## Lesson 1: Deploying and Managing Server Images

MOAC 70-411: Administering Windows Server 2012



WILEY

## Overview

- Exam Objective 1.1: Deploy and Manage Server Images
- Using Windows Deployment Services

## Using Windows Deployment Services

Lesson 1: Deploying and Managing Server Images

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## Windows Deployment Services (WDS)

- WDS is a software platform and technology that allows you to perform automated network-based installations based on network-based boot and installation media.
- The WDS server stores the installation files and helps you manage the boot and operating system image files used in network installations.

## Preboot Execution Environment (PXE)

- For client computers to communicate with a WDS server without an operating system, the client computer must support preboot execution environment (PXE).
- When PXE is used with WDS, the client computer downloads a boot image that loads Windows Preinstallation Environment (Windows PE).
- Windows PE is a minimal Windows operating system with limited services. Windows PE is then used to install the operating system using an operating system image file.

## Installing the WDS Role

WDS is a server role included with Windows Server 2012. The WDS role includes the following two role services:

- Deployment Server
- Transport Server

## Deploy WDS

elect server ro	bles	DESTINATION SERVER WIN2012SRV.contoso.com
Before You Begin Installation Type	Select one or more roles to install on the selected server.	Description
Server Selection Server Roles Features Confirmation Results	<ul> <li>Active Directory Rights Management Services</li> <li>Application Server</li> <li>DHCP Server</li> <li>DNS Server (Installed)</li> <li>Fax Server</li> <li>✓ File And Storage Services (Installed)</li> <li>Hyper-V</li> <li>Network Policy and Access Services</li> <li>Print and Document Services</li> <li>Remote Access</li> <li>Remote Desktop Services</li> <li>Volume Activation Services</li> <li>Web Server (IIS)</li> <li>Windows Deployment Services</li> <li>Windows Server Update Services</li> </ul>	<ul> <li>Windows Deployment Services provides a simplified, secure means of rapidly and remotely deploying Windows operating systems to computers over the network.</li> </ul>

#### Selecting Windows Deployment Services

## Deploy WDS

Add Roles and Features Wizard
Add features that are required for Windows Deployment Services?
The following tools are required to manage this feature, but do not have to be installed on the same server.
▲ Remote Server Administration Tools
<ul> <li>Role Administration Tools</li> </ul>
[Tools] Windows Deployment Services Tools
✓ Include management tools (if applicable)
Add reatures Cancel

Adding required features for WDS

## Deploy WDS

A	Add Roles and Features Wizard	_ <b>D</b> X		
Before You Begin Installation Type Server Selection Server Roles Features WDS Role Services Confirmation Results	Add Roles and Features Wizard  S Select the role services to install for Windows Deployment Ser Role services  Deployment Server  Transport Server	DESTINATION SERVER WIN2012SRV.contoso.com vices Description Deployment Server provides the full functionality of Windows Deployment Services, which you can use to configure and remotely install Windows operating systems. With Windows Opeployment Services, you can create and customize images and then use them to reimage computers. Deployment Server is dependent on the core parts of Transport Server.		
	< Previous Ne	xt > Install Cancel		

Selecting the WDS role services

# Configuring the WDS Server

- To use WDS, your system must meet the following requirements:
- The server is a member of an Active Directory Domain Services (AD DS) domain, or a domain controller for an AD DS domain.
- There is an active DHCP server on the network.
- There is an active DNS server on your network.
- The WDS server has an NTFS file system partition to store images.

<u>\$</u>	<b>a</b>	Server Manager	
File Action View Help	🗲 🗸 - Server N	lanager • WDS 🛛 🗸 🕝	Manage Tools View Help
<ul> <li>Windows Deployment Servers</li> <li>Servers</li> <li>Active Directory Presta</li> </ul>	<ul> <li>Dashboard</li> <li>Local Server</li> <li>All Servers</li> <li>AD DS</li> <li>DNS</li> <li>File and Storage Services</li> <li>NDS</li> <li>WDS</li> </ul>	SERVERS All servers   1 total Filter Server Name IPv4 Address Manageability WIN2012SRV 192.168.3.120 Online - Cannot get BPA results VIN2012SRV 192.168.3.120 Online - Cannot get BPA results T EVENTS All events   0 total Filter Filter Server Name ID Severity Source Log Date and Time	Active Directory Administrative Center         Active Directory Domains and Trusts         Active Directory Module for Windows PowerShell         Active Directory Sites and Services         Active Directory Users and Computers         ADSI Edit         Component Services         Computer Management         Defragment and Optimize Drives         DNS         Event Viewer         Group Policy Management         iSCSI Initiator         Local Security Policy         ODBC Data Sources (32-bit)         ODBC Data Sources (64-bit)         Performance Monitor         Resource Monitor         Security Configuration Wizard         Services         System Configuration         System Information         Task Scheduler
			Windows Deployment Services           Windows Firewall with Advanced Security           Windows Memory Diagnostic           Windows PowerShell           Windows PowerShell (x86)           Windows PowerShell ISE
			Windows PowerShell ISE (x86) Windows Server Backup

