



Tech Letters: Windows 95

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About Tech Letters

What's a Tech Letter you wonder? Tech Letters are electronic newsletters chock full of tips, hints, and attitude about your favorite products and technologies. They're written by people just like yourselves who know, love, and use the products they write about.

Each Tech Letter contains a column, tips, news, plus a utility, macro, or template to download, and a discussion area where you can talk back and challenge the Tech Letter expert.

And we've got OS/2 covered, plus WinWord and WordPerfect for Windows, plus Windows 95 and the Internet. We'll be adding topics, so keep an eye out for more.

Have questions, comments, or suggestions? Just send e-mail to Ellen Ullman, Tech Center Associate Editor:

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About Paul Bonner

Paul Bonner is a columnist and contributing editor for Windows Sources, Computer Shopper, and a few other publications whose names he would prefer to forget. He is also the author of both the soon-to-be-obsolete Customizing Windows 3.1 and the surprisingly readable Visual Basic Utilities, both from ZD Press. Unable to find anything better to do, he's been working with and writing about PCs since the days of the Apple II+.

About this Help File

This Windows Help file represents the complete text of the Windows 95 Tech Letters originally produced for the Interchange Computing section on AT&T's Interchange Online Network.

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Installing Windows 95

By Paul Bonner

*With gazillions of beta copies of Windows 95 now in circulation, it seems high time for us to explore some of the hands-on technical issues surrounding this much-awaited revision of DOS and Windows. To do so, we enlisted Windows expert Paul Bonner, author of two books, *Customizing Windows 3.1* (1992) and *Visual Basic Utilities* (1993), both published by Ziff-Davis Press. Bonner is also the author of monthly columns on Windows topics in *Computer Shopper* and *Windows Sources*.*

Getting Off to the Right Start with Windows 95

It's there in black and white, right at the beginning of the Win95 Beta installation instructions: Microsoft "recommend[s] that you upgrade over your Windows 3.x installation."

Don't do it. Not unless you're absolutely, positively, 100 percent sure that you're ready to kiss Windows 3.1x goodbye forever. And don't do it even then if the PC you're installing to is the one you use to make a living.

You Can't Go Home Again

If you follow Microsoft's advice and install Windows 95 on top of your existing DOS/Win installation, you can never go back. That's right, you've basically lost all hope of ever getting back to your existing setup. Technically it wouldn't be impossible to do so, but unless you've got a good tape-backup system, it would be easier to reformat your hard disk and start from scratch than to excise Windows 95 and restore DOS/Win. And believe me, there will be times when you'll want to revisit your old DOS/Win setup.

Don't get me wrong. Windows 95 is fascinating, but it won't become your production environment anytime soon. In fact, until you get used to Windows 95, you'll probably want to go back to DOS/Win whenever you need to get some real work done. There are too many new ways of doing things in Windows 95, including just about every aspect of file handling. Eventually, you'll probably come to prefer most of Windows 95's methods, but still, if you're anything like me, the last thing you need when you're on deadline is to spend three or four hours trying to figure out how to copy a disk or some other task you could normally do in your sleep. So, let me repeat: Don't ditch DOS/Win just yet.

Taking the Low Road

The alternative, the one Microsoft suggests you spurn, is to install Windows 95 in a dual-boot configuration. Doing so, it warns, means reinstalling all your Windows applications. (In contrast, if you replace DOS/Win, your existing applications are automatically set up for use in Windows 95.) This need to reinstall applications might be the reason they suggest that you don't dual-boot. (Of course the other possibility is that Microsoft's afraid you will take advantage of the opportunity to go back to DOS/Win--

much to the detriment of Windows 95. But those nice people in Redmond wouldn't intentionally cut off your only escape route, would they? Nah!)

As much as I hate having to touch floppy disks, I'd rather reinstall a few applications than lose my only guaranteed-to-be-productive computing environment (or reasonable facsimile thereof). And, as it turns out, reinstalling applications to run under Windows 95 isn't anywhere near as dreadful as it might sound.

