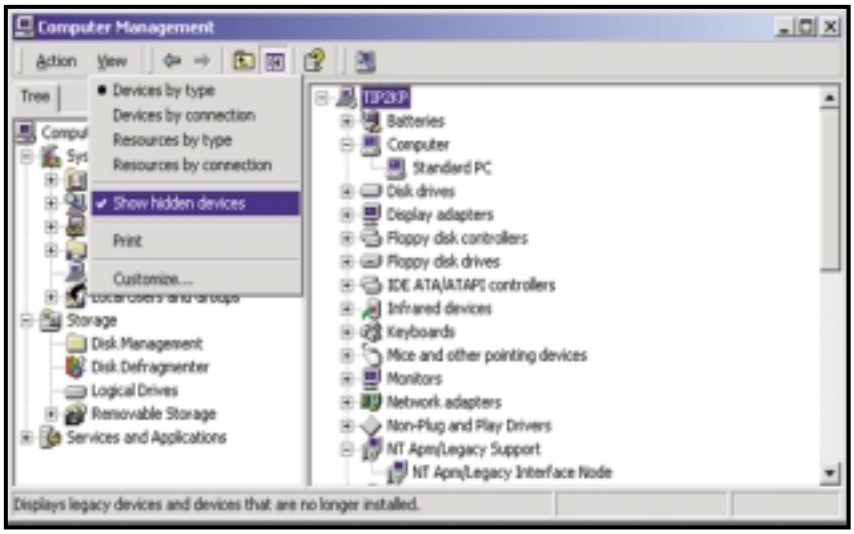
Balance of power

Terence Green shines a light on the power management options included with Windows 2000.

Power management is turning out to be a major source of confusion. This is because Windows 2000 is driving a change in the overall power management of Windows. The old BIOS-controlled Advance Power Management (APM) system is giving way to the Advanced Configuration and Power Interface (ACPI), which the operating system, in this case Windows 2000, controls.

APM only provides limited power management, not much more than time-outs for disks and displays. ACPI, on the other hand, gives the OS complete control over hardware configuration and power management and is the foundation for the next generation of 'legacy-free' PCs. These machines will switch on instantly rather than taking minutes to boot up and won't be hamstrung by all the hardware hassles of ISA and non-plug-and-play cards.

ACPI is a far better system than APM but it's very new. Running ACPI on PCs which aren't fully ACPI-compliant can cause major stability problems and that's not what Microsoft wants to see happening with Windows 2000. As it turns out, a lot of hardware that claims to support ACPI (or even APM) doesn't fully comply with the standards. Microsoft has reacted with strict rules for power management support in Windows 2000 in order to ensure system stability. During installation of Windows 2000, the setup utility performs in-depth testing for ACPI and APM support. Help it along before installing Windows 2000,



The 'Standard PC' description means either no power management or APM support

by booting into the power management section of the PC's BIOS setup and selecting the 'Enable ACPI' option if present. Don't worry about any other power-management settings or time-outs as they'll be ignored if Windows 2000 installs ACPI support.

During installation, Windows 2000 attempts to detect ACPI support directly, as well as referring to two text lists included in the setup files – the Good BIOS list and the Non-Compliant ACPI list. The Good BIOS list enables ACPI for systems with BIOSes dated earlier than 1 January 1999 which Microsoft has tested and found compliant. Systems on the Non-Compliant ACPI list have BIOSes dated after January 1999 but ACPI won't be installed, as Microsoft testing has determined that they do not fully comply with the ACPI standard.

With Windows 2000 installed, look under the Computer entry of Device Manager in Computer Management (right-click on My Computer, Manage). If you see 'Standard PC', ACPI support hasn't been installed. APM support may have been installed as a fallback, in which case an APM tab appears in the Power Options tool in Control panel.

A lot of hardware that claims to support ACPI (or APM) doesn't fully comply with the standards

Now that Windows 2000 is shipping, numerous PC and motherboard vendors are releasing BIOS updates to fix ACPI compliance problems. The fact that they haven't done this previously is instructive because Windows 98 also supports ACPI but didn't trigger these problems when it came out. The reason is twofold. Power management is new to Windows 2000 so it's getting a lot of detailed attention. Also, Windows 2000 takes reliability very seriously, whereas a lot of people hold the view that Windows 98 is flaky, so nobody really worries too much about ACPI problems there.

If your vendor comes through with a fully ACPI-complaint BIOS update after you have installed Windows 2000, you can upgrade to ACPI support. You must perform a full upgrade using the original Windows 2000 CD. It takes less than an hour and preserves your customisation and application settings.

Warning

Do not use Device Manager in Computer Management to update the driver for 'Computer'. Some have suggested that simply clicking on the 'Standard PC' entry under My Computer in Device Manager allows you to update the driver by selecting from a list including ACPI PC. However, Microsoft warns against taking this shortcut, because it will most likely render Windows 2000 unbootable.

