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Read This First

Introduction

This help file has been put together to enable you to get more out of your PC and hopefully understand a little bit more about how it all works. It is not, however, intended as a replacement for the Windows help file or the Windows and DOS manuals you should have received when you purchased your PC. Wherever possible we have tried to include as much information on both Windows 3.x and Windows 95, but the bias will be towards Windows 95 as virtually every new PC sold now has Windows 95 installed on it.

If you have a problem resulting from the use of our cover-mounted CD-ROMs then please contact our Technical Support line on 01225 442244 and we will do our best to help you, but obviously cannot guarantee a solution. We regret that we cannot cover technical problems that are not directly related to the magazine's CDs, nor can we offer buying advice, gaming tips etc. If you have purchased a software package and are a registered user, then you should be entitled to technical support from the manufacturer themselves.

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DirectX

These are a set of enhanced sound and video drivers for Windows 95. Developed by Microsoft, DirectX is used to improve the speed of games and some design packages in Windows 95. However, DirectX is not compatible with all video cards and can cause problems. Before installing DirectX, you should make sure that you have the original installation discs for your sound and video cards. These should have been supplied on floppy disc by the PC supplier, and should be labeled along the lines of : VGA drivers for Win3.x and Win 95 or similar.

If you find that DirectX has corrupt your video display, you will need to remove it. To do this you need to reboot in safe mode, then go to the start bar, click on settings, then control panel, then add/remove programs, Select DirectX, then choose remove, the software should do the rest, although you may need to reboot your PC after the uninstall process has finished.

Reboot

When you restart your computer it is known as rebooting. There are two different types of reboot, a warm boot and a cold boot. After changing system properties or after installing some types of software, you may be required to reboot your PC.

Cold boot

A cold boot is where you physically turn your PC off, then turn it back on again. A cold boot may be needed after a crash to ensure that the PC's memory has been purged. It is advisable to leave the PC off for a minute or so before rebooting, to allow all the components to power down properly.

Warm boot

A warm boot is where you reboot your PC, without turning it off. A warm boot is often necessary after a system crash or after installing certain types of software. To do a warm boot, either press the reset button on the front of the PC, or press the CTRL, ALT and DELETE keys simultaneously.

Floppy Disc

This is the 3 1/2" disc drive at the front of your PC, which takes removable or floppy discs. These discs are very low capacity, storing only 1.4 Mb of information and are generally short-lived. None the less, they are extremely useful for transferring and backing up non-essential information as well as installing software.

Floppy discs use magnetic particles to store information, so it is essential that you keep them well away from strong magnetic fields, such as speakers, televisions and mobile phones.

Add new hardware

Although Windows 95 has a system called plug and play, whereby your PC detects any new hardware and then automatically installs the software for it, this does not always work. If you find this is the case, you will need to go to the add new hardware section of the control panel. You will be given two options, to let Windows look for your new hardware, or you can tell Windows what the new hardware is. It is usually best to let Windows determine what piece of hardware you have installed, but if it can't find it you can always use the lists to tell windows what it should be looking for.

Control Panel

The control panel is possibly one of the most important areas of your PC and is worth getting to grips with as soon as possible. If you want to make any changes to your system, Add or remove programs or Add new hardware, then the control panel is where you need to go. The main areas are Add new Hardware, Add/remove programs, display, printers and system.

The other areas of the control panel in Windows 95 are:

Date/Time	Adjust your clock and Calendar settings.
Fonts	Examine, remove and install fonts to your system.
Joystick	Calibrate any joysticks, joypads etc.
Keyboard	Set up your keyboard, add custom key combinations.
Modems	Set up any modems attached to your system.
Mouse	Set up your mouse speed, swap buttons, set pointers.
Multimedia	Control any multimedia devices on your PC.
Network	Add and adjust network settings and protocols.
Passwords	Set passwords for sharing, Windows and Network.
Power	For controlling power use on laptops.
Printers	Add, remove and set up attached printers.
Regional settings	Define units, currency, separators etc.
Sounds	Set up sounds for system events, such as shut down.
System	Find out what is attached and what resources it uses.