Most of the current applications make use of Windows' installation library (VER.DLL), which, among other tricks, speeds reinstallations by skipping over files that already exist in the destination directory. So, although you'll still have to insert all 200 or so of the floppy disks for your word processor, as long as you reinstall to the same directory, the installation program should fly through those disks (since it can ignore everything except the files that need to be installed in the Windows or System directories). It will have to copy those files because the dual-boot setup has to put Windows 95 files in a different location (I installed my Win95 files in D:\WIN95) than your DOS/Win setup.

Here's my advice for anyone ready to install Windows 95

1. When the Setup program informs you it wants to install Win95 in C:\WINDOWS on top of your existing Windows 3.x installation, tell it to use a different destination directory. That will force it to install a dual-boot configuration.
2. With Windows 95 up and running, reinstall any applications that you want to use in Windows 95. If you reinstall to the same directory, you'll save yourself a heap of time,
3. When Windows 95's new way of doing things gets you down, visit your old DOS/Win configuration and get some work done. Restart your PC and press F4 as soon as you see the "Starting Windows . . ." message.

Accentuate the Positive

The only real downside to installing a dual-boot configuration is the toll it takes on disk space. For starters, you've probably got 15M or 20M bytes of files in your DOS and Windows 3.x directories that are still taking up space. And there are the files your applications store in the Windows and System directories, which will be duplicated in your Windows 95 directory, not to mention any fonts that you install in both Windows setups. So a dual-boot configuration won't work very well in situations where disk space is tight. But then again, neither does Windows 95.

My final piece of advice: If you've got less than 100MB free, get off your duff and buy another hard disk before you even think about installing Windows 95.

The Secret Life of Windows 95's Common Dialogs

By Paul Bonner

The Windows 95 Open and Save As boxes aren't your ordinary dialogs -- these guys are brave little Explorers.

The time has come to sing the praises of Windows 95's extraordinary File Open and Save As dialog boxes.

After reading that sentence you're probably ready to say, "Whoa, get me out of here" and hit the Escape key to close this window, but hear me out. I'll admit, talking about any dialog box in those terms is a wee bit odd, but Windows 95's Open and Save As boxes aren't ordinary dialogs. Take a close look at them and you'll discover that these guys are brave little Explorers. Get to know them well, and I guarantee they'll make all your document-filing operations easier and more productive.

The Proof is in the Pudding

Before I start in on the "fer instances," let me digress long enough to say that these great new common dialog boxes were a long time coming. Microsoft blew a lot of earlier chances to standardize the user interface of common actions such as picking a color or font, or opening or saving a file. First off, Microsoft failed to include any standard dialog boxes in Windows 3.0, which meant that developers had to reinvent the wheel every time they needed the user to pick a file or set up a printer or select a font.

Microsoft finally got around to including a library of common dialogs in Windows 3.1. It was already too late to guarantee that applications would automatically use the standard dialogs, but if the Windows 3.1 common dialogs had been impressive enough, they'd have probably become a de facto standard. Alas, the standard dialogs included in the Windows 3.1 COMMDDL.DLL library were so anemic and underpowered that most developers—including the designers of Microsoft's own Office suite—continued to build custom dialogs for these common tasks.

Enough harping about old sins. Microsoft finally got common dialogs right in Windows 95.

***Q:** So how good are the common dialog boxes in Windows 95?*

***A:** Windows 95's common dialogs are so good that Microsoft might even be able to convince its Word for Windows developers to use them. Zing!*

The Envelope, Please

All of Windows 95's common dialogs are good, but its Open and Save As boxes are the creme de la creme. Why? Because they're not just "pick and file and be done with it" dialog boxes, they're little Explorer windows that allow you to perform almost any conceivable file- maintenance task in the middle

of a File Open or Save operation. Some of the many things you can do from within both the Open or Save As dialog boxes include:

