## Lesson 2: Implementing Patch Management

MOAC 70-411: Administering Windows Server 2012



WILEY

## Overview

- Exam Objective 1.2: Implement Patch Management
- Understanding Windows Updates and Automatic Updates
- Deploying Windows Server Update Services (WSUS)
- Understanding System Center Configuration Manager (SCCM)

Understanding Windows Updates and Automatic Updates

Lesson 2: Implementing Patch Management

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# Windows Updates

Windows Update: The program that scans your system to determine the updates and fixes your system needs.

- **Patch Tuesday**: The second Tuesday of each month, when Microsoft routinely releases security updates.
- **Out-of-band patch**: A patch deemed critical or time-sensitive; released when needed.
- Out-of-band update: An update released when needed.

## Hotfixes and Cumulative Patches

**Hotfix:** A single, cumulative package that includes one or more files used to address a problem in a software product, such as a software bug.

**Cumulative patch**: Multiple hotfixes combined into a single package.

# Using Automatic Updates

- Ensures that critical updates, security updates, and compatibility updates are made available for installation automatically
- Doesn't significantly affect regular use of the Internet
- Is ideal for small environments

### **Update Windows Server 2012**



#### Checking for updates

### Windows Update Settings

33	Change settings			_ 0	x
€ 🗇 🕈 [	🎲 « Windows Update 🕨 Change settings	<b>~ C</b>	Search Control Pane	1	Q
C W Se Ir I R N P	hoose your Windows Update settings then your PC is online, Windows can automatically check for important update ttings. When new updates are available, you can also choose to install them with mportant updates install updates automatically (recommended) Updates will be automatically downloaded in the background when you Internet connection. Updates will be automatically installed during the maintenance window ecommended updates Give me recommended updates the same way I receive important update ficrosoft Update Give me updates for other Microsoft products when I update Window ote: Windows Update might update itself automatically first when checking for rivacy statement online.	es and inst hen you s ur PC is no dates vs or other up	tall them using these hut down your PC.		
		OK	Cancel		

#### Changing Windows Update settings

## Automatic Updates Using Group Policies

Primary options:

- Notify for download and notify for install
- Auto download and notify for install
- Auto download and schedule the install
- Allow local admin to choose setting

## Deploying Windows Server Update Services (WSUS)

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## Windows Server Update Services (WSUS)

- A program included with today's Windows Servers
- Allows administrators to manage the distribution of updates and other patches to computers within an organization
- Can retrieve updates directly from Microsoft Update or from another WSUS server on the network
- Works in autonomous or replica mode

### A Single WSUS Server for a Few Hundred Computers



A simple WSUS configuration

### Multiple WSUS Servers for Larger Sites or Multiple Sites



The WSUS hierarchy

# **Installing WSUS**

- Ensure WSUS server meets minimum hardware and software requirements.
- A single WSUS server can support thousands of clients.
- A single WSUS server with 4 GB of RAM and dual quad-core processor can support up to 100,000 clients.
- Multiple WSUS servers reduce the load on wide area network (WAN) links.

### Install WSUS

<b>a</b>	Add Roles and Features Wizard		_ 🗆 X
Select server ro	Add Roles and Features Wizard	x	DESTINATION SERVER WIN2012SRV.contoso.com
Before You Begin Installation Type Server Selection Server Roles Features Confirmation Results	Add features that are required for Windows Server Update Services? You cannot install Windows Server Update Services unless the following role services or features are also installed. A Remote Server Administration Tools A Role Administration Tools A Role Administration Tools A Windows Server Update Services Tools [Tools] User Interface Management Console Web Server (IIS) A Web Server A Common HTTP Features Static Content Default Document Med Features Add Features Cancer		tion s Server Update Services etwork administrators to he Microsoft updates that be installed, create separate of computers for different pdates, and get reports on pliance levels of the ers and the updates that installed.
	< Previous Next >		Install Cancel