Opening the Windows Deployment Services console

쏖	Windows Dep	loyment Services	
File Action View Help			
🗢 🄿 🙍 🗊 🙆 📓 🖬			
🝨 Windows Deployment Services	Servers 1 Server(s)		
Active Directory Prestaged Devices	Server Name	Status	Server Mode
, <b></b>	WIN2012SRV.contoso.com	Not Configured Configure Server	Native (Windows Deployment Services)
		Remove Server	
		Refresh	
		Help	
Configures this server for the first use.			

#### Starting the Initial Configuration Wizard for WDS

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Specifying the location of the remote installation folder

😤 Windows Deployment Services Configuration Wizard
Proxy DHCP Server
If Dynamic Host Configuration Protocol (DHCP) is running on this server, check both of the following check boxes and use DHCP tools to add appropriate PXE options to all DHCP and DHCPv6 scopes.
If a non-Microsoft DHCP server is running on this server, then check the first box and manually configure DHCP option 60 and DHCPv6 Vendor Class for Proxy DHCP.
The Windows Deployment Services Configuration Wizard detected Microsoft DHCP service running on the server. Please select from the following options:
☑ Do not listen on DHCP and DHCPv6 ports
✓ Configure DHCP options for Proxy DHCP
< Back Next > Cancel

#### Specifying the DHCP Server options to work with WDS

😤 Windows Deployment Services Configuration Wizard					
PXE Server Initial Settings					
You can use these settings to define which client computers this server will respond to. Known clients are the clients that have been prestaged. When the physical computer performs a PXE boot, the operating system will be installed based on the settings that you have defined.					
Select one of the following options:					
O Do not respond to any client computers					
Respond only to known client computers					
<ul> <li>Respond to all client computers (known and unknown)</li> </ul>					
Require administrator approval for unknown computers. When you select this option, you must approve the computers using the Pending Devices node in the snap-in. Approved computers will be added to the list of prestaged clients.					
To configure this server, click Next.					
< Back Next > Cancel					

#### Specifying how WDS/PXE server responds to clients

## Configuring the WDS Properties

After the initial configuration, you must reconfigure the WDS server by accessing the WDS Properties.

 Right-click the server in the Windows Deployment Services console and then select Properties.

WIN2012SRV Properties
Multicast Advanced Network TFTP
General PAC Response AD DS Boot Client DHCP
PXE Response Policy
Define which client computers this server will respond to. Known clients are clients that appear in the list of prestaged devices.
O Do not respond to any client computers
Respond only to known client computers
Respond to all client computers (known and unknown)
Require administrator approval for unknown computers. When you select this option, you must approve the computers using the Pending Devices node in the snap-in. Approved computers will be added to the list of prestaged clients.
PXE Response Delay
Adjust how quickly this server responds to clients.
Delay in seconds: 0
OK Cancel Apply

The PXE Response tab

		WIN20	12SRV Pro	operties	S		x
Multicast		Advang	ed	Netwo	rk	•	TFTP
General	PXE Re	sponse	AD DS	Boot	Cli	ent	DHCP
General Client Nami Define how are clients Services (A Format:	PXE Re ng Policy v unknow that you h AD DS). %61Usern ccount Lo nputer acc lomain as lomain as organizatic lowing loc	sponse n client com have not pro ame%# ocation counts in th the Window the user pe mal unit as ation:	AD DS nputers will be estaged in Ac e following loo ws Deploymer erforming the in the user perfo	Boot named. L ive Direct ation: at Service: nstallation. rming the	S server.	n.	DHCP
			OK		Cancel		Apply

