

#### By Debra Littlejohn Shinder, MVP, MCSE

Windows Vista is packed with cool eye candy, handy new features, and improved security. But all this comes at a price — and many new Vista users are paying that price in the form of decreased performance as compared to Windows XP. Performance issues are the most common complaint I hear from readers who've just installed Vista or bought a new Vista machine, and my own experience shows that the concerns are valid.

Vista Ultimate runs great on my primary desktop computer, a fast Dell XPS with 4 GB of RAM. No noticeable performance problems there. So I expected the same when I bought a new laptop. I loved my little Sony TX model with XP, so I looked to replace it with an almost identical model running Vista Business Edition. It came with 1 GB of RAM (the XP machine has 512 MB), which I thought would be enough. However, I noticed from the beginning that the new computer took minutes to boot up instead of seconds, and running more than a couple of applications at a time slowed things down to an unacceptable level. Running Vista became the "hurry up and wait" experience that I'd heard about from other users.

I bought another 512 MB of RAM for it, maxing out its memory capacity, and got a 4GB USB drive optimized for ReadyBoost. All that helped some, but it was still significantly slower than its XP counterpart.

That's when I went looking for more ways to improve the performance of my laptop. Here's a look at some of the things that worked — and some that didn't.

# Turn off the bling

One obvious way to make Vista run more like XP is to, well, make Vista more like XP. Turning off the fancy Aero interface, turning off the sidebar, and otherwise disabling the features that make Vista look and feel unique will help speed up performance. But for most of us, that's not exactly the solution we were looking for.

# Indentify your bottlenecks

The first step in fixing a problem is to find out exactly what's broken. Vista includes a number of tools that help you pinpoint the cause of performance problems.

### **Performance Monitor**

Vista, like its business-oriented predecessors (XP Professional, Windows 2000, and NT Workstation), includes a performance monitoring tool that allows you to do detailed monitoring of various counters relating to both software and hardware components.

You'll find the tool under a new name, Reliability And Performance Monitor, on the Administrative Tools menu in Control Panel.

**Figure A** shows the Performance Monitor, monitoring % Processor Time and Memory Pages/Second.



Page 1 Copyright ©2007 CNET Networks, Inc. All rights reserved. For more downloads and a free TechRepublic membership, please visit http://techrepublic.com.com/2001-6240-0.html The Performance Monitor is a great tool for IT pros, but it may be a bit daunting for the average user. Luckily, Vista has a simpler way for you to know, at a glance, which of your hardware components may be bottlenecks when it comes to running Aero.

## Performance Information And Tools

A new feature in Vista is the Performance Information And Tools control panel, which analyzes your computer's hardware components and assigns a rating known as the Windows Experience Index (WEI) score. Your processor, RAM, graphics capabilities (separately rated for Aero and for gaming/3D), and primary hard disk are each rated individually. The lowest score determines your overall WEI score.

Possible scores range from 1.0 to 5.9. Generally, a computer needs a base WEI of 3.0 or better to satisfactorily run Aero and other advanced features. To find out your WEI, click Start | Control Panel | Performance Information And Tools.

Running this tool showed me why using Vista on my laptop was such a different experience from using it on my desktop. As shown in **Figure B** and **Figure C**, the desktop machine's hardware rated a 5.1, whereas the laptop scored a measly 2.0.

As you can see, the RAM scores fine now, with 1.5 GB of memory, and the hard disk isn't the problem, either. Even the processor is close to the 3.0 threshold. But the graphics adapter in the laptop is not up to the task of running Aero.







Figure C

That leads me to this question: Why is Sony selling these systems with Vista Business installed if they won't run the interface properly? But that doesn't help with the immediate problem: How can I make this computer work acceptably and benefit from at least some of Vista's new features?

The Performance Information And Tools interface makes it easy for you to tweak several components that can affect Vista performance. These options are shown in the Tasks pane on the left side of the window, as you can see in Figure C. Some performance tweaks you can do from this interface include:

- Managing startup programs to help Vista load more quickly
- Adjusting visual effects to help Vista perform better if you have an inadequate video card
- Adjusting other advanced settings that affect performance, such as processor allocation and paging file location and size
- Adjusting indexing options to prevent indexing from using up too many resources and thus slowing other applications
- Adjusting power settings to balance performance needs with energy conservation needs
- Cleaning up the hard disk so Vista can access data stored there more quickly
- Using advanced tools, such as the disk defragmenter, task manager, system information tool, event logs, and Reliability And Performance Monitor to diagnose performance problems and fix them

### Manage startup programs

The more programs you have loading when the computer boots up, the longer it will take for the operating system to be ready to use. You can cut down on startup time by eliminating from startup those programs you don't really need to run every time you start the computer.

Clicking the Manage Startup Programs selection in Performance Information And Tools will open the Windows Defender Software Explorer, as shown in **Figure D**.