### Adding features

### Install WSUS

<b>a</b>	Add Roles and Features Wizard	_ <b>D</b> X
Select role service	S	DESTINATION SERVER WIN2012SRV.contoso.com
Before You Begin	Select the role services to install for Windows Server Update S	ervices
Installation Type	Role services	Description
Server Selection		Installs the database used by WSUS
Server Roles	WSUS Services	into WID.
Features	Database	
WSUS		
Role Services		
Content		
Web Server Role (IIS)		
Role Services		
Confirmation		
Results		
	< Previous Nex	t > Install Cancel

### Selecting the database type

### Install WSUS

B	Add Roles and Features Wizard	
Content location Before You Begin Installation Type	DESTINATION SERVER WIN20125RV.contoso.com If you have a drive formatted with NTFS and at least 6 GB of free disk space, you can use it to store updates for client computers to download quickly.	
Server Selection Server Roles	If you need to save disk space, clear the check box to store updates on Microsoft Update; downloads will be slower.	
Role Services	If you choose to store updates locally, updates are not downloaded to your WSUS server until you approve them. By default, when updates are approved, they are downloaded for all languages.  Store updates in the following location (choose a valid local path on WIN2012SRV.contoso.com,	
Content Web Server Role (IIS) Role Services	or a remote path) : C:\Updates	
Confirmation Results		
	< Previous Next > Install Cancel	

### Specifying the content location

# **Configuring WSUS**

- Configure how the WSUS server will download updates, what updates will be downloaded, and if downloads will occur automatically or manually.
- Organize the client computers into computer groups.
- Configure the clients to use the WSUS using group policies.
- Approve the updates for deployment.
- Review the update status of the computers and generate reports as necessary.

ta w	indows Server Update Services Configuration Wizard:WIN2012SRV	x
Choose Upstre Provide the u	eam Server Ipstream server from which you want to synchronize content	
Before You Begin Microsoft Update Improvement Program Choose Upstream Server Specify Proxy Server Choose Languages Choose Products Choose Classifications Configure Sync Schedule Finished What's Next	You can choose the upstream server from which your server synchronizes updates. <ul> <li>Synchronize from Microsoft Update</li> <li>Synchronize from another Windows Server Update Services server</li> <li>Server name:</li> <li>Port number:</li> <li>8530</li> <li>Use SSL when synchronizing update information</li> <li>If using SSL, ensure that the upstream WSUS server is also configured to support SSL.</li> <li>This is a replica of the upstream server</li> <li>A replica server mirrors update approvals, settings, computers and groups from it parent. Updates can be approved only on the upstream server.</li> </ul>	-
	< Back Next > Finish Cancel	

#### Choosing an upstream server

🚡 Wir	ndows Server Update Services Configuration Wizard:WIN2012SRV	x
Specify Proxy S Provide proxy s	erver server settings for synchronizing updates with Microsoft Update	
Before You Begin Microsoft Update Improvement Program Choose Upstream Server Specify Proxy Server Choose Languages	<ul> <li>If this server requires a proxy server to access the upstream server, you can configure the proxy server settings here.</li> <li>Use a proxy server when synchronizing</li> <li>Proxy server name:</li> </ul>	-
Choose Products Choose Classifications Configure Sync Schedule Finished What's Next	Port number:       80         Use user credentials to connect to the proxy server         User name:         Domain:         Password:         Allow basic authentication (password is sent in cleartext)	
	< Back Next > Finish Cancel	

#### Using the Specify Proxy Server page

ta w	dows Server Update Services Configuration Wizard:WIN2012SRV	:
Connect to Up Download up	tream Server Ite information from Microsoft Update	
Before You Begin Microsoft Update Improvement Program Choose Upstream Server Specify Proxy Server Choose Languages Choose Products Choose Classifications Configure Sync Schedule Finished What's Next	<ul> <li>To configure Windows Server Update Services on the following screens, we need to apply your upstream server and proxy server settings and synchronize information about available updates.</li> <li>Information to be downloaded includes:</li> <li>Types of updates available Products that can be updated Available languages</li> <li>Click Start Connecting to save and download upstream server and proxy server information. This process might take several minutes or longer, depending on your connection speed.</li> <li>Stop Connecting</li> <li>Start Connecting</li> </ul>	
	<pre>&lt; Back Next &gt; Finish Cancel</pre>	

