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## Preparing your system: Tips 1 - 3

### 1. Use 'whole system' performance benchmarks

Artificial benchmarking programs are a great way to see the relative performance increase that your tweaks and changes have achieved. Running a benchmark before and after a prospective change will give you a good idea of where you stand.

Several companies produce 'whole system benchmarks' designed to stress test every area of your PC's performance and give you a result which you can use as a benchmark for improving your system's speed.

Try [PCMark 2004 by Futuremark](#), [SiSoftware's Sandra 2004](#) and [Veritest's Winbench 99](#). In addition to benchmarking, these applications can also provide valuable information about your PC and its configuration.

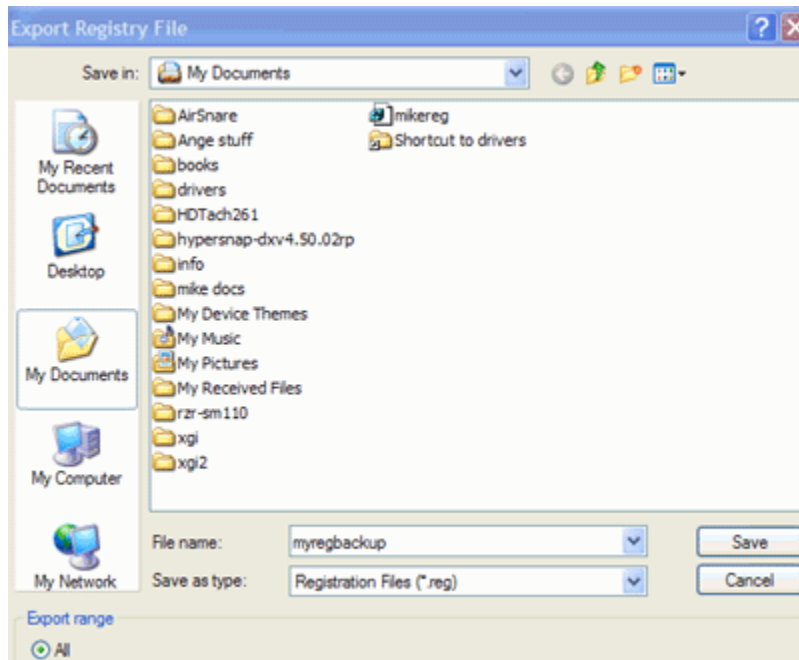
### 2. Tweak insurance part 1: backing up and editing the registry

Several of the performance tweaks in this guide require you to edit the Windows registry, which can be extremely hazardous to the health of your operating system unless it is done carefully. Editing the registry opens up a world of possibilities for tweaking WindowsXP that would otherwise be unavailable, but it also offers you the ability to completely mess up your system in the time it takes to reboot...

For this reason, we strongly recommend that you back up your registry to a file before attempting any of the registry-related tips in this guide.

To back up the entire registry, open REGEDIT and ensure that 'my computer' is highlighted, then go to file\export.

In this window, you need to enter a location to save the exported registry (as a single file) and choose the type of file to create. Also, check the 'all' button at the bottom of the screen to backup the entire registry.



There are several possible file types, but we will focus on one only, as the ".reg" file type is the easiest to use. A .reg backup will copy over all changes made to existing portions of the registry when it is restored, while leaving additions to the registry made since the backup untouched.

Select the .reg file type and click 'save.'

Restoring the registry from this .reg file is a simple matter of locating the file you created, right clicking it and selecting 'merge.'

All registry related tips in this guide use the REGEDIT program which can be accessed from the run command ('start\run') by typing 'regedit'.

### 3. Tweak Insurance part 2: Creating a system restore point

One of Windows XP's brand new features is the System Restore utility, an update of the registry rollback tool first seen in Windows ME. The program has been considerably enhanced since these humble beginnings, and is a very useful safety tool. It uses 'restore points' which are snapshots of your registry and system condition at a specific time. The points are stored on disk and can be used to effectively move your PC back through time to a previous condition.

As you can imagine, this utility comes in quite handy for heavy-duty tweaking (though it wastes a LOT of disk space by default, more on this later), acting as a safety net.

To create a restore point:

Go to 'start/all programs/accessories/system tools/system restore.'

Click 'create a restore point.'

Give your restore point a name and click 'ok.'

That's all. To restore your system to its previous condition, fire up system restore again and select 'restore my system to an earlier time.' You will be presented with a calendar view of all current restore points. Windows creates them automatically by default under certain conditions such as program installs. Choose the one you created, click 'next' and follow the instructions.

Now, as for the amount of drive space that System Restore eats up, we have a tweak for that next!

Preparing your system: Tips 4 - 5

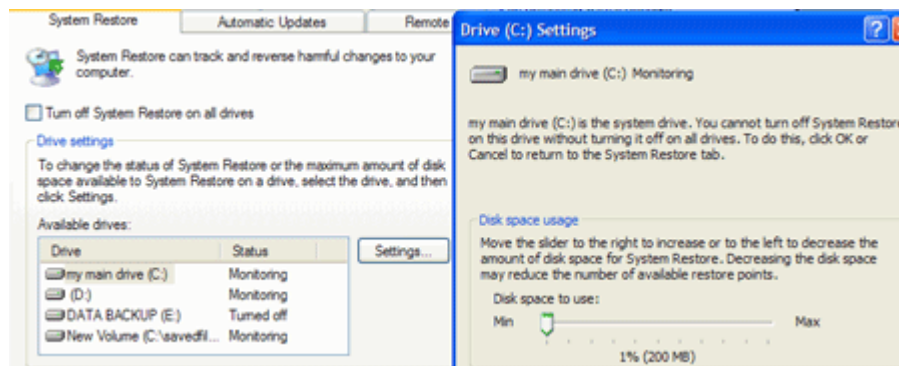
#### 4. Saving your hard drive space from the system restore utility

By default, Windows XP's system restore utility uses a mammoth 12% of each hard drive in your system. That's a lot of wasted space. By reducing this number, you reduce the amount of restore points system restore can create, but this does not adversely affect the functionality of the program. System restore will delete older restore points to make room for newer ones.

To decrease the amount of space system restore uses:

Right click on 'my computer' and select 'properties' then the 'system restore' tab.

The window below contains each of the hard disks installed on your system. Highlight each one in turn and press the 'settings' key.



Move the slider to adjust the amount of drive space used. I would recommend no more than 2-4% of each drive.

#### 5. Tweak insurance part 3: Restoring BIOS defaults

It's quite possible that during the course of some of our overclocking tips presented later in the Beginners Guide, your motherboard could seize up and refuse to boot. Don't panic. It is easy to restore the default settings of any modern motherboard fortunately.

If this happens, what you need to do is power off your system, open the side of the case and locate the CMOS battery.

This small battery provides the necessary power to store the changes you have made to the BIOS defaults. If you remove the battery or switch the BIOS clearing jumper (generally found next to the battery, but this may vary, consult your manual) the CMOS memory that holds the changes will be cleared and the BIOS defaults restored, along with your ability to boot your system.

To clear the CMOS settings:

Locate and switch the CMOS clearing jumper, then press the power button once (nothing should happen, but the BIOS will be restored) before resetting it in its original position and powering your system on.

Or

Remove the battery with the aid of a flat head screwdriver. Leave it out for about 10 minutes to be safe, then replace it and restart the system.

Or....

Some motherboard makers allow you to load in the BIOS defaults when you boot up, without having to crack open the case and fiddle around with jumpers or batteries. This may not work for every single motherboard, or computer out there, but it is worth a shot.

First power off the PC, then while holding the "Insert" key down, power the computer back up, and don't let go of that key. If things go as planned, the computer should boot up, and give some little warning about "BIOS checksums loaded." From there, you can let go of the key, and go right into the BIOS and reset it completely, or set your own favorite performance settings. Of course if this doesn't work, then go back and follow our directions for how to reset the CMOS as described above.

Preparing your system: Tips 6 - 8

6. Tweak insurance part 4: Use hardware profiles to experiment with system settings.

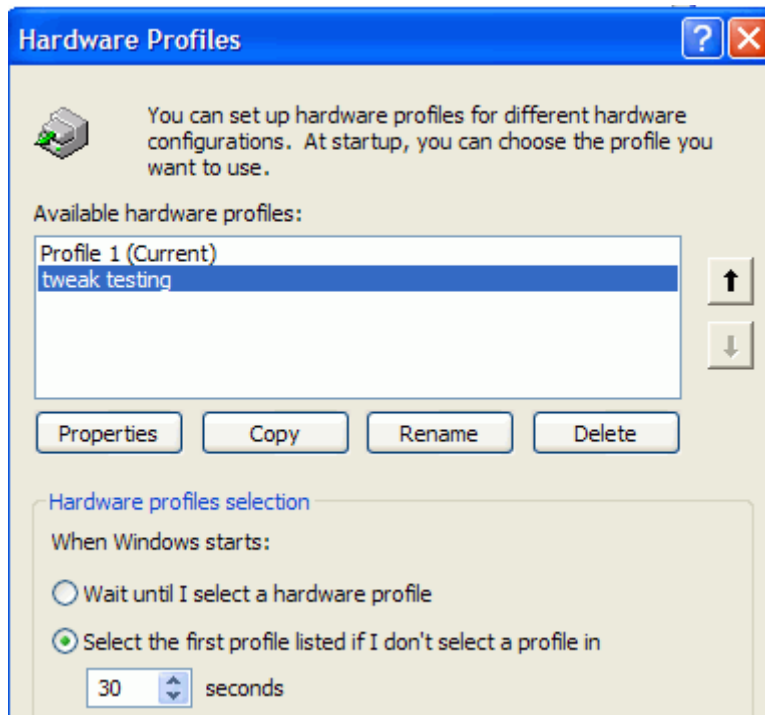
If you'd like to experiment with disabling various services to increase performance, but are afraid of changing your original configuration too drastically, consider using 'hardware profiles'.

Hardware profiles allow separate configurations of WindowsXP to be chosen at boot up time. This feature is intended for laptop users who will be transporting their system between various hardware and network setups (docking stations, different networks, etc.) and allows devices attached to the system to be activated or deactivated depending on the profile chosen.

Hardware profiles also allow services to be selectively activated or deactivated, so it's an easy matter to create a new hardware profile, reboot into that profile and experiment with services to your heart's content without fear of messing up your starting configuration.

To set up Hardware Profiles on your computer;

Right click on 'my computer' and select 'properties' then choose the 'hardware' tab and hit the 'hardware profiles' button.



If you have not used profiles before, you should only have 'profile 1 (current)' listed in the window. This is the default profile, or your current settings.

Now click 'copy' to create a duplicate profile and name the new profile as you wish. Once you have created your profile, highlight it and hit 'properties.' Check the 'always include this profile as an option' box.

Now reboot the PC and you will be prompted to select a profile. Choose your new one.

You can now configure services within your new profile. These changes will take effect only when this profile is loaded.

## 7. Editing BIOS settings

Several tips in this guide involve making changes within your computer's BIOS (Basic Input/Output System). The BIOS is the set of instructions your motherboard has built into it which allow it to work with the rest of the hardware in your system.

Some BIOS settings can be changed, and the changes stored in a small area of memory built into the board (the CMOS) which is powered by a single coin-cell battery. The actual BIOS itself cannot be changed (though it can be completely written over by a newer BIOS version, see Tip 11).

To edit the BIOS settings, most systems require you to press the DEL key while the computer is going through its initial POST (Power On Self Test) the first screen that appears after turning your system on. Once you are in the BIOS screen, changes can

be made to the available settings by highlighting the item, pressing ENTER then choosing from a list - usually with the +/- keys.

Note that these changes will not take effect until you have saved them (using the menu option) and restarted the computer. It is possible that your motherboard's BIOS may not contain some of the settings that we will edit below, as boards from various manufacturers differ widely.

Again to edit the BIOS settings:

Press DEL several times immediately after restarting your computer. Other manufacturers like IBM may require a different key (such as F2, or F6), but this should be listed on the POST screen.

Select the menu and item you wish to edit, press ENTER and choose the correct setting.

Save and exit the BIOS, which will restart your system and put your changes into effect.

## 8. Editing registry settings without restarting

Once you have made a change to the registry in Windows XP, you generally have to reboot the computer in order for your change to take effect. This is not actually necessary, as with a simple set of commands, you can cause the system to reload the registry by stopping and restarting the 'Explorer' process.

To do this:

Save and close all open files you might be working on. For example, if you are writing a document, you'll need to close this before reloading the registry.

