C H A P T E R 2

# The Windows 95 User Interface

When you first boot Windows 95 it is immediately apparent that the old world of Windows running on top of MS-DOS is no more. Gone are the character-mode boot messages that held meaning only for a very small minority of computer users. Instead, you are graphically carried to the desktop of the new user interface (UI) in Windows 95.

More than any other part of the operating system, the UI defines a user's overall experience. The easier, more powerful, and more compelling the UI, the better the user feels about computing which, in turn, makes the user more productive. Great UI helps grow the industry by making computing easier and more natural for *all* people, from the new user to the power user. This is the mission of the UI in Windows 95.

This chapter introduces you to the UI in Windows 95 and its conception. It is divided into the following topics:

- **Objectives**. Lays out the top-line goals of the UI in Windows 95.
- **Methodology**. Overviews the design-test-redesign loop that has been critical to the UI development process.
- **Easy.** Outlines features that make Windows 95 easy to learn and use, especially for those new to Windows.
- **Powerful**. Outlines features that make Windows 95 more powerful, efficient, and customizable for the experienced Windows user.
- **Compatible**. Outlines features that make Windows 95 easy to learn and use for those familiar with Windows 3.1.

# Designing the User Interface in Windows 95

## Objectives

The overarching goal of the UI in Windows 95 is to make PCs even easier to use for *all* people.

Fulfilling this goal is a challenge because people work in very different ways. For the beginner, performing a task must be easy to learn even at the expense of efficiency. However, the experienced user is interested in doing more with the PC and in efficiency and flexibility. In addition, the user who upgrades from Windows 3.1 must not be made to throw out everything he or she has learned.

Windows 95 has fulfilled these disparate needs by making the most common and essential features of Windows 95 (such as launching an application, task switching, and finding a file) easily discoverable by the beginner via the taskbar, with its Start button and push-button task switching. At the same time, the product is deep in power-user capabilities that promote efficiency, customizability, and control such as the Windows Explorer, rich right-mouse-button-clicking capabilities, property sheets, and shortcuts.

The UI in Windows 95 is designed to be scaleable—that is, to fit the proficiency and preferences of the individual user.

## Methodology

The UI in Windows 95 was not a grand plan designed to a master specification. It started out with clear objectives, guiding design principles, and a skilled team. The design process has been full of discarded designs, new ideas, and a great deal of learning.

The process started with answering the basic question: *How can Windows 3.1 be improved*? From there the UI team began to work through a loop of design, to usability test, to redesign that continues today.

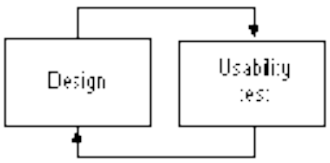



**Figure 1. Feedback design loop of Windows 95**

# Improving Windows 3.1

There was no shortage of information sources in determining how the Windows 3.1 UI might be improved. The following table summarizes key findings.

| How can the Windows 3.1 UI be improved |
| --- |
| Make it easier to learn for novices. Problem areas:<br>▪ Window management (overlapping and minimized windows) is confusing.<br>▪ Hierarchical views (like File Manager) are confusing.<br>▪ Double-clicking to launch applications is not discoverable.<br>▪ Task switching is undiscoverable, which means too few users are taking advantage of running multiple applications. |
| Make it more efficient and customizable for experienced users. Problem areas:<br>▪ Too much "middle management." Confusing and overlapping functionality: Program Manager, File Manager, Print Manager, Windows Setup, Control Panel.<br>▪ 8.3 file naming<br>▪ Not customizable.<br>▪ Poor network and connectivity integration. |

**Figure 2. Issues for improving the UI over Windows 3.1**

We used the following mechanisms to compile feedback data:

- **Usability Tests**. The Microsoft Usability Lab, detailed below, is primarily used for testing usability of new designs. However, in order to better understand how people are using Windows 3.1 today and to establish a baseline, several phases of testing were dedicated to Windows 3.1.
- **Focus Groups**. Several focus groups were conducted with different levels of user to determine the problems people are having with Windows 3.1 today.
- **Educator Feedback Program**. Last year, a team of UI designers and testers visited 12 independent software education companies. More than any other people, software educators understand the everyday usage challenges faced by beginner and intermediate users. Questions like *"What are the 5 hardest tasks for students to learn in Windows?"* and "*What 5 changes would you make to Windows to make it easier to learn?"* were asked. These educators have also served as a great resource for testing prototypes of the UI in Windows 95.

- **Suggestion Database**. Thousands of UI suggestions from Windows 3.1 end users and corporate customers have been compiled and analyzed. Going forward, beta tester UI feedback will be incorporated into the final release UI.

## Putting New Designs to the Test

Conducting extensive live tests in a variety of settings with a variety of subjects has been key to the engineering of a state-of-the-art UI. A large portion of the total development budget of Windows 95 has been expended on this critical activity. Windows 95 is likely the most usability-tested product ever. Methods employed for testing the UI in Windows 95 follow.

- **Formative Testing in the Usability Lab**. Conducted primarily in the groundbreaking Microsoft Usability Lab, formative testing tests real users on specific tasks (such as launching an application, finding a file, and installing a printer). The Usability Lab has nine testing suites, each with a one-way mirror, cameras, and other equipment for observing and recording users as they work. Central to the Lab operations is online data collection software, which helps specialists collect cognitive and quantitative process data as subjects work through sets of tasks.

  Usability tests are observed first hand by the design team and are essential in future designs. To date, we have conducted more than 1,000 hours of usability testing over 48 phases of lab testing with more than 400 participants. Experience of testers ranges from novice to intermediate/advanced, allowing results to be obtained focusing on new computer users as well as users familiar with Windows.

- **Summative Testing**. Conducted at customer sites and in the Usability Lab, summative testing involves testing of the UI as a whole, with real users, over longer periods of time. Several phases of summative tests have been conducted to date at corporate sites. As the product approaches shipping, usability tests will focus on summative testing.
- **UI and Industry Expert Review**. In the fall of 1993, a panel of UI and industry experts was assembled to review and critique the UI in Windows 95. Also, four individual consultants spent 1.5 days each "alone with Windows 95" and gave extensive feedback.

# Easy

"Easy" is a broad term so it requires some definition. This section will detail those features of the UI in Windows 95 that are focused on solving the first category—"How can the Windows 3.1 UI be improved"—from above. Namely, learnability for those who are new to Windows.

## The Desktop: Neat, Clean, and Logical

After you start your computer, you are presented with the new desktop in Windows 95 (see Figure 3). It's neat and clean with only a few graphical objects on the screen. It's like moving into a new office before you have the chance to really get it messy.


**Figure 3. The desktop in Windows 95**

The simplicity of the desktop appeals to all users' sense of organization, but also serves to focus the novice user on the essentials:

- **Taskbar**. Quickly start a program or open a document from the Start button. Easily switch between tasks.
- **My Computer**: Makes browsing your PC logical and easy.
- **Network Neighborhood**. In the world of mapped drives and complex interfaces, users are unable to browse the network. The Network Neighborhood makes browsing networks possible and easy, independent of the network provider (such as Windows NT Server, a NetWare server, or Windows 95 itself).
- **Recycle Bin**. The Recycle Bin allows users to recover deleted files. Files that have been deleted can be easily returned to their original location on the user's local system.