- View either a regular (file names only) or detailed (name, size, type, and last modification date) list of files
- Delete a file
- Rename a file
- Copy or move a file to a subdirectory of its current directory
- Cut or Copy a file, then Paste it into any other directory
- Create a shortcut to a file
- Change a file's attributes or its creation, last modification, or last access date
- Change a shortcut's attributes or its dates, or the file to which it points
- View a file's contents using Windows 95's Quick View facility
- Create a subdirectory
- Move, remove, or rename a subdirectory

Not only can you do all these things, but most of them are ridiculously simple. Want to create a new directory? Click the Create New Folder button at the top of the dialog box. Want to move a file to that newly created subdirectory? Just drag it onto the directory folder. (Shift-drag if you want to copy it instead of moving it.) Want to view a file's contents? Right-click the file, then select the Quick View menu item. Want to view the contents of another file? Just drag it onto the open Quick View window.

In fact, once you figure out that right-clicking on a file brings up a menu of all kinds of things you can do to it, the only thing that isn't obvious is how you copy a file to a directory above the one in which the file resides. But the answer is quite simple: Merely select the file and then press Control-C (for Copy) or select the Copy item on its right-mouse button Properties menu, then move to the destination directory and press Control-V or pick the Paste item from the Properties menu that appears when you right-click an empty portion of the directory window.

To Move a file, follow the same sequence of steps, except that you Cut the file (by pressing Control-X or selecting the Cut item on the file's Properties menu) rather than Copying.

But Wait, There's More!

As impressive as the above list might be, there are probably a few dozen other things you can do from the Open and Save As dialogs that I haven't noticed yet. For instance, you can probably send a file to your fax card or E-mail it to someone, but I haven't tested those suppositions yet. The point is that Windows 95's Save As and Open dialog boxes are so strong that you might never need to load Explorer to perform routine file-maintenance tasks--instead, you can do almost anything you want from within the common dialog boxes. Explorer is probably still a better choice for bulk file-maintenance tasks, but it's wonderfully convenient to be able to copy or rename a file or create a backup directory right from your file dialog boxes.

Bravo, Microsoft. It's about time you guys got common dialogs right.

Take Control of Your Win95 Desktop

By Paul Bonner

What makes Windows 95 desktop icons especially great is that you're not limited to just the ones that Microsoft supplied when you set up Windows 95.

Shortcuts to the Top

Q: What's the fastest way to take control of Windows 95?

A: Take a shortcut to the Desktop.

The coolest looking thing about Windows 95 are those desktop icons. The first time you see them you can't help but say, "Wow, that's pretty neat."

What makes Windows 95 desktop icons especially great is that you're not limited to just the ones that Microsoft supplied when you set up Windows 95. In fact, you can drag any icon onto the desktop, and then launch the application it belongs to just by double-clicking the icon. Talk about convenient!

The Fly in the Ointment

The only problem is that once you start using Windows 95 to run actual applications, as opposed to just playing with desktop wall- paper and window color schemes, the convenience factor of desktop icons goes way down. In fact, if your current application is running in a full-screen window--or is displaying a window of any size that happens to obscure your desktop icons--suddenly desktop icons aren't at all convenient. You can't get to them by Alt-Tabbing, or by using the Taskbar or Start Menu. In fact, the only way you can launch an application using a desktop icon is to first move or close or minimize the windows of any and all applications that are running on top of that icon. Which means, for all intents and purposes, that standard desktop icons are truly convenient only immediately after you launch Windows 95--before you launch any applications.

The Art of the Deal: Making Others Work for You

Don't despair, however, because there is an easy way to make all your desktop icons usable at any time without having to move or close a single application window.

Here's what you do.

Don't touch the Shift key. If you hold down the Shift key when you drag an application's icon out of Explorer onto the desktop, Windows 95 will move the application to the desktop. For reasons that will

become clear, you don't want that. Instead, keep your hands off the keyboard as you drag the application's icon to the desktop. That way, rather than moving the original file, Windows 95 will simply create a shortcut file on the desktop that points to the original file. That's what you want.

Shorten that shortcut. By default, a shortcut isn't any more convenient than the original file. You've still got to be able to see the shortcut icon before you can launch it. But shortcuts have a big advantage that real executable files lack: shortcut keys.