Press CTRL+ALT+DEL to bring up the task manager.

In the 'processes' tab, highlight 'explorer.exe' and click 'end process.' All windows and desktop icons will disappear except for task manager.

Now go to the 'file' menu in task manager and select 'new task (run...).' Type 'explorer' into the text box. This will relaunch explorer and load your new registry settings without restarting.

## BIOS Tweaks: Tips 9 - 11

### 9. Change memory Latency times

If you do not intend to overclock your system much or at all, but would still like to squeeze out a little extra performance from your hardware, it's time to look at changing the latency settings of your memory. These affect the 'turnaround' time of your memory, how long it takes for the memory to prepare to send and receive data.

Understandably, lower latency times equal better memory performance, which in turn equals better system performance. Lowering latency times puts additional stress on your memory though, and may lead to system instability, especially if combined with overclocking.

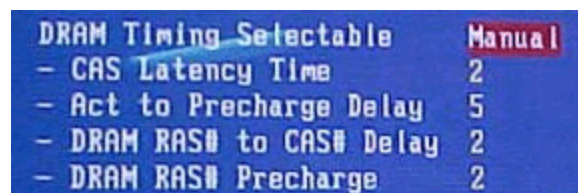
Generally speaking, the higher the speed a memory module is rated for, the higher its latency will be. Hence, memory that is designed for overclocking will often have higher latency settings than 'normal' memory. There are four significant latency settings for modern DDR memory, listed here in order of significance:

**CAS (Column Address Strobe) Latency:** The time between a data request and the data being made available. The most important value for SDRAM memory

**RAS-to-CAS latency:** Delay incurred by activating a new 'row' of memory addresses to read from. More important for DDR memory.

**RAS precharge:** How long a row of memory is held 'open' (powered) so that data can be read from it.

**ACT to precharge delay:** There are some things even us "experts" don't know - this is one of them ;-)



DRAM Timing Selectable	Manual
- CAS Latency Time	2
- Act to Precharge Delay	5
- DRAM RAS# to CAS# Delay	2
- DRAM RAS# Precharge	2

These values are often displayed as a set of four numbers illustrating the latency timing of the memory: for example, 2-2-2-5 (with the first number representing CAS latency.) These are either listed in the same order as presented above, with CAS latency leading, or with ACT to RAS precharge as the second number.

If these memory settings are available in your motherboard's BIOS, they should be in the 'advanced chipset options' section. Test your memory with lower latency values and benchmark if stable. For a slightly more in-depth look at the kind of memory you may need to have in your system to take advantage of CAS settings, please see PCstats article on Memory and CAS Latencies.

#### 10. Set the correct AGP mode

Ensure that your motherboard's BIOS is making correct use of the capabilities of your video card by checking which AGP mode is enabled.

Depending on whether your video card is an AGP 2x, 4X or 8X compatible card (most recent cards are either 4x or 8x), find the AGP mode options (usually within 'advanced chipset settings') and enable the one matching your card.

#### 11. Update your BIOS

In order to ensure that you get the maximum performance and stability out of your system, it's a good idea to make sure that you are using the latest version of your motherboard's BIOS.

Motherboard manufacturers periodically release updated BIOS versions for their products, which are designed to be written over the older software. Traditionally, the process of BIOS 'flashing' involved using a bootable floppy to start the computer in DOS, then using the motherboard companies BIOS programming software in combination with the newest BIOS version that you had acquired to update the motherboard.

Most manufacturers now offer more user friendly BIOS updating methods, some working within Windows itself. Check the website of your motherboard manufacturer for updated BIOS versions and the software to install them, which will include instructions.

The current version number of your motherboard is available both on the POST screen and within the BIOS settings screen.

BIOS Tweaks: Tips 12 - 14

#### 12. Disable unneeded ports

What do you figure the chances of you ever using your computer's serial ports are? Exactly. The same with that parallel port. Disabling unneeded ports in your computer's BIOS can streamline the boot process and net you a little performance gain. Better still, no pain is involved.

If you need the ports in the future, simply reactivate them in the BIOS. Look in the 'integrated peripherals' section of the BIOS to find your ports and disable them.

#### 13. Disable built-in features on your motherboard.

The majority of modern motherboards come with one or more system components built into the board itself ('integrated'). The most common example is an integrated sound card, but network cards, RAID cards and even video cards are also found on some newer boards.

If you are not using these integrated features, it's a good idea to disable them in your motherboard's BIOS, as they can suck up system resources and cause software confusion if you have installed alternate components without disabling the built in ones.

Most of these features will be found in the 'integrated peripherals' section of the BIOS. Disable what you are not using.

## Overclocking your processor and memory

Caution! While overclocking your memory, processor and video card can and probably will net you more performance gains than any other tip in this article, the

process of overclocking also generally voids the warranty of most of your computer hardware. Actual damage to your components is also possible, though rather unlikely if you are careful. Please be careful. We take no responsibility for any damage incurred while following these directions.

#### 14. Overclocking the memory/front side bus

The Front Side Bus (FSB) is the data channel used to carry information between the processor and the main memory. Generally this runs at the speed of the memory itself, though some newer chipsets allow the memory to run faster than the actual speed of the FSB. Since almost all data dealt with by your computer is passed over this link, increasing the speed of the FSB by overclocking it is the single best way to increase the performance of your PC.

Overclocking the FSB stresses both the processor and the memory, since both are forced to work faster.

The rated speed of the processor (in MHz or GHz) is derived from the speed of the front side bus x the CPU multiplier, which multiplies the FSB speed to arrive at the internal speed of the processor (the amount of operations it can perform in a second).

For example, a recent AMD Athlon XP 2800+ processor uses a 166MHz FSB speed (which is actually 333MHz with DDR memory, but this is not taken into account when calculating the processor speed). The AthlonXP 2800+ has a multiplier of 13, so that works out to  $12.5 \times 166\text{MHz}$  which equals roughly 2.075GHz.

So you can see, as the FSB increases, so does the speed of the processor. FSB overclocking also increases memory bandwidth (the amount of data that can be carried at one time between the processor and the memory) and this has a huge impact on performance in some applications.

To overclock the FSB:

First benchmark your system with one of the 'whole system' benchmarks listed above, or one of the 3D gaming benchmarks listed in the 'video' section of this guide. It's good to know where your system stands before you go about overclocking. That way, you'll have an idea of what kind of advantage the tweak has brought you and your system.

Find the memory/FSB frequency setting (generally found within the 'frequency\voltage control' section of the BIOS) and begin increasing the speed in small increments (3-10Mhz). Save and reboot after each change. If your PC boots successfully, run the benchmark(s) again and compare the numbers.

Repeat the process until the system fails to boot into Windows successfully. Retry once to be sure, then boot back into the BIOS and change to the previous highest setting. By running the benchmark each time, you are also testing to see how stable the overclocked system is; so if the benchmark crashes, chances are you've pushed your PC too far to run reliably.

## Overclocking Memory / CPU: Tips 15 -16

### 15. Changing the CPU multiplier

Depending on your combination of processor and motherboard, you may also be able to change the actual internal frequency multiplier of the CPU itself, which multiplies the FSB speed to arrive at the actual speed of the CPU in GHz or MHz.

For example: an Athlon XP 3000+ 'Barton' processor has a multiplier of 13 and uses a FSB speed of 166Mhz.  $166\text{Mhz} \times 13$  equals approximately 2.16Ghz. Change the multiplier to 13.5 and you get  $(166\text{MHz} \times 13.5 =) 2.24 \text{ Ghz}$ .

Although a small change to the multiplier has a larger proportional effect on your systems speed than increasing the front side bus a considerable amount, the actual performance advantage of increasing the CPU multiplier is not so simple. As the multiplier purely effects the processor's performance, the performance gained by increasing it is not felt system-wide, as is the case with overclocking the FSB. It merely enables the processor to do more work per second. In fact, it may well serve you better to decrease the CPU multiplier in order to overclock the FSB to a higher frequency than would otherwise be possible.

This is something to consider if you have high-quality memory that is rated for greater speeds than the FSB of your computer requires. Many memory producers make DDR memory that is capable of running at much higher frequencies than modern computers normally use, specifically for overclocking purposes.

The option for changing the multiplier is found in the BIOS in the same location as the FSB options, generally the 'frequency\voltage control' section.

Raise the multiplier only a step at first, in concert with overclocking the FSB. Find the maximum stable speed you can achieve, then benchmark. If you have high-spec memory, consider lowering the multiplier and increasing the FSB, then compare the new set of benchmarks to the previous ones.

### 16. Modify Processor and memory voltage

[Caution! Incautious modification of CPU and memory voltage can easily damage your components.]

If you have reached the upper limit of your PC's stock overclocking potential, consider bumping up the voltage delivered to the processor and/or the memory. By increasing the amount of voltage available to these components, you can increase their overclocked stability. Unfortunately increasing the voltage also increases the heat produced, especially in the case of the processor.

While increasing the voltage slightly generally results in a better overclock, increasing the voltage too much will simply result in a locked-up PC due to overheating, or burnt out circuits. Definitely a case of diminishing returns, unless you [invest](#) in a better cooling solution (which is beyond the scope of this article).

Be sure to increase voltage only in single increments. Once you have increased CPU voltage, experiment with overclocking the CPU and FSB again to see if you can push the system farther. It is unlikely that you will see much benefit past one or two voltage increments, especially with a stock heatsink.

## WinXP Software and Registry Tweaks: Tips 17 - 20

### 17. Stop the 'last access update' stamp

Every time a directory on an NTFS drive is accessed by Windows XP, it updates that directory and every subdirectory with a time stamp to indicate the date of access. In folders with a lot of subdirectories, this can add considerable overhead to whatever your PC happens to be doing.

This process can be disabled through the registry:

Open REGEDIT

Navigate to HKEY\_LOCAL\_MACHINES\System\CurrentControlSet\Control\FileSystem. Create a new DWORD value called 'NtfsDisableLastAccessUpdate' and set the value to '1'

### 18. Disable the 8.3 naming convention

Windows XP uses two different names for each and every file on your system. One is the name that you see in explorer and in the command prompt, and the other is an MSDOS compatible 8.3 (8 character title followed by a '.' Then three more characters to indicate the type of file) name. If you are intending to run DOS only software, or connect to pre-Windows 95 computers, you will need this second set of names. If not, you are simply wasting resources.

To disable the 8.3 naming convention:

Open REGEDIT

Navigate to HKEY\_LOCAL\_MACHINE\System\CurrentControlSet\Control\FileSystem  
Change the value of the NtfsDisable8dot3NameCreation key to '1'

Note that some popular programs, including Norton Antivirus, use the 8.3 naming convention.

### 19. Keep Windows operating data in main memory

Windows XP contains several tweakable memory settings in the registry, one of which is the DisablePagingExecutive registry key. This controls whether the operating system will transfer its essential driver and kernel files to the 'virtual memory' (the page file on the hard disk). It defaults to allowing this.

Obviously, transferring portions of the system to hard drive memory can considerably slow things down, and it appears that Windows XP does this periodically, whether or not the system is actually low on physical memory (RAM).

If you have 256MB of system memory or more, try this registry tweak to force Windows to keep its operating data in main memory:

Open Regedit.

Navigate to HKEY\_LOCAL\_MACHINE\SYSTEM\ControlSet001\Control\Session Manager\Memory Management.

Select the DisablePagingExecutive value to '1'

## 20. Obtain the newest drivers for your hardware

This may seem a bit obvious, but keeping your system's drivers up to date can give both your performance and stability a boost. Video card manufacturers release updates especially often, and these can often give "significant boosts" to gaming performance as video card in question is "optimized."

Don't neglect the other components of your system either. Your motherboard manufacturer may have released newer versions of its Input/output drivers for your board, and sound cards and other peripherals can also benefit from newer software.