The AD DS tab

WIN2012SRV Properties	x					
Multicast         Advanced         Network           General         PXE Response         AD DS         Boot	TFTP Client DHCP					
<ul> <li>PXE Boot Policy</li> <li>After a network boot is initiated, define when a PXE boot will continue.</li> <li>Known clients:</li> <li>Require the user to press the F12 key to continue the PXE boot</li> <li>Always continue the PXE boot</li> <li>Continue the PXE boot unless the user presses the ESC key</li> <li>Never continue the PXE boot</li> <li>Unknown clients:</li> <li>Require the user to press the F12 key to continue the PXE boot</li> <li>Unknown clients:</li> <li>Require the user to press the F12 key to continue the PXE boot</li> <li>Unknown clients:</li> <li>Require the user to press the F12 key to continue the PXE boot</li> <li>Continue the PXE boot</li> <li>Never continue the PXE boot</li> <li>Continue the PXE boot</li> <li>Never continue the PXE boot</li> <li>Never continue the PXE boot</li> <li>Never continue the PXE boot</li> </ul>						
Default boot image (optional)						
x86 architecture:	Select					
ia64 architecture:	Select					
x64 architecture:	Select					
arm architecture:	Select					
x86 (UEFI) architecture:	Select					
x64 (UEFI) architecture:	Select					
OK Cano	cel Apply					

The Boot tab

WIN2012SRV Properties						
Multicast Ad General PXE Respons	dvanced Network TFTP ee AD DS Boot Client DHCP					
Unattend file When enabled, installation options on the client computer are defined using the settings in the Windows Deployment Services client unattend file that you specify here.						
x86 architecture: ia64 architecture:	WdsClientUnattend\intsall.xml Browse Browse					
x64 architecture: arm architecture:	Browse					
x86 (UEFI) architectur x64 (UEFI) architectur	e: Browse Browse					
Joining a Domain						
Client Logging Enable client logging Logging Level: Log error, warning and informational messages						
	OK Cancel Apply					

The Client tab

WIN2012SRV Properties	x
General PXE Response AD DS Boot Client DHCP Multicast Advanced Network TFTP	
Multicast IP Address Obtain IP address from DHCP Use addresses from the following range: IPv4 From: 239.192.0.2 To: 239.192.0.254 IPv6 From: FF15::1:1 To: FF15::1:FF Note: Verify that there is no overlap between this range and IP addresses being used by other multicast servers on your network.	
<ul> <li>Transfer Settings</li> <li>Keep all multicast clients in a session at the same speed</li> <li>Separate clients into three sessions (slow, medium, fast)</li> <li>Separate clients into two sessions (slow and fast).</li> <li>Automatically disconnect clients below this speed (in KBps): 256</li> </ul>	
OK Cancel Apply	

The Multicast tab

WIN2012SRV Properties					
General PXE Response	AD DS	Boot	Client	DHCP	
Multicast Ad	vanced	Network		TETP	
Domain Controller					
<ul> <li>Allow Windows Deployr domain servers (recommission)</li> </ul>	ment Services to mended)	dynamically di	scover valio	t	
O Windows Deployment 9	iervices should u	se the followin	ig servers:		
Domain controller:			Browse		
Global catalog:			Browse		
O Authorize this Windows	Deployment Ser	vices server in	DHCP		
	OK	Ca	ancel	Apply	

