



NT on Steroids & PnP

FINALLY! A Handheld Windows

ZD

THE MAGAZINE

FOR WINDOWS 95 AND WINDOWS NT

Windows™

SOURCES

www.winsources.com

US \$2.99

DECEMBER 1996
VOL. 4, NO. 12

SECRETS

NT 4.0

67
TIPS ON

- UPGRADING
- DESKTOP
- INTERNET
- NETWORKING
- PERFORMANCE

CANADA \$3.99
UK £2.50, FF 40



12 >

UPGRADING

Want to ensure a smooth upgrade? These 16 tips tell you how to cover—and recover from—common migration pitfalls.

BY CHRIS MORTON

Whether you plan to install NT 4.0 on a pristine system, or you plan to upgrade from NT 3.51, Win 3.1, or DOS, installing NT 4.0 is relatively painless. Your program groups will all appear on the Start menu, under Programs.

But if you're upgrading from Win 95, be prepared for a rough ride. There's no upgrade utility to resolve differences in the two operating systems' Registry files, so you'll have to reinstall all your applications. Although Microsoft promises to synchronize Win 95's Registry and NT's in the next version of NT (which is code-named Cairo), for now, there's no other way around the problem.

There are also hardware hurdles to overcome. NT 4.0 controls all of your computer's hardware directly; it doesn't use the system BIOS, as Windows 95 does. As a result, NT 4.0 is much more hardware-sensitive—particularly to SCSI adapters, graphics cards, and network interface cards (NICs). So before upgrading, you need to verify that each device in your system is on Microsoft's Hardware Compatibility List (HCL). If your hardware isn't on the list, and you have problems, Microsoft will say it's the hardware's fault and won't provide technical support. One final note: Although NT 4.0 ships with a copy of the HCL on paper and on disk, Microsoft updates the list frequently. So be sure to download the newest version from www.microsoft.com/hwtest.

Consulting the Hardware Compatibility List isn't the only preventive measure to take. In the tips that follow, you'll find additional ways to ward off problems before you install NT 4.0, as well as tricks on resolving problems that can occur after you've made the move. And if you

```
[boot loader]
timeout=15
default=C:\
[operating systems]
C:\="Microsoft Windows 95"
multi(0)disk(0)rdisk(0)partition(3)\WINNT
--"Windows NT Workstation Version 4.00"
multi(0)disk(0)rdisk(0)partition(3)\WINNT
--"Windows NT Workstation Version 4.00
[VGA mode]" /basevideo /sos
```

MODIFYING THE BOOT.INI FILE LETS YOU CHANGE THE WINDOWS BOOT MENU OPTION NAME FROM MICROSOFT WINDOWS TO MICROSOFT WINDOWS 95 WHEN DUAL-BOOTING.

find a hot tip we missed, send it along.

IN THE NIC OF TIME During setup, NT doesn't always identify network-interface-card setting corrections. So before you install NT 4.0, note the NIC's IRQ and memory-address ranges. To find these settings, either run the diagnostic utility that came with the NIC, or remove the adapter from the system and compare its jumpers and DIP switches with the settings listed in the NIC's manual. Then during NT's setup, you can override the automatic NIC detection and provide the correct settings manually. Or you can just let the automatic detection proceed and, when it asks you to confirm the settings, change any incorrect settings to the right ones for your card.

RUNNING WIN 95 AND NT 4.0 When you install NT 4.0 on a system already running Win 95 or Win 3.1, install it to a unique folder (such as \Winnt) on a separate partition (drive letter). If you don't, the NT 4.0 \Program Files folder will overwrite the Win 95\Program Files folder, causing chaos. Also, you must reinstall any Windows applications—16- or 32-bit—that you installed under Win 95 separately under Win NT 4.0. You

won't have to reinstall the program data files, though. And any application with a smart install utility will install only the .DLLs required to make the app work under NT 4.0, rather than reinstalling the entire application.

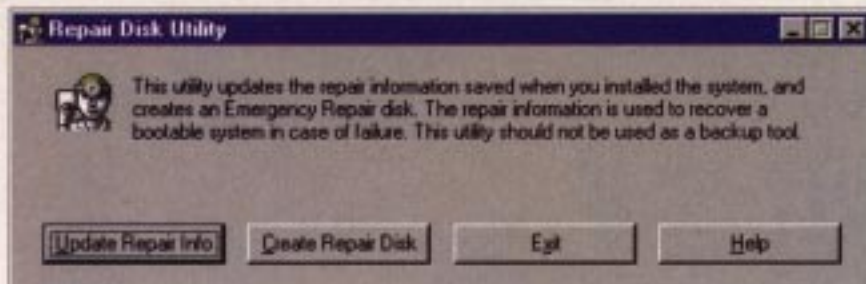
TRIPLE-BOOTING If you have NT 4.0 installed on a DOS machine, and you're using FAT, you can triple-boot among NT 4.0, Win 95, and Win 3.1.

