TURBO WINDOWS®

The ultimate PC speed up guide

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Turbo Windows®

The Ultimate PC Speed Up Guide

Liz Cornwell and André Coolfix

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Foreword

When you buy a new computer, you can't help but be amazed at how fast it is compared to your previous PC. You benefit from the new hardware, more RAM, larger hard drive and from simply having a fresh, uncluttered system. But that won't last. Sooner or later (usually sooner), you will notice your computer becoming slower and slower. And one day you will realize that the new PC is just as slow as the old one, if not slower. So, once again you will start thinking of buying a new, faster laptop. But should you?

The truth is, you don't need a new computer that soon. All you need to do is give your old one some loving care. In a way, computers are a bit like cars – both need regular maintenance and servicing. But there is one difference. Very few people will attempt to repair and service their cars without seeking professional help. But DIY computer maintenance is not at all hard. So don't run to a PC repair shop just yet! You can make your computer fast again without having to pay a penny to a computer technician and this book will teach you how to do it.

Windows OS is a complicated system that has thousands of different settings, options, advantages and disadvantages. And sadly the default configuration is not the best, nor the fastest one. All the default configuration does is makes sure the operating system works for everyone, on any computer running any hardware. So, if you want your PC to run faster and better, there is lots of room for tweaking, disabling things, and improving the way your Windows operates.

This book will show you how to look after your computer. It will help you keep it healthy, tell you which things are better disabled than enabled, and which things are best left alone. You will also learn how to upgrade your hardware and take advantage of the latest technologies. With this book, your sluggish Windows will become Turbo Windows and you will achieve the ultimate speed and performance gain.

CHAPTER

1

Hope Is Good, Prevention Is Better

The Best Ways to Back Up Your Data

There are a lot of things that can make your computer slow. Some of them are pretty harmless, but some have the potential to ruin your PC. I'm talking about things like hardware faults and virus attacks. And some of the incorrectly applied speed-up techniques, especially registry hacks, can also kill your PC. I bet you're thinking that it won't happen to you because you have good hardware, the "right" drivers, and a good anti-virus. And I bet you are careful when it comes to tweaking. It's good that you are so confident, but I can tell you that the "Nah, it won't happen to me" attitude is no good. Because one day it will. Are you comfortable about losing all your files, photos, music, videos and all your programs, including the ones you paid for? No? Well, then you should start backing up your computer today.

Backing up is something we know we should do, but never actually get round to. There are always more important and more exciting things we want to do. And one day disaster comes.

I was in my last year at college when it happened to me. There I was, writing my thesis on my laptop. It was a pretty old laptop, but it still worked OK. I finished writing for the day and went out. The next day the laptop refused to boot no matter how hard I tried – the hard drive had died and all my work perished with it. Thankfully, I had some chapters saved on a flash drive and some bits and pieces were in my email Sent box. Most importantly, I had plenty of time to restore what I could and write the rest all over again. My thesis was reborn from the ashes, but everything else that was stored on that laptop was gone for good. You see, I never bothered to create a backup. So all my papers and PDF books, all my software, all my photos, and all my financial documents were gone. That's what I call a disaster and it took me ages to sort everything out. It happened to me, and one day it will happen to you.

So, what are the best ways to back up your data? The answer is it doesn't really matter as long as you diversify. The more backups you have, the better. Here is a backup plan for you to follow:

1. Configure System Restore
2. Create a disk image
3. Use an external hard drive
4. Create automatic online backups

Let's have a closer look at these options and create some backups before we proceed with optimizing and tweaking your PC.

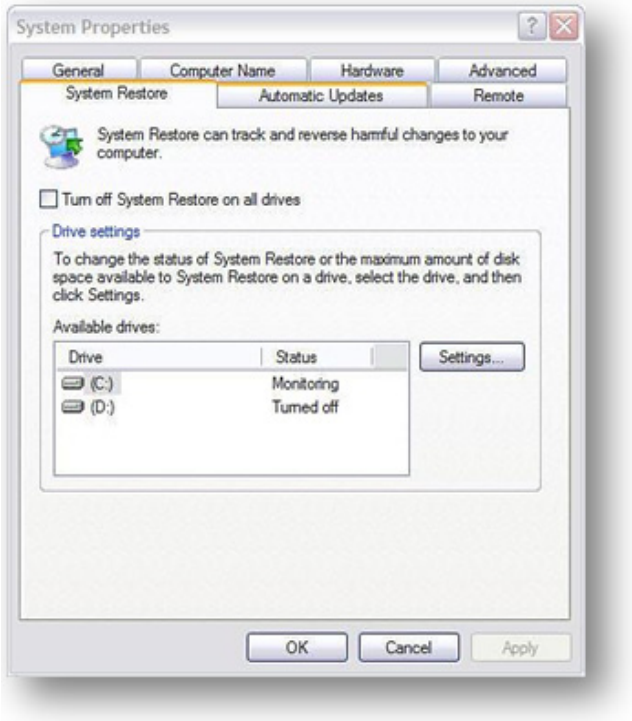
Configure System Restore

System Restore is a handy Windows feature that will help you roll back your computer to a previous state. It's very useful in case of minor faults like incorrect software installations and driver conflicts. However, you must understand that System Restore does not actually back up your computer and doesn't monitor your personal files. This means that you should never rely on it alone.

Now, some people claim that disabling System Restore will boost computer performance. That's not true. System Restore only kicks in when your system is idle, which means it can't slow you down. However, System Restore can and does waste disk space. Like a lot of things in Windows, the default System Restore configuration is not ideal for most users and takes up too much space. So, if you have better plans for your gigabytes, you should configure System Restore to eat up less space.

Windows XP users:

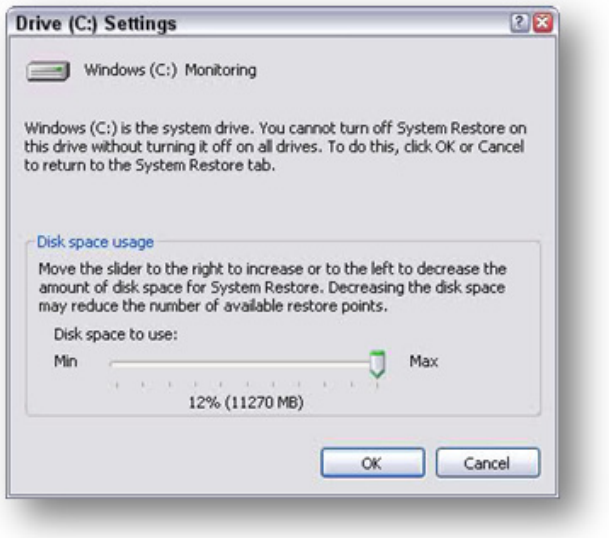
The XP version of System Restore is pretty basic and quite often pretty useless. For a start, it's slow (big surprise) and it often doesn't do what you want it to do. It's still worth having it enabled, though, just in case. To check whether System Restore is enabled, press the **Windows key** + the **Pause/Break key** to open the **System Properties** window and go to the **System Restore** tab. There you'll see the list of your disks and partitions, as well as System Restore status.



Now let's tune it up a bit!

If you use a third-party restore program, you can disable the Windows one altogether. This will free up heaps of space without putting you at risk. You can disable System Restore by checking the relevant checkbox.

If you have more than one disk or a couple of partitions on your computer, then you don't need System Restore to be monitoring all of them; it's enough to monitor the drive or partition where the OS is installed. Usually it's drive (C:). To disable System Restore on all other drives, highlight them one by one, click on **Settings** and check the relevant checkbox.



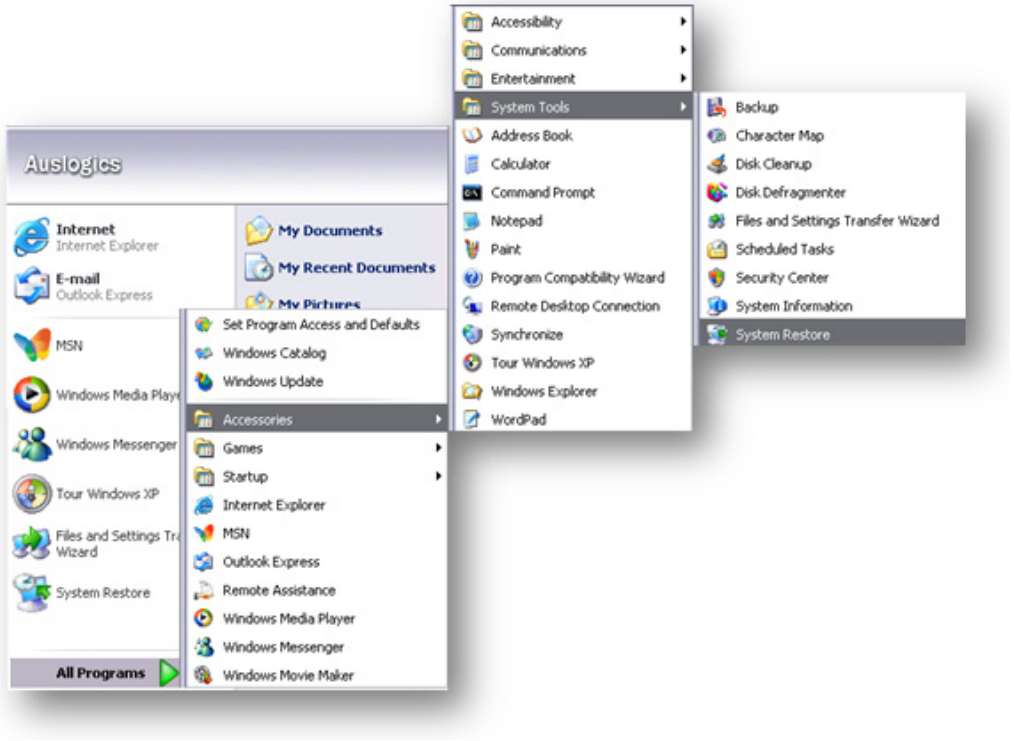
And now let's free up even more space. Do you really want your system restore points to multiply like rabbits and use up your disk space? I guess not. That's why it's a good idea to restrict the amount of space System Restore can use for its purposes.

To do this, simply go to the **System Restore** tab, click on **Settings**, and adjust the slider.

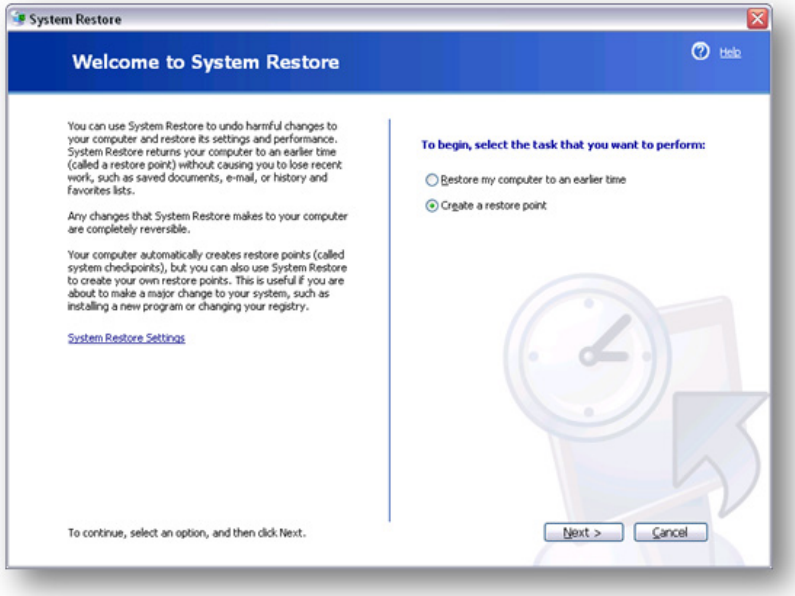
Set it to something like 5% and you'll be fine.

Sometimes you might want to create a restore point manually, especially before tweaking or installing unknown applications. It might prove handy – you never know. Creating a restore point is dead easy:

1. Click on **Start – All Programs – Accessories – System tools** and then click on **System Restore**

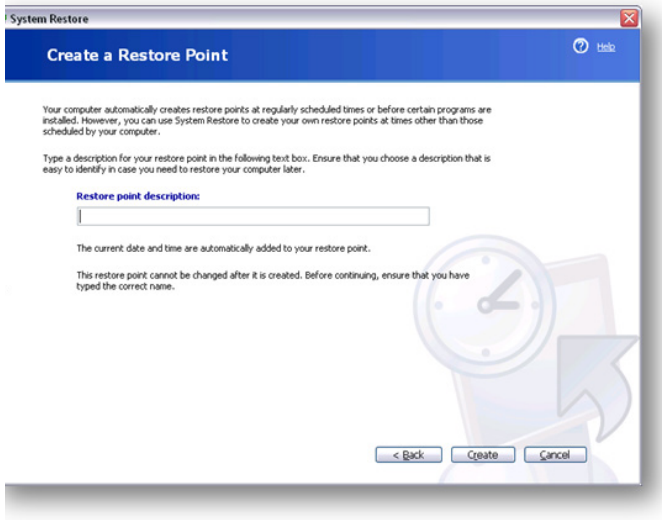


2. Select **Create a restore point** and click **Next**



3. Describe your restore point, so that you can easily find it in case you need it

4. Click on **Create** to create the restore point.

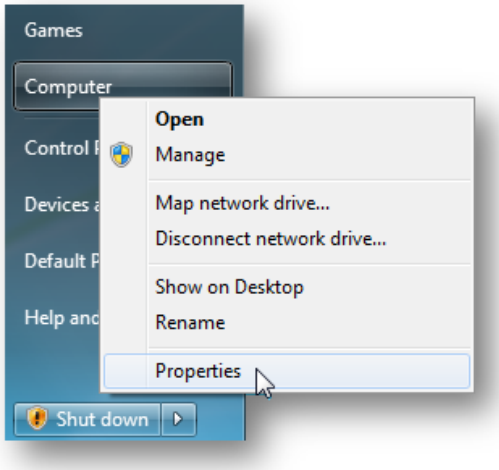


Windows 7 users:

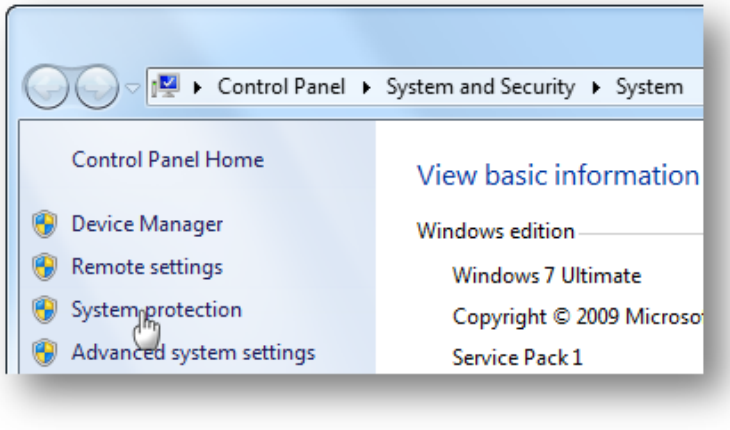
Guys, you're in luck. The Windows System Restore function got immensely improved since the days of XP. The Windows 7 version of System Restore is filed under System Protection and does a lot more thorough job at protecting you from data loss by using Shadow Copy features. Basically, this means that Windows can create snapshots of your drive and backs up your files even when they are in use. This makes the Windows 7 System Restore a lot more effective and improves your chances of successful recovery.

All the configuration tips that I recommend for XP apply to Windows 7 as well. To configure System Restore in Windows 7 do the following:

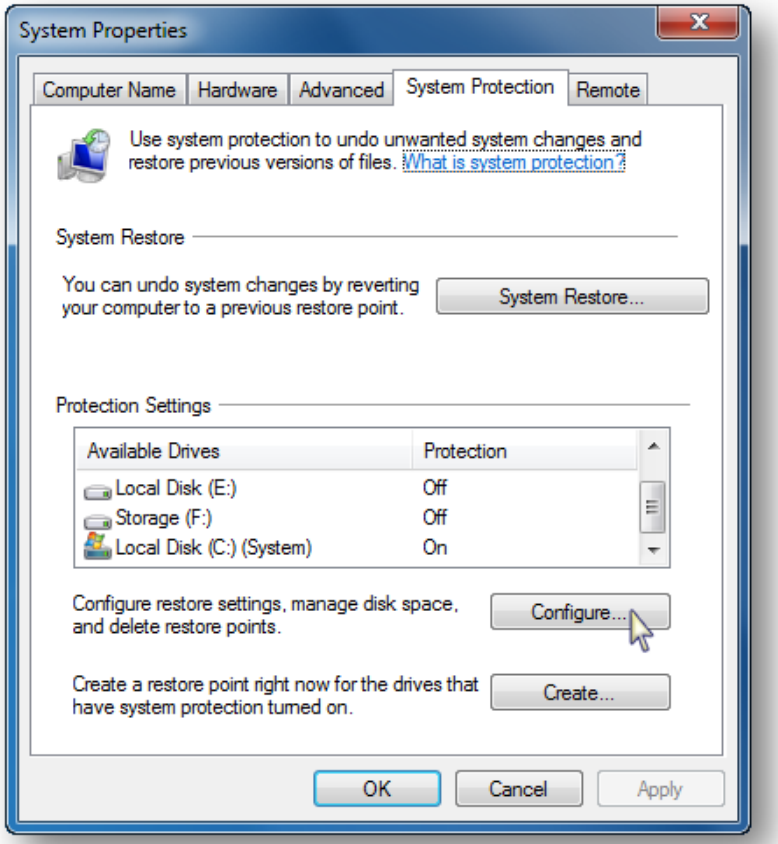
1. Go to **Start** and right-click on **Computer**. Go to **Properties**



2. Click on the **System Protection** link on the left-hand side



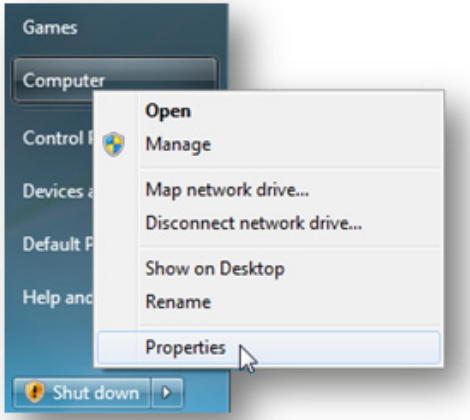
3. Click on **Configure** to manage System Restore settings and the amount of disk space it uses



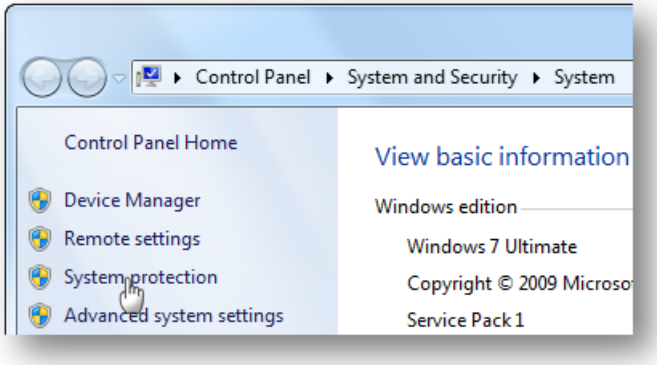
Easy-peasy!

Now let me show you how to manually create restore points in Windows 7:

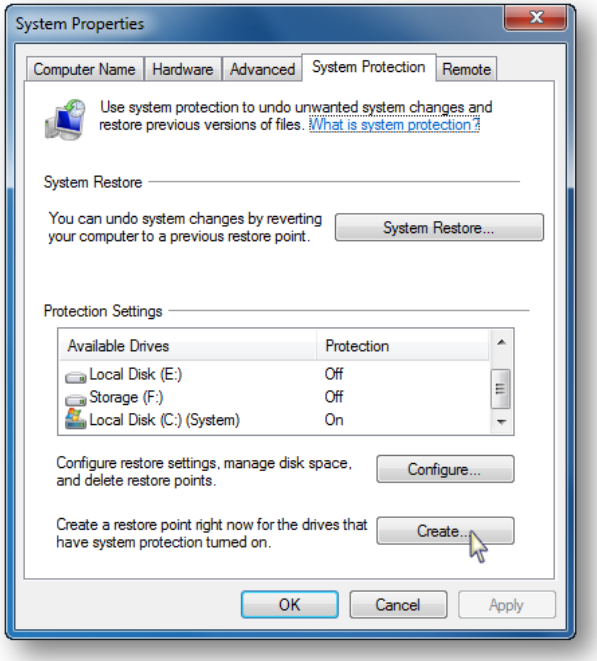
1. Click on **Start** and right-click on **Computer**. Go to **Properties**



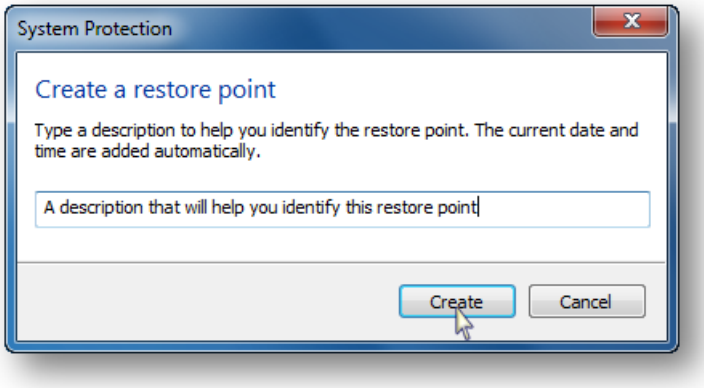
2. Now click on the **System Protection** link on the left-hand side



3. Click on the **Create** button to set a new restore point



4. Type in a description that will help you identify this restore point



5. Click **Create** and you're done!

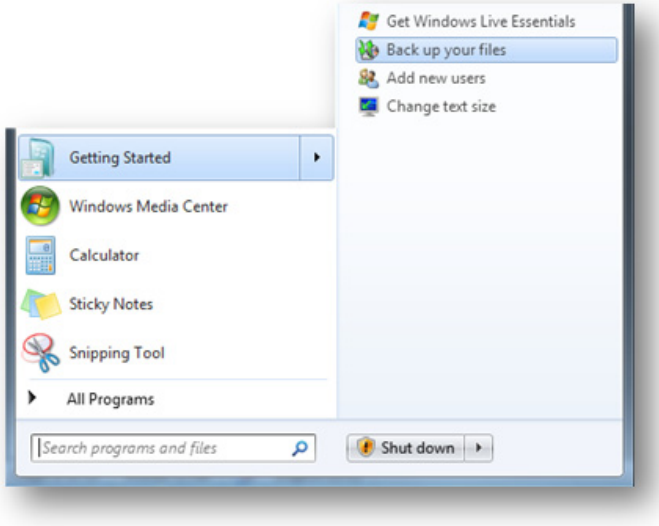
Right, now you know how to use and configure System Restore. So let's get serious about backup and discuss my favorite backup method – disk imaging.

Creating a disk image

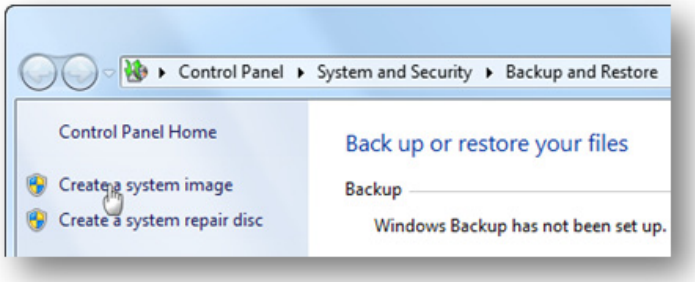
The reason why disk imaging is my favorite backup method is simple – if you have a disk image, you can be sure your data is safe. With a disk image you can restore literally everything, including your operating system and all your programs, in a quick and easy way.

Windows 7 has a built-in feature that allows you to create disk images in just a couple of clicks. Here is how it's done:

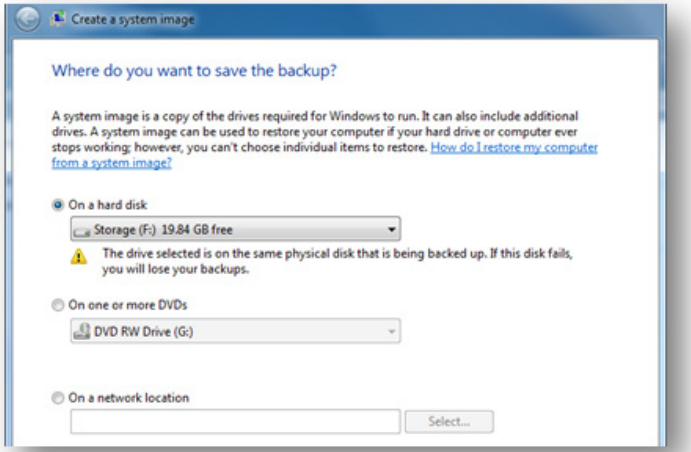
1. Click on **Start**, go to **Getting Started** and click on **Back up your files**



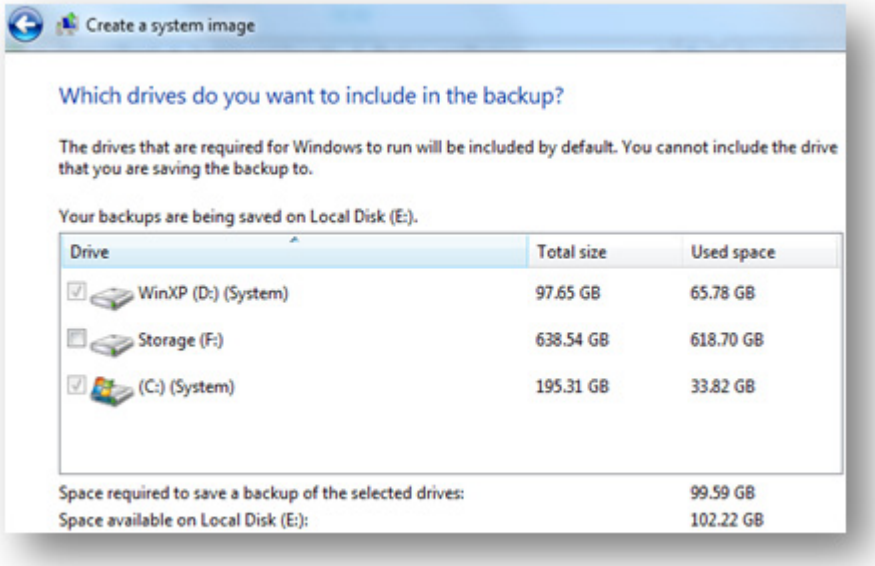
2. Now click on the **Create a system image** link



3. Select where you want to save the image. I recommend using an external hard drive to store your backup



4. Select which drives you want to back up

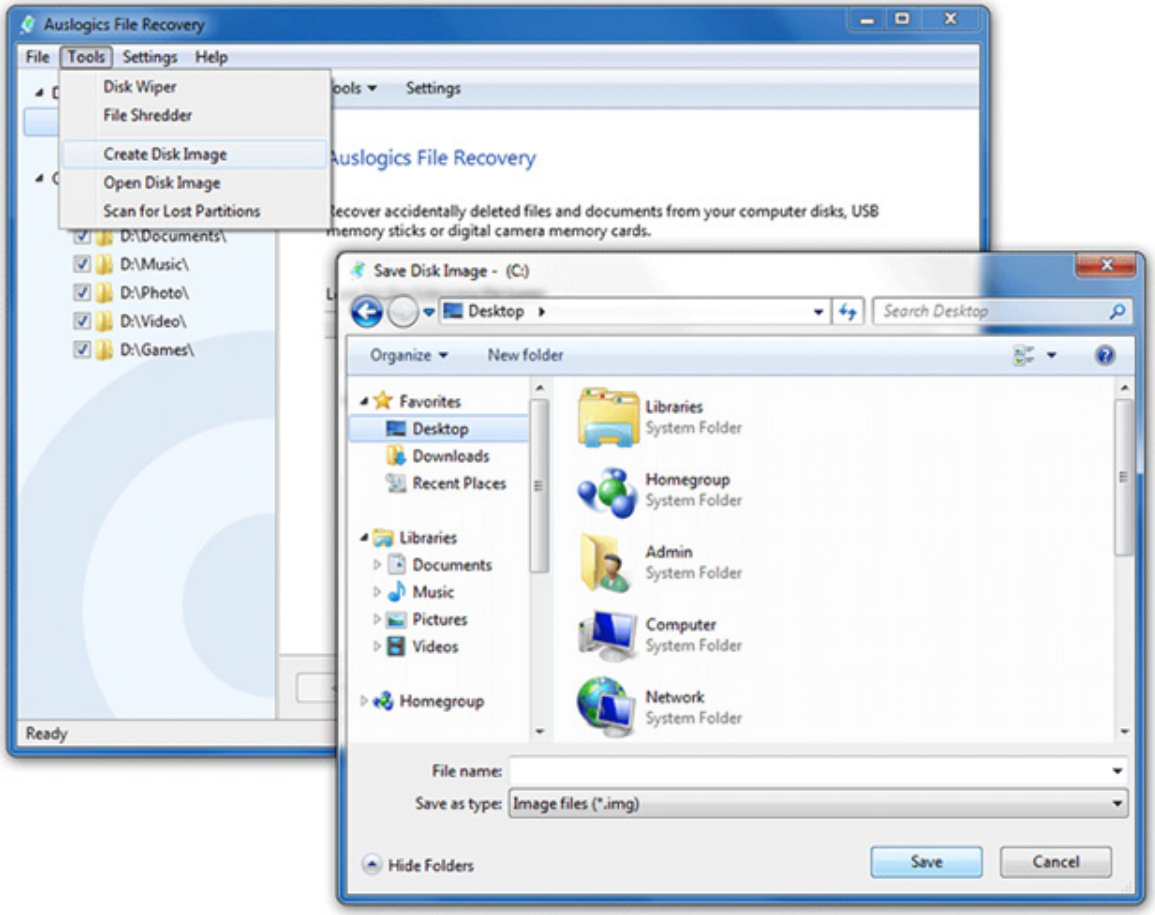


5. Confirm and let Windows Backup do the job. Aren't you glad you have Windows 7?

Those of you who are still on XP or worse – Vista Home can create disk images with the help of third-party utilities. There are plenty of great programs to help you create disk images.

Auslogics File Recovery Pro is a particularly good one because it can also recover accidentally deleted files, which is something Windows can't do. I'm now going to show you how to create a disk image using this software.

1. Launch **Auslogics File Recovery**, go to **Tools** and select **Create Disk Image**



2. Select where you want to save the disk image. I recommend saving it to an external hard drive or burning it to a DVD. This way it won't be lost even if everything else on your computer gets wiped out

3. Name the disk image and click on **Save**

4. Let the program do the work.

Make sure you create disk images on a regular basis. This way your backup will always be up-to-date.

Back up to an external hard drive

Get yourself a pretty large external hard drive and use it to store your important files. If you can, get a water- and shock-resistant one, just in case. The downside of backing up to an external hard drive is that you need to constantly update the backup. But even if you don't, you will still be able to recover a lot of your data if your system fails. You could also use software like **Microsoft's SyncToy** or **Allway Sync** to synchronize your PC and your new USB hard drive to keep your backup up-to-date.

Create automatic online backups

Using automatic online backups is the only way you can make sure your data is safe even if your house burns down (hopefully not, but things like that happen) or your kid decides to use your laptop as a raft for toy soldiers. It's also a great way to keep your backups constantly updated. There are plenty of automatic backup solutions to choose from, such as Dropbox, Carbonite, NovaBACKUP, IDrive, BackBlaze, SOSOnlineBackup and Mozy. Choose the one you like and start backing up!

Remember that you should have at least two backups on two different sources. This way you will still be able to recover from data loss disaster even if one of your backups gets damaged.

CHAPTER

2

Is Your Hard Drive Playing Up?

Use Check Disk to Detect And Fix Hard Drive Errors

Did you know that your hard drive is one of the very few mechanical computer parts? Unlike CPU and RAM that have electronic components, hard drives have a mechanical arm that moves whenever anything is written to the disk or read from the disk. That's why it's not surprising that your hard drive is the slowest part of your computer. But that's not all – it's also extremely prone to errors. These errors vary in severity and are caused by a number of things, from hardware faults and power cuts to interrupted data write process. Now, if any serious hardware faults occur, there is very little you can do. In fact, you would be better off backing up all your data, getting a new hard drive, wiping everything off the old one and chucking it into the bin.

The good news is that you have to do nothing of the sort in case of minor hard drive errors. Most of these errors are easily fixed with the help of a tool called Check Disk. Check Disk (CHKDSK) is a built-in Windows utility that can scan your hard drive for

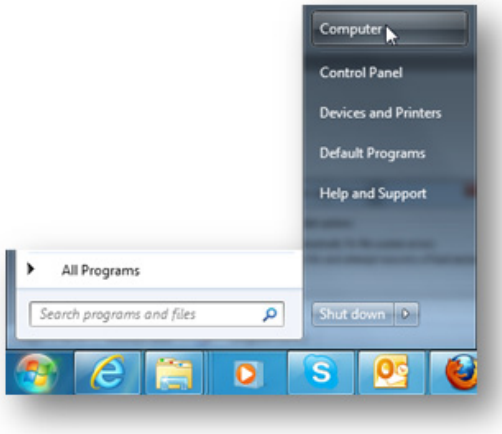
errors and bad sectors, repair logical errors, prevent further deterioration by moving data to the healthier parts of the disk and make sure new data is not saved to the bad sectors. This way Check Disk can improve the stability of your PC. Generally speaking, it's good to run Check Disk on a regular basis, like once a month.

How to run Check Disk

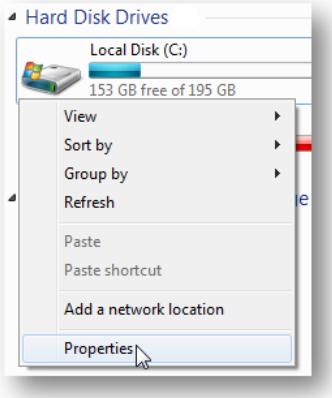
Running Check Disk is really easy even though the scan can take a long time to complete. So make sure you don't need to use your computer for something like 30-40 minutes (though sometimes it may take up to 2 hours), as Check Disk needs exclusive access to your system. Basically, the larger your disk, the longer Check Disk will need to complete the scan. That's why it's good to schedule Check Disk to run either at night or when you're out. Or at least get yourself a large mug of coffee, sit back and relax.

The process of running Check Disk is the same for all Windows versions, which makes things a lot easier. You can launch the tool in two ways – from **(My) Computer** or from the **Command Prompt**. Here is how it's done from **(My) Computer**:

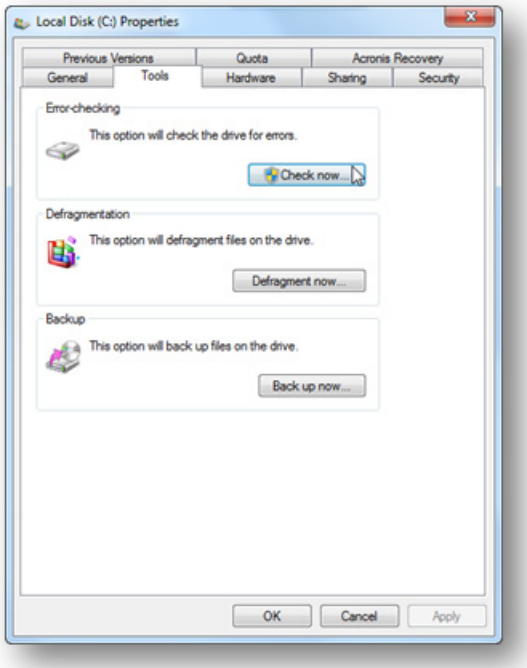
1. Go to **Start** and open **(My) Computer**



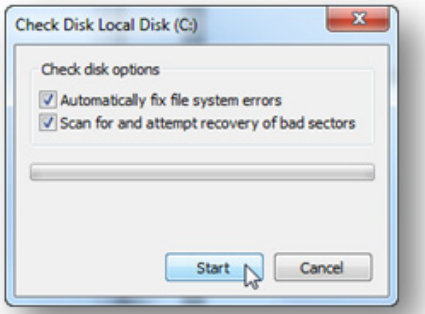
2. **Right-click** on the drive you wish to check and go to **Properties**



3. Go to the **Tools** tab and click on the **Check Now** button

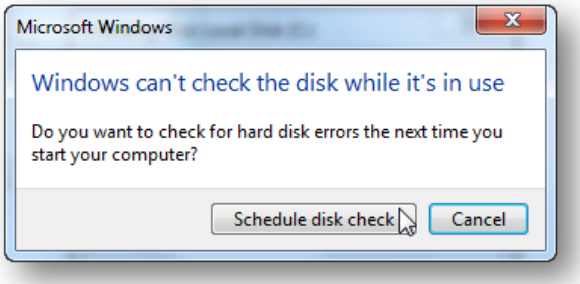


4. A pop-up window will appear and ask you whether you want to **Automatically fix file system errors** and **Scan for and attempt recovery of bad sectors**
   Make sure you **check both checkboxes** – otherwise Check Disk will only report errors without fixing them.



5. Click **Start** to launch the tool.

Like I said before, Check Disk needs exclusive access to the drive. This means that no other programs should be running. This includes Windows. So if you are checking your system drive, Check Disk will not be able to perform the scan straight away. Instead, it will offer you to schedule the scan for the next reboot. To do that, just click on **Schedule Disk Check** and then click **OK**.

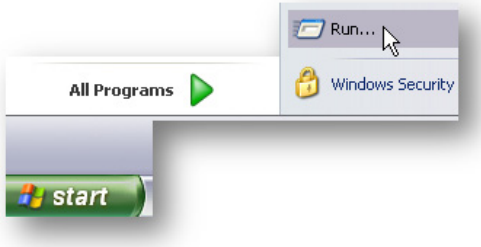


Now it's time to grab that mug of coffee, reboot your computer and let Check Disk do the work. And if you don't feel like doing the disk checking after you reboot your PC, don't worry - you'll have 10 seconds to cancel.

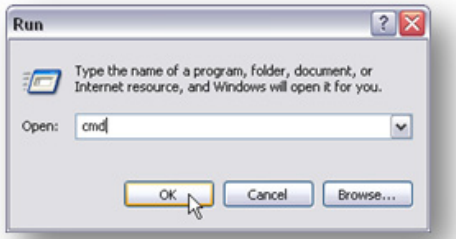
It's also possible to run Check Disk (CHKDSK) from the command prompt. I realize that most home users will never use the command prompt option, but I'll describe how it's done anyway, just in case you want to give it a go:

XP users

1. Click on **Start** and then click on **Run**

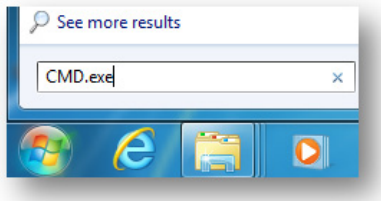


2. Type **cmd** in the box that appears and hit **OK**

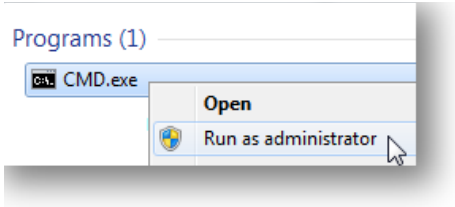


Windows 7 users

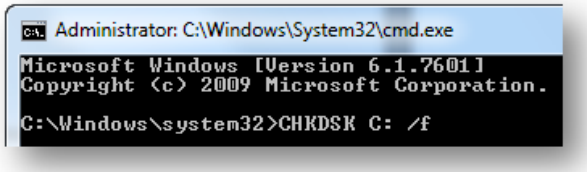
1. You will need to run CMD with administrative privileges. To do it, click on **Start** and type **CMD.exe** in the **Search box**



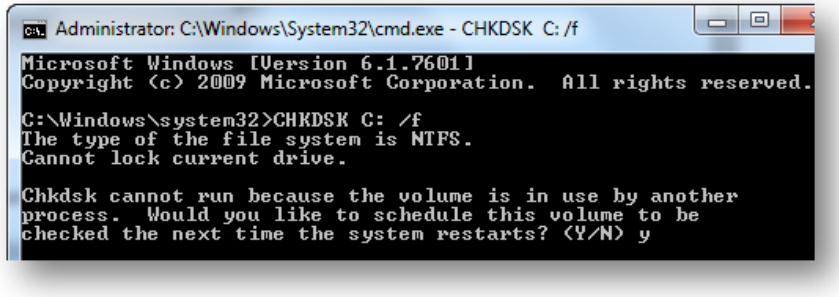
2. **Don't** hit Enter, but **right-click on CMD.exe** and select **Run as Administrator**



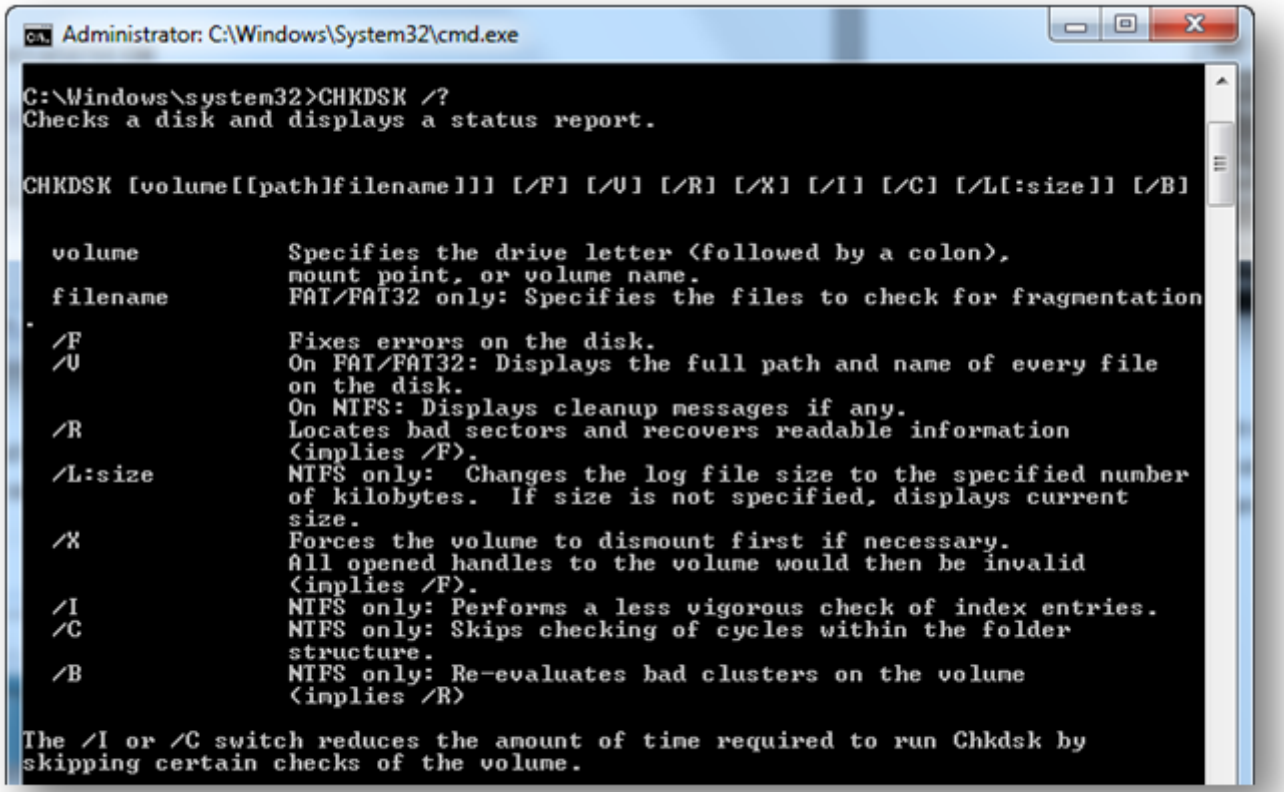
Now type **CHKDSK C: /f** in the DOS window. **C:** is the letter of the drive you will be checking and **/f** will make the tool fix file system errors



Check Disk will try to lock your drive and you will be prompted to schedule the task for the next reboot



There are more command prompt options for CHKDSK, but you should only run them when you are totally at ease with the CMD interface. The full list of CHKDSK command prompt options can be found via the Command Prompt itself: just type **CHKDSK /?** to get the details of what each option does.



CHAPTER

3

Computer Is Slow to Wake Up?

Optimize PC Startup

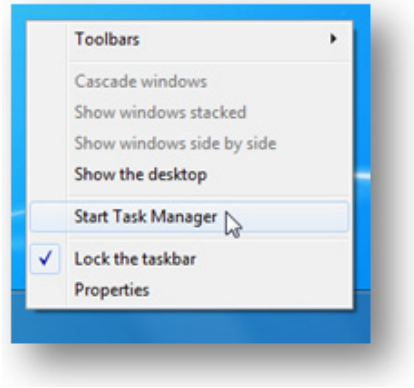
Most likely you can still remember the days when your computer took only several seconds to boot. But these blissful days are long gone and now your PC takes ages to start up. Why? Well, several things could be causing your computer's sluggish startup, but most likely there are too many programs and background processes loading on Windows boot.

Delete unnecessary startup items

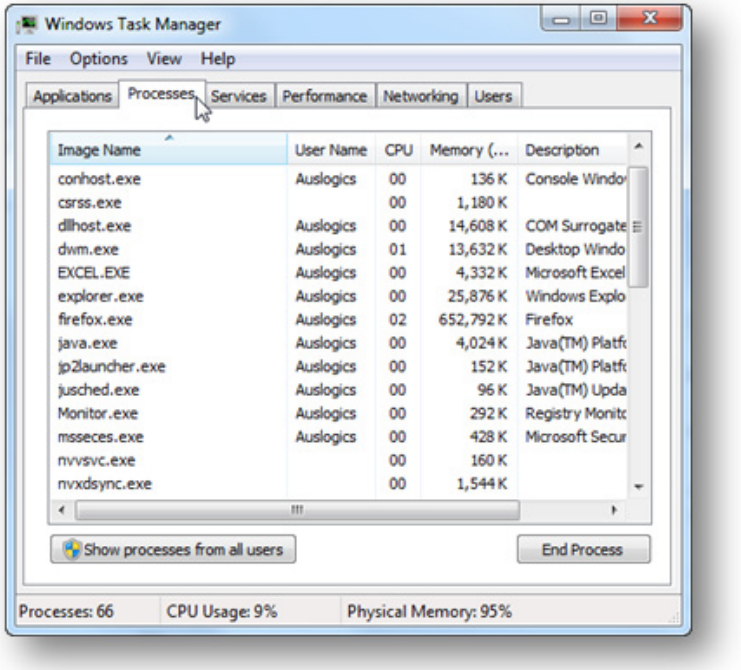
Even if you have a brand new laptop, there is a high chance that it has a lot of pre-installed software that is configured to load every time you switch your computer on. Frankly speaking, these programs can make your PC load longer and you don't need all of them at startup anyway. And as you install more software, more programs automatically add themselves to your startup list. The more there are, the more RAM gets taken up on Windows boot. That's how your computer becomes sluggish on startup. The solution is to go through your startup list and disable some of the programs. But before you do that you need to understand what sort of applications load automatically on Windows boot.

When you launch your computer, Windows has to load a whole bunch of system files without which it can't run. However, a lot of other programs also put themselves in the startup folder. These can be anything, from Google Update to Skype and Windows Live Messenger. Adobe programs are also notorious for launching on startup by default. If you are not sure which programs launch on startup and then run in the background, there is an easy way to find out:

1. Right-click on the taskbar and select **Start Task Manager**



2. When the **Task Manager** opens, go to the **Processes** tab

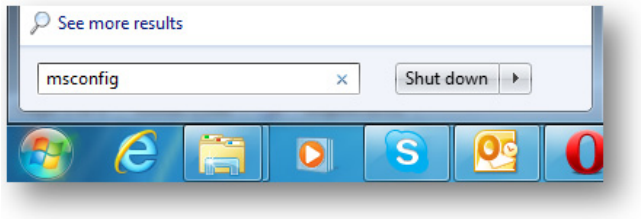


You will now see all the processes running on your system and how much system resources each process takes up. As a rule, you are bound to find several processes belonging to utilities that check for software updates or make certain software launch faster. The truth is, you don't really need them running all the time and they can safely be disabled.

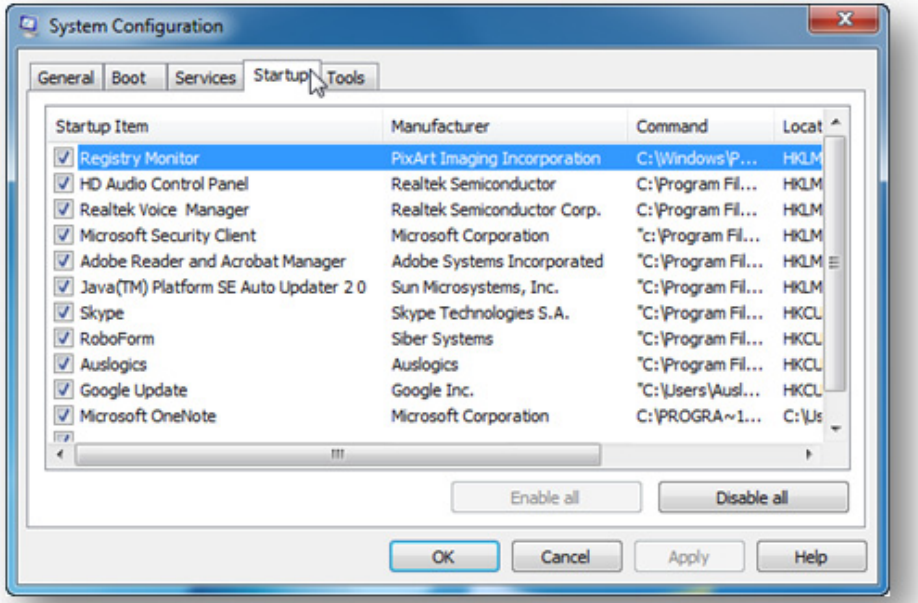
Unnecessary startup items are easy to manage with the help of the System Configuration Utility. Here's how:

1. Click on the **Start** button, then click **Run** (for Windows XP) or **Search Programs and files** (for Windows 7)

2. Type **msconfig** in the box and hit **Enter**. This will launch the **System Configuration Utility**



3. Go to the **Startup** tab. You will see a list of all programs launching on Windows startup



4. Now go through the list and simply uncheck the programs you don't want to start automatically.
   Be careful and don't start disabling recklessly. If you don't know what something is, it's best to leave it alone or at least Google it before disabling.

5. Click **Apply** and then click **OK**

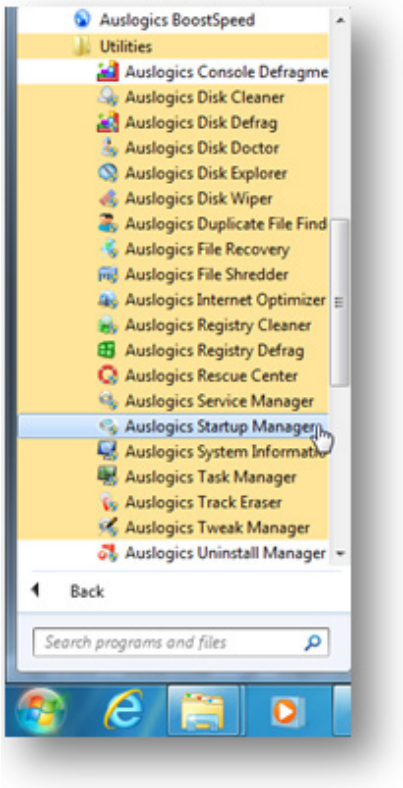
6. Reboot Windows for the changes to take effect.

I'm sure you've noticed that the System Configuration Utility doesn't provide much information about the programs from the list. This doesn't make things easier for you and is potentially dangerous. So if you want to be absolutely certain what you are disabling, it's best to use a third-party startup management utility. Good quality startup managers, like Auslogics Startup Manager, provide detailed information about each entry, making it easy for you to work out which applications to disable. Here is how you can dis-

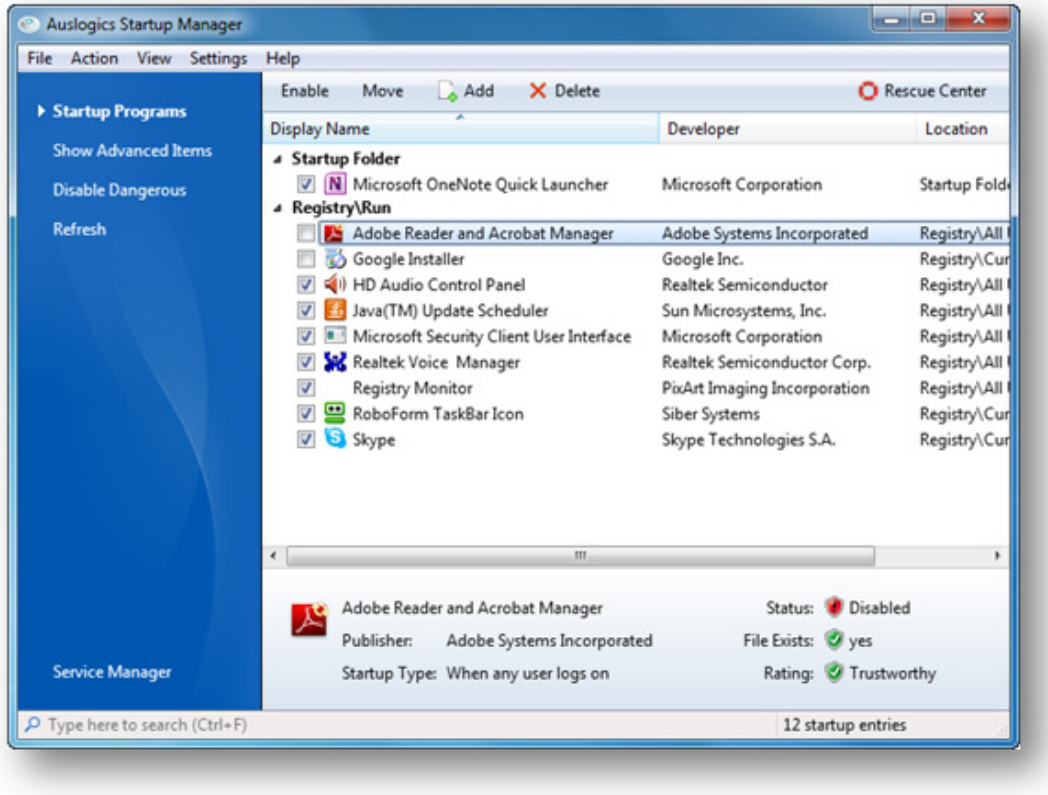
able application loading on startup with Auslogics Startup Manager:

1. Open **Auslogics BoostSpeed** and go to the **Advanced Tools** tab
2. Under **Software Control**, click on **Startup items**

3. Wait for the **Startup Manager** to load. You can also launch Auslogics Startup Manager directly by clicking on **Start – All Programs – Auslogics – BoostSpeed – Utilities – Auslogics Startup Manager**



4. Uncheck the items you want to remove from the startup list. You can also highlight an application to read its descriptions at the bottom of the screen.



By default, Auslogics Startup Manager only shows you the applications that are safe to disable. If you want to delve a bit deeper, you can click on **Show Advanced Items**. This will show advanced items, such as shell handlers and shell extensions. Be careful when you disable these items, as your computer might need them to operate correctly.

Now your computer should start up a lot faster than before. But if you are still not 100% satisfied, there is a way to speed up Windows boot even more.

Disable unnecessary Windows services

By default, Windows runs a number of different services. Some of them are absolutely essential and your computer won't run without them, but some of them are never needed by a home user. The problem is that Windows has the one-size-fits-all approach, which means that services you never need will be running by default in any case. Disabling them can considerably speed up your computer.

Unfortunately, it's not all that easy to tweak Windows services. Don't get me wrong, it's easy enough to click on **Start**, type **services.msc** in the **Run** box, hit **Enter**, and start disabling services. The difficult bit is that you have to be absolutely sure which services you are disabling. Make a mistake and your computer will be ruined. And I guess you are not looking forward to reinstall Windows.

Basically, there are two ways to optimize Windows services – you could either find a list of services and use it as guidelines for tweaking, or you could use a software optimizer. Using a good quality Service Manager is a lot easier and a lot safer than tweaking services manually, but I'll still give a couple of tips on how to do it.

When you are managing services manually, the best way to do it is via services.msc and not msconfig. This way you will get a better description of what each service does. Another golden rule is that you shouldn't set the service startup type to "Disabled" straight away. Set it to "Manual" first and see what happens. If it's set to "Manual", it will be launched on demand and use less system resources.

And now let's get to the point. Here is a short list of services that most home users can safely set to "Manual" or even disable later on:

1. **Application Experience (AeLookupSvc)** – this service checks problems with applications against Microsoft's online database. Pretty useless.
2. **Remote Registry (RemoteRegistry)** – this service allows your Windows registry to be managed remotely. If your computer is not part of a corporate network, it's best to disable this service as it's a potential security hole.
3. **Smart Card Service (SCardSvr)** – gives access to Smart Cards. These cards are used for logging in and have nothing to do with SD memory cards. If you don't use Smart Cards, you can disable this service along with SCPolicySvr (Smart Card removal policy service) and CertPropSvc (Smart Card certificate preparation service).
4. **Tablet PC Input Service (TabletInputService)** – can be safely disabled if you don't use any PC pens and graphic tablets.