The Advanced tab

General       PXE Response       AD DS       Boot       Client       DHCP         Multicast       Advanced       Network       TFTP         UDP Port Policy <ul> <li>Obtain dynamic ports from Winsock</li> <li>Use User Datagram Protocol (UDP) ports from the following range:</li> <li>From:</li> <li>64001</li> <li>To:</li> <li>65000</li> <li>Network Profile</li> <li>10 Mbps</li> <li>100 Mbps</li> <li>1 Gbps</li> <li>Custom</li> <li>Ottain dynamic ports</li> <li>Ottain dynamic ports</li> <li>Ottain dynamic ports</li> <li>From:</li> <li>64001</li> <li>To:</li> <li>65000</li> <li>Ottain dynamic ports</li> <li>Ottain dynamic ports</li> <li>From:</li> <li>64001</li> <li>To:</li> <li>65000</li> <li>Ottain dynamic ports</li> <li>Ottain dynamic ports</li> <li>From:</li> <li>64001</li> <li>To:</li> <li>65000</li> <li>Ottain dynamic ports</li> <li>Ottain dynamic ports</li> <li>From:</li> <li>64001</li> <li>To:</li> <li>65000</li> <li>Ottain dynamic ports</li> <li>Ottain dynamic ports</li></ul>		WIN	12012SRV Pr	operties		x
Multicast     Advanced     Network     IFTP       UDP Port Policy <ul> <li>Obtain dynamic ports from Winsock</li> <li>Use User Datagram Protocol (UDP) ports from the following range:</li> <li>From:</li> <li>64001</li> <li>To:</li> <li>65000</li> <li>Network Profile</li> <li>10 Mbps</li> <li>100 Mbps</li> <li>1 Gbps</li> <li>Custom</li> <li>OK</li> <li>Cancel</li> <li>Apply</li> <li>Apply&lt;</li></ul>	General	PXE Response	AD DS	Boot	Client	DHCP
UDP Port Policy            Obtain dynamic ports from Winsock             Use User Datagram Protocol (UDP) ports from the following range:             From:            64001            To:            Metwork Profile             10 Mbps            100 Mbps            10 Mbps            0 Mbps            10 Mbps            0 Mbps            10 Mbps            10 Mbps            10 Mbps            0 Mbps            0 Mbps            0 Mbps            10 Mbps            0 Mbps            0 Mbps            0 Mbps            0 Mbps            0 Mbps            0 Mbps             0	Multicast	:   Adv	anced	Network		TFTP
Obtain dynamic ports from Winsock Use User Datagram Protocol (UDP) ports from the following range: From: 64001 To: 65000 Network Profile 10 Mbps 100 Mbps 1 Gbps Custom	UDP Port P	Policy				
Use User Datagram Protocol (UDP) ports from the following range:         From:       64001         To:       65000             Network Profile         10 Mbps       100 Mbps       1 Gbps         Custom	● Obtain (	dynamic ports from	n Winsock			
From: 64001 To: 65000 Network Profile 10 Mbps 100 Mbps 1 Gbps Custom	O Use Us	er Datagram Proto	icol (UDP) ports	from the followi	ng range:	
Network Profile O 10 Mbps O 1 Gbps O Custom	From:	64001	To: 65000			
O 10 Mbps O 100 Mbps O 1 Gbps O Custom	- Network Pr	rofile				
OK Cancel Apply	O 10 Mbr	os () 100 Mbp	s O 1 Gbps (	Custom		
ΠK Cancel Apply						
ΠK Cancel Apply						
ΠK Cancel Apply						
OK Cancel Applu						
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Elk Cancel Applu						
on cancel Apply			OK	Car	ncel	Apply

The Network tab

# Configuring the Custom DHCP Option

- If you have a separate server running DHCP server, you must manually configure it to include the custom option that provides the WDS clients with the name of the WDS server via DHCP.
- If this option is not performed, the WDS clients will not be able to find the WDS server to boot from.

## Configure the Custom DHCP Option

<b>9</b>		DHCP			_		x			
File	Action View	w Help								
<pre></pre>	Image: A state of the state	🔋 💼 🖳		_						
🟆 [		Predefined Options and Values	? X							
4	Option class:	DHCP Standard Options	•	λα			 Op	otion Type		? X
	option name.		Delete	Class:		l	Global			
			0000	Name:			PXEClien	t		
	Description:	UTC offset in seconds		Data typ	e:		String	-	🗌 Array	
	Value			Code:				060		
	Long:			Descript	ion:					
									ок	Cancel
Ц						_				
		<u> </u>	Cancel							

#### Setting option types and specifying the PXE Client Option 60

## Configure the Custom DHCP Option



Typing the name of your WDS server

## Managing Boot, Install, and Discover Images

- Two types of image formats:

   Sector-based image formats
   File-based image formats
- The boot images and install images use the Windows Imaging Format (WIM).
- WIM is a file format that allows a file structure (folders and files) to be stored inside a single WIM database.