#### Connecting to an upstream server

🐌 W	indows Server Update Services Configuration Wizard:WIN2012SRV	x
Choose Product     Before You Begin     Microsoft Update     Improvement Program     Choose Upstream Server     Specify Proxy Server     Choose Languages     Choose Classifications     Configure Sync Schedule     Finished     What's Next	indows Server Update Services Configuration Wizard:WIN2012SRV  cts  crosoft products to be updated  You can specify the products for which you want updates.  Products:  All Products  All Products  All Products  Bing Bing Bing Bing Bing Bing Bing Bin	X
	Image: Content of dex       Image: Content of dex	

#### Selecting products

💩 w	indows Server Update Services Configuration Wizard:WIN2012SRV	x
Choose Classi Select the up     Before You Begin     Microsoft Update     Improvement Program     Choose Upstream Server     Specify Proxy Server     Choose Languages     Choose Classifications     Configure Sync Schedule     Finished     What's Next	fications date classifications you want to download  You can specify what classification of updates you want to synchronize.  Classifications:  All Classifications   Classifications   Petinition Updates   Feature Packs   Security Updates   Security Updates   Drivers   Feature Packs   Dupdate Rollups   Updates   Updates   Updates   Updates   Difference	<b>x</b>
	All classifications, including classifications that are added in the future.         < Back	

#### Selecting classifications

🐌 Wi	ows Server Update Services Configuration Wizard:W	/IN2012SRV ×
Set Sync Scher Configure wh	e this server synchronizes with Microsoft Update	
Before You Begin Microsoft Update Improvement Program Choose Upstream Server Specify Proxy Server Choose Languages Choose Products Choose Classifications Configure Sync Schedule Finished What's Next	You can synchronize updates manually or set a sched synchronization. Synchronize manually First synchronization: Synchronizations per day: Note that when scheduling a daily synchronization synchronization start time will have a random offs time.	n from Microsoft Update, the et up to 30 minutes after the specified
	< Back Next	> Finish Cancel

#### Setting a sync schedule

## **Configuring WSUS Synchronization**

- Configure the update source and proxy server.
- Specify what products and type of updates you want to download.
- Specify where to store the files.
- Specify what languages you want to support.
- Specify a synchronization schedule.

### Configure the Update Source and Proxy Server



Configuring the Update Source settings

### Configure the Update Source and Proxy Server

	Update Source and Proxy Server	x
Update Source Prox	y Server	
🤣 You can cho	oose a proxy server to use when synchronizir	ig updates.
🗹 Use a proxy serv	er when synchronizing	
Server name:	proxyserver.contoso.com	
Port number:	3128	
🗌 Use user crea	dentials to connect to the proxy server	
User name:		
Domain:		
Password:		
Allow b:	asic authentication (password is sent in clear	rtext)
L		
	OK Cancel	Apply

Configuring the Proxy Server settings

### Specify What WSUS Will Synchronize



Selecting and deselecting products

### Specify What WSUS Will Synchronize

Products and Classifications
Products Classifications
You can specify what classification of updates you want to synchronize.
Classifications:
<ul> <li>All Classifications</li> <li>✓ Critical Updates</li> <li>✓ Definition Updates</li> <li>✓ Drivers</li> <li>Feature Packs</li> <li>✓ Security Updates</li> <li>Service Packs</li> <li>✓ Tools</li> <li>✓ Update Rollups</li> <li>✓ Updates</li> </ul>
All classifications, including classifications that are added in the future.
OK Cancel Apply