How to assign shortcut keys

1. Right-click the shortcut, then select Properties from its pop-up menu.
2. Select the Shortcut tab and you'll find yourself staring at the Shortcut page of the Properties dialog.
3. Hit the Tab key twice to get to the Shortcut Key field. This field allows you to designate a Shortcut key (a unique keystroke combination including the Control and/or Alt key and at least one alphanumeric or function key) for this shortcut icon.
4. Enter the combination you want to use to launch this application by simultaneously pressing those keys. For instance, you might press Shift-Control-E to assign that keystroke combination to a shortcut that points to Microsoft Excel. Once you've done so, Windows 95 will launch Excel whenever you press that keystroke combination, no matter how many windows are obscuring its desktop icon.

[Click here for a screenshot of a Windows 95 hotkey being assigned.](#)

Cleaning up Microsoft's Mess

There are only four problems with this solution--the four icons that Windows 95 automatically installs on your desktop and doesn't allow you to move: My Computer, Network Neighborhood, Recycle Bin and The Microsoft Network. (The other icons that Windows 95 installs during its default setup routine are all movable.) These four icons aren't shortcuts, they're actual applications installed in the desktop folder, and so not only are they not movable, you can't even assign shortcut keys for them.

So how do you obtain fast access to the four unmovable desktop icons? It's simple.

Accessing the four desktop icons

1. First, create a Shortcut for each of the them by selecting each in turn and clicking the Create Shortcut item on its right mouse button pop-up Properties menu.
2. Next, assign a shortcut key to each of the newly-created shortcut icons. I used Shift-Control-R for Recycle Bin, Shift-Control-N for Network Neighborhood, Shift-Control-M for My Computer, and Shift-Control-T for The Microsoft Network, but you can use any combination you like.

Now your only problem is that you've got two icons--one original and one shortcut--for each of the four standard desktop applications, and you still can't move the original icons. You can store the shortcut icons

anywhere you like--they don't have to be on the desktop for their shortcut keys to work.

I created a folder called Desktop Shortcuts, moved the four newly created shortcut icons into it, and then moved the folder into my Accessories folder where it won't get in my way. Now when I press Shift-Control-M, Windows 95 launches the My Computer shortcut stored from the Desktop Shortcuts subdirectory of my Accessories directory, which in turn launches the real My Computer icon on my desktop. I suppose Windows 95 has to do twice as much work as it would if the shortcut key launched the original icon directly, but the process is invisible to me. All I care about is that finally I can launch the application associated with any desktop icon anytime I want, without having to first close or rearrange the screen windows of every running application.

Geez, these desktop icons are pretty cool, after all.

Customizing Windows 95

By Paul Bonner

Renaming desktop icons and changing the look of your desktop is just one click away. Let Paul Bonner be the muse that inspires your creativity.

To paraphrase Julius Caesar: I came. I saw. I felt an overwhelming urge to change things.

But Windows 95 wouldn't let me.

I know, I shouldn't complain. Compared to where we've been, Windows 95 is a paragon of customizability. Heck--with DOS, it took the best minds of our generation endless hours to come up with just an original command prompt. Windows 3.x was a little better, but unless you got inordinate pleasure from doing things like assigning a Hobbes (of Calvin and Hobbes fame) icon to 1-2-3 Release 3, your customization options were still pretty limited.

You mean I can . . . ?

At first glance, Windows 95 would appear to change all that. You can, to name just a few cool tricks:

- > Change your desktop color, wallpaper, and pattern from the desktop's Properties menu, a mere right-click on the desktop away.
- > Drag icons from any Explorer folder onto the desktop, thus installing a shortcut to launch the application or document (a la Macintosh).
- > Create new submenus in the Startup menu by dragging folder icons into the Programs folder.
- > Ditto for programs or applications. Just drag the icon into the Programs folder or a subfolder.
- > Rename most desktop icons or shortcuts by right-clicking on the icon, then selecting Rename from its pop-up Properties menu.