## WinXP Software and Registry Tweaks: Tips 21 - 22

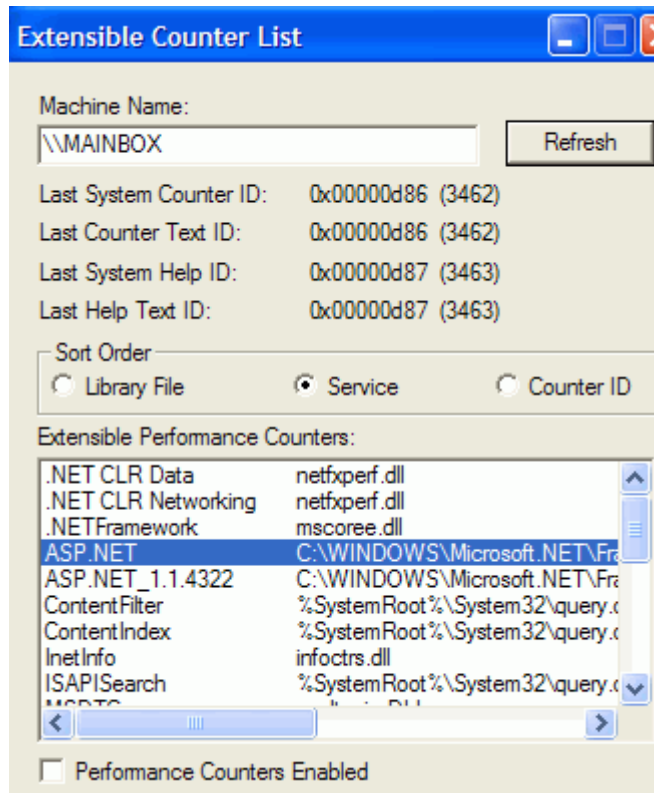
### 21. Disable performance counters

Like Windows 2000, Windows XP has a performance monitor utility (found in administrative tools) which can track several areas of your PC's performance. Everything from CPU use to hard drive access can be tracked and graphed. The information for this utility comes from several performance counter services which run behind the scenes, gathering data for the monitor.

If you have no use for this information, it's a good idea to disable the counters, since they take up system resources. Unfortunately, this is rather hard to do without the use of additional software. Fortunately, Microsoft has made the necessary software freely available on their website.

The Extensible Performance Counter List utility can be used to permanently disable these performance counters.

First download and install the utility, then run the Exctrlist.exe utility, found in 'c:\program files\resource kit\'



Select each line in the 'Extensible performance counters' window and clear the 'performance counters enabled' button below. You must do this separately for each counter. When done, just exit the utility.

Now if you load the performance monitor, you will see that it has no information available to it.

## 22. Move the page file from system drive

The page file is the area of a hard drive which Windows reserves for use as virtual memory when there is more data than can be stored in the actual physical memory of the system.

Page file access is extremely slow as compared to standard memory, since the hard disk, as a mechanical device, is slower to read and write information than the purely electronic memory. There are still some ways to optimize your page file use so it is a bit less of a burden on your system, however.

One of the best of these methods, provided you have two physical hard drives, is to move the page file off the disk which hosts the Windows system files. This ensures that Windows is not constantly accessing the disk for the system files as well as the page file.

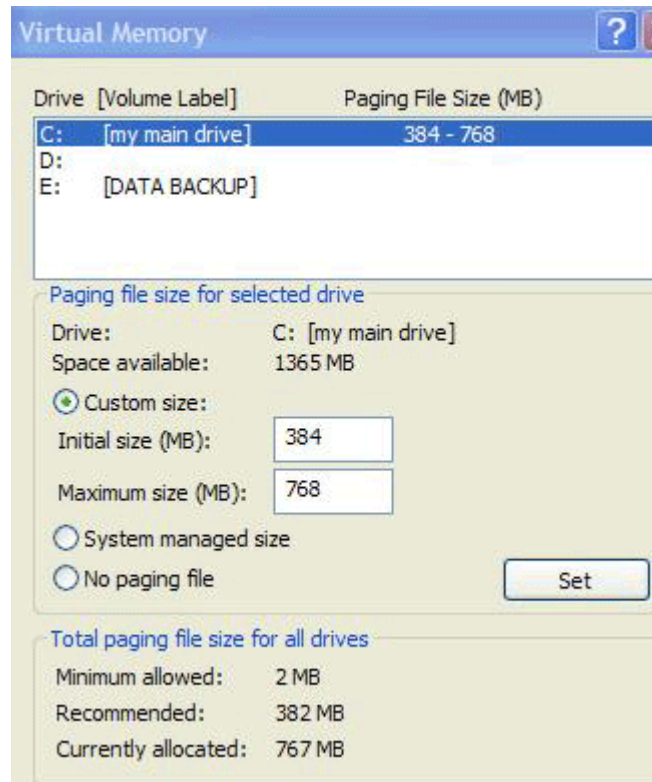
To do this in Windows XP:

Right click on 'my computer' and select 'properties.'

Select the 'advanced' tab.

Under 'performance' choose the 'settings' button.

Select the 'advanced' tab again and under 'virtual memory' select 'change.'



The virtual memory window allows you to select and change the allocation of hard disk space to be used as virtual memory for your system. For best performance; if you have two physical hard disks of roughly equivalent speed, remove the page file from your system disk (c:) and place it on the other drive.

WinXP Software and Registry Tweaks: Tips 23 - 25

### 23. Create a 'permanent' page file

Make the minimum size of the page file the same as the maximum size. This saves the operating system from needing to resize the page file, and does not lose you any extra space, since the 'maximum' size the page file can reach is the amount of hard disk space that is reserved by the OS.

Right click on 'my computer' and select 'properties.'

Select the 'advanced' tab.

Under 'performance' choose the 'settings' button.

Select the 'advanced' tab again and under 'virtual memory' select 'change.'

Highlight the drive containing your page file and make the 'initial size' of the file the same as the 'maximum size' of the file.

#### 24. Optimize your page file size

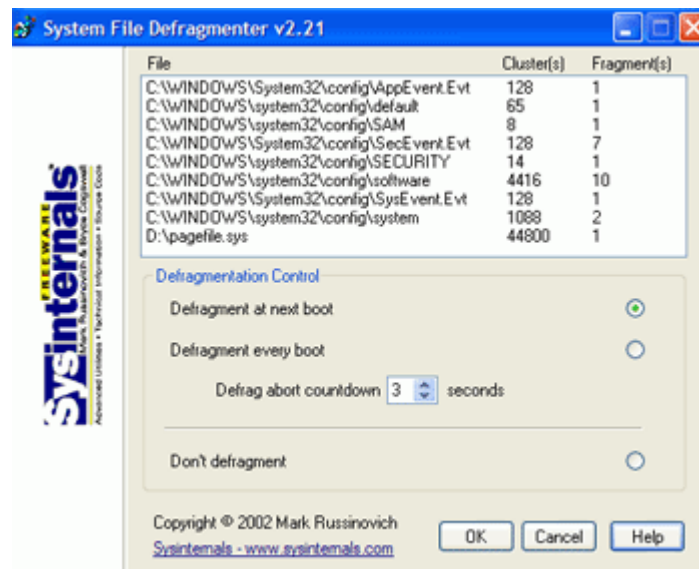
Windows XP sizes the page file to about 1.5X the amount of actual physical memory by default. While this is good for systems with smaller amounts of memory (under 512MB) it is unlikely that a typical XP desktop system will ever need 1.5 X 512MB or more of virtual memory. As a simplified guideline. If you have less than 512MB of memory, leave the page file at its default size. If you have 512MB or more, change the ratio to 1:1 page file size to physical memory size.

#### 25. Defrag page file with PageDefrag utility

While defragmenting your hard disks is a great idea, and can restore new life to your aging PC, there are certain files that the built in Windows XP defrag utility cannot access, since they are locked or accessed constantly by the operating system. These files include the page file (the area of the hard disk reserved for use as 'virtual' memory for use in addition to the system's physical memory), the event logs, the SAM and security files which handle user authentication and passwords, and several others.

Fortunately, there is a free third party utility available which can completely defragment these important files as well, ensuring that your system is as restored as possible. Sysinternals are the creators of a great many essential freeware programs for all flavours of Windows, and their [PageDefrag utility](#) can reorganize these troublesome files upon reboot.

First download and install the utility.



The window displays the list of reserved files, and how fragmented they have become. Choose 'defragment at next boot' then press 'ok.' The next time you restart your computer, PageDefrag will defragment the listed files.

## WinXP Software and Registry Tweaks: Tips 26 - 28

### 26. Set priority for important programs

If you customarily use one program a majority of the time you can 'focus' your system on that one particular application by increasing its priority. Priority is the measure that Windows uses to determine the share of processor time that each application receives. By default, most applications are set to the 'normal' priority level, so by changing your favourite app to a higher level, you can boost its performance, especially when you are using other applications at the same time.

To set priority load the program you wish to change the priority for.

Press CTRL+ALT+DEL to bring up the Task Manager.

Select the applications tab and highlight your program.

Right click the program and select 'go to process.'

Now right click on the highlighted process and choose 'set priority.'

The higher you set the priority above normal, the more CPU time the program will steal from other applications when you are multitasking.

### 27. Check your hard drives with scandisk

With time and heavy use, a myriad of data problems and physical problems can develop and mar the performance of your hard drive, not to mention cost you precious space. While defragmenting the drive can help restore much of the performance you might have lost, there are other issues such as lost clusters and bad sectors which the defragmentation utility cannot touch.

Because of this, it is a good idea to run XP's built in error checking utility on your drives once in a while. This utility will scan your disks for errors and optionally attempt to correct them.

Open 'my computer.'

Right click the hard disk you wish to check and select 'properties.'

Choose the 'tools' tab and under 'error checking' select the 'check now...' button.

Check both options. You will need to restart the computer to do the full disk check.

Your disk will be fully checked for errors upon reboot, but be aware that this can take quite a while.

## 28. Force XP to unload DLL files after closing a program

Dynamic Link Libraries, or DLLs, are files containing data or functions that Windows programs can call when needed by linking to them. Every piece of windows software will include instructions to the operating system as to which DLLs it will need to access, and XP will cache these particular files in memory for faster access.

The trouble is, Windows XP keeps these DLLs cached after the relevant program has closed, wasting memory space. While DLLs are generally tiny, enough of them can make a dent, so it's worthwhile to implement this registry tweak, which will force Windows XP to unload DLLs used by a specific program when that program halts.

To do this, first run REGEDIT.

Navigate to  
HKEY\_LOCAL\_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Explorer.

create a new key named 'AlwaysUnloadDLL' and set the default value to equal '1.'

## WinXP Software and Registry Tweaks: Tips 29 - 31

### 29. Thaw out your desktop

Every version of Windows has suffered from occasional 'desktop freezing.' You know the symptoms... You tell Windows to do something it doesn't like and everything except your mouse pointer slows to a c-r-a-w-l. You can open the start menu but applications won't load or close. Very frustrating.

Fortunately there can be a cure for desktop freeze, at least in Windows 2000 and XP, and it's an easy one. First, save any data you are working on, the press CTRL + ALT + DEL to bring up the task manager.

Select the 'processes' tab and highlight 'explorer.exe' then click 'end process'.

Without exiting from task manager, click 'file\New Task' and type 'explorer.exe.'

You should find that your computer has thawed itself out again.

### 30. Speed up mouse movement, part 1

Windows XP applies an acceleration curve to the mouse by default, meaning that every time you move the pointer, it starts out slowly and accelerates with continual movement. If you like a really fast and precise mouse setting, you may find that even increasing the mouse speed in the 'pointer options' tab of the mouse entry in the control panel does not get you the speed you want. A good partial solution is to

uncheck the 'enhance pointer precision' box below the mouse speed setting in the 'pointer options' tab.

While this does not completely remove the acceleration curve, it mostly does, allowing your mouse to reach much higher speeds in normal operation.

### 31. Speed up mouse movement, part 2

As stated in the previous tip, Windows XP applies an acceleration curve to the mouse which can be disabled for better overall mouse performance, especially during games. Unfortunately, the option in the control panel as detailed above does not fully disable mouse acceleration. To do this, it is necessary to make some registry changes.

First, open up REGEDIT and navigate to 'hkey\_current\_user\control panel\mouse'

Change the value of 'smoothmouseXcurve' to the following:

```
00,00,00,00,00,00,00,00
00,a0,00,00,00,00,00,00
00,40,01,00,00,00,00,00
00,80,02,00,00,00,00,00
00,00,05,00,00,00,00,00
```

Then change the value of 'SmoothMouseYCurve' to the following:

```
00,00,00,00,00,00,00,00
66,a6,02,00,00,00,00,00
cd,4c,05,00,00,00,00,00
a0,99,0a,00,00,00,00,00
38,33,15,00,00,00,00,00
```

This should eliminate the acceleration curve of the mouse once and for all.

## WinXP Software and Registry Tweaks: Tips 32 - 35

### 32. Create a RAID configuration on your system to boost hard disk performance

If you are using Windows XP Professional or Windows 2000 and you have more than one hard drive installed, you can create a RAID 0 'stripe' to speed up hard disk performance.