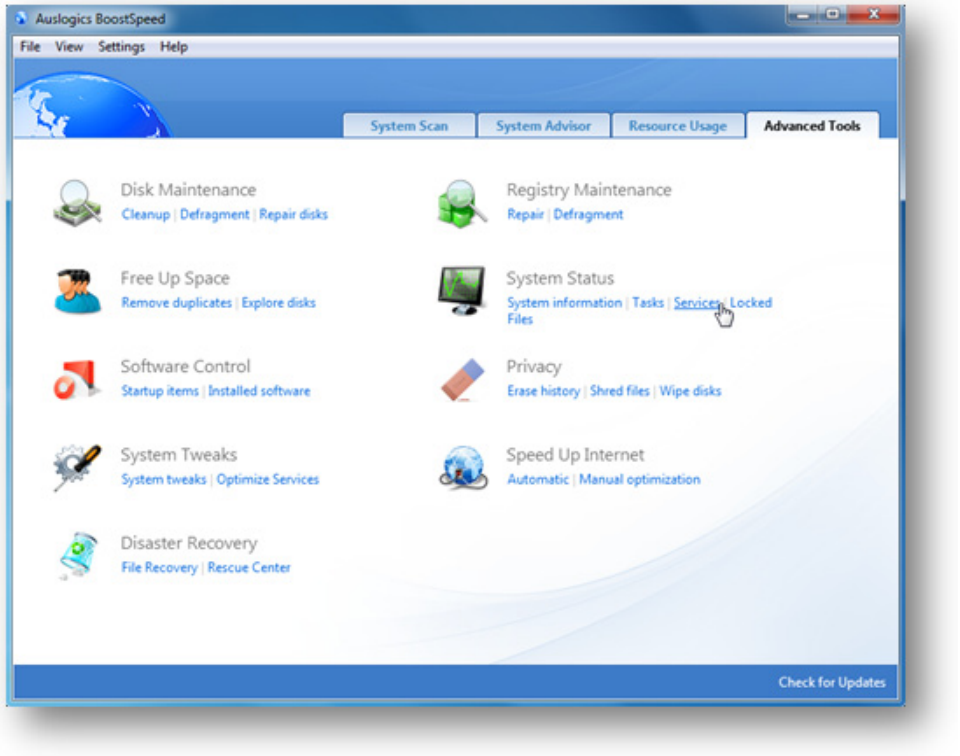
5. **Windows Error Reporting Service (WerSvc)** – sends error reports to Microsoft. Pretty useless, if you ask me.

6. **Windows Time (W32Time)** – this service synchronizes time and date across your network.

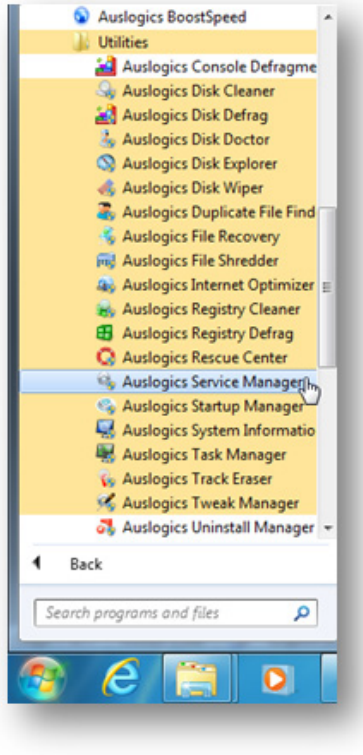
Of course, there are other services that can be disabled, but disabling them is not relevant for all users and there is always the big IF (for example, you can disable the Spooler Service if you don't have a printer).

And now let's have a look at the easiest and safest way to manage services – using special software. There are many service managers on the market and not all of them are great. So you need to choose carefully. My favorite Service Manager is part of **Auslogics BoostSpeed**. I love it because it gives you detailed descriptions for each service, so that you know exactly what you are doing. It also tells you how each service affects computer performance. Here is how you can optimize Windows services with Auslogics Service Manager:

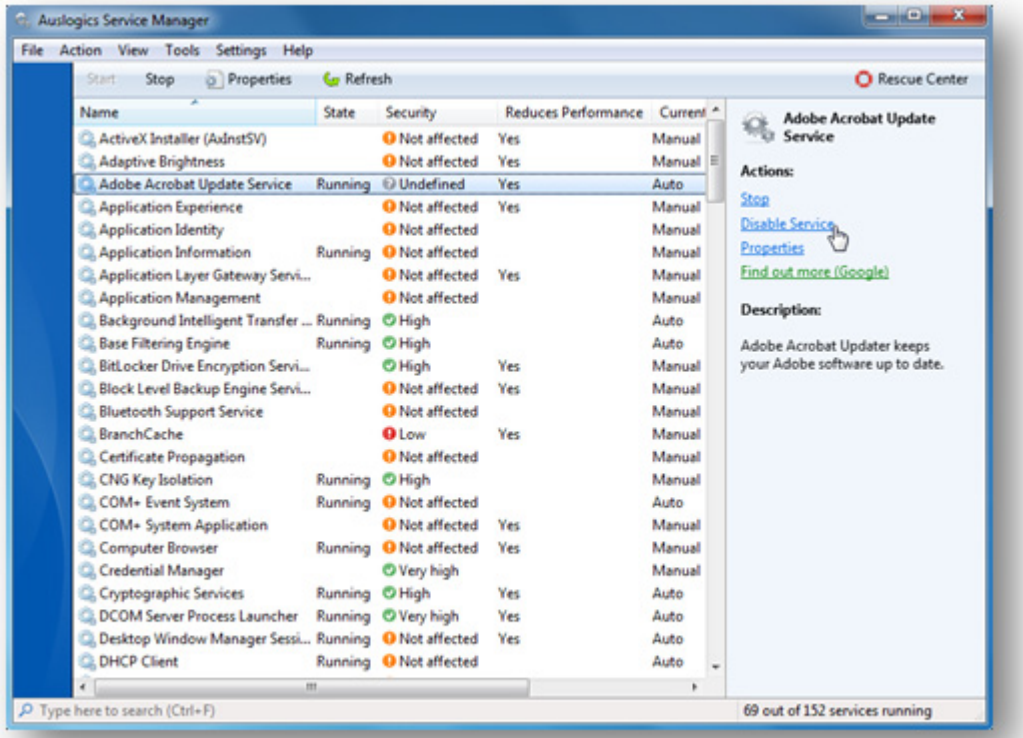
1. Open **Auslogics BoostSpeed**, go to the **Advanced Tools** tab. Now click on **Services** under **System Status**



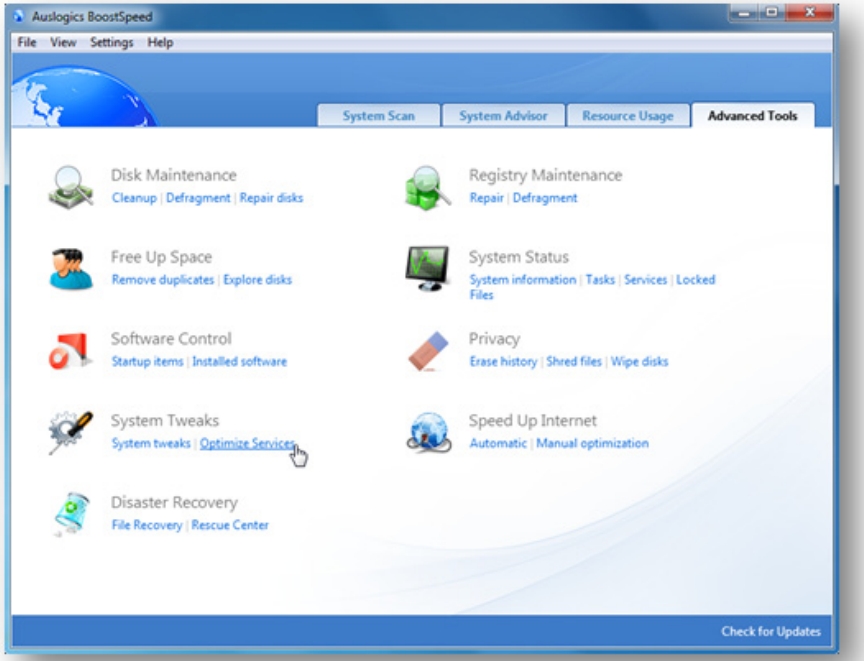
2. You can also launch **Service Manager** by clicking on **Start – All Programs – Auslogics – BoostSpeed – Utilities – Auslogics Service Manager**



3. Go through the list of services and change their startup type.

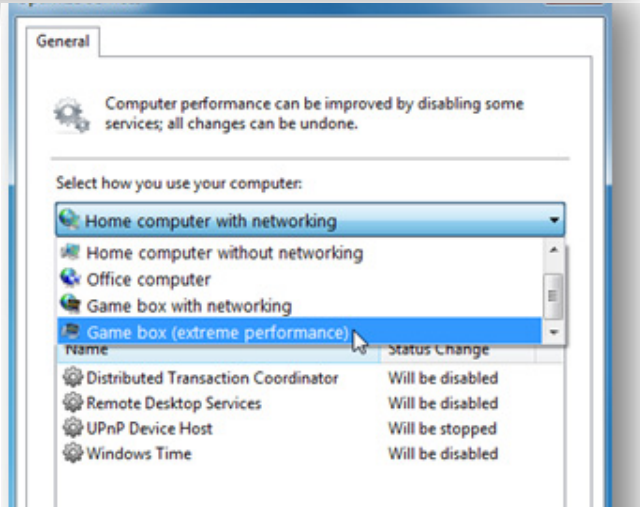


If you are not comfortable with selecting which services to disable, simply open BoostSpeed and click on **Optimize Services** under **System Tweaks**.



Then select a profile that suits your PC usage habits and apply the changes. All changes are reversible, so it's absolutely safe.

Now that you have optimized your computer's startup, it's time to organize your hard drive space. This will prevent your PC from slowing down, will make data management more efficient and will also protect your files.



CHAPTER

4

Get the Slow-Down Prevention Vaccine

Create a System and a Data Partition

Do you know what's the best way to stay healthy? Avoid getting sick in the first place! Same with computers – it's always best to do as much as you can to prevent them from slowing down in the first place. Now, there is no need to pretend that it's possible to fully prevent system speed degradation. No matter what you do, your computer will gradually become slower. The question is how soon. If you don't do anything, your computer can start becoming sluggish after only a couple of months of use. Not a good scenario. But there is something you can do to help your system stay fast for as long as possible – keep the operating system and your files on separate partitions.

Keep your OS and data separated

There are many reasons why you should keep your operating system and your files in separate locations. For a start, your files will be safe even if your operating system fails. Also keeping your OS and your data files separated will prevent your system files from becoming fragmented, prevent clutter from building up where your OS is located, and ultimately keep your computer running faster for a longer period of time.

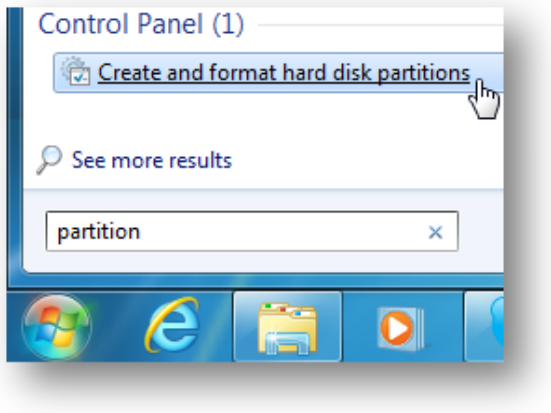
Ideally, you'd want to keep your operating system and files on two different hard drives. But if that's not possible, keeping them on two different partitions works too. It's best to partition your hard drive when you are setting up Windows, but it's also possible to do it even after you've been using your computer for quite some time. Just be careful and back up your files before creating and resizing partitions. And now, let's get started!

Windows 7

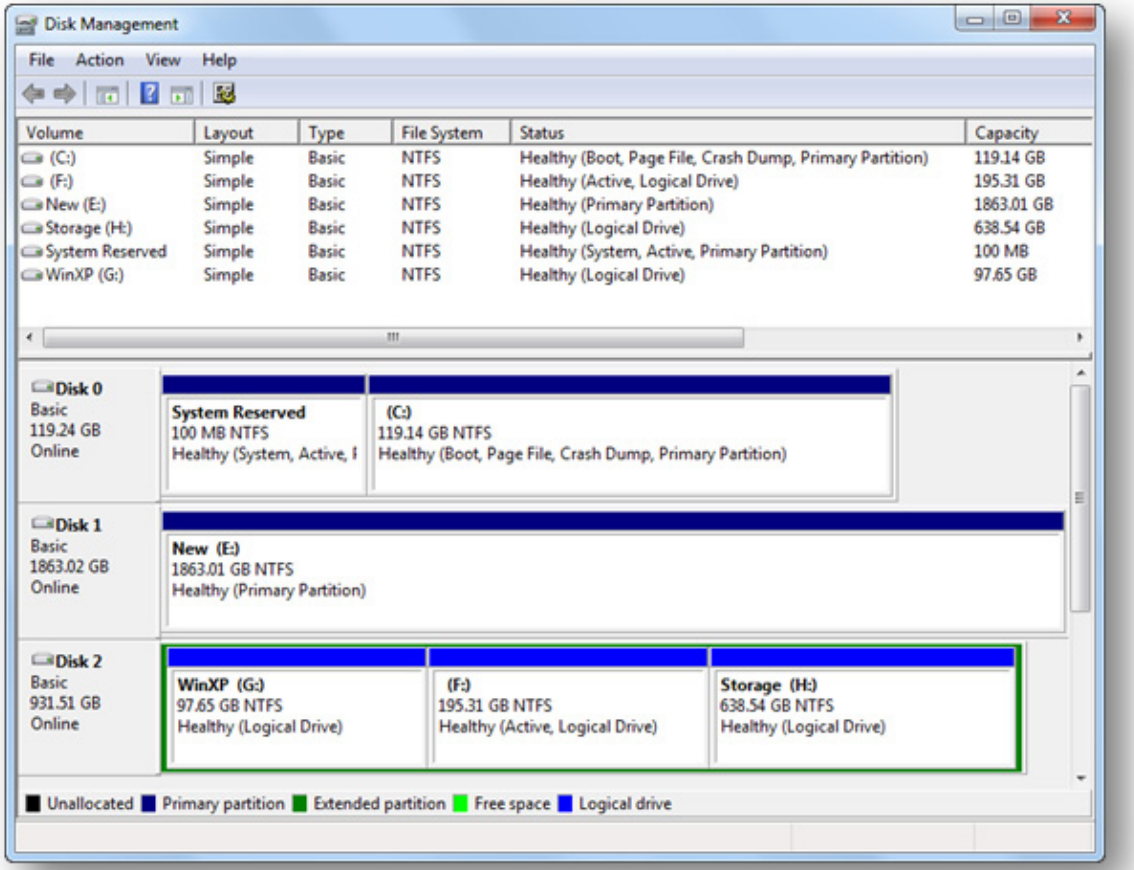
If you have Windows 7, then creating two separate partitions is going to be as easy as running Disk Cleanup. That's because Windows 7 has a built in **Disk Management** tool, which is very intuitive and easy to use.

When creating a new partition, plan to allocate at least 20GB. More is always better, but 20GB is an absolute must. In addition to that, make sure that you have at least 5GB of free space at all times to avoid errors and crashes. If you are running low on disk space, you can free it up by uninstalling unused software, moving large files (videos, music, etc.) to a separate drive, or simply re-partitioning your hard drive.

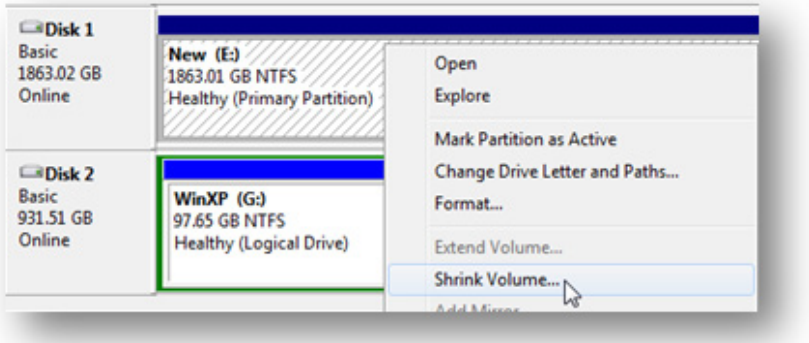
Now let's launch the Disk Management tool. To do that, click on **Start** and type ***partition*** in the **Search** bar.



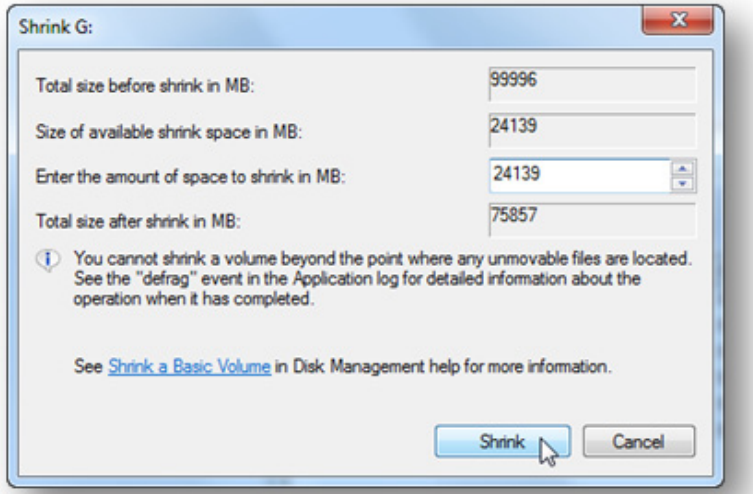
Wait for **Create and format hard disk partitions** to appear and hit **Enter**. This will open the Disk Management tool that shows all your partitions and their properties, such as size and available free space.



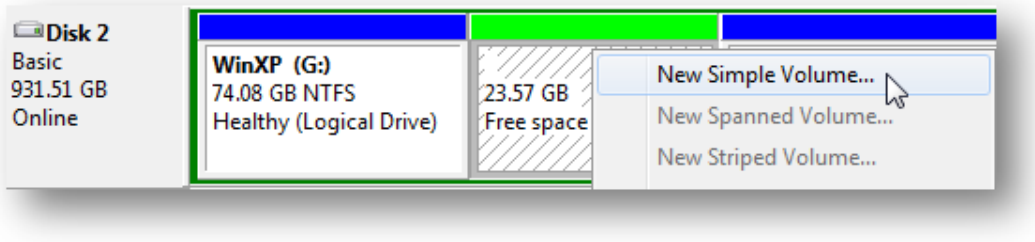
If your hard drive is not partitioned yet, you'll need to shrink the system partition before you create a new one. To shrink a partition, right-click on it and select **Shrink Volume**.



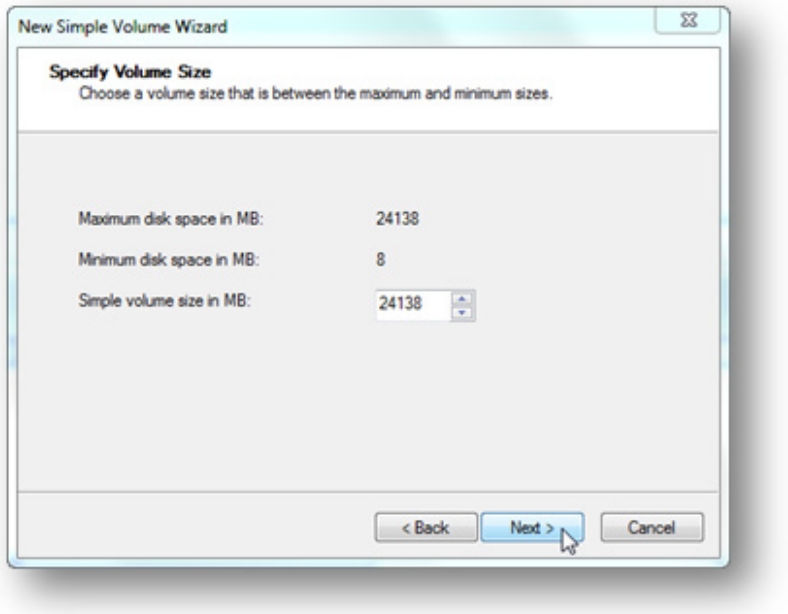
The Disk Management tool will check the volume for available space and you will then be able to specify by how many MB you want to shrink the system partition. Type the number in the box and then click **Shrink**.

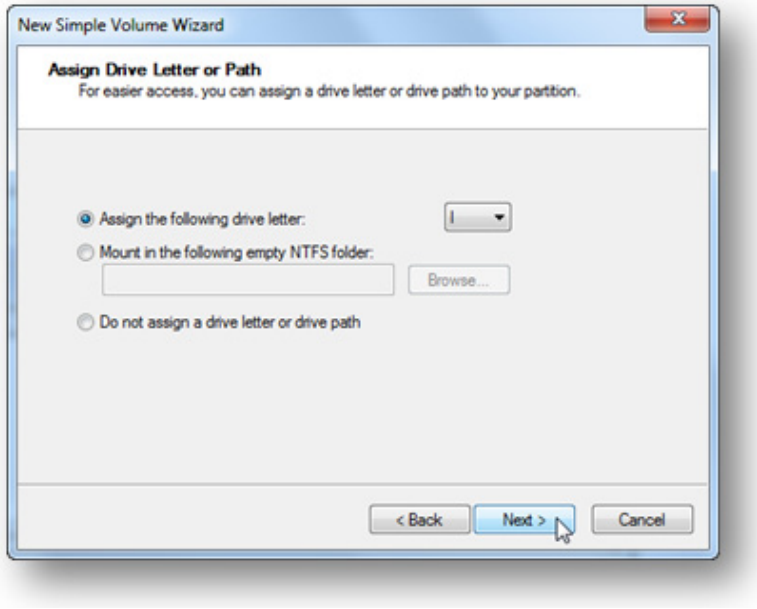


When the job is done, the space will appear as **Unallocated** in your Disk Management tool's window. You can now either use this space to create a new partition or assign it to an existing partition. To use the unallocated space to create a new partition, right-click on it and select **New Simple Volume.**

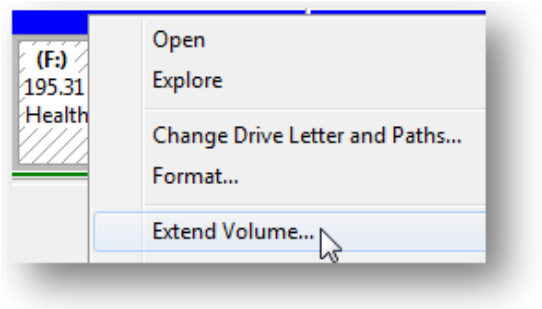


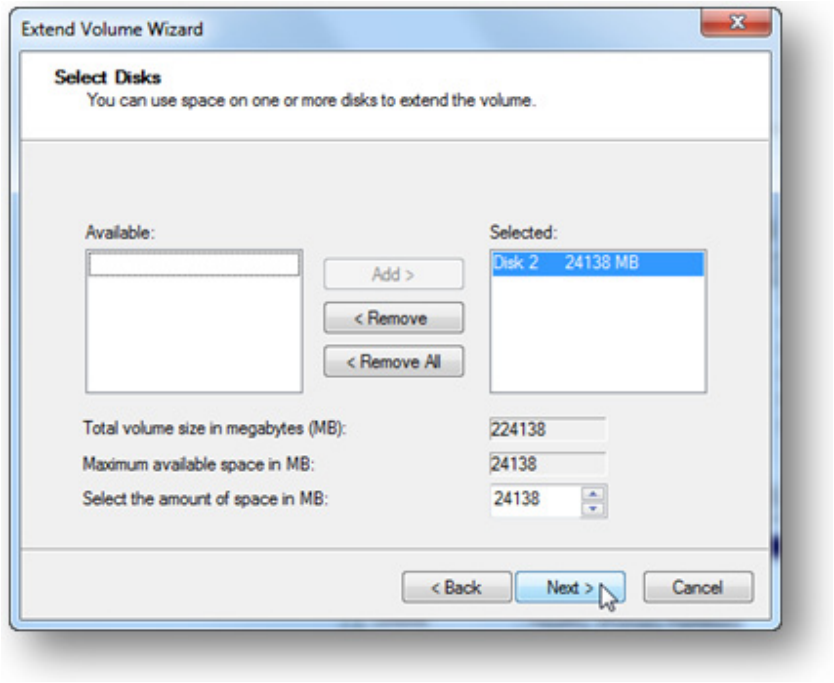
The **New Simple Volume** wizard will appear and provide on-screen instructions for creating a new volume. You can customize the new partition by selecting the amount of unallocated space you want to assign to it, selecting a drive letter and the file system (you will need to reformat the free space if you change the file system).





If all you want is add the unallocated space to an existing partition, simply right-click on the partition you wish to extend, select **Extend Volume** and add all of the unallocated space to it.





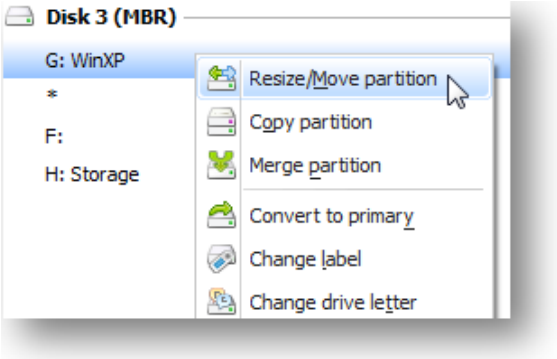
That wasn't too difficult, was it? Now let's look at the options to partition the hard drive on a system running Windows XP.

Windows XP

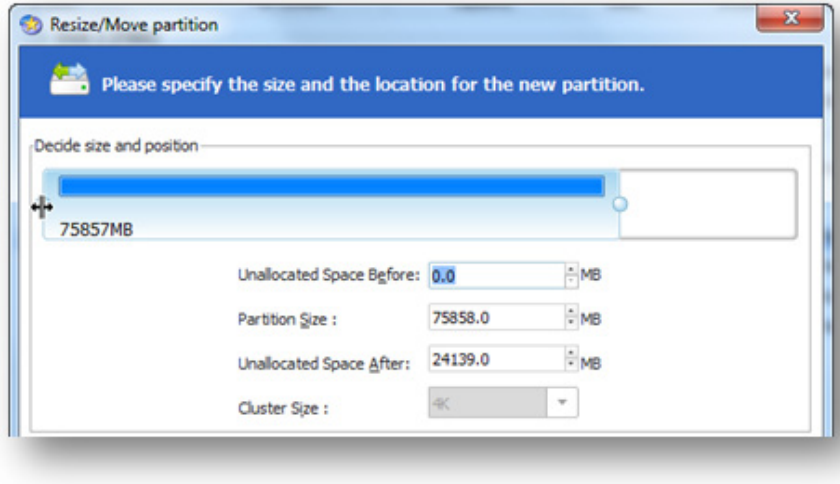
Partition management in Windows XP is not as hassle-free as in Windows 7 simply because there is no native tool to do it. But the good news is that it's just as easy when you find the right piece of software. There are many tools that can be used to create and resize partition, such as **AOMEI Partition Assistant** and **Paragon Partition Manager Free Edition** (use **3GL-WY4-MQA** promo code to get 20% off any PRO version), but my favorite is **Easeus Partition Master**. It's a great free tool that makes partition management quick and easy. Download and install it, and you are ready to go.

Using Easeus Partition Master is very similar to using the Disk Management tool in Windows 7. Before you create a new partition, you need to free up some space and mark it as **Unallocated**. Here is how:

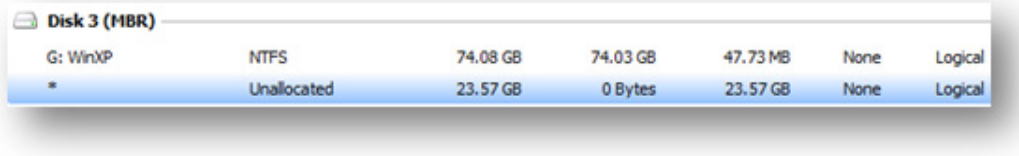
1. Launch the **Easeus Partition Master**, right-click on the partition you wish to shrink and select **Resize/Move partition**



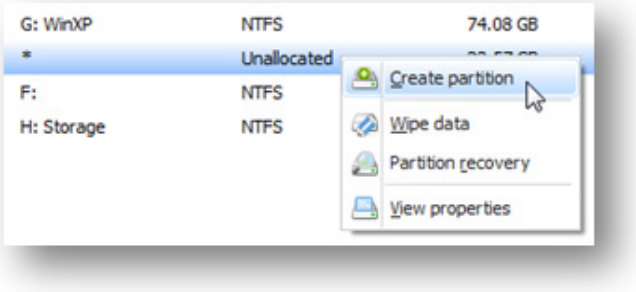
2. Position the mouse pointer on the left partition handle, click and drag it to shrink the volume. Alternatively you can reduce the number by the required amount in the **Partition Size** field and click **OK**



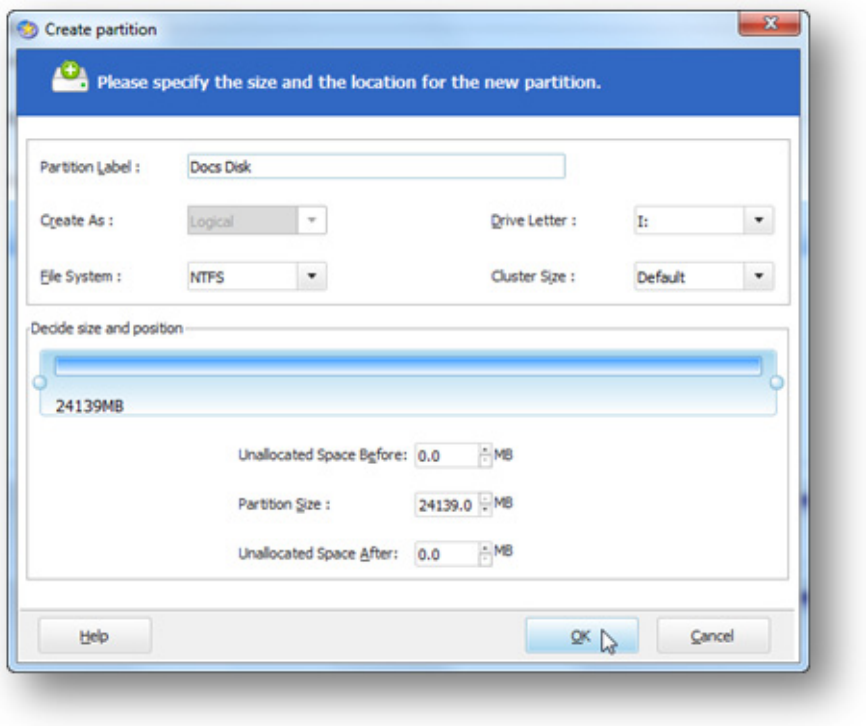
3. Unallocated space will appear



4. Select the unallocated space, right-click on it and select **Create Partition**



5. In the window that appears, specify partition label, drive letter, cluster size, partition size, partition type (Primary or Logical) and file system



6. Click **OK** and the new partition will be created

7. Click **Apply** before closing the program to execute all pending operations

If all you want is to resize your partitions, simply create unallocated space and then assign it to a partition you wish to extend by dragging the bar to occupy all of the unallocated space. When done, don't forget to click **OK** and then click **Apply** to execute the changes.

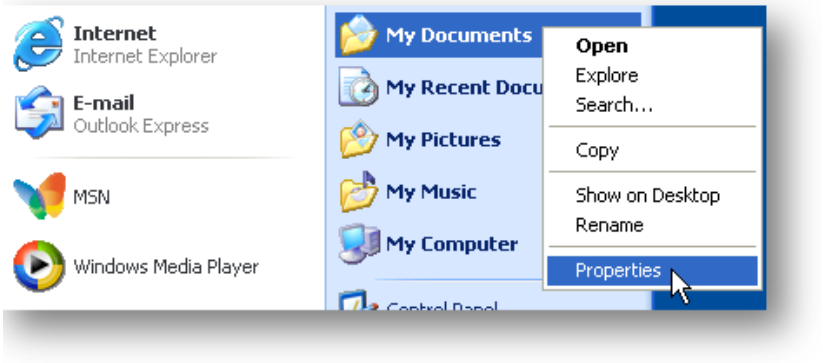
Redirect and move personal files to the new partition

OK, so now you have two partitions. But don't relax yet – we still need to move all your personal files to the new volume. And we still need to redirect your **(My) Documents** folder to the new, non-system partition.

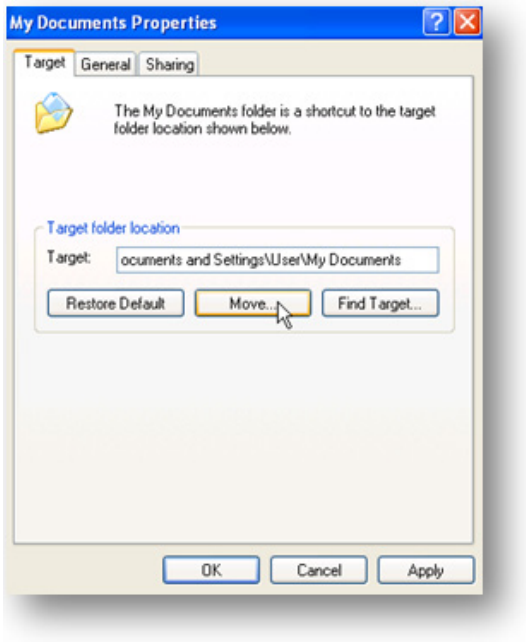
Windows XP

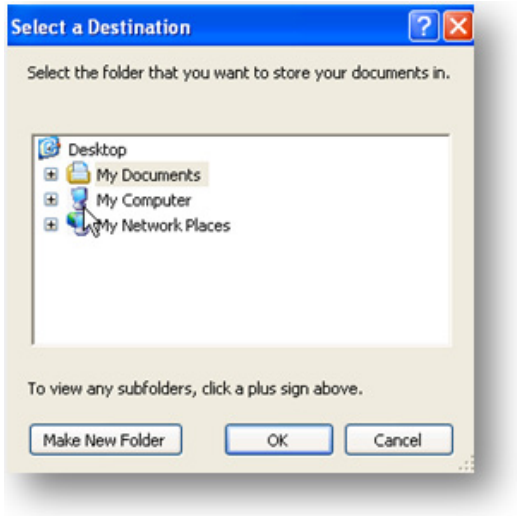
Redirecting the My Documents folder in Windows XP is really easy. All you need to do is:

1. Right-click on the **My Documents** folder and select **Properties**



2. Click on **Move**, create a new folder called **My Documents** on your **Data** partition





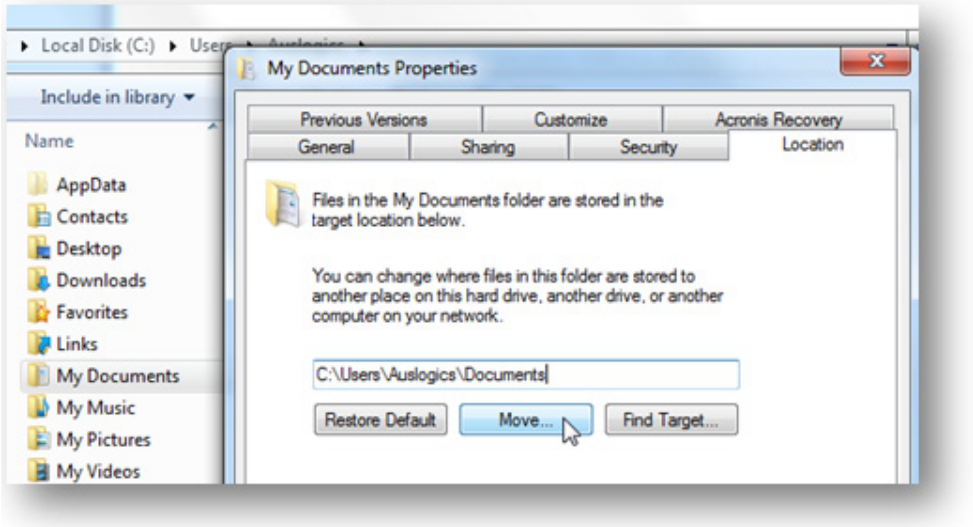
3. Click **OK** and **OK** again.

Now your My Documents folder will be located on the new partition, safely tucked away in case something goes wrong with the OS. All new files saved to the My Documents folder will go to the Data partition. As for existing files, you'll need to move them manually.

Windows 7

Moving your personal files and folders in Windows 7 is not as straight-forward as in XP. To redirect your personal stuff to the new partition, click on **Start**, right-click on your **username** and click on **Open**. Now go through all the folders and do the following:

1. Right-click on a folder (for example, **Documents**) and select **Properties**
2. Navigate to the **Location** tab, select **Move** and browse to the new location



3. Enter the current folder name (e.g. **Documents**) and click **OK** to apply the changes.

Like in XP, you will need to move your existing files manually, but all new files will be saved to the new location by default.

Now that all is done, it's a good idea to perform disk cleanup (see next chapter) and disk defrag (see ch. 10) to ensure best possible performance.

CHAPTER
5

Is Your Computer Becoming a Dump?
Clean Up Your PC to Improve Performance

One of the first things you should do when you start optimizing your PC is clean up all the junk that has accumulated over time. Get rid of the junk and you will definitely notice a significant increase in performance. Let me explain why.

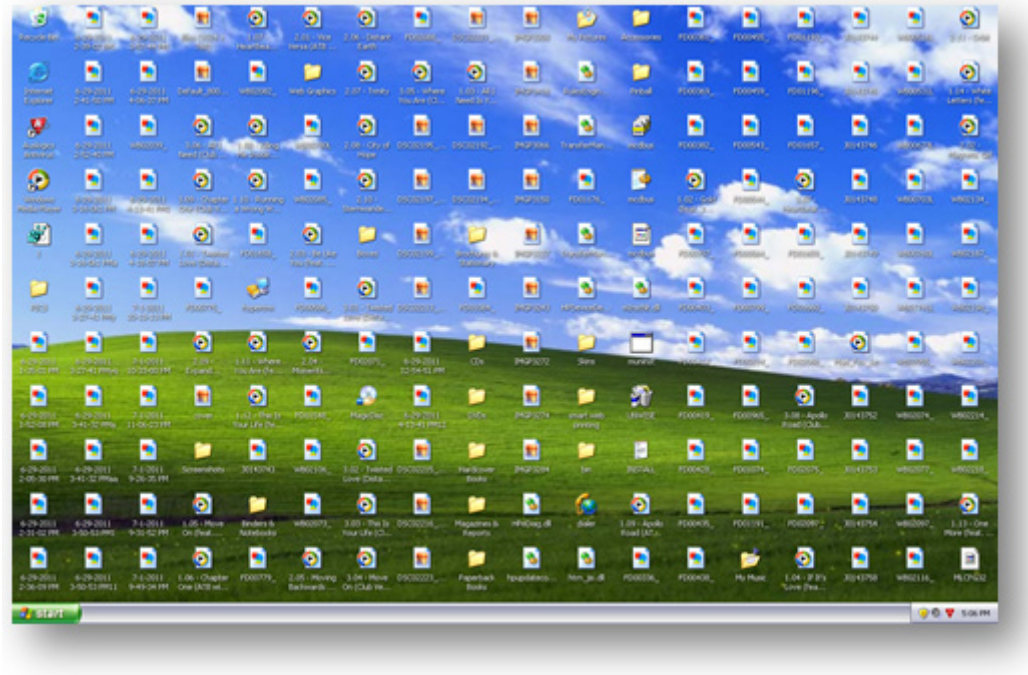
In a way, computer junk is very similar to real-life junk and clutter. Optimizing PCs is a bit like making your home comfortable and your kitchen practical. Imagine that your house is full of junk (mine is sometimes, so not too hard to imagine). Imagine clothes and odd shoes lying around, books and DVDs scattered all over the place, USB cords and other cables poking out of drawers… Well, you get the idea. Some people's houses are actually even worse than that and have things like spare car parts lying around. And some people simply never through anything away. So their houses are packed with old furniture and other stuff that should really be either given to a charity shop or thrown away.

Now answer this simple question – would you be comfortable living in a cluttered home? For me, the answer is "No". When your home is full of junk, finding the things you need is really hard and everything starts taking longer than it should.

Same with computers – the more junk you have, the more time Windows needs to process everything. That's why it's important to remove all the junk you can find and get your PC more organized. Let's get started!

Clean your desktop

Quoting Fräulein Maria from "The Sound of Music", let's start at the very beginning. In case with computers, it's your desktop. Does yours look like this?



Hopefully not, but it's still good to clean it up.

The first thing you should do is move all files from your desktop. By the way, I'm not talking about program launch icons – we'll discuss organizing them later on.

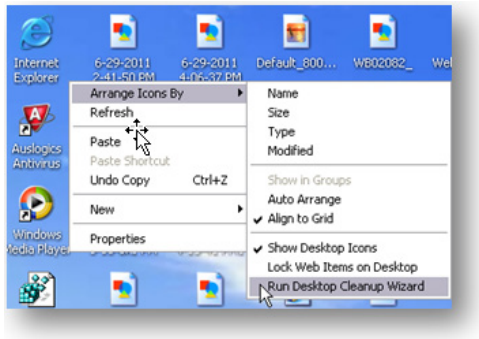
Windows keeps your desktop in the RAM and the more stuff there is, the less RAM you have for other things. So, if you have tons of large video files plastered on your desktop, your computer will take longer to start up. And if you are generally low on RAM, a cluttered desktop may decrease overall computer performance. That's why you should move all files to ordinary folders.

Now that you've moved all files from the desktop, it's time to organize your icons. First let's get rid of the icons you don't use. Windows has a tool that will help you do it.

Here is how to use it:

Windows XP:

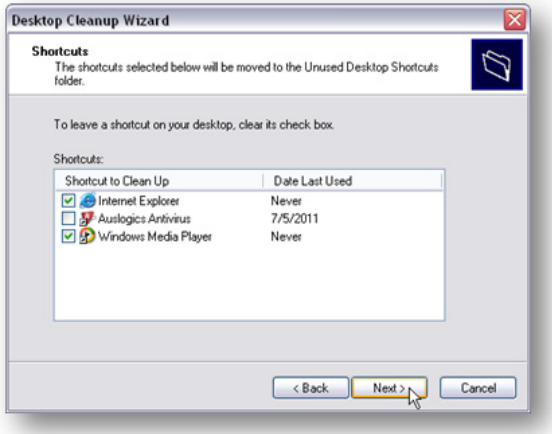
1. Right-click on an empty space on your desktop and click **Arrange Icons By**



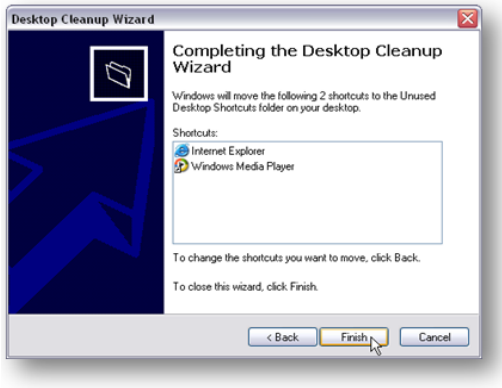
2. Click on **Run Desktop Cleanup Wizard**

3. Click **Next**

4. Uncheck the boxes for the icons you wish to remove and click **Next**



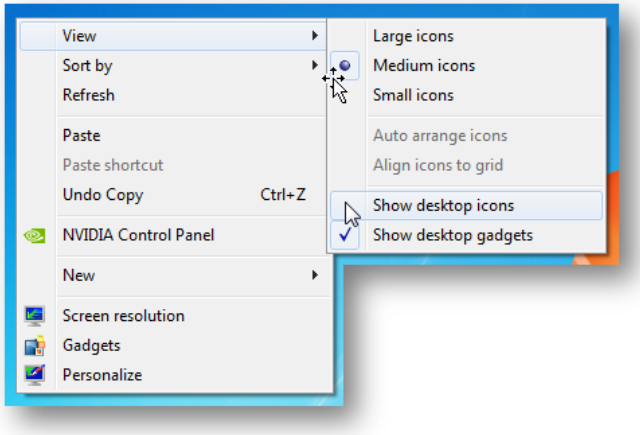
5. Click **Finish** to confirm.



Windows will create an **Unused Desktop Icons** folder where it will store the unused icons. You will then be able to either add more icons to the folder or restore the ones you need.

Windows 7:

1. Right-click on an empty space on your desktop and click **View**, then click **Show desktop icons**

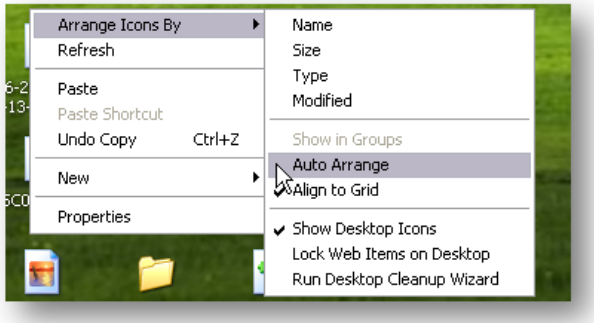


2. This will uncheck the option and make your icons disappear. You can get them back whenever you need them by re-enabling the **Show desktop icons** option.

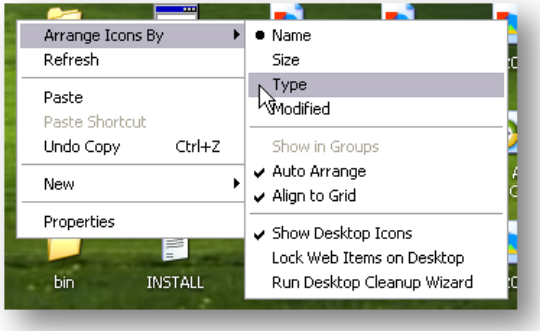
Now that you've gotten rid of the icons you never use, you can automatically arrange the remaining icons. Here is how:

Windows XP:

1. Right-click on an empty space on your desktop, click **Arrange Icons By** and then click **Auto Arrange**. Windows will place your icons in rows.

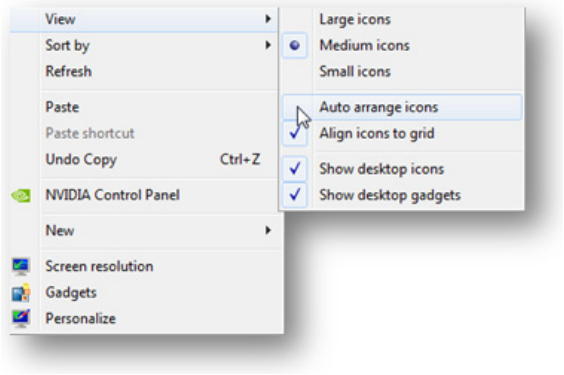


2. You can then click on **Type** and customize how Windows arranges your icons.

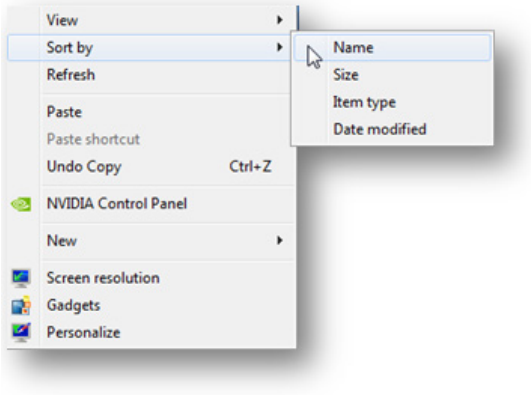


Windows 7:

1. Right-click on an empty space on your desktop, click **View**, then click **Auto Arrange**. Windows will arrange your icons.



2. Click on **Sort By** and select how you want Windows to sort your icons (**Name**, **Size**, **Item Type**, and **Date**).



Now that your desktop looks neat, it's time to remove hidden clutter – junk files.

Run disk cleanup

Disk cleanup is one of the most important parts of computer maintenance. Remember that the more free space there is, the faster your computer will run. Performing disk cleanup is essential because Windows accumulates unnecessary junk files that massively reduce computer performance. These files are just like the junk hidden deep in your wardrobe – you can't see it, but it's still there and it's wasting space. So how do they get created in the first place?

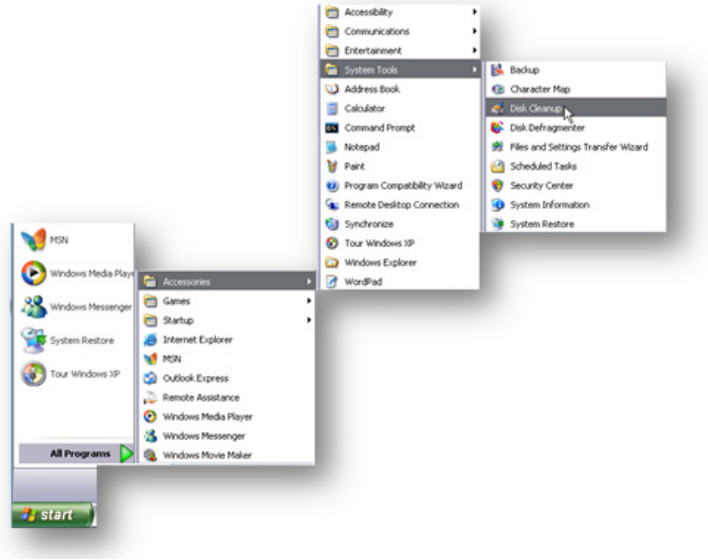
Most Windows programs create temporary files for a number of purposes, but mostly when a program needs more memory for its tasks or when a program is working with large chunks of data. Programs like Microsoft Office also create temporary files and use them for keeping a copy of your data in case the program crashes.

In the perfect world, temporary files would be deleted automatically when the programs close. Unfortunately, sometimes things go wrong. Poorly written applications, improper shutdowns, and freeze-ups often leave temp files behind. That's how gigabytes of clutter are created. Another type of temporary files is Temporary Internet Files. These files are created by the browser and are often kept for a lot longer than necessary.

Deleting junk files is easy enough – all you need to do is run the built-in Disk Cleanup tool.

