Apple IIGS® Owner's Reference

Apple IIGS with 1 megabyte of RAM

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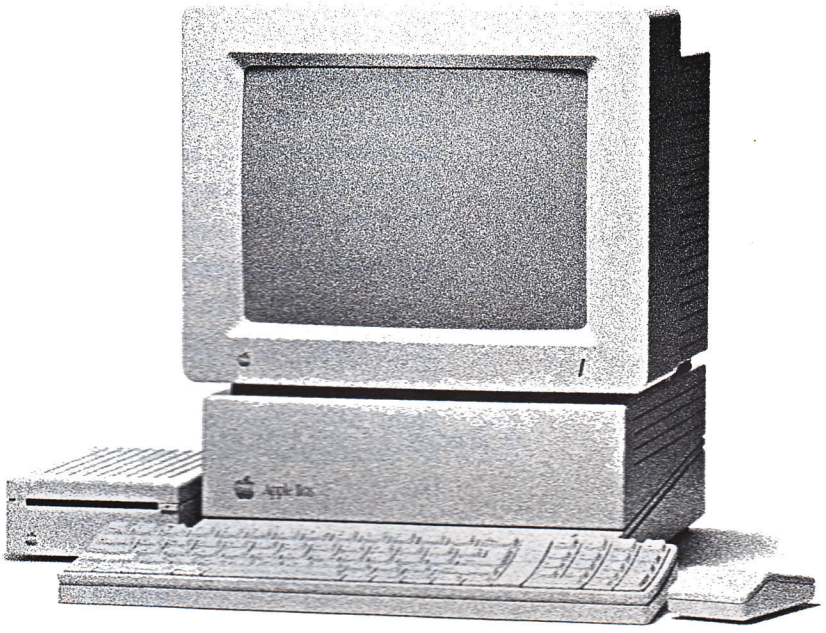

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Radio and television interference

The equipment described in this manual generates and uses radio-frequency energy. If it is not installed and used properly—that is, in strict accordance with Apple's instructions—it may cause interference with radio and television reception.

This equipment has been tested and complies with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC rules. These specifications are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that the interference will not occur in a particular installation.

You can determine whether your computer is causing interference by turning it off. If the interference stops, it was probably caused by the computer or one of the peripheral devices.

If your computer system does cause interference to radio or television reception, try to correct the interference by using one or more of the following measures:

- Turn the television or radio antenna until the interference stops.
- Move the computer to one side or the other of the television or radio.
- Move the computer farther away from the television or radio.
- Plug the computer into an outlet that is on a different circuit from the television or radio. (That is, make certain the computer and the television or radio are on circuits controlled by different circuit breakers or fuses.)
- Consider installing a rooftop television antenna with a coaxial cable lead-in between the antenna and the television.

If necessary, consult your authorized Apple dealer or an experienced radio/television technician for additional suggestions. You may find helpful the following booklet, prepared by the Federal Communications Commission: "How to Identify and Resolve Radio-TV Interference Problems" (stock number 004-000-00345-4). This booklet is available from the U.S. Government Printing Office, Washington, DC 20402.

△ **Important** This product was tested for FCC compliance under conditions that included the use of shielded cables and connectors between system components. It is important that you use shielded cables and connectors to reduce the possibility of causing interference to radios, television sets, and other electronic devices. For Apple peripheral devices, you can obtain the proper shielded cables from your authorized Apple dealer. For non-Apple peripheral devices, contact the manufacturer or dealer for assistance. △

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About This Book

THIS MANUAL IS YOUR REFERENCE BOOK FOR THE APPLE IIGS® COMPUTER. LIKE A dictionary or an encyclopedia, this book presents information that can be read in any order. You don't need to read the entire book right away—in fact, there may be some parts that you'll never read.

If you haven't already done so, you should use the *Getting Started With Your Apple IIGS* book to set up your computer and complete the hands-on tutorial. (During the tutorial, you'll also use the tour disk, *Your Tour of the Apple IIGS*.) The procedures described in this owner's reference assume a familiarity with the basic skills taught in the *Getting Started* tutorial and the tour disk.

Use this owner's reference when you want to do something that the tutorial didn't cover, when you want a quick reminder about a task you've already learned, or just to get a sense of all the things you can do with your Apple IIGS.

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What's in this book

The first chapter of this book provides background information and vocabulary that may be helpful as you read the other chapters. The subsequent chapters present information on all sorts of tasks you can perform with your computer. As long as you've completed the hands-on tutorial in the *Getting Started* book, you should be ready to tackle any of these tasks. You can choose any task you like, in any order you like.

The appendixes provide information on connecting additional devices to your computer and on the features and technical specifications of the Apple IIGS.

The glossary near the back of the book defines a wide variety of computer terms. There's a detailed index to help you find the tasks you want quickly. And the Tell Apple card at the back of the book lets you pass on your comments to the people who designed the computer, the software, the books, and the training disk.

The fold-out flap of the back cover provides a place to keep track of serial numbers, date of purchase, name and telephone number of your authorized Apple dealer, and other important information relating to your computer.

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Conventions used in this book

The following paragraphs illustrate several typographical conventions that are used in this book to help make learning easier.

When a new term is defined, the term appears in **boldface** type. Such terms are defined in the glossary as well. (The glossary also defines many related terms that don't appear in the text.)

△ **Important** Material set off in this manner is essential information that you need to read before continuing. △

❖ *By the way:* Paragraphs like this one contain interesting sidelights or information for specific audiences.

▲ **Warning** Warnings like this one alert you to situations in which you might damage your equipment or lose data if you don't follow the instructions carefully. ▲

In illustrations of screens, a red check mark is used to show the action of clicking, and a dotted red line is used to show the action of dragging.

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C H A P T E R 1

Background Information

THIS CHAPTER INTRODUCES SOME COMPUTER VOCABULARY AND CONCEPTS that you may find useful as you read the other chapters in this manual. Some of this material is also covered in *Getting Started With Your Apple IIGS* and in the tour disk, *Your Tour of the Apple IIGS*.

Key terms are printed in boldface type in this chapter for easy identification. (Throughout this manual, boldface also indicates that the term is in the glossary.) If you prefer, you can skip this chapter and refer to the glossary when you encounter unfamiliar terminology. But if you don't have a lot of experience with computers and want to increase your computer savvy, you may want to read at least the first section of this chapter, "The Basics," as a starting point.

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The basics

This section defines many frequently used computer terms. If you already know the difference between hardware and software, and between RAM and ROM, you probably don't need to read this section. Still, you may want to skim it to see whether there are any boldface terms you don't recognize.

Hardware

The components that make up your computer system—computer, monitor, keyboard, mouse, disk drives, cables, power cords, and so on—are known collectively as **hardware.** Hardware includes all equipment you can actually touch.

If you take the lid off your Apple IIGS® computer (following the instructions in Appendix A, "Connecting Additional Devices"), you'll see the **main circuit board**—a Fiberglas board that contains embedded circuitry with a number of small black boxes attached. The black boxes are known as **integrated circuits** (or, in computer jargon, **chips**). One of the integrated circuits—the one that functions as the "brain" of the computer—is called the **central processing unit (CPU)** or the **microprocessor.** The CPU in the Apple IIGS is called the *65816 microprocessor*. The term *CPU* is occasionally used to refer to the entire component—the computer itself—that contains the central processing unit.

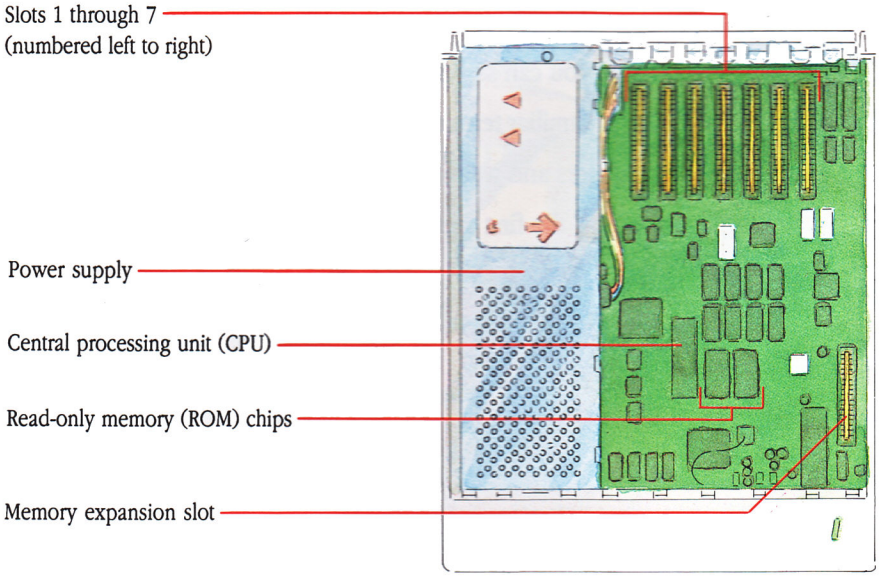

Figure 1-1 The interior of the Apple IIGS

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A computer alone wouldn't be of much use to most people. You need other components in order to communicate information to the computer, see the information in a useful form, store the information permanently, and print a copy on paper (called a **hard copy**). Because these other components are at the periphery of your system, they're called **peripheral devices.**

You connected some peripheral devices (the keyboard, the mouse, the monitor, and one or more disk drives) when you set up your computer system. If you have other peripheral devices, you'll find instructions for connecting them in Appendix A, "Connecting Additional Devices," or in the manuals that came with them.

Software

Computer **programs** are sets of instructions that tell the computer how to perform a particular task. Programs are known collectively as **software.** There are two kinds of software: the programs that the computer uses to run itself, called **system software;** and programs designed to help you perform specific tasks such as word processing, calculating, and drawing, called **application software.**

System software and application software are commonly stored on **disks**—flat, circular surfaces, housed in square plastic casings, where information can be stored magnetically. The term *disk* (and sometimes the term *volume*) is also used to describe storage areas that are not physical disks but that function as disks, such as hard disk partitions, RAM disks, and file server volumes. (You'll learn more about these "virtual" disks in Chapter 8, "Using the Advanced Disk Utility," Chapter 10, "Using Memory as a RAM Disk," and Chapter 11, "Using Your Apple IIGS on a Network.")

A disk that contains system software is known as a **startup disk**—as opposed to a **data disk,** which contains information created with the computer but no instructions telling the computer how to run.

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Firmware, ROM, and RAM

Some programs are known as **firmware** because they're stored in the computer's permanent memory. That memory is called **read-only memory (ROM)** because the computer can use (or "read") the information stored there, but the information can't be changed. The programs stored in ROM give the computer such basic instructions as what to do when you switch on the power.

When you're doing work with the computer—writing a report or creating a budget, for example—your work is stored in the computer's internal memory. This memory is called **random-access memory (RAM)** because the information stored there can be referred to in a random order, just as a book can be opened randomly to any page.

It's important to remember that RAM is temporary memory. Information in RAM isn't retained when the computer's power is switched off. For that reason, you must always **save** your information on a disk before you switch off the computer. And because accidents such as power failures sometimes happen, it's a good idea to save your work frequently *during* your work sessions as well.

The binary system, bits, and bytes

Whenever information is transmitted between the computer and another device, the information must be translated into the computer's language—a numbering system of 0's and 1's known as the **binary system.** When you type characters at the keyboard, for example, the computer understands them as a pattern of 0's and 1's. This system is perfectly suited for computers because their microprocessors are made up of switches—like light switches—that can be either on or off. *On* is usually represented as the number 1, *off* as 0.

Computer memory is customarily measured in units called **bits** and **bytes.** A bit is enough memory to store one binary digit—a 0 or a 1. (In fact, the word *bit* is a shortened form of the term *binary digit.*) A byte is enough memory (by convention 8 bits) to store a single letter, number, punctuation mark, or other character. But since even the byte is a very small unit of measure, it's more convenient to refer to memory in larger units. A **kilobyte (K)** is equivalent to 1024 bytes. And a **megabyte (MB)** is equivalent to 1024 kilobytes—that's 1,048,576 bytes!

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User interface

Interface is a word you may see a lot in computer books and magazines to describe a method of communication. The way information is exchanged between a computer and a person is called the **user interface.**

Every application program has its own user interface. In fact, you might think of the user interface as the application's personality. Some applications guide you slowly and methodically through every step of a process; others give you minimal instruction and let you take it from there.

One important aspect of an application's user interface is the method in which the computer displays information on the screen. Many applications use a **graphics mode,** in which images are formed by patterns of dots, called **pixels,** on the screen. (The word *pixel* is a shortened form of the term *picture element.*) The more dots used to create an image on the screen, the sharper the image's **resolution** will be. The Apple IIGS supports the **Super Hi-Res** graphics mode (which allows a graphics display of either 320 or 640 horizontal pixels by 200 vertical pixels) as well as the graphics modes used in other models of the Apple II family: **Lo-Res, Hi-Res,** and **Double Hi-Res.**

Despite the term *graphics mode,* an application that displays information in a graphics mode isn't limited to graphics. Text can be part of the picture, or even all of the picture. The application simply forms each character as if it were a picture. That's why some word-processing applications can display text in a variety of typefaces (often called **fonts**) and sizes.

In applications that use a **text mode,** the screen is divided into an invisible grid of 24 vertical rectangles by either 40 or 80 horizontal rectangles. Each rectangle in the grid can hold a single character. The **text generator,** a combination of circuitry and firmware, places characters in the grid. The characters correspond to keys on the keyboard. In the 80-column format, you can fit twice as many characters per line as you can in the 40-column format, but the characters are half as wide.

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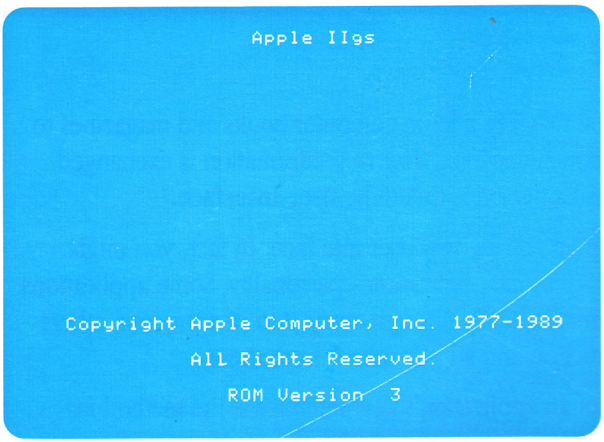
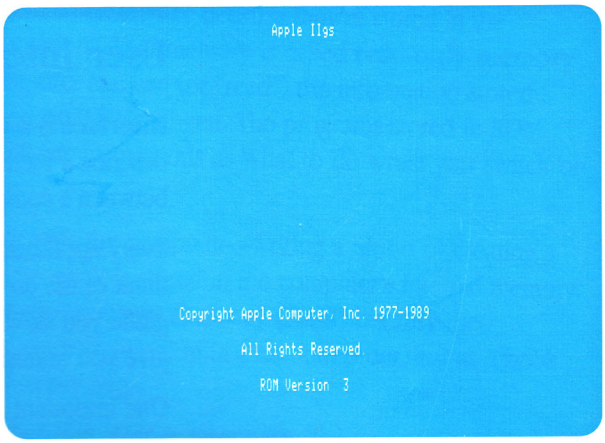


40-column display



80-column display

Figure 1-2 40-column and 80-column display

Most graphics mode applications are mouse-based—that is, you use the mouse to give the computer instructions, or **commands.** Most text mode applications, on the other hand, are keyboard-based; you must rely entirely on the keyboard for issuing commands.

Operating systems and file systems

An **operating system** (sometimes called a *disk operating system* and abbreviated *DOS*) is a set of programs, designed for a particular type of computer, that carries out certain tasks for the computer, such as data handling, memory management, printing management, and the transportation of documents between the memory of the computer and the disks in the computer's disk drives.

Application programs are designed to work with a particular operating system. You can think of the operating system as sort of a subcontractor for the application program: When you tell the application to save a document on a disk, for example, the application hands the job over to the operating system.

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An important component of an operating system is its **file system,** or the way it organizes information on disks. When you save information on a disk, the computer needs a way to store that information for easy retrieval in the future. The file system provides the organizational structure that allows the computer to find information on the disk.

A disk that has never been used can't be recognized by any file system. You prepare the disk to receive information in a process called **initializing** the disk. When you initialize a disk, the computer divides it into a format of tracks and sectors (sections where information can be stored) and adds a file system. Because formatting a disk is part of the initialization process, you may see the term *formatting* used instead of *initializing* in some books or magazines.

Initializing a disk is somewhat like creating a parking lot with numbered spaces. The tracks and sectors are like the lines separating the individual parking spaces; the file system is like the numbering system for the spaces.

Different kinds of computers use different operating systems—and almost every operating system has its own file system. As a result, when you insert a disk that has a "foreign" file system, most computers won't know how to store or retrieve information on the disk.

Until recently, most Apple IIGS applications used an operating system called **ProDOS®** (an abbreviation for *Professional Disk Operating System*). Like other operating systems, ProDOS has its own file system. The newest Apple IIGS operating system—called **GS/OS™** for short—can recognize ProDOS disks as well as disks initialized for other file systems.

When you insert a disk initialized for the ProDOS file system, GS/OS automatically recognizes it. If you want to use disks initialized for other file systems, you need to use the **Installer,** a program on the *Apple IIGS System Tools* disk, to add programs known as **file system translators (FSTs)** to your startup disks. For instructions on using the Installer, see Chapter 7 of this manual.

At present, the only file systems available are ProDOS, used by most Apple II applications; AppleShare®, used by AppleShare file servers; and High Sierra/ISO 9660, used on **CD-ROMs,** discs that use laser technology to store very large amounts of information. (*CD-ROM* stands for *compact disc read-only memory.*) But GS/OS has been designed to support other file systems as the appropriate FSTs become available.

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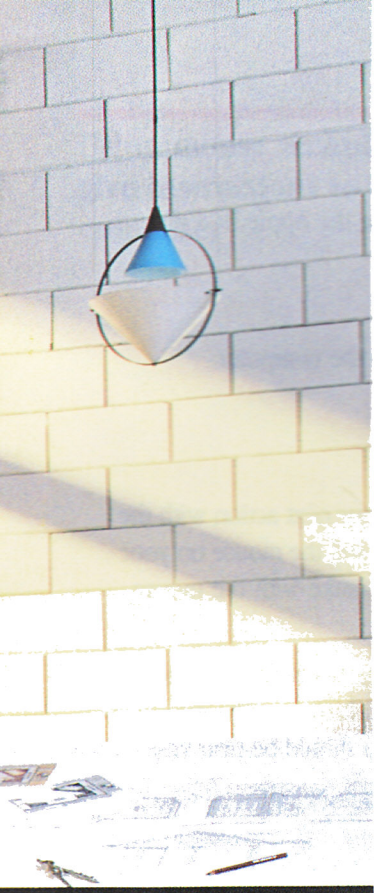

C H A P T E R 2

Using the Mouse and the Keyboard

THIS CHAPTER EXPLAINS HOW TO USE THE MOUSE AND THE KEYBOARD THAT came with your Apple IIGS. Much of the information in this chapter is also covered in *Getting Started With Your Apple IIGS* or in the tour disk, *Your Tour of the Apple IIGS.*

If you've already completed the tour disk and are comfortable using the mouse and the keyboard, you'll probably want to skip this chapter. (But you may want to refer in the future to the section on cleaning the mouse.)

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Using the mouse

This section explains the basic skills that let you use the Apple IIGS mouse effectively:

- moving the pointer
- using mouse techniques to give instructions to the computer
- cleaning the mouse

Moving the pointer

The arrow pointer on the screen indicates where your next action with the mouse will take place. To move the pointer, simply roll the mouse on your desk or another flat surface. Every movement you make with the mouse moves the pointer in exactly the same way.

❖ *Backwards?* If the pointer moves in the opposite direction when you move the mouse, you're holding the mouse upside down. The mouse cord should point away from you, and the Apple logo should be near you.

If you run out of desk space to move the mouse, simply lift the mouse and put it down again where you have more room. Lifting and moving the mouse doesn't move the pointer.

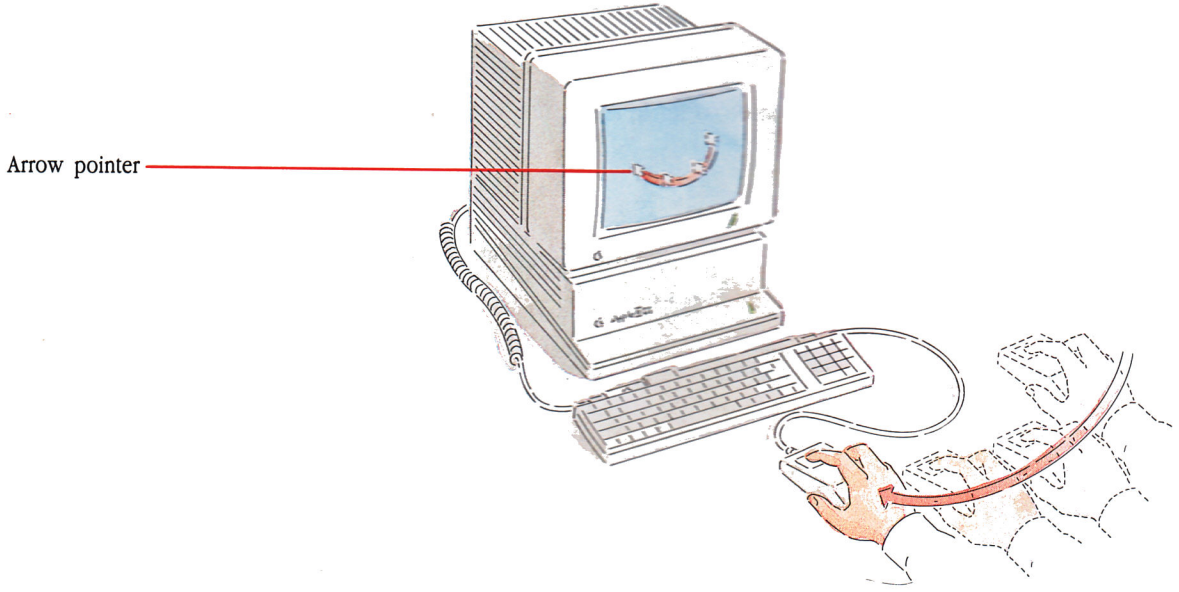

Figure 2-1 Moving the pointer

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Using mouse techniques to give instructions to the computer

This section describes briefly the six mouse techniques you use to give instructions to the Apple IIGS:

- clicking
- pressing
- dragging
- double-clicking
- Shift-clicking
- Command-clicking

If you used the tour disk, *Your Tour of the Apple IIGS,* or completed the tutorial in *Getting Started With Your Apple IIGS,* you've already had some practice with these techniques and probably don't need to read this section.

If you haven't had any mouse practice, these techniques may make more sense in the context of a particular task—so you may want to refer back to this section later instead of trying to learn these techniques out of context.

Clicking

Follow these steps to click:

1. Position the pointer where you want your next action to take place.
2. Press and release the mouse button quickly.

Pressing

Follow these steps to press:

1. Position the pointer where you want your next action to take place.
2. Press and hold down the mouse button.

   The action that occurs as a result of pressing continues until you release the mouse button. For example, if you press to pull down a menu and see the commands in it, the commands stay on the screen until you release the mouse button.

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Dragging

Follow these steps to drag:

1. Position the pointer where you want to begin your next action.
2. Press and hold down the mouse button.
3. Without releasing the mouse button, move the pointer to where you want to end your action.
4. Release the mouse button.

Double-clicking

Double-clicking can be a useful shortcut in several situations. Follow these steps to double-click:

1. Position the pointer where you want your next action to take place.
2. Press and release the mouse button twice in quick succession.

Shift-clicking

Shift-clicking can also be a useful shortcut in several situations. Follow these steps to Shift-click:

1. Position the pointer where you want your next action to take place.
2. Hold down one of the Shift keys.
3. Press and release the mouse button quickly.

Command-clicking

Command-clicking is another useful shortcut. Follow these steps to Command-click:

1. Position the pointer where you want your next action to take place.
2. Hold down the Command key.
3. Press and release the mouse button quickly.

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Cleaning the mouse

If the pointer moves jerkily when you move the mouse, you may need to clean the interior of the mouse. Follow this procedure:

1. Open the mouse "belly."

   Turn the mouse over. On its belly is a plastic disk with a hole in the center. (Your mouse should look much like one of the two shown in Figure 2-2.)

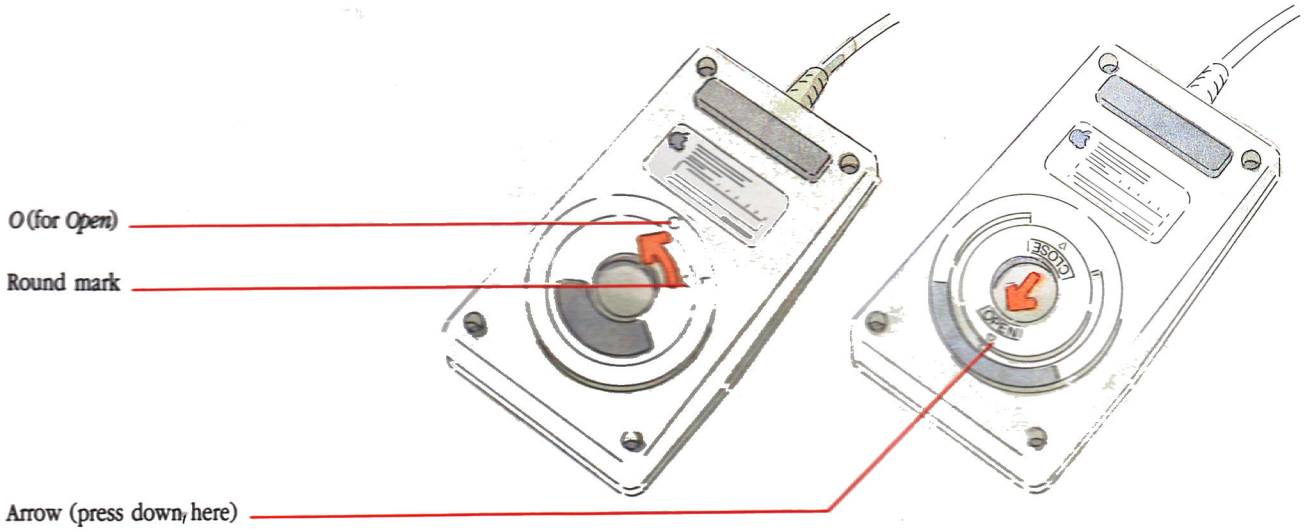

Figure 2-2 The mouse belly

If you have the mouse shown on the left, turn the disk counterclockwise one-eighth of a turn, moving the round mark on the disk from the letter *L* (for *Locked*) to the letter *O* (for *Open*).

If you have the mouse shown on the right, press downward on the arrow below the word *Open*.

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2. Remove the mouse ball.

   If you have the mouse shown on the left, cup your hand around the mouse and turn it right side up. The disk will fall out, along with the ball.

   If you have the mouse shown on the right, lift the disk off the mouse, cup your hand around the mouse, and turn it right side up. The ball will fall out.

3. Clean the mouse ball.

   Wipe the ball clean. If it's greasy, wash it with warm, soapy water and dry it thoroughly with a clean, lint-free cloth.

4. Clean the mouse belly.

   Turn the mouse upside down again. If there's any debris in the cavity where the ball was, gently pick or shake it out. Don't try to blow it out; you may just drive the material further inside. Don't attempt to wash the cavity or use solvents on it.

5. Reassemble the mouse.

   Place the clean ball back in the mouse belly. Then replace the plastic disk and return it to the locked or closed position.

If you continue having problems with the mouse after cleaning it, you may need to make adjustments to the Mouse options in the Control Panel. For information, see "Mouse" in Chapter 9.

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Using the keyboard

In most regards, the Apple IIGS keyboard works just like the keyboard on a typewriter, and the built-in numeric keypad works just like the keypad on an adding machine. But the keyboard has some special features, described in this section:

- The Sticky Keys feature lets you give combined keystroke commands such as Command-Control-Reset without having to hold down more than one key at a time.
- The Mouse Keys feature lets you use the keyboard to perform tasks for which you would normally need to use the mouse.
- A number of special keys either don't exist on typewriter keyboards or function in a somewhat different manner.

Sticky Keys

If you have difficulty with combined keystrokes such as Command-Control-Reset, Sticky Keys allow you to press the keys of a combined keystroke separately.

Activating Sticky Keys

To activate the Sticky Keys feature, press and release one of the Shift keys five times in succession without moving the mouse.

Giving combined keystroke commands with Sticky Keys

Follow these steps to give combined keystroke commands with Sticky Keys:

1. Press the desired **modifier key** (Command, Control, Option, or Shift).
2. If necessary, press an additional modifier key.

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3. Press the desired nonmodifier key (any key other than Command, Control, Option, or Shift).

   Once you have pressed the final key, the computer responds as if you had held down the modifier key (or keys) while you pressed and released the nonmodifier key. For example, if you want to activate Mouse Keys (as described in the next section), you would press Command in step 1, Shift in step 2, and Clear in step 3. The effect is the same as when you press and hold down Command and Shift while you press and then release Clear.

Deactivating Sticky Keys

Use either of the following methods to deactivate the Sticky Keys feature:

- Press and release one of the Shift keys five times in succession without moving the mouse.
- Press any modifier key and any nonmodifier key simultaneously.

Mouse Keys

If you have difficulty using the mouse—or if you just feel more comfortable using the keyboard to give instructions to the computer—you can activate the Mouse Keys feature, which lets you move the pointer, click, press, drag, double-click, Shift-click, or Command-click entirely from the keyboard. (For an explanation of these mouse techniques, see "Using the Mouse" earlier in this chapter.)

You can customize the responsiveness of the Mouse Keys feature using the text Control Panel. For more information, see "Mouse" in Chapter 9.

Activating Mouse Keys

Follow these steps to activate the Mouse Keys feature:

1. Hold down the Command and Shift keys.
2. Without releasing the first two keys, press and then release the Clear key.

❖ *Problems with combined keystrokes?* If you have difficulty with combined keystrokes, activate the Sticky Keys feature first, as described in the previous section.

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Moving the pointer with Mouse Keys

When Mouse Keys are activated, the numbers surrounding the number 5 on the numeric keypad let you move the pointer in the corresponding direction. To move the pointer straight up, for example, hold down the 8 key; to move the pointer diagonally up and to the left, hold down the 7 key; and so on.

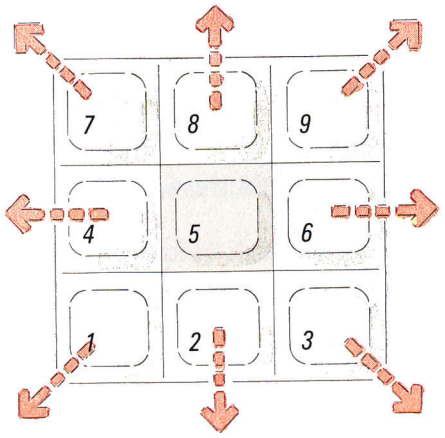

Figure 2-3 Moving the pointer with Mouse Keys

When you hold down a number key, the movement of the pointer begins slowly and then accelerates until it reaches a maximum speed. If you want to move the pointer by small increments, you can press and release the appropriate number key as many times as needed.

- *Moving by larger increments:* Normally, the pointer moves by 1 pixel each time you press and release a number key. If you want to increase this increment by as much as 10 times, follow these steps:
  - Press the asterisk (*) key on the numeric keypad.
  - Press a number key from 1 to 9 (or press 0 for 10) to multiply the increment by that number.

  If you want to return to an increment of 1 pixel, you can either press the asterisk key twice, or press asterisk and then 1.

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Clicking with Mouse Keys

Follow these steps to click when Mouse Keys are activated:

1. Use the numeric keypad to position the pointer where you want to click.
2. Press and release 5.

Pressing with Mouse Keys

Follow these steps to press when Mouse Keys are activated:

1. Use the numeric keypad to position the pointer where you want to press.
2. Press and hold down 5.

Dragging with Mouse Keys

Follow these steps to drag when Mouse Keys are activated:

1. Use the numeric keypad to position the pointer where you want to begin dragging.
2. Press 0 to begin dragging.
   - *Change your mind?* If you change your mind about where you want to begin dragging after you've already pressed 0, you can cancel by pressing the decimal point key to the right of the 0 key on the numeric keypad. (The period key on the main keyboard also cancels the signal.)
3. Use the numeric keypad to move the pointer.
4. Press 5 to end dragging.

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Double-clicking with Mouse Keys

Follow these steps to double-click when Mouse Keys are activated:

1. Use the numeric keypad to position the pointer where you want to double-click.
2. Press and release 5 twice in quick succession.

   ❖ *Not quick enough?* If you aren't able to press 5 quickly enough, you can set the Double Click option in the Control Panel to the slowest setting. For instructions, see "Mouse" in Chapter 9.

Shift-clicking with Mouse Keys

Follow these steps to Shift-click when Mouse Keys are activated:

1. Use the numeric keypad to position the pointer where you want to Shift-click.
2. Hold down one of the Shift keys while you press 5. (Or, if Sticky Keys are activated, you can press the keys separately.)

Command-clicking with Mouse Keys

Follow these steps to Command-click when Mouse Keys are activated:

1. Use the numeric keypad to position the pointer where you want to Command-click.
2. Hold down the Command key while you press 5. (Or, if Sticky Keys are activated, you can press the keys separately.)

Deactivating Mouse Keys

To deactivate the Mouse Keys feature, simply press and release the Clear key.

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Special keys

Figure 2-4 summarizes the functions of the special keys on the Apple IIGS keyboard. Specific application programs may use these keys in different ways, however; be sure to refer to the manuals that come with your applications for more detailed instructions on using the special keys.

Reset: In some applications, used in combination with Control as an emergency method of quitting; when using a disk that doesn't include the Finder, used in combination with Command and Control to restart the computer.

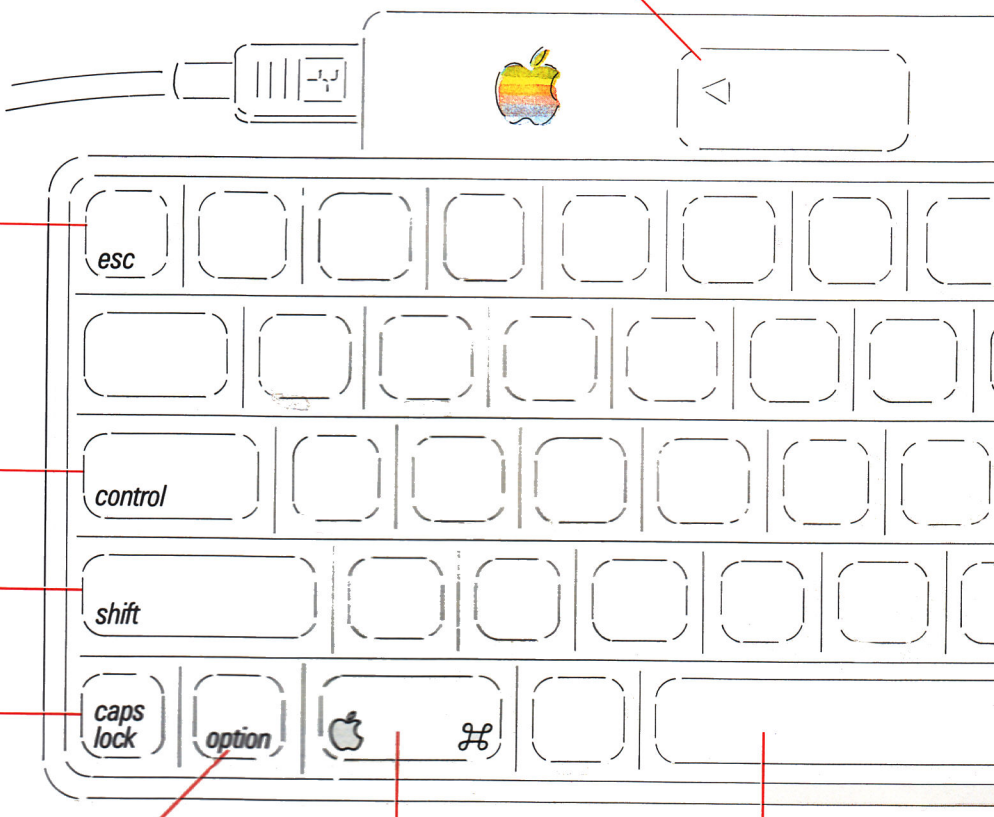
Esc: Usually cancels an activity or takes you to a previous menu.

Control: Used in combination with another key or keys for some special effect.

Shift: Used in combination with another key to give an uppercase letter or the upper character of a two-character key.

Caps Lock: Capitalizes letters but doesn't affect other keys; locks in place when pressed.

Option: Used in combination with another key or keys for some special effect; on some other models of the Apple II family, this key is labeled with the symbol of a solid apple.



Command: Used in combination with another key or keys for some special effect; on some other models of the Apple II family, this key has only the symbol of an outlined apple.

Space bar: Inserts a space character.

Figure 2-4 The Apple IIGS keyboard

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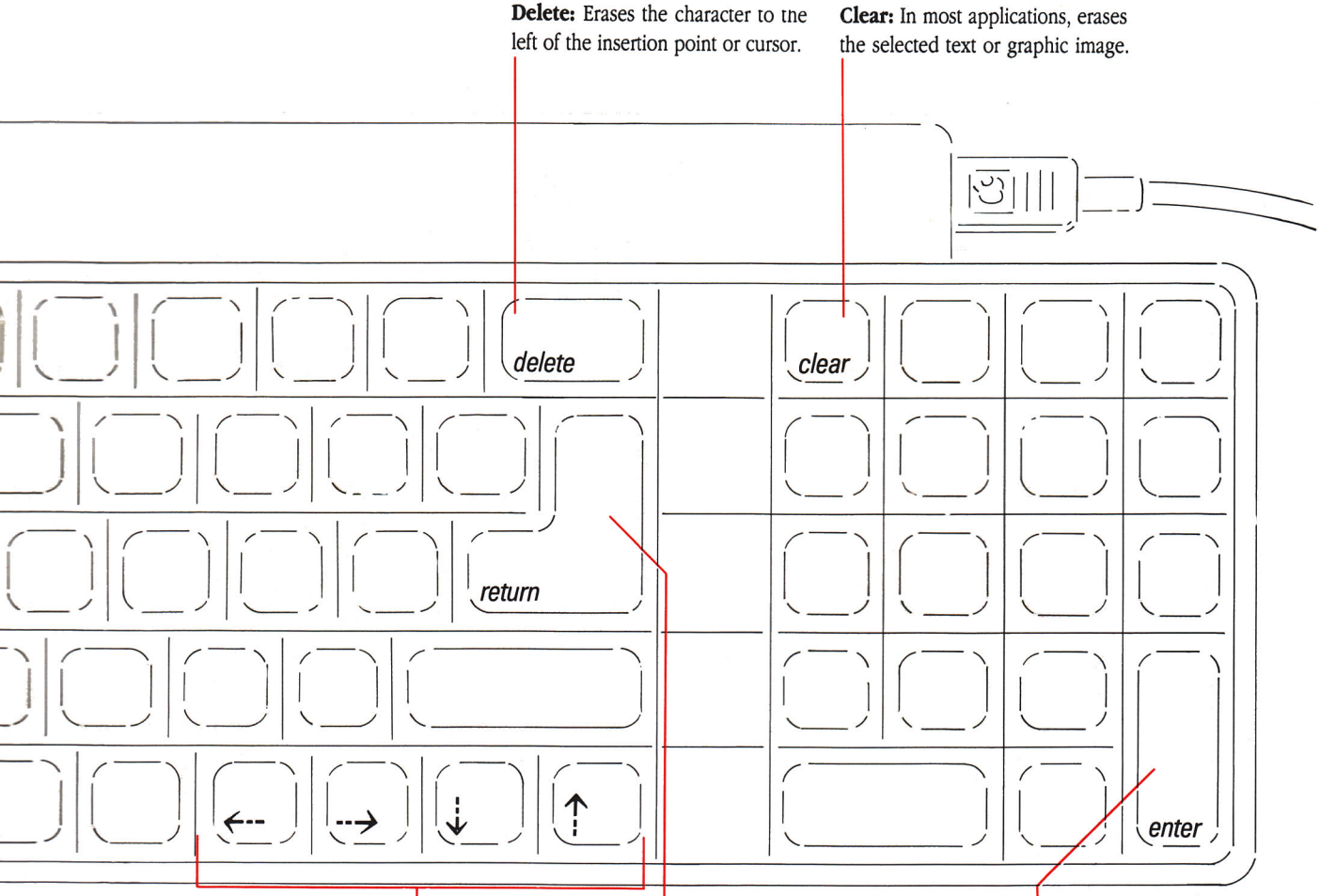

Delete: Erases the character to the left of the insertion point or cursor.

Clear: In most applications, erases the selected text or graphic image.

Arrow keys: Move the insertion point or cursor in the direction indicated.

Return: Confirms a choice or tells the application that you're ready to proceed; in word-processing applications, pressing Return inserts a Return character and moves the insertion point or cursor to the beginning of the next line.

Enter: Confirms a choice or tells the application that you're ready to proceed; generally has the same function as Return.

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CHAPTER 3

Working With Menus, Icons, Windows, and Text

THIS CHAPTER EXPLAINS HOW TO USE THE FEATURES OF THE FINDER™ DESKTOP to give instructions to your computer, to arrange the items on your desktop in the way that's most convenient for you, and to edit text. Most of the tasks in this chapter are also covered in *Getting Started With Your Apple IIGS* or the tour disk, *Your Tour of the Apple IIGS*.

Even if you've already completed the tour disk and the hands-on tutorial in the *Getting Started* manual, this chapter can be a useful source of tips and shortcuts. It's also a handy reference in case you need a reminder about how to perform any desktop management tasks.

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Working with menus

The Finder lets you do work without having to memorize commands. All the commands are available to you in the Finder menus, and you can pull down a menu at any time to see which commands are there.

To see what's in a menu

Follow these steps to see which commands are in a menu:

1. Position the pointer on the title of the desired menu in the menu bar at the top of the screen.
2. Press and hold down the mouse button.

   The menu comes into view. As long as you hold down the mouse button, the menu remains visible.

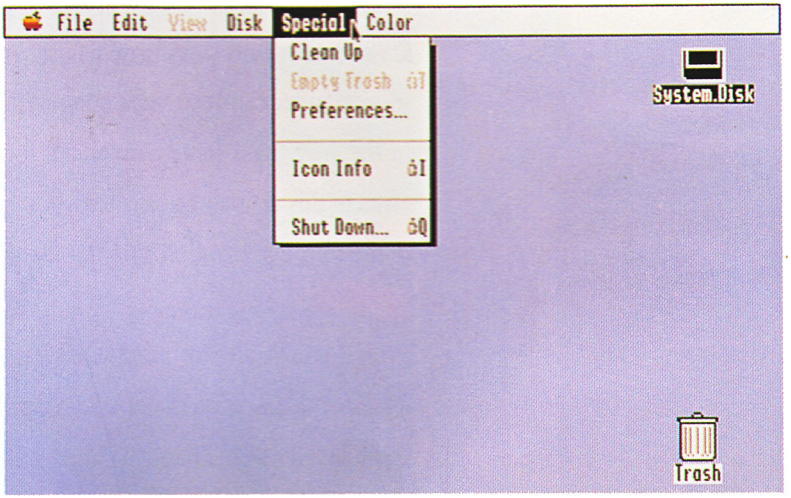

Figure 3-1 Pulling down a menu

3. Release the mouse button.

   The menu disappears.

For a summary of the commands in each menu, see "Menu Commands" later in this chapter.

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To choose a command from a menu

Follow these steps to choose a command from a menu:

1. Position the pointer on the title of the desired menu in the menu bar at the top of the screen.
2. Press and hold down the mouse button.

   The menu comes into view. (See Figure 3-1.) As long as you hold down the mouse button, the menu remains visible.
3. Drag through the menu until the name of the desired command is highlighted.

   If a command name is **dimmed**—that is, if it appears gray instead of black—the command can't be chosen. (Commands are dimmed whenever they would have no effect; for example, if there's nothing in the Trash, the Empty Trash command in the Special menu is dimmed.)

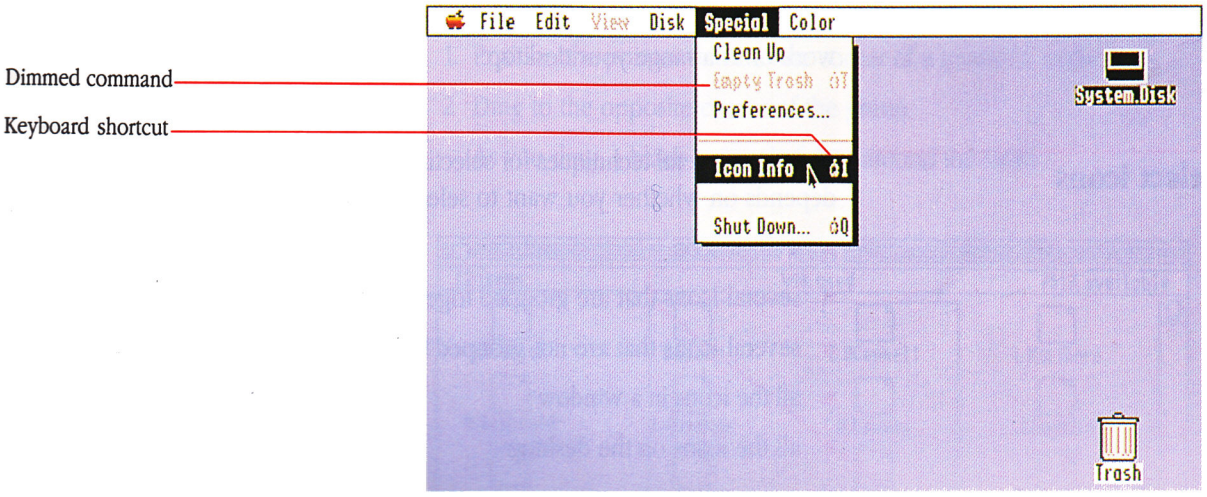

Figure 3-2 Choosing a command

4. Release the mouse button.

   The command you have chosen takes effect immediately.

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- *Keyboard shortcuts:* Many commands have keyboard shortcuts that let you give the command without pulling down a menu and choosing the command name. These shortcuts are listed to the right of the corresponding command names in the Finder menus.

  To use a keyboard shortcut, simply hold down the Command key while you press and then release the appropriate letter. To give the Icon Info command, for example, you can press Command-I.

For a summary of the commands in each menu, see "Menu Commands" later in this chapter.

Working with icons

Icons give you a visual representation of all the materials you can work with on the Finder desktop. You'll often need to manipulate icons as part of your work or to arrange your desktop.

To select icons

There are several techniques for selecting icons. The technique you use depends on whether you want to select

- a single icon
- several icons that are grouped together
- several icons that are not grouped together
- all the icons in a window
- all the icons on the desktop

Selecting a single icon

To select a single icon, click the icon. The icon becomes highlighted, indicating that it is selected.

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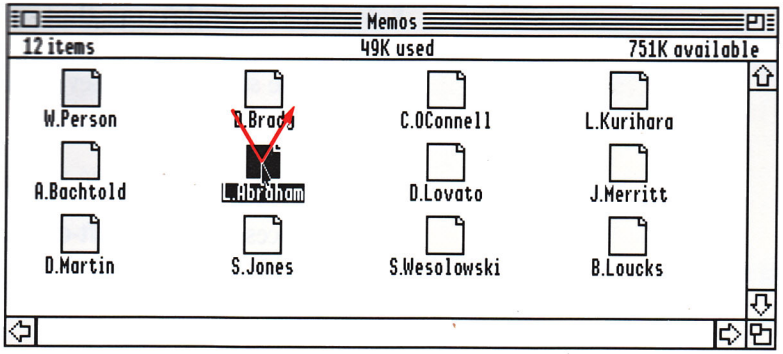

Figure 3-3 Selecting a single icon

Selecting several icons that are grouped together

Follow these steps to select several icons that are grouped together:

1. Position the pointer outside one corner of a group of icons.
2. Drag to the opposite corner of the group.

   As you drag, a black rectangle forms around the icons.

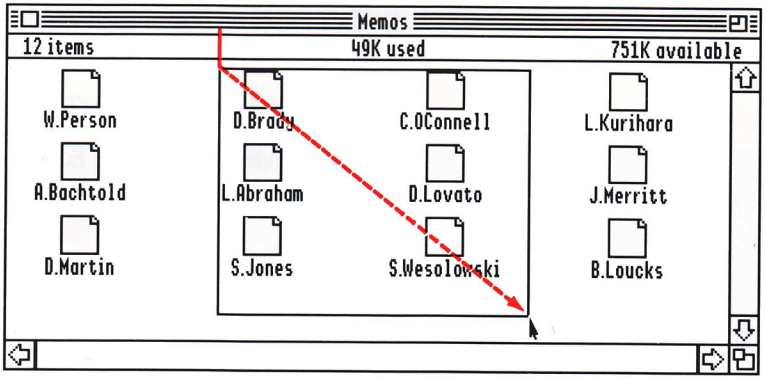

Figure 3-4 Selecting several icons that are grouped together

3. Release the mouse button.

   All icons that were partially or fully within the black rectangle are selected immediately.

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Selecting several icons that are not grouped together

Follow these steps to select several icons that are not grouped together:

1. Click the first icon to select it.
2. Hold down one of the Shift keys while you click the next icon to select it.

   This process is called **Shift-clicking.**
3. Shift-click each additional icon to select it.

Selecting all the icons in a window

Follow these steps to select all the icons in a window:

1. Click the appropriate window to make it the active window.
2. Choose Select All from the Edit menu. (Or press Command-A.)

   Command-A is the keyboard shortcut for the Select All command.

Selecting all the icons on the desktop

Follow these steps to select all the icons on the desktop:

1. Click the close box of each window on the desktop to close it. (Or choose Close All from the File menu.)

   For more information, see "To Close a Window" later in this chapter.
2. Choose Select All from the Edit menu. (Or press Command-A.)

   Command-A is the keyboard shortcut for the Select All command.

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To deselect icons

There are two techniques for deselecting icons. The technique you use depends on whether you want to deselect all selected icons or only some selected icons.

Deselecting all selected icons

To deselect all selected icons, click anywhere on the desktop *except* an icon.

Deselecting some selected icons

To deselect some selected icons but leave others selected, hold down one of the Shift keys while you click each icon that you want to deselect.

To move icons

Follow these steps to move icons from one place to another on the screen:

1. Select one or more icons.
2. Drag the icon or icons to the desired location on the screen.

   As you drag, an outline of the icon or icons follows the pointer. Don't release the mouse button until the pointer is in the desired location. If you're dragging items into another window, for example, release the mouse button when the pointer is within the window.

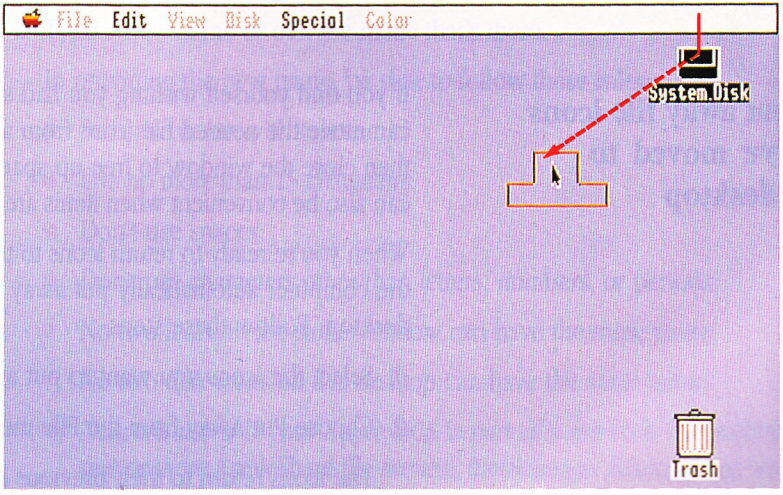

Figure 3-5 Moving an icon

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To clean up the icons in a window or on the desktop

Until you move them, icons in a window or on the desktop are aligned horizontally and vertically in an invisible grid. But when you move icons, you may not always realign them perfectly. You can realign them using the Clean Up command in the Special menu.

