PC/Computing 2001 Windows Tips

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This book is the distillation of the ideas, tricks, strategies, work arounds, undocumented discoveries, anomalies, fixes, and just plain good sense of PC/Computing's 800,000-plus readers and expert staff. We've included 500 of 2001 tips here.

This special electronic edition of PC/Computing contains 10 chapters from 2001 Windows Tips. Chapter 11 shows a selection of other books and software you can order from Ziff-Davis Press and The Software Toolworks.

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SECRETS FOR INSTALLING
AND SETTING UP WINDOWS

ONE OF THE GREAT JOYS OF WINDOWS IS THE EFFICIENT WAY IT INSTALLS. THIS is particularly true with Windows 3.1, which neatens and speeds the essentially sound setup procedures of its predecessor. Well, you might ask, if Windows installs so elegantly, who needs tips and secrets for setting up a Windows environment? Aren't installation headaches a blissfully departed characteristic of those dim DOS days of old?

Yes, and no.

Certainly Windows installs far better than DOS ever did. But the automatic nature of Windows' installation demands that the program make assumptions about your computer hardware and personal preferences. In many cases, these presumptions-about everything from the way you want applications arrayed to screen colors and the basic parameters of your memory and I/O setup-will be fine. But for thousands of other users, Windows' default installation will blunt its true power and may even cause operational problems. The tips in this chapter will educate you on every customizable aspect of Windows installation so that you can decide whether Windows' automatic choices are the ones you want.

Even more importantly, while Windows installation is marvelous, it's not perfect. No software program can anticipate every option, every nuance in the incredibly varied and complex world of PCs. These potential headaches in getting Windows running aren't bugs; they are more in the nature of disagreements between some systems and Windows' initial demands. If this happens with your PC, you, the user, need to mediate the dispute. This means you have to suffer through trial and error until you figure out precisely what the problem is. Or you can take advantage of the workarounds the experts at PC/Computing have already found for you.

Finally, Windows is a magnificent piece of software craftsmanship that has sparked the imaginations of hundreds of thousands. The more adventurous of these Windows experts have poked and prodded around the Windows system and have uncovered any number of ideas that are just neat. You'll find these secrets here too.

The organization of the chapter is straightforward. In the pages that follow, you'll find

Tips for installing Windows, including what to do before installation, command-line switches for Windows' Setup program, and troubleshooting solutions

Advice on upgrading to Windows 3.1 from version 3.0 or from an older version

Step-by-step instructions on how to reinstall Windows without losing your program groups and other settings

Information on how to load Windows onto your PC faster

A discussion of when to use Real mode (Windows 3.0 only), Standard mode, and 386 Enhanced mode, and of how to get the most from each of the three modes

Hints about which Windows files you can safely delete to reclaim

precious hard drive space

      Tips for bypassing the Windows startup screen

      Advice on how best to exit from Windows

      Not all of the tips will be valuable for every reader. But something in this chapter will help everyone get more from Windows, right from the start!

Tips for Installing Windows 3.1

If all you want is for Windows 3.1 to run, put Windows Disk 1 in drive A, type **setup**, and choose Express Setup at the first Setup prompt. But if you want Windows to run *your way*, the program offers a host of options and tricks. Unless you are extremely pressed for time, it's a good idea to customize your Windows 3.1 installation. It really doesn't take very long, you'll get better performance, and you'll learn something about Windows and your PC in the process.

What You Should Do before Running Setup

When Windows 3.1 chokes during installation it's seldom the program's fault. Usually, installation problems with Windows have to do with the existing DOS setup. So, to avoid the unexpected, it's a good idea to review the following suggestions for stopping installation problems before they start.

Disable Any TSRs and Programs That You Run from Your AUTOEXEC. BAT or CONFIG.SYS Files Comment out any memory-resident or other programs you normally run from AUTOEXEC.BAT or CONFIG.SYS, and then reboot your system before installing Windows. Likely candidates include screen savers, virus checkers, and disk caches. If you decide not to remove these programs, Windows may ask you to do so later: Setup automatically searches memory, in addition to your AUTOEXEC.BAT and CONFIG.SYS files, for memory-resident programs that are known to cause problems with Windows.

      You can tell in advance whether Setup is going to prompt you to remove a program in one of two ways. If you type **setup /t** at the A: prompt (assuming you're installing Windows from your A drive), SETUP.EXE will scan your system to see if any conflicting programs are currently in memory. If it finds one, it will prompt you to quit Setup and remove all references to the program from your files. Or if you'd like to check the situation for yourself, open the Windows file SETUP.INF (on Windows Disk 1) in a text editor. Look for the sections entitled [incompTSR1] and [incompTSR2]. If your program is there, save yourself the trouble of having to abort Windows Setup by removing the offending program before you begin. After doing this and installing Windows successfully, you can restore the program and see if it works with your system.

      The following programs are known to cause problems with Windows 3.1 Setup but should work fine after Windows is installed on your system:

ASP Integrity Toolkit version 3.7

Data Physician Plus version 2.0 (VirAlert); version 3.0 appears to correct this problem

Norton Anti-Virus version 1.0; version 1.5 appears to correct this problem

PC-Kwik version 1.59; version 2.0 appears to address this problem

SoftIce Debugger

Vaccine

VDefend, a PC Tools Deluxe TSR

Virex-PC version 1.11

ViruSafe version 4.0; version 4.5 appears to correct the problem, but its authors recommend that you run ViruSafe with the /C- switch with Windows

Make Sure Your CONFIG.SYS File Is in Order If you're using DOS 5.0, check your CONFIG.SYS file to make sure that your drivers are in the following order: HIMEM.SYS, EMM386.EXE, ANSI.SYS.

Check Your AUTOEXEC.BAT File for DOS Commands That Don't Work Well with Windows If you run DOS's APPEND utility from your AUTOEXEC.BAT file, remove it, because it interferes with Windows' ability to build the paths it needs to access files. Also comment out any references to the DOS utilities JOIN and SUBST before running Windows Setup. Consider removing these utilities from your AUTOEXEC.BAT file for good, because they can easily confuse Windows as to which files are which and where they actually are. You should also avoid using the SHARE command when installing Windows on your system.

Make Sure That the MOUSE.COM Driver Is Present in Your AUTOEXEC.BAT File If you'll ever use a mouse with DOS applications running under Windows, add a line to run the MOUSE.COM driver (the driver that lets you use a mouse with DOS applications) to your AUTOEXEC.BAT file before installing Windows. Setup will copy a new version of MOUSE.COM onto your system. If you don't want to automatically load MOUSE.COM from your AUTOEXEC.BAT because you don't use it often enough, you can remove the statement after Windows is installed.

Command-Line Switches for Setup

When you first install Windows on your PC, you run SETUP.EXE from the DOS prompt. Table 1.1 lists several switches you can use with the SETUP command. Many of these switches pertain to network setup and will be covered in detail in Chapter 10.

TABLE 1.1 Switches for Use with the Windows SETUP Command

Switch	Function
/I	Ignores automatic hardware detection. If you use this switch, you'll have to check the system-setting information and change it manually.
/N	Sets up a shared copy of Windows on a network server.
/A	Starts Administrative Setup, installing Windows files as read-only onto a network.
/B	Sets up Windows with monochrome display attributes.
/T	Searches the drive for incompatible software that should not run at the same time as Setup or Windows 3.1.

/H:*filename* Runs Batch Mode Setup to install Windows with little or no user interaction. Filename is the name of the system-settings file that contains information about the user's configuration.

/O:*filename* Specifies the SETUP.INF file.

/S:*filename* Specifies the SETUP.INF file, including a path for the Windows installation disks.

If you can't remember which switch you need to set up Windows 3.1, insert Windows Disk 1 in your floppy drive and type **setup /?** at the DOS prompt. You'll see a list of all of the available switches.

