

Windows Vista® Gold eBook

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INTRODUCTION

Computers are part of our everyday lives; learning how to use them to your advantage is invaluable. With this in mind, it is important to learn how to use computers well and how to use them effectively.

In this book, you will learn more about the Windows Vista operating system. Follow along with your computer as you read the chapters and master the content.

This book will teach you how to backup your files, take control of security, maintain your computer and files, improve performance, increase efficiency, and personalize your system. You do not need to read this book in order – select a chapter that looks interesting and begin.

My only suggestion is that you become familiar with the **Getting Started** chapter, as this will lay a solid foundation for the rest of the book. You will be pointed to many useful software programs throughout this book. I ensure these programs are freeware (or have a free option) and are free from viruses and spyware. Always use caution when using third-party software and always download them from the vendor's website.

Now, take a look through the pages of this book and enjoy. When you have mastered all I can offer, don't stop – continue to learn how to use Windows Vista and don't be afraid to try new things.

This troubleshooting guide was made with the objective to join in one document a collection of several "Favorites" websites that I had in my computer.

Requirements:

You need a computer with internet access.

GETTING STARTED

Before you get started with this book, there are a few things you should first consider. In this chapter I'll cover your choice of OS, which builds the foundation of everything you'll learn.

Things you should consider are: whether you want both XP and Vista on your computer, what version of Windows Vista to use, and whether you should go 64-bit or not.

The final two sections of this chapter will give you some background knowledge on working with the Windows Registry and the Windows Group Policy Management Console. These two tools will appear frequently in this book and you should be familiar with them.

Dual Boot Windows XP and Vista

There are times when I need to use XP (i.e. when I'm writing an XP compatible guide for Windows Guides) You may have your own reasons for use of both systems, or you may just have a licenses for Vista and XP and want to use them both. It doesn't matter if you already have Windows Vista installed or Windows XP installed. Just use either of the following guides titled —**Install Vista after Installing XP** or — **Install XP after Installing Vista**.

Before you begin, please note: it is **easier** to install XP first – if you are starting from scratch.

- Create Partitions for Your Installations

You either need to install each operating system on a different physical disk or you will need to partition your drive before attempting a dual boot. Each partition should be a primary partition. Google will point you in the right direction if you don't know how to partition your drive.

- Install Vista after Installing XP

Installing Vista is really easy if you already have Windows XP installed. Simply boot from your Windows Vista installation disc, select the disk or partition you wish to install Vista on (make sure you don't install Vista on the XP partition), and Windows will take care of itself.

After installing Vista, you will be presented with a boot screen offering you to boot to Windows Vista or an earlier version of Windows (XP.)

- Install XP after Installing Vista

1. Simply boot from your Windows XP installation disk, select the disk or partition you wish to install XP on (make sure you don't install XP on the Vista partition), and Windows will take care of itself.

2. Now boot from your Vista installation DVD. Click Next on the regional settings screen and click on Repair Your Computer. Select the Vista install and run the Startup Repair.

3. The next step is to tell Vista that XP exists by adding an entry for XP to the Vista boot manager. In Windows Vista, click Start and type Run. Right click on the shortcut and select Run as Administrator Run the following commands in the same order they are presented here:

```
bcdedit /create {ntldr} /d -Windows XP
bcdedit /set {ntldr} device boot
bcdedit /set {ntldr} path \ntldr
bcdedit /displayorder {ntldr} /addlast
```

Now reboot your computer and you should have the option to boot to either Windows XP or Windows Vista.

Which Version of Vista?

Choosing a version of Vista can be a difficult task as there is a big price difference between the versions. My suggestion is to avoid Home Basic and Business and choose Home Premium or Ultimate. I currently have Vista installed on three of my computers: Vista Home Premium on my personal laptop, Vista Business on my laptop for school, and Vista Ultimate on my media center desktop. I have no experience with Vista Home, but its functionality limitations will hinder you in the future. The fact that you are reading this book already suggests you should purchase Home Premium or above.

Please review the chart that is available on the [Microsoft website](#) and gives a good overview of which version you should use.

Slim Down Your Vista Install

If you are new to using Vista, or if you want to begin a clean slate, you may want to cut out some of the bulk that comes with Vista. A popular program designed to help you with this task is named [vLite](#).

vLite requires you to copy the setup files from your Vista installation disc to your hard drive. You then select the components you want to include in your install and then you make a bootable ISO file.

Details of which components you remove come down to your choice and are out of the scope of this book. However, there are many sites out there that are willing to give you a starter point and suggestions.

While vLite is aimed at more advanced users, you should have no problems having a go yourself. In the worst scenario, you are left with a Vista installation that doesn't have all the components you need.

One tip I will urge you to follow is to create the vLite ISO on a computer other than the one you are putting Vista on. If your OS is not functional you can at least try again.

Vista 32-bit or 64-bit?

When deciding to move up to a 64-bit operating system, you should first consider what 64-bit gets you. Knowing what software runs on 64-bit should influence your decision as you will see no advantage if you are running 32-bit software on a 64-bit OS. You also lose the ability to run 16-bit software, which shouldn't be a problem unless you rely on older software, such as old work software or home-made packages you haven't yet updated.

- What Does 64-Bit Vista Get Me?

More bits gets you access to more memory. The processor inside your PC communicates with your system memory (RAM) with numeric addressing. Thus the maximum amount of memory a 32-bit processor can address is 2³² bytes, or 4 gigabytes. Newer 64-bit processors—not to mention the 64-bit operating systems that run on them—can address 2⁶⁴ bytes of memory, or 17,179,869,184 Gigabytes (16 Exabytes) of RAM. (17 million gigabytes may sound like a lot of space now, but it won't be long before you'll be taking baby pictures with an 8-gigapixel digital camera.)

Windows NT, released in 1993, was Microsoft's first fully 32-bit operating system. But it took eight years before the platform, which had since evolved into Windows 2000 and then XP, became mainstream. (For those keeping track, Windows 9x doesn't count because it was a hybrid OS that ran 32-bit applications on a 16-bit DOS foundation, which was one of the reasons it was so unstable.) 64-bit Windows became a reality in XP, but Vista is Microsoft's first serious attempt to make 64-bit computing mainstream. But the question is, how mainstream is it?

-How Mainstream is 64 bit?

While 64-bit Vista can run most 32-bit applications without a problem, it's not compatible with 32-bit hardware drivers or 32-bit utilities like Windows Explorer extensions (e.g., context menu add-ons). This means that you need a native 64-bit driver for every device on your PC. And since 64-bit Vista won't load unsigned drivers (see Chapter 6), finding support for all your hardware may be a bit of a challenge, at least presently. Since most Vista installations are still 32-bit, most manufacturers aren't bothering to compile, test, and support 64-bit drivers and software.

-Is there a Performance Increase?

Now, 64-bit software running on 64-bit Windows has been known to run as much as 10% faster, which illustrates the other reason—aside from memory addressing—that people find 64-bit Vista alluring. Just be prepared for lackluster industry support, at least for the next few years until Microsoft releases a 64-bit-only OS.

All editions of Vista (except Starter) are available in both the 32-bit or 64-bit varieties; the retail Ultimate edition even includes both 32-bit and 64-bit DVDs right in the box.

Working with the Windows Registry

Throughout this book you will need to access the Windows Registry and make changes. I try to make executable registry hacks in most cases, but it can be fun to script your own registry files. Before doing anything with the Windows Registry, you should know what the registry is, how to back it up, how to restore it to a previous state, and how to add keys and values.

- What is the Windows Registry?

Think of the Windows registry as a control center for your computer. Windows settings, individual program settings, and other important configuration information are stored here.