Display Properties

This is where you control the resolution and colour depth of your screen, wallpaper, screensavers and colour schemes. The first place you would look to access your display properties is in the control panel but in Windows 95 you can also right click on the desktop, and choose Properties. If you have Plus! installed, you can also control your desktop themes from here.

Resolution

This is the physical size of the displayed screen, expressed in pixels. On a 14" monitor a typical resolution would be either 640x480 or 800x600, and on a 17" monitor a typical resolution would be 1024x768. Basically, the higher the resolution, the more you can fit onto your screen, however, if you run a very high resolution on a small monitor, you will find most of your icons and text are small that you can't read them.

To fix this you can set the display properties to display large fonts, but you are better off running the most suitable resolution to fit your monitor size. Many graphics packages will express image sizes in terms of pixels rather than inches or centimeters. You may also find that certain games and multimedia applications will only work at certain resolutions. As a general rule of thumb, the more memory your graphics adapter has the higher the resolution it can display.

To change resolution in Windows 3.1, go to Main, Windows Setup and select options, you will then be presented with a list of resolutions and colour depth. In Windows 95, either go to the start bar, settings, control panel, display, or right click on the desktop and choose properties. Click on settings, and move the slider to your desired setting.

In both Windows 3.1 and Windows 95 you will be asked to reboot after these changes have been made. If you find that you frequently have to change resolution or colour depth it is worth installing Quickres from Microsoft's Power Toys.

Colour Depth

This is the number of unique colours that can be displayed on screen at any one time. Colour depth is either expressed as the physical number of colours, or in bits. For example, 256 colours is 8-bit, (2x2x2x2x2x2x2x2), 64,000 colours is 16-bit or Hi-Colour and 16.7 million colours is 24-bit or true colour. There is also 32-bit, which is an awful lot of colours, and most standard graphics cards would be hard pushed to display this sort of colour depth. As with resolution the number of colours that can be displayed is dependent on the amount of memory on your graphics card.

To change colour depth in Windows 3.1, go to Main, Windows Setup and select options, you will then be presented with a list of resolutions and colour depths. In Windows 95, either go to the start bar, settings, control panel, display, or right click on the desktop and choose properties. Click on settings, and move the slider to your desired setting.

In both Windows 3.1 and Windows 95 you will be asked to reboot after these changes have been made. If you find that you frequently have to change resolution or colour depth then it is worth installing Quickres from Microsoft's Power Toys.

Removing Software

There will come a time when you need to remove some of the software that is installed on your PC's hard drive. Many new programs will come with their own uninstaller to do the job for you, while others rely on a feature built into Windows 95. Before you start deleting directories from your hard drive, check to see if there is an uninstall option. In Windows 3.1, if there is no uninstall icon with the application you want to remove, you can be pretty certain that you are going to have to do the job yourself. To remove an application manually, locate the directory concerned in File Manger and delete it. You can then return to program manager and delete the icons by hi-lighting them and pressing the delete key. Program groups can be deleted by going to File, Delete in program manager.

In windows 95, first check to see if the application as its own uninstaller. If it doesn't, it's time to go to the control panel and selecting add/remove programs. Find the program you want to remove and click on remove, the program should then be uninstalled from your system. If there appears to be no uninstall option, you will need to use Explorer to find and delete the relevant directory. To delete items from the programs menu, go to the start bar, settings, taskbar. Choose start menu programs, then remove.

There are also third party uninstaller packages available, but you generally have to start these running before you install any new software, and they obviously cannot remove any programs that were installed previous to its own installation.

A word of warning: If you delete a program that has an uninstaller, and you don't use it, you could end up causing yourself a lot of problems, as Windows then tries to find files which are no longer on the system.

