

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

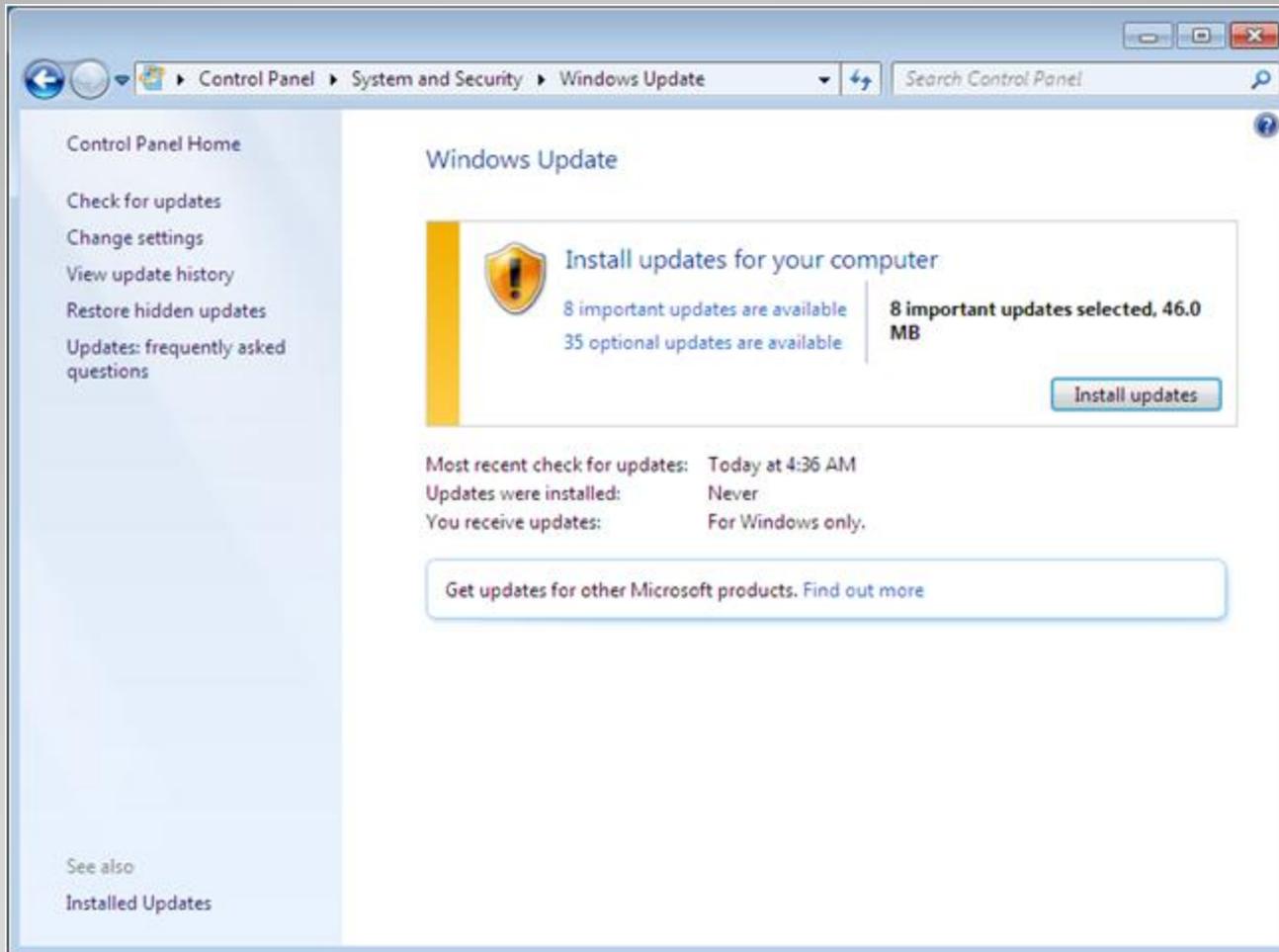
Update Categories

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

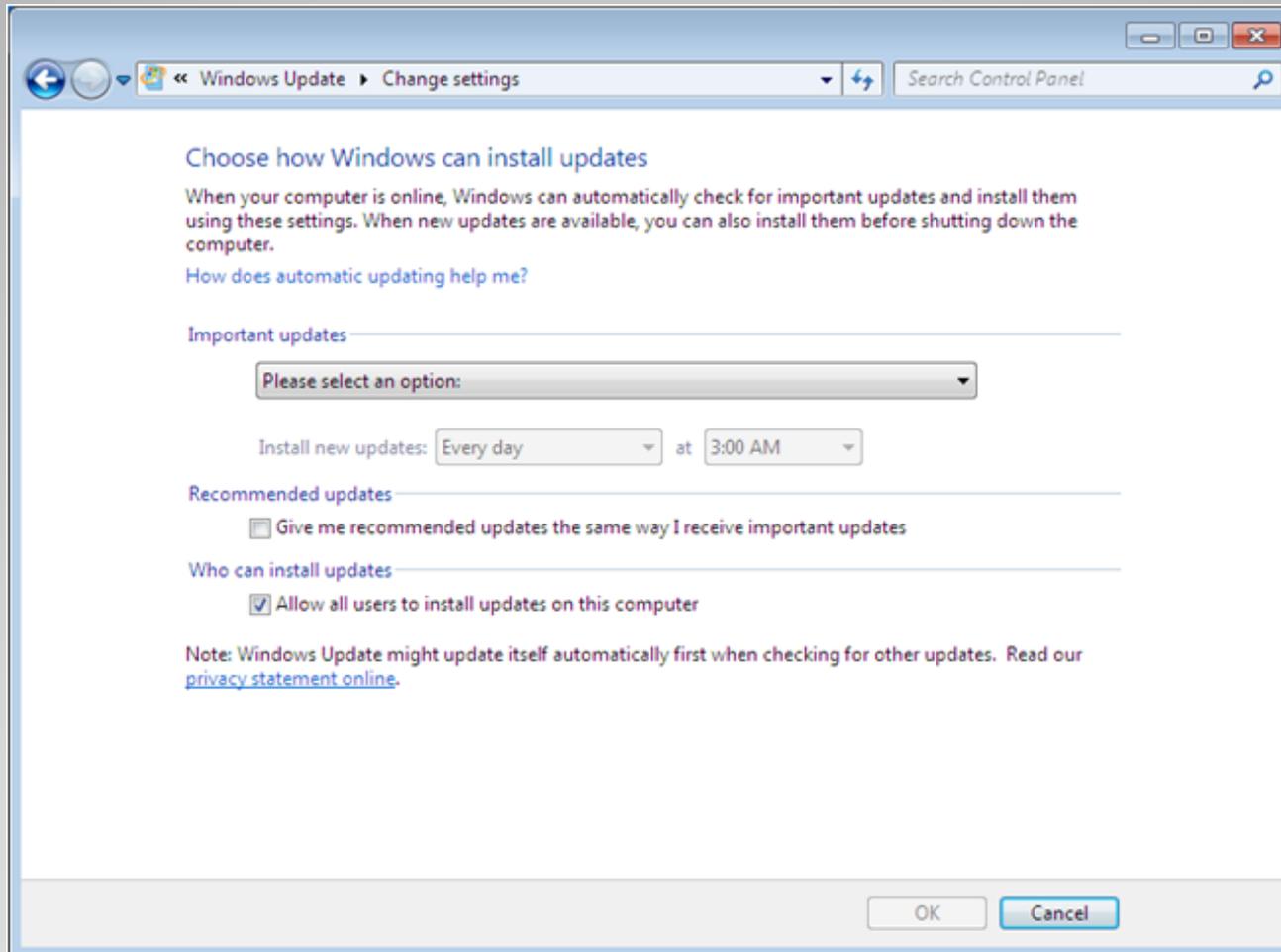
Applying Updates

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

Using the Windows Update Client



Configuring the Windows Update Client



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)

