

# 1 Learning to Do Windows

---

|                                                           |           |
|-----------------------------------------------------------|-----------|
| <b>Making the Mental Adjustment.....</b>                  | <b>1</b>  |
| <b>How Windows Works .....</b>                            | <b>2</b>  |
| <b>Terms You Should Know .....</b>                        | <b>2</b>  |
| <b>Becoming Familiar with the Windows Desktop.....</b>    | <b>4</b>  |
| <b>Windows Geography .....</b>                            | <b>5</b>  |
| <b>Taking Control of Your Mouse.....</b>                  | <b>6</b>  |
| <b>Learning the Basic Survival Kit .....</b>              | <b>10</b> |
| <b>Handy Keyboard Shortcuts .....</b>                     | <b>16</b> |
| <b>Understanding How Files Are Stored and Named .....</b> | <b>17</b> |
| <b>Testing Your Survival Kit.....</b>                     | <b>22</b> |

## Making the Mental Adjustment

---

If you are used to a command-line-driven environment like OS/390 (formerly referred to as MVS) or CMS, the mouse- and menu-driven Windows environment can be overwhelming. Instead of typing a command, you now have to point and click or remember some obscure key sequence. Instead of an uncluttered screen, you now have to worry about scroll bars, icons, colors, and layered windows.



## 2 Painless Windows: A Handbook for SAS Users

This chapter helps you make the mental adjustment to the Windows environment by defining some common terms, showing you how to take control of your mouse, showing you how to move and resize windows, and explaining how files are stored on the PC.

### How Windows Works

---

Windows is an operating system, like VMS or CMS. But instead of issuing commands at a prompt, you work with files and start applications using a “graphical user interface” (GUI). This interface includes windows, dialog boxes, icons, buttons, and other items. Usually, you use a mouse to interact with the GUI, although you also use the keyboard.

Windows supports a “DOS mode,” where you can run older, DOS-based applications from the DOS prompt. However, Windows 95 and Windows NT are not themselves DOS-based applications.

To work with applications under Windows, you use the Windows desktop, and in particular, the **Start** button. The **Start** button is a Windows component that organizes all your Windows applications into groups and makes interacting with the operating system easier. Some applications, such as Microsoft Paint and Microsoft Write, come with Windows; other applications you install separately—such as the SAS System.

#### Note

It is possible to use alternatives to the Windows desktop and even to use a version of the Windows 3.1 Program Manager. However, this book assumes that you are using the standard Windows desktop.

Unlike many operating systems, Windows can do several things at once. For example, in DOS, if you submitted a command, you had to wait for that command to finish before you could do anything else. With Windows, you can submit a command, and that command operates in the background—enabling you to start another process.

In particular, you can have several “instances” of a program open at once. Therefore, you can start multiple SAS sessions, all running at the same time.

#### Note

Only the first SAS session started uses the SASUSER.PROFILE catalog. Subsequent sessions use a temporary profile catalog called WORK.PROFILE.

### Terms You Should Know

---

Every operating system has its own jargon, and Windows is no exception. If you have used a different windowing environment, such as X Windows under UNIX, some of the terms are

familiar. But you should scan this section anyway, to see if there are discrepancies between how you understand a term and how this book uses it.

The Glossary at the end of this book provides a more complete list of terms used with the SAS System for Windows. The following alphabetical list gives you a head start so that you can read this chapter without referring to the Glossary constantly.

**active window:** the application or part of an application that is ready to accept input.

**application:** a program with its attendant windows. Examples include the SAS System, Microsoft Word, and Netscape.

**click:** to press a mouse button once. Unless otherwise stated, click means to press the left mouse button.

**Clipboard:** a Windows component that is like an online pegboard—a place to store something until you need it again. Typically, the Clipboard is used to store text and graphics that you want to copy somewhere else.

**close:** to shut down an individual window or an entire application.

**dialog box:** a type of window that solicits information from you. Usually, you must supply this information before you can continue using an application.

**double-click:** to quickly press a mouse button twice in a row (usually the left mouse button).

**desktop:** your screen, where all applications appear.

**icon:** a pictorial representation of something, such as a window or file.

**mouse:** the hand-held device you use to select and manipulate applications and text. The mouse activates the mouse pointer on the screen.

**point:** to move the mouse pointer over an item on the screen, such as a menu choice, a word, or an icon.

**popup menu:** a context-sensitive menu that appears when you click the right mouse button.

**program group:** a collection of applications available from the **Programs** selection of the **Start** button menu. Examples of program groups include **Accessories** and **The SAS System**.

**right-click:** to press the right mouse button once. Usually, right-clicking displays a context-sensitive menu called a popup menu.

**Start button:** the button in the lower-left corner of the screen labeled “Start”. Clicking on this button enables you to launch applications, alter configuration settings, access Windows help files, and perform other tasks.