- Accessing the Windows Registry Editor

To access the Windows Registry, press the start button, type *regedit*, and press Enter. When the registry loads, you will be presented with the Windows Registry Editor. The registry is made up of the following components:

- Keys
- Subkeys
- Values

- Backing up the Windows Registry

You may back up the entire registry. Follow these steps for backing up the entire registry:

1. Press Start > Run (Winkey+R) and type **regedit**
2. Left click Computer in the left pane
3. Go to File > Export
4. Save the file (for extra caution, save the file to a USB thumb drive)

Or you can use another method:

1. Click Start type **systempropertiesprotection** in the Start Search box, and then press ENTER. If you are prompted for an administrator password or for a confirmation, type the password, or click Continue
2. Wait for Windows to search for available disks and most recent restore points. In the System Properties dialog box, on the System Protection tab, click Create
3. Type a name for the restore point and then click Create
4. After the restore point has been created successfully, click OK two times

Note: *If System Restore is turned off, click to select the local disk, click Apply and then click Create.*

- Restoring the Windows Registry

You may restore the entire registry. Follow these steps for restoring the entire registry:

1. Click Start, type **systempropertiesprotection** in the Start Search box, and then press ENTER. If you are prompted for an administrator password or for a confirmation, type the password, or click Continue
2. In the System Properties dialog box, on the System Protection tab, click System Restore
3. In the System Restore dialog box select Choose a different restore point, and then click Next
4. Select the restore point that you want to use, and then click Next
5. Confirm your restore point, and then click Finish System restore - this restores the selected Windows Vista configuration and then restarts the computer
6. Log on to the computer. When the System Restore confirmation page appears, click OK.

- Adding new keys

To add a new key, do the following:

1. Access registry
2. Right click on the parent key
3. Select New > Key

- Adding new values

To add a new value, do the following:

1. Access registry
2. Navigate to the key that you want to add a value to
3. Right click in the blank space of the right pane
4. Select New > xx (Where xx is the value specified in the guide)
5. Follow the guide's instructions for what value to assign

Working with the Group Policy Management Console

Group Policy is a feature of Microsoft Windows that provides centralized management and configuration of computers.

Throughout this book you will need to access the Windows Group Policy Management Console (GPMC) and make changes. Before doing anything with the GPMC, you should know what the GPMC is, how to access it, and how to enable options with it.

- Accessing the Group Policy Management Console

To access the GPMC, press the Start button, type **GPEdit.msc**, and press **Enter**. Please note: the GPMC is only available in Vista Business and Ultimate.

To enable any options, as directed in any of the guides, double-click on the option in the right pane and change the setting to Enabled. To disable any options, simply do the above and change the option to disabled.

Stop UAC Blacking Out the Screen

Have you noticed that when Windows Vista prompts you to allow a program to take action, that the screen blacks out? This is to show you that you are moving to an elevated desktop - where you will allow the program to continue. This can be annoying but you can disable this feature.

1. Download [DisableUACBlackout.zip](#)
2. Extract the archive
3. Double click on ***DisableUACBlackout.reg***

To re-enable the blackout, double click on ***ReEnableUACBlackout.reg***

Adding “Take Ownership” Context Menu

Many folders in Vista are protected from changes and require administrative approval to change every time. Sometimes this can become tedious, so I’ve found a registry hack you can use to take ownership of select files.

1. Download [TakeOwnership.zip](#)
2. Add “Take ownership” to your context menu by merging (double click) ***InstallTakeOwnership.reg*** into your windows registry

Remove “Take ownership” from your context menu by merging ***RemoveTakeOwnership.reg*** into your registry.

Disabling User Account Control

If you feel confident with taking control of security, you probably don’t need the User Account Control (UAC) altogether. To disable UAC, do the following:

1. Open the Start Menu and select Control Panel
2. Select User Accounts
3. Select Turn User Account Control on or off
4. Uncheck the box next to “Use User Account Control (UAC)...” and press OK

You will now be asked to restart your computer to activate your changes. After your computer is restarted you won’t be bothered anymore by the UAC.

To re-enable UAC, repeat the above process and at step 4 recheck the box next to “Use User Account Control (UAC)...” and press OK.

Now You Are Ready to Begin

With the knowledge gained from this chapter, you should be able to work with any of the guides in this book. Refer to this chapter often when you have questions.

BACKING UP EARLY AND OFTEN

If you are one of the lucky people who have never lost a file on your computer, congratulations – this chapter is definitely for you. If you have lost files before – yep that’s you – then you should review this chapter too before you begin.

In this chapter, you’ll learn how to use the Backup and Restore Center, backup and restore your registry, and how to recover lost files or your Vista Installation. Ready?

If the above sounds like a lot to learn, take it one step at a time – but don’t say I didn’t warn you about backing up your files.

The Backup and Restore Center

The Backup and Restore center – bundled with Windows Vista – is an excellent tool, which allows you to backup and restore your files or an image of your operating system.

To launch the Backup and Restore Center, do the following:

1. Press the Start button
2. Type **Backup**
3. Select Backup and Restore Center

- Backing up Your Files

To backup your files, click Backup Files and follow the directions given to you. Select the directories and files you want to backup and find a suitable place to store these files. I recommend an external hard drive or DVD(s).

- Restoring Your Files

Launch the Backup and Restore center and click Restore Files. Locate the medium your files are stored on and follow the instructions to get your previously backed up files back.

Recovering Lost Data on Your Drive

I lost some photos recently and after trying a few different recovery programs, I came across [Recuva](#). My problem is solved and now I recommend this great software. Recuva (pronounced “recover”) is a freeware Windows utility to restore files that have been accidentally deleted from your computer. This includes files emptied from the Recycle bin as well as images and other files that have been deleted by user error from digital camera memory cards or MP3 players. It will even bring back files that have been deleted by bugs, crashes and viruses!

Get a Windows Vista Recovery Disc

Most new computers these days come with windows Vista installed. Most of these computers don't come with any kind of Windows Vista disc. Some may come with a recovery disc but they are bad news as most recovery disks will delete all your files and restore your computer to the state it was in when you first purchased it.

Windows Vista DVD's come with a recovery center to allow you to fix operating system related problems.

If you do not have this DVD, Microsoft made a recovery disc for this purpose.

Please Note: *This disc cannot be used to install or reinstall Windows Vista.*

[Download Windows Vista Recovery Disc](#) (from NeoSmart technologies) (120 MB)

Or Download [Windows Vista Recovery Disc Torrent](#)

[Learn how to burn an ISO image to a DVD](#)

CLEANING UP YOUR COMPUTER

Just like any car, Windows needs to be maintained and cleaned frequently. Whenever I work on someone's computer, I have a check list of things I like to do to ensure I won't be working on the same computer anytime soon.

Anyone can maintain their computer; they just have to learn how. In this chapter you'll learn some basic tips and about some tools to use – to ensure your computer becomes/remains clutter free and does not get sluggish.

Automatically Delete Temporary Files

The Windows Disk Cleanup Wizard will delete your temporary files, but only if they are over a week old. To create a simple batch script that will clean up your temporary directories, do the following:

- Creating a Batch file

1. Open Notepad and type the following:

```
cd C:\Users\%username%\AppData\Local  
rmdir /S /Q Temp
```
2. Save the file as ***cleantemp.bat***
3. Now double click on the file to remove your temporary files and free up space on your computer.

If this doesn't work and gives an access error, try replacing %username% with you windows login username.

- Automating the process

To automate this process, so you do not need to remember to run it, do the following:

1. Right click on the batch file and select create shortcut
2. Place the shortcut in your startup folder in the start menu.

Now when you log in to Windows Vista, your temporary files will be deleted.

Cleaning up Windows

Cleaning up Windows can be a tedious task as there are so many temporary and unused files stored everywhere. Manual cleaning may be more thorough, but would take hours. Luckily there are two programs suited to this job.