## Adding Boot Images



Viewing the sources folder

### Add a Boot Image



Viewing the Install Images folder and the Boot Images folder

### Add a Boot Image

	Mr. Mr.	<u>e</u>	Select Windows Image File	x
*	Add Image Wizard	(<) (<) <	DVD RW Drive (D:) 🕨 sources 🔍 🗸 Search sources	Q
-	nage File	Organize 👻	8==	• 🔲 🔞
_		⊿ 🔆 Favorites	Name Date modified	Туре
	Enter the location of the Windows image file that contains the images to add.	🛄 Desktop	<ul> <li>Files Currently on the Disc (11)</li> </ul>	
	File location:	Downloads	📙 dimanifests 5/19/2012 3:04 AN	1 File folder
		🔛 Recent places	🔋 🥼 en-us 5/19/2012 3:04 AM	1 File folder
	Browse		🔋 😺 etwproviders 5/19/2012 3:04 AN	1 File folder
	Note: The default boot and install images (Root wire and Install wire) are located on the	✓ □ Libraries	inf 5/19/2012 3:04 AN	1 File folder
	installation DVD in the \Sources folder.	<ul> <li>▷ Image: Documents</li> <li>□ Documents</li> <li></li></ul>	igration 5/19/2012 3:04 AN	1 File folder
			🔋 🔐 replacementmanifests 5/19/2012 3:04 AN	1 File folder
	More information about images and image types		Jacobia Strategy Stra	1 File folder
			🚽 🎉 vista 5/19/2012 3:04 AN	1 File folder
			🔋 🔑 xp 5/19/2012 3:04 AM	1 File folder
		I Lomputer	boot.wim 5/19/2012 3:04 AM	1 WIM File
		DVD BW/ Drive (D	install.wim 5/19/2012 3:04 AN	1 WIM File
		-	· · · · · · · · · · · · · · · · · · ·	>
		File	name: boot.wim 🗸 Windows image files	(*.wim) 👻
			Open	Cancel
				h

Opening the boot.wim file

## Adding Image Files

- When you create image files, you place the image file in an image group.
- An *image group* is a folder within the image repository of WDS that shares security options and file resources. The image group consists of:

The resource .wim file (Res.rwm)
The <imagename>.wim files

• Any permission assigned to an image group is inherited by all the images in the group.

### Add an Install Image File

4	Add Ima	age Wizard	x
	Image Group		
	This wizard adds an install image to your : image and one boot image on your server Execution Environment (PXE) and install a	server. You must have at least one install in order to boot a client using Pre-Boot an operating system.	
	An image group is a collection of images t security. Enter the image group for the ins	hat share common file resources and tall image that you want to add.	
	O Select an existing image group		¥
	Oreate an image group named	ImageGroup1	
		< Back Next >	Cancel

Creating an image group

## Add an Install Image File

Add Image Wizard	l.	
ailable Images		
The file that you specified contains the following images want to add to the server.	. Select the ima	ges that you
Name	Architect	Description
Windows Server 2012 SERVERSTANDARDCORE	x64	Windows Serv
Windows Server 2012 SERVERSTANDARD	x64	Windows Serv
Windows Server 2012 SERVERDATACENTER.	x64	Windows Serv
<		>
✓ Use the default name and description for each of the	selected image	es

Specifying the images you want to include

## Creating an Image File with WDS

An image file contains:

- All operating system files on the computer
- Any updates and drivers that have been applied
- Any installed applications
- Any configuration changes that have been made

## Creating an Image File with WDS

- The install images included on a Windows installation disk are images of a basic Windows installation, with no patches, updates or additional drivers.
- To create your own image files:
  - Set up a master computer with all patches, drivers, applications, and configurations applied.
  - Use WDS to create your own image file by modifying an existing boot image, booting the master computer with the modified boot image, and running the Windows Deployment Services Capture Utility.

### Create an Image File

windows Deployment Services						_ □	x	
File Action View Help < 🔿 🔁 💽 🗙 🗟 🛛 🖬								
<ul> <li>Windows Deployment Services</li> <li>Servers</li> <li>Servers</li> <li>WIN2012SRV.contoso.com</li> <li>Install Images</li> <li>Boot Images</li> <li>Pending Devices</li> <li>Pending Devices</li> <li>Multicast Transmissions</li> <li>Drivers</li> <li>Active Directory Prestaged Devices</li> </ul>	Boot Images 1 Boot Image(s) Image Name Microsoft Windows Setup (x64)	Architecture x64	Status Propert Disable Export I Replace Create 0 Add Dri Delete Help	Expanded Size	age	OS Version	Priority 500000	
Creates a capture image.								