RAID, or Redundant Array of Inexpensive Disks, is a technology that allows for data to be dispersed among two or more hard disks at once, providing additional speed or additional data security or both depending on the configuration. While the more sophisticated forms of RAID are intended for corporate setups, Windows XP Professional includes the most basic RAID configuration, RAID 0, as part of the package.

RAID 0, or 'data striping,' takes two disks or portions of two disks and turns them into one 'logical' drive that the computer can address (like C:). All data written to that drive is split evenly between the two drives. Since both drives can be written to or read from at once, this increases data transfer speed.

A RAID 0 setup requires at least 2 hard drives, each with some unpartitioned space. For complete instructions on creating a RAID 0 setup on your Windows XP system, see PCstats RAID article [here](#). The action begins on page 5!

### 33. Disable the themes service

If you are not a fan of the appearance of Windows XP, there is an easy way to turn it off and go back to the more sober and traditional Windows style. Simply disable the 'themes' service to restore a classic windows desktop appearance.

To do this, right click on 'my computer' and select 'manage.'

In the computer management windows, expand 'services and applications' and select 'services.'

In the right hand window, highlight the 'themes' service. Right click it and select 'properties.'

In the 'startup type' dropdown box, select 'disabled.'

### 34. Remove the desktop picture

Your desktop background consumes a fair amount of memory and can slow the loading time of your system. If you are more concerned with performance than looks, remove your picture and go with a blank, coloured background.

Right click on an open area of the desktop and select 'properties.'

Select the 'desktop' tab and in the 'background' window, highlight 'none.' Press 'ok.'

v

Think we're just pulling your leg? Nope, every computer in the PCstats labs that gets tested goes through this same step before we run a single benchmark.

### 35. Change to the NTFS file system

If you are using Windows XP, it's a good idea to convert your system drive to the NTFS file system if you have not already. In addition to providing numerous security and data recovery improvements over FAT32 (the file system of choice for Windows 9x/ME and XP Home) it can also speed up your system slightly.

In fact, the only real reason for sticking with the FAT32 file system for any of your data is if you have more than one operating system on your PC and the other OS's can only see FAT32 partitions (as would be the case with Windows 98, for example, which is incapable of reading NTFS data).

To convert your drives to NTFS:

Right click on 'my computer' and select 'manage'

From the computer management window, expand storage and select 'disk management.'

The screenshot shows the Windows Disk Management console. The top pane is a table with columns: Volume, Layout, Type, File System, Status, Capacity, Free Space, % Free, and Fault Toler. The bottom pane shows a graphical representation of the disks. Disk 0 (19.13 GB) has a single partition (C:) with NTFS file system. Disk 1 (38.17 GB) has two partitions: (D:) with FAT32 file system and DATA BACKUP (E:) with FAT32 file system. A legend at the bottom identifies colors: blue for Primary partition, green for Extended partition, light green for Free space, and dark blue for Logical drive.

Volume	Layout	Type	File System	Status	Capacity	Free Space	% Free	Fault Toler
(C:)	Partition	Basic	NTFS	Healthy (System)	19.13 GB	1.63 GB	8 %	No
(D:)	Partition	Basic	FAT32	Healthy (Active)	24.41 GB	5.97 GB	24 %	No
DATA BACKUP (E:)	Partition	Basic	FAT32	Healthy	9.76 GB	99 MB	0 %	No

Disk	Capacity	Online	Partition	Capacity	File System	Status	Free Space
Disk 0	19.13 GB	Online	(C:)	19.13 GB	NTFS	Healthy (System)	
Disk 1	38.17 GB	Online	(D:)	24.42 GB	FAT32	Healthy (Active)	
			DATA BACKUP (E:)	9.77 GB	FAT32	Healthy	3.98 GB Free space

Using the 'file system' column of the upper pane of this window, you can easily check what file system each of your logical drives is using. Make a note of this information.

Now open a command prompt window by going to 'start\run' and typing 'cmd'

To convert a disk to NTFS, type 'convert (drive letter): /fs:ntfs'

So for example, if you were going to convert your C: drive, you would type 'Convert c: /fs:ntfs' at the prompt.

WinXP Software and Registry Tweaks: Tips 36 - 40

### 36. Perform a manual Application and Boot file Defrag

Windows XP has a feature which optimizes application and operating system boot times by moving the relevant files to the outer edges of the hard drive for faster disk access. This defragmentation process is actually scheduled to take place automatically every three days or so, but it can also be activated manually. Depending on your system, this can give a slight performance boost to data access from the affected drive.

Open command prompt ('start/run' and type 'cmd').

Type 'defrag (drive letter): -b'

The process may take a few minutes to complete.

### 37. Disable the hibernation feature

Windows XP's hibernation option allows a computer to copy its current memory contents to the hard drive before shutdown, allowing the system to resume operations exactly where it left off when it was powered down. To do this, it reserves space on the hard drive equal to the amount of physical memory present. If you do not plan to use the hibernation feature, you should ensure that it is disabled, or you are wasting disk space.

To disable hibernation:

Go to 'start/control panel/performance and maintenance/power options.'

Go to the 'hibernate' tab and uncheck the 'enable hibernation' check box.

### 38. Disable automatic sensing on network cards

This tweak may help your performance by reducing occasional 'slowdown' periods of heavy CPU access for no apparent reason. By default, Windows XP automatically assesses the speed of your network card(s) and sets them accordingly. Apparently this process occurs at regular intervals, which can cause your system to slow occasionally. To remedy this, you can manually set the 'media type' of your network card to the correct value.

Right click on 'my computer' and select the 'hardware' tab.

Open 'device manager.'

Find and highlight your network card(s). Right click it and Hit 'properties.'

Go to the 'advanced' tab and highlight 'media type.' In the 'value' drop down box, select the correct speed for your network card. Press 'ok.'

### 39. Use the prefetch switch to load applications faster

Windows XP's media player has a little extra command included in its shortcut, the '/prefetch: 1' switch. This helps the application load slightly faster. You can try out this possible performance boost on other programs by editing the shortcuts to the program in question.

Right click the shortcut and hit 'properties.'

In the 'target' box, put '/prefetch: 1' at the end of the line.

Press 'ok.'

Note that this may cause loading errors in some programs. If it does not work, simply remove the /prefetch:1 entry from the shortcut.

#### 40. Verify DMA mode is set for all drives

When Windows XP is installed, hard disks and CD drives may occasionally be set to the PIO mode for transferring data, which is slower than the default DMA (Direct Memory Access) mode used by all modern drives. A quick check of your drive settings can find and correct this error, allowing your drives to perform at their maximum.

To check and correct your hard drive and CD drive transfer settings right click 'my computer' and select properties, then the 'hardware tab' then the 'device manager' button.

Expand 'IDE ATA\ATAPI controllers' highlight 'primary IDE channel' and hit the 'properties' button.

Go to the 'advanced settings' tab, and ensure that the transfer mode is set to 'DMA if available.'

Repeat the above steps for the secondary IDE channel.

#### WinXP Software and Registry Tweaks: Tips 41 - 43

##### 41. Do a Windows repair install

If you are having serious performance issues with your XP system, or are getting repeated crashes and/or error messages, it could well be a problem with Windows XP's system files. If one or more of these files has become corrupted, or if the hardware configuration of the computer has changed significantly since you first installed Windows XP, performing a repair install may well be the ticket to resolving your problems.

A repair installation re-writes all essential Windows XP system files and re-detects all hardware without affecting the registry, current desktop settings or user data stored on the hard drive. This is the only way short of a full installation that can recover from errors caused by installing a different motherboard in an XP system, for example.

To perform a repair installation:

Boot the system from your XP CD.

Choose the 'press enter to set up Windows XP now' option.

Press F8 to skip through the EULA (though if you haven't read it before, you should now).

Now press R to begin a repair installation.

Your system will go through the entire XP install process, but will not attempt to replace any of your existing data. It will simply reinstall the vital system files, fixing any that are corrupted or missing.

#### 42. Stop hard disks spinning down

By default, Windows XP spins down all hard drives after 20 minutes of inactivity to save power. This can cause significant delays when it is necessary to access the drives after this time. To increase performance and reduce wear and tear on your drives, disable this feature in Windows XP's power options.

Go to 'start/control panel/performance and maintenance/power options.'

Set the 'turn off hard disks' drop down box to 'never.' Click 'ok.'

#### 43. Reduce recycling bin reserved space

By default, Windows XP reserves 10 percent of each hard drive to store deleted files in the recycling bin. This is a bit excessive. Actually it's a lot excessive, unless you habitually delete files a gigabyte in size or more. Fortunately, there is an easy way to reduce the amount of hard disk space that is reserved for the recycling bins on each drive.

Right click on the recycling bin and select 'properties.'

Choose the 'global' tab.

The slider shows the percentage of each drive that is reserved by the recycling bin. Reduce this to a more appropriate amount, like 2-3% or more depending on the size of your drives. The larger the drives, the smaller the number you should use. If you wish to configure each drive independently, check the 'configure drives independently' button and adjust the slider to the desired amount in each of your hard disk's tabs. The advantage to doing things this way instead of using the 'global' setting is that you can see the actual amount of space on each drive that is being reserved.

Note that files larger than the recycling bin's capacity on a given drive are deleted for good. Windows XP will warn you when this condition occurs.

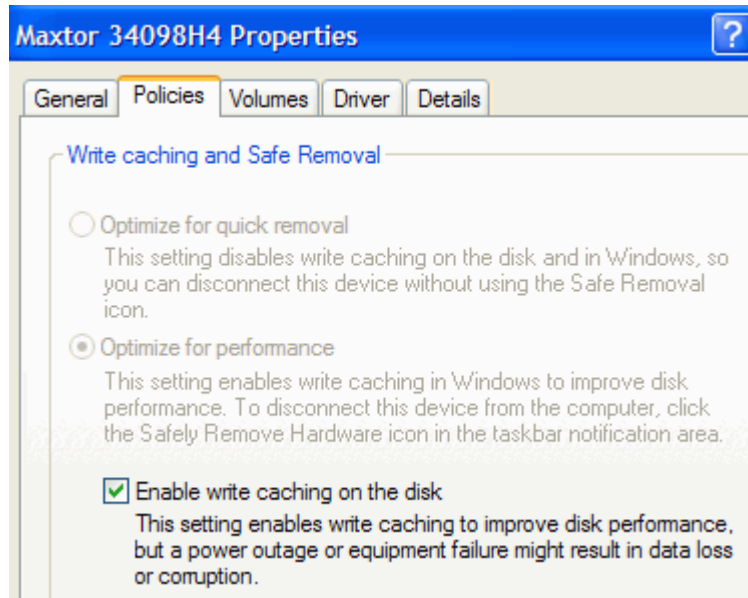
WinXP Software and Registry Tweaks: Tips 44 - 45

#### 44. Enable write caching on hard disks

If it is not already selected, enabling the hard drive write-back cache setting on each of your hard drives can improve their performance by making the transferring of data between the drive and the memory more efficient. The only reasons not to enable this setting would be if the drive in question is in a hot-swappable drive rack, or if you expect your PC to be shut down incorrectly (I.E. not through the windows shutdown procedure) often.

To enable write caching right click on my computer and select 'properties.'

Select the hardware tab, then 'device manager.' From the device manager window, expand 'disk drives' and highlight your hard disk. Select 'properties' then the 'policies' tab.



Check the 'enable write caching on the disk' box.

Repeat the above steps for all hard drives in your system.

#### 45. Defragment your hard disk(s)

When an operating system writes data onto a hard drive, it will generally attempt to place the data on the drive as sequentially as possible, in order to facilitate faster retrieval of the information. Over the operational life of the drive, various factors can cause data to become scattered, or fragmented, over the surface of the drive.

This does not mean it cannot be read, since the file system retains a table which links each cluster (the smallest unit of storage available on a hard drive) of data with the other clusters on the disk that contain data for a particular file.

Fragmentation does slow down drive access considerably though, since the drive has to constantly seek for a new disk location to piece a file it is reading together from the fragmented clusters, rather than just being able to grab it off the disk in one continuous stream of data. Factors that can cause fragmentation include incomplete uninstalls of software, system crashes while the disk is in use, improper shutdown of the operating system, etc.