## The Taskbar: Home Base

More than any other feature, the taskbar exemplifies the magnitude of improvement in ease of use and learnability of the Windows 95 UI. It is the anchor of the UI. Its mission is to make 95% of what a typical user wants to do with the operating system easily accessible at all times. An indicator of a great design is that it turns out to be much more than it was originally intended. The taskbar started out specifically as a novice-user program launcher and task switcher. However, its simplicity and power have turned out to be favorites of experienced Windows users, and it has many more capabilities.


**Figure 4. The taskbar**

The two key features of the taskbar are the Start button and push-button task switching.

## The Start Button: Up and Running in Seconds

Usability tests on Windows 3.1 show that it takes a brand new Windows user an average of nine minutes to open Write. With Windows 95, opening WordPad takes a new user an average of three minutes. If we count only the users that launch WordPad via the Start button (rather than by other means), the average time to launch drops below one minute! The main reason for this dramatic 3x-9x speed improvement is the Start button. Without ever having to know about double-clicking, complex hierarchies, or Program Manager groups, a beginning user of Windows 95 can quickly launch a program and get to work.

**Figure 5. The Start button**

However, the Start button is much more than a super-efficient program launcher.

- **Programs**. The Programs submenu on the Start menu provides quick access to launching programs. It is the equivalent to Program Manager under Windows 3.1—when Windows 95 is used to upgrade a PC running Windows 3.1, the contents of the Program Manager program groups are transferred to the Programs menu.
- **Documents**. The Documents submenu of the Start menu contains a list of the last 15 documents the user opened. It provides very quick access to the information most recently worked with. This helps prevent time-consuming and frustrating browsing and helps people begin to think of their work in terms of documents ("document-centricity"), rather than applications.
- **Settings**. Gives quick access to the changing or viewing settings and options of the PC, including Control Panel (for computer settings), the Start menu (via the Taskbar command), and the Printers folder. It also enables the user to customize the taskbar itself (for example, what programs to include in the Programs submenu) to suit personal working preferences.
- **Find**. Find is a new feature of Windows 95 that goes far beyond the Search feature in Windows 3.1 File Manager. Searches do need not conform to the *.* searching syntax, and criteria such as last modification date, size of file, and actual text within a document can now be used to find information. For more information about Find, see "Power" later in this chapter.
- **Help**. Help has been overhauled in Windows 95 and is easily accessible from the Start menu. See "Help" later in this chapter for details.
- **Run**. Provides enhanced command-line type functionality from the Start button.
- **Shut Down**. Allows for easily accessible and safe shutdown, restart, and logoff.


Mouse

## Try This—Customizing the Start Button

- Click the Start menu, point to Settings, and then click Taskbar.
- On the Start Menu Programs tab, click Add.
- Type the path and command line for the program you want to add to the Start menu.

  Or Click Browse to search for the program, and then double-click the program.
- Click Next, and follow the instructions on the screen.
- Check your new configuration by clicking the Start button.

  **Power-user tip:** You can also drag a shortcut to the program right onto the Start button.


### Try This—Test a Novice

- Get a stopwatch. Provide a PC running Windows 95 with no programs loaded and a clean desktop.
- Ask a friend or family member who is a computer novice to open an application called "X," where X is in the Programs menu. Note the time to completion.
- Try the same task on Windows 3.1.
- Compare the times to complete the task. The time using Windows 95 should be the same as or faster than under Windows 3.1.


### Try This—CTRL+ESC Brings Up the Start Menu

- As an alternative to clicking the Start button, press CTRL+ESC. The Start menu appears.

## Task Switching Made Simple from the Taskbar

Novices need powerful features presented to them in a very simple and compelling way, otherwise these features will not be used. Research on active Windows users shows that less than 50% of general Windows users frequently use more than one application at a time, and only 20% frequently use ALT+TAB task switching. These powerful features of Windows 3.1 are simply not *discoverable*.

The objective of the taskbar is to make switching among multiple applications or windows as simple as changing channels on a television set. Every new window that is opened automatically gets a button on the taskbar—this greatly improves the visualization to the user as to which windows or applications are presently open. To change tasks, all the user must do is go to the taskbar and click the desired button. No more minimized program icons, no more disappearing windows. No matter where the user is, he or she can see all of his or her active tasks simply by looking at the taskbar, the Windows "channel flipper."

Taskbar buttons resize automatically depending on the number of active tasks. Should the buttons get too small to be useful, the user can custom configure the taskbar. In fact, there are a host of taskbar configuration options that allow the user to configure it to fit his or her needs. These options include:

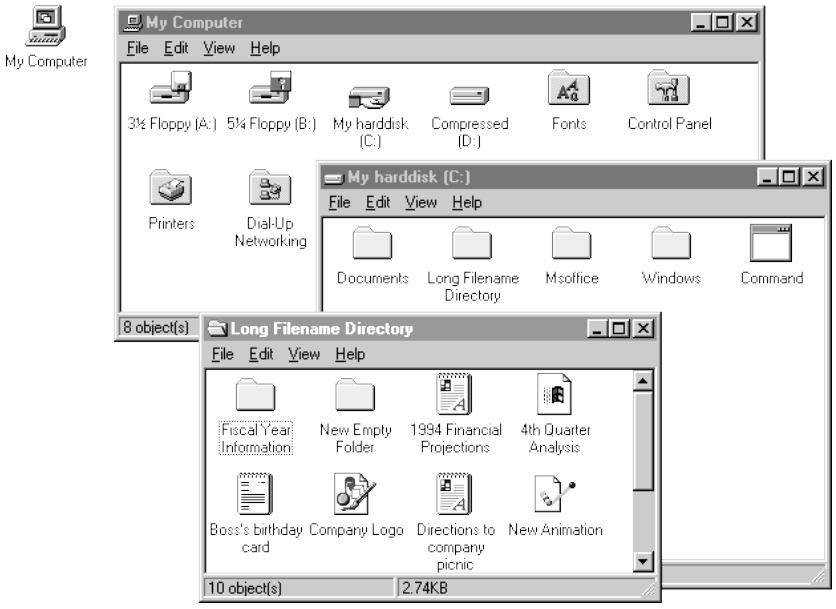
- **Reposition**. The taskbar can be dragged to any perimeter position on the screen.
- **Resize**. The width of the taskbar can be widened by dragging the inside edge.
- **Auto Hide**. The taskbar can be hidden and made to appear only when the mouse hits the screen edge (click the Start button, point to Settings, and click Taskbar to see the option).

Also noteworthy is the animation when a task is minimized to a taskbar button or restored to a window from the taskbar. It helps new users understand "where" a program goes when it is minimized.

(Despite the fact that task switching has been made dramatically easier and more accessible via the taskbar, the familiar ALT+TAB "cool switch" has been updated. It now displays an iconic road map of all active tasks, to prevent getting lost in the infinite ALT+TAB loop that was common under Windows 3.1. Try it and see.)

## An Easier Model for File Management and Browsing

File management and browsing in Windows 3.1 was not intuitive. Fewer than 55% of general Windows users regularly use File Manager. File Manager is especially confusing and intimidating for novice users.




