Stall or install?

As Microsoft's latest OS finally hoves into view, Terence Green asks if it's worth taking the plunge.

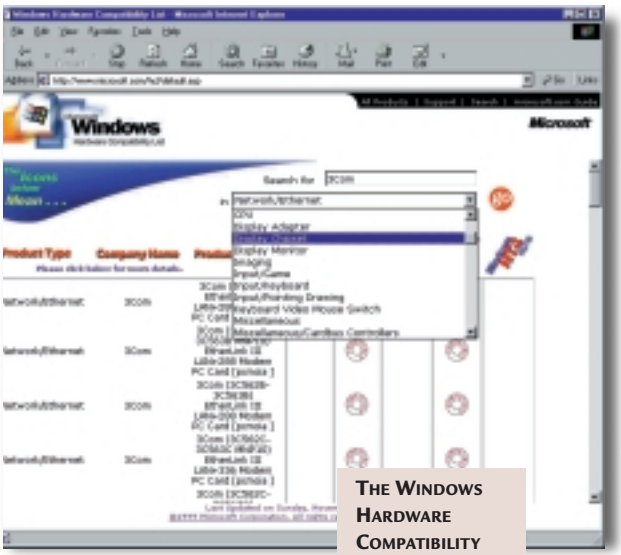
Those thinking of upgrading to Windows 2000 first have to ask themselves if they really need it. And unfortunately, there's no easy answer. Windows 2000 looks like Windows 98, but it isn't Windows 98. It feels like Windows NT, but it isn't, despite the splash screen that says 'built on NT Technology', the 'New Technology' of Windows NT.

First, let's take a look at some terminology. Windows 2000 is a family name. There's a desktop client, Windows 2000 Professional, which resembles Windows 98, but is really the next version of Windows NT4 Workstation. There are also three server versions, of which Windows 2000 Server is the entry-level product. We'll use 'Windows 2000' to refer to features that are common to the whole family, 'Windows 2000 Professional' for the desktop client only, and 'Windows 2000 Server' for server issues.

Windows 2000 attempts to square the circle that Windows NT couldn't, because – although it was more reliable than Windows 95/98 – it didn't support as many peripherals and applications. A properly configured Windows 2000 will be more stable than Windows 98 by design, but this OS nirvana relies on the careful selection and configuration of hardware and software.

Users may want to hang back during the days following the initial release, because they could find that their favourite peripherals – display adaptors, printers, scanners – are not fully supported. Vendors must wait until Windows 2000 is committed to shrink-wrap before they can finalise their drivers, which then need to be tested by Microsoft to carry the approved logo.

There are a host of other reasons to wait a while before deploying Windows 2000, not least because Microsoft's version 1.0 releases are by tradition the start of a long period of refinement.



THE WINDOWS HARDWARE COMPATIBILITY LIST WILL HELP YOU PLAN AHEAD

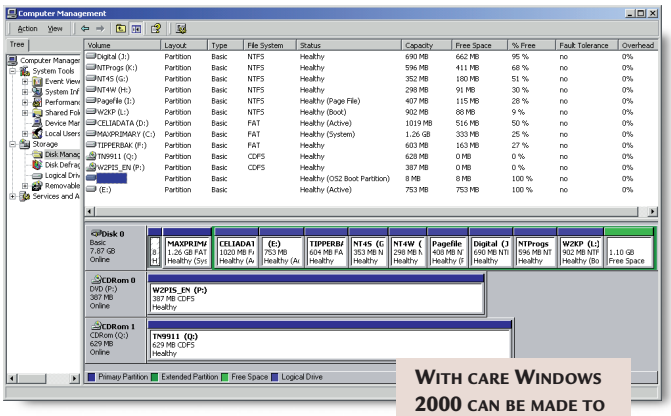
Pros and cons

The real question you need to ask is not 'what can Windows 2000 do for me?' but 'have I got what it takes?' We'll come to minimum hardware in a moment, but more importantly your hardware must be compatible. A single piece of hardware, a sound card say, which Windows 2000 doesn't like could cause untold sorrow.

The ACPI (Advanced Configuration and Power Interface), which allows Windows 2000 rather than your BIOS to control power management and plug and play peripherals, is sure to become another bugbear. Your PC may need a BIOS upgrade for ACPI support, but even then Windows 2000 won't enable it unless every device and driver also supports ACPI. If ACPI is not installed Windows 2000 may show an APM tab in the Control Panel Power Management applet, but BIOS-enabled Advanced Power Management is not officially supported by Windows 2000.

Start your preparation by visiting the Windows 2000 Hardware Compatibility List (HCL) at www.microsoft.com/hcl/default.asp. It's the definitive word on Windows 2000 compatibility and has links to recent driver updates. Any device that needs a specific driver may take a while to appear on the HCL, as it needs to be tested by Microsoft to be certified and digitally signed. Microsoft devised this system because dodgy device drivers have been one of the main causes of system problems in Windows NT. Windows 2000 will issue a warning if you install an unsigned driver, but won't prevent you from continuing. Adventurous types will click on, but think carefully if your business depends on this system.