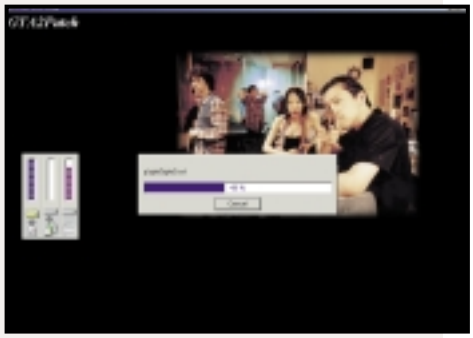
The device trees for ACPI and

Finding a good driver

Every big new project needs time to bed down and Windows 2000 is no different. In the opening months, post-release device drivers are going to be an ongoing problem. Most vendors won't release or fully support Windows 2000 drivers until they've tested them on the final code. Video drivers are a major bugbear, as many early adopters have discovered. The drivers that ship with Windows 2000 enable basic support but may not fully enable DirectX support for games or card-specific features. The only options are to wait or to try a beta driver.

Several websites offer beta drivers and advice on getting video drivers working. In general, you don't want to do this unless you're prepared to recover from a system failure. It's better to wait for the real thing to arrive on the Win2K compatibility list.

Don't automatically assume that display problems are driver-related. I thought I had a video problem because Grand Theft Auto 2 didn't seem to run under Windows 2000. My copy of GTA2 ran perfectly on Windows 98 but when I started it up in Windows 2000 on the same machine, GTA2 threw up some screen colours which made playing it impossible. But then I noticed that Rockstar had released a patch for GTA2. I downloaded and applied this and now GTA2 works fine.

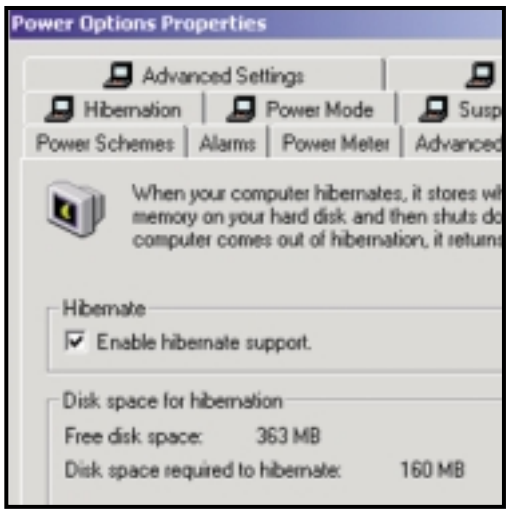


It's not always a driver problem – GTA2 was fixed by a patch from the vendor

Standard PC are completely different and the only way to load the proper support for ACPI is to take the upgrade route. This allows Windows 2000 to redetect all the hardware in the system as well as install ACPI support. If this fails to produce the required result and you are sure your BIOS is ACPI-compliant, you can force ACPI by interrupting the upgrade process. After the first reboot when the system asks you to press F5 if you want to add SCSI drivers, press F6 instead to choose an ACPI option.

APM support

If the setup utility decides against installing ACPI, it checks for APM. You'll know this has happened if you see an APM tab on the Power Options tool in Control Panel. If you don't see an APM tab here, then your computer does not support power management under Win2K. If the BIOS fully supports the APM 1.2 standard, APM support is installed and enabled by default.



Almost all PCs support the hibernation feature, but it needs to be specifically enabled

setup and change the APM timers to long time-out values, so that they don't conflict with Windows 2000's power management. If after enabling APM either won't be installed or may not work as expected. Open a command prompt window and run the APMSTAT.EXE tool to see what Windows 2000 thinks about the APM status of your computer. If it's a Windows 2000 Server version or a multi-processor system, it doesn't support APM. For power management on these systems, the BIOS must fully support ACPI. Also, Standby mode is only supported when batteries are detected, so don't expect to see it on desktops. Hibernate, however, is supported on most systems and can be enabled from the Power Options tool. It works by copying system memory to the hard drive, which requires free disk space approximately equal to the amount of RAM in the PC.

When your boss looms into view, hit Esc and the game will minimise to an Excel session

When Windows 2000 detects that APM support isn't up to scratch but has only minor issues, it installs APM but doesn't enable it. You can enable it through the APM tab in Control Panel, Power Options but be on the look out for problems. Also, boot into the PC BIOS support you experience problems such as inability to shut down or device problems after resuming from Standby, disable APM support and see if a BIOS update is on offer from the manufacturer.

Over and above the setup checks, there are several cases in which APM

One press ahead of the boss

On a lighter note, all the games included with Windows 2000, with the exception of Pinball, have a Boss Key. When your boss looms into view, hit Esc and the game will minimise to an Excel session named 'budget.xls' on the Taskbar.

CONTACTS

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