The first of these two programs is the well known [CCleaner](#). CCleaner is a freeware system optimization, privacy and cleaning tool. It removes unused files from your system - allowing Windows to run faster and freeing up valuable hard disk space. It also cleans traces of your online activities such as your Internet history. Additionally it contains a fully featured registry cleaner.

Another program I use frequently is [Advanced Windows Care](#) (AWC.) AWC is a comprehensive PC-care utility that has a one-click approach to helping protect, repair and optimize your PC.

Personally I prefer CCleaner, but AWC is great too. You do not need both of these programs; one of these programs should take care of keeping your computer free of temporary clutter.

Disable and Delete the Hibernation File

Windows places a file on your hard drive that stores your current data when your computer goes into hibernation. If you do not use hibernation, you can delete these files and save as much space as you have RAM (i.e. 512mb or 2gb etc.) In this guide you will learn how to disable hibernation and remove the old hibernation file.

- Disable Hibernation

1. Click Start, All Programs, and then right click on Command Prompt. (Or type **CMD** into the start menu search box.)
2. Select Run as administrator.
3. If User Account Control prompts you to allow the action, click on Continue.
4. In the command prompt window, type "**powercfg -h off**" (without the quotes).
5. Close the Command Prompt window.

- Delete the Hibernation File

1. Click Start, All Programs, Accessories, System Tools, and then click Disk Cleanup.
(Or type Disk Cleanup into the start menu search box and hit enter.)
2. If prompted to choose a drive, select the drive in which Windows XP/Vista is installed on to and press OK.
3. Disk Cleanup will scan the hard drive and present you with a list of options.
4. Check Hibernation File Cleaner, and then click OK.
5. When asked *“Are you sure you want to permanently delete these files?”* click on the Delete Files button.

Reclaim Disk Space after SP1 Install

When you install Vista SP1, a backup of all replaced files is made. This is done so you can roll back to pre-SP1 if you desire. SP1 has been out for some time now and many of you will no doubt be satisfied with using it. In this guide, you will learn how to reclaim disk space taken up by the Vista SP1 install. By following this guide, you will be able to save 600-800 MB of disk space.

Please note: After running this tool, you cannot uninstall Vista SP1.

1. Press WINKEY+R
2. Type **vsp1cln.exe** and hit ENTER
3. When prompted, type **Y** and hit ENTER
4. After a few seconds, you will have your hard disk space back

Remove Entries from Add/Remove Programs

There may be several reasons for removing certain programs from the add/remove programs list. One reason may be that you have no intention of removing some programs and they are cluttering the list - or you may want to remove that net monitoring program so your kids can't remove it. In this guide you will learn how to remove these programs.

I recommend you backup your registry before doing this; however, if you follow these instructions, you will be fine.

1. Press the windows key and R
2. Type in regedit
3. Now you will see the registry editor.
4. Go to the following entry:
HKEY_LOCAL_MACHINE\Software\Microsoft\Windows\CurrentVersion\Uninstall
5. In the left pane are the programs (some represented by numbers and letters, and some by their name) and in the right pane you can see the display name.

6. Find the key that corresponds to the program you want to hide. Select the key in the left pane and click File > Export
7. Choose a name for the file and save it. (This will allow you to restore the key when you want to uninstall the program.)
8. Now the key is backed up, you can delete the key by right clicking on it and choosing Delete

Remove Entries from Add/Remove Programs

Do you have thousands of photos, documents, songs etc on your hard drive? If you do, you'll likely have duplicates all over the place. In this guide you'll learn how to search for duplicates and delete them; thus, saving you space and keeping you organized.

[Download Easy Duplicate Finder](#)

Remove Unwanted Software

I advise you to browse your add/remove programs list and weed out any software you do not use and is clearly taking up space. If you have a newer PC, there may be a lot of trial software, coined "bloatware".

The [PC Decrapifier](#) is designed to remove a specific list unwanted software in an unattended fashion. The PC does not need to be new; however, the older the PC is, the less likely it will have any of the software it can detect.

Simply download the file above, and run the EXE. There is no installer necessary. If you have anti-virus software installed, it may complain about this program because it is written with a scripting language. These warnings can be safely ignored.

When it runs, you will be presented with a wizard style dialog box that steps you through the entire process.

You will be able to pick and choose what you want to remove.

It will not begin removing anything, without prompting you first!

Hit the "Next" button and it will begin cleaning your PC. If it does not find anything, a pop-up box will notify you of this and the program will exit and not modify your PC.

Disable Memory Dump Files and Save HDD Space

If your computer crashes it will create a dump file. From this dump file you can diagnose the source of the problem. It is unlikely you will need this file; if you do, you can always turn the option back on. This guide will show you how to save space by disabling memory dump files in Vista.

1. Press Start and click Control Panel
2. Type Advanced in the search box
3. Click on View advanced system settings in the search results
4. Under Startup and Recovery, click Settings
5. In the Write debugging information drop down, click (none) and press OK

You will now save space and not store useless information.

PERFORMANCE AND TUNNING

The Windows Vista® operating system and the recent Service Pack 1 (SP1) provide major advancements in usability, reliability, connectivity, and security. These improvements are helping businesses and consumers become more productive than ever.

While performance is often thought of simply in terms of speed, it is better to think of performance as a combination of speed and responsiveness. For example, one approach to optimizing performance when copying large numbers of files would be to copy those files as fast as physically possible. Unfortunately, this approach would leave the system unresponsive during the operation.

Windows Vista and SP1 focus on delivering greater performance and overall system responsiveness. By striking a balance between speed and responsiveness, Windows Vista and SP1 deliver a level of performance that has the greatest positive impact on the system's usability. Improving the performance of a computer follows the principle of diminishing returns. There are a few actions you can take with any computer that should improve performance dramatically. Additional actions provide smaller performance improvements.

This guide looks at the following areas of performance improvement:

- Making configuration changes that help a computer feel more responsive when you use it.
- Using hardware to boost the actual physical speed of a computer.
- Making configuration changes that help a computer to start faster.
- Making the computer more reliable may help increase performance.
- Monitoring performance occasionally so that you can stop problems before they get too big.

While the bulk of this guide focuses on performance improvements on a single computer, this guide also takes a look at some of the tools used in enterprise environments to help make performance tuning manageable on a much larger scale.

Optimizing Hardware Specifications to Your Organizational Needs

Although the minimum requirements for the Windows Vista operating system are highlighted in the Windows Vista TechCenter, you should validate hardware performance with your intended applications and user expectations before determining your organization's standard hardware specifications. For example, when deploying Windows Vista many organizations have found that the following configuration yields good results, especially for higher knowledge worker scenarios:

- At least 2 GB of RAM.
- At least a 2 GHz processor.
- A compatible graphics adapter that provides improved performance.

If you are deploying Windows Vista with the Windows® Basic theme settings, you can reduce these recommendations considerably. Customize the hardware specifications and operating system configurations based on the user roles and operational needs in your organization. For more information about customizing the hardware specifications and operating system configuration, see:

[Windows Vista Enterprise Hardware Planning Guidance](#)

Make Your Computer Feel More Responsive

Another way to improve perceived performance on a computer is to make it feel faster. Or more accurately, you can remove things that make the computer feel slower. You do this by making sure that various configuration settings are optimized.

- Check Power Settings on Mobile Computers

When a computer is operating on a battery, you must strike a balance between battery life and performance. Better performance almost always drains battery life more quickly. Windows Vista provides three built-in power plans, as shown in Table 1. You can modify the settings for the three built-in plans to suit your needs, or even create your own power plans. You can change a built-in plan's settings or create your own plan by using the Power Options settings in Control Panel.

