Managing and Monitoring Windows 7 Performance Lesson 8

Objectives

- Configure Windows Updates with Windows Update Client and WSUS
- Monitor Windows Performance using Event Viewer, Performance Information and Tools, Performance Monitor, and Reliability Monitor
- Manage Windows Performance using Task Manager, Resource Monitor, Process Explorer, and System Configuration

Updating Windows 7

- Current operating systems are always a work-in-progress, constantly being updated to correct errors, enhance performance, and add features.
- One of the primary tasks of a desktop technician
- Should be familiar with:
 - Types of update releases
 - Methods for deploying updates

Understanding Update Types

- Hotfixes
- Security updates
- Cumulative updates (rollups)
- Service packs

Update Categories

- Important updates
- Recommended updates
- Optional updates
- Device drivers

Applying Updates

- Windows Update
- Windows Server Update Services (WSUS)
- System Center Configuration Manager (SCCM)

Using the Windows Update Client



Configuring the Windows Update Client

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Choose how Windows can install updates When your computer is online, Windows can automatically check for important updates and install them using these settings. When new updates are available, you can also install them before shutting down the computer. How does automatic updating help me? Important updates Please select an option: Install new updates: Every day at 3:00 AM Commended updates: Give me recommended updates the same way I receive important updates Mo can install updates Q Allow all users to install updates on this computer Note: Windows Update might update itself automatically first when checking for other updates. Read our privacy statement online.	
OK Cancel	

Important Updates Options

- Install updates automatically (recommended)
- Download updates but let me choose whether to install them
- Check for updates but let me choose whether to download and install them
- Never check for updates (not recommended)

Configuring Windows Update Using Group Policy

Group Policy Management Editor		_ 🗆 ×
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Task Scheduler	Setting	State
 Windows Anytime Upgrade Windows Calendar Windows Color System Windows Defender Windows Defender Windows Error Reporting Windows Installer Windows Logon Options Windows Mail Windows Media Center Windows Media Digital Rights Mana Windows Media Player Windows Resenger Windows Reliability Analysis Windows Remote Management (Wi Windows System Resource Manage Windows System Resource Manage Windows Update Windows Update Windows Update Windows Update Windows Update Policies 	 Do not display 'Install Updates and Shut Down' option in Shut Down Wind Do not adjust default option to 'Install Updates and Shut Down' in Shut D Enabling Windows Update Power Management to automatically wake up t Configure Automatic Updates Specify intranet Microsoft update service location Automatic Updates detection frequency Allow non-administrators to receive update notifications Turn on Software Notifications Allow Automatic Updates immediate installation Turn on recommended updates via Automatic Updates No auto-restart with logged on users for scheduled automatic updates ins Re-prompt for restart with scheduled installations Delay Restart for scheduled installations Enable client-side targeting Allow signed updates from an intranet Microsoft update service location 	Not configured Not configured
Preferences	Extended Standard	2

Triggering an Update



Using Windows Server Update Services

- Downloads updates from the Microsoft Update Web site
- Stores them for administrator evaluation
- Administrators select the updates to deploy
- Computers on the network download updates from WSUS server using a reconfigured Windows Update Client

Understanding WSUS Architecture



Deploying WSUS

- Must be installed on Windows Server 2008 R2
- WSUS software is a free download from Microsoft
- Web-based product, therefore the Web Server (IIS) role must be added to the server
- Requires a database Windows Internal Database, or SQL Server for larger networks

Configuring WSUS Clients

- Cannot be done in Windows Update program
- Configured through Group Policy

Monitoring Performance

- For a computer to perform well, all of its components must be efficient.
- Vista includes tools to enable you to locate poorly performing components (bottlenecks):
 - Event Viewer
 - Performance Information and Tools
 - Performance and Reliability Monitor

Using Event Viewer

- Primary function is to record information about system activities as they occur and package that information into individual units, called events.
- Event Viewer is the tool you use to view these events.
- Events are stored in log files:
 - System Log, Security Log, and Application Log
 - Setup Log and Forwarded Events

Using the Overview and Summary Display

🐻 Event Viewer							
File Action View Help							
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Event Viewer (Local)	Event Viewer (Loca	D					
Custom Views Administrative Events	Overview an	d Summa	ary		Last refreshed:	1/27/2010 2:48	3:46 PM
Mindows Logs							
Application	Overview						-
Security	To view e	vents that hav	e occurred on your	computer, selec	t the appropria	te source, log o	or 🚖
Setup	custom v	iew node in th	e console tree. The	Administrative	events custom	view contains a	
System	the admir	nistrative even	ts, regardless of sou	rce. An aggrega	te view of all th	e logs is shown	n 🔻
Forwarded Events	Summary of Admi	inistrative Ever	nts				
Applications and Services Lo Subscriptions	_						_
127 Subscriptions	Event Type	Event ID	Source	Log	Last hour	24 hours	<u>^</u>
	Critical	-	-	-	0	0	
	Error			-	0	0	=
	Warning	-	-	-	0	2	
		26	LSI_SCSI	System	0	1	
		1008	Search	Application	0	0	
		1014	DNS Client Eve	System	0	0	
		1530	User Profile Ser	Application	0	1	
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	Log Summary						-
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Viewing Windows Logs