Selecting and deselecting classifications

## Specify What WSUS Will Synchronize

Update Files and Languages			
Update Files Update Languages			
You can specify where to store update files. Storing files locally requires sufficient disk space.			
<ul> <li>Store update files locally on this server</li> </ul>			
Download update files to this server only when updates are approved			
Download express installation files			
Express installation files provide faster download and installation on computers, but are larger and will increase download times for your server.			
Download files from Microsoft Update; do not download from upstream server			
<ul> <li>Do not store update files locally; computers install from Microsoft Update</li> </ul>			
Note: Saving file and language settings may take several minutes. During this time, computers cannot receive updates and other settings cannot be saved.			
OK Cancel Apply			

Updating files

### Specify a Synchronization Schedule

Synchronization Schedule				
Synchronization Schedule				
You can synchronize updates manually or set a schedule for daily automatic synchronization.				
Synchronize manually				
O Synchronize automatically				
First synchronization:	8:50:05 AM	×		
Synchronizations per day:	1 ~			
When scheduling a daily sy synchronization start times the specified time.	nchronization fr will have a rando	om Microsoft Upd ım offset up to 30	ate, the minutes after	
	ОК	Cancel	Apply	

#### Configuring a synchronization schedule

## Configuring WSUS Computer Groups

- Computer groups help you specify what updates go to which computers at what time.
- By default, each computer is assigned to the All Computers group.
- As new computers are added, they are assigned to the Unassigned Computers group until you assign them to another group.
- Other than members of the All Computers group, a computer can only be assigned to one other group.
- Using a layered approach allows you to push updates to a test group first, and then roll out the updates to other groups as needed.

### Create a Computer Group



#### Viewing Computers node

### Create a Computer Group



Typing a computer name group

### Specify the Method of Assigning Computers to Groups



Specifying how computers are assigned to groups

### Move a Computer to a Group Using Server-Side Targeting



#### Moving a computer

### Move a Computer to a Group Using Server-Side Targeting



#### Selecting a computer group

## Configuring Group Policies for Updates

- By default, Windows computers get their updates from Windows Update.
- You can use group policies to have the domain computers use the specified WSUS server.

### Configure a Computer to Use WSUS for Updates Using Group Policies



Specifying the intranet Microsoft update service location using group policies

## Configuring Client-Side Targeting

- Automates the process of assigning computers to computer groups
- For domain computers, use group policies
- Good option if you have several computers

### Enable Client-Side Targeting Using Group Policies

<u>I</u>		Group Policy Management Editor	_ 🗆 X
File Action View Help	<b>9</b>	Enable client-side targeting	
	📰 Eachte client eide teascting		
	Enable client-side targeting	Previous Setting Next Setting	
Password Sy			
Portable Ope	Not Configured Comment:		
Presentation	○ Enabled		State
BSS Feeds			tion in Sh Not configured
Security Cen	O Disabled		.d Shut Do Not configured
🚞 Server for NI	Supported o	<sup>11</sup> Windows XP Professional Service Pack 1 or At least Windows 2000 Service Pack 3	automati Not configured
🦳 Shutdown O			Not configured
🧮 Smart Card			Enabled
🧮 Sound Recor	Options:	Help:	Not configured
Sync your se	[		cations Not configured
▷ 🛄 Tablet PC	Target group name for this comput	er Specifies the target group name or names that should be used to	Not configured
Task Schedu			Not configured
Windows Ca		If the status is set to Enabled, the specified target group	d automat Not configured
🧧 Windows Cu		Information is sent to the intranet Microsoft update service which uses it to determine which undates should be deployed to be a service which update service and the deployed to be a service and the	Not configured
Windows De		this computer.	Not configured
▶			tions Not configured
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🧮 Windows Ins		by semicolons. Otherwise, a single group must be specified.	update ser Not configured
🧰 Windows Lo			
🧮 Windows Ma		If the status is set to Disabled or Not Configured, no target group	
📔 Windows Me		information will be sent to the intranet withosoft update service.	
Windows Me		Note: This policy applies only when the intranet Microsoft	
Windows Me		update service this computer is directed to is configured to	
Windows Me		update service location" policy is disabled or not configured, this	
Windows Po		policy has no effect.	
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⊳ 🧰 Windows Re			
🧮 Windows Re		OK Cancel Apply	
🔛 Windows Sid	l		
Windows Sys	tem Resource Manager	when the intranet Microsoft undate service this computer is	
Windows Up	date	directed to is configured to	
All Settings		support client-side targeting. If	
Preferences N Ser Configuration		the "Specify intranet Microsoft undate service location" policy is	
y 👦 oser configuration	~	disabled or not configured, this	>
< III	>	Extended Standard	
16 setting(s)			
			1