Sound card

This is a device which slots into the motherboard of your PC and converts digital information into sound. Although there are no real standards in computing, the Creative Labs SoundBlaster series is pretty much the accepted standard, and most sound cards will emulate a SoundBlaster. Sound cards typically have two inputs (line in and microphone) and one line output. There is also a joystick port, which doubles up as a MIDI port for use with MIDI instruments. Sound Cards require drivers for them to work correctly, although Windows 95 has its own drivers for most sound cards. Newer soundcards have a feature called Wave table Synthesis, where sampled sounds are stored in ROM on the sound card itself, giving a more accurate rendition of MIDI sounds.

When fitting a sound card, beware of Static Electricity damage.

Graphics Adapter

Otherwise known as a video card, this is a device which slots into the mother board of your PC and generates the picture you see on your monitor. Graphics adapters do not generally require drivers running in DOS, however they do need drivers under Windows. The standard drivers supplied with Windows will work with most cards, however, you will generally be better off installing the specific drivers for you particular graphics card. Some graphics adapters come with special tools, enabling you to alter your screen resolution, colour depth and other properties on the fly.

There are various standards of graphics adapter, though only a few are used today. The VGA standard is a resolution of 640x480 in 16 colours, which has now been superceded by the SVGA standard, which is 640x480 in 256 colours and above. Graphics adapters have a quantity of RAM on board to enable the card to display the picture on the screen. The more RAM a video card has, the bigger the picture and the larger the number of colours it can display. For modern PCs, a graphics adapter should ideally have a minimum of 2MB of video memory.

3D cards are a new variation on the graphics adapter, designed to improve the speed and performance of 3D games. These cards are very specialised, requiring their own drivers, and most of them have their own processor to improve performance. 3D cards also tend to have a large amount of RAM on board, typically starting at 4MB, with others containing 8MB.

When fitting a graphics card beware of Static Electricity damage.

RAM

RAM stands for Random Access Memory and is an integral part of your PC. Basically, RAM acts as a temporary storage area for information that your processor requires. This means that the more RAM you have, the better, as the PC can then store more information in RAM and therefore has to access the hard drive less frequently. If you have a large quantity of RAM, you can create a RAM drive, which then acts as a virtual hard drive, providing virtually instantaneous access. However, because RAM is "volatile", as soon as the power is turned off, any information sitting in RAM is lost.

RAM comes in the form of chips on a stick, with each stick being known as a SIMM (Single In line Memory Module), although the latest PCs are now using DIMMs (Dual In line Memory Modules). RAM has to be fitted in certain combinations e.g.: 4MB, 8Mb, 12Mb, 16MB etc. On a Pentium motherboard, using SIMMs, the SIMMs have to be matched pairs. This means that if you want 16MB, you need two identical 8MB SIMMs. The reason for this is that although a Pentium motherboard is 64 databits wide, a SIMM is only 32 bits wide. DIMMs are 64 bits wide, so you only need one at a time, and if you are using more than one, they don't have to be matched pairs. The advantage of this is that the RAM on a mother board should no longer slow the system down.

There is another area of RAM on your motherboard called cache, and this stuff is pretty specialised. Cache is basically super duper fast RAM and comes in two main flavours, Level one (L1) and Level two (L2). L1 caches otherwise known as on-chip cache, is surprise, surprise, located on the processor itself and is in the size range of 8 to 32Kb. L2 cache is situated on the motherboard and its size is typically in the region of 256Kb. Cache's job is to provide a storage area for data, so that if the processor is repeating instructions or requesting the same data, it can get hold of it very quickly. The current flavour of the month in cache terms is Burst Pipeline Cache, but this will undoubtedly change as technology progresses.

RAM is highly susceptible to damage by static electricity.