#### Starting the Create Capture Image Wizard

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### Create an Image File

₩.	😤 Create Capture Image Wizard	_ 🗆 X
File Action View Help	Metadata and Location	
<ul> <li>Windows Deployment Services</li> <li>Servers</li> <li>WIN2012SRV.contoso.com</li> <li>Install Images</li> <li>Boot Images</li> <li>Pending Devices</li> <li>Multicast Transmissions</li> <li>Crivers</li> <li>Active Directory Prestaged Devices</li> </ul>	This wizard creates a capture image from a boot image, and saves it to the location that you specify. At the end of this wizard, you will have the option to add the image back to the server.         Enter the following information for this capture image. (Note: You cannot use an x64-based capture image for an x86-based computer.)         Image name:         Microsoft Windows Setup (x64)         Image description:         Microsoft Windows Setup (x64)         Image architecture:         x64         Location and file name:         C:\capture.wim         To create this capture image, click Next.         More information about capture images	ion Priority ) 500000
	< Back Next > Cancel	

Specifying the location and file name

## Microsoft System Preparation Utility

- Sysprep.exe prepares a Windows computer for cloning by removing specific computer information such as the computer name and Security Identifier (SID).
- On Windows Server 2012, Sysprep.exe is located in C:\Windows\System32\Sysprep
- When running sysprep on the master computer, use the following syntax: sysprep /generalize /oobe

## Creating a Discover Image

- On computers that do not support a PXE boot, you can boot the computer from disk using a discover image.
- A **discover image** is an image file that you can burn to a CD-ROM or other boot medium.

### Create a Discover Image

<b>*</b>	Wir	ndows Deploy	yment Ser	vices					-		x
File Action View Help											
🗢 🔿 📶 🗙 🗟 🚺							_				
🛫 Windows Deployment Services	Boot Images 1 Boot Im	nage(s)									
▲ Servers ▲ B WIN2012SRV.contoso.com	Image Name	Ar	chitecture	Status	Expa	anded Size	Date	OS Version	Prior	ty	
Install Images	Microsoft Windows	Properties				MB	7/20/	6.2.8400	5000	00	
Boot Images		Disable									
<ul> <li>Multicast Transmissions</li> </ul>		Export Imag	je								
▶ 🚔 Drivers		Replace Im:	age								
Active Directory Prestaged Devices		Create Cap	over Image								
		Add Driver	Packages to	lmage							
		Delete									
		Help									
Creates a discover image.											

#### Creating a discover image

### Create a Discover Image

Create Discover Image Wizard
Metadata and Location
This wizard creates a discover image from a boot image and saves it to the location that you specify.
Enter the following information for this discover image. (Note: You cannot use an x64-based discover image for an x86-based computer.)
Image name:
Microsoft Windows Setup (x64)
Image description:
Microsoft Windows Setup (x64)
Image architecture: x64
Location and file name:
C:\Discover.wim Browse
Enter the name of the Windows Deployment Services server that you want to respond when you boot a computer into this image (optional):
WIN2012SRV.contoso.com Browse
To create discover image, click Next.
More information about discover images
< Back Next > Cancel

Specifying the image name, the image description, and where to store the discover image file

## Windows Assessment and Deployment Kit (ADK)

- To convert a discover image to a bootable .ISO image, first download and install the ADK for Windows 8.
- ADK is a set of tools provided by Microsoft to customize, assess, and deploy a Windows operating system to new computers.

## Create a Bootable ISO Image

Create a bootable ISO by running the following command:

oscdimg -b"c:\WinPE\_X64\etfsboot.com" -n C:\WinPE\_X64\ISO C:\ WinPE X64\WinPE X64.iso

## Performing an Unattended Installation

- Use answer files to provide responses to the prompts that normally appear during the Windows installation.
- Create answer files with:
  - A text editor
  - An XML editor
  - System Image Manager (SIM), a tool used to create and manage unattended Windows setup answer files using a graphical interface

<u>a</u>	Windows System Image Manager	_ <b>_</b> X
File Edit Insert Tools Help	0	
Distribution Share	Answer File	Properties
	Create or open an answer file	No available properties
anguagePack arr Broduct		
	Messages	
	AML (U) Validation Configuration Set	Location
< III >	Description	Location
Viewing the a	distribution share subfo	olders in the
D	istribution Share pane	



Selecting an Image



Viewing elements in the Answer File pane

## Seven Configuration Passes in an Answer File

- windowsPE
- offlineServicing
- generalize
- specialize
- auditSystem
- auditUser
- oobeSystem