Custom versus Express Setup

You can choose how to install Windows 3.1 on your system. Express Setup requires the least amount of work on your part, while Custom Setup allows for greater customization.

Use Custom Setup for More Control over Your System Use Custom Setup if any of the following apply:

You want control over how your CONFIG.SYS and AUTOEXEC.BAT files are modified.

You want to specify the directory in which Windows is installed (the default is C:\WINDOWS).

You want to specify the language you will work in (the default is American English).

You want to make detailed choices about your system configuration. Express Setup detects most kinds of hardware, but Custom Setup provides more options.

You want to keep the amount of space Windows uses to a minimum by opting for only the Windows components you'll need. Laptop users who need to use the minimum amount of disk space will especially benefit from Custom Setup. You can nix wallpaper, accessories you'll never use, games, and screen savers.

You want to create a permanent swap file on your hard disk, and you don't already have a permanent swap file from Windows 3.0. (By default, Express Setup creates a temporary swap file.)

Before running Custom Setup, be prepared to respond to prompts about what type of printer you have and which port it's connected to; what kind of monitor, mouse (if any), keyboard, and network (if any) you have; the directory where you want to store Windows; which components of Windows you want installed on your system; which applications you have on your hard disk that you'll want to appear in Windows; and changes you want made to your CONFIG.SYS and AUTOEXEC.BAT files.

Speed Installation with Express Setup To get through Windows Setup in a hurry, choose Express Setup. It takes you through the entire setup process, asking you only to fill in your name and insert floppy disks as needed. You can even use Express Setup if you are upgrading to Windows 3.1 from version 3.0. Express Setup will preserve your Program Groups and update your drivers.

Before running Express Setup, all you need to know is what type of printer you have and which PC port it's connected to (LPT1, for example).

Troubleshooting Windows Setup

Let's be honest. Sometimes, even though you've done all the right stuff-you've done all your homework and prepared your system properly for installation-it still won't work under Windows. This is frustrating, but don't let it drag down your self-image. You're okay and your PC is okay, too. The following prescriptives should root out the problem.

Test for Defective Disks If you're installing Windows and Setup keeps prompting you for the next disk even though you've already put it in the floppy drive, here's how you can check if you have a bad disk: Try inserting the other Windows Setup disks in the floppy drive to see if a disk was mislabeled and the files Setup needs are actually on a different disk. If you're installing Windows from a backup copy, try your original disks to see if the floppies you backed up onto are defective.

To see if you have bad Windows disks, use the DOS DIR command to list the contents of each disk. If you can't get a directory listing, or if you see garbled filenames, the disk may be defective. If the DIR listing looks normal, use the DOS COPY command to copy the files from each Windows disk to a temporary directory on your hard drive. If you receive an error message during this process, you probably have a defective disk. Contact your software dealer for information on how to get replacement disks.

Check for TSR Conflicts If you didn't remove memory-resident programs before installing Windows, you may be encountering Setup problems because of them. To see if that is the case (or, similarly, if a device driver is causing a problem), boot from a floppy disk and then try running Windows Setup. If you don't already have a boot disk (you should always keep one handy), make one before resuming the Windows installation: Place a floppy disk in drive A and type the command **format a:/s**. Next create basic CONFIG.SYS and AUTOEXEC.BAT files directly on the floppy. Your CONFIG.SYS should look like this:

```
FILES=40
BUFFERS=20
SHELL=C:\DOS\COMMAND.COM /P/E:256
```

You'll also want to include any device drivers that are needed for your computer to boot properly-for example, those for Stacker.

Your AUTOEXEC.BAT should look like this:

```
PATH=C:\;C:\DOS;C:\WINDOWS
PROMPT $P$G
SET COMSPEC=C:\DOS
```

NOTE This example assumes that COMMAND.COM is located in your DOS directory.

Once you have Windows installed and running, it's a good idea to make backups of your Windows initialization files as well.

What to Do If Your System Hangs If you're installing Windows and your system hangs, it may be because Setup has a problem identifying your hardware. To turn off automatic hardware detection during the setup routine, type **setup /i** at the A: prompt (assuming your Windows Setup disk is in drive A). With auto-detection disabled, Setup will present you with a standard system

configuration for your hardware. You'll have to choose settings manually for the type of computer, video, and keyboard your system has. When you do so, specify that no network or mouse is installed-with these options turned off you'll have a better chance of finishing the setup routine. If you'll be using a network or mouse with your system, you can rerun Setup from within Windows and add these options later.

You can manually select the following PCs during setup:

AST Premium 386/25 and 386/33 (CUPID)

AT&T NSX 20 (Safari Notebook)

AT&T PC

Everex Step 386/25

Hewlett-Packard (all machines)

IBM PS/2 model L40SX

IBM PS/2 model P70

Intel 386 SL-based system with APM

MS-DOS System

MS-DOS System with APM

NCR (all 80386- and 80486-based machines)

NEC PowerMate SX Plus

NEC ProSpeed 386

Toshiba 1200XE

Toshiba 1600

Toshiba 5200

Zenith (all 80386-based machines)

Be Sure You Have Enough Conventional Memory When installing Windows you may get the error message "Setup Error #S020 Setup is unable to make changes to the Windows configuration file, SYSTEM.INI. These changes are needed to set up Windows. Setup cannot continue." This means your system doesn't have enough conventional memory to complete the setup procedure. To regain enough memory, reboot your computer from a floppy, and then go through Setup again.

Moving Windows to a New Location after Installation

If you want to move Windows to a new drive or system, you probably don't relish the idea of having to rerun Setup and recreate your customized environment. To successfully transfer Windows to a new location, follow these steps:

1. Copy the files in your WINDOWS directory (and \WINDOWS \SYSTEM

subdirectory) to the new location. An easy way to copy your Windows directory structure to a new location (either to a hard disk or to floppies if you have to transfer Windows to a new system) is to use DOS's XCOPY command. For example, to copy your Windows directory to floppies in drive A, you would type

```
 xcopy c:\windows a:windows /s /e /m
```

at the DOS prompt. The /S switch tells DOS to copy the subdirectories found below the WINDOWS directory, while the /E switch ensures that even empty subdirectories are copied. Use the /M switch if you're copying your Windows files to floppies-it tells DOS to turn off each file's archive bit as it's being copied. This way, when the first floppy disk fills up and you insert a new one, DOS will know to continue copying where it left off.

Copying Files from Windows Disks without Running Setup

If you're installing Windows and try to copy files from the setup disks, you'll notice that you can't use the files as they are. On the Windows 3.1 disks, certain files-including HIMEM.SYS, RAMDRIVE.SYS, and lots of device drivers-are stored in compressed form with an underscore as the last letter in their filename extension. In Windows 3.0, the files are stored with a dollar sign as the last character in the extension. To copy these files, you need to expand them first.

To decompress HIMEM.SYS in Windows 3.1, for example, copy EXPAND.EXE from Windows Disk 3 and type

```
 expand himem.sy_ himem.sys
```

To decompress HIMEM.SYS in Windows 3.0, copy EXPAND.EXE from Windows Disk 2 and type

```
 expand himem.sy$ himem.sys
```

EXPAND will create an expanded version of HIMEM.SYS that is the correct one to use.

2. Change all directory references to Windows in your .INI files. Open the WIN.INI, SYSTEM.INI, PROGMAN.INI, and the .INI files for other Windows applications in a text editor. Look for any references to the Windows path, and change them to fit the new location. If your text editor has a search feature, you can use that to make the process even easier. Just use the old Windows path as the search string-for example, C:\WINDOWS-and you won't miss any references. Be sure to save the files you change in ASCII format.