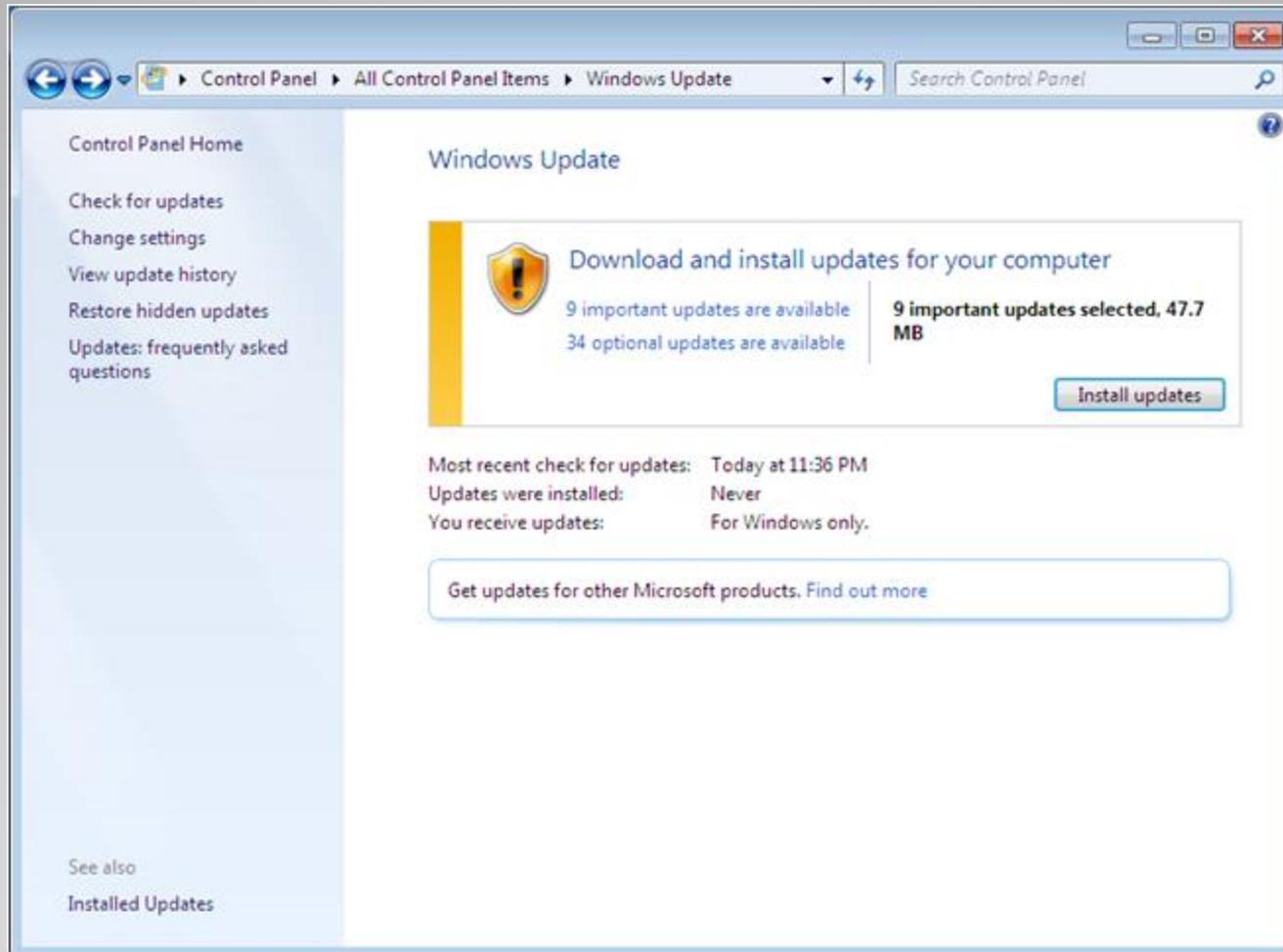
Configuring Windows Update Using Group Policy

The screenshot displays the Group Policy Management Editor window. The left pane shows a tree view of policy categories, with 'Windows Update' selected. The right pane shows a list of 16 settings, all of which are currently 'Not configured'. The settings include options for displaying update options, adjusting default options, enabling power management, configuring automatic updates, specifying service locations, detection frequency, notifications, software notifications, immediate installation, recommended updates, auto-restart, re-prompting, delay restart, rescheduling, client-side targeting, and signed updates.

Setting	State
Do not display 'Install Updates and Shut Down' option in Shut Down Wind...	Not configured
Do not adjust default option to 'Install Updates and Shut Down' in Shut D...	Not configured
Enabling Windows Update Power Management to automatically wake up t...	Not configured
Configure Automatic Updates	Not configured
Specify intranet Microsoft update service location	Not configured
Automatic Updates detection frequency	Not configured
Allow non-administrators to receive update notifications	Not configured
Turn on Software Notifications	Not configured
Allow Automatic Updates immediate installation	Not configured
Turn on recommended updates via Automatic Updates	Not configured
No auto-restart with logged on users for scheduled automatic updates ins...	Not configured
Re-prompt for restart with scheduled installations	Not configured
Delay Restart for scheduled installations	Not configured
Reschedule Automatic Updates scheduled installations	Not configured
Enable client-side targeting	Not configured
Allow signed updates from an intranet Microsoft update service location	Not configured

16 setting(s)

Triggering an Update



The screenshot shows the Windows Update control panel window. The title bar indicates the path: Control Panel > All Control Panel Items > Windows Update. The main content area is titled "Windows Update" and features a yellow shield icon with an exclamation mark. The primary message is "Download and install updates for your computer". Below this, it states "9 important updates are available" and "34 optional updates are available". On the right side, it shows "9 important updates selected, 47.7 MB" and an "Install updates" button. A summary section below provides the following information:

Most recent check for updates:	Today at 11:36 PM
Updates were installed:	Never
You receive updates:	For Windows only.

At the bottom, there is a link: "Get updates for other Microsoft products. Find out more".