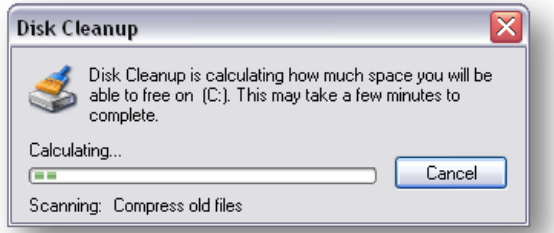
Windows XP:

1. Click on **Start** and go to **Programs** – **Accessories** – **System Tools**

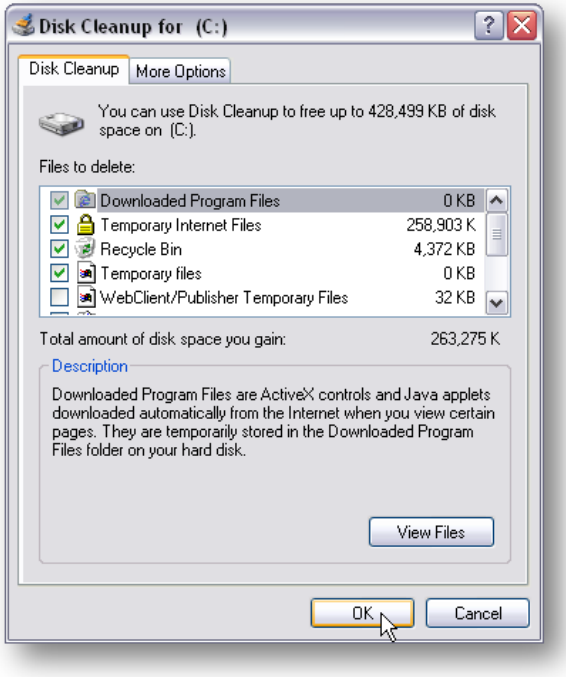


2. Launch the **Disk Cleanup tool**

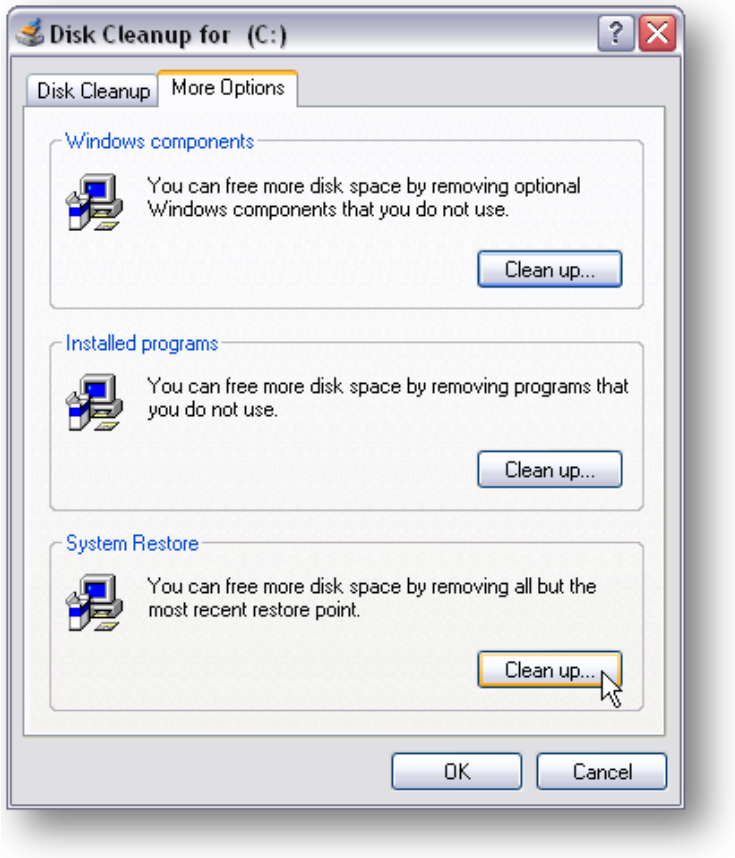
3. Select the drive you want to cleanup and let the program analyze it



4. Review the results and click **OK** to clean up junk files

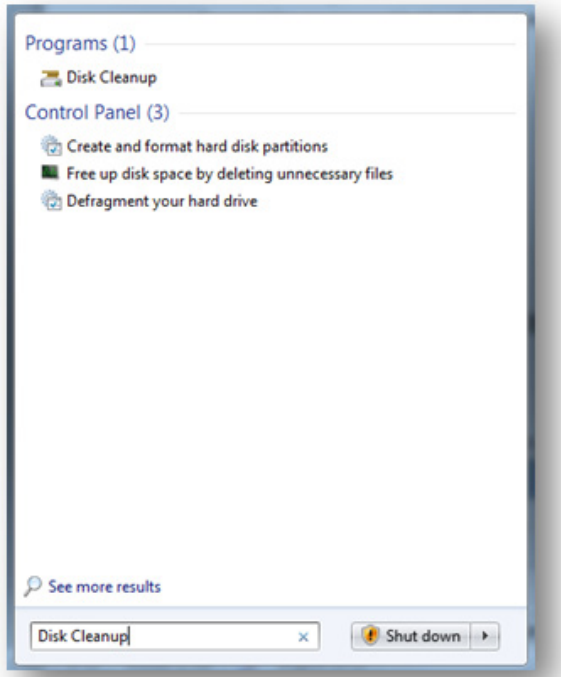


This should free up a considerable amount of disk space. If you want to free up even more space, delete all except the most recent System Restore Points. To do that, just click on the **More Options** tab and click on **Clean up** under **System Restore**

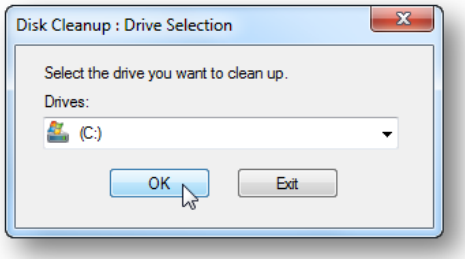


Windows 7:

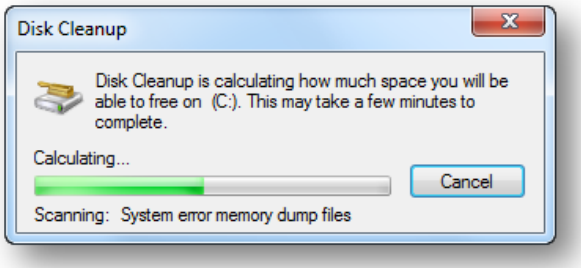
1. Click on **Start**, type **Disk Cleanup** into the search box



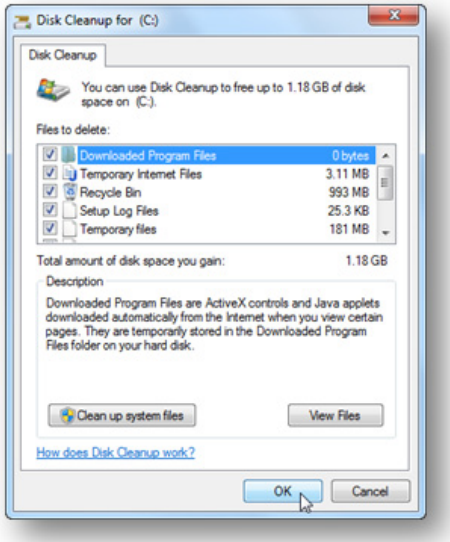
2. Launch the **Disk Cleanup** tool. It will offer you to choose the drive you wish to clean up



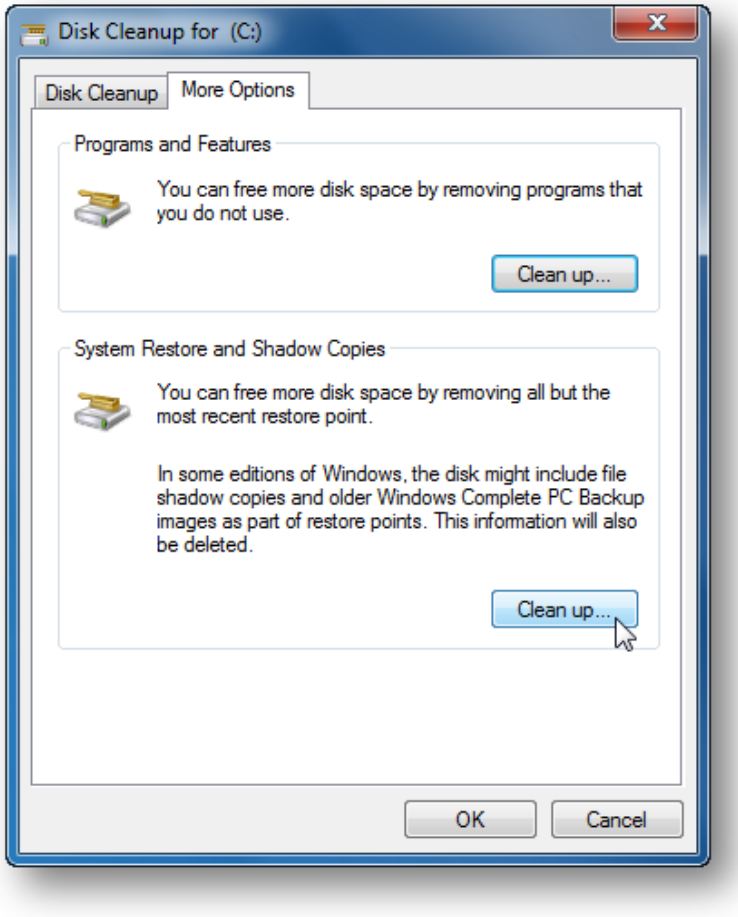
3. Click **OK** and let the tool analyze your drive



4. Now review the list of files to be deleted and click **OK**



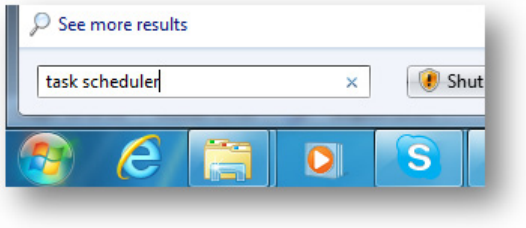
Just like XP, Windows 7 allows you to delete old System Restore Points and shadow copies. To do that, simply click on **Clean up system files** and then click on **Clean up** under **System Restore and Shadow Copies**. Make sure you are running the tool as administrator – otherwise you won't get the option to delete System Restore Points



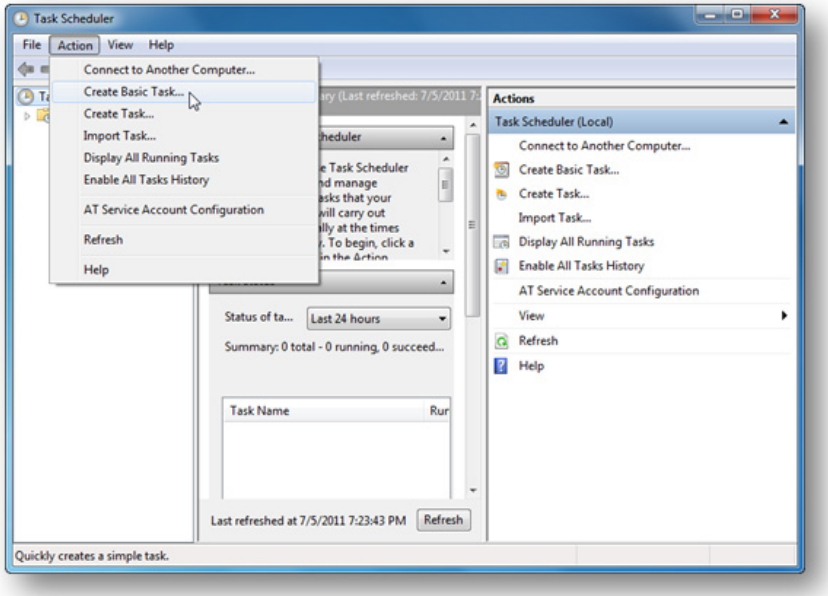
Schedule disk cleanup in Windows 7

Windows 7 users can also schedule disk cleanup to run on a regular basis. This is a good idea because you will be able to keep your drives clean without having to remember to launch the tool manually. Here is how you can schedule disk cleanup:

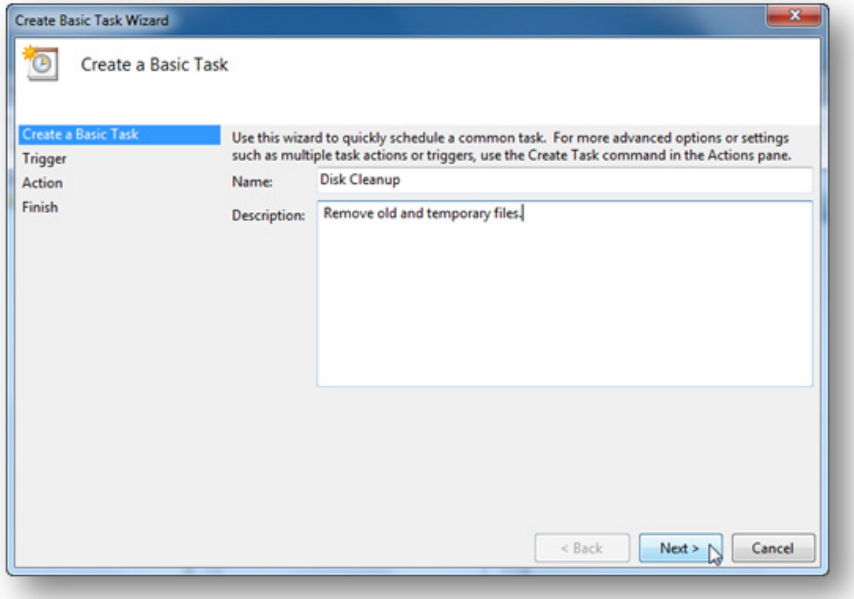
1. Click on **Start**, type **task scheduler** into the search box and press **Enter**



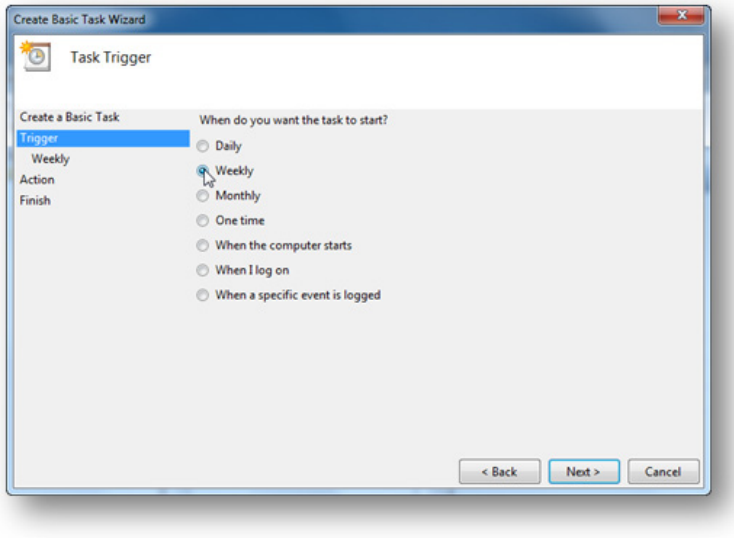
2. The **Task Scheduler** will open. Go to **Action** and select **Create Basic Task**



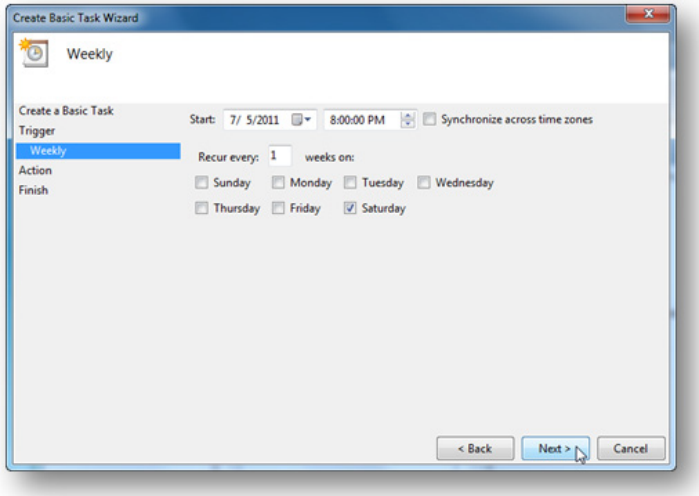
3. Now enter the task name and description, and click **Next**



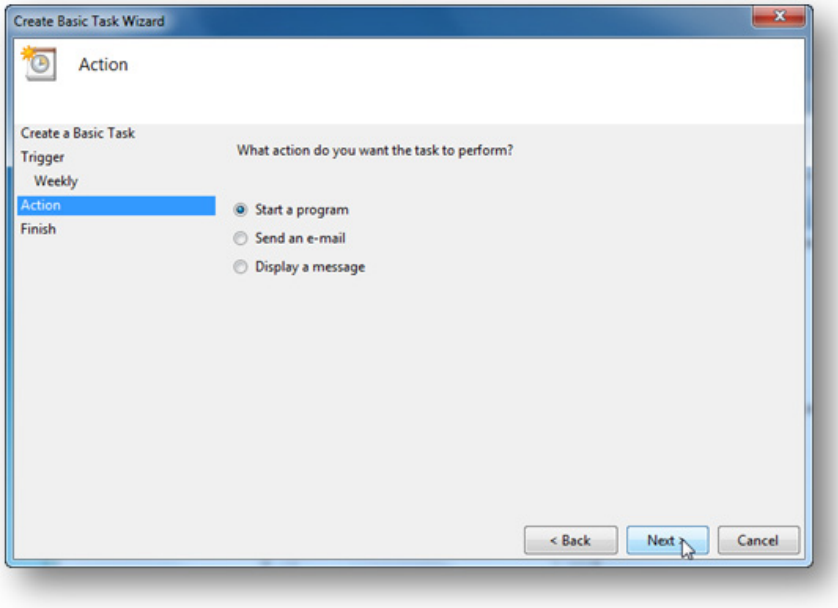
4. Select how often you want Disk Cleanup to run. I recommend running it weekly



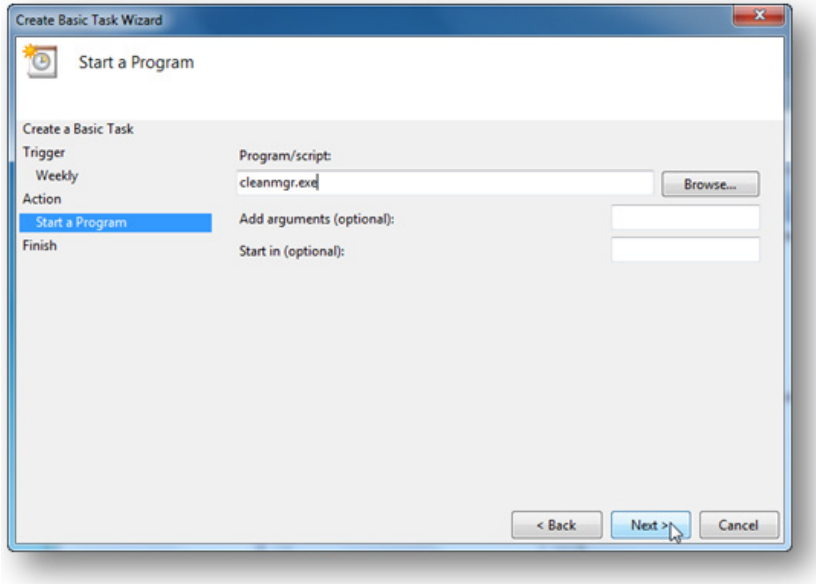
5. Specify when you want the task to run



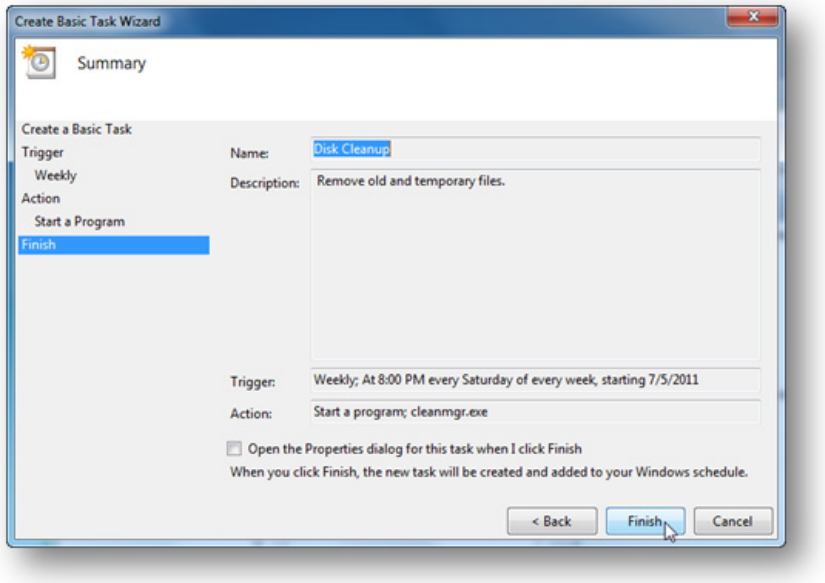
6. Now click on **Action** and select **Start a program**



7. Type **cleanmgr.exe** into the **Program/script** field



8. You will get a summary of the scheduled task. Review it and click **Finish**.



From now on the Disk Cleanup utility will launch itself weekly and you will be prompted to let Disk Cleanup analyze your drive and then remove junk files.

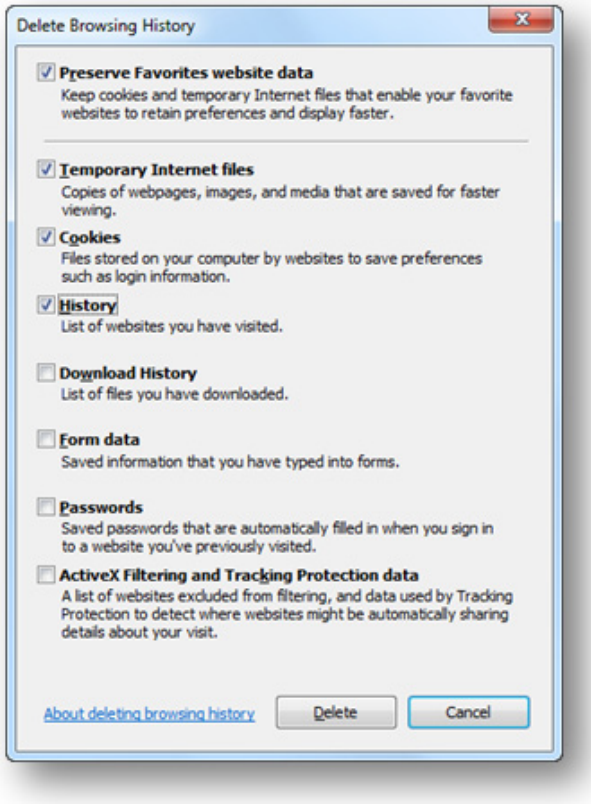
Delete Temporary Internet Files

If you want to quickly free up some disk space without having to run disk cleanup, the best thing to do is clear your browser's cache. This will free up a fair amount of disk space and make things easier for your RAM, too. You can delete Temporary Internet Files straight from your browser:

Internet Explorer 8 or 9:

1. Open Internet Explorer and press **Ctrl+Shift+Del**

2. Check the relevant checkboxes. I recommend selecting **Temporary Internet Files**, **Cookies** and **History**



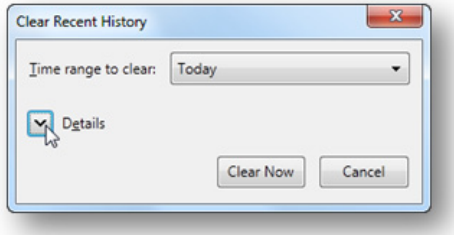
3. Click on the **Delete** button

4. Close the browser. Also it wouldn't hurt to reboot your computer.

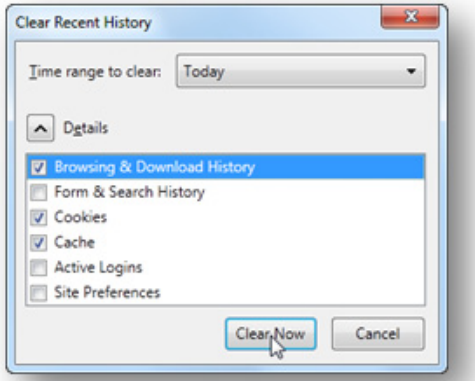
Firefox 5 and onwards:

1. Pressing **Ctrl+Shift+Del** will work here too

2. Choose the time range and then click on the arrow next to **Details**



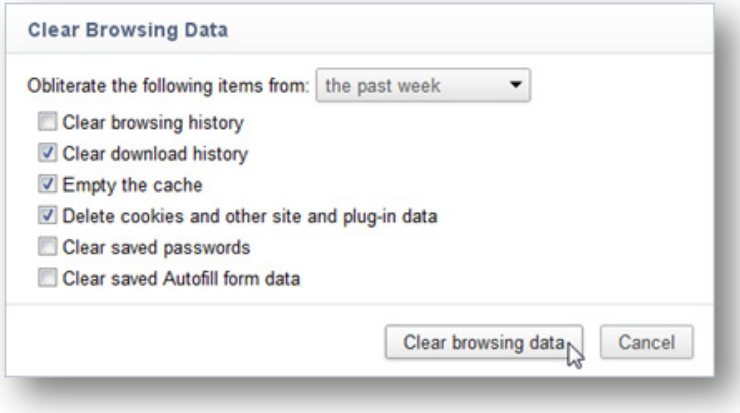
3. Select what you want to cleanup. I recommend deleting **Browsing & Download History**, **Cookies**, and **Cache**



4. Click on **Clear Now**

Google Chrome:

1. Press **Ctrl+Shift+Del**
2. Check the relevant checkboxes and select the time period from the drop-down menu



3. Select the relevant checkboxes
4. Click on **Clear Browsing Data**

Well, now your computer is free of junk and that's something. But are you still low on free space? Then let's uninstall programs you never use!

Uninstall unused software

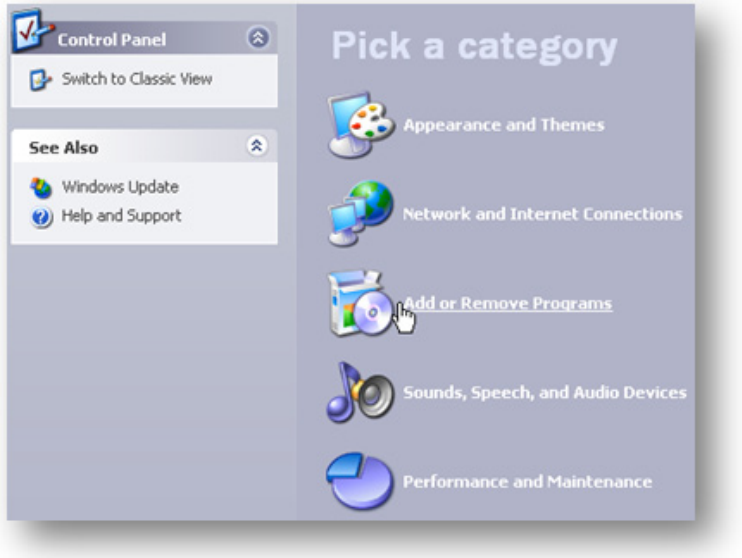
Do you like trying out cool new software? I bet you do! But what if some of the programs you try out turn out to be not so cool? Do you uninstall them straight away or are they still there, wasting your disk space?

Uninstalling unused software is something that should be done even if you have a brand new computer. You might be thinking something like "Hang on a second! But it's a new laptop and there are hardly any programs on it!". Well, yeah – hardly any programs that you've installed. But what about those trial versions of Norton or McAfee, Microsoft Office and other pre-installed shareware programs? The fact is, you'd be better off uninstalling them (with the exception of MS Office) and replacing the ones you need with either free analogs or better quality paid versions. And if your laptop is not brand new, then the need to uninstall unused software is even greater. All this unused software does is wastes disk space and slows you down.

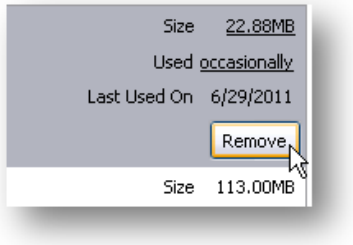
Uninstalling programs is really easy. Here is how you can uninstall software via the **Control Panel**:

Windows XP:

1. Click on **Start** and go to the **Control Panel**
2. Click on **Add or Remove Programs** and wait for the list to populate



3. To uninstall a program, highlight it and click on the **Remove** button (sometimes **Change/Remove**)



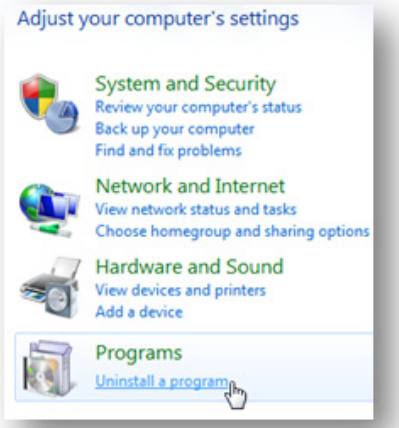
4. Confirm your action and wait for the program to be uninstalled. You may need to restart your PC to complete the removal.

Some programs may give you a warning that removing some components of the application can make other programs run incorrectly. If this happens, simply click **No to All** and proceed. The important components will not be deleted.

Windows 7:

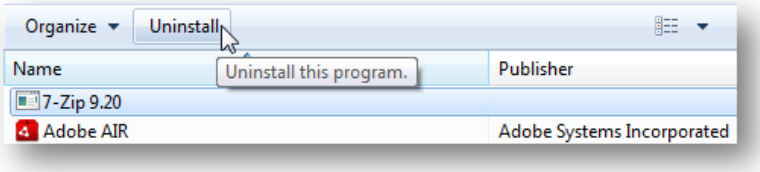
1. Click on **Start** and go to the **Control Panel**

2. Now click on **Uninstall a program**



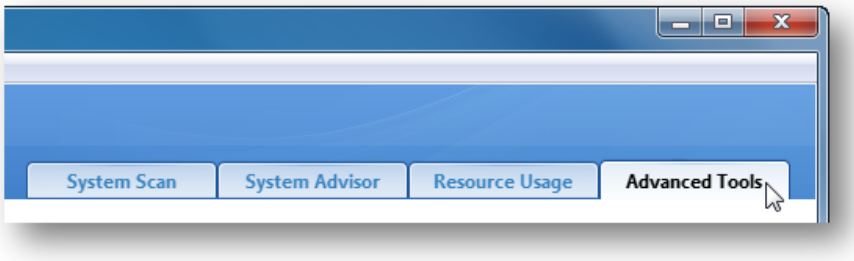
3. You will get a list of installed software. Highlight the program you want to uninstall and click on **Uninstall** or **Uninstall/Change**

4. Confirm your action and wait for the program to be uninstalled. You may need to restart your computer to complete the removal.



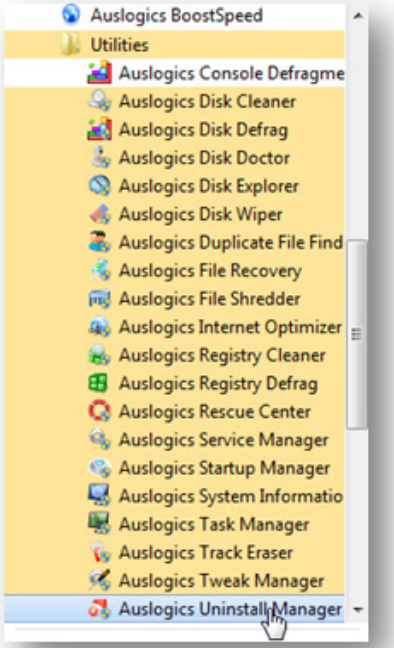
Sometimes the default Windows uninstaller can't remove particularly stubborn programs. That's why it's always good to have a third-party uninstaller up your sleeve. I recommend Auslogics Uninstall Manager (part of **BoostSpeed**). Here is how to use it:

1. Open **Auslogics BoostSpeed** and go to the **Advanced Tools** tab

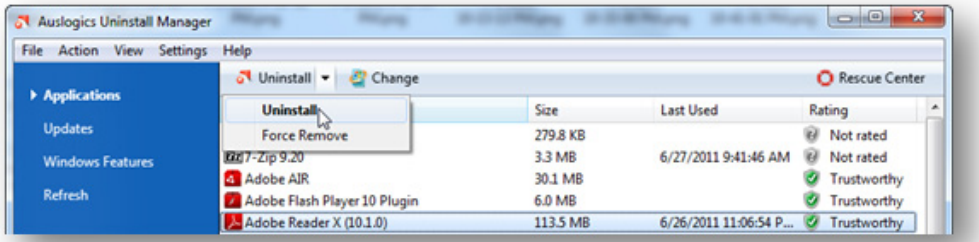


2. Click on **Installed software** under **Software Control**

3. Wait for the **Uninstall Manager** to open and populate the list of installed software. You can also launch Auslogics Uninstall Manager without having to open BoostSpeed. Just click on **Start** – **All Programs** – **Auslogics** – **BoostSpeed** – **Utilities** – **Auslogics Uninstall Manager**

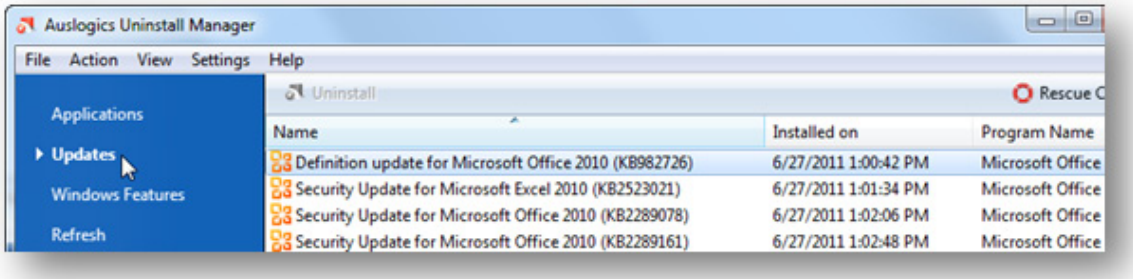


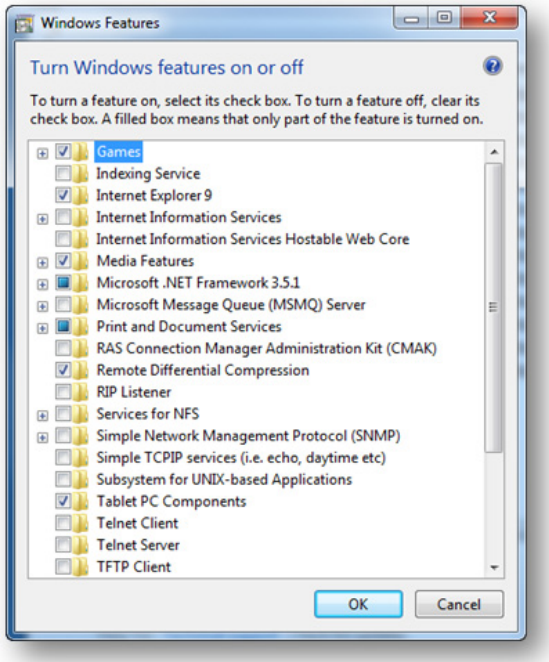
4. Locate the program you want to remove, highlight it and click on the **Uninstall** button right above the list of software



5. If the program refuses to uninstall, click on the arrow on the **Uninstall** button and select **Force Remove**
6. Reboot your PC

You can also use Auslogics Uninstall Manager to uninstall Windows updates and Windows features:





Delete empty folders in Windows Explorer

Now that you've uninstalled unused software, your computer will have more free space and will run better. But there is still something you need to get rid of – empty folders that are left behind by some applications even when the actual programs are gone.

To remove empty folders, simply open **(My) Computer**, navigate to drive **C:**, and go to the **Program Files** directory. Now find the empty folders by hovering your mouse pointer over folders to see folder size and delete them. Alternatively you can use Windows Search to search for the names of recently uninstalled programs and delete the empty folders that Windows finds. After you find and delete all of the empty folders, don't forget to empty the Recycle Bin and they will be gone for good.

And now let's speed up Windows even more by optimizing its appearance settings.

CHAPTER

6

Fancy Looks Come at a Cost
Optimize Windows Appearance Settings

Everybody loves nice-looking things and cool designs no matter whether it's clothes, gadgets or your computer. That's why most people love the way Windows 7 looks with all of its visual effects enabled. And that's why people tend to download cool wallpapers and have elaborate screensavers. But did you know that cool looks come at a cost?

Graphics and visual effects are very resource-hungry and can severely affect system performance, especially if you have an older computer and an integrated video card that has no dedicated memory of its own. Even if you have a newer, more powerful system with a graphics card that has its own memory, you could make your computer run faster and smoother by optimizing Windows appearance settings.

Turn off wallpaper and disable screensaver

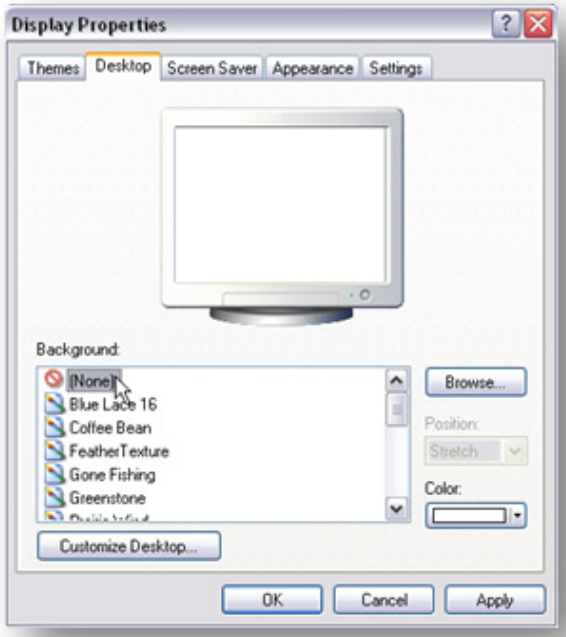
The first thing I recommend is switching off your wallpaper and screensaver. Wallpapers and screensavers can take up a massive amount of RAM and a fair bit of disk space. Both your wallpaper and your screensaver are not needed by your PC and only have an aesthetic value. True, screensavers were a necessity for old CRT screens, but now they are pretty much obsolete, just like the screens that required them.

Switching your wallpaper and screensaver off is super-easy:

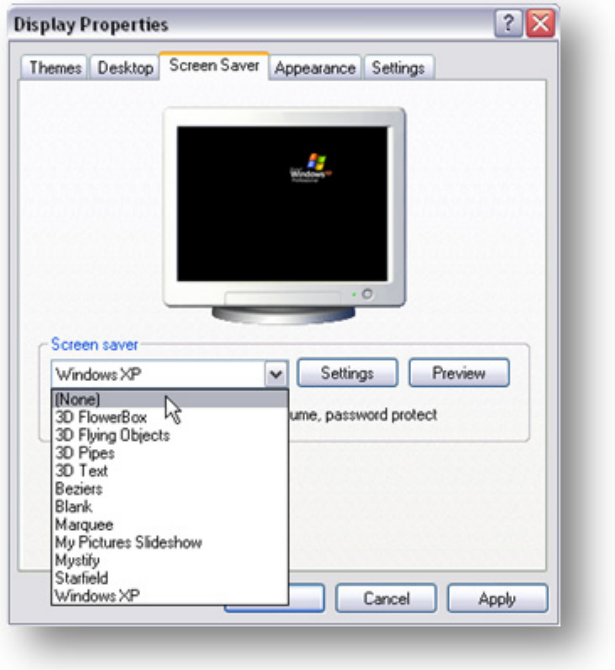
Windows XP:

1. Right-click somewhere on your desktop and click on **Properties**

2. Go to the **Desktop** tab and set the background to **None**. You can then choose a background color that you like best.

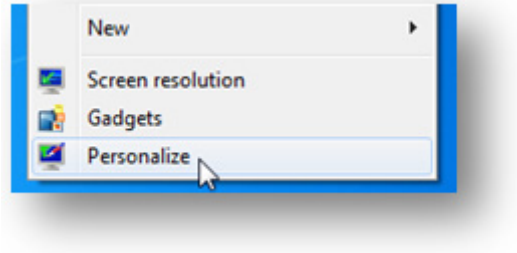


3. Now go to the **Screensaver** tab and set it to **None**. Click Apply, then click OK and that's it!

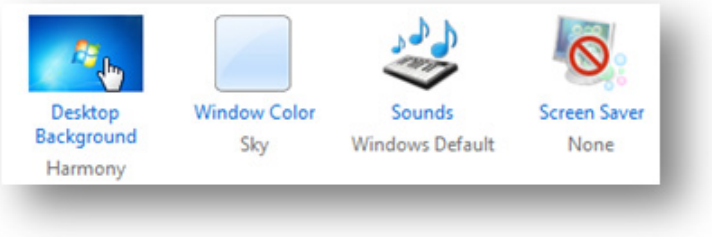


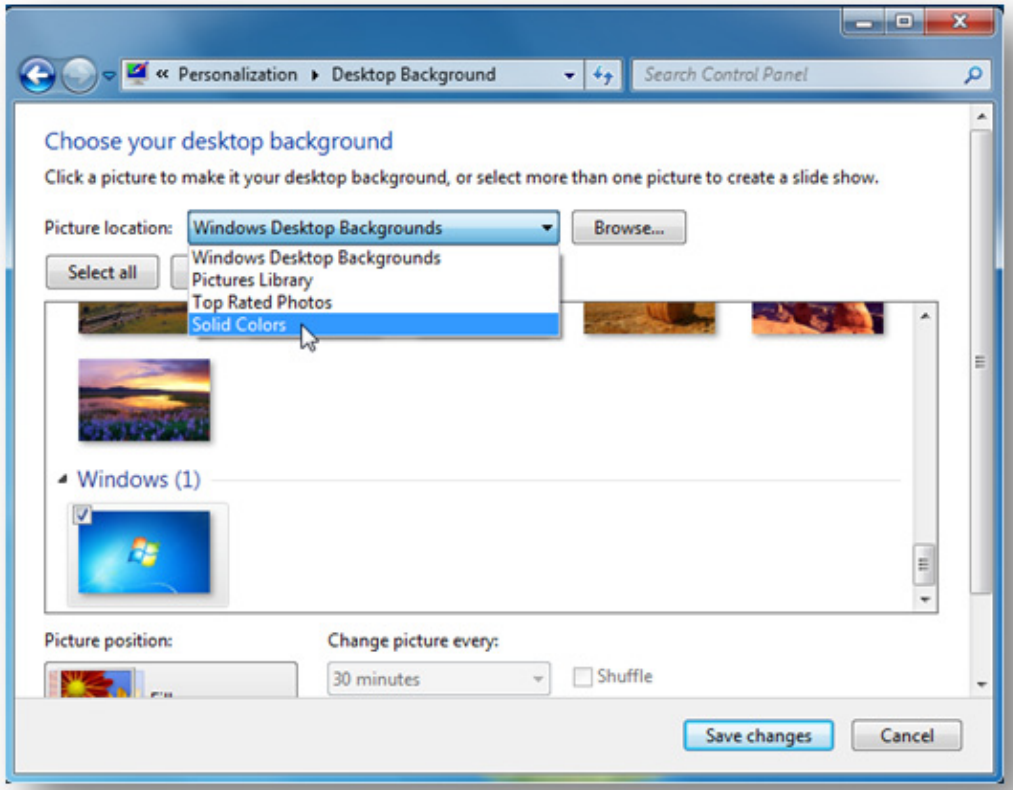
Windows 7:

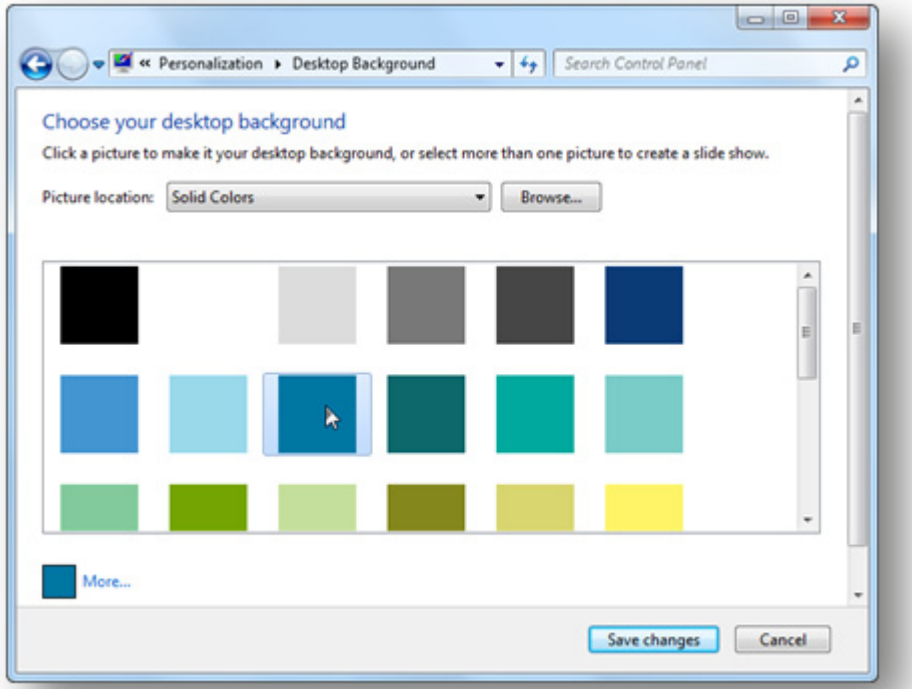
1. Right-click somewhere on your desktop and click on **Personalize**



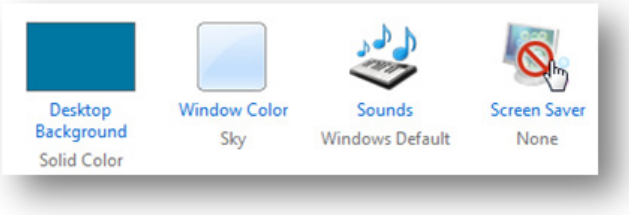
2. Click on the **Desktop Background** icon, then select **Solid Colors** in the **Picture Location** drop-down box and choose a background color that you like best



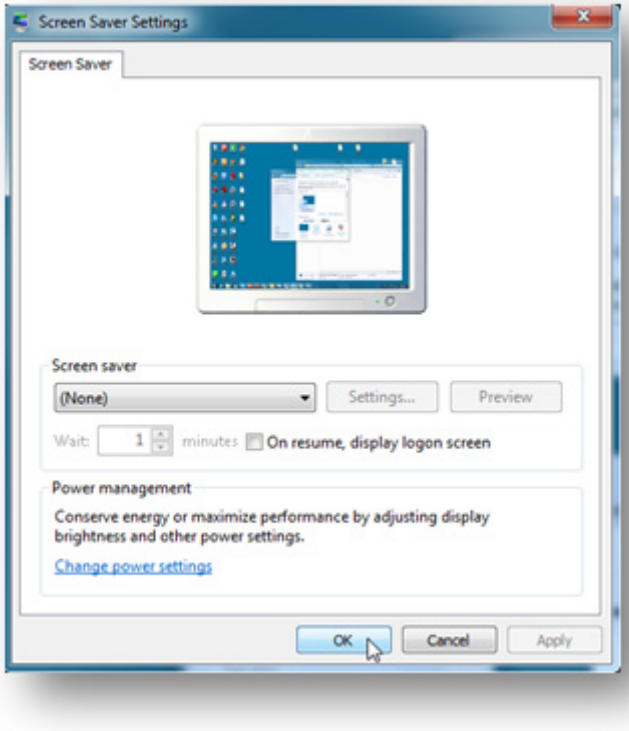




3. Click on the **Save changes** button
4. Now click on the **Screen Saver - None** icon to disable the screensaver



5. Click **OK** and that's it!



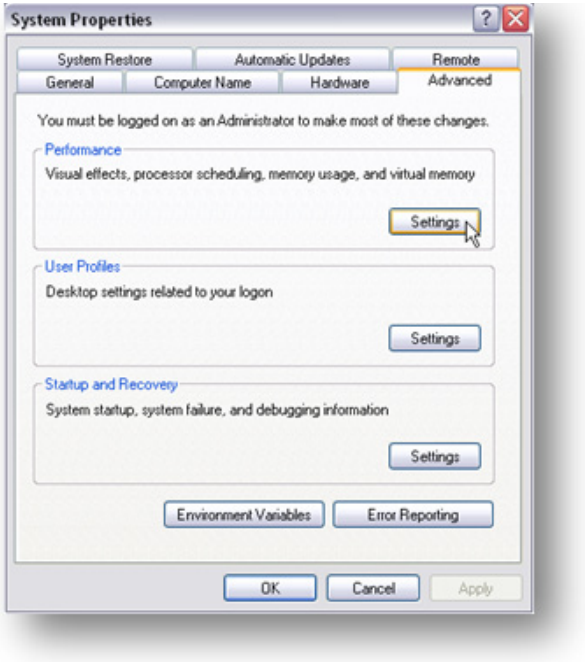
Adjust color scheme and visual effects

Remember that the pretty Windows is not the fastest Windows, especially if you have the "eye candy" Windows 7 with Aero and transparency enabled. So, if in your book performance is more important than looks, you should consider choosing a more minimalistic look. Here is how:

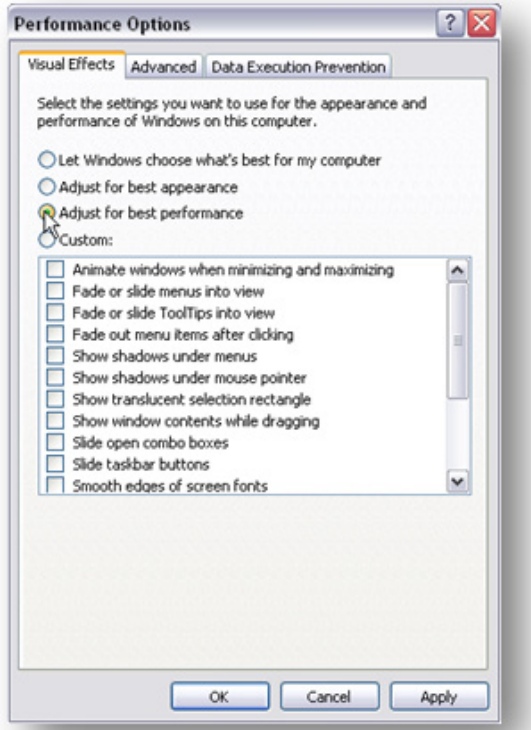
Windows XP:

1. Press the **Windows key** + the **Pause/Break key** to open **System Properties**

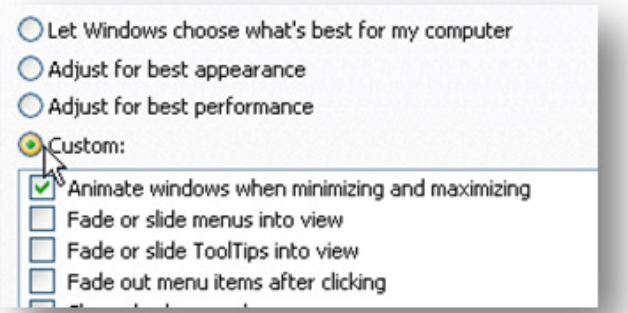
2. Go to the **Advanced** tab
3. Locate the **Performance** section and click on the **Settings** button



4. Now select the **Adjust** for best performance radio button.



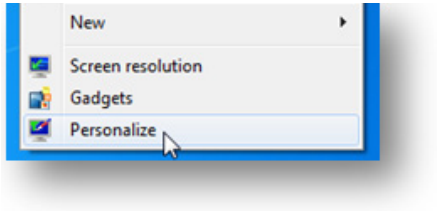
This will make your Windows look very minimalistic and even out of date. If you don't mind that, then simply enjoy the performance gain. But if you'd still like XP to look more like XP, simply select the **Custom** radio button and select the visual effect you like.



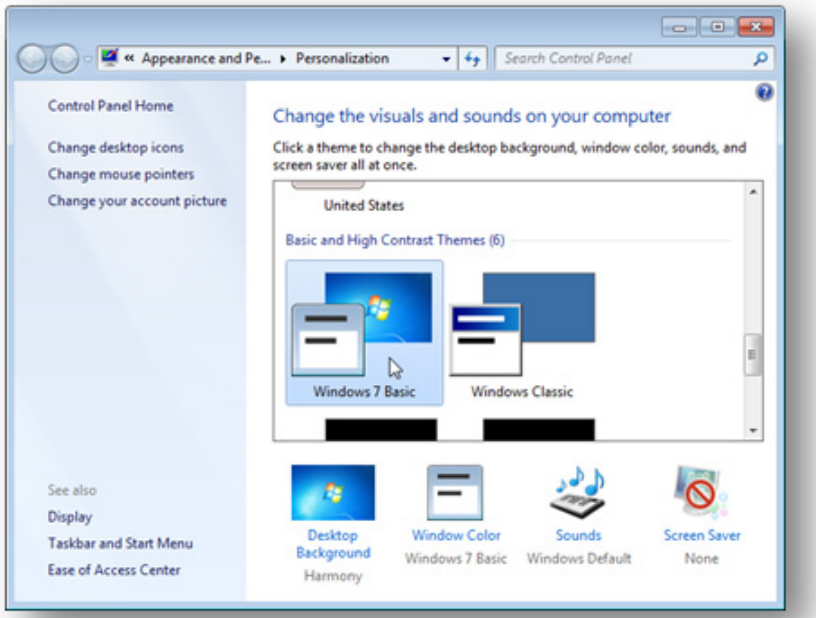
Windows 7:

If it's the first time you are customizing Windows 7 appearance settings, you will need to switch Aero off. Yes, it looks nice, but it's also exceptionally resource-hungry. Here is how you can disable Aero:

1. Right-click somewhere on your desktop and go to **Personalize**



2. Now you can select a less resource-hungry theme, such as **Windows 7 Basic** or **Windows Classic**.



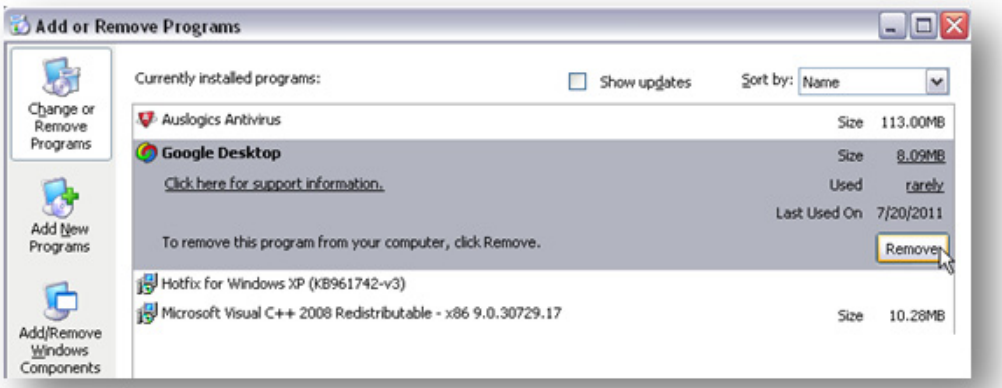
If you want to keep Aero, but still gain some performance, click **Window Color** in the same window and uncheck the **Enable Transparency** box.

You can also use the Windows XP method described above to adjust Windows 7 for best performance.

Remove desktop search bars

Some systems come with preinstalled features like Google Desktop or MSN Desktop, which have desktop search bars among other things. If you make heavy use of them, then there is no need to remove them and you would be better off disabling Indexing (I'll describe how to do that in the next chapter). But if you don't use Google, MSN or other Desktop, then removing them will speed up your computer.

Removing Desktops is as easy as removing any other program. Just go to the **Control Panel** and click on **Add or Remove Programs** in **Windows XP** or **Uninstall a program** in **Windows 7**. Locate the program you want to uninstall and click on either **Remove** (**Windows XP**) or **Uninstall** (**Windows 7**) to get rid of it.

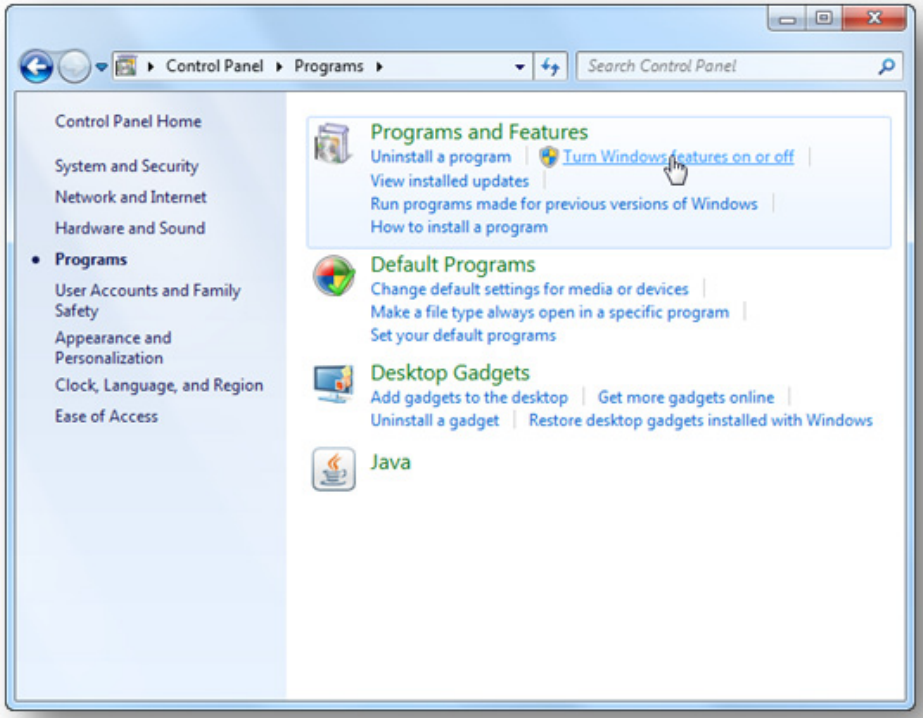


Disable gadgets in Windows 7

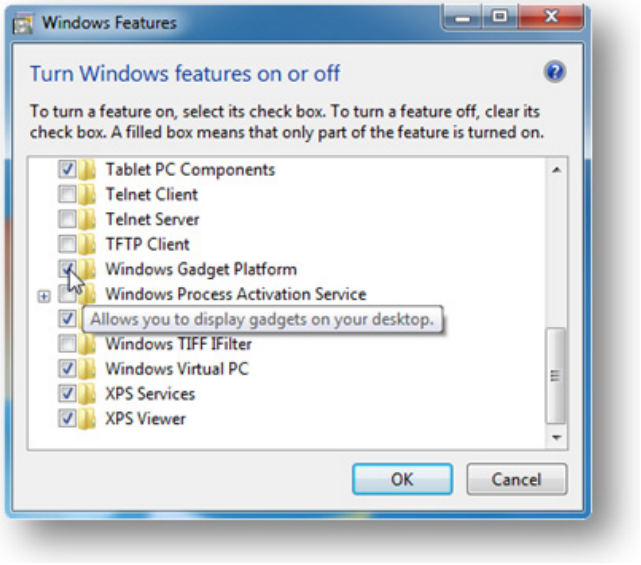
Windows 7 takes the idea of gadgets and sidebar a step further than its predecessor, Vista. It uses customisable gadgets that can be placed anywhere on the desktop. But that doesn't make them less resource-hungry – they still take up a portion of system resources to load and update. Turning off all gadgets is one more way to speed up Windows 7.

You can either turn off gadgets by right-clicking on your desktop, selecting Gadgets and disabling the ones you don't need, or you could disable the whole gadget platform. Here is how:

1. Go to the **Control Panel**, click on **Programs** and then choose **Turn Windows features on or off** under **Programs and Features**



2. Uncheck the **Windows Gadget Platform** and click **OK**



3. Restart your computer for the changes to take effect.

Now your system should be running a lot faster than it used to. But there is still a lot you can do to make your Windows super-fast.

CHAPTER
7

Maximize Your PC Speed
The Ultimate Windows Performance Tweaks

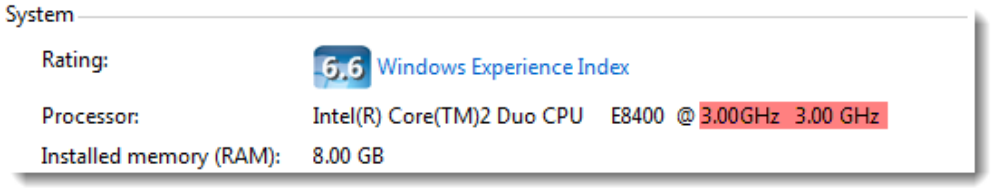
By now you've already done a lot to make your computer run faster than before. But there is still room for improvement – you can speed up Windows boot and shut-down even more, make your computer access the memory faster, and tweak various Windows features for best performance. Some of these tweaks are pretty advanced, but applying them is as easy as following the instructions. This chapter is going to be longer than the rest, but then there are a lot of Windows tweaks to cover. So, let's get started and give Windows a real boost!

Check your CPU is fast enough

Now, before you start tweaking, you need to ensure that your CPU chip is fast enough. If it runs at less than 1.66 GHz, you really should invest into a more powerful computer. If your system is outdated and doesn't have the right hardware, no amount of

tweaking will make it fast enough.

To check your current CPU, press the **Windows key** + **Pause/Break key** to open **System Properties** and look for CPU frequency.



Prevent overheating

Overheating can be responsible for a bunch of computer problems, including dramatic performance degradation. That's why you should make sure your fan is working properly and is not clogged by dust (use compressed air to clean it). In addition to that, remember to avoid direct sunlight on your computer and avoid using your laptop on your lap without a stand, as it could cause overheating and nasty burns if you use your laptop like that for prolonged periods of time.

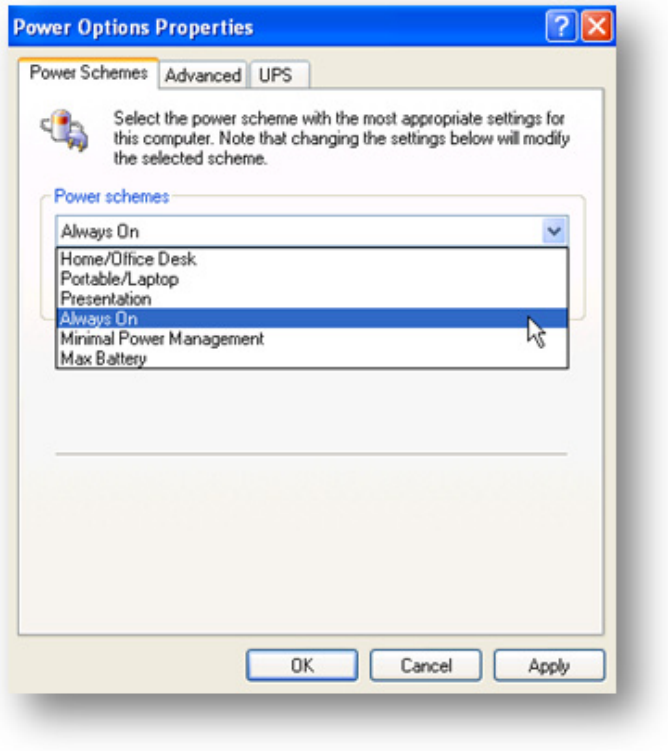
Configure power options

Windows 7 has different power options that are suited for different ways of computer usage:

- The **Power Saver** option decreases screen brightness and reduces system performance to help you get the most out of your battery.
- The **Balanced** plan is the default Windows power plan that will suit most users. It offers full performance when you are using your PC and reduces energy consumption when your computer is idle.
- The **High Performance** plan maximizes screen brightness and can increase system performance in some circumstances.