Enabling client side targeting using group policies

### Enable Client-Side Targeting Using Group Policies



#### Modifying Windows Update Registry settings

# **Approving Updates**

- Test updates before rolling out to production environment
- Update might cause unforeseen problems
   affecting hundreds of computers
- Setting a deadline causes clients to install the update at a specific time
  - Can specify a deadline when you approve updates on the WSUS server
  - If an update has a deadline and requires a restart, system reboots at the time of the deadline

	Update Services		_ <b>D</b> X
File Action View Window Help			_ 8 ×
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	Approval: Unapproved - Status: Any	🝷 💽 Refresh	All Updates 🔺
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Synchronizations	Update for Microsoft Excel 2010 (KB2553439) 64-Bit E.	Critical Updat 0% Not approved	Help
Options	Security Update for Microsoft Visio 2010 (KB2553374).	Security Upd 0% Not approved	Lindata A
	Update for Microsoft Office 2010 (KB2596964) 32-Bit .	Critical Updat 0% Not approved	
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	Security Update for Microsoft SharePoint Foundatio	Security Upd 0% Not approved	File Information
	Security Update for Microsoft Visio Viewer 2010 (KB2	Security Upd U% Not approved	Status Report
	Security Update for Microsoft Visio Viewer 2010 (KB2	Security Upd U% Not approved	👔 Help
	Security Update for Microsoft Office 2010 (KB258932	Security Upd U% Not approved	~
	Security Update for Microsoft PowerPoint 2010 (KB2553	185) 32-Bit Edition	
	This update supersedes another update. Before you that you verify it is no longer needed by any compu- first.		
	Status:	MSRC severity: Important	
	Computers with errors: 0 Computers needing this update: 0	MSRC number: MS11-094	
	Computers installed/not applicable: 0 Computers with no status: 0	Release date: Tuesday, December 13, 2011	
		KB article numbers: 2553185	
	Description		~
	n = = = = = = = = = = = = = = = = = = =		

### The All Updates option



Choosing the Release Date option

10 III III III III III III III III III I	Update Services	_ <b>D</b> X
File Action View Window Help		_ 8 ×
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WIN2012SRV     ✓    ✓    ✓    ✓    ✓    ✓    ✓		
	Approval: Unapproved • status: Any • Chevilication Lineta Conversion	Search
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🐻 WSUS Updates	Security Update for Microsoft PowerPoint 2010 (K02 Security Upd 0% Not approved	Naux Window from
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📰 Options	Undate for Microsoft Decline t Oritical Undat (% Not approved	Update 🔺
	Security Undate for M. Groun By 5 Security Und (% Not approved	Approve
	Security Undate for N Preset	🛼 Decline
	Security Undate for N Status Report 2 Security Und (% Not approved	Group By
	Help Undate for Microsoft units accurate and Critical Undate (% Not approved	Status Banaut
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	Security Undate for Microsoft Visio Viewer 2010 (KB2 Security Und 0% Not approved	Help
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	Security Update for Microsoft Office 2010 (KB259032) Security Upd (% Not approved	
	Commit and the second design of the second design o	
	Security Update for Microsoft PowerPoint 2010 (KB2553185) 64-Bit Edition	
	This update supersedes another update. Before you decline any superseded update, we recommend that you yerify it is no longer needed by any computers. To do so anorave the superseding update	
	first.	
	Status: MSRC severity: Important	
	Computers with errors: 0 MSRC number: MS11-094	
	Computers installed/not applicable: 0 Computers installed/not applicable: 0 Computers with no status: 0	
	KB article numbers: 2553185	
	Description	
Approve selected updates		