On the left sidebar, the following options are listed:

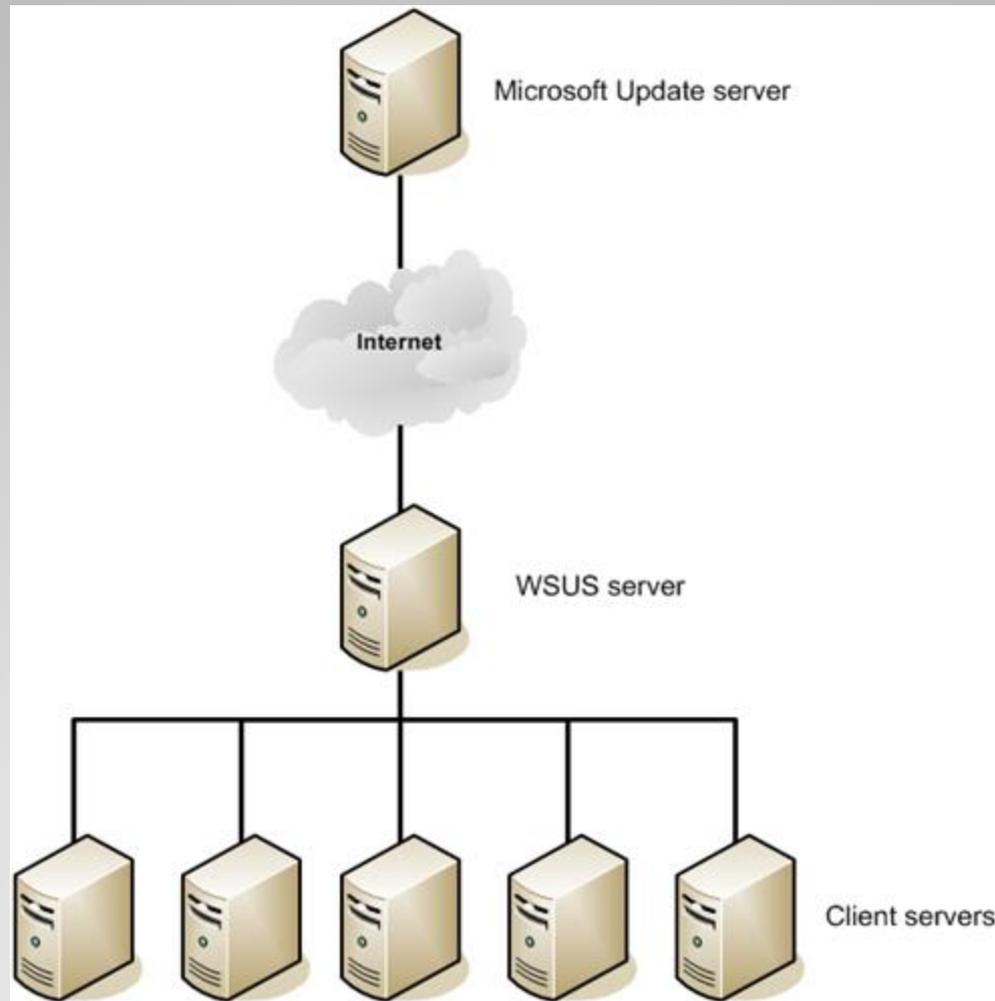
- Control Panel Home
- Check for updates
- Change settings
- View update history
- Restore hidden updates
- Updates: frequently asked questions

At the bottom left, there is a "See also" section with a link to "Installed Updates".

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

The screenshot shows the Windows Event Viewer application window. The left-hand pane displays the console tree with the following structure:

- Event Viewer (Local)
 - Custom Views
 - Administrative Events
 - Windows Logs
 - Application
 - Security
 - Setup
 - System
 - Forwarded Events
 - Applications and Services Logs
 - Subscriptions

The main pane is titled "Event Viewer (Local) Overview and Summary" and indicates it was last refreshed on 1/27/2010 at 2:48:46 PM. It contains the following sections:

- Overview:** A text box explaining that users should select an appropriate source, log, or custom view node in the console tree. It notes that the Administrative Events custom view contains all administrative events, regardless of source.
- Summary of Administrative Events:** A table showing the count of events for various types and sources over the last hour and 24 hours.
- Recently Viewed Nodes:** A dropdown menu currently showing no items.
- Log Summary:** A dropdown menu currently showing no items.

Event Type	Event ID	Source	Log	Last hour	24 hours
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
	5379	Comolus	Application	0	0

Viewing Windows Logs

The screenshot displays the Windows Event Viewer application. The left-hand pane shows a tree view with 'Event Viewer (Local)' expanded to 'Windows Logs', where 'System' is selected. The main pane shows a list of events from the System log, with 1,355 events in total. The selected event, ID 7036, is detailed in the bottom pane. The event message states: 'The Multimedia Class Scheduler service entered the stopped state.' The details pane provides the following information:

Property	Value
Log Name:	System
Source:	Service Control Manager
Event ID:	7036
Level:	Information
Logged:	1/27/2010 3:08:45 PM
Task Category:	None
Keywords:	Classic

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

The screenshot shows the Windows Performance Information and Tools control panel window. The title bar reads "All Control Panel Items > Performance Information and Tools". The main content area is titled "Rate and improve your computer's performance" and explains that the Windows Experience Index assesses key system components on a scale of 1.0 to 7.9. A table lists the components and their scores, with a large "1.0" score displayed on the right, noted as "Determined by lowest subscore". Below the table are links for help and tips, and a "Re-run the assessment" button. The left sidebar contains navigation links like "Adjust visual effects" and "Advanced tools".

Control Panel Home

- Adjust visual effects
- Adjust indexing options
- Adjust power settings
- Open disk cleanup
- Advanced tools

Rate and improve your computer's performance

The Windows Experience Index assesses key system components on a scale of 1.0 to 7.9.

Component	What is rated	Subscore	Base score
Processor:	Calculations per second	4.5	 Determined by lowest subscore
Memory (RAM):	Memory operations per second	4.5	
Graphics:	Desktop performance for Windows Aero	1.0	
Gaming graphics:	3D business and gaming graphics performance	1.0	
Primary hard disk:	Disk data transfer rate	6.5	

 What do these numbers mean?

 Tips for improving your computer's performance.

 [View and print detailed performance and system information](#)