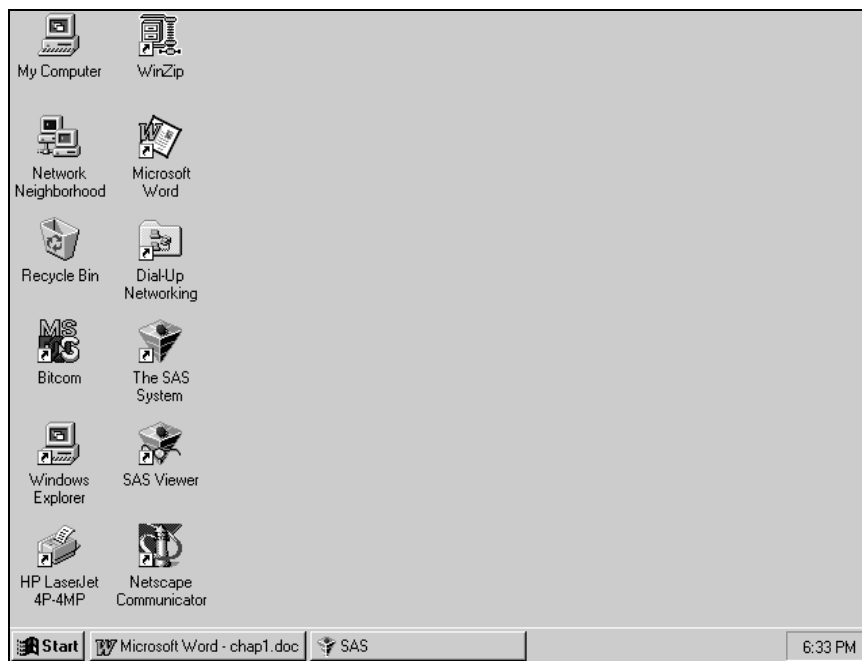
**Taskbar:** a list of all open applications, located by default across the bottom of the Windows desktop.

## Becoming Familiar with the Windows Desktop



When you start Windows, the Windows desktop appears. That may be all that happens, or other applications may start, depending on how your system is configured. The Windows desktop keeps a list of all open applications. This list is displayed across the bottom of the screen and is called the Taskbar. The active application's name is highlighted; to move to a different application, click on the application's name in the Taskbar.

Figure 1.1 shows a sample Windows desktop. The Taskbar indicates that two applications are open: SAS and Microsoft Word. Your desktop may look slightly different than the one in Figure 1.1.

**Figure 1.1 Sample Windows Desktop with Taskbar**



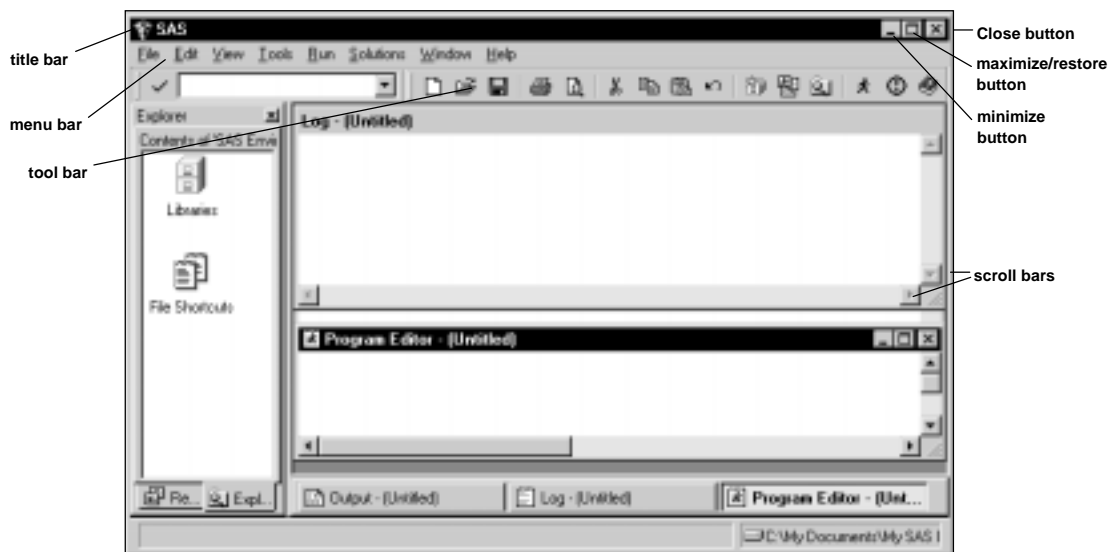
Besides the Taskbar, two more useful components of the Windows desktop are the **Start** button and the Recycle Bin.

-  The **Start** button is located in the lower-left corner of the Windows desktop. You use it to start applications and manage your Windows session. See “Starting Applications” later in this chapter.
-  The Recycle Bin is a temporary storage area for files deleted (when you use the Windows Explorer to delete them). See “Restoring Deleted Files” in Appendix 3 for more information.

## Windows Geography

The applications and windows you see as you work with Windows have many things in common. This section familiarizes you with the “lay of the land” under Windows. Figure 1.2 shows some of the standard window elements.

**Figure 1.2 Standard Window Elements**



A brief description of each element in Figure 1.2 follows; “Getting to Know the SAS System Interface” in Chapter 2 presents more details on these and other window elements specific to the SAS System.

**Title Bar:** Each window has a title bar that tells the name of the window. In this case, the title bar at the top tells you the application is SAS. Each individual window also has a title bar, such as the Log window and the Program Editor window. As well as providing the title of the application, the title bar is also the “handle” for moving windows, as discussed later in this chapter.

**Menu Bar:** If you are used to nonwindowing environments, you are familiar with giving operating system commands. In Windows, you often use the menu bar to issue these commands. For example, instead of typing “save example1.sas” on a command line, you click on **File**, then on **Save**. While this may seem awkward at first, it does provide the advantage of not having to remember command syntax.

## 6 Painless Windows: A Handbook for SAS Users

Use the following guides as you browse the menus:

- If a menu choice has an arrow after it, that means there is another layer of choices.
- If a menu choice has an ellipsis after it, that means clicking on it opens a dialog box.
- If there is no symbol after the menu choice, clicking on that choice executes a command, such as SAVE.
- Shortcut keys are listed to the right of menu choices. Instead of using the menus, you can press the shortcut keys to achieve the same result. For example, CTRL-S is the shortcut key for SAVE.

**Tool Bar:** Another method of issuing commands under Windows is to use the graphical tool bar. For example, to save a file in the SAS System, click on the icon that looks like a computer disk. Most applications, including the SAS System, allow you to define your own tools; this enables you to customize your environment and work efficiently.