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Event Viewer (Local)	System Number	of events: 1,355				
Custom Views	Level	Date and Time	Source	Event ID	Task Categ	^
Application	 Information 	1/27/2010 3:08:45 PM	Service Con	7036	None	
Security	Information	1/27/2010 3:04:26 PM	Service Con	7036	None	- H.
Setup	Information	1/27/2010 3:03:33 PM	Service Con	7036	None	
System	Information	1/27/2010 2:58:38 PM	Service Con	7036	None	
Forwarded Events	Information	1/27/2010 2:48:51 PM	Application	206	None	
Applications and Services Lo	 Information 	1/27/2010 2:48:08 PM	Service Con	7036	None	
5 Subscriptions	Information	1/27/2010 12:00:00 PM	EventLog	6013	None	
	Information	1/27/2010 11:59:51 AM	EventLog	6013	None	
	Information	1/27/2010 5:34:01 AM	Service Con	7036	None	
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Performance Information and Tools

- Rates computer's components and assigns a base score reflecting the score of the lowest rated component on your system – The bottleneck.
- Hardware upgrades improve performance.
- Conserve system resources to enhance performance – Tips for improving your computer's performance link.

Performance Information and Tools



Using the Performance Monitor Console



Adding Counters

Add Counters	
Available counters	Added counters
Select counters from computer:	Counter Parent Jost., Computer
<local computer=""> Browse</local>	
Processor 🗸 🔺	
Processor Information 🛛 🗸 🗸	
Processor Performance 🗸 🗸	
RAS Port 🗸 🗸	
RAS Total 🗸 🗸 🗸	
ReadyBoost Cache 🛛 🛞	
Redirector 🗸	
Search Gatherer 🔷 👻 💌	
Instances of selected object:	
Total <all instances=""> 0 ✓ Search Add >></all>	Remove <<
Show description	Help OK Cancel

Using Other Views



Creating an Effective Display

- Limit the number of counters
- Modify the counter display properties
- Choose counters with comparable values

Using Reliability Monitor

Collects and tracks information about system stability to calculate a stability index



Managing Performance

- Windows 7 includes a variety of controls and technologies that enable technical specialists to enhance and fine-tune the performance of their workstation:
 - Task Manager
 - Resource Monitor
 - Process Manager
 - System Configuration tool

Task Manager



lications Pro	cesses	Services	e Per	formance N	etworking Users	
Image Name	Use	er Name	CPU	Memory (Description	
audiodg.exe	LO	CAL	00	9,696 K	Windows Audio Device Gr	
csrss.exe	SYS	STEM	00	712 K	Client Server Runtime Pro	
csrss.exe	SYS	STEM	00	1,032 K	Client Server Runtime Pro	
dwm.exe	Ad	minis	00	560 K	Desktop Window Manager	
explorer.exe	Ad	minis	00	20,092 K	Windows Explorer	=
explore.exe	Ad	minis	00	31,244 K	Internet Explorer	
iexplore.exe	Ad	minis	00	8,472 K	Internet Explorer	
explore.exe	Adi	minis	00	19,800 K	Internet Explorer	
sass.exe	SYS	STEM	00	2,604 K	Local Security Authority P	
Ism.exe	SYS	STEM	00	600 K	Local Session Manager Se	
mmc.exe	Ad	minis	00	7,376 K	Microsoft Management Co	
msdtc.exe	NE	TWO	00	236 K	Microsoft Distributed Tran	
perfmon.exe	Ad	minis	00	14,256 K	Resource and Performanc	
SearchIndexe	SYS	STEM	00	7,344 K	Microsoft Windows Searc	
services.exe	SYS	STEM	00	2,064 K	Services and Controller app	
smss.exe	SYS	STEM	00	88 K	Windows Session Manager	
SnagIt32.exe	Ad	minis	00	1,360 K	SnagIt Screen Capture fo	
splwow64.ext	e Ad	minis	00	1,104 K	Print driver host for 32bit	
spoolsv.exe	SYS	STEM	00	1,208 K	Spooler SubSystem App	
sppsvc.exe	NE	TWO	00	1,464 K	Microsoft Software Protec	-
Show proce	sses fro	m all user	s		End Proces	s