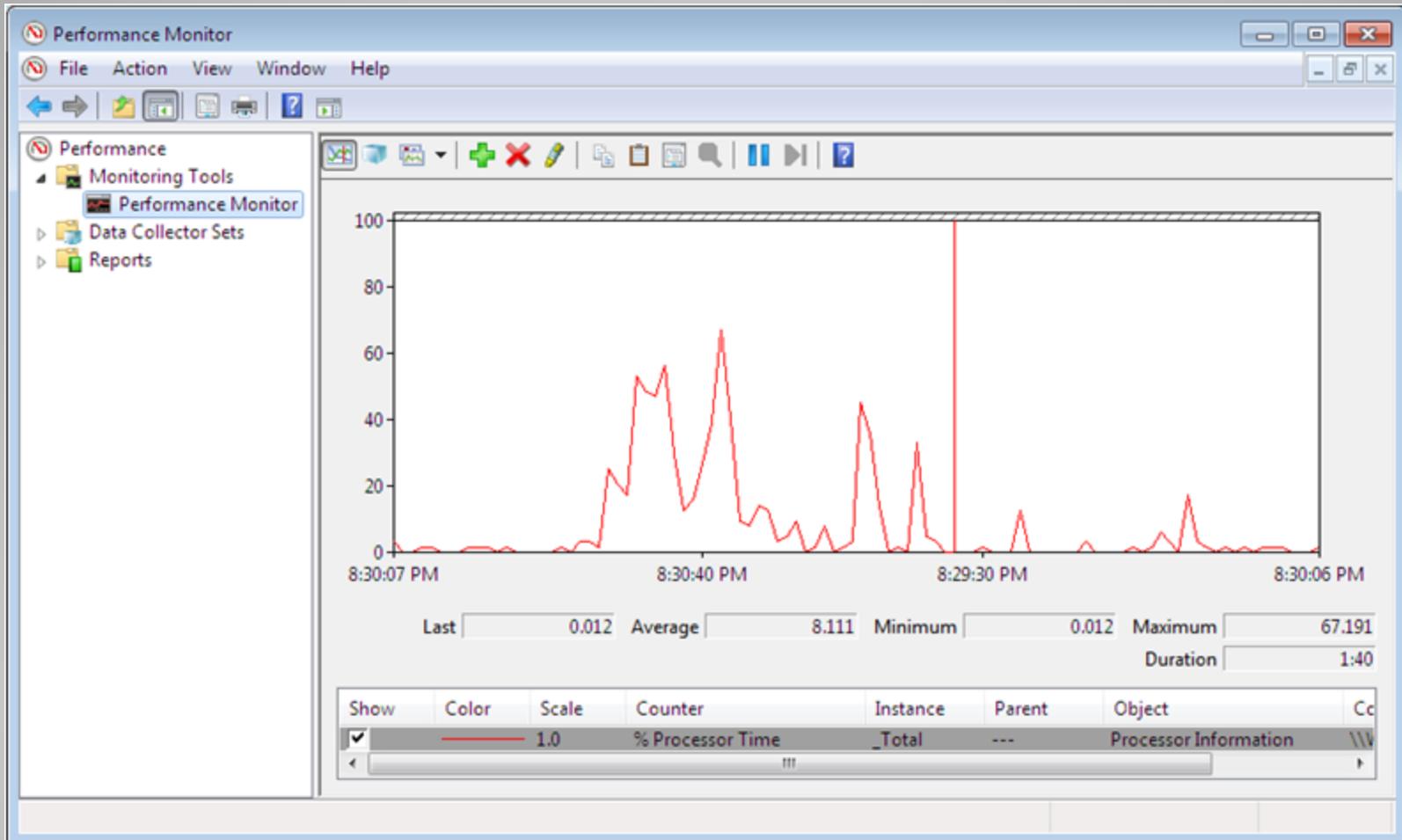
 [Learn more about scores and software online](#)

Your scores are current
Last update: 1/25/2010 10:13:46 PM

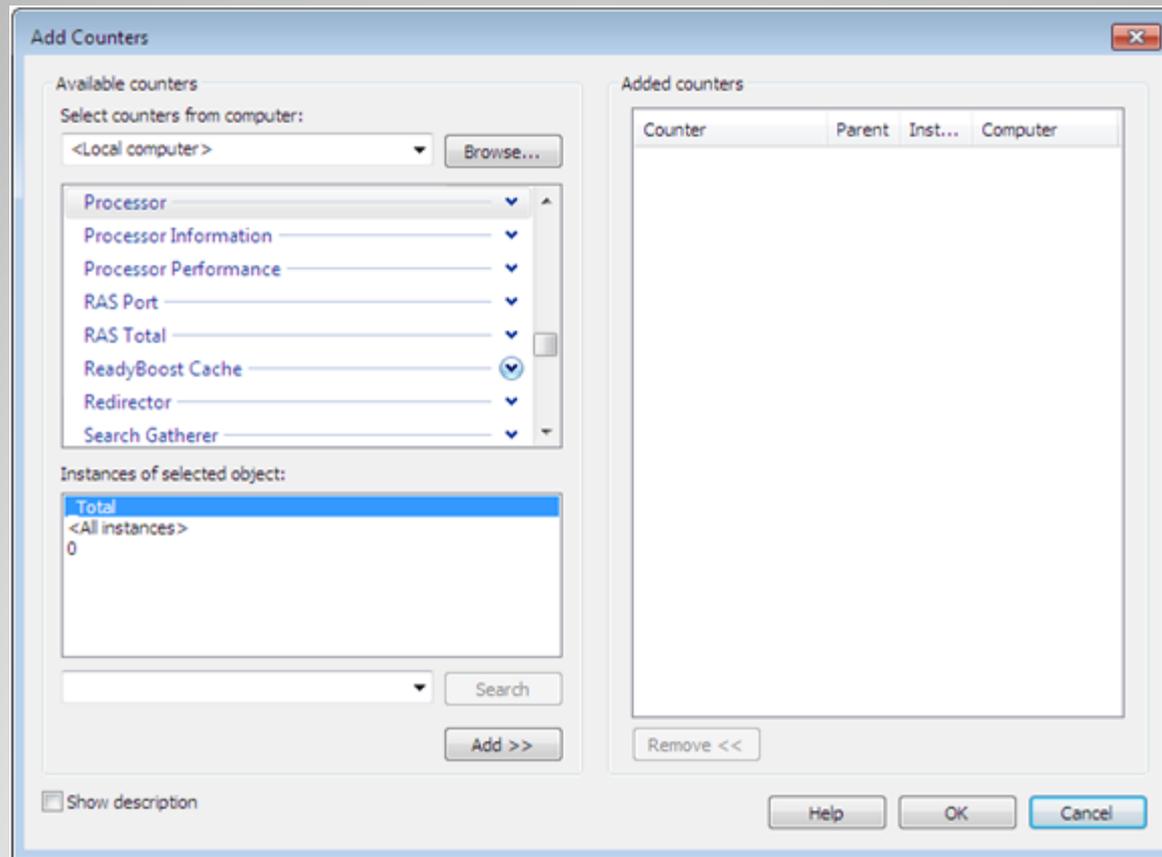
 [Re-run the assessment](#)

See also
[Action Center](#)