On a machine with only NT 4.0 installed, select the DOS option from the boot menu. Then install Win 3.1 first and Win 95 second (install each in its own folder).

If both NT 4.0 and Win 95 are already installed, you can add Win 3.1 to the mix. You can't create an option to boot directly to DOS or Win 3.1, however. Instead, boot up NT 4.0, and select the Microsoft Windows boot option, which loads Win 95. When you see the Starting Windows 95 message, press F8. This displays the Win 95 boot menu. Choose the last item on the menu, which reads "Boot the previous version of MS-DOS." Now you can install and subsequently run Win 3.1.

GIVE WIN 95 THE BOOT If you install Win NT 4.0 in its own folder on a Win 95 machine, NT's boot menu presents Win 95 simply as a plain-vanilla Microsoft Windows option, not as its full name. To avoid confusing it with any other OSes you've installed, rename the option Microsoft Windows 95.

Choose Start|Find and search for the hidden file BOOT.INI. Right-click on the file and choose Properties. Deselect the Read-only and Hidden file



USE NT 4.0'S RDISK UTILITY TO BACK UP YOUR CURRENT CONFIGURATION.

attributes, and click on OK. Next, double-click on BOOT.INI to open it in Notepad. Change the entry that reads C:\="Microsoft Windows" to C:\="Microsoft Windows 95." Then restore the Hidden and Read-only attributes.

BOOTLESS? If you accidentally delete NT's boot files from the hard disk's \root folder, no operating system will boot. An NT boot disk can come to the rescue. To create one, insert a floppy disk, open Explorer, right-click on the A: drive icon, and choose Format. Then copy these files from the \root folder to the floppy disk: NTLDR, NTDETECT.COM, BOOT.INI, and BOOTSECT.DOS. If disaster strikes, simply boot from the floppy disk and copy those four files back to their original location.

SWITCH DEFAULTS To use Win 95 or Win 3.1 as the default OS when you boot NT 4.0, hold down the Alt key while double-clicking on My Computer. Then choose the Startup/Shutdown tab, and change the Startup option to match your preference.

SET THE BOOT MENU'S TIMER To customize how long NT 4.0's boot menu displays before it loads the default OS, press Shift while double-clicking on My Computer, and choose the Startup/Shutdown tab. Then change the "Show list for" option to the preferred number of seconds.

COMMON BOOT MESSAGES If you get the boot-up message "BOOT: Couldn't find NTLDR. Please insert another disk," the NTLDR file is either missing or corrupt. To fix it, copy the NTLDR file from the distribution media to the \root folder and reboot.

If you get the message "NTOSKRNL.EXE is missing, or corrupt," the culprit is usually the BOOT.INI file: Either it's missing, or its internal pointer to the NT system files is incorrect. If you've opened BOOT.INI in a text editor and verified that all is

well, try copying NTOSKRNL.EXE from the distribution media to the \Winnt\system32 folder.

RDISK TO THE RESCUE During the NT 4.0 install, the OS asks if you want to create an Emergency Repair disk, which saves your current system settings. Do it. Later, if you need to reinstall NT 4.0, you can use the disk to restore your computer.

To use ERD, begin reinstalling NT 4.0. When the ERD option displays on the Welcome to Setup menu, press R to invoke the repair option. Then choose one or all of the options presented to you: Inspect Registry files, Inspect start-up environment, Verify Windows NT system files, Inspect boot sector. Then follow the prompts until you're asked to insert the ERD.

If you don't create an ERD, don't worry. You can create one at any time, by running NT 4.0's RDISK utility

WATCH OUT

- If your system has a Plug and Play BIOS, disable it in CMOS before installing NT 4.0. Why? Plug and Play configures both the motherboard and the add-in cards. But because NT doesn't support Plug and Play, it won't detect these changes. If you're also running Win 95, doing so will obviously limit its PnP capabilities.
- When upgrading to NT 4.0 from Win 95, Win 3.1, or DOS, you can convert from FAT to NTFS. Don't. If the install gets ugly, you can't run these OSes on an NTFS partition. Sticking with FAT gives you access to the disk so you can remove NT and restore your prior configuration.

(Start | Run, RDISK, OK) and clicking on the Update Repair Info button (see the screenshot at left). It's especially important to do this after you add new hardware or software to the system.

KEEP NT SETUP DISKS HANDY Unfortunately, the Emergency Repair disk won't work without NT setup disks. It's easy to create a set, however, from any NT 4.0 machine that can access the original distribution files. First, have three disks handy. Then choose Start | Run and type WINNT32 /OX. Click on OK, then follow the prompts. If this is your only NT system, test the disks by rebooting from disk 1, then entering disk 2 until you see the Emergency Repair disk option on the Welcome to Setup menu.