**Scroll Bars:** Most windows provide both horizontal and vertical scroll bars. These enable you to move left, right, up, and down in the window. Clicking on the up arrow moves the view up, clicking on the down arrow moves the view down. Similarly, clicking on the left arrow moves the view left, and clicking on the right arrow moves the view right. To move larger distances, click in the scroll bar area instead of on the arrows. “Scrolling” in Chapter 3 provides more detailed information on using scroll bars.

**Minimize Button:** Click on the minimize button (the left-most of the three buttons in the top-right corner of a window) to cause the window to shrink to an icon. If you minimize an entire application, the window disappears from the desktop; to restore the application, click on its name in the Taskbar. Typically, only the active window shows the minimize button.

**Maximize/Restore Button:** The middle button in the top-right corner of the window does double duty. If it appears as a single box (as it is in Figure 1.2), clicking on it causes the window to take up the whole screen (that is, maximize). If it appears as two layered boxes, clicking on it causes the window to restore to the size it was before it was maximized. Typically, only the active window shows the maximize button.

**Close Button:** The Close button is the right-most button in the top-right corner of a window, and is an X. Clicking on it closes the application or window. Typically, only the active window shows the Close button.

## Taking Control of Your Mouse

---

While using Windows with only a keyboard is possible, it is more efficient to use a mouse also. But often, people unfamiliar with the mouse are frustrated by having the pointer move too quickly, not being able to double-click properly, and other problems caused by lack of practice. However,

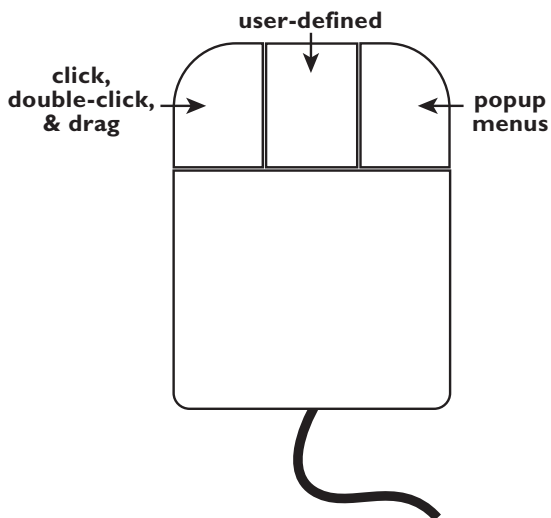
using the mouse does not have to be a rat race! Windows provides a way to slow the mouse down, adjust the double-click rate, and in general let you take control of your mouse.

**Using the Mouse Buttons:** Most mice have two or three buttons. The left button is used to “click” on things—icons, filenames, options, and so on. The right mouse button is reserved for special tasks, such as opening popup menus. If your mouse has a middle button, you can pretty much ignore it, although some software applications (including the SAS System) let you associate commands with the middle mouse button. Figure 1.3 shows the standard, right-handed definition of the mouse buttons.

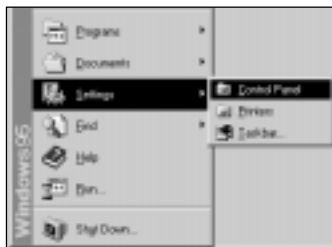
### Note

If your mouse is a left-handed mouse, the left and right buttons are switched. The “left button” is always the button under your index finger.

**Figure 1.3 Mouse Button Diagram**

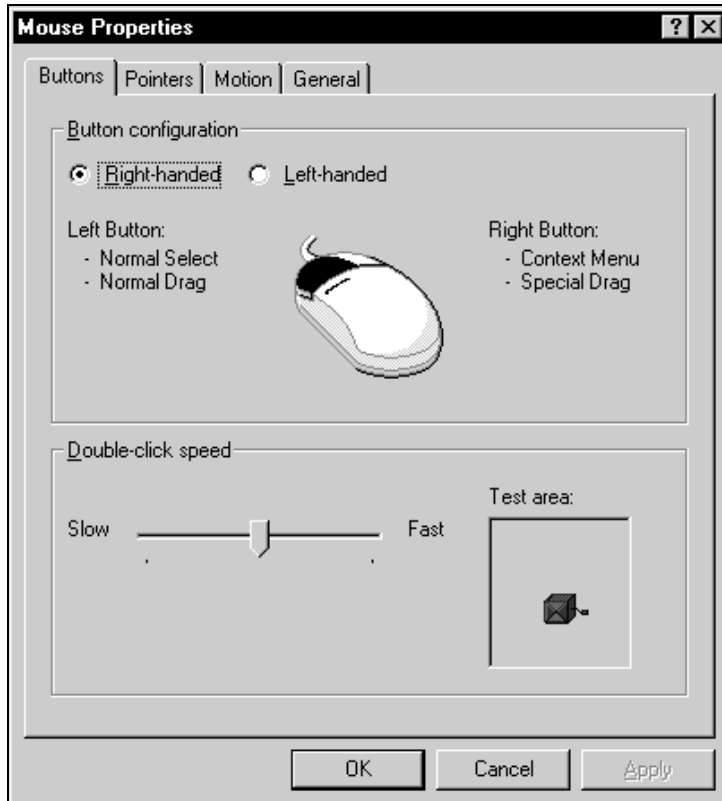


**Adjusting How Your Mouse Works:** To adjust how your mouse works, follow these steps:



1. Click on the **Start** button, then on **Settings**. When the second-level menu appears, click on **Control Panel**.
2. When the Control Panel appears, double-click on the **Mouse** icon. The Mouse Properties dialog box opens. Figure 1.4 shows a sample Mouse Properties dialog box.