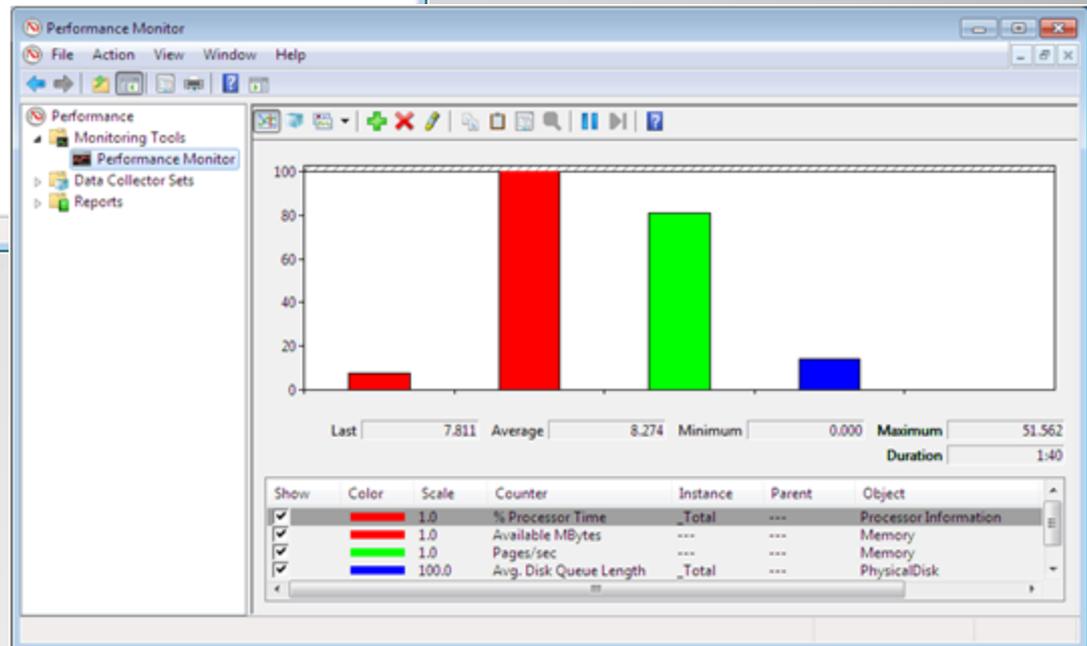
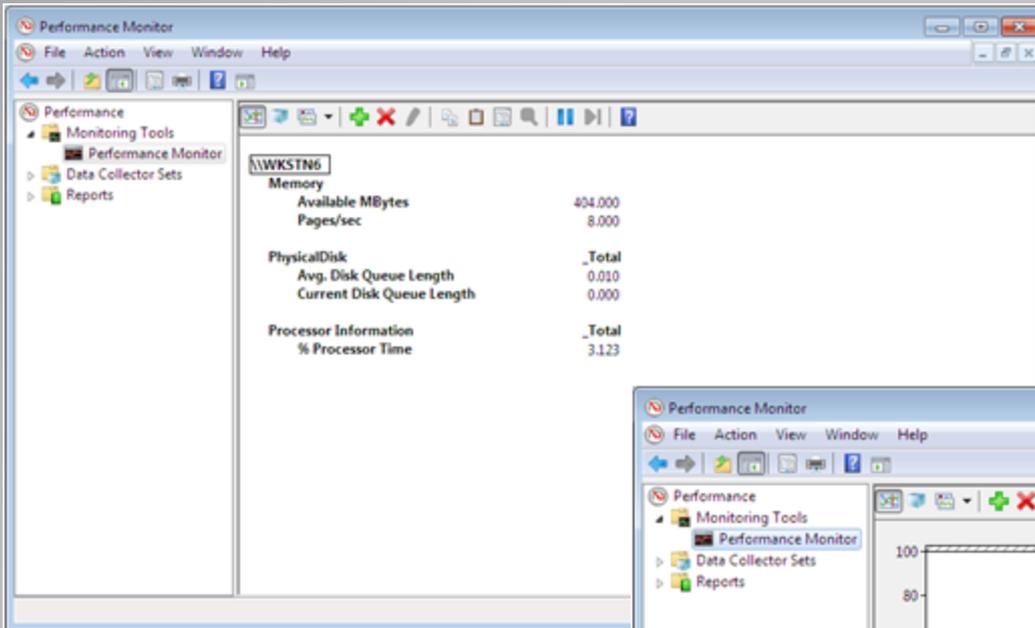
Using the Performance Monitor Console