REPLACE A BAD CONTROL SET NT's Registry maintains several sets of configuration data called control sets. Any time you make system changes, NT saves them in the Registry's Current-ControlSet, which is a folder in HKEY_CURRENT_CONFIG. NT 4.0 also maintains the LastKnownGood control set—that is, the last one that worked reliably. So if you run into problems as a result of Registry editing, you can revert to a good control set. Here's how. Early in the boot-up sequence, NT prompts you to "Press the spacebar NOW to invoke the Hardware Profile/Last Known Good menu." This displays the Hardware Profile/Configuration Recovery Menu. Press L to select the (L)ast Known Good option, then select Original Configuration from the list.

DOS DOES NTFS Microsoft claims that once you've converted a disk volume from FAT to NTFS, only a user who successfully logs on to NT can access its contents. This isn't the case, however. There's a freeware utility that lets you mount any NTFS volume as a FAT volume so you can read and execute files on an NTFS volume from Win 95 or Win 3.1. You can download this utility, NTFSDOS.ZIP, from O'Reilly's Web site, at www.ora.com. One catch: NTFSDOS can't write to an NTFS volume.

EASIER COMPONENT INSTALLS If you've installed NT 4.0 from a CD-ROM but have put its distribution files on a network server, NT prompts you for the location of the files each time you install a new component. To avoid this nagging prompt, you can set this value to a particular location. Just run RegEdit, select HKEY_LOCAL_MACHINE, and

Read Me First

Many of our tips require you to dive in and edit the Registry. And though we've said it before, we'll say it again: Before making any changes to the Registry, back it up. Screw up the Registry—which is a database of all user, operating system, and application settings—and you might have to re-install NT 4.0. Here are two ways to back it up.

Have Tape, Will Back Up NT 4.0 includes a utility for backing up local and networked drives. While doing so, you also have the option to back up the local Registry. Although the process is a breeze, there's one catch: It requires a tape drive. If you have one, just follow these steps.

From the Start menu, select Programs\Administrative Tools (common), then Backup. When the utility launches, you'll see two windows: One displays available tape drives, and the other shows drives you can back up. In the Drive window, select the ones you want to back up, then press the Backup button, which opens the Backup Information window. Here, you can set parameters such as the name of the tape and whether to append or overwrite data. Beneath the tape name is an unchecked box that reads "Backup Local Registry." By default, Windows NT doesn't back up the Registry, so make sure you check this box.

Back Up for the Rest of Us If you don't have a tape drive, use this method instead. Because the Registry comprises several large files, compress it using an NT-compatible Zip utility, such as Drag and Zip or WinZip. The Registry files reside in the \Winnt\system32\Config folder. Make this backup a self-extracting file, and name it, say, REGBACK.EXE, then copy it to a floppy disk for safekeeping. On our tests, we compressed the Registry on a system with only NT 4.0 installed, from 1.33MB to 907K. As you add applications, however, the Registry grows. When backing up a Registry too large to fit on one floppy disk, be sure to use a compression tool that can copy a file across multiple floppy disks, such as Norton Disk Utilities or WinZip. To keep the backup current, be sure to overwrite the existing files whenever you edit the Registry. —Chris Morton and Ronald V. Pachiano

search for SourcePath. Double-click on the icon now selected within the \Software\Microsoft\Windows\CurrentVersion\Setup subkey, modify its Value data field to point to your NT distribution files (e.g., F:\Winnt\I386), then click on OK.

ADD A POWER-DOWN OPTION If your system supports Advanced Power Management (APM), and it's enabled, you can have NT shut down and power down. This way, the system turns itself off after you select Shut Down, and you'll no longer get the "It is now safe to turn off your computer" message. To do this, open RegEdit and select HKEY_LOCAL_MACHINE. Choose Edit|Find and search Values for PowerdownAfterShutdown. Once you see the PowerdownAfterShutdown icon (in the \Software\Microsoft\Windows NT\CurrentVersion\Winlogon subkey), double-click on it. In the Edit String dialog, change the Value data to 1, then click on OK. The Shutdown and Powerdown options will now appear when you press

Ctrl-Alt-Del and choose Shut Down.

DISK-FREE INSTALLS You can install Win NT Server or Workstation from a network, provided the NT 4.0 distribution files are already on the file server. First, you must partition the local drive on the target PC and make it bootable from DOS. Next, locate WINNT.EXE, one of two NT setup programs, in NT's \I386 folder duplicated on the server. From the target PC, invoke the command WINNT /B (the switch indicating you're not using NT's three setup floppy disks).

USE EMULATION MODE If one of your hardware components isn't on the HCL, you still might be able to use it. If the device supports emulation, you can configure it to behave like one that does appear on the list. For example, if your NIC's manual says it emulates the NE2000, tell Windows NT that it's an NE2000. Consider this an interim solution, though. Your best bet is to upgrade your NIC, because emulation mode won't perform as reliably as the real thing. ▶

DESKTOP

It looks like Windows 95. It acts like it, too. But dive into the Registry, and you'll find plenty of differences.

BY CHRIS MORTON

If you're upgrading to NT 4.0 from Windows 95, you'll be struck by the similarity: Their interfaces are virtually identical. In fact, many tips on customizing Win 95's interface apply to NT 4.0 as well—except those involving the Registry, of course. In this section, you'll find tips on interface changes you can make only by editing the Registry, as well as ways to customize NT 4.0's desktop using the Start button, the Windows NT 4.0 Explorer, and My Computer.