You can clean up only one window—or the desktop—at a time.

Cleaning up the icons in a window

Follow these steps to clean up the icons in a window:

1. Click the appropriate window to make it the active window.
2. Choose Clean Up from the Special menu.

   The icons move into alignment.

Cleaning up the icons on the desktop

Follow these steps to clean up the icons on the desktop:

1. Click the close box of each window on the desktop to close it. (Or choose Close All from the File menu.)

   For more information, see "To Close a Window" later in this chapter.
2. Choose Clean Up from the Special menu.

   The icons move into alignment.

To put away file icons you've moved to the desktop

If you find yourself wishing you had some extra space on the desktop, you can move the needed file icons from a window directly onto the desktop and then close the window to free up space. (Moving file icons onto the desktop can also be convenient when items are nested several folders deep.)

When you're ready to return icons to the appropriate windows, you can have the computer automatically put away file icons you've moved to the desktop. Follow these steps:

1. Select the icons you want to put away.
2. Choose Put Away from the File menu.

   The icons return to their previous locations—even if their windows aren't displayed on the desktop.

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- *Network users:* If your Apple IIGS is part of a network that includes one or more **AppleShare file servers,** you can't move file icons from a file server onto your desktop because other network users may need access to those files. For more information about AppleShare file servers, see Chapter 11, "Using Your Apple IIGS on a Network."

To rename icons

You can give a new name to any disk icon or any icon in a window—unless it's write-protected or locked.

- *Network users:* If your Apple IIGS is part of a network that includes one or more AppleShare file servers, you must have the appropriate access privileges in order to rename icons. For more information, see "Access Privileges" and "To Set Access Privileges for a Folder" in Chapter 11.

△ **Important** Don't rename the icon of the disk you're using as a startup disk. (If you want to rename a startup disk, you should start up from another disk, insert the disk to be renamed, and rename it.)

Don't rename the System folder icon or any icons in the System folder. △

Follow these steps to change the name of an icon:

1. Click the icon or its name.

   The icon and its name become highlighted.

2. Type a new name or edit the name that's there.

   In providing the new name, be sure to follow these rules:

   - Start the name with a letter.
   - Use no more than 15 characters.
   - Don't use spaces.
   - Don't use characters other than letters, numbers, or periods.
   - No two icons in the same window can have the same name.
   - No two disk icons on the desktop can have the same name.
   - *Network users:* If your Apple IIGS is part of a network that includes one or more AppleShare file servers, the naming rules for items you store on a file server are more flexible. For more information, see "Naming Rules" in Chapter 11.

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For instructions on editing text, see "Working With Text" later in this chapter.

3. Press Return to confirm the new name.

   If you change your mind about the name you typed—or realize that you've selected the name of an icon unintentionally—you can cancel the renaming operation by pressing the Esc (for *Escape*) key or by clicking anywhere outside the icon's name.

   If the name you typed in step 2 doesn't follow the appropriate rules, you'll see a message when you press Return indicating that you've provided an unacceptable file name. Click OK and then rename the icon with an appropriate name.

To change the color of icons

If you have a color monitor, you can change the background and outline color of file, folder, 3.5-inch disk, and 5.25-inch disk icons. If you have a monochrome monitor, you can choose among black, white, and 14 shades of gray for the background and outline.

Figure 3-6 Background and outline colors

Unless you want to use the same color for more than one icon, you should select a single icon in the following procedures.

Changing an icon's background color

Follow these steps to change the color of an icon's background:

1. Select the icon.
2. Choose the desired color from the Color menu.

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Changing an icon's outline color

Follow these steps to change the color of an icon's outline:

1. Select the icon.
2. Hold down the Option key while you choose the desired color from the Color menu.

Reversing the background and outline procedures

If you change icon outlines more often than icon backgrounds, you may want to reverse the commands used to perform the two coloring procedures. Follow these steps:

1. Choose Preferences from the Special menu.
2. Click the box next to the "Color selected icon's background instead of its outline" option to remove the X.
3. Click OK.

Now, whenever you choose a color from the Color menu, that color will be applied to the selected icon's outline. And whenever you hold down the Option key while choosing a color from the Color menu, that color will be applied to the selected icon's background.

To open icons

There are three techniques for opening icons. The technique you use depends entirely on personal preference.

Here are the three techniques:

- Select the icon and choose Open from the File menu.
- Select the icon and press Command-O (the keyboard shortcut for the Open command).
- Double-click the icon.

What happens when you open an icon depends on the type of icon:

- When you open a 5.25-inch disk drive icon, another icon (representing the disk in that drive) appears on the desktop along with the disk drive icon.
- When you open a disk or folder icon, a window displaying the **directory** of that disk or folder appears on the desktop.
- When you open an application icon, the Finder starts up the application.

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- When you open a document icon, the Finder tries to start up the application that was used to create the document. (This technique doesn't work with all applications; some require you to start up the application first and then open documents within the application.) Depending on the application, the document may then appear automatically; or the application may present you with an empty desktop, requiring you to open the document within the application.

  If the Finder isn't able to locate an application for the document—for example, if the application disk isn't in any of your disk drives—you'll see a message to that effect. For more information, see "To Start Up an Application" in Chapter 6.

To get information about icons

Follow these steps to get information about an icon:

1. Select the icon.
2. Choose Icon Info from the Special menu. (Or press Command-I.)

   Command-I is the keyboard shortcut for the Icon Info command.

   When you choose Icon Info, a window representing a spiral-bound book of index cards appears on the desktop. The first card displays general information about the icon.

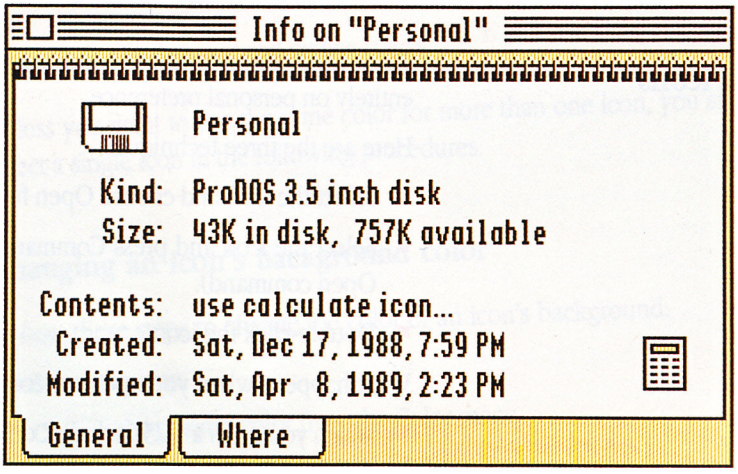

Figure 3-7 The General card

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3. For information on the icon's location, click the tab labeled *Where* near the bottom of the window.

   A new card appears on the desktop. This card lists the icon's physical location and its **pathname.** (In the example in Figure 3-8, the icon is on a disk in the second 3.5-inch drive; it's called *Susan.Kim* and is in a folder called *Letters*, which is on a disk called *Personal*.)

Figure 3-8 The Where card

- *Network users:* If your Apple IIGS is part of a network and you choose Icon Info after selecting an icon on an AppleShare file server, you'll see two more tabs (labeled *Access* and *Comment*) at the bottom of the window. These tabs let you see two additional information cards. For details, see "To Set Access Privileges for a Folder" in Chapter 11.

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Working with windows

Windows give you a visual representation of the contents of a disk or folder. You'll often need to manipulate windows in order to see the information they contain.

To make a window active

When you have two or more windows displayed on the desktop, only one window can be the **active window**—the location of your next action.

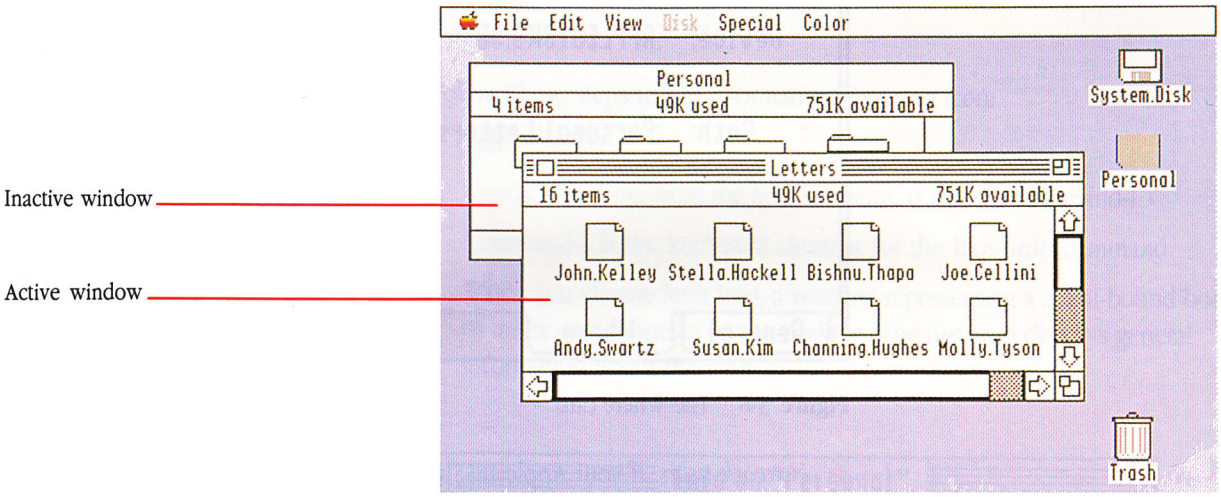

Figure 3-9 An active window and an inactive window

To make a window active, simply click anywhere in the window. (It may be necessary to move other windows first so that a portion of the window you want to make active is visible.)

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To move a window

You can move any window, active or inactive, if its title bar is visible.

Moving an active window

To move an active window, simply drag the window by its title bar to the desired location. As you drag, an outline of the window follows the pointer.

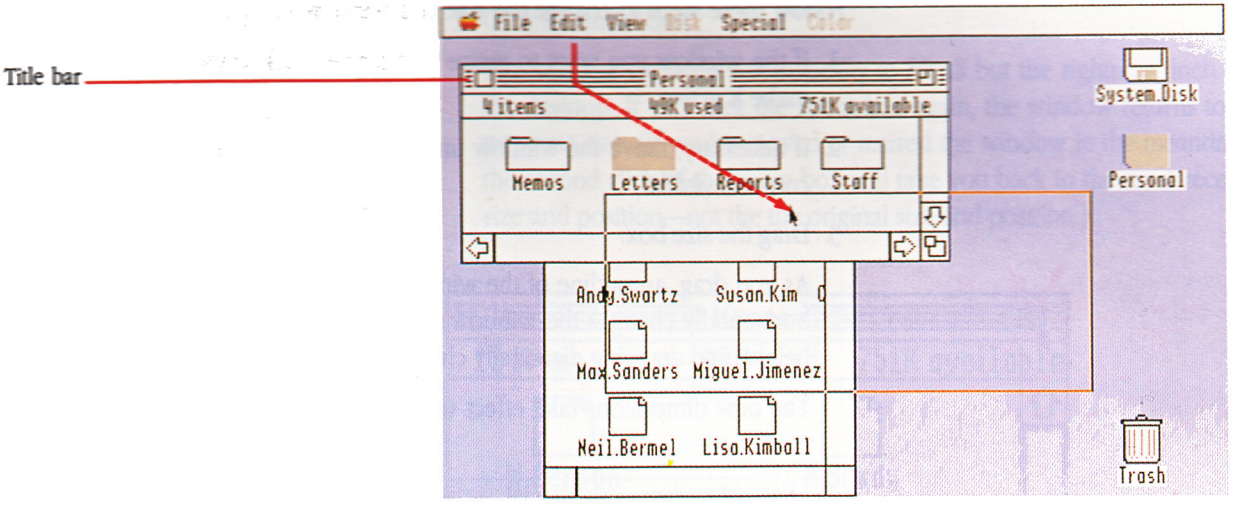

Figure 3-10 Moving an active window

To cancel the move, drag the pointer into the menu bar at the top of the desktop before releasing the mouse button.

Moving an inactive window without making it active

Follow these steps to move an inactive window without making it active:

1. If necessary, move any other windows until you can see the title bar of the inactive window to be moved.
2. Hold down the Command key while you drag the window by its title bar to the desired location.

   As you drag, an outline of the window follows the pointer.

   Holding down the Command key prevents the window from becoming active when you drag it.

To cancel the move, drag the pointer into the menu bar at the top of the desktop before releasing the mouse button.

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To change the size of a window

There are two ways to change the size of a window: by using the size box or by zooming. Using the size box allows you to make the window any size you want; zooming gives you only two possible sizes but is faster than using the size box.

Using the size box

Follow these steps to change the size of a window using the size box:

1. If the window you want to resize isn't active, click anywhere inside it to make it active.
2. If necessary, move the window until the size box in the lower-right corner is visible.
3. Drag the size box.

   As you drag, an outline of the window follows the pointer. Dragging horizontally changes the window's width, dragging vertically changes its height, and dragging diagonally changes both.

   The new dimensions take effect when you release the mouse button.

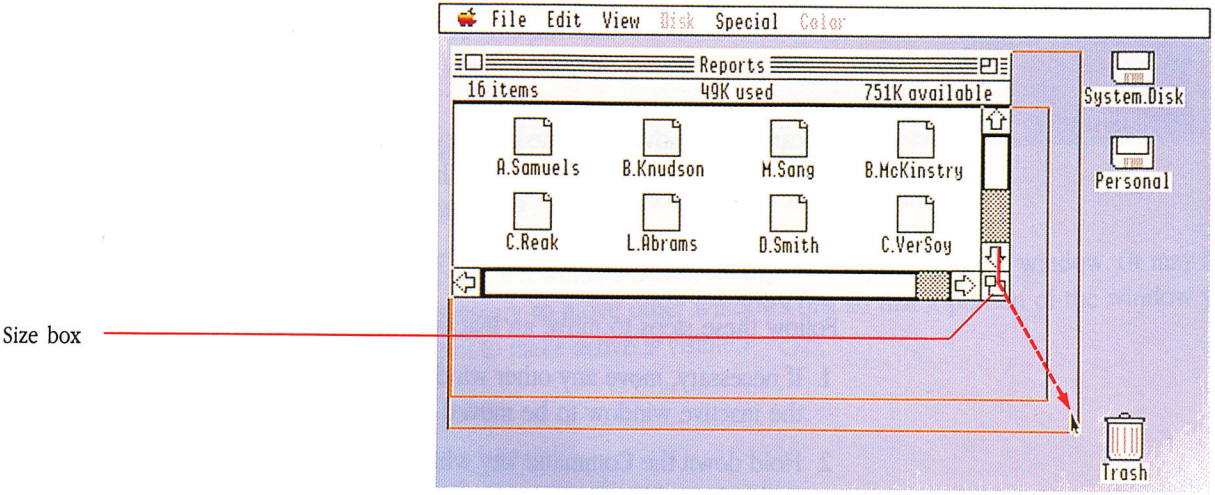

Figure 3-11 Using the size box

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Zooming

Follow these steps to change the size of a window by zooming:

1. If the window you want to resize isn't active, click anywhere inside it to make it active.
2. If necessary, move the window until the zoom box in the upper-right corner is visible.
3. Click the zoom box.

   The window expands automatically to fill all but the rightmost inch of the desktop. If you click the zoom box again, the window returns to its previous size. (If you've moved or resized the window in the meantime, the second click of the zoom box will take you back to the most recent size and position—not the the original size and position.)

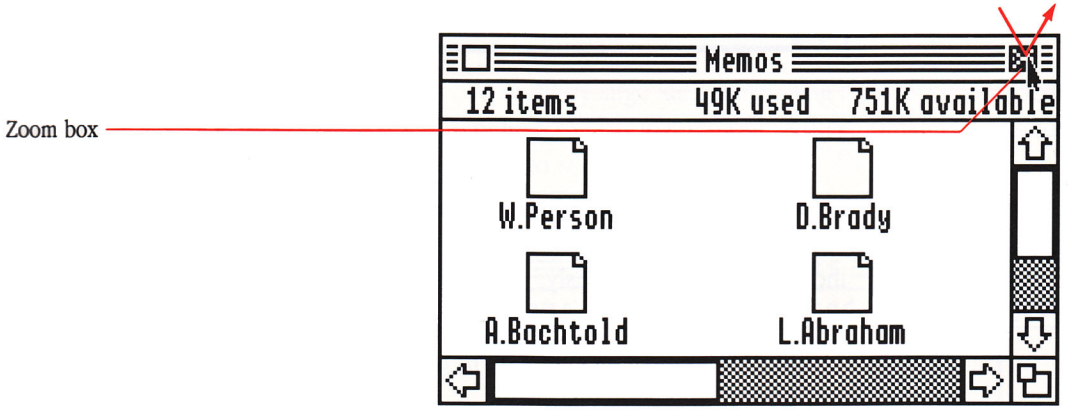

Figure 3-12 Zooming

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To change what's visible in a window

The scroll arrows, scroll bars, and proportional scroll boxes of a window let you change what portion of a window you see when it's too small to display the window's entire contents at one time. (When a window's complete contents are visible, both scroll bars are white, and you can't scroll.)

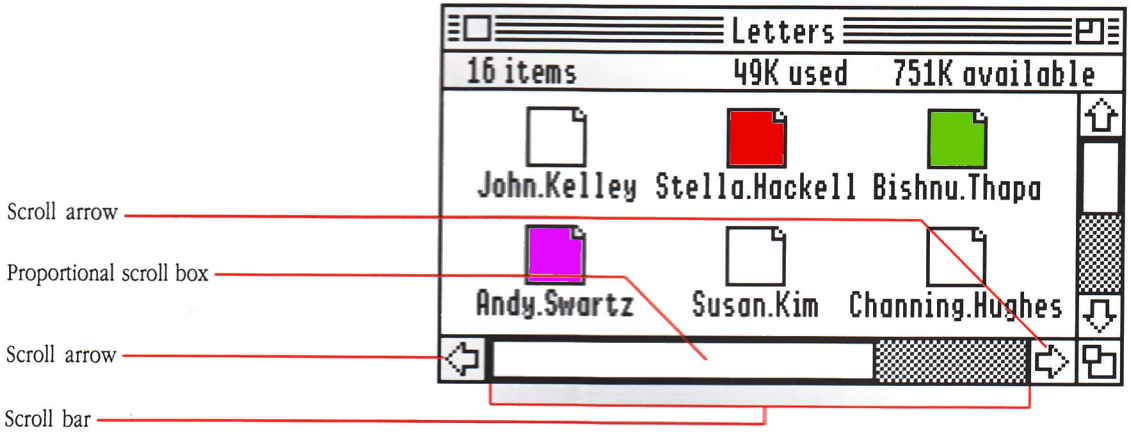

Figure 3-13 Scroll arrows, scroll bars, and proportional scroll boxes

There are four scrolling techniques. The technique you use depends on whether you want to scroll by small increments, by the windowful, by large increments, or continuously.

- To scroll by small increments, click the scroll arrow that points in the direction of the area you want to see.

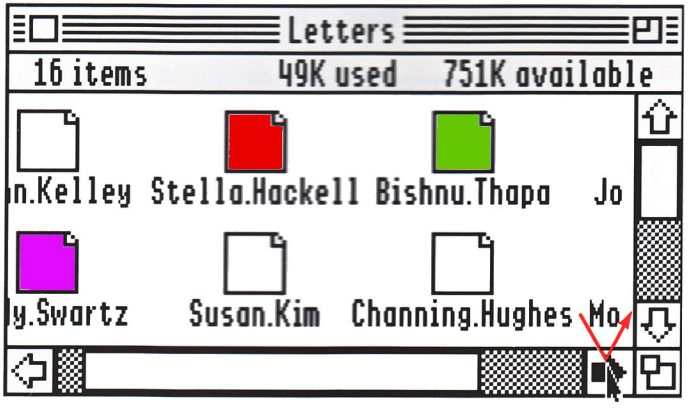

Figure 3-14 Scrolling by small increments

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- To scroll a windowful at a time, click one of the gray areas of the scroll bar.

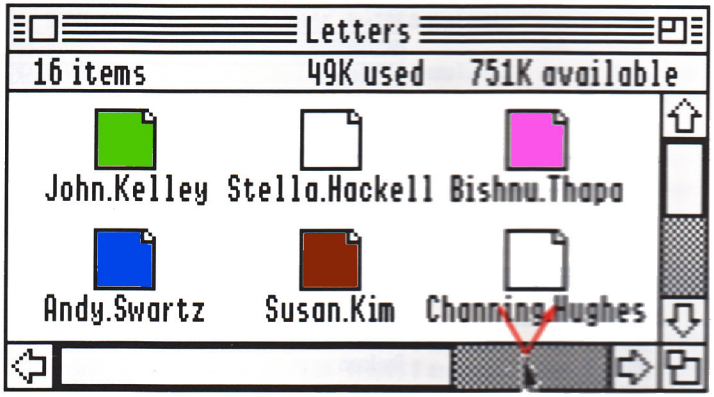

Figure 3-15 Scrolling by the windowful

- To scroll by large increments, drag the proportional scroll box to the point in the scroll bar that represents the approximate position of the area you want to see.

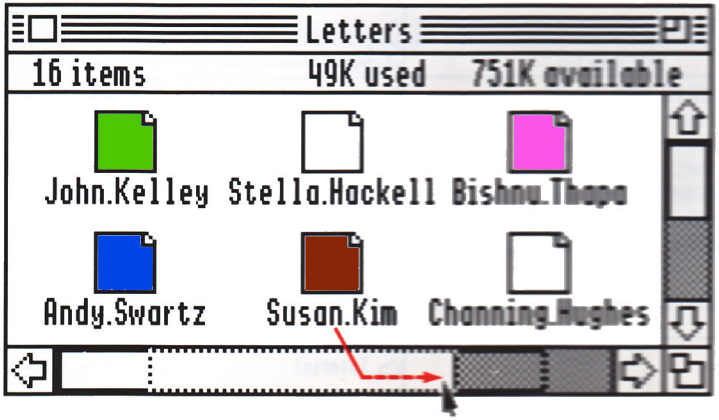

Figure 3-16 Scrolling by large increments

- To scroll continuously, press the scroll arrow that points in the direction of the area you want to see. As long as you hold the mouse button down, the window will scroll continuously by small increments in the direction of the arrow.

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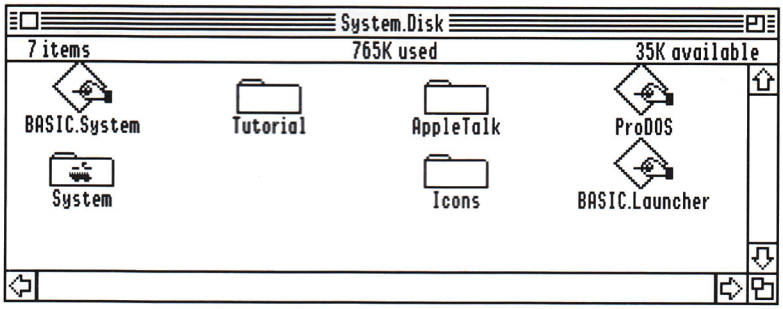
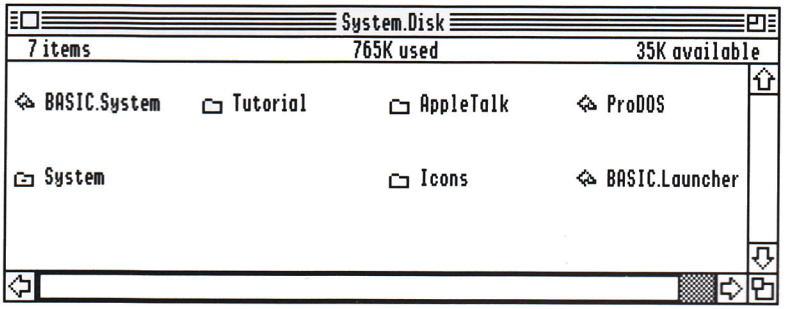
To change your view of a window

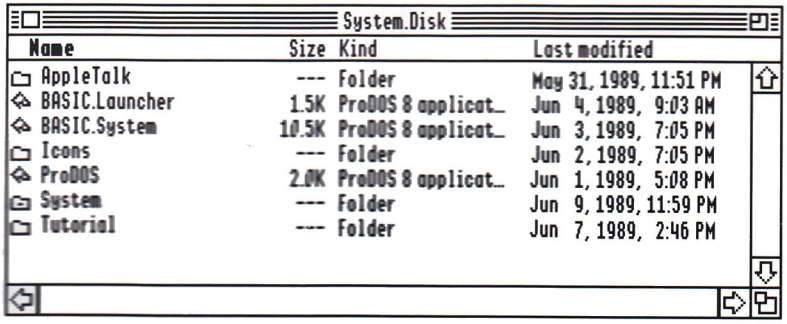
There are six possible views for a window: By Icon, By Small Icon, By Name, By Date, By Size, and By Kind. The view you use depends entirely on personal preference.



By Icon



By Small Icon



By Name

Figure 3-17 The System.Disk window displayed in each of the six views

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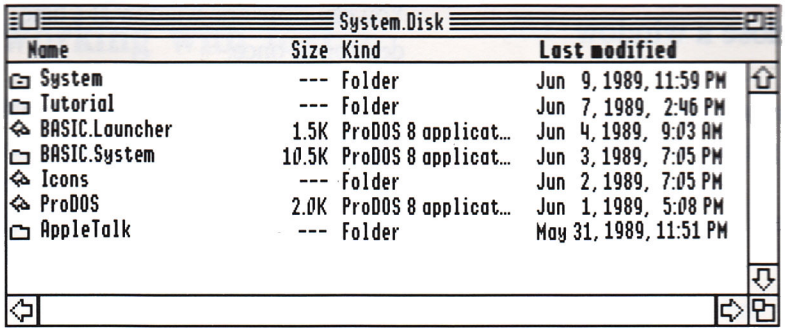
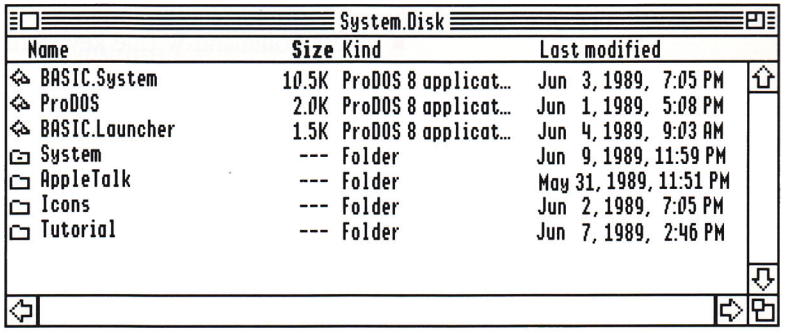
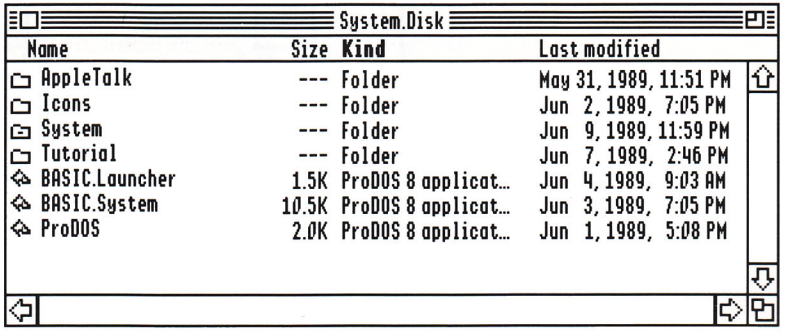


By Date



By Size



By Kind

Figure 3-17 *(continued)*

Follow these steps to change your view of a window:

1. If the window is not already active, click anywhere inside it to make it active.
2. Choose the desired view from the View menu.

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To close a window

You can close one window at a time, or you can close all windows on the desktop at once.

Closing a single window

There are three techniques for closing a single window. The technique you use depends entirely on personal preference. Each technique assumes that the window you want to close is the active window.

Here are the three techniques:

- Choose Close from the File menu.
- Press Command-W (the keyboard shortcut for the Close command).
- Click the window's close box.

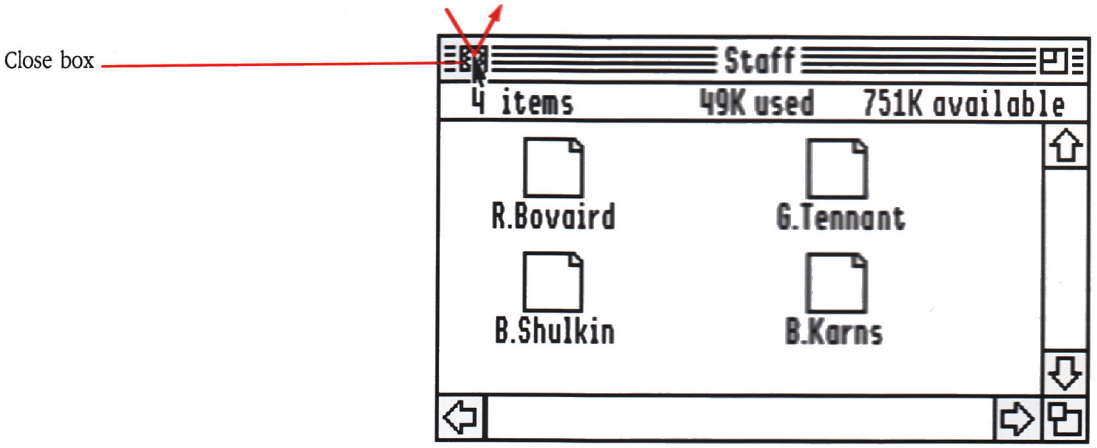

Figure 3-18 Closing a window using the close box

When you close the active window, the next frontmost window (if there is one) becomes the active window.

Closing all windows at once

To close all windows at once, simply choose the Close All command from the File menu.

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Working with text

When using the Finder, you'll need to edit text (or type new text) whenever you rename an icon or specify the name of a disk, folder, or file in a dialog box. And if you're using graphics-based applications that include text—for example, word-processing applications—you'll probably use the same text-editing techniques that you use in the Finder.

❖ *By the way:* The text-editing techniques described in this section are conventional techniques for the Apple IIGS, but not all applications observe these conventions. If these techniques don't work in some of your applications, refer to the manuals that came with the applications for instructions.

The illustrations in this section use icon renaming as an example of the text-editing techniques described. Keep in mind that you must click an icon or its name before you can edit the name, and that you must press Return to confirm the new icon name.

To select text

You select text in order to delete it or replace it. In some applications you also select text in order to copy it or to modify some aspect of it (such as its size or typeface).

There are three techniques for selecting text:

- dragging
- clicking and Shift-clicking
- double-clicking

You'll probably use different techniques depending on the length of the text to be selected. The first two techniques work in all circumstances, so you can stick to one of those methods if you find it convenient.

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Dragging to select text

This technique is best suited to selecting parts of words or short passages.

Follow these steps to select text by dragging:

1. Position the pointer at one end of the text to be selected.

   Note that the pointer becomes an I-beam when it's positioned within the word.

2. Drag across the text.

   The text becomes highlighted as you drag across it, indicating that it has been selected.

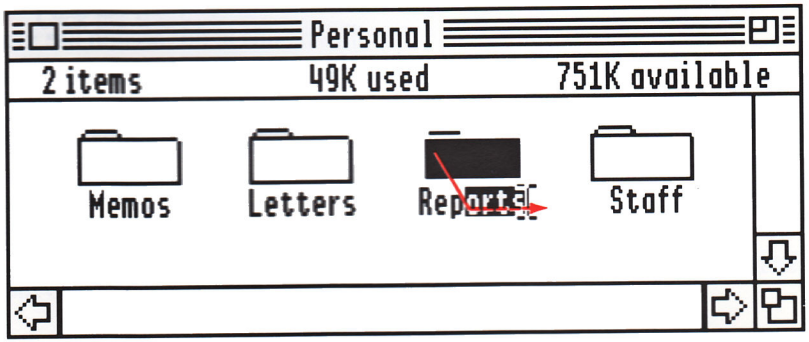

Figure 3-19 Selecting text by dragging

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Clicking and Shift-clicking to select text

This technique is best suited to selecting long passages. (It works when renaming an icon, too, but you'll probably find dragging or double-clicking more convenient for that purpose.)

Follow these steps to select text by clicking and Shift-clicking:

1. Click at one end of the text to be selected.
2. Hold down one of the Shift keys while you click at the other end of the text to be selected.

   All the text between the point of clicking and the point of Shift-clicking becomes highlighted, indicating that it has been selected.

Double-clicking to select text

This technique works only when you want to select complete words. If the text to be selected is part of a word—or begins or ends in the middle of a word—you must use one of the other methods of selecting text.

To select a word, simply double-click it. The word becomes highlighted, indicating that it has been selected.

❖ *Note:* When you're double-clicking an icon name to select it, be sure to double-click the name and not the icon itself. (Double-clicking an icon is a shortcut for opening the icon.)

To add an adjacent word to what you've already selected, hold down one of the Shift keys while you double-click the adjacent word. The highlighting extends to include the adjacent word as well. (You can continue adding adjacent words indefinitely by repeating this technique.)

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To insert text

When you want to add text to what's already there, you can make insertions without disturbing the existing text.

Follow these steps to insert text:

1. Click where you want to insert text.

   The blinking vertical bar, called the **insertion point,** marks where the text you type will be inserted.

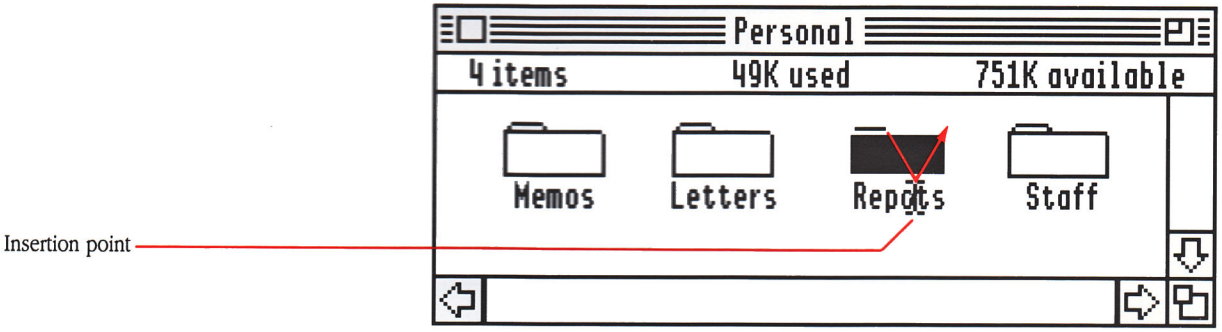

Figure 3-20 Inserting text

   If you make a mistake in positioning the insertion point, you can reposition it either by clicking somewhere else or by pressing the Left Arrow key or the Right Arrow key to move the insertion point left or right.

2. Type to add text.

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To delete text

Follow these steps to delete text:

1. Select the text you want to delete.

   For instructions, see "To Select Text" earlier in this chapter.

2. Press the Delete key, the Clear key, or Control-X.

   In some applications and desk accessories, you can also use the Cut command in the Edit menu to delete the selected text. But you can't use Edit menu commands in the Finder.

In addition to the standard procedure, there are three keystroke commands that let you make specific kinds of cuts:

- To delete the character to the left of the insertion point, simply press Delete.
- To delete the character to the right of the insertion point, press Control-F.
- To delete *all* the text to the right of the insertion point, press Control-Y.

To replace text

Follow these steps to replace existing text with new text:

1. Select the text you want to replace.
2. Type the new text.

   When you type the first character of the new text, the selected text disappears. What you type replaces it.

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Menu commands

This section gives an overview of all the Finder menus. Until you know the content of the menus by heart—which probably won't take you long—use the following pages to help you learn the location and function of each command.

The Apple menu

This section briefly describes each command in the Apple menu. In addition to the three commands described here, the Apple menu lists any **new desk accessories (NDAs)** that have been installed on your startup disk.

New desk accessories are available only through the Apple menu, either in the Finder or in graphics-based applications that support the Apple menu. **Classic desk accessories (CDAs),** on the other hand, are available from the Desk Accessories menu regardless of what application you're using. For instructions on choosing classic desk accessories from the Desk Accessories menu, see "To Get to the Text Control Panel" in Chapter 9.

About the Finder

Displays a box that names the authors and gives the version number of the Finder. To make the box disappear, click anywhere on the screen.

Help

Displays a dialog box listing Finder operations about which you can get information. Click the button next to the operation you want to know more about. Then click OK. The Finder displays a window describing the operation.

To quit the Finder Help screen, simply click Cancel.

Control Panel

Displays the graphic Control Panel desk accessory, which lets you customize many features of your computer. For information on how to make changes in the graphic Control Panel, see Chapter 9, "Using the Control Panel Desk Accessory."

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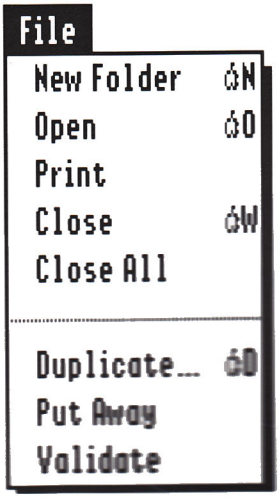
The File menu



This section gives a brief explanation of each command in the File menu. These commands help you manipulate files, folders, disks, icons, and windows.

New Folder

Places an empty folder in the active window. For instructions on using this command, see "To Create a New Folder" in Chapter 5.

Open

Opens the selected icon or icons. For instructions on using this command, see "To Open Icons" earlier in this chapter.

Print

Tries to print the documents represented by the selected icons. For instructions on using this command, see "Printing Documents From the Finder" in Chapter 6.

- *Network users:* If your computer is part of a network and you use a network printer, be sure to read "Network Printing" in Chapter 11.

Close

Closes the active window. The next frontmost window, if there is one, becomes the active window. For instructions on using this command, see "To Close a Window" earlier in this chapter.

Close All

Closes all windows. For instructions on using this command, see "To Close a Window" earlier in this chapter.

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Duplicate

Makes a duplicate copy of the selected file or folder and places it in the same window as the original. For instructions on using this command, see "To Place Duplicate Copies of Items in the Same Window" in Chapter 5.

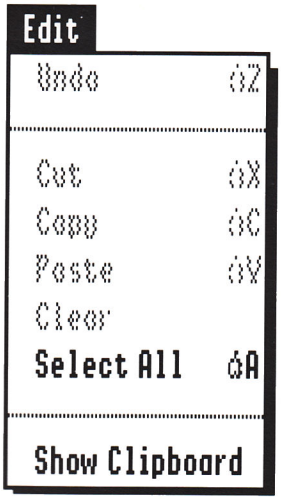
Put Away

Returns all selected files on the desktop or in the Trash window to the window from which they were most recently moved. For instructions on using this command, see "To Put Away File Icons You've Moved to the Desktop" earlier in this chapter.

Validate

Lets you check a disk or folder to see whether any of its files are damaged. For instructions on using this command, see "To Validate Files" in Chapter 5.

The Edit menu



This section gives a brief explanation of each command in the Edit menu. Many of these commands—the ones that help you edit text—can't be used in the Finder but can be used with most desk accessories in which you can type text. (Many graphics-based applications have similar or identical commands in their Edit menus.)

Undo

Reverses your last text-editing action. This command can't be used in the Finder.

Cut

Removes the selected material and places it in a holding area called the **Clipboard** (replacing whatever was there before). This command can't be used in the Finder.

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Copy

Places a copy of the selected material on the Clipboard (replacing whatever was there before) without removing the selected material from the original location. This command can't be used in the Finder.

Paste

Places a copy of the contents of the Clipboard at the insertion point without removing the contents from the Clipboard. You can paste the same item again and again—until you cut or copy a new selection onto the Clipboard. The Paste command can't be used in the Finder.

Clear

Removes the selected material without placing a copy on the Clipboard—whatever is on the Clipboard remains intact. This command can't be used in the Finder.

Select All

Selects all icons in the active window (or, if no windows are displayed, all icons on the desktop). For instructions on using this command, see "To Select Icons" earlier in this chapter.

Show Clipboard

Displays a window showing the current contents of the Clipboard. Although you can't cut or copy items onto the Clipboard—or paste items from the Clipboard—when you're working in the Finder, you can use this command to see the Clipboard's contents.

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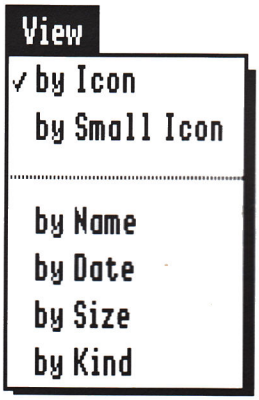
The View menu



This section gives a brief explanation of each command in the View menu. These commands let you change the way directory information is displayed in a window. The current view is always indicated in the View menu by a check mark. Only the By Icon and By Small Icon views list the number of items in a window and show you how much space is available on a disk.

For instructions on using the commands in the View menu, see "To Change Your View of a Window" earlier in this chapter.

By Icon

Displays the contents of the active window as full-sized icons, with the icon name below the icon.

By Small Icon

Displays the contents of the active window as small icons, with the icon name to the right of the icon. Viewing by small icon is useful when you have several items in a window and want to be able to see all their icons at once.

By Name

Lists the contents of the active window alphabetically by name.

By Date

Lists the contents of the active window chronologically by date of last modification. The item most recently changed is listed first. For folders, the modification date indicates when you last added or removed an item. If you've never added or removed any items, the date you created the folder is shown.

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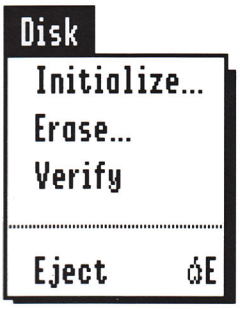
By Size

Lists the contents of the active window by size. The largest item is listed first. This view is particularly useful for seeing which files are taking up the most room on a disk.

By Kind

Lists the contents of the active window alphabetically by type of item. If the window contains any files, this view indicates what kind of file each one is—a BASIC application, a ProDOS 8 application, and so on.

The Disk menu



This section gives a brief explanation of each command in the Disk menu. These commands let you perform basic procedures with your disks. For instructions on using any of these commands, see Chapter 4, "Working With Disks."

Initialize

Initializes the disk represented by the selected icon.

Erase

Erases all information on the disk represented by the selected icon.

Verify

Lets you determine whether there is physical damage to the disk represented by the selected icon.

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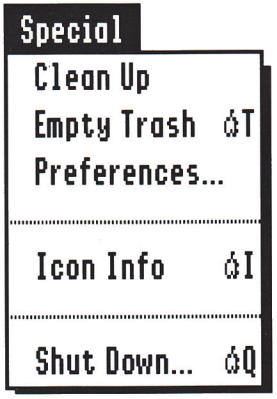
Eject

Ejects the 3.5-inch disk represented by the selected icon. This command does not, however, remove the disk's icon or its window from the desktop. (To remove the icon from the desktop, you must drag the icon to the Trash.)

- *CD-ROMs:* You can also use the Eject command to eject CD-ROMs. If a CD-ROM has partitions, you must select all the partition icons and then choose Eject in order to eject the disc. (The Eject command doesn't work if the CD-ROM has partitions initialized for more than one file system—for example, the *CD-ROM Explorer*™ disk that comes with the AppleCD SC™ drive, which includes both Macintosh® and ProDOS partitions.)

If you select the icon of a disk that can't be ejected—such as a hard disk, a hard disk partition, or a 5.25-inch disk, which must be ejected manually—the Eject command will be dimmed.

The Special menu



This section briefly explains each command in the Special menu. These commands let you perform a variety of tasks: aligning icons, permanently discarding anything you've dragged to the Trash, setting special preferences for Finder operations, getting information about icons, and shutting down the computer.

Clean Up

Aligns all icons in the active window in an invisible grid of rows and columns. (If no windows are displayed, this command aligns the icons on the desktop.) This command can be used on windows only when you're viewing the contents by icon or by small icon. For instructions on using this command, see "To Clean Up the Icons in a Window or on the Desktop" earlier in this chapter.

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Empty Trash

Permanently deletes any files and folders in the Trash and frees up the space they occupied on their disks. For instruction on using this command, see "Discarding Files and Folders" in Chapter 5.

Preferences

Displays a dialog box that lets you set special preferences for certain Finder operations.

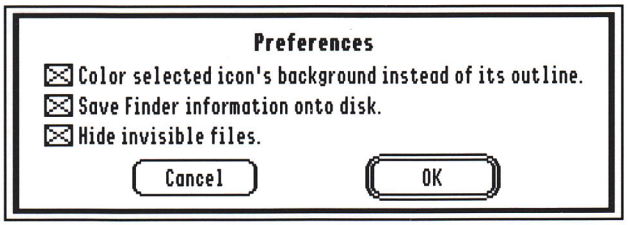

Figure 3-21 The Preferences dialog box

When an option is turned on, an X appears in the box next to the option's name. When an option is turned off, the box next to the option's name is empty. (All options are preset to be on.) You click the box to add or remove the X.

Click OK to confirm the change and make the Preferences dialog box disappear. Click Cancel to cancel any changes you've made in the Preferences dialog box.

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Following is a description of the three options in the Preferences dialog box.

- *Color selected icon's background instead of its outline:* For an explanation of this option, see "To Change the Color of Icons" earlier in this chapter.
- *Save Finder information onto disk:* When you close a window on a disk that isn't write-protected, the Finder keeps track of the position and size of the window and the position and color of the icons in the window; the next time you open the window, everything will look the same as when you closed it. Similarly, when you eject a disk that isn't write-protected, the Finder keeps track of which windows were displayed; the next time you insert the disk, the same windows will automatically be displayed.

  If you don't want the Finder to keep track of this information—for example, if you want the changes you make to window size or position to be only temporary—turn this option off.
- *Hide invisible files:* Several types of files containing data of use only to the Finder or the operating system are marked as "invisible." Normally, the Finder hides such files from view.

  If you want to see those files, turn this option off.

Icon Info

Displays a window showing information about the selected icon. For instructions on using this command, see "To Get Information About Icons" earlier in this chapter.

Shut Down

Prepares the computer to be switched off and then gives you the option of switching off the power, restarting the computer, or returning to the application (if any) from which you started the Finder. For instructions on using this command, see "To Restart the Computer From the Finder" and "To Shut Down the Computer," both in Chapter 6.

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The Color menu

The Color menu lets you change the color of the selected icon's background and outline. For instructions on using this menu, see "To Change the Color of Icons" earlier in this chapter.

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CHAPTER 4

Working With Disks

THIS CHAPTER EXPLAINS HOW TO PREPARE, USE, AND CARE FOR YOUR DISKS. Many of the tasks in this chapter are also covered in *Getting Started With Your Apple IIGS*.

Even if you've already completed the hands-on tutorial in the *Getting Started* manual, this chapter can be a useful source of tips, shortcuts, and additional information. It's also a handy reference in case you need a reminder about how to perform any disk management tasks.

Throughout this chapter, the term *disk* is used inclusively for 3.5-inch disks, 5.25-inch disks, hard disks, hard disk partitions, CD-ROMs, CD-ROM partitions, RAM disks, and file server volumes. (Not all procedures in this chapter can be performed on all kinds of disks, however.) To learn about hard disk partitions, see "Partitioning" in Chapter 8. To learn about RAM disks, see Chapter 10, "Using Memory As a RAM Disk." To learn about server volumes, see "Using an AppleShare File Server" in Chapter 11.

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Preparing to use disks

This section explains three tasks that you perform before using a disk: write-protecting the disk, inserting the disk, and initializing the disk. Write-protecting a disk is optional. Initializing is something you generally need to do only once for each disk.

To write-protect a disk

If you have disks whose contents you don't want to change—for example, the system disk, the system tools disk, an application disk, or a data disk with documents that don't need further changes—you can **write-protect** the disk to prevent anyone from altering the contents.

3.5-inch disks

To write-protect a 3.5-inch disk, slide the write-protect tab to uncover the square opening in the corner of the disk. If you change your mind about write-protection later, simply slide the write-protect tab back to cover the square opening again.

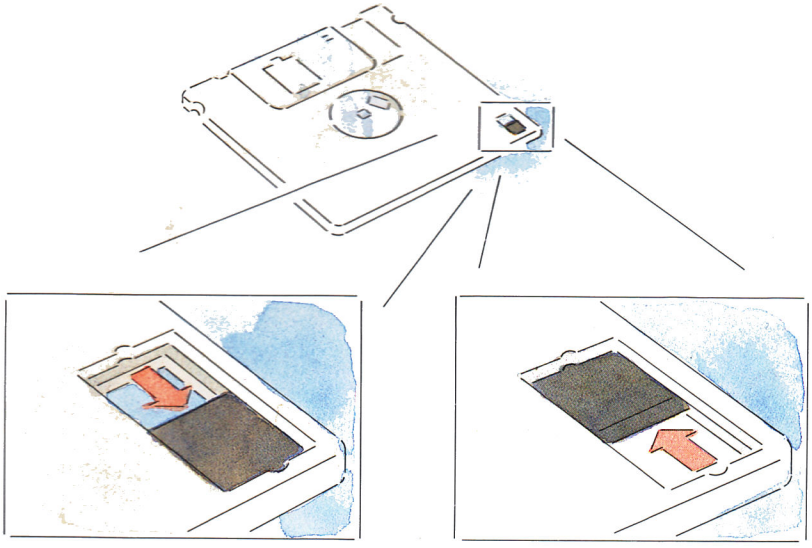

Figure 4-1 Write-protecting a 3.5-inch disk

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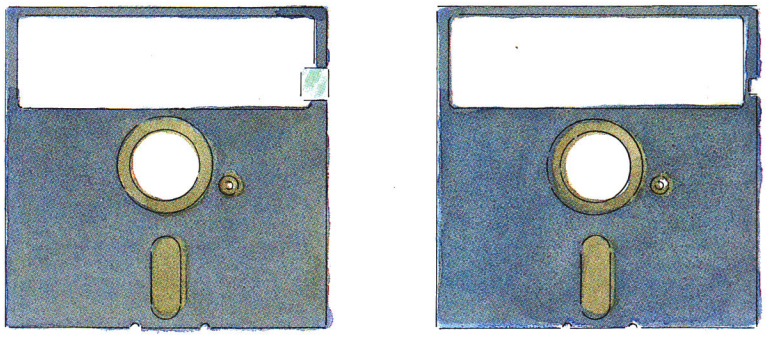
5.25-inch disks

To write-protect a 5.25-inch disk, cover the notch on the side of the disk with the special adhesive label that came with the disk. If you change your mind about write-protection later, simply remove the label from the notch.

Note that write-protection on 5.25-inch disks is the opposite of that on 3.5-inch disks. On 5.25-inch disks, you *cover* the notch to write-protect the disk. On 3.5-inch disks you *uncover* the hole to write-protect the disk.

If an application disk doesn't have a write-protect notch, the disk has been permanently write-protected by the manufacturer.



Write-protected (notch covered)

Not write-protected (notch uncovered)

Figure 4-2 Write-protecting a 5.25-inch disk

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To insert a disk

When inserting a disk, you need to make sure you're inserting it right side up and with the proper end entering the disk drive first.

3.5-inch disks

Follow these steps to insert a 3.5-inch disk:

1. Hold the disk with the label side up and with the metal end toward the disk drive.
2. Slide the disk into the disk drive metal end first.

   When the disk is almost all the way into the disk drive, the drive draws it the rest of the way in. You'll hear it snap into place.