Adding Counters



Using Other Views

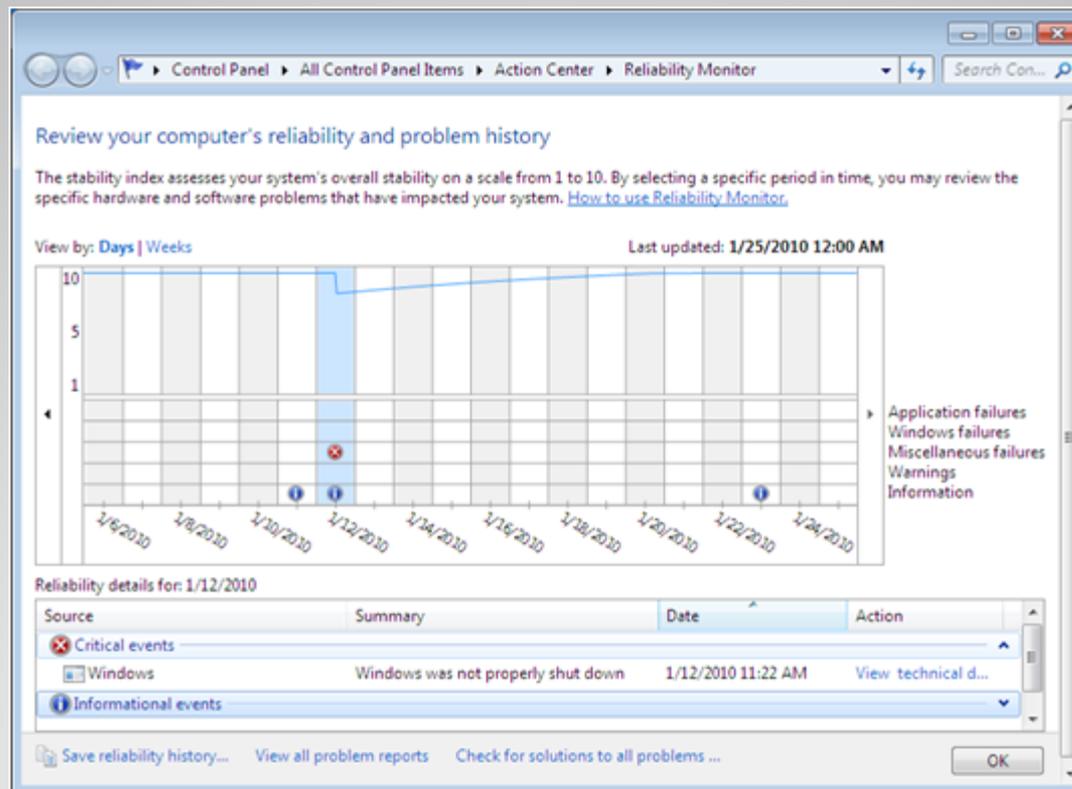


Creating an Effective Display

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

Using Reliability Monitor

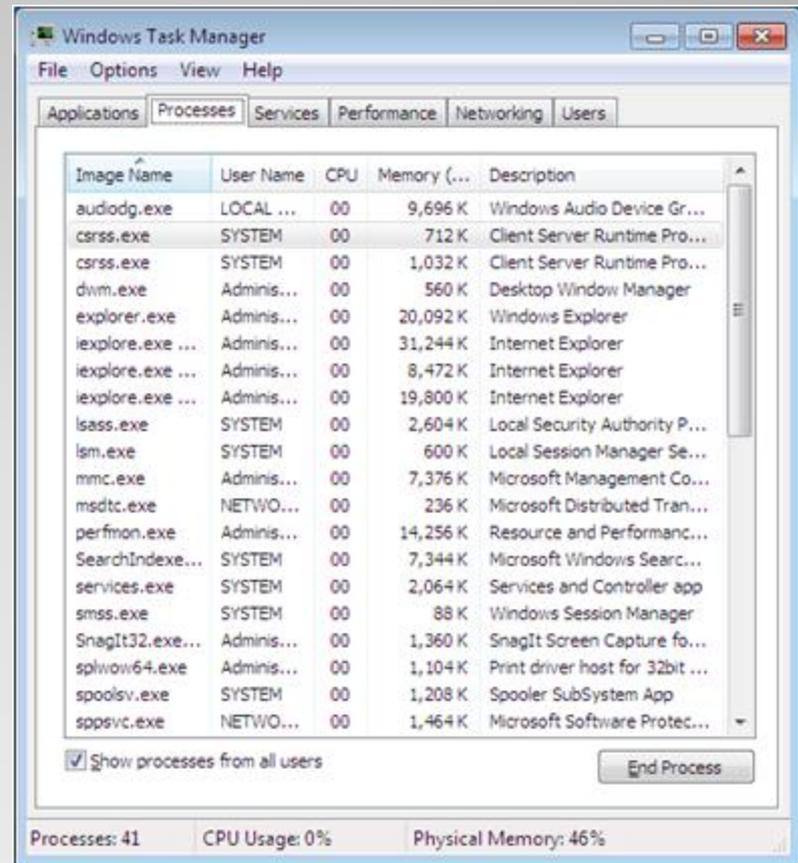
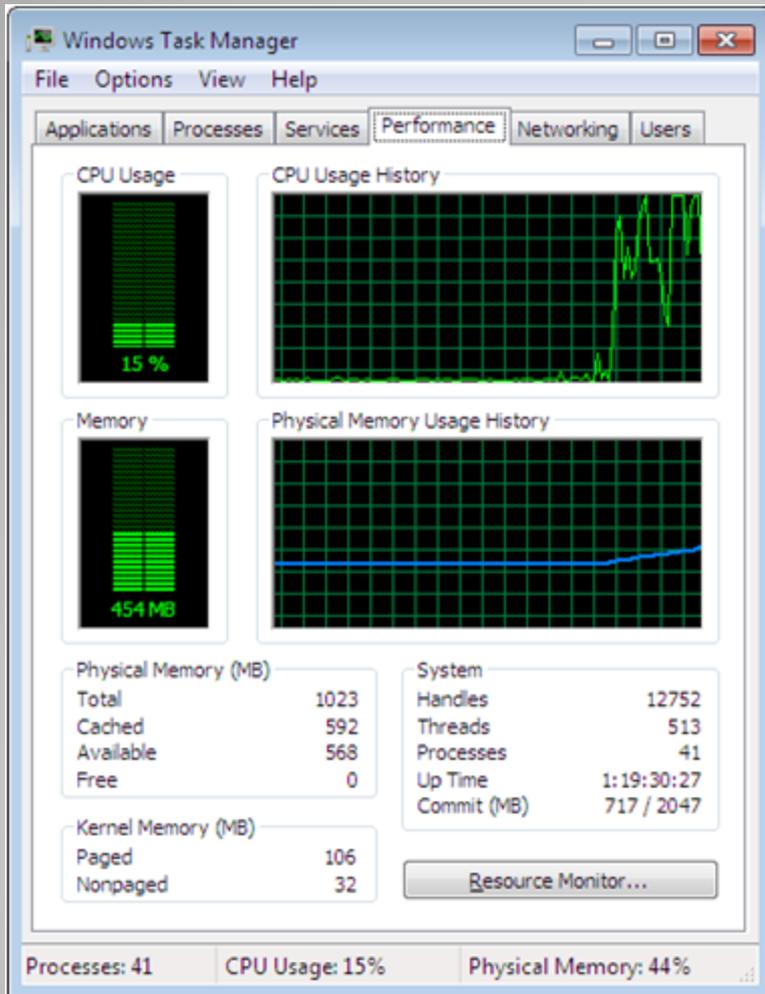
Collects and tracks information about system stability to calculate a stability index



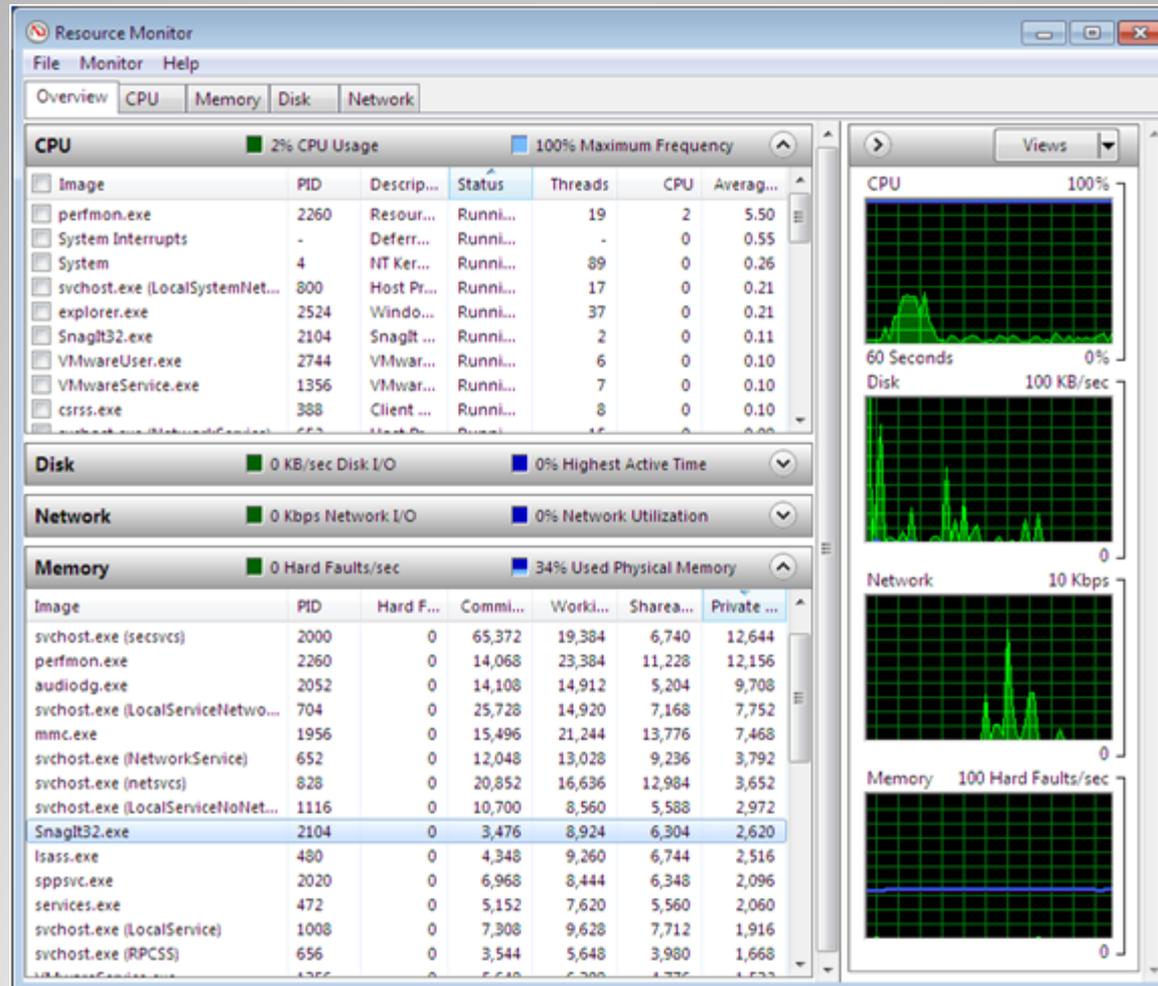
Managing Performance

- 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



Resource Monitor



Using Process Explorer

Process Explorer - Sysinternals: www.sysinternals.com [EXAMPLE\Administrator]