3. Change all Windows path references in your Program Manager group (.GRP) files. While you're in your text editor, also change path references in your Program Manager group (.GRP) files. Open each .GRP file and insert the correct Windows path reference. Most of the contents of the .GRP files will look like gobbledygook in a text-editing program, but the references to your Windows path will be in text; just search for C:\WINDOWS, say, if you're moving files from that location. Again, make sure you save your .GRP files in ASCII format.

4. Change references to Windows' path in your AUTOEXEC.BAT file. Another place to change references to the Windows path is in your AUTOEXEC.BAT file. If you move Windows to a new system, you may not have to make any changes since your

Windows path will probably still be C:\WINDOWS. However, if you're moving
Windows to a different directory or drive (for example, from C to D) you'll
need to make this change.

5. Make sure Windows works in the new location. If you've moved Windows to a
new location on an existing system, don't delete your old WINDOWS directory
and files until you make sure that everything works exactly right. Just check
that the references to Windows in your AUTOEXEC.BAT file point to the new
location.

6. Make any necessary changes to your setup configuration. If you've moved
Windows to a new location on your old hard disk, it's time to reboot your
system and run Windows from its new location. However, if you've moved Windows
to a different kind of system-for example, from a 386SX to a 486-you should
run Windows Setup from the DOS prompt to change the hardware settings for your
system before actually starting Windows.

   If you are moving Windows to a new system it is also important to first
disable any permanent swap file by selecting 386 Enhanced from the Control
Panel and clicking Virtual Memory. Change the swap file type from Permanent to
Temporary or None. Otherwise, Windows will look for the old swap file on the
new system, which may cause it to hang.

7. Check your .PIF files. If you've moved Windows to a new system, your .PIF
files might also contain path references that will be incorrect for Windows'
new location. You should open these files in the PIF Editor and check that the
references are correct.

Upgrading Windows

In some ways, shifting from one version of Windows to another is easier than
an installation from scratch; in other ways, it's harder. Keep in mind that
with an upgrade you have a golden opportunity either to leave your carefully
constructed Windows environment precisely as it is, or to change it for the
better.

Install Windows 3.1 and Keep Windows 3.0 Intact

If you're upgrading to Windows 3.1 from Windows 3.0, it's easiest to install
3.1 right on top of the earlier version. But you may have a good reason for
keeping Windows 3.0 intact on your system: Maybe you still have some old apps
that you need to run in Real mode, or maybe you're just cautious. You could
install Windows 3.1 in a separate directory and start over, painstakingly
recreating your Program Manager setup. But that's a lot of unnecessary work.
Instead, you can copy your program groups from 3.0 over to 3.1.

   After you've installed Windows 3.1 on your hard disk (to a directory
other than the one containing Windows 3.0), switch back to the WINDOWS 3.0
directory and take stock of your program groups. If any of your Windows 3.0
program groups still have the default Windows names (for example, Main or
Accessories) you may want to rename these to differentiate them from their
Windows 3.1 counterparts. The default groups in Windows 3.1 contain different
programs than in 3.0. (For the exact contents of the new program groups, see
Chapter 5's discussion of the PROGMAN.INI file.) If you copy these groups over
to Windows 3.1 without changing their names, you'll overwrite icons for the
new programs that have been added. Once you've renamed any program groups,
back up the Windows 3.0 .GRP files and PROGMAN.INI.

   Now open the PROGMAN.INI file in the subdirectory where Windows 3.0 is
located, and find the [Groups] section. Print this file so that you can refer
to it when you have to edit the PROGMAN.INI file in Windows 3.1.

Return to the directory where you've installed Windows 3.1 and back up the .GRP files and PROGMAN.INI. Then copy the .GRP files from your Windows 3.0 directory to your Windows 3.1 directory. Now you'll need to add references to the Windows 3.1 PROGMAN.INI for these new groups. Refer to the printout of your Windows 3.0 groups, noting that each line specifies a group number. In addition, the line that reads "Order..." refers to the order of the program groups the last time you saved your Program Manager settings. The sequence of the numbers in the Order line doesn't matter; what's important is that for the total amount of groups listed, a corresponding number is noted in the Order line, as shown in Figure 1.1.

Troubleshooting a Windows 3.1 Upgrade Error

You may try to install Windows 3.1 over Windows 3.0 and find yourself unable to complete the installation. If that happens, try this trick before calling technical support or deciding to install Windows 3.1 in its own directory (thereby losing all of your program group settings): Before running Setup again, go into your Windows 3.0 \SYSTEM subdirectory (most likely it's C:\ WINDOWS\SYSTEM) and delete the old SETUP.EXE file. Your installation problems may be caused by Windows reading the SETUP.EXE file from the hard disk rather than from the Windows 3.1 floppy disk.

Upgrading from Windows 2.0

If you have Windows 2.0 on your system, not version 3.0, you should delete the old version before installing 3.1. If you try to install 3.1 over 2.0, you may receive an error message telling you it is not possible. But if you insist on going with this process to maintain your Windows environment, delete the files WIN200.BIN and WIN200.OVL from your WINDOWS directory before trying the Windows 3.1 upgrade again.

Reinstalling Windows without Losing Settings

If you have to reinstall Windows onto your system, here's a plan for maintaining your current settings: Install Windows into a new directory, keeping the old one in its original location. Then rename all of the .GRP files in the new directory to .GRN (for new) and all of the .INI files in the new directory to .INN. Next, copy all of the files from the new WINDOWS directory to the old WINDOWS directory, overwriting the original files. If Windows does not run from this setup, try renaming the .INI files to .INO (for original) and the .GRP files to .GRO; then rename the .INN and .GRN files back to .INI and .GRP. Windows should now run on your system.

Back Up Your System Files

Of course, you should always back up your files, but in the case of the system files that Windows depends on, backing up is especially important. You should regularly back up your WIN.INI, SYSTEM.INI, PROGMAN.INI, and any other .INI files (some Windows applications supply their own .INI file). Other candidates for regular backups include your .GRP files.

It's also a good idea to make backups of the WIN.INI and SYSTEM.INI files before you install new Windows applications. If the new application wreaks havoc with your Windows setup, these files will let you easily restore things to the way they were. Copies of your WIN.INI and SYSTEM.INI files are also handy if you want to study the changes a new Windows application makes to them.

Removing Windows Components

Situations change, people change, and PC components change. For a host of reasons, you may want to slim down Windows after the initial installation. No problem. At any time, you can remove Windows components that you don't need and that are taking up valuable disk space. To do so, select the Window Setup icon in the Main group of Program Manager. Choose Options, Add/Remove Windows Components. The dialog box shown in Figure 1.2 enables you to get rid of README files, accessories, games, screen savers, and other miscellaneous files. If you want to trim your Windows files even more, refer to the section "Optional Windows Files," later in this chapter.

How to Load Windows on Your PC . . . Best!

Once you've navigated through Setup and installed Windows properly, you have a variety of modes and options for how to run it. We've included a host of different possibilities here. No one will ever use all of these, but this unique flexibility represents one of Windows' crowning glories.

Using the WIN Command

One of the pleasures of working with Windows programs is that there's nearly always more than one way to get something done. Here are some alternative methods for starting Windows.

Start Windows with Your Favorite Program Open and Running One way to start Windows is with your favorite program in place. To to this you include the program's name as a DOS command-line parameter. For example, to start Windows and then load and open Polaris PackRat, go to the DOS prompt and type:

```
 win packrat
```

You don't have to include your program's extension, but you do need to make sure Windows can find the program. In this example, if PACKRAT.EXE was not stored in your Windows directory-or in another directory included in your DOS path-you'd need to include a path name before PACKRAT.

When you start Windows with a command-line parameter, the system itself comes up faster because it skips the opening logo screen.