Plano de Energia	Descrição
Balanced	Balances energy consumption and performance by adapting the computer's resources to a specific activity. By balancing the power used, when more power is needed, more becomes available; when less is needed, less is available.
Power Saver	Saves power by reducing system performance. The primary objective of this plan is to maximize battery life.
High Performance	Offers the highest performance possible by maximizing available resources for best performance. There will be a trade off for the high performance with battery life.

Table 1: You can choose from three power plan options

To choose a preferred plan:

1. Click Start, and then click Control Panel.
2. In the Control Panel window, click System and Maintenance, and then click Power Options.
3. Select the desired power plan, as shown in Figure 1. Note that depending on the manufacturer of the computer, you may see additional power-management options.

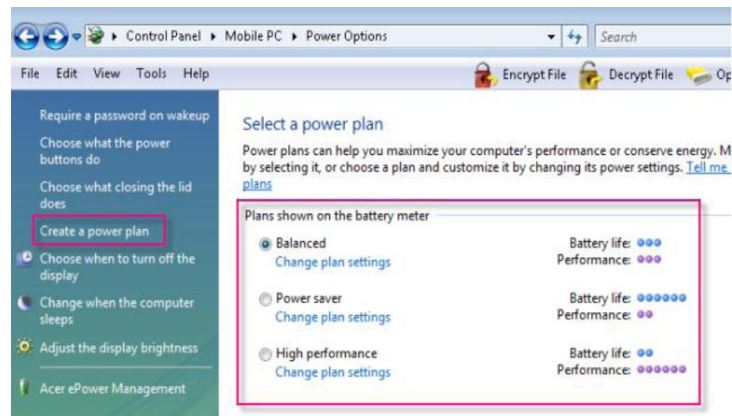


Figure 1. Select the most appropriate plan

To create a power plan:

1. If you want to create your own power plan, with the Power Options window open, click Create a Power Plan (refer to Figure 1).
2. Select the built-in power plan that most closely matches what you want to create.
3. Type a name for the plan, and then click Next, as shown in Figure 2.

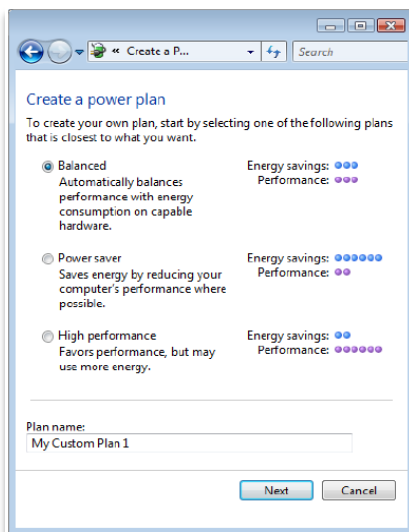


Figure 2. Create your new power plan

4. Configure custom settings for your plan, including when to turn off the display, when to put the computer to sleep, and display brightness depending on whether the mobile computer is plugged in or running on battery power (Figure 3).

5. Click Create.

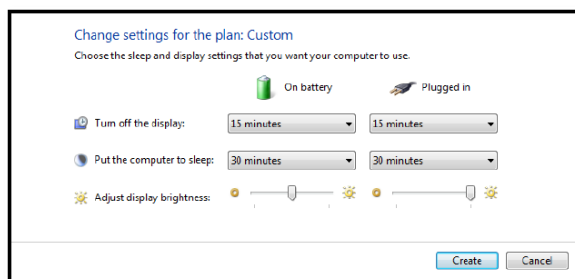


Figure 3. Create your own power plan

Click the Battery Meter icon in the notification area to open the menu shown in Figure 4, which lets you change to a different power plan and also offers more visual cues about battery life. For example, when the battery life reaches 25 percent, a yellow triangle with an exclamation point appears over the battery icon. When the charge reaches critically low battery levels, a red circle with a white X appears.

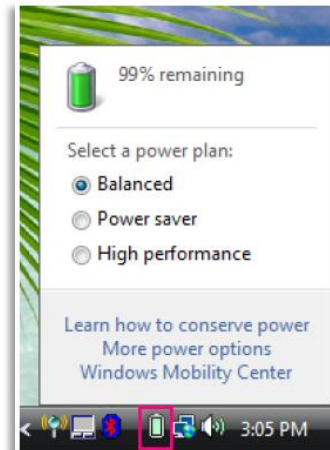


Figure 4. Use the Battery Meter to change power plans quickly

- Disable Visual Effects

Many of the visual effects in Windows Vista, such as the Aero® desktop experience, are beautiful and are designed to

enhance user productivity. They add not only a certain flair to the computing experience but also subtle visual clues about what's happening in Windows, which may help user productivity. That said, these visual effects can slow down the perceived performance of a computer, by making windows, dialog boxes, and menus take just a bit longer to open and work with—particularly on slower computers. By default, Windows Vista enables visual features based on the capabilities of the computer, but you can enable or disable specific visual effects to help strike a balance between performance and appearance. Windows Vista provides quick access for enabling and disabling these effects.

To disable visual effects:

1. Click Start, and then click Control Panel.
2. In the Control Panel window, click System and Maintenance.
3. Click System.
4. In the Tasks pane, click Advanced System Settings.
5. Enter your administrator credentials and click Continue if you are prompted by User Account Control.
6. On the Advanced tab, click Settings in the Performance section.
7. Use the Performance Options dialog box to enable or disable visual effects, as shown in Figure 5.

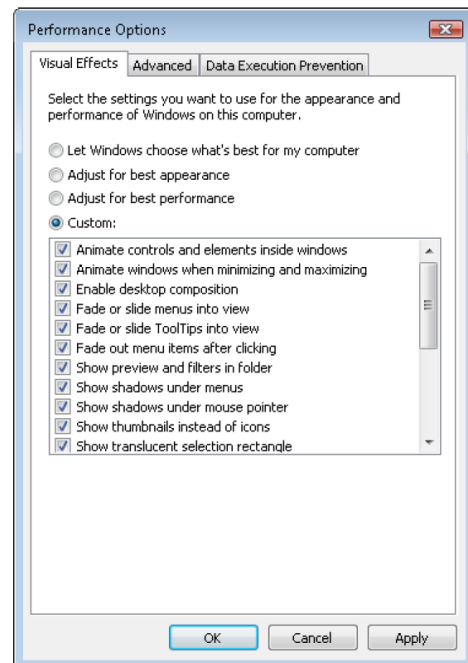


Figure 5. Disable visual effects to enhance performance slightly

In order to disable Aero effects, you can right click your desktop and click Personalize. In the Personalize appearance and sounds window, click Windows Color and Appearance and chose a theme. Make sure the Enable transparency box is not checked to disable Aero.

- Adjust Search Settings

For users who run Windows Vista SP1, installation of Windows Search 4.0 offers the most efficient and comprehensive way of improving performance of search and reducing the impact of indexing on the system. Both search queries and data indexing are faster with Windows Search 4.0, and indexing process is better at releasing system resources when they are required by the user or other processes on the PC. Another method for optimization of search functionality, also available to users without Windows Search 4.0 installed, is to adjust indexing settings. The index in Windows Vista stores information about the files on a system, including but not limited to the file name, date modified, and author, as well as information allowing fast searches over textual content of the indexed files for many supported file formats. Instead of looking through the entire hard disk for a file, Windows scans the index for the information first.

To access the indexing options:

1. Click Start, and then click Control Panel.
2. In the Control Panel window, click System and Maintenance.
3. Click Indexing Options.

Modifying options in the following ways can help improve a computer's performance:

- Add or remove folders by clicking Modify (Figure 6). By default, personal folders (e.g., My Music, My Documents, My Pictures) are indexed.
- Rebuild a corrupt index or change the location of the index by clicking Advanced.
- Remove rarely searched folders or shared folders from the index, and do not include unused folders. (Windows Search 4.0 automatically adds all shared folders to the list of indexed locations, to enable efficient remote searches on them. If you don't expect files on the share to be searched over, you can disable indexing on it.)