### New Windows and Large Icons Work for Those New to Windows

Designing a discoverable and comfortable model for browsing and file management for the novice user has been a priority for the UI design team because of the observed difficulties with Windows 3.1. Several significantly different designs have been tested and discarded. In the course of this testing the design team made a few basic discoveries about file management and browsing:

- Exposed hierarchies are intimidating and unintuitive.

- Dual-pane views (hierarchy on the left, contents on the right) are also intimidating and unintuitive. Novices have difficulty understanding the connection between the logical tree hierarchy on the left and the contents pane on the right.

- Object-Oriented UI is great for basic tasks, but not for complex ones. There exists a general belief that the more object-oriented a UI is, the easier it is for the user. This is an appealing theory, but in real life this is not the case. Direct manipulation of screen objects and logical resulting behaviors are important for basic functionality (such as dragging a file from a folder to the desktop). However, advanced direct manipulation features, such as dragging a file to a printer icon, are not intuitive. Intuitively, users understand selecting an object with the mouse and then browsing menus or buttons for actions to perform on that object.
- Large icon views are much more comfortable than list views.
- A novice's ability to find what he is looking for and feel comfortable and "grounded" along the way are the defining characteristics of a good browsing experience. Efficiency and speed are less important.

The My Computer default browsing model is the result of all of this design, testing, and learning. A folder or drive can be opened by double-clicking it, or selecting it and then clicking Open on the File menu. This brings up a new window in large icon view. To many advanced users, this behavior seems cumbersome. *Why not open in list view? Why create a new window, it just clutters up my screen? Why not open to a dual pane view? It's much more efficient for me. Why not turn the toolbar on by default?* All of these models and more were tested thoroughly and discarded (as the default configuration) because they caused confusion and stress among novices. Novices respond best when presented only with essential information and when they can easily "get back" to where they just were. (Multiple configuration options are available to experienced users via the Options command on the View menu.)

Windows 95 has a very powerful dual-pane browsing application for experienced users called Windows Explorer, which is likely how you, as an experienced user, will prefer to browse. Windows Explorer will be covered in "Power" later in this chapter. Additionally, File Manager from Windows 3.1 is still available and can be run for backward compatibility.

## New Capabilities in the Default Browsing Model

New capabilities of the default browsing model should not be overlooked in this discussion of simplicity. Folders can be created within folders. Files and folders respond very logically to being dragged and dropped. Files and folders can be cut, copied, and pasted just like text and objects within applications. Views can be customized by the user, and each window "remembers" how the user last configured it, so that the next time it opens it is in the user's favorite view. The best way to discover the capabilities of the default browsing model is to play with it yourself, or better yet, find a novice user and watch him or her use it.


Mouse

## Try This—Browsing Folders with a Single Window

- Double click My Computer.

- On the View menu, click Options.
- Click "Browse folders by using a single window that changes as you open each folder."
- Double-click the icon for your hard disk. The contents of the window change instead of a new window opening.
- For easy navigation, turn on the toolbar by clicking the View menu and then clicking Toolbar. The Up One Level button enables you to return to the previous folder in the hierarchy.

## Name Files Using Long Filenames

By far, the number one most requested file system feature since Microsoft first released MS-DOS is support for long filenames—however, until Windows 95 this has not been possible. Windows 95 now allows filenames of up to 255 characters. The usability win by eliminating the need to conform to the 8.3 naming convention is obvious and large. To ensure backward compatibility with the universe of existing MS-DOS and Win16-based applications, extensions have not been eliminated, just hidden from view by default.


**Figure 6. Sample long filename**

Additionally, files can be renamed in place in Windows 95 by clicking the filename (not the icon), and typing a new name. The hidden extension is not affected by renaming the file. In addition, files can be renamed from within the new common dialogs (including File Open and Save) in Windows 95.


### Try This—Show Filename Extensions

Users who want to view extensions can do so from any folder.

- On the View menu, click Options.
- On the View tab, click the "Don't display MS-DOS file extensions for files that are registered" check box.

# Network Neighborhood and Accessing Networking Features

This section will discuss how the network client in Windows 95 makes browsing networks possible and easy, independent of the network provider (such as Windows NT Server, Novell NetWare, or Windows 95 itself). For more details about the networking capabilities of Windows 95, see the chapter "Networking."

The Network Neighborhood icon, shown in Figure 7, is located on the desktop and logically separates for the user the place to browse through resources not on My Computer. The user can easily browse through the network via Network Neighborhood just as if he or she were browsing his or her hard disk.


**Figure 7. Network Neighborhood desktop icon in Windows 95**

- **The Network Neighborhood** is also configured by the administrator to display, at the top level, only those PCs, servers, and printers that are in the user's immediate workgroup. This insulates the user from vast corporate networks. However, if the user wants to browse the larger network, this can be done by double-clicking the Entire Network icon in the Network Neighborhood. This was not possible prior to Windows 95. When a user browses servers, network connections are being made without ever having mapped a drive.


## Try This—Shortcut to a Network Folder on the Desktop

- Browse through Network Neighborhood until you find a folder you use often.
- Drag that folder onto the desktop.
- Click Create Shortcut Here.
- Close the network window.
- Double-click the shortcut. The network folder opens in a new window. This folder will be available every time you start Windows 95. For more information about shortcuts, see "Powerful" later in this chapter.

- **System-wide support for UNC pathnames** makes obsolete the unnecessary process of "mapping" drives (assigning new drive letters to a specific network resource). This technology allows the natural network browsing observed

through Network Neighborhood. UNC pathname support allows a whole host of usability improvements of which network browsing is just one.


## Try This—UNC "Run" to Your Favorite Network Folder

- Click the Start button, and then click Run.
- Type the full UNC path to your favorite network folder (for example, "\\MKTG\PROGRAMS\SARAHB"), and then press ENTER.
- The folder will open up in a new window. No drive mapping is required.

- **The Network icon in Control Panel** consolidates all networking configuration in one location. It solves the difficulty of configuring networking under Windows 3.1 and Windows for Workgroups 3.*x*.
- **Easy drive mapping** is also available in Windows 95. There is a Map Network Drive button on the toolbar in Windows Explorer and My Computer. For power users, the function is also available by using the right mouse button to click My Computer. Mapped drives appear as connections in My Computer.
- **Networking and mobility** are intrinsic to the UI in Windows 95, which was designed from the ground up with networking and remote access in mind. For example, when Windows detects that you are copying a file over a slow-link (modem connection), the Copy dialog itself includes an "estimated time to completion" status message.
- **Networking integration with new common dialogs** (including Open and Save). The new common dialogs, standardized in applications that make use of them, provide a consistent way to open or save files on network resources as well as on local drives. In addition, the Network Neighborhood can be browsed directly from the new common dialogs. Also, the majority of basic file management tasks can be performed from within common dialogs.