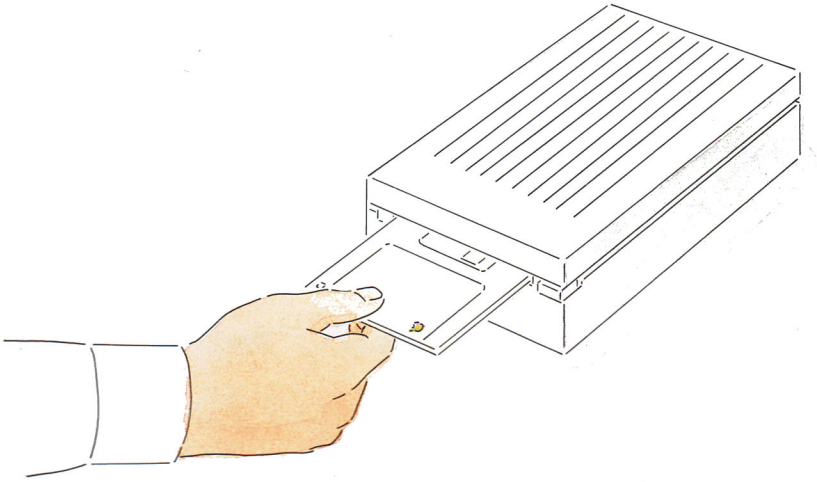

Figure 4-3 Inserting a 3.5-inch disk

It's normal for the disk drive light to flash when the computer is transferring data to or from the disk in a 3.5-inch disk drive.

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5.25-inch disks

Follow these steps to insert a 5.25-inch disk:

1. Make sure the disk drive door is open.
2. Hold the disk with the label side up and with the oval cutout toward the disk drive.
3. Slide the disk into the disk drive.

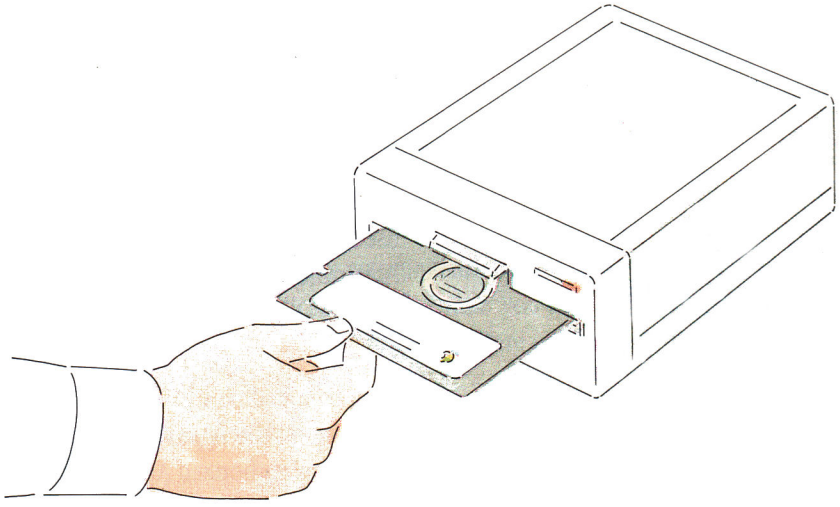

Figure 4-4 Inserting a 5.25-inch disk

4. Close the disk drive door.

It's normal for the disk drive light to flash when the computer is transferring data to or from the disk in a 5.25-inch disk drive.

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To initialize a disk

Before you can save information on a disk, the disk must be **initialized.** Initializing a disk does two things: It establishes a physical **format** for the disk (that is, it divides the disk into sections—somewhat like parking spaces in a parking lot—where information can be stored); and it writes a **file system** on the disk (that is, it establishes a system for organizing the sections on the disk so that the computer can keep track of where data is stored).

There are two occasions when you'll want to use the Finder to initialize a disk:

- when the disk has never been used before
- when you want to reinitialize a disk that has been initialized either for the ProDOS file system or for another file system

You can also use the Advanced Disk Utility program to initialize disks. (Unless you're already using the program, however, it's more convenient to use the Finder to initialize disks.) For instructions on initializing with the Advanced Disk Utility, see "Initializing" in Chapter 8.

The Finder initializes disks in the ProDOS format only. If you have earlier Apple II applications that use the Apple **Pascal** operating system and you want to initialize a disk in the Pascal format, you must use System Utilities, a program on the *Apple II System Disk*. You can purchase a copy of this disk from your authorized Apple dealer.

❖ *Tip:* You should always keep a couple of initialized disks on hand. Some applications don't allow you to initialize disks within the application, and if you don't have an initialized disk on hand when you're ready to save your work, you'll lose the document stored in the computer's memory.

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Initializing for the first time

Follow these steps to initialize a disk in the ProDOS format for the first time:

1. Insert the disk you want to initialize in an empty disk drive. (If the disk is a 5.25-inch disk, you must also open the 5.25-inch disk drive icon.)

   You'll see the following dialog box.

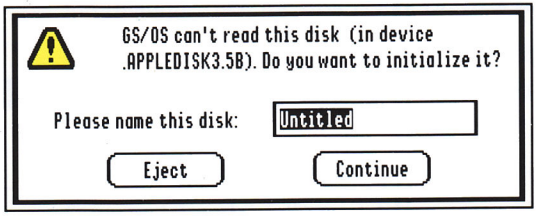

Figure 4-5 The naming dialog box: New disks

   - *Hard disks:* If the disk is an uninitialized hard disk, you'll see this dialog box automatically the first time you start up with the Finder after installing the SCSI Hard Disk update on your startup disk and switching on the hard disk.

2. Type a name for the disk.

   Be sure to keep the following rules in mind:

   - Start the name with a letter.
   - Use no more than 15 characters.
   - Don't use spaces.
   - Don't use characters other than letters, numbers, or periods.
   - No two disk icons on the desktop can have the same name.

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3. Click Continue.

   Or, if you change your mind about initializing the disk, click Cancel.

   When you click Continue, you'll see a dialog box similar to the one in Figure 4-6.

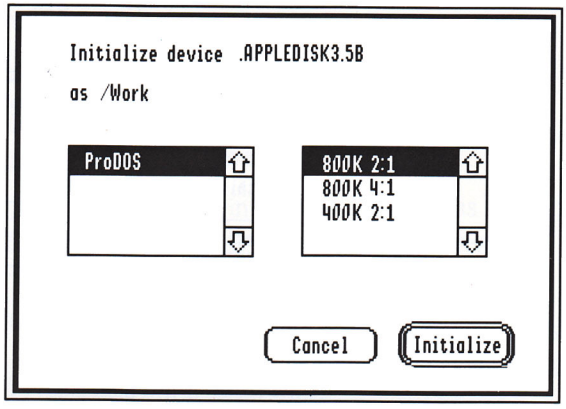

Figure 4-6 The Initialize dialog box

The window on the left lists all file systems available on the startup disk. (At present, the only available file system is ProDOS.)

If the disk to be initialized is a 3.5-inch disk in an Apple 3.5 Drive or an unpartitioned hard disk that has been used before with a file system other than ProDOS, the window on the right shows the possible disk formats. Go on to step 4.

If the disk to be initialized is a 3.5-inch disk in a UniDisk™ drive, a 5.25-inch disk, a hard disk that hasn't been used with a file system other than ProDOS, a hard disk partition, or a RAM disk, the window on the right shows the size of the disk. Skip to step 5.

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4. If necessary, select a disk format.

   - When initializing a 3.5-inch disk in an Apple 3.5 Drive, you're given a choice of three formats: 800K 2:1, 800K 4:1, and 400K 2:1. The 2:1 and 4:1 labels refer to different orders of sectors on the tracks.

     In most cases, you should accept the highlighted option, 800K 2:1. If you'll be using the disk in both Apple 3.5 Drives and UniDisk 3.5-inch drives, however, the 800K 4:1 option will promote optimum access to information when the disk is in a UniDisk drive.

     Choose the 400K option if you're using a single-sided disk. (In most cases, the disk label will indicate whether the disk is single-sided or double-sided.)

   - When initializing a hard disk, you may be given a choice of two formats: 1:1 and 2:1. These labels refer to different orders of sectors on the tracks.

     The 2:1 option will appear only if the hard disk has been used previously with a file system that requires that order of sectors. The 1:1 option is faster and more efficient, so don't select the 2:1 option.

5. Click Initialize or press Return.

   When the initialization is complete, the disk's icon appears on the desktop with the name you provided in step 2.

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Reinitializing

Follow these steps to reinitialize a disk that has already been initialized once for use with the ProDOS file system (or another file system):

1. Insert the disk you want to reinitialize in an empty disk drive.

   If the disk is a hard disk, a hard disk partition, or a RAM disk, skip this step.

2. Select the disk icon.

   If the disk is a 5.25-inch disk, you must first open the 5.25-inch disk drive icon.

3. Choose Initialize from the Disk menu.

   You'll see a dialog box similar to the one in Figure 4-7.

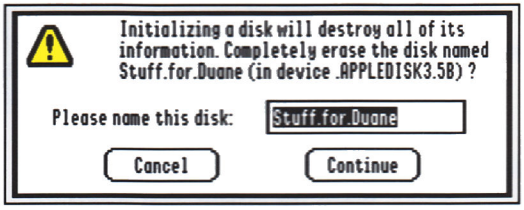

Figure 4-7 The naming dialog box: Previously initialized ProDOS disks

   If the disk was previously initialized for a file system other than ProDOS, the message in this dialog box will be slightly different.

4. If you wish, specify a new name for the disk.

   If you want to change the disk's name as part of the initialization process, simply type a new name. Be sure to keep the following rules in mind:

   - Start the name with a letter.
   - Use no more than 15 characters.
   - Don't use spaces.
   - Don't use characters other than letters, numbers, or periods.
   - No two disk icons on the desktop can have the same name.

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5. Click Continue.

   Or, if you change your mind about initializing the disk, click Cancel.

   When you click Continue, you'll see a dialog box with two windows. (See Figure 4-6.) The window on the left lists all file systems available on the startup disk. (At present, the only available file system is ProDOS.)

   If the disk to be initialized is a 3.5-inch disk in an Apple 3.5 Drive or an unpartitioned hard disk that has been used before with a file system other than ProDOS, the window on the right shows the possible disk formats. Go on to step 6.

   If the disk to be initialized is a 3.5-inch disk in a UniDisk drive, a 5.25-inch disk, a hard disk that hasn't been used with a file system other than ProDOS, a hard disk partition, or a RAM disk, the window on the right shows the size of the disk. Skip to step 7.

6. If necessary, select a disk format.

   - When initializing a 3.5-inch disk in an Apple 3.5 Drive, you're given a choice of three formats: 800K 2:1, 800K 4:1, and 400K 2:1. The 2:1 and 4:1 labels refer to different orders of sectors on the tracks.

     In most cases, you should accept the highlighted option, 800K 2:1. If you'll be using the disk in both Apple 3.5 Drives and UniDisk 3.5-inch drives, however, the 800K 4:1 option will speed up access to information when the disk is in a UniDisk drive.

     Choose the 400K option if you're using a single-sided disk. (In most cases, the disk label will indicate whether the disk is single-sided or double-sided.)

   - When initializing a hard disk, you may be given a choice of two formats: 1:1 and 2:1. These labels refer to different orders of sectors on the tracks.

     The 2:1 option will appear only if the hard disk has been used previously with a file system that requires that order of sectors. The 1:1 option is faster and more efficient, so don't select the 2:1 option.

7. Click Initialize or press Return.

   When the initialization is complete, the disk's name changes to the name you provided in step 4.

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Manipulating disks and disk icons

This section describes several tasks you can perform with disks whose icons are displayed on the desktop.

To open a disk icon or disk drive icon

Like other icons, disk and disk drive icons can be opened to see what's inside. There are three techniques for opening disk and disk drive icons:

- Select the icon and choose Open from the File menu.
- Select the icon and press Command-O (the keyboard shortcut for the Open command).
- Double-click the icon.

You can use the Finder to examine the contents of a variety of disks, including 3.5-inch disks, 5.25-inch disks, RAM disks, hard disks, hard disk partitions, file server volumes, CD-ROMs, and CD-ROM partitions. Figure 4-8 shows the icon for each type of disk.

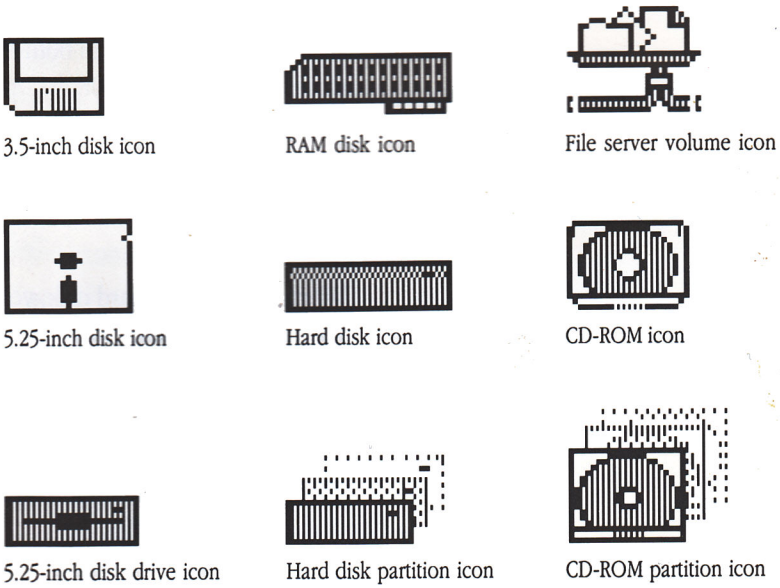

Figure 4-8 Disk and disk drive icons

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Note that Figure 4-8 shows a 5.25-inch disk drive icon as well as a 5.25-inch disk icon. If you have a 5.25-inch disk drive, the Finder displays the drive icon even when there's no disk in the drive.

To examine the contents of a 5.25-inch disk, you must first open the disk drive icon. The icon of the disk is then displayed, and you can open it as you would open any other disk icon.

- *Missing icons?* If a disk icon (or a 5.25-inch disk drive icon) doesn't appear on the desktop as expected, refer to "Starting Up the Computer" in Chapter 12 for troubleshooting suggestions.

To copy a disk

It's a good idea to make a spare copy, called a **backup copy,** of any disk that contains information you don't want to lose. Be sure to make backup copies of the system disk, the system tools disk, and your application disks. For the sake of security, you'll probably want to make backup copies of your data disks as well.

- *Can't copy an application disk?* Most applications are protected by copyright, so it's illegal to copy them (except to make a backup copy for your own use). Some software manufacturers rely on an honor system, but others **copy-protect** (make it difficult to copy) their disks to prevent illegal copying and distribution of the application. If you have a copy-protected application, the manufacturer generally provides one backup copy or offers replacement of damaged disks for free or at a nominal cost.

While you're making a backup copy, the disk you're making a copy of is called the **source disk,** and the disk that will contain the new copy is called the **destination disk.**

Your source disk and your destination disk don't have to be the same size—but the destination disk can't be smaller than the source disk.

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Copying to a disk of the same size

When copying the contents of a disk to another disk of the same size, the Finder will completely replace the contents of the destination disk with the complete contents of the source disk unless you specify otherwise. If you don't want the complete contents of the destination disk to be replaced, see "Special Copying Options" later in this section for alternative procedures.

Follow these steps to copy the contents of a disk to another disk of the same size:

1. Insert both the source disk and the destination disk.

   The icons of both disks must be displayed on the desktop.

   If you have only one disk drive of the appropriate size, follow these steps:

   - Insert the source disk.
   - If the source disk is a 5.25-inch disk, open the disk drive icon.
   - Eject the source disk manually by pressing the eject button (for 3.5-inch drives) or by opening the disk drive door and removing the disk (for 5.25-inch drives).
   - Insert the destination disk.
   - If the destination disk is a 5.25-inch disk, open the disk drive icon.

2. Drag the source disk icon on top of the destination disk icon.

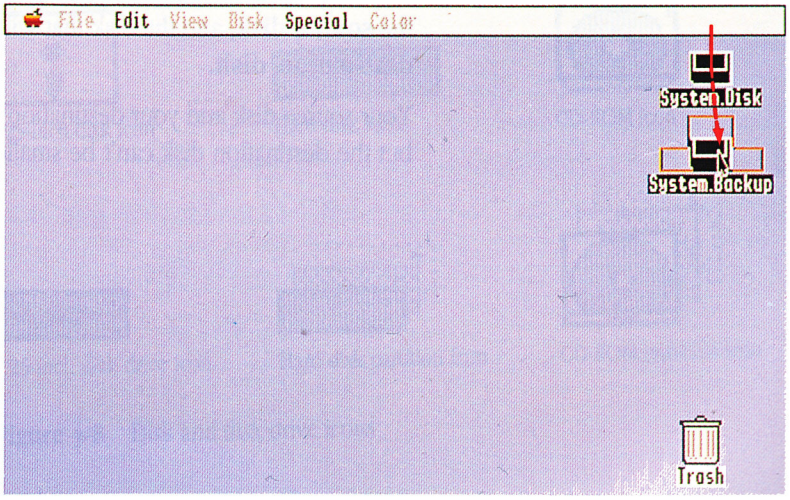

Figure 4-9 Copying to a disk of the same size

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If the destination disk window is displayed, you can also drag the source disk icon into the destination disk window.

You'll see a dialog box asking you to confirm that you want to erase everything on the destination disk and replace it with what's on the source disk.

▲ Warning Copying a disk erases everything on the destination disk and replaces it with the contents of the source disk. Before you proceed with the copying operation, be sure that the destination disk doesn't contain any information you need. ▲

3. Click OK to continue.

   Or, if you change your mind about copying, click Cancel.

   A dialog box appears with a "thermometer" indicator that shows the progress of the copying procedure.

   If you're using only one disk drive for the copying procedure, the Finder displays a dialog box whenever it's necessary to swap disks. Simply follow the directions on the screen whenever you're prompted to insert a disk.

   If you want to cancel the copying procedure while it's in progress, click Cancel.

△ Important Because the Finder erases everything on the destination disk before it begins copying from the source disk, you won't be able to rescue the original contents of the destination disk by clicking Cancel. And because the Finder copies information by blocks (rather than by files), the new information on the destination disk probably won't be in a usable form if you click Cancel. △

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Copying to a disk of a larger size

When copying the contents of a disk to a larger-size disk, the Finder normally places the contents of the source disk in a folder on the destination disk. The folder will have the same name as the source disk, and the other contents of the destination disk remain intact. If you want the complete contents of the destination disk to be replaced or if you don't want the contents of the source disk to be placed in a folder, see "Special Copying Options" later in this section for alternative procedures.

Follow these steps to copy the contents of a disk to a folder on a larger disk:

1. Insert both the source disk and the destination disk.
2. Drag the source disk icon on top of the destination disk icon.

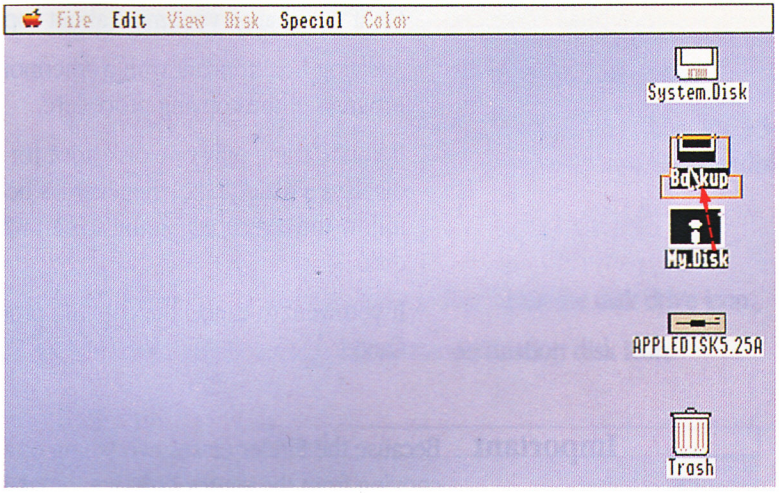

Figure 4-10 Copying to a folder on a disk of a different size

If the destination disk window is displayed, you can also drag the source disk icon into the destination disk window.

You'll see a dialog box asking you to confirm that you want to place the contents of the source disk in a folder on the destination disk.

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3. Click OK to continue.

   Or, if you change your mind about copying, click Cancel.

   A dialog box appears with a "thermometer" indicator that shows the progress of the copying procedure. The dialog box also shows how many files and folders remain to be copied.

   If a folder with the same name as the source disk already exists on the destination disk, you'll see the dialog box shown in Figure 4-12. Click the button that corresponds to your wishes.

   If a *locked* folder with the same name as the source disk already exists on the destination disk, you'll see the dialog box shown in Figure 4-13. Click the button that corresponds to your wishes.

   If you want to cancel the copying procedure while it's in progress, click Cancel.

Special copying options

When copying disks, the Finder can

- place the contents of the source disk in a folder on the destination disk (the standard procedure when copying to a larger disk)
- replace the contents of the destination disk with the contents of the source disk (the standard procedure when copying to a disk of the same size)
- add the contents of the source disk to the contents of the destination disk (not in a folder) without erasing the existing contents of the destination disk

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If you want the Finder to use the standard procedure, follow the instructions in one of the previous sections. But if you want the Finder to use an alternative procedure, follow these steps:

1. Insert both the source disk and the destination disk.

   The icons of both disks must be displayed on the desktop.

   If you're copying to a disk of the same size and you have only one disk drive of the appropriate size, follow these steps:

   - Insert the source disk.
   - If the source disk is a 5.25-inch disk, open the disk drive icon.
   - Eject the source disk manually by pressing the eject button (for 3.5-inch drives) or by opening the disk drive door and removing the disk (for 5.25-inch drives).
   - Insert the destination disk.
   - If the destination disk is a 5.25-inch disk, open the disk drive icon.

2. Hold down the Option key while you drag the source disk icon on top of the destination disk icon (or into the destination disk window, if it is displayed).

   You'll see the Disk Copy Alternatives dialog box.

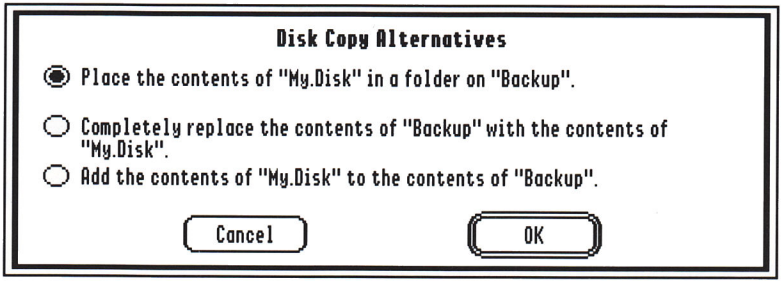

Figure 4-11 The Disk Copy Alternatives dialog box

3. Click the button next to one of the options to select it.
4. Click OK.

   A dialog box appears with a "thermometer" indicator that shows the progress of the copying procedure.

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If you choose the third option in the Disk Copy Alternatives dialog box and there are items on the destination disk with the same names as items being copied, you'll see this dialog box for each such item.

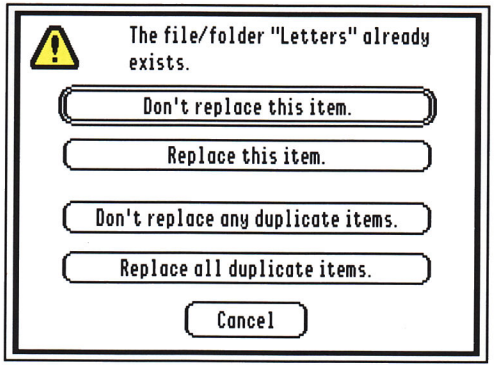

Figure 4-12 The Finder encounters an item with the same name

Click the button that corresponds to your wishes. Note that the Cancel button cancels the entire copying procedure.

If you chose the third option in the Disk Copy Alternatives dialog box and there are *locked* items on the destination disk with the same name as items being copied, you'll see this dialog box for each such item.

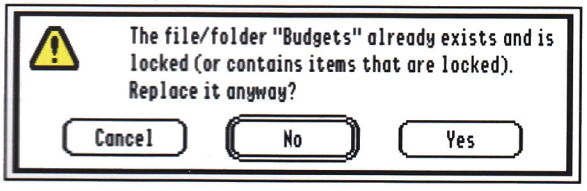

Figure 4-13 The Finder encounters a locked item with the same name

Click the button that corresponds to your wishes. Note that the Cancel button cancels the entire copying procedure.

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To erase a disk

If you want to remove all the files from a disk initialized for the ProDOS file system and you plan to use the disk again with an Apple IIGS, you should erase the disk.

- *About erasing:* When you erase a disk, the only thing that is actually removed from the disk is its directory—the list of files on the disk. When you open the disk icon on the desktop, it appears that there are no longer any files on the disk—because it is the directory that lets you see files on a disk. The files are still there, but without a directory they're invisible—and inaccessible, unless you know how to manipulate the data on a disk without a disk directory.

  If you want to completely destroy the data on a disk so that no amount of manipulation can ever recover it, you should zero the disk rather than erase it. For information on zeroing, see "Zeroing" in Chapter 8.

Follow these steps to erase a disk:

1. Select the icon of the disk you want to erase.
2. Choose Erase from the Disk menu.

   You'll see this dialog box.

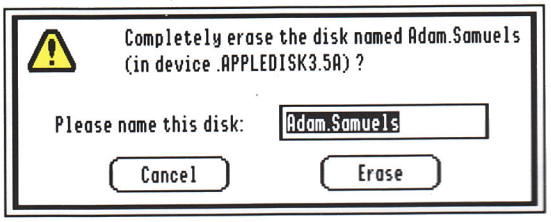

Figure 4-14 The Erase dialog box

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3. If you wish, specify a new name for the disk.

   If you want to change the disk's name as part of the erasing process, simply type a new name. Be sure to keep the following rules in mind:

   - Start the name with a letter.
   - Use no more than 15 characters.
   - Don't use spaces.
   - Don't use characters other than letters, numbers, or periods.
   - No two disk icons on the desktop can have the same name.

4. Click Erase.

   Or, if you change your mind about erasing the disk, click Cancel.

   When the erasing is complete, the disk's name changes to the name you provided in step 3 (if you made any changes).

To eject a disk

There are two occasions when you'll want to use the Finder to eject disks:

- when you no longer need to work with the disk
- when you need more disk icons on the desktop than you have disk drives of the appropriate size

Ejecting a disk you're finished working with

To eject a disk you no longer need to use in this work session, simply drag its icon to the Trash. (Dragging a disk icon to the Trash doesn't affect the information on the disk.)

If you're ejecting a 5.25-inch disk, you'll also need to open the disk drive door and remove the disk.

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Ejecting a disk without removing its icon from the desktop

You'll sometimes need to have more disk icons on the desktop than you have disk drives of the appropriate size—for example, when you're using the Installer program or copying disks using only one disk drive.

There are two methods for ejecting a 3.5-inch disk without removing its icon from the desktop:

- Select the icon of the disk you want to eject and choose Eject from the Disk menu.
- Press the eject button on the disk drive itself.

Regardless of the method you use, the icon of the 3.5-inch disk remains on the desktop in dimmed form.

Follow these steps to eject a 5.25-inch disk without removing its icon from the desktop:

1. If necessary, open the 5.25-inch disk drive icon.

   The disk icon is then displayed on the desktop.

2. Open the disk drive door and remove the disk.

   The icon of the 5.25-inch disk remains on the desktop. Unlike the icon of a 3.5-inch disk that has been ejected, however, the icon is not dimmed.

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Diagnosing disk problems and taking care of disks

This section describes how to find out whether a disk has been physically damaged and how to store and handle disks to prevent damage.

To verify a disk

If you have problems storing information on a disk or retrieving information from a disk, there may be physical damage to the disk. You can find out using the Verify command.

Follow these steps to verify a disk:

1. Select the icon of the disk you want to verify.
2. Choose Verify from the Disk menu.

   A dialog box appears with a "thermometer" indicator that shows the progress of the verifying procedure. The dialog box also shows how many **blocks** remain to be verified. (A block is a unit of measure used to specify the size of disks and files.)

   When the verifying process is complete, you'll see another dialog box indicating whether there were any bad blocks on the disk.
3. If there were no bad blocks, click OK.
4. If there were bad blocks, either click OK (to see which blocks are affected) or Cancel (if you don't care which blocks are affected).

   If a disk has bad blocks, copy any files you can to a good disk and then discard the disk with bad blocks. (You can use the Validate command to find out which files are affected by the bad blocks. For instructions, see "To Validate Files" in Chapter 5.) If the disk with bad blocks is a hard disk or a hard disk partition, see your authorized Apple dealer.

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To handle and store a disk properly

It's important to take good care of your disks so that you don't damage them (or the data stored on them). When handling and storing disks, always follow these guidelines.

- Keep your disks in a location where the temperature is between 50° F (10° C) and 125° F (52° C). Be sure to keep your disks away from very hot places (such as the top of a radiator or the dashboard of your car on a sunny day).
- Keep your disks away from magnets (do not place them on top of a monitor or a telephone, both of which use magnets).
- Protect your disks from dust. Store them upright and covered, in a plastic disk holder, a shoebox, or a similar container.
- Keep your disks dry. Don't water plants nearby or place a beverage within spilling range.
- Don't touch the exposed part of the disk itself. On 3.5-inch disks, the disk is exposed when you slide open the metal "doorway." On 5.25-inch disks, there are cutaways on each side of the disk jacket where the disk is exposed.
- Don't use a pencil or a ballpoint pen to write on a disk label affixed to a 5.25-inch disk. (The pencil or pen might penetrate the disk jacket and damage the disk itself if you press too hard.) If you need to write on a label that's already affixed, use a felt-tip pen.
- Don't use an eraser or correction fluid on a disk label affixed to a disk. (Eraser "crumbs" or flakes of correction fluid can easily get inside the disk jacket or casing and damage the disk.) If possible, remove the label and replace it with a new one; otherwise, simply affix a new label on top of the existing one.
- Don't bend, fold, or curl 5.25-inch disks.

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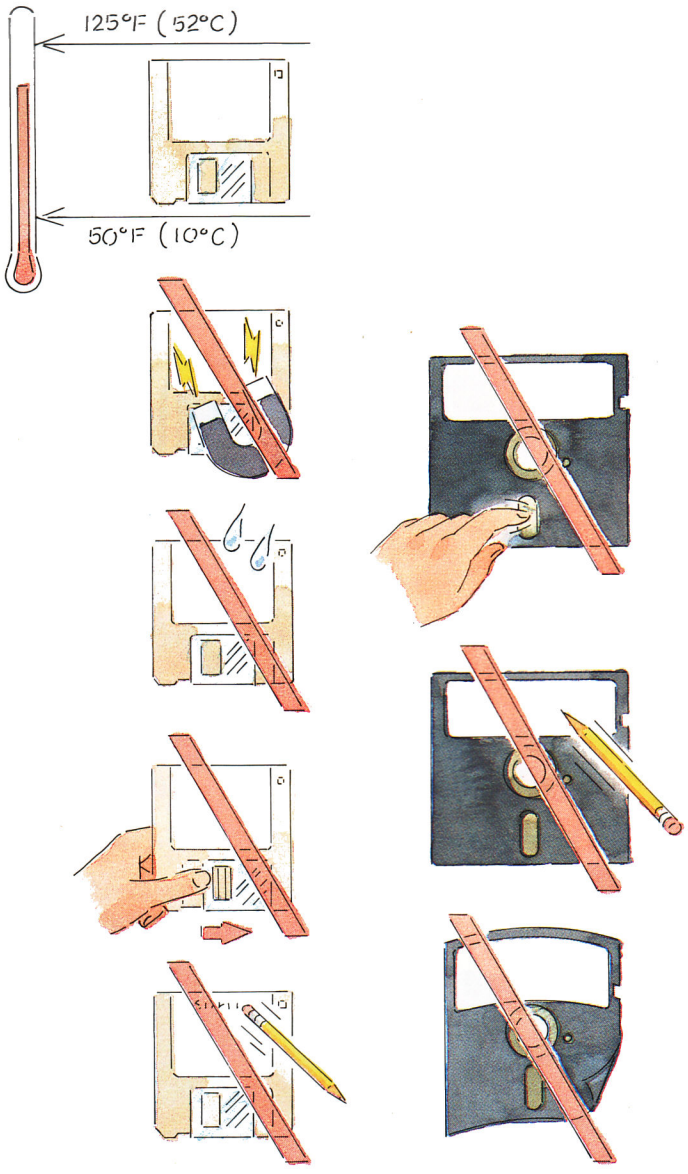

Figure 4-15 The proper care and handling of disks

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CHAPTER 5

Working With Files and Folders

THIS CHAPTER EXPLAINS HOW TO USE FILES AND FOLDERS IN THE FINDER to organize the information on disks in much the same way you organize papers in a filing cabinet. Many of the tasks in this chapter are also covered in *Getting Started With Your Apple IIGS.*

Even if you've already completed the hands-on tutorial in the *Getting Started* manual, this chapter can be a useful source of tips, shortcuts, and additional information. It's also a handy reference if you need a reminder about how to perform any file and folder management tasks.

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Working with folders

Folders give you a way of organizing information on disks. Putting files in desktop folders is like putting paper documents in file folders: It focuses your attention on a subset of related information so that you don't have to search through everything on a disk to find the documents you need.

In some Apple IIGS applications, you may encounter the term **subdirectory.** A subdirectory is the same as a folder.

To create a new folder

Follow these steps to create a new folder:

1. Open the disk icon and any folders necessary to display the window in which you want to create the new folder.

   When the window you want is the active window, you're ready to create the folder.

2. Choose New Folder from the File menu.

   A folder called *Untitled* appears in the next available opening in the active window. (You may need to scroll or enlarge the window to see it.)

   ❖ *By the way:* If there was already a folder called *Untitled* in the window, the new folder will be called *Untitled.A*. This process continues until the Finder reaches *Untitled.Z*. If all possible names through *Untitled.Z* are taken, you can't create any more new folders in the window without first renaming one of the untitled folders.

3. Type a new name or edit the name *Untitled*.

   In providing the new name, be sure to follow these rules:

   - Start the name with a letter.
   - Use no more than 15 characters.
   - Don't use spaces.
   - Don't use characters other than letters, numbers, or periods.
   - No two icons in the same window can have the same name.

   ❖ *Network users:* If your Apple IIGS is part of a network that includes one or more AppleShare file servers, the naming rules for items you store on a file server are more flexible. For more information, see "Naming Rules" in Chapter 11.

4. Press Return to confirm the name.

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To open a folder icon

Like other icons, folder icons can be opened to see what's inside. There are three techniques for opening a folder icon:

- Select the icon and choose Open from the File menu.
- Select the icon and press Command-O (the keyboard shortcut for the Open command).
- Double-click the icon.

Regardless of the technique you use to open the folder, a window with the same name as the folder icon appears on the desktop. Inside the window are icons representing all the items in the folder.

To close a folder window

When you no longer want to see what's in a folder, you can close the folder window using one of three techniques. All three techniques assume that the window you want to close is the active window.

- Choose Close from the File menu.
- Press Command-W (the keyboard shortcut for the Close command).
- Click the window's close box.

Regardless of the technique you use to close the folder, the window collapses back into its icon.

Copying files and folders

You can copy files and folders anywhere you like—to another location on the same disk or to a different disk.

Throughout this section, you'll see the terms *source disk, source folder, destination disk,* and *destination folder.* Here's an explanation of those terms:

- The **source disk** is the disk that contains the item you're copying.
- The **source folder** is the folder that contains the item you're copying.
- The **destination disk** is the disk that will contain the copy of the item.
- The **destination folder** is the folder that will contain the copy of the item.

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To place duplicate copies of items in the same window

Making duplicate copies of items can be useful in two ways: to make backup copies of files and folders, and to create a file that you can revise without changing the original.

Follow these steps to place duplicate copies of files or folders in the same window:

1. Open the disk icon and any folders necessary to see the items you want to duplicate.
2. Select the items you want to duplicate.

   All the items you copy must be in the same window. (If you want to copy items in more than one window, you must repeat the procedure for each different window.)
3. Choose Duplicate from the File menu. (Or press Command-D.)

   Command-D is the keyboard shortcut for the Duplicate command.

   You'll see this dialog box.

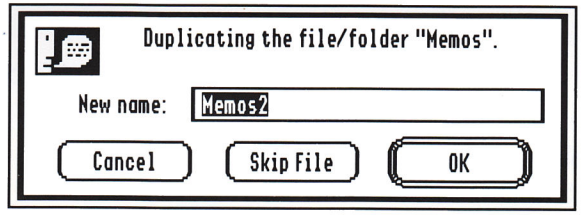

Figure 5-1 The Duplicate dialog box

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4. If you like, type a new name or edit the name that's there.

   If you want to keep the suggested name, skip to step 5. If you provide a new name, be sure to follow these rules:

   - Start the name with a letter.
   - Use no more than 15 characters.
   - Don't use spaces.
   - Don't use characters other than letters, numbers, or periods.
   - No two icons in the same window can have the same name.

   ❖ *Network users:* If your Apple IIGS is part of a network that includes one or more AppleShare file servers, the naming rules for items you store on a file server are more flexible. For more information, see "Naming Rules" in Chapter 11.

5. Click OK or press Return.

   If you selected only one item in step 2, the Duplicate dialog box disappears and a few moments later you'll see both the original and the duplicate copy in the window. (The duplicate copy appears diagonally below and to the right of the original.) You can skip step 6.

   If you selected more than one item in step 2, the Duplicate dialog box disappears and a few moments later reappears for the next selected item. Go on to step 6.

6. Repeat steps 4 and 5 each time the Duplicate dialog box appears.

   If you change your mind about duplicating one of the selected items, click Skip File instead of OK when the Duplicate dialog box for that item appears. If you change your mind about duplicating all the selected items, click Cancel.

   When the Duplicate dialog box disappears after the last duplication, you'll see the duplicate copies, which are diagonally below and to the right of the originals.

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To place copies of items on a different disk

When you copy items onto another disk, you can place the copies either in the disk directory or in a folder on the disk. Follow these steps:

1. Insert the destination disk in an empty disk drive. (If the destination disk is a 5.25-inch disk, open the disk drive icon.)
2. If you're copying the items into a folder, make sure the destination folder icon or window is visible.
3. Insert the source disk. (If the source disk is a 5.25-inch disk, open the disk drive icon.)

   If you have only one disk drive of the appropriate size, you must eject the destination disk manually—by pressing the eject button (for 3.5-inch drives) or by opening the disk drive door and removing the disk (for 5.25-inch drives)—before inserting the source disk.
4. Open the source disk icon and any folders necessary to see the items to be copied.
5. If you're copying more than one item, select all the items to be copied.

   All items to be copied must be in the same window. (If you want to copy items from different windows, you must repeat this procedure for each different window.)
6. Drag the items you want to copy on top of the icon (or into the window) of the destination folder or disk.

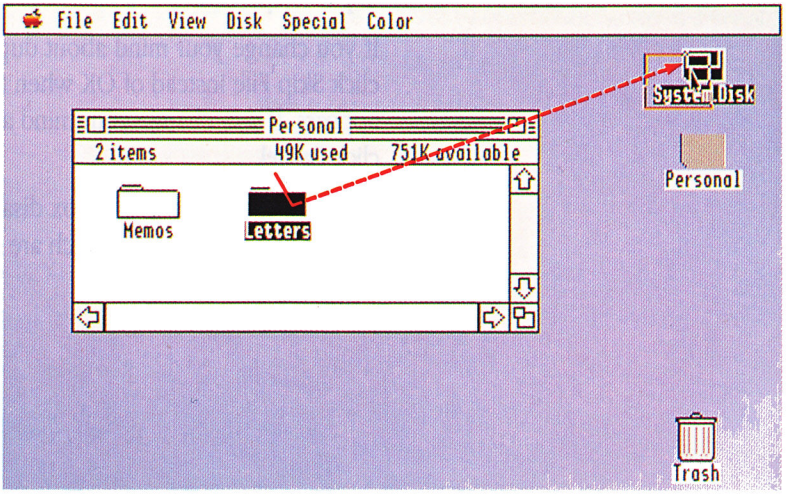

Figure 5-2 Dragging an item onto a different disk

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When the destination folder or disk icon becomes highlighted, or when the pointer is within the destination window, release the mouse button. (The highlighting tells you that the copies will be placed inside the folder or disk.)

If you're using only one disk drive for the copying procedure, the Finder displays a dialog box whenever it's necessary to swap disks. Simply follow the directions on the screen whenever you're prompted to insert a disk.

If the destination folder or disk already contains items with the same name as items you're copying, you'll see this dialog box.

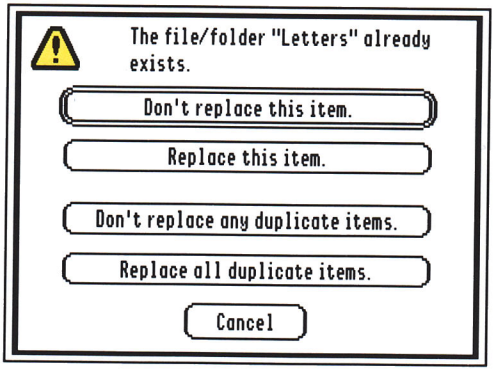

Figure 5-3 The Finder encounters an item with the same name

Click the button that corresponds to your wishes. Note that the Cancel button cancels the entire copying procedure.

If the destination folder or disk already contains *locked* items with the same name as items you're copying into that folder or disk, you'll see this dialog box.

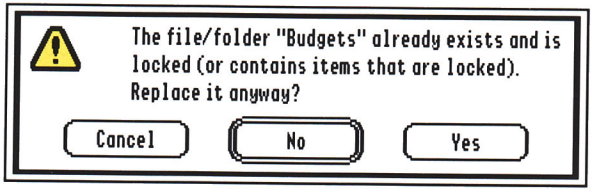

Figure 5-4 The Finder encounters a locked item with the same name

Click the button that corresponds to your wishes. Note that the Cancel button cancels the entire copying procedure.

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To use special copying options

When copying, the Finder normally displays the dialog box shown in Figure 5-3 or Figure 5-4 the first time it encounters an item in the destination folder or disk that has the same name as an item you're copying. If you wish, you can give the Finder instructions for handling files and folders with duplicate names before you begin the copying procedure.

Follow these steps:

1. Hold down the Option key while you drag the items you want to copy on top of the icon (or into the window) of the destination folder or disk.

   You'll see the File Copy Alternatives dialog box.

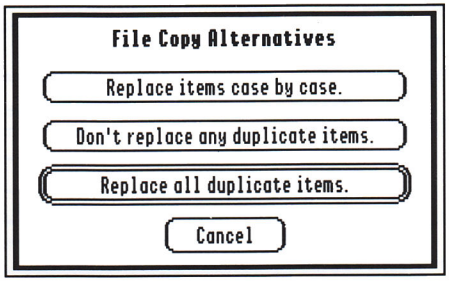

Figure 5-5 The File Copy Alternatives dialog box

2. Choose an option:
   - If you want the Finder to prompt you each time it encounters a duplicate name, click "Replace items case by case."
   - If you don't want the Finder to replace *any* items with duplicate names, click "Don't replace any duplicate items."
   - If you want the Finder to replace *all* items with duplicate names, click "Replace all duplicate items." (This is what the Finder does unless you specify otherwise.)
   - If you want to stop the copying procedure, click Cancel.

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Moving files and folders

You can move a file or a folder anywhere you like—to another location on the same disk or to a different disk.

Throughout this section, you'll see the terms *source disk, source folder, destination disk,* and *destination folder.* Here's an explanation of those terms:

- The **source disk** is the disk that contains the item you're moving.
- The **source folder** is the folder that contains the item you're moving.
- The **destination disk** is the disk that will contain the item after you've moved it.
- The **destination folder** is the folder that will contain the item after you've moved it.

To move items to another location on the same disk

Follow these steps to move one or more items to another location on the same disk:

1. Open the disk and any folders necessary to see the items you want to move.
2. Make sure the destination folder or window is visible.
3. If you're moving more than one item, select all the items to be moved.

   All items to be moved must be in the same window. (If you want to move items from different windows, you must repeat this procedure for each different window.)
4. Drag the items you want to move on top of the destination folder icon or into its window.

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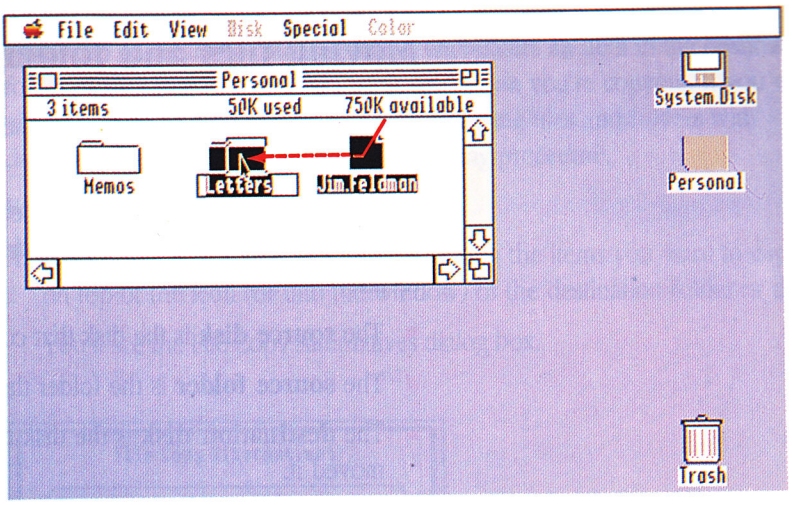

Figure 5-6 Dragging an item on top of the destination folder icon

When the destination folder icon becomes highlighted, or when the pointer is within the window, release the mouse button. (The highlighting tells you that the items you're moving will be placed inside the folder.)

If the destination folder already contains items with the same name as items you're moving, you'll see this dialog box.

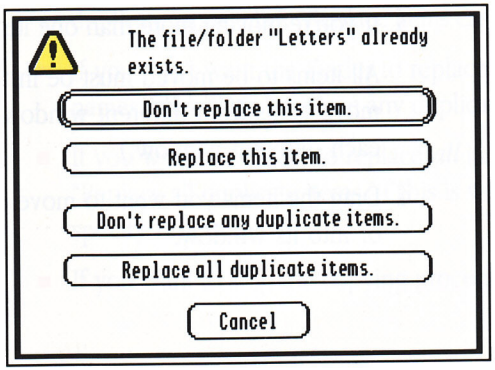

Figure 5-7 The Finder encounters an item with the same name

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Click the button that corresponds to your wishes. Note that the Cancel button cancels the entire copying procedure.

If the destination folder already contains *locked* items with the same name as items you're moving, you'll see this dialog box.

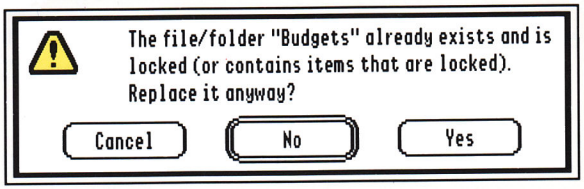

Figure 5-8 The Finder encounters a locked item with the same name

Click the button that corresponds to your wishes. Note that the Cancel button cancels the entire copying procedure.

To use special moving options

When moving items, the Finder normally displays the dialog box shown in Figure 5-7 or Figure 5-8 the first time it encounters an item in the destination folder that has the same name as an item you're moving. If you wish, you can give the Finder instructions for handling files and folders with duplicate names before you begin the moving procedure.

Follow these steps:

1. Hold down the Option key while you drag the items you want to move on top of the icon (or into the window) of the destination folder and release the mouse button.

   You'll see the File Copy Alternatives dialog box.

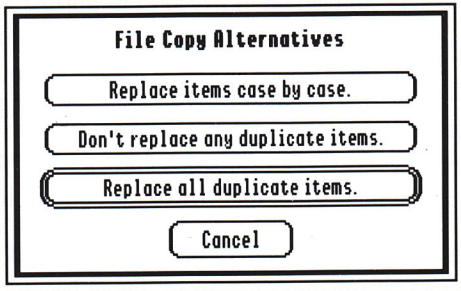

Figure 5-9 The File Copy Alternatives dialog box

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2. Choose an option:
   - If you want the Finder to prompt you each time it encounters a duplicate name, click "Replace items case by case."
   - If you don't want the Finder to replace *any* items with duplicate names, click "Don't replace any duplicate items."
   - If you want the Finder to replace *all* items with duplicate names, click "Replace all duplicate items." (This is what the Finder does unless you specify otherwise.)
   - If you want to stop the moving procedure, click Cancel.

Discarding files and folders

The Finder lets you discard a file or folder whenever its icon is visible on the desktop. You do so with the Trash icon.

To discard files and folders into the Trash

Follow these steps to discard items into the Trash:

1. Open the folder or disk that contains the items you want to discard.
2. If you want to discard more than one item, select all the items to be discarded.

   All items to be discarded must be in the same window. (If you want to discard items from different windows, you must repeat this procedure for each different window.)
3. Drag the items you want to discard on top of the Trash icon or into the Trash window.

   When the Trash icon becomes highlighted, or when the pointer is within the Trash window, release the mouse button. (The highlighting tells you that the items you're discarding will be placed in the Trash.)

   When you've dragged the items to the Trash, the icon has bulging sides—indicating that there's something in the Trash.

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To recover files and folders from the Trash

When you discard an item into the Trash, it remains there until one of the following events happens:

- You choose the Empty Trash command from the Special menu.
- The Finder empties the Trash.

As long as an item is still in the Trash, you can recover it.

The Finder will empty the Trash if you do any of the following:

- throw away something else
- open an application
- copy files
- eject the disk (by dragging the disk icon to the Trash) that contained the most recently discarded item or items
- shut down the computer

But even if you don't do any of those tasks, the Finder may empty the Trash at its convenience. There's no way to predict when it will do so. For that reason, if you change your mind after discarding a file or folder to the Trash, it's a good idea to recover the item *immediately*.

Follow these steps to recover items from the Trash:

1. Open the Trash icon.
2. If necessary, scroll until you can see the items you want to recover.
3. Select all the items to be recovered.
4. Choose Put Away from the File menu.

   The icons return to their previous locations.

   If you prefer, you can drag the icons to different locations instead of using the Put Away command.

To empty the Trash

As long as an item remains in the Trash, the disk space that the item occupies remains unavailable. If you want to free up that disk space, you can empty the Trash. Once you do so, the items that were in the Trash are removed permanently.

To empty the Trash, simply select the Empty Trash command from the Special menu (or press Command-T, the keyboard shortcut). The Trash icon no longer has bulging sides, indicating that it is now empty.

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Protecting files and folders and diagnosing problems

This section describes how to lock files and folders to prevent removing, renaming, or replacing them; how to unlock files and folders; and how to find out whether files are damaged.

To lock a file or folder

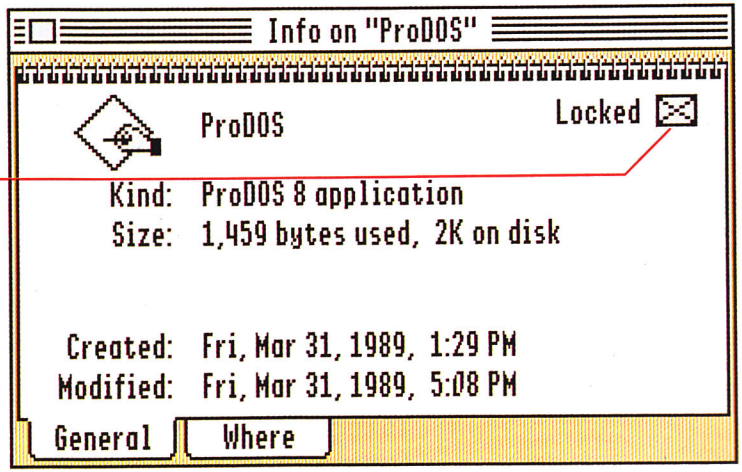
Locking a file or folder ensures that you don't accidentally remove, replace, or rename it. If you drag a locked file into the Trash, try to replace it during a copying or moving operation, or try to rename its icon, the Finder displays a dialog box asking you to confirm your decision.