STARTING PLACES When you first start using NT 4.0, the best way to edit the Start menu is to click on Start | Settings, then Taskbar. This opens the Taskbar Properties dialog; click on its Start Menu Programs tab. Then press the Add and Remove buttons to determine which items will appear on the Start menu.

Another way to do this is to press the Advanced button, and then drag and drop executable files directly onto your Start folder, which is in the NT *\system root* directory's Start Menu folder.

If you want to add an application directly to the Start menu—rather than burying it in the Programs list—open Windows NT Explorer, find the application's .EXE file, and simply drag it to the Start button. This puts a Shortcut to that application on the Start menu.

TAKE COMMAND You probably already know that from the command-prompt window, or the Start menu's Run dialog, you can launch any application by typing in the name of its executable. What you might not have realized, though, is that you can also type the name of any file type associated with that application. For example, if you type ACCESS.HLP, you'll launch the Windows NT Help engine and

WATCH OUT

- The retail versions of NT 4.0 Workstation and Server both include a utility—ROLLBACK.EXE—that can “roll you back” to the setup routine and hose the Registry from an existing NT 4.0 installation. Although it isn't installed initially, ROLLBACK.EXE remains on the distribution CD, in the *\Support\i386* (or whatever CPU you're using) folder.

ROLLBACK has no help files, no command-line help, and no documentation. But simply double-clicking on the .EXE, or

invoking it from the administrator's account on the console, executes it without warning. (You can't run the utility from a guest account.) The next thing you know, you're staring at the setup screen. And all the Registry entries your applications have added are gone, along with all the security and account information. (Data files remain intact, though.) Worse, there's no recovery from using this tool. Only a complete backup immediately prior to usage will recover the installation.

load the remote-access help files. This trick works with installed applications as well. For example, if you've installed Microsoft Word, you can type *filename*.DOC, and it will launch the application and load that file.

USE DRAG-AND-DROP WITH RUN The Start | Run dialog box supports drag-and-drop just like everything else in NT 4.0's Explorer interface. This tip is particularly useful when you have long command strings to type and you want to avoid typos. For example, open Explorer, then choose Start | Run. Type *WordPad*, a single space, then drag a text-based document buried several subfolders deep from Explorer to Run. Click on OK and the document opens in WordPad.

EXPLORE THE EXPLORER Here's how to gain the quickest access to Explorer. Click on a blank space on your Windows NT desktop to make certain that objects are deselected. Now hold the Shift key and double-click on

My Computer or Network Neighborhood. Another quick way to launch Explorer is to right-click on the Start button and choose Explore.

TILE EXPLORER VIEWS Sometimes it's difficult to manipulate objects in Explorer, especially if your NT 4.0 machine has a single large drive volume with multiple folders. To make it easier to move and copy files, right-click on the Taskbar and choose Minimize All Windows. Next, launch two instances of Explorer, then right-click on the Taskbar and choose the option called Tile Vertically.

Now it's easier to choose the source folder in the left Explorer and the target folder in the right Explorer, and to drag objects between the two windows. Hold down the Shift key while you drag objects to ensure a move operation, regardless of the location of the source and target folders. Hold down the Ctrl key while you drag to ensure a copy operation.



FERRET OUT THOSE HIDDEN ICONS: CREATE A SHORTCUT TO AN OBJECT, THEN SELECT THE CHANGE ICON BUTTON FROM ITS PROPERTIES/SHORTCUT DIALOG BOX.

HIDDEN ICONS Dress up your Shortcut icons with icons that come with NT 4.0. To access them, right-click on an existing Shortcut and choose Properties. Click on the Shortcut tab, then click on the Change Icon button. You'll see many icons from which to choose as you type any one of these filenames (you don't need to include path information) and click on OK: SHELL32.DLL, PIFMGR.DLL, MORICONS.DLL, and PROGRAM.MAN.EXE.

MOVE FILES EN MASSE You can move (or delete or copy) multiple files simultaneously, using one of two methods. If all the files you want to move are adjacent, select the first one in the list, press the Shift key, then click on the last document in the series. However, if the files you want to

move are not adjacent, select the first one, then press Ctrl and hold it down while you select the rest of the documents.

Keyboard enthusiasts can select all of the files in a window or a folder simply by pressing Ctrl-A. To deselect one or two files from the group, hold down the Ctrl key while you click on the files you want excluded.

SEND FILES FAST If you haven't tried Windows NT 4.0's Send To option yet, you're missing out on a handy timesaving technique. To access this menu, right-click on a file in Explorer and choose the Send To command from the context-sensitive menu that appears.