If you are running off battery and feel that your computer is running slow, simply plug it in and switch to this plan by clicking on the battery icon in the system tray and selecting the **High Performance** radio button. Keep in mind that it will increase your power consumption and carbon footprint.

Windows XP has a different approach to power options. The closest thing to the High Performance plan is the **Always On** option. You can access XP's power options by clicking on the battery icon in the tray and clicking on **Adjust Power Properties**.



There you will be able to select a power plan that suits you best or even create a custom power plan. To do that, simply change values for any plan, then click on **Save As**, name your plan and click **OK** to save the new power scheme.

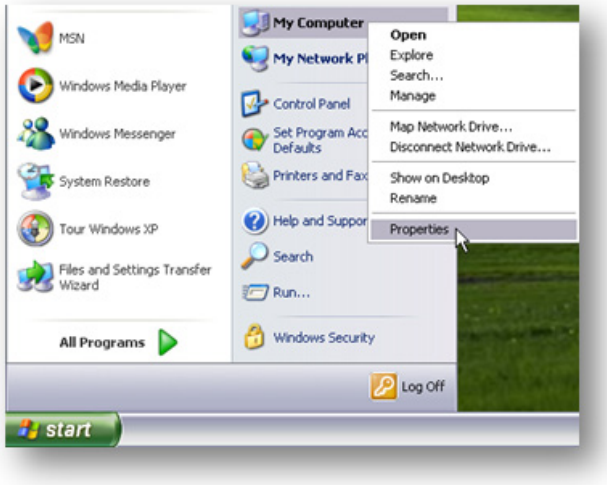
Speed up Windows boot

We've already optimized your startup to make Windows load faster. Well, if you want to speed it up even more, here is a simple tweak for you.

By default, Windows waits for 30 seconds during system startup to load the operating system. To tell you the truth, 30 seconds is way too long and you can safely decrease the waiting time to something like 5 seconds. Here is how:

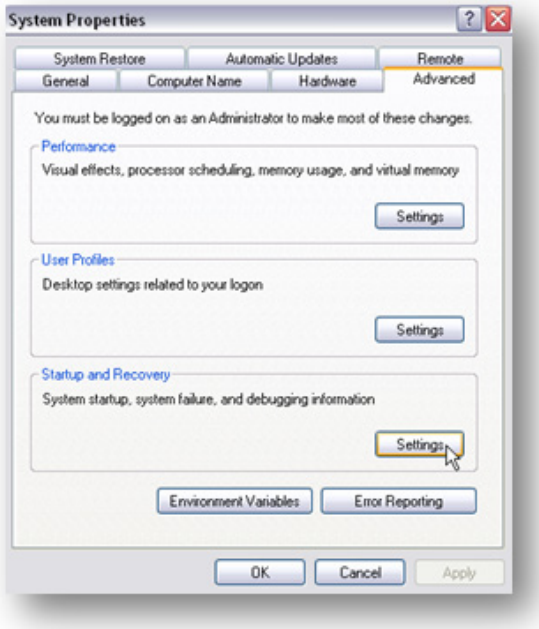
Windows XP

1. Right-click on **My Computer** and go to **Properties**

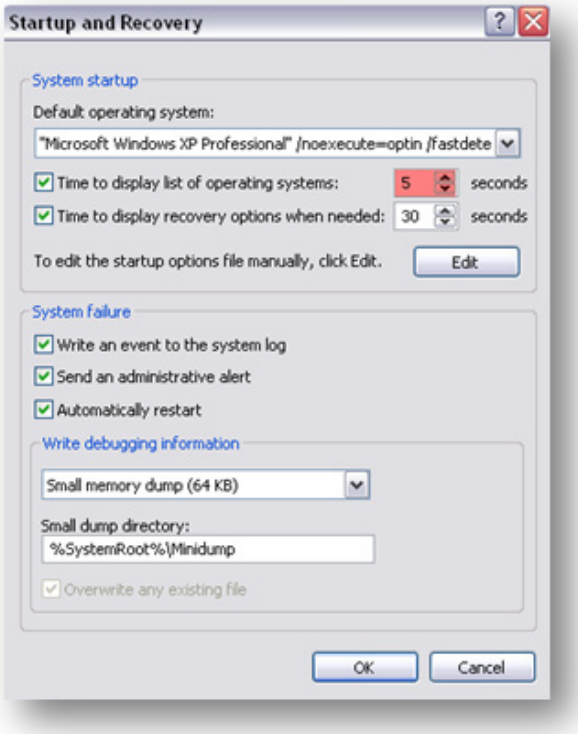


2. In the new window, go to the **Advanced** tab

3. Click on the **Settings** button in the **Startup and Recovery** section

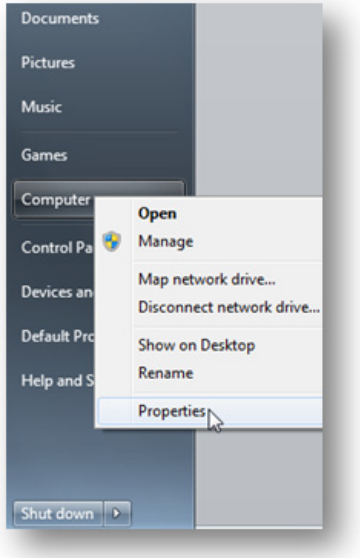


4. Under **Time to display list of operating systems**, set the value to **5** seconds and click **OK**

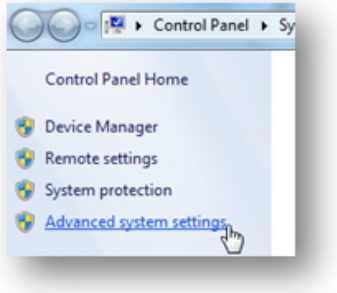


Windows 7

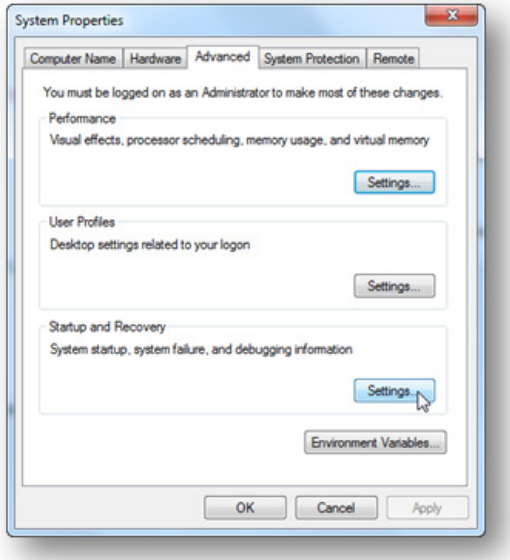
1. Right-click on **Computer** and go to **Properties**



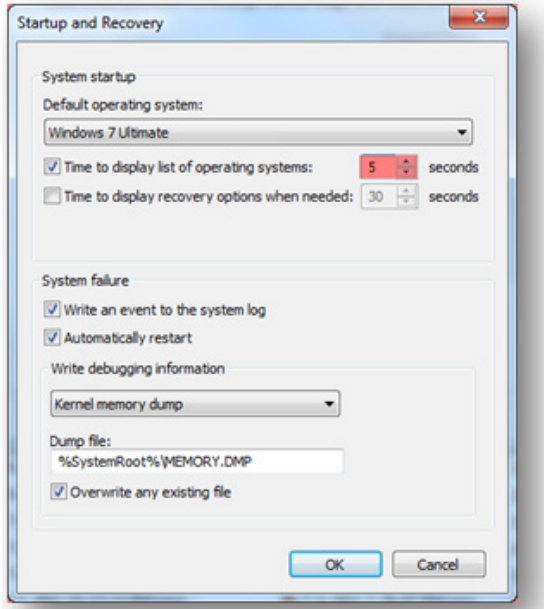
2. In the **Tasks** sections, click on **Advanced system settings**



3. In the new window, go to the **Advanced** tab and click on **Settings** under **Startup and Recovery**



4. Under **Time to display list of operating systems**, set the value to **5** seconds and lick **OK.**

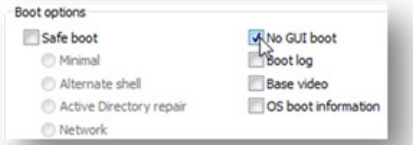


Disable GUI boot

Another way to speed up Windows boot by a few seconds is to disable a feature called GUI boot. Remember that little animated progress bar you see when you boot up Windows? A pretty useless thing if you ask me. We are going to disable it:

1. Click on **Start** and type **msconfig** in the Search bar (XP users will need to click on **Start** – **Run** and type **msconfig** there). Hit **Enter**

2. In the new window, go to the **Boot** tab (**BOOT.INI** in Windows XP)
3. Find and check the **No GUI Boot** option (**/NOGUIBOOT** in XP)



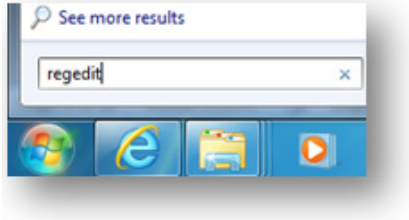
4. Click **Apply**, close Msconfig and reboot your computer for the changes to take effect.

Speed up Windows shutdown

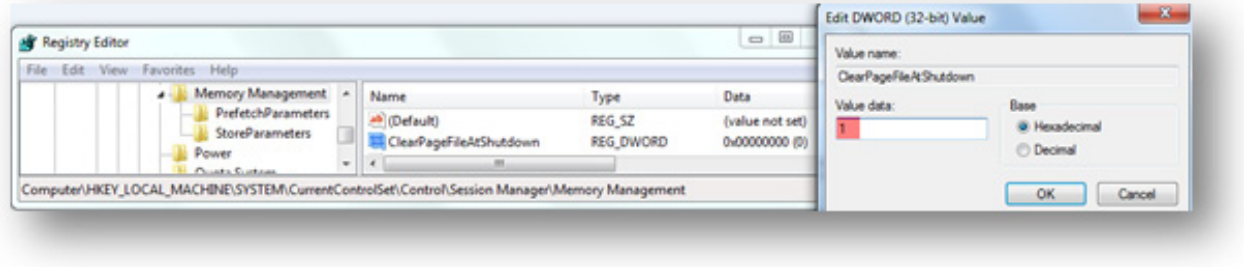
Everybody wants their computers to start up faster. But what about shutdown speed? I know from experience how annoying it is to keep waiting for your PC to power down. Luckily, there are ways to fix it.

One of the reasons why Windows can take a really long time to shut down is because it clears the page file every time you power off your PC. This is good from the security point of view, as the page file stores temporary files and other data. Sometimes unencrypted passwords can end up in your paging file, which means that clearing it on shutdown is not such a bad idea. However, if you have all your sensitive data encrypted or if extreme security is not high on your list of priorities, it's a good idea to stop Windows clearing the page file every time you shut down your computer. To do that, you'll need to change some stuff in the registry. Here is how:

1. Click on **Start** and type **regedit** in the **Search box** (XP users will need to click on **Start** – **Run** and type **regedit** there). Hit **Enter**



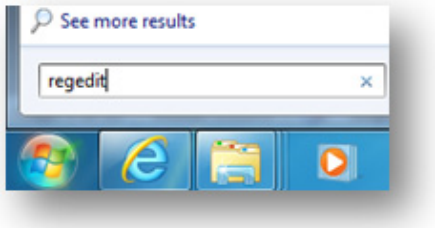
2. In the new window, locate **HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control\Session Manager\Memory Management**
3. Now double-click on **ClearPageFileAtShutdown** and change the value to **1**



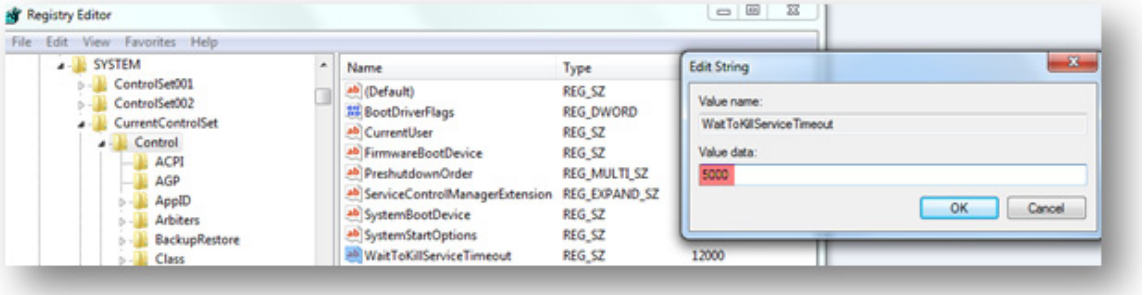
4. Close the **Registry Editor** and reboot your computer for the changes to take effect.

Another way to speed up Windows shutdown is to decrease the time Windows waits to kill non-responding services. To do that, we will need to open regedit again:

1. Click on **Start** and type **regedit** in the **Search box** (XP users will need to click on **Start** – **Run** and type **regedit** there). Hit **Enter**



2. Now navigate to **HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Control**
3. Now double-click on **WaitToKillServiceTimeout**. A new window will appear
4. Change the value to **5000**
5. Click **OK**, close the **Registry Editor** and restart your computer

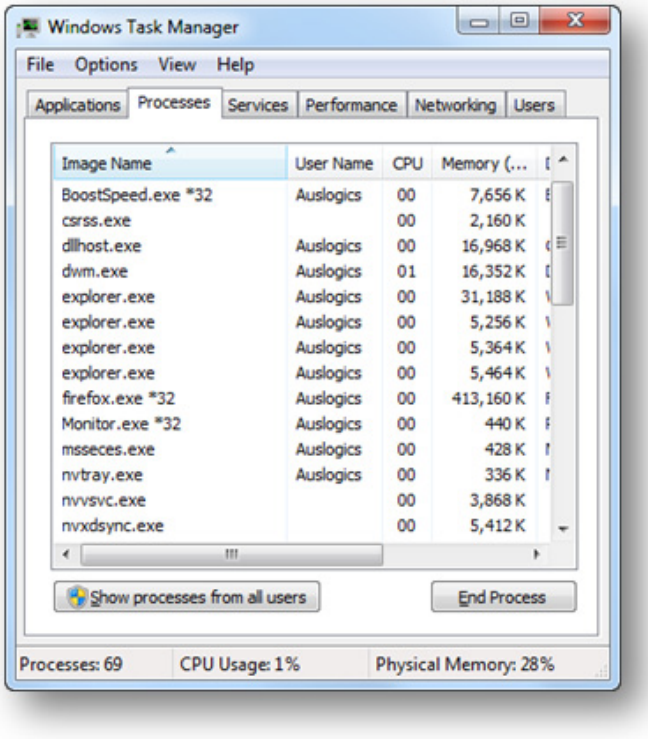


Now that we've made your computer start up and shut down faster, it's time to improve its overall performance. I have to warn you that improving overall computer performance usually means disabling features and services. So, if you are not comfortable with disabling certain things, simply skip the advice and read on.

Check running processes

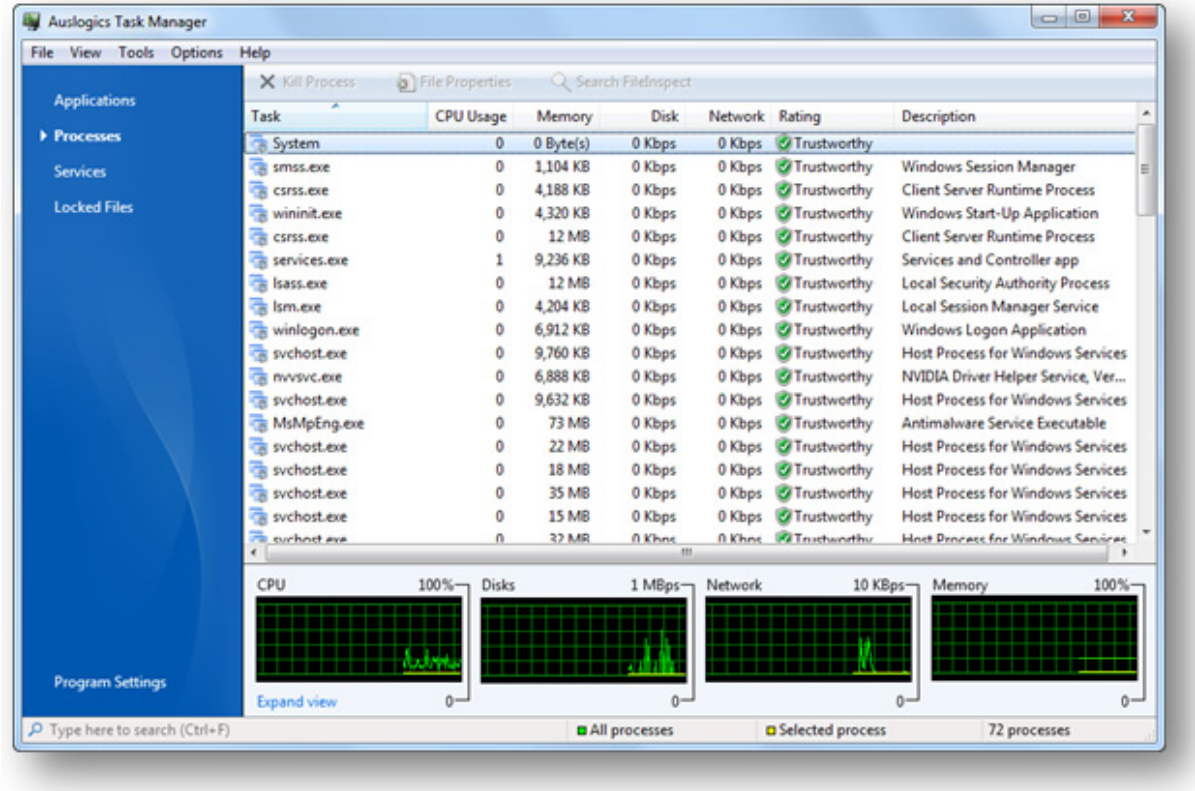
One thing that all operating systems have in common is that they rely on hundreds of processes to run correctly. Basically, there are three main types of processes that can be running on your system – a) essential and non-essential system processes; b) processes run by applications installed on your computer; c) viruses and malware. Ideally, you'd like to have as little of the non-essential processes as possible because having too many running processes reduces your PCs speed. And you definitely don't want any viruses and malware!

But how to check which processes are running on your system and what they are? Easy – simply launch the **Windows Task Manager** by pressing **Ctrl+Shift+Esc** and go to the **Processes** tab. You will see the list of all processes running on your system and information on how much CPU and RAM they are consuming. The Task Manager also provides a PID and shows under which user profile the processes are running.



So, now you know what's running. But how to find out what exactly are all those processes, which ones are essential and which ones are not? While some process names are very straight-forward and you won't have any problems identifying the programs that run them (for example, **Skype.exe**), some process names won't give you any clues. But don't despair – there are plenty of ways to find out.

What you need is a more advanced Task Manager than the default one provided in Windows. There are plenty of alternatives, but my absolute favorites are **Auslogics Task Manager** and **Sysinternals' Process Explorer**.

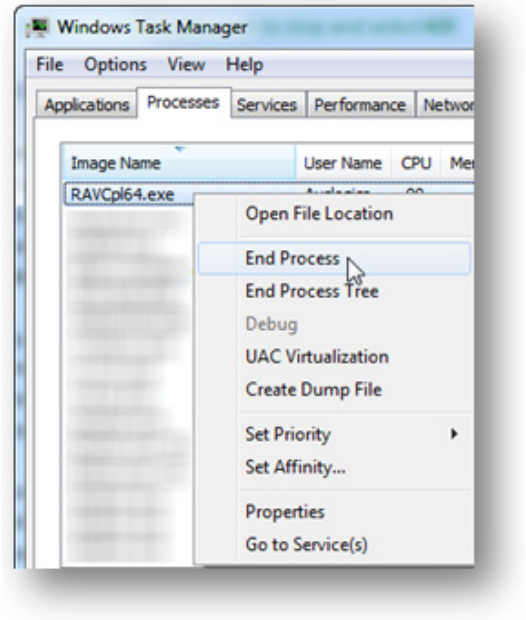


Both of these programs have features that are not present in the standard Windows Task Manager. For example, Auslogics Task Manager displays running programs, processes, services, shows you which files are locked by other files, and allows you to unlock them. In addition to that, you can view properties for each process to find out which application is running it, view security rating for each process and look it up on **FileInspect.com** – a useful online process library. And it also displays network usage by each process, which is great for identifying malware. Pretty good, isn't it?

Process Explorer allows you to expand process trees and view which services are part of which process. This is especially handy when you are researching a process like svchost.exe and need to know which tasks a particular svchost.exe instance is responsible for.

Now, if you want to disable unneeded processes, it's best to manage them either by disabling the software that runs them on startup or simply disable unnecessary Windows services that are responsible for running these processes (see ch. 3 for details). This approach is a lot better and safer than killing the process in the **Task Manager**. But if you are sure a process is run by a piece of malware, it's best to kill it immediately and run a scan with up-to-date security software. Here is how you can kill a process in the **Task Manager**:

1. Open the **Task Manager** by pressing **Ctrl+Shift+Esc**



2. Go to the **Processes** tab
3. Right-click on a process you wish to stop and select **End Process**

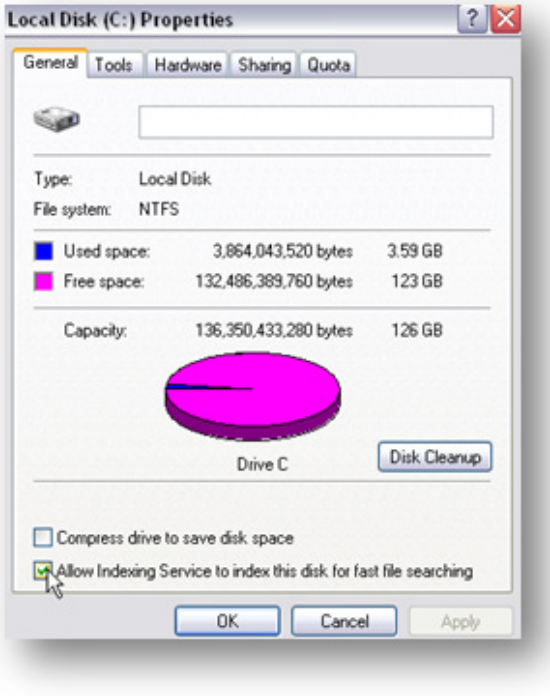
Disable Indexing

Indexing is one of those Microsoft features that is good in theory and not so good when the theory is tested by everyday life. The indexing feature was designed to speed up Windows search. Basically, it indexes all files and folders on your hard drive, so that the indexes can be used to find files and folders more quickly when the need arises. In theory, your files and folders should only be indexed when the computer is idle, so that there aren't any performance issues. A good idea, isn't it?

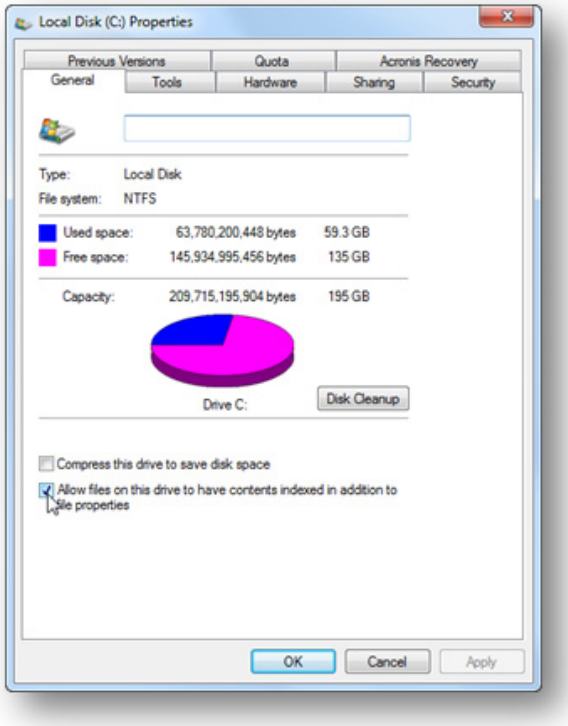
Unfortunately, the indexing feature is not perfect. Even though it's not supposed to kick in when you are using your computer, it often does just that. This causes your hard drive to start making noises and slows everything down. So, if you don't use Windows search all that often, it makes sense to either disable indexing altogether or modify indexing options, if you are on Windows 7.

Disabling indexing is easy. You can simply right-click on your hard drive in **(My) Computer**, go to **Properties** and uncheck **Allow Indexing Service to index this disk for fast file searching** in Windows XP or **Allow files on this drive to have contents indexed in addition to file properties in** Windows 7.

Windows XP

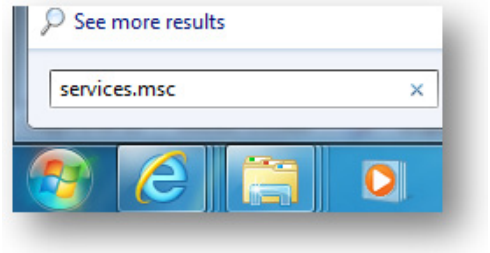


Windows 7

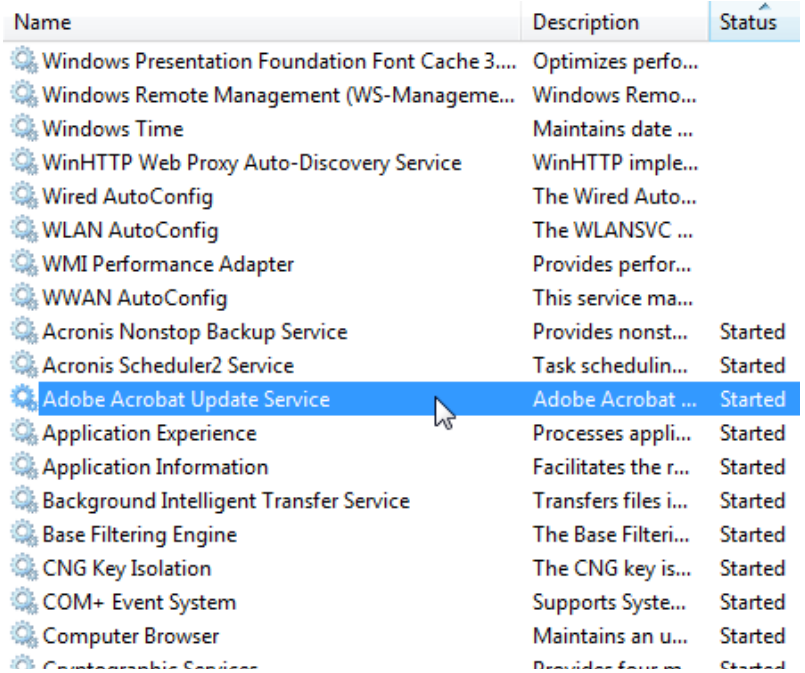


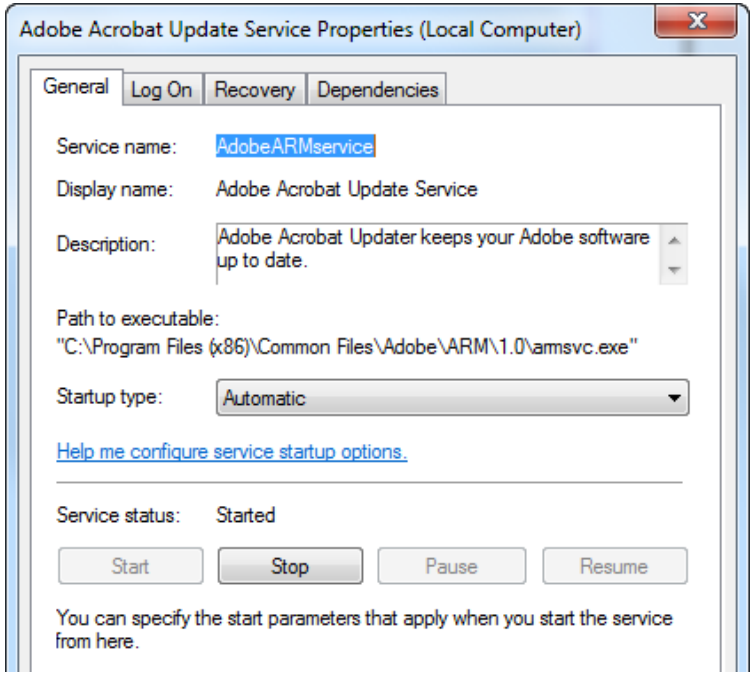
However, it's best to disable the Indexing Service altogether. Here is how:

1. Click on **Start** and type **services.msc** in the Search box (XP users will need to click on **Start** – **Run** and type **services.msc** there). Hit **Enter**



2. Locate the **Indexing Service** (Windows XP) or **Windows Search** (Windows 7), change the service startup type to **Disabled** and then click on the **Stop** button

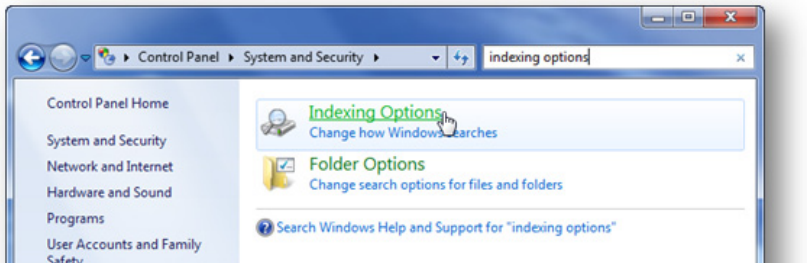




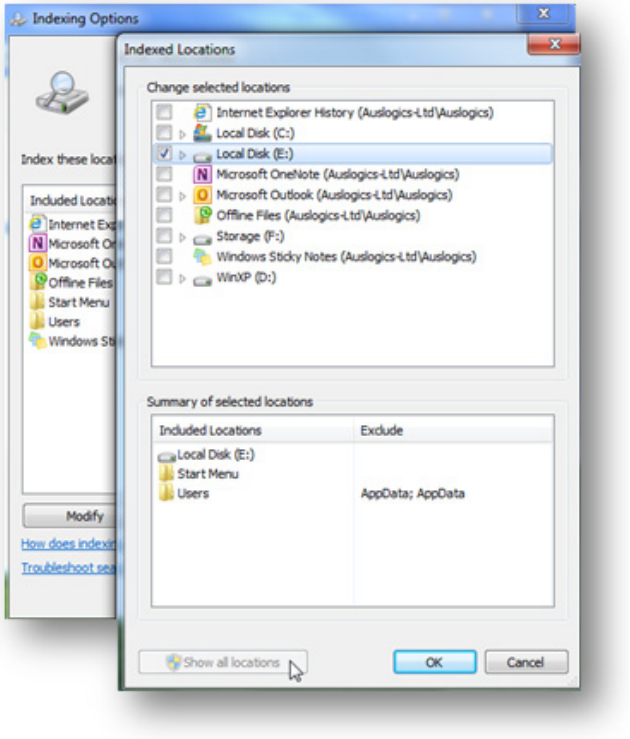
3. Click **OK**, close **services.msc** and reboot your computer for the changes to take effect

If you are running Windows 7, you can choose to adjust indexing options. This way you will make sure that Windows still indexes your frequently searched locations, but doesn't hog your computer by indexing folders you never search. Here is how you can configure indexing on a Windows 7 computer:

1. Go to the **Control Panel,** type **indexing options** in the search box, and then click **Indexing Options**



2. Click on **Modify**. Make sure you have **Show All Locations** enabled



3. Clear the checkboxes for the folders you rarely search and click **OK** when you are finished

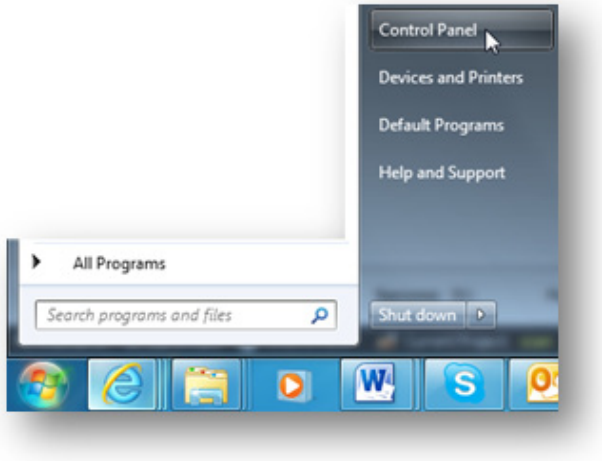
Disable Windows sounds

We've already adjusted display settings for best performance (see ch. 6). But did you know that the sounds Windows makes on startup, shutdown, when you insert a USB stick, when you encounter an error, etc. don't do system performance any good? Even though Windows sounds don't affect computer speed as much as graphics, disabling them will still give you a small performance boost. Besides, I find Windows beeps really annoying, don't you?

Disabling Windows sounds will not affect any other sounds on your computer. There won't be any problems when you listen to music, watch videos and so on.

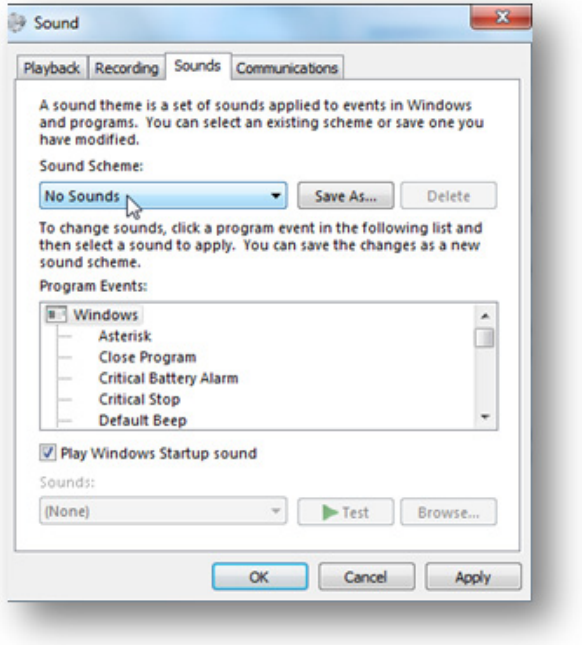
To disable Windows sounds, do the following:

1. Click on **Start** and go to the **Control Panel**



2. Locate and double-click **Sounds and Audio Devices** (Windows XP) or **Hardware and Sound – Change system sounds** (Windows 7)

3. In the new window, go to the **Sounds** tab and select **No Sounds** from the drop-down menu and click **OK**

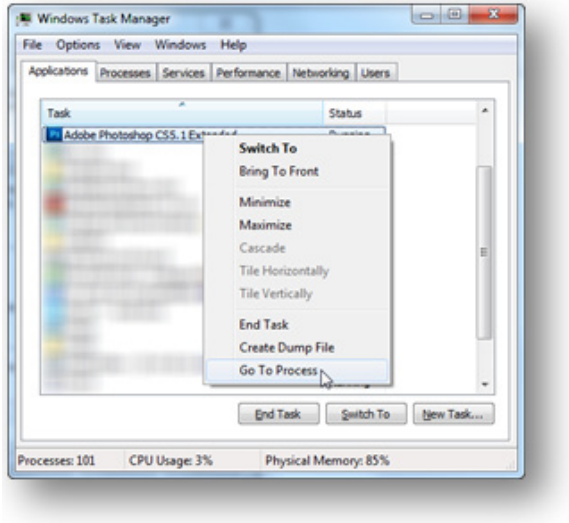


Set processor affinity for specific applications

If you have a dual or a multi-core CPU, you can set processor affinity for specific applications. Depending on your CPU, you can significantly speed up the performance of some programs. The speed increase may vary, but getting use out of your secondary processors is definitely worthwhile.

Setting processor affinity is very easy and can be done from the Task Manager:

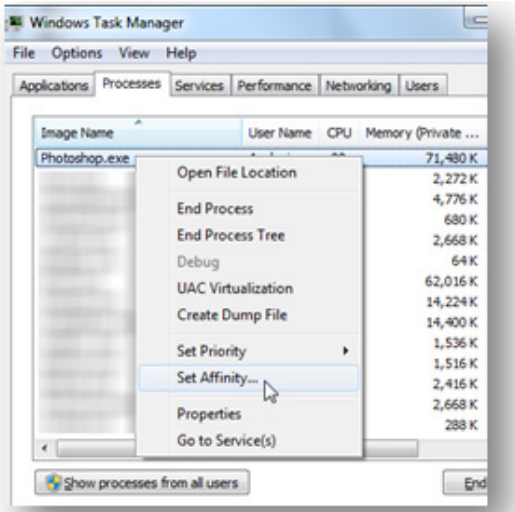
1. Start the **Windows Task Manager** by pressing **Ctrl+Shift+Esc**



2. Now go to the **Applications** tab, right-click the application you want to assign to a different processor and select **Go to Process**

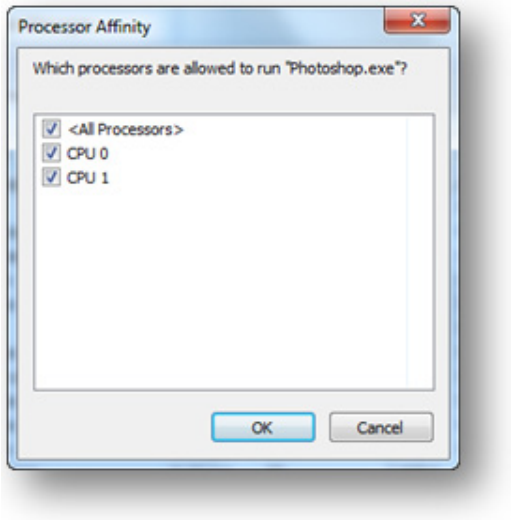
3. You will then be taken to the **Processes** tab and the process related to the application will be highlighted

4. Right-click on it and select **Set Affinity**



5. Select the processors you want to associate with the application in the pop-up window

6. Click **OK** and close the **Task Manager**



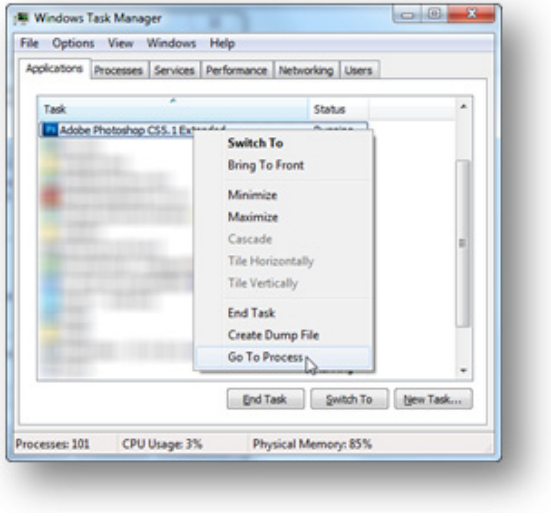
Change application priorities

If you don't have a dual or multi-core CPU, you can still speed up applications and overall computer performance by changing priority settings for programs of your choice. Basically, assigning high priority to an application will speed up the application itself, but might affect overall system performance. Similarly, assigning low priority to a resource-hungry application will speed up overall computer performance, but will slow down the application itself.

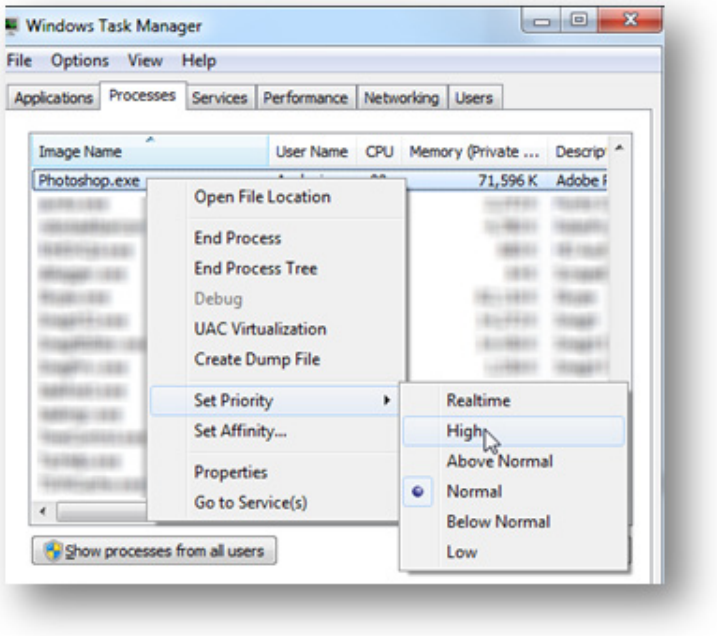
You can change application priority in the Task Manager:

1. Open the **Task Manager** by pressing **Ctrl+Shift+Esc**

2. Now go to the **Applications** tab, right-click the application you want to assign to a different processor and select **Go to process**



3. Right-click on the highlighted process, navigate to **Set Priority** and select the desired priority from the list



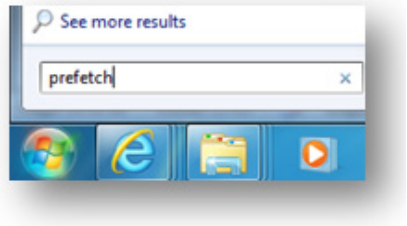
4. Close the **Task Manager.**

Clean the Prefetch folder

Every time you launch a program for the first time, Windows creates a file that will make the program launch quicker the next time you use it. This little file gets put into a folder called Prefetch and is stored there. Sounds good, doesn't it? Well, only up to a point. Just like any other folder, the Prefetch folder can get pretty cluttered as it accumulates files for different applications. As a result, all that clutter starts slowing down your computer, even though it's meant to be speeding it up. The solution is to give your Prefetch folder a cleanup every now and again.

To clean the Prefetch folder, do the following:

1. Click on **Start** and type **prefetch** in the **Search bar** (XP users: go to **Start** – **Run**, type **prefetch** in the Run box). Hit **Enter**



2. The Prefetch folder will open

3. Now simply highlight everything in the folder by pressing **Ctrl+A** and hit the **Delete** key.

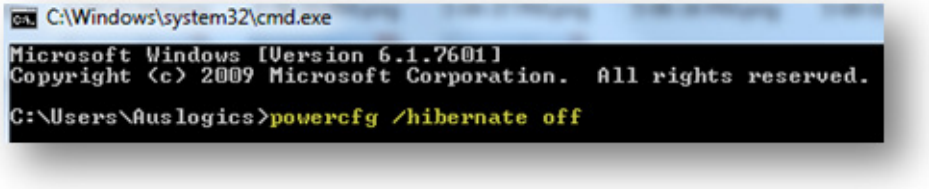
Disable hibernation

Hibernation is one of the power-saving modes offered by Windows. It is a great mode if you want to reduce your power consumption, but don't feel like switching your computer on and off and losing all your open documents, browsers, programs, and current settings. In short, hibernation is great if you want to reduce your electricity bills without compromising your productivity.

However, hibernation has some downsides, the main one being its negative effect on system performance. That's because Windows reserves a hidden file called hiberfil.sys, which is roughly the size of your RAM. This means that if you have 2GB of RAM, your hiberfil.sys file is something close to 2GB. Now, that's perfectly fine if you do use hibernation. But if you don't, then this file is just a waste of space. You can free up this extra space by disabling hibernation. Here is how:

1. Make sure you are logged in as administrator
2. Click on the **Start** button and type **cmd** in the **Search box** (XP users will need to click on **Start** – **Run** and type **cmd**). Hit **Enter**. This will open the Command Line

3. In the **Command Line**, type **powercfg /hibernate off** and hit **Enter**



4. Type **exit** and press **Enter** to exit the **Command Line.**

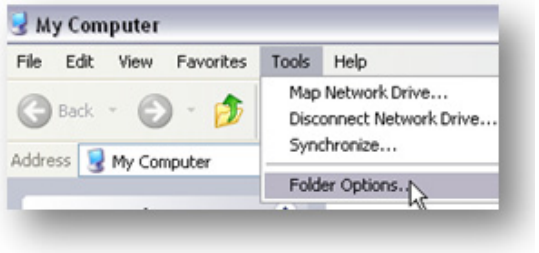
If one day you'd like to re-enable hibernation, simply repeat steps 1-4, but type **powercfg /hibernate on** in step 3 instead.

Speed up file browsing

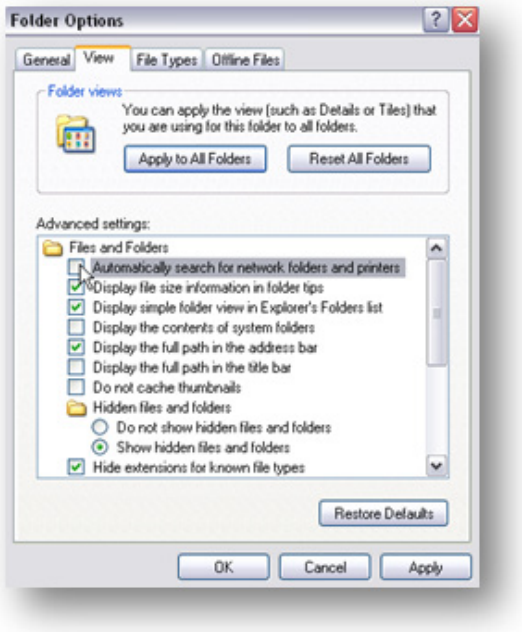
Do you ever use network folders and printer? My bet is you don't. But did you know that Windows looks for them by default every time you open Windows Explorer, just in case you do? This is no big deal, but it can slow down file browsing. Disabling search for network folders and printers can make using Windows Explorer and browsing files much more enjoyable.

Windows XP

1. Open **My Computer**
2. In the menu, click on **Tools**, click on **Folder Options** and go to the **View** tab



3. Now uncheck **Automatically search for network folders and printers**

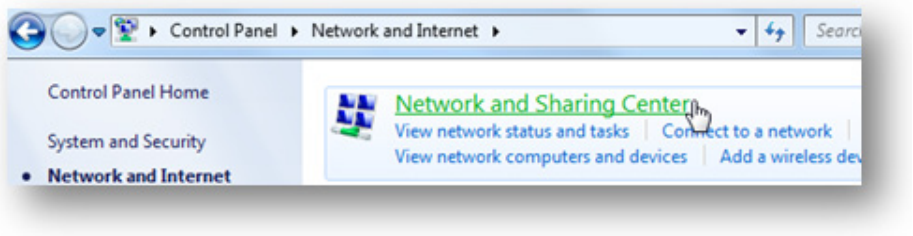


4. Click **Apply** and click **OK**
5. Reboot your PC.

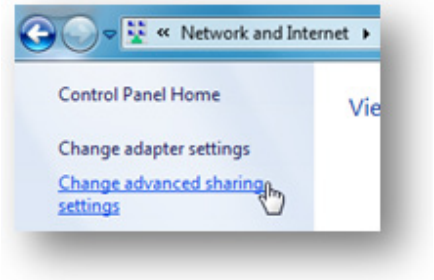
Windows 7

1. Go to the **Control Panel** and open **Network and Internet**

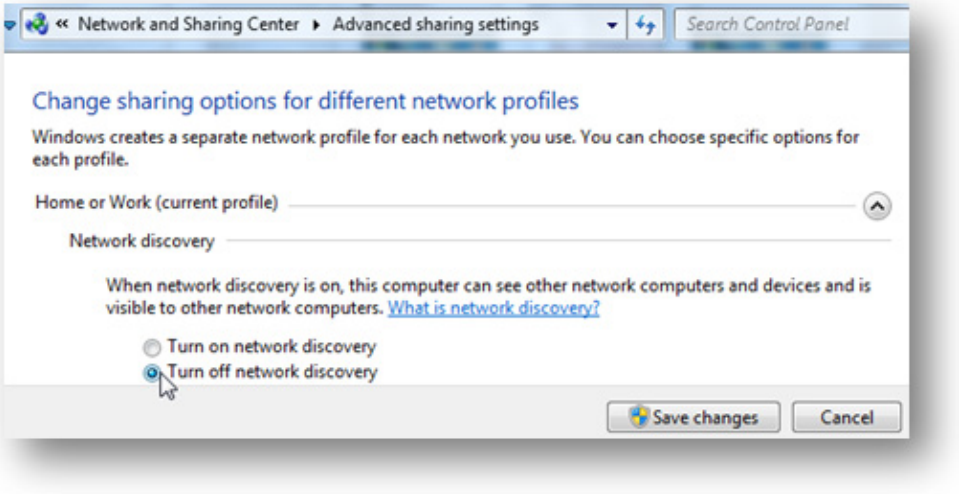
2. Click **Network and Sharing Center**



3. Select **Change advanced sharing settings**



4. In the **Network discovery** section, choose **Turn off network discovery.**



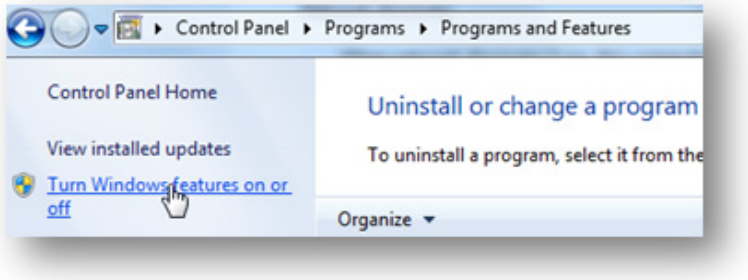
Disable Remote Differential Compression

Remote Differential Compression is a Windows Vista and 7 feature that detects file changes over a network, so that the changes can be transferred with minimal bandwidth usage instead of having to transfer the whole file after it has been moved. While this feature can potentially be useful, it's not needed by average home users. Besides, it can consume quite a bit of system resources, so it's not a bad idea to disable it.

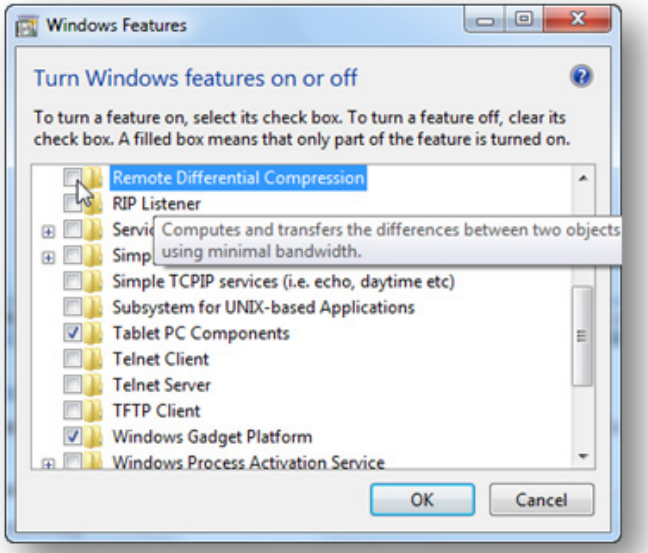
To disable Remote Differential Compression, do the following:

1. Go to **Start** and open the **Control Panel**
2. Under **Programs**, click on **Uninstall a program**

3. Now find the **Tasks** section and click on **Turn Windows features on or off**



4. In the new window, locate **Remote Differential Compression** and uncheck it
5. Click **OK** and you're done!



Enable Direct Memory Access

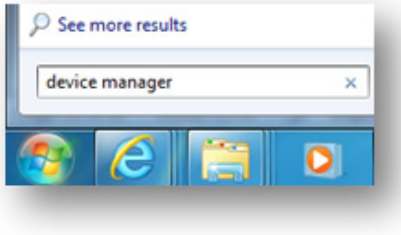
It's not only disabling things that can increase PC speed. Enabling features that are disabled by default can significantly speed things up.

Direct Memory Access (DMA) is a feature that allows your hard drive and CD-ROM drive to transfer data directly to and from the memory without using the microprocessor. Basically, Direct Memory Access decreases the CPU load and thus makes your system work faster.

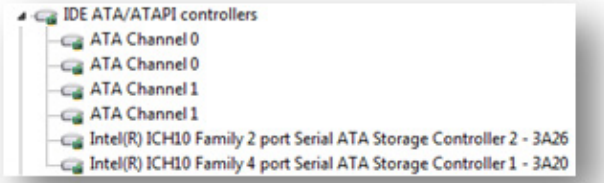
Direct memory access is usually enabled by default for devices that support it. However, sometimes you might need to manually enable DMA, especially if the device was improperly installed or a system error occurred.

To enable DMA, do the following:

1. Click on the **Start** button, type **devmgmt.msc** in the **Search box** and hit **Enter.** This will open **Device Manager.** Click on **Confirm** if UAC prompts you so.

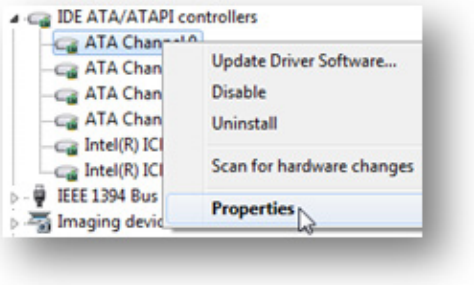


2. In the left-hand pane, expand the **IDE ATA/ATAPI controllers** by clicking on the + sign

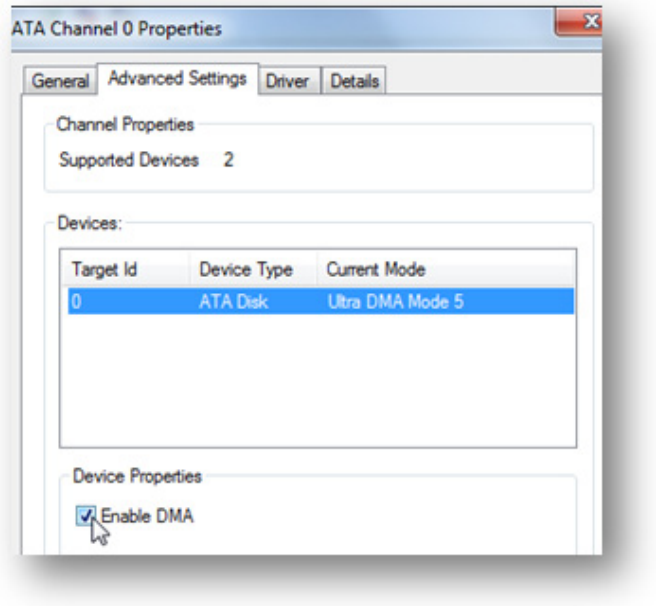


3. Locate the icons that have the word **Channel** as part of their label

4. Right-click on the icon, and then click **Properties**



5. Go to the **Advanced Settings** tab, and then check the **Enable DMA** checkbox under **Device Properties**



6. Click **OK** and you are done.

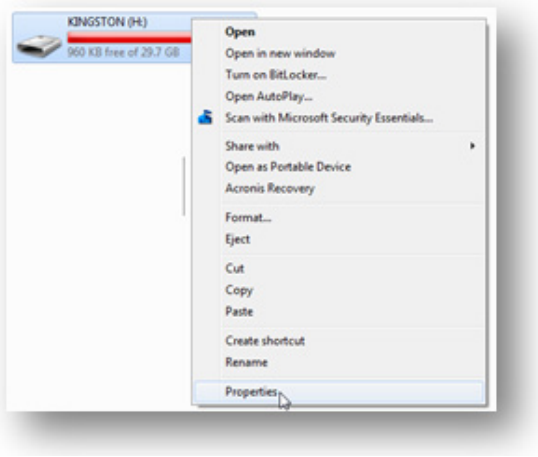
Enable ReadyBoost (Windows Vista and Windows 7 only)

ReadyBoost is a feature that was first introduced in Windows Vista and made its way into Windows 7. Basically, it lets you use a USB flash drive as secondary memory cache, which helps your computer run faster. Keep in mind that it's no substitute for RAM, though.

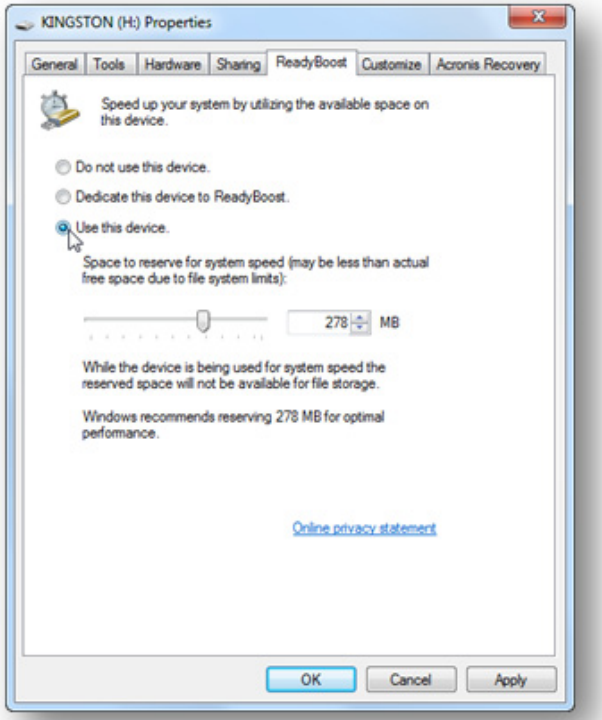
To use ReadyBoost, simply insert a USB flash drive and if it meets certain requirements, Windows 7 will ask you if you want to use it for ReadyBoost and recommend the size to reserve.