## Try This—Create a New Folder from Within Common Dialogs

- Click the Start button, point to Programs, point to Accessories, and click WordPad. WordPad is a new word processing application that replaces Write, which was provided with Windows 3.1. WordPad uses the common dialogs.
- On the File menu, click Open, and then click the Look In drop-down box. Access to the entire PC hierarchy, including the Network Neighborhood, is available. Open a document.
- On the File menu, click Save As.
- Click the Create New Folder icon. You can create new folders at the same time you are saving a document (unlike in Windows 3.1 where you had to start File Manager or switch to the MS-DOS command prompt).

## Recycle Bin: Easily Delete/Undelete Files

The Recycle Bin serves as an easily recognized metaphor for being able to easily "throw away" files and to recover them by simply removing them from the bin. Files deleted using the Windows 95 shell, or deleted from the common dialog boxes in applications that support them, are relocated to the Recycle Bin. Users may easily remove items from the Recycle Bin by dragging (or cutting/copying and pasting) them to another location, or they can restore them to their original location by choosing the Undo Delete command from the Edit menu.

The Recycle Bin graphically shows whether it is empty or whether items are present. In addition, the details view of the Recycle Bin contents show additional information about each file.

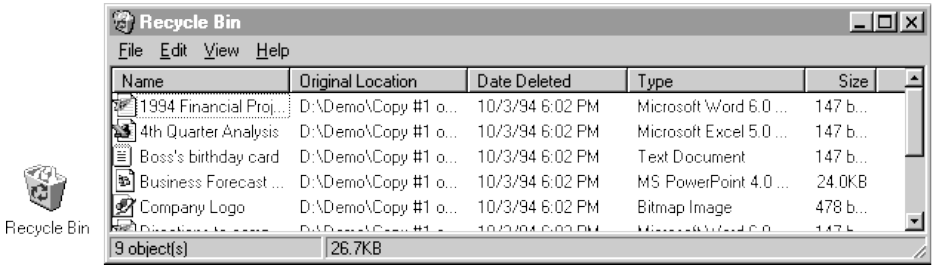



**Figure 8. Recycle Bin with deleted items; Recycle Bin details view showing additional information**

## More "Document-centric"

OLE introduced document-centricity with in-place editing of objects where the application window changes and the document stays the same. This makes the software begin to work the way people work, rather than vice-versa.


**Figure 9. New Word document template**

The UI in Windows 95 picks up on the concept of document-centricity in several subtle but powerful ways, including:

- **A window is just an open view of an object**. When the user opens a folder from anywhere in the UI, a new window opens up. The title of the new window is the same as the name under the folder before the user opened it. This is logical. In the next generation of applications written for Windows 95, ISVs will follow this same model. A Microsoft Word document called "My document" double-clicked from the anywhere in the UI, will open in a new window (Word itself) titled "My document—Microsoft Word."
- **"New" document templates from within folders and in the Windows Explorer**. From within any folder in Windows 95 or from the desktop, new files can be created in place by clicking the New command on the File menu and then choosing a file type. This is very convenient for managing files by projects rather than by the default settings of an application.


### Try This—Create a New WordPad Document from Within a Folder

- Locate a project folder where you'd like to save a new WordPad document.
- On the File menu, click New, and then click WordPad Document.
- Type a name, and then press ENTER.
- Double-click your new document icon to launch WordPad.

**Tip** You can also reach the New command by using the right mouse button to click in any folder or on the desktop.

## Undoing File Operations

When working with files on your system, how many times have you deleted, renamed, moved, or copied a file that you didn't intend to and said to yourself "I didn't mean to do that!"? Well, Windows 95 has the simple answer for putting things back the way they were. The Windows 95 interface windows include an Undo command on the Edit menu, allowing users to undo the last operation—actually, Windows 95 features a multi-level undo, allowing users to undo more than just the last immediate operation they performed.

Users can undo file deletions, renames, moves, or copies simply by choosing the Undo command from the Edit menu of the My Computer or Windows Explorer window. Figure 10 shows a sample undo operation being performed to undo the renaming of a file.

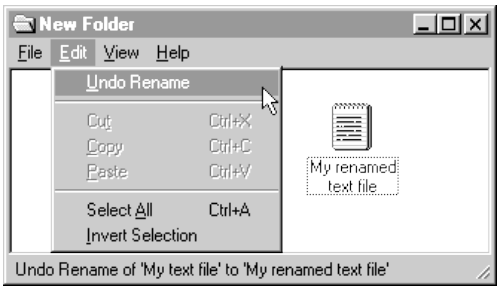



**Figure 10. Undo operations on files can be performed by clicking the Undo command on the Edit menu**


### Try This—Undo a File Operation

- Open a folder, and then click the name of a file.
- Type in a new name for the file.
- On the Edit menu, click Undo Rename to undo the rename operation.

### Try This—Multilevel Undo for File Operations

- Open a folder, and then click the name of a file.
- Type a new name for the file.
- Drag the file icon from the folder to the desktop.
- Delete the selected file.
- Go back to the folder you first opened, and then click the Edit menu.
- Click Undo Delete to undo the delete operation.
- Click Undo Move to undo the move operation.
- Click Undo Rename to undo the rename operation.

## New Help Engine: Accessible and Useful Online Information

Online Help has been completely re-tooled in Windows 95. It underwent extensive usability testing in the labs, and the result is a significantly easier to use and learn Help system. Additionally, customizing and developing Windows Help files by ISVs and corporate customers is now dramatically easier. A brief description of the major features of the new Help system in Windows 95 follows.

- **Simplified interface**. Help in Windows 3.1 was difficult to learn and use. It had three main functions: Contents, Search, and Glossary. The Contents view was not well organized or presented, and there was some ambiguity about which functions to use when. Windows 95 is much more intuitive and performs more like a real reference book. It has three tabs: Contents, Index, and Find (full-text search).
- **The Contents tab is organized like a book's table of contents**. Top-level "chapters" (iconically represented by a book) are displayed and can be opened for topics (iconically represented as a page with a question-mark). There is a Tips and Tricks book also, and these topics have proved popular in lab testing.
- **Help topic text is short**. Topics generally fit in one small window to keep users from having to scroll through large, complicated Help information.

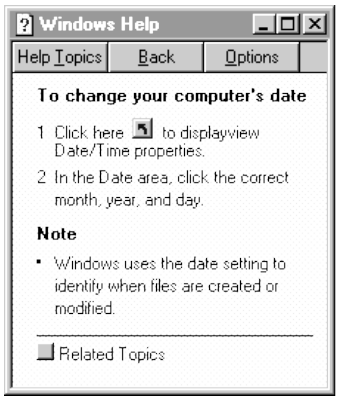



**Figure 11. Help shortcut button**

- **Shortcut buttons make using Help advice simple**. New shortcut buttons make using Help even easier in Windows 95. Some Help topics contain these shortcuts that take the user right to the area in Windows 95 that it is referencing. For example, a user who is searching for help on how to change the date on the PC can "jump" to the Date/Time dialog box in Control Panel, right from within Help, as shown in Figure 11.
- **What's This?** In all dialog boxes and Control Panel tools in Windows 95, a new "?" icon appears on the upper-right corner of the title bar. When the user clicks this, the cursor changes to a "?" Clicking any item in the dialog box then brings up a short description of the item. "What's this?" can also be accessed by using the right mouse button to click the item.