You can scroll through the list to see all the programs that run at startup. The

Windows Detender	Cools ? - Windows
View or manage important security-related areas of Category: Startup Programs	the computer, <u>Using Software Explorer</u>
Name Classification	GrooveMonitor Utility
GrooveMonitor Utility Permitted     Messenger Permitted     Microsoft Internet Security Permitted     Microsoft Media Center Tra Permitted     Microsoft Office OneNote Permitted     Microsoft People Near Me Permitted     Microsoft System Configura Permitted     Microsoft Userinit Logon A Permitted     Microsoft Windows Explorer Permitted     Microsoft Windows Explorer Permitted	File Name: GrooveMonitor.exe         Display Name: GrooveMonitor Utility.         Description: GrooveMonitor Utility.         Publisher: Microsoft Corporation         Digitally Signed By: Microsoft Code Signing PCA         File Type: Application         Startup Value: "V:\Program Files\Microsoft Office\Office12\GrooveMonitor.exe         File Size: 31016         File Version: 12.0.4518.1014         Date Installed: 10/27/2006 01:47:42         Startum Tume: Resiston Local Machine
Refresh Show for all users	<u>R</u> emove <u>D</u> isable <u>E</u> nable



right pane displays a great deal of information about the selected program, including its filename, display name, description, publisher, digital signature information, startup value, path, file size, version number, the date it was installed, startup type (where it is designated to start up on boot — for example, in the Current User settings in the registry), location, and whether the program shipped with the operating system.

Some programs can be removed or disabled by selecting the program in the left pane and clicking the Remove or Disable button in the bottom-right area of the window. Others will have these buttons grayed out. If the Remove and Disable buttons are unavailable, you'll need to remove the program from startup manually. This may involve removing it from the Startup folder, which you'll find on the Start | All Programs menu, as shown in **Figure E**.

You can also navigate to the Startup folder in the file system via Windows Explorer, as shown in **Figure F**.

To find the Startup folder in the file system, just rightclick on it on the All Programs menu and click Open or go to the disk on which Vista is installed and navigate to Users\<your profile> or All Users\AppData\Roaming\-Microsoft\Windows\StartMenu\Programs\Startup.

You can remove programs from the folder by right-clicking and deleting. The programs here are shortcuts, so you will not affect the program itself. You can also find a list of startup programs in the System Information tool, as shown in **Figure G**.



Figure E

🄄 Organize 🔻 🏢 Views 👻 🖲 Burn	h				
Favorite Links	Name	<u> </u>	Date modified	Туре	Size
Documents More »	o de T	esktop.ini neNote 2007 Screen	1/16/2007 15:59 3/18/2007 10:58	Configuration Sett Shortcut	1 K 2 K
Folders	~				
Stationery Sticky Notes SystemCertificates Femplates UProof Wintual PC Web Server Extension: Windows Cookies Network Shortcuts Printer Shortcuts SendTo Start Menu Start Menu Accessories Administrative T Maintenance PowerDesk Pro !					

System Summary	Program	Command	User Name	Location
<ul> <li>Hardware Resources</li> <li>Components</li> <li>Software Environment</li> <li>System Drivers</li> <li>Signed Drivers</li> <li>Environment Variables</li> <li>Print Jobs</li> <li>Network Connections</li> <li>Running Tasks</li> <li>Loaded Modules</li> <li>Services</li> <li>Program Groups</li> <li>Startup Programs</li> <li>OLE Registration</li> <li>Windows Error Reporting</li> </ul>	avast! CollaborationHost CTHelper CTxfiHlp ehTray.exe GrooveMonitor Microsoft Firewall Clie MSConfig MsnMsgr OneNote 2007 Screen QuickTime Task Sidebar UltraMon VirtualCloneDrive Windows Defender Windows Mobile-base	<ul> <li>v:\progra~1\alwils~1\avast4\a</li> <li>v:\windows\system32\p2phost</li> <li>cthelper.exe</li> <li>ctxfihlp.exe</li> <li>v:\windows\ehome\ehtray.exe</li> <li>"v:\program files\microsoft office</li> <li>v:\progra~1\micros~2\fwcmg</li> <li>"v:\program files\msn messen</li> <li>onenote 2007 screen clipper a</li> <li>"v:\program files\quicktime\qtt</li> <li>v:\program files\ultramon\ultr</li> <li>"v:\program files\ultramon\ultr</li> <li>"v:\program files\windows side</li> <li>%program files\\ultramon\ultr</li> <li>%program files\\ultramon\ultr</li> <li>%windir%\windowsmobile\wm</li> </ul>	Public TACTEAM\de Public Public TACTEAM\de Public Public TACTEAM\de Public TACTEAM\de Public TACTEAM\de Public Public Public Public Public Public Public Public	HKLM\SOFT HKU\S-1-5-2. HKLM\SOFT HKLM\SOFT HKU\S-1-5-2. Monitor.exe" Common Sta HKLM\SOFT HKU\S-1-5-2. Startup HKLM\SOFT HKLM\SOFT HKLM\SOFT HKLM\SOFT HKLM\SOFT
ind what:			Find	Close Find

#### Figure G

To access the System Information tool, type *msinfo32* in the Start Menu's Search/Run box or on the All Programs | Accessories | System Tools menu. This tool is for viewing the information only; you can't make changes to the startup programs here.