One option is to send the file—that is, to copy it—to a floppy disk. To make

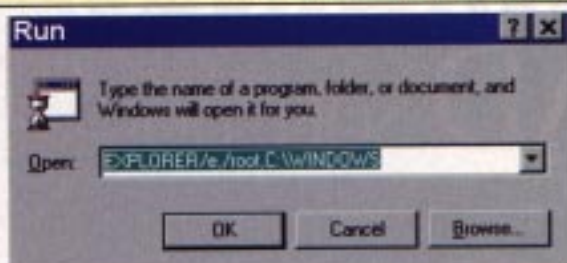
this option even more useful, add a Shortcut to WordPad, Notepad, or another application in the \Winnt\Profiles\username\Send To folder. This is useful for opening documents with nonstandard file extensions—just send the file to, say, Notepad rather than using Open With. You can also add Shortcuts to printers, shared network folders, and other objects to the Send To menu. To add a printer Shortcut, for example, open the Explorer and drag the printer icon from the \Printers folder to the \Send To folder.

To add a Send To option that will place objects in a particular folder, hold down Ctrl-Shift while you right-drag the folder icon to the \Send To folder. Press enter to accept the default choice, Create Shortcut(s) Here. Note: If the \Send To folder and the file you're "sending to" are on the same drive volume, the Send To operation moves the file. If you want to copy the file instead, hold down the Ctrl key while you perform the Send To.

FORCE AN EXPLORER VIEW You can force a particular view in Explorer—



SELECTING RANDOM FILES IN NT EXPLORER IS SIMPLY A MATTER OF TAKING CTRL.

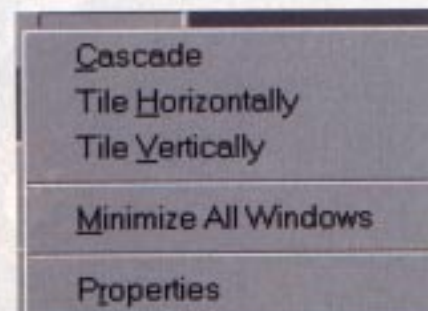


TRY BRUTE FORCE TO MAKE NT EXPLORER OPEN TO THE FOLDER YOU WANT.

say, one that opens to a user's folder—by using this syntax: `EXPLORER /e,/root, folder name`. For example, in the Start menu's Run dialog, try typing `EXPLORER /e,/root, C:\WINDOWS`. Or use the Shortcut Wizard to create a Shortcut that uses this command sequence to open the same Explorer view on a repetitive basis.

CLUTTER KILLERS As you drill down into My Computer, multiple windows can quickly clutter the desktop. If you don't want to open a new window for each folder you open, press Ctrl while double-clicking on a drive icon or on its successive folders. To back up one level, press the Backspace key to change the window view to a parent folder or drive.

MANAGING WINDOWS To unclutter the desktop, right-click on the Taskbar and choose Minimize All



ONE CLICK IS ALL IT TAKES TO BRING ORDER TO YOUR DESKTOP.

Windows. To close all the windows that NT 4.0 opens when you drill through folders, hold down the Shift key when you click on a folder window's close button. All its parent windows close automatically, along with the folder on which you clicked. (Another way to do this is to press Shift with the close button's keyboard equivalent, Alt-F4.)

DRAG AND DROP HTML PAGES FOR QUICK REVIEWS Have you ever wished for an easy way to quickly re-

view the contents of several files with the same file type, such as HTML (.HTM) documents you've downloaded from the Internet? Here's how to do it.

First, right-click on the Taskbar, and choose Minimize All Windows.

Then open Explorer to the folder containing these files. Also open your target application (we'll use Netscape Navigator, though it could be almost anything).

Now right-click on the Taskbar again and choose Tile Vertically. Drag the first HTML file from Explorer and drop it in the open Navigator window. If you'd like to examine the file's contents more closely, maximize the Navigator window. To proceed to the next file, restore the size of the Navigator window, then drag and drop the next file from Explorer.

DELETE ME NOW Are you sure you want to delete an object (file, folder, etc.) and not send it to the Recycle

Bin? Hold down the Shift key, select the object, and press Del. Want to disengage the Recycle Bin altogether? Right-click on its icon and choose Properties. Click on the option that says "Do not move files to the Recycle Bin. Remove files immediately on delete." Then click on OK.

CONTROL CONTROL PANEL It's easy to add a fly-out Start menu for quick access to individual Control Panel items. This way, each applet cascades off the Start menu.

To do this, run Registry Editor (RegEdit) and choose Edit|Find. Search the Data field only for *Control Panel*. Once it appears in the right pane, select its corresponding open folder icon in the left pane and choose Edit|Copy Key Name. Now close Registry Editor, right-click on the Start button, and choose Explore. Then right-click on Explorer's right pane and choose New|Folder. Press Ctrl-V to paste the Registry value you copied in the previous step to the clipboard. The last step is to modify the folder name so it reads



FOR FAST ACCESS TO CONTROL PANEL AP-
PLETS, PUT THEM IN A SEPARATE FLY-OUT
START MENU.