That's not a bad start on the road to Customization utopia. But it doesn't get Windows 95 all the way there, either.

What do you mean I can't . . . ?

The problem is that Windows 95 doesn't follow through on all the precedents it establishes. For instance, I can rename application icons I've installed on the desktop by using the Properties menu. And, using the same technique (right-mouse button click on the icon, then select Rename from the pop-up Properties menu), I can rename some of the icons that Windows 95 itself places there. For instance, I renamed My Computer as Silly and Unwanted Icon, and I gave Network Neighborhood the new moniker Network? What Network? But for some reason, Windows 95 won't let me rename the Recycle Bin. Oh, Windows 95 presents me with a Properties menu when I right-click on the Recycle Bin icon, but there is no Rename

option on the menu.

This oversight may change by the time that Windows 95 ships. Then again, it may not. All I know is that for now, the only way the rapidly graying ranks of Windows 95's beta testers can change the names of any of the Recycle Bin is to launch the Registry Editor (REGEDIT.EXE), search for the current name, and then use the Modify menu item to change it. Using this method, I have changed the name of my Recycling Bin to Trash Heap Near the Bend on South Street, which is where all my neighbors seem to get rid of their heavy trash. But I still don't know why I can't rename Recycling Bin through its Properties menu like every other desktop icon.

[For more complicated name changes, check out this article.](#)

Win 95's own Eagle Scout

Anyway, I've got bigger fish to fry. Like Explorer. You've heard of Explorer--it embodies all the functionality of File Manager and Program Manager and is prettier and easier to use, as well as being smarter and a better conversationalist at breakfast.

Except, that is, when it doesn't let you do things that you ought to be able to do, things that you could do easily with the old File Manager.

[Click here for a screen shot of Explorer](#)

Explorer has gotten a lot of praise for offering a look that's straight- from-the-Macintosh-Finder. It includes Big Icons and Small Icons and List and Detailed List, and all kinds of options for sorting those directory-content views. But that wealth of choices is wasted on me, because I always want Explorer to come up in Detailed List view sorted by File Type. Guess what? No can do. Because, unlike Program Manager and File Manager, Explorer never offers to save my settings. Oh, it saves some settings automatically--usually ones I wish it would forget. But just try and make it save the settings you want it to, or to remember the order you want your files sorted in. Hah!

[Click here for a screenshot of Win 95's Font window, viewed by similarity](#)

Here's another one. Explorer has this nice, friendly option to hide various kinds of files from its listings. After all, you don't need to see all those VXD's and DLL's and DRV's when you're looking for DOC's and PCX's and EXE's only. But--unbelievably--the list of files that it hides isn't editable. Not through Explorer's Properties menu. Not through RegEdit. Not through the Systems Policy editor. No way. No how. You either hide all the file types on its hard-coded list--or none of them. Which means, in my book, that it's useless, because my idea of the files that should be hidden doesn't coincide with that of whatever programmer or focus group came up with the list.

What were they thinking?

The underlying cause of these gripes, and many similar Windows 95 pitfalls, is that Microsoft is going so far out of its way to protect novice users who would cry, "Oh my God! All my files are gone!" if they added *.* to the Hide Me list, that they're punishing those of us who might actually know what to do with a bit of customizability. I guess that'll keep support-line costs down. But it makes this otherwise-pretty-decent operating system annoying as all get out sometimes.

Patience, I keep telling myself. It's still early. Windows 95 has a few months to go before it ships. Maybe they'll fix some of these things before that happens. Or then again, maybe it's all just an elaborate ruse to make anyone who can spell "customize" migrate to Windows NT.

Using Win 95's Network-Administrator Tools

Getting rid of the Network Neighborhood Icon

You might wonder why, if I truly feel that the My Computer icon is silly and unwanted (and I do--everything it can do I can do better through Explorer and the Startup menu), I don't simply remove the icon from my desktop. Believe me, I've tried. But Windows 95 won't let me do that, at least not with same simple press of the Delete key with the icon highlighted I use to delete the icons that I've chosen to install on the desktop.