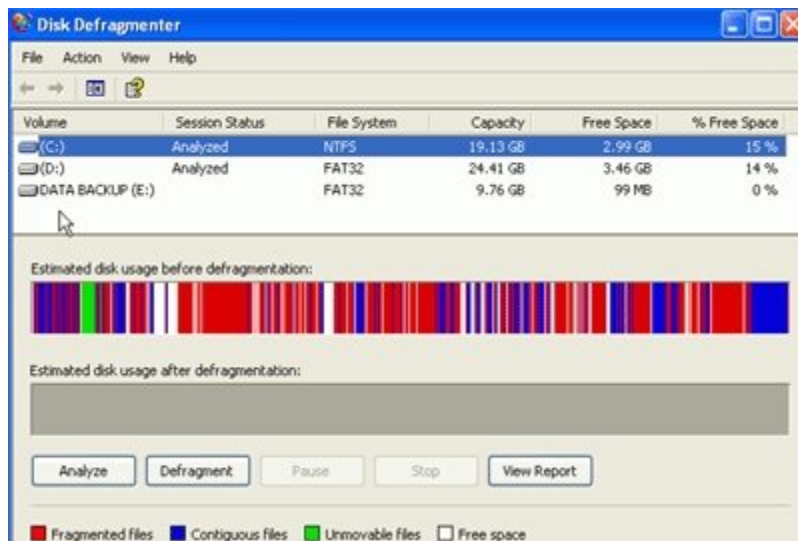
Defragmentation is the process of reassembling the data on the disk into coherent and sequential order, making disk access easier and faster. If your drive has gone a long while without being defragmented, you may find that this process restores a lot

of zip to your Windows install. All recent versions of Windows include a built-in defragmentation utility.

To access this utility in Windows XP, go to 'start\programs\accessories\system tools\disk defragmenter.'

To begin with, you need to analyze your hard disk(s) to see if defragmentation is needed. Select a drive and hit the 'analyze' button. This could take a little while depending on the amount of data on the drive.

Once the analysis is finished, you will have a graphical representation of your disk's level of fragmentation. See the pic below for an example of a highly fragmented drive (red indicates fragmented files).



Windows will also inform you if it recommends defragmenting the drive. You must have 15% of the drive free in order to fully defragment it. Anything less will result in only a partial re-ordering of the files. You may need to delete a few things to obtain this free space.

To defragment the drive, select it and hit the 'defragment' button. Note that depending on the size of the drive and the level of fragmentation, this can take a long time. It's a good thing to leave overnight, since you should not run anything else while doing the defrag.

## WinXP Software and Registry Tweaks: Tips 46 - 48

### 46. Turn off the indexing service

Windows XP includes a new feature called 'indexing' which constantly creates and updates an index of files in your PC. This index is mainly used for speeding up file searches. The indexing feature is largely useless unless you find yourself using file search a lot, and it sucks up system resources, so it is recommended that you disable it for performance purposes.

To turn off file indexing go to Control Panel\Add/Remove Programs\Windows Components. and uncheck 'Indexing Service.'

## Video and graphics tweaks

### 47. 3D Game Benchmarks

If you would like to test your computer's ability to run contemporary 3D games, as well as have another scale on which to measure the improvements you have made to your system by tweaking and overclocking, consider some 3D benchmarking software.

The most popular 3D gaming benchmarks currently available are [Futuremark's 3Dmark 2001](#) and [2003](#). Both of these applications allow you to post your results online and see the scores achieved by other users with comparative computer setups. This will give you a good idea of what kind of scores and performance you can expect to achieve with overclocking, tweaks, etc. Other popular 3D benchmarks include [Aquamark3](#) and [CodeCreatures](#). Many 3D game producers create benchmarking programs based off of their latest game engines in order to allow users to measure and tweak their systems before they purchase the game itself.

Just be careful. Benchmarking your system for gaming can become as habit forming as gaming itself.

### 48. Change your Monitor's refresh rate (CRT monitors only)

This is not necessarily a performance tip (though it can be - see the tip below on disabling VSYNC for more details), but it will certainly make your computing life easier on the eyes.

All versions of Windows including XP tend to default to a 60Hz screen refresh rate on CRT (Cathode Ray Tube) monitors. This equates to 60 screen updates a second, creating a barely perceptible flickering which can cause eyestrain after a while. It's highly recommended that you increase this refresh rate to something more constant, like 75 or 85Hz.

This makes the image presented much easier on the eyes by refreshing the screen faster than we can actually perceive. While the refresh rates that different monitors and video cards can achieve vary, if you have anything bigger than a 15-inch monitor, it should be able to manage 800x600 resolution with at least 75Hz, making for a much higher quality image. Virtually any video card made within the last 5 or 6 years will be able to handle this too.

To increase your monitor's refresh rate:

Go to 'start\control panel\display' and select the 'settings' tab.

Click the 'advanced' button. Choose the 'adaptor' tab and hit the 'list all modes' button. This will bring up a windows displaying all the possible combinations of resolution, # of colours and refresh rates that your video card\monitor combination

can achieve, with your current setting highlighted. If your current setting uses 60 or 70Hz refresh rate, consider increasing it if there is a higher refresh rate available.

## Video and Graphics Tweaks: Tips 49 - 52

### 49. Fix the refresh rate for 3D games

Windows XP, like Windows 2000 before it, has a dirty secret. This secret is its tendency to drop the refresh rate of the screen down to 60Hz when playing full screen DirectX 3D games. So while you might not be aware of it, there is a good chance that you are playing your favourite games at only 60Hz, increasing eyestrain and capping your frames per second at 60 unless you have VSYNC disabled (see the tip below). Fortunately, the newer versions of both the ATI and Nvidia drivers come with a utility that can override this refresh rate limitation.

To override the DirectX refresh rate with an ATI video card:

Go to 'start\control panel\display' and select the 'settings' tab then hit 'advanced.

Select the ATI tab called 'displays' then click the 'monitor' button below

Set the 'refresh rate override' dropdown box to your preferred refresh rate, or 'same as desktop.' Hit 'ok.'

To override the DirectX refresh rate with an Nvidia video card:

Go to 'start\control panel\display' and select the 'settings' tab then hit 'advanced.

Select the tab that has your video card's name on it to go to the Nvidia driver settings.

Select the 'refresh rate overrides' setting.

Choose the resolutions that you commonly play games in (800x600, 1024x768, 1280x1024) and double click the 'default' to open a drop down box. Select your desired refresh rate for that resolution.

### 50. Enable AGP Master 1WS Write/Read

This is one of several BIOS AGP settings that can make a difference to graphic performance if your BIOS and your card support them. Usually found in the 'advanced chipset features' section of the BIOS as two separate settings, one for read and one for write.

Ensure that they are enabled for better performance.

### 51. Enable AGP Fast Write

The AGP fast write BIOS setting allows the processor to communicate directly with the graphics processor, ignoring the need to send data through the system's

memory. This should be enabled to provide a performance boost. You should ensure that your video card supports fast writes before setting this option, however.

Almost all recent video cards do support AGP fast write. This setting is generally found in the 'advanced chipset features' section of the BIOS.

## 52. Set Video Memory Cache Mode

There should be two options for this setting, if it is present in your BIOS. UC (uncacheable) and UCWC (uncacheable speculative write-combining). The UCWC setting allows the video card to buffer information moving between the processor and the video memory, making for more efficient data transfer. The UC setting disables this buffering. If your card supports it, enabling UCWC will provide a performance advantage.

## Video and Graphics Tweaks: Tips 53 - 54

### 53. Overclocking ATI video cards

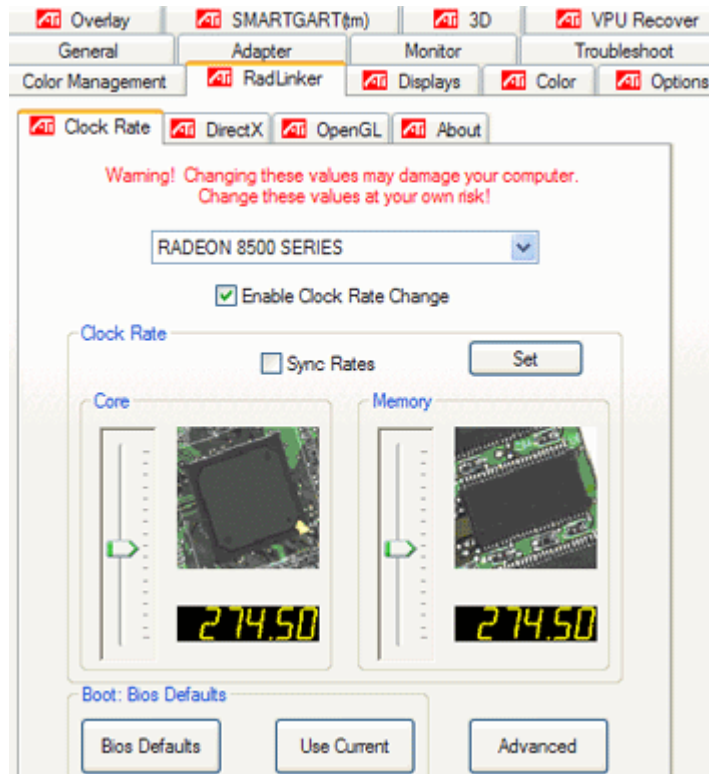
Unlike their Nvidia counterparts, ATI does not build an (albeit hidden) overclocking feature into their drivers, so third party software is necessary. For the purposes of this guide we will use the [Radlinker utility](#) though there are several other free programs you could also use.

To overclock an ATI video card with Radlinker:

Install the program.

Go to 'start\control panel\display' and select the 'settings' tab then hit 'advanced'.

Select the 'Radlinker' tab.



Check the 'enable clock rate change' box. The sliders below are now enabled, allowing you to overclock the memory and processor speed. Click the set button to set the desired rate, then benchmark the card. Watch for visual problems in the benchmarks as you run them, and back off the speed once they are present.

Once you have an acceptable overclock, use the 'use current' button below to apply the changes every time you boot.

#### 54. Overclocking Nvidia Video cards

Nvidia's video driver package has an overclocking component to it, but it is disabled by default and can only be re-enabled by editing the registry manually or with a file.

To activate overclocking in Nvidia cards:

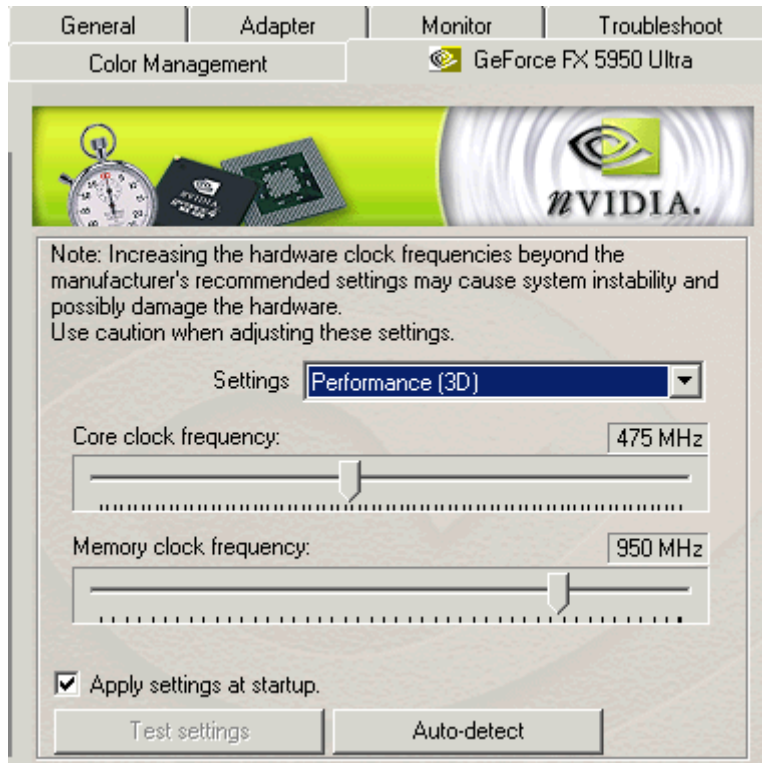
Open REGEDIT

Navigate to 'HKEY\_LOCAL\_MACHINE\Software\NVIDIA Corporation\Global\NVTweak'

Create a new DWORD value called 'Coolbits' and give it a value of '3'

Reboot.

Known as 'coolbits' due to the name of the registry entry that must be added, this feature creates a 'clock frequency' page in the Nvidia display software.



From here you can adjust the GPU and memory clock speeds. Before applying the settings you must allow the drivers to test them. Note, this is not a guarantee of successful overclocking, just a test for basic stability. You can also use the 'auto detect' button, which will attempt to determine the recommended level of overclocking. Use of this feature generally results in slightly conservative settings, but it makes a good reference point. Changes will be applied automatically upon pressing 'ok.'