Figure 1.4 Sample Mouse Properties Dialog Box



3. There are four tabs in the Mouse Properties dialog box. The top tab is **Buttons**. On this tab, you can adjust the mouse's double-click speed and the left- or right-handed configuration of your mouse.
4. New Windows users usually prefer a slower double-click speed. In the **Double-click speed** area, place your mouse pointer over the slider, hold the left mouse button down, and drag the mouse pointer so that the slider moves to the left (toward **Slow**). Release the mouse pointer and double-click on the jack-in-the-box icon in the **Test** area to see if you like the new speed. If your double-click is successful, the icon shows a jack-in-the-box pop out. Double-clicking again closes the jack-in-the-box.
5. If you are left-handed, click next to **Left-handed** in the **Button configuration** area. The text next to the mouse explains what function each mouse button has—if you choose this option, the button under your left index finger (originally the “right” mouse button) becomes the “left” mouse button and vice versa.



6. To slow your mouse down so that you can follow it more easily with your eyes, click on the **Motion** tab at the top of the Mouse Properties dialog box. In the **Pointer speed** area, place your mouse pointer over the slider, hold the left mouse button down, and drag the mouse pointer so that the slider moves to the left (toward **Slow**). Release the mouse pointer; now move the mouse pointer, to see if you like the new speed.
7. To make the mouse pointer easier to find on the screen when you move the mouse, you may want to use “pointer trails.” To enable this feature, click on **Show pointer trails** in the **Pointer trail** area. Now when you move your mouse pointer, the mouse leaves a brief trail of pointers behind.

Depending on your mouse driver (the software that controls your mouse), you may also see other options, such as changing the mouse pointer to a larger size.

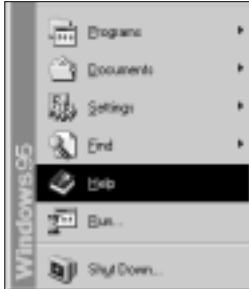
When you are happy with your selections, click on **OK**. This closes the Mouse Properties dialog box. To close the Control Panel, click on **File** in the Control Panel menu, then click on **Close**.

As you become more adept with your mouse, return to the Mouse Properties dialog box and adjust the settings again to fit your new skill level.

**Using Your Mouse to Communicate with Applications:** Your mouse is the primary method of communicating with Windows applications, although you also use function keys and keyboard sequences. You need to master several skills with the mouse:

|                        |                                                                                                                                                                                                                                                                                                     |
|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Pointing</b>        | Pointing involves moving the mouse pointer until it is directly on top of something, such as an icon or a menu choice. In some cases, pointing causes Windows to take an action. For example, in the <b>Start</b> button menu, simply pointing (without clicking) to a menu item opens the submenu. |
| <b>Clicking</b>        | Clicking involves pressing and releasing the left mouse button once. Usually, you click on something to select (that is, highlight) it.                                                                                                                                                             |
| <b>Right-clicking</b>  | Right-clicking involves pressing and releasing the right mouse button once. Usually, you right-click on something to display a context-sensitive menu.                                                                                                                                              |
| <b>Double-clicking</b> | Double-clicking involves pressing the mouse button twice in rapid succession. Usually, you double-click on something to activate it (such as starting an application from an icon).                                                                                                                 |
| <b>Dragging</b>        | Dragging involves holding the mouse button down while you move the mouse around. Usually, you drag an object to move it (such as moving window borders or text in a text editor).                                                                                                                   |

## 10 Painless Windows: A Handbook for SAS Users



**Practice Using Your Mouse:** One way to practice using your mouse is to use the tutorial that comes with Windows. To access this tutorial, click on the **Start** button, then click on **Help** in the **Start** button menu. In the window that appears, double-click on **Tour: Ten minutes to using Windows**. You must have your Windows CD-ROM to use this tutorial.

### Learning the Basic Survival Kit

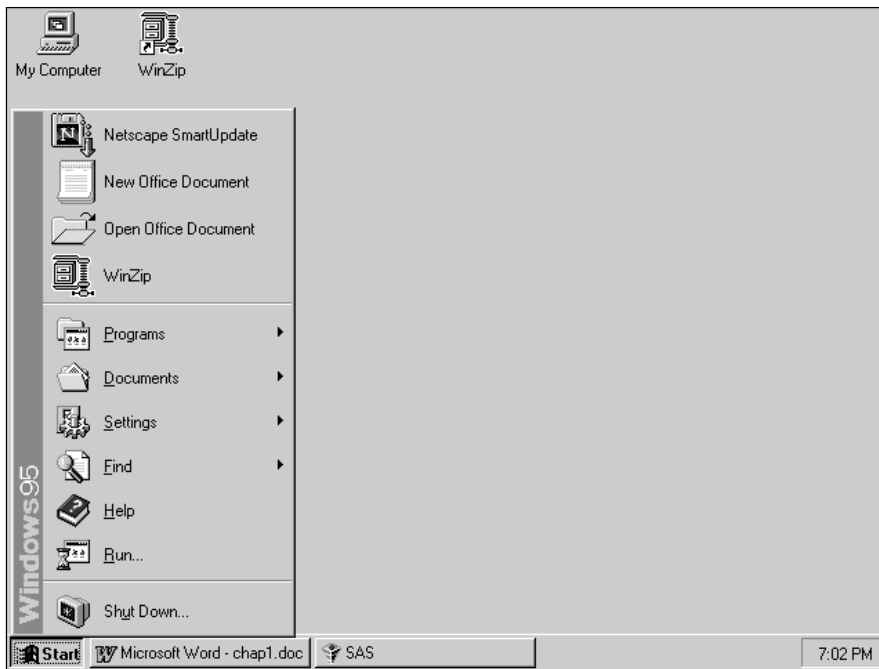
---

There are several things you should know before you start using Windows extensively. For example, how do you start applications? When you are done with them, how do you close them? What if you want to use a new application but do not want to close the others? Learning the answers to these and a few other questions helps you work more efficiently under Windows.