#### Selecting a configuration pass



Configuring setting properties



#### Validating an answer file

đ	Untitled* - Windows System Image Manager	- 🗆 X
File Edit Insert Tools	Help	
i 🔮 🍰 🗃 🔜 1 🔏 💼 i	※1211 211 221 221 221 221 221 221 221 22	
Distribution Share	Answer File AutoLogon Properties	
C:\RemoteInstall\Answers     SDEM\$ Folders     Out-of-Box Drivers     Packages	Image: Windle with the servicing of the ser	
Windows Image amd64_Microsof amd64_Microsof amd64_Microsof amd64_Microsof	OEMInformatio       Select the target folder for the configuration set         OEMVelcomed       \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	
amd64_Microsof     amd64_Microsof		
amd64_Microsof	XML (0) Validation (15) Configuration Set (0)	
amdo4_Microsof amd64_Microsof amd64_Microsof	Description     Location     Location     Location     Arrow Shell-Setup_neutral/AutoLogon     The setting has not been modified. It will not be saved to the answer file.     Components/specialize/amd64_Microsoft-Windows-Shell-Setup_neutral/AutoLogon	^
amd64_Microsof amd64_Microsof amd64_Microsof amd64_Microsof amd64_Microsof amd64_Microsof amd64_Microsof	In the setting has not been modified. It will not be saved to the answer file.     The setting has not been modified. It will not be saved to the answer file.     The setting has not been modified. It will not be saved to the answer file.     The setting has not been modified. It will not be saved to the answer file.     The setting has not been modified. It will not be saved to the answer file.     The setting has not been modified. It will not be saved to the answer file.     The setting has not been modified. It will not be saved to the answer file.     The setting has not been modified. It will not be saved to the answer file.     Setting OEM/WelcomeCenter is deprecated in the Windows image     The setting has not been modified. It will not be saved to the answer file.     Setting OEM/WelcomeCenter is deprecated in the Windows image     Setting OEM/WelcomeCenter inks is deprecated in the Windows image     Setting OEM/WelcomeCenter is deprecated in the Windows image     Setting OEM/WelcomeCenter is is deprecated in the Windows image     Setting OEM/WelcomeCenter inks is deprecated in the Windows image     Setting OEM/WelcomeCenter inks is deprecated in the Windows image     Setting OEM/WelcomeCenter inks is deprecated in the Windows image     Setting OEM/WelcomeCenter inks is deprecated in the Windows image     The setting has not been modified. It will not be saved to the answer file.     Setting OEM/WelcomeCenter inks is deprecated in the Windows image     The setting has not been modified. It will not be saved to the answer file.     Setting OEM/WelcomeCenter inks is deprecated in the Windows image     Setting OEM/WelcomeCenter inks	

#### Creating a configuration set

## **Unattend Files**

To install an operating system on a client using WDS with no interactivity, you must have these two unattend files:

- WDS client unattend file: Automates the WDS client procedure that begins when the client computer loads the boot image file
- **Operating system unattend file:** For a standard operating system installation; contains responses to all prompts that display after the client computer loads the install image file

## Deploy a Server Using an

-0			
dows Serv	ver 2012 SERVERSTANDARD		
Image type:	Install Image		
State:	Online		
Architecture:	x64		
Description:	Windows Server 2012 SERVERSTANDARD		
Priority:	500000		
Image group:	ImageGroup1		
Image format:	WIM		
File name:	install.wim		
Expanded size:	11506 MB (12065215841 bytes)		
Created:	Thursday, July 26, 2012 1:03:49 AM		
Modified:	Wednesday, November 21, 2012 9:06:49 PM		
HAL type:	acpiapic		
Allow image to ins	tall in unattended mode		
Unattend File:	Images\ImageGroup1\install\L Select File		

Viewing the Image Properties dialog box

## Patches, Hotfixes, and Drivers

- Using the dism command:
  - To make changes to an image, mount the Windows image in the Windows file structure using the Mount-Wim option.
  - After you make changes to the image, commit the changes by using the /Commit-Wim option.
  - To unmount the image, use the /Unmount-Wim option.
  - To get information about an image or WIM file, use the /Get-WimInfo option.

## Patches, Hotfixes, and Drivers

 If a Windows package is provided as a cabinet (.cab) file or as a Windows Update Stand-alone Installer (.msu) file, you can add the package using the /Add-Package command. For example:

Dism /image:C:\offline /Add-Package
/Packagepath:C:\Update\Update.cab

• To remove a package, use the /Remove-Package option.