Please note that searching over locations not included in the index is significantly slower than searching over indexed locations.

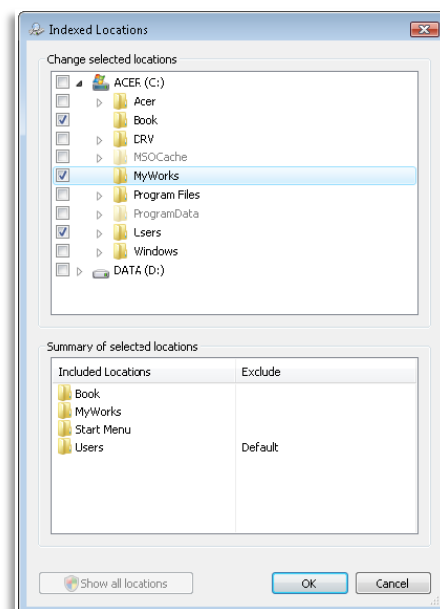


Figure 6. Add or deleted indexed folders

Use Hardware to Boost Performance

The most effective way to increase the performance of a computer is by improving the hardware in the computer.

The three main hardware issues governing performance are CPU, hard disk speed, and memory capacity. This guide looks at less invasive ways to boost performance through hardware.

- Speed up Your Computer with Windows ReadyBoost™

While adding more memory to a computer is a great way to boost performance, it isn't always easy to do. To install memory, you must be willing (or allowed) to open the computer case or pay someone else to do it. Sometimes, it can be difficult to tell what type of memory you need to install or how much you can install. And depending on the type of computer you have, even getting to the memory slots can be tricky.

Windows Vista includes a feature named Windows ReadyBoost (shown in Figure 7). ReadyBoost technology uses non-volatile flash memory, such as that found on a USB Drive or Secure Digital (SD) card, and a memory management technology called Windows SuperFetch™ to provide a cache for the memory paging file stored on the computer's hard disk. Since accessing flash memory is much faster than accessing a hard drive, using Windows ReadyBoost can significantly increase performance.



Figure 7. ReadyBoost is simple to use

And since the swap file itself is still stored on hard disk (only a cache for that file is stored on the USB drive), no data can be lost if you remove the ReadyBoost drive from the computer.

Using ReadyBoost is simple. Just plug a ReadyBoost compliant USB 2.0 drive into the computer. To determine if a USB 2.0 is ReadyBoost compliant, right click the USB drive in Computer and choose Properties. When you go into the Properties dialog box, ReadyBoost will perform a performance test to see if the device is fast enough. A drive should support 2.5MB/s for 4KB random reads and 1.75MB/s for 1MB random writes.

Windows Vista determines whether the drive is fast enough or has enough space to use as a ReadyBoost drive. If the drive is fast enough, Windows displays the Speed up my system option in the AutoPlay window.

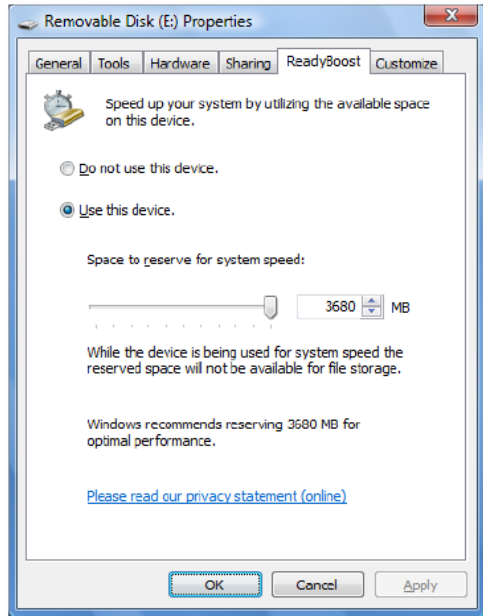


Figure 8. You configure how much space to allocate to Windows ReadyBoost

After selecting the Speed up my system option, Windows Vista displays the ReadyBoost tab of the disk's Properties dialog box, as shown in Figure 8. You can turn ReadyBoost off for the drive or if left on, designate how much space to use for speeding up the system.

Of course, there are some limitations to ReadyBoost. Generally speaking, the lower the physical memory of the computer, the bigger the existing disk cache that can be offloaded to the ReadyBoost drive, and the greater the gain in performance. As a computer gains more physical memory, the performance boost is less significant.

- Consider Windows ReadyDrive™

Windows ReadyDrive technology is another feature introduced in Windows Vista that works in tandem with two new types of disk drives:

- Hybrid hard disk drives, which are traditional hard drives with an integrated cache of non-volatile flash memory.
- Intel TurboMemory drives, where the non-volatile flash memory is actually detached from the drive.

ReadyDrive technology provides four benefits:

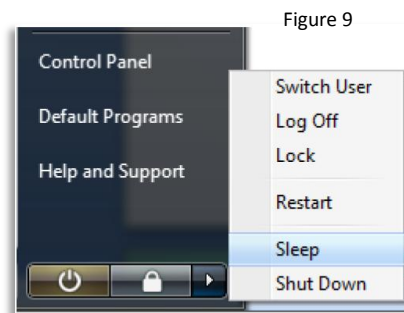
- Performance-critical data is loaded into flash memory so that it is accessed faster than if it were stored on traditional hard disk.
- Startup files are loaded into flash memory, which translates to shorter startup times for Windows Vista.
- Since the traditional hard disk needs to be accessed less often, it can spin down for longer periods, boosting the battery life of mobile computers.
- In Windows Vista Service Pack 1, ReadyDrive improves startup speed by 27-55% compared to Windows Vista RTM (Source: Internal Microsoft Testing).

Make Your Computer Start Faster

One of the most frustrating times for a user can be waiting for a computer to start. You wait for the computer to boot up, wait for Windows to load, log in, and then finish waiting for all the background programs and services to load. It is not usually hard to trim the startup time for a computer and doing so almost always makes for a more pleasant computing experience. Removing unwanted background programs and services also may have the side benefit of helping to make a more secure, reliable system.

- Put Your Computer to Sleep

Sleep is a feature in Windows Vista, supplanting the Standby feature of previous Windows OS versions. In the past, Standby didn't always work well and computers were slow to come out of standby. In contrast, Sleep in Windows Vista is reliable, fast, and useful. In fact, in Windows Vista, Sleep should be considered the new default "Off" state. If you don't already use the Sleep function in Windows Vista, you will find that you can start up a computer much faster by not shutting it down completely in the first place. Putting a computer to sleep is easy. You can choose Sleep from the Start menu (shown in Figure 9), press the power button on your computer (in Power Settings the power button must be configured to Sleep), press the Sleep button offered on many keyboards, or just close the cover of a laptop computer.



When a computer enters Sleep state, Windows Vista saves the current session to memory and enters a low power state where only memory is powered.

In Sleep state, the computer uses very little power—extending battery life for mobile computers and conserving energy even for desktop computers while ensuring that the computer is still ready for action quickly. In fact, on a modern laptop computer, power consumption in sleep state is typically less than one watt.

Windows Vista also includes a new Hybrid Sleep function. Hybrid Sleep will function as a failsafe in case of power loss by saving the session to memory normally, but also writing it all to the hard drive (similarly to how hibernate works). This ensures that even when power is lost, data remains intact.

When you want to resume working, just press the power button, tap a key on the keyboard, or, on laptop computers, open the cover. Windows Vista takes only a few seconds to resume from sleep, though it can take a little longer to resume from Hybrid Sleep after you restore a power source to the computer.