Follow these steps to lock a file or folder:

1. Select the file or folder you want to lock.
2. Choose Icon Info from the Special menu.

   You'll see the General card for the icon.
3. Click the Locked check box.

   An X appears in the check box, indicating that the file or folder is now locked.
4. Close the Icon Info window.



An X in this box indicates that the folder or file is locked

Figure 5-10 Locking an icon

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To unlock a file or folder

Follow these steps to unlock a locked file or folder:

1. Select the icon of the file or folder you want to unlock.
2. Choose Icon Info from the Special menu.
3. Click the Locked check box to remove the X.
4. Close the Icon Info window.

To validate files

If you're having trouble opening a file, or if a file's information is garbled, you may want to use the Validate command to check for other bad files on the disk.

Follow these steps to validate files:

1. Select the items you want to validate.

   You can select file icons, folder icons, disk icons, or a combination. When you select a folder or disk icon, the Finder will validate all the files in that folder or on that disk.

2. Choose Validate from the File menu.

   A dialog box appears with a "thermometer" indicator that shows the progress of the validating procedure. The dialog box also shows how many files remain to be validated. (If you want to cancel the validation, click Cancel.)

   When the validating process is complete, you'll see another dialog box indicating whether there were any bad files on the disk.

3. If there were no bad files, click OK.
4. If there were bad files, click either OK (to see a list of the files) or Cancel (if you don't want to see a list).

   Move any good files to another disk, and then throw away the disk with the bad files.

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CHAPTER 6

Working With Application Programs

THIS CHAPTER EXPLAINS SOME BASIC TASKS YOU'RE LIKELY TO PERFORM when using your application programs. Some of the tasks in this chapter are also covered in *Getting Started With Your Apple IIGS*.

Even if you've already completed the hands-on tutorial in the *Getting Started* manual, this chapter can be a useful source of tips, shortcuts, and additional information. It's also a handy reference if you need a reminder about how to perform any application-related tasks.

Not all applications work in exactly the way described in this chapter, so be sure to read the manual that came with each application for specific instructions.

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Getting started with an application

This section explains how to start up applications and how to switch from one application to another. You can perform each of these tasks whether or not you're using the Finder.

To start up an application

The easiest way to start up an application is from the Finder. But if your application disk doesn't include the Finder, you may prefer to launch the application directly from its startup disk rather than using a Finder-based startup disk.

When you're using the Finder

The Finder lets you start up applications quickly and easily without having to restart the computer (which takes more time).

There are two ways to start up an application from the Finder:

- Open the application icon.

  When you open an application icon, the Finder starts up the application.

  After a few moments, you'll see the opening screen of your application. Some applications present a new, untitled document as the opening screen. Others present a title screen. Still others present a blank desktop; you then choose a command such as New to open a blank, untitled document.

  Refer to the manual that came with your application for instructions on using the application.

- Open the icon of a document created with the application.

  When you open a document icon, the Finder tries to start up the application with which the document was created. If the Finder is successful, the application will start up in a few moments, and you'll see the document you opened.

  You won't always be able to start up an application from a document icon. If the disk containing the application used to create the document is not in one of your disk drives, or if it's in a 5.25-inch disk drive whose icon has not been opened, you'll see the dialog box in Figure 6-1 (or possibly the dialog box in Figure 6-2).

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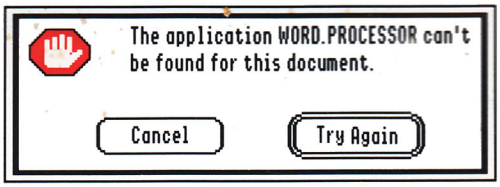

Figure 6-1 The Finder is unable to find the appropriate application on a disk

You'll also see this dialog box if the application has been renamed or moved to a different disk or folder.

Try one of the following solutions:

- Make sure that the disk containing the application is in one of your disk drives. Then click Try Again.
- If the application is in a 5.25-inch disk drive, click Cancel. Make sure that the disk drive door is closed and that you have opened the disk drive icon to display the disk icon on the desktop. Then try opening the document again.

If you don't have the necessary application available, click Cancel.

If the Finder is unable to associate the document with the application used to create it, you'll see the message shown in Figure 6-2.

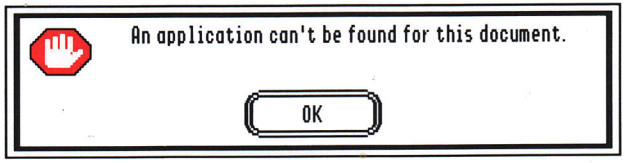

Figure 6-2 The Finder can't associate the document with an application

If you see this message, follow these steps:

1. Click OK.
2. Start up the application by opening its icon.
3. Open the document within the application.

The next time you try to open the document in the Finder, you should be successful. If not, continue to start up the application by opening its icon rather than by opening a document.

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When you're not using the Finder and the computer is switched off

Many application disks—particularly those with older applications—don't include the Finder. Such a disk is still a startup disk, however, and you can start the application directly from the disk.

Follow these steps to start an application when you're not using the Finder and the computer is switched off:

1. Insert the application disk you want to use in the startup drive.
2. Switch on the computer's power.

   In a few moments you'll see the opening screen for your application. (For information on how to proceed from here, see the manual that came with your application.)

When you're not using the Finder and the computer is already switched on

Many application disks—particularly those with older applications—don't include the Finder. Such a disk is still a startup disk, however, and you can start the application directly from the disk.

Follow these steps to start an application when you're not using the Finder and the computer is already switched on:

1. If necessary, quit the application you're using.

   For instructions, see "To Quit an Application" later in this chapter, or refer to the manual that came with your application.
2. Eject the startup disk from the startup disk drive.
3. Insert the next application disk you want to use in the startup drive.
4. Press Command-Control-Reset to restart the computer.

   When you're asked to press two or more keys whose names are joined by hyphens, hold down the first key or keys while you press and then release the last key. In this case, follow these steps:

   - Hold down Command (the key marked with both the outline of an apple and a propeller symbol) and Control.
   - Without releasing Command and Control, press and then release Reset (the key marked with a triangle).
   - When you hear a beep, release Command and Control.

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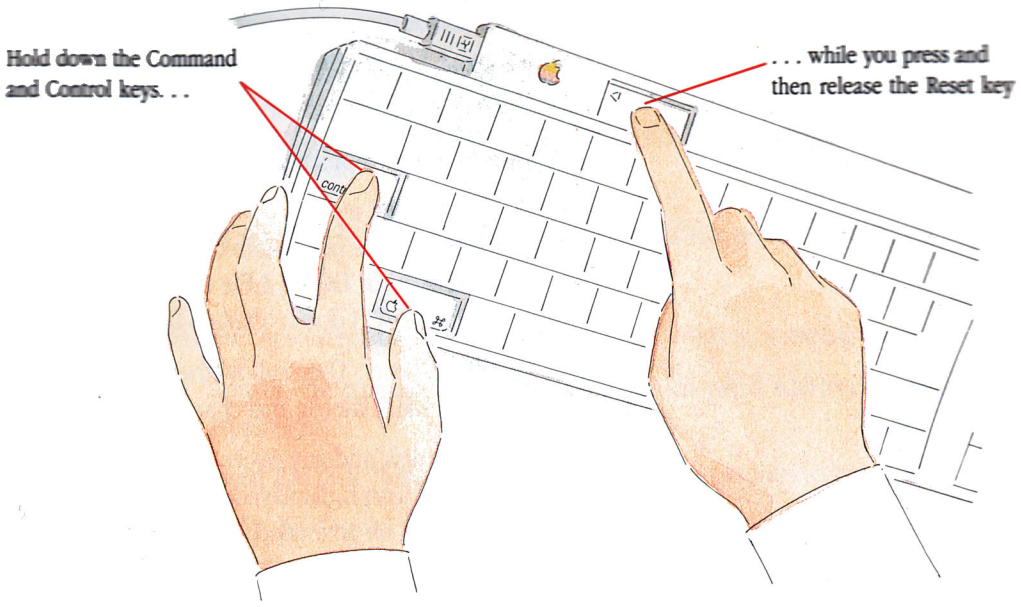

Figure 6-3 Restarting the computer with a new application

In a few moments you'll see the opening screen for your application. (For information on how to proceed from here, see the manual that came with your application.)

To switch applications

Switching applications is particularly easy when you're using the Finder. But you can also switch from one application to another when you're not using the Finder.

When you're using the Finder

Follow these steps to switch from one application to another when you're using the Finder:

1. Save any documents you've been working with.

   For information on saving, see "Saving Documents" later in this chapter, or refer to the manual that came with your application.

2. Quit the application.

   Choose the Quit command from the appropriate menu. You return to the Finder desktop. (You may be prompted to insert the system disk or the application disk before you return to the Finder.)

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3. Eject the current application disk.

   To eject a 3.5-inch disk, drag its icon to the Trash. To eject a 5.25-inch disk, open the disk drive door, remove the disk, and drag its icon to the Trash.

4. Insert the new application disk.

   ❖ *Unexpected message?* If you see a message saying that GS/OS doesn't recognize the file system on the disk, your application probably uses the Pascal or DOS 3.3 file system—two older operating systems for which GS/OS doesn't have a file system translator.

   Click Cancel. Then follow the steps in "To Restart the Computer From the Finder" later in this chapter to restart with your application disk.

5. Open the disk and any necessary folders until the window containing the application icon is displayed. (In most cases, an application icon shows a hand writing on an angled sheet of paper.)

6. Open the application.

   In a few moments you'll see the opening screen of the application.

When you're not using the Finder

Follow these steps to switch from one application to another when you're not using the Finder:

1. Save any documents you've been working with.

   For information on saving, see "Saving Documents" later in this chapter, or refer to the manual that came with your application.

2. Quit the application, but don't switch off the computer.

   For instructions, see "To Quit an Application" later in this chapter, or refer to the manual that came with your application.

   You'll see a screen titled Start Next Program. The first option, "Re-boot the machine," is highlighted. (**Boot** is computer jargon for *start up.*)

3. Eject the current application disk from the startup drive.

   To eject a 3.5-inch disk, drag its icon to the Trash. To eject a 5.25-inch disk, open the disk drive door, remove the disk, and drag its icon to the Trash.

4. Insert the new application disk in the startup drive.

5. Press Return to restart with the new application.

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To add fonts or desk accessories to a startup disk

You can add fonts (typefaces) and desk accessories to your startup disks. You add some fonts and desk accessories using the Installer, as described in Chapter 7. But if a disk containing fonts or desk accessories doesn't include the Installer, you can add them to a startup disk by dragging their icons.

△ **Important** Don't rename the Fonts folder or the Desk.Accs folder. △

Follow these steps to add fonts or desk accessories to a startup disk:

1. Start up the computer with the disk to which you'll add fonts or desk accessories.
2. Insert the disk containing the fonts or desk accessories to be added.
3. Copy the desired fonts to the Fonts folder, which is inside the System folder on the startup disk.

   For instructions, see "To Place Copies of Items on a Different Disk" in Chapter 5.
4. Copy the desired desk accessories to the Desk.Accs folder, which is inside the System folder on the startup disk.
5. Restart the computer with the startup disk to which you've just added fonts or desk accessories.

   For instructions, see "To Restart the Computer From the Finder" later in this chapter.

Saving documents

While you're working with a document, the information you enter is stored in the computer's RAM. But because RAM is temporary memory, you could lose that information—if you accidentally kick the power cord out of the outlet or if there's a power failure, for example. That's why it's important to save your work at regular intervals.

You save your work on a disk. It can be a 3.5-inch disk, a 5.25-inch disk, a hard disk, a hard disk partition, or a file server volume. If there's room on your application disk, you may want to save documents there. Or you might prefer to keep documents on separate disks, called **data disks.**

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To save a document on a disk, you choose a Save command from the appropriate menu in your application. When you do so, the application asks you where you want to save the document. There are three ways that an application is likely to ask for this information:

- If the application is graphics-based, it will probably present a **directory dialog box,** which lets you move about in the different levels of folders on your disk to specify the desired location.
- If the application is text-based, it may ask you to specify a slot and drive number.
- If the application is text-based, it may ask you to specify a **pathname**—that is, a series of names listing the path the computer must follow to reach the desired location.

When you save a document, you can give it any name you like, provided there isn't already a document by that name on the same disk or in the same folder, and provided the name conforms to the application's rules for naming documents. (You should be able to find the rules in the manual that came with the application.)

If you don't know the application's rules for naming documents, here are some general guidelines that should result in an allowable document name:

- Start the name with a letter.
- Use no more than 15 characters.
- Don't use spaces.
- Don't use characters other than letters, numbers, or periods.

❖ *Network users:* If your Apple IIGS is part of a network that includes one or more AppleShare file servers, the naming rules for items you store on a file server are more flexible. For more information, see "Naming Rules" in Chapter 11.

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To save using a directory dialog box

In most graphics-based applications, you're presented with a directory dialog box when you give a Save or Save As command.

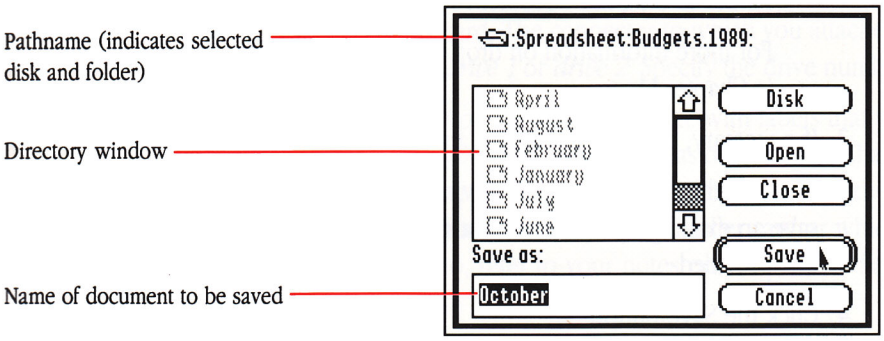

Figure 6-4 The Save or Save As directory dialog box

Directory dialog boxes generally have four main features:

- an icon and pathname indicating the currently selected disk or folder
- a window showing the directory of the currently selected disk or folder
- a box where you type the name of the document to be saved
- a set of buttons that let you give commands to the computer

Follow these general steps to save a document using a directory dialog box. (Different applications implement the features of the directory dialog box in different ways. If these steps don't correspond to what you see on the screen, refer to the manual that came with your application.)

1. If necessary, click the Disk button until the disk where you want to save the document is displayed at the top.

   In some applications, this button is called *Drive* or *Volume* instead of *Disk*.

2. Open the folder where you want to save the document. (If the folder is **nested** inside other folders, you'll need to open all the necessary folders.)

   To open a folder, click its name or icon in the directory window and then click the Open button. Or just double-click the name or icon.

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- *Network users:* If your Apple IIGS is part of a network that includes an AppleShare file server, you can't use this dialog box to save a document in someone else's drop folder. Instead, you must use the Finder to drag the document's icon into the drop folder icon.

  For more information on drop folders, see "To Set Up a Drop Folder" in Chapter 11.

3. If necessary, give the document a name.

   If this is the first time you're saving the document—or if you want to save an existing document with a new name—type the new name in the box provided.

4. Click the Save button.

To save using slot and drive number

If an application asks for a slot number and a drive number when you choose its Save command, it's asking which slot corresponds to the drive containing the destination disk and whether that drive is the first or second drive connected.

- *By the way:* Applications that ask for slot and drive number do not let you save a document in a folder. The document is automatically saved in the disk directory.

Disk drives connected to the disk drive port

If the disk where you want to save your document is in a drive connected to the disk drive port, specify slot 5 for a 3.5-inch drive and slot 6 for a 5.25-inch drive. The first drive of that type is drive 1. The second drive, if there is one, is drive 2.

If you're using some of the computer's memory as a RAM disk, the RAM disk corresponds to slot 5, and the drive numbers of 3.5-inch drives may be different from normal. For more information, see "Specifying the Location of the RAM Disk" in Chapter 10.

- *More than two 3.5-inch drives?* If you have more than two 3.5-inch drives connected to the disk drive port, slot 2 acts as an "overflow" slot for the additional drives. The third 3.5-inch drive corresponds to slot 2, drive 1, and the fourth 3.5-inch drive corresponds to slot 2, drive 2.

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Disk drives connected to controller cards in internal slots

If the disk where you want to save your document is in a drive connected to a card in an internal slot, specify the number of the slot that contains the card. The connector to which you attached the disk drive should be labeled *drive 1* or *drive 2.* Specify the drive number accordingly.

Apple disk drives come with labels that you can use to identify your drives. If you used these labels as described in Chapter 1 of *Getting Started With Your Apple IIGS,* refer to the labels on the drives. If you don't remember which slot you used for your controller card or which connector you attached the drive to, refer to your notes on the fold-out flap of the back cover of this manual.

To save using a pathname

Some text-based applications let you save documents in folders. To do so, you supply a pathname, which begins with the name of the disk the file is stored on, followed by the names of any folders in which the file is nested, and ends with the name of the file itself.

GS/OS allows you to use pathnames beginning with a slash (/) or a colon (:); each part of the pathname must be separated from the next part by the same punctuation mark. If you're using a ProDOS 8 application, however, you must use a slash.

△ **Important** The character you use to begin a pathname must be the same as the character you use to separate the parts of that pathname. For example, if you use a colon at the beginning of a pathname, you must use colons to separate all parts of the pathname. △

The pathname /Personnel/Sales/Sanchez/Status.Report, for example, corresponds to a document called *Status.Report* in a folder called *Sanchez,* which is stored in a folder called *Sales* on the disk called *Personnel.*

If you don't use folders, the pathname for a document is formed from the disk name and the document name. For example, the pathname for a document called *Fujiko.10.28.89* on a disk called *Letters* would be /Letters/Fujiko.10.28.89.

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To cut down on your typing time—and on the opportunities for typing errors—many applications let you specify a **prefix.** As the name suggests, a prefix is the first part of a pathname. The prefix can be just the disk name, or it can include one or more folder names as well. The manual that came with your application will tell you whether you can use prefixes and how to set a prefix.

Printing documents from the Finder

When you're working with documents in an application, the application determines the way you do such basic tasks as creating, saving, and printing documents. The procedures for such tasks can vary greatly from application to application. For specific instructions, refer to the manual that came with your application.

You'll usually print your documents within the application you used to create them. But there may be times when you want to print a document from the Finder. This section explains how to do so.

- *Network users:* If your Apple IIGS is part of a network and you use printers on the network, be sure to read "Network Printing" in Chapter 11.

Follow these steps to print a document from the Finder:

1. Select the document or documents you want to print.

   Be sure all selected documents were created with the same application. (When the Finder encounters a document created with an application different from that of the first document printed, printing stops and you return to the Finder desktop.)

2. Choose Print from the File menu.

   If the application disk is in a disk drive—and (for 5.25-inch disks) if the disk drive icon has been opened—the Finder will probably be able to print the document. (Some applications do not support printing from the Finder, however.)

For more information on printing, refer to the manuals that came with your application and with your printer.

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Ending a work session

This section describes three procedures you follow when you're ending a work session:

- quitting an application
- restarting from the Finder
- shutting down

To quit an application

When you're ready to conclude a work session with a particular application, follow these steps to quit:

1. Save any documents you've been working with.

   See "Saving Documents" earlier in this chapter, or refer to the manual that came with your application.

2. Quit the application.

   Choose the Quit command from the appropriate menu.

   If you started the application from the Finder, you return to the Finder desktop. If you started the application directly from a disk that doesn't include the Finder, you either return to the opening screen of that disk or see the Start Next Program screen.

   If your application doesn't have a Quit command, try one of these escape methods. (Start with the first method in the list, and try the methods in order until you find one that works.)

   - Press Command-Q (for *Quit*).
   - Press Q.
   - Press Esc.
   - Press Control-C.
   - Press Control-C, then press Return.
   - Press Control-Reset.
   - Insert a different startup disk in your startup drive and press Command-Control-Reset.

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To restart the computer from the Finder

When you're in the Finder, there are three likely times when you'll want to restart the computer:

- when you want to start up an application directly from a disk that doesn't include the Finder (or that uses a file system GS/OS doesn't recognize)
- after you've made changes to certain options in the Control Panel
- after you've dragged fonts or desk accessories to the appropriate folder within the System folder on the startup disk

Follow these steps to restart the computer from the Finder:

1. Choose Shut Down from the Special menu.

   You'll see this dialog box. The option labeled "Turn off system power" is selected.

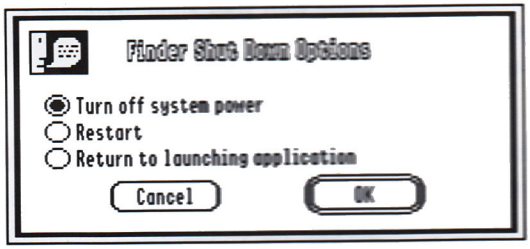

Figure 6-5 The Shut Down dialog box

❖ *About the other options:* The Shut Down dialog box includes two options in addition to "Turn off system power."

Selecting Restart and clicking OK restarts the computer with the disk in the startup drive.

If you entered the Finder from a programming environment, selecting "Return to launching application" and clicking OK takes you back to that programming environment. If you started up using the system disk or another Finder-based startup disk, this option restarts the Finder.

Clicking Cancel returns you to the Finder without erasing what's in the computer's memory.

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2. Click OK.

   The disks in any 3.5-inch disk drives are ejected, and a message appears letting you know that it's safe to switch off the power.

3. Reinsert the startup disk in the startup drive.

4. Click the Restart button.

   After a few moments, you'll see the Finder desktop (if you restarted the Finder) or the opening screen of your application (if you inserted a new application disk in your startup drive).

To shut down the computer

When you're using the Finder and are ready to end a work session at the computer, follow these steps to shut down the computer:

1. Choose Shut Down from the Special menu.

   You'll see the dialog box shown in Figure 6-5. The option labeled "Turn off system power" is selected.

2. Click OK.

   The computer ejects any disks in your 3.5-inch disk drives, and a message appears letting you know that it's safe to switch off the power.

   If you change your mind about shutting down after you've clicked OK, reinsert your startup disk and click the Restart button on the screen. The computer starts up again from the startup disk.

3. Switch off the computer and the monitor.

❖ *About the other options:* The Shut Down dialog box includes two options in addition to "Turn off system power."

Selecting Restart and clicking OK restarts the computer with the disk in the startup drive.

If you entered the Finder from a programming environment, selecting "Return to launching application" and clicking OK takes you back to that programming environment. If you started up using the system disk or another Finder-based startup disk, this option restarts the Finder.

Clicking Cancel returns you to the Finder without erasing what's in the computer's memory.

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CHAPTER 7

Using the Installer

THIS CHAPTER EXPLAINS HOW TO USE THE INSTALLER, A PROGRAM ON THE *Apple IIGS System Tools* disk that lets you customize your startup disks.

If you're unfamiliar with the concept of startup disks or would like some additional explanation of what you can do with the Installer, read the first section of this chapter. If not, skip directly to the task you want to perform.

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About startup disks

To start up your computer, you need a disk with basic **system software**—that is, the instructions necessary for the computer to start up and to work with the other components in your computer system. Such a disk is called a **startup disk.** The *Apple IIGS System Disk* is an example of a startup disk: You insert it in your startup drive, switch on the computer, and in a few moments the computer is running the Finder.

But the system disk is by no means the only startup disk you can use. Almost all application disks are startup disks. Many application disks include the necessary system software to start up the Finder. At a minimum, most application disks include the necessary system software to start up the application itself—even if they don't include the Finder. (*Your Tour of the Apple IIGS* is an example of a startup disk that doesn't include the Finder.)

A 3.5-inch startup disk doesn't have room for system software to support all of the peripheral devices that work with the Apple IIGS. And the more capabilities you add to a startup disk, the longer it takes to launch the Finder (or the application). For that reason, the system disk and most startup disks contain only the system software necessary to support standard capabilities.

If you want optional capabilities that are not supported by the software on your startup disk—for example, if you want to use a device such as a hard disk or a LaserWriter® printer—you use the Installer to add the necessary software **update** to the startup disk. (An update is a file or set of files that give the computer an additional capability.)

If an application doesn't include support for the Finder, you can also install Finder support—if there's enough room on the disk. When you've installed the necessary update, the disk will start up the Finder instead of starting up the application directly, and you'll have both the Finder and your application on the same disk.

△ **Important** When you use the Installer to add or remove updates, be sure that you're using a *backup copy* of the system disk or other startup disk. That way, your original copy will be intact if something goes wrong during the installation process. △

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Deciding what to install

Before you use the Installer, you need to decide what capabilities you want to add. The following checklists, grouped by category, will help you determine the appropriate updates.

Support for optional devices

If your startup disk doesn't include support for one or more peripheral devices in your system, you need to add the appropriate updates.

Storage devices

- If you have an Apple UniDisk 3-5-inch disk drive (as opposed to an Apple 3.5 Drive), install the UniDisk 3.5 update. (The easiest way to tell the difference between UniDisk drives and Apple 3.5 Drives is by color: UniDisk 3-5-inch drives are white, Apple 3.5 Drives are platinum, the same color as the computer.)
- If you have an Apple 5.25 Drive, install the Apple 5.25 Drive update. (This update is already on the *Apple IIGS System Disk*. Install it only on another startup disk that doesn't include software support for the Apple 5.25 Drive.)
- If you have a SCSI hard disk, install the SCSI Hard Disk update.
- If you have a CD-ROM drive, install the CD-ROM update.

Printers

- If you have an ImageWriter® or ImageWriter II printer connected directly to the printer port, install the Direct-Connect ImageWriter update.
- If you have an ImageWriter LQ printer connected directly to the printer port, install the Direct-Connect ImageWriter LQ update.
- If you have a LaserWriter printer connected directly to the computer via a LocalTalk™ cable, install the LaserWriter update.
- If you have an Epson or Epson-style printer connected to your computer through one of the internal slots, install the Epson Printer update.

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If your Apple IIGS is part of a network and you'll be using network printers, refer to "Preliminary Steps" in Chapter 11 for advice on which updates you'll need.

MIDI devices

- If you've connected the Apple Musical Instrument Digital Interface (MIDI) to your modem port, install the Apple MIDI update.
- If you've installed a Musical Instrument Digital Interface (MIDI) card to your computer in one of the internal slots, install the Card 6850 MIDI update.

System files and support for the Finder

You can use the Installer to create new Finder-based startup disks, to update startup disks that contain an earlier version of the Finder, or to add support for the Finder to existing startup disks that don't contain the Finder. You can also install all system files *except* the Finder on startup disks.

- If you want to create a new Finder-based startup disk, install the Latest System Files update.
- If you want to add support for the Finder to an existing startup disk that contains an earlier version of the Finder, install the Latest System Files update.
- If you want to add support for the Finder to an existing startup disk that doesn't currently contain the Finder, install the Latest System Files update—if there's enough room for it on the disk. *But be sure to read the warning on the next page first.*
- If you want to update the system files on an existing startup disk that doesn't contain the Finder, install the Latest Sys. Files (No Finder) update.

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▲ Warning When you install the Latest System Files update, the Installer adds a file called *Start* to the System folder on the startup disk. (The Start file allows the computer to run the Finder when you start up.) If there's already a file by that name in the System folder, the Installer will replace it with the new Start file.

On many application disks that don't contain the Finder, the startup application is called *Start* and is in the System folder. If that's the case with your application disk, installing the Latest System Files update will replace your application with the new Start file. As a result, the disk will start up with the Finder but will no longer contain your application!

Before you install the Latest System Files update on such disks, first rename the startup application on the disk. Or you can update all system files without adding the Finder by installing the Latest Sys. Files (No Finder) update.

Always install new system files on a *backup copy* of your startup disk, not on the original. ▲

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Network support

The system tools disk contains several updates of use specifically to network users. Before you install any of these updates, read "Preliminary Steps" in Chapter 11 for advice on which updates you'll need.

These are the updates that pertain to network use:

- AppleShare
- AppleShare on 3.5 Disk
- AppleTalk® ImageWriter
- AppleTalk ImageWriter LQ
- Aristotle™ Update
- LaserWriter (can be used even if your computer is not part of a network)
- Local Network Startup
- Network Printer Namer
- Server Network Startup
- Server Quick Logoff

Miscellaneous capabilities

In addition to the capabilities described in the previous checklists, the system tools disk includes three special updates:

- Additional Fonts: Installing this update makes additional fonts (typefaces) available to applications that use fonts.
- Advanced Disk Utility: Installing this update places a copy of the Advanced Disk Utility program on the startup disk. (This update can be installed in any folder—it need not be installed in the System folder.)

  For information on using this program, see Chapter 8, "Using the Advanced Disk Utility."
- VideoMix: Installing this update places a copy of the VideoMix software (used with the Apple II Video Overlay Card) on the startup disk.

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Installing and removing updates

This section explains how to use the Installer to add and remove updates. Although the two procedures are given independently, you can do both once you're in the Installer. (In other words, if you want to add some updates and remove others, you don't need to quit the Installer after adding and start again from scratch to remove, or vice versa.)

You can install updates on a 3.5-inch disk, a hard disk, a hard disk partition, or a file server volume. You can't install on a CD-ROM because the contents of the disc can't be changed. And you shouldn't try to install on a 5.25-inch disk or on a RAM disk because there's generally not enough room on those disks for the updates you would need.

Updates that add system software capabilities are called *system updates*. Those that add application programs (or update application programs already on a disk) are called *application updates*. Of the updates on the system tools disk, all except Advanced Disk Utility, Aristotle Update, and Network Printer Namer are system updates.

The Installer automatically places system updates in the appropriate location, so you needn't worry about specifying the correct destination. Application updates, on the other hand, can be installed anywhere on your startup disk. When you're installing an application update, the window on the right side of the Installer screen (see Figure 7-2) lets you specify a destination for the update. You'll learn more about using this window in steps 8 and 9 of "To Add Capabilities," which follows this section.

△ **Important** When you use the Installer to add or remove updates, be sure that you're using a *backup copy* of the system disk or other startup disk. That way, your original copy will be intact if something goes wrong during the installation process. △

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To add capabilities

Once you've decided what capabilities you want to add to your startup disk, follow these steps to install the necessary updates:

1. If the startup disk to be updated is write-protected, remove the write-protection.

   For instructions, see "To Write-Protect a Disk" in Chapter 4.

2. Start up the computer with the *Apple IIGS System Disk*.

   In a few moments you'll see the Finder desktop.

3. Insert the *Apple IIGS System Tools* disk in an empty disk drive.

   If you have two or more 3.5-inch disk drives, insert the system tools disk in any drive other than the startup drive.

   If you have only one 3.5-inch disk drive, eject the system disk and insert the system tools disk. You'll need to swap disks very frequently during the following procedure; simply follow the instructions on the screen when you're prompted to insert a disk.

△ **Important** The system disk and system tools disk must be named System.Disk and System.Tools when they're being used as the source of updates. If you've renamed either disk, change the name back before continuing with this procedure. △

4. Open the System.Tools disk icon.

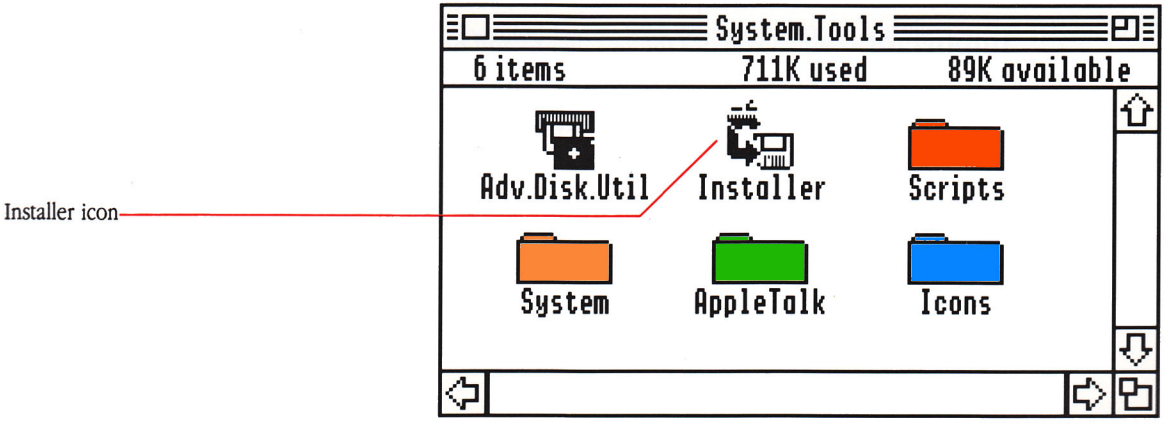

Figure 7-1 The Installer icon in the System.Tools window

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5. Double-click the Installer icon to open the Installer.

   In a few moments you'll see the Installer screen.

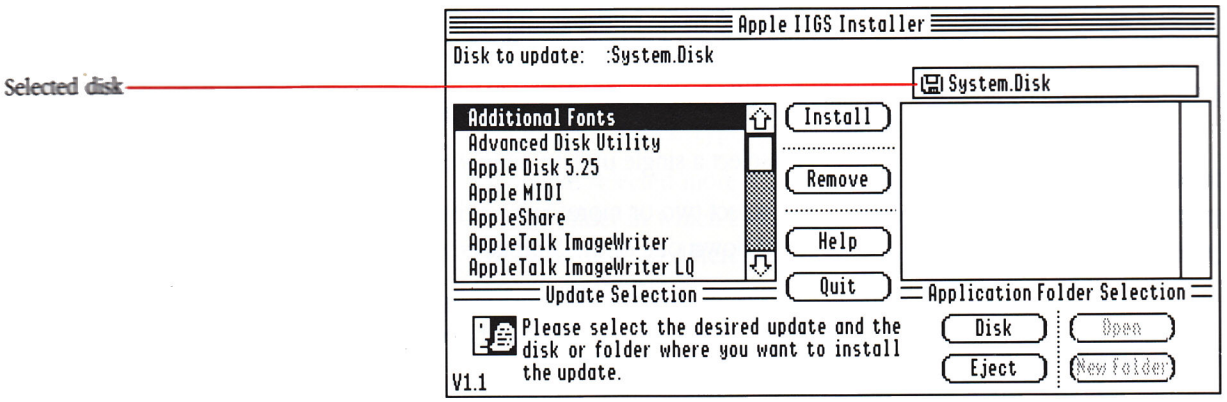

Figure 7-2 The Installer

The window on the left displays an alphabetical list of the updates available on the system tools disk. The window on the right corresponds to the current startup disk—in this case, the system disk.

6. If necessary, insert the startup disk you want to update in an empty disk drive.

   If you want to update the system disk, skip to step 8.

   If you don't have an empty drive, eject the system tools disk and insert the startup disk you want to update. You'll need to swap disks occasionally in step 10; simply follow the instructions on the screen when you're prompted to insert a disk.

   - *Tip for two-drive systems:* When swapping disks during the installation procedure, it's most efficient to leave the disk that's being updated in a drive at all times, and swap the system disk and system tools disk as needed.

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7. If necessary, select the disk on which you want to install updates.

   If you want to update the system disk, skip to step 8.

   Click the Disk button below the window on the right (or press Tab) until the name of the startup disk to be updated appears above the window.

8. Select the updates you want to install.

   To select a single update, simply click its name.

   To select two or more consecutive updates, click the first name and then hold down one of the Shift keys while you click the last name.

   To select updates that aren't grouped together, click the first name and then hold down the Command key while you click each additional name.

   If you've selected any application updates, a directory of the selected disk will appear in the window on the right. If nothing appears in that window, skip to step 10.

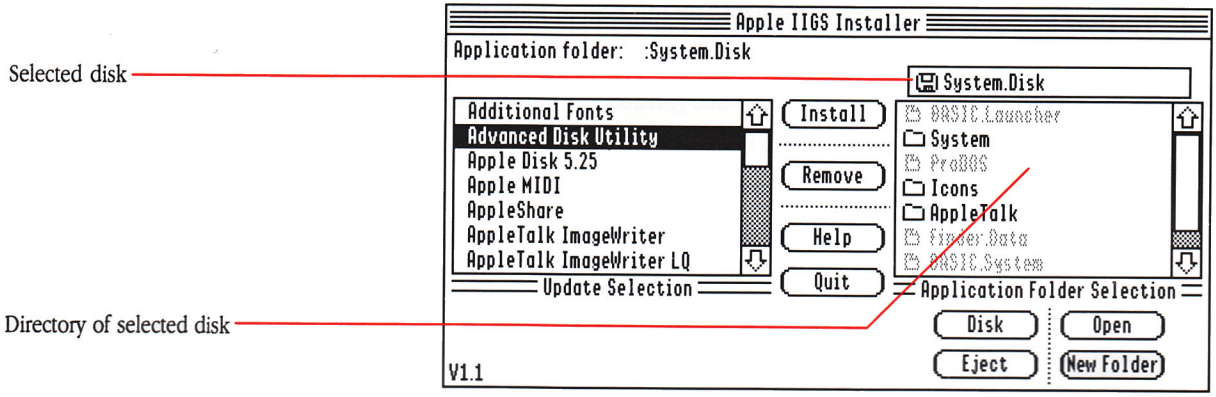

Figure 7-3 Installing an update in a folder other than the System folder.

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9. If you wish, open any necessary folders until the name of the desired destination folder appears above the window on the right.

   To open a folder, click its name or icon in the window on the right and then click the Open button. Or just double-click the name or icon.

   You can create a new folder in which to install updates by clicking the New Folder button. A dialog box appears asking you to provide a name for the new folder. Type a name and click OK.

   If you've selected more than one application update, you must select a single folder in which to install all of them. (If you want application updates to be in different folders, you must install them separately.)

10. Click Install.

    A dialog box shows a series of messages and a "thermometer" indicator to keep you informed of the progress of each installation.

    When all the updates you selected have been installed, you'll see a dialog box letting you know whether the installation process was successful. (If the installation process fails, the dialog box will indicate the reason.)

11. Click OK.

12. Click Quit (or choose Quit from the File menu) to quit the Installer.

    If you've installed on a disk other than the current startup disk—or if you've installed only application updates on the current startup disk—you return to the Finder desktop when you quit. You can skip step 13.

    If you've installed any system updates on the current startup disk, you'll see a dialog box when you quit, telling you that you must restart the computer for the new updates to take effect.

13. Click Restart System.

    The computer restarts from the current startup disk. In a few moments you'll see the Finder desktop.

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To remove capabilities

The more capabilities you include on a startup disk, the longer it takes the computer to start up from that disk. And when you're working with 3.5-inch disks, space may be at a premium. For both those reasons, you may want to remove capabilities that you use infrequently or not at all.

Keep in mind that removing an update that you installed may not be the same as not having installed it in the first place. Sometimes the Installer removes files to make room for the update. In that case, removing the update will not reinstate the files that were deleted.

△ **Important** Don't remove any updates from the system disk or the system tools disk. (You may need to use these disks as the sources of updates in the future.) △

The procedure for removing capabilities is similar to that for installing them:

1. Follow steps 1 through 7 under "To Add Capabilities."
2. Select the updates you want to remove.

   To select a single update, simply click its name.

   To select two or more consecutive updates, click the first name and then hold down one of the Shift keys while you click the last name.

   To select updates that aren't grouped together, click the first name and then hold down the Command key while you click each additional name.

   If you've selected any application updates, a directory of the selected disk will appear in the window on the right. (See Figure 7-3.) If nothing appears in that window, skip to step 4.
3. If you wish, open any necessary folders until the name of the folder you want to remove from appears above the window on the right.

   To open a folder, click its name or icon in the window on the right and then click the Open button. Or just double-click the name or icon.

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4. Click Remove.

   A dialog box shows a series of messages to keep you informed of the progress of each removal.

   When all the updates you selected have been installed, you'll see a dialog box letting you know whether the removal was successful. (If the removal fails, the dialog box will indicate the reason.)

5. Click OK.

6. Click Quit (or choose Quit from the File menu) to quit the Installer.

   If you've removed updates from a disk other than the current startup disk—or if you've removed only application updates from the current startup disk—you return to the Finder desktop when you quit. You can skip step 7.

   If you've removed any system updates from the current startup disk, you'll see a dialog box when you quit, telling you that you must restart the computer for the removal to take effect.

7. Click Restart System.

   The computer restarts from the current startup disk. In a few moments you'll see the Finder desktop.

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CHAPTER 8

Using the Advanced Disk Utility

THIS CHAPTER EXPLAINS HOW TO USE THE ADVANCED DISK UTILITY PROGRAM on the *Apple IIGS System Tools* disk to prepare disks to store information. This program is useful primarily for preparing hard disks; if you're working with other kinds of disks, most of the program's features are available in the Finder. But **zeroing** is available only in the Advanced Disk Utility.

If you don't have a hard disk and you don't want to zero any disks, you can skip this chapter.

The first section of this chapter summarizes what you can do with the Advanced Disk Utility and what you need to use the program. The subsequent sections explain each feature of the program in more detail and give instructions for using each feature.

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Background information

The Advanced Disk Utility program lets you prepare disks to store information. The program includes four functions: initializing, erasing, zeroing, and partitioning.

What you need

To use the Advanced Disk Utility on the *Apple IIGS System Tools* disk version 5.0, you must start up with the *Apple IIGS System Disk* version 5.0 or with any disk you've updated to contain system software version 5.0.

If you'll be using the Advanced Disk Utility to prepare a SCSI hard disk, you need to follow these steps first:

- install an Apple II SCSI Card
- connect a SCSI hard disk to the card
- use the Installer to add the SCSI Hard Disk update to your startup disk

For instructions, see "SCSI Hard Disks, CD-ROM Drives, and Other SCSI Devices" in Appendix A and "To Add Capabilities" in Chapter 7.

If you'll be using the Advanced Disk Utility with 3.5-inch disks in UniDisk drives, you must use the Installer to add the UniDisk 3.5 update to your startup disk. For instructions, see "To Add Capabilities" in Chapter 7.

The differences between the functions

If you think of the information you want to store on your disk as so many cars to be parked, a brand new disk is like a parking lot with no lines to divide the spaces. There's no organizational structure for the information, and the computer can't find data without such a structure. That's why disks must be prepared to store information.

Here's how the four functions of the Advanced Disk Utility fit into the parking lot analogy:

- Initializing a disk is like painting lines to separate the parking spaces and then adding a number to each space: It divides the disk into discrete areas (called **tracks** and **sectors**) and establishes an organizational system (called a **file system**) to keep track of what information goes in which space.

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- Erasing a disk is like removing all the cars from the parking lot: The tracks and sectors remain, as does the file system, so the disk is able to receive new data from any application that uses that file system.
- Zeroing a disk is like removing the cars and painting over the numbers of the parking spaces. Only the tracks and sectors remain; the file system is eliminated. A disk that has been zeroed must be initialized again before it can store information.
- Partitioning (which can be done only with hard disks) is like dividing one large paved surface into several smaller parking lots. Each partition can be initialized with its own file system, just as each of the smaller parking lots can be numbered with its own numbering system.

Opening the Advanced Disk Utility

Regardless of which function you'll be using—partitioning, initializing, erasing, or zeroing—you follow the same steps to open the Advanced Disk Utility program:

1. If necessary, change the startup slot setting in the Control Panel so that the computer will start up from a 3.5-inch disk drive.

   For instructions, see "Changing the Startup Drive" in Chapter 9.

2. Switch on any hard disks that you want to partition and wait about 10 seconds while they come up to speed.

   The computer won't recognize a hard disk unless you switch on the hard disk before starting or restarting the computer.

3. Start up the computer with the *Apple IIGS System Disk.*

   In a few moments you'll see the Finder desktop.

4. Insert the *Apple IIGS System Tools* disk in an empty disk drive.

   If you have two or more 3.5-inch disk drives, insert the system tools disk in any drive other than the startup drive.

   If you have only one 3.5-inch disk drive, eject the system disk and insert the system tools disk. You'll need to swap disks occasionally during the following procedure; simply follow the instructions on the screen when you're prompted to insert a disk.

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5. Open the System.Tools disk icon.
6. Open the Adv.Disk.Util icon.

   In a few moments you'll see the information screen, which lists the version number, author, and copyright information for the program. (This is the same screen you'll see if you select About Adv. Disk Util from the Apple menu of the Advanced Disk Utility.)

7. Choose Initialize/Erase from the File menu (or press Command-I, the keyboard shortcut.)

   The information screen disappears, and you'll see the Advanced Disk Utility screen.

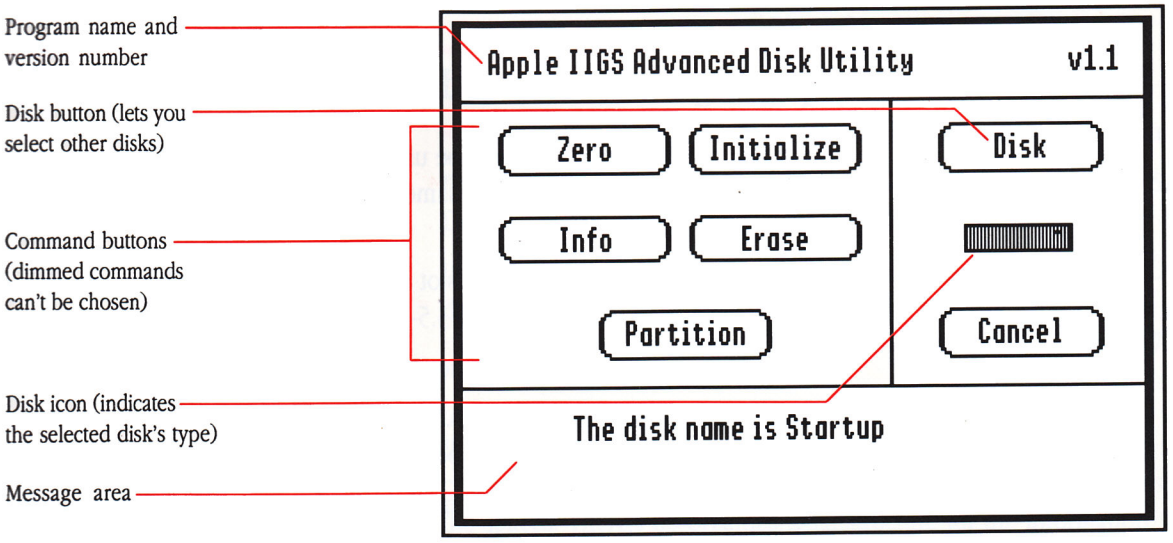

Figure 8-1 The Advanced Disk Utility screen

You're now ready to partition, initialize, erase, or zero a disk. You can also use the Info button to get information about any disk. Go on to the appropriate section for further instructions.

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Partitioning

When you partition a hard disk, you are in effect dividing it into a number of smaller disks. The physical hard disk doesn't change, of course—but the computer recognizes each partition *as if* it were a separate disk. You can initialize, erase, or zero one partition without affecting the others. And you can even use different file systems on the different partitions.

Partitions have their own icons, which look similar to hard disk icons but represent the fact that the partition is part of a hard disk, and not a physically separate disk. A partition icon functions like any other disk icon; you can select it and use the commands in the Disk menu to initialize, erase, or verify the corresponding partition, and all the same restrictions apply to it as apply to other disk icons.

Hard disk icon

Hard disk partition icon

Figure 8-2 Hard disk and hard disk partition icons

If you have a hard disk larger than 32 megabytes (MB) and you want to initialize it for use with ProDOS applications, you can use partitions to take advantage of the disk's full storage space. (The ProDOS file system limits disk size to 32 MB, so you must use partitions to avoid wasting the space in excess of 32 MB.)

In addition, you may find it convenient to use partitions simply as an organizational device. If two people use a hard disk, for example, you may want to create a partition for each person.

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If you've already partitioned your hard disk with the HD SC Partition program on the *Apple II SCSI Card Utilities* disk, you don't need to repartition it with the Advanced Disk Utility. But there are two potential advantages to doing so:

- The HD SC Partition program lets you have only two partitions corresponding to a single SCSI card (or four if the SCSI card is installed in slot 5). Effectively, the two-partition limit means that you can't partition a hard disk unless it's the only disk connected to the card—and even then, you can't create more than two partitions.

  With the Advanced Disk Utility, on the other hand, you can have as many as eight partitions on *each* SCSI hard disk connected to the SCSI card, no matter which slot the card is in.

- The larger number of partitions allowed by the Advanced Disk Utility may let you take advantage of storage space that would be wasted if you used the HD SC Partition program.

  For example, if you have an 80 MB hard disk connected to a SCSI card in slot 6, the HD SC Partition program lets you take advantage of only 64 MB—two partitions of 32 MB each. But with the Advanced Disk Utility, you aren't limited to two partitions, so the entire 80 MB can be used.

△ **Important** Partitioning erases all the data on a hard disk. For that reason, partitioning is something you'll probably want to do only once. △

Be sure to plan your partitions carefully. Decide *in advance* how many partitions you want to create on a hard disk and what the names and sizes of those partitions will be. Once you've partitioned a hard disk, you can't add, delete, or resize a partition without starting over from scratch—and erasing all data on the disk in the process.

If you should ever need to repartition a hard disk, be sure to make a backup copy of everything on the disk first. To do so, you can use a tape backup device or the Backup II program on the *Apple II SCSI Card Utilities* disk, or you can use the Finder to copy the entire contents of the disk onto another hard disk or onto many 3.5-inch or 5.25-inch disks.

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The following instructions assume that you're starting from the Advanced Disk Utility screen. If you aren't, follow the steps in "Opening the Advanced Disk Utility" earlier in this chapter.

Follow these steps to partition a hard disk:

1. Select the hard disk you want to partition.

   Click the Disk button (or press Tab) until the name of the hard disk you want to partition appears at the bottom of the Advanced Disk Utility screen. If the hard disk has not yet been initialized, the message at the bottom of the screen says "Uninitialized or no disk in drive."

   If you're repartitioning a hard disk, select any partition of the hard disk.

2. Click Partition.

   You'll see a dialog box reminding you that partitioning will destroy all data on the hard disk and asking whether you really want to partition the hard disk.

3. Click OK to continue with the partitioning operation.

   You'll see this dialog box.

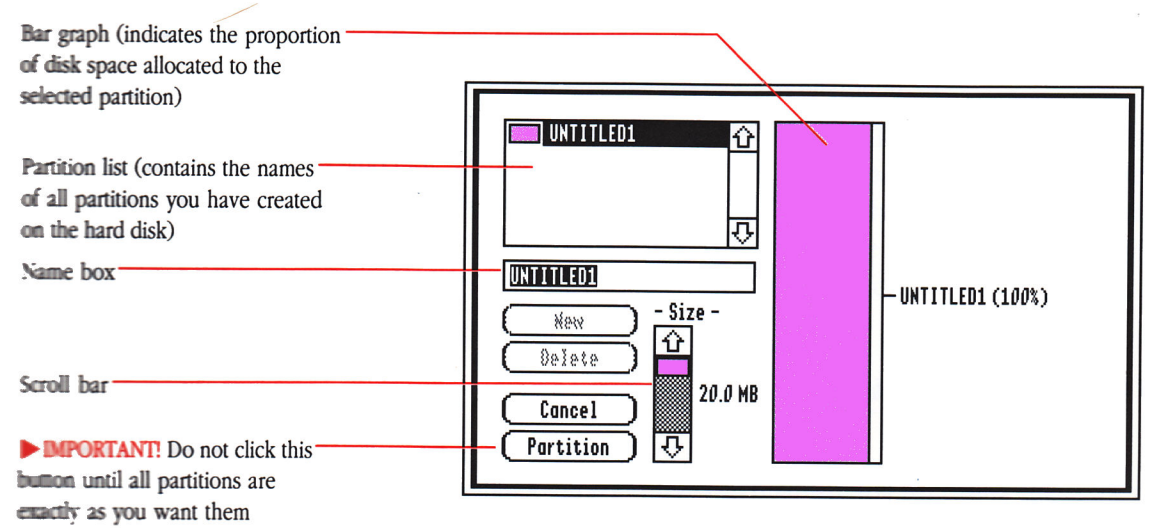

Figure 8-3 The Partition dialog box

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Note that the dialog box has a button labeled *Partition*. This button saves all changes you make in the dialog box. *Don't click this button until you've created, named, and sized all the partitions you want.* (Once you click this button, you won't be able to add, delete, or resize any partitions without starting the partitioning process over from scratch.)