Launch a File Automatically Every Time You Load Windows You can start either a Windows or a non-Windows program with a command-line parameter. You can also launch Windows with a file in place, in one of two ways. The first way is simply to add the filename after the command-line parameter, as just described. So, if you wanted to open a copy of Excel and load a file called BUDGET.XLS, you could start Windows by typing the following command:

```
 win excel budget.xls
```

The second method requires the file's extension to be associated with an application in the [Extensions] section of WIN.INI. Suppose you have a file named TODOLIST.TXT. If you type

```
 win todolist.txt
```

at the DOS prompt, Windows loads, runs Notepad, and opens your to-do list, because files with the extension .TXT are associated with Notepad.
        Windows Setup creates several other associations, and every time you install a Windows application, more associations are added to the WIN.INI

file. You can also make associations manually-just go into Windows' File Manager and select Associate from the File menu. (Associating files is covered in more detail in Chapter 7.)

Check Out Four Other Parameters for the WIN Command Here are four other handy parameters that you can employ with the WIN command:

The /3 parameter loads Windows in 386 Enhanced mode, assuming your system meets the basic hardware requirements for Enhanced mode.

The /S parameter loads Windows in Standard mode, assuming your system meets the basic hardware requirements for Standard mode.

The /R parameter (for Windows 3.0 only) loads Windows in Real mode.

The /B parameter (for Windows 3.1 only) generates a file, BOOTLOG.TXT, that records system messages during startup. This log can be helpful in diagnosing problems you experience loading Windows in either 386 Enhanced or Standard mode.

Use the /D Parameter to Troubleshoot 386 Enhanced Mode The /D parameter (for Windows 3.1 only) helps you identify conflicts when Windows doesn't start up properly in 386 Enhanced mode. Use the /D parameter with the following variables-try starting Windows using each variable. For more information on using these switches, see the section "Troubleshooting 386 Enhanced Mode," later in this chapter.

The /D:F parameter turns off 32-bit disk access. If Windows loads properly in 386 Enhanced mode when you use this parameter, chances are you've mistakenly specified (either in the 386 Enhanced section of Control Panel or in your SYSTEM.INI file) that 32-bit disk access should be on, even though your hard disk cannot support 32-bit disk access. This parameter is equivalent to the SYSTEM.INI file setting 32BitDiskAccess=FALSE.

The D:S parameter specifies that Windows should not use ROM address space between F000:0000 and 1Mb for a breakpoint. If Windows loads properly when you use this parameter, it's likely that a third-party 386 memory manager (such as QEMM-386 or 386Max) has been using the address space at the same time that Windows has been trying to use it. This parameter is equivalent to the SYSTEM.INI file setting SystemROMBreakPoint=FALSE.

The D:V parameter causes Windows to use the computer's ROM routine to handle interrupts from the hard-disk controller. If Windows loads properly when you use this switch, Windows' own 386 Enhanced routines have been trying unsuccessfully to handle interrupts from your PC's hard-disk controller. This parameter is equivalent to the SYSTEM.INI setting VirtualHDIRQ=FALSE.

The D:X parameter makes Windows exclude all upper memory blocks from being used while loading in 386 Enhanced mode. If Windows starts successfully when you use this parameter, there's an upper memory conflict between Windows and another device on your system. This parameter is equivalent to the SYSTEM.INI setting EMMExclude=A000-FFFF.

Windows' Three Modes and What They Mean to You

The best way to run Windows on your system depends both on your hardware setup and on how you plan to use Windows. Windows offers three distinct modes of

operation. Here, we examine the strengths and weaknesses of each, and offer tips for troubleshooting Standard and 386 Enhanced modes.

Windows Modes and System Requirements
Which mode you run Windows in depends first on what your hardware is capable of-in particular, the type of processor your PC has, how much RAM is available, and how much hard-disk space is free.

Real Mode (Windows 3.0 only) Windows' Real mode is the default for Windows 3.0 running on a PC with at least 640K, but less than 1Mb, of RAM. Real mode requires a PC with an 8088 processor or better. Don't expect much if you're running Windows in Real mode. In this mode, Windows 3.0 is hobbled by many of the same performance and memory limitations that plagued pre-3.0 versions of Windows. Task-switching in Real mode requires Windows to swap data out to disk, slowing down operations considerably. Microsoft put Real mode out of business with Windows 3.1, which runs only in Standard or 386 Enhanced mode.

Standard Mode Standard mode is the default mode for Windows 3.0 or 3.1 running on an 80286 PC with at least 1Mb of RAM. Other requirements for running in Standard mode are 6.5Mb free hard-disk space, EGA or better graphics, and an extended memory driver such as Windows' own HIMEM.SYS. For running Windows 3.1 in Standard mode, Microsoft recommends (but doesn't require) at least 2Mb of RAM, 9Mb free hard-disk space, and VGA or better graphics. Among the advantages of Standard mode is that it allows Windows and Windows applications to access all the memory installed on the PC, although DOS applications are still limited to the conventional 640K. Switching between loaded applications is fairly speedy in Standard mode, as long as your PC's memory doesn't become overloaded.

386 Enhanced Mode 386 Enhanced mode is the default mode for Windows 3.0 or 3.1 running on an 80386 or better PC with at least 1.6Mb RAM (640K conventional and 1,024K extended). It also requires 8Mb free hard-disk space, EGA or better graphics, and an extended memory driver such as Windows' HIMEM.SYS. For running Windows 3.1 in 386 Enhanced mode, Microsoft recommends (but does not require) at least 4Mb RAM, 10.5Mb free disk space, and VGA or better graphics.

    386 Enhanced mode is the best that Windows has to offer. One advantage it has over Standard mode is that it allows true multitasking (the ability to run more than one program simultaneously) as opposed to task-switching (the ability to have more than one application loaded at once and to switch quickly between them). Another is that 386 Enhanced mode lets you run DOS programs in resizable windows, whereas Standard mode lets you run DOS programs only in full-screen mode.

When (If Ever) to Use Real Mode
If you're running Windows 3.0 in Real mode, you're missing out on the real benefits of Windows. In fact, probably the only reason to use Real mode is if you have old Windows applications (2.x) that require you to run Windows 3.0 in Real mode. If your system is capable of running in 386 Enhanced mode, you can use the following technique to get the benefits of Windows while running your old applications.

    Start Windows 3.0 as you normally would in 386 Enhanced mode. Next, go into the PIF Editor in the Main program group, and create a .PIF file for a DOS session that runs Windows in Real mode. (PIF is short for Program Information File, which is the file Windows uses to configure DOS programs running under Windows.) In the PIF Editor dialog box, enter C:\WINDOWS\WIN.COM for the Program Filename. For Optional Parameters, enter /r to start Windows

in Real mode. Save the .PIF file, naming it WINREAL.PIF, for example. Now, when you want to run old Windows applications, just choose Run from the Program Manager File menu and specify the name of the .PIF file.

Making the Most of Standard Mode

Even though Standard mode doesn't give you access to multitasking and resizable DOS windows, as 386 Enhanced mode does, there are plenty of compelling reasons to use it, no matter how powerful your system is. Use the following guidelines to get the most out of Windows when you're running in Standard mode.

Speed Performance with Standard Mode If you only run Windows applications, or if you run DOS applications only occasionally, you'll get better performance from Windows by running in Standard mode (type win /s at the command line). Although Windows can't provide expanded memory in Standard mode, you can allocate expanded memory before loading Windows that will then be available to DOS applications running under Windows, but only if you have a physical EMS card, such as AST's RAMPage or Intel's AboveBoard. You can use either EMM386 or a third-party memory-management utility such as QEMM-386 to allocate expanded memory in this manner.

When you run Windows in Standard mode, you'll also lose the ability to run DOS applications in a window, but you'll get snappier performance because Windows won't chew up processor cycles managing virtual memory.