Motherboard

This is the mainstay of your PC, without it, nothing works. The motherboard controls everything on your PC, the disc drives, BIOS, serial I/O, Parallel I/O, the CPU, memory, etc. If it plugs in, then the motherboard is in charge of it. Just like buying a car, buying a motherboard is fraught with choices, there are many different manufactures, and each board may well offer something different. However, just like a car, they all do essentially the same job. The only recommendation to make, is to try and get the most up to date and future proof motherboard you can afford. Trouble is that what was cutting edge today, is often obsolete six months down the road.

Now anything inside your computer that possesses chips is susceptible to static electricity, but the motherboard is the highest risk. If you damage your sound card it's inconvenient, if you damage your motherboard, you are in deep, deep trouble, so make sure you take precautions.

Static Electricity

Computers run on electricity, without it they would not exist, but it must be a regulated supply. Static Electricity is the bane of computers, it is quite literally a killer. Whenever you open up your PC, you must take great care not to expose your PC to static, or you will soon regret it. Static loves computer chips, and the more expensive the computer chip, the more the static just can't wait to leap out in a vengeful stream from your finger tips.

Static electricity is generated when you build up an electric charge in your body, and because the body is a poor conductor of electricity, it only dissipates when you touch something conductive. Silicon is very efficient at conducting an electric current, so static will quite readily depart your body and become intimate with a silicon chip. This doesn't sound too bad, after all chips are designed to carry an electric current, however, when static discharges, it is in the region of several thousand volts, although the amount of amps are negligible. This is more than enough to fry a computer chip. Unfortunately Electro Static Damage (ESD) can take months to make itself apparent.

So what can you do about it? Well, be sensible, don't drag your feet across nylon carpets then poke around in side your PC. Touching a piece of earthed metal, such as a radiator, will also dissipate any static charge you may have developed. For the ultra paranoid, invest in a static strap, this is a conductive strap which you attach to your wrist and a metal part of the PC. The best way though, is to leave your PC plugged into a wall socket, but with the power turned **OFF**. In this way the computer is earthed and safe from harm. Lastly, try to keep any components you are fitting in their special anti-static bags, until you need them.

Hard drive

This is the main storage device inside your PC. Years ago, hard drives were great hulking, lumbering beasts, the size of house bricks, about as fast as a crippled snail and with the storage capacity of a matchbox. However, the wonders of technology prevailed and modern hard drives are swift footed, svelte, and eat megabytes for breakfast. Two or three years ago, an entry level PC had a hard drive with an average capacity of 240MB, today the entry level PC has a massive 3GB to play with.

A hard drive is made up of a series of flat discs, called platters, stacked up with gaps between them. These platters are double sided, and a head on a moving arm, is used to track across the disk surface, reading and writing data. Each platter is split into cylinders, tracks and sectors. Each cylinder forms a concentric track, and each track is split into sectors. Now while it is not important to know this, it is important to understand the effect that cluster sizes have.

To know where all the stored information is held, a hard drive has a FAT (File Allocation Table), which gives the location of each file. The FAT organises information into clusters, which can be as big as 32k on a typical 16 bit FAT. This allows a hard drive to be up to 2GB without the need for a partition. The drawback with this is that every file, no matter how small, will occupy a minimum of 32K on the hard drive. This means that when the disk starts to fill up with lots of little files, you lose a chunk of the hard drive in wasted space. To get round this you can partition the hard drive. What this means is that you create one or more virtual drives, each one of which will then have a smaller cluster size, therefore using up less space.

The good news is that if you have a PC with the new version of Windows 95 installed (otherwise known as OEM2 or Windows 4.00.950b), then you have FAT 32. This enables you to have a hard disk up to 8GB, with a cluster size of only 4K, the result, no more partitioning needed.

System Properties

This is a very important area of Windows 95, and worth getting to grips with, system properties can be accessed in two main ways. The first way is to go to the Start bar, settings, control panel, system. The second way is to right click on My Computer, and select properties. When system properties first appears, you will see some information about your PC. You should see the version of Windows you are running, your registration information, including serial number, the type of processor you are using, and how much RAM you have.