4. Name the first partition.

   When the Partition dialog box first appears, it includes only one partition, called UNTITLED1. (If the hard disk has been partitioned before, you'll see the names of the existing partitions.) This name appears both in the partition list (the window in the upper-left corner) and in the name box below the partition list.

   Type a new name for the partition. Be sure to keep the following rules in mind:

   - Start the name with a letter.
   - Use no more than 15 characters.
   - Don't use spaces.
   - Don't use characters other than letters, numbers, or periods.
   - No two disk icons on the desktop can have the same name.

   The name of the partition need not be the same as the name of its icon on the desktop. (The Advanced Disk Utility initially makes the icon name the same as the partition name for convenience only.) You can't change the name of a partition without repartitioning the entire hard disk, but you *can* change the name of the icon that corresponds to the partition—just as you can rename any other disk icon in the Finder. If you do so, the name you see in the partition dialog box will be the one you originally assigned.

5. Set the partition's size.

   The bar graph to the right of the partition list shows how the space on the hard disk is divided up. A different color (or shade of gray if you have a monochrome monitor) is used for each partition you create.

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The scroll bar to the right of the four buttons lets you change the size of the selected partition. You can change the partition size in increments of 0.5 MB. To change the size, simply reposition the scroll box within the scroll bar using any of the following methods:

- To move through the scroll bar one increment (that is, 0.5 MB) at a time, click the upper scroll arrow (to increase the size) or the lower scroll arrow (to decrease the size).
- To move through the scroll bar four increments (that is, 2.0 MB) at a time, click the shaded area above the scroll box (to increase) or below the scroll box (to decrease).
- To move quickly through the scroll bar, drag the scroll box to the desired location. (Then, if necessary, use the previous techniques to fine-tune the partition size.)

When you reposition the scroll box within the scroll bar, the corresponding segment of the bar graph changes to reflect the new percentage of total space allocated to the selected partition.

6. Press Return to confirm the name and size you specified.

   The partition name changes from UNTITLED1 to the name you provided.

7. Click New to create the next partition.

   A new partition named UNTITLED1 appears in the list. (If you didn't rename the previous UNTITLED1 partition, the new partition will be named UNTITLED2.) In addition, the bar graph now shows a new partition, in the new color (or shade of gray). The scroll box in the scroll bar also shows the new partition's color.

8. Name the new partition.

   Type a new name. (Follow the naming rules listed in step 4.)

9. Set the new partition's size.

   Reposition the scroll box in the scroll bar (using any of the methods described in step 5) to reflect the desired size of the partition.

   If you try to assign more than the total amount of unassigned space on the hard disk, you'll see a message to that effect. When you click OK in the dialog box, the partition will be given all the remaining space on the hard disk.

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10. Press Return to confirm the name and size you specified.
11. Repeat steps 7 through 10 to create additional partitions as needed.

    Create only as many partitions as you really need. The more partitions you use, the slower your computer's access to information on the hard disk will be. Keep in mind that you can have no more than eight partitions on a single hard disk.

    Figure 8-4 shows the Partition dialog box when all space on the hard disk has been allocated.

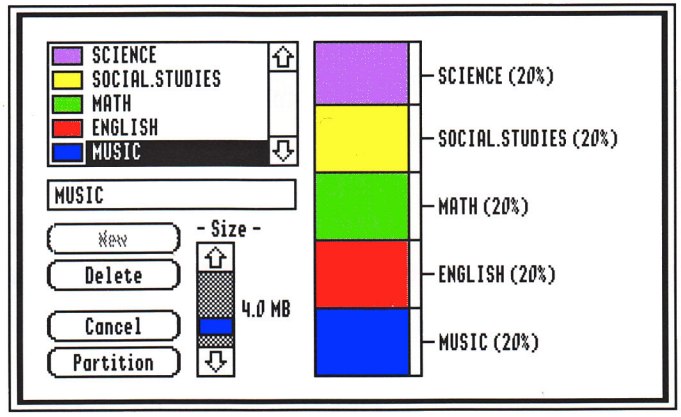

Figure 8-4 Creating new partitions

12. Make any final changes to partition names and sizes.

    If you change your mind about a partition name, or decide that a partition should be larger or smaller, select the name in the partition list and make the necessary change. (Be sure to press Return to confirm the change.)

    If you've already allocated all the space on the hard disk and then decide that you want to enlarge a partition, you must first select a different partition and reduce its size accordingly.

    If you decide to eliminate a partition altogether, simply select its name in the partition list and click Delete. (You can delete all but one partition; when you have only one remaining, the Delete button is dimmed.)

    Before you go on to step 13, make sure that you've allocated all the space on the hard disk. Any space left unallocated when you click Partition will be wasted—unless you go back and repartition the entire hard disk.

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13. Click Partition.

    A dialog box appears for the first partition. The window on the left lists all file systems available on the startup disk. (At present, the only available file system is ProDOS.) The window on the right shows the size you assigned this partition.

14. Click Initialize or press Return.

    The partition is initialized for use with the ProDOS file system.

    After a moment, the same dialog box appears for the next partition.

    - *The Cancel button:* If you click Cancel instead of Initialize, the partition will still be created, but it won't be initialized, and its icon won't be given the name you assigned in the Partition dialog box. To initialize the partition later, follow the instructions in "Initializing" later in this chapter.

15. Repeat steps 13 and 14 for each additional partition.

    When you've initialized the last partition, you return to the Advanced Disk Utility screen. A message at the bottom of the screen tells you whether the partitioning was successful.

    If you click the Disk button (or press Tab) to cycle through the available volumes, you'll see a partition icon corresponding to each partition you created. If you clicked Cancel in step 14 for any partition, the message at the bottom of the screen will say "Uninitialized or no disk in drive" when that partition is selected.

If you want to partition, initialize, erase, or zero another disk, turn to the appropriate set of instructions. If you're finished using the Advanced Disk Utility, click Cancel (or press Esc). Then choose Quit from the File menu (or press Command-Q).

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Initializing

Initializing a disk prepares it to receive information by dividing the disk into tracks and sectors (sections where information can be stored) and writing a file system on the disk so that applications using that file system can store and find data on the disk.

Like partitioning, initializing erases all data on a disk. Don't initialize a disk if it contains information you want to keep.

Initializing a disk with the Advanced Disk Utility has exactly the same effect as initializing a disk with the Finder. Unless you're already using the Advanced Disk Utility for another reason, it's generally more convenient to use the Initialize command in the Disk menu of the Finder when you want to initialize a disk.

The following instructions assume that you're starting from the Advanced Disk Utility screen. If you aren't, follow the steps in "Opening the Advanced Disk Utility" earlier in this chapter.

Follow these steps to initialize a disk:

1. Select the disk you want to initialize.

   Click the Disk button (or press Tab) until the name of the disk you want to initialize appears at the bottom of the Advanced Disk Utility screen. (It may be necessary to eject the system disk or the system tools disk and insert the disk you want to initialize in its place.)

2. Click Initialize.

   A dialog box appears asking you to name the disk.

3. Type a name for the disk, and then click OK or press Return.

   If you want to keep the existing name, simply click OK or press Return.

   You'll see this dialog box.

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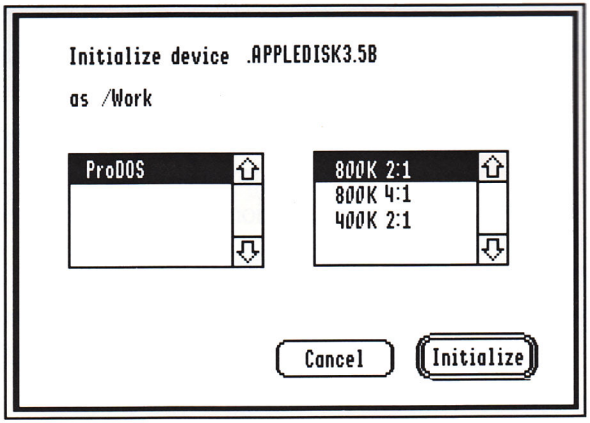

Figure 8-5 The Initialize dialog box

The window on the left lists all file systems available on the startup disk. (At present, the only available file system is ProDOS.)

If the disk to be initialized is a 3.5-inch disk in an Apple 3.5 Drive or an unpartitioned hard disk that has been used before with a file system other than ProDOS, the window on the right shows the possible disk formats. Go on to step 4.

If the disk to be initialized is a 3.5-inch disk in a UniDisk drive, a 5.25-inch disk, a hard disk that hasn't been used with a file system other than ProDOS, a hard disk partition, or a RAM disk, the window on the right shows the size of the disk. Skip to step 5.

4. If necessary, select a disk format.

   - When initializing a 3.5-inch disk in an Apple 3.5 Drive, you're given a choice of three formats: 800K 2:1, 800K 4:1, and 400K 2:1. The 2:1 and 4:1 labels refer to different orders of sectors on the tracks.

     In most cases, you should accept the highlighted option, 800K 2:1. If you'll be using the disk in both Apple 3.5 Drives and UniDisk 3.5-inch drives, however, the 800K 4:1 option will speed up access to information when the disk is in a UniDisk drive.

     Choose the 400K option if you're using a single-sided disk. (In most cases, the disk label will indicate whether the disk is single-sided or double-sided.)

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- When initializing a hard disk, you may be given a choice of two formats: 1:1 and 2:1. These labels refer to different orders of sectors on the tracks.

  The 2:1 option will appear only if the hard disk has been used previously with a file system that requires that order of sectors. The 1:1 option is faster and more efficient, so don't select the 2:1 option.

5. Click Initialize or press Return.

   After a few moments you'll return to the Advanced Disk Utility screen. A message at the bottom of the screen tells you whether the initialization was successful.

If you want to partition, initialize, erase, or zero another disk, turn to the appropriate set of instructions. If you're finished using the Advanced Disk Utility, click Cancel (or press Esc). Then choose Quit from the File menu (or press Command-Q).

Erasing

If you want to remove all the files from a disk and you plan to use the disk again with the same file system, you should erase the disk. If, on the other hand, you want to use the disk with a different file system that requires a different layout of tracks and sectors, you should initialize the disk.

❖ *What happens behind the scenes:* When you erase a disk, the only thing that is actually removed from the disk is its directory—the list of files on the disk. When you open the disk icon on the desktop, file and folder icons no long appear—because it is the directory that lets you see files and folders on a disk. The files are still there, but without a directory they're invisible—and inaccessible, unless you know how to find the data on a disk without a disk directory.

If you want to completely destroy the data on a disk so that no amount of manipulation can ever recover it, you should zero the disk rather than erase it. For instructions, see "Zeroing" later in this chapter.

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The following instructions assume that you're starting from the Advanced Disk Utility screen. If you aren't, follow the steps in "Opening the Advanced Disk Utility" earlier in this chapter.

Follow these steps to erase a disk:

1. Select the disk you want to erase.

   Click the Disk button (or press Tab) until the name of the disk you want to erase appears at the bottom of the Advanced Disk Utility screen. (It may be necessary to eject the system disk or the system tools disk and insert the disk you want to erase in its place.)

   ❖ *By the way:* If the selected disk has not been initialized, the Erase button is dimmed and you can't erase the disk.

2. Click Erase.

   A dialog box appears asking you to name the disk.

3. Type a name for the disk, and then click OK or press Return.

   If you want to keep the existing name, simply click OK or press Return.

   You'll see this dialog box.

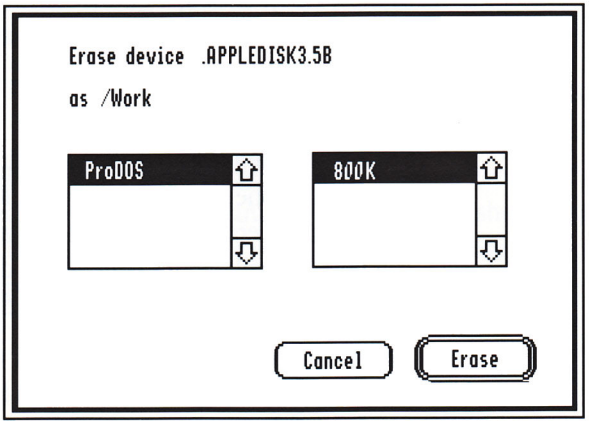

Figure 8-6 The Erase dialog box

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The window on the left shows the file system for which the disk was initialized. The window on the right shows the size of the disk.

4. Click Erase or press Return.

   After a moment you'll return to the Advanced Disk Utility screen. A message at the bottom of the screen tells you whether the erasing was successful.

If you want to partition, initialize, erase, or zero another disk, turn to the appropriate set of instructions. If you're finished using the Advanced Disk Utility, click Cancel (or press Esc). Then choose Quit from the File menu (or press Command-Q).

Zeroing

Zeroing a disk wipes out everything on the disk. Unlike erasing, zeroing eliminates not only the disk directory, but also all the files and the file system. (Only the tracks and sectors remain.) After zeroing, a disk must be reinitialized before it can receive new data.

In most cases, erasing a disk is sufficient. But there may be occasions when you need to zero a disk rather than erase it. If you have highly confidential information that you want to destroy, for example, erasing may not be a sufficient precaution.

Since erasing removes only the disk directory (leaving the files invisible but intact), someone with a lot of computer savvy may be able to reconstruct the files on an erased disk. When you zero a disk, on the other hand, the computer actually writes over all the data (along with the file system), so no one can reconstruct the information that was there.

Because zeroing involves writing over everything on a disk, it can take a long time—especially if you want to zero a large-capacity disk such as a hard disk or a hard disk partition. As a result, you probably won't want to zero disks unless you have a compelling reason to do so.

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The following instructions assume that you're starting from the Advanced Disk Utility screen. If you aren't, follow the steps in "Opening the Advanced Disk Utility" earlier in this chapter.

Follow these steps to zero a disk:

1. Select the disk you want to zero.

   Click the Disk button (or press Tab) until the name of the disk you want to zero appears at the bottom of the Advanced Disk Utility screen. (It may be necessary to eject the system disk or the system tools disk and insert the disk you want to zero in its place.)

2. Click Zero.

   A dialog box appears warning you that zeroing will destroy everything on the disk and may take a long time.

3. Click OK to proceed with the zeroing operation.

   You'll see the messages "Setting up buffers for zero operation" and "Zeroing disk. . . .This could take a while" at the bottom of the Advanced Disk Utility screen.

   When zeroing is complete, a message at the bottom of the screen tells you whether the operation was successful.

4. Reinitialize the disk.

   When zeroing is complete, you must reinitialize the disk before it can receive new data. Follow the steps in "Initializing" earlier in this chapter.

If you want to partition, initialize, erase, or zero another disk, turn to the appropriate set of instructions. If you're finished using the Advanced Disk Utility, click Cancel (or press Esc). Then choose Quit from the File menu (or press Command-Q).

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Getting information about a disk

Whenever the Advanced Disk Utility screen is visible, you can get information about any of the available disks. Follow these steps:

1. Select the disk about which you want information.

   Click the Disk button (or press Tab) until the name of the disk appears at the bottom of the Advanced Disk Utility screen.

2. Click Info.

   You'll see this dialog box.

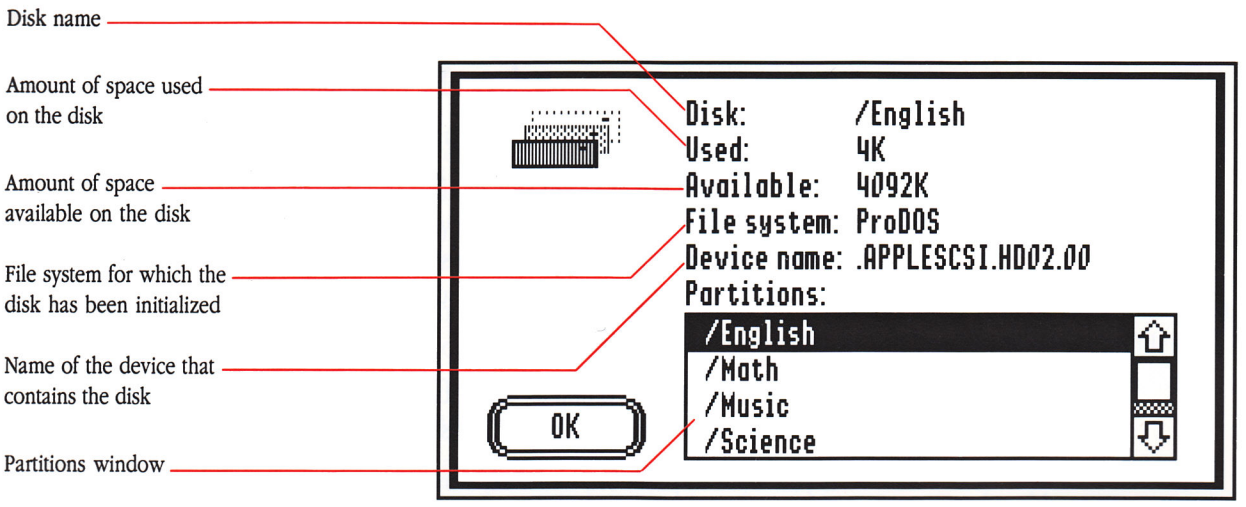

Figure 8-7 The Info dialog box

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If the selected disk is a hard disk partition, the Partitions window lists the names of all the partitions on that hard disk. (If any of the partitions has not been initialized, the Partitions window lists the device name as the partition's name.) If the disk is not part of a partitioned device, the Partitions window displays the message "No partitions on this disk."

When you're looking at the Info dialog box for a hard disk partition, you can click any other partition name in the Partitions window to see the information about that partition.

3. Click OK or press Return.

   You return to the Advanced Disk Utility screen.

If you want to partition, initialize, erase, or zero a disk, turn to the appropriate set of instructions. If you're finished using the Advanced Disk Utility, click Cancel (or press Esc). Then choose Quit from the File menu (or press Command-Q).

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CHAPTER 9

Using the Control Panel Desk Accessory

THIS CHAPTER EXPLAINS HOW TO USE THE CONTROL PANEL, A PROGRAM that lets you customize various aspects of the computer. You can change the volume level of the computer's sound, the pitch of the computer's beep, the responsiveness of both the mouse and the keys on the keyboard, the flashing of the cursor or insertion point, and many more features. The Control Panel also includes a calendar and clock.

The first section of this chapter gives an overview of the Control Panel and explains the two ways of using it. The subsequent sections explain each Control Panel option and what the different settings mean.

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About the Control Panel

The Control Panel is a desk accessory—that is, a "mini-application" that's available regardless of what application you're using. The settings for all Control Panel options are stored in special, battery-powered RAM. Unlike ordinary RAM, the battery-powered memory retains what's stored in it even after the computer's power is switched off. As a result, you can make changes to Control Panel options and save the settings for future sessions.

If the battery is running low, the Control Panel automatically restores the original settings. If this happens, have your authorized Apple dealer replace the battery; then use the Control Panel again to change the settings back to your preferences.

There are two versions of the Control Panel: a new desk accessory called the *graphic Control Panel* and a classic desk accessory called the *text Control Panel*. Like other new desk accessories, the graphic Control Panel is available from the Apple menu of the Finder (in system software version 5.0) or of any other application that includes the Apple menu.

The text Control Panel is stored in the computer's ROM, so it's available whenever the computer is switched on. When you aren't using the Finder or another application that has an Apple menu—or when you aren't using an application at all—you use the text Control Panel to change settings. This chapter explains how to use both versions.

The next two sections explain how to get to the Control Panel and how to make changes to Control Panel options. The remainder of the chapter explains all the options you can set in the Control Panel and what the different settings mean.

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Getting to the Control Panel

This section explains how to get to each version of the Control Panel. You can get to the graphic Control Panel only if you're in the Finder or in an application that has an Apple menu, but you can get to the text Control Panel from most applications—and even when you're not using an application at all.

To get to the graphic Control Panel

Follow these steps to get to the graphic Control Panel:

1. If necessary, start up the computer with the system disk, another Finder-based startup disk, or an application disk that supports the Apple menu and includes system software version 5.0.
2. When the Finder desktop (or your application desktop) appears, choose Control Panel from the Apple menu.

   In a moment the graphic Control Panel appears.

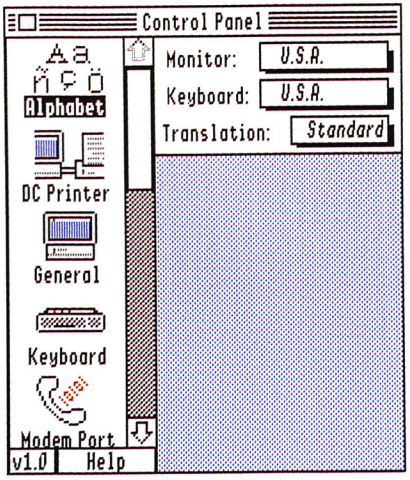

Figure 9-1 The graphic Control Panel

The column on the left shows the icons of the categories of options you can change. (Each category is sometimes called a **CDEV**—an abbreviation for *Control Panel Device*.) The column on the right shows the options for the selected category.

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The categories that appear will depend on what updates you've added to your startup disk using the Installer.

- If you've installed the AppleShare on 3.5 Disk update, most of the categories described in this section won't appear. (Because of space constraints, this update installs an abbreviated version of system software that doesn't include most of the graphic Control Panel categories.) You'll see only the AppleShare and RAM categories, as well as the category for the network printer update you installed (if any).

  If you want to make Control Panel changes for categories that don't appear, you can use the text Control Panel to do so.

- If you've installed the AppleShare, AppleTalk ImageWriter, AppleTalk ImageWriter LQ, or LaserWriter update, you'll see the corresponding category of options in addition to all the categories described in this section.

To get to the text Control Panel

Follow these steps to get to the text Control Panel:

1. Switch on the computer's power.
2. Hold down the Command and Control keys while you press and then release the Esc key.

   You'll see the Desk Accessories menu.

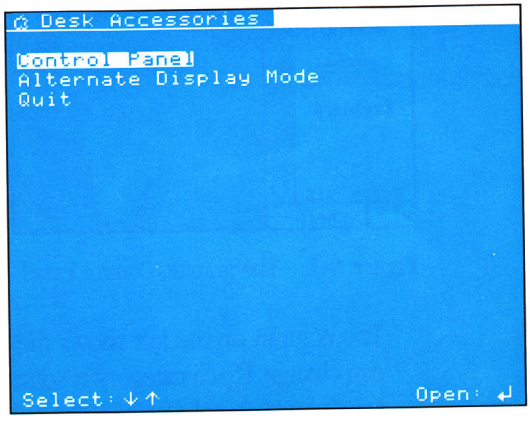

Figure 9-2 The Desk Accessories menu

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If you've installed other classic desk accessories in the Desk.Accs folder (inside the System folder on your startup disk), they will also appear in the Desk Accessories menu. (New desk accessories, on the other hand, appear in the Apple menu of graphics-based applications such as the Finder.)

Some applications don't send you to the Desk Accessories menu when you press Command-Control-Esc. If that's the case with your application, you won't be able to use the text Control Panel (or any other classic desk accessories) while using the application. You'll have to quit the application and then press Command-Control-Esc to get to the text Control Panel.

3. Press Return to enter the text Control Panel.

   You'll see the main menu of the text Control Panel.

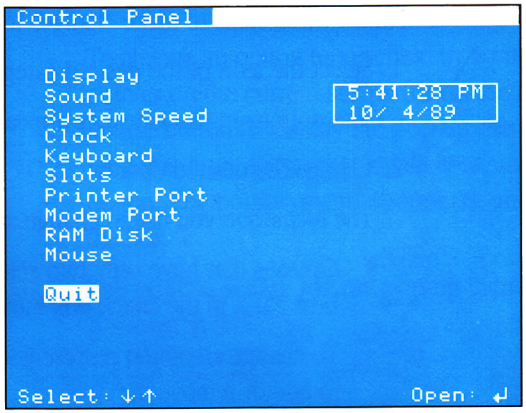

Figure 9-3 The main menu of the text Control Panel

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Making changes to Control Panel options

It doesn't matter which version of the Control Panel you use to make your changes—the changes are saved in the same battery-operated RAM and will show up in the other version of the Control Panel as well.

A few Control Panel options can be changed only in the graphic Control Panel. The description of each option (in "Control Panel Options" later in this chapter) indicates whether the option can be changed in the text Control Panel.

To make changes in the graphic Control Panel

The graphic Control Panel uses icons in the column on the left to indicate the categories of options you can set.

Follow these steps to make changes to an option in the graphic Control Panel:

1. Select the icon of the desired category of options.

   The options in that category appear in the column on the right.

2. Change the desired options.

   The technique you use to change an option depends on the option type:

   - Options that have only two settings—either on or off—use a check box. An X in the check box indicates that the option is turned on.

     To change an option represented by a check box, simply click the box to add or remove the X.

   - Options that have several discrete settings use a **pop-up menu.** The current setting is displayed in a box to the right of the option name. Other settings remain out of sight until you display the pop-up menu. (You can tell that an option uses a pop-up menu if a shadow appears behind the box to the right of the option name.)

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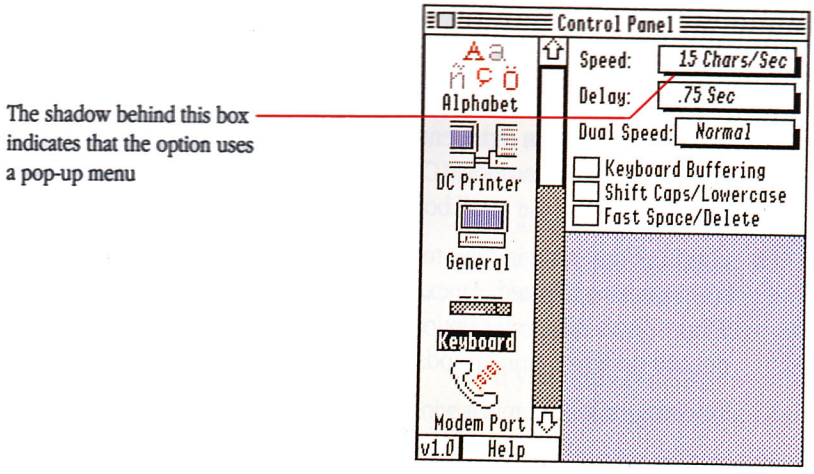

Figure 9-4 Options that use a pop-up menu

To change an option represented by a pop-up menu, position the pointer on the current setting (or on the option name), hold down the mouse button to display the pop-up menu, drag through the menu until the desired setting is highlighted, and then release the mouse button. The pop-up menu disappears, and the new setting appears in the box.

The original setting for any pop-up menu (the one set at the factory) is shown in italics.

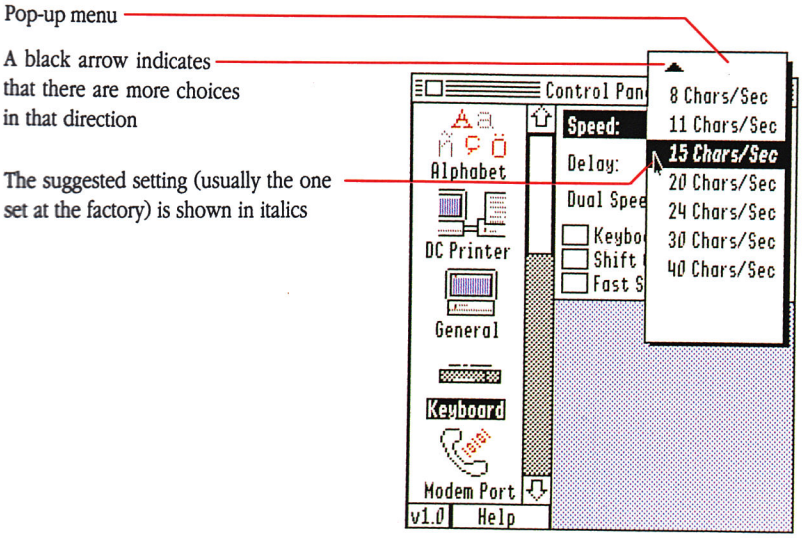

Figure 9-5 A pop-up menu displayed

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- Options that have a continuous range of settings (such as the sound volume level) use a scroll bar. The position of the scroll box within the scroll bar indicates the current setting relative to the entire range.

  To change an option represented by a scroll bar, simply drag the scroll box to the desired location. (Clicking the scroll arrows or the gray areas above and below the scroll box will also change the setting.)

- Some options use windows to list all possible selections. The current selection is highlighted. An example of such options are the DC (for *Direct-Connect*) Printer options. The options listed in the window depend on which printer updates you've installed on the startup disk.

  To change a selection in a window, simply click the new selection.

To make changes in the text Control Panel

The main menu of the text Control Panel lists all the categories of options you can customize. Each of those categories has a secondary menu of options. You follow the same basic steps no matter what options you're setting:

1. Press Down Arrow or Up Arrow until the category you want is highlighted.

   When you hold either key down, the highlighting cycles quickly through the choices.

2. Press Return.

   You'll see the secondary menu of options for the category you highlighted. In each case, the first option listed is highlighted.

   Figure 9-6 gives an overview of the text Control Panel, showing the main menu in the upper left and the secondary menus in three columns beside it. (Because the options in the Modem Port and Printer Port menu are the same, only the Modem Port menu is shown in Figure 9-6.)

3. If necessary, press Down Arrow or Up Arrow until the option you want to change is highlighted.

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4. Press Right Arrow or Left Arrow until you see the setting you want.

   Most of the secondary menus indicate the possible settings with words or numbers to the right of the option name. When you press Right Arrow or Left Arrow, you see the next setting; holding down either arrow key moves you quickly through the settings.

   The Sound menu options and some of the Keyboard menu options indicate the possible settings with an asterisk on an indicator bar. The position of the asterisk on the bar shows the current setting relative to other settings along a continuum.

   When you press Right Arrow or Left Arrow, the asterisk moves to the right or left, representing the new setting along the continuum.

   The original setting for any option (the one set at the factory) is indicated with a check mark.

5. Repeat steps 3 and 4 for any other options you want to change on the same secondary menu.

6. Press Return to save the new settings.

   Or, if you change your mind about any of the settings, press Esc to cancel the changes.

   Once you save a setting, the computer uses the new setting until you change it again. The check mark next to an option name always indicates the *original* setting—that is, the one set at the factory.

   Pressing either Return or Esc takes you back to the main menu.

7. Repeat steps 1 through 6 to change options on other secondary menus.

8. Quit the Control Panel.

   For instructions, see "To Quit the Text Control Panel" at the end of this chapter.

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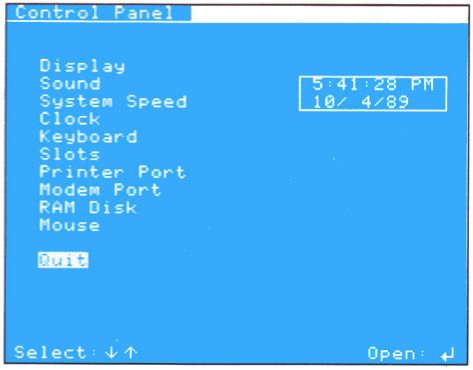
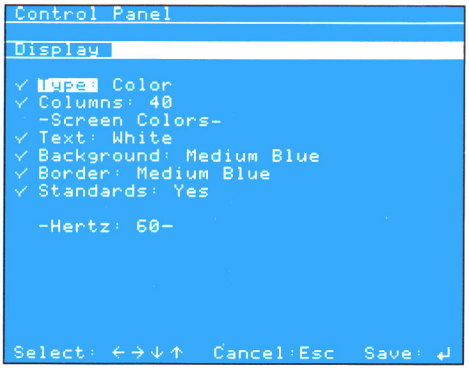
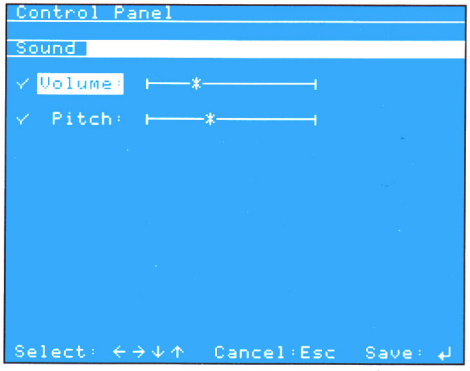


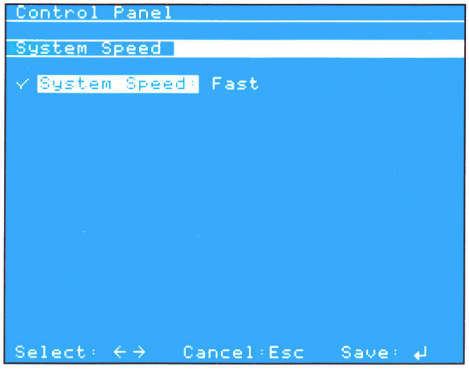
Main menu



Display menu



Sound menu



System Speed menu

Figure 9-6 An overview of the text Control Panel

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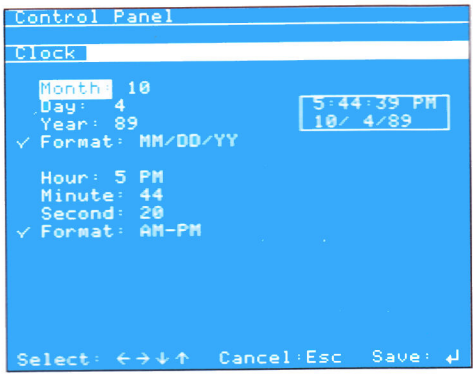
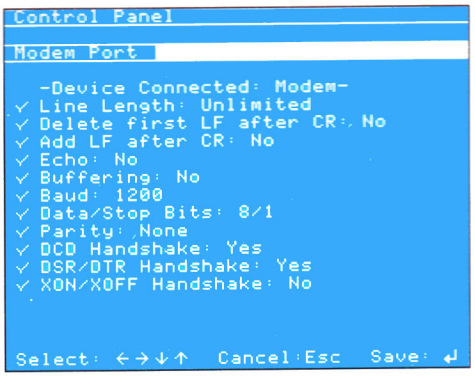
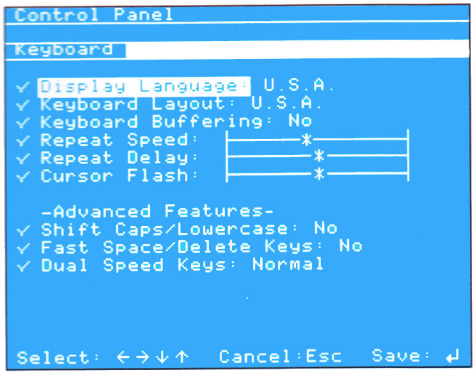


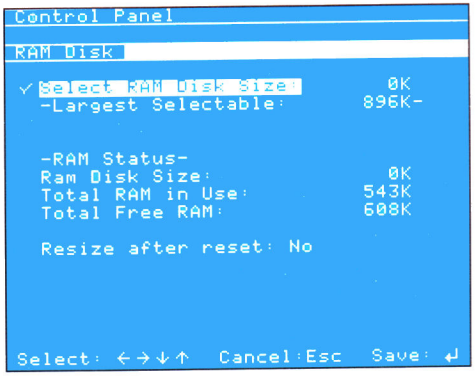
Clock menu



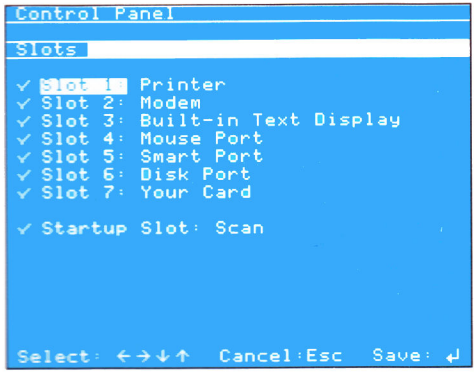
Modem Port menu



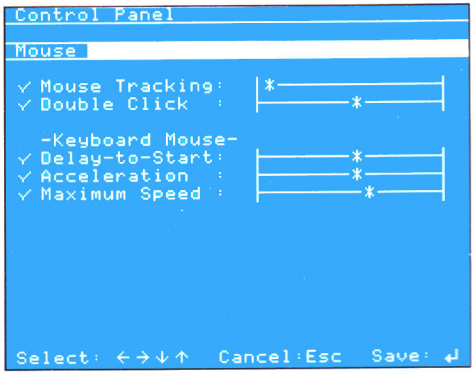
Keyboard menu



RAM Disk menu



Slots menu



Mouse menu

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Control Panel options

This section describes all the Control Panel options. The illustrations in this section use the graphic Control Panel to show these options. In most cases there is a corresponding option in the text Control Panel, though it may have a different name or may be in a different category. (When such differences exist, this section tells you where to find the option in the text Control Panel.)

When an option is described as "turned off," the check box for the option is not selected. (That is, the check box is empty rather than being marked with an X.) In the text Control Panel, the equivalent setting for an option is No.

Alphabet

The Alphabet options give you access to different character sets, both for keyboard layout and for the characters displayed on the monitor.

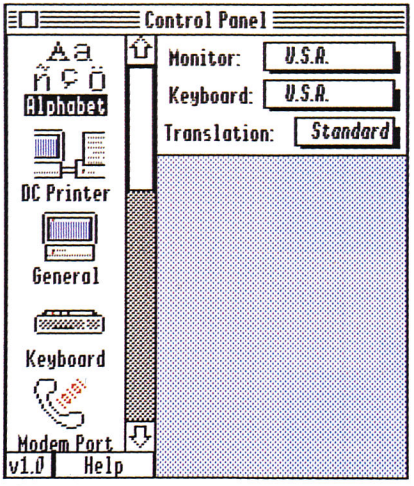

Figure 9-7 The Alphabet options

Monitor

When using text-based applications, the Monitor option lets you choose from several character sets to allow the monitor to display special characters required in languages other than English.

In the text Control Panel, this option is called Display Language and is located in the Keyboard menu.

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Keyboard

The way keys are laid out on a typewriter's keyboard is not the same in every country—and for good reason. Different languages use letters with varying frequency; for example, French uses the letter *q* much more often than English does. So French keyboards have the Q key in a more accessible location than the upper-left corner.

- *By the way:* In addition to the Keyboard option in the Alphabet category, there are a number of keyboard features you can customize in the Keyboard category.

Even in the United States, keyboard layout isn't universal. Most people learn to type with the **Sholes keyboard** (also called the *Qwerty keyboard,* after the first six keys on the top row of letters). But you may have learned with the **Dvorak keyboard** instead—a keyboard arranged to increase typing speed and efficiency by locating the most frequently used keys in the home row. The Dvorak keyboard is also called the *American Simplified Keyboard.*

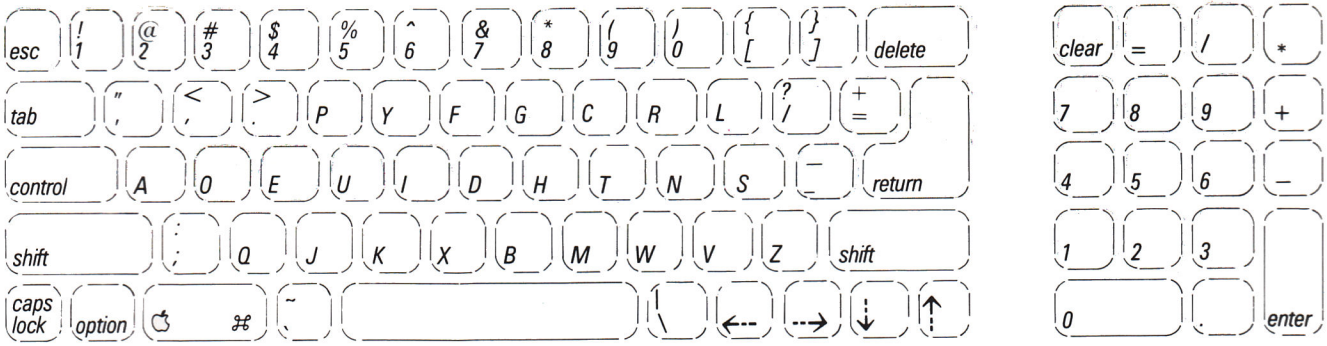

Figure 9-8 The Dvorak keyboard

With the Keyboard option you can set your Apple IIGS to recognize any of a number of standard keyboard layouts, including the Dvorak keyboard. So if you're used to typing with something other than the Qwerty keyboard, you won't have to go back to the hunt-and-peck stage to use your Apple IIGS.

In the text Control Panel, this option is called Keyboard Layout and is located in the Keyboard menu.

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Translation

When the Translation option is set to Standard, you can use the Option key in conjunction with other keys to generate international language characters. This feature has an effect in graphics-based applications only.

In most cases, holding down the Option key while you press another key generates a special character automatically. A few commonly used diacritical marks require a two-step process:

1. Hold down the Option key while you press the key that generates a diacritical mark.
2. Type the letter to which you want to add the diacritical mark.

This option doesn't exist in the text Control Panel.

DC Printer

If you print with a local printer (that is, a printer connected directly to your computer), you use the DC (for *Direct-Connect*) Printer options to specify the printer's type and which port the printer is connected to.

In addition to selecting a port in the Select a Port window, you must make sure that the port is activated in the Slots options of the Control Panel.

The Select a Printer Type window lists all types of printers for which you installed a local printer update. (For more information, see "To Add Capabilities" in Chapter 7.)

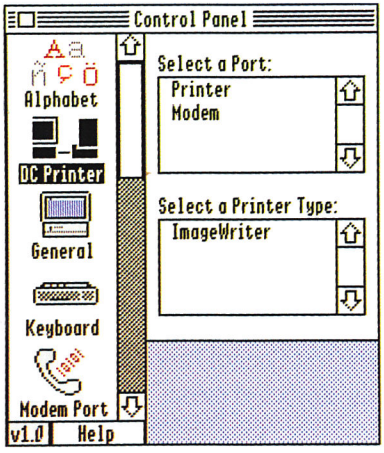

Figure 9-9 The DC Printer options

The DC Printer option doesn't exist in the text Control Panel.

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General

The General options are miscellaneous options you can customize.

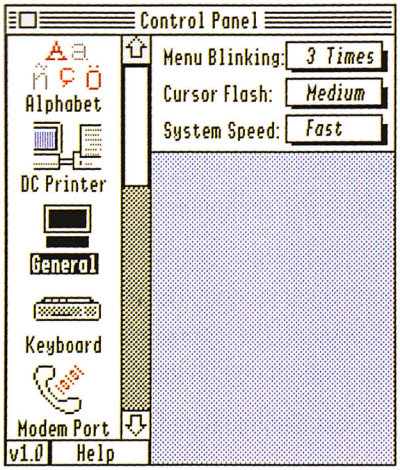

Figure 9-10 The General options

Menu Blinking

This option controls the number of times menu commands blink to indicate that you've selected them. Unlike other Control Panel settings, your setting for this option is not retained in the battery-powered RAM. It reverts to 3 Times each time you shut down or restart the computer.

If you change this option, the new setting remains in effect during the current work session. (If you return to the General options later in the same work session, the option will appear to have reverted to 3 Times—but in reality your change is still in effect.)

This option doesn't exist in the text Control Panel.

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Cursor Flash

This option lets you adjust the interval between flashes of the cursor or insertion point. If the interval is so long that the insertion point isn't noticeable enough, change to a faster setting. If the interval is so short that the insertion point is distracting, change to a slower setting.

Unlike other Control Panel settings, your setting for this option isn't retained in the battery-powered RAM. It reverts to Medium each time you shut down or restart the computer.

If you change this option, the new setting remains in effect during the current work session. (If you return to the General options later in the same work session, the option will appear to have reverted to Medium—but in reality your change is still in effect.)

In the text Control Panel, this option is located in the Keyboard menu.

System Speed

You use the System Speed option to set the computer's speed. *Fast* refers to a maximum speed of 2.8 megahertz (MHz), the top speed possible on the Apple IIGS. *Normal* refers to a maximum speed of 1 MHz, the top speed of earlier models of the Apple II family.

Change the setting to Normal only when the fast speed throws off an application's timing or keeps it from running properly.

If you change from Normal to Fast after starting up an application, you may have to restart the application for the Fast setting to take effect.

In the text Control Panel, this option has a menu of its own.

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Keyboard

The Keyboard options let you customize the way your keyboard responds when you press the keys. You can adjust a variety of keyboard features.

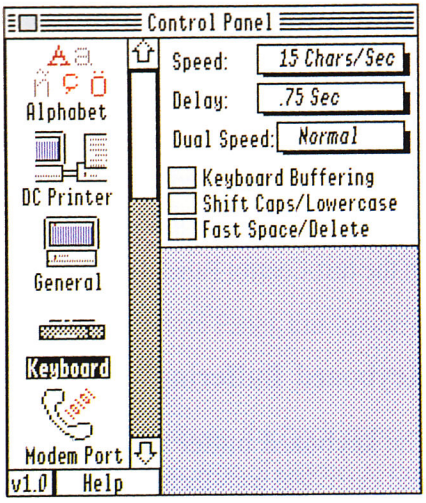

Figure 9-11 The Keyboard options

Speed

When you hold down a key instead of pressing and releasing it, the key repeats, *like thisssssssssss*. You use the Speed option to change the speed at which keys repeat.

In the text Control Panel, this option is called Repeat Speed.

Delay

You can use the Delay option to change the amount of time it takes from the time you first hold down a key until the key starts repeating. You can also turn off the repeat feature.

In the text Control Panel, this option is called Repeat Delay.

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Dual Speed

When you hold down an arrow key, the cursor moves continuously in the direction of the arrow. With the Dual Speed option, you can double the speed at which the cursor moves when you hold down an arrow key.

To do so, you set Dual Speed to Fast. Then, when you want the faster speed, simply hold down the Control key while you press the arrow key you want. Even when Dual Speed is set to Fast, the cursor's speed will be normal when you *don't* hold down the Control key.

In the text Control Panel, this option is called Dual Speed Keys.

Keyboard Buffering

The **keyboard buffer** keeps track of keystrokes when the computer is busy and can't deal with them immediately. The buffer can keep track of up to 19 keystrokes. (After that, keystrokes are ignored.) This feature lets you type a series of instructions to the computer while the computer is doing something else—for example, performing calculations.

△ **Important** Some applications designed for use with both the Apple IIe and the Apple IIGS won't work when Keyboard Buffering is turned on. If you have trouble using an Apple IIe–compatible application, try turning the option off. △

Shift Caps/Lowercase

Ordinarily, when you press Caps Lock, everything you type is capitalized; to get lowercase characters, you must release Caps Lock. If you're typing a document that's mostly uppercase but has an occasional lowercase character, it can be inconvenient to have to keep releasing the Caps Lock key.

The Shift Caps/Lowercase option makes typing such a document easier. When this option is turned on, press Caps Lock and begin typing your document. Whenever you need a lowercase letter, simply press one of the Shift keys as you type the letter.

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Fast Space/Delete

When you hold down the Space bar, the space character repeats like any other character, and you get a row of spaces. Likewise, when you hold down the Delete key, successive characters are deleted until you release the key.

When Fast Space/Delete is turned on, you can double the speed of spacing and deleting. For the faster speed, simply hold down the Control key while you hold down Space or Delete.

Spacing and deleting occur at normal speed when you *don't* hold down the Control key.

In the text Control Panel, this option is called Fast Space/Delete Keys.

Modem Port and Printer Port

Most of the ports on the back panel of the Apple IIGS are set up to work with a particular type of device, at one speed and in one format. But the modem port and the printer port let you connect a wide variety of devices, each with its own special requirements. You can change the settings for these ports with the Modem Port and Printer Port options in the Control Panel. The options in each category are the same; Figure 9-12 shows the Modem Port options.

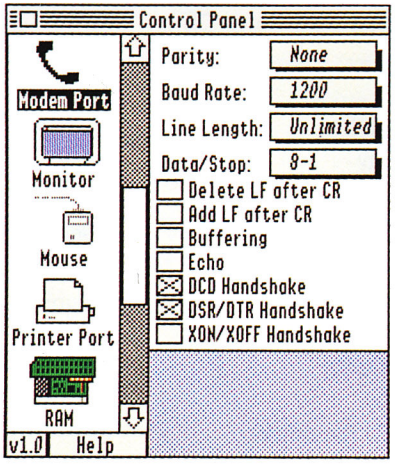

Figure 9-12 The Modem Port options

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- *Network users:* If your Apple IIGS is part of a network, you'll see fewer options for the port through which you made the network connection. (Whenever slot 1 or slot 2 is set to AppleTalk, only four options appear for the corresponding port. For example, if slot 1 is set to AppleTalk instead of Printer, you'll see only four Printer Port options.)

The modem port is preset to work with the Apple Personal Modem. The printer port is preset to work with the ImageWriter and LaserWriter series of printers, as well as with the many other serial printers that expect to receive information in the same way.

If you have a modem or printer from a manufacturer other than Apple, you may need to modify the settings for the port to match the demands of your modem or printer. This is known as **configuring** the port.

Try using your modem or printer before changing any of the settings. If it works, you've saved yourself some time. If it doesn't, the problems you notice (lost characters and so on) may help you figure out which settings need to be adjusted.

Compare the specifications in your modem or printer manual (or, in the case of a modem, those provided by the operator of the remote computer) with the standard modem port and printer port settings for the Apple IIGS. (If you're changing settings in the text Control Panel, options will be in a slightly different order from those in the table below, and settings will be Yes or No rather than On or Off.)

Function	**Modem**	**Printer**
Parity	None	None
Baud	1200	9600
Line Length	Unlimited	Unlimited
Data/Stop	8-1	8-1
Delete LF after CR*	Off	Off
Add LF after CR	Off	On
Buffering	Off	Off
Echo	Off	Off
DCD Handshake	On	On
DSR/DTR Handshake	On	On
XON/XOFF Handshake	Off	Off

**LF* is an abbreviation for *line feed; CR* is an abbreviation for *carriage return.*

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Some applications automatically regulate the transfer of information to a peripheral device, overriding the current settings for a port. If an application asks you to supply details about how the printer or remote computer wants to receive information (using terms such as *baud, data bits,* and *stop bits*), it will send the document using the settings you give it, ignoring the Control Panel settings for the port. The specifications the application asks for are the same as those you can set using the Control Panel, so if you're puzzled by any of the terminology, read the following sections.

Some applications present a list of printer types and ask you to choose your printer type from the list. If that's the case, you'll know that the application will send the document using the settings you give it, ignoring the Control Panel settings for the port.

❖ *Tip:* If your printer isn't on the application's list, try selecting each of the printers on the list and then printing. Your printer may have the same configuration as one of those on the list. If your document comes out the way you expected it to, just select that printer each time you want to print, and you won't need to configure the printer port.

If an application doesn't ask for details about the settings needed to communicate with the remote computer—or if it doesn't present you with a list of printer types to choose from—the application will use the modem port or printer port settings in the Control Panel.

If you need to reconfigure one of the ports, refer to the manual that came with your modem or printer (or the materials you received from the information service you're trying to communicate with) to see what its specifications are. Then use that information to fill in the baud, the number of data bits, and so on.

The following sections explain what the various specifications mean and how to decide what settings to choose. If you don't understand some of the settings, just follow the recommendations given at the end of each section.

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Parity

To make sure that your data isn't misinterpreted or garbled during transmission, some devices expect to receive one extra bit after every character. That bit is called the **parity** bit. The word *parity* derives from the Latin for *equal,* and parity checking is a way of making sure that what's sent matches what comes out at the other end. If it doesn't match, the receiving computer asks the sender to retransmit or announces an error.