Have a problem you can't find the answer to? Surf to www.winsources.com and check out our TipFinder—an interactive database of hundreds of Win 95 and NT 4.0 tips.

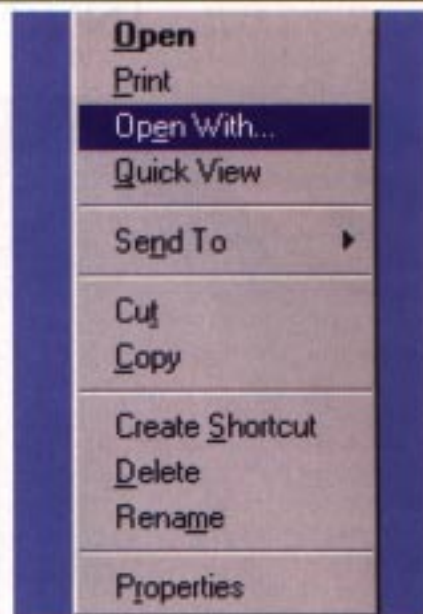
Control Panel.[21EC2020-3AEA-1069-A2DD-08002B30309D]. Now click on Start and examine your new Control Panel fly-out menu.

CONTROL PANEL SHORTCUTS Sometimes you need to repeatedly access the same Control Panel item. Each resides in the \Winnt\system32 folder, uses the .CPL extension, and is associated

with CONTROL.EXE by default. To create a Shortcut to System Properties, for example, launch the Shortcut Wizard by right-clicking on the desktop, then type `SYSDM.CPL` in the command line; Windows NT does the rest. Similarly, to create a Shortcut to the Control Panel's Network applet, type `NCPA.CPL` in the wizard's Shortcut command line.

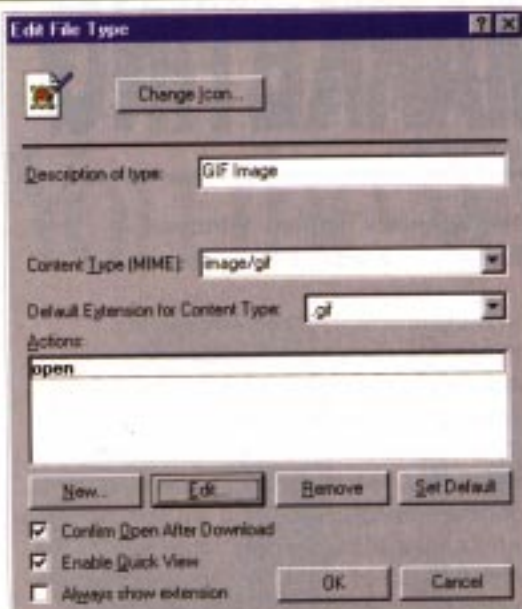
SHIFT ALTERS FILE ASSOCIATIONS If Microsoft Word is installed, and you double-click on a .DOC file in Explorer, the file opens in Word. If you right-click on the file and choose Open, again the file opens in Word. If you want to open the file in WordPad, you might think you have to launch the application, then choose File|Open to access your file contents. Instead, try this: Hold down the Shift key while you right-click on the file, then choose Open With. Quickly type `W0`, then press Enter. These actions select WordPad from the list of associated applications and open your .DOC file within it.

CHANGE FILE ASSOCIATIONS As you install multiple applications, each



HOLD DOWN THE SHIFT KEY WHILE YOU RIGHT-CLICK ON A WORD FILE TO DISPLAY THE OPEN WITH COMMAND ON THE CONTEXT MENU.

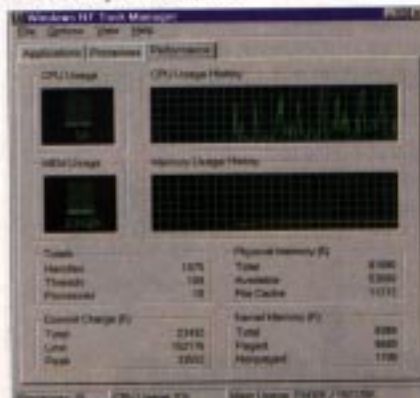
seems to have its own idea regarding file associations. For example, when you double-click on a .GIF file in Explorer, do you really want it to open in



FILES DON'T ALWAYS KNOW WHAT'S BEST FOR THEM. NOW YOU CAN ASSOCIATE FILES WITH THE APPS YOU WANT.

Adobe Photoshop? Yet, when you installed the application, it didn't ask for your preference, a common trait of many applications.

To change an association, open My Computer or the Windows NT Explorer, choose View|Options, then click on the File Types tab. Keeping an eye on the File Type Details area within the dialog box, repeatedly press the Down Arrow key until you see a reference to the file extension you want to change. Click on the Edit button to display the Edit File Type dialog box, then click on its Edit button. Now click on the Browse button to locate the executable file of the application with which you'd like to open files having this extension. Click on OK, close both dialog boxes to finish the operation, then test your results.