You can, I've discovered, remove the Network Neighborhood icon from the desktop using the System Policies Editor (POLEDIT.EXE), one of Windows 95's network-administrator tools. Unfortunately, one of SPE's primary design goals appears to be to incorporate, in a GUI way, the same design principles that made EDLIN such a delight for DOS users. I figure the odds are about 50-50 that the first time you attempt to use the System Policy Editor you'll screw up your Windows 95 installation. I did. By the time I'd finished my first System Policy Editor session, Windows 95 no longer recognized me as an authorized user of my own PC.

Personally, I think that's a heavy price to pay to get rid of one dumb icon. But if you want to take that risk, here's what you do:

- 1.) Launch POLEDIT.EXE. On the Final Beta disk, it's located in the \Admin\Apptools\Poledit folder.
- 2.) Select Open Registry from its File menu.
- 3.) Double-click on Local User. That'll get you to an outline-style Properties sheet. Open the Shell\Restrictions page.
- 4.) Click the little box next to Hide Network Neighborhood until a check mark appears in the box. Now click the OK button and close the System Policy Editor, answering Yes when Windows 95 asks if you want to save changes to the Registry.
- 5.) Restart Windows 95. Network Neighborhood should now be out of sight and out of mind.

Unfortunately, even the System Policy Editor doesn't seem to provide a way to get rid of the My Computer icon, and while it is possible to drag the The Microsoft Network icon into a folder, I'm afraid to do so, because every time I touch that icon I end up having to reinstall TSN, an act which gets old real fast.

A Quick System Checkup

By Paul Bonner

At last, straight talk about Windows 95's general performance improvements, along with how to fine-tune it for your PC.

Win95 and System Performance, Part I

This is the first in a three-part series of Windows 95 Tech Letters focusing on performance issues. In this installment, we'll talk about the general performance improvements in Windows 95, and I'll supply a few quick tips to help ensure that Windows 95 is performing adequately on your system. In Part Two, we'll delve deeper into the subject of performance monitoring in Windows 95 using the System Monitor applet and other tools. Finally, in Part Three we'll get into some serious performance hacking as we try to solve any performance problems revealed by our tests.

Playing PC doctor

The best thing about performance-tuning in Windows 95 is that you probably don't need to do it. Unlike Windows 3.X, Windows 95 does a pretty good job of fine-tuning its own performance on most systems. That doesn't mean it's going to be a speed demon on a 386/25 with 4MB of RAM and a crowded hard disk, but it probably will get about as much mileage as there is to get out of that system, as it will with most other systems.

On the other hand, the operating system that can't benefit from a little hand tuning hasn't been invented yet. Windows 95 is designed first and foremost to install and run without serious problems on as many different PCs as possible. That requirement pretty much dictates that its designers occasionally take a lowest-common-denominator approach toward PC hardware; for Microsoft, extracting the optimum performance from your particular PC remains a secondary goal. For you, it is probably of paramount importance. So once you've installed Windows 95, it makes sense to dot all the i's and cross all the t's by reviewing your setup configuration to ensure that you're getting the best performance you can out of your new operating system.

Win 95 puts the 'personal' back in computing

Windows 95 incorporates dozens of new features that speed its performance--everything from background print rendering to a dynamic disk cache to bigger system resource heaps to 32-bit drivers for peripheral hardware. Many of these are self-tuning; Windows 95 activates or deactivates them automatically, according to its understanding of your system setup. What you should do immediately after installation is make sure that Windows 95's sense of your PC's configuration jibes with your actual setup.

Fortunately, Windows 95 provides a fine tool for doing just that: the System applet in Control Panel.

Interestingly, in Windows 95, there is no actual "Control Panel" application. Instead, when you launch Control Panel, Windows 95 uses an Explorer window to present a large icon view of all the Control Panel applets in your SYSTEM directory. (There is a 2KB file called CONTROL.EXE in your Windows directory, but that is just a stub that loads the Explorer window.) What you're seeing, then, is both a pseudo-application (the Explorer window masquerading as Control Panel), and a pseudo-directory (a highly filtered view of your System directory masquerading as a separate Control Panel directory).