If you insert the flash drive and nothing happens, AutoPlay could be disabled on your computer. In this case do the following:

1. Go to **Computer**, right-click on the removable storage device and select **Properties**



2. If the drive is compatible, you will see **ReadyBoost** there. Click on it



3. Select **Use this device** and set the amount of space to be used for ReadyBoost system file

4. Click **OK.**

Depending on your initial system speed, ReadyBoost can improve the performance of your PC quite significantly. On average, you can expect something like a 15-20% improvement in some applications.

Now we've done a lot to speed up your computer. But sometimes you need to do a bit more than tweaking. In the next chapter, I'm going to show you how to upgrade your RAM.

CHAPTER

8

Need That Bit of Extra Speed?

Upgrade RAM and Configure Virtual Memory

Most computers can be made faster by simply performing some cleanup and maintenance. But sometimes speeding up a computer takes a bit more than removing junk files, running disk defrag, disabling unnecessary startup items, and tweaking Windows settings. That's why you should consider adding more RAM (Random Access Memory).

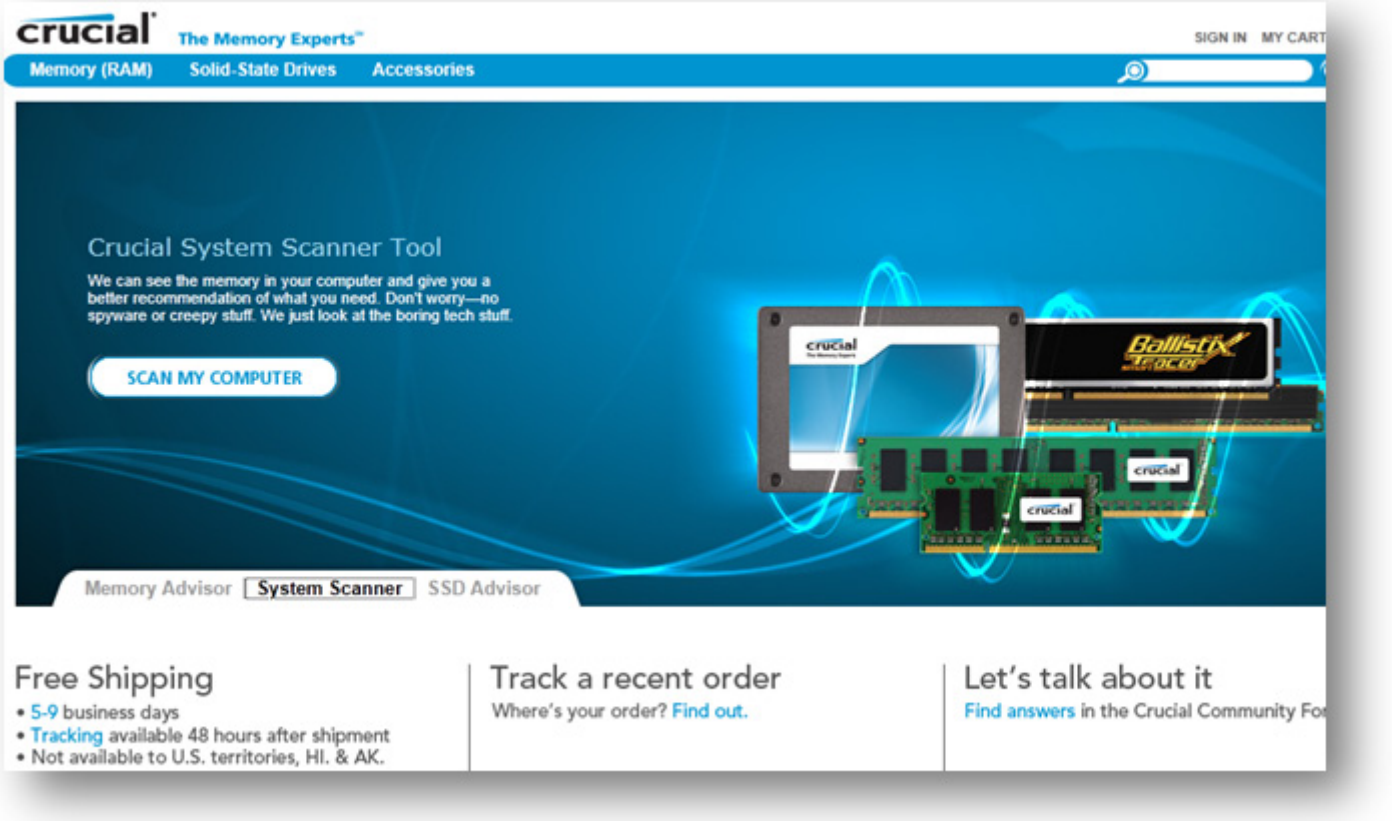
RAM is used as temporary data storage for the operating system and the programs it runs. That's why the more RAM you have, the faster your system will be. Upgrading computer memory is a low-cost way to speed up your PC. Adding RAM is pretty easy and you can do it yourself without a technician's help.

Getting the right type of RAM

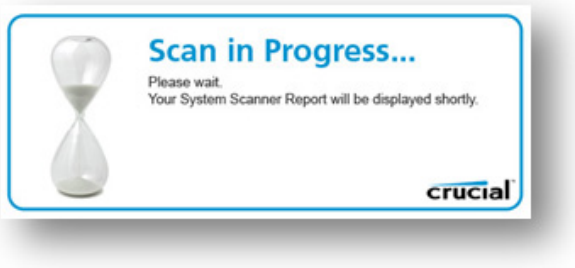
First of all you need to find out what type and how much memory you need. There are different types of RAM, such as basic SDRAM, DDR, DDR2, DDR3 and DDR4. The higher the DDR number, the faster the RAM chips.

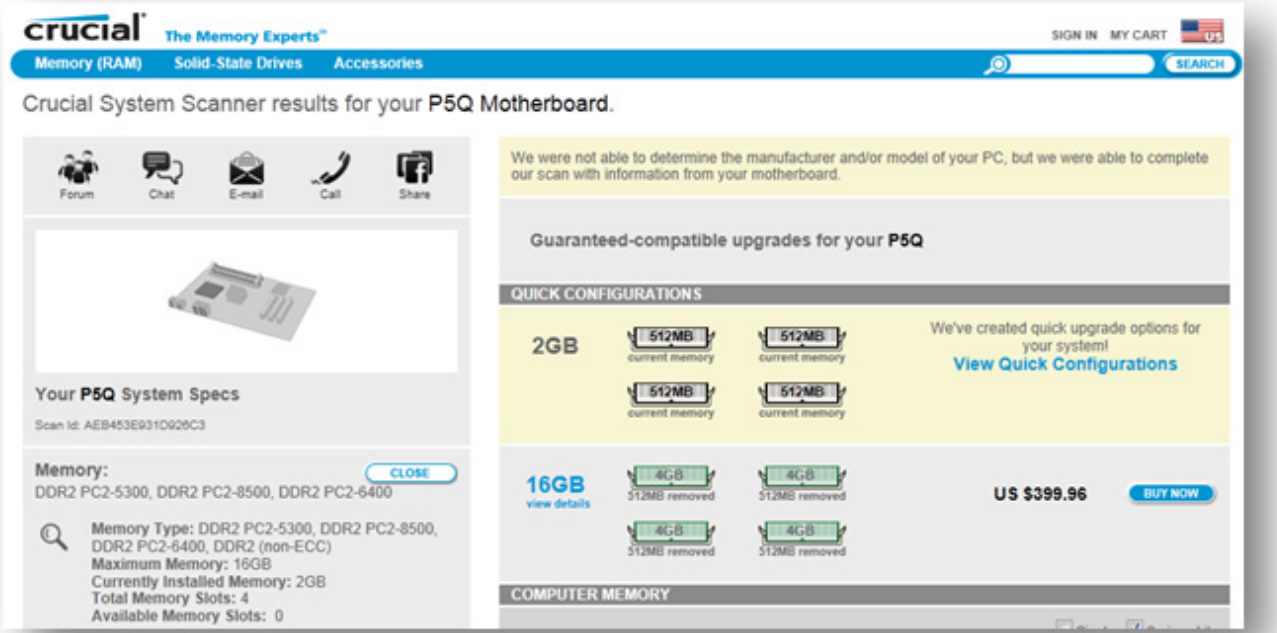
If you still have your motherboard manual, you should be able to look up what kind of RAM is right for your computer, how many memory slots your computer has and how much each slot can handle.

If you don't have the manual handy, you can find the right RAM by doing an online scan. There are lots of websites, usually online shops that sell RAM, such as **Crucial.com**, where you can perform a free scan and find out what type of RAM is right for you.



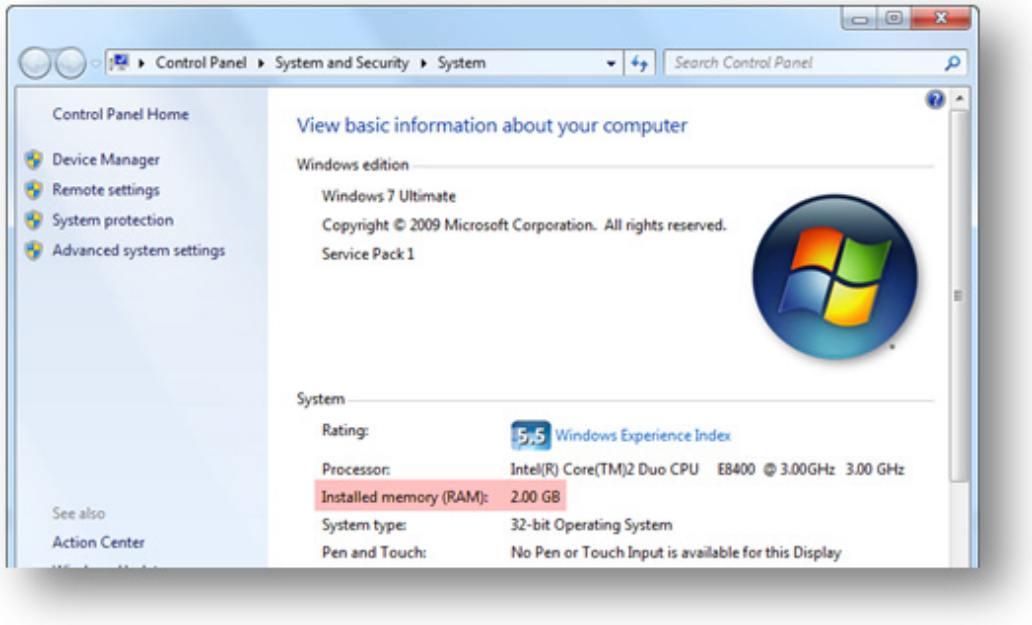
All you need to do is download a small piece of software that doesn't require installation and run a quick scan. You will then know exactly what sort of RAM is compatible with your system.



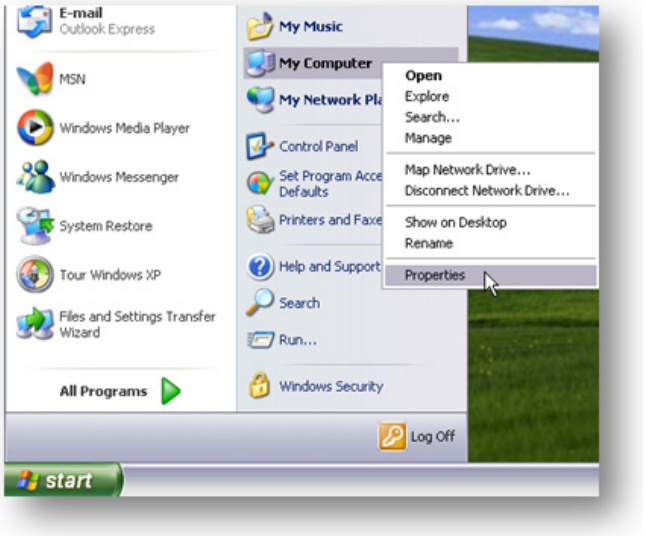


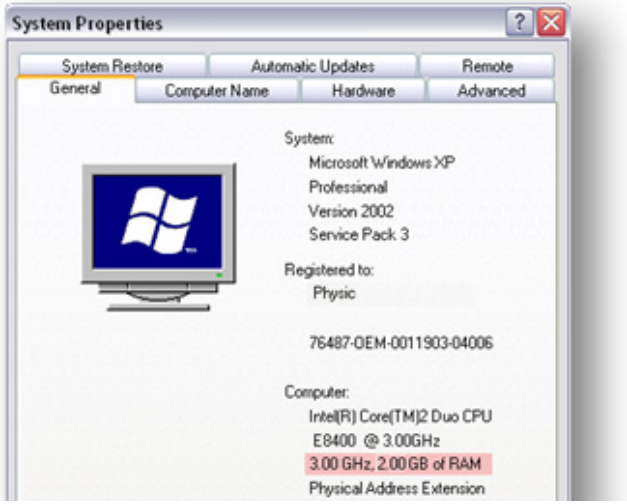
Keep in mind that some RAM modules can only be installed in pairs, so check it out before purchasing new memory. Also remember not to mix memory modules with different performance or from different manufacturers.

To look up how much memory you have in Windows Vista and 7, press the **Windows key + Pause/Break key** to open system properties.



Do the same for Windows XP open **System** in Windows XP, right-click on **My Computer** and go to **Properties.** The information you need will be listed on the **General** tab.





How to install RAM

If you have a desktop, do the following:

1. Shut down the computer and unplug the power cord. Also it's a good idea to wear an anti-static wristband, since static electricity can damage the RAM sticks. Another way to avoid static electricity is to keep one hand on a metal part of the computer case.
2. Open the side of the case. Unplug some cables to give yourself enough room. Make a note of which ones you have unplugged.
3. Find the RAM slots on the motherboard. Usually they are near the CPU.
4. Remove the new RAM from its anti-static bag. Hold it by the edges to have as little contact with the working parts as possible.
5. Line up the memory with the motherboard RAM slot. Ensure that you have the RAM the correct way round. Begin to press down, first gently and then increase the pressure until the memory is installed. Make sure it is seated correctly.
6. Plug in the cables you have unplugged and close the case.
7. Start your computer. Windows should detect the installed RAM automatically. To check it out go to **System Properties** (**Windows key + Pause/Break key**) and view the amount of RAM on the **General** tab.

If you are a laptop user, use a screwdriver to open the panel at the bottom and find the RAM slots. Insert the memory, replace the panel, put the screws back, and boot your laptop. If the memory was installed correctly, the computer will start using it and you will be able to check it out in **System Properties**.

Configure virtual memory

If your computer is already using the maximum possible amount of RAM but you would still like it to run a bit faster, you can speed it up by increasing virtual memory. Virtual memory, also known as page file or swap file, is a file on your hard disk that Windows uses in addition to physical memory (RAM) whenever the need arises. Usually the swap file is 1.5 times the amount of physical memory, i.e. a system with 512MB of RAM will have 768MB page file.

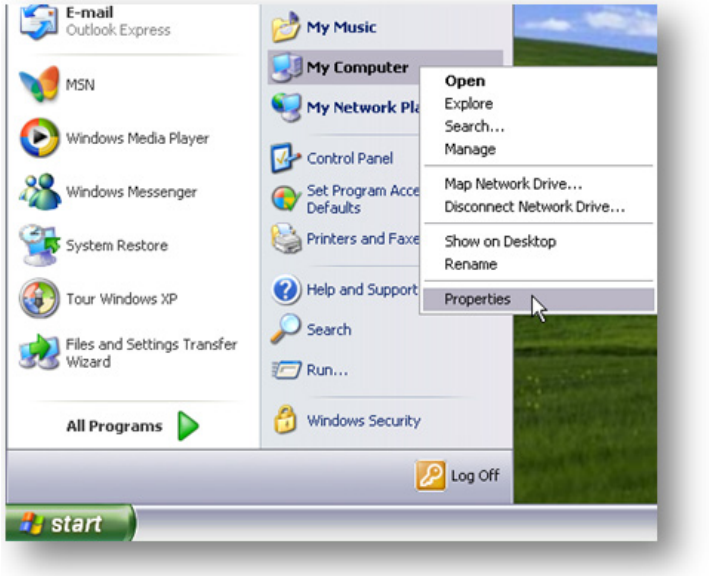
Virtual memory helps your computer cope when you run memory-hungry applications and your RAM can't handle everything at once. When there isn't enough RAM resources and more space is needed, the Virtual Memory Manager (VMM) scans the memory for sections that are not in use and transfers them to a swap file on the hard drive.

True, virtual memory is not as fast as real RAM because your hard drive isn't, but it can still help your computer run smoother. However, incorrectly configured virtual memory can do the exact opposite and slow down your computer a lot. Moreover, if your swap file is too small, you don't have enough RAM, or you are running an application with a memory leak, your computer will start freezing up and you'll start getting the "Virtual memory too low" error. That's why it's important to set the correct amount of virtual memory.

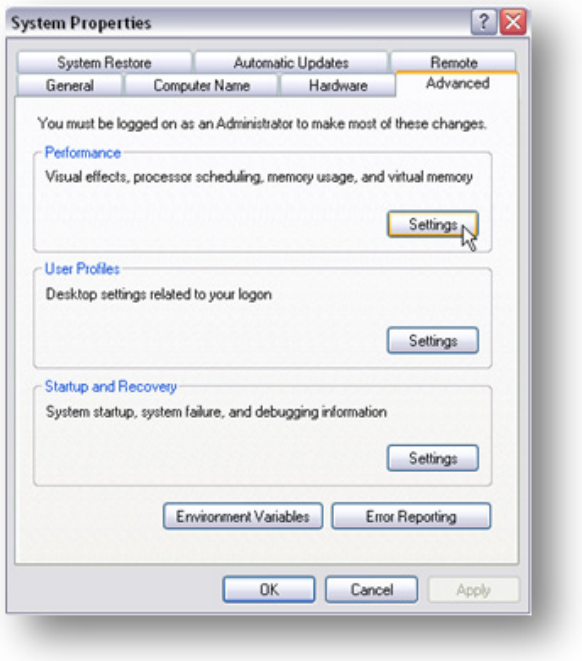
The size of the swap file can be set automatically by the operating system, which is a good idea for some PCs. However, in most cases it's best to configure virtual memory yourself. By default, Windows sets your page file 1.5 times the size of your physical memory. This setting is fine for average consumer PCs, but it will not give you maximum performance. If you are aiming for top performance (which you are), then it's best to make your page file twice the size of your RAM. If you don't feel like assigning that amount of disk space to your swap file, you can always set it to 1.75 the size of your RAM, as it will still be better than setting it to 1.5 the size. Here is how you can configure virtual memory:

Windows XP:

1. Right-click on **My Computer** and go to **Properties**

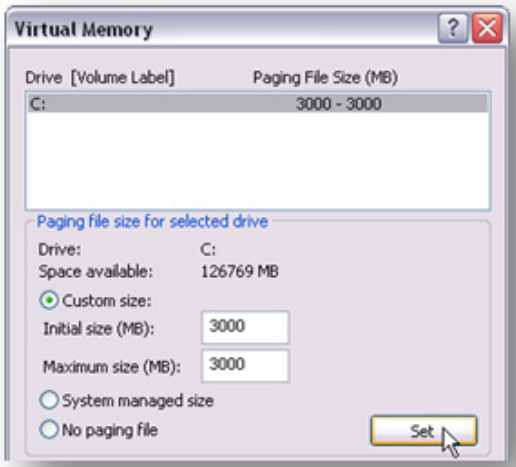


2. Click on the **Advanced** tab and then click on the **Settings** button in the **Performance** section



3. A new window will open. Go to the **Advanced** tab

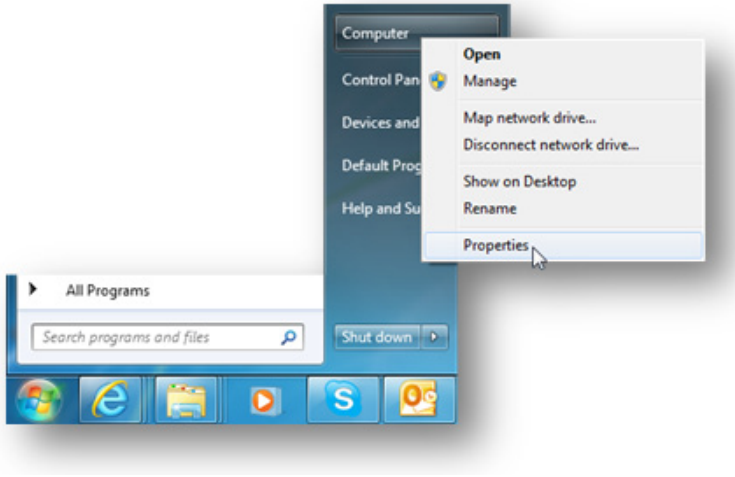
4. Find the **Virtual memory** section and click on the **Change** button
5. Select the **System managed size** option or manually change the size of the swap file. Alternatively you can set a **Custom size** by typing in the new size in MB in the **Initial size (MB)** and **Maximum size (MB)** boxes. Make sure it's the same amount to prevent your CPU from constantly adjusting virtual memory



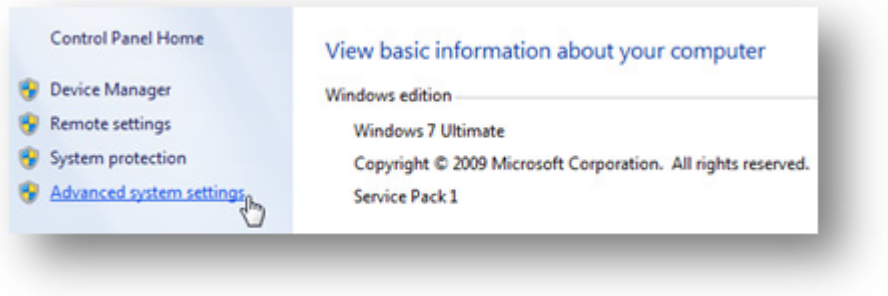
6. Click on **Set** and then click **OK**
7. You might need to restart your PC for the changes to take effect.

Windows 7:

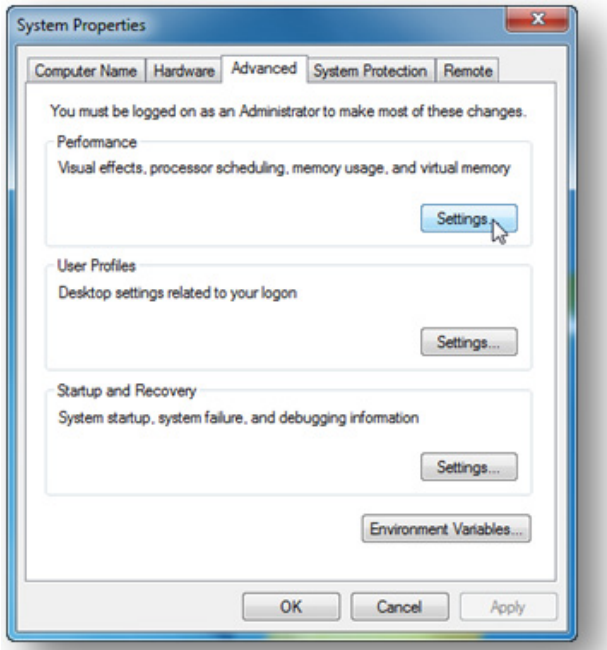
1. Click **Start**, right-click on **Computer** and go to **Properties** to open **System**



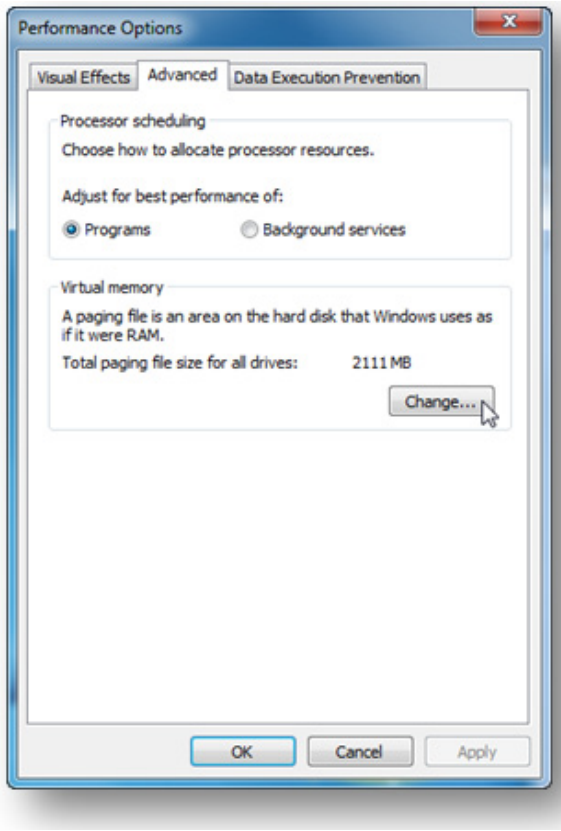
2. Click the **Advanced System Settings** link to open Advanced Tab



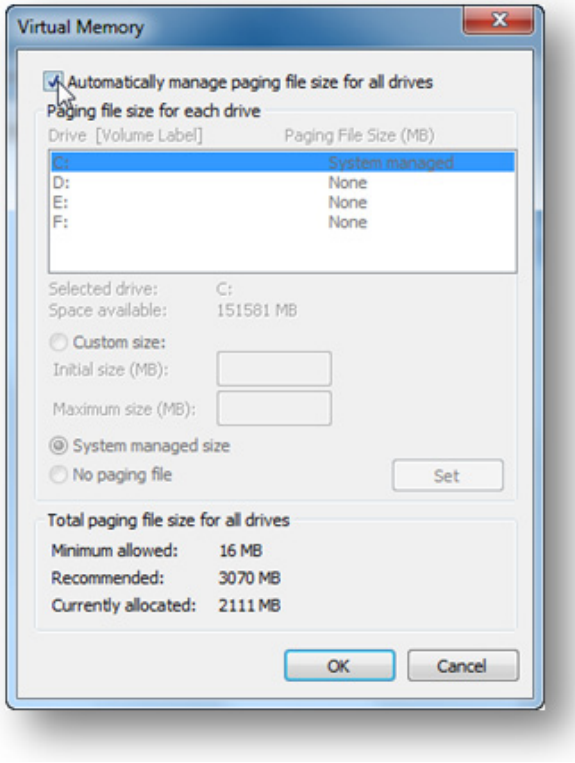
3. Click **Settings** under **Performance**



4. Go to the **Advanced** tab, find **Virtual memory** and click **Change**

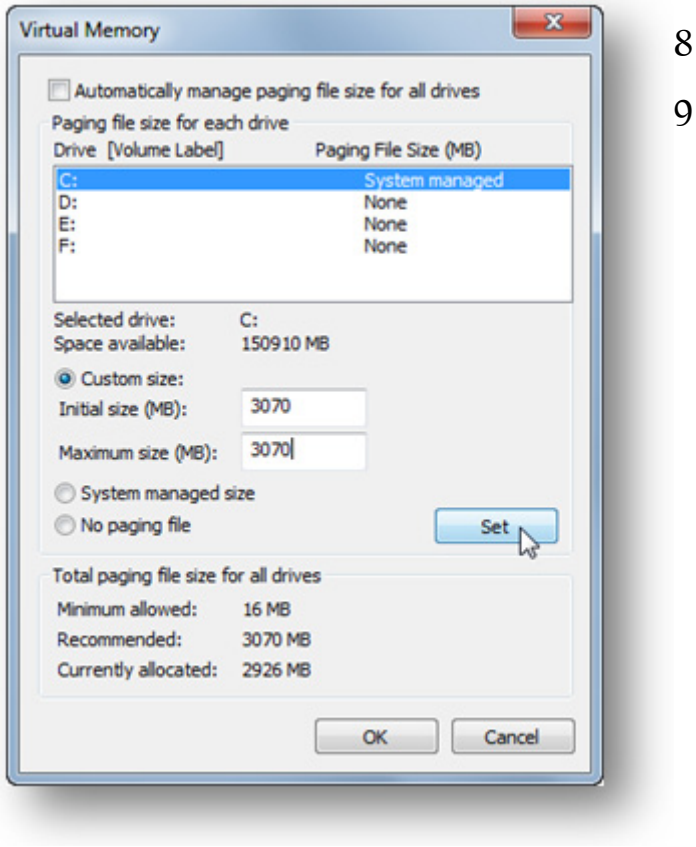


5. Uncheck the **Automatically manage paging file size for all drives** checkbox



6. Under **Drive [Volume Label]**, click on the drive where you want to change the size of virtual memory

7. Click **Custom size** and type the new size in MB in the **Initial size (MB)** and **Maximum size (MB)** boxes. Make sure it's the same amount to prevent your CPU from constantly adjusting virtual memory



8. Click **Set** and then click **OK**

9. You might need to restart your system for the changes to take effect.

However, it's not always good to have a large page file. In fact, those of you who have 4GB of RAM or more will benefit from disabling the swap file altogether. Do not disable your swap file if you have less than 4GB of RAM, as you will start encountering multiple problems. Like applications crashing because there isn't enough memory for them to work.

You can also increase performance by moving the swap file to a drive or partition other than where your operating system is installed. To do that, just select a different drive or click on **C** drive when changing the size of virtual memory and select a different partition. When you are done, click **Set** and then click **OK**.

And now let's tweak the core of your computer – the BIOS.

CHAPTER

9

Time for Under the Hood Tweaks

Optimize Your BIOS for Top Performance

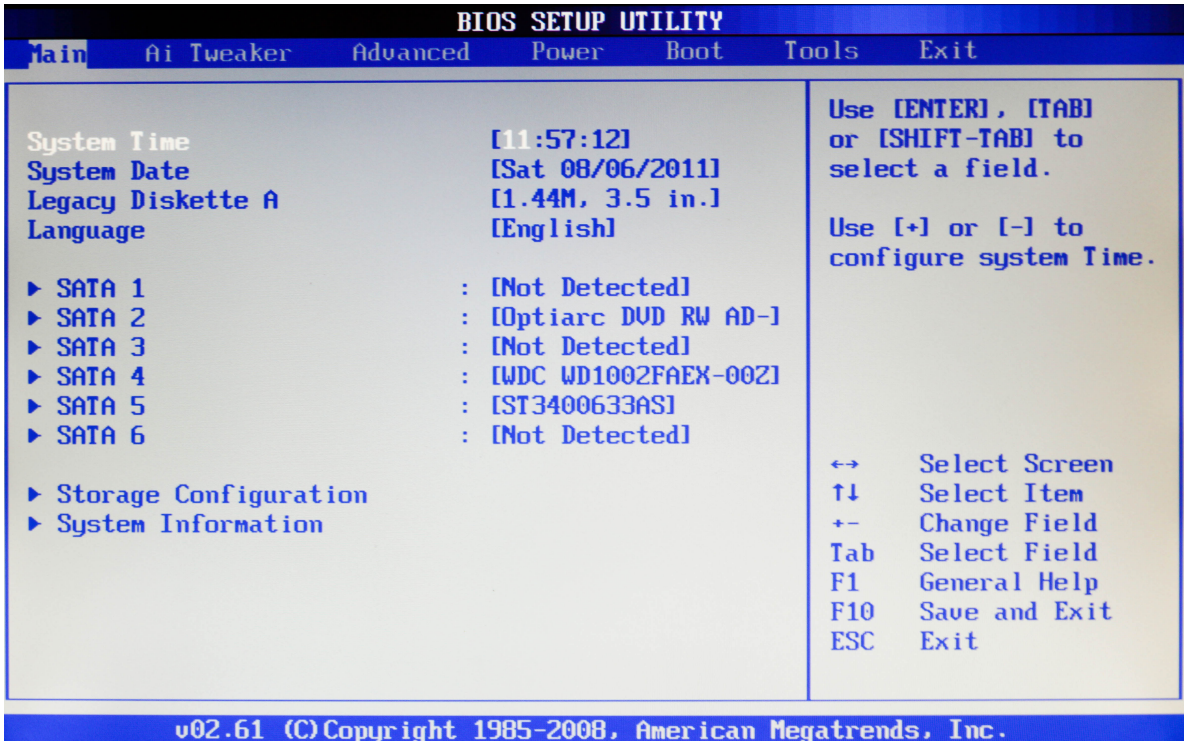
By now you know that there are tons of things you can do to make your Windows PC run faster and smoother and I'm sure your computer is now a lot more comfortable to use. But now is the time to speed up your computer even more by delving under the hood and tweaking some more advanced settings.

One of the more advanced optimization techniques is BIOS tuneup. BIOS stands for Basic Input-Output System and is the standard firmware for motherboards. It is the first software your computer loads when you power it up. It prepares everything for your operating system by detecting your computer's hardware components and letting the operating system know it can use them, calculating the amount of available RAM and setting the CPU speed. Once everything has been taken care of, the BIOS boots the operating system and lets the OS take it over.

Just like any other piece of software, the BIOS can be fine-tuned. Optimizing the BIOS will decrease your computer's boot time and make it run more efficiently.

Access the BIOS

On most systems, accessing the BIOS is not all that hard. When you power up your computer, a startup screen appears. That screen can be accessible for only a few seconds, so you'll need to act quickly. On the screen, you should see which key you need to press to enter Setup. Usually it's either **Del**, **F1**, **F2** or **F12**. Make sure you press the appropriate key quickly, as you might not have more than a few seconds. This will get you through to the BIOS settings.

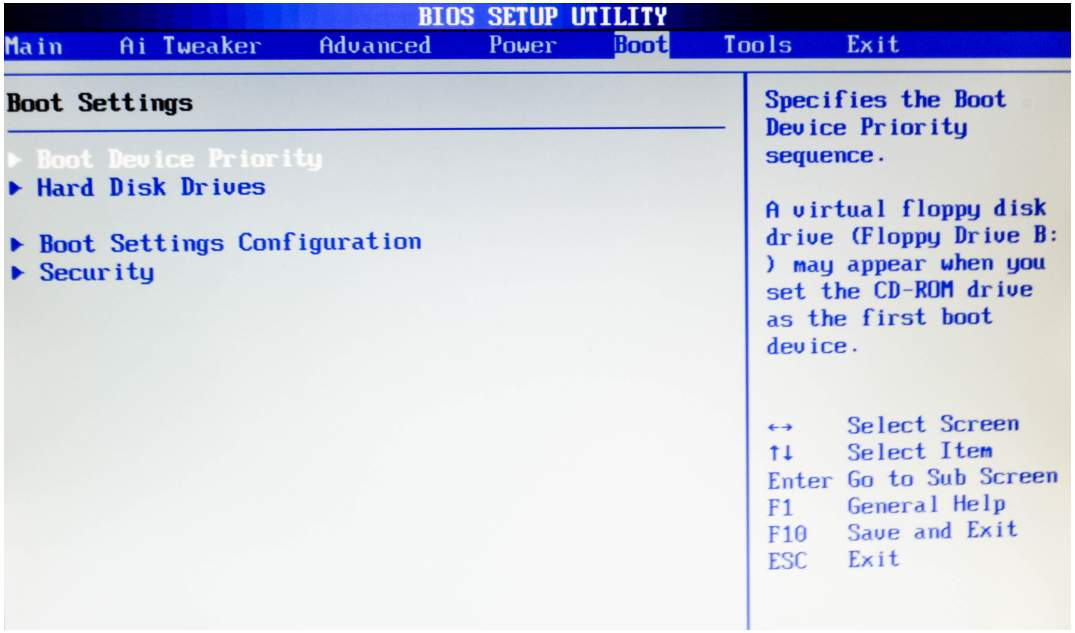


If the startup screen flashes too quickly or doesn't appear at all, try pressing the above-mentioned keys – you will eventually catch the right one. And if there is a splash screen that doesn't show anything, try pressing Esc – this should get you through to the DOS screen where you enter BIOS setup.

Configure boot order

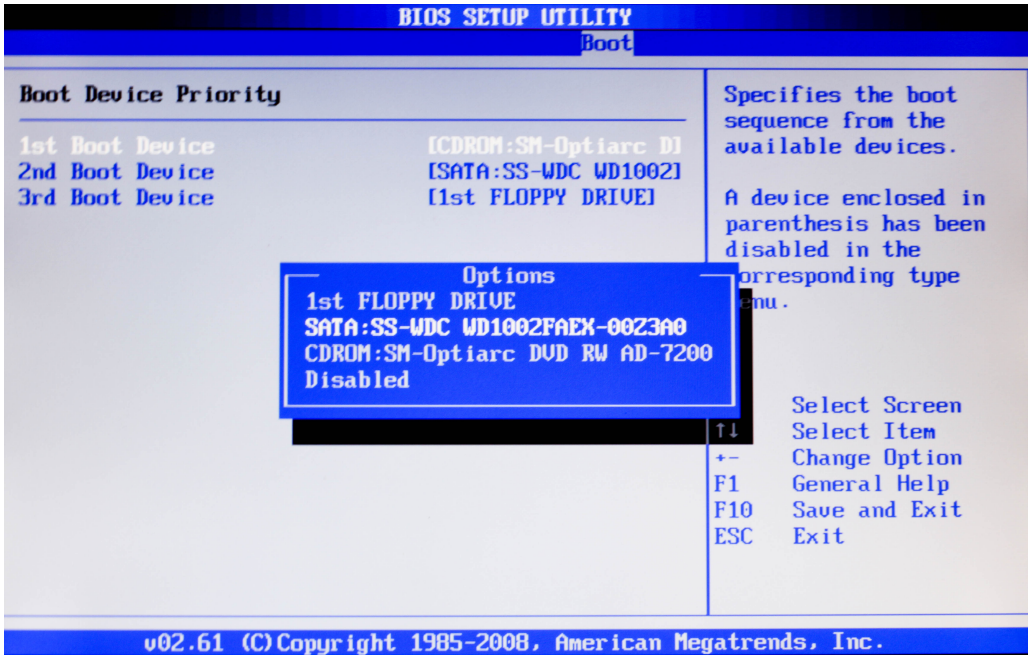
Configuring boot order is something that can significantly speed up computer startup. The BIOS manages the order of system boot items, such as floppy (yes, there still is such a thing), CD/DVD optical drive, flash drive and hard drive. At times, you might need to boot from a CD or a flash drive, but most of the time you boot from your hard drive. However, your BIOS checks whether there are any bootable CDs or floppies, just in case. When it doesn't detect any of these devices, it moves on to the hard drive. Since you use the hard drive to boot your OS every time you turn your computer on and almost never use bootable CDs or other drives, it only makes sense to put your hard drive first in line. This will save you a few seconds during computer startup. Here is how you can do it:

1. Access the BIOS by pressing the correct key for your system
2. Look for the Boot entry and navigate to the submenu

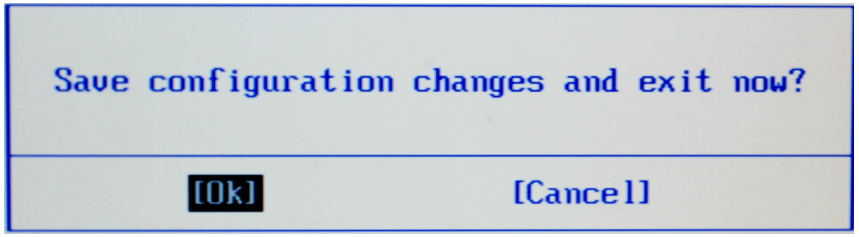


3. Find an entry that says "Boot Sequence" or "Boot Priority Order" or "Boot Device Priority" (or something of the like). Press Enter if required.

4. Then find your hard drive on the list. It could be called something like IDE0. If it's nr. 1, then that's great and you don't need to configure anything. If it's not, then you'll need to make it nr. 1 by either assigning the number to it or moving it up the list. Just follow the on-screen instructions.

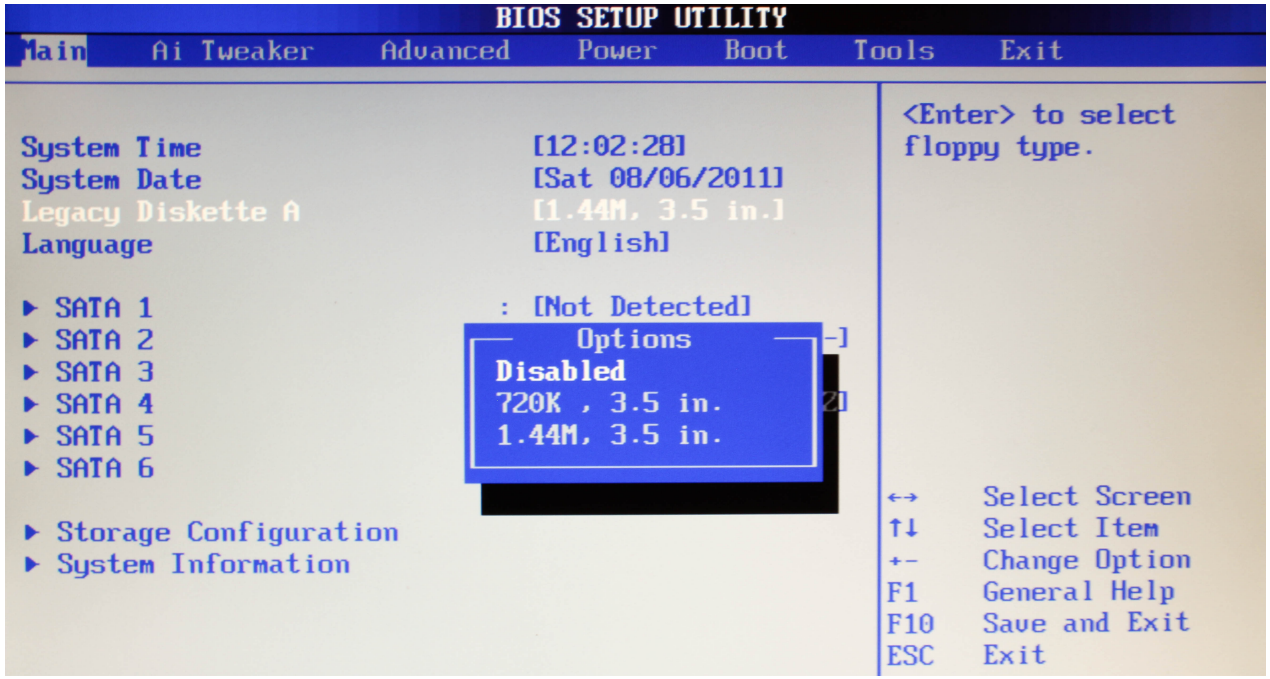


5. When you're done, press F10 to save the changes and exit.



6. Reboot your computer for the changes to take effect.

It also makes sense to disable floppy altogether because it's highly unlikely that you will be booting from there (even if you have a floppy drive, that is). To disable FloppyDrive in BIOS, you'll need to click on **FloppyDrive A** within BIOS and set it to **Disabled**.



Save the changes in BIOS and your computer won't look for floppy drives anymore. You can do the same for your CD drive and re-enable it or move it to the top later on in case you need to boot from your Windows disc.

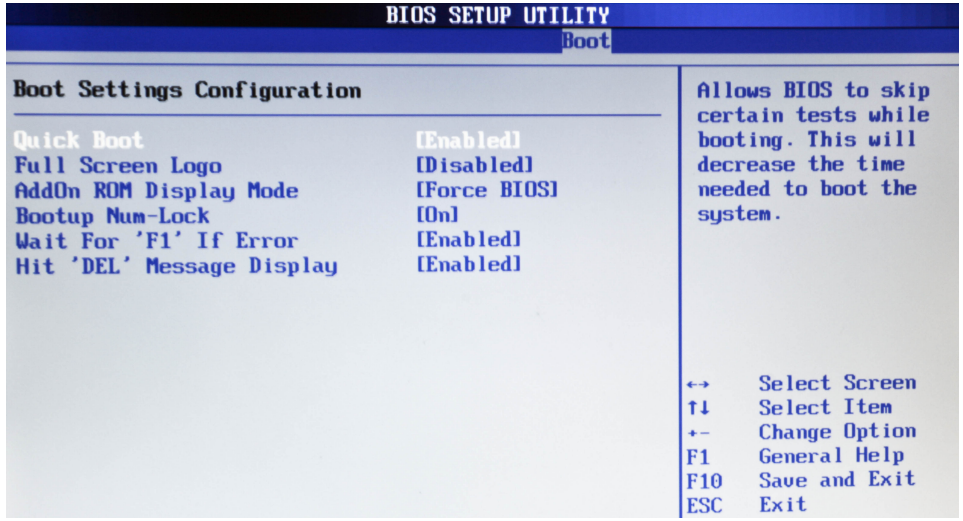
Enable the Quick Boot option

In the past, computers needed to run POSTs – power-on self tests, which are no longer necessary. However, some systems still perform them and thus increase your PCs startup time. Memory check is the longest of them all and can last for several seconds. The Quick Boot option still performs all the necessary tests, but it does that quicker. This makes sense, because the complete version of POSTs is not really needed every time you power up your PC.

Turning on Quick Boot is pretty easy:

1. Press the appropriate key to enter your BIOS

2. When you're in, find an item that refers to "Quick Boot", "Fast Boot" or "Memory Check". Use the arrow keys to highlight it

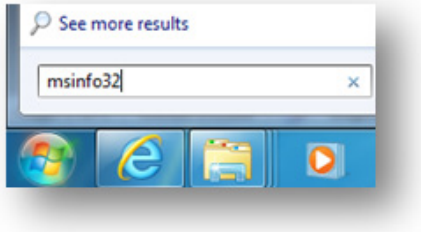


3. Follow the on-screen instructions to either enable "Quick Boot" or disable "Memory Check"
4. Press Esc to exit the BIOS and don't forget to save all changes
5. Reboot your computer for the changes to take effect.

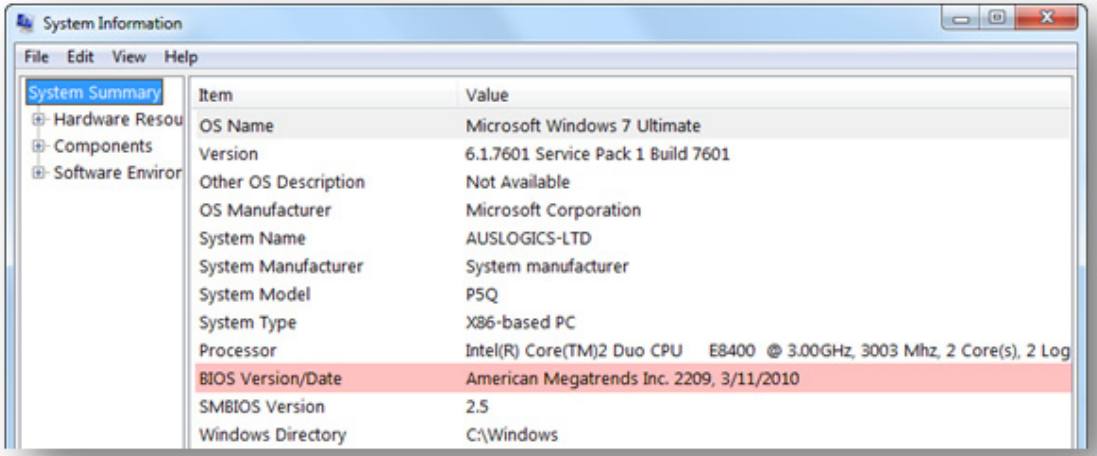
Update your BIOS

Just like any other software, BIOS needs updating. And just like any other vendor, your motherboard manufacturer should issue regular updates and bug fixes, as well as improve compatibility with new devices. BIOS updates can significantly decrease your PCs boot time and increase its overall performance.

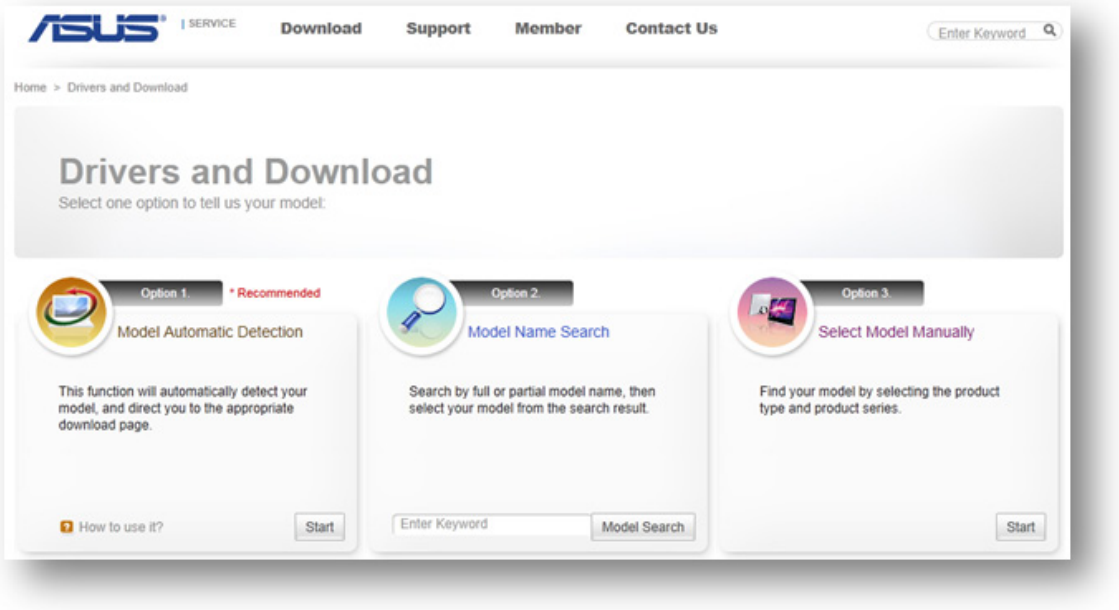
BIOS updates are available for download through your PC/motherboard's manufacturer website. But before downloading you'll need to find out which BIOS version your computer is running. To do that, simply type **msinfo32** in the **Search box** in Windows 7/Vista, or in the **Run box** in Windows XP and hit **Enter**.



This will open the **System Information** tool where you will be able to see which BIOS version you are using (look for it under System Summary). Record your BIOS version and close System Information.



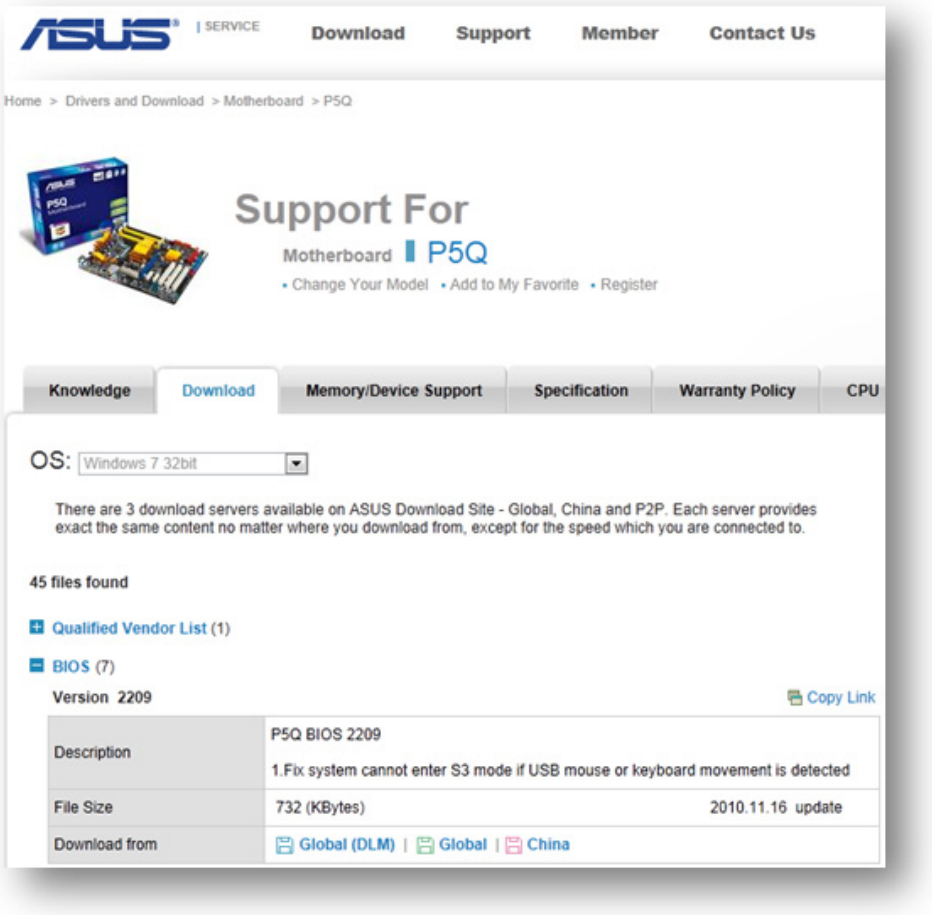
Now that you know your BIOS version, go to your PC's manufacturer's website and check whether there is an update available. Most manufacturers sort updates by PC lines and models.



Be very careful and make sure that you download the right BIOS update file that is intended for your particular model. Installing a BIOS that is not intended for your model will most likely wreck your computer and make it unbootable. Most BIOS updates will warn you if you try to install them on hardware that doesn't match, but it's best to be careful in the first place.

Once you've found the right BIOS update, download it along with any supporting documentation and **Read Me** files.

IMPORTANT: it's absolutely essential to read the update instructions in the **Read Me** documentation. Updating the BIOS incorrectly can ruin your computer.



Most PC manufacturers make updating BIOS fairly easy – all you need to do is download the update, quit all open applications, and run the .exe file. Let the update handle everything and then reboot your computer. Make sure you are not running off battery during the BIOS update, as you will not be able to boot up if the update gets interrupted. This doesn't sound too hard, does it?

However, if you have an older computer, you might need to create a bootable drive and update the BIOS manually. Some systems will allow you to simply download an app that will configure a bootable USB drive or a blank CD/DVD to update your BIOS. Other systems are not that user-friendly and will require you to copy some files to your bootable drive, restart your PC, and enter the BIOS during startup. You will then need to change the boot order so that your system launches the update instead of booting your operating system from the hard drive. You'll need to consult the BIOS update documentation for more specific instructions.

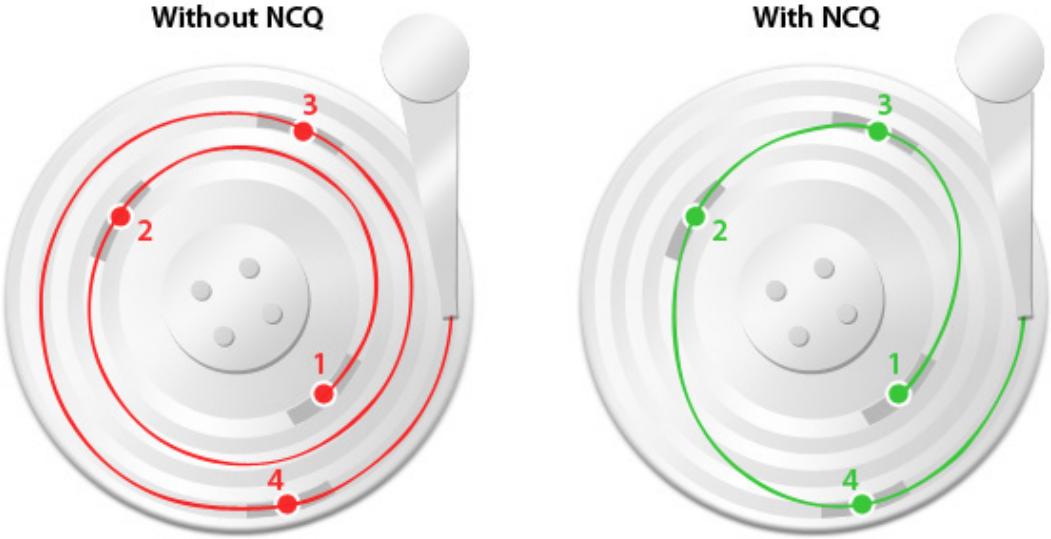
Use AHCI (Windows 7)

Would you like your hard drive to run faster, smoother and be better at multitasking? I bet you would. Fortunately, it's easy if you have Windows 7 or Vista, as all you need to do is enable AHCI.

Windows XP users: AHCI drivers are not included on the Windows XP and earlier installation CDs, as AHCI was developed long after the release of Windows XP. To enable the AHCI mode, you need to use a driver floppy and the F6 method when installing Windows XP. Otherwise your hard drive won't be detected. However, it is still possible to enable AHCI without reinstalling your XP. Just update the IDE driver through Device Manager and change your SATA Mode to AHCI (instead of IDE) in the BIOS.

AHCI stands for Advanced Host Controller Interface, which is a new hardware communication standard from Intel that can significantly improve the performance of SATA drives. Basically, AHCI is the new set of drivers that fully support SATA-drive features and allows software to communicate with SATA devices that support features that older hardware lacks.

One of the best AHCI features is Native Command Queuing (NCQ). It's a bit like a bus going on its route. Imagine how ridiculous it would be if the bus kept jumping stops and then kept going back to the stops it missed. Well, that's how your hard drive behaves without NCQ. With NCQ your hard drive can decide in which order to read and write data.