- Disable Unwanted Startup Programs

Many programs have components that start when Windows starts and run in the background. While some of these programs are necessary (such as antispyware programs), you will find that others may not be necessary.

Some of these programs may have been preinstalled with a new computer and some may have been installed by the user. It will be up to you as the IT Pro and the user to determine what programs are unused.

Each program that runs in the background consumes system resources, so removing unused programs not only may help the computer start faster, but may also improve overall performance. Some programs that run in the background are represented by icons in the notification area, shown in Figure 10.



Figure 10. Each icon represents at least one running process and sometimes many more

There are two approaches you can take to prevent a program from starting with Windows Vista unnecessarily:

- If it is a program you don't need at all, then you can uninstall the program using Add/Remove Programs in Control Panel
- If it is a program you want to keep on your computer, but you don't need the program running in the background, you need to prevent the program from starting automatically with Windows.

- Remove Unused Programs

If you do not need a program at all, you can simply uninstall the program. Removing unused programs prevents those programs from running in the background and frees up disk space on the computer. To remove a program:

1. Click Start, and then click Control Panel.
2. In the Control Panel window under Programs, click Uninstall A Program.
3. Click the program you want to uninstall and then click Uninstall/Change.
4. If you are prompted by User Account Control, enter your administrator credentials and then click Continue.
5. Follow the directions provided by the uninstall program.

- Remove Unused Programs

If you don't want to uninstall a program or service completely, you can prevent the program or service from starting with Windows. Many programs offer an easy way to prevent this behavior. You should try the following:

- Click or right-click the program icon in the notification area. Look for an Options, Preferences or Properties command. Sometimes, the program offers an option for having the program start with Windows.
- Start the program and look through the program menus for a similar option.
- Check the Startup folder on the Start menu. Often, programs place shortcuts there to load components at startup.

If a program does not offer a friendly way to prevent it from running with Windows, you can move on to the more powerful System Configuration utility (often called MSCONFIG, after the name of its executable file). To use System Configuration:

1. Click Start. In the Start Search window, type **msconfig**. (You can also press WIN-KEY+R to open the Run dialog and then type **msconfig.exe**)
2. Under the search results, click msconfig.exe.
3. Enter your administrator credentials and click Continue if you are prompted by User Account Control.
4. In the System Configuration window, the Startup tab shows all the programs that are scheduled to start with Windows, as shown in Figure 11. Resize the columns so that you have a good view of the name and manufacturer.
5. Go through each item, clearing the check box for programs you don't want to start with Windows.
6. Click OK, and then restart the computer.

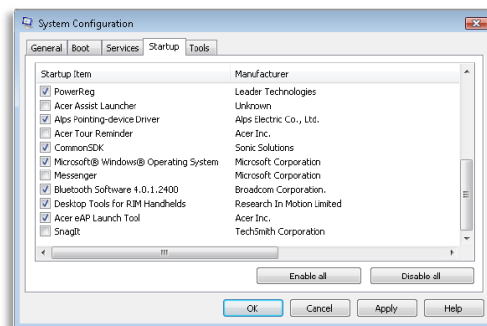


Figure 11. The Startup tab shows programs scheduled to start with Windows

You can also use Windows Defender to disable startup programs (Figure 12). The interface is more polished and includes information about the programs, but works much the same as the System Configuration tool. Note that if you have another anti-spyware program installed, Windows Defender likely will be unavailable. To use Windows Defender to disable startup programs

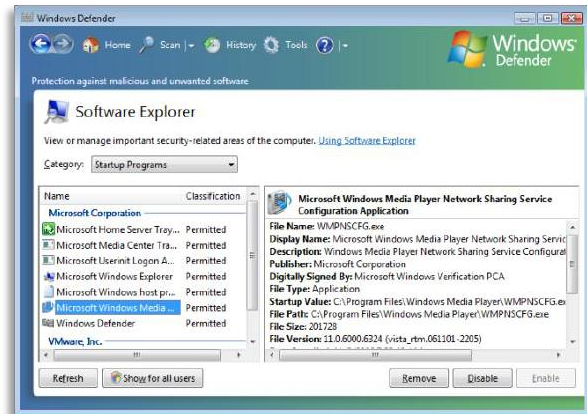


Figure 12. Windows Defender provides useful information about startup programs

1. Click Start and then type Windows Defender in the Search box.
2. When the Windows Defender dialog box appears, click Tools.
3. Under Tools, click Software Explorer and disable the programs you don't want to startup.

- Disable Unwanted Services

A service is a program designed to run in the background and provide particular services to the programs on a computer. While this sounds a lot like a regular program that runs in the background, there are a couple of important differences:

- Services can log onto the computer with specific credentials. This means that a service can run even if a user does not log on.
- Services may have dependencies. Services can be set so that other services must load first in order for a service to start.

These distinctions are important to understand when you set off to locate and disable unused services. Before you turn a service on or off, you must understand what that service does and whether other services depend on it to load.

It is not a purpose of this guide to detail every service available on a computer running Windows Vista. However, it can give you some tips for determining if a service is a good candidate to disable and show you how to disable a service.

Warning: If you are ever unsure of what a service does, do not disable or stop it.

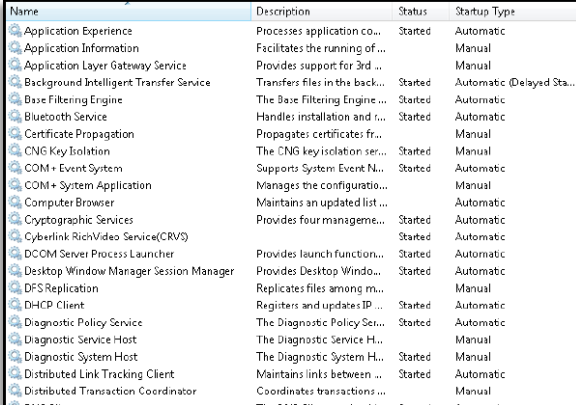
To view all services available on a computer:

1. Log onto the computer with an administrator account.
2. Click Start and then type Services in the Search box.
3. Under Programs, click Services.

Enter your administrator credentials and click Continue if you are prompted by User Account Control. The Services window is shown in Figure 13.

4. Click any service to see a basic description of that service.

If you find the service description inadequate, try searching [Microsoft TechNet](#) using the service name as a key word. You can often find good information about what a service does.



Name	Description	Status	Startup Type
Application Experience	Processes application co...	Started	Automatic
Application Information	Facilitates the running of...	Started	Manual
Application Layer Gateway Service	Provides support for 3rd ...	Started	Manual
Background Intelligent Transfer Service	Transfers files in the back...	Started	Automatic (Delayed Sta...
Base Filtering Engine	The Base Filtering Engine ...	Started	Automatic
Bluetooth Service	Handles installation and r...	Started	Automatic
Certificate Propagation	Propagates certificates fr...	Started	Manual
CNG Key Isolation	The CNG key isolation ser...	Started	Manual
COM+ Event System	Supports System Event N...	Started	Automatic
COM+ System Application	Manages the configuratio...	Started	Manual
Computer Browser	Maintains an updated list ...	Started	Automatic
Cryptographic Services	Provides four managemen...	Started	Automatic
Cyberlink RichVideo Service(CRVS)		Started	Automatic
DCOM Server Process Launcher	Provides launch functio...	Started	Automatic
Desktop Window Manager Session Manager	Provides Desktop Windo...	Started	Automatic
DFS Replication	Replicates files among m...	Started	Manual
DHCP Client	Registers and updates IP ...	Started	Automatic
Diagnostic Policy Service	The Diagnostic Policy Ser...	Started	Automatic
Diagnostic Service Host	The Diagnostic Service H...	Started	Manual
Diagnostic System Host	The Diagnostic System H...	Started	Manual
Distributed Link Tracking Client	Maintains links between ...	Started	Automatic
Distributed Transaction Coordinator	Coordinates transactions ...	Started	Manual

Figure 13. Adjust the columns so you can see the service name, description, status, and startup type

5. Double-click a service to open its Properties dialog box (shown in Figure 14).
6. Use the Dependencies tab to make sure that other services are not dependent on the service you are examining.
7. To stop the service, click Stop.
8. To prevent the service from starting with Windows, from the Startup Type drop-down list, click Manual. This ensures that the service is still available, but you must start it manually if you need it. You can also choose Disable to make a service unavailable.
9. To prevent the service from starting during the normal startup period, but have it still run later, from the Startup Type drop-down list, click Automatic (Delayed Start).
10. Click OK.
11. If you are asked to, restart the computer.