Now would also be a good time to read up on the Safe Mode boot options and the recovery console and, if you don't already have a tape backup, to set up this system.



WITH CARE WINDOWS 2000 CAN BE MADE TO CO-EXIST WITH MULTIPLE OSS

Check your software

Windows 95/98 or Windows NT applications may not run on Windows 2000. Be especially careful of those with '2000' in the name. It's a marketing device, not a guarantee of Windows 2000 compatibility. The only guarantee is if the Windows 2000 logo appears on the box and it is listed on the Windows 2000 Product Compatibility page at www.microsoft.com/windows/

Software issues

NOT ALL GAMES WILL RUN FROM DAY ONE OF WINDOWS 2000'S RELEASE BUT DON'T WORRY, DRIVERS ARE ON THE WAY

The most common reason to set up a dual-boot system (booting both Windows 2000 and an earlier Windows) is to run games that don't run on Windows 2000. Mostly this means games that want direct access to the hardware which, for reasons of stability, neither Windows 2000 nor Windows NT allow. Windows 2000 will be much less of a problem in this respect, because it includes Microsoft's DirectX 7.0.

DirectX enables games authors to write to an API which gives them the speed they need without compromising the system by enabling direct access to hardware. But for DirectX to work games, audio, and video peripherals must have suitable device drivers. Certified drivers won't launch until after Windows 2000 ships. So, many games currently have problems or don't run at all. This situation will clear up but it will take a bit of time. The good news is that Windows Driver Model (WDM) drivers, that work on both Windows 98 and Windows 2000, will mean quicker driver updates.

But WDM is only useful for some multimedia devices (DVD and audio for example), it can't be used for video display drivers.

Because Windows NT only supports a poor software emulation of DirectX 3, many people run Windows NT and Windows 95/98 in a dual-boot configuration.

If you've done this and installed both operating systems on a single drive partition on the C: drive, a Windows 2000 upgrade of the Windows 95/98 operating system will fail. This happens because the Windows NT and 95/98 systems share C:\Program Files and the Windows 2000 upgrade deletes unneeded Windows 95/98 files. Because these files are in a directory which Windows NT shares, the upgrade is aborted. You must remove Windows NT before you can install Windows 2000. You won't be able to move the Windows NT operating system, even with utilities such as PartitionMagic. You could use it to repartition the drive into two or more partitions but it's best to start again, reinstalling everything after first backing up your data.

APPLICATIONS CARRYING THE '2000' SUFFIX MAY OR MAY NOT BE COMPATIBLE WITH WINDOWS 2000

server/Deploy/Compatible/default.asp.

Next, check whether you have the resources to run Windows 2000 – at least a 166MHz Pentium CPU, 2GB of free hard disk space, mouse, keyboard and VGA display. You'll also need a CD drive unless you install from a network. More hard disk space will come in handy if you want to install applications as well. Windows 2000 and its swap file takes up the better part of a gigabyte. If you want to run those applications, you'll need to double the minimum RAM requirements of 32MB for Windows 2000 Professional and 64MB for Windows 2000 Server. You'll need to double these requirements again for smooth operation.

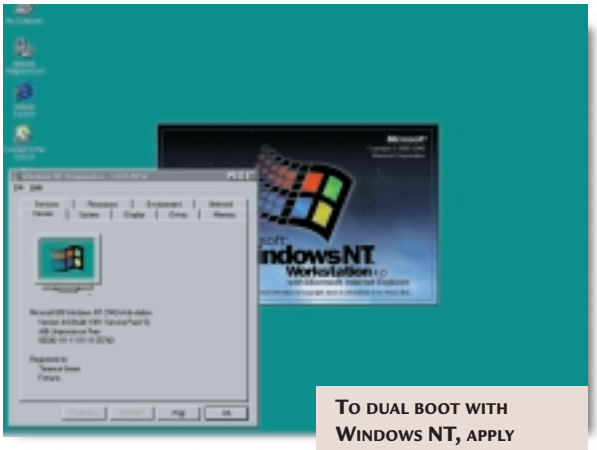
The CPU requirements that Microsoft gives are definitely a minimum. Some people will insist they run it on lesser hardware but remember, you do have a life away from the keyboard. For real work, a fast CPU (Intel Pentium II or III or AMD Athlon) is best and unlike Windows 98, Windows 2000 exploits multiple processors; up to two for Windows 2000 Professional and four for Windows 2000 Server.

Upgrade options

You've got the hardware, your software checks out. If starting from scratch with a clean install of Windows 2000 only on a new PC, no problem. Windows 2000 can also be used to upgrade 95, 98, or Windows NT. A simple matter you might think, but there are several gotchas, most of which are application-related, but drivers can be an issue too. For example, the upgrade may pop up a warning at the end that some applications have not been upgraded. By then it's too late. You can't reverse.

Always check applications and driver compatibility first and read the manuals! If there are documented problems, consider setting up a dual-boot system. To retain an earlier version of Windows – installed on a disk that is partitioned as a single drive – you must create two or more partitions. Do not install Windows 2000 on the same disk partition, for example, alongside Windows 98 on the C: primary drive. Microsoft does not support this configuration.