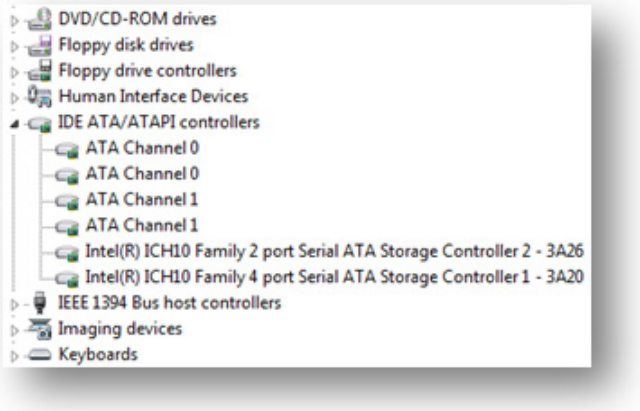
This way your computer can access the data from one area of the drive before moving to a different part of the disk. This way data is opened in one smooth move and the hard drive's read head doesn't have to move all over the place. This reduces wear and tear, noise, and improves performance.

Windows Vista and 7 have native AHCI support, which is great. The not-so-great thing is that most likely your system doesn't have AHCI enabled in the BIOS, which means that Windows simply does not know that it can use AHCI.

First of all, you'll need to check if you have AHCI installed by doing the following:

1. Click on **Start** and type **Device Manager** in the search box

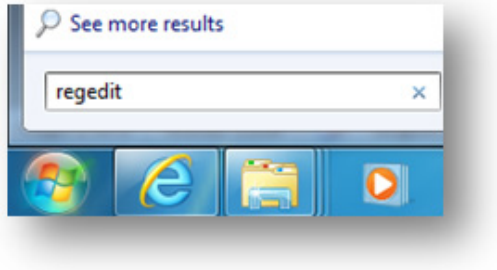
2. In the Device Manager, expand the **IDE ATA/ATAPI Controllers** section



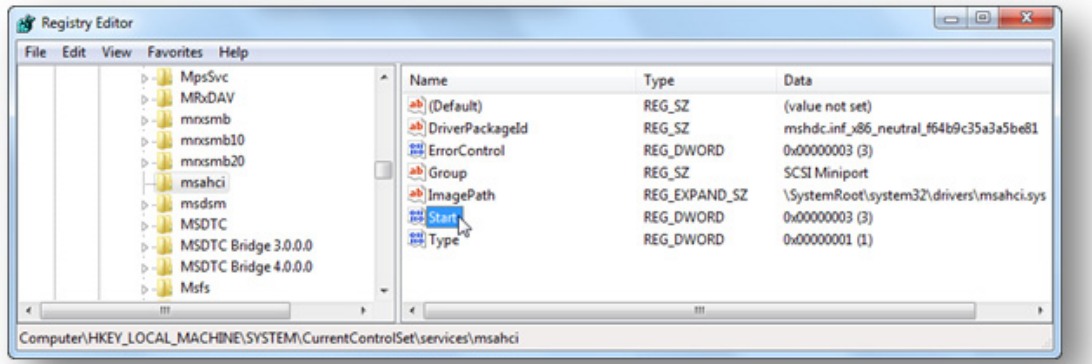
3. Look for **Standard AHCI 1.0 Serial ATA Controller**. If it's there, then your system is already using AHCI. If not, we'll need to enable it.

As a rule, AHCI support needs to be activated in your BIOS, but only before you install Windows. Otherwise you risk ending up with Blue Screens of Death, which will eventually require a reinstall. Fortunately, it's possible to avoid this by editing the registry prior to activating AHCI support. Here is how to enable Microsoft AHCI driver in the Windows 7 registry:

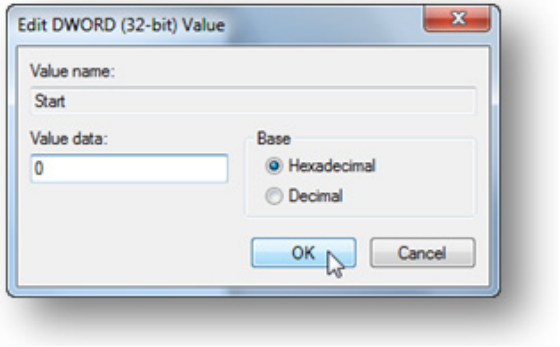
1. Click on **Start** and type **regedit** in the Search box to open Registry Editor



2. Navigate to **HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\services\msahci** and expand it



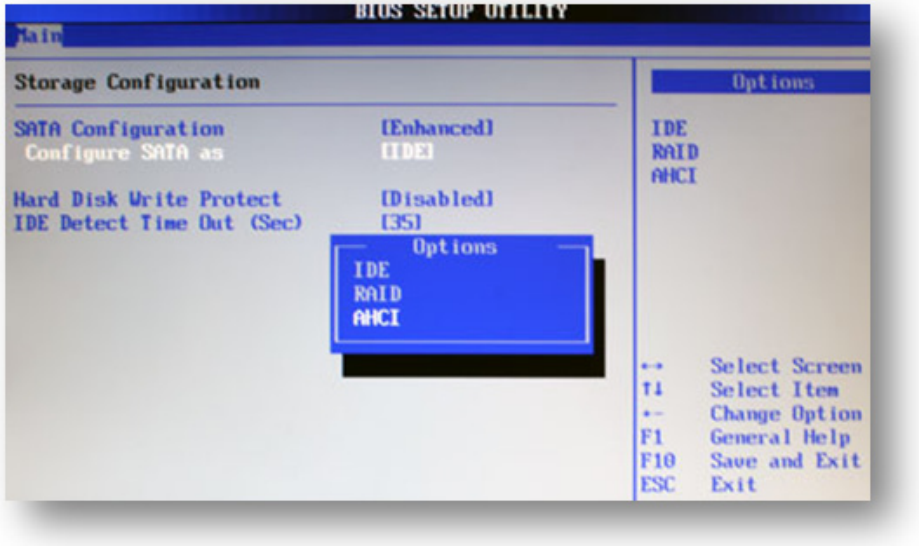
3. In the right-hand pane, locate the **START** key
4. Set its **Value** to **0** (zero)



5. Close Registry Editor.

Alternatively you can change the value under HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\services\iaStorV to enable the Intel RST driver. The results differ from system to system, so you'll need to experiment a bit and check which driver works better for you, msahci (Microsoft AHCI) or iaStor (Intel RST). I recommend using AHCI, but you can always revert to the IDE driver if AHCI wasn't fast enough for you.

Now you can reboot your computer and enter the BIOS where you can enable AHCI.



The specific instructions vary from manufacturer to manufacturer, so you'll need to consult your support documentation. Once you've found the required setting and activate AHCI, save all changes and reboot your PC. Windows will install the needed driver upon reboot, which you can later confirm through the Device Manager. You might need to reboot once more to activate the driver.

And now it's time to optimize your hard drive.

CHAPTER
10

Opening Files Takes Ages?
Optimize Your Hard Drive for Peak Performance

Most people tend to ignore minor speed losses and only notice that their computer is slowing down when opening files and software starts taking ages. When this happens, less experienced users panic, start doing erratic things like deleting files, and call a computer technician when nothing they do seems to help. But in most cases it's absolutely unnecessary because it's not at all difficult to fix the probelm yourself. All you need to do is perform some simple hard drive optimization and maintenance.

Compress files and directories

Modern versions of Windows use NTFS file system, which is a lot more efficient than the previous FAT16 and FAT32. On top of that, NTFS has some very useful built-in features. NTFS file compression is one of them. Unlike .zip and .rar compression, this

compression feature leaves the files in their native format, but forces them to occupy a smaller space on the hard drive. And today's powerful processors ensure that decompression happens in less than a blink of an eye, which means that your files will snap open. The average compression factor is 1.6/1, although with some files you'll get a 10/1 or even 50/1 compression factor. Some files, like .jpg image files, can't be compressed. In any case, using NTFS compression will save disk space and improve hard drive performance. Keep in mind that if you have an SSD drive, you shouldn't use NTFS compression, as it will only slow things down and jeopardize stability.

To experience the maximum performance increase, you'll need to compress the following directories:

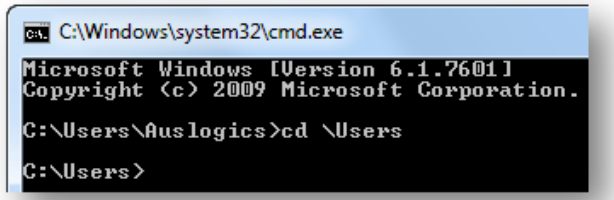
- **Users** (**Documents and Settings** in **Windows XP**)
- **Program Files**
- **Program Data** (**Windows Vista** and **Windows 7**)
- **Windows**
- All your **.exe** and **.dll** files

NTFS file compression is done through the Command Prompt with a simple command: **compact /c /s /i**. Before you open the Command Prompt, make sure that you are logged in as administrator.

OK, let's get started!

1. Click on **Start**, type **cmd** in the **Search** box (**Run** box in Windows XP) and press **Ctrl+Shift+Enter**

2. In Windows Vista and Windows 7, type **CD \Users** and press **Enter** to change the directory. If you are on Windows XP, type **CD \Documents and Settings** and press **Enter**



3. Now type the compression command **compact /c /s /i** and press **Enter**

   Depending on the amount of files and their size, compression can take something like 10 to 20 minutes.

4. When that's done, do the same for Program Files by typing **CD \Program Files**, pressing **Enter** (**CD \Program Files (x86)** for 64-bit systems), typing **compact /c /s /i** and hitting **Enter** for the second time. Again, this could take a while.

5. And now we'll do the same for the Windows directory. To do that, type **CD \Windows,** then press **Enter** to change the directory and then type the compression command **compact /c /s /i** and press **Enter**. Wait for the compression to complete.

6. Then we are going to compress all .exe and .dll files. To do that, type **CD** and press **Enter** to change the directory to **C:\>**. Then type the **compact /c /s /i *.exe** command, press **Enter**, and when it's done, issue the **compact /c /s /i *.dll** command and press **Enter**. Wait for it to complete.

When everything is done, you'll need to make sure that files that were in use and couldn't be compressed will be compressed. You will need to reboot your computer into Safe Mode and repeat steps 1-6 in **Safe Mode**. To enter Safe Mode, restart your PC and keep tapping F8 until the option to boot in Safe Mode appears. Select the option and proceed. When the compression is finished, reboot your computer once again, keep tapping F8 and enter Normal Mode.

NTFS compression will make the files in the compressed directories occupy 2/3 of the original space and your hard drive will open them faster. This should give you a bit of a performance increase. But the main performance boost comes from defragmenting your hard drive and optimizing system files placement.

Defrag your hard drive

When your Windows PC starts taking longer to open files and launch applications, the first thing you should do is defragment your hard drive. But before we proceed with defragmentation, let me explain why your hard drive becomes fragmented in the first place.

All Windows-based computers suffer from disk fragmentation, a phenomenon that occurs because of how Windows saves new data. When you create a new file, download something from the Web, or simply edit a Word document, Windows doesn't save the new data as a whole, but rather splits it into little pieces and fills available bits of free space on the hard drive. As a result, the newly

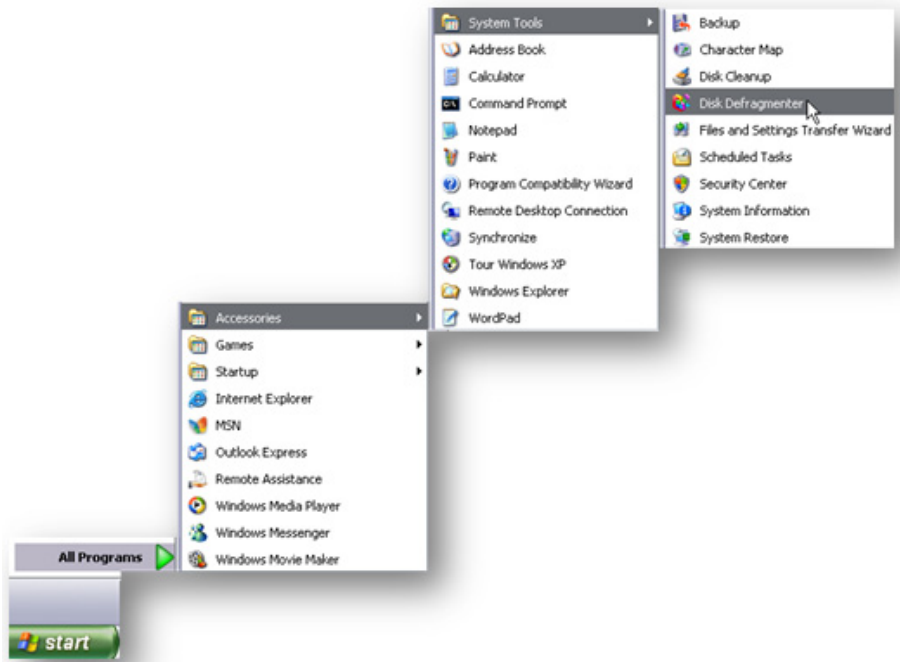
saved data becomes fragmented. And when you delete files, free space becomes fragmented, which eventually causes data fragmentation. It's this simple.

When Windows needs to access a fragmented file, the hard drive read/write heads have to move all over the disk to collect all the fragments of the file you want to open. Naturally, this takes a lot longer than simply opening a non-fragmented file in one smooth read movement. Fragmentation also decreases the lifetime of your hard drive, since it has to work more and harder.

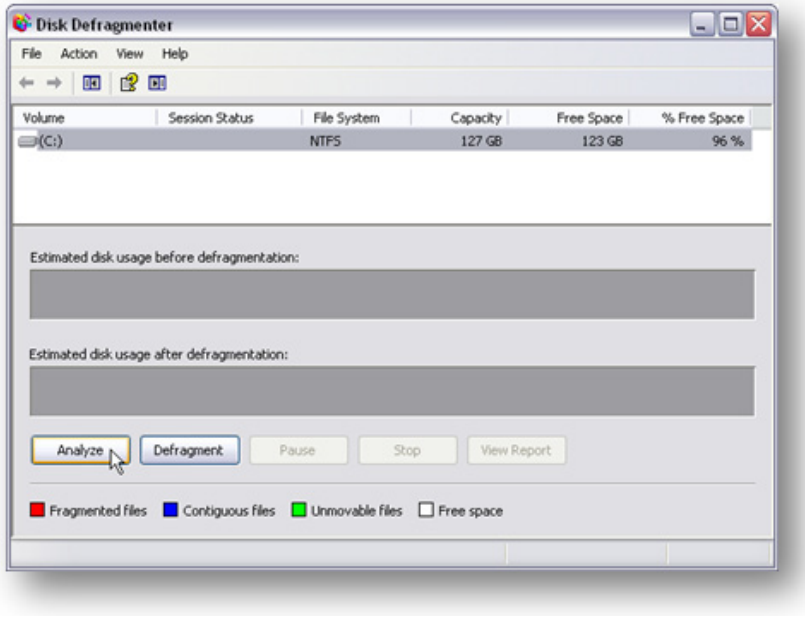
The solution is to run disk defragmentation on a regular basis, like once a week. All versions of Windows have a built-in Disk Defragmenter and the Windows 7 one is even scheduled to run once a week right out of the box. Here is how you can launch disk defragmentation:

Windows XP:

1. Click on the **Start** button and go to **All Programs**
2. Navigate to **Accessories** and then go to **System Tools**
3. Launch the **Disk Defragmenter**



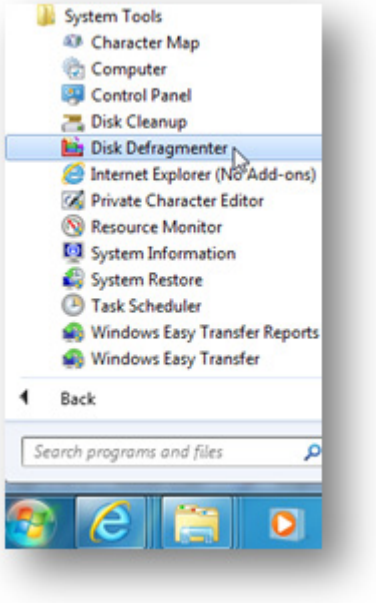
4. Click on the **Analyze** button and let the tool analyze your drive. If the fragmentation level is significant, you will be prompted to defragment your drive

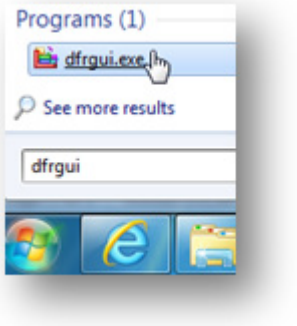


5. Click on the **Defragment** button to defragment your hard disk.

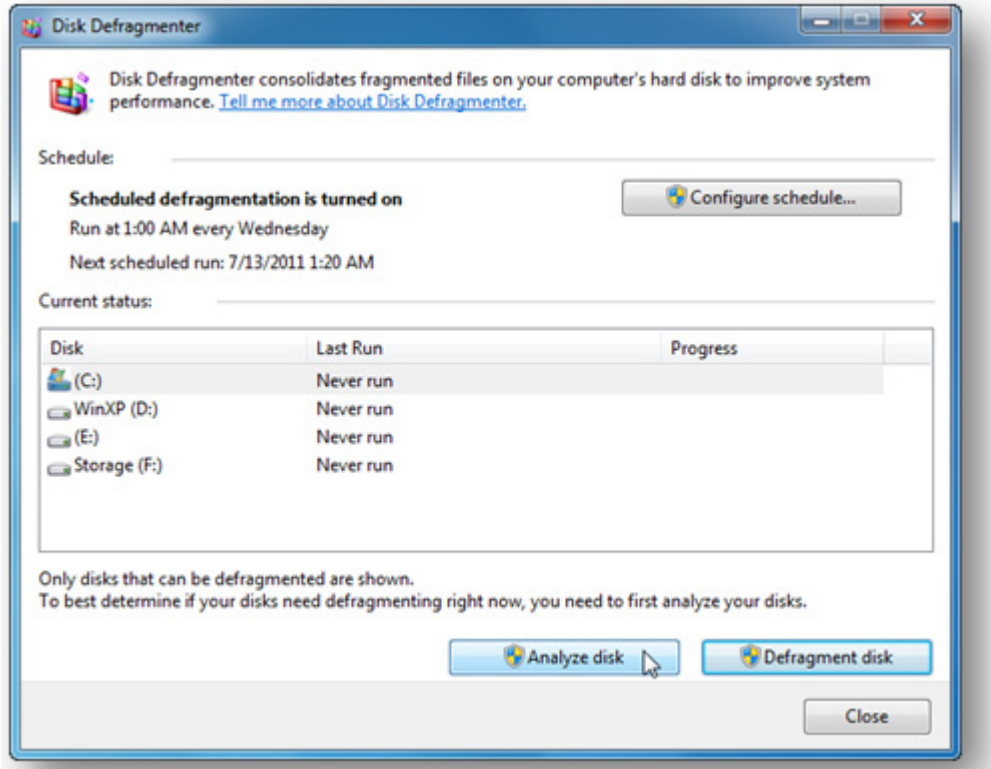
Windows 7:

1. Click on the **Start** button and click on **All Programs**
2. Go to **Accessories** – **System Tools**
3. Select **Disk Defragmenter**. Alternatively simply click on **Start**, type **dfrgui** in the Search box and press **Enter**





4. Select a disk and click on the **Analyze disk** button to find out how much fragmentation there is. Defrag if it's above 10%

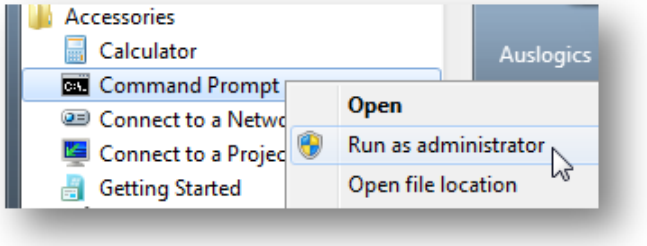


5. To defragment a disk, select it and click on the **Defragment disk** button. Depending on the fragmentation level, defragmentation may take from something like five minutes to a couple of hours.

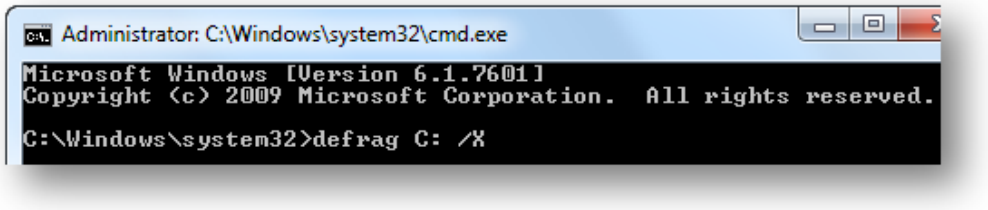
This will only defragment your files, but your free space will stay fragmented. So if you want to prevent further fragmentation, it's good to run the Windows 7 Disk Defragmenter from the command prompt with the free space consolidation option enabled. Here is how you can do it:

1. Click on **Start**, go to **All Programs** and then to **Accessories**

2. Right-click on the **Command Prompt** and select **Run as administrator**
   Alternatively you can click on **Start**, type **cmd** in the search box and press **Ctrl+Shift+Enter**



3. Now type the following command: **defrag C: /X**. C: is the drive letter you want to defrag and X is the switch for the free space consolidation option.

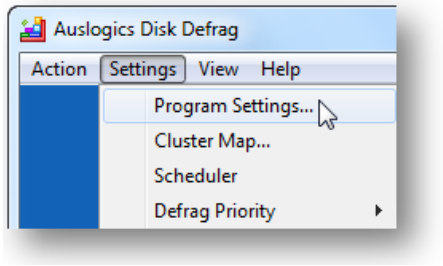


There is no doubt that the Windows 7 Disk Defragmenter is a lot better than the XP or Vista one, but it still doesn't do much in terms of disk optimization. For example, it doesn't optimize system files placement. And that's not good because files placement can affect hard drive performance as much as fragmentation, if not more. You see, the outer tracks of a hard drive are a lot faster than the inner tracks. Therefore, it makes sense to put frequently accessed data, such as system files needed at boot-up, to the faster tracks. This will make your computer launch a lot quicker than if those system files were scattered all over the place.

Windows doesn't have a tool to optimize file placement, but there are free third-party programs you can use.
Auslogics Disk Defrag is a really good one. It can defragment both files and the free space, as well as optimize your hard drive

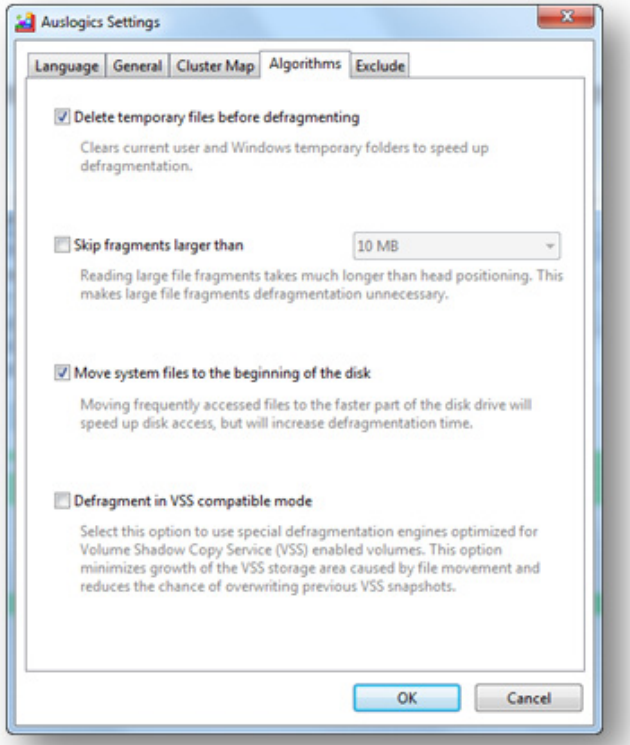
and move system files to the faster tracks of the disk. Here is how you can optimize your disk with this tool:

1. Open **Auslogics Disk Defrag**, click on **Settings**, go to **Program Settings**



and then to the **Algorithms** tab

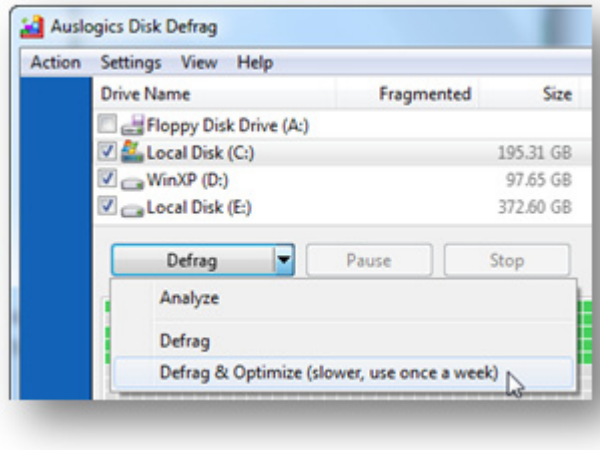
2. Check the **Move system files to the beginning of the disk** checkbox



3. I also recommend checking the **delete temporary files before defragmenting** checkbox, as these files are junk that clutter your hard drive

4. Click **OK** to close the **Settings** window

5. Now select the drive you want to defragment and optimize, and select **Defrag & Optimize** from the drop-down menu



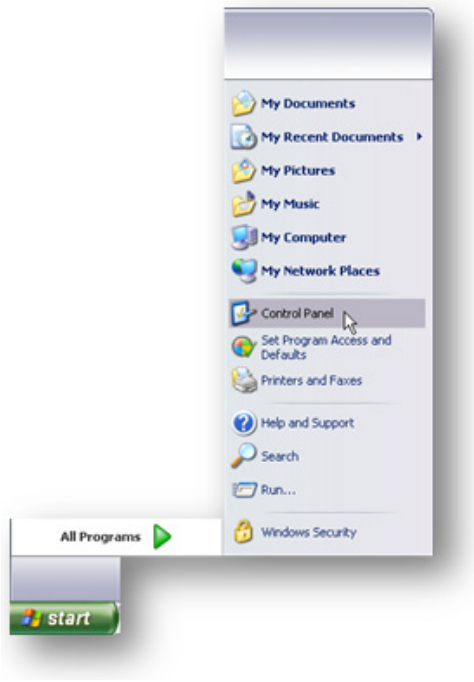
Selecting **Defrag & Optimize** will activate a special algorithm that sorts files and folders and then intelligently distributes them across the hard drive. For example, frequently accessed system files are moved to the faster tracks of the hard drive and large user files (like your videos) are moved to the slower tracks. This technology makes hard drive usage more efficient and improves overall system speed.

Schedule Disk Defragmenter to run automatically

If you don't want to keep remembering to run disk defragmentation, you can schedule it to run automatically – it's easy enough on all Windows versions.

Windows XP:

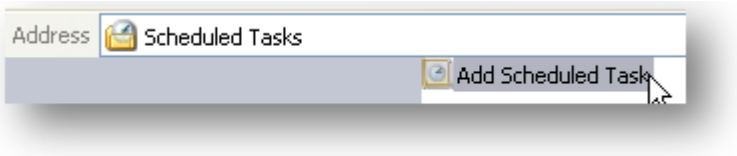
1. Click on **Start** and go to the **Control Panel**



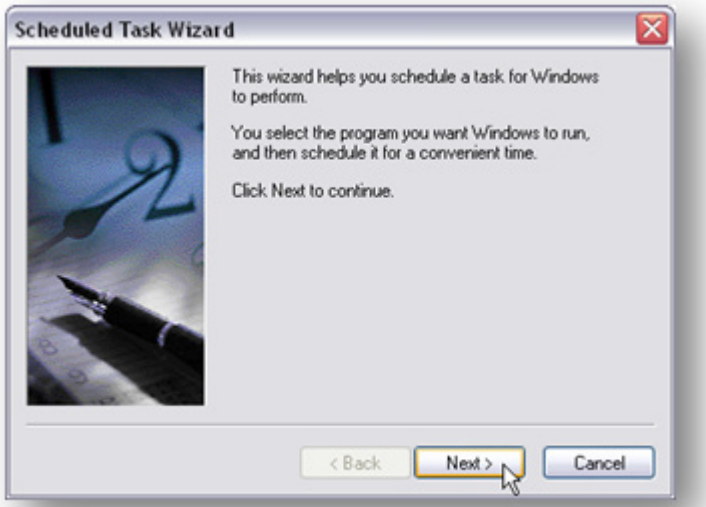
2. Click on **Performance and Maintenance**

Then go to **Scheduled Tasks**

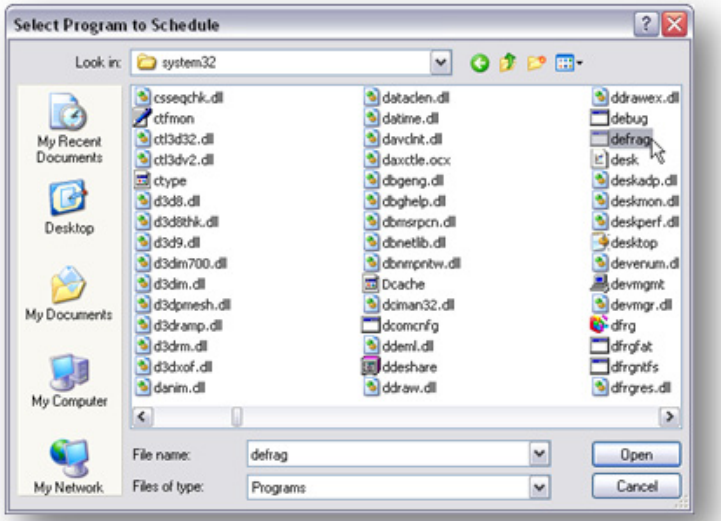
and double-click on **Add Scheduled Task**



3. The Schedule Tasks Wizard will open. Click **Next** to continue



4. Click on **Browse** and navigate to the **Windows** - **system32** folder



5. Select **defrag.exe** and click **Open**

6. Now name the new task, for example **Disk Defrag**

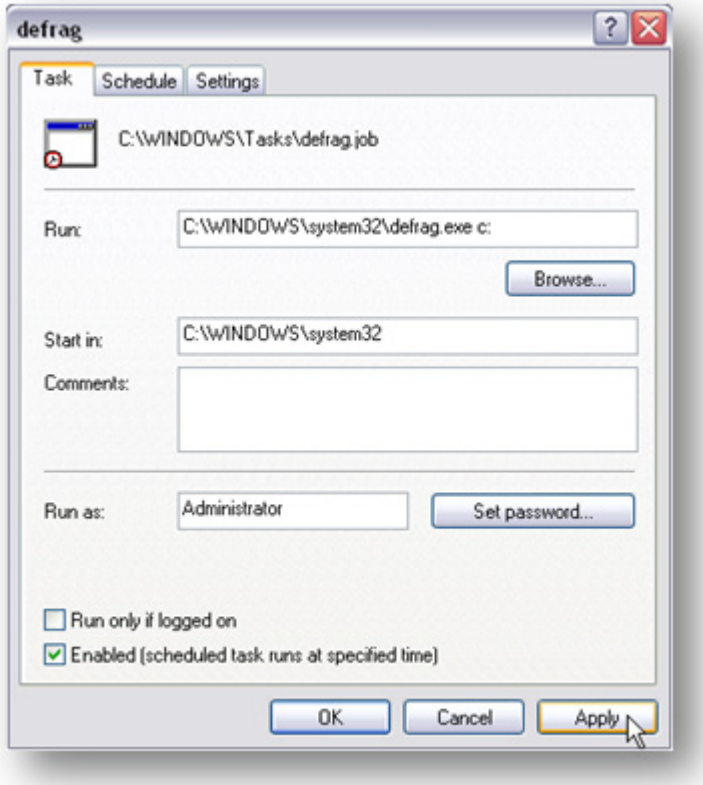
7. Select how often you want the task to run under **Perform this task**. Once a week is enough. Click **Next**

8. Now select the time when you want disk defragmentation to start. A good time is when your computer is running, but you are not using it

9. Verify your settings and check the **Open advanced properties for this task when I click Finish** checkbox. Click **Finish**

10. Type **c:** in the run box after **C:\WINDOWS\system32\defrag.exe**. Make sure there is a space between **.exe** and **c:**

11. Click **Apply**, then click **OK**.



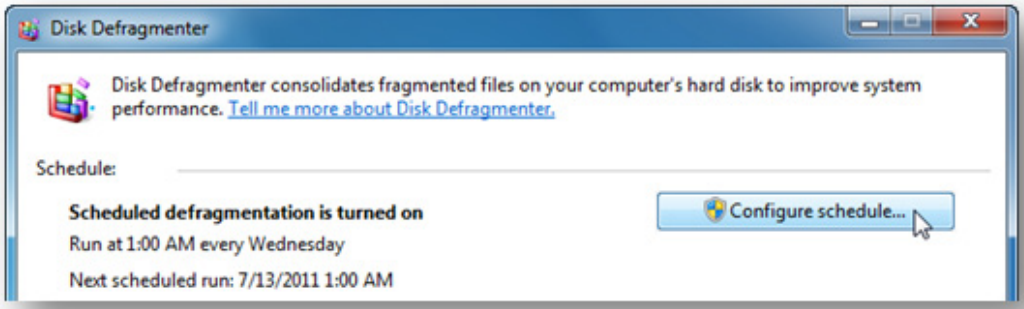
Phew, that was quite a process, wasn't it?!

Windows 7:

Windows 7 automatically sets Disk Defragmenter to run on schedule every Wednesday at 1 a.m. Not the best time in my opinion. Don't know about you, but my computer is usually switched off at that time of night. So, if 1 a.m. on Wednesdays doesn't suit you either, you can modify the schedule. Here is how:

1. Open **Disk Defragmenter** (type **defrag** in the Search box and press **Enter**)

2. Find the **Configure schedule** button and click on it

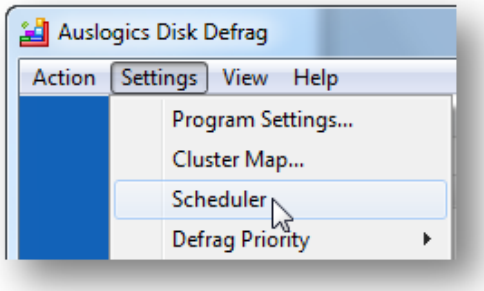


3. Now you can either disable the scheduled task by unchecking the relevant box or modify the schedule to your liking

4. When finished, click **OK** and you're done

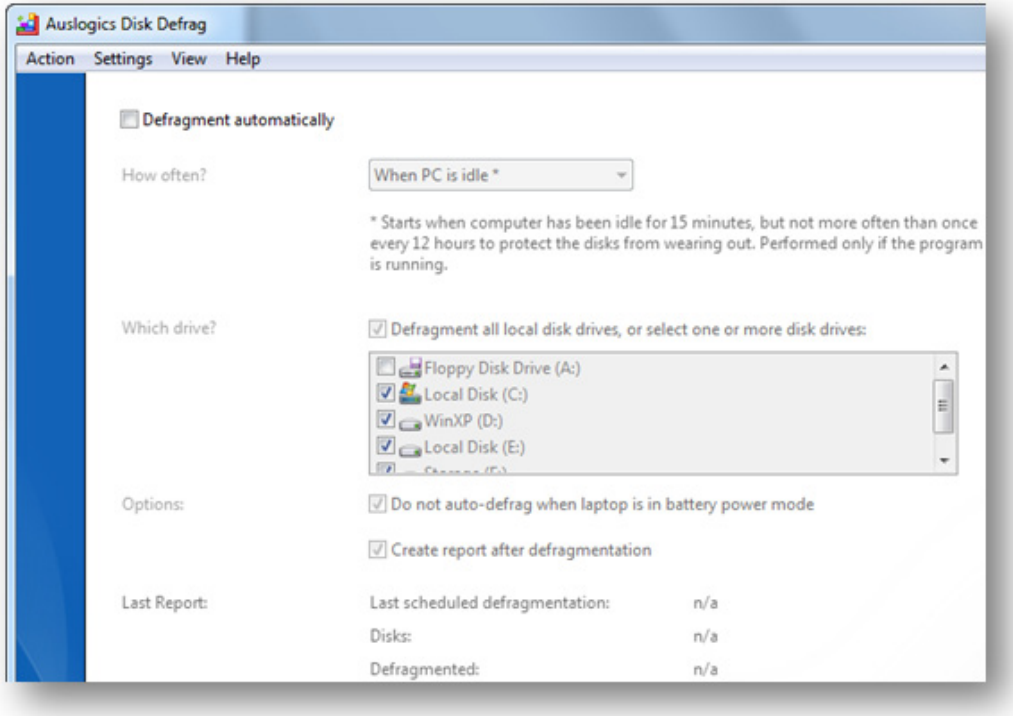
Auslogics Disk Defrag

If you prefer using a third-party defragmentation utility, such as **Auslogics Disk Defrag**, you should disable scheduled defragmentation in Windows 7 and create a scheduled task with Disk Defrag instead. It's easy enough:



1. Open **Auslogics Disk Defrag**, click on **Settings**, and then go to **Scheduler**

2. Check the **Defragment automatically** checkbox and specify how often you want defragmentation to run



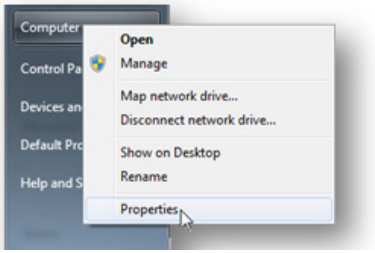
3. Check the drives you wish to schedule defragmentation for

4. Click **OK** and you're done.

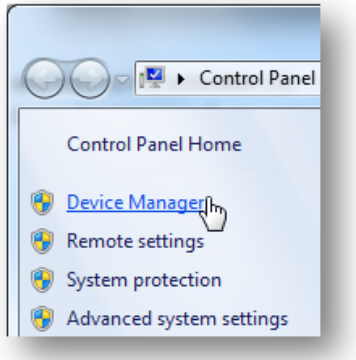
Enable advanced disk performance (Windows 7)

One more way to speed up your SATA hard drive and improve overall Windows 7 performance is to enable write caching. Be careful, though, and only enable this option if you have a UPS and there is absolutely no risk of power cuts. Otherwise you can lose your data. To enable advanced disk performance, do the following:

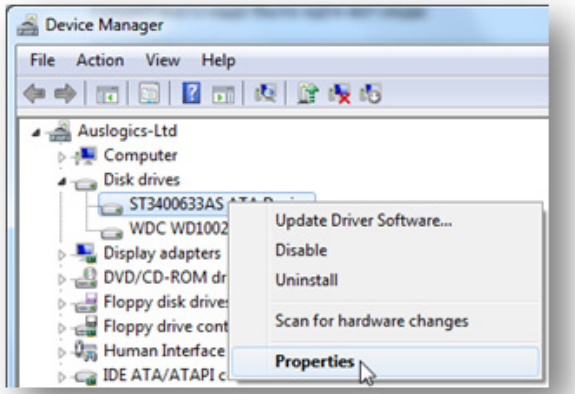
1. Click on **Start**, right-click on **Computer** and go to **Properties**



2. Click on the **Device Manager** on the left-hand side

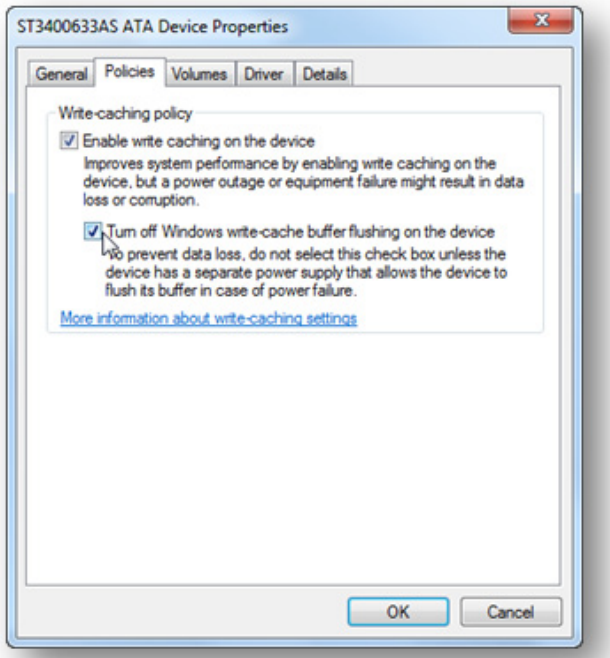


3. Open the **Disk drives** section, right-click on your hard drive and select **Properties**



4. Go to the **Policies** tab

5. Check **Enable write caching on the disk**



6. Click **OK** and you're done.

Now your hard drive should perform a lot better. But how about giving your PC a real boost by installing an SSD drive? We'll discuss the benefits of SSD in the next chapter.

CHAPTER
11

A Bicycle or a Ferrari?
Install an SSD for the Maximum Performance Gain

These days SSDs (Solid-State Drives) are getting more and more attention. Advanced computer users recommend switching to SSDs and a lot of manufacturers have already stopped installing conventional spinning disks on their latest models. They now offer lighter, thinner and faster laptops with SSD storage. But should you upgrade to SSD, what's in it for you and are there any drawbacks? Let's find out!

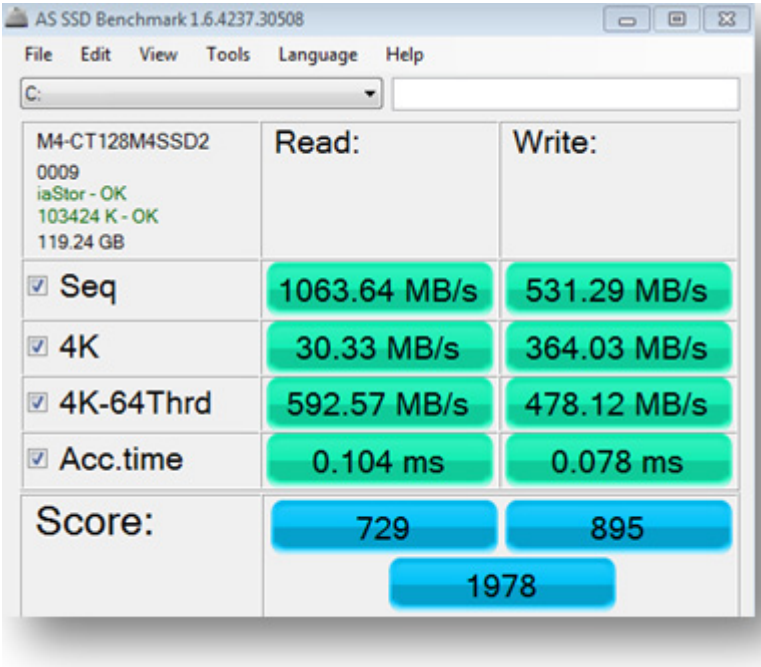
What is an SSD?

Basically, a solid-state drive (SSD) is a data storage device that uses solid-state memory to store data. SSDs have the same purpose as conventional mechanical hard drives, but there is one crucial difference – they are electronic devices and don't have any mechanical parts. Unlike HDDs, SSDs don't store data on spinning platters, but use flash memory instead.

As of 2010, most SSDs use NAND flash memory. More expensive SSDs (such as the ones used by businesses) use single-level cell memory (SLC), which is faster, more reliable and more expensive. A 1TB SLC solid-state drive can cost as much as a good used car with low mileage. As for consumer-oriented SSDs, they use multi-level cell memory (MLC) that is cheaper, a bit slower and a bit less reliable. But in any case, even MLC disks are a lot faster than magnetic drives and a lot more reliable, too.

SSD benefits

SSDs have a lot of benefits, but the two most important ones are speed and reliability. Compared to conventional hard drives, solid-state drives are a lot faster. In fact, some people experience a whopping 1,000 MB/sec read speed. Today, the fastest SSDs are SATA 6.0 GB/sec.



HDDs are the most common performance bottlenecks on any system. Why? Simply because unlike RAM and CPU, hard drives have mechanical moving parts. This means that every time you need to open, save, modify a file or do anything else, the disk needs to spin. Worse still, things like file fragmentation can dramatically reduce HDD speed. As for SSDs, fragmentation doesn't affect their speed because they can simultaneously grab bits of information from anywhere on the drive. To cut a long story short, comparing an HDD and an SSD from the speed perspective is like comparing a bicycle and a Ferrari. So, if you want a big performance gain – switch to SSD storage.

Another major SSD benefit is reliability. Unlike HDDs, solid-state drives don't suffer from shock or drop damage. This is especially important for people who travel frequently (like myself). The number of times my heart skipped a beat when my laptop bag got handled quite unceremoniously by airport security staff! Now that I've switched to SSD storage, I don't have to worry so much.

Here are some additional benefits of switching to SSD:

- Increased battery life
- Less noise, heat and vibration
- No need to run disk defrag using traditional HDD defragmenters ever again

However, SSDs have some disadvantages.

SSD disadvantages

Don't get me wrong, I am an SSD fan. Nevertheless, there are some disadvantages that can't be overlooked.

The most noticeable disadvantages of SSDs are limited storage capacity (compared to traditional hard drives) and high price per GB. You can buy a 1TB hard drive for something like $100, whereas a 128GB SATA 6GB/sec SSD drive costs around $200. A significant difference, isn't it?

Also keep in mind that the more storage space an SSD has, the more expensive it becomes because the price per GB never changes. That's why a lot of people still prefer having traditional hard drives, especially if they store a lot of files.

Another disadvantage of SSD drives is that each flash memory cell on an SSD can endure only so many write cycles. This means that if you subject your SSD to heavy use, its data retention will be shorter than with conventional hard drive. That's why you should think twice when writing to an SSD. And that's one of the reasons why it's not a good idea to defrag solid-state drives, as defragmentation means unnecessary data writes to the disk.

Luckily, SSD manufacturers are doing all they can to maximize SSD lifetime. They implement various firmware schemes to load-level SSDs and use TRIM technology to maximize the life of a solid-state drive.

In any case, SSDs are not likely to become unusable on a typical home system any time earlier than an HDD will experience a fatal crash. So the nature of flash memory and the limited (in theory) amount of write cycles shouldn't put you off buying an SSD.

How to maximize SSD performance

SSDs are very fast right out of the box, but there are a few things that you can do to make them perform even better and increase their lifetime:

- Use the latest firmware – make sure you update your SSD's firmware before you start using it. Updating the firmware will ensure top performance and support for the latest OS features. Updating firmware can require a drive format, so make sure your data is backed up.
- Enable AHCI – make sure Advanced Host Controller Interface (AHCI) is enabled in the system BIOS. Using outdated IDE or ATA modes will reduce the performance of your solid-state drive. For instructions on how to enable AHCI, refer to ch. 9.
- Do not use NTFS compression for frequently used folders, as it decreases SSD performance.
- In case of a clean installation, do not disable anything, as Windows 7 will configure everything better than you would.

In my opinion, SSDs are worth every penny you pay for them, because the performance gain is tremendous. So, if you have the extra cash, **get an SSD** and enjoy the speed.

CHAPTER

12

The Latest and the Greatest

Keep Your Computer Fully Patched

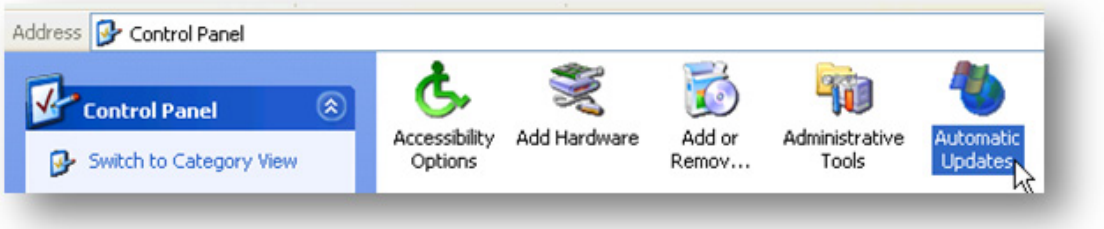
This might sound pretty trivial, but there is one golden rule when it comes to computer maintenance – keep everything up-to-date. Literally everything, from your hardware to every single software application. Why? Because technology keeps evolving and there are constant upgrades and improvements. Not to mention operating system and software security patches that can be issues as frequently as once a week.

Naturally, you can't upgrade your hardware as soon as new technologies become available – that will cost a fortune and it doesn't really make much sense. However, I strongly recommend upgrading your RAM if your computer has the capability and migrating to an SSD drive to get an unmatched performance boost.

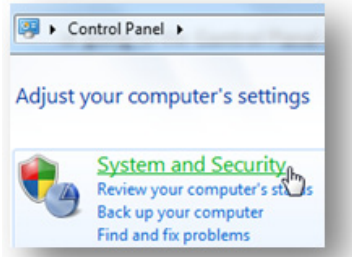
Another thing you should do is make sure that your operating system, drivers, and software are always up to date. The performance increase might be insignificant, but other benefits are huge. Keeping your operating system updated will make it more stable and

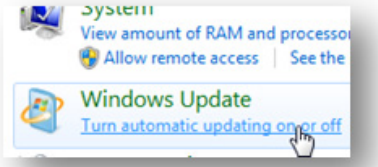
secure, help to eliminate compatibility issues, and even prevent crashes. Same goes for keeping your drivers up to date.

A lot of computer-related articles recommend enabling automatic Windows update and letting it do all the work for you. Indeed, this is the best solution for less experienced users who have unlimited broadband. You can check whether your Windows update is set to Automatic by going to the **Control Panel** and opening **Automatic Updates** in **Windows XP**

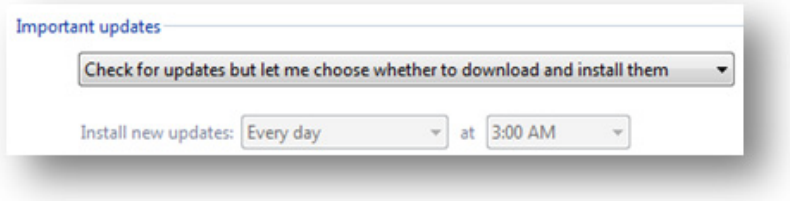


or going to the **Control Panel** and opening **System and Security** – **Windows Update** – **Turn automatic updating on or off** in **Windows 7**





However, if you don't have unlimited broadband and want to control when Windows downloads and installs updates, I recommend configuring your Windows Update settings to notify you of any available updates, but let you decide when to download and install them.



In addition to having automatic updates enabled, it's always good to check Microsoft's website once in a while for anything you might have missed.

Update your drivers

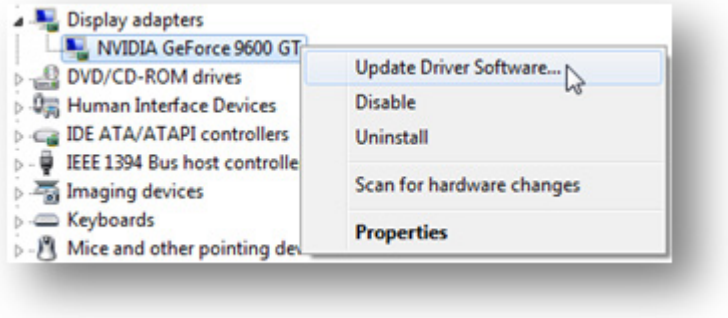
Keeping your hardware drivers up-to-date is essential for stable and flawless computer performance. Outdated drivers can cause various conflicts and result in severe performance degradation. Luckily, it's very easy to update your drivers.

1. Open the **Device Manager**. To do this, press the **Windows** + **Pause/break** key to open **System Properties** and click on the **Device Manager** link

2. Check your devices for driver conflict signs (if any) and check the driver versions by right-clicking on the device and going to **Properties**

3. Go to the manufacturers' website and download the latest drivers for your devices

4. In the **Device Manager**, right-click on the device you want to update and click **Update Driver Software…**

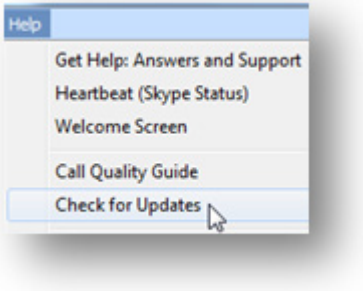


5. Specify that you will install the update from your hard drive (or search automatically)

6. Browse to the driver update file (**.inf** file) and click on **Open**

7. When finished, reboot your computer.

And last but not least, make sure that your software is always up-to-date. A lot of programs check for updates automatically, but you can always do it manually. Usually the **Check for Updates** feature is located in the program **Help** menu.



And now let's tweak the core database of your computer – the Windows registry.

CHAPTER
13

Is Your Windows Managed Effectively?
Cleanup and Defragment the Registry for an Extra Performance Boost

Have you ever heard of the Windows registry? Most computer users are familiar with the word "registry" simply because there are tons of registry cleaner adverts scattered all over the Internet. These adverts try to scare people into buying their registry cleaners by saying that they have thousands of errors in the Windows registry and that their tool is the magical cure for all known and unknown computer problems. Naturally, all these ads are no more than scareware, so don't panic and pay a hefty sum for a dubious piece of software. But there is some truth in these ads – the Windows registry does need to be kept clean and healthy if you want your Windows to run fast and error-free.

Before we start dealing with registry cleanup and defragmentation, let's learn a bit more about the Windows registry and what it does.

What exactly is the Windows registry?

It's no secret that Windows is a very complicated system that is capable of managing a huge number of operations at once. Like all complicated systems, it needs a central management database to make all these operations possible. And that's exactly what the Windows registry is – the core database within Windows that stores all the settings for every single bit of your hardware, software, and user profiles. No matter what happens on your computer, you can be sure that it gets recorded in the registry. Change your wallpaper – the registry gets updated, change your browser homepage – the registry reflects the change, install a new program – it writes its settings to the registry, uninstall it later on – the registry gets modified again.

The registry has a tree-like structure with its main branches called hives, small branches called keys and leaves called values.

The hives are:

- **HKEY_CLASSES_ROOT** - contains information about registered applications, including file associations and OLE object classes
- **HKEY_LOCAL_MACHINE** - contains most settings for your hardware, OS software, and third party applications
- **HKEY_USERS** - contains settings for all PC users
- **HKEY_CURRENT_USER** – contains all settings for the current user profile
- **HKEY_CURRENT_CONFIG** - contains settings for your PC's display and printers. The data in this hive is not permanently stored and is loaded every time you boot your computer

The registry gets accessed thousands of times per second, so it's no joke. A damaged or missing registry entry can wreak your PC and make it unbootable. So you definitely don't want to tamper with the registry using dubious software. But it does need to be cleaned.

Why you need to clean the registry

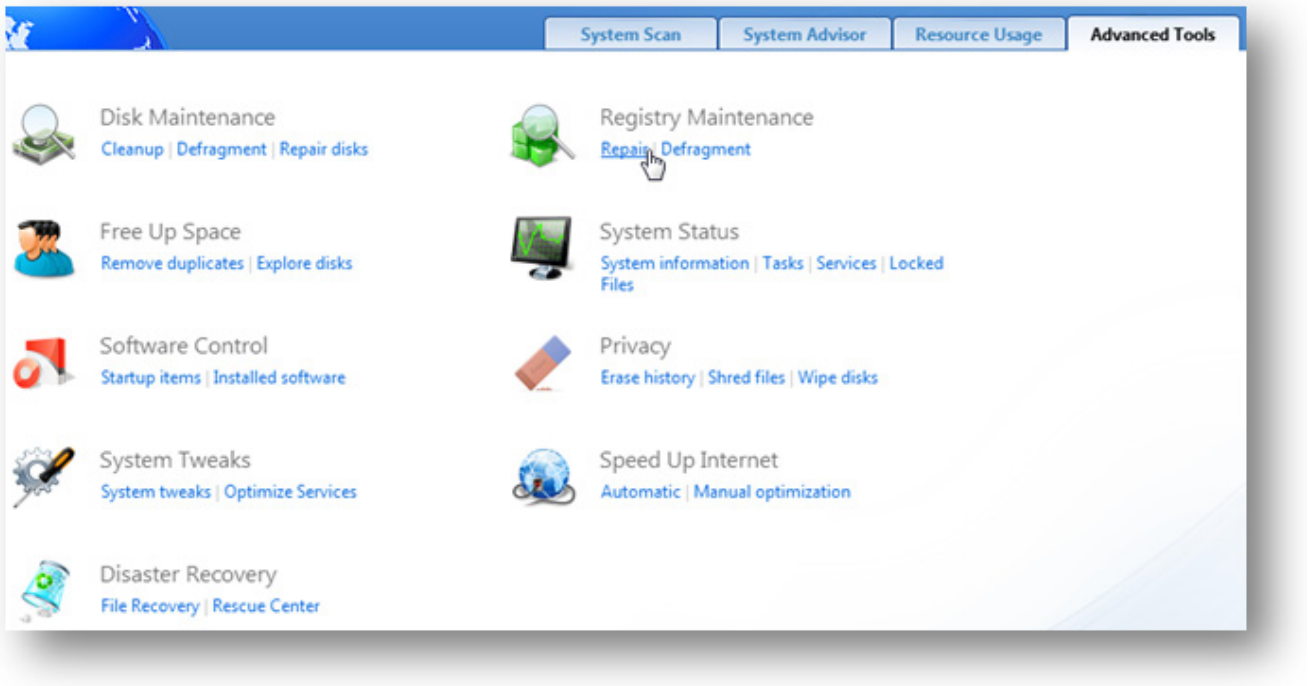
As you already know, everything you do on your computer corresponds with the registry and new values are constantly written to it. Unfortunately, the registry is not perfect and outdated entries accumulate over time. Worse still, some entries become obsolete and even corrupted. This is especially true if you install and uninstall a lot of software, since some applications don't clean up after themselves properly when they are uninstalled. Cleaning the registry will delete obsolete entries and attempt to fix the corrupted

ones, so that Windows won't have to go through the clutter when it's looking for various settings. The less time Windows needs to find the right settings in the registry, the faster it operates. That's how cleaning the registry speeds up computer performance.