If the transmitting and receiving computers agree on **odd parity** as a way of checking for errors, your computer must append an extra bit (either 0 or 1) so that the character has an odd number of 1's. For example, in the American Standard Code for Information Interchange (ASCII), the 7-bit code for the letter *A* is 1000001, which has an even number of 1's. The computer would append an extra 1 to make the total of 1's an odd number. The receiving computer checks the total number of 1's in each character. If that total is odd, chances are the message is OK; if it's even, there was an error in transmission.

If the computers agree on **even parity,** the computer appends an extra bit (again, 0 or 1) to make the total number of 1's an even number.

You can select one of three parity settings: Odd, Even, or None. Most devices don't use parity checking, so if you're unsure about what to select, choose None.

Baud

The rate of data transmission is measured in a unit called **baud.** The Apple IIGS can send and receive information at speeds ranging from 50 baud to 19,200 baud. It's important to make sure the computer and the printer or modem agree in advance on the rate at which the bits will be traveling.

You'll usually find baud listed on a specifications page in the manual that came with your printer or modem. When you know what baud the device uses, select the same rate for the computer by using the Baud option.

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Line Length

The Line Length option determines the number of characters your printer will print per line before generating a **carriage return** (returning to the left margin to start a new line).

Many applications let you set the line length within the application. If that's the case—or if you find the computer adding carriage returns where they don't belong—choose Unlimited and the computer won't try to control line length.

If, on the other hand, your printer ignores the right margin and prints right off the page, you can use the Line Length option to insert a carriage return after every 40, 72, 80, or 132 characters.

If you're connecting a modem, leave the line length set to Unlimited.

Data/Stop

The computer sends and receives each character of data through the modem port or printer port as a string of bits. There are several systems for representing a character; some take five bits, some six, seven, or eight. These bits convey actual information and are known as **data bits.**

There are also different ways of indicating that the string of bits representing a character has ended; some systems require one bit, some two. These bits mark the completion of a character, so they are known as **stop bits.**

The manual that came with your modem will indicate how many bits the modem uses to represent a character (it's often 8) and how many bits it uses to indicate that it has stopped sending one character and is about to send the next (it can be 1 or 2).

In the text Control Panel, this option is called Data/Stop Bits.

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Delete LF after CR

Some printers and applications automatically generate a **line feed** (LF)—that is, they go down to the next line—after each carriage return (CR). Others don't.

If you try printing a document and everything comes out unintentionally double-spaced, you may need to cancel the extra line feed. Start with the easiest solution, which is to turn off the application's line feed setting. If that doesn't work, turn on the Delete LF after CR option in the Control Panel. If neither of those suggestions solves the problem, turn off the automatic line feed switch on the printer. (For instructions on turning off the line feed switch on the printer, consult the manual that came with your printer or ask your authorized Apple dealer for assistance.)

If you're connecting a modem, this option should be turned off.

In the text Control Panel, this option is called Delete first LF after CR.

Add LF after CR

If you try printing a document and all the lines print on top of each other, you may need to add a line feed after each carriage return. Start with the easiest solution, which is to turn on the application's line feed setting. If that doesn't work, turn on the Add LF after CR option in the Control Panel. If neither of those suggestions solves the problem, turn on the automatic line feed switch on the printer. (For instructions on turning on the line feed switch on the printer, consult the manual that came with your printer or ask your authorized Apple dealer for assistance.)

If you're connecting a modem, this option should be turned off.

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Buffering

The buffer is a special area in RAM that holds information until the computer or peripheral device is ready to deal with it.

If you lose information when you use your modem, turn on the Buffering option. If you don't lose information, leave this setting off unless the manual that came with your modem tells you to turn it on.

Echo

When you send a message through your modem, you can elect to have the modem display the message on your own screen as well as sending it to the remote computer. This is called **echoing.**

In most cases, you won't need to turn on the Echo option because the computer you're sending the message to will send a copy of the message back to your computer as a way of confirming that it received your message. If you turn on the Echo option *and* the other computer sends a copy, you'll see double—two characters for every one you send.

How do you know whether to have your modem echo the message you send? If the remote computer uses a full-duplex modem, it will send a copy of the message back to your computer. Most information services use full-duplex modems. If you're communicating with a full-duplex modem, turn off the Echo option.

If the remote computer uses a half-duplex modem, on the other hand, it won't send a copy of the message as it receives it. If you're communicating with a half-duplex modem and you want your computer to display your message on the screen as it's sent, turn on the Echo option.

If you don't know what kind of modem is on the other end of the phone line, turn on the Echo option. Then, if you find that every character in your outgoing message shows up twice, turn the option off again.

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Handshake signals

When your computer begins to communicate with another computer via a modem, it sends a signal saying, in effect, "I'm about to send you some information." And the other computer responds with a signal saying, in effect, "I'm ready when you are" or "Give me a second to catch up." These exchanges are called **handshake signals.**

DCD, DSR/DTR, and XON/XOFF are all handshake signals. DCD stands for *Data Carrier Detect,* DSR for *Data Set Ready,* and DTR for *Data Terminal Ready*. XON and XOFF are ASCII characters. XOFF tells the transmitting device to halt transmission of characters. XON tells the transmitting device to resume transmission of characters.

Don't change these settings unless the manual that came with your modem specifically tells you to set them in a particular way.

Monitor

The Monitor options let you customize the way information is presented on the screen. Most of these options are geared primarily toward text-based applications.

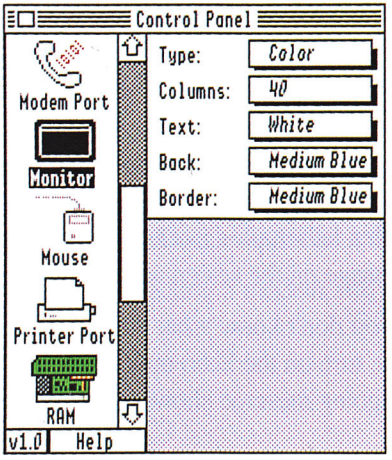

Figure 9-13 The Monitor options

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Type

If you're using a color monitor, set this option to Color. If you're using a monochrome monitor, set this option to Monochrome.

In the text Control Panel, this option is located in the Display menu.

Columns

When you're using applications that display information in a text mode, the Apple IIGS can display either 40 columns or 80 columns per line of text. If you choose 40 columns, the characters are twice as wide as the characters you get when you choose 80 columns. The characters are bigger and therefore easier to read. In the 80-column mode, more of the document you're working with appears on the screen, and the document more closely resembles a typewritten document. For a comparison of the 40-column and 80-column modes, see Figure 1-2 on page 6.

If you use your Apple IIGS with business applications such as word-processing and spreadsheet programs, it's usually a good idea to set the Columns option to 80. (In fact, some applications require an 80-column display.)

Some applications override the Control Panel setting. For example, many games and educational applications are designed for a 40-column display.

In the text Control Panel, this option is located in the Display menu.

If you're using the text Control Panel and you change the Columns option setting, the change takes effect when you quit the Control Panel.

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Text/Back/Border

If you have a color display, you can choose among 16 screen colors for your text, background, and border. If you have a monochrome monitor, you can choose among black, white, and 14 shades of gray. The text and background color settings affect only text-based applications, such as the text Control Panel. The border color setting affects all applications.

One category of color monitors, called **composite color monitors,** switch to black-and-white mode to display text. (These monitors don't have high enough resolution to display text clearly in color.) When you're using a composite color monitor with a text-based application, the text and background colors you selected with the Control Panel show up as shades of gray instead of colors. Only the border is displayed in color.

- *By the way:* Some graphics-based applications display text in a portion of the graphics screen—usually the bottom four lines of the screen. When you're using a composite color monitor with such an application, you *will* see the text and background colors that you selected in the Control Panel.

In the text Control Panel, these options are located in the Display menu.

Mouse

The Mouse options let you customize the mouse's responsiveness to suit your style.

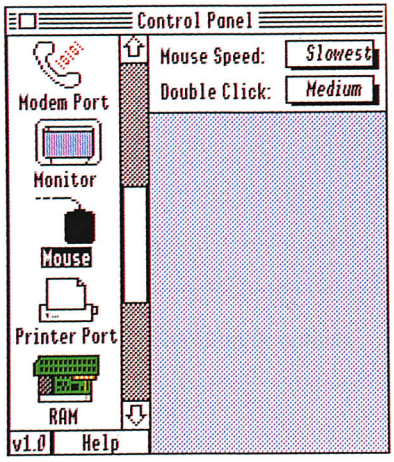

Figure 9-14 The Mouse options

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Mouse Speed

When you move the mouse across your desk, the pointer moves a corresponding distance across the screen. Increasing the Mouse Speed setting makes the pointer move farther for the same movement of the mouse—giving the impression that the pointer moves faster. This feature is especially useful if you're short on desk space.

In the text Control Panel, this option is called Mouse Tracking.

Double Click

There are two situations in which you might want to change the Double Click setting. If your attempts to double-click don't accomplish what they're supposed to in your application, you should change to a slower setting. (Your two clicks are too far apart for the application to recognize them as a double click.)

If you find yourself double-clicking when you don't mean to, you should change to a faster setting. (What you thought of as two unrelated clicks were interpreted by the application as a double click.)

Keyboard Mouse

The text Control Panel includes three options under the heading of Keyboard Mouse. These options let you customize the way the pointer behaves when you're using the Mouse Keys feature. (For information on using this feature, see "Mouse Keys" in Chapter 2.) If the Mouse Keys feature is not activated, these options have no effect.

- *Delay-to-Start* lets you change the amount of time it takes from the time you first hold down a key until the key starts repeating. This setting affects only keys used as Mouse Keys.
- *Acceleration* lets you change the amount of time it takes for the pointer to reach its maximum speed when using Mouse Keys.
- *Maximum Speed* lets you change the maximum speed at which the pointer will move when using Mouse Keys.

The Keyboard Mouse options are not available in the graphics Control Panel.

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Printer Port

The Printer Port options are the same as the Modem Port options. See "Modem Port and Printer Port" earlier in this chapter for information on these options.

RAM

The RAM options let you set up a RAM disk and a RAM cache—both of which can help make the computer work more efficiently.

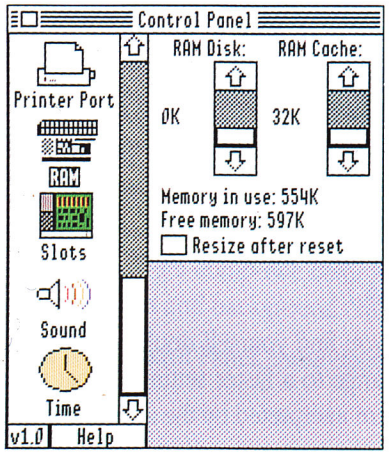

Figure 9-15 The RAM options

RAM Disk

You can designate a portion of the memory in your Apple IIGS to be used as a RAM disk—that is, as random-access memory that the computer treats as a disk. For more information on RAM disks, see Chapter 10, "Using Memory As a RAM Disk."

In the text Control Panel, this option has a menu of its own.

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△ **Important** The new RAM Disk setting doesn't take effect until you restart the computer by switching the power off and then back on again. As a result, decreasing the maximum RAM disk size won't erase what's already stored on the RAM disk during the current work session.

If you want the new RAM Disk setting to take effect after you restart the computer (without switching off the computer), turn on the "Resize after reset" option. △

RAM Cache

The RAM Cache option lets you set aside (or *cache*) part of the computer's RAM for use by the operating system. The operating system uses the memory in the cache to store information about the location of files on your disks (directory information). By storing this information in RAM the first time a file is opened during a work session, the operating system can find the information much more quickly the next time. The time saving is particularly significant if you store files in nested folders.

Designating a portion of RAM as a RAM cache doesn't reduce the amount of RAM available to applications. If an application needs RAM that you've designated for the cache, the application automatically reclaims from the cache any RAM it requires.

This option doesn't exist in the text Control Panel.

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Slots

The Slots options let you activate the slots and ports on your Apple IIGS. And you can use the Startup option to change your startup disk drive.

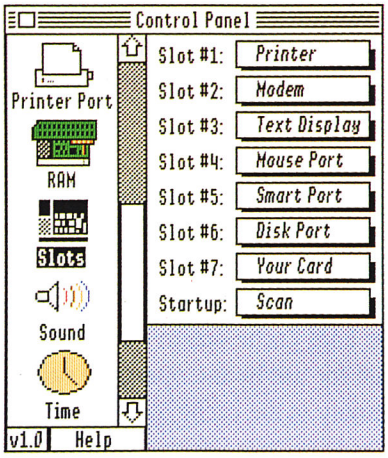

Figure 9-16 The Slots options

Activating slots and ports

Applications designed for Apple II computers that don't have ports expect to find peripheral devices connected to slots inside the computer. In order for such software to work with the Apple IIGS, each port on the Apple IIGS is designed to emulate a slot containing a card.

Because each port emulates a slot, you can't have both the port and the corresponding slot active at the same time. You activate one or the other by setting the Slots options accordingly. When a slot is activated, the words *Your Card* replace the words describing the port.

△ **Important** Changes to the Slots options won't take effect until you restart the computer. △

It's a good idea to make a note on the fold-out flap of the back cover of this book when you change a slot setting. That way you won't have to return to the Control Panel to see whether the slot or the port is activated.

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The following list summarizes the appropriate settings for your slots. For each slot, only one setting is possible at one time. If none of the conditions applies for a given slot, it doesn't matter what setting you use for the slot.

- **Slot 1 (corresponds to printer port)**

  If you have a printer (or any serial device other than a modem) connected to the printer port, set to Printer.

  If you have a modem connected to the printer port, set to Modem.

  If your Apple IIGS is part of a network and you've made the AppleTalk® network system connection through the printer port, set to AppleTalk.

  If you have a device connected to an interface card in slot 1, set to Your Card.

- **Slot 2 (corresponds to modem port)**

  If you have a modem (or any serial device other than a printer) connected to the modem port, set to Modem.

  If you have a printer connected to the modem port, set to Printer.

  If your Apple IIGS is part of a network and you've made the AppleTalk network system connection through the modem port, set to AppleTalk.

  If you have a device connected to an interface card in slot 2, set to Your Card.

- **Slot 3 (corresponds to built-in text display)**

  Unless the manual that came with a peripheral device specifically recommends installing its interface card in slot 3, leave slot 3 empty and leave the slot set to Text Display (or, in the text Control Panel, to Built-in Text Display).

  On earlier models of the Apple II family, slot 3 was used for 80-column cards—cards that made it possible to display text in the 80-column mode instead of the standard mode at that time, 40-column. By contrast, the Apple IIGS has built-in 80-column capability.

  To allow earlier Apple II software to work with the Apple IIGS, the built-in 80-column capability was designed to emulate a card in slot 3. Using slot 3 for an interface card interferes with the computer's simulation of an 80-column card in that slot, and may interfere with text display as a result.

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- **Slot 4 (corresponds to keyboard/mouse port)**

  If you have a mouse or other **Apple Desktop Bus™** device connected to the keyboard/mouse port (either directly or via the keyboard), set to Mouse Port.

  If you have a device connected to an interface card in slot 4, set to Your Card.

  ❖ *Note:* Even if slot 4 is set to Your Card, the computer will recognize a keyboard connected directly to the keyboard/mouse port. But some applications won't recognize any devices other than a keyboard connected directly to the keyboard/mouse port.

- **Slot 5 (corresponds to disk drive port for 3.5-inch drives)**

  If you have one or more 3.5-inch disk drives connected to the disk drive port, set to Smart Port.

  If you have a device connected to an interface card in slot 5, set to Your Card.

  ❖ *Note:* If you've connected a UniDisk 3.5-inch disk drive to a card in slot 5, you must set System Speed to Normal in the General options.

- **Slot 6 (corresponds to disk drive port for 5.25-inch drives)**

  If you have one or more 5.25-inch disk drives connected to the disk drive port, set to Disk Port.

  If you have a device connected to an interface card in slot 6, set to Your Card.

- **Slot 7 (no corresponding port)**

  If your Apple IIGS is part of a network and you've made the AppleTalk network system connection through the printer or modem port, set to AppleTalk. (This setting is optional—you'll have access to AppleTalk even if slot 7 is set to Your Card—but some network-aware applications may expect slot 7 to be set to AppleTalk and will have compatibility problems if that isn't the case.)

  If you have a device connected to an interface card in slot 7, set to Your Card.

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Changing the startup drive

When you switch on the Apple IIGS, the first thing the computer does is check its slots for a disk drive controller card—an interface card that controls one or two disk drives. It looks first in slot 7, the highest-numbered slot. If it doesn't find a disk drive card there, it looks in slot 6, the next-highest-numbered slot, then in slot 5, and so on until it finds one. When it finds a disk drive card, it checks the disk drives connected to that card for a startup disk. This method of looking for a startup device is called **scanning.**

This process occurs even if your disk drives are connected to ports. (From the computer's point of view, ports look just like slots with cards in them.) A 5.25-inch drive connected to the disk drive port emulates a disk drive connected to a card in slot 6. A 3.5-inch drive connected to the disk drive port emulates a disk drive connected to a card in slot 5.

For example, if you have both types of drives connected to the disk drive port, the computer looks for a startup disk in the 5.25-inch drives before it looks for one in the 3.5-inch drives. (That's why you must remove the disks from your 5.25-inch drives and open the disk drive doors if you want the computer to start up from a disk in a 3.5-inch drive.)

At times you may want to bypass a disk drive connected to a higher-numbered slot and start up from a disk drive connected to a lower-numbered slot. If you have 3.5-inch and 5.25-inch drives, all you need to do is make sure the 5.25-inch drives are empty and their doors are open. But if a hard disk drive is connected to the higher-numbered slot, you don't have that option—you can't remove the hard disk.

You can use the Startup option to change your startup drive. Simply change the Startup setting from Scan (the standard setting) to the number of the slot corresponding to the device you want to start up from.

If most of your applications are on 3.5-inch disks, for example, changing the Startup setting to Slot #5 saves you the trouble of having to remember to eject any 5.25-inch disks and open the doors of your 5.25-inch drives each time you want to start up from a 3.5-inch disk. (Of course, when you want to start up with a 5.25-inch disk, you'll need to set Startup to Slot #6—or back to Scan.)

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In addition to Scan and slots 1 through 7, you have the option of setting Startup to RAM Disk, ROM Disk, or AppleTalk. Starting up from a **RAM disk** means restarting the computer with an application that you've copied onto the RAM disk. Given the amount of memory the GS/OS operating system requires, however, starting up from a RAM disk usually isn't practicable.

Starting up from a **ROM disk** means starting up from an application permanently stored on a memory expansion card. There are no applications stored on the Apple IIGS Memory Expansion Card, so unless you've purchased a memory expansion card from another manufacturer, you shouldn't set Startup to ROM Disk.

Starting up from AppleTalk means starting up from a file server volume. For more information, see "To Start Up Over the Network" in Chapter 11.

It's a good idea to make a note of your startup slot on the fold-out flap of the back cover of this book. That way you won't have to return to the Control Panel to see which slot is your startup slot.

Sound

Depending on the applications and peripheral devices you have, you can use your computer to play music and even simulate human speech. The computer also uses sound whenever it alerts you with a beep.

You use the Sound options to modulate the volume level of sounds produced by the computer and to change the pitch of the computer's beep.

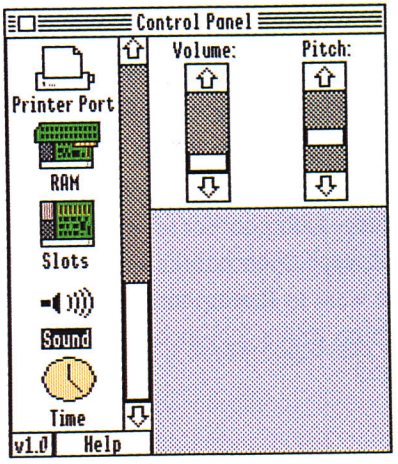

Figure 9-17 The Sound options

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Time

You use the Time options to set the computer's built-in calendar and clock. You can also change the format in which the date and time are displayed.

Once you've set the date and time correctly, you won't need to change these settings very often (except to adjust for Daylight Saving Time). The clock is even programmed to account for the extra day in leap years.

If you notice that the clock isn't keeping accurate time, ask your authorized Apple dealer to install a new battery.

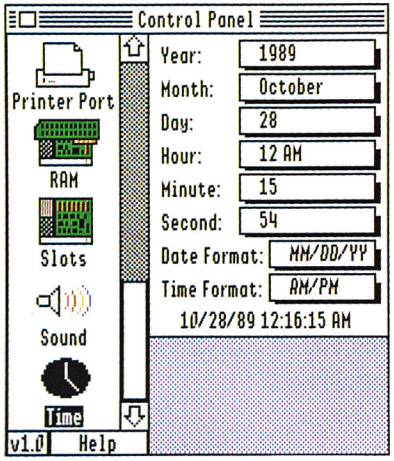

Figure 9-18 The Time options

Time settings in the graphic Control Panel take effect immediately.

In the text Control Panel, these options are located in the Clock menu, and your settings don't take effect until you press Return.

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Installed options

If you installed any networking updates, the graphic Control Panel will include icons for the corresponding options—AppleShare, LaserWriter, AppleTalk ImageWriter, and so on. For information on selecting network devices and services in the graphic Control Panel, refer to Chapter 11, "Using Your Apple IIGS on a Network."

If you installed the AppleShare on 3.5 Disk update, most of the categories described in the preceding sections won't appear in the graphic Control Panel. (Because of space constraints, this update installs an abbreviated version of system software that doesn't include most of the graphic Control Panel categories.) You'll see only the AppleShare and RAM categories, as well as the category for the network printer update you installed (if any). If you want to make Control Panel changes for any of the other categories, you can use the text Control Panel to do so.

Quitting the Control Panel

When you've changed all the settings you want, you're ready to quit the Control Panel.

To quit the graphic Control Panel

You can use one of two methods to quit the graphic Control Panel:

- Choose Close from the File menu.
- Click the close box in the upper-left corner of the Control Panel.

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To quit the text Control Panel

Follow these steps to quit the text Control Panel:

1. Press Return to save any settings you've changed in the current menu.

   You return to the main menu of the text Control Panel.

2. Use the Up Arrow or Down Arrow key (or press Esc) to highlight Quit, then press Return.

   You return to the Desk Accessories menu.

3. Use the Up Arrow or Down Arrow key (or press Esc) to highlight Quit, then press Return.

   You return to whatever application you were using when you entered the text Control Panel.

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CHAPTER 10

Using Memory As a RAM Disk

THIS CHAPTER EXPLAINS HOW TO DESIGNATE AND USE PART OF YOUR computer's memory as a RAM disk. (In most regards, a RAM disk functions the same as other disks, but there are some important differences you'll need to know.)

The first section of this chapter, "About RAM Disks," gives background information about RAM disks: what they are, how they work, and their advantages and disadvantages. The subsequent sections explain how to set RAM disk size, how to specify the location of the RAM disk, and how to use the RAM disk.

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About RAM disks

When you designate a portion of the computer's memory as a RAM disk, the computer treats that memory as if it were a physical disk. The advantage of using a RAM disk is that the computer can get information from it much faster than from a disk in a disk drive. The disadvantages are that anything stored on the RAM disk is lost when you switch off the computer's power, and the memory designated as a RAM disk is not available to run your applications.

△ **Important** Many applications—including the Finder and the tour disk—require 512K of RAM. And some applications require a megabyte (1024K) of memory—which is all the memory that's built into the Apple IIGS. Before you designate any memory as a RAM disk, refer to the manuals that came with your applications to learn how much memory they require. When setting RAM disk size (as explained in the next section), be sure to leave enough memory available for your application.

If an application needs more memory than your RAM Disk setting has left available, you'll see a message to that effect. By the same token, if something you try to store on the RAM disk needs more memory than you've assigned to the RAM disk, you'll see a message to that effect. In either case, you may want to resize the RAM disk for future work sessions. (Changes to RAM disk size don't take effect until you restart the computer.) △

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You don't have to designate any of the computer's memory for use as a RAM disk. For one thing, newer applications generally take advantage of surplus memory automatically. But if you're using older applications that *aren't* designed to use extra memory automatically, it makes sense to assign some memory as a RAM disk, so that your applications will work more quickly and be able to handle larger documents.

▲ **Warning** Anything you store on the RAM disk will be lost when you switch off the computer's power. Make sure you save a copy of all documents on a 3.5-inch, a 5.25-inch disk, or a hard disk before you switch off the computer. ▲

Setting RAM disk size

Before you can use any of the computer's memory as a RAM disk, you need to use the Control Panel to specify how much memory you want to set aside. Follow these steps:

1. Enter the Control Panel.

   You can use either the graphic Control Panel or the text Control Panel. For instructions, see "Getting to the Control Panel" in Chapter 9.

2. Select the RAM icon (in the graphic Control Panel) or open the RAM Disk menu (in the text Control Panel).

3. Set the RAM disk size.

   You can change the size of the RAM disk in increments of 32K.

   In the graphic Control Panel, drag the scroll box to the desired location in the RAM Disk scroll bar. (Clicking the scroll arrows or the gray areas above and below the scroll box will also change the setting.)

   In the text Control Panel, make sure the Select RAM Disk Size option is highlighted and then press Left Arrow or Right Arrow to change the size.

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4. Turn on the "Resize after reset" option.

   Normally, the new RAM Disk setting won't take effect until you switch the computer off and then on again. But when the "Resize after reset" option is on, the new setting takes effect the next time you restart the computer *with or without* switching off the power.

   In the graphic Control Panel, click the check box next to the "Resize after reset" option to add an X.

   In the text Control Panel, set the "Resize after reset" option to Yes.

5. Quit the Control Panel.

   For instructions, see "Quitting the Control Panel" in Chapter 9.

6. Quit any application you're using.

7. Restart the computer.

   If you're in the Finder, follow the instructions in "To Restart the Computer From the Finder" in Chapter 6.

   If you're not in the Finder, insert the desired application disk in your startup drive. Then hold down the Command and Control keys while you press and then release the Reset key. The computer starts up with the application in the startup drive.

   When you've restarted the computer, the new RAM disk size will be in effect.

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Specifying the location of the RAM disk

Some applications will ask for the location of your RAM disk by slot and drive number. If that's not the case with your applications, you can probably skip this section.

The RAM disk always appears to be in slot 5, just as a 3.5-inch drive connected to the disk drive port does. The following rules explain how to determine the drive number of your RAM disk.

1. Your first 3.5-inch disk drive is always drive 1.
2. The RAM disk takes precedence over all but the first 3.5-inch disk drive.
3. If you have a total of three "slot 5" devices, slot 2 acts as an overflow slot, so that the third device appears to be in slot 2, drive 1.

For example, if you have two 3.5-inch disk drives and a RAM disk, your first 3.5-inch drive is drive 1, the RAM disk is drive 2, and your second 3.5-inch drive is slot 2, drive 1.

❖ *Note:* Version 1.1.1 of the ProDOS operating system supports only two devices per slot; so with ProDOS 1.1.1–based applications, "drive 3"—your second 3.5-inch drive—is invisible. Applications that use version 1.2 or a later version of ProDOS recognize up to four devices per slot, so this isn't a problem.

If your application doesn't recognize your disk drive, ask your authorized Apple dealer whether a more recent version of the application is available.

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Using the RAM disk

You use the RAM disk in much the same way you use any other disk. You can copy applications and documents to it and run applications from it.

This section describes the special steps you need to follow when using a RAM disk and the ways in which a RAM disk functions differently from other disks. All the instructions in this section assume that you've already set up a RAM disk, as explained in "Setting RAM Disk Size" earlier in this chapter.

To run an application from the RAM disk

Running an application from the RAM disk allows the application to run faster and reduces the number of times you need to swap disks during saving or copying operations.

Follow these steps to run an application from the RAM disk:

1. Copy an application (and its startup files) to the RAM disk.

   Drag all the icons (except document icons) from the application disk onto the icon (or into the window) of the RAM disk.

   If you copy more than one application's files to the RAM disk, be sure to put the files for all but one application in separate folders. (This avoids the problem of duplicate filenames in the main directory of the RAM disk.)

2. If necessary, open the RAM disk icon.
3. Open the application icon.

   The application starts up in the usual manner.

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To store documents on the RAM disk

You can store documents on your RAM disk the same way you save them on a regular disk. Just remember that the RAM disk is only a temporary storage device.

▲ Warning Save the contents of the RAM disk on a 3.5-inch disk, a 5.25-inch disk, or a hard disk before you switch off the computer's power, or your documents will be lost. ▲

- If your application presents a directory dialog box when you give a save command, click the Disk button if necessary to display the directory for the RAM disk. Then give the document a name (or accept the existing name) and save the document.
- If your application asks for the slot and drive number, refer to the guidelines in "Specifying the Location of the RAM Disk" earlier in this chapter.
- If the application asks for a pathname, type a slash, the name of your RAM disk, another slash, and the name of the document. (If you didn't rename the RAM disk, its name is RAM5.) If you want to save the document in a folder on the RAM disk, add the folder name to the pathname, thus:

  /RAM.DISK.NAME/FOLDER.NAME/DOCUMENT.NAME

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CHAPTER 11

Using Your Apple IIGS on a Network

THIS CHAPTER DESCRIBES THE CAPABILITIES AVAILABLE TO YOU WHEN YOUR Apple IIGS is part of a **network**—a system of interconnected computers and peripheral devices. You'll also find information on using a LaserWriter printer in this chapter.

The first section of this chapter gives an overview of networking, explaining basic concepts and vocabulary that can help you use a network effectively. The subsequent sections describe various tasks related to network use. Some of these tasks should be performed by the network administrator, but most are everyday procedures that let network users take advantage of a variety of network services.

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△ **Important** Many of the instructions in this chapter require you to use the Control Panel to configure your computer system. These instructions assume that your computer has ROM version 3. But some of the Apple IIGS computers on your network may have ROM version 01, in which several of the Control Panel options are slightly different.

If you don't know the ROM version number of an Apple IIGS, look at the bottom of the screen that appears whenever you switch on the computer. (See Figure 1-2 on page 6.) If any computer has ROM version 01, refer to the *Apple IIGS Owner's Guide* that came with that computer for instructions on using the ROM version 01 Control Panel. △

An overview of networking

If you use your Apple IIGS at home, chances are you're using it as a **stand-alone computer**—that is, as an isolated computer system, unconnected to other computers except perhaps by means of a modem. But if you use your computer at school or at work, it may be part of a **network**—a group of connected, independently controlled computers.

The AppleTalk network system

The Apple IIGS is designed to be part of the **AppleTalk network system,** which can include other types of personal computers, such as the Apple IIe, any of the Macintosh family of computers, and the IBM PC and compatible computers. When it functions as part of a network, a personal computer is called a **workstation.** In addition to workstations, the AppleTalk network system can include much larger computers called **mainframe computers.**

The AppleTalk network system can also include peripheral devices such as LaserWriter and ImageWriter printers. But the computers and peripheral devices alone don't make up a network; they require special network firmware and hardware.

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The AppleTalk firmware is built into the Apple IIGS, the Macintosh, and the LaserWriter; it can be added (with special interface cards) to the Apple IIe, the ImageWriter, and the IBM PC and compatible computers. To connect devices to an AppleTalk network system, you use one or more LocalTalk Locking Connector Kits, which include all the cables and connectors necessary to link devices to the network.

You may also have access to other networks that are interconnected with your network in a single, larger AppleTalk network system called an **internet.** Networks (including your network) within the internet may be grouped together into **zones.** (When a large internet is subdivided into zones, network users can locate the devices and services they need more quickly.)

The advantages of networking

When your computer is part of an AppleTalk network system, you can share peripheral devices such as printers—much more economical than buying each person a printer and much more convenient than taking a disk to a different computer (one with a printer connected) each time you want to print. You'll learn more about using shared printers in "Network Printing" later in this chapter.

In addition, an AppleTalk network system can include **AppleShare print servers**—specially configured Macintosh computers that store documents waiting to be printed, thus allowing several people to print documents at the same time. If your network includes one or more AppleShare print servers, you'll learn about using them in "Network Printing" later in this chapter.

Finally, members of an AppleTalk network system can share applications and exchange mail, documents, and other information electronically by using **AppleShare file servers**—specially configured Macintosh computers that allow network users to store and share information. (A single Macintosh computer can be used as both a print server and a file server.)

Here are a few examples of ways you might use an AppleShare file server:

- Read or post messages in a departmental or class "bulletin board" folder.
- Keep frequently used forms (such as expense reports, travel advance requests, and payroll documents) in a folder from which employees can copy as needed, so that you no longer need to have a large number of photocopies on hand.
- Use private folders on the file server's hard disk so that only you (and, if you wish, others in a group that you designate) have access to the documents in those folders.

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- Easily maintain documents that change frequently (such as student rosters, company address lists, and client databases) so that you no longer need to issue paper updates to the people who need the most current version of the information.
- Share public-domain software (or copyrighted software, if the copyright statement or a special license allows multiple use) with other network users.

If your network includes one or more AppleShare file servers, you'll learn more about them in "Using an AppleShare File Server" later in this chapter.

The network administrator

If your computer is part of an existing network at your school or office, there's probably a **network administrator** who maintains the network. Typical duties of the network administrator include making the physical connections between devices on the network; setting up and maintaining any file servers and print servers on the network; troubleshooting whenever network users encounter problems; and answering questions about network services.

If someone else is the network administrator, you can skip the rest of this section and the section "Preliminary Steps."

If you're the network administrator for your network, you should refer to the following manuals for the tasks described:

- The *LocalTalk Cable System Owner's Guide* provides guidelines and instructions for planning, setting up, and maintaining the physical connections between network devices.
- The *AppleShare File Server Administrator's Guide* explains how to set up and maintain a Macintosh computer (with AppleShare File Server software and one or more hard disks) as an AppleShare file server.
- The *AppleShare File Server Administrator's Supplement for Apple II Workstations* explains special procedures you need to follow in order to give Apple II computers access to an AppleShare file server. When the administrator's supplement makes reference to the *AppleShare IIGS User's Guide,* you should refer to this chapter instead.

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- The *AppleShare Print Server Administrator's Guide* explains how to set up and maintain a Macintosh computer (with AppleShare Print Server software and one or more hard disks) as an AppleShare print server. (You can use a single Macintosh computer as a file server and a print server.)
- The *Aristotle Administrator's Guide* explains how to set up the Aristotle menu software on an AppleShare file server. (Aristotle is special software, designed for classroom use, that lets teachers determine what applications are available when students log on to a file server and greatly simplifies the students' access to those applications.)

In addition to the procedures described in those manuals, the network administrator should perform the procedures in "Preliminary Steps."

Preliminary steps

This section describes some preliminary steps that must be performed before Apple IIGS users can have access to AppleShare file servers and network printers on an AppleTalk network system. In most cases, these steps should be performed by the network administrator.

If you're the network administrator, you should assign yourself two registered user names and two passwords—one for when you're performing administrative tasks on the network, and one for when you're using the network as a workstation user.

△ **Important** Some of the procedures in this section are similar to procedures described in the *AppleShare File Server Administrator's Supplement for Apple II Workstations,* but there are some important differences. Even if a procedure seems to repeat something you did when you originally set up your file server, *do not skip any of the procedures in this section.* △

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To connect an Apple IIGS to a network

To connect an Apple IIGS to the network, you'll need a LocalTalk Locking Connector Kit with an 8-pin (DIN-8) connector. Ask the administrator or your authorized Apple dealer for the appropriate kit.

This procedure summarizes information in the *LocalTalk Cable System Owner's Guide*. If you've never made any network connections—and especially if you're setting up a network for the first time—you should refer to that guide's more complete instructions.

Follow these steps to connect an Apple IIGS to a LocalTalk network:

1. Switch off the Apple IIGS, but leave its power cord plugged in.

   Leaving the power cord plugged in keeps the computer grounded.

2. Attach the LocalTalk connector box to the LocalTalk network.

   The particular steps you follow to attach a connector box to the network depend on whether you're attaching it at the end of the network or between two existing network devices. For specific information, see Chapter 4 of the *LocalTalk Cable System User's Guide*.

   When unplugging any LocalTalk cables on an existing network, be sure to pull on the plug, not the cord. (LocalTalk cables are equipped with special locking connectors that won't allow you to unplug the cable by pulling the cord.)

△ **Important** Keep in mind that unplugging a LocalTalk cable on an existing network interrupts communication on the network. Before you unplug any cables, warn other network users that network use may be interrupted briefly, and try to work as quickly as possible to minimize the interruption. △

3. Plug the LocalTalk connector box cable into the printer port on the back panel of the Apple IIGS.

   Insert the 8-pin connector, flat side up, into the printer port.

   - *Special case:* If you've connected a printer directly to the printer port, plug the LocalTalk connector box cable into the modem port on the back panel of the Apple IIGS.

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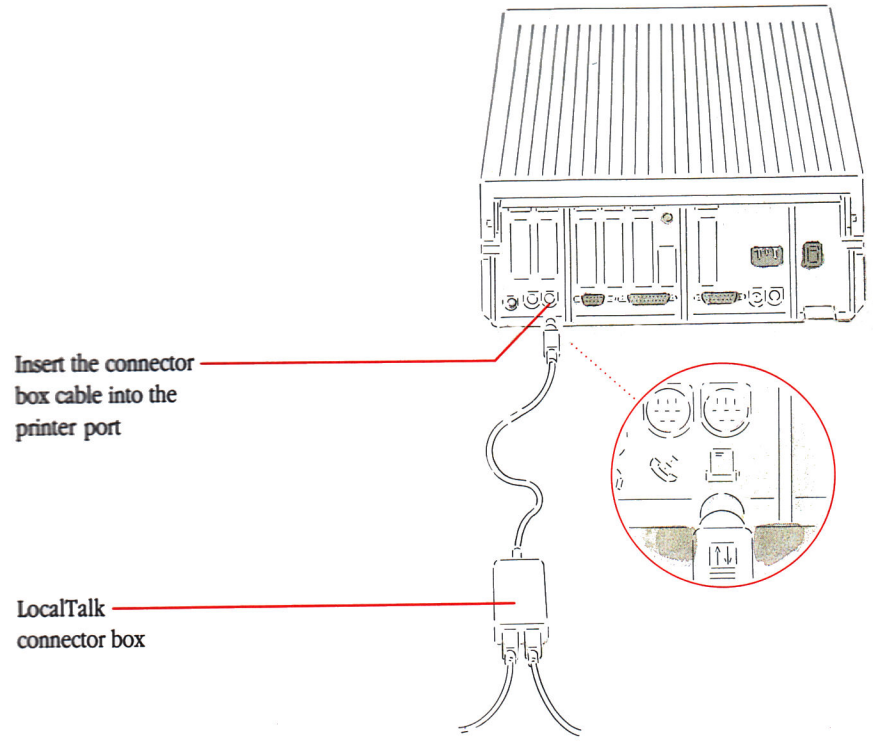

Figure 11-1 Connecting the LocalTalk connector box cable to the printer port

To prepare an AppleShare file server for Apple IIGS access

This section assumes that you have set up an AppleShare file server with AppleShare File Server software version 2.0 (or a later version). If you haven't yet set up your file server, refer to the *AppleShare File Server Administrator's Guide* for instructions.

- *Note:* All AppleShare file servers that support Apple IIGS workstations must be updated at the same time.

Once your file server is set up, you need to follow some additional steps to give Apple IIGS workstations access to file server volumes. Even if you have followed these steps earlier, you need to repeat this procedure with version 2.1 (or a more recent version, if available) of the *Apple II Setup* disk. (The setup disk you received with your AppleShare File Server software—or with the AppleShare IIGS workstation software—may be an older version.)

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You can get the most recent *Apple II Setup* disk in one of two ways:

- If you have enrolled in the Apple IIGS system software update program, the disk will be part of your version 5.0 update package.
- When you purchase copies of the Apple IIGS System Software Update version 5.0, the disk is packaged with the *AppleTalk Network User's Guide for the Apple IIGS*.

Once you have the most recent *Apple II Setup* disk, use the following procedure to install Apple II software support on an AppleShare file server. (You'll also need the disks that came with your AppleShare File Server software, and you'll need to know the administrator's password and the Admin key.)

These instructions are in streamlined form and assume a familiarity with the AppleShare File Server software. If you aren't familiar with that software, you may want to refer to the *AppleShare File Server Administrator's Guide* for background information and for a full explanation of the interface you'll see while performing the following procedure.

1. If the Macintosh computer that functions as a file server is running, shut down the computer.
2. Insert the most recent version of the *Apple II Setup* disk in a disk drive connected to the Macintosh.
3. Restart the Macintosh.
4. Open the AppleShare Apple II Setup disk icon.
5. Open the Installer icon.
6. If necessary, click the Drive button until the name of the file server's startup volume appears at the upper right.
7. Click AppleShare Apple II to select it.
8. Click Install.
9. When the installation is complete, click Quit.
10. Shut down the Macintosh.
11. Insert the *AppleShare File Server: Server Administration* disk in a disk drive connected to the Macintosh.
12. Restart the Macintosh.
13. Open the AppleShare Administration disk icon.

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14. Open the AppleShare Admin application.
15. Type the Admin key and click OK.
16. Choose Server Info from the Server menu.
17. Make sure that the Apple II Admin check box has an X in it.

    If the file server has previously been set up for Apple II users, the check box probably has an X in it. If it does, skip this step and step 18.

    If this is the first time the file server is being set up for Apple II users, the check box should be empty. Click the check box to add an X.
18. Click Save.
19. Click OK in the dialog box.
20. Choose File & Folder Info from the Folders menu.
21. If necessary, click the Volume button until the directory of the startup volume of the file server is displayed.
22. Select the folder named System on the startup volume.
23. Click the Get Info button.
24. If necessary, give the administrator the Make Changes privilege for the System folder on the file server's startup volume.

    If the administrator already has the Make Changes privilege, skip this step.
25. Choose Quit from the File menu.
26. Shut down the Macintosh.
27. Eject the *Server Administration* disk and restart the Macintosh.

To install updates that allow users to start up over the network

If you want Apple IIGS users to start up over the network, you need to install some updates on the startup volume of the file server. (If you aren't sure whether you want users to start up over the network, see "Logging On" later in this chapter for an explanation of the three ways a user can log on.)

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△ **Important** In order for network users to start up over the network, you must provide a startup application on the startup volume of the file server, and the access privileges for the folders and volume containing that application must be set so that users have access to the application. For instructions, see "To Copy Apple II Applications to an AppleShare File Server" and "To Set Access Privileges for a Folder," both later in this chapter.

In addition, the network administrator or the network user must set the startup slot of the Apple IIGS workstation to AppleTalk (or to Slot 7, if the computer has ROM version 01). For instructions, see "To Configure Your Slots for Networking" later in this chapter. △

You perform the following procedure at an Apple IIGS workstation on the network. If you haven't yet connected any Apple IIGS computers to the network, read "To Connect an Apple IIGS to a Network" earlier in this chapter, or refer to the *LocalTalk Cable System Owner's Guide* for instructions.

These instructions are in streamlined form and assume a familiarity with the Installer program on the *Apple IIGS System Tools* disk. If you've never used the Installer, refer to Chapter 7 of this manual for background information and for a full explanation of the interface you'll see while performing the following procedure.

These instructions also assume that you're installing from an Apple IIGS system with at least two 3.5-inch disk drives. If that isn't possible, you'll need to swap disks very frequently during the installation process.

Follow these steps to install the appropriate networking updates on your file server:

1. Start up the Apple IIGS with a backup copy of the *Apple IIGS System Disk*.
2. Initialize a blank disk.

   For instructions, see "To Initialize a Disk" in Chapter 4.

   When you're asked to name the disk, you may want to give it a name such as *AppleShare*.

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3. Insert the *Apple IIGS System Tools* disk in an empty disk drive.

   You may have to eject the system disk in order to insert the system tools disk.

4. Open the System.Tools icon.

5. Open the Installer application icon.

6. Click the Disk button until the name of the disk you just initialized appears above the window on the right side of the Installer screen.

   If the blank disk is not in a disk drive, its name won't appear above the window on the right. Insert the disk and click the Disk button until the name appears.

7. Select AppleShare on 3.5 Disk in the list of updates in the window on the left side of the Installer screen.

8. Click Install.

   You'll see a dialog box warning you that this update will make the disk on which you're installing into an AppleShare startup disk, removing some files (including support for printers). Because you're installing on a blank disk, you needn't be concerned by this warning.

9. Click Perform This Update.

10. When you see a dialog box indicating that the installation was successful, click OK.

11. Quit the Installer.

12. Restart the Apple IIGS with the disk on which you just installed the AppleShare on 3.5 Disk update.

    During the restarting process, the computer will prompt you with a message asking you to provide your user name.

13. Type the administrator's user name.

    If you make a mistake, use the Delete key and retype. When the name is correct, press Return. Your user name is stored on the startup disk, so you won't need to enter it again when using this disk to start up the computer.

14. Choose Control Panel from the Apple menu.

    The AppleShare icon should be selected in the column on the left.

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15. Log on to the file server (using the network administrator's user name and password) and select the startup volume.

    For instructions, see "To Log On to a File Server From the Control Panel" later in this chapter.

16. Insert the *Apple IIGS System Tools* disk in an empty disk drive.

17. Open the System.Tools icon.

18. Open the Installer application icon.

19. Click the Disk button until the name of the file server's startup volume appears above the window on the right side of the Installer screen.

20. Select Server Network Startup and Server Quick Logoff in the list of updates in the window on the left side of the Installer screen.

    To select more than one update, hold down the Command key as you click each update name.

    - *About Server Quick Logoff:* The Server Quick Logoff installation is optional. This program allows you to switch between network users with minimum interaction between the user and the computer. When this program is installed, the user is automatically logged off when he or she quits the startup application, and a logon program allows the next user to log on.

21. Click Install.

    You'll see a dialog box warning you that this update should be installed only on the startup volume of a file server.

22. Click Perform This Update.

23. When you see a dialog box indicating that the installation was successful, click OK.

24. Quit the Installer.

25. Make sure to assign the See Files and See Folders privileges for the System folder on the startup volume (and all enclosed folders) to Everyone.

    For instructions, see "To Set Access Privileges for a Folder" later in this chapter.

26. Drag the icon of the file server volume to the Trash to log off the file server.

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To create 3.5-inch network startup disks that don't include the Finder

If you want Apple IIGS users to log on to a file server with a 3.5-inch AppleShare startup disk that doesn't include the Finder, you need to create the appropriate startup disk.

Users logging on with a disk that doesn't include the Finder will use a program called Logon rather than the graphic Control Panel. If you aren't sure whether you want users to log on in this manner, see "Logging On" later in this chapter for an explanation of the three ways a user can log on.

△ **Important** So that network users can start up over the network, you must provide a startup application on the startup volume of the file server, and the access privileges for the folders and volume containing that application must be set to allow users access to the application. For instructions, see "To Copy Apple II Applications to an AppleShare File Server" and "To Set Access Privileges for a Folder," both later in this chapter. △

You perform the following procedure at an Apple IIGS workstation on the network. If you haven't yet connected any Apple IIGS computers to the network, read "To Connect an Apple IIGS to a Network" earlier in this chapter, or refer to the *LocalTalk Cable System Owner's Guide* for instructions.

These instructions are in streamlined form and assume a familiarity with the Installer program on the *Apple IIGS System Tools* disk. If you've never used the Installer, refer to Chapter 7 of this manual for background information and for a full explanation of the interface you'll see while performing the following procedure.

These instructions also assume that you're installing from an Apple IIGS system with at least two 3.5-inch disk drives. If that isn't possible, you'll need to swap disks very frequently during the installation process.

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Follow these steps to install the appropriate networking updates on your file server:

1. Start up the Apple IIGS with a backup copy of the *Apple IIGS System Disk*.
2. Initialize a blank disk.

   For instructions, see "To Initialize a Disk" in Chapter 4.

   When you're asked to name the disk, you may want to give it a name such as *Startup*.
3. Insert the *Apple IIGS System Tools* disk in an empty disk drive.

   You may have to eject the system disk in order to insert the system tools disk.
4. Open the System.Tools icon.
5. Open the Installer application icon.
6. Click the Disk button until the name of the disk you just initialized appears above the window on the right side of the Installer screen.

   If the blank disk is not in a disk drive, its name won't appear above the window on the right. Insert the disk and click the Disk button until the name appears.
7. Select Local Network Startup and Server Quick Logoff in the list of updates in the window on the left side of the Installer screen.

   To select more than one update, hold down the Command key as you click each update name.

   - *About Server Quick Logoff:* The Server Quick Logoff installation is optional. This program allows you to switch between network users with minimum interaction between the user and the computer. When this program is installed, the user is automatically logged off when he or she quits the startup application, and a logon program allows the next user to log on.
8. Click Install.

   You'll see a dialog box warning you that this update will remove files such as the Finder from the disk on which you're installing. Because you're installing on a blank disk, you needn't be concerned by this warning.

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9. Click Perform This Update.
10. When you see a dialog box indicating that the the installation was successful, click OK.
11. Quit the Installer.
12. Use the Finder to make a copy of the startup disk for each workstation where you want users to log on with a disk that doesn't include the Finder.

    For instructions, see "To Copy a Disk" in Chapter 4.

To copy Apple II applications to an AppleShare file server

You copy Apple II applications to a file server volume in the same way you copy other items. For instructions, see "To Place Copies of Items on a Different Disk" in Chapter 5. Network users who start up with a Finder-based AppleShare startup disk are free to open any application to which they have access on the file server. For these users, you can store applications in any folder with the appropriate access privileges.

Make sure that the applications you copy to the file server are **AppleShare-aware applications**—that is, applications designed specifically to work on an AppleShare file server. If they aren't, there may be restrictions on how you can use the applications on a network. If you aren't sure whether a particular application is AppleShare-aware, check with the publisher or with your authorized Apple dealer.

Make sure to set the access privileges for the volume and any folders containing applications so that the appropriate users will have access to the applications. For instructions, see "To Set Access Privileges for a Folder" later in this chapter.

△ **Important** Before copying any copyrighted applications to a file server volume, be sure to obtain the appropriate license from the manufacturer. Sharing applications on a file server without express permission is a violation of copyright law. △

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When copying setup files or desk accessories that will be used by those who don't start up with a Finder-based disk, follow these guidelines in deciding where on the file server to store the applications:

- If a setup file is to be shared by everyone, copy it into the folder called System.Setup, which is inside the folder called System on the startup volume of the file server.
- If a desk accessory is to be shared by everyone, copy it into the folder called Desk.Accs, which is inside the folder called System on the startup volume of the file server.
- If a setup file or a desk accessory is to be used only by an individual user, copy it into the folder called Setup inside the individual's folder, which is inside a folder called Users on the startup volume of the file server.

If network users will start up over the network, or with an AppleShare startup disk that doesn't include the Finder, you also need to use the AppleShare Admin program to set startup applications for individual users, as explained in the *AppleShare File Server Administrator's Supplement for Apple II Workstations.*

To update the Aristotle menu software

If your AppleShare file server uses the Aristotle menu software, you'll want to follow the procedure in this section to install the Aristotle update, which allows a student using the Aristotle menu software to log on after another student has logged off without the computer's having to reload all the startup and system files.

△ **Important** These instructions assume that you have already installed Aristotle on the startup volume of the file server. If you haven't, install Aristotle according to the instructions in the *Aristotle Administrator's Guide* before you install the Aristotle update. △

You perform the following procedure at an Apple IIGS workstation on the network. If you haven't yet connected any Apple IIGS computers to the network, read "To Connect an Apple IIGS to a Network" earlier in this chapter, or refer to the *LocalTalk Cable System Owner's Guide* for instructions.

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These instructions are in streamlined form and assume a familiarity with the Installer program on the *Apple IIGS System Tools* disk. If you've never used the Installer, refer to Chapter 7 of this manual for background information and for a full explanation of the interface you'll see while performing the following procedure.

Follow these steps to install the Aristotle update on your file server:

1. Start up the Apple IIGS with an AppleShare startup disk.

   If you haven't yet created an AppleShare startup disk, follow the steps in "To Install the Appropriate Networking Updates" later in this chapter.