File Options View Process Find Users Help

Process	PID	CPU	Description	Company Name
System Idle Process	0	98.44		
Interupts	n/a	1.56	Hardware Interupts	
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
VMwareService.exe	1356		VMware Tools Service	VMware, Inc.
msdtc.exe				

CPU Usage: 1.56% Commit Charge: 38.22% Processes: 42 Physical Usage: 43.54%

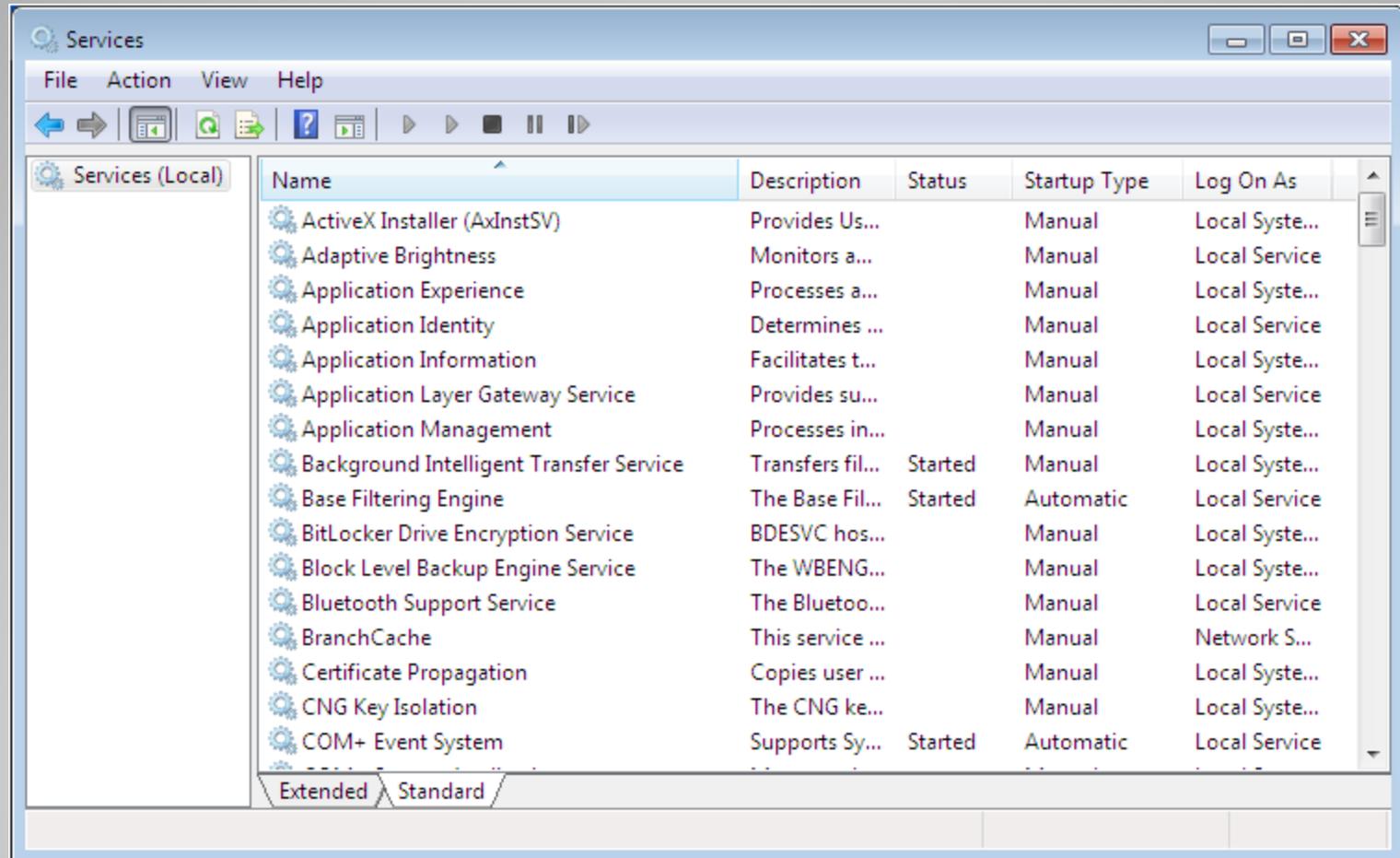
Using the System Configuration Tool

The image displays two overlapping windows of the Windows System Configuration tool. The background window is on the 'Startup' tab, showing the 'Startup selection' section with three radio buttons: 'Normal startup' (selected), 'Diagnostic startup', and 'Selective startup'. Under 'Selective startup', there are three checked checkboxes: 'Load system services', 'Load startup items', and 'Use original boot configuration'. The foreground window is also on the 'Startup' tab and shows a table of startup items.