There are three other areas to investigate, Device Manager, Hardware Profile and Performance. Going into Device Manager shows you exactly what devices are attached to your system, such as hard drives, CD-ROM drives, sound cards etc. Each item can be hi-lighted, and its properties examined and its resources investigated. If you have devices conflicting with each other, this is the place to make the changes. In extreme cases, you can also use this area to remove devices from your system.

The third area is where you can set up different hardware profiles for when you start Windows. This is an area that you should not really need to deal with at all.

The final area is quite important, and is used to optimize your system performance. In here you can adjust your filing system, although it is best to leave it to the 32-bit defaults, you may find an old drive needs 16-bit files. You can also adjust your disc caching or read ahead here, for both your hard discs and your CD-ROM. This is essential, as if you are playing video from CD, it is best to turn caching off. The graphics section enables you to set up the level of acceleration required for your graphics card, and virtual memory controls your swap file, this is best left to Windows.

Virtual memory

Unless you have a ridiculous amount of RAM installed in your PC, you will soon find that your PC needs to use virtual memory, other wise known as a swap file. For instance, if you are using a package such as PhotoShop, your image file could be 90MB. Now the PC might only have 32MB or RAM to play with, some of which is going to be used by other applications, so the computer needs to put the file into virtual memory. This is an area of the disc, usually near the end, which is set aside purely for the task of holding information that is needed at that moment in time.

In windows 3.1 you can adjust your swap file settings, by going into the section called 386 enhanced. In Windows 95 you can adjust the virtual memory settings in system properties, however, it is better to let Windows 95 handle it, or you could find the size you have allocated is too small.

Drivers

These are special pieces of code or programs, which enable various devices to work on your PC. Although Windows can drive most of the peripherals on your PC, some things will require extra or specialised drivers. For instance, windows will drive most video cards, but if you install the particular drivers for that card, you will usually get a better display, and more utilities. You will need drivers to get your CD-ROM drive to work in DOS, which you should have received when you obtained your PC. Without them, you will not be able to use your CD-ROM drive in DOS, the same goes for your sound card.

Drivers in DOS often take the form of a path and a program file, such as :

C:\system\mouse\mouse.com.

This line in your Autoexec.BAT, tells DOS where to look for a driver, and then which file to load.

Safe Mode

This is a special diagnostics mode in Windows, that is used when something has gone wrong. For instance, if Windows suffered a bad crash or didn't shut down correctly, the next time you start, Windows will suggest you enter safe mode. There is also a way to get into safe mode yourself, and that is to press F8 on the keyboard as soon as you see the message "Starting Windows 95". In safe mode windows will load up in VGA display mode, with the absolute minimum of drivers needed to run. Devices such as CD-ROM drives, Sound cards and anything in your start up folder, will not work. The point of this is to find out what is causing a conflict on your system, or to remove a driver or software, that would otherwise be in use by Windows.

Start Bar

This is the button in the bottom left hand corner of the screen in Windows 95. Once you click on the start button, the start bar will appear. The start bar contains the most essential programs you need in Windows, plus a pointer to the programs menu. The start bar contains:

Shutdown	With options to shutdown, <u>restart</u> , or restart in DOS mode.
Run	Useful for running programs whose location you know.
Help	Windows on-line help.
Find	Find any folder, file or computer.
Settings	Containing, <u>Control panel</u> , taskbar and printers.
Documents	A history of the most recently accessed files.
Programs	this brings up a new menu with your program items.

Desktop

The Screen area of Windows 95 is known as the desktop, and is where you can do a number of quite useful things. By default the desktop has several icons it, My Computer, Recycle Bin, etc. However, you can create your own icon shortcuts to your most frequently accessed areas. Simply right click on the desktop, choose new, shortcut, and follow the instructions. You can also change your monitor's display properties by right clicking and choosing properties. Creating shortcuts to your hard drive and CD-ROM drives can also make transferring information quicker and easier.