Use Standard Mode with DOS-Extended Programs You should also load Windows in Standard mode if you want to run DOS-extended applications-such as AutoCAD, Paradox 3.5, and Lotus 1-2-3 3.1-while in Windows. You cannot run DOS-extended programs like AutoCAD and Paradox 3.5 in 386 Enhanced mode, but if you use Quarterdeck's QEMM memory manager you can still run them effectively in Standard mode. With QEMM's support for the DOS protected-mode interface (DPMI), these applications will have access to the memory they need.

Use a Larger Number of File Handles for Running Standard Mode If you're running in Standard mode, you should increase the number of file handles that are specified in your CONFIG.SYS file. These file handles are shared among applications in Standard mode. A low number may cause applications that use a large number of file handles, such as databases, to perform poorly or not run at all. Try setting the number to 50 or more for such applications. To do this, change the FILES= line in your CONFIG.SYS to read FILES=50.

Add a RAM Disk If You've Got Memory to Spare If you have 4Mb of RAM or more on your system, consider setting up a RAM disk. For details on how to do so, see Chapter 3.

To speed up switching to and from DOS applications, add a line to your SYSTEM.INI file that tells Windows exactly where your RAM disk is. In the [NonWindowsApps] section, add the line SwapDisk=*drive*, where *drive* points to your RAM disk. For more on the Windows .INI files, consult Chapter 2.

Troubleshooting Windows in Standard Mode If you're having trouble running Windows in Standard mode, the following troubleshooting tips will help get you up and running:

1. Check your hardware. Does your hardware meet the minimum system requirements for running Windows in Standard mode? You'll need at least a 286 system with 1Mb of RAM.

2. Try running in Real mode. If you're running Windows 3.0, check whether you can at least run in Real mode (type **win /r** at the DOS prompt). If you can run in Real mode but not in Standard mode, you may have a problem with a device driver that was designed for an earlier version of Windows. Drivers for older versions of Windows-including those for keyboard, printer, and video-often prevent Windows 3.0 from running in Standard mode. Try disabling the old drivers and using the ones that came with Windows 3.0. To add the latest drivers, you'll have to run Windows Setup from the DOS prompt. If a more up-to-date driver isn't available on your Windows disks, contact the device's manufacturer or Microsoft for a driver update.

3. Search out conflicts with memory- resident programs. Check your AUTOEXEC.BAT file for conflicts with memory-resident programs, also known as TSRs. If you load any TSRs before starting Windows, remark them out of your AUTOEXEC.BAT file (type **rem** before the command that loads them) and try starting Windows again. Also check that your CONFIG.SYS contains lines specifying an adequate number of file handles and buffers. File handles should be at 30 or more (FILES=30), and buffers should be at 20 or less (BUFFERS=20).

4. Check your version of HIMEM.SYS. Make sure that you're using the version of HIMEM.SYS that comes on your Windows disks. You'll have to expand the file off of the disks for Windows to recognize it. For Windows 3.1, you'll need version 3.01 of HIMEM.SYS or higher. (For instructions on how to expand the file, see the earlier section
"Copying Files from Windows Disks without Running Setup.")

5. Update your version of DOS. Are you using the correct version of DOS? If you aren't using DOS 5.0, you may need a new version from your system's manufacturer for your PC to run Windows smoothly. Contact your PC's manufacturer for an updated version, or, even better, install MS-DOS 5.0 over the older version you've been using. Also check that you're using a current version of your system's BIOS-contact your system manufacturer to find out whether you need a new one and, if so, how to get it.

6. Make sure HIMEM.SYS is identifying your PC correctly. HIMEM.SYS may be incorrectly identifying your machine and therefore unable to access extended memory correctly. The A20 handler is the name of the device that tells HIMEM.SYS what kind of machine you're running and which routine to use to access extended memory. At bootup you'll see the line "Installed A20 handler number x." The x is a number from 1 to 8 that specifies the type of machine you're using; for example, a value of 1 identifies an IBM AT or compatible, and a value of 2 identifies a PS/2. The A20 handlers that Windows uses are listed in Table 1.2. Check with your system manufacturer for the A20 handler used by your system. Once you know the setting, force HIMEM.SYS to use it by adding the /M switch after the line that loads HIMEM.SYS in your CONFIG.SYS file. For example, the line

```
 DEVICE=C:\DOS\HIMEM.SYS /M:1
```

indicates that you're running Windows on an IBM AT or compatible PC.

TABLE 1.2 A20 Handlers Used in Windows

Number	Name	Computer Type
1	at	IBM AT or compatible
2	ps/2	IBM PS/2

```
3   ptlcascade    Phoenix Cascade BIOS
4   hpvectra      HP Vectra (A and A+)
5   att6300plus   AT&T 6300 Plus
6   acer1100   Acer 1100
7   toshiba      Toshiba 1600 and 1200 XE
8   wyse      Wyse 12.5 Mhz 286
```

7. Find out if you're squeezing memory. Your system may require more extended memory. Check the device settings in your CONFIG.SYS file for programs, such as EMM386, that use extended memory. Disable these programs by commenting out the CONFIG.SYS line that loads them (add REM to the beginning of the line), or deduct the amount of memory allocated to them. Then try reloading Windows.

8. Disable RAM shadowing. Disable RAM shadowing if your system supports it. Check your PC's setup program or manual if you're not sure.

9a. Pad your code segments. If you're using a 286 system, you may be unable to run Windows in Standard mode unless you add the following statement to the [Standard] section of your SYSTEM.INI file:

 PadCodeSegments=1

   This setting tells Windows to pad code segments with 16 bytes, ensuring that the last instruction in the segment is not too close to the segment limit for your 286 PC. For more details on the Windows .INI files, refer to Chapter 2.

9b. Boot from a clean floppy. Have you made any changes to your system? Deleted any files? Installed any new programs or utilities? Try booting your system from a floppy disk and then running Windows in Standard mode. If you can load Windows after booting from a floppy, the offending element is probably a program or driver that's loaded by your AUTOEXEC.BAT or CONFIG.SYS file. Try commenting out the programs and drivers loaded by these files (add REM at the beginning of the line that loads them), and then add them back one by one to track down the conflicting program. If you've added any peripherals such as printers to your system, try disabling these devices and their drivers and then running Windows.

10. Reinstall Windows. If all else fails, try reinstalling Windows on your system. If you still can't run Windows in Standard mode, contact your system manufacturer.

Enhancing 386 Enhanced Mode

If you have the hardware, 386 Enhanced mode gives you the best Windows has to offer, especially in terms of support for DOS applications. Here's how to use it right.

Use SMARTDrive or Another Disk Cache Set up SMARTDrive or another disk cache on your system to speed up performance. A disk cache is a section of memory that keeps recently accessed information available so that your system can get to it faster than if it had to search the hard disk. For guidelines on setting up SMARTDrive, see Chapter 3.

Defragment Your Hard Disk Remember to defragment your hard disk often-for instance, on a weekly basis. A fragmented hard disk greatly affects Windows' performance, especially if you have SMARTDrive or a swap file installed.

Create a Permanent Swap File In 386 Enhanced mode, a swap file lets you use hard-disk space to create virtual memory in addition to the physical memory in your system. For guidelines on setting up a permanent swap file, see Chapter 3.

Change Your SYSTEM.INI To speed up file access by DOS applications running under 386 Enhanced mode, disable the option that allows Windows to monitor disk access by DOS applications and then send update messages to File Manager so that it knows what changes were made. You can turn off this feature by checking your SYSTEM.INI file and making sure the [386Enh] section includes the following line:

     FileSysChange=off

     While you've got your SYSTEM.INI open for editing, look for the line ReservePageFrame= in the same section. Turn off this option if you don't need expanded memory for your DOS applications; you'll increase the amount of conventional memory available to them and therefore increase system performance. Chapter 2 includes detailed information on working with Windows .INI files.