OPENING NT 4.0'S TASK MANAGER TAKES MORE THAN JUST A FEW MOUSE CLICKS. FORTUNATELY, YOU CAN RESTORE CTRL-ESC.

MANAGING TASKS To launch NT 4.0's Task Manager, right-click on the Taskbar and select it from the context menu (or press Ctrl-Alt-Del and select it from the list). For continuous access to the Task Manager, open it, choose Options|Hide When Minimized, and minimize it. This puts the Task Manager in the Taskbar tray, where it continues to dynamically display system performance. To restore it, simply double-click on its icon in the tray.

QUICKLY CLOSE NT There are two quick ways to close Windows NT 4.0 from the keyboard.

The first is to simultaneously press Ctrl-Alt-Del, then press S, S, Enter.

The other way, which is perhaps just a bit quicker, is to simultaneously press Ctrl-Esc, then U, S, Enter.

CONTROLLING TASK MANAGER If you're pining for the old NT 3.51

Task Manager—which you can open simply by double-clicking on the desktop or by pressing Ctrl-Esc—don't worry. You can regain the use of Ctrl-Esc to open the Task Manager, though to do so, you've got to edit the Registry.

Launch the Registry Editor by typing `regedit` in the Start menu's Run dialog. Then expand `HKEY_LOCAL_MACHINE\Software\Microsoft\Windows NT\CurrentVersion`. Now open `\Winlogon`. From the Edit menu, select New, then String Value. Type `TaskMan` in the New Value field and press Enter. Now double-click on the new `TaskMan` Registry entry. In the Value data field that appears, type `TASKMAN.EXE` and, again, press Enter. Now exit the Registry and reboot the system. When your PC restarts, you'll once again be able to open the Task Manager by pressing Ctrl-Esc. ▶

Chris Morton is a freelancer based in Scottsdale, Arizona, and a Windows instructor for Learning Tree International.

PERFORMANCE

NT 4.0 performs like a champ right out of the box. But here are nine easy ways to make it even better.

BY CHRIS MORTON

The most obvious way to get the best performance from NT Workstation is to pack your system (preferably a Pentium Pro) with a SCSI hard disk and plenty of memory—32MB to 128MB, depending on your mix of applications. You should also run 32-bit versions of your applications whenever possible. Then there are the not-so-obvious ways. That's where we come in. Here, you'll find hints and tricks on everything from interpreting the performance data NT can track to tuning the way it pages memory, and much, much more.

YOUR LEGACY APPS If you still use 16-bit apps, try creating Shortcuts to them. To do this, open an app's Properties and select the Shortcut tab. Then check the box that says "Run in separate Memory Space." This creates a VDM specific to that app and gives it its own memory space to play in. This improves performance and system stability.

TIME FOR A NEW CPU? To determine whether the CPU is causing a bottleneck, choose Start|Programs|Administrative Tools|Performance Monitor. Choose Edit|Add To Chart, or click on the Plus sign button on the toolbar (press Ctrl-T if it isn't visible), then select System from the Object drop-down list. Select Processor Queue Length from the Counter list, then click on Add. If the value exceeds 22, consider a processor upgrade, because you're spending too much time waiting for the CPU to free up.

HIDDEN DISK MONITOR You can use NT's Performance Monitor to check disk activity. But first, you need to enable its disk-monitoring capability. To do this, run NT's Command Prompt

WATCH OUT

- Don't bother loading more network protocols than you need. All they'll do is take up extra memory and slow performance.

from Start|Programs, enter DISKPERF -Y, then restart the system. Performance Monitor can now measure Windows NT disk performance.

IMPROVE PAGING PERFORMANCE If your system has two hard disks, don't keep the PAGEFILE.SYS file on the same drive as NT's other system files. If you do, read and write operations to the paging file on one drive can degrade performance on the other. You

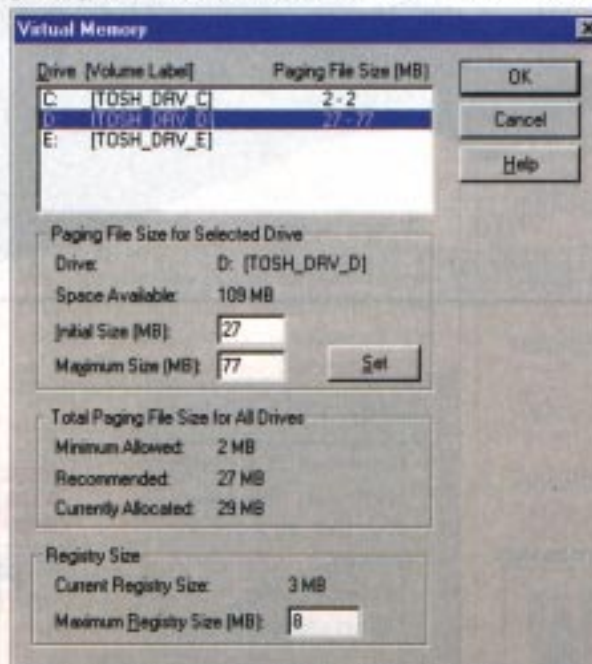
can't move the file. But you can reduce the size of the original file and set up a larger paging file on the other drive. Here's how.