In any case, once you've launched Control Panel (by selecting it from the Settings submenu on the Start menu or by double-clicking on CONTROL.EXE in your WINDOWS directory), double-click on the System applet to launch it. What you'll see next is a standard Properties dialog with four tab pages: Performance, Hardware Profiles, Device Manager, and General. The General page will be active at launch.

The General page doesn't provide much information, but you should check its description of your PC to make sure that it corresponds fairly closely to your actual hardware setup. For instance, I'm currently running on a 486 with 20MB of RAM, which the General page describes as an 80486 with 19.4MB of RAM. That seems close enough. Apparently the bottom 640K doesn't count. (And you thought you'd never have to hear about upper- and lower-DOS memory again. Ha!)

The Performance tab holds most of the information you need. It lists the amount of memory in your system (this figure should be the same as the one Windows 95 reported on the General tab), free system resources (yes, Windows 95 does a much better job of handling system resources, but no, it's not impossible to run out of them), and information about the drivers Windows 95 is using to manage its file system, virtual memory, disk compression, and any PCMCIA cards in your system. What you should see there is an entry reading "32-bit" for all those drivers that are applicable to your system. (Those that aren't applicable will say so. For instance, on my PC, Windows 95 reports "No PCMCIA sockets installed" in the PCMCIA cards field.)

If you are using 32-bit drivers for all the applicable items, you'll also see the message "Your system is configured for optimal performance" on the Performance Status tab. If you don't see that message, or if the tab reports that Windows 95 is using a 16-bit driver for your File System, Virtual Memory, or Disk Compression, you're not getting as much mileage as you should out of Windows 95. Sixteen-bit, real-mode drivers are leftovers from Windows 3.x, which put the brakes on system performance. In order to use a real-mode driver, Windows 95 must reset your system's microprocessor to switch it from protected-mode operation to real-mode, or vice versa, several times for each driver I/O operation. Each reset costs you valuable processor cycles, so using a 16-bit driver for your File System or Disk Compression or Virtual Memory is like trying to run a race while carrying a piano.

If Windows 95 reports that it's using any 16-bit or real-mode drives, you should get on the phone immediately and find out why. Ask Microsoft's Tech Support reps, and ask those of your system manufacturer. Actually, you can ignore their explanations--all you really need to know is how fast they can get a disk with the proper 32-bit drivers into a Fedex envelope and on its way to you.

A little more fine-tuning

The three buttons on the Performance tab provide more opportunities to check and fine-tune Windows 95's setup. The File System button opens a dialog box that allows you to specify the general role of your PC (desktop computer, mobile or docking system, or network server), and the speed of your CD-ROM

drive (single, double, triple, or quad). Windows 95 uses these settings to optimize its disk cache and virtual memory performance. You can also set the size of the supplemental CD-ROM cache using this dialog.

[Click here for a screen shot of the Properties dialog box.](#)

You might be tempted here to increase the CD-ROM cache from the default Small size, but doing so will have little effect on performance in most cases. The default cache is big enough to store a CD-ROM's directory, which by itself provides a significant performance boost, and unless you're viewing the same AVI clip or playing the same WAV sound over and over again, there is little benefit to caching data files on a CD-ROM. After all, caches only benefit you after data has already been read once.

The Graphics button on the performance Tab opens another dialog that allows you to specify the degree to which Windows 95 will take advantage of the hardware acceleration functions (if any) of your graphics card. Generally, you want to leave this at the Full setting, which tells Windows 95 to take advantage of all accelerator functions, unless you experience display-related problems.

Finally, the Virtual Memory tab allows you to override Windows 95's default self-tuning management of its Virtual memory file by specifying the size and location of the file. For now, it's probably best to follow Microsoft's strong advice and leave these settings alone, but in Part III of this series I'll explain why you might want to override them in some cases.

Next time, we'll see how you can use the System Monitor to identify specific performance problems on your Windows 95 system.