Use Standard VGA Opt for VGA display with Windows unless you really need the higher resolution or additional color choices available from an SVGA monitor. If you can do without these extra features, you'll get better performance from your system.

Troubleshooting Problems with Loading Windows in 386 Enhanced Mode

386 Enhanced mode is the most powerful way to operate Windows, but it can also be problematic to load and run properly. Use the following guidelines to solve problems in 386 Enhanced mode. Often these tips involve altering your Windows .INI files, a topic that is covered in depth in the next chapter.

1. Be sure your system meets 386 Enhanced mode requirements. Does your hardware meet the minimum system requirements for running Windows in 386 Enhanced mode? You'll need at least a 386 system with 2Mb RAM. If you have enough memory, try forcing Windows into 386 Enhanced mode by using the command-line switch /3 with the WIN command. If Windows successfully starts in 386 Enhanced mode only when you use this switch, it's not detecting enough memory in your system. If you're short on RAM, you won't be able to run EMM386 or other memory managers that allow you to load memory-resident programs and device drivers into upper memory blocks, because 386 Enhanced mode remaps extended memory to the upper memory blocks. You can still force Windows into 386 Enhanced mode if you have less than 2Mb of extended memory available, by using the /3 command-line switch, but you should avoid doing so unless absolutely necessary, because performance will suffer.

2. Try starting in Standard mode. Can you run in Standard mode (or does Windows default to Standard mode)? To see if Windows runs in Standard mode, type **win /s** at the DOS prompt. If you can't run in either Standard mode or Enhanced mode, you may have a program conflict. Have you made any changes to your system since running Windows Setup? Deleted any files? Installed any new programs, utilities, or drivers? Try booting your system from a floppy disk and then running Windows. If you can boot from a floppy, comment out the programs and drivers by adding REM at the front of the lines that load them in

your AUTOEXEC.BAT and CONFIG.SYS files. Then try adding the original programs and drivers back to your AUTOEXEC.BAT and CONFIG.SYS files one by one to find the conflicting program.

Likewise, disable any programs that are automatically loaded when you start Windows. Open your WIN.INI file in Notepad or by running SYSEDIT (from Program Manager choose File, Run, SYSEDIT.EXE), and comment out the load= and run= lines by placing a semicolon in front of them.

If you're running Windows 3.1, you must also disable the Startup group. To do so, simply select the Startup group icon in Program Manager; choose File, Properties; and change the name of the Startup program group to anything but STARTUP.GRP. Exit Windows and try restarting Windows in 386 Enhanced mode.

If Windows does start in Standard mode automatically, also try booting the system from a floppy and disabling any programs that start automatically when Windows is loaded, as just described. Exit Windows and try restarting Windows in 386 Enhanced mode.

3. Check for outdated drivers. If you've added to your system any peripherals with their own drivers, such as printers, try disabling these and instead use the appropriate device driver that came with Windows. To install this driver, you'll have to run Setup from the DOS prompt. If you can't find a more recent version of the driver on your Windows disks, contact the device's manufacturer or Microsoft for an updated driver.

4. Update your version of DOS. Are you using the correct version of DOS? If you aren't using DOS 5.0 and your computer is an IBM-compatible, you may require an updated version of DOS from your PC's manufacturer. Contact the manufacturer for the correct version, or better yet install MS-DOS 5.0.

Also, make sure that you're using the latest BIOS version available for your system; check with your PC's manufacturer to find out whether you have an updated BIOS and how to get a new one if necessary. In addition, be sure you're using the correct version of HIMEM.SYS: Windows 3.1 requires version 3.01 or higher. If you need to retrieve HIMEM.SYS from your Windows disks, you'll have to expand it before you can use it. (See the earlier section "Copying Files from Windows without Running Setup" for instructions.)

5. Make sure HIMEM.SYS is identifying your machine properly. HIMEM-.SYS may be incorrectly identifying your machine and therefore be unable to access extended memory correctly. The A20 handler is the device that tells HIMEM.SYS what kind of machine you're running and which routine to use to access extended memory. At bootup you'll see the line "Installed A20 handler number x," where x is a number from 1 to 8 that specifies the type of machine you're using; for example, a value of 1 identifies an IBM AT or compatible, and a value of 2 identifies a PS/2. The A20 handlers that Windows uses are shown in Table 1.2.

Check with your system manufacturer for the correct A20 handler for your system. Once you know the setting, force HIMEM.SYS to use it by adding the /M switch to the DEVICE= line in your CONFIG.SYS file that loads HIMEM.SYS. For example, if your system is an IBM AT or compatible, use this line in your CONFIG.SYS file:

```
DEVICE=C:\DOS\HIMEM.SYS /M:1
```

6. Rule out memory conflicts. You may have a memory conflict between a device and Windows in the upper memory blocks. This occurs if Windows fails to recognize a card or device in upper memory and tries using the same memory range. Try excluding a range of upper memory from use by Windows by editing the EMMExclude= line in the [386Enh] section of your SYSTEM.INI file. To test

for such a conflict, try starting Windows from the DOS prompt by typing **win /d:x**. This parameter excludes all of the upper memory blocks from use. (See the earlier section "Use the /D Parameter to Troubleshoot 386 Enhanced Mode," which explains how to diagnose system problems with the /D parameter.)

If Windows is now able to start in 386 Enhanced mode, the problem is a device conflict. Try to find the memory address of the conflicting adapter and narrow the range that you are excluding from use by Windows by including the statement

    EMMExclude=*address range*

in the [386Enh] section of the SYSTEM.INI file. For example, many high-resolution video boards use the address range above C000 to C7FF, so the SYSTEM.INI would contain the line EMMExclude=C000-C7FF. Likewise, nonstandard video boards often use the range C600-C800; try excluding this range if you have such a board. Do not exclude the entire range (A000-EFFF), because when running in 386 Enhanced mode, Windows tries to reserve space for system maintenance in upper memory. If the space isn't available, the buffers will be placed in conventional memory, resulting in a considerable drop in performance.

If you're loading the EMM386 driver in your CONFIG.SYS, you can exclude memory blocks there by following the DEVICE=EMM386.EXE line with the switch

x=*address range*

instead of using EMMExclude in the SYSTEM.INI file.

7. Fine-tune your SYSTEM.INI file. Try further fine-tuning your SYSTEM-.INI to solve the problem. To the [386Enh] section, add the line VirtualHDIRQ=Off to the [386Enh] section of the SYSTEM.INI. This statement tells Windows not to terminate interrupts from the hard-disk controller, but instead to use your system's ROM routines to handle these interrupts. Some hard drives can process interrupts correctly only if this setting is off.

8. Check for hardware interrupt conflicts. If Windows won't run in 386 Enhanced mode, you may have an interrupt conflict between two hardware devices. Remove all hardware devices-such as mouse, modem, and network card-from your system. If you can run Windows in 386 Enhanced mode after removing all the devices, try adding them back one at a time to find the conflict. Once you've found the offending device, trying changing the interrupt it uses.

9. Check for the WINA20.386 file. Are you using Windows 3.0 and DOS 5.0? Check that the read-only file WINA20.386 is in your root directory. If it's in another directory, you'll have to tell Windows where it is by adding a SWITCHES=/W statement to your CONFIG.SYS file and adding a device statement to the [386Enh] section of your SYSTEM.INI file. For example, if you have moved WINA20.386 to your SYSTEM subdirectory, you should put this statement in the [386Enh] section of SYSTEM.INI:

    DEVICE=C:\SYSTEM\WINA20.386

Reboot your system and Windows should run in 386 Enhanced mode.