**Starting Applications:** An easy way to start an application is by clicking on its name in the **Programs** menu and submenus, accessed by clicking on the **Start** button.

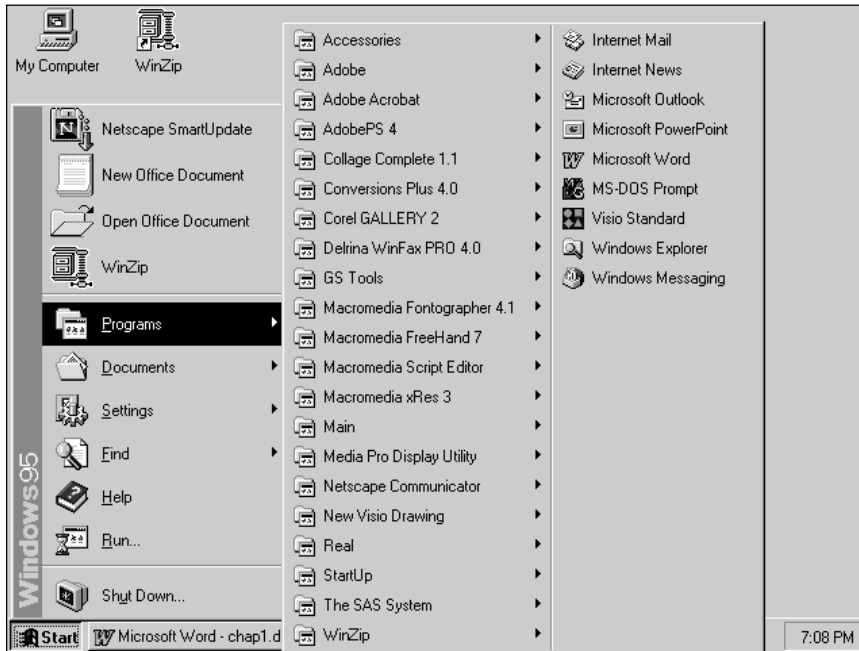
When you click on the **Start** button, a menu appears, as shown in Figure 1.5.

**Figure 1.5 Start Button Menu**



To start an application, such as the SAS System, click on the **Programs** item in the **Start** button menu. A second menu appears, as shown in Figure 1.6.

**Figure 1.6 Programs Menu from the Start Button**



This menu shows the program groups available on your system, such as **Accessories** and **StartUp**.

- **Accessories** contains handy applications supplied by Microsoft and installed with Windows. Example accessories include Paint (a drawing program) and WordPad (a text editor).
- **StartUp** contains applications you want to start automatically every time you start Windows.

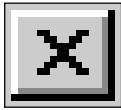
Your desktop may show other groups, such as **The SAS System** and **Microsoft Office**, depending on what software is installed on your PC.

## I2 Painless Windows: A Handbook for SAS Users

### Note

Most of the time, merely placing the mouse pointer over the text is sufficient to select it in a menu, but not always. And clicking doesn't hurt anything. Therefore, in many places, this book says "click on **Programs**" or gives other similar instructions.

Program groups in the **Programs** menu that are followed by a right arrow contain subgroups. Clicking on the main group displays the subgroup. Take a moment to investigate all program groups on your desktop, to see what applications are available to you. To close the **Programs** menu system without starting an application, click outside of the menus.



**Closing Applications:** The easiest way to close applications is to click on the Close button. This is the X in the upper-right corner of an application's main window. Sometimes, you also have to confirm that you want to exit the application. (For example, by default the SAS System prompts you with the question "Are you sure you really want to terminate the SAS session?")

Two other methods of closing an application include

- clicking on the **File** choice in the application's menu bar and then clicking on **Exit** or **Close**
- right-clicking on the application's name in the Taskbar and clicking on **Close**.

**Managing Several Open Applications at Once:** One of the nice things about Windows is that you can use several applications at the same time. But you have only one screen, so the open windows are layered. The window that is "on top" is usually the active window. To make another window active, you must somehow get to it.

Suppose you have started the SAS System, and now you want to open Microsoft Word, without ending your SAS session. Follow these steps to start Word:


1. Click on the **Start** button.
2. Click on **Programs** in the **Start** button menu, then on **Microsoft Office**. When the third-level menu appears, click on **Microsoft Word**. (Your menu path to the Microsoft Word program may be somewhat different, depending on how Word was installed.)

Now two applications are open at once: the SAS System and Word.

Here are some ways you can return to your SAS session:

- click on **SAS** on the Taskbar.
- press ALT-ESC to toggle through all open applications.

**Using Dialog Boxes:** To communicate with most Windows applications, you must use dialog boxes. These are interactive ways to give commands and information to an application. When you adjusted your mouse settings, you were using a dialog box. Dialog boxes have many features in common, such as the following:

- Clicking on **OK** or **Close** applies your changes and closes the dialog box.
- Clicking on **Cancel** closes the dialog box without having any other effect.
- Sometimes you can type a value into a field—this is called a text-entry field.
- If there are several choices for a field value, clicking on a down arrow displays a list of choices—click on one of the choices to change the field value. This is called a drop-down list box.
- Other times, the entire list of choices is displayed in a list box; use the scroll bars to navigate the list. Click on a choice to select it.
- If there are options that can be on or off, clicking in the box or button by the option toggles its value. If a box has an 'x' in it, or if a round button is filled in, the option is on. The difference between check boxes (square boxes) and radio buttons (round buttons) is as follows:
  - you can choose several options in a list of check boxes
  - options with radio buttons are mutually exclusive.
-  Many dialog boxes offer a context-sensitive help button near the upper-right corner of the dialog box. Clicking on this button changes the mouse pointer to an arrow with a question mark beside it. Now click on the part of the dialog box you want more information on. The help information is displayed in a window. Click again anywhere to close the instructions. Occasionally, instead of the context-sensitive help button, you may see a button labeled **Help**.