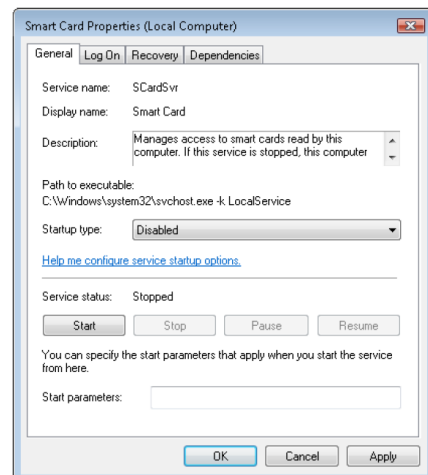


Figure 14. Disable a service if you are sure the computer does not need it.

- Improving Performance on User Account Control

While we recommend that the majority of your users run with standard user (non-administrator) privileges, there are times when it is necessary to deploy a subset of users with administrative privileges. In such circumstances, the User Account Control (UAC) Consent Prompt can slow access to administrative operations and has led some organizations to look at turning UAC off entirely.

A better alternative is to change the behavior of the elevation prompt for administrators to elevate without the prompting. This option, which can be set via Group Policy, allows the administrator to perform an operation that requires elevation without consent but still provides the other benefits afforded by UAC, such as Internet Explorer Protected Mode.

For more information read "[Understanding and Configuring User Account Control in Windows Vista](#)" at the Windows Vista TechCenter.

Make Your Computer More Reliable

There are several steps you can take to help make a computer more reliable, and reliability can translate into better performance. Keeping your computer running reliably involves keeping your disk clean of unwanted files and keeping your disk defragmented.

- Clean Things up with Disk Cleanup

Disk Cleanup examines a computer's drive to determine what files can be deleted. Disk Cleanup can find and delete the following types of files:

- Downloaded program files
- Temporary Internet files
- Offline Web pages
- Recycle Bin contents
- Setup log files
- Temporary files
- Thumbnails
- Archived Windows Error Reporting

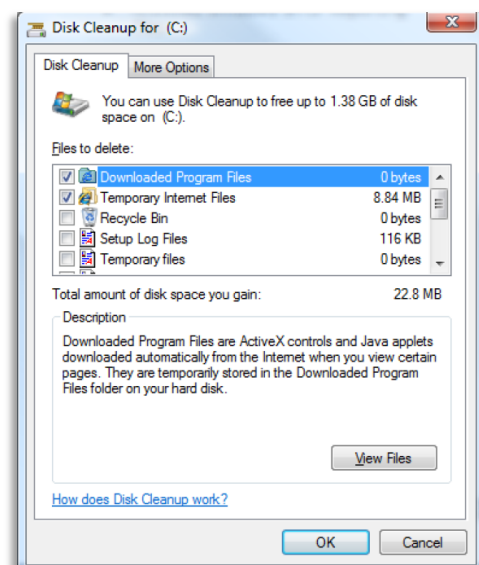


Figure 15. Use Disk Cleanup to delete unused files

To run Disk Cleanup:

1. Click Start, point to All Programs, point to Accessories, point to System Tools, and then click Disk Cleanup. You can also type Disk Cleanup in the Search box on the Start menu.
2. Choose whether to clean up only the current user's files or files from all users on the computer.
3. Select the drive you want to clean up and then click OK.
4. After scanning the disk, Disk Cleanup presents the types of files that it found and shows how much disk space deleting those files will free up, as shown in Figure 15. Select the checkboxes of the file types you want to delete and then click OK.

Disk Cleanup becomes even more effective if you schedule it to happen automatically.

To schedule Disk Cleanup to run automatically:

1. Click Start. In the Search box, type Task Scheduler.
2. Click Task Scheduler.
3. In the Actions pane, select Create Basic Task.
4. Type a name for the task, and then click Next.
5. Select how often the task should run. For Disk Cleanup, Weekly is a good choice. Click Next.
6. Set the time and day the task should run, and then click Next.
7. Select Start A Program in the Action list. Click Next.
8. Click Browse, navigate to the System32 folder (the default), and then select cleanmgr. Click Open.
9. Click Next, and then click Finish.

You should see your new task in the Task Scheduler window, as Figure 16 shows.

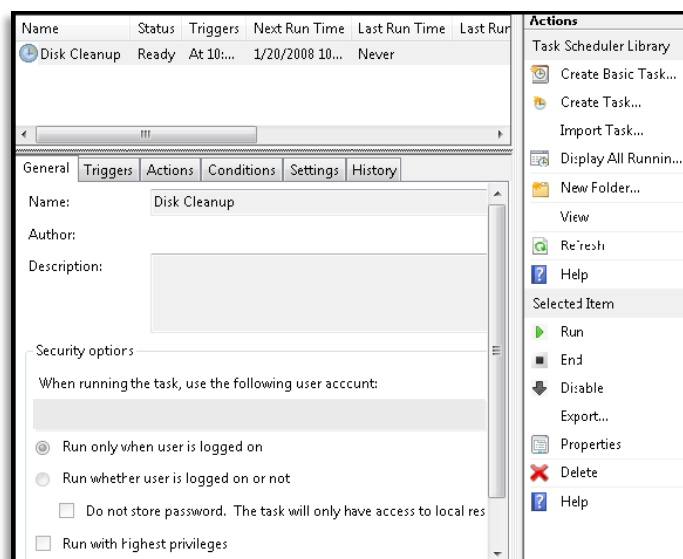


Figure 16. Create a task to run automatically to help improve performance

- Defragment Your Disk

Disk fragmentation happens naturally as a computer is used.

When a file here or there is deleted, Windows marks that space as available for new files to be written there. When a new file is written, it may be bigger than those empty spaces. Part of the file may be written in one available space and part in another.

As time goes on, fragmentation becomes worse and can eventually slow the performance of the disk drive.

Windows Vista provides Disk Defragmenter, a tool that defragments a hard drive. By default, Windows Vista automatically defragments your hard drive once per week. But on occasion, you may want to run a manual defragmentation.

To run Disk Defragmenter:

1. Click Start, point to All Programs, point to Accessories, point to System Tools, and then click Disk Defragmenter. You can also type Disk Defragmenter in the Search box on the Start menu.
2. Enter your administrator credentials and click Continue if you are prompted by User Account Control.
3. Disk Defragmenter allows you to set up a schedule for defragmenting the disk automatically or to defragment the disk now, as shown in Figure 17.

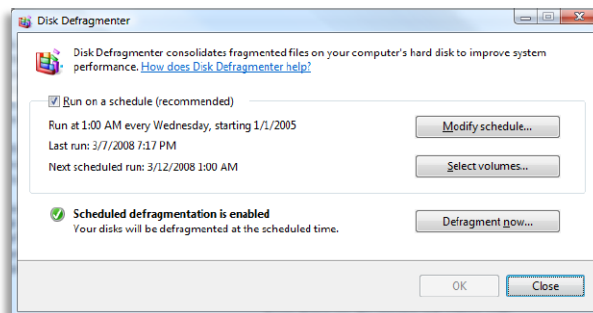


Figure 17. Defragment a disk regularly to keep it running smoothly

Defragmenting a disk can take a fair bit of time. If you are setting up a schedule, make sure you set it up to happen when the computer won't be used for a couple of hours.