One thing that can make overclocking complicated on newer Nvidia graphics cards is the fact that the graphics processors have a thermal safeguard and will actually slow themselves down to avoid damage from excessive heat. Overclocking the card of course produces more heat, and eventually you will reach a point where the safeguard kicks in and your benchmark scores will drop perceptibly no matter how much more you overclock the card.

Fair enough, but the trouble is, even if you crank the card back down to more conservative settings once you have reached this point, chances are the safeguard will still be in effect until the card gets a proper chance to cool down a bit (by rebooting, for example.).

This can make benchmarking for best performance more complicated than it needs to be. Best practice then is to increase by increments and make note of when your benchmark scores begin to drop. In this way you get a good idea of the maximum safe level of overclocking for the card.

Once you have found an optimal level, use the 'apply settings at startup' checkbox so you do not have to reenter the settings after a reboot.

## Video and Graphics Tweaks: Tips 55 - 57

### 55. Disable VSYNC

If you are looking for a frame rate advantage in your 3D game or video benchmark of choice, and you are not overly concerned about image quality, try disabling the VSYNC or 'wait for vertical synchronization' setting in your card's direct3D and OPENGL settings. The VSYNC setting basically forces the video card to conform to the screen refresh rate of the monitor, meaning that the card will not send new display data to the monitor until the previous data has been fully displayed.

This has the effect of capping the maximum frames per second displayed at the refresh rate of the monitor. Newer video cards especially may well be able to render considerably more frames per second than this, and disabling VSYNC will allow them to. The penalty for this varies. In some games, quality loss will be imperceptible. In others it will be unbearable. Try disabling VSYNC and observing the results, especially if you are trying to boost benchmark scores.

To disable VSYNC on ATI cards:

From advanced display settings, go to the '3D' tab and check the 'use custom settings' box for both direct3D and OpenGL. Press the 'custom...' button to access the controls for both modes. Turn the 'wait for vertical sync' slider all the way to the left.

To disable VSYNC on Nvidia cards:

From advanced display settings, go to the tab that identifies your video card model. The VSYNC settings are located in 'more direct3D settings' and 'OpenGL settings.'

## Network and Internet speed tweaks

### 56. Increase maximum number of simultaneous connection in Internet Explorer

By default, Internet Explorer 6 allows only two simultaneous server connections, which is fine for normal use, but can bog down when you are connecting to web pages with lots of graphical content. By increasing the number of possible connections, you can use your Internet bandwidth more efficiently, and load complex web pages faster.

To increase IE maximum connections:

Start REGEDIT.

Navigate to  
'HKEY\_CURRENT\_USER\Software\Microsoft\Windows\CurrentVersion\Internet Settings'

Add the following two DWORD entries:

'MaxConnectionsPer1\_0Server' value equals '0000000a'  
'MaxConnectionsPerServer' value equals '0000000a'

Exit and reboot.

#### 57. Wifi 802.11b devices slow down 802.11g networks

802.11g wireless devices have recently become extremely affordable, and given their clear speed advantage over the previous generation of 802.11b devices, they are being adopted quickly. 802.11g is also completely backwardly compatible with 802.11b, but... this backwards compatibility carries one major disadvantage.

Connecting an 802.11b client to an 802.11g wireless network will drag down the speed of the entire network due to signaling compromises that need to be made to accommodate the older device. Expect average throughput to be about half of what it would be if the network contains only 802.11g devices. So if you are hosting an 802.11g wireless network, consider upgrading your clients to WIFI 'g' devices also.

#### Network and Internet Speed Tweaks: Tips 58 - 61

##### 58. Proprietary modes for wireless networking

Many wireless product vendors include support for various proprietary wireless modes which offer considerably increased bandwidth and speed under certain conditions. Generally these devices (such as the 'super G' products offered by many manufacturers, which support up to 108Mbps bandwidth) require all wireless clients to support the same mode. Since these higher-speed modes are not generally enable by default, it's a good idea to check your existing wireless equipment to see if there is some way to squeeze more speed out of it.

Just because the box advertises a certain maximum speed does not mean that your wireless router and network cards are actually reaching that speed currently.

##### 59. Closer is better for wireless

Again a simple tip, but one that can make a world of difference to wireless performance in your home, especially if you are using the older 802.11b standard, where data transfer is slow to begin with. The stronger the wireless signal, the faster and more reliable the data transfer will be. While 802.11b and g devices are supposed to work effectively up to 300 feet from a wireless access point, the range of individual products varies widely, and obstructions and atmospheric conditions also affect this number. Most common obstructions (such as typical wooden flooring in a house) provide less of an obstacle to a wireless signal than an increase in distance does, so plan your wireless placement accordingly.

##### 60. Enhance your Internet connection

If you have a broadband connection, either DSL or cable, chances are there's a few things you could do to optimize its speed. Windows XP uses a variety of registry settings to control how fast data is passed to and from network interfaces, so tweaking these settings to more accurately reflect the capabilities of your connection is a good idea. As there are a number of rather esoteric locations in the registry that

need to be changed in order to tweak your connection's speed, refer instead to the selection of [registry files here](#) to automatically set the correct values for your system.

#### 61. Increase DNS cache size

As written above, Windows XP uses a DNS cache to store recently visited Internet addresses. This cache is referred to before a request is sent out over the Internet when the user requests a web page address. If the IP address corresponding to the web address is in the cache, that address gets used, saving time. If it is not, your computer needs to find out the correct IP address by asking a DNS server over the Internet.

Items are kept in the cache for a finite amount of time and are constantly bumped to make room for more recent addresses. By increasing the size of the DNS cache, you can increase the speed of your web browsing, especially if you regularly check the same web pages.

To increase the size of the DNS cache, open REGEDIT and navigate to; 'HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\Dnscache\Parameters'

Create the following DWORD values:

```
CacheHashTableBucketSize = 1  
CacheHashTableSize = 180  
MaxCacheEntryTtlLimit = ff00  
MaxSOACacheEntryTtlLimit = 12d
```

Exit and restart.

#### Network and Internet Speed Tweaks: Tips 62 - 63

#### 62. Disable DHCP with DSL connections

If you use a DSL modem to connect to the Internet, and you dial the connection directly from your computer, you may notice a rather long delay between the time the Windows desktop appears when booting up and when you can actually dial your connection. This delay can sometimes be up to two or three minutes, and can be extremely frustrating since it tends to lag other applications as well. The source of this delay is Windows XP attempting to locate an IP address for the network adaptor you are using to connect to the DSL modem.

This only occurs if the adaptor in question is set to 'obtain an IP address automatically' meaning Windows will actively seek to find an IP address for that adaptor from an outside source before assigning it one of its own range of addresses.

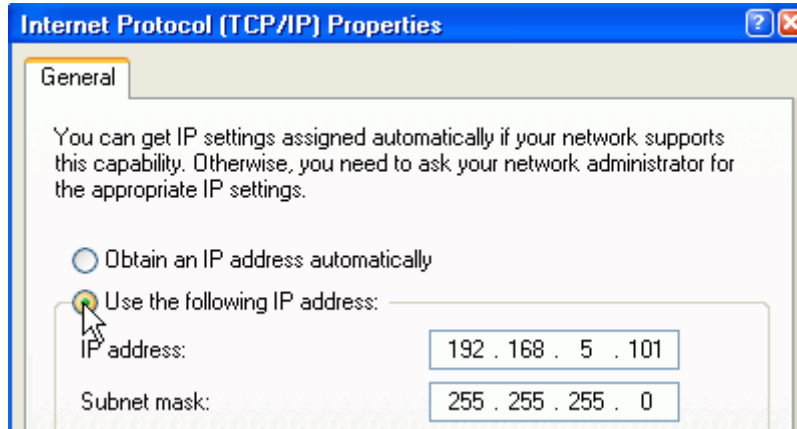
You can halt this behavior by simply assigning the network adaptor an IP address manually. It doesn't matter which IP address, as long as it is in one of the private address ranges (like 192.168.xxx.xxx). This will not effect your Internet connection, as the DSL modem and the adaptor form a separate 'virtual' connection which is assigned an IP address by your Internet service provider.

To assign your network card a manual (static) IP address:

Right click on 'my network places' in the start menu and hit 'properties.'

Highlight the network adaptor that is connected to your modem. If you have only one network adaptor, this will be 'local area connection.' Right click and select 'properties.'

Highlight Internet Protocol (TCP/IP) and click 'properties.'



Check 'use the following IP address' then in the 'IP address:' field, enter '192.168.5. (Pick a number between 1 and 254)' Enter '255.255.255.0' in the 'subnet mask:' field. Click 'ok.'

The next time you reboot, the delay should be gone, and you will be able to access your connection right away.

### 63. Do not cache failed DNS entries

By default, Windows XP will cache the IP addresses connected to DNS names (such as website addresses) as they are entered into your browser. This speeds up subsequent visits to the same addresses because the system does not have to search for the IP address that the DNS name represents.

This is good for Internet performance as a whole, but it does have a downside. If you type in a valid URL that is not functioning at that point in time, Windows will cache the unsuccessful result, meaning that all attempts to access that address may fail until the failed entry is gone from the cache. This takes about 5 minutes.

You can prevent Windows XP from caching unsuccessful DNS lookups by creating three new registry values.

To do this open REGEDIT and navigate to:

'HKEY\_LOCAL\_MACHINE\SYSTEM\CurrentControlSet\Services\Dnscache\Parameters'

Create the following DWORD values:

NegativeCacheTime= 0  
NetFailureCacheTime= 0  
NegativeSOACacheTime= 0

Reboot for the changes to take effect.

## Network and Internet Speed Tweaks: Tips 64 - 66

### 64. Use CTRL+ENTER to speed up Internet address entering

A quick little tip to speed up entering addresses in the Internet Explorer address bar. Instead of typing the full address ('www.pcstats.com') you can simply type in the main subject ('pcstats') then press CTRL+ENTER to fill in the rest. As is, this only works with .com addresses, but it's still a good time saving shortcut.

Hey, wow.... pcstats... CTRL+ENTER! It really works :) [shameless self promotion]

### 65. Get a faster network connection to Windows 9x/ME computers

When a Windows XP system attempts to connect to network shares on a remote windows 9x/ME computer, it takes a (considerable) extra amount of time to check the list of scheduled tasks and enabled printers on that system. This can make connecting to such systems extremely tedious due to the long initial delay.

Fortunately, deleting a couple of registry entries will disable this 'feature.'  
To do this open REGEDIT and navigate to:  
'HKEY\_LOCAL\_MACHINE\Software\Microsoft\Windows\CurrentVersion\Explorer\RemoteComputer\NameSpace'

Delete the following sub-keys:  
To disable Scheduled Task Checking delete:  
'D6277990-4C6A-11CF-8D87-00AA0060F5BF'

To disable Printer Checking delete:  
'2227A280-3AEA-1069-A2DE-08002B30309D'

Exit REGEDIT and Reboot

### 66. Remove the QoS Bandwidth Reserve Setting

This one has been subject to several rumours and considerable debate. Windows XP's networking setup includes a QOS (Quality Of Service) provision which allows certain software (anything which has been written to take advantage of QOS in Windows) to reserve up to 20% of the bandwidth of a given network connection.

This does not mean that 20% of bandwidth is withheld by the operating system at all times, as is often stated. What it means is that certain programs can reserve this percentage of bandwidth for themselves when they are running.

If you don't like this idea and wish to disable QOS, ensuring that your Internet bandwidth is strictly 'first come, first served.' Here's a registry edit to do just that:

To do this open REGEDIT and navigate to;  
'HKEY\_LOCAL\_MACHINE\SOFTWARE\Policies\Microsoft\Windows\Psched'

Data Type: DWORD Value // Value Name: NonBestEffortLimit  
Setting for Value Data: [Enter as a Percentage / Default Value = 20]  
Exit Registry and Reboot

## WinXP Interface Tweaks and Shortcuts: Tips 67 - 69

### 67. Create shortcut keys

It can be a serious annoyance to have to constantly resize or minimize windows you are using in order to locate a needed shortcut to a program. While the quicklaunch bar can alleviate this to some degree, it still provides an un-needed distraction from your work.

Fortunately Windows XP allows users to bind certain key combinations with shortcuts, allowing you to open the program you need with a simple keystroke. Once you adjust to this, you will find it makes working with multiple programs much smoother and less distracting.

To create a keyboard shortcut:  
Select the folder or program icon that you wish to use. Create a shortcut for it by right clicking on the item and selecting 'create shortcut' from the menu. Place your newly created shortcut on the desktop by dragging or cut/pasting. Right click the shortcut and select 'properties.'