## 14 Painless Windows: A Handbook for SAS Users

- In dialog boxes that list files, you may see four useful icons. Click on the icon to activate it.



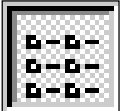

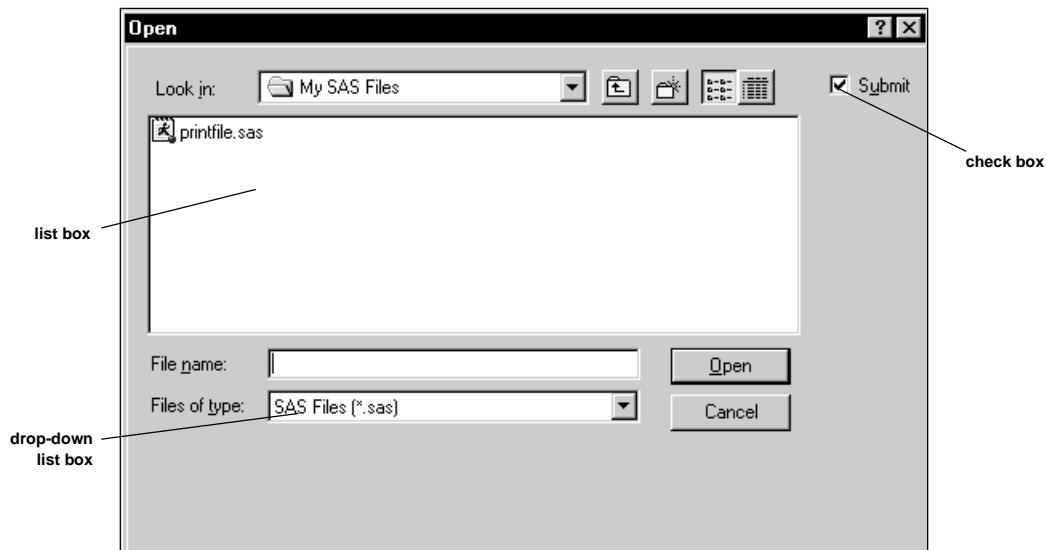
-  Move up a level in the folder hierarchy.
-  Create a new folder.
-  List folders and files with no details.
-  List folders and files with details such as file description, creation date, and so on.

Figure 1.7 shows an example dialog box that displays many of these features.

Figure 1.8 shows another dialog box with more features.

**Figure 1.7 Standard Dialog Box Features**



**Figure I.8 More Standard Dialog Box Features**

**Controlling How Programs Work:** The icons you see on the desktop are not magic. They are pictorial representations of operating system commands and command options. When you install an application such as the SAS System, the installation utility adds the icon to the appropriate program group in the **Programs** menu and associates certain commands and options with the icon. These commands control the location of the program’s executable file (such as SAS.EXE) and other aspects of running the program. This collection of commands constitutes the application’s “properties.”

You can change an application’s properties by using the Properties dialog box. “Altering the Properties of the SAS System Icon” in Chapter 8 gives some examples of how to change SAS System properties.

**Moving and Resizing Windows:** Sometimes the default size or position of a window is not satisfactory. You’ve already learned about the minimize and maximize buttons, but you can also move windows or cause them to shrink and grow.

To move a window, place the mouse pointer in the title bar of the window. Now hold the mouse button down. Drag the mouse, and the entire window follows it. Release the mouse button when the window is where you want it.

To resize the window, place the mouse pointer on the edge of the window. The pointer turns into a horizontal, vertical, or diagonal double-headed arrow (depending on whether the mouse pointer is positioned on a side, the top or bottom, or a corner of the window, respectively). Hold the mouse button down and drag the mouse—the window edge follows the pointer—until the window is the size you want. Resize a window in both the vertical and horizontal directions at once by placing the mouse pointer over a corner of the window. In this case, the pointer turns into a diagonal double-headed arrow.

To practice resizing windows, double-click on the Recycle Bin icon on the Windows desktop. Now make the Recycle Bin window narrow, then tall, then back to its original size. Close the Recycle Bin by clicking on its Close button.

### Note

You cannot resize a maximized window except to minimize it.

## 16 Painless Windows: A Handbook for SAS Users

**Shutting Down Windows:** You can choose to leave Windows running all the time, even when you are away from your desk. Or, you may want to turn your computer off. Never turn off your computer without properly shutting down Windows.



To shut down Windows, click on the **Start** button, then click on **Shut Down** (at the bottom of the **Start** button menu). A dialog box appears, asking what type of shut-down you want to use. Click on **Shut down the computer?** and press Enter. Windows shuts down, and the screen displays a message that it is now safe to turn your computer off.

## Handy Keyboard Shortcuts

---

Table 1.1 provides a list of handy keyboard shortcuts for performing tasks in the Windows environment. Refer to this table as you read the rest of the book—if you do not want to use the mouse for a task, use the keyboard shortcut listed in the table.