Resource Monitor

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File Monitor Help									
Overview CPU Memory D)isk N	letwork							
CPU 28	6 CPU Usa	ge		100% Maxir	num Freque	ency 📀	Â	Views	• ^
🔲 Image	PID	Descrip	Status	Threads	CPU	Averag	^	CPU 1005	%т
perfmon.exe	2260	Resour	Runni	19	2	5.50	=		
System Interrupts	-	Deferr	Runni		0	0.55			
System	4	NT Ker	Runni	89	0	0.26			
svchost.exe (LocalSystemNet	800	Host Pr	Runni	17	0	0.21			
explorer.exe	2524	Windo	Runni	37	0	0.21		<u> </u>	
Snaglt32.exe	2104	Snaglt	Runni	2	0	0.11		M Nacara and	
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VMwareService.exe	1356	VMwar	Runni	7	0	0.10		Disk 100 KB/se	<u>د ا</u>
Csrss.exe	388	Client	Runni	8	0	0.10			
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Disk 🔳 0	KB/sec Dis	sk I/O		0% Highest	Active Time	. 🕑			
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Memory 🔳 0	Hard Faul	ts/sec		34% Used P	hysical Mer	nory 📀		Network 10 Kbp	0 J
Image	PID	Hard F	Commi	Worki	Sharea	Private	^		
sychost.exe (secsycs)	2000	0	65,372	19,384	6,740	12,644	- 11		
perfmon.exe	2260	0	14,068	23,384	11,228	12,156			
audiodg.exe	2052	0	14,108	14,912	5,204	9,708			
sychost.exe (LocalServiceNetwo	704	0	25,728	14,920	7,168	7,752	-		
mmc.exe	1956	0	15,496	21,244	13,776	7,468		1013/15 A	
sychost.exe (NetworkService)	652	0	12,048	13,028	9,236	3,792			0 1
svchost.exe (netsvcs)	828	0	20,852	16,636	12,984	3,652		Memory 100 Hard Faults/se	<u><u></u></u>
svchost.exe (LocalServiceNoNet	1116	0	10,700	8,560	5,588	2,972			
Snaglt32.exe	2104	0	3,476	8,924	6,304	2,620			
Isass.exe	480	0	4,348	9,260	6,744	2,516			
sppsvc.exe	2020	0	6,968	8,444	6,348	2,096			
services.exe	472	0	5,152	7,620	5,560	2,060			
sychost.exe (LocalService)	1008	0	7,308	9,628	7,712	1,916			
svchost.exe (RPCSS)	656	0	3,544	5,648	3,980	1,668	-		0 1
Lan	1356		F C 40	6 200	4.776	1.522	-	·	¥

Using Process Explorer

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Process	PID	CPU	Description	Company Name	
🖃 🔝 System Idle Process	0	98.44			
Interupts	n/a	1.56	Hardware Interrupts		
DPCs	n/a		Deferred Procedure Calls		
System	4				
smss.exe	252		Windows Session Manager	Microsoft Corporation	-
CSrss.exe	340		Client Server Runtime Process	Microsoft Corporation	-
🖃 📰 wininit.exe	376		Windows Start-Up Application	Microsoft Corporation	
services.exe	472		Services and Controller app	Microsoft Corporation	
svchost.exe	596		Host Process for Windows S	Microsoft Corporation	
svchost.exe	656		Host Process for Windows S	Microsoft Corporation	
svchost.exe	704		Host Process for Windows S	Microsoft Corporation	
audiodg.exe	2304		Windows Audio Device Grap	Microsoft Corporation	
svchost.exe	800		Host Process for Windows S	Microsoft Corporation	
dwm.exe	1592		Desktop Window Manager	Microsoft Corporation	
svchost.exe	828		Host Process for Windows S	Microsoft Corporation	
wuauclt.exe	1844		Windows Update	Microsoft Corporation	
svchost.exe	1008		Host Process for Windows S	Microsoft Corporation	
svchost.exe	652		Host Process for Windows S	Microsoft Corporation	
spoolsv.exe	1080		Spooler SubSystem App	Microsoft Corporation	
svchost.exe	1116		Host Process for Windows S	Microsoft Corporation	
svchost.exe	1244		Host Process for Windows S	Microsoft Corporation	
WWwareService.exe	1356		VMware Tools Service	VMware, Inc.	Ŧ
sdtc.exe	•			Þ	
CPU Usage: 1.56% Commit Charge	: 38.22%	Proce	esses: 42 Physical Usage: 43	.54%	æ

Using the System Configuration Tool

System Configuration General Boot Services Startup Tools Startup selection Otion Oti	System Configuration			
Load basic devices and services only	General Boot Services	Startup Tools		
 Selective startup Load system services Load startup items Load startup items Use original boot configuration 	Startup Item Man	ufacturer Command are, Inc. "C:\Program Fil are, Inc. "C:\Program Fil	Location HKLM\SOFTWARE\M HKLM\SOFTWARE\M	Date Disabled
		ОК	Enable all	Disable all