In some cases, you may have to edit the registry to prevent a program from loading at startup. The System Information tool will show you the location in the registry that needs to be edited.

# Adjust visual effects settings

You may be able to speed up performance by adjusting the settings of Vista's visual effects, thus sacrificing some of the bling for increased performance. When you click this option in the Performance Tools And Information interface, the User Account Control dialog box will display, requiring you to enter administrative credentials. If you're already logged on as an administrator, you'll be prompted to approve continuing. This opens the Performance Options dialog box, shown in **Figure H**.

isual Effects	Advanced	Data Execution Prevention	
Select the se performance	ttings you w of Windows	ant to use for the appearance ar on this computer.	nd
🧿 Let Windo	ws choose v	what's best for my computer	
C Adjust for	best appea	rance	
O Adjust for	best perfor	mance	
O Custom:			
🔽 Animate	controls and	d elements inside windows	
🚺 Animate	windows wh	nen minimizing and maximizing	
Enable of	lesktop comp	position	-
Enable t	ransparent g	glass	=
Fade or	slide menus	into view	
Fade or	slide ToolTip	s into view	-
Fade ou	t menu items	s after clicking	
Show pr	eview and fi	Iters in folder	
Show sh	adows unde	r menus	
Show sh	adows unde	r mouse pointer	
Show th	umbriails inst	tead of icons	1



You can also access the Performance Options dialog box from the Control Panel | System | Advanced System Settings | Settings button in the Performance section.

Either way, on the Visual Effects tab, you have four choices:

- Let Windows choose the best settings for your computer
- Adjust for best appearance
- Adjust for best performance
- Create custom settings, choosing to turn on or off whichever visual effects you want

The more visual effects you have turned on, the more the hit on performance. If you choose the option to adjust for best performance, all of the visual effects will be disabled. You may want to turn off those effects that are purely aesthetic, such as transparent glass and fading or sliding menus, while leaving on those that are more functional, such as showing thumbnails instead of icons.

### Adjusting other advanced settings

In the Performance Options dialog box, you can click the Advanced tab to adjust other settings that affect performance. In the top section, you can control processor scheduling, as shown in **Figure I**.

Here, you can adjust for best performance of applications or background services. For the most responsiveness, you'll want to adjust for best performance of applications.

In the second section, you can make changes to the paging file location and size that can improve performance. Click the Change button to display the Virtual Memory settings dialog box, shown in **Figure J**.

isual Effects Advanced	Data Execution Prevention
Processor scheduling	
Choose how to allocate	processor resources.
Adjust for best perform	ance of:
Programs	Background services
Virtual memory	
A paging file is an area if it were RAM.	on the hard disk that Windows uses as
Total paging file size for	r all drives: 3112 MB
	Change



Paging file size for ea	ch drive	
Drive [Volume Label]	Paging File Size	e (MB)
E.	None	
F:	None	1
G:	None	
]: [DATA1]	None	
Selected drive:	C:	
Space available:	87373 MB	
O Custom size:		
Initial size (MB):		
Maximum size (MB):		
🕐 System managed	size	
<u>No paging file</u>		Set
Total paging file size f	for all drives	
Minimum allowed:	16 MB	
Recommended:	4218 MB	
Currently allocated:	3112 MB	

By default, Windows automatically manages the paging file. If you deselect this check box, you can change the location of the paging file, spreading it out among multiple physical disks if you have them. This can speed access to paged data.

You can also increase the size of the paging file and/or make it static, so that instead of using the resources to increase and decrease the size, it always stays the same size. This can also slightly increase overall performance but will tie up more of your disk space. To set a static paging file, click the Custom Size button and enter the same number (file size in MB) in the Initial Size and Maximum Size fields.

# Adjust indexing options

You can control what locations should be indexed by Vista's search engine. Indexing can take a lot of resources and put a drag on other running applications if you have a low-powered computer.

In the Performance Information And Tools dialog box, select Indexing Options in the left pane. Then, click the Modify button in the Indexing Options dialog box and click the Show All Locations button at the bottom of the Indexed Locations dialog box. Now you can individually select and deselect the locations to be indexed, as shown in **Figure K**.