Next, select the 'shortcut' tab and enter the key combination you wish to use (XP will automatically edit the combination if it is not acceptable. Just entering 'e' for example, will get you an actual key combination of ctrl + alt + e). Click 'ok.'

Now you can open the specified shortcut by entering the key combination you designated.

### 68. Create a custom shortcuts toolbar

Windows XP allows considerable flexibility in the selection of toolbars that you can add to your desktop to speed up your computing. Unfortunately, it also packs the conventional taskbar at the bottom of the screen so full of stuff that it can be hard to use at times. Even the quicklaunch bar, once you enable it, tends to be dwarfed by the various applications and icons that quickly fill the taskbar.

If you use a number of programs often and don't wish to clutter your desktop with shortcuts, there is an easy way to pack your favourite shortcuts into a toolbar for quick access.

To do this create a folder on your c: drive called 'programs' or something similar, and copy all the shortcuts you require into this folder.

Right click on an empty area of the toolbar and choose 'toolbars' then 'new toolbar.'  
Navigate to the folder you created and select it.

You now have a new toolbar that contains all your favourite shortcuts. If you'd like to relocate it to another area of the desktop, right click an empty area of the taskbar and uncheck 'lock toolbar.' By clicking and dragging on the dotted area to the left of your new shortcut toolbar, you can move it to another area of the desktop.

Once it is situated where you want it, right click your new toolbar and select 'always on top' and 'auto-hide' to keep it out of the way until needed.

#### 69. Using ALT+TAB to switch between applications

One of the most useful keyboard shortcuts built into all version of Windows is the ALT+TAB combination. Pressing and holding the ALT button while tapping the TAB button brings up a menu box with icons for all your open programs. By tapping the TAB button you can scroll through these icons.

When you get the one you want, release the keys and that program will be restored as the active window. This is especially handy when using full-screen programs like most games, as the ALT+TAB combination can drop you back to the desktop when needed without (generally) halting your game.

#### WinXP Interface Tweaks and Shortcuts: Tips 70 - 73

##### 70. Add the address taskbar to desktop

Here's an interesting little tip to speed up your use of the Internet. You can actually get the Internet Explorer address bar to be a taskbar item, hidden away on your screen until needed. This makes launching a web page without disrupting your workflow considerably easier. As an added bonus, you can also use this feature to perform the same operations you would do with the 'Run...' application from the start menu, like launching the command prompt with 'cmd.'

To place the address bar on your desktop:

Right click on the taskbar, select 'toolbars' and place a checkmark next to 'address.'

The address bar will appear on your taskbar. Now right click the taskbar again and remove the checkmark from 'lock taskbar.'

Select the dotted area immediately to the left of the 'address' toolbar you just added. Drag this to the top of the screen. The address toolbar will appear across the top of the screen. Now right click the toolbar and select 'auto-hide' and 'always on top.' The address toolbar will now pop up whenever you move your mouse to the top of the screen.

##### 71. Disable error reporting

To make for a smoother computing experience, disable the error-reporting feature in windows XP. This will prevent error boxes popping up after application crashes, and upon restarting Windows after a fatal crash.

To disable error reporting right click on 'my computer' and select 'manage.'

Expand 'services and applications' and select 'services' to open the services window.

Highlight the 'error reporting service,' right click it and select 'properties.'

In the 'startup type' dropdown box, choose 'disabled.'

## 72. Reduce menu delays

The Windows XP start menu incorporates a built-in delay between the time your mouse pointer lands on a menu and the time that menu unfolds. This can get annoying after a while. Using the registry, you can speed up menu response, speeding up your computing experience.

First, open REGEDIT and then navigate to HKEY\_CURRENT\_USER\Control Panel\Desktop\  
Edit the MenuShowDelay value.

The default is 400; lower values will speed up the start menu.

Setting it to 0 is not a good idea unless you like 5 or 6 menus popping out at you every time your mouse pointer strays, but experiment to find your favourite setting.

## 73. Restore the Quick launch bar

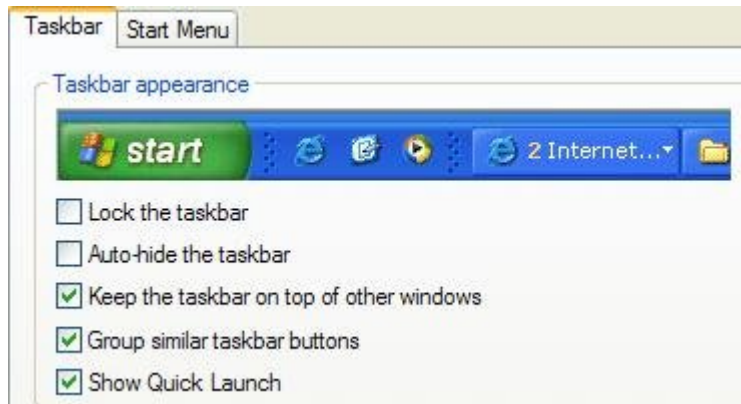
The quick launch bar is one of the most essential windows navigation features, introduced (with minor but well-deserved fanfare) in Windows 98. Through Windows ME and 2000, it continued to give sterling service to computer users across the globe with its unbeatable combination of customizable and convenient one-click shortcuts and that essential 'minimize everything now' button.

With the dawn of Windows XP, the quicklaunch bar was suddenly and inexplicably gone from the taskbar. This probably contributed more than any other factor to Windows user's initial alienation from XP's interface. But fortunately the quicklaunch bar still exists, it has just been disabled by default. With a few clicks you can get it back where it belongs.

To re-enable the quicklaunch bar:

Right click on the time display in the lower right corner of the taskbar and select 'properties.'

Now look for the option entitled 'show quick launch.' Enable it.



Now that your quick launch bar is back, you can drag and drop shortcuts onto it from the desktop to customize it.

#### WinXP Interface Tweaks and Shortcuts: Tips 74 - 77

##### 74. Increase desktop graphic performance

If you have an older computer and are unhappy with the sluggishness of the new XP interface, or if you simply want XP to be as zippy as possible, you can increase the responsiveness of the desktop by disabling some of the graphical 'frills' that are packaged with the default XP settings.

To do this, right click on 'my computer' and select 'properties.'

Choose the 'advanced' tab and under the 'performance' heading, hit 'settings.'

From here you can adjust the graphical settings of the XP interface. Choose 'adjust for best performance' to turn all the non-essential features off, or you can cherry-pick from the window below.

##### 75. Make 'my computer' open faster

The Windows XP operating system automatically searches for attached and network printers and remote drives and folders each time you open 'my computer.' This can cause a considerable delay before you can actually see the icons.

If you find yourself using 'my computer' often and gritting your teeth at the delay, there is an easy way to speed things up.

Open 'My Computer.' Go to 'Tools\Folder Options...' Select the view tab and uncheck the 'Automatically search for network folders and printers' box. Click OK.

'My computer' will now open much faster.

##### 76. Remove the need to enter a password to login to XP (be careful!)

If you are exasperated by the welcome screen and the need to enter a password for your user account, you can disable this fairly easily, but be careful. If your computer is connected directly to the Internet by a cable or DSL modem, do not do this. It's just not worth the risk.

In fact if you are at all concerned about the privacy of your data, keep a strong password enabled for your XP user account. If you are sure you want the password gone, and the welcome screen with it, here's what to do:

To get rid of the welcome screen, you need to have only a single main user account and have the Guest account deactivated.

Go to 'start\run' and type 'control userpasswords2'

Remove any other user accounts that appear on the welcome screen by highlighting them and using the 'remove' button.

Now go to 'start\control panel\user accounts' and select your user account.

Choose 'remove password' and enter your password to strip it from your account. Note the warning.

Windows XP should now boot straight up without the welcome screen or a password prompt.

## 77. Sort out spam

Wading through acres of spam in order to retrieve the few valid emails from your inbox each day can really slow things down. It would be ideal if you could automatically sort out all the junk so you could quickly read your email.

The good news is, with a couple of quick adjustments to Outlook Express or your mail client of choice, and a freeware program called POPFile, you can!

## WinXP Interface Tweaks and Shortcuts: Tips 78 - 81

### 78. Keyboard shortcuts using the Win Key (ÿ)

Believe it or not, that windows logo key that sits on the bottom of your keyboard actually has some useful functions besides opening the start menu. A whole generation of computers users has grown up thinking that that key was only there to frustrate users who accidentally hit it while playing Counterstrike and dropped back to the desktop.

Now we reveal the truth behind the Win Key...OK, overly melodramatic, but these are useful shortcuts, so read on!

ÿ = Open Start Menu  
ÿ + D = Restore or minimize all open windows  
ÿ + E = Start Windows Explorer

Ÿ + F = Start Find Files/Folders dialog box  
Ÿ + L = Lock computer  
Ÿ + M = Minimize all open windows  
Ÿ + R = Start Run dialog box  
Ÿ + F1 = Start Help Menu and Support Center  
Ÿ + Tab = Cycles through all open programs and taskbar buttons. Press ENTER to select.  
Ÿ + Ctrl + Tab = Cycle through all open apps/games Taskbar buttons, Tray icons, Start Menu and Quick Launch toolbars (press Right or Left arrows to cycle through Toolbar and Tray items)  
Ÿ + Pause/Break = Open 'my computer' properties window.  
Ÿ + Shift + M = Restore all open windows  
Ÿ + Space = Scroll down one page at a time in Internet Explorer  
Ÿ + Back Space = Scroll up one page at a time in Internet Explorer.

## Improving Windows XP boot speed

### 79. Disable floppy drive seek

The floppy drive seek BIOS option sets whether your PC will attempt to detect the floppy (a:) drive during boot up. Whether it finds one or not, once Windows has loaded it becomes irrelevant, as control of hardware devices including drives are handed over from the BIOS to the operating system.

Disabling the 'floppy drive seek' option in the 'advanced BIOS features' section of the BIOS can save you a few seconds on boot up, and since the setting has no actual effect, disable it.

### 80. Set primary display adaptor

Most motherboards have a BIOS setting entitled 'primary graphics adaptor' or 'Init display first' which affects whether the system will attempt to initialize an AGP graphics card or a PCI graphics card first.

While it has no effect on any other facet of system performance, setting the correct value here (many boards default to 'PCI') may save you a few seconds of booting time. This option can be found in the 'advanced chipset features' or 'integrated peripherals' sections of the BIOS.

### 81. Enable quick POST/memory test

Many motherboards have a setting in the BIOS which can instruct the system to skip through certain portion of the POST (Power On Self Test), speeding up boot times considerably. A variety of settings performing this function can be found on various motherboards.

Some examples are: 'perform quick memory test,' 'quick boot,' 'quick power on self test,' etc. Enabling these options will cause your system to boot faster.

Be advised that you should disable this option when you have made modifications to your computer's hardware, especially the memory.

## Improving Windows XP boot speed: Tips 82 - 84

### 82. Eliminate unwanted programs from boot up

You will find that many of the programs you install on your system set portions of themselves to run automatically when you start up your computer. Each program that runs on startup not only consume system resources but also extends the length of time it takes your PC to fully boot.

Since it is generally unnecessary to have any programs running in the background (other than security software like virus-scanners or firewalls) disable your unwanted startup programs to increase your startup speed and conserve system resources.

The easiest way to go about this task is to use the MSCONFIG utility, which may be familiar to users of Windows 9x. This handy program contains a list of software which is set to start when you boot your PC. You can then easily disable and re-enable (if necessary) these items.

Go to 'start\run' and type 'msconfig' to access the utility.

The 'startup' tab in MSCONFIG provides access to several other applications that are started at boot up and are running in the background. By examining their Filenames and directories, you should be able to get a feeling for what is necessary and what is not.

Be aware than several viruses and worms have a habit of disguising themselves with authoritative sounding Windows system file names, such as the Win32.spybot.worm as MSCONFIG32.EXE. Leave these for now if you are not sure.

The next place you should go is 'start\programs\startup' which is a directory Windows XP uses to launch application shortcuts on boot-up. If you remove the shortcuts from this directory, the applications will not load on startup. This directory can also be a repository for various badness such as spyware and virus software, so if there are files here which are not shortcuts and you don't recognize them, you may wish to consider removing them anyways, as Windows will not place critical files in this directory.

### 83. Scan your PC for spyware and Adware

Along the lines of the above tip, various programs may also be operating on your computer without your knowledge, transmitting information about your surfing habits to interested commercial enterprises.