## Installing Features for Offline Images

- Deployment Image Servicing and Management (Dism.exe) is a command-line tool that can be used to service a Windows image or to prepare a Windows PE image.
- With Dism, you can mount an image offline and then add, remove, update, or list the features, packages, drivers, or international settings stored on that image.
- Dism.exe is not included with Windows.

## Deploying Driver Packages with an Image

- Using dynamic driver provisioning requires:
  - The boot image from either Windows 7, Windows 8, Windows Server 2008 R2, or Windows Server 2012 (from \Sources\Boot.wim on the DVD)
  - The install images for Windows Vista SP1, Windows 7, Windows 8, Windows Server 2008, Windows 7, Windows Server 2008 R2, or Windows Server 2012
- To deploy drivers based on the plug-and-play hardware of the client, you must extract the drives; they cannot be an *.msi* file or an *.exe* file.

### Add Drivers to an Image

4		Windows [	Deployment Services			x		
File Action View Help								
🗢 🄿 🖬 🙆	?							
🝨 Windows Deployme	ent Services	Windows Deployment	Services					
⊿ 📑 Servers								
<ul> <li>▲ Big WIN2012SRV.contoso.com</li> <li>▶ Install Images</li> <li>▶ Boot Images</li> <li>▶ Pending Devices</li> <li>▶ Bulticast Transmissions</li> <li>▶ Drivers</li> <li>Active Director</li> <li>Add Driver Packa</li> <li>Add Driver Packa</li> <li>Benable/Disable D</li> <li>Delete Driver Packa</li> <li>Help</li> </ul>		Windows Deployment Services						
		Windows Deployment Services enables you to deploy Windows operating systems over the						
		network.						
		ge	ement Console (MMC) snap-in enables you to manage and configure Services. You can perform tasks including adding images, configuring is, and configuring server properties. You can also manage your server mmand-line tool. For more information, press F1.					
		river Packages						
		- kages						
			h click Add Server.					
Add Driver &Package								

#### Selecting the Add Driver Package option

### Add Drivers to an Image

<u>\$</u>	Add Driver Package Wizard					
Availabl	e Driver Packages				0	
The location that you specified contains the following driver packages. Select the packages that you want to add to the server. To view or edit information about a package, double-click it. Package Details						
	Package Name	File Name	Architecture	Enabled		
	SERSPL [x86]	SERSPL.INF	×86	Yes		
~	SERSPL [ia64]	SERSPL.INF	ia64	Yes		
~	SERWPL [x86]	SERWPL.INF	×86	Yes		
~	SERWPL [ia64]	SERWPL.INF	ia64	Yes		
<						
Packages found: 4						
< Back Next > Cancel						

Selecting driver packages

### Add Drivers to an Image

👙 Add Driver Package Wiz	zard
Driver Groups	
A driver group is a collection of driver packages that are of clients. In order to deploy these packages to clients, you must a package can be in many driver groups, but it must be in be available to clients. Enter the driver group for the packages you have added <ul> <li>Select an existing driver group:</li> <li>DriverGrouting</li> <li>Create a new driver group named:</li> <li>Do not put the driver packages in a driver group</li> </ul>	available to a select group add them to a driver group. A at least one group in order to d: up1 v b at this time
< Back	Next > Cancel

Selecting a driver group

## Lesson Summary

- Windows Deployment Services (WDS) is a software platform and technology that allows administrators to perform automated network-based installations based on networkbased boot and installation media.
- For client computers to communicate with a WDS server without an operating system, the client computer must support the preboot execution environment (PXE).
- Windows Preinstallation Environment (Windows PE) is a minimal Windows operating system with limited services.
- Before you can use WDS, you must configure WDS server.
- To deploy Windows, you must create a boot image and an install image.

## Lesson Summary

- The Microsoft System Preparation Utility (Sysprep.exe) prepares a Windows computer for cloning by removing specific computer information such as the computer name and Security Identifier (SID).
- A computer that does not support a PXE boot can boot from a disk using a discover image.
- To streamline the installation process, you must automate the Windows installation by using answer files, which provide responses to the prompts that would normally display during the Windows installation.
- Deployment Image Servicing and Management (Dism.exe) is a command-line tool that can be used to service a Windows image or to prepare a Windows PE image.

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