Managing Services

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File Action View	Help					
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Services (Local)	Name	Description	Status	Startup Type	Log On As	
	🔍 ActiveX Installer (AxInstSV)	Provides Us		Manual	Local Syste	Ξ
	🔍 Adaptive Brightness	Monitors a		Manual	Local Service	
	🔍 Application Experience	Processes a		Manual	Local Syste	
	🔍 Application Identity	Determines		Manual	Local Service	
	🔍 Application Information	Facilitates t		Manual	Local Syste	
	🔍 Application Layer Gateway Service	Provides su		Manual	Local Service	
	🔍 Application Management	Processes in		Manual	Local Syste	
	端 Background Intelligent Transfer Service	Transfers fil	Started	Manual	Local Syste	
	🔍 Base Filtering Engine	The Base Fil	Started	Automatic	Local Service	
	🖗 BitLocker Drive Encryption Service	BDESVC hos		Manual	Local Syste	
	🔍 Block Level Backup Engine Service	The WBENG		Manual	Local Syste	
	🔍 Bluetooth Support Service	The Bluetoo		Manual	Local Service	
	🔐 BranchCache	This service		Manual	Network S	
	🔍 Certificate Propagation	Copies user		Manual	Local Syste	
	🔍 CNG Key Isolation	The CNG ke		Manual	Local Syste	
	🔍 COM+ Event System	Supports Sy	Started	Automatic	Local Service	-
	Evtended & Standard					

Configuring Performance Option Settings

ual Effects	Advanced	Data Execution Prevention	
elect the se erformance	ttings you w of Windows	ant to use for the appearance on this computer.	and
Let Windo	ws choose v	what's best for my computer	
Adjust for	best appea	rance	
Adjust for	best gerfor	mance	
Custom:			
Animate Animate Animate Animatio Animatio Fade or Fade ou Fade ou Show sh Show tra Show tra	controls and windows wh ns in the tas slide menus slide ToolTip t menu items adows unde adows unde inslucent sel	d elements inside windows ten minimizing and maximizing skbar and Start Menu into view s into view s after clicking r mouse pointer r windows lection rectangle	
Show wi	ndow conter	nts while dragging	
Side ope	adoes of ser	een fonts	
Smooth-	scroll list how	2011 10112	
V Use drop	shadows for	or icon labels on the desktop	
Use visu	al styles on	windows and buttons	
Use visu	ai styles on t	windows and buttons	
		OK Cancel	Apply

Virtual Memory
Automatically manage paging file size for all drives Paging file size for each drive Drive [Volume Label] Paging File Size (MB) C: System managed
Selected drive: C: Space available: 15447 MB
Custom size: Initial size (MB):
Maximum size (MB):
System managed size
No paging file Set
Total paging file size for all drives
Minimum allowed: 16 MB
Recommended: 1534 MB Currently allocated: 1024 MB
OK Cancel

Configuring Power Settings

- Sontrol Panel +	Hardware and Sound Power Options	- 49	Search Control Panel	
Control Panel Home Require a password on wakeup Choose what the power buttons do Create a power plan Choose when to turn off the display Change when the computer sleeps	Hardware and Sound Power Options Select a power plan Power plans can help you maximize your computer's performance or conserve energy. active by selecting it, or choose a plan and customize it by changing its power settings. about power plans Preferred plans Preferred plans Balanced (recommended) Change Automatically balances performance with energy consumption on capable hardw Power saver Saves energy by reducing your computer's performance where possible. Show additional plans		Search Control Panel mance or conserve energy. M hanging its power settings. I Change p umption on capable hardwa Change p te where possible.	lake a plan ell me more lan settings re. lan settings
See also Personalization User Accounts				

Configuring Hard Disk Caching

- Trade off between safety and performance
- Write caching is when the device stores data in temporary memory until the slower devices can catch up – Disk writing can happen in the background while a user continues to work
- Clearing the Enable write caching on the device increases safety but reduces disk performance

Using ReadyBoost

 Enables you to use the storage space on a USB flash drive to free up system memory for other uses

Skills Summary

- Keeping Windows 7 systems updated is one of the primary tasks of the technical specialist, who should be familiar with the types of update releases and the methods for deploying updates.
- Event Viewer is used to display log information gathered by the operating system.
- Performance Information and Tools page provides a snapshot of your computer's performance.
- Performance Monitor console enables you to view much of the same information, but on a continuous, real-time basis.

Skills Summary (cont.)

- The Resource Monitor program contains four realtime line graphs that display information about four of the main system hardware components.
- Reliability Monitor calculates a stability index.
- Windows 7 provides a variety of tools for monitoring and managing processes.
- ReadyBoost enables Windows 7 to use the storage space on USB devices to free up system memory.