**Table 1.1 Keyboard Shortcuts**

| Keyboard Shortcut | Action                                                                                                                               |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| ALT-Enter         | Opens the Properties dialog box for an icon                                                                                          |
| CTRL-ESC          | Opens the Start button menu                                                                                                          |
| ALT-ESC           | Toggles through all open applications                                                                                                |
| ALT-TAB           | Toggles between the two last-used applications                                                                                       |
| TAB               | Moves the cursor from field to field in dialog boxes                                                                                 |
| SHIFT-TAB         | Moves the cursor backward through fields in dialog boxes                                                                             |
| Backspace         | In file list windows, such as the SAS Explorer, Windows Explorer, or Open dialog boxes, moves you up one level in the file hierarchy |

The menus also provide a type of keyboard shortcut, called hotkeys. These are the underlined letters you see in each of the menu choices. If the menu is open, pressing the hotkey is equivalent to clicking on a menu choice.



To open a menu without using the mouse, press the ALT key. This highlights the first item in the menu bar. Once the highlight is in the menu bar, use your arrow keys to move to the menu item you want, and press Enter to execute the command. Or, type the letter that is underlined in the menu.

### Note

The hotkey is not always the first letter of the menu choice.

## Understanding How Files Are Stored and Named

**V7 Hilites:** SASUSER and WORK subfolders are no longer created. By default, the SASUSER data library corresponds to C:\My Documents\My SAS Files, and the WORK data library corresponds to C:\DOS\Temp\Temporary SAS Files.

The SAS configuration file is no longer named CONFIG.SAS – the new name is SASV7.CFG.

SAS files have new long file extensions (no longer limited to three characters).

If you are coming from a UNIX or VMS background, you are familiar with the hierarchical structure of folders, subfolders, and files under Windows. But if you are familiar with OS/390, CMS, or VSE, you may be used to a different file structure. It is important to understand how Windows files are stored and named before you begin to use SAS software to create and manage files.

### Note

The terms folder and directory are synonymous.

**Understanding the Windows File Structure:** Under Windows, individual files have a filename and an extension. Think of a file as a collection of information, where the filename describes the information and the extension describes the format of the information. For example, MEMO.TXT is a memo and is in plain ASCII text format. HOUSE.TIF is a picture of a house in the TIFF bitmap format.

Windows supports long filenames—that is, you can use a total of 255 characters for the filename. In addition, filenames and extensions can contain spaces, quotation marks, and other characters not allowed in filenames under many other operating systems.

Examples of valid filenames are CONFIG.SYS, DECEMBER'S REPORT.TXT and JOAN & TOM.DOC. The following characters are not allowed in filenames: / \ : ; ? " < > | \*.

**Understanding Truncated Filenames:** If you intend to use files under Windows and other operating systems that do not support long filenames, be aware that the long filename may be truncated to eight characters, replacing certain characters (such as commas and spaces) with underscores (\_) and extra characters with a tilde (~) and a numeral. Table 1.2 shows four examples

## 18 Painless Windows: A Handbook for SAS Users

of long and truncated filenames (assuming the files are stored in the same folder). For example, if you issue the DIR command in a DOS session, the files will be listed with their truncated names.

**Table 1.2 Long and Truncated Filenames**

| Long Name             | Truncated Name |
|-----------------------|----------------|
| DECEMBER'S REPORT.TXT | DECEMB~1.TXT   |
| DECEMBER'S BILLS.TXT  | DECEMB~2.TXT   |
| THAT'S ALL.TXT        | THAT'S~1.TXT   |
| X,Y.TXT               | X_Y~1.TXT      |

The last file, X,Y.TXT, has the ~1 added, even though the filename is short. This is because of the substitution of the underscore for the comma.

### Note

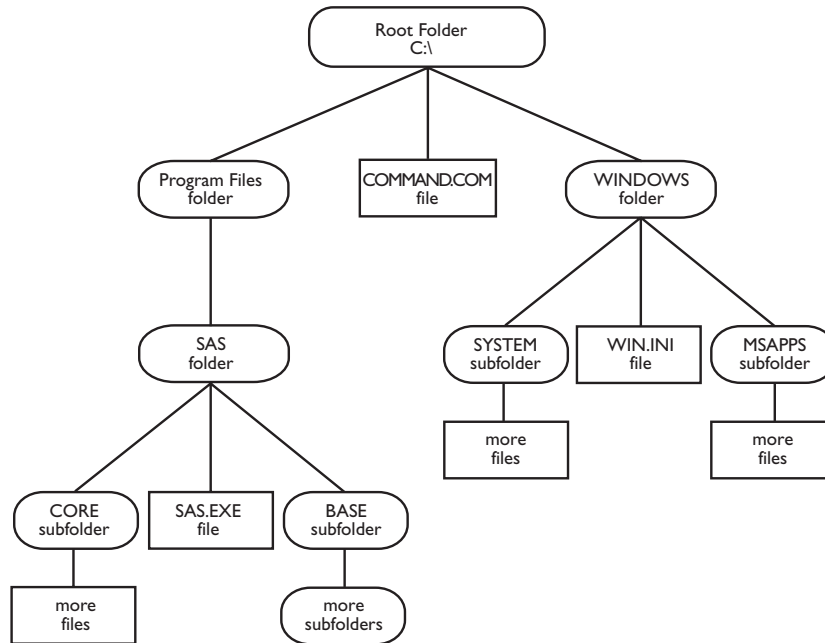
Windows supports long file extensions (that is, they are not limited to three characters). However, when a filename is truncated, the long file extension is truncated to the first three characters.

**Understanding Files and Folders:** Files are grouped together in folders. (In previous versions of Windows and DOS, the term directory was used. Directory and folder are synonymous.) Folders can contain subfolders as well as files. For example, you might have a folder called BILLS, and within that folder you have some miscellaneous files along with two subfolders, PAID and OVERDUE. In turn, these subfolders contain files for each individual bill.

Your root folder is the top-level folder that contains all other subfolders and files. Usually, this is called C:\ and is the default folder when you boot your PC. The C:\ folder can contain many subfolders, which can contain other subfolders, and so on.