Monitor Performance

In addition to configuring Windows Vista for optimum performance, you can also use built-in tools to monitor performance.

- Check the Windows Vista Experience Index

The Windows Experience Index is a feature built into Windows Vista that shows how well Windows Vista and other software will perform on a computer.

A computer running Windows Vista is assigned a rating number called a base score that is a simplified measurement of a computer's hardware configuration.

The scale of the Windows Experience Index ranges from 1.0 to 5.9. A higher base score generally means that the computer will perform better and faster than a computer with a lower base score

The base score of your computer is determined by reviewing performance scores assigned to hardware components in the computer, as shown in Figure 18. These components include:

- RAM random access memory
- CPU central processing unit
- Hard disk
- General graphics performance on the desktop
- 3D graphics capability

A computer's base score is determined by the lowest component score. For example, if the lowest score of any component is 3.3, then the base score will be 3.3. A score of 3 is considered average and adequate for performing most tasks. A score of 4 or 5 is considered adequate for performing advanced functions.

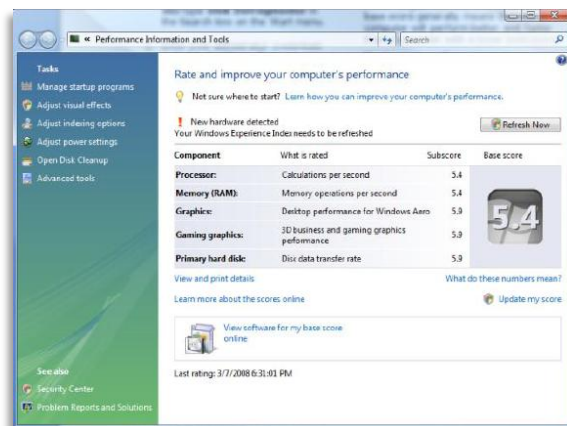


Figure 18. The Windows Experience Index gives a rough approximation of a computer's performance

- Check Performance with Task Manager

Task Manager provides information about applications and processes that are currently running on a computer, and also provides real-time performance information about the processor, memory, and network usage.

You can start Task Manager in the following ways:

- Right-click any open space on the Windows taskbar and click Task Manager.
- Press CTRL+ALT+DELETE and select Start Task Manager.
- Press CTRL+SHIFT+ESCAPE.

The main tab in the Task Manager window that measures performance is the Performance tab, shown in Figure 19.

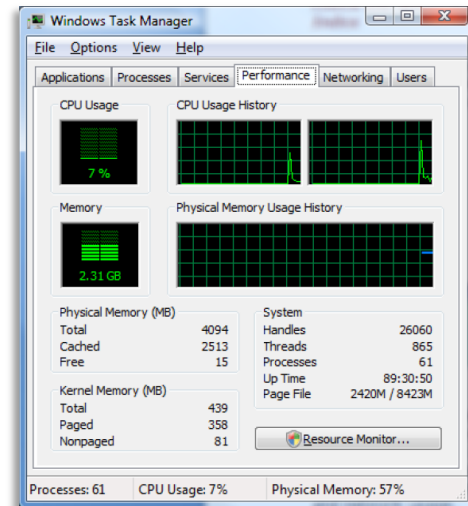


Figure 19. Use Task Manager to provide a real-time look at performance

The Performance tab is divided into the following sections:

- CPU Usage indicates the percentage of processor cycles that are not idle at the moment. If this graph displays a high percentage continuously (and not when there is an obvious reason, like such as a big application), your processor may be overloaded. If your computer has two processors, two graphs are shown.
- CPU Usage History indicates how busy the processor has been recently, although the graph only shows values since Task Manager was opened.
- Memory indicates the percentage of the physical memory that is currently being used.
- Physical Memory Usage History indicates how full the physical memory has been over time, although it also only shows values since Task Manager was opened.
- Physical Memory (MB) indicates the total and available physical memory, as well as the amount of memory in the system cache.
- Kernel Memory (MB) indicates the memory used by the operating system. Paged kernel memory is available only to system processes. Non-paged kernel memory can be used by applications when necessary.
- System provides totals for the number of handles, threads, and processes currently running. A process is a single executable program. A thread is an object within a process that runs program instructions. A handle represents a specific input/output (I/O) instance. A process may have multiple threads, each of which in turn may have multiple handles.

- Using Resource Monitor

On the Performance tab of Task Manager, you will also notice a button named Resource Monitor (refer to Figure 19). Click this button (and enter your credentials when prompted by UAC) to open Resource Monitor, shown in Figure 20.

The Resource Monitor window is divided into several sections:

- Resource Overview. This section shows graphs that are identical to those shown in the Task Manager Performance tab.
- CPU. This section lists processes that are consuming CPU cycles, much like the Processes tab in Task Manager.
- Disk. This section shows in real time what processes are reading and writing to disk.
- Network. This section shows in real time what processes are sending and receiving on the network.
- Memory. This section shows in real time what processes are committed to memory.
- Learn More. This section features links to various information in Windows Help about monitoring resources.

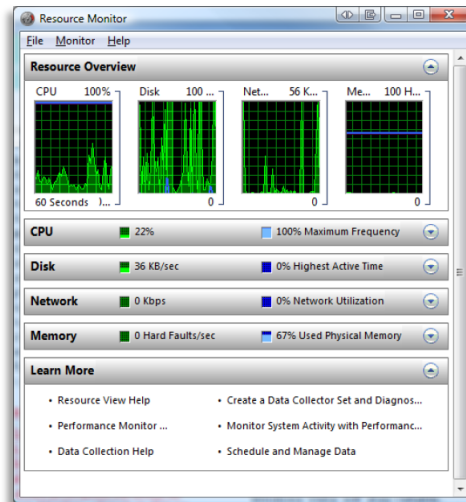


Figure 20. Monitor resource use in real time

Apply Improvements Across the Organization with Group Policy

In an organization with an In an organization with an Active Directory® Directory Service domain, Group Policy allows you to efficiently enforce security and configuration settings for groups of computers and users by distributing the settings automatically throughout a site, domain, or organizational unit. You can use Group Policy to control the following types of settings:

- The programs available to a computer or user (including the ability to deliver customized installations of programs).
- The programs that appear on a user's desktop.
- Options for how the Start menu appears.
- Security options like password requirements and Guest account status.
- Whether the user can add new hardware devices or install new programs.
- Disk Quota limits.
- Whether the user can change system settings.
- Many settings found in various Control Panel applications.
- Additional registry-based settings for Windows components or other applications.

Being able to control the applications that are installed on users' computers greatly reduces the impact of background programs, improperly configured programs, and malware on a computer's performance.

Being able to control users' ability to change system settings also helps ensure that a properly-performed installation of Windows Vista will stay reliable.

Note: For a deeper look at Group Policy, visit <http://www.microsoft.com/grouppolicy>.

Teach Your Users Well

Beyond traditional performance improvements, such as physically improving a computer or optimizing system settings, you can also improve the performance of your organization as a whole by making sure that users are well-trained.

For example, you can make sure that users understand that installing third-party software or downloading and installing software from the Internet can cause computer or network-wide problems. You can also block users from being able to do this in many situations.

By mixing education with management techniques, you can keep your enterprise computers from being compromised by your own employees and help users work more safely and efficiently at the same time. You can also teach users how to improve their productivity by using the tools included with Windows Vista.

NOTES