Some applications are hardwired to share the C:\Program Files subdirectory



To dual boot with Windows NT, apply Service Pack 4 or higher before installing Windows 2000

and may overwrite another's files. Use PartitionMagic to repartition on-the-fly or do it the long way with backup and restore plus FDISK. Always install Windows 95 before installing Windows 2000, because the Windows 95 setup will overwrite Windows 2000 boot files. Windows 98 can be installed before or after Windows 2000. Consider using three partitions, C: for Windows 95/98, D: for shared data, and E: for Windows 2000. This is because, although Windows 2000 can read FAT, FAT32, and NTFS-formatted drives, Windows 98 can't read NTFS drives.

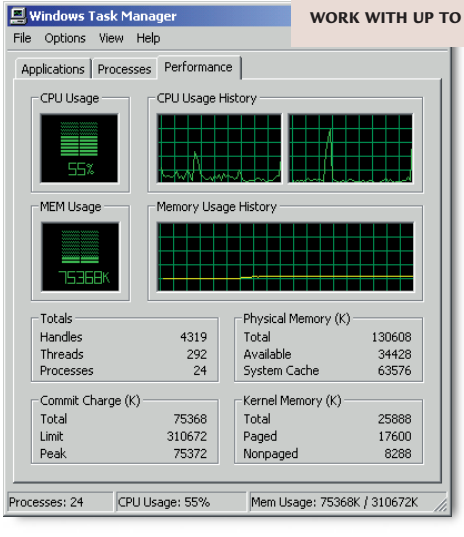
If it all sounds very complicated, that's because it is, but with careful preparation you can work around many of the gotchas. The end result should be a system that is faster, smoother, and more reliable than Windows 98.

Those looking to upgrade servers need to be a bit more cautious about updating to Windows 2000. It might be relatively safe to evaluate Windows 2000 on a working business desktop, but when it comes to servers you need to be far more careful, especially production servers supporting a number of clients. Windows 2000 raises many issues that you need to consider before installing a new Windows 2000 server or upgrading an existing Windows NT server. Not all of these can be covered here, but we will be looking at them in detail over the coming months. Bear in mind though, that any Windows NT Server except a Microsoft Small Business Server or a Windows 3.51 server running Citrix WinFrame can be upgraded to Windows 2000 Server.

One gotcha you want to be careful to avoid is that Windows 2000 automatically converts any NTFS drives it finds to a new version of NTFS during the install. If a removable drive is not inserted or otherwise offline during install it will be converted as soon as it comes online. Windows NT4 cannot read the Windows 2000 NTFS format unless it has been upgraded to Service Pack 4. If you plan to configure a PC as a dual-boot system by installing Windows 2000, you must apply SP4 to the NT4 system on it – or NT4 will not be able to read the new NTFS disk. The golden rule is always to apply SP4 to the Windows NT4 system before installing Windows 2000.

Hardware issues are a critical matter for servers. Don't even think of trying a 'suck it and see' approach with a production server. If possible, use a server identical to the production server to test-install Windows 2000 or buy a new server and install Windows 2000 on that. Windows 2000 will quite happily run alongside Windows NT as a member of a workgroup or domain and you won't have to install or implement Active Directory. Once you've become familiar with Windows 2000 you can think about whether you want to introduce Active Directory and how to go about it.

Windows 2000 Professional supports up to two processors, while Windows 2000 Server can work with up to four



If you decide to buy new hardware to run Windows 2000 Server, you should consider buying from one of Microsoft's established OEM partners. It may cost a little more, (not much these days), but the OEM will have done the hard work of making sure that the hardware is compatible with Windows 2000. A few extra pounds spent on hardware could save a great deal of wasted time and frustration down the line.

If you take the DIY approach or upgrade an existing server and plan to re-use old components, pay careful attention to the official Hardware Compatibility List. Some components, even relatively popular PCI-based network interface cards (NICs) such as the 3Com Etherlink III and Fast Etherlink III, may not be supported. Numerous other issues related to NICs are listed in the release notes. Don't ignore them, read them!

You'll also find issues with ISDN cards and multiport serial cards. The former may not be supported after upgrading an NT server, the latter can be adversely affected by ACPI power management.

When installing Windows 2000 on a server you should take its support for Plug and Play into account and ensure that any ISA cards that support Plug and Play are set to auto configure, not manually configured. If you can do without ISA cards altogether so much the better. If you don't know what hardware you have in your server and don't want to crack it open, you can run a compatibility check from the Windows 2000 CD with the command D:\i386\winnt32 /checkupgradeonly – where 'D:' is the CD drive letter. This will run the test and report results without actually performing the upgrade.

No matter whether you're running Windows NT or 98, if you have examined your hardware and are worried that some crucial elements are not supported, then the best advice is not to upgrade just yet. Not only will this save you a lot of down time, it will also give you a chance to learn from other people's mistakes. However, when you do finally make the jump you will find an operating system that is not just more stable and reliable, but also more user-friendly than either Windows 98 or NT4.

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