Figure 1.9 shows a sample folder hierarchy.

Figure I.9 Sample Folder Hierarchy



**Understanding Drives:** Another concept you need to understand is drive. While the root folder is referred to as C:\, the drive is referred to as C:. Your computer may have several drives—the hard drive might be C:, the 3 1/2" floppy drive might be A:, and if you have a CD-ROM drive, it might be designated D:. If you are on a network, you probably have access to many drives. To find out how your system is organized, use the Windows Explorer, which is discussed later in this chapter.

**Understanding Common File Extensions:** Some file extensions are associated with particular applications. For example, files with an extension of .SAS are SAS programs, while files with a .DOC extension are usually Word files. Table 1.3 gives some common file extensions.

**Table 1.3 Common File Extensions**

| Text Files |                  | SAS Files |                       |
|------------|------------------|-----------|-----------------------|
| Extension  | File Type        | Extension | File Type             |
| SAS        | SAS code         | SAS7BDAT  | SAS table             |
| DAT        | raw data files   | SAS7BNDX  | SAS data file index   |
| TXT        | ASCII text files | SAS7BCAT  | SAS catalog           |
| LST        | SAS output       | SAS7BPGM  | SAS stored program    |
| LOG        | SAS log files    | SAS7BVEW  | SAS data view         |
|            |                  | SAS7BACS  | SAS access descriptor |

**Using Wildcard Characters:** Like most operating systems, Windows accepts wildcard characters in filenames when you are performing file maintenance (such as deleting, moving, or searching). Table 1.4 lists the wildcard characters Windows accepts.

**Table 1.4 Wildcard Characters**

| Character | Meaning                           |
|-----------|-----------------------------------|
| *         | replaces any number of characters |
| ?         | replaces a single character       |

To show how these wildcard characters work, here are a few examples:

PROG\*.SAS finds PROG1.SAS and PROGRAM2.SAS  
 PROG?B.SAS finds PROG1B.SAS but not PROG11B.SAS  
 REVENUE.\* finds REVENUE.SAS and REVENUE.DAT

**Understanding How SAS Files Are Stored under Windows:** As a SAS user, you already know about the various types of SAS files and that these files are stored in SAS data libraries. Under Windows, the concept of a SAS data library is loosely analogous to that of a folder, with the addition of the concept of SAS engines. An example will help illustrate this.

Suppose you have two folders, C:\REPORTS and C:\INCOME. In the REPORTS folder, there are some Version 7 SAS tables. In the INCOME folder, you also have Version 7 SAS tables but also some Version 6 SAS tables. To access these three categories of tables, you would set up three SAS data libraries. Two of the data libraries would point to the INCOME folder, but each of these libraries would contain only those tables accessed by the appropriate SAS engine.

**Note**

In this book, “table” is used in place of “data set,” and “row” and “column” replace “observation” and “variable.”

You can also concatenate several folders into one SAS data library. See Chapter 7 for more information on managing SAS data libraries.

**Knowing the Important Files and Folders:** Certain files, folders, and subfolders are important to you as a SAS software user. Table 1.5 gives some of these and briefly describes their purpose.

**Table 1.5 Important SAS Files and Folders**

| Default Filename                          | Purpose                                                                                                                                                               |
|-------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| SAS.EXE                                   | is the executable program that runs the SAS System.                                                                                                                   |
| SASV7.CFG                                 | contains the configuration options for your SAS session.                                                                                                              |
| AUTOEXEC.SAS                              | contains start-up statements you want to execute when you begin a SAS session.                                                                                        |
| C:\My Documents\My SAS Files subfolder    | corresponds to your SASUSER SAS data library, and contains your SAS profile catalogs, key definitions, tool definitions, and so on.                                   |
| C:\DOS\Temp\SAS Temporary Files subfolder | contains your WORK SAS data library. The WORK library for a SAS session is created as a subfolder of the C:\DOS\TEMP\SAS Temporary Files folder, in the form TD#####. |

**Note**

The pathnames for the SASUSER and WORK SAS data libraries in Table 1.5 are the default locations; these can be changed during SAS installation.

## 22 Painless Windows: A Handbook for SAS Users

**Using Filenames in SAS Statements and Commands:** When you type the name of folders, subfolders, and files in SAS statements and commands, such as on the Command bar or in dialog boxes, separate the folder, subfolder, and filename with a backslash. For example, the following INCLUDE command references a file named MEDICALREPORT.DAT in a folder called MYDATA, which is a subfolder of the root folder on the C: drive:

```
INCLUDE 'C:\MYDATA\MEDICALREPORT.DAT'
```

This is called the full pathname for the file, which states explicitly where the file is stored. When in doubt, specify the full pathname for files; while there are rules for how the folder and file extension default, it is always safe to specify the full pathname.

**Defining File Shortcuts and Library References:** One of the most common uses of the full pathname is when you use the FILENAME and LIBNAME statements to define file shortcuts (called filerefs in Version 6 of the SAS System) and library references (called librefs in Version 6 of the SAS System) in your SAS programs. Here is an example of each of these statements, using the full pathname for the file or folder:

```
filename misc 'c:\misc\qtr1.dat';  
libname inv 'c:\sas\invoices';
```

### Note

If the filename contains spaces or other punctuation such as a single quotation mark, use double quotation marks in SAS statements such as FILENAME and LIBNAME.

## Testing Your Survival Kit

---

Now that you understand a little bit about how Windows works, you are ready to see if you can “do Windows.” Try the next chapter, which walks you through most of the fundamental tasks involved in using base SAS software. After you’ve done the first two or three exercises, you’ll see that “doing Windows” is not that hard after all. And even if you never like Windows, at least you will not feel like you’re looking through frosted glass while you work.