2. Open Deployment tools command promt as an administrator
3. From the command prompt run the copype script to copy the files from my preinstallation environment both 32 and 64 bit are supported

   D:\Program Files\Windows AIK\Tools\PETools>copype X86 d:\winpex86

   Files copied
   Updating pathe to include peimg, cdimage, imagex

   D:\winpex86

   The copype script creates a working directory that include a base windows pe image file (winpe.wim)
   This directory also contains a mount directory which I will need to capture and deploy windows images
   It also creates a ISO directory for the ISO file that is used to burn the bootable windows pe image to CD

   I need to copy my windows pe file winpe.wim into the IS0\folder and rename it boot.wim
   (I can now modify this copy of the file.
   D:\winpex86>copy winpex86\wimpe.wim d:\winpex86\ISO\sources\boot.wim

   I use the imagex tool to mount the file before I use it

   D:\winpex86>imagex /mountrw d:\winpex86\ISO\sources

   Next I copy an image of the imagex tool to the mount directory so that I could use it when I boot a computer to windows pe

   D:\winpex86>copy "d:\program Files\Windows AIK\Tools\X86\imagex.exe"
   D:\winpex86>\mount\windows

Next I have to unmount the boot file and make my changes.
D:\winpex86>imagex/unmount D:\winpex86>\mount /commit

I use the Osdimg to image the files in the ISO folder
D:\winpex86>oscdimg -m –bc:\ winpex86\etfsboot.com D:\winpex86\ISO D:\winpex86\winpx86.ISO