2. Log on to the startup volume of the file server.

   For instructions, see "To Log on to a File Server From the Control Panel" later in this chapter.

3. Insert the *Apple IIGS System Tools* disk in an empty disk drive.
4. Open the System.Tools icon.
5. Open the Installer application icon.
6. Click the Disk button until the name of the file server volume that contains the Aristotle Menu Display program appears above the window on the right side of the Installer screen.
7. In the window on the right, open any necessary folders until you reach the folder containing the Aristotle Menu Display program.

   To open a folder, click its name to highlight it and then click the Open button. Or just double-click the folder name.

   Continue opening folders until the directory of the folder containing the Aristotle Menu Display program appears in the window. You should see the dimmed filename *display.Ø*.

8. Select Aristotle Update in the list of updates in the window on the left side of the Installer screen.
9. Click Install.
10. When you see a dialog box indicating that the installation was successful, click OK.
11. Quit the Installer.

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To configure your slots for networking

Before you can use your Apple IIGS on a network, you must make a few changes to the Slots options in the Control Panel. Follow these steps:

1. Insert any Finder-based startup disk in the startup drive of your Apple IIGS.

   The startup disk must include system software version 5.0 (or a later version).

2. Switch on your Apple IIGS.

   In a few moments you'll see the Finder desktop.

3. Choose Control Panel from the Apple menu.

   The Control Panel desk accessory appears on the desktop.

4. Select the Slots icon in the column on the left side of the Control Panel.

   It may be necessary to scroll through the column until the Slots icon is visible. When the icon is visible, click it to select it. The Slots options appear on the right side of the Control Panel.

5. Change the Slot 1 setting to AppleTalk.

   To change the Slot 1 setting, position the pointer on the box to the right of the words *Slot #1,* and then hold down the mouse button. A pop-up menu appears listing the four possible settings for Slot 1. Drag through the list until AppleTalk is highlighted, and then release the mouse button.

   - *Special case:* If you connected the LocalTalk connector box cable to the modem port instead of the printer port (as described in "To Connect an Apple IIGS to a Network" earlier in this chapter) set Slot 2 to AppleTalk.

6. Change the Slot 7 setting to AppleTalk.

   This setting is recommended but not required. Your computer will have access to the network even if you don't set Slot 7 to AppleTalk. But many earlier IIGS applications expect this setting. For those applications to be compatible with system software version 5.0, you should set Slot 7 to AppleTalk.

   To change the Slot 7 setting, position the pointer on the box to the right of the words *Slot #7,* hold down the mouse button, and drag through the list until AppleTalk is highlighted. Then release the mouse button.

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7. If you want to start up directly from a file server (rather than from a startup disk in a disk drive), set the startup slot to AppleTalk.

   To change the startup slot setting, position the pointer on the box to the right of the word *Startup,* hold down the mouse button, and drag through the list until AppleTalk is highlighted. Then release the mouse button.

   Check with your network administrator before setting your computer to start up directly from a file server. For more information, see "Logging On" and "To Start Up Over the Network," both later in this chapter.

8. Close the Control Panel.

   Click the close box in the upper-left corner to close the Control Panel.

9. Restart your Apple IIGS.

   The new slot settings don't take effect until you restart the computer.

   To restart, choose Shut Down from the Special menu of the Finder, click the Restart button, and then click OK. Your 3.5-inch disk drives will eject any disks you've inserted. Reinsert your startup disk in the startup drive.

   In a few moments you'll return to the Finder desktop. (Or, if you set the startup slot to AppleTalk in step 7, you'll start up over the network with whatever application the network administrator has assigned as your startup application.) The new slot settings are now in effect.

To install the appropriate networking updates

In order to have access to network devices and services from a startup disk, you need to use the Installer to install the appropriate updates on the startup disk. The procedure you follow depends on whether the startup disk is a 3.5-inch disk or a hard disk.

Creating a 3.5-inch networking startup disk

There are four possible procedures for installing networking updates on 3.5-inch startup disks; the procedure you follow depends on what combination of networking updates you want to install. Refer to the table on the following three pages and follow the instructions appropriate to your networking needs.

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If you want to use AppleShare file servers but not network printers

1. Start up the computer with a backup copy of the system disk. (The disk icon must be named *System.Disk.*)
2. Initialize a blank disk and name it *AppleShare.* (For instructions, see "To Initialize a Disk" in Chapter 4.)
3. Insert a backup copy of the system tools disk in an empty disk drive. (The disk icon must be named *System.Tools.*)
4. Open the System.Tools icon.
5. Open the Installer icon.
6. Click the Disk button until the name *AppleShare* appears above the window on the right side of the Installer. (If you've ejected this disk, its name won't appear; insert the disk and click the Disk button until the name appears.)
7. Select AppleShare on 3.5 Disk.
8. Click Install.
9. Click Perform This Update. (Because you're installing on a blank disk, you needn't be concerned by the warning in the dialog box.)
   - ❖ *Note:* If you have two drives, you can speed up the installation by leaving the *AppleShare* disk in a drive throughout the process, swapping the system disk and the system tools disk as necessary. (You'll see a message whenever you need to insert a different disk.)
10. When you see a dialog box indicating that the installation was successful, click OK.
11. Quit the Installer.
12. Restart the computer with the *AppleShare* startup disk.
13. When the computer prompts you, type your user name as it was given to you by the network administrator.

In a few moments you'll see the Finder desktop. Whenever you use this disk, you'll be able to log on to AppleShare file servers on the network.

If you want to use AppleShare file servers and ImageWriter or ImageWriter LQ printers

1. Start up the computer with a backup copy of the system disk. (The disk icon must be named *System.Disk.*)
2. Initialize a blank disk and name it *AppleShare.* (For instructions, see "To Initialize a Disk" in Chapter 4.)
3. Insert a backup copy of the system tools disk in an empty disk drive. (The disk icon must be named *System.Tools.*)
4. Open the System.Tools icon.
5. Open the Installer icon.
6. Click the Disk button until the name *AppleShare* appears above the window on the right side of the Installer. (If you've ejected this disk, its name won't appear; insert the disk and click the Disk button until the name appears.)
7. Select AppleShare on 3.5 Disk.
8. Click Install.
9. Click Perform This Update. (Because you're installing on a blank disk, you needn't be concerned by the warning in the dialog box.)
   - ❖ *Note:* If you have two drives, you can speed up the installation by leaving the *AppleShare* disk in a drive throughout the process, swapping the system disk and the system tools disk as necessary. (You'll see a message whenever you need to insert a different disk.)
10. When you see a dialog box indicating that the installation was successful, click OK.
11. Select ImageWriter or ImageWriter LQ. (Both updates won't fit on a 3.5-inch AppleShare startup disk.)
12. Click Install.
13. When you see a dialog box indicating that the installation was successful, click OK.
14. Quit the Installer.
15. Restart the computer with the *AppleShare* startup disk.
16. When the computer prompts you, type your user name as it was given to you by the network administrator.

In a few moments you'll see the Finder desktop. Whenever you use this disk, you'll have access to AppleShare file servers and ImageWriter or ImageWriter LQ printers on the network.

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If you want to use AppleShare file servers and LaserWriter printers

1. Start up the computer with a backup copy of the system disk. (The disk icon must be named *System.Disk.*)
2. Initialize a blank disk and name it *AppleShare*. (For instructions, see "To Initialize a Disk" in Chapter 4.)
3. Insert a backup copy of the system tools disk in an empty disk drive. (The disk icon must be named *System.Tools.*)
4. Open the System.Tools icon.
5. Open the Installer icon.
6. Click the Disk button until the name *AppleShare* appears above the window on the right side of the Installer. (If you've ejected this disk, its name won't appear; insert the disk and click the Disk button until the name appears.)
7. Select LaserWriter.
8. Click Install.
9. When you see a dialog box indicating that the installation was successful, click OK.
10. Select AppleShare on 3.5 Disk.
11. Click Install.
12. Click Perform This Update. (Because you don't need the files that will be removed, you needn't be concerned by the warning in the dialog box.)

    ❖ *Note:* If you have two drives, you can speed up the installation by leaving the *AppleShare* disk in a drive throughout the process, swapping the system disk and the system tools disk as necessary. (You'll see a message whenever you need to insert a different disk.)

13. When you see a dialog box indicating that the installation was successful, click OK.
14. Quit the Installer.
15. Restart the computer with the *AppleShare* startup disk.
16. When the computer prompts you, type your user name as it was given to you by the network administrator.

In a few moments you'll see the Finder desktop. Whenever you use this disk, you'll be able to log on to AppleShare file servers and use LaserWriter printers on the network.

△ **Important** If you want to use a LaserWriter printer that has been switched off and then on again, you'll need to download the ImageWriter emulator, as described in "To Choose a Network Printer" later in this chapter. Because of space constraints, the startup disk you've just created doesn't include the emulator program. (The emulator is installed as part of the LaserWriter update, but it is removed when you install the AppleShare on 3.5 Disk update on a disk that already has the LaserWriter update.) To download the ImageWriter emulator to a LaserWriter, you must first start up with a disk that has the complete LaserWriter update. (To create such a disk, follow the instructions on the following page.) △

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If you want to use one or two types of network printer but not AppleShare file servers

1. Start up the computer with a backup copy of the system disk. (The disk icon must be named *System.Disk.*)
2. Initialize a blank disk and name it *Printer.* (For instructions, see "To Initialize a Disk" in Chapter 4.)
3. Insert a backup copy of the system tools disk in an empty disk drive. (The disk icon must be named *System.Tools.*)
4. Open the System.Tools icon.
5. Open the Installer icon.
6. Click the Disk button until the name *Printer* appears above the window on the right side of the Installer. (If you've ejected this disk, its name won't appear; insert the disk and click the Disk button until the name appears.)
7. Select AppleShare on 3.5 Disk.
8. Click Install.
9. Click Perform This Update. (Because you're installing on a blank disk, you needn't be concerned by the warning in the dialog box.)

   ❖ *Note:* If you have two drives, you can speed up the installation by leaving the *Printer* disk in a drive throughout the process, swapping the system disk and the system tools disk as necessary. (You'll see a message whenever you need to insert a different disk.)

10. When you see a dialog box indicating that the installation was successful, click OK.
11. Select AppleShare. (*Do not* select AppleShare on 3.5 Disk again.)
12. Click Remove. (Removing AppleShare leaves a pared-down set of system files so that there is room to install one or two network printer updates on the disk.)
13. When you see a dialog box indicating that the removal was successful, click OK.
14. Select the network printer update or updates you want. (To select more than one update, hold down the Command key while you click each name.) Any two updates will fit on the disk—but not all three.
15. Click Install.
16. When you see a dialog box indicating that the installation was successful, click OK.
17. Quit the Installer.
18. Restart the computer with the *Printer* startup disk.
19. When the computer prompts you, type your user name as it was given to you by the network administrator.

In a few moments you'll see the Finder desktop. Whenever you use this disk, you'll be able to use network printers of the type or types for which you've installed an update. This is also the startup disk you'll use to download the ImageWriter emulator when printing to a LaserWriter for the first time after it has been switched on. (For more information, see the instructions on the previous page and "To Choose a Network Printer" later in this chapter.)

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Adding network capability to a startup hard disk

This section assumes that you've already connected your hard disk, installed system software on it, and configured your slots so that your hard disk is your startup drive. If you haven't yet done any of those tasks, read "SCSI Hard Disks, CD-ROM Drives, and Other SCSI Devices" in Appendix A.

Follow these steps to add network capability to a startup hard disk:

1. Start up the Apple IIGS from your hard disk.
2. Insert the *Apple IIGS System Tools* disk in an empty disk drive.
3. Open the System.Tools icon.
4. Open the Installer application icon.
5. Select all the network updates you need.
   - Select AppleShare if you want to use AppleShare file servers. *Do not select AppleShare on 3.5 Disk if you're installing on a hard disk!*
   - Select AppleTalk ImageWriter if you want to print with an ImageWriter II printer (including one that has been captured by an AppleShare print server) over the network.
   - Select AppleTalk ImageWriter LQ if you want to print with an ImageWriter LQ printer (including one that has been captured by an AppleShare print server) over the network.
   - Select LaserWriter if you want to print with a LaserWriter printer (including one that has been captured by an AppleShare print server) over the network.

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6. Click Install.
7. When you see a dialog box indicating that the installation was successful, click OK.
8. Click Quit.
9. You'll see a dialog box telling you that you must restart in order for the new updates to take effect.
10. Click Restart System.

    During the restarting process, the computer will prompt you with a message asking you to provide your user name.
11. Type your user name.

    Be sure to type your user name as it was given to you by the network administrator—though you don't need to worry about matching uppercase and lowercase letters. If you make a mistake, use the Delete key and retype. When the name is correct, press Return. Your user name is stored on the startup disk, so you won't need to enter it again when using this disk to start up the computer.

In a few moments you'll see the Finder desktop. You now have access to the network devices and services for which you installed updates.

Using an AppleShare file server

If your network includes one or more AppleShare file servers, read this section for background information about AppleShare and for instructions on preparing and using the file server.

An overview of AppleShare file servers

If your Apple IIGS is part of a network, you probably have access to an AppleShare file server—a Macintosh computer that has one or more hard disks used exclusively for storing and sharing information. Because the file server can't be used as a workstation when it's being used as a file server, it's sometimes called a **dedicated server**.

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File server volumes

Each hard disk that's part of a file server is known as a **volume.** File server volumes function in much the same way as any other kind of disk. When contrasted to file server volumes, other disks are sometimes called **local disks** because you use them in a disk drive connected directly to your workstation.

When you select a file server volume, its icon appears on your desktop. You can open the icon just as you would open any other disk icon, and you can use the file server volume the same way you use other disks—creating folders, opening applications, saving documents, and so on. An added benefit of file server volumes is that more than one network user can have access to them at the same time.

- *CD-ROM volumes and other locked volumes:* Your file server may include locked volumes, such as **CD-ROMs,** whose contents can't be changed. A locked volume functions much the same as a write-protected 3.5-inch or 5.25-inch disk. You can't create folders or save documents on a locked volume because you can't alter its contents.

Logging on

When you want access to one or more file server volumes, you go through a process called **logging on.** There are three ways you can log on to a file server:

- *With an AppleShare startup disk that includes the Finder.* You create such a disk by installing either the AppleShare update or the AppleShare on 3.5 Disk update. When you start up with the disk, the Finder is your startup application. You can then use the graphic Control Panel to log on to a file server and select file server volumes, as explained in "To Log On to a File Server From the Control Panel" later in this chapter.
- *With an AppleShare startup disk that doesn't include the Finder.* You create such a disk by installing the Local Network Startup update. When you start up with the disk, you bypass the Finder, logging on to a file server and launching whatever startup application the network administrator has assigned you.

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This method of starting up is useful primarily in classroom settings, where a teacher may want to have control over what application a student starts up with. This method of logging on is explained in "To Log On With a Disk That Doesn't Include the Finder" later in this chapter.

- *Directly over the network (without a disk).* You can start up in this manner if you've installed the Server Network Startup update on the startup volume of the file server. When you switch on the computer, you automatically log on to a file server and launch whatever startup application the network administrator has assigned you.

  This method of starting up is useful primarily in classroom settings, where a teacher may want to have control over what application a student starts up with. The advantage of this method is that it doesn't require a disk drive; the disadvantage is that it can take somewhat longer than starting up with an AppleShare disk that doesn't include the Finder. This method of logging on is explained in "To Start Up Over the Network" later in this chapter.

When you're finished using the volumes on a file server, you go through a process called **logging off,** as explained in "To Log Off a File Server" later in this chapter.

Registered users and guests

A file server is like a central storeroom for files. Because you may want some files or folders to be private—or to be available only to a specific group of network users—the AppleShare File Server software provides a "security system" to make sure that only the appropriate people have access to information stored on file server volumes.

When the network administrator set up your file server, he or she probably created a list of **registered users.** If you're a registered user of a file server, your administrator has assigned you a **user name** and a **password.** When you log on as a registered user, your user name identifies you to the file server, and your password (a unique word or set of characters that no one else knows) lets you confirm that you're who you say you are.

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Your file server administrator may also have set up **groups** of one or more registered users. The members of an AppleShare group usually need access to the same information. For example, teachers may need to share information among themselves but restrict students' access to that information.

Even if you're not a registered user of a file server, you can log on as a **guest,** unless the file server has been set up to allow access only to registered users. Guests are given the user name **<Any User>** but do not have a password. When you log on as a guest, you don't have access to restricted information, but you can use public files and folders. Anything you create or store on a file server volume while logged on as a guest is available to all network users, including other guests.

Access privileges

The AppleShare File Server software has a feature called **access privileges** to let users restrict access to information in particular folders. When a registered user creates a folder on a file server volume, the folder is automatically set up as a private folder. The registered user is the **owner** of the folder, and he or she controls access to its contents. Only the registered user can see or change what's in the folder unless he or she gives other users access to it.

You'll probably store some private information on a file server—for example, payroll or personnel records, students' grades, and so on. But you may also store information that you want to share, either with certain users on the network or with everyone on the network. Access privileges let you set up different restrictions for different folders.

For an explanation of the different access privileges and how to use them, see "To Set Access Privileges for a Folder" later in this chapter.

Naming rules

AppleShare file servers use a file system different from the ProDOS file system used on hard disks, 3.5-inch disks, and 5.25-inch disks. The AppleShare file system allows you more flexibility in naming icons on the desktop. The following rules apply when naming files and folders on a file server volume:

- The name can have up to 31 characters.
- You can't use a colon (:) in the name.

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If you'll be sharing items with Apple IIe users on the network, however, you should follow the ProDOS naming restrictions described in "To Rename Icons" in Chapter 3.

Similarly, if you move an item from a file server volume to a local disk, the item must have an acceptable ProDOS name. When you drag an item from a file server volume to a local disk, you may see a dialog box informing you that the item's name is unacceptable and suggesting a new name.

To log on to a file server from the Control Panel

Follow these steps to log on to an AppleShare file server from the Control Panel:

1. Start up your Apple IIGS with a Finder-based startup disk on which you have installed the AppleShare or AppleShare on 3.5 Disk update.

   For instructions on installing one of the AppleShare updates on a startup disk, see "To Install the Appropriate Networking Updates" earlier in this chapter.

2. Choose Control Panel from the Apple menu.

3. Select the AppleShare icon in the column on the left side of the Control Panel.

   When you select the AppleShare icon, the AppleShare options appear on the right side of the Control Panel. (If you installed AppleShare on a hard disk, you'll see more icons than are displayed here.)

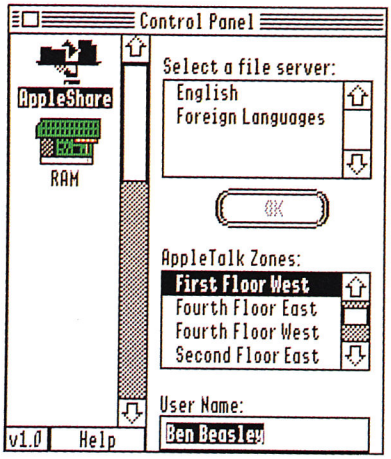

Figure 11-2 The AppleShare options in the Control Panel

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4. If necessary, select the zone that contains the file server you want to log on to.

   If your network isn't divided into zones, or if the desired zone is already selected, skip to step 5.

   To select a zone, simply click its name in the AppleTalk Zones window. A list of the file servers in that zone appears in the window labeled "Select a file server."

5. Click the name of a file server in the window labeled "Select a file server."

6. Click OK.

   You'll see the following dialog box.

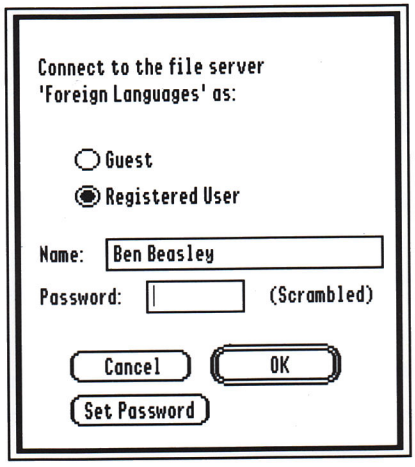

Figure 11-3 The dialog box for logging on to a file server

7. Specify whether you want to log on to the file server as a guest or as a registered user.

   - If you want to log on as a guest, click the Guest button and then click OK.
   - If you want to log on as a registered user, type your password and then click OK. (If you don't know your password, check with your network administrator.)

   If a file server volume has been set up to allow access only to registered users, the Guest button will be dimmed. Similarly, if you're already logged on to a file server volume or if you don't have the appropriate access privileges for the volume, its name will be dimmed.

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Whether you choose to log on as a guest or as a registered user, the following dialog box appears on the screen when you click OK.

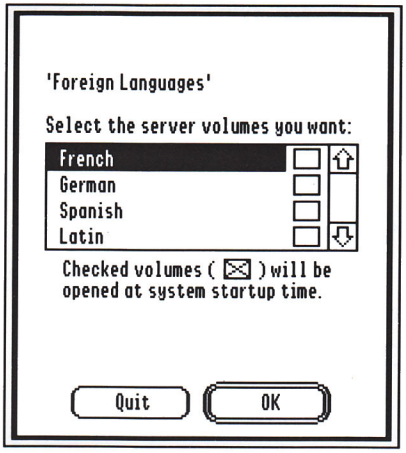

Figure 11-4 The dialog box for selecting file server volumes

8. Select the file server volumes to which you want access.

   To select a single file server volume, simply click its name. To select additional file server volumes, hold down the Command key as you click each additional name.

9. If you want automatic access to one or more file server volumes each time you start up the computer, click the check box to the right of the volume names.

   Two new options appear in the dialog box for selecting file server volumes: Save My Name Only and Save My Name and Password.

   The Save My Name and Password option is selected.

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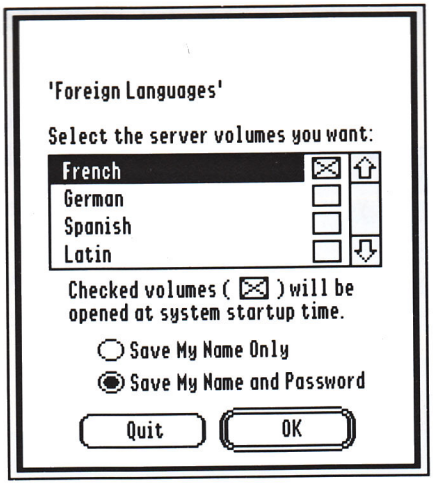

Figure 11-5 Designating file server volumes for automatic access

- If you want the computer to ask for your password before logging you on to the selected server each time you start up, select the Save My Name Only option.
- If you want the computer to bypass asking for your password when it logs you on to the selected server each time you start up, leave the Save My Name and Password option selected.

10. Click OK or press Return.

    The dialog box disappears and you return to the Control Panel. Note that the icon of each file server volume you selected now appears on the desktop.

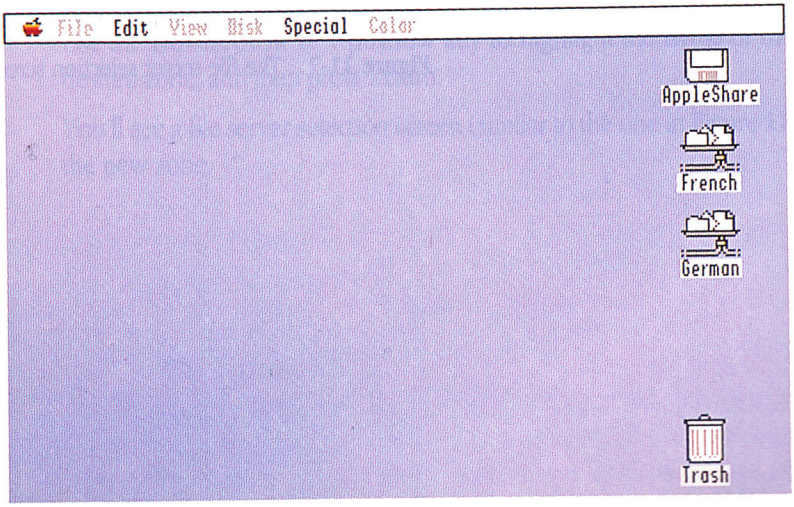

Figure 11-6 File server volume icons on the Finder desktop

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Follow these steps to start up over the network.

1. Start up (or restart) the computer.

   You'll see a series of messages indicating that the computer is starting up over the network and looking for file servers.

   If your network is divided into zones, or if there is more than one file server on your network, you'll see a screen similar to the one shown in Figure 11-7. If your network isn't divided into zones and there is only one file server on the network, you'll see the screen shown in Figure 11-9. Skip to step 5.

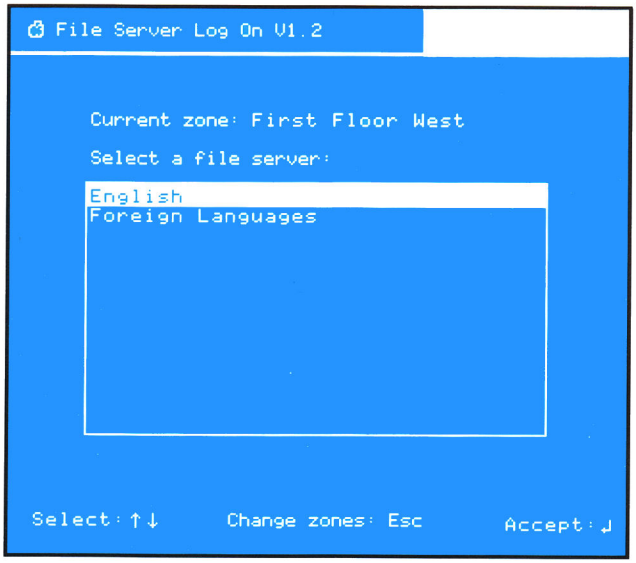

Figure 11-7 The file server selection screen

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2. If you want to select a new zone, press the Esc key.

   You'll see a screen similar to the following screen.

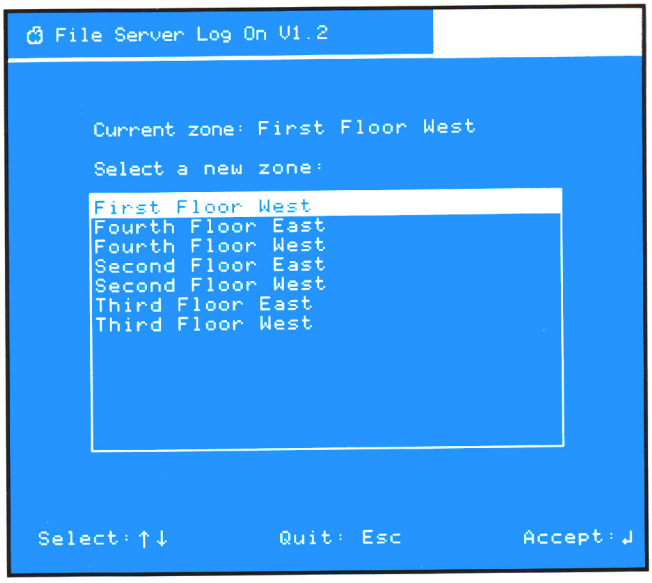

Figure 11-8 The zone selection screen

The name of the current zone (if your network is divided into zones) appears near the top of the screen. If the current zone is the one you want—or if the network doesn't have zones—skip to step 4.

3. Select a new zone.

   Use the Down Arrow or Up Arrow key to highlight the name of the desired zone, and then press Return.

   You'll see a file server selection screen (similar to the one in Figure 11-7) for the new zone.

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4. Select a file server.

   Use the Down Arrow or Up Arrow key to highlight the name of the file server you want to log on to, and then press Return.

   You'll see the following screen.

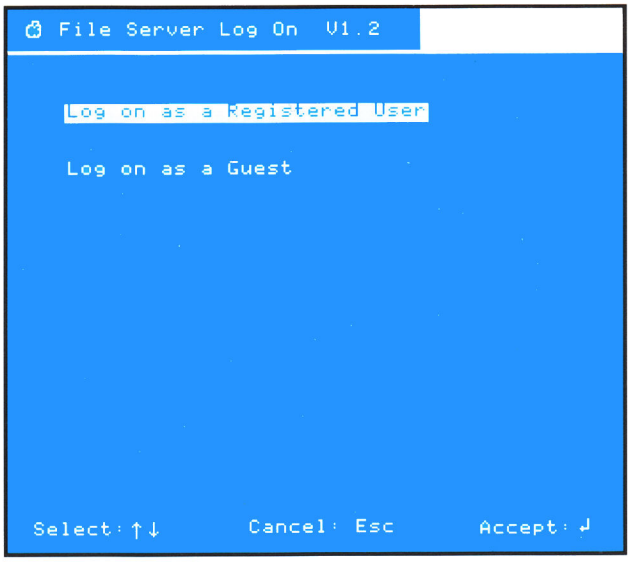

Figure 11-9 The log-on option screen

   The "Log on as a Registered User" option should be highlighted.

5. Specify whether you want to log on as a registered user or as a guest.

   - If you want to log on as a guest, use the Down Arrow key to highlight "Log on as a Guest" and press Return.

     If the file server has only one volume, you'll see the "Welcome to the IIGS" screen, followed by the message "One Moment Please . . . " while the computer launches your startup application over the network. You're logged on automatically, and you can skip the rest of this procedure.

     If the file server you selected has more than one volume, you'll see the screen shown in Figure 11-11. Go on to step 8.

   - If you want to log on as a registered user, simply press Return. You'll be asked to supply your user name and password in the lower half of the screen.

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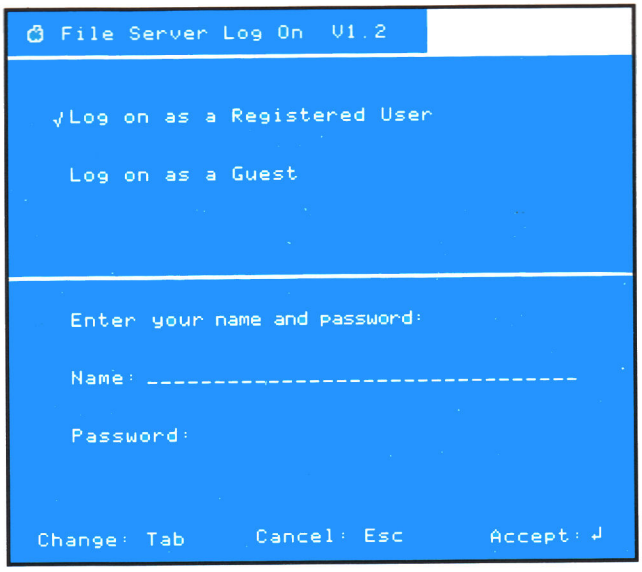

Figure 11-10 Logging on as a registered user

6. Type your user name.

   Be sure to type your user name exactly as it was given to you by the network administrator—though you don't need to worry about matching uppercase and lowercase letters. If you make a mistake, use the Delete key and retype. When the name is correct, press Return.

   - *Keyboard shortcuts:* Pressing Control-X clears the entire line; pressing Control-Y clears all characters between the cursor and the end of the line; pressing Control-R restores the previous content of the line.

7. Type your password.

   As you type, asterisks appear in place of characters so that no one can see your password as you type it.

   Type your password exactly as it was given to you by the network administrator—being sure to match uppercase and lowercase letters. If you think you've made a mistake, use the Delete key to erase the asterisks and then retype the password.

   When the password is correct, press Return.

   If the file server has only one volume, you'll see the "Welcome to the IIGS" screen, followed by the message "One Moment Please . . . " while the computer launches your startup application over the network. You're logged on automatically, and you can skip the rest of this procedure.

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If the file server you selected has more than one volume, you'll see the screen shown in Figure 11-11. Go on to step 8.

Figure 11-11 Selecting file server volumes

8. Select the file server volumes to which you want access.

   The startup volume is automatically selected (with a check mark) and cannot be deselected. Your network administrator will tell you which other volumes, if any, you need to select.

   To select a volume, press Down Arrow to highlight the volume's name, then press Right Arrow (or the space bar) to add a check mark. (Pressing Right Arrow again removes the check mark.)

   When all the volumes you want are selected, press Return. You'll see the "Welcome to the IIGS" screen, followed by the message "One Moment Please . . . " while the computer launches your startup application over the network.

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To log on with a disk that doesn't include the Finder

If you'll be logging on with a disk that doesn't include the Finder, your network administrator will probably create your startup disk for you. If you don't have the appropriate startup disk, check with your administrator or refer to the instructions in "To Create 3.5-inch Network Startup Disks That Don't Include the Finder" earlier in this chapter.

You'll also need to make sure that your startup slot is set to the slot corresponding to the disk in which you'll insert the startup disk. For instructions, see "Changing the Startup Drive" in Chapter 9.

The process for logging on with a disk that doesn't include the Finder is similar to the process for starting up over the network. Logging on with a disk requires a disk drive but can be faster than starting up over the network.

Follow these steps to log on with a disk that doesn't include the Finder:

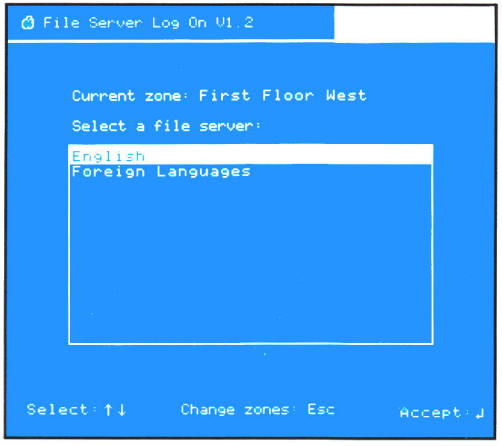
1. Start up (or restart) the computer with your AppleShare startup disk.

   You'll see the "Welcome to the IIGS" screen.

2. The process you follow depends on what screen you see next.

   - If you see the screen shown on the left, follow steps 2 through 8 in "To Start Up Over the Network" (the previous section).
   - If you see the screen shown on the right, follow steps 5 through 8 in "To Start Up Over the Network" (the previous section).

As you go through the appropriate steps in "To Start Up Over the Network," there will be slight differences in what you see on the screen—for example, you won't see the message "Welcome to the IIGS" in step 7 or step 8—but the steps you follow will be the same.



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To create a folder on a file server volume

You create a folder on a file server volume exactly as you would create a folder on any other disk. Follow these steps:

1. Log on to the file server and select the file server volume where you want to create the folder.

   For instructions, see "To Log On to a File Server From the Control Panel" earlier in this chapter.

2. Open the icon of the file server volume and any necessary folder icons on that volume until the window where you will create the folder is displayed.

3. Choose New Folder from the File menu.

   A new folder appears on the desktop. (You may need to scroll through the window in order to see the new folder.) For details, see "To Create a New Folder" in Chapter 5.

4. Rename the folder.

   For instructions, see "To Rename Icons" in Chapter 3.

To set access privileges for a folder

Because file server volumes represent shared storage areas, you may need to set access privileges for your folders to make sure that only the appropriate people have access to the information stored there. You can set access privileges for a folder only if you are the registered user who owns it or if it is owned by <Any User>.

There are many ways to use access privileges. In a school setting, for example, you might want to set up a "bulletin board" folder for announcements, where only teachers can post announcements but where all network users can read announcements.

In creating customized access to a folder, you need to decide which network users (if any) should have the following access privileges:

- **See Folders**—the privilege to see the folders (if any) in your folder.
- **See Files**—the privilege to see, open, and copy documents and applications (if any) in your folder.
- **Make Changes**—the privilege to make changes to your folder's contents, including removing, renaming, or deleting contents as well as adding files or folders.

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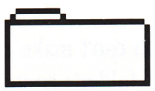
When you set access privileges for a folder, you must decide which of the following categories should have each access privilege:

- **Nobody** means no one, including you.
- **Owner** means you (unless you transfer ownership of the folder).
- **Group** means any single AppleShare group the network administrator has created—including a group of which you are not a member.
- **Owner & Group** means you (unless you transfer ownership of the folder) and any single AppleShare group the network administrator has created—including a group of which you are not a member.
- **Everyone** means all network users, including guests.

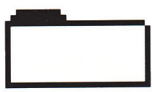
❖ *An example:* A teacher might want to create a folder where students in his or her class can turn in an essay. Students in the class should not be able to read the other essays that have been turned in, and students from other classes should not be able to add anything to the folder.

In creating this folder, the teacher would assign the See Folders and See Files privilege to Owner and the Make Changes privileges to Owner & Group. (The teacher must also assign a group to the folder—in this case, the group of students in the class. Because only the network administrator can *create* groups, the teacher may first need to ask the administrator to set up the appropriate group.)

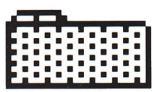
The icon of a folder on a file server volume may look different from icons on local disks, depending on what access privileges the owner of the folder has assigned you. There are five icons used for folders on file server volumes:



- A plain folder icon (like the icon used for folders on local disks) means that you are not the owner of the folder but that you can open the folder. (In other words, you have the See Files privilege, the See Folders privilege, or both.)



- A folder icon marked with a black tab means that you can set access privileges for the folder's contents. The folder is owned either by you or by <Any User>.



- A dimmed folder icon means you have no access privileges for the contents of the folder.

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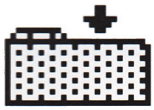
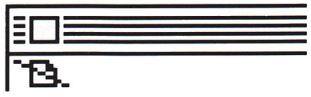


- A dimmed folder icon with an arrow means that you have the Make Changes privilege for the folder but not the See Folders and See Files privileges. This folder is called a *drop folder* because you can drop off documents for the owner, but you can't open the folder to see its contents. (For instructions on creating a drop folder, see "To Set Up a Drop Folder" later in this chapter.)

- A dimmed folder icon marked with a black tab means that you have no access privileges for the contents of the folder but that you or <Any User> owns the folder and thus can change the folder's access privileges. (For more information on this type of folder, see "To Safeguard the Contents of a Folder" later in this chapter.)

When you open a folder for which you do not have certain access privileges, an icon representing each privilege you *do not* have appears below the title bar of the window and to the left of the information about directory contents. These icons may appear individually or in any combination, depending on the access privileges you *do not* have for the folder that's open on the desktop.

When you see	You know that
	You can't see the enclosed folders
	You can't see the enclosed files
	You can't make changes to the folder's contents

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Follow these steps to set access privileges for a folder:

1. Log on to the file server and select the file server volume for which you want to set access privileges.

   For instructions, see "To Log On to a File Server From the Control Panel" earlier in this chapter.

2. Open the icon of the file server volume and any necessary folder icons on that volume until the folder for which you want to set access privileges is displayed in a window.
3. Select the folder icon.
4. Choose Icon Info from the Special menu, or press Command-I.
5. Click the Access tab at the bottom of the Info card.

   You'll see the the following screen.

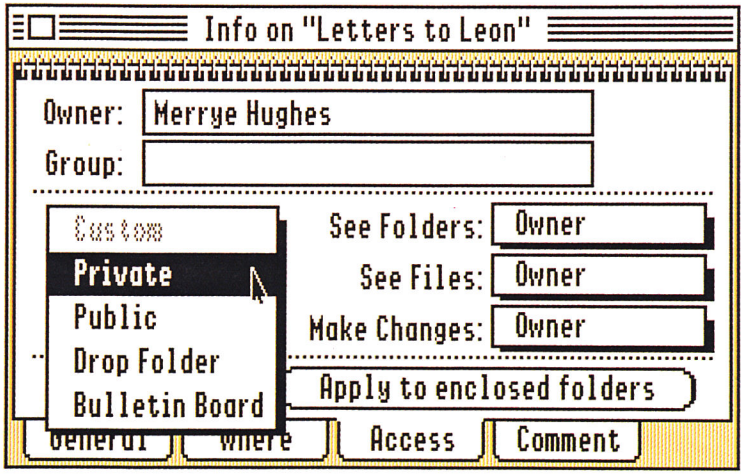

Figure 11-12 The Access card

- *Note:* The Access and Comment tabs appear only when you select a file server volume or a folder on a file server volume and choose Icon Info. (They don't appear when you select a file on a file server volume and choose Icon Info.)

The Comment card contains comments only if the selected file or folder was created on a Macintosh computer. (You can't create or edit comments in the Finder, but you can see any comments associated with an icon.)

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6. If you wish, change the See Folders privilege.

   Position the pointer on the box to the right of the words *See Folders* and hold down the mouse button. A pop-up menu appears, listing the five possible settings. Drag through the list until the desired setting is highlighted, then release the mouse button.

7. If you wish, change the See Files and Make Changes privileges in the same fashion.

8. Click the appropriate button to apply the changes.

   - If you want to assign the same set of access privileges to all the folders within this folder, click the "Apply to enclosed folders" button.
   - If you want to assign these privileges only to this folder, click the Apply button.

9. Close the Info window.

To transfer ownership of a folder

If you are the owner of a folder, you can transfer ownership to another registered user or to <Any User>. Once you give away ownership of a folder, only the new owner will be able to change the access privileges.

Follow these steps to transfer ownership of a folder:

1. Log on to the file server and select the file server volume that contains the folder for which you want to transfer ownership.

   For instructions, see "To Log On to a File Server From the Control Panel" earlier in this chapter.

2. Open the icon of the file server volume and any necessary folders on that volume until the folder you want to transfer is displayed in a window.

3. Select the folder icon.

4. Choose Icon Info from the Special menu, or press Command-I.

5. Click the Access tab at the bottom of the Info card.

6. If you wish, make any changes to the access privileges for the folder.

   For instructions, see "To Set Access Privileges for a Folder" earlier in this chapter.

7. Drag across your user name to select it.

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8. Type the name of the registered user to whom you want to transfer ownership of the folder. (If you want to give ownership of the folder to all network users, type <Any User> instead of a registered user name.)
9. Click the appropriate button to apply the changes.
   - If you want to assign the same set of access privileges to all the folders within this folder, click the "Apply to enclosed folders" button.
   - If you want to assign these privileges only to this folder, click the Apply button.

   A dialog box appears asking you to confirm that you want to change ownership of the folder.
10. Click OK or press Return.

    Or, if you change your mind, click Cancel.
11. Close the Info window.

To claim a folder created by a guest

If <Any User> is the owner of a folder, any registered user can claim ownership of that folder. Once someone claims ownership of a folder created by a guest, he or she will be the only person able to change the folder's access privilege settings.

Follow these steps to claim a folder created by a guest:

1. Log on to the file server and select the file server volume that contains the folder you want to claim.

   For instructions, see "To Log On to a File Server From the Control Panel" earlier in this chapter.
2. Open the icon of the file server volume and any necessary folders on that volume until the folder you want to claim is displayed in a window.
3. Select the folder icon.
4. Choose Icon Info from the Special menu, or press Command-I.
5. Click the Access tab at the bottom of the Info card.
6. Drag across the user name <Any User> to select it.
7. Type your user name exactly as it was given to you by the network administrator.

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8. If you wish, make changes to the access privileges for the folder.

   For instructions, see "To Set Access Privileges for a Folder" earlier in this chapter.

9. Click the appropriate button to apply the changes.

   - If you want to assign the same set of access privileges to all the folders within this folder, click the "Apply to enclosed folders" button.
   - If you want to assign these privileges only to this folder, click the Apply button.

   A dialog box appears asking you to confirm that you want to change ownership of the folder.

10. Click OK or press Return.

    Or, if you change your mind, click Cancel.

11. Close the Info window.

To assign a group to a folder

If your network administrator has set up groups on the network, you can assign a group to any folder you create. Assigning a group merely indicates what group you want to associate with the folder—you still need to set access privileges for the Group (or the Owner & Group) category before members of the group will have access to the contents of the folder.

Your network administrator may also have assigned you to a **primary group**—that is, a group with which your folders are associated unless you specify otherwise. (Primary groups are particularly useful when much of your work is likely to be shared by the same subset of network users.) When you create a folder, your primary group is set as the folder's group—but you're free to change that designation to another group if you prefer. Even when your primary group is associated with a folder, members of that group will not have access to the folder unless you set access privileges accordingly.

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Follow these steps to assign a group to a folder (or to change to a different group):

1. Log on to the file server and select the file server volume that contains the folder for which you want to assign a group.

   For instructions, see "To Log On to a File Server From the Control Panel" earlier in this chapter.

2. Open the icon of the file server volume and any necessary folders on that volume until the folder for which you want to assign a group is displayed in a window.
3. Select the folder icon.
4. Choose Icon Info from the Special menu, or press Command-I.
5. Click the Access tab at the bottom of the Info card.
6. Drag across the current group name (if any) to select it. (If there is no group name, click anywhere in the box to the right of the word *Group* to position the insertion point in the box.)
7. Type the new group name exactly as it was given to you by the network administrator.
8. If you wish, make any changes to the access privileges for the folder.

   For instructions, see "To Set Access Privileges for a Folder" earlier in this chapter.

9. Click the appropriate button to apply the changes.
   - If you want to assign the same set of access privileges to all the folders within this folder, click the "Apply to enclosed folders" button.
   - If you want to assign these privileges only to this folder, click the Apply button.
10. Close the Info window.

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To safeguard the contents of a folder

Just as you can write-protect a disk so that you don't accidentally change the information it contains, you can also safeguard the contents of a folder on a file server volume—making it impossible for anyone, including you, to accidentally erase the information it contains. You do so by setting the Make Changes privilege so that no one can change the folder's contents.

Before you follow this procedure, make sure that the folder already contains the information you want to keep safe. (If you want to make changes after you've safeguarded the folder, you'll have to change the access privileges again.)

Safeguarding the contents of a folder doesn't prevent the folder itself from being renamed, discarded, or moved. To do that, you need to lock the folder, as explained in "To Lock a File or Folder" in Chapter 5.

Follow these steps to safeguard the contents of a folder:

1. Log on to the file server and select the volume that contains the folder you want to safeguard.

   For instructions, see "To Log On to a File Server From the Control Panel" earlier in this chapter.

2. Open the icon of the file server volume and any necessary folder icons on that volume until the window that contains the desired folder is displayed.

3. Select the folder icon.

4. Choose Icon Info from the Special menu, or press Command-I.

5. Click the Access tab at the bottom of the Info card.

6. Change the Make Changes privilege to Nobody.

   To change the privilege setting, position the pointer on the box to the right of the words *Make Changes* and hold down the mouse button. When a pop-up menu of choices appears, drag the pointer through the menu until Nobody is selected and then release the mouse button.

7. Click the "Apply to enclosed folders" button to apply the changes.

   In this case, you'll probably want to apply the protection to enclosed folders as well. If for some reason you don't, click the Apply button instead.

8. Close the Info window.

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To set up a "bulletin board" folder

An AppleShare file server lets you set up a folder as a "bulletin board"—that is, as a folder where any network user can open and read documents. The person who maintains the bulletin board folder is the only one who can make changes to the contents of the folder, so he or she is the only person who can post or change documents.

Follow these steps to create a bulletin board folder on a file server volume:

1. Log on to the file server as a registered user and select the volume where you want to create the bulletin board.

   For instructions, see "To Log On to a File Server From the Control Panel" earlier in this chapter.

△ **Important** To prevent other network users from claiming ownership of the bulletin board folder, you must create the folder when you're logged on as a registered user. △

2. Open the icon of the file server volume and any necessary folder icons on that volume until the window where you will create the bulletin board is displayed.
3. Choose New Folder from the File menu.

   A new folder appears on the desktop. (You may need to scroll through the window in order to see the new folder.) For details, see "To Create a New Folder" in Chapter 5.
4. Rename the folder, using a name that all users will easily recognize—for example, *Sales Bulletins*.

   For instructions, see "To Rename Icons" in Chapter 3.
5. Select the folder icon.
6. Choose Icon Info from the Special menu, or press Command-I.
7. Click the Locked check box at the upper-right corner of the General card to lock the folder.

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8. Click the Access tab at the bottom of the card.
9. Change the folder's designation from Private to Bulletin Board.

   To change the designation, position the pointer on the box containing the word *Private* and hold down the mouse button. When a pop-up menu of choices appears, drag the pointer through the menu until Bulletin Board is selected and then release the mouse button.

   Note that the access privilege settings for See Folders and See Files change from Owner to Everyone.

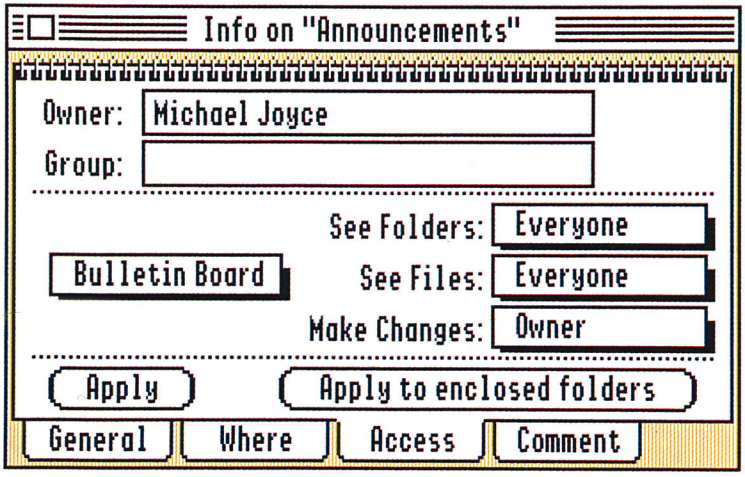

Figure 11-13 The access privilege settings for a bulletin board

10. Click the appropriate button to apply the changes.
    - If you want to assign the same set of access privileges to all the folders within this folder, click the "Apply to enclosed folders" button.
    - If you want to assign these privileges only to this folder, click the Apply button.
11. Close the Info window.

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To set up a drop folder

An AppleShare file server lets you set up a folder as a "drop folder," where users can drop off documents for you. Once a document is dropped off, only you can see its icon and open it. In other words, a drop folder works much like a locked mailbox or a suggestion box.

- *By the way:* When working with an application that uses a Save or Save As directory dialog box, other network users won't be able to save a copy of a document in your drop folder. (To do so they would need the See Folders privilege, and the folder would no longer be a drop folder.) They'll need to use the Finder to drop off a copy of the document.

Follow these steps to create a drop folder on a file server volume:

1. Log on to the file server and select the volume where you want to create the drop folder.

   For instructions, see "To Log On to a File Server From the Control Panel" earlier in this chapter.

2. Open the icon of the file server volume and any necessary folders on that volume until the window where you want the drop folder is displayed.

3. Choose New Folder from the File menu.

   A new folder appears on the desktop. (You may need to scroll through the window in order to see the new folder.) For details, see "To Create a New Folder" in Chapter 5.

4. Rename the folder, using a name that all users will easily recognize—for example, *Memos to Francesca.*

   For instructions, see "To Rename Icons" in Chapter 3.

5. Select the folder icon.

6. Choose Icon Info from the Special menu, or press Command-I.

7. Click the Locked check box at the upper-right corner of the General card to lock the folder.

8. Click the Access tab at the bottom of the card.

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9. Change the folder's designation from Private to Drop Folder.

   To change the designation, position the pointer on the box containing the word *Private* and hold down the mouse button. When a pop-up menu of choices appears, drag the pointer through the menu until Drop Folder is selected and then release the mouse button.

   Note that the Make Changes privilege changes from Owner to Everyone.

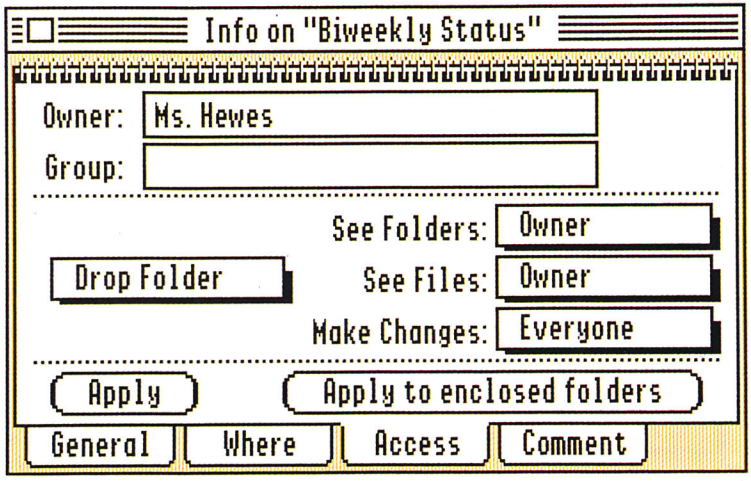

Figure 11-14 The access privilege settings for a drop folder

10. Click the Apply button to apply the changes.

    You probably don't want to apply these privileges to the folders within the drop folder. But if for some reason you do, click the "Apply to enclosed folders" button instead.