About this Help file

This help file started off as a personal project, in that I wanted to be able to give the PC Guide (and its sister magazines) readers a little extra help in using Windows 95. As is stated in the [introduction](#), this help file is not intended as a replacement for the Windows manuals, instead it is a way for me to pass my knowledge and experience on to you.

I have been using PCs for many years, and Windows 95 since its early beta days, and yet I still find that I am learning new features or techniques every week. While I am trying to pass on what I know, to cover every aspect would be a mammoth task, and one which I am not yet ready to undertake! After all, there are plenty of people out there with better qualifications than mine.

This help file should be viewed as a work in progress, it is still very much in its infancy, and will be updated whenever I can find the time. If you have any comments or suggestions about this help file, or any areas you would like to see covered, then please let me know, although I regret that due to time constraints, I can only reply to e-mail.

Regards

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DOS

DOS stands for Disc Operating System and was for many years the basic command and control environment for the PC. DOS is basically a way of managing the disk drives of your computer: files, directories (also called 'folders') and the individual disk drives. Windows 3.1 users actually have DOS installed on their system, and Windows runs 'on top of' DOS. With the evolution of Windows 95, DOS has become all but unnecessary, and the version of DOS that you can exit to is a very cut down version. However, it is still worth knowing how to find your way around in DOS, and how to perform certain functions, as accidents do happen, and sometimes the only way to rescue a situation is by venturing into DOS.

Please note that on most (but not all) systems, you should be able to access the DOS help file, by simply typing HELP at the command prompt, or in the DOS directory.

To get to DOS on either Windows 3.1 or 95, you have two basic choices, exiting to DOS, or running a DOS box (DOS in a window). Whenever you exit Windows 3.1, you are automatically in DOS, so no problems there, however, In Windows 95, you must go to the start bar, choose shut down and select restart in MS-DOS mode. Unlike Windows 3.1 though, when you exit to DOS from Windows 95, you may well find that you have no DOS drivers loaded, meaning that your CD-ROM drive and sound card may be non-functional. To avoid this, you need to install the relevant drivers, and make sure that they appear in your Autoexec.bat and Config.sys files.

To run DOS from within Windows 3.1, go to Main and double click on MS-DOS prompt. In Windows 95, go to the start bar, programs, MS-DOS prompt. The disadvantage with running DOS in a window, is that the memory allocation is not as good, and you may well find that certain applications refuse to run. If this happens, you will need to exit to DOS.

Autoexec.bat

The Autoexec.bat is one of the fundamental system files that your PC needs when it starts up. The Autoexec.bat works in conjunction with the Config.sys file, and contains a series of commands and information lines, so that the PC can load up certain drivers and set up your screen correctly. Although not strictly necessary for Windows 95, it is a good idea to have a fully working Autoexec.bat so that everything works correctly in DOS mode.

A typical Autoexec.bat would consist of the following components:

`Prompt=pg` - This specifies how the prompt is seen, eg: `c:\>`

`c:\windows\command\mscdex.exe /D:MSCD000 /L:G` - This loads the CD driver for DOS

<code>SET SOUND=C:\system\VIBRA16</code>	These five lines set up all the required DOS drivers for your <u>sound card</u> .
<code>SET BLASTER=A220 I7 D1 H5 P330 T6</code>	
<code>SET MIDI=SYNTH:1 MAP:E</code>	
<code>C:\system\VIBRA16\DIAGNOSE /S</code>	
<code>C:\system\VIBRA16\MIXERSET /P /Q</code>	

`lh C:\system\mouse\mouse.exe` - Loads the DOS mouse driver

`PATH=C:\COMMS\NETCOM;c:\windows;c:\tools\pktools;c:\windows\system` - Tells your PC where certain important directories are located. Whenever you type a command, it will look in these directories first.