### Try This—Use Help's Shortcut Buttons to Change Desktop Color

- Click the Start button, and then click Help.
- Click the Index tab.
- Type **display**. Double-click the entry "background pictures or patterns, changing."
- Click the shortcut button to go to the properties for Display.

**Tip** An even faster way to change desktop settings is to use the right mouse button to click the desktop itself.

## Wizards: Your Guide to Powerful Capabilities

Originally developed in Microsoft's Applications Group and used in applications such as Microsoft Word and Microsoft Excel, wizards are a proven tool that make it easy for all classes of user to take advantage of powerful but complex functionality. Wizards guide a user through a series of questions, which are posed to the user in a friendly and straightforward way, and walk the user through a process.

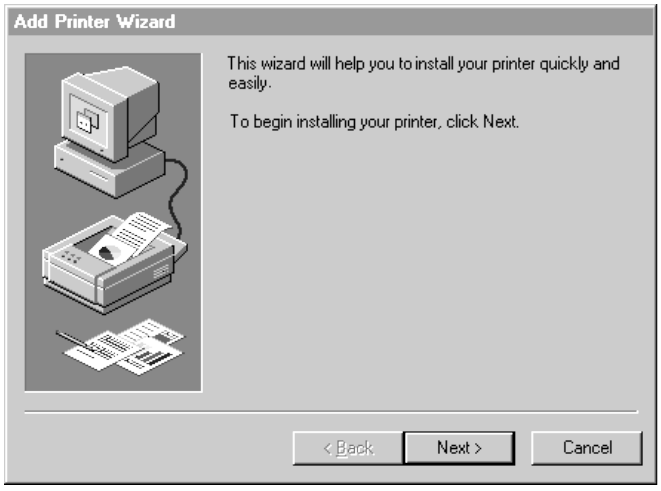



**Figure 12. Add Printer wizard walks user through installing a printer**

Windows 95 uses wizards throughout the system to make it easier for all types of users. For example, wizards are used to perform operations that include (but are not limited to):

- Displaying Setup options to the user during the installation process

- Adding a new device to the system
- Adding a new printer to the system
- Adding a new modem to the system
- Setting up Dial-Up Networking
- Creating a new shortcut for an application
- Installing a new application
- Creating a Briefcase for synchronizing files between two PCs
- Creating a workgroup post office for use with the Microsoft Exchange mail client

# Powerful

Experienced users glean many of the same benefits from the Start button and the taskbar as do beginners—quickly launching a new program, quickly switching to another task, etc. However, experienced users need more. They need a powerful way to browse and manage file hierarchies, whether local or remote. They need to be able to customize the UI to suit their needs and tastes. They need to be able to take shortcuts to get tasks done more quickly and efficiently. They need to be able to *do* more. The new UI in Windows 95 enables the experienced user to do more, as you will see in the following pages and during your own explorations.

## Windows Explorer: File Management and Information Browsing

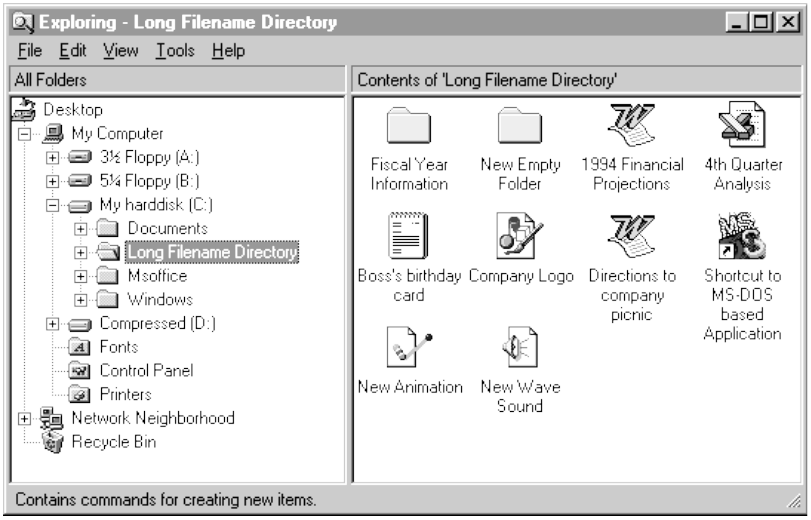


**Figure 13. Windows Explorer**

One Windows 95 development team member describes Windows Explorer as "File Manager on steroids." It is powerful, flexible, efficient, and extensible. It also solves many fundamental problems with the Windows 3.1 File Manager, like having to have a new window for every drive.

For many power users of Windows 95, the Windows Explorer will be the primary interface for navigating through information. The best way to understand the Windows Explorer is to experience it firsthand; however, here is an overview of its major features:

- **Single view on a world of information**. The Windows Explorer is the eyes of the PC running Windows 95. With it, the user can view the whole of the single, unified namespace (all resources, local or connected) in Windows 95. Both My Computer and Network Neighborhood can be browsed and managed in this view, quickly and easily.
- **Flexible and Customizable**. Using the toolbar and View menu, the user can view folder contents in several ways, including Large Icon, Small Icon, List, and Details views. Folder contents can easily be sorted by name, size, type, and modification date by clicking the appropriate column title. The user can also map network drives from the Windows Explorer toolbar.
- **Rich information about objects in Details view**. Details view provides a wealth of context-sensitive information about folder contents. For example:
  - Files retain their identifying icons.
  - Drive sizes and free space (even mapped network drives) are reported in My Computer.
  - Descriptions of Control Panel tools.
  - Jobs in queues in the Printers folder.
  - Comments on other computers in the Network Neighborhood.

All of the powerful right-click and Properties features described in the following two topics are supported in Windows Explorer.


## Try This—Copy a File to a Different Drive Without Opening a New Window

- Using the right mouse button, click My Computer, and then click Explore. Maximize the window.
- Click a file that you would like to copy to a network or floppy disk.
- Click the left pane of Windows Explorer, and use the "+" icons just to the left of folder and drive icons to find the network folder you want to copy the file to. Do not click the destination folder.

- Click the right pane where your original file is, and drag it to the destination folder. (You can also use the Cut/Copy/Paste operations from the Edit menu to quickly and easily move or copy files from one location to another.)
- Operations like this could not be performed in File Manager without opening up two or more File Manager windows.


### Try This—Right-Click To Create a New Folder

- In Windows Explorer, use the right mouse button to click an empty part of a folder window in which you want to create a new folder.
- Click New Folder from the shortcut menu.

## Shortcuts

Shortcuts are an extremely powerful tool for increasing efficiency, and are especially useful in a networked environment. A user can create a shortcut to any object in the UI in Windows 95 (such as a file, program, network folder, Control Panel tool, disk drive, or printer) and place it anywhere else in the UI or in an application. When the user double-clicks the shortcut, the object it is "pointing" to is opened. For example, a shortcut to a folder named "My Network Folder" could be created and dropped on the desktop. When the shortcut is double-clicked, My Network Folder opens, which is on some network server. Shortcuts are represented just like regular icons, except that in the lower-left corner there is a small "jump" arrow, as shown in Figure 14.