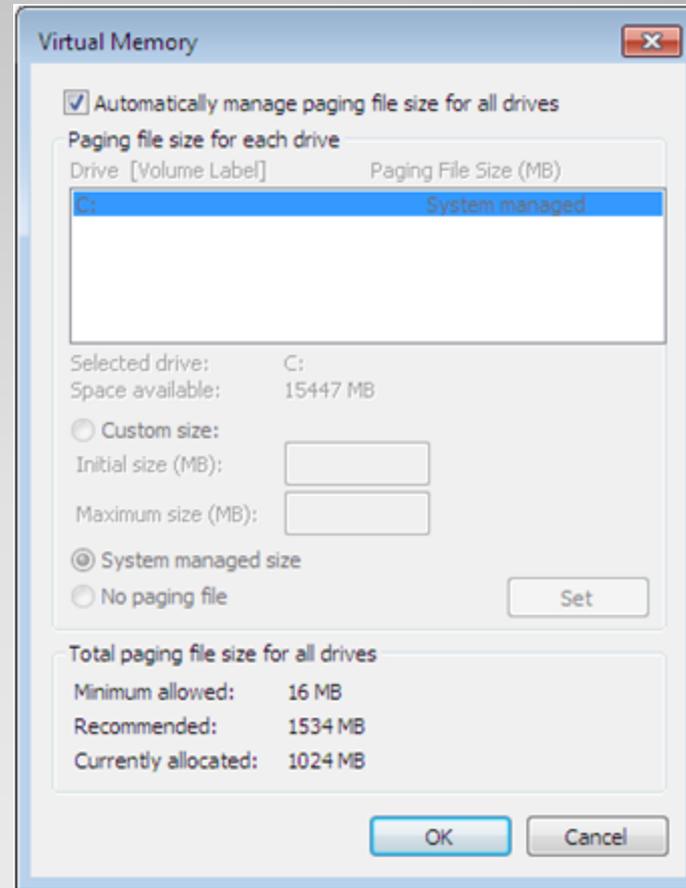
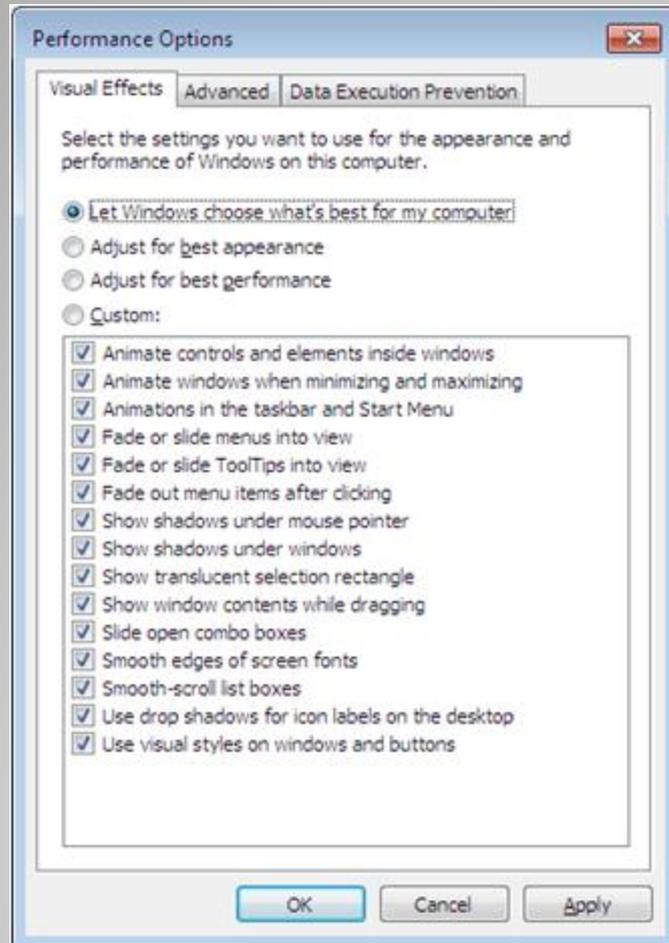
Startup Item	Manufacturer	Command	Location	Date Disabled
<input checked="" type="checkbox"/> VMware Tools	VMware, Inc.	"C:\Program Fil...	HKLM\SOFTWARE\M...	
<input checked="" type="checkbox"/> VMware Tools	VMware, Inc.	"C:\Program Fil...	HKLM\SOFTWARE\M...	

At the bottom of the foreground window, there are buttons for 'Enable all', 'Disable all', 'OK', 'Cancel', 'Apply', and 'Help'.

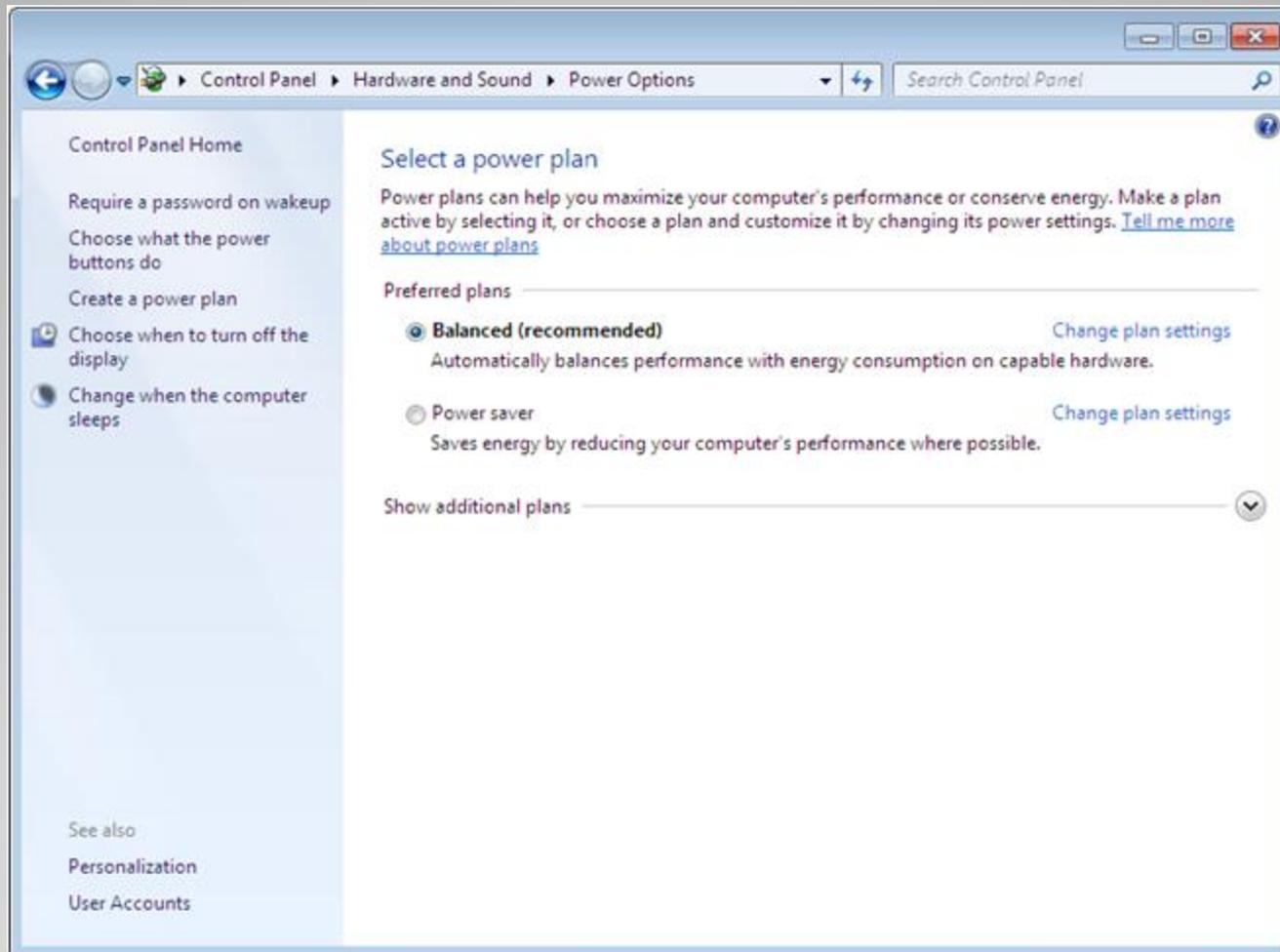
Managing Services



Configuring Performance Option Settings



Configuring Power Settings



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 real-time 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.