# Adjust power settings

Generally, using more power results in better performance. You can select the balance you prefer between saving energy and getting the highest performance by adjusting power plan settings. Vista has three preconfigured power plans you can choose from, as shown in **Figure L**:

- Balanced (gives equal weight to energy savings and performance)
- Power Saver (sacrifices performance to save energy)
- High Performance (sacrifices energy conservation for better performance)

- TAPTTANIJALAL
- (TACTEAN) debelonder)
e (TACTEAM)debsninder)
(TACTEAM\debshinder)
debshinder)
aris)
debshinder)
Exclude





**Figure L** 

You can also create a custom power plan, by selecting Create A Power Plan in the left pane. You start with one of the three plan templates, adjust individual components using a wizard, and then save the plan.

## Disk cleanup and defragmentation

You can use Vista's disk cleanup and defragmentation tools to remove unwanted files and to rearrange data on the disk so that files are not fragmented. Both of these actions will help increase disk access performance.

You can open the Disk Cleanup tool from the Performance Information And Tools left tasks pane or from the All Programs | Accessories | System Tools menu.

The Disk Cleanup tool allows you to select whether to clean up files from your own user profile only or the files of all users. When you select a specific drive to clean up, the tool will calculate how much space you will be able to free by running the cleanup, as shown in **Figure M**.

You can use Disk Cleanup to free up to space on (V:).	3.27 GB of disk	
Downloaded Program Files	7.71 MB	
V 🖉 Temporary Internet Files	42.9 MB	
Contraction of the second seco	18.4 KB	
Hibemation File Cleaner	2.74 GB	
Microsoft Office Temporary Files	163 KB	-
otal amount of disk space you gain:	187 M	ИB
Downloaded Program Files are ActiveX contro downloaded automatically from the Internet wh pages. They are temporarily stored in the Down Files folder on your hard disk.	s and Java applet en you view certa nloaded Program	s
	1429 A 4323	
	View Files	

Figure M

You can access the Disk Defragmentation tool from the Advanced Tools option in the left pane of the System Information And Tools console or from the All Programs | Accessories | System Tools menu.

You can (and should) set the Disk Defragmenter to run on a regular basis, such as once per week. To avoid a performance hit, schedule the defragmenter to run at a time when you aren't normally using your computer. You can also do a manual defragmentation if you think it's necessary (for example, if you've spent the day uninstalling and installing programs, and the computer seems to be running slower). Just click the Defragment Now button, shown in **Figure N**.

isk Defragmenter		
Disk Defragmenter consolidates fragmented files on your compu- performance. <u>How does Disk Defragmenter help?</u>	ter's hard disk to improve system	
Run on a schedule (recommended)		
Run at 01:00 every Wednesday, starting 1/1/2005	Modify schedule	
Last run: 5/30/2007 01:00		
Next scheduled run: 6/6/2007 01:00		
Scheduled defragmentation is enabled Your disks will be defragmented at the scheduled time.	Defragment <u>n</u> ow	
	OK Close	

**Figure N** 

### More ways to gather performance information

The Advanced Tools section of the Performance Information And Tools utility gives you quick links to the following tools for gathering performance-related info:

- Event log
- Reliability And Performance Monitor
- Task Manager
- System Information
- Performance Options
- Disk Defragmenter
- System Health Report

### Summary

Vista can be a performance hog, but there are many ways you can tweak the OS components to speed it up. Microsoft has made it easy by consolidating many of these actions in the Performance Information And Tools console.

# Additional resources

- TechRepublic's <u>Downloads RSS Feed</u> XML
- Sign up for TechRepublic's <u>Downloads Weekly Update</u> newsletter
- Sign up for our <u>Windows Vista Report newsletter</u>
- Check out all of TechRepublic's <u>free newsletters</u>
- Follow these steps to secure your hard drive with Windows Vista BitLocker (TechRepublic download)
- Feature guide: What you need to know about Windows Vista (TechRepublic download)
- <u>Mini-glossary: Windows Vista terms you should know</u> (TechRepublic download)

### Version history

Version: 1.0 Published: June 19, 2007

### Tell us what you think

TechRepublic downloads are designed to help you get your job done as painlessly and effectively as possible. Because we're continually looking for ways to improve the usefulness of these tools, we need your feedback. Please take a minute to <u>drop us a line</u> and tell us how well this download worked for you and offer your suggestions for improvement.

Thanks!

-The TechRepublic Downloads Team



Debra Littlejohn Shinder is a technology consultant, trainer and writer who has authored a number of books on computer operating systems, networking, and security. These include *Scene of the Cybercrime: Computer Forensics Handbook*, published by Syngress, and *Computer Networking Essentials*, published by Cisco Press. She is co-author, with her husband, Dr. Thomas Shinder, of *Troubleshooting Windows 2000 TCP/IP*, the best-selling *Configuring ISA Server 2000*, and *ISA Server and Beyond*.