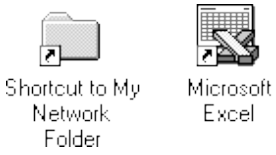



**Figure 14. Shortcut icons for a folder and a program**

A shortcut can be deleted without affecting the object to which it points. A shortcut can be created by clicking an object and then clicking Create Shortcut on the File menu or on the right-click shortcut menu. If shortcuts are created for an object that was created since Windows 95 was installed, Windows 95 keeps track of renames. For example, if you have a shortcut to *Server**Share**Public Folder* on your desktop and you or anyone else renames the network folder, the shortcut will still work. You can also rename shortcuts themselves.

Uses for shortcuts are virtually limitless, but some common powerful uses for shortcuts include:

- **Shortcuts in the Programs folder**. Shortcuts are an extension of the concept behind the icons that appear as program items in the Windows 3.1 Program Manager. These simply pointed to an executable file somewhere in the file system. In Windows 95, the icons that appear in the Programs submenu off the Start menu also appear as shortcuts in the Programs folder, which can be customized by clicking the Start button, pointing to Settings, and clicking Taskbar. This way the user can keep shortcuts to all of his/her favorite programs in one central place, regardless of where the programs are actually installed. When a shortcut is added or deleted from the Programs folder, the change is reflected in the Programs menu.
- **Shortcuts on the desktop**. Power users will create shortcuts to commonly accessed files, programs, drives, folders, and utilities right on their desktops. This is especially powerful with network resources, because no complicated browsing or drive-letter mapping is required to access network folders.
- **Embedded shortcuts in applications**. For example, a user can drag a shortcut pointing to a large file on the network into a mail message. When the message recipient double-clicks the shortcut icon, the network file will be opened. This is much more efficient than embedding the actual file in a mail message because it is much smaller and it cuts down on version proliferation.


### Try This—Discover Where the Programs Menu on the Start Button is Stored

- Click the Start button, point to Settings, and then click Taskbar.
- On the Start Menu Programs tab, click Advanced. A reduced version of Windows Explorer appears, showing only the contents of the Start menu folder.
- Note that the shortcuts and folders shown in the Programs folder are exactly what appears in the Programs menu. You can add or delete shortcuts and folders. This will change the items that appear in the Programs menu.

## Properties Everywhere

Property sheets are a pervasive feature in Windows 95. All objects in the UI carry context-sensitive properties that can be accessed and customized by clicking Properties on the File menu or the right-click shortcut menu. Good, consistent, easily accessible property sheets have been a favorite of power-user testers to date. Properties will be illustrated through a series of "Try This" tips.


### Try This—Rename Your Hard Drive in Disk Properties

- In Windows Explorer or My Computer, use the right mouse button to click the icon for your hard disk.
- Click Properties.
- Type a new name in the Label box, and then click OK.

- On the View menu, click Refresh.

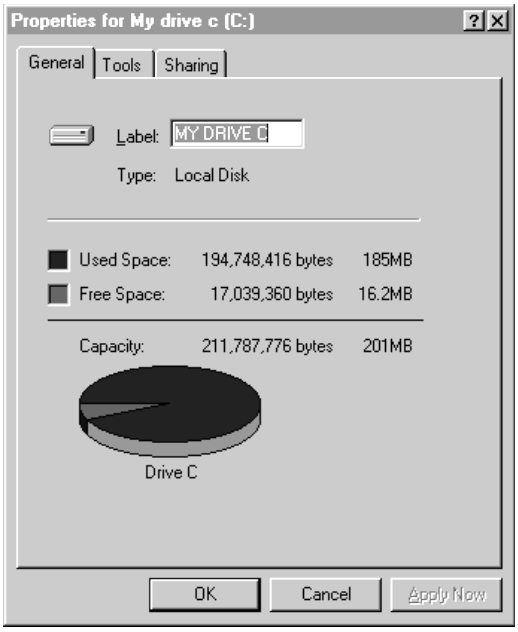



**Figure 15. Properties for a disk drive**


## Try This—Share a Folder

- In Windows Explorer, use the right mouse button to click a folder you want to make available to other people on your network.
- Click Sharing.
- Click Shared As, and then complete the other fields in this dialog box.


## Try This—Customize a Shortcut Icon

- Click the Start button, point to Settings, and then click Taskbar.
- On the Start Menu Programs tab, click Advanced.
- Open the Programs folder.
- Using the right mouse button, click any shortcut (except for an MS-DOS-based program), and then click Properties.
- On the Shortcut tab, click Change Icon.
- Click a new icon for the shortcut, and then click OK twice.

- On the View menu, click Refresh.

## Right-Clicking Everywhere

Right-clicking, like properties, is another pervasive, context-sensitive feature of Windows 95. (*Right-clicking* is the term used to refer to clicking the right mouse button, because most right-handed people set their mouse options to use the left button as primary and the right as secondary.) Usability tests have shown that in general, right-clicking is not a feature that novices discover or remember; therefore, the vast majority of functions performed using a right-click can also be performed by choosing the corresponding menu commands. However, right-clicking as a shortcut for the most common actions has proven to be another very popular power-user feature. The power of right-clicking is best illustrated through a series of "Try This" tips.


### Try This—Right-Click the Desktop to Customize It

- Using the right mouse button, click a blank space on the desktop.
- Click Properties.

### Try This—Minimize All and Tile

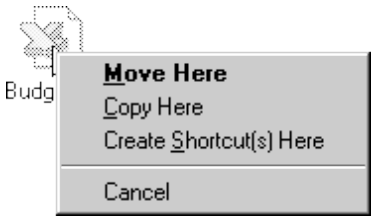
- Using the right mouse button, click an empty space on the taskbar.
- Click Minimize All or Tile Horizontally.
- To undo the last operation, right-click an empty space on the taskbar again, and then choose either Undo Minimize All or Undo Tile as appropriate.

### Try This—A Shortcut to Creating a Shortcut

- Use the right mouse button to click an object to which you would like to create a shortcut.
- Click Create Shortcut.

### Try This—Non-default Drag and Drop

- Use the right mouse button to drag a file from Windows Explorer onto the desktop.
- Click the desired action to be performed on the selected file (i.e., move, copy, or create a shortcut).




### Try This—Right-Click a Screensaver to Try It

- Click the Start button, point to Find, and click Files Or Folders.
- Type **bezier**.
- Click Find Now.
- Using the right mouse button, click Bezier.
- Click Test.

### Try This—Close a Task Right from the Taskbar

- Use the right mouse button to click a taskbar button for an open window or program.
- Click Close.

## Control Panel: The Consolidated Control Center

The objective of the Control Panel special folder in Windows 95 is to consolidate into one location all command, control, and configuration functions. A problem with Windows 3.1 was that these functions were difficult to find, use, and remember (for example, using Windows Setup to change video resolution, the Printers icon to install a printer). The UI team has striven to create distinct and memorable visuals for all important functions and offer previews where appropriate. Individual Control Panel tool functionality will be covered in the section to which it pertains (for example, the Network tool is discussed in the "Networking" chapter of this guide).