If WINA20.386 is missing from your system, you will need to install it from your DOS 5.0 disks.

10. Disable RAM shadowing. Disable RAM shadowing if it's supported by your system; check your PC's setup screen or manual to find out if this is so.

11. Reinstall Windows. Try reinstalling Windows. If you still can't run Windows in 386 Enhanced mode, contact your system manufacturer.

Troubleshooting Problems with Operating Windows in 386 Enhanced Mode

Even if Windows loads smoothly in 386 Enhanced mode, you may notice some problems with the operation of your system when Windows is running. Use these tips to pinpoint the solution.

Hard-Disk Difficulties If you're having hard-disk problems under 386 Enhanced mode and are using a SCSI hard disk (or another nonstandard controller), make sure you're using SMARTDrive. Without SMARTDrive, Windows supports only standard ST506 and ESDI controllers. With SMARTDrive installed, Windows will direct all disk access requests through it and resolve any conflicts.

If you try this and you still have hard-disk problems, try adding the line VirtualHDIRQ=Off to the [386Enh] section of the SYSTEM.INI. This statement tells Windows not to terminate interrupts from the hard-disk controller and to bypass the ROM routines that handle these interrupts. Some hard drives can't process interrupts correctly unless this setting is off.

Internal Stack Overflow If you get an internal stack overflow while in Enhanced mode, check your CONFIG.SYS file for the STACKS= statement. If you're using Windows 3.0 and DOS 3.3 or later, it should read STACKS=0,0. For Windows 3.1 and DOS 3.3 or later, the line should read STACKS=9,256.

Slow Typing If you notice that typing slows down when you are running more than one application in Enhanced mode, increase the priority of a foreground application whenever it receives a keystroke. To do so, add the statement

 KeyBoostTime=.005

(or a larger number) to the [386Enh] section of your SYSTEM.INI file.

Optional Windows Files

The way you want to use Windows on one PC may be different from your intentions on another. You may want to go full bore on that 486 monster at work, but have to sweat every megabyte on your 386SX home machine or that disk-starved notebook. You can tailor which parts of Windows you install to fit your needs and your hardware.

111 Windows Files You Can Do Without

If you travel with Windows on a notebook PC, or if disk space on your desktop system is at a premium, take note of 111 files that you can eliminate and still run Windows 3.1. Table 1.3 lists these files. Many of these same files are found in Windows 3.0, so you can free up disk space with the earlier version too.

TABLE 1.3 111 Nonessential Windows Files

File Extension   Description

*.BMP   Wallpaper and desktop patterns

```
*.WAV     Sound effects

*.SCR     Screen Savers

*.WRI     On-line documentation

SOL.*,
WINMINE.*   Games


*.MID     Sample MIDI files

CALENDAR.*,
CARDFILE.*,
CLOCK.*,
MPLAYER.*,
PACKAGER.*,
PBRUSH.*,
PRINTMAN.*,
RECORDER.*,
SOUNDREC.*,
WINTUTOR.*   Nonessential applications


CALC.*,
CHARMAP.*,
MSD.*,
TERMINAL.*,
WRITE.* Interesting but disposable applications

WINHELP.EXE,
*.HLP Windows Help

*.TXT     Miscellaneous text files

CLIPBRD.*     Clipboard

DRWATSON.EXE     Fault-detection utility

TASKMAN.EXE      Task Manager

SMARTDRV.EXE     SMARTDrive disk cache (delete if you use a third-party
cache)

MORICONS.DLL     Dynamic link library with program icons

EMM386.EXE      Expanded memory manager (delete if you aren't loading
EMM386.EXE in CONFIG.SYS and you don't need expanded memory for DOS
applications).

RAMDRIVE.SYS     Support for RAM drive in extended memory

MODERN.FON,
ROMAN.FON,
SCRIPT.FON   Little-used vector fonts

COURx.FON,
```

```
SMALLx.FON,
SYMbOLx.FON    Bit-mapped fonts

MCI*.*,
MIDI*.*,
TIMER.DRV      Multimedia drivers

SYSEDIT.EXE        System editor

xxxLOGO.*      Logo files

MMSYSTEM.DLL      Dynamic link library for playing audio files

DDEML.DLL         Dynamic data exchange library

TOOLHELP.DLL     Dynamic link library for information on Windows internal
data, used with the Dr. Watson utility
```

Remove Drivers and Fonts You Don't Use

In addition to removing any of the preceding 111 files, you can get rid of any
fonts and drivers that are installed on your system and that you don't use.
For example, maybe you hate the WingDing font, or perhaps you've installed a
new printer on your system (which means that the drivers for your old printer
are still on disk even though you're not using them).

    To remove unwanted fonts, open Control Panel and select the Fonts icon.
Select the names of the fonts that you want to get rid of, and make sure that
the Delete Font File from Disk option is checked, as shown in Figure 1.3.
Choose Remove, and then answer Yes when prompted.

    To remove extra printer drivers from your system, open Control Panel and
select the Printers icon. Select the printers you don't use, and choose
Remove. Likewise, choose the Drivers icon in Control Panel and select and
remove any other drivers that you don't need. Unfortunately, this won't delete
the actual driver files from your disk; it just deletes the references to
them. To delete the files themselves, you'll have to find out their filenames
and delete them from File Manager or from the DOS command line.

Remove Support for Standard Mode

If you run Windows exclusively in 386 Enhanced mode, you can delete several
more files-the ones that support Standard mode. When deleted, the following
files will yield approximately 183K in disk space. Note that if you do delete
any of these files, you won't be able to run Windows in Standard mode.

DOSX.EXE   Microsoft DOS Extender

DSWAP.EXE   Standard mode support for swapping non-Windows
applications

KRNL286.EXE   The Standard mode kernel

WINOLDAP.MOD   Standard mode support for executing non-Windows
applications

WSWAP.EXE   Standard mode support for swapping DOS applications

*.2GR   Standard mode grabber file

Remove Support for 386 Enhanced Mode

If you run Windows exclusively in Standard mode, you can delete the following files to disable 386 Enhanced mode support. These files will free up approximately 781K on your hard disk.

CGA40WOA.FON,
CGA80WOA.FON,
EGA40WOA.FON,
EGA80WOA.FON   Fonts for non-Windows applications

CPWIN386.CPL   Support file for the Enhanced mode icon in Control Panel

DOSAPP.FON   Font that supports sizable text in Enhanced mode

*.3GR   Enhanced mode grabber file

*.386   Enhanced mode support drivers

WIN386.EXE   Windows Virtual Machine Manager

WIN386.PS2   Support for PS/2s

WINOA386.MOD   Enhanced mode support for non-Windows applications

Remove Support for DOS Applications

If you don't run DOS applications from Windows-and never plan to-you can also get rid of the following files and free up nearly 300K of disk space:

PIFEDIT.EXE   PIF Editor

*.PIF   .PIF files

APPS.INF   PIF information file

CGA40WOA.FON,
CGA80WOA.FON,
EGA40WOA.FON,
EGA80WOA.FON   Fonts for non-Windows applications

*.2GR, *.3GR   Standard mode and 386 Enhanced mode grabber files

DOSAPP.FON   Font that supports sizable text in 386 Enhanced mode

WINOLDAP.MOD   Standard mode support for executing non-Windows applications

WINOA386.MOD   Enhanced mode support for non-Windows applications

DSWAP.EXE   Standard mode support for swapping non-Windows applications

A Few Files to Keep Handy

In your enthusiasm for freeing up hard-disk space, you may start deleting some Windows files without a moment's hesitation. Here are a few files you might

want to keep around. If you don't leave them on your hard drive, you may want to copy them to a floppy in case you want them later.

MSD.EXE and MSD.INI are two files you need to run the Microsoft Diagnostics Utility. This utility reports on your system memory and drivers.