These spyware and adware programs (including the infamous Gator) are bundled in with many popular freeware programs like Kazaa Media Desktop, and can also be 'caught' from websites which host the software as part of their entrance requirements. Beware of text boxes asking you if you would like to install so-and-so program while you are surfing.

If you are interested, we wrote a whole article on the topic. To summarize, these programs can compromise both your privacy and security, as well as your Internet

performance, so removing them is a good idea. To do this, you should use either [Lavasoft's Adaware](#) or [Spybot Search and Destroy](#).

Both programs are fairly straightforward and easy to use, and will effectively rid your PC of pesky parasite programs. See the article for more details.

#### 84. Disable boot virus detection

The boot virus detection setting is a holdover from the early days of computer viruses, when the greatest threat was from virus programs that wrote themselves into the boot sector of hard disks or the partition table. Some motherboards are equipped to monitor any attempt to write to these areas during boot up, and halt the process with a warning for the user.

Since every version of Windows after 3.1 needs to write to these areas during install, and the modern virus style of choice is the email worm, this feature is now obsolete. Disable it for convenience and increased boot speed. It will commonly be found in the 'advanced BIOS features' section of the BIOS.

#### Improving Windows XP boot speed: Tips 85 - 88

#### 85. Change boot sequence.

An easy and effective way of speeding up your loading time is to change the boot sequence in the BIOS. By altering this sequence so that your system hard drive is the first device the computer attempts to boot from, you save the precious seconds needed for the computer to check other devices for bootable media. If you wish to boot the system from a CD or floppy, you will need to change the order in the BIOS again, however.

Some BIOS versions include a menu that can be accessed from the POST which allows the user to choose the device he or she wishes to boot from. To do this, go to the 'advanced BIOS features' section of the BIOS and change the 'first boot device' setting to 'hard disk 0.'

#### 86. Disable the XP loading screen

To speed up your boot process slightly, disable the Windows XP loading screen. This can be accomplished easily by opening the MSCONFIG utility ('start\run and type msconfig'), selecting the 'boot.ini' tab and checking the /NOGUIBOOT option.

When you boot your system, you will see a black screen in between POST and the welcome screen from now on.

#### 87. Eliminate unwanted fonts to increase boot speed

The Windows XP control panel contains a 'fonts' directory which holds all the fonts currently installed on your system. These can come from Windows itself or from an application such as Word.

Windows checks and loads these fonts during the startup process, therefore having a large amount of font files can cause performance to drag during startup. The simple solution for this (if you do not expect to use the majority of these fonts constantly) is to move the unnecessary fonts to a new directory elsewhere on the hard disk, preserving them in case they are needed, but preventing them from loading upon startup.

To do this:

Create a new directory called 'font backup' or something similar on your c: drive.

Go to 'start\control panel\fonts' and select all fonts (for now, we will be more selective later). Drag and drop all the fonts into the backup folder you just created. Things will get garbled for a moment, never fear. Windows XP will automatically re-install the base fonts that it needs to display text into the fonts folder in a second or two.

Now you have the bare minimum of fonts installed. Go through the backup folder and cherry pick the fonts that you are sure to use (like Times New Roman or Arial).

If you removed a large volume of fonts, your system should now boot faster.

#### 88. Turn off BIOS disk detection

Most modern motherboards will attempt to detect any IDE devices, such as hard drives and CD drives, during the POST sequence each time the computer boots. By configuring the BIOS with the correct drive information, you can shave a few seconds off your boot time by avoiding this detection process.

To do this enter your system's BIOS setup screen.

Depending on your motherboard, you may have an IDE drive auto-detection menu. If you do, simply select it to automatically set your drives. If not, configure the drives through the 'standard CMOS settings' menu.

Note that some motherboard chipsets (like Nvidia's Nforce 2) do not allow this auto-detection to be disabled.

#### Improving Windows XP boot speed: Tips 89 - 91

##### 89. Use the Bootvis utility

It's a little known fact that Microsoft actually produced its own free utility to help speed up Windows XP boot times. Bootvis was its name, and although they later removed it from their site and claimed it was simply a design utility and would not help speed up the average PC, many XP users thought differently, enough to keep the software alive on the net. The Bootvis utility is available here. Try it out and decide for yourself!

To use Bootvis download and install the program, then run it.

Go to the 'trace' menu and select 'next boot and driver delays.'  
Bootvis will prompt to reboot. Reboot and wait for Bootvis to start again.

Go to the 'trace' menu and select 'optimize.' Reboot again. Wait for Bootvis to complete its analysis. Your boot times should now be optimized.

#### 90. Use the Intel application accelerator

If your computer has an older Intel chipset (pre-865) you may benefit from downloading and installing the Intel Application Accelerator . This software replaces the Windows XP ATA (hard disk and IDE device) drivers with ones specially designed for Intel chipsets, improving disk performance and boot time.

Please make sure that your computer conforms to the system requirements before installing the accelerator.

#### 91. Disable unnecessary services

Windows XP runs many, many services in the background. A lot of these are not actually necessary to the day-to-day operation of your PC, depending of course, on what you use it for.

The simple fact is different people will need different services enabled. To judge for yourself which are necessary, right click on 'My computer' and select 'manage.' From the computer management window, expand 'services and applications' then click 'services' to open up the window listing all available services.

The ones labeled 'started' are currently running, and the startup type 'automatic' denotes a service which is started by windows each time the operating system loads. By highlighting each service, you can see a description of its properties, and make an informed decision on whether you need it or not.

To stop a service from running, right click on it and select 'properties,' then stop it and make the startup type 'disabled.' If the description indicates that services which depend on the service you are currently examining will fail if it is disabled, you can go to the 'dependencies' tab to see which services will be affected.

Good luck, and use common sense. See our tip below on using hardware profiles if you would like to experiment with disabling services on a large scale.

#### Improving Windows XP boot speed: Tips 92 - 94

#### 92. Disable unneeded devices in device manager

A quick fix that can make XP boot faster is to disable any unused devices in the Windows XP device manager. For example if you have a integrated sound card or video card that you have upgraded, or if you do not use a floppy drive on your system, it pays to disable these devices in device manager.

The same goes for extra network cards. Of course, the standard rule of thumb applies here: If you do not know what it is, leave it alone.

To disable unneeded devices in device manager:

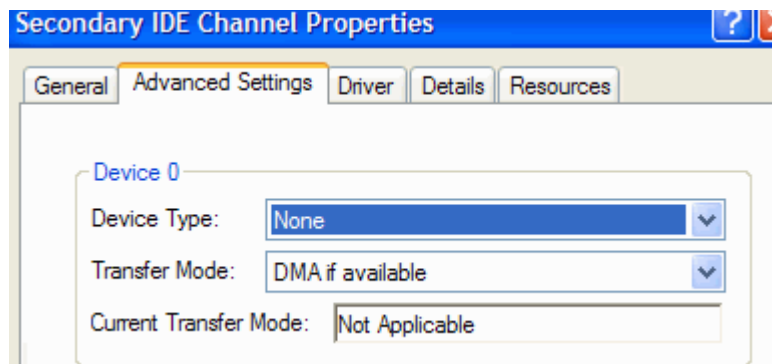
Right click on 'my computer' and select 'properties.' From the 'hardware' tab, select 'device manager.' Expand the various categories to locate unused devices. Right click the devices and select 'disable.'

### 93. Disable auto detection for empty IDE slots

Another quick trick for a faster boot up is to disable the auto detection that Windows XP uses to determine if there are IDE devices present in any of the IDE slots on the motherboard. More specifically, disable this feature on any empty slots to prevent the operating system wasting time and resources checking them.

Right click on 'my computer' and select 'properties.' Go to the 'hardware' tab and select 'device manager' to open the device management window.

Expand 'IDE ATA/ATAPI controllers' and highlight the 'primary IDE channel.' Right click the highlighted entry and select 'properties.' Go to the 'advanced settings' tab.



If either IDE slot on the controller is empty, the 'device type' dropdown box will be not grayed out. Set it to 'none' to disable auto detection of IDE devices on that particular slot.

Repeat the above steps for the 'secondary IDE controller.'

Note that if you wish to add a new IDE device, you will have to reset the 'device type' setting to 'autodetect' in order for Windows to use the new drive.

### 94. Reduce wait time after XP boots

A common performance problem with Windows XP is 'start lag,' in which the operating system boots up normally, the desktop is visible and usable, but programs will not start, and selecting icons and using the start menu are extremely slow. This can take anywhere from a few seconds to a couple of minutes to clear up, and can make using the operating system extremely frustrating, especially if you are in a hurry after the reboot.

This delay is generally caused by Windows XP's networking services looking for other computers and advertising their functions over the computer's network connections.

If this problem is driving you nuts, there is a way to reduce or eliminate the delay, though if you are attached to a home network, it will reduce your computer's functionality on that network.

If your computer is not attached to a home network:

Right click on 'my computer' and select 'manage.'  
Expand 'services and applications' and select 'services' to open the services window.  
Highlight the 'workstation' service, right click and select 'properties.'  
Set the 'startup type' dropdown box to 'disabled.' Click 'ok.'  
Note that you will need to re-enable the workstation service should you wish to network your PC in the future.

If your computer is part of a home network:

Go to 'start\control panel\network and internet connections\network connections.'

Right click your current network connection (should be 'local area connection' unless you have more than one network adaptor) and select 'properties.'  
Uncheck the 'File and Print Sharing' box and press 'ok.'  
Note that this will disable your computer's ability to share files and printers over the network, though it should not affect your ability to access such resources on another system.

Increasing XP shutdown speed: Tips 95 - 99

95. Increasing shutdown speed by reducing wait times part 1

Windows XP stores a couple of values in its registry which are responsible for determining how long to wait before shutting down (killing) open applications and services once the shutdown command has been given.

By editing these two settings and changing them to lower values, you can considerably decrease the amount of time that Windows XP needs to successfully shut itself down. The first part of this tweak deals with setting the amount of time Windows will take to kill open applications on shutdown.

Open REGEDIT and navigate to 'HKEY\_CURRENT\_USER\Control Panel\Desktop'  
Highlight the 'WaitToKillAppTimeout' value.  
Set it to '1000' (the default should be 20000).  
Now highlight the 'HungAppTimeout' value  
Set it to '1000' also.

96. Increasing shutdown speed by reducing wait times part 2

The second part of this tip changes the same settings, this time for all users on the system.

Open REGEDIT and navigate to 'HKEY\_USERS\DEFAULT\Control Panel\Desktop'  
Highlight the 'WaitToKillAppTimeout' value.  
Set it to '1000' (the default should be 20000).

Now highlight the 'HungAppTimeout' value.  
Set it to '1000' also.

#### 97. Increasing shutdown speed by reducing wait times part 3

In the third part of this tip, we will alter a second registry setting to decrease the amount of time Windows XP will wait before shutting down active services after receiving a shut down command.

Open REGEDIT and navigate to  
'HKEY\_LOCAL\_MACHINE\System\CurrentControlSet\Control\'

Highlight the value 'WaitToKillServiceTimeout'

Change this value to '1000.'

This should help to considerably speed up the time windows XP takes to shut itself down.

#### 98. Disable the Nvidia driver helper service

This service, included with recent NVIDIA Detonator driver packages, is of indeterminate function. Nothing is found on the NVIDIA site about it, and the only thing that people in the hardware community can seem to agree on is that it can considerably slow down boot up time and especially shutdown time.

Hence, if you do have an Nvidia video card, consider searching for and disabling this service. Chances are it will improve your shutdown times.

To disable the Nvidia Driver Helper service:

Right click on 'my computer' and select 'manage.'

Expand 'services and applications' and select 'services' to open the services window.

Locate and highlight the 'Nvidia Driver Helper' service. Right click it and select 'properties.'

Set the 'startup type' dropdown box to 'disabled.' Click 'ok.'

#### 99. Auto kill tasks on shutdown

By default, Windows XP will prompt the user for input if there are one or more applications which have crashed or are not responding and it receives a shut down command. This halts the shutdown process entirely until the user approves the stopping of the non-responsive app.

By altering the registry slightly, Windows XP can be set to close crashed applications automatically. While this does not technically speed up the shut down process, it does streamline it, and ensure that the user will not give the shutdown command

then get up and leave, only to find the PC still powered on because Windows never received input on what to do with a hung application.

To allow Windows XP to close non-responsive applications automatically upon shutdown:

Open REGEDIT and navigate to 'HKEY\_CURRENT\_USER\Control Panel\Desktop'

Highlight the value 'AutoEndTasks.'

Change the value to '1'

XP will now be able to close hung applications without user input during the shutdown process.