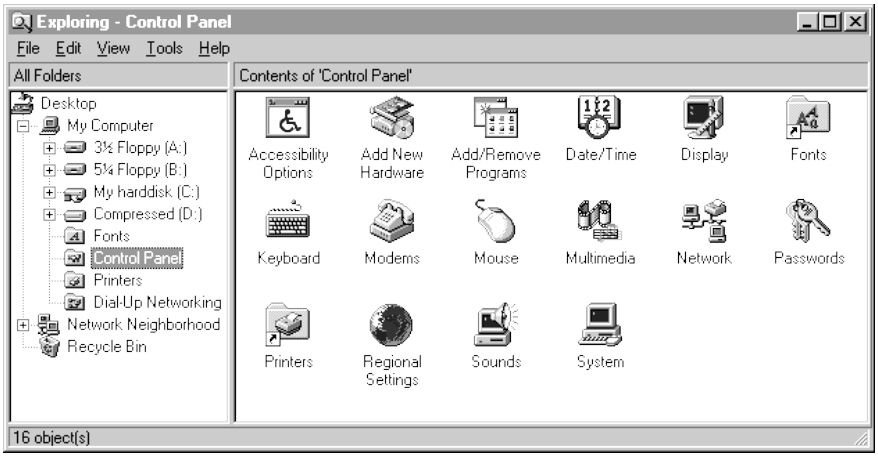



**Figure 16. Windows Explorer large icon view of Control Panel**

There is one Control Panel tool that pertains to customization of the UI itself: Display. Display gives the user total control over the configuration of the UI in Windows 95, allowing for personalization. Its four tabs are:

- **Background**. Allows pattern and wallpaper configuration and preview.
- **Screen Saver**. Allows screen saver configuration and preview.
- **Appearance**. Allows configuration and preview of all of user interface metrics (such as fonts, sizes, colors).
- **Settings**. Allows configuration of monitor resolution and color palette size.

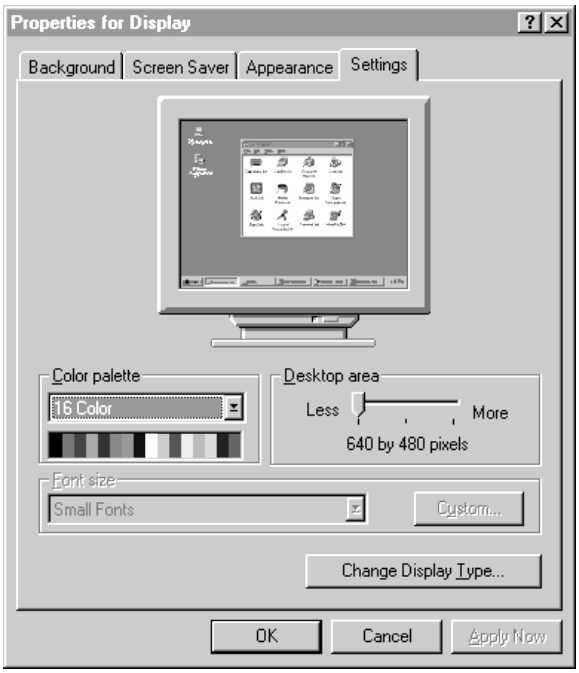



**Figure 17. Display properties**

## Try This—Dynamic Resolution Switch

Dynamic resolution switching allows the resolution of the display to be changed without having to restart Windows 95 or reboot your PC. This is a feature that depends on several factors, including type of video card, and the selected color palette.

- Click the Start button, point to Settings, and then click Control Panel.
- Click Display.
- On the Settings tab, make sure the Color Palette is set to 256 colors. If it is not, change it and then click Apply Now. (This will require you to restart your PC.)
- After your PC restarts, open the Display dialog again (by following the preceding steps).
- On the Settings tab, choose a different video resolution that is supported by your card, by sliding the Desktop Area slider bar. For example, change the desktop area size from 640 x 480 to 1024 x 768.
- Click Apply Now.

- Now try it with an .AVI video clip playing.

## Find Files or Folders: Easily Locate Information

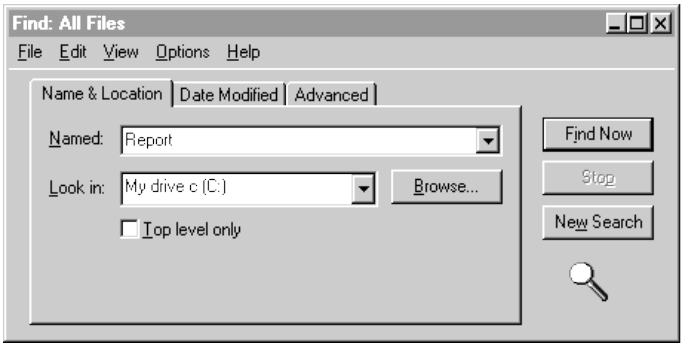



**Figure 18. Find Files Or Folders dialog box**


**Figure 19. Search in Windows 3.1**

A powerful new Find utility is built into Windows 95. It goes far beyond the minimal functionality of the Search utility in Windows 3.1 File Manager. Features include:

- **Partial name searches**. Type **rep** in the Named box; all files and folders with "rep" somewhere in the name will be found.
- **Search on Last Modification Date**. Files can be searched on the last modification date. Therefore, the user can perform searches such as finding all Word documents modified in the last 3 days.
- **Full text search**. Documents can be searched for based on text contained within the document.
- **Search results save**. Complex or useful searches can be saved.

- **File management from search results pane**. Rename files or look at file properties all from within the results pane just as in Windows Explorer.


### Try This—Save a Complex Find on the Desktop

- Click the Start button, point to Find, and then click Files Or Folders.
- Type a partial string that you know will be present in many files (such as **rep** or **doc**).
- On the Date Modified tab, click Find All Files Created Or Modified.
- Click During The Previous (x) Days, and specify 7.
- If you want to, choose a file type on the Advanced tab.
- Click Find Now.
- When the search is complete, click the File menu, and then click Save Search. Notice that because Find is 32-bit pre-emptively multitasked, while Find is running you can perform other tasks).
- A Find Results icon is automatically created on the desktop. Double-click it.

## Printers Folder: Consolidated Printer Control

The Printers folder offers one-stop shopping for printer management and configuration. It replaces the troublesome Print Manger and Printers option in Control Panel from Windows 3.1. (The Printers folder is discussed in more detail in the “Printing Improvements” chapter of this guide.)