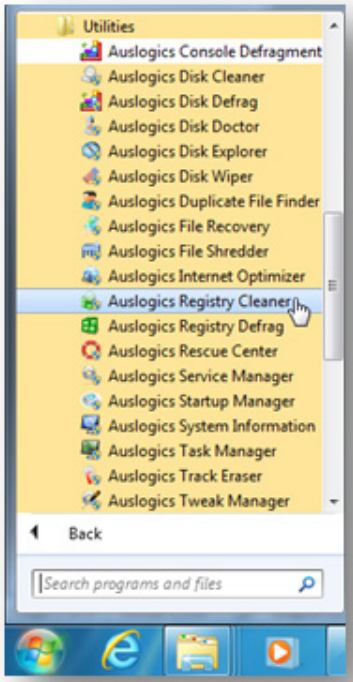
Don't ask me why, but Microsoft doesn't provide a built-in utility to clean the registry. This means that you will need to use a third party tool. Whatever you do, don't purchase any of the registry cleaners that claim to solve all computer problems because that promise can't be fulfilled. Programs like that usually damage your registry and load your computer with viruses. So, when looking for a registry cleaner make sure it:

- Has positive industry and user reviews
- Gives you a realistic number of errors (hundreds rather than thousands)
- Backs up the registry before applying any changes

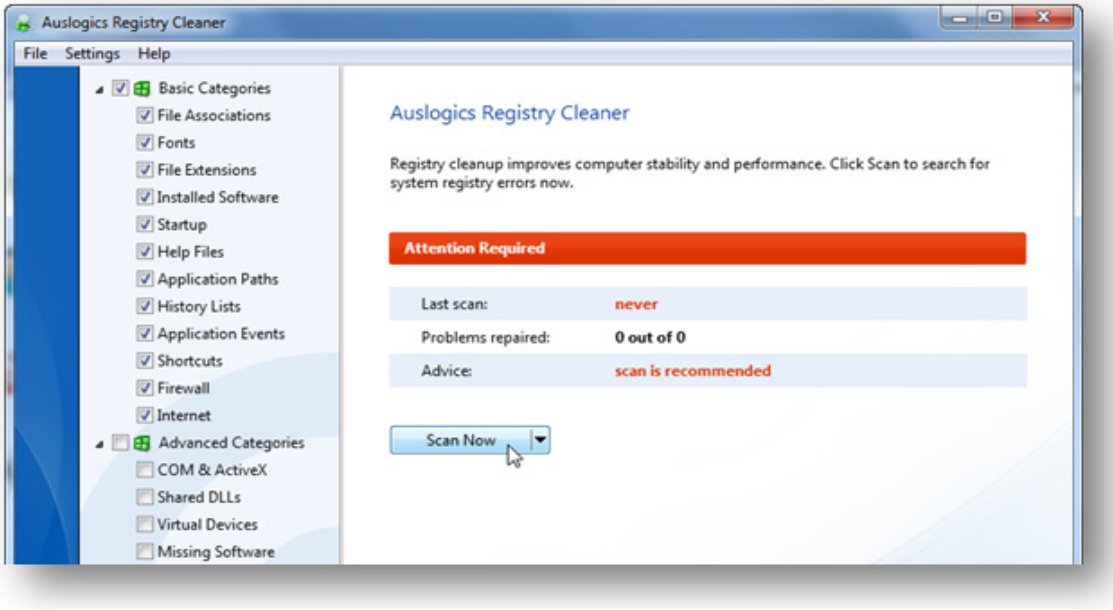
Auslogics Registry Cleaner is the tool that matches all these criteria. It's available as a module of **Auslogics BoostSpeed**, but can also be downloaded as a standalone free utility. Using this program is easy:

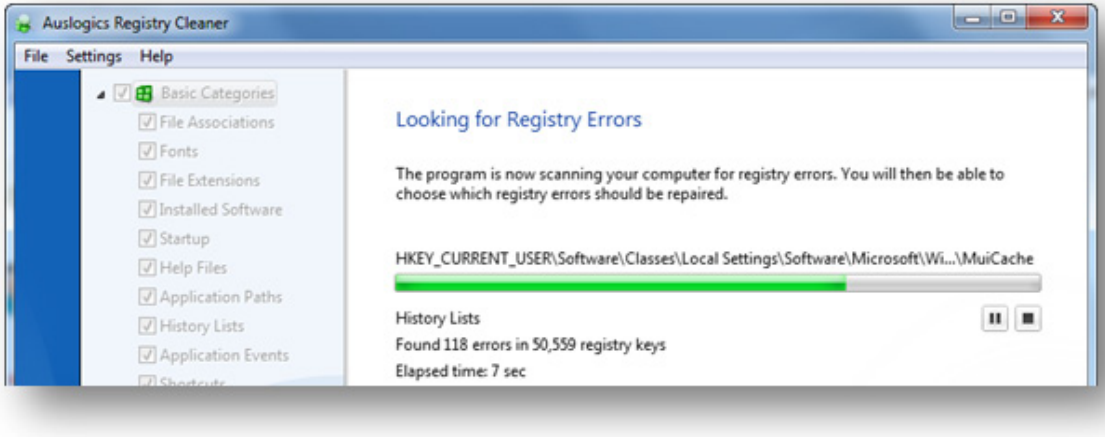


1. Launch **Auslogics Registry Cleaner** either from BoostSpeed's **Advanced Tools** tab by clicking on the **Repair** link under **Registry Maintenance** or through the shortcut in the Auslogics BoostSpeed Utilities folder or from your desktop if you are using the free standalone version

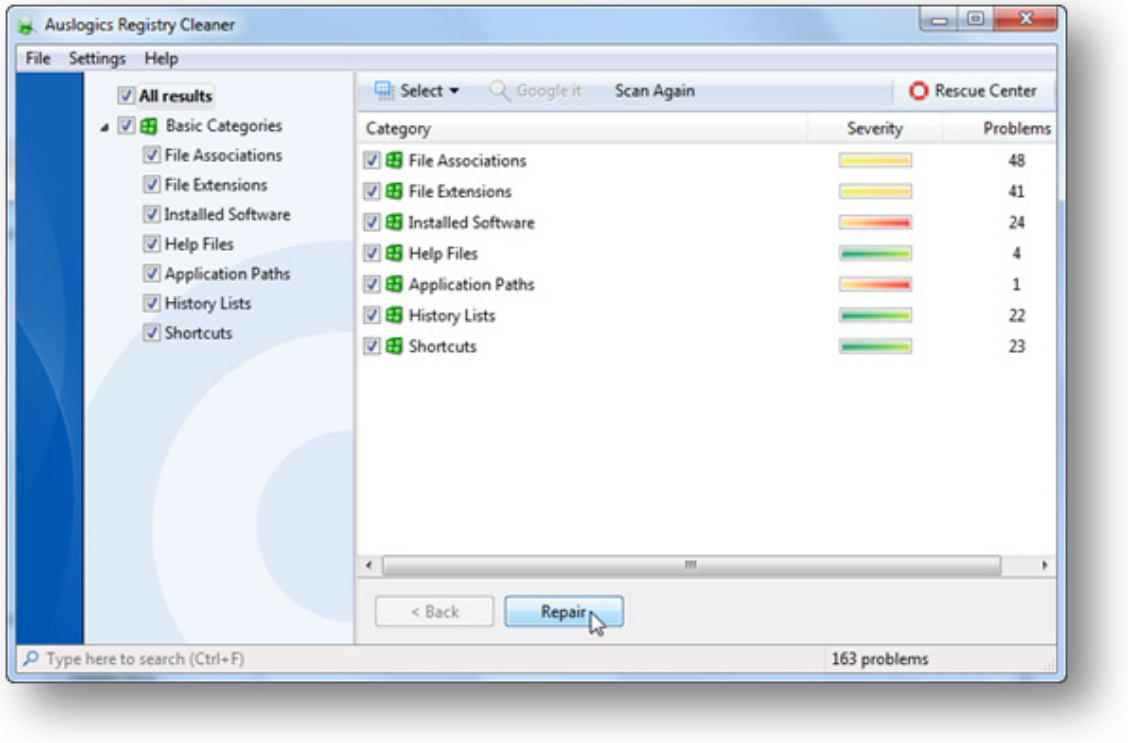


2. Click on the **Scan Now** button to scan the registry for errors





3. When the scan is finished, inspect the results by expanding the categories and, when you are ready, click on the **Repair** button to get rid of the errors.



Now your Windows registry is clean, but you still need to defragment it to get the maximum performance gain.

Registry defragmentation – the real performance booster

As you already know, the registry is altered every time software is installed or uninstalled, as well as when Windows configures settings. These constant changes cause the registry to grow in size. Registry cleanup does help a great deal, but it creates a new problem – registry fragmentation. This happens because deleting obsolete entries leaves blank bits of space within the registry. These bits of space don't get filled by new information and thus the registry becomes bloated and fragmented. As the registry loses its linear structure, it takes longer and longer for Windows to access it and your programs need longer to open.

And now the "best" bit – did you know that, unlike regular files, the registry is fully kept in your RAM? RAM is not nearly as large

as your hard drive, so you can imagine how badly a fragmented registry can affect computer performance. Compacting the registry will make it smaller and free up valuable RAM.

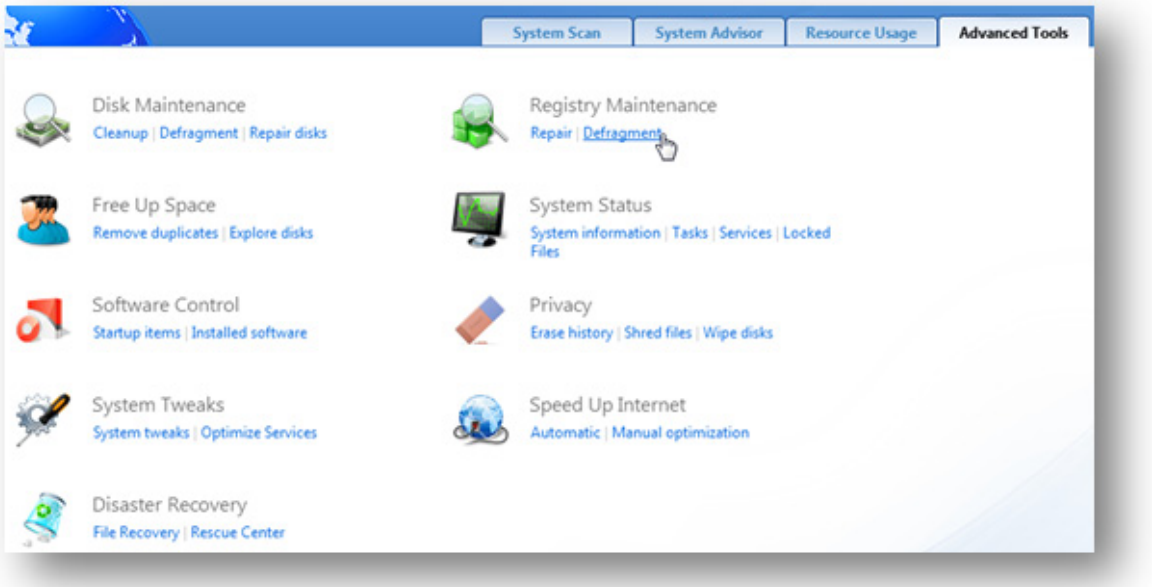
Just like with registry cleanup, you need a third party tool to do the job. When choosing a registry defragmentation utility, always make sure that it:

- Defragments the registry on Windows boot before the GUI and most programs are loaded. This allows to increase the accuracy of registry defragmentation, significantly reduce the size of registry hives, and thus speed up registry access. In addition to that, on-boot registry defragmentation minimizes the danger of damaging any registry keys and crashing the system
- Creates a System Restore point before making any changes
- Has positive industry and user reviews

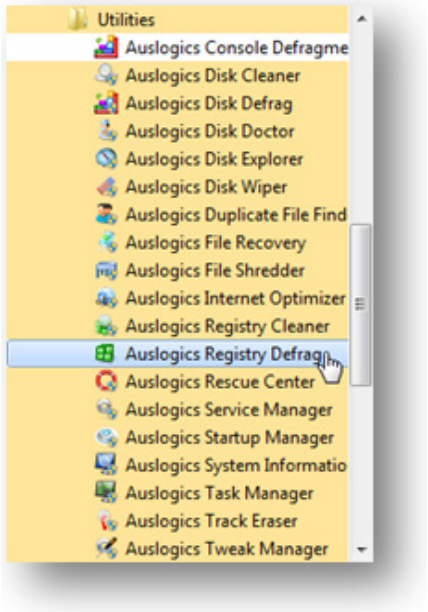
Auslogics Registry Defrag is the application that fits the bill. It's also very easy to use and doesn't lock the computer during the analysis phase. A lot of other applications do that and, to be honest, I don't feel comfortable when an application locks my PC.

To defragment the registry with **Auslogics Registry Defrag**, do the following:

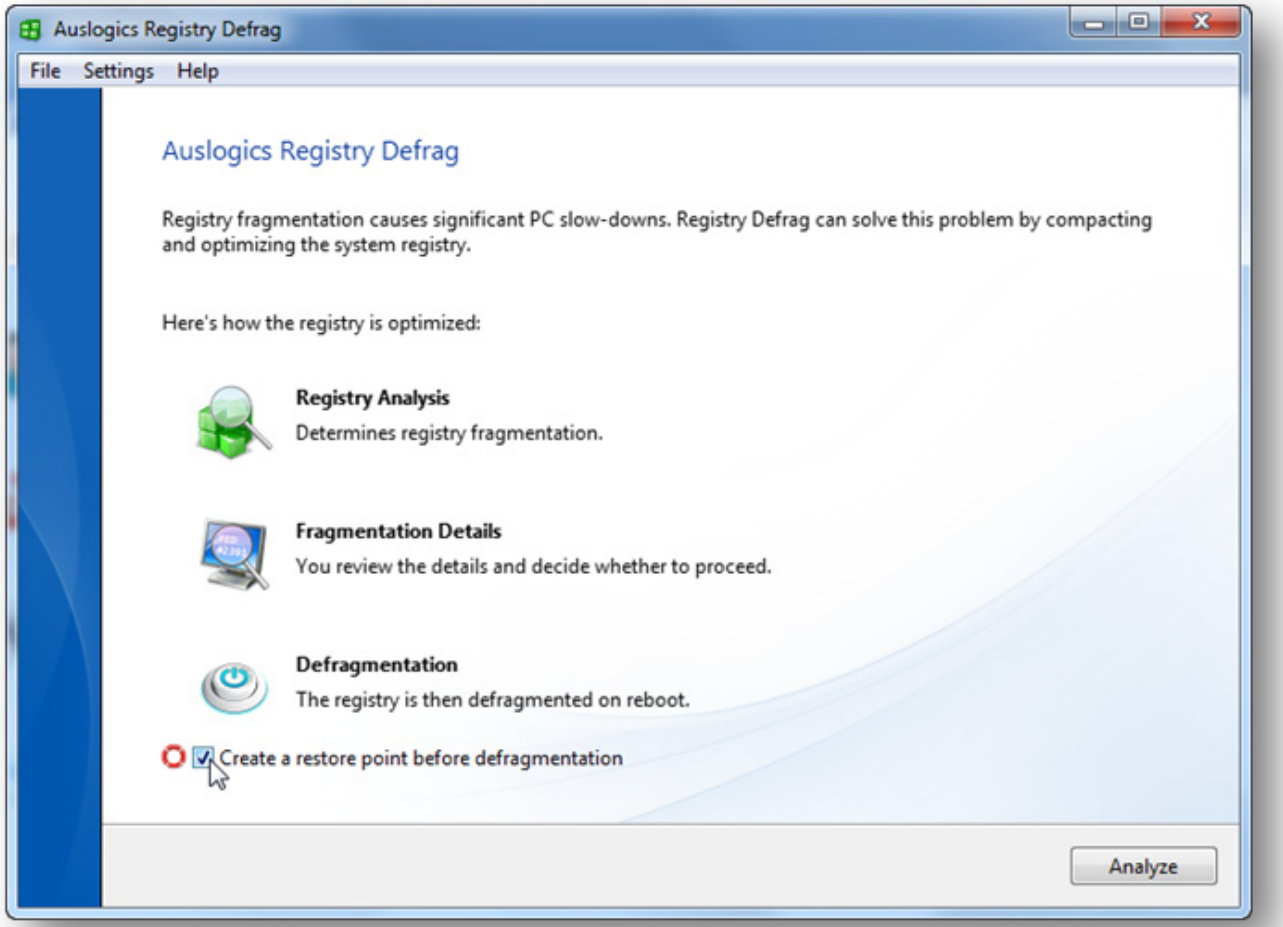
1. Launch **Auslogics Registry Defrag** either from BoostSpeed's **Advanced Tools** tab by clicking on the **Defragment** link under **Registry Maintenance**



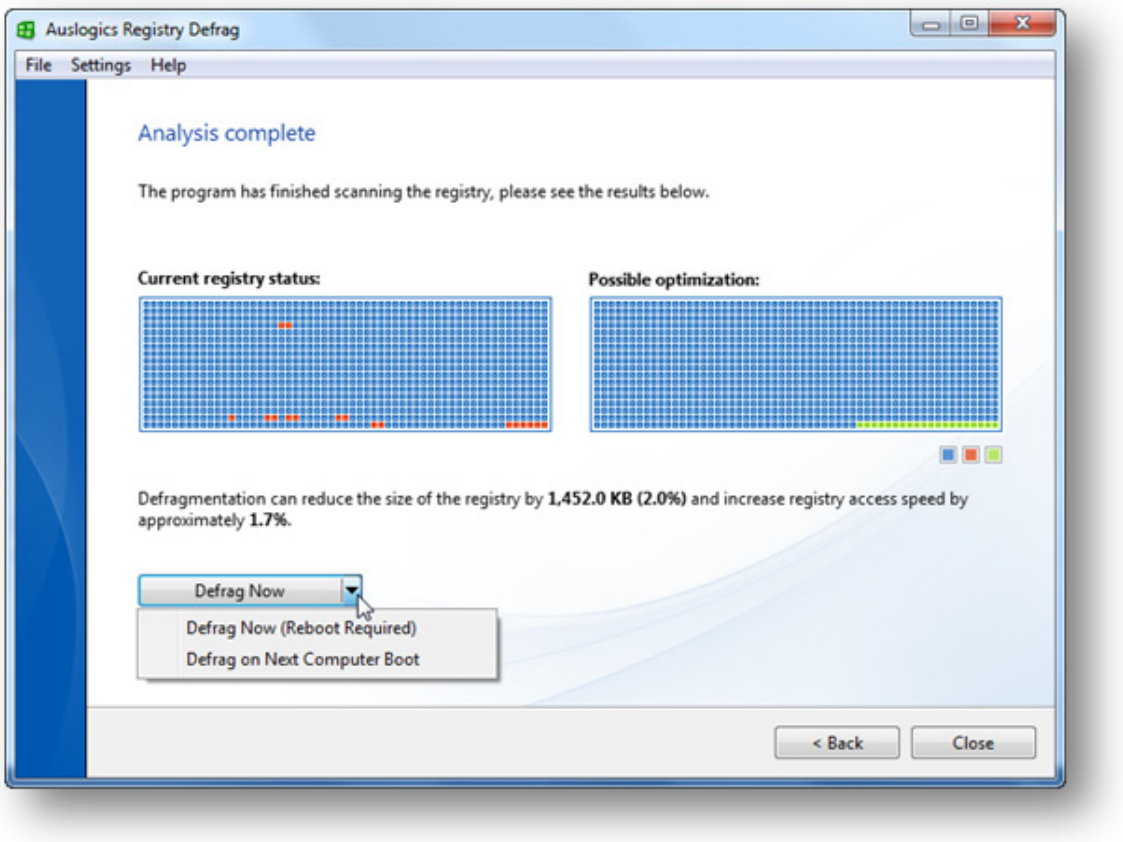
or through the shortcut in the Auslogics BoostSpeed Utilities folder or from your desktop if you are using the standalone version



2. Make sure the **Create a restore point before defragmentation** checkbox is checked and click on the **Analyze** button. The program will analyze your registry for fragmentation



3. If the registry is fragmented, you will be prompted to defragment. You can either defrag immediately by clicking on the **Defrag Now** button (this will make your computer reboot), or select **Defrag on Next Computer Boot** to schedule defragmentation for the next reboot



4. The Windows registry will be defragmented when you reboot your computer.

As you can see, performing registry maintenance is really easy when you have the right tools. Remember to run registry cleanup after uninstalling software and analyze the registry for fragmentation once in every two months. This will make your computer run a lot better.

CHAPTER
14

Slow and Bloated – Not a Good Combination
Speed Up Your Browser and Compact Your Mail

Don't know about you, but there is one particular thing that annoys me big time. That's a slow and unresponsive browser. I just hate it when the browser takes ages to load a page even on a high-speed fiber optic connection or worse - freezes on me. I'm sure you hate it as much as I do. Thankfully, it is possible to make your Web browser faster and more responsive with a handful of simple tweaks.

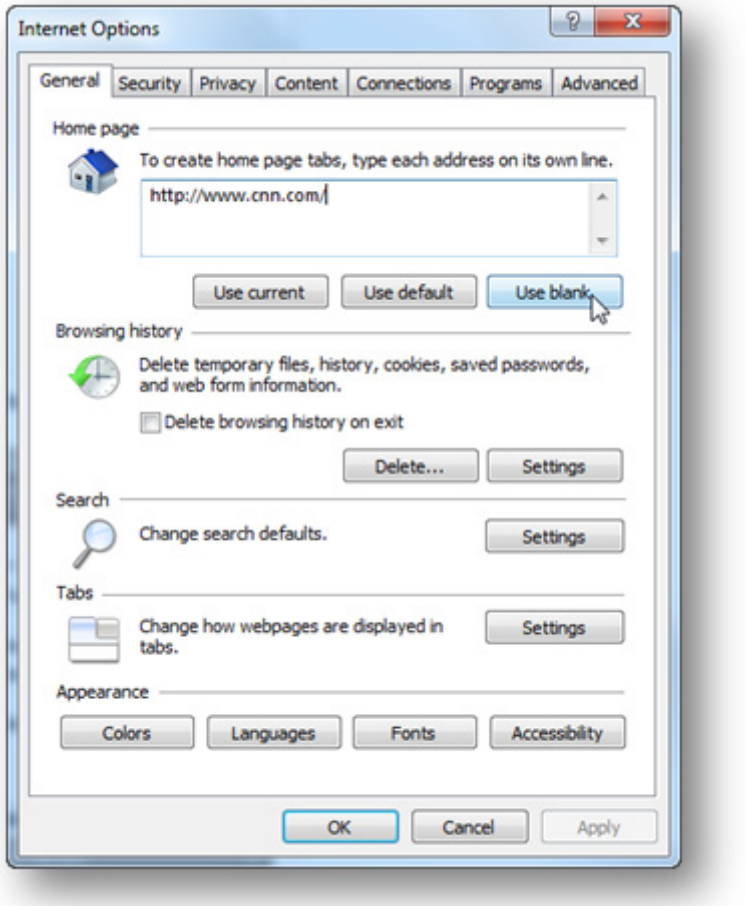
Internet Explorer

To tell you the truth, I was so annoyed with Internet Explorer that I had to ditch it long ago and start using Mozilla Firefox as my default browser. However, I still use Internet Explorer for websites that don't work with Firefox or Chrome very well (yes, there still are lame sites like that).

Thankfully, the newer versions of IE are better than the previous ones, and they can be tweaked and customized for better performance and usability. So, let's start tweaking!

Set your homepage to blank

If you don't always use a specific page when you open your browser, it's best to set it to blank. This will ensure that your browser snaps open. To change your homepage, go to **Tools** – **Internet Options**, find the item that refers to Homepage and select **Use blank**.

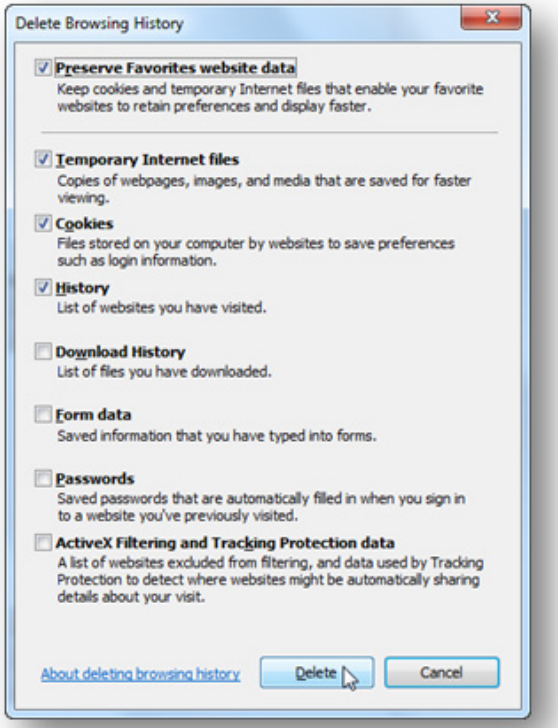


Manage your cache

Just like any other browser, Internet Explorer makes heavy use of the cache. The cache is where your browser stores Temporary Internet Files. These files get downloaded to your computer when you visit Web pages and are supposed to speed up browsing whenever you visit the same website in the future. Anyway, that's the theory. The reality is a bit harsher. While the cache is designed to speed up browsing, it can actually do quite the opposite and slow down Internet Explorer. On top of that, a bloated cache can take up tons of your disk space, which will decrease overall computer performance.

I've already described how to clean the cache in the PC cleanup chapter, but here is a quick reminder:

1. Open Internet Explorer and press **Ctrl+Shift+Del**
2. Check the relevant checkboxes. I recommend selecting **Temporary Internet Files**, **Cookies** and **History**. Deleting cookies and browsing history will help you protect your privacy by removing sensitive information about your computer usage. It will also free up some additional space

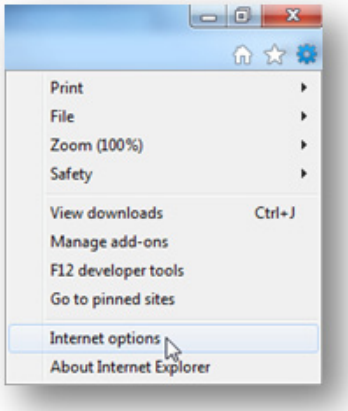


3. Click on the **Delete** button
4. Close the browser.

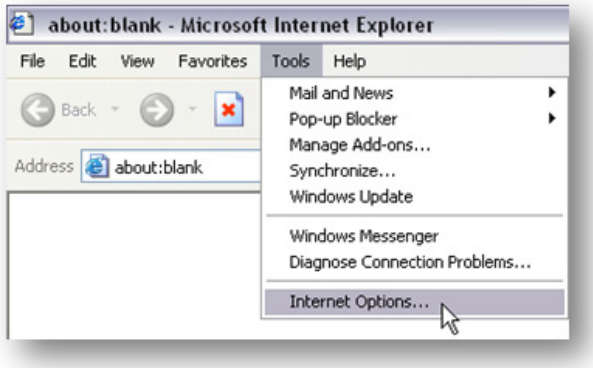
You can also configure Internet Explorer to delete Temporary Internet Files automatically every time you close the browser. This handy option is very easily enabled:

1. Open Internet Explorer and click on the **Tools** button and select **Internet Options**

Windows 7

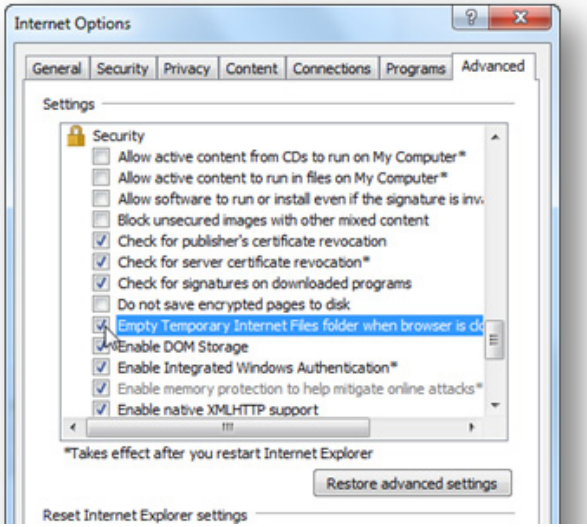


Windows XP



2. Navigate to the **Advanced** tab

3. Find the **Settings** list and scroll down to the **Security** section



4. Check the **Empty Temporary Internet Files Folder When Browser is Closed** option

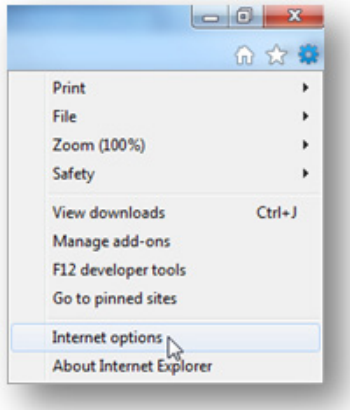
5. Click **OK** and you're done.

Decrease the size of your cache

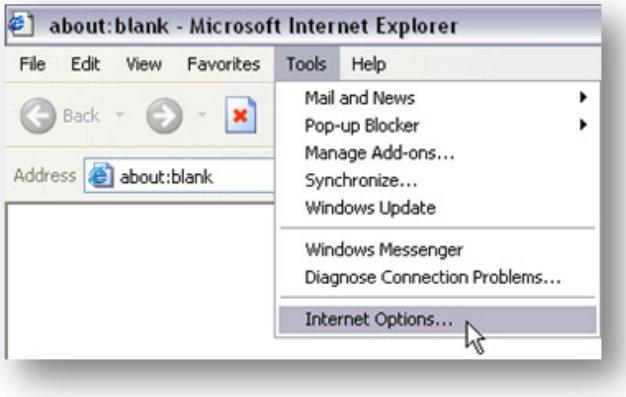
By default, your Internet Explorer cache is too large. Decreasing its size will help you speed up your browser. Here is how it's done:

1. Click on the **Tools** button and go to **Internet Options**

Windows 7

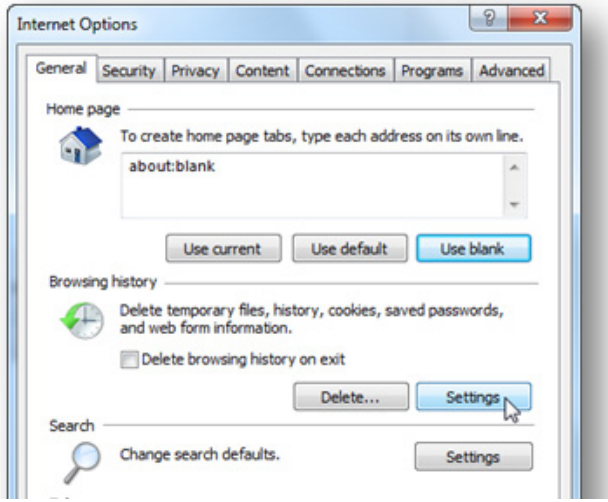


Windows XP

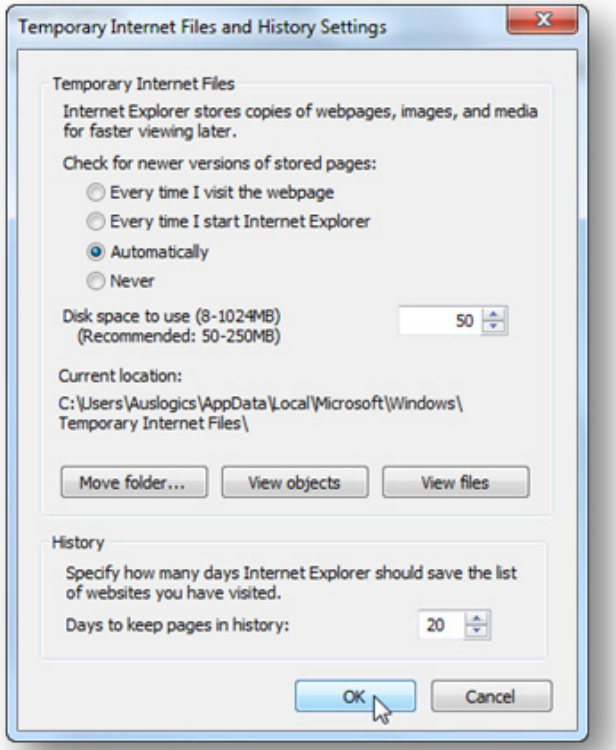


2. Now go to the **General** tab

3. Under **Browsing history**, click on the **Settings** button



4. In the window that appears, set the disk space to something like **50MB**. Technically, you can set the cache size to as low as 8MB, but that will make the cache useless.



5. Click **OK** to apply the changes.

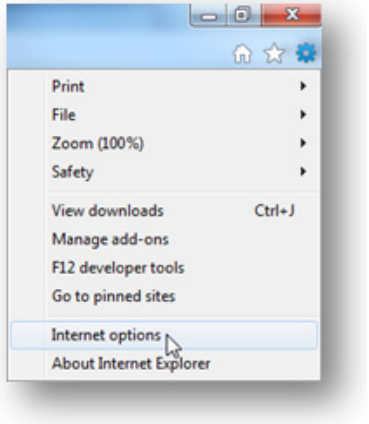
Disable ClearType

By default, Microsoft Internet Explorer 8 uses a font display technology called ClearType. This technology is designed to make fonts on LCD screens smoother and more comfortable to read, making the words look almost as sharp as on a printed source. Basically, ClearType works on a fraction of a pixel level rather than on a pixel level, which increases the resolution and makes the fonts look, well, clearer.

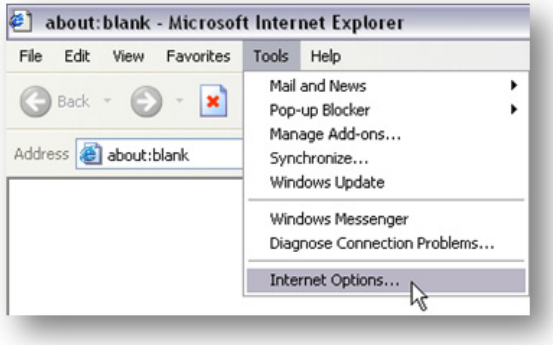
Even though ClearType is a great feature, it has its disadvantages. The main one is that it can sometimes slow down the performance of Internet Explorer. So, if your IE seems sluggish, try disabling ClearType. Here is how:

1. Click on **Tools** and select **Internet Options**

Windows 7

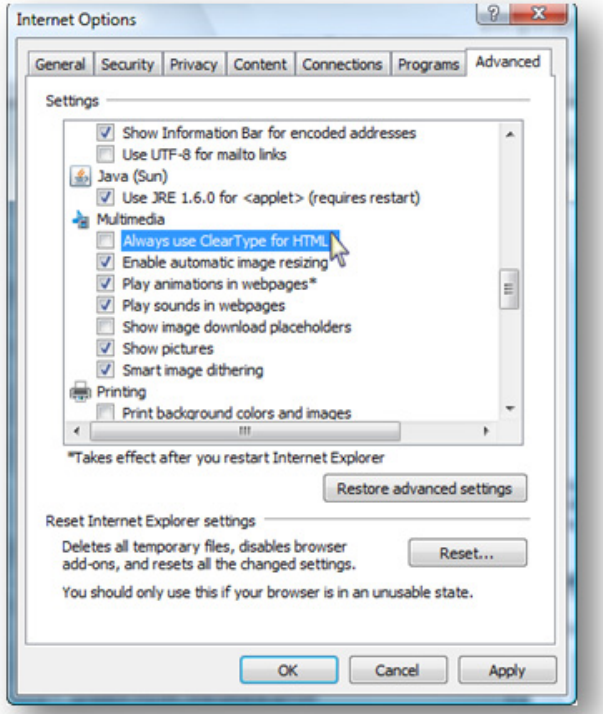


Windows XP



2. Now click on the **Advanced** tab

3. Navigate to the **Multimedia** section and uncheck **Always Use ClearType for HTML**

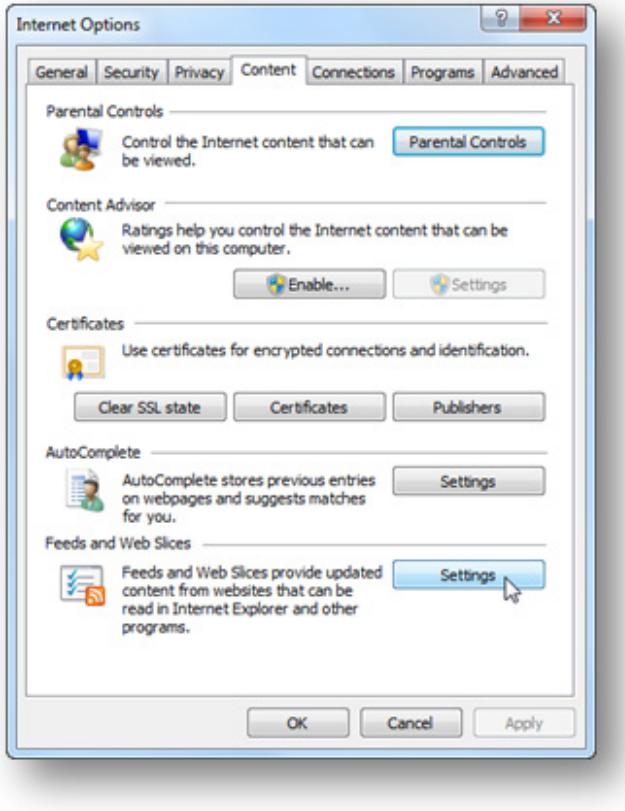


4. Click **OK** to apply the changes.

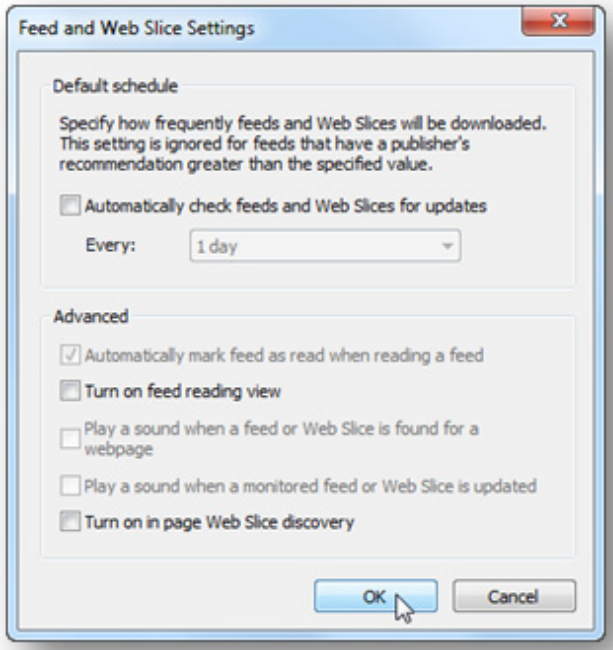
Switch off RSS feeds

Are you subscribed to any RSS feeds? If no, then you definitely don't need Internet Explorer's RSS Feeds feature. And if you are subscribed to some feeds, then most likely you use something like Google Reader and don't need IE's RSS Feeds anyway. Moreover, Internet Explorer's RSS Feeds slow down your browser. Who needs a useless feature that makes your computer slow? Let's disable it!

1. Once again click on **Tools**, select **Internet Options** and select the **Content** tab
2. In the **Feeds and Web Slices** section, click on **Settings**



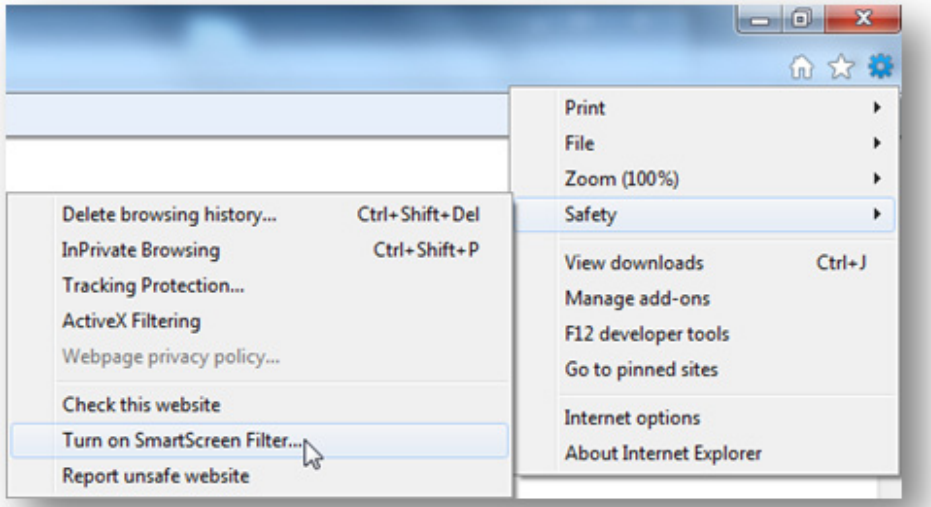
3. Uncheck everything and click **OK**



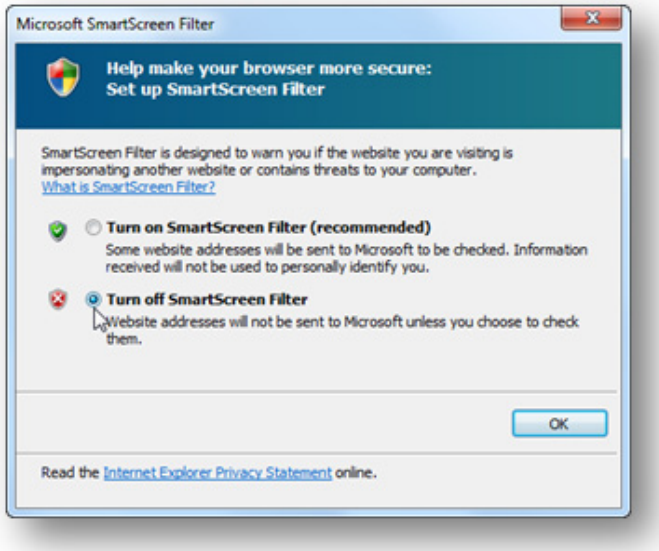
Disable SmartScreen Filter

I bet you've heard of phishing scams. That's when a website pretends to be a legitimate online store or even your bank, but all it does is steal your personal information. Nasty stuff and you have to be really careful to avoid becoming a victim. Internet Explorer can help you there. It has a feature called SmartScreen Filter that scans all the websites you browse to identify phishing scams and warns you whenever a suspicious site is detected. Unfortunately, SmartScreen Filter can significantly slow down browsing the Web because it keeps scanning websites. So, if you are a careful person and/or if you have an antivirus like **Auslogics Antivirus** that includes anti-phishing protection, it makes sense to disable SmartScreen Filter. It's really easy:

1. Click on **Safety** and select **Turn on SmartScreen Filter**…



2. A new dialog box will open
3. Check **Turn off SmartScreen Filter** and click **OK.**



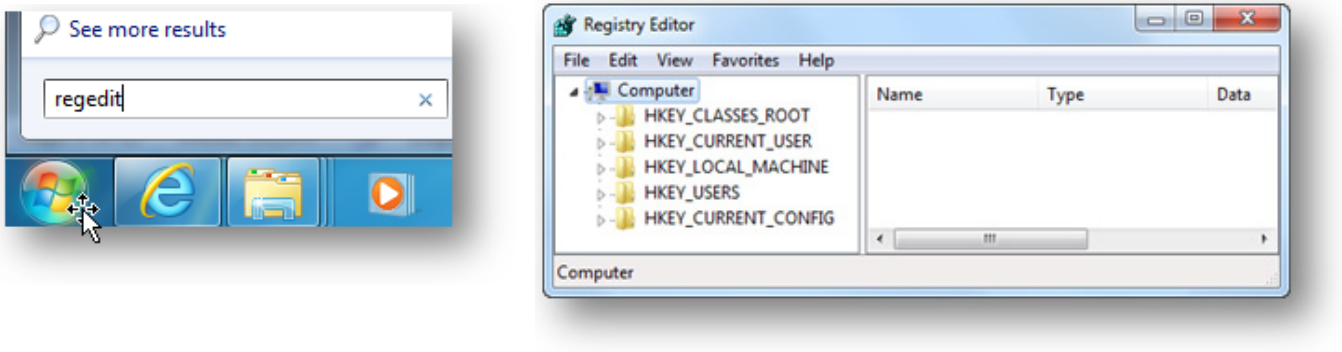
Increase the number of simultaneous connections

Just like any other browser, Internet Explorer can use several simultaneous connections per single server. This helps to improve browsing speed, especially for websites with lots of pictures, JavaScripts and other data-hungry content. By default, Windows Internet Explorer 7 and earlier versions limit the number of simultaneous connections per server to 2. Windows Internet Explorer 8 and 9 limits the number of simultaneous connections per server to 6. This is not really enough for Web pages with lots of images and other content. Increasing the number of simultaneous connections can significantly speed up page loading and, therefore, speed up browsing. However, you should remember that some webservers may start dropping/delaying connections if they see over 10 concurrent connections from the same client IP address.

Unfortunately, it's not all that easy to increase the number of simultaneous connections. You either have to edit the registry or use a third-party tool. Here are the steps you need to take if you decide to edit the registry yourself. The settings are different for different versions of Internet Explorer, so make sure you are using the right ones:

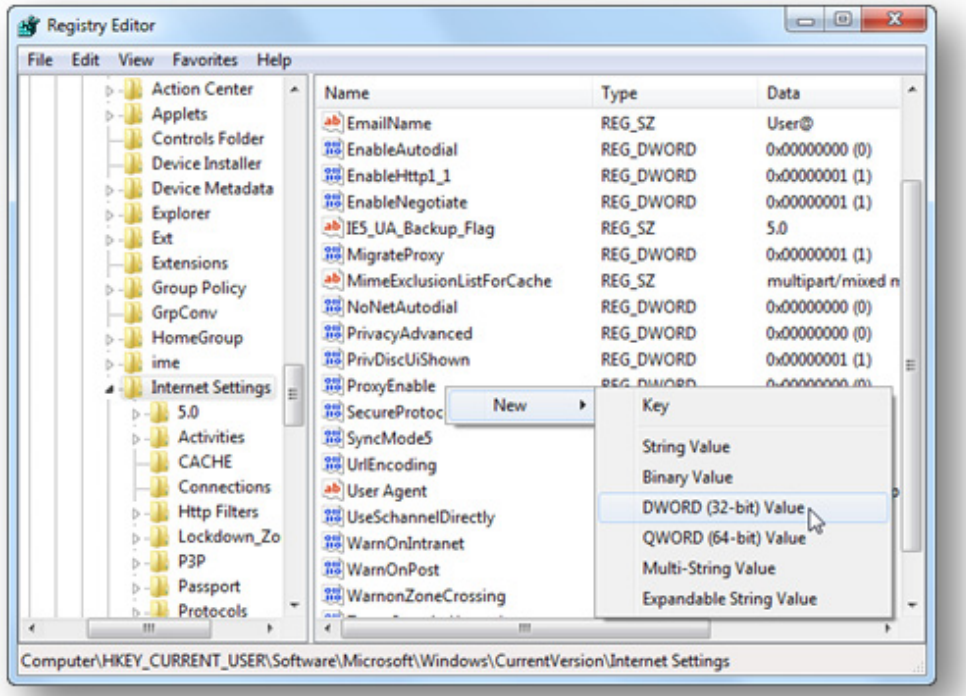
Configure Internet Explorer 6 and 7

1. Close Internet Explorer, click on **Start**, type **regedit** in the search box (XP users will need to click on **Start** – **Run** and type **regedit** there), and hit **Enter**. This will open **Registry Editor**



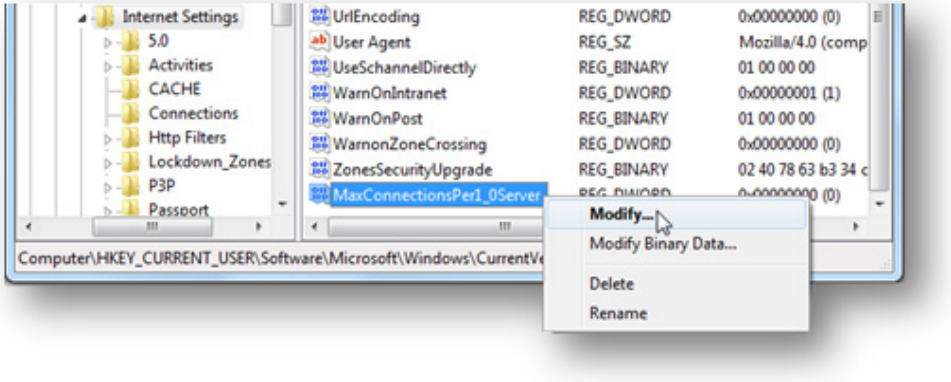
2. Now locate this key:
HKEY_CURRENT_USER\Software\Microsoft\Windows\CurrentVersion\Internet Settings

3. Right-click on an empty area in the right-hand pane, click **New** and then select **DWORD (32-bit) Value**

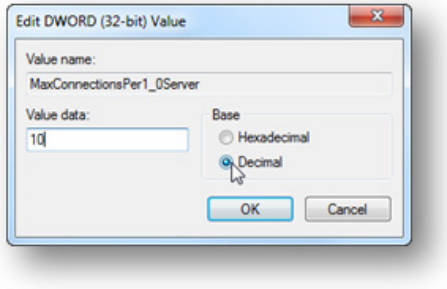


4. Type **MaxConnectionsPer1_0Server** and hit **Enter**

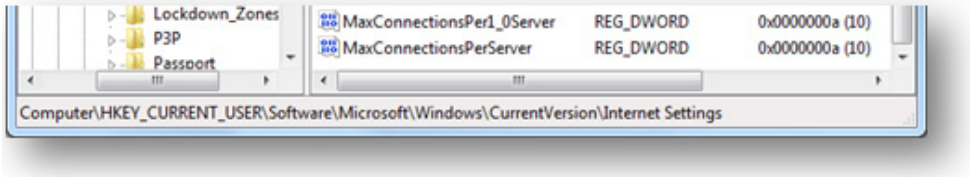
5. In right-hand pane, right-click **MaxConnectionsPer1_0Server** and select **Modify**



6. Select the Decimal radio button, type **10** in the **Value data** box and click **OK**



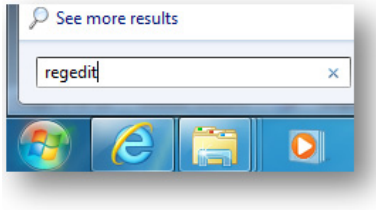
7. Now repeat steps **3 to 6**, but use **MaxConnectionsPerServer** instead



8. Exit Registry Editor. You'll need to either log off and log back on or reboot your PC to apply the changes.

Configure Internet Explorer 8 and 9

1. Open Registry Editor. To do that, close Internet Explorer, click on **Start**, type **regedit** in the search box (**Start** – **Run** in XP), and press **Enter**

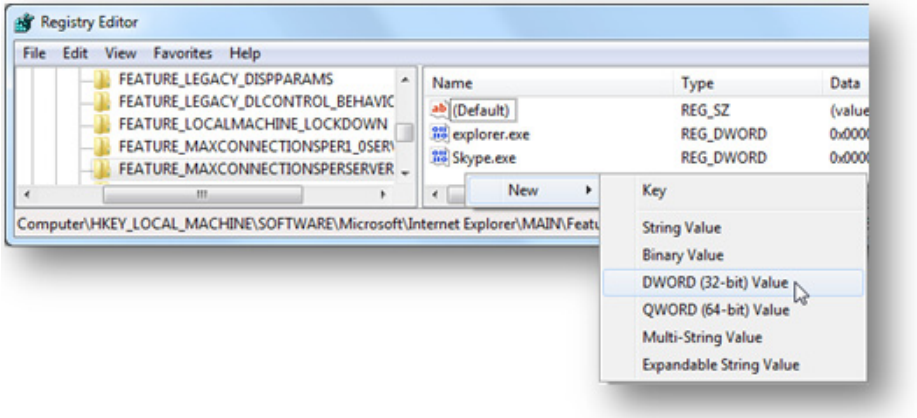


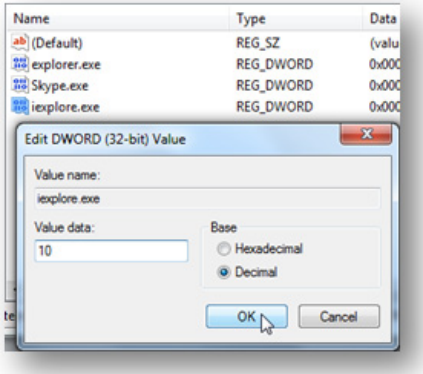
2. Now look for this key: **HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Internet Explorer\MAIN\FeatureControl\FEATURE_MAXCONNECTIONSPERSERVER**

3. Right-click somewhere in the right-hand pane, point to **New**, click **DWORD Value**, and add the following registry values:

Value name: **iexplore.exe**
Value data: **10**
Base: **Decimal**

Click **OK**

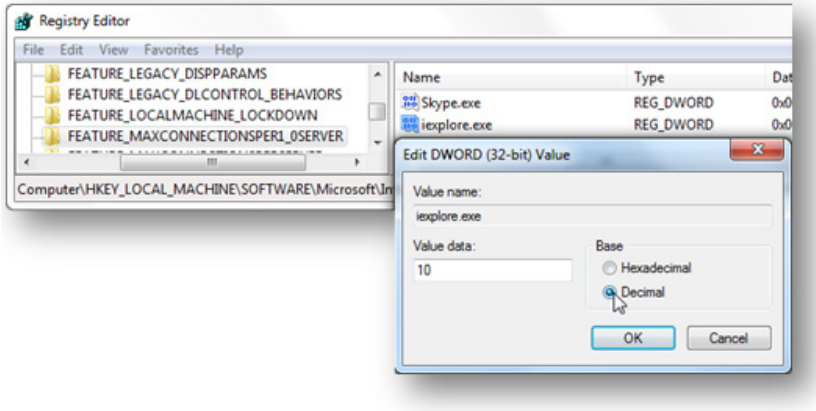




4. Now locate this subkey: **HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Internet Explorer\MAIN\FeatureControl\FEATURE_MAXCONNECTIONSPER1_0SERVER**

5. Once again point to **New**, click **DWORD Value**, and add the following registry values:
Value name: **iexplore.exe**
Value data: **10**
Base: **Decimal**

Click **OK**

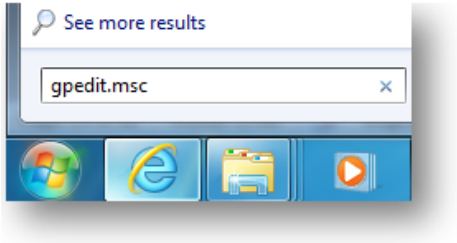


6. Exit Registry Editor and reboot your PC.

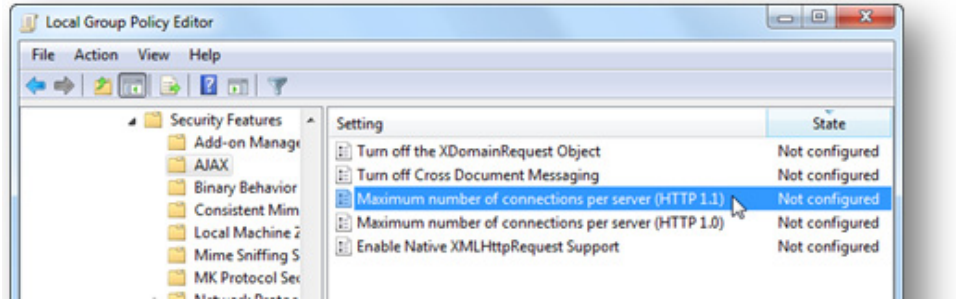
Configure the connection limit via Group Policy

If you don't feel like tampering with the registry, it's also possible to increase the number of simultaneous connections per server through Group Policy. Here is how:

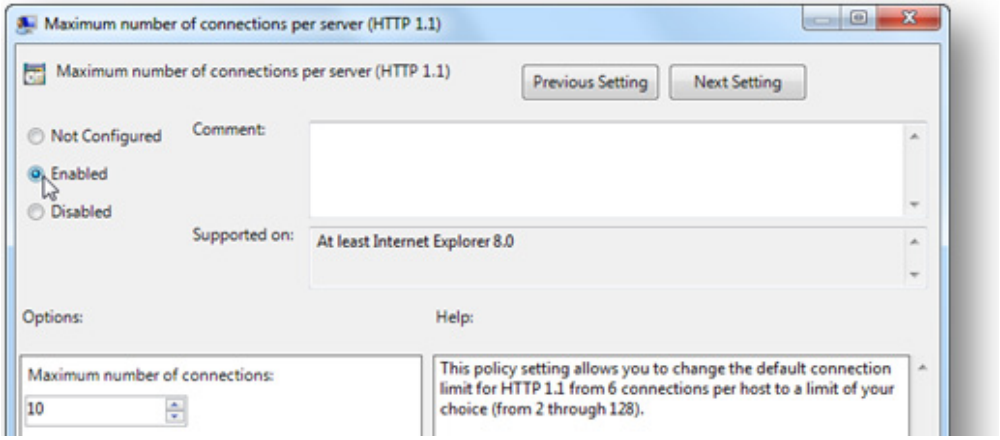
1. Click on **Start**, then click **Run**, type **gpedit.msc**, and then press **Enter**



2. Now expand **User Configuration**, then expand **Administrative Templates**, **Windows Components**, **Internet Explorer**, **Security Features**, and finally expand **AJAX**



3. Set the **Maximum number of connections per server (HTTP 1.0)** and the **Maximum number of connections per server (HTTP 1.1)** options to your preferred values. I recommend **10**



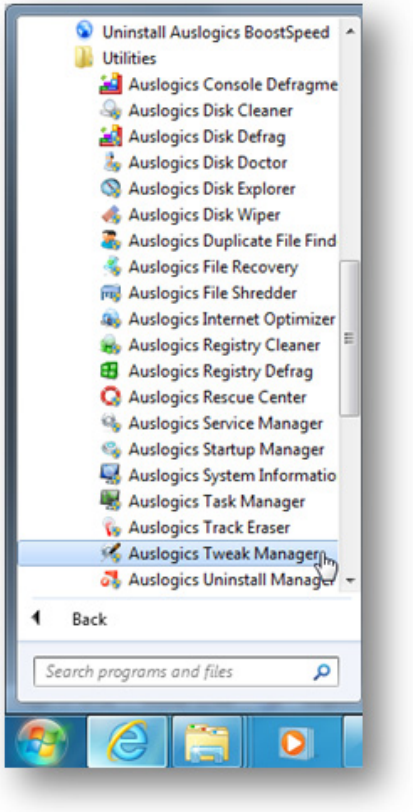
4. Click **Apply**, then click **OK**

5. You will need to update policies or restart your computer for the changes to take effect.

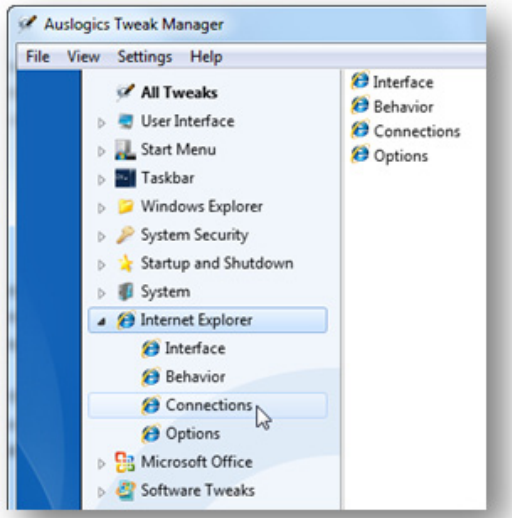
Configure connection settings with the help of Auslogics Tweak Manager

As you have just proven to yourself, editing the registry and using Group Policy is not all that hard once you know what you are doing. But you must remember that editing the registry manually is never 100% safe. So, if you don't feel comfortable with it, you can use a third-party tweaking program like Tweak Manager in **Auslogics BoostSpeed**. With its help you can tweak hundreds of settings risk-free. Here is how you can use Auslogics Tweak Manager to increase the number of simultaneous connections:

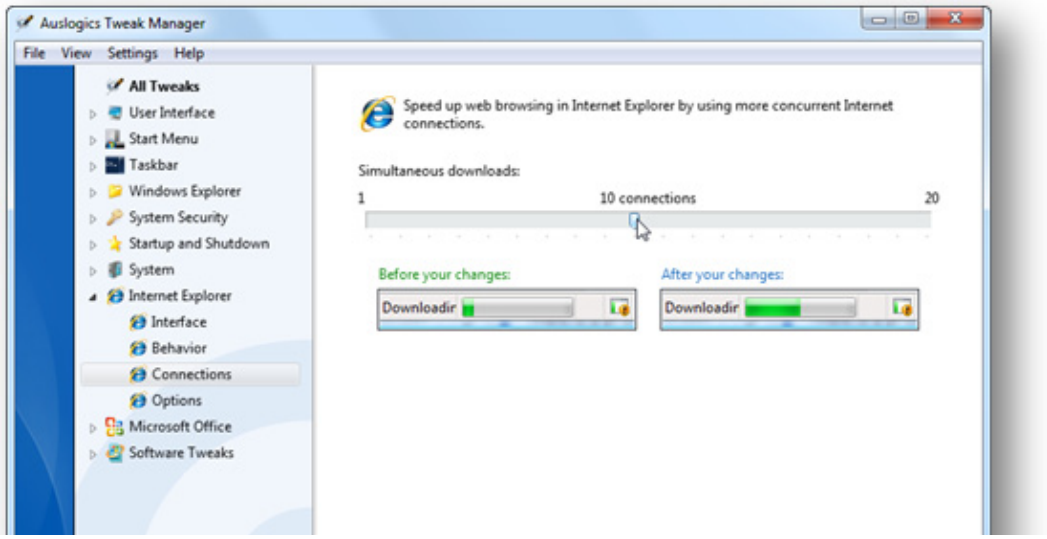
1. Open **Auslogics BoostSpeed** and go to the **Advanced Tools** tab. Click on the **System tweaks** link under **System Tweaks.** You can also open the tool by clicking on **Start – All Programs – Auslogics – BoostSpeed – Utilities – Auslogics Tweak Manager**



2. In the left-hand pane, expand **Internet Explorer** and click on **Connections**. The program will display your current settings



3. Adjust the slider to select the desired number of simultaneous connections. Technically, you can go up to **20**, but **8-10** is recommended



4. Click **Apply**. Alternatively you can click on **Optimize** and the program will set the optimal value for you

5. Close the program and that's it! A lot easier than messing with the registry.

Mozilla Firefox

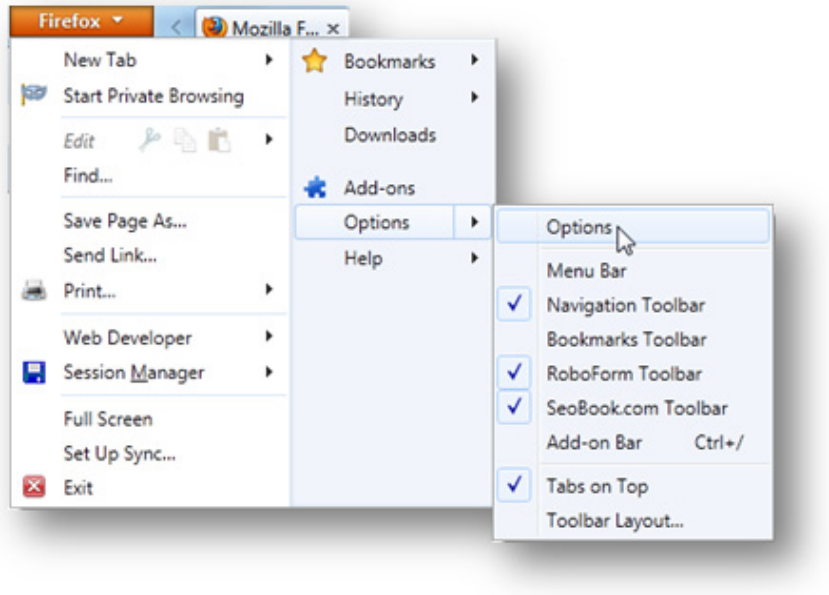
Firefox is quickly becoming just as popular as Internet Explorer, if not more. Firefox is great for those who want to expand their browser with add-ons and want it to do more than just open pages. True, there are Internet Explorer add-ons too, but they are not nearly as good as Firefox's.