Right-click on My Computer to open the System Properties dialog box, choose the Performance tab, and click on its Change button. Reduce the Initial Size and the Maximum Size options to the minimum amount recommended (usually 2MB). Then select the other drive and create a paging file whose Maximum Size is twice the amount of physical RAM installed on the system.

QUICK STATUS CHECK NT 4.0 has a new Task Manager with a subset of its Performance Monitor. Use it to graphically view CPU utilization and memory usage when running your applications. To access it, right-click on the

Taskbar and choose Task Manager. Choose Options|Hide When Minimized to keep Performance Monitor instantly accessible in the tool tray.

THE BIG SQUEEZE If you've converted a drive volume to NTFS, Explorer lets you compress and decompress individual folders and files on the fly, rather than limiting compression to entire drive volumes. To compress a folder or file, right-click on the object in Explorer or My Computer, choose Properties, then click on Compress (in the Attributes area). To determine which folders and files are com-



TO IMPROVE PAGE PERFORMANCE ON A SYSTEM WITH TWO HARD DISKS, REDUCE THE SIZE OF THE ORIGINAL FILE AND SET UP A LARGER PAGING FILE ON THE OTHER DRIVE.

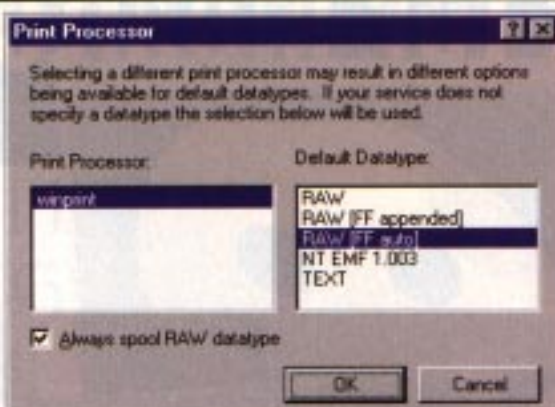
pressed when viewing them in Explorer, choose View|Options from that utility's menu, then engage its "Display compressed files and folders" with an alternate color option. Don't compress .EXE and .DLL files, though: NTFS must expand these files each time an application calls them, which slows performance. The biggest gain comes from squeezing data files, which show the greatest compression and the least performance hit.

DIVIDE AND CONQUER If your system has multiple SCSI hard disk volumes, you can speed performance by making sure there's ample disk space for *virtual memory paging*. That's when Windows temporarily swaps portions of code between RAM and disk, permitting you to multitask more applications than would be possible with RAM alone.

If you're running out of elbowroom on the drive volume in which NT's system files are located, but you have extra space on another volume, a paging file adjustment is in order. Hold down the Alt key while you double-click on My Computer to open the System Properties dialog box (or right-click on My Computer and choose Properties from the context menu). Now choose the Performance tab and click on the Change button. Select each drive in turn and increase its initial and maximum page file size. (The amount depends on how much free space you have, but in general, it should be two or three times the amount of physical memory installed.) Then click on the Set button. Click on OK twice to close both the Virtual Memory and the System Properties dialog boxes.

PRINTING IN THE RAW When printing, NT 4.0 creates enhanced metafiles (.EMF) that reduce the time it takes to return control to your application. The .EMFs are then translated to printer-specific data in the background, requiring more operating-system code to be resident in memory.

If your system is strapped for memory, try changing the print-spooling type to printer-specific data, or RAW. It'll take a bit longer to print, but the



WANT TO SPEED PRINTING? THEN ABANDON ENHANCED METAFILES.

system won't be as taxed as it is when using the EMF format. To do this, right-click on the printer icon in the \Printers folder and choose Properties. Click on the General tab, then click on the Print Processor button. Now select the "Always spool RAW datatype" option.

COOL SPOOL TRICKS Performance might be taking a big hit if your NT machine shares a local printer over the network. That's because other users' jobs are spooled to your local hard disk. If your PC has more than one physical hard disk, however, you can improve performance by moving the print-spool location to the drive on which NT is not installed.

To do so, first back up the Registry (see the sidebar, "Read Me First"). Then run the Registry Editor (RegEdit), select HKEY_LOCAL_MACHINE, and search for *Default-SpoolDirectory*. (It should appear within the \System\CurrentControlSet\Control\Print\Printers subkey.)

Double-click on the *Default-SpoolDirectory* icon, then change its Value data to the drive and folder location to which you want print jobs spooled. Changing this value affects all the local printers. To change the spooling location of just one printer, drill down one level to the corresponding printer reference, then choose Edit|New|String Value. Name the new value *SpoolDirectory*, double-click on it, then enter the complete path of the folder to which you'd like the printer to spool its jobs. ■

Chris Morton is a freelancer based in Scottsdale, Arizona, and a Windows instructor for Learning Tree International.