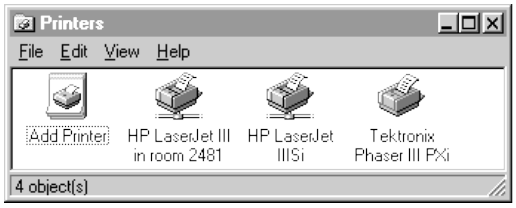


**Figure 20. Printers folder**

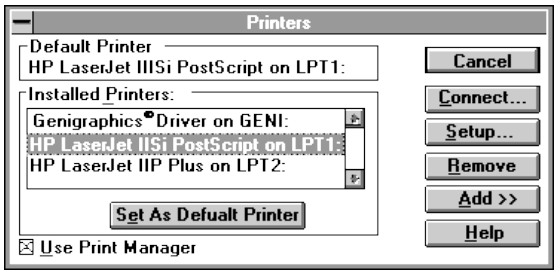



**Figure 21. Printer configuration in Windows 3.1**

# Font Settings: More Powerful Font Management and Preview

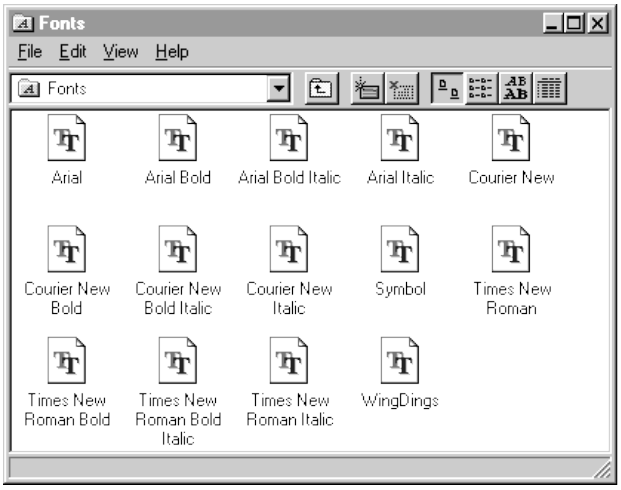



**Figure 22. Fonts folder - Large Icon view**

The Fonts folder represents a single namespace in which all fonts used in the system can be installed or manipulated. Operations can be performed on fonts the same as on other file system objects. For example, fonts can be removed from the Fonts folder by dragging the desired font to another destination, or deleted from the system by deleting the font from the folder, or added to the system by dragging the font from another location into the Fonts folder. Different views of the Fonts folder present additional information about the fonts installed on the system. In addition, Windows 95 will take fonts identified in WIN.INI and move them to the Fonts folder at startup, resulting in a single location where fonts reside in the system.


## Try This—Preview Your Fonts

- Open My Computer, and double-click the Fonts folder icon (or double-click the Fonts icon in Control Panel).
- Double-click a font you want to preview. Samples of the selected font are displayed; you can even print them.

# Quick Viewing of Files

Quick View enables the user to get a preview of a file right from the UI, without having to open the specific application. In addition, users can see the contents of

files without having the application that created the file on their system—this is useful for sending documents around on a network or through electronic mail. For more information about file viewers in Windows 95, see the "Applications and Utilities" chapter of this guide.

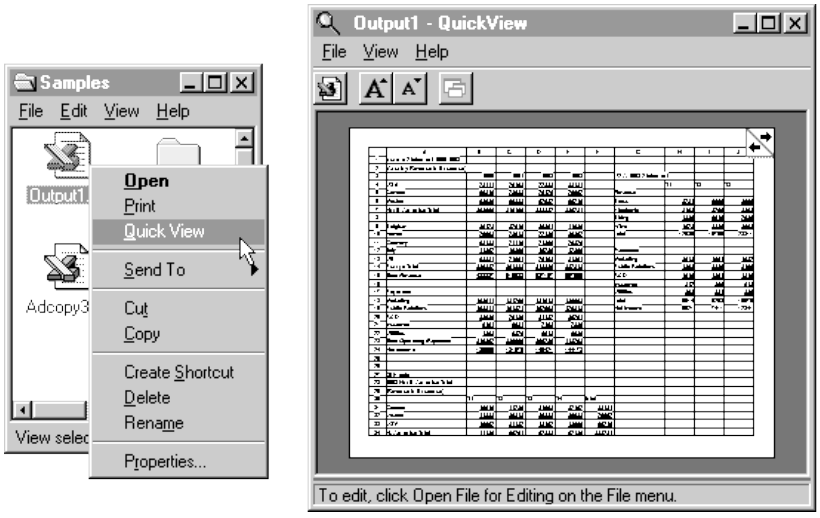



**Figure 23. Quick View of a Microsoft Excel worksheet**


## Try This—Look at a File by Using Quick View

- Using the right mouse button, click an icon for which there is a registered application (for example, a bitmap, text file, or a WordPad document).
- Click Quick View.

# Transition/Migration to the Windows 95 User Interface

Windows 95 will provide several aids for helping both users new to Windows and users of Windows 3.1 to quickly become productive using the Windows 95 UI. Usability tests show that with little or no additional training, users are able to complete common tasks under Windows 95 as quickly as they did under Windows 3.1, or quicker. Windows 95 will offer the following self-paced aids:

- Quick tour of Windows 95

  This tour will walk the user through the basics of Windows 95 and cover topics such as starting programs, task switching between several open windows, finding information on the local computer, and using the online Help system. The tour is designed both for users new to Windows and users of Windows 3.1, to help show them how to complete common tasks.

- Transition aids for Windows 3.1 users.

  The Help system will provide topics designed to help transition any users familiar with Windows 3.1 to the new UI in Windows 95. These topics will answer commonly asked questions to help 3.1 users quickly and easily find the corresponding tool or command in Windows 95.

- Online Help makes information always available.

  The Help system in Windows 95 is designed to provide information to help users complete the desired task. Help is always available and can be easily started from the Help command on the Start menu. Categories such as How To, Tips and Tricks, and Troubleshooting make information that you need available at your fingertips.

## Compatibility

Compatibility is a requirement for Windows 95. To be successful it must be a no-excuses, no-brainer upgrade from Windows 3.1. In the Windows 95 project overall, compatibility is most important for software and hardware when considering third-party software and hardware. However, it also applies to the UI. The UI in Windows 95 must be *compatible* with the way current Windows and MS-DOS users work today. The UI in Windows 95 scales to the level and preferences of individual users.

Of primary importance is that new UI features are easy for current Windows 3.1 users to learn at their own pace. In addition, users of Windows 3.1 will find that many user-interface visual elements and operations in Windows 95 are consistent with what they are already familiar with under Windows 3.1. For example, users familiar with the System menu in the upper-left corner of a window, or familiar with typical keyboard commands such as ALT-F4, ALT-TAB, CTRL-X, CTRL-C, and CTRL-V, will find that these are also present in Windows 95—requiring no new training or relearning.

## For Users of Windows 3.1

In addition to aids to migrate users of Windows 3.1 to Windows 95, tools familiar to Windows users are still available.

With minimal changes in appearance, Program Manager and File Manager run on Windows 95 and can be easily accessible via the Start button. Several designs for access and default configuration for these programs are underway. For example, when an upgrade user starts Windows 95 for the first time, Program Manager might open in a window. Or perhaps there might be a "Windows 3.1 compatibility" command on the Start menu that will launch Program Manager and File Manager. Independent of the final design decision, there will be many Help and learning devices like the Welcome screen that are specifically designed for the upgrade user.

## For Users of MS-DOS

Users of the command line in MS-DOS don't give it up by moving to the graphical user interface of Windows 95. In fact, these users will find that the usability and power of the MS-DOS command prompt have been dramatically improved over MS-DOS and the MS-DOS Prompt of Windows 3.1. New command-line functionality includes: launching Windows–based applications, starting documents from a command line, scaling the size of the MS-DOS window, integrating information from MS-DOS–based applications and Windows–based applications by using Cut-Copy-Paste operations, and UNC pathname support. (See the "MS-DOS Application Support" chapter of this guide for more information.)