DRWATSON.EXE and TOOLHELP.DLL allow you to run the Dr. Watson utility, a tool for detecting General Protection Faults.

README.WRI, SYSINI.WRI, and WININI.WRI are README files providing information on Windows that became available after the manual was printed. Before deleting these files, you should skim them or consider printing them as a handy reference. (Windows 3.0 also contains the valuable README files README.TXT, SYSINI.TXT, SYSINI2.TXT, SYSINI3.TXT, WININI.TXT, and WININI2.TXT.)

SYSEDIT.EXE is a text editor that allows easy access to your AUTOEXEC.BAT, CONFIG.SYS, WIN.INI, and SYSTEM.INI files.

The Many Ways to Skip the Windows Startup Screen

One of the most irritating aspects of Windows is waiting to get past the Microsoft advertisement that appears while the program is loading. The next section describes a number of ways to make it disappear.

Suppress the Startup Screen

You can reduce the time Windows takes to load by suppressing the startup screen and cutting straight to the chase. Simply complete the command at the DOS prompt with a space and colon. For example, to load Windows in Standard mode without the startup screen, type **win /s :**.

Another Command-Line Trick to Bypass the Logo

When you start Windows with a command-line parameter to load an application, Windows starts faster because it skips its opening logo screen. You can take advantage of this even if you don't want to start with an open application. Typing **win progman** will launch you directly into Windows' Program Manager.

Create a Batch File to Bypass the Logo

If you use a batch file to start Windows (for example, W.BAT) instead of having to type WIN each time, make it also bypass the Microsoft logo for you. As before, follow the WIN command in the batch file with a space and a colon. This way you can launch Windows, and bypass the logo, just by typing **w** at the DOS prompt.

Remove the Logo Permanently by Creating a New WIN.COM

If you want to remove the Windows logo from your system for good, just copy the WIN.CNF file (which contains the Windows startup code) from your SYSTEM directory to your main WINDOWS directory, renaming it WIN.COM. By doing this you are deleting the original WIN.COM created at setup, which is composed of WIN.CNF, a file that detects the video mode of your system, and another file that actually displays the logo.

Make AUTOEXEC.BAT Skip the Logo for You

If you start programs with either the run= or load= line in the WIN.INI file, you still have to see the Windows logo emblazoned on your screen. Fortunately, you can combine the command-line and WIN.INI methods. If you already start

Windows with a command in your AUTOEXEC.BAT file, you might as well make that command read WIN PROGMAN, even if you also use the run= or load= line.

Replace the Windows Logo with the Image of Your Choice

If you prefer not to see the Windows logo every time you boot up, you can go a step further than simply eliminating it. Using some graphical craft, you can actually replace that Microsoft image with the image of your choice. At last, an advertisement for yourself!

The WIN.COM file that starts Windows is actually created from several files: WIN.CNF, VGALOGO.LGO (in a VGA system), and VGALOGO.RLE (for a VGA system). The last file is a bitmap file in a compressed format that displays the Windows logo. By substituting any image you like for the logo file, you can have Windows display that image at startup. The only requirement is that the image be in the Run-length encoded format (RLE). You can convert an image such as a .PCX or .BMP file with a graphics-file conversion program. Once the image is renamed to VGALOGO.RLE (or EGALOGO.RLE on your EGA display), you just need to copy it into the WINDOWS\SYSTEM subdirectory. It will be copied over the original Microsoft logo.

To get Windows to rebuild the WIN.COM file, change the display setting for your system in the DOS part of Windows Setup. Run Setup from the DOS prompt, and choose a different setting for the display option. Exit Setup, and then while you're still in DOS run Setup again and select your original display option. The next time you start Windows you should see your custom image on the startup screen.

On-line Resources

Windows is not just a product, it's a community. Never have so many smart people worked so hard and long on behalf of a computer product. As a result, you can find Windows advice in many places besides books like this. (For more information about on-line forums and bulletin boards dedicated to Windows, see Appendix A.)

Seek On-line Help

Check out all of the on-line forums dedicated to Windows users. CompuServe has a several Windows forums, including the Windows New Users forum (GO WINNEW) and the Windows Advanced Users forum (GO WINADV). If you need help with a Windows problem, on-line experts and fellow Windows users will probably have the answer or will help you find it. You'll also find the latest Windows shareware, icon files, and wallpaper files.

Windows Drivers Library

(206) 637-9009
This on-line resource, accessed through the Technical Support Library, provides compatible device drivers for Windows as they become available.

Microsoft Knowledge Base

Available on-line through Compuserve (GO MSKB), Knowledge Base is a collection of thousands of technical articles on Microsoft products written by Microsoft support. You can learn about compatibility, configuration, bugs, workarounds, customization, and more.

Exiting Windows Wisely

We've spent most of this chapter talking about getting into Windows. Getting out of Windows is even more automatic than starting it. But here again, wise users are aware of the options and dangers that confront them.

Fast Windows Shutdown

Since you probably don't change your Windows layout every day, don't use the Save Settings option upon exiting Windows. When you do want to record a new layout, just hold down the Shift key and choose Exit Windows from the Program Manager File menu. This action forces a rewrite of your group layout without your having to exit Windows.

Exiting DOS Programs Quickly in Enhanced Mode

Windows deliberately makes it difficult for you to exit Windows in Real (for 3.0) or Standard mode with a DOS application active. When your C: prompt is just sitting there, you're in fact running a program called COMMAND.COM, DOS's command-line interpreter. Although it may be frustrating, this feature protects you from ending the Windows session with an unsaved data file open in your DOS application. It's designed this way because of Windows' inability to communicate effectively with DOS applications.

When you tell Windows to shut down, it sends a message to all the Windows applications that are still running. If you have unsaved data in a Windows application-an Excel worksheet or a Word for Windows document, for example-you're given the opportunity to save the data before Windows shuts down.

Because DOS applications cannot respond to these Windows messages, it's conceivable that your DOS window might contain a 1-2-3 spreadsheet, for example, that has not yet been saved. If you exited from Windows without saving the data in the DOS session, you would lose the file-and very likely your composure as well.

If you run Windows in Real or Standard mode, there is no way short of rebooting to exit from Windows with a DOS session still active. On the other hand, if you're running in 386 Enhanced mode, you can order Windows to let you shut down with a DOS program open; the DOS application must be running under the control of a .PIF file.

Here's how to set up a .PIF file for a DOS version of 1-2-3 that will surrender without protest: Double-click on the PIF Editor icon (in the Program Manager's Accessories group), choose File Open, and then load 123.PIF from the WINDOWS directory. (If you don't have a .PIF file for the DOS application, click on the Windows Setup icon in the Main group and choose Options, Set Up Applications.) Next, click on the Advanced button at the bottom of the dialog box. Under Other Options in the Advanced Options dialog box that appears, you'll see a check box labeled Allow Close When Active. Click on this box and then click on OK. Windows will display an error message warning that you might lose data if you set this option. (Of course, caution is warranted when using this powerful option.) Click on OK to clear the dialog box. Then choose File, Save As and save the .PIF file.

Now, the next time you attempt to exit Windows with a 1-2-3 window active, you'll see a different error message: "Application still active. Choose OK to end it." Click on OK, and your Windows session will end without fuss.

How to Quickly Exit DOS Applications in Standard Mode

There is a workaround that lets you exit Windows in Standard mode without having to go into each DOS session you have running. To do so, call up the Windows Task Manager (either by double-clicking on your wallpaper or pressing

Ctrl+Esc). In the Task List box, select one of the sessions. Then choose the
End Task button. A dialog box informs you that the application is still
active, and tells you to select OK if you want to end it. Repeat this process
for all of the DOS sessions you have running, and then exit Windows.