The great thing about Firefox is that it's faster than IE as it is and Mozilla tries to make every new version faster than the previous one. However, Firefox can be slow at times and it can also consume quite a bit of RAM. But the great thing about Firefox is that it's a lot easier to speed up and customize than IE. Here are a few tips that will help you gain speed.

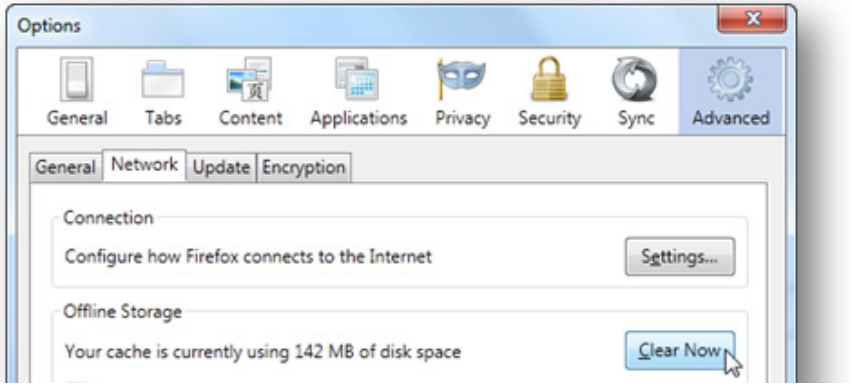
Configure the cache

Just like in Internet Explorer, it pays off to clean and configure Firefox cache:

1. To clean the cache in Firefox 5, click on the **Firefox** button and then click **Options**. If you are on Windows XP, it's the **Tools** menu



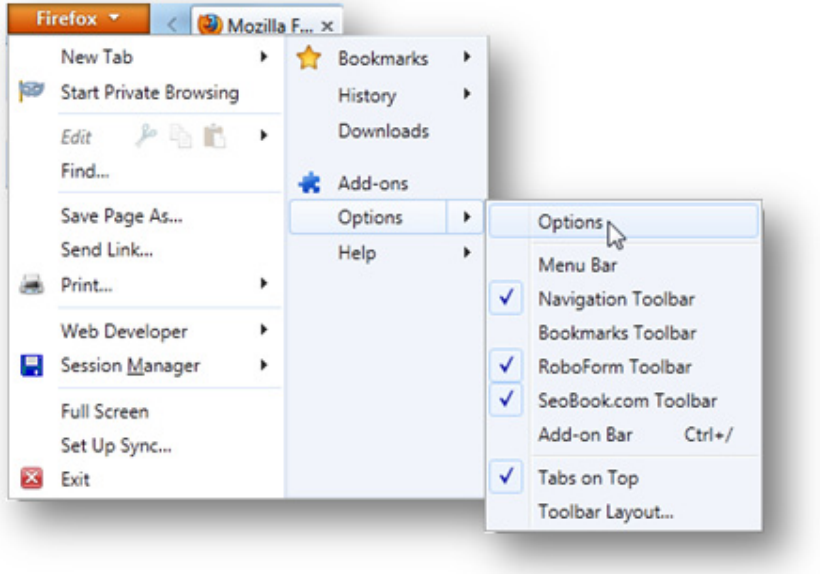
2. Now go to the **Advanced** panel and navigate to the **Network** tab
3. Click on the **Clear Now** button in the **Offline Storage** section



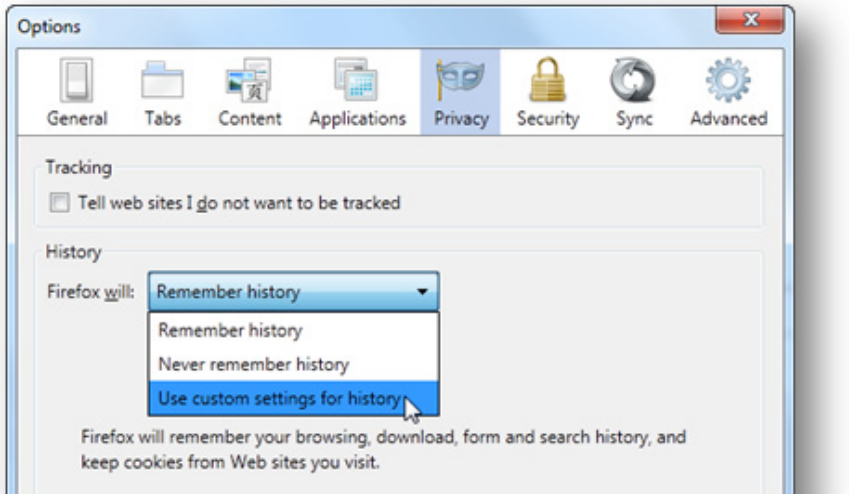
4. Click **OK** to close Options.

You can also configure Firefox to clean the cache automatically when you close the browser:

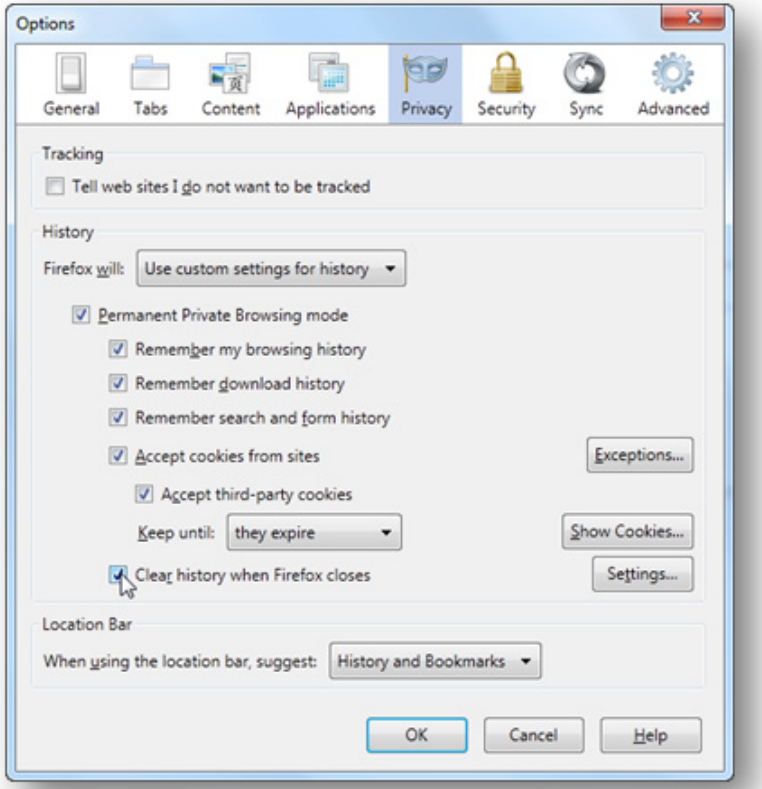
1. Again, click on the **Firefox** button and go to **Options** (**Tools** for XP)



2. Now go to the **Privacy** panel
3. In the **History** section, select **Use custom settings for history** from the drop-down menu

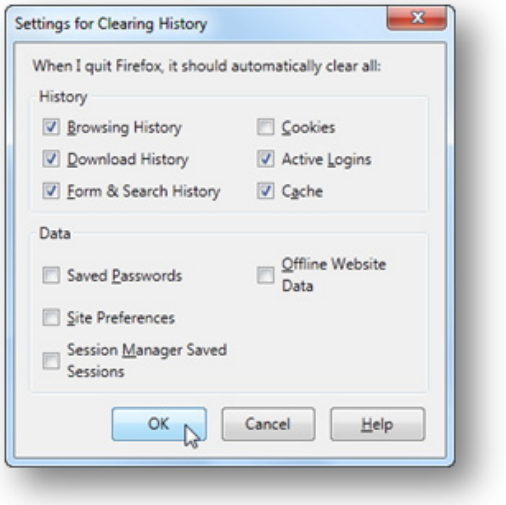


4. Check the **Clear history when Firefox closes** checkbox



5. Now click on the **Settings** button to the right of the checkbox you've just checked

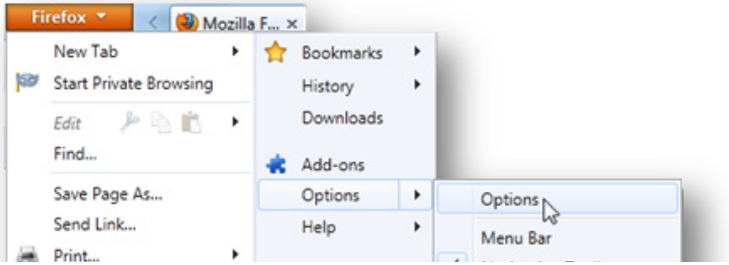
6. In the new window, select the **Cache**. You are also welcome to select any other checkboxes you find useful



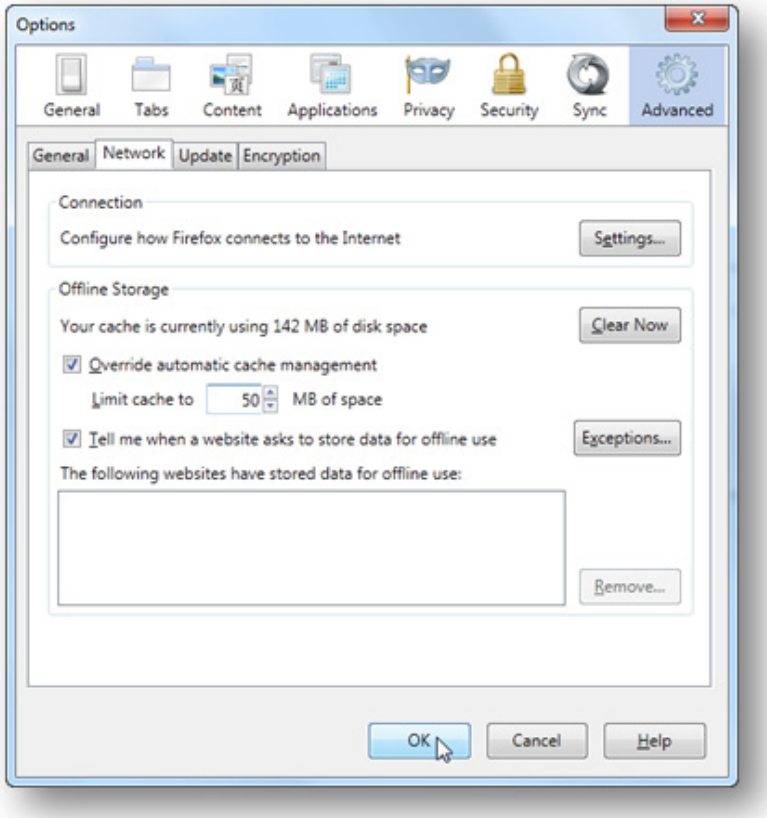
7. Click **OK** to close the Settings window and **OK** to close Options.

And, naturally, you can resize the cache in Firefox, even though Firefox is a lot better than IE at setting the best size for the cache automatically. Here is how you can do it:

1. Click on the **Firefox** button and then click on **Options**



2. Go to the **Advanced** panel, check the **Override automatic cache management** and set the cache to **50MB**



3. Click **OK** to close the **Options** window.

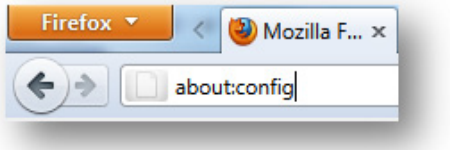
And now let's do some serious tweaking!

Enable pipelining

HTTP pipelining is a technique that allows the browser to send multiple requests to a single socket without waiting for the corresponding responses. Pipelining is only supported in HTTP/1.1, not in 1.0. Using it can significantly speed up page loading time.

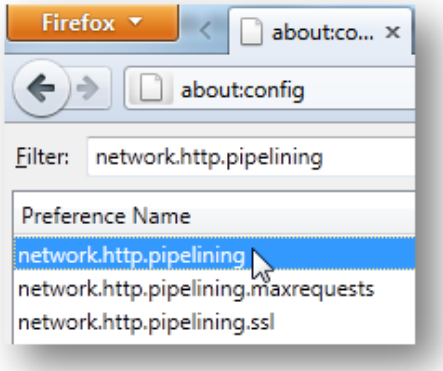
To enable pipelining, do the following:

1. Open Firefox, type **about:config** in the address bar and hit **Enter**



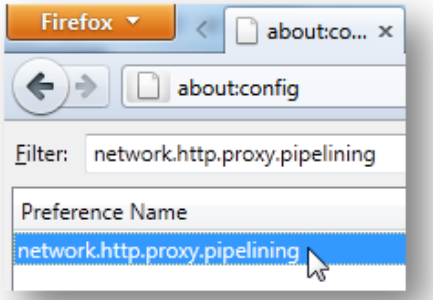
Click the button under **I'll be careful, I promise!** if it appears

2. Enter **network.http.pipelining** into the filter box

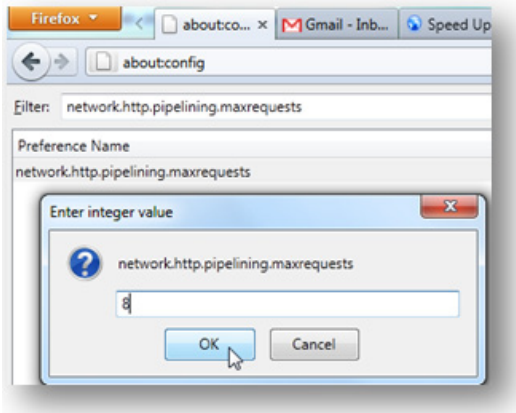


3. Double-click on **network.http.pipelining** to set the value to **true**

4. Now do the same for your proxy server. Find the value and check that **network.http.proxy.pipelining** is set to **true** as well



5. Now find and double-click **network.http.pipelining.maxrequests** and set the number of pipelining requests to **8** and click **OK**. Eight is the maximum number of pipelining requests currently available

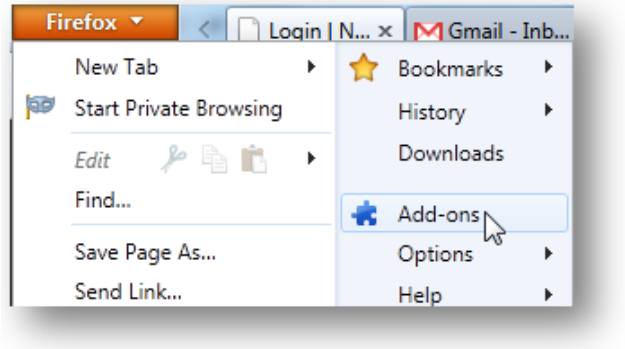


6. Return to browsing the Web and enjoy the extra speed!

Manage you toolbars and add-ons

Add-ons and toolbars are a bit like programs installed on your computer – the more there are, the slower your browser will launch and run. That's why it's good to have a look at what you have installed and remove things you never use. This is especially true for toolbars, since they take up quite a bit of system resources and are usually pretty useless. On top of that, toolbars often get installed with you none the wiser when you install some freeware programs.

To check and manage your add-ons, click on the **Firefox** button and the click on **Add-ons**.



You will be able to uninstall most of them through there, but some of the more persisted toolbars need to be removed via the **Control Panel**.

Speed up your email client

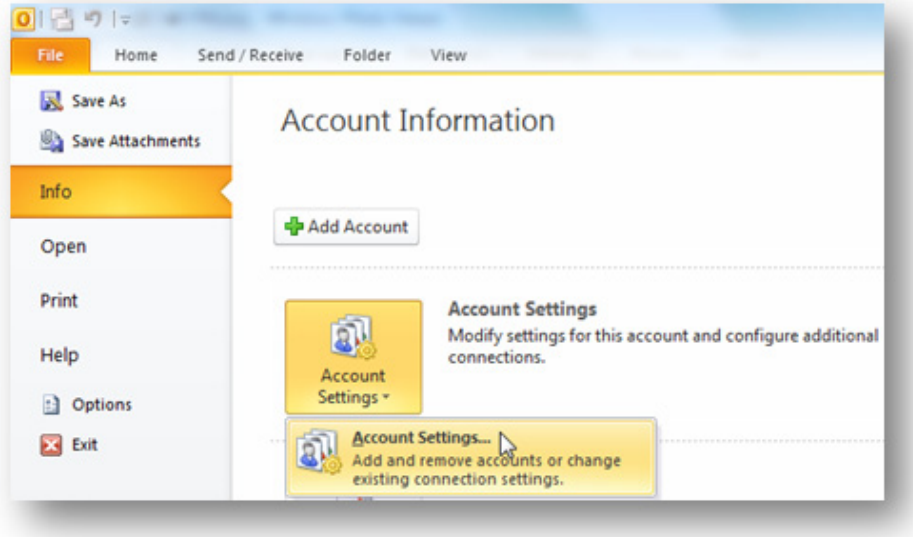
Do you use an email client, such as Microsoft Outlook or Mozilla Thunderbird? If you do, then you know how slow and unresponsive it can become. This usually happens because the email files (like Outlook PST files) get bloated and start taking up too much space. Fortunately, it's easy enough to make your email client faster and more responsive.

The easiest way to decrease your PST file is to clear the **Deleted Items** folder (**Trash** in **Thunderbird**). To do that, simply right-click on the **Deleted Items** folder in **Outlook** or the **Trash** folder in **Thunderbird** and select the relevant option. Alternatively you could open the **Deleted Items** folder, press **Ctrl+A** to highlight all messages and then press **Del** to delete them.

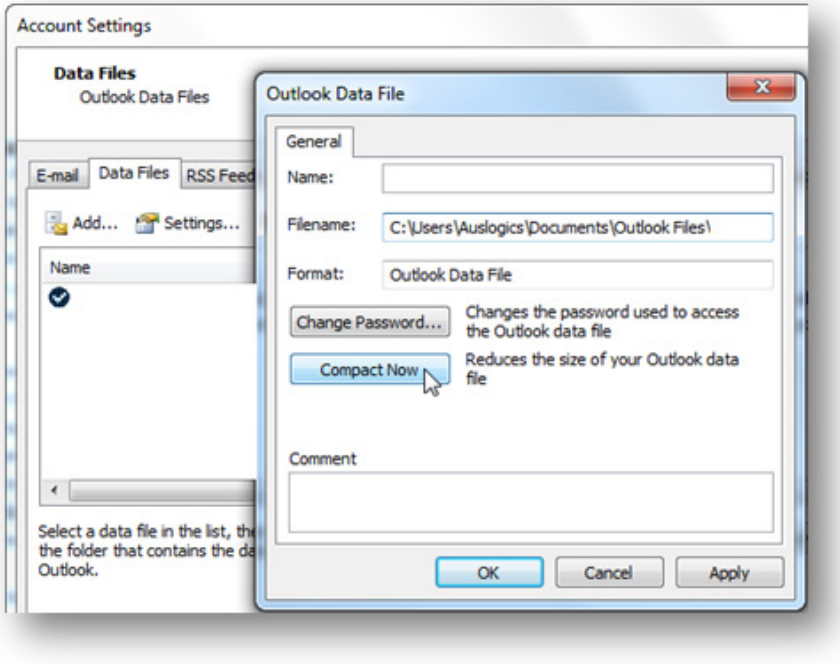
Another, and more efficient, way to speed up your email client is to compact some folders. Compacting data files will free up tons of space and make your email client work faster as a consequence. Here is how it's done:

Microsoft Outlook:

1. Click the **File** tab on the Ribbon, then click on **Info** in the menu on the left-hand side of the window
2. Click **Account Settings**, then **Account Settings** again to open the "Account Settings" dialog box



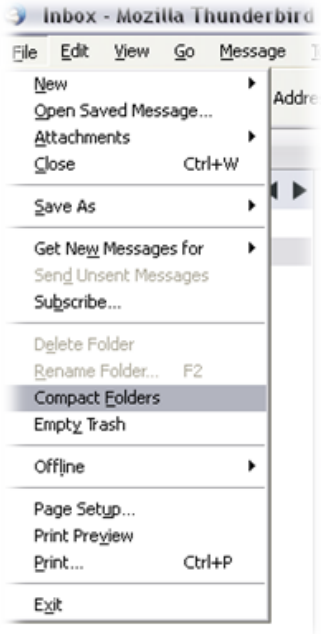
3. Now click the **Data Files** tab
4. Select the data file you want to compact (the file name should end with **.pst**)
5. Click **Settings** and then click on the **Compact Now** button to compact the file



6. Click **OK** to return to **Data Files**
7. Repeat this for any other PST files you find.

Mozilla Thunderbird:

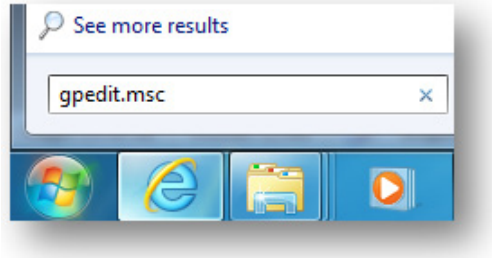
Thunderbird makes it really easy to compact your mail folders. All you need to do is open Thunderbird, click on **File** and then select **Compact Folders**.



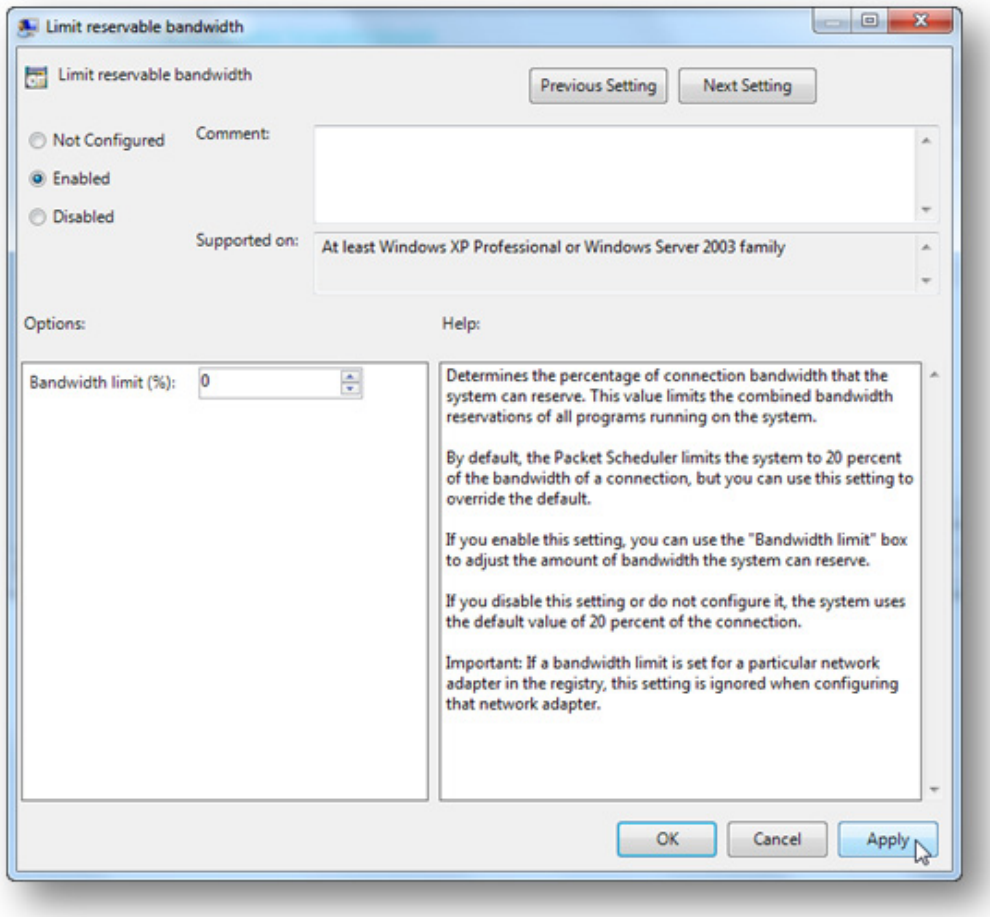
Limit reservable bandwidth

And last but not least, a simple trick to speed up your overall Internet connection:

1. Open Group Policy by clicking on **Start – Run** and typing **gpedit.msc**



2. Now expand the **Administrative Templates** and expand the **Network** branches
3. Click on **QoS Packet Scheduler**
4. Double-click on **Limit Reservable Bandwidth** and select the **Enabled** radio button
5. Change **Bandwidth limit (%)** to **0**



6. Click **Apply** and click **OK.** Reboot your computer for the changes to take effect.

Now your browser and email client should run a lot faster.

CHAPTER
15

Protect Your PC Without Slowing It Down
Configure Your Anti-virus for Maximum Performance

The Internet is great for finding information, meeting new people, networking and lots of other stuff, but it's also a dangerous place. There are sites that are full of viruses, spyware, adware, other malware and phishing scams – the list goes on and on. That's why it's so important to have good anti-virus and anti-malware software installed on your computer. Some people will say that you are safe as long as you don't visit suspicious websites and never download illegal software. True, but even if you have good browsing habits, you still need to have security software just in case one of the safe websites you visit gets infected or a virus gets onto your PC from a friend's USB thumb drive. It's always better to be safe than sorry.

When you buy a new laptop, chances are that you will have a preinstalled trial version of either Norton or McAfee. To tell you the truth, these programs don't offer the best protection and often do little more than look important and slow down your computer.

You'd be better off uninstalling the trial version straight away and getting a different anti-virus. When considering getting an anti-virus, make sure it has the following features:

- Real-time protection
- Protection against unknown threats
- Privacy and identity protection
- Anti-spyware and anti-phishing features
- Home network protection
- Regular automatic updates

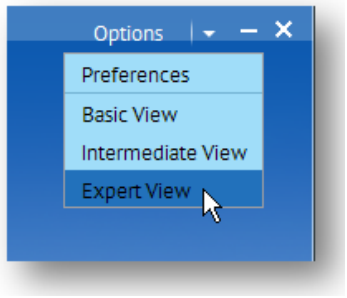
There are dozens of free and paid anti-virus solutions available for download from websites like Download.com and Softpedia.com. Good free anti-viruses are Microsoft Security Essentials, avast! Antivirus and Avira AntiVir. As for paid options, there is BitDefender, Kaspersky, ESET, and lots of others. All these anti-viruses offer extensive functionality and have loads of features and options. Sounds pretty good, doesn't it?

Unfortunately there are some drawbacks. Most anti-viruses can be heavy on system resources when they have everything enabled. They can make your hard drive churn, slow down Web browsing, and even make your computer freeze from time to time. When that happens, many people get frustrated and either disable their security software or uninstall it altogether. Bad idea because they quickly catch one or two nasty infections and have to deal with the consequences.

Luckily, there is an easier way to make your anti-virus less resource hungry and ensure both maximum protection and top speed. Most anti-viruses allow you to configure them to your liking. In this chapter I'm going to describe the best ways to configure your anti-virus and prevent it from slowing down your computer. I'm going to use **Auslogics Antivirus** as an example, but you can use these tips to tune-up any other anti-virus program.

Select the Advanced user interface mode

First of all, you need to switch the user interface to **Advanced mode**. This way all customization options will become available. To switch to the Advanced mode:

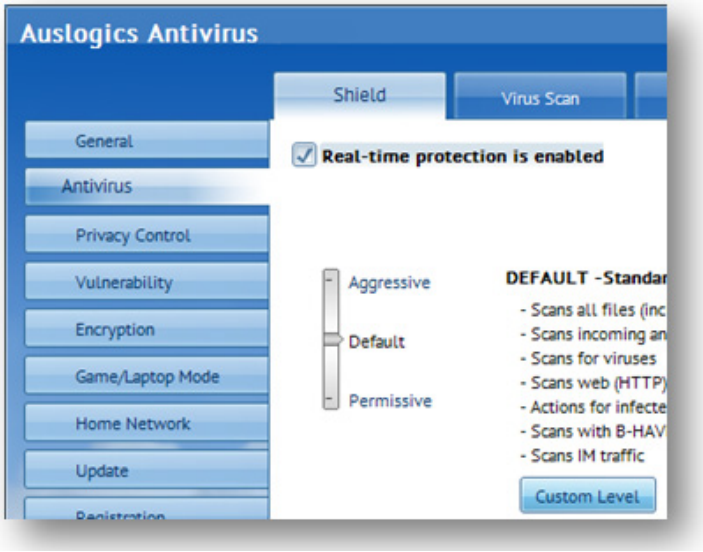


1. Open Auslogics Antivirus
2. Go to **Options**
3. Find and select the **Expert View**
4. Click **Apply** and click **OK**

Disable unnecessary components

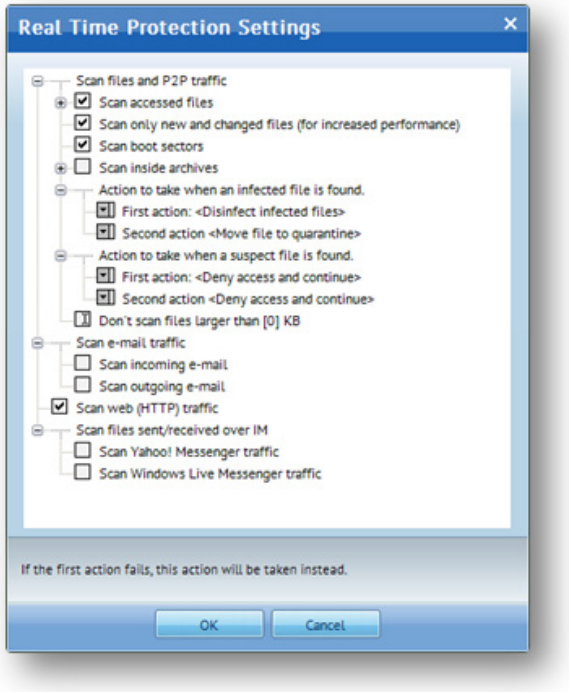
Like a lot of other programs, **Auslogics Antivirus** protects your computer from nearly all possible security threats. It monitors all system components and all ways malware uses to get installed onto your PC. This boosts your protection level, but also slows down your computer. The solution is to decide which anti-virus components you really need and disable the rest.

For example, if you only use Web-based email from known providers (like Gmail), you can safely disable email scans because all attachments get scanned anyway. Most anti-viruses run an additional process and dedicate a special service to scan emails, so disabling the scans will help you free up RAM.



Here's how you can disable email scans in **Auslogics Antivirus**:

1. Open Auslogics Antivirus
2. Go to the **Shield** tab and click on the **Custom Level** button



3. Uncheck the relevant checkboxes
4. Click **OK**

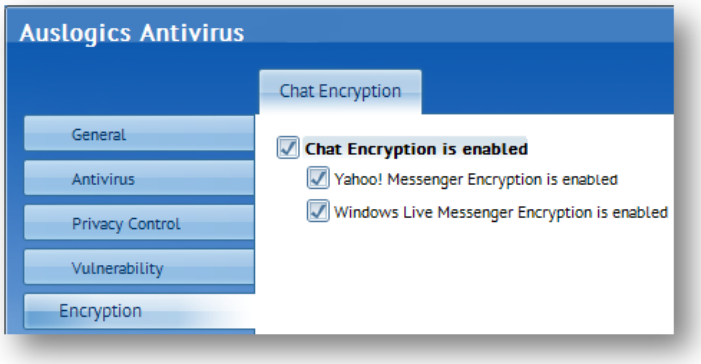
If you don't use any IM programs, it makes sense to disable anti-phishing protection for Yahoo and Live messengers. Just go to the main program window and uncheck the relevant checkboxes. You can also disable anti-phishing for browsers that you've got installed, but never use (I almost never use IE).

However, if you use IM programs a lot, it's best to ensure that they are well protected. It's way too easy to get infected through them. And what's worse, you will never suspect a thing. You might get infected through a file sent to you by a friend or a relative if their computer is already infected.

To ensure that your IMs are protected:

1. Open Auslogics Antivirus and click on the **Shield** tab
2. Click on the **Custom Level** button
3. Check the **Scan Files sent/received over IM** checkbox

If you are really concerned about your chat privacy, you might want to enable encryption. To do that, click on the **Encryption** tab on the left-hand side and make sure encryption is enabled.



Anyway, back to optimizing your anti-virus.

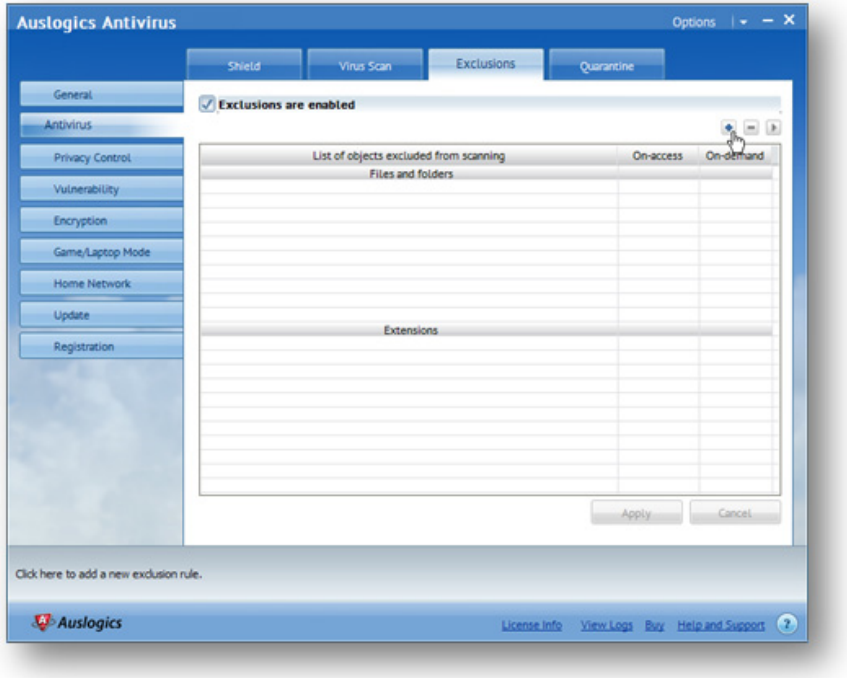
Exclude safe folders

I'm sure that you have folders with photos, music, and movies. Most of them will have either a lot of files, or pretty large files (or both). If your anti-virus software scans these folders every time it performs a routine scan, it must take ages to complete.

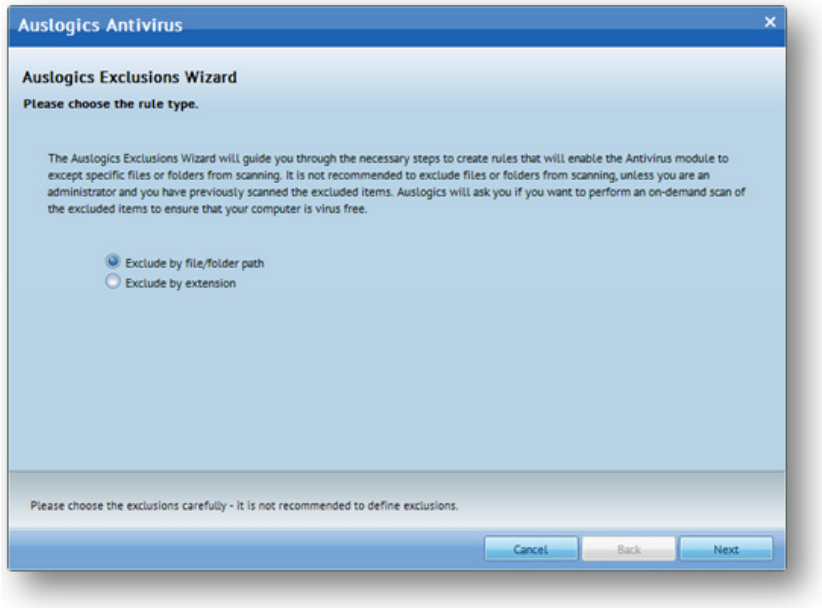
Well, let me tell you that it's highly unlikely to get a virus in one of these folders. And even if it does, you are bound to notice it immediately. So why not add them to the ignore list and speed up scans? Just be sensible and don't exclude too many folders.

Here's how it's done:

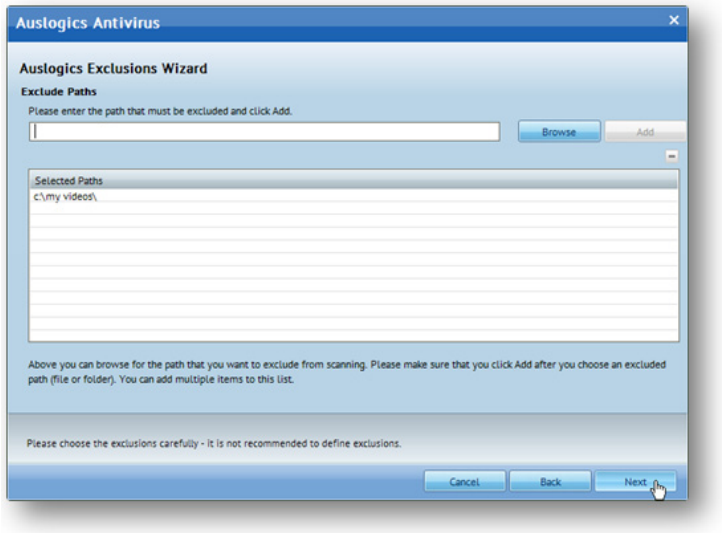
1. Open the program and click on the **Antivirus** tab on the left-hand side
2. Then click on the **Exclusions** tab
3. Make sure that exclusions are enabled
4. Click on the **"+"** sign



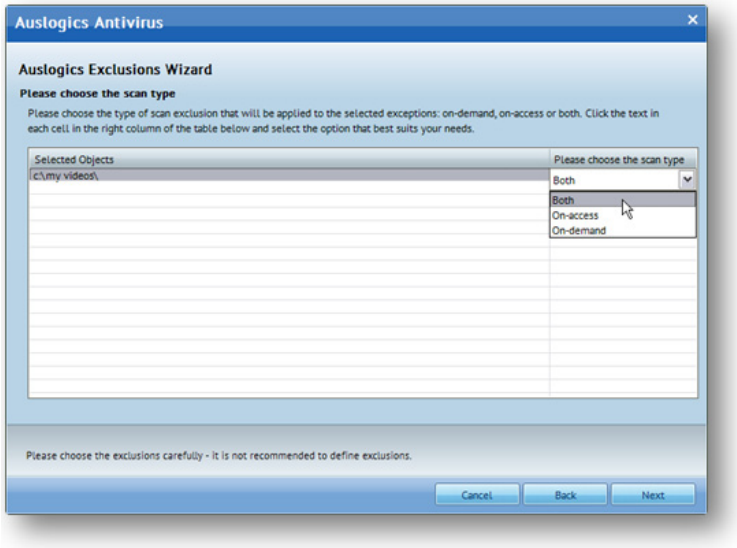
5. Select **Exclude by file/folder path** and click **Next**



6. Select files and folders you don't want to be scanned and click **Next**



7. Now select when not to scan those files and folders – on the right hand side select **On-demand**, **On-access**, or **Both**



8. Click **Next** and you're done.

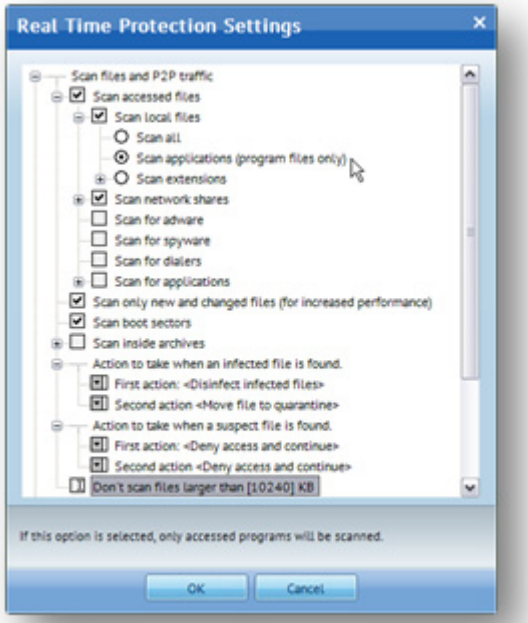
Tune up real-time protection

Most anti-viruses offer real-time protection. This means that everything that happens on your computer is monitored and analyzed by your anti-virus. But keep in mind that your computer performs thousands of operations every second and there is nothing suspicious about most of them. Basically, there is no need for your anti-virus to scan everything all the time. So why not disable functions that are not needed.

First of all let's configure real-time protection so that it doesn't scan everything. To do that:

1. Open Auslogics Antivirus
2. Click on the **Antivirus** tab and then go to the **Shield** tab

3. Click on the **Custom Level** button. This will open the **Real Time Protection Settings** window
4. Select the **Scan Programs** radio button. This way the anti-virus will stop monitoring safe files, like text documents



5. Now select **Do not scan files larger than…** and specify **10,240** in the field that appears. Now your anti-virus won't monitor files larger than 10MB. Viruses are small files, so it doesn't make any sense to check large files like movies or songs for infections.

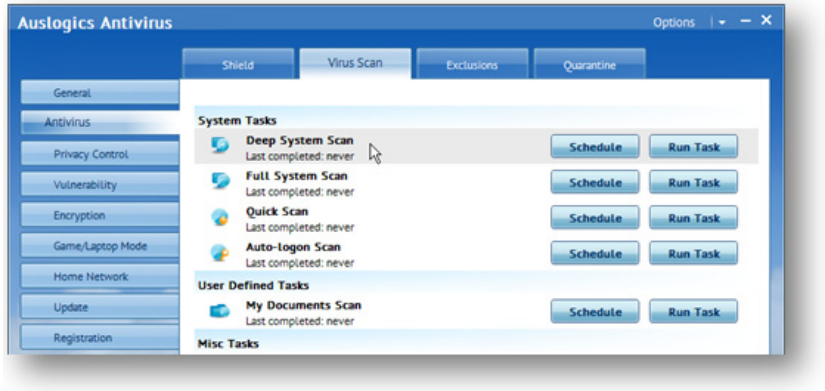
Some people also disable network shares and http traffic scans, but I don't recommend it because most infections come from the Internet and local networks.

Schedule scans

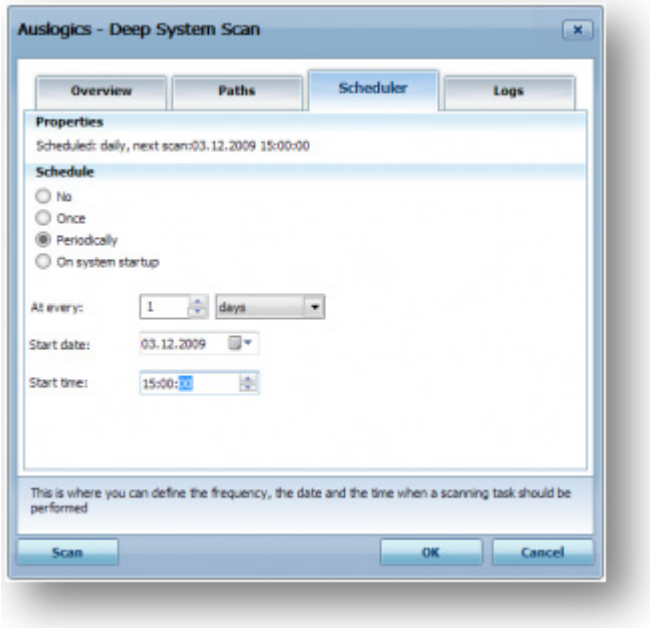
Pretty much all anti-viruses have an option to schedule scans. Most of the time this option is already enabled. By default scans are scheduled for midnight, which isn't very useful as most people's computers are switched off at that time of night. If that's the case with your anti-virus settings, then you miss out on daily anti-virus scans and jeopardize your computer security.

The solution is simple – re-schedule daily scans:

1. Open the main window and go to **Antivirus**
2. Go to the **Virus Scan** tab and double-click **Deep System Scan**



3. Go to **Scheduler** and specify the time when you want to run daily system scans. I usually have a break between 3 and 3.30pm, so I've scheduled scans for that time slot

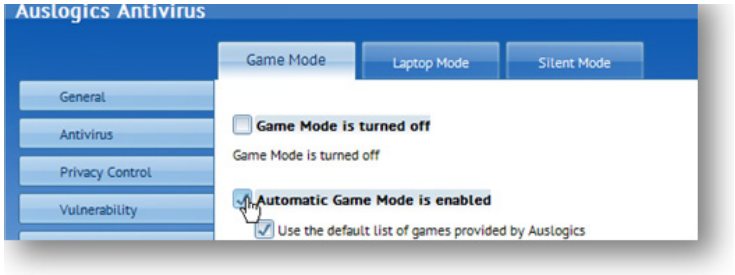


4. Now go to **Overview** and enable the **Minimize to tray** option. This way the anti-virus won't annoy you while performing scans.

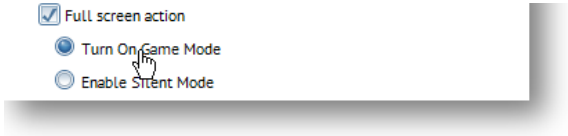
Use Game and Laptop modes

Auslogics Antivirus has a unique feature called **Game Mode**. So if you're a gamer, enable this option. Here's how:

1. Open Auslogics Antivirus
2. Go to the **Game/Laptop Mode** tab and select **Automatic Game Mode is enabled**

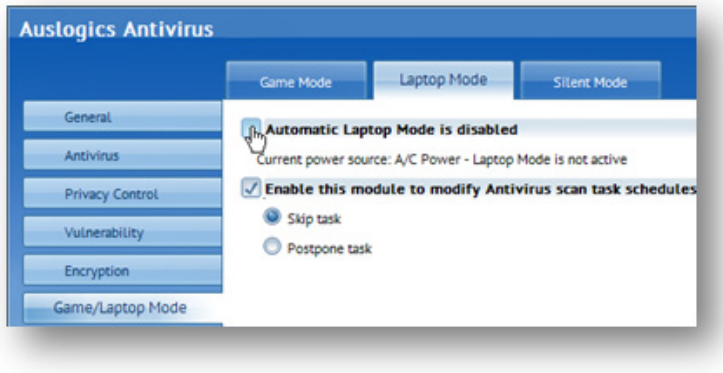


3. Don't forget to tick the **Full screen action** checkbox and choose Turn On Game Mode



Now the anti-virus will be gentle on system resources whenever you start playing a game or watching a movie in full-screen mode.

If you are a laptop user and your laptop runs on battery quite often, make sure **Laptop Mode** is enabled. You can check that by opening the **Game/Laptop Mode** tab. Using the Laptop Mode will help you save battery power.



Now your anti-virus software is configured for best performance without jeopardizing PC protection. Its real-time protection only checks files that could be infected, so that it doesn't waste system resources, and scheduled daily scans will ensure that your computer stays healthy. Anyway, now you know where all the settings are, so you can change them whenever you want.

Conclusion

As you can see, Windows has tons of different settings and is full of "Oops, that didn't work" bits. But it doesn't have to be that way. As long as you know which settings to tweak, which features to disable, which upgrades to install, and what sort of maintenance to perform, Windows can run a lot faster. It can also be a lot more pleasant to use. And I'm sure that by now you know exactly what your Windows needs!

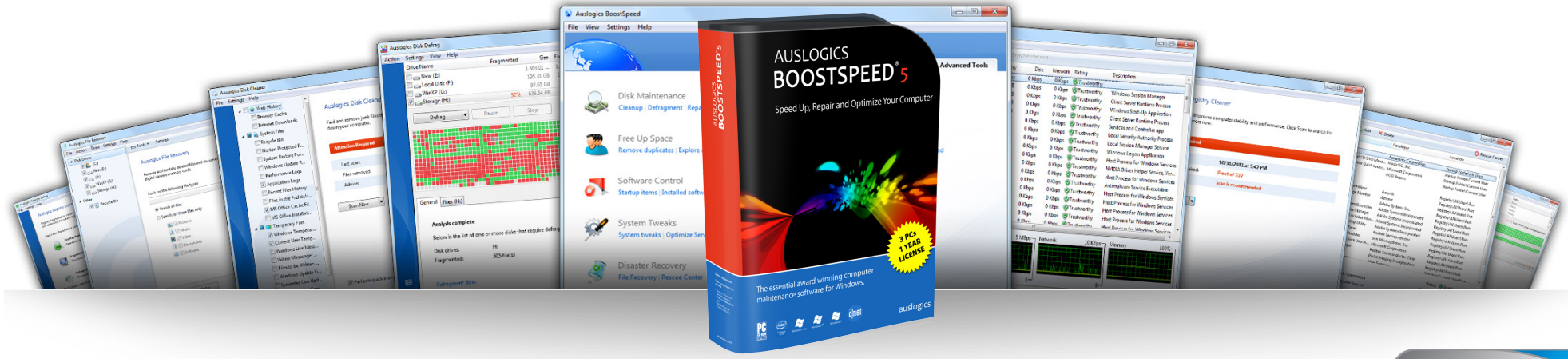
No matter how fast your computer is when you buy it, it will become slower. That's inevitable. But there is a lot you can do to make it work better. Proper computer maintenance can save you a lot of time and money. We hope that this book will help you keep your PC running at top speed for as long as possible.

Liz Cornwell & André Coolfix

Email: TurboWindowsBook@gmail.com

Go to the next page and find out how you can speed up your computer even more!

Exclusively For Our Readers



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