### Approving updates



#### Selecting a deadline

# **Viewing Reports**



# Viewing Reports

- To view reports:
  - Install Microsoft .NET Framework 3.5 (which includes 2.0 and 3.0)
  - Download and install Microsoft Report Viewer
     2008 Redistributable from Microsoft website

WSUSutil.exe options:

- export: Exports the update metadata to an export package file.
- import: Imports the update metadata from an export package file.
- movecontent: Changes the file system location where the WSUS server stores update files and optionally copies any update files from the old location to the new location.

WSUSutil.exe options:

- reset: Checks that every update metadata row in the database has corresponding update files stored in the file system.
- deleteunneededrevisions: Purges the update metadata for unnecessary update revisions from the database.

Windows PowerShell commands:

- Add-WsusComputer: Adds an already registered specified client computer to a specified target group.
- Approve-WsusUpdate: Approves an update to be applied to clients.
- Deny-WsusUpdate: Declines the update for deployment.
- Get-WsusClassification: Gets the list of all WSUS classifications currently available in the system.
- Get-WsusComputer: Gets the WSUS computer object that represents the client computer.
- Get-WsusProduct: Gets the list of all products currently available on WSUS by category.
- Get-WsusServer: Gets the value of the WSUS update server object.

Windows PowerShell commands:

- Get-WsusUpdate: Gets the WSUS update object with details about the update.
- Invoke-WsusServerCleanup: Performs the process of cleanup on a specified WSUS server.
- Set-WsusClassification: Sets whether the classifications of updates that WSUS synchronizes are enabled or disabled.
- Set-WsusProduct: Sets whether the product representing the category of updates to synchronize is enabled or disabled.
- Set-WsusServerSynchronization: Sets whether the WSUS server synchronizes from Microsoft Update or from an upstream server and uses the upstream server properties.

# Troubleshooting Problems with Installing Updates

WSUS logs:

- Application event log
- C:\Program Files\Update Services\LogFiles\Change.txt
- C:\Program Files\Update Services\LogFiles\softwareDistribution.txt

## Troubleshooting Problems with Installing Updates

- For synchronization problems with Windows Update, open Windows Update on the server and download and install updates.
- For client connection problems, verify that a client can connect to the WSUS server with: http://WSUSServerName/iuident.cab
- Commands for starting and stopping Windows Update:

net stop wuauserv

net start wuauserv

## System Center Configuration Manager

- Provides remote control, patch management, software distribution, operating system deployment, network access protection, hardware inventory, and software inventory
- Formerly known as System Management Server (SMS)

## System Center Configuration Manager

- Uses an agent that must be installed on each computer
  - Agent can be pushed out from the SCCM console or can be pushed using group policies
- With multiple sites, you can set up distribution points so updates, software packages, and operating system packages have to be pushed to the site only once

# Lesson Summary

- Windows Update scans your system to determine what updates and fixes your system needs.
- A service pack is a tested, cumulative set of hotfixes, security updates, critical updates, and updates.
- Auto Update works in the background to identify new updates and download them to your computer.
- Windows Server Update Services (WSUS) distributes updates and other patches to computers within an organization.
- WSUS works in autonomous or replica mode.
- To install WSUS on Windows Server 2012, you install WSUS as a role.

# Lesson Summary

- To specify what updates go to correct computers at the correct time, organize your computers into computer groups.
- Each computer is assigned to the All Computers group by default. Newly added computers are assigned to the Unassigned Computers group until assigned to another group.
- Server-side targeting manually assigns a computer to a group.
- Client-side targeting automatically assigns computers to computer groups using group policies.
- You can use group policies to have the domain computers use a specified WSUS server.
- WSUS can control which updates clients receive and when clients receive those updates.

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