11. Close the Info window.

The folder now functions as a drop folder. When you see the folder in its directory window, it appears like any other locked folder you own—that is, it has a lock icon to the left of its name and it has a black tab. But when other users see the folder in its directory window, they see a shaded folder with an arrow pointing to it—indicating that it is a drop folder.

How a drop folder icon appears to the owner

How a drop folder icon appears to other users

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To log off a file server

There are three ways to log off a file server:

- If you're using a Finder-based AppleShare startup disk, follow the instructions in "Logging Off in the Finder."
- If you started up over the network or are using an AppleShare startup disk that doesn't include the Finder, and the network administrator has installed the Server Quick Logoff program, follow the instructions in "Logging Off Without the Finder: Quick Logoff."
- If you started up over the network or are using an AppleShare startup disk that doesn't include the Finder, and the network administrator has *not* installed the Server Quick Logoff program, follow the instructions in "Logging Off Without the Finder: Regular Logoff."

Logging off in the Finder

Follow these steps to log off a file server when you're using a Finder-based AppleShare startup disk:

1. If necessary, quit the application you're using.

   You return to the Finder desktop.

2. Drag the icons of all file server volumes to the Trash.

   The icons disappear from the desktop, and you're automatically disconnected from the file server.

Logging off without the Finder: Quick logoff

To log off without the Finder when the administrator has installed the Server Quick Logoff program, simply quit the application you're using. You're automatically logged off the file server, and you return to the screen shown in Figure 11-7 or in Figure 11-9 (depending on whether your network is divided into zones and whether there is more than one file server on your network).

From there, you (or any other registered user or guest) can log on to a file server. Or you can shut down the computer.

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Logging off without the Finder: Regular logoff

Follow these steps to log off without the Finder when the administrator has not installed the Server Quick Logoff program:

1. Quit the application you're using.

   You'll see the following screen.

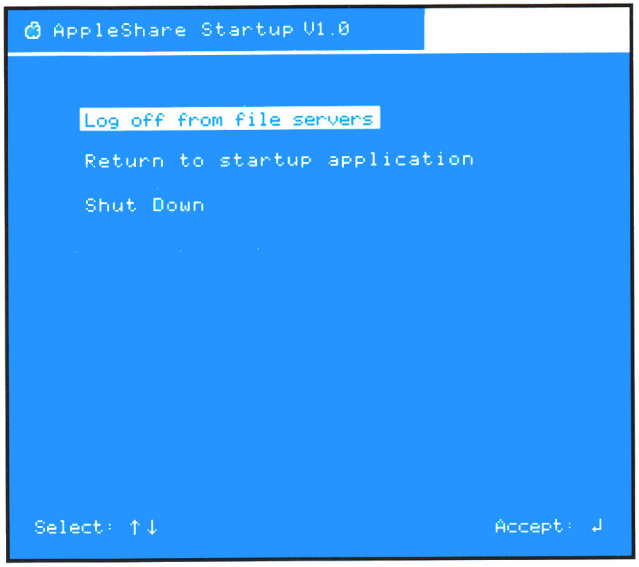

Figure 11-15 The log-off screen

2. Press Return to accept the "Log off from file servers" option.

   You're automatically logged off the file server, and you return to the screen shown in Figure 11-7 or in Figure 11-9 (depending on whether your network is divided into zones and whether there is more than one file server on your network).

   From there, you (or any other registered user or guest) can log on to a file server.

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- *About the other options:* The "Return to startup application" option starts up the computer again with your startup application, just as if you had logged on again. Select this option if you accidentally quit your startup application and want to return to it.

  The Shut Down option works like the Shut Down command in the Finder: It logs you off all file servers, ejects any disks in your disk drives, and shuts down the computer. A message on the screen lets you know that it's safe to switch off the computer's power, and a button on the screen gives you the option of restarting.

  If someone else wants to use the computer, he or she can either start up over the network (by clicking the Restart button) or start up from a local disk (by inserting the disk and clicking the Restart button). If no one else wants to log on after you, switch off the computer.

Network printing

Network printing appears much the same as printing with a **local printer** (a printer connected directly to your computer), with the added advantage that network users can share printers. This section explains how to choose a network printer, how to use a printer that's controlled by an AppleShare print server, and how to name a network printer.

All other aspects of printing are the same whether you use a network printer or a local printer. For more information, see "Printing Documents From the Finder" in Chapter 6, or refer to the manuals that came with your printer and with the application you're using.

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To choose a network printer

Follow these steps to choose a network printer:

1. Start up the computer with a startup disk on which you have installed the appropriate network printer update (AppleTalk ImageWriter, AppleTalk ImageWriter LQ, or LaserWriter).

   If you haven't created such a startup disk, see "To Install the Appropriate Networking Updates" earlier in this chapter.

2. Choose Control Panel from the Apple menu.

3. Select the icon for the desired printer type in the column on the left side of the Control Panel.

   The selection options for that type of printer appear on the right side of the Control Panel. (Figure 11-16 shows the selection options for LaserWriter printers; the options for ImageWriter and ImageWriter LQ printers are similar.)

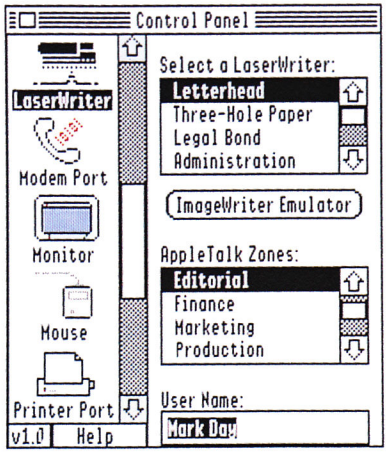

Figure 11-16 The LaserWriter selection options in the Control Panel

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4. If necessary, select a zone.

   If your network is not divided into zones, skip this step.

   If your network is divided into zones, the name of your zone should be highlighted in the AppleTalk Zones window. If you want to use a printer in a different zone, simply click the name of the zone. (If there are more than four zones in your network, you may need to scroll through the window to find the zone you want.)

5. Select the printer you want to use.

   If the name of the printer you want to use is already highlighted, skip this step.

   To select a printer, simply click its name in the window in the upper right.

   If there are more than four printers of the type you selected in step 3, you may need to scroll through the window to find the printer name you want.

6. If you're choosing a LaserWriter, click the ImageWriter Emulator button.

   The ImageWriter Emulator is a program that makes it possible to use a LaserWriter with any application designed to print with an ImageWriter. Clicking the ImageWriter Emulator button tells the computer to install this program in the memory of the LaserWriter.

   You'll see the message "Checking for presence of the ImageWriter Emulator." If someone has chosen the printer from an Apple II computer since the printer was last switched on, you'll see the message "The ImageWriter Emulator is already installed in the selected printer." Click OK in the dialog box and go on to step 7.

   If no one has chosen the printer from an Apple II computer since the printer was last switched on, you'll see the message "Downloading the emulator." When the message disappears, the ImageWriter Emulator has been installed on the selected printer.

7. Close the Control Panel.

❖ *Text-based applications:* Some text-based applications won't recognize your printer selection in the graphic Control Panel and will ask you to specify the slot corresponding to your printer. Specify any slot that you've set to AppleTalk in the Control Panel (slot 1, slot 2, or slot 7, depending on your Control Panel settings).

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To use a captured printer

If your network includes one or more AppleShare print servers, you have access to at least one **captured printer**—that is, a printer controlled by a print server. The advantage of using a captured printer is that the print server takes over the task of sending documents to the printer, freeing up your workstation so that you can continue your work.

You choose a captured printer in exactly the same way you choose any other network printer. (The only visible difference in the Control Panel is that a captured printer name ends with the word *Spooler.*) Follow the steps outlined in "To Choose a Network Printer" earlier in this chapter. When you've chosen a captured printer, your computer will send all the documents you print to the print server, where they are stored until the captured printer is available.

The only time you may not want to use a captured printer is when you need to feed paper manually into the printer (to insert a sheet of letterhead stationery, for example). If you tried to use a captured printer for this purpose, it would be difficult to predict exactly when to insert the paper. You can, however, use a captured printer for which the administrator has allowed the **Bypass** option—an option to print directly to a captured printer without going through the print server. See your administrator to find out which captured printers have the Bypass option selected.

To name a network printer

If you have only one printer of a given type, you don't need to name it—it's automatically named after its type—but you may prefer a more creative name than the default name *LaserWriter, LQ,* or *ImageWriter II.* If you have more than one printer of a given type, it's important that each printer has its own name so network users will know where to find their printed documents.

△ **Important** Network printers need to be named only once. Anyone on the network can rename a printer that has already been given a name, but it's a good idea to allow only one person to name printers. If you do rename a printer, be sure to inform all network users; if they want to print with that printer, they'll need to know the new name so that they can select it in the Control Panel. △

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Follow these steps to name a printer:

1. If you're not already in the Finder, start up your computer with any Finder-based startup disk.

   The startup disk must include system software version 5.0 (or a later version).

2. Insert the *Apple IIGS System Tools* disk in an empty disk drive.
3. Open the System.Tools disk icon.
4. Open the AppleTalk folder icon.
5. Open the Namer folder icon.
6. Open the Namer II application icon.

   In a few moments you'll see the following screen:

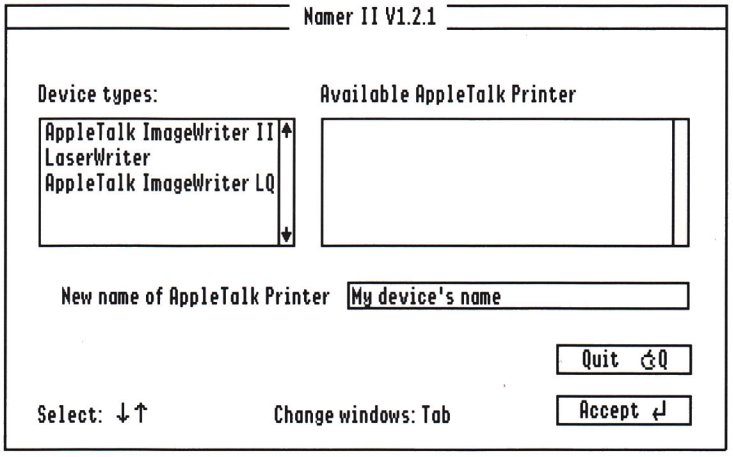

Figure 11-17 The Namer

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7. Select the type of printer you want to name.

   Click the type of printer in the window on the left (or press the Down Arrow key until the type is highlighted and then press Return or Tab).

   The arrow pointer changes to an hourglass while the Namer checks the network for all printers of the selected type and lists their current names in the window on the right. (If there are no network printers of that type, the box will be empty when the hourglass changes back to an arrow; if a printer has not yet been named, its default name—LaserWriter, LQ, or ImageWriter II—is given.)

   The window on the right becomes the active window, indicated by a scroll bar along the right side of the window.

   - *A word about zones:* If your AppleTalk network system is divided into zones, the Namer will show only those printers in your zone. You can name a printer only if it is in the same zone that includes your Apple IIGS. If you want to name a printer in another zone, you must do so from a computer in that zone.

8. Select the printer you want to name.

   Click the printer's name in the list of available printers on the right (or press Down Arrow until the printer's name is highlighted and then press Return or Tab). If there are more than five printers of the type you selected in step 7, you may need to scroll through the window to find the printer name you want.

   The name in the box below changes from *My device's name* to the current name for the printer you selected.

9. Edit the current name, or type a new name.

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10. Click the Accept button (or press Return).

    The arrow pointer changes to an hourglass while the Namer renames the printer. When the hourglass changes back to an arrow, the window on the right shows the printer's new name.

11. Repeat steps 8 through 10 to name other printers of the same type.

12. Repeat steps 7 through 11 to name printers of other types.

13. Quit the Namer.

    Click the Quit button (or Press Command-Q) to quit the Namer and return to the Finder desktop.

14. Notify everyone on the network that they must use the Control Panel to choose a printer again if they want to print with one of the renamed printers.

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CHAPTER 12

Troubleshooting

THIS CHAPTER HELPS YOU DEAL WITH THE UNEXPECTED. WHEN YOU'RE USING your computer, things may not always happen as you expect them to. Don't think of unexpected events as mistakes—think of them as learning opportunities. The more adventurous you are, the more likely you are to come across new situations—and to learn from them.

The first section of this chapter lists unexpected situations you may encounter when trying to start up (or restart) the computer. Subsequent sections correspond to the tasks described in Chapters 2 through 11 of this manual. There's also a section that discusses peripheral devices. The final sections describe a short diagnostic test you can run to make sure the computer isn't faulty and list additional sources of help if the suggestions in this chapter don't explain what happened.

Within each section, specific situations are described in boldface text, with the likely causes and recommended solutions immediately following.

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Starting up the computer

This section describes some unexpected situations you may encounter when trying to start up the computer, regardless of the type of disk drive you're using as your startup device.

Nothing appears on the screen when you switch on the power.

Go through the following checklist to try to identify the cause:

- Make sure the computer is plugged into a power source.
- Make sure the monitor is plugged into a power source.
- If the computer and monitor are plugged into a power strip, make sure the power strip is switched on.
- Make sure the monitor is connected to the computer.
- Make sure the computer is switched on.
- Make sure the monitor is switched on.
- Check the monitor's contrast and brightness settings. If you think one of these settings may be the cause, see the owner's guide that came with your monitor for instructions.

The image on the screen is rolling or out of alignment.

Hold down the Option and Control keys while you press and release the Reset key (the key marked with a triangle). Then press 2. This procedure restores the standard frequency settings for the United States so that your monitor will receive signals from the computer at the proper frequency. (It also restores all the default Control Panel settings, so you may need to go to the Control Panel to make some changes after following this procedure.)

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You don't hear your disk drive when you switch on the computer.

One of the following may be the cause:

- The disk drive is not connected to the computer. Switch off the computer, wait at least 30 seconds, and check to make sure the disk drive is properly connected.
- The Control Panel setting for the startup slot may be incorrect. See "Changing the Startup Drive" in Chapter 9 for more information. Then use the text Control Panel to change the startup slot as necessary.

You see the message "Check startup device!"

This message appears whenever the computer can't find the system software necessary to start up the computer. Any of the following could be the cause:

- There's no disk in the startup disk drive. Put a startup disk in the drive and press Command-Control-Reset to restart your computer with the startup application on that disk. (If you don't remember which drive is your startup drive, see "Identifying the Startup Drive" in Chapter 2 of *Getting Started With Your Apple IIGS.*)
- There's a nonstartup disk in the startup drive. Eject the disk, insert a startup disk in its place, and press Command-Control-Reset to restart the computer with the application on the new startup disk. (If you don't remember which drive is your startup drive, see "Identifying Your Startup Drive" in Chapter 2 of *Getting Started With Your Apple IIGS.*)
- The Control Panel setting for the startup slot is incorrect. See "Changing the Startup Drive" in Chapter 9 for more information. Then use the text Control Panel to change the startup slot as necessary.
- The startup slot is set to RAM Disk but you either aren't using a RAM disk or haven't loaded an application onto the RAM disk. Use the text Control Panel to change the startup slot either to Scan or to the number of the slot to which your startup drive is connected. (See "To Get to the Text Control Panel" and "Changing the Startup Drive" in Chapter 9.)

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- The startup slot is set to ROM Disk. There are no applications stored in the ROM of the Apple IIGS, so you can't start up from a ROM disk. Use the text Control Panel to change the startup slot either to Scan or to the number of the slot to which your startup drive is connected. (See "To Get to the Text Control Panel" and "Changing the Startup Drive" in Chapter 9.)
- The startup slot in the Control Panel is set to AppleTalk, no startup file server volume is available in your zone, and there isn't a startup disk in any disk drive. (This situation occurs either when the appropriate software has not been installed on the file server or when the file server has been shut down.)

  Ask your network administrator whether a file server in your zone allows Apple II users to start up directly over the network. If there is no such server in your zone, use the text Control Panel to change the startup slot setting so that you can start up from a local disk drive. (See "To Get to the Text Control Panel" and "Changing the Startup Drive" in Chapter 9.) If the file server has been temporarily shut down, insert a startup disk in a disk drive and press Command-Control-Reset to restart. (When the computer doesn't find a startup server volume, it scans the computer's slots for a startup disk.)

You see the message "Unable to Load ProDOS."

Any of the following could be the cause:

- The system files on the startup disk are incomplete. Try a different startup disk.
- The startup disk is missing the ProDOS file. Try a different startup disk. (If you're using a hard disk as a startup disk, you need to install the Latest System Files update on the hard disk. For instructions, see Chapter 7, "Using the Installer.")
- The System Speed option in the Control Panel is set to Fast, which may be interfering with the application. Use the text Control Panel to change the System Speed setting to Normal. For more information, see "To Get to the Text Control Panel" and "General" in Chapter 9.

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The computer tries to start up using the "wrong" disk.

Unless you've used the Control Panel to change the startup slot, the computer will attempt to start up from a disk in the disk drive connected to the highest-numbered slot or corresponding port. A 5.25-inch disk drive connected to the disk drive port corresponds to slot 6. A 3.5-inch disk drive connected to the disk drive port corresponds to slot 5.

Put your startup disk in the disk drive that the computer is using as the startup drive. (Make sure that the door of any 5.25-inch disk drive is open if you want to start up from a 3.5-inch disk.) Or change the Startup setting in the Control Panel to correspond to the device you want to use as a startup drive.

- *Special cases:* When you've installed an Apple II Memory Expansion Card in one of the computer's internal slots but you haven't copied a startup application onto the card, you'll see a message telling you that the computer can't start up from the memory expansion card, and the computer will scan the lower-numbered slots for a startup disk. If it finds a startup disk, it will start up from that disk. If it doesn't, you'll see the message "Check startup device!"

  If the startup slot in the Control Panel is set to AppleTalk but no startup file server volume is available in your zone, the computer will scan all the slots for a startup disk. If it finds a startup disk, it will start up from that disk. If it doesn't, you'll see the message "Check startup device!" (This happens either when the appropriate software has not been installed on the file server or when the file server has been shut down.)

When starting up the computer, you see the message "UniDisk3.5 requires a driver. Install UniDisk3.5 driver on boot disk and re-boot system."

You've connected a UniDisk 3.5-inch disk drive, but the current startup disk (or *boot disk,* in computer jargon) doesn't include the UniDisk 3.5 update. Press Return to continue starting up. When the Finder desktop appears, use the Installer to add the UniDisk 3.5 update to the current startup disk. (For instructions on using the Installer, see Chapter 7 of this manual.)

When you quit the Installer, a dialog box will appear letting you know that you must restart (or *re-boot,* in computer jargon) the computer. Click Restart System. In a few moments you'll see the Finder desktop, and the computer will recognize your UniDisk drive.

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The computer doesn't recognize a UniDisk 3.5-inch drive.

Any of the following might be the cause:

- You haven't installed the necessary update for the UniDisk drive on your current startup disk. (This update is not included on the *Apple IIGS System Disk* and may not be included on other startup disks.) Use the Installer, as described in Chapter 7, to install the UniDisk update on each startup disk.
- The UniDisk drive is connected to a disk drive controller card, but the corresponding slot setting in the Control Panel is not set to Your Card. Change the slot setting to Your Card. For more information, see "Activating Slots and Ports" in Chapter 9.
- The UniDisk drive is connected to a disk drive controller card, but the System Speed option in the Control Panel is set to Fast. Change the System Speed to Normal. For more information, see "General" in Chapter 9.

The computer doesn't recognize your Apple 3.5 Drive.

Either of the following might be the cause:

- You've connected one or more UniDisk drives before the Apple 3.5 Drive in the daisy chain of drives connected to the disk drive port. Switch off the computer, wait at least 30 seconds, and then reconnect the disk drives so that the UniDisk drives come *after* all Apple 3.5 Drives in the chain.
- The Apple 3.5 Drive is connected to the disk drive port, but slot 5 is set to Your Card in the Control Panel. Change the Slot 5 setting to Smart Port. For more information, see "Slots" in Chapter 9.

The computer doesn't recognize your Apple 5.25 Drive (or a disk in your Apple 5.25 Drive).

Either of the following might be the cause:

- The Apple 5.25 Drive is connected to the disk drive port, but slot 6 is set to Your Card in the Control Panel. Change the Slot 5 setting to Smart Port. For more information, see "Slots" in Chapter 9.
- If the disk drive icon appears on the desktop but the icon of the disk you inserted doesn't appear, close the disk drive door, then double-click the disk drive icon to open it. The disk icon should appear.

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When starting up the computer, you see the message "SCSI device requires a driver. Please install the SCSI driver on boot disk and re-boot system"

You've connected a SCSI hard disk, but the current startup disk (or *boot disk,* in computer jargon) doesn't include the SCSI Hard Disk update. Press Return to continue starting up. When the Finder desktop appears, use the Installer to add the SCSI Hard Disk update to the current startup disk. (For instructions on using the Installer, see Chapter 7 of this manual.)

When you quit the Installer, a dialog box will appear letting you know that you must restart (or *re-boot,* in computer jargon) the computer. Click Restart System. In a few moments you'll see the Finder desktop, and the computer will recognize your hard disk.

The computer doesn't recognize your hard disk.

One of the following may be the cause:

- The hard disk isn't switched on. In order for the Finder to recognize a hard disk, the hard disk must be switched on and up to speed before you start up (or restart) the computer.

  Switch on the hard disk, wait about 10 seconds for it to come up to speed, and then restart the computer.

- You haven't installed the necessary SCSI Hard Disk update on your current startup disk. (This update is not included on the *Apple IIGS System Disk* and may not be included on other startup disks.) Use the Installer, as described in Chapter 7, to install the SCSI Hard Disk update on each startup disk.

- The Control Panel setting for the slot containing your SCSI card isn't set to Your Card.

  Use the Control Panel to change the slot setting to Your Card. (See "Slots" in Chapter 9.) Then restart the computer. When you see the Finder desktop, the hard disk icon should appear.

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- There's only one SCSI device attached to the SCSI card, but you've used two SCSI cable terminators on the device.

  When you're connecting only one SCSI device, you should use only one SCSI cable terminator (unless you're using a cable extender). Shut down the computer, switch off the computer and the SCSI hard disk, wait at least 30 seconds, and then reconnect the SCSI cables and cable terminators according to the instructions in "SCSI Hard Disks, CD-ROM Drives, and Other SCSI Devices" in Appendix A of this manual.

- There's more than one device daisy-chained to the SCSI card, but only one SCSI cable terminator in the SCSI chain.

  When you're connecting two or more SCSI devices, you must use two cable terminators. Shut down the computer, switch off the computer and all SCSI devices, wait at least 30 seconds, and then reconnect the SCSI cables and cable terminators according to the instructions in "SCSI Hard Disks, CD-ROM Drives, and Other SCSI Devices" in Appendix A of this manual.

When you insert an application disk, you see the message "GS/OS does not recognize the file system on this disk (in device .APPLEDISK3.5A). Do you want to initialize it?"

Do not click Initialize!

The application probably uses Pascal or DOS 3.3—two older operating systems for which GS/OS doesn't have a file system translator. You can still use the application if you follow these steps:

1. Click Eject.
2. Choose Shut Down from the Special menu of the Finder.

   You'll see a dialog box listing the shutdown options. "Turn off system power" should be selected.
3. Click OK or press Return.

   The computer shuts down, and any disks you were using are ejected.
4. Reinsert the application disk in the startup drive.
5. Click Restart.

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You see only a square bracket and the cursor.

One of the following is probably the cause:

- In trying to restart the computer by pressing Command-Control-Reset, you released Command and Control too soon after pressing and releasing Reset. Try again, being sure to follow these steps:

  1. Hold down Command and Control.
  2. Without releasing Command or Control, press and then release Reset.
  3. When you hear a beep (or, if the volume level is turned all the way down in the Control Panel, when the screen's border flashes), release Command and Control.

- The program on the disk isn't self-starting. (You're most likely to run into this situation if you're using programs written by friends, acquired through a user group, or copied from a bulletin board.)

  Ask the person who gave you the application how to start it.

Using the mouse and the keyboard

This section describes some unexpected situations people have using the mouse and the keyboard. (Instructions on using the mouse and keyboard are in Chapter 2 of this manual.)

Using the mouse

Here are some unexpected situations that may occur when you're using the mouse.

When you move the mouse across the desk, the pointer on the screen moves in the opposite direction.

The mouse should be positioned with the cable pointing away from you and the Apple logo toward you.

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You run out of room to move the mouse on the desk before the pointer on the screen reaches its destination.

Lift the mouse off the desk and move it back to the center of your work surface. The pointer won't move until you put the mouse back on the desk and move it.

If you encounter this difficulty frequently, you may want to change the Mouse Speed option in the graphic Control Panel. (The same option is called Mouse Tracking in the text Control Panel.) For more information, see "Mouse" in Chapter 9.

Double-clicking doesn't work the way you expect.

You can adjust the amount of time the computer waits for the second click of a double click. (See "Mouse" in Chapter 9 for an explanation.) Change the Double Click option in the Control Panel to a setting better suited to your own speed of double-clicking. For information, see "Mouse" in Chapter 9.

The mouse won't respond.

One of the following may be the cause:

- The mouse is not connected properly to the keyboard or to the port, or the keyboard is not connected properly to the keyboard port. Switch off the computer, wait at least 30 seconds, and secure the keyboard and mouse connections.
- The mouse port (also called the *keyboard port* or the *Apple Desktop Bus port*) is not activated in the Slots options of the Control Panel. Change the setting for Slot 4 from Your Card to Mouse Port as described in Chapter 9.

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Using the keyboard

Here are some unexpected situations that may occur when you're using the keyboard. (Most of these situations are specific to certain applications.)

When trying to restart the computer by pressing Command-Control-Reset, you see a square bracket and the cursor.

You released Command and Control too soon after pressing and releasing Reset. Try again, being sure to follow these steps:

1. Hold down Command and Control.
2. Without releasing Command or Control, press and then release Reset.
3. When you hear a beep (or, if the volume level is turned all the way down in the Control Panel, when the screen's border flashes), release Command and Control.

The Delete key doesn't delete characters.

Earlier models of the Apple II family didn't have a Delete key, so applications designed for them use some other key or combination of keys to delete text. Often the Left Arrow key erases the text to the left of the cursor. If that doesn't work, consult the manual that came with your application for instructions.

The cursor doesn't move when you press the arrow keys.

Earlier models of the Apple II family didn't have the Up Arrow and Down Arrow keys, so applications designed for those machines use some other way of moving the cursor. Consult the manual that came with your application for instructions.

The cursor doesn't move past the last line of your document.

That's how the application is meant to work. Press Return to move the cursor beyond the last line of your document and continue typing.

When you press a key, the corresponding character appears more than once on the screen.

Set the Speed setting in the Keyboard options of the graphic Control Panel to give yourself a longer delay before keys repeat. (In the text Control Panel, this option is called Repeat Speed.) For information, see "Keyboard" in Chapter 9.

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The application says to press a key but doesn't respond when you do.

One of the following may be the cause:

- The keyboard isn't plugged in. Switch off the computer, wait at least 30 seconds, and then connect the keyboard securely to the keyboard port.
- If this situation occurs immediately upon starting up the application, the application may be one that requires you to type everything in uppercase letters. (Earlier models of the Apple II family didn't give you the option of typing lowercase letters.) Press Caps Lock and try pressing the key again.

The application tells you to press the Solid Apple key (also represented as the ♦ key), but there's no such key on the keyboard.

On some earlier models of the Apple II family, the Option key was marked with the symbol of a solid apple and was called the *Solid Apple key*. Press Option whenever the application tells you to press Solid Apple.

The computer doesn't keep track of keystrokes.

If you're using an application that was designed for the Apple IIe, the keyboard buffer may not work with your application. (Some early Apple IIe applications don't support buffering of keystrokes.) Deselect the Keyboard Buffering option in the Control Panel whenever you're using this application. (For more information, see "Keyboard" in Chapter 9.)

When typing in a text mode application, unexpected characters appear on the screen.

You may have changed the Monitor or Keyboard option in the graphic Control Panel to a setting other than U.S.A. (These options are called Display Language and Keyboard Layout in the text Control Panel.) Use either version of the Control Panel to change the settings back to U.S.A.

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Working with menus, icons, windows, and text

This section describes some unexpected situations that may occur when you're dragging, opening, or renaming icons in the Finder. (Instructions on working with menus, icons, windows, and text are in Chapter 3 of this manual.)

When dragging icons, you see the message "Disk icons can't be dragged with file or folder icons for this operation."

When dragging icons into the Trash or when dragging icons to copy them, you tried to drag a disk icon and a file or folder icon at the same time. To perform any of these operations, you can drag either disk icons or file and folder icons, but not both simultaneously.

Click anywhere on the Finder desktop to deselect all selected icons. Then try again.

When renaming an icon, you see the message "The filename 'ICON NAME' is unacceptable to the destination file system."

This message appears whenever you try to rename a disk, folder, or file icon with a name that doesn't conform to the naming rules for the file system used by the disk.

If you're renaming an item on a local disk (as opposed to a file server volume), follow the ProDOS naming rules described in Chapter 3. If you're renaming an item on a file server volume, follow the AppleShare naming rules described in Chapter 11.

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Working with disks

This section describes some unexpected situations people have when working with disks in the Finder. (Instructions on working with disks are in Chapter 4 of this manual.)

Initializing a disk

Here are some unexpected situations you may encounter when initializing a disk.

You see the message "GS/OS does not recognize the file system on this disk (in device .DEVICENAME). Do you want to initialize it?"

You've inserted a disk that was initialized for an operating system that GS/OS can't recognize, or a disk on which the directory is damaged. If you want to erase everything on the disk and initialize it, type a name for the disk and click Continue. Otherwise, click Eject. (If you decide not to initialize a 5.25-inch disk, open the disk drive door and remove the disk after you have clicked Eject.)

You see the message "GS/OS can't read this disk (in device .DEVICENAME). Do you want to initialize it?"

You've inserted a blank disk that has never been initialized or a disk that is damaged. If you want to initialize the disk, type a name for the disk and click Continue. Otherwise, click Eject. (If you decide not to initialize a 5.25-inch disk, open the disk drive door and remove the disk after you have clicked Eject.)

You see the message "Initialization failed."

Your disk is probably damaged. Click OK. Then discard the disk, insert another disk, and try again.

You see the message "The disk 'DISK NAME' may be damaged."

Click OK. Then discard the disk, insert another disk, and try initializing again.

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The Initialize command is dimmed.

One of the following is the cause:

- You haven't selected any disk icon. Select the icon of the disk you want to initialize, then choose Initialize from the Disk menu.
- The disk you want to initialize is write-protected (as indicated by the symbol of a lock to the left of the disk icon's name). Eject the disk, remove the write-protection, and reinsert the disk. (For instructions on removing write-protection, see "To Write-Protect a Disk" in Chapter 4.) Then select the disk icon and choose Initialize from the Disk menu.
- You're trying to initialize a file server volume or a disk that can't be altered (such as a CD-ROM). These kinds of disks can't be initialized.

Copying a disk

Here are some unexpected situations you may encounter when copying a disk.

You see the message "Disk icons can be dragged only onto other disk icons."

You've tried to copy a disk by dragging its icon onto a file or folder icon or by dragging its icon into a folder window. Disk icons can be dragged only onto other disk icons, into disk windows, or into the Trash.

To copy a disk, drag the source disk icon onto the destination disk icon or into the destination disk window.

You see the message "Completely replace the contents of 'DESTINATION DISK NAME' with the contents of 'SOURCE DISK NAME'?"

This message doesn't indicate any problem—it's only to confirm that you want to erase everything on the destination disk (the disk that you're copying *onto*) and replace it with the contents of the source disk (the disk that you're copying *from*). If that's what you intended, click OK. Otherwise, click Cancel.

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You see the message "The disk 'DISK NAME' is write-protected."

You can't copy anything to the destination disk if it's write-protected. If you want to continue with the copying procedure, eject the write-protected disk, remove the write-protection, reinsert the disk, and click Try Again. Otherwise, click Cancel.

For instructions on removing write-protection, see "To Write-Protect a Disk" in Chapter 4.

You see the message "There isn't enough room on 'DESTINATION DISK NAME' to copy the contents of 'SOURCE DISK NAME'."

There isn't enough room on the destination disk to copy all the files and folders on the source disk. Click Cancel. Then either try copying the disk again using a different destination disk, or drag selected files and folders onto the destination disk.

You can also use the Icon Info command to find out how much room is available on a disk and how much room a file or folder takes up. To do so, select the desired disk, folder, or file icon and choose Icon Info from the Special menu. The size information you see depends on what type of icon you selected.

- If you selected a disk icon, the Size line on the General card shows the amount of space used and the amount of space available on the disk.
- If you selected a folder icon, the Size line on the General card shows the message "use calculate icon . . ." Click the icon of a calculator at the lower-right corner of the General card. In a moment, the Size line shows the amount of space the folder's contents take up on the disk, both in bytes and in kilobytes (K).
- If you selected a file icon, the Size line on the General card shows the amount of space the file takes up on the disk, both in bytes and in kilobytes (K).

If you're copying items onto a disk that uses a different file system—for example, from an AppleShare file server volume to a 3.5-inch disk in the Finder—be aware that files may take up different amounts of space in different file systems. In most cases, the difference isn't more than a kilobyte or two.

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Working with files and folders

This section describes some unexpected situations people have when duplicating or moving files and folders in the Finder. (Instructions on working with files and folders are in Chapter 5 of this manual.)

You see the message, "The disk directory is full. Can't complete this operation."

You already have a total of 51 files or folders in the main (disk) directory, the maximum number that ProDOS allows. Move some files into folders, drag files and folders you don't need into the Trash, or copy some files and folders onto another disk and then remove them from this disk.

- *Note:* When "Save Finder information onto disk" is selected in the Preferences dialog box, the Finder maintains three (normally invisible) files in the disk directory of any startup disk. These files contain information of use only to the Finder. When "Hide invisible files" is selected in the Preferences dialog box, the Finder shows three fewer items in the disk directory than are actually there. In that case, the disk directory is full when 48 items appear in the directory.

You see the message, "The disk is full. Can't complete this operation."

You have run out of room on this disk. Either use another disk or create space on this disk. (To create space, copy files to another disk, then drag files you no longer need on this disk into the Trash and choose Empty Trash from the Special menu.)

If you want to know how much room is available on a disk and how much room a folder or file takes up, select the desired disk, folder, or file icon and choose Icon Info from the Special menu. The size information you see depends on what type of icon you selected.

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- If you selected a disk icon, the Size line on the General card shows the amount of space used and the amount of space available on the disk.
- If you selected a folder icon, the Size line on the General card shows the message "use calculate icon . . ." Click the icon of a calculator at the lower-right corner of the General card. In a moment, the Size line shows the amount of space the folder's contents take up on the disk, both in bytes and in kilobytes (K).
- If you selected a file icon, the Size line on the General card shows the amount of space the file takes up on the disk, both in bytes and in kilobytes (K).

When moving or copying a file or folder, you see the message "The file/folder 'FILE NAME' already exists and is locked (or contains items that are locked). Replace it anyway?"

You tried to move or copy an item that has the same name as one of the following items in the destination folder or destination disk directory: a locked file, a locked folder, or an unlocked folder that contains a locked item.

If you want to replace the item in the destination folder, click Yes. If you don't want to replace the item but want the Finder to continue moving or copying any other items you selected, click No. If you want to stop the moving or copying operation altogether, click Cancel.

When copying a file or folder, you see the message "The file/folder 'FILE NAME' is copy-protected and can't be copied."

You have tried to copy an item that is copy-protected. If you're copying several files or folders, click Skip File. Otherwise, click Cancel.

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When dragging a file or folder to the Trash, you see the message "The file/folder 'FILE NAME' is locked (or contains items that are locked). Remove it anyway?"

You have tried to throw away a file or folder that is locked or a folder that contains locked items. If that's what you intended, click Yes. If you don't want to remove the item but want to continue removing other selected items, click No. If you want to stop the operation, click Cancel.

When duplicating a file or folder, you see the message "The filename 'FILE NAME' is already used."

You have chosen a name for a duplicate file or folder that already exists for an item in the destination folder or disk directory. To choose another name, simply type the new name and click OK. To skip this item and duplicate the next item you selected, click Skip File. To cancel the duplicating operation, click Cancel.

When moving or copying folders, you see the message "The folder 'FOLDER NAME' can't be moved into itself or into one of its own folders."

You have nested a folder inside another folder and then attempted to copy the outer folder into itself or into the nested folder.

For example, suppose you created a folder called Yearly.Bills and placed a folder called January.Bills inside that folder. If you then tried to drag the Yearly.Bills folder icon on top of the January.Bills folder icon or into the January.Bills window, or tried to drag the Yearly.Bills folder icon into the Yearly.Bills window, you would see this message.

If you're moving or copying several items, click Skip File to go on to the next item. Otherwise, click Cancel.

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When moving or copying files or folders, you see the message "You are attempting to replace a file with a folder or vice versa. Should it be replaced?"

You have instructed the Finder to replace an item on the destination disk with an item on the source disk that has the same name. But one of the items is a file and the other is a folder.

If you want to replace the item on the destination disk, click Yes. If you want to leave the original item on the destination disk and continue moving or copying other items, click No. (In this case, the item will not be moved or copied.) If you want to discontinue the moving or copying operation altogether, click Cancel.

When copying, moving, or creating items in a nested folder, you see the message "The pathname is too long to complete the operation."

The complete pathname (including the colons used to separate parts of the name) cannot exceed 222 characters. Shorten the names of one or more of the nested folders involved, or use fewer levels of folders.

When copying an item from an AppleShare file server volume to a local disk, you see the message, "The file/folder name 'ICON NAME' is unacceptable to the destination file system."

This message appears if the item you're trying to copy has a name that is acceptable to the AppleShare file system (used on the file server volume) but not to the ProDOS file system (used on the local disk).

If you see this message, you have several options:

- The suggested name is a translation of the AppleShare name into an acceptable ProDOS name. (Characters other than letters, numbers, or periods are changed to periods, and the name is shortened to 15 characters.) If you want to accept the suggested name, click OK.
- If you don't like the suggested name, type a new name that conforms to ProDOS naming rules (described in Chapter 3), and then click OK.
- If you're copying several items and want to skip this item, click the Skip File button.

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- If you're copying several items and want *all* names that don't conform to ProDOS naming rules to be translated automatically, click the "Translate bad file names" button.
- If you're copying several items and want to skip *all* items whose names don't conform to ProDOS naming rules, click the "Skip bad file names" button.
- If you decide to cancel the copying operation altogether, click Cancel.

Working with application programs

This section describes some unexpected situations you may encounter when starting up and using applications, saving and printing documents, and quitting applications. (Instructions on working with application programs are in Chapter 6 of this manual.)

Starting up an application

Most unexpected situations that occur when starting up an application are covered in the section "Starting Up the Computer" earlier in this chapter. Here are three more situations you might encounter when starting up an application.

You see the message "An application can't be found for this document."

You tried to open a document, but the Finder is unable to associate the document with any application. Click OK. To open this document, you must open the application used to create it. Double-click the application icon, and then open the document from within the application.

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You see the message "The application 'APPLICATION NAME' can't be found for this document."

The Finder is able to associate the document with an application but is unable to find that application. Check to make sure you have inserted the disk that contains the application. If the application is on a 5.25-inch disk, make sure the disk drive door is closed. Then click Try Again.

If you know you don't have the application on a disk, click Cancel. If the application has been renamed or moved to a different disk or folder, click Cancel, open the application icon, and then open the document within the application.

The computer can't successfully run an application that you try to launch from the Finder.

One of the following may be the cause:

- The application is incompatible with system software version 5.0. Check with the dealer from whom you purchased the application. If the application is incompatible, you can still use it if you start up directly from the application disk—you just can't launch the application within version 1.3 of the Finder.
- The application requires more memory than your computer has. Your Apple IIGS has a megabyte (MB) of random-access memory (RAM). Some Apple IIGS applications require more than a megabyte. You can add the necessary memory to your computer with an Apple IIGS Memory Expansion Card and one or more Apple II 256K Memory Expansion Kits. For more information, see "Apple IIGS Memory Expansion Card" in Appendix A of this manual.
- The application is incompatible with a peripheral interface card you've installed in your computer. Whenever you want to use the application, first use the Control Panel to change the setting for the slot containing the card from Your Card to the corresponding port.

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Using an application

Every application has its own set of messages, geared toward explaining the unexpected situations users may encounter with that particular application. In the best applications, the error messages are self-explanatory; they tell you what happened and what you need to do in order to continue. But in some applications, the messages may seem cryptic, requiring you to look up the meaning of the message in the manual that came with the application.

This section lists a few unexpected situations that might occur regardless of the application you're using.

You see the message "I/O Error" on your screen.

I/O stands for **input/output.** The computer is having trouble exchanging information with a peripheral device, usually a disk drive. Any of the following might be the cause:

- The disk drive door of a 5.25-inch drive is open. Shut the door and try again.
- The printer or disk drive isn't plugged in or has a loose connection. Switch off the computer, wait at least 30 seconds, and check to see that all devices are connected securely.
- You may not have inserted the correct disk. Eject the disk to make sure it's the correct one. If it's not, insert the correct disk and repeat what you were doing just prior to seeing the error message.
- Your disk drive is connected to a card in slot 1, 2, or 3 and the System Speed option is set to Fast in the Control Panel. (Software designed for earlier models of the Apple II family requires that Disk II controller cards be in slots 4, 5, 6, or 7 or that System Speed be set to Normal.) Either switch the System Speed setting to Normal or connect your disk drive to slot 4, 5, 6, or 7.
- A disk may be physically damaged, or its file system may be corrupted. Copy files to another disk (copy them file by file rather than by dragging the disk icon to another disk) and then discard the damaged disk.

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You see the message "Syntax Error" on your screen.

This is a general-purpose error message indicating that the computer didn't understand the last BASIC language instruction it tried to execute. Check your typing. Sometimes you see this message when you type something in lowercase letters and the application expects it in uppercase letters. Try pressing Caps Lock and typing your entry again.

You can't get to the classic Desk Accessories menu by pressing Command-Control-Esc.

Your application probably uses a version of ProDOS earlier than version 1.2, which doesn't give you access to classic desk accessories. Have your authorized Apple dealer upgrade the application to a more recent version of ProDOS.

The classic Desk Accessories menu appears unexpectedly.

You tried to get to the Desk Accessories menu earlier from an application that didn't let you. The computer retained your request and complied as soon as possible. Choose Quit from the classic Desk Accessories menu. Ask your authorized Apple dealer to upgrade the version of ProDOS on your application disk so you can use desk accessories with the application.

Your application works with an Apple IIe but not with your Apple IIGS.

Some applications designed to work with both the Apple IIe and the Apple IIGS cannot exchange information with the Apple IIGS at a fast rate. If the System Speed setting in the Control Panel is at Fast, set System Speed to Normal and try again. If that doesn't help, ask your authorized Apple dealer if there's a version of the application designed for the Apple IIGS.

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Saving a document

In addition to reading the troubleshooting suggestions in this section, you may need to consult the manual that came with your application for advice specific to the application.

Your application asks for the slot and drive of the disk where you want to save the document, but your drive is connected to the disk drive *port.*

Earlier models of the Apple II family didn't have ports, so slot and drive was the logical way to identify the location of a disk. If your application was designed for such a machine, it will probably ask you for slot and drive numbers.

The first two 3.5-inch drives connected to the disk drive port correspond to slot 5; the third and fourth 3.5-inch drives connected to the port correspond to slot 2. The 5.25-inch drives connected to the disk drive port correspond to slot 6. When you have two drives of the same type, the drive that's closer in the daisy chain to the disk drive port is drive 1; the second drive is drive 2.

Your application saves everything to drive 1, but you want it to save to drive 2.

The application is saving to the **default,** or preset, drive—the drive it thinks you want to use. Read the manual that came with your application to find out how to change the default drive. Some applications have a command called Select Volume or Set Prefix that lets you specify the drive where you want to save documents.

You see the message "Illegal filename" when you try to save a document on a disk.

Filename refers to the name of your document. An illegal filename is one that doesn't conform to the application's rules or the rules of the ProDOS file system. Different applications have different requirements, but you shouldn't have any problem if you use a filename that starts with a letter, has 15 characters or fewer, and uses only letters, numbers, and periods.

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You see the message "Disk write-protected" when you try to save a document on a disk.

When a disk is write-protected, you can't make any changes to it. Remove the write-protection or use a different disk to save your document. (If the manufacturer write-protected this disk, you probably shouldn't save documents on it.)

For instructions on removing write-protection, see "To Write-Protect a Disk" in Chapter 4.

You see the message "Duplicate filename" when you try to save a document on a disk.

You tried to use a name that you've already used for a document on that disk. If the version you're trying to save is a revised version of the one that's already on the disk, and you want the revised version to replace the older version, then confirm that you want to replace the existing document. But if you used a duplicate name by mistake and want to retain the original document, give the new document a different name and repeat the save procedure.

Printing a document

If the troubleshooting suggestions in this section don't help, consult the manuals that came with your printer and with your application.

The printer doesn't print.

One of the following may be the cause:

- The **select button** is off. This button determines whether the printer is accepting instructions from the computer. (Sometimes you want to control line feed and form feed manually; the select button lets you switch between manual and automatic operation.) Make sure the button is set to On and try printing again.
- The printer isn't switched on. Switch the printer on and try printing again.

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- The printer isn't plugged into a power source. Make sure the power cord is connected securely to the printer and that the plug is inserted fully into a grounded outlet. Then try printing again.
- The printer isn't properly connected to the computer. Switch off the computer, wait at least 30 seconds, and secure the connection. Then try printing again.
- The slot corresponding to the port to which you've connected the printer cable isn't set to Printer. See "Slots" in Chapter 9 for instructions on changing the slot setting.
- The printer port is configured incorrectly. See "Modem Port and Printer Port" in Chapter 9 for instructions on reconfiguring the port.

If you're printing with a network printer or a local LaserWriter printer, see the additional suggestions at the end of this section.

The printer produces a line of meaningless characters that bear no resemblance to your document.

Any of the following may be the cause:

- The printer cable is loose. Switch off the computer, wait at least 30 seconds, and then secure the connection.
- If your application presents you with a list of printer types, the selected type may not match your printer type. Select the correct printer type. (If your printer type isn't listed, select each type in turn and try printing. If your printer uses the same configuration as one of the types on the list, your document should print successfully when that type is selected.)
- The printer port is configured incorrectly. See "Modem Port and Printer Port" in Chapter 9 for instructions on reconfiguring the port.
- You're using the wrong kind of cable. (Different kinds of printers need different cables.) Take the cable to your authorized Apple dealer and ask whether you need a different kind of cable.

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You expect a document to be single-spaced, but it prints with double or triple spacing instead.

An extra line feed is being inserted by the application, the printer, or the Apple IIGS. Start with the easiest solution, which is to change the application's line feed setting to Off. If that doesn't work, deselect the Add LF after CR setting in the Printer Port options of the Control Panel. If neither of those suggestions solves the problem, turn off the automatic line feed switch on the printer. (For instructions on turning off the line feed switch on the printer, consult the manual that came with your printer or ask your authorized Apple dealer for assistance.)

Lines are printing on top of each other.

No line feed instruction is being sent to the printer after the carriage return instruction. Start with the easiest solution, which is to change the application's line feed setting to On. If that doesn't work, select the Add LF after CR setting in the Printer Port options of the Control Panel. If neither of those suggestions solves the problem, turn on the automatic line feed switch on the printer. (For instructions on turning on the line feed switch on the printer, consult the manual that came with your printer or ask your authorized Apple dealer for assistance.)

Your computer is part of the AppleTalk network system, but you can't print to your usual network printer.

One of the following may be the cause:

- You haven't installed the appropriate network printer update on your startup disk. Follow the instructions in "To Install the Appropriate Networking Updates" in Chapter 11.
- After installing the appropriate network printer update, you removed a different networking update (either another of the network printer updates or the AppleShare update) from your startup disk. Removing any networking update deletes certain files that all networking updates share. Reinstall the desired network printer update following the instructions in "To Install the Appropriate Networking Updates" in Chapter 11.

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- The computer's slot settings are incorrect in the Control Panel. If your computer is connected to the network via the printer port, Slot 1 should be set to AppleTalk. If your computer is connected to the network via the modem port, Slot 2 should be set to AppleTalk. It's recommended—but not required—that you set slot 7 to AppleTalk as well. For more information, see "Activating Slots and Ports" in Chapter 9.
- The printer isn't selected in the Control Panel. If you haven't selected a printer in the Control Panel, follow the instructions in Chapter 11. If you have selected a printer but now find that you can't print, someone may have switched the printer off in the meantime. If that's the case, switch on the printer and select it again in the Control Panel.
- Someone has renamed the printer. Ask your network administrator and the other network users whether they have changed the printer's name. When you know the new name, use the Control Panel to select the printer by its new name.
- Communication on the LocalTalk network has been interrupted. Ask the network administrator to check for disconnected LocalTalk cables between your computer and the network printer you're trying to use.

You can't print with a LaserWriter IINT or a LaserWriter IINTX.

If none of the solutions given earlier in this section seems to help, one of the following may be the cause:

- You haven't installed the LaserWriter update on your startup disk. Follow the instructions in "To Install the Appropriate Networking Updates" in Chapter 11.
- The computer's slot settings are incorrect in the Control Panel. If your computer is connected to the network via the printer port, Slot 1 should be set to AppleTalk. If your computer is connected to the network via the modem port, Slot 2 should be set to AppleTalk. It's recommended—but not required—that you set slot 7 to AppleTalk as well. For more information, see "Activating Slots and Ports" in Chapter 9.

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- The printer was switched off, and no one has installed the ImageWriter Emulator in the printer's memory since it was switched on again. Select the printer in the LaserWriter options in the graphic Control Panel and click the ImageWriter Emulator button. (For more detailed instructions, see "To Choose a Network Printer" in Chapter 11.)
- You don't have a LocalTalk connector box connected to both the computer and the printer. (You can't connect a LocalTalk cable directly to a computer or a peripheral device—you must attach a connector box to each device, and then connect the two connector boxes with a LocalTalk cable.)

Quitting an application

Whenever possible, you should quit an application rather than just switching off the computer. If your application doesn't have a Quit command, try one of these escape methods. (Start with the first method in the list, and try the methods in order until you find one that works.)

- Press Command-Q (for *Quit*).
- Press Q.
- Press Esc.
- Press Control-C.
- Press Control-C, then press Return.
- Press Control-Reset.
- Eject the application disk from the startup drive and press Command-Control-Reset.
- Switch off the computer's power.

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Using the Installer

This section describes some unexpected situations you may encounter when using the Installer program on the *Apple IIGS System Tools* disk. (Instructions on using the Installer are in Chapter 7 of this manual.)

You see the message "Insert Disk: /SYSTEM.DISK" or "Insert Disk: /SYSTEM.TOOLS."

One of the following is the cause:

- The disk named in the message isn't in a disk drive. (If you're installing with only one disk drive, you'll see these messages very frequently during the installation process. If you're installing with two disk drives, you'll see these messages occasionally during the installation process.)

  Eject a disk from a disk drive, insert the disk named in the message, and click OK. The installation proceeds.

  - ❖ *Tip:* If you have a two-drive system, installation will proceed faster if you eject the system disk or the system tools disk and leave the disk you're updating in a disk drive.

- The disk named in the message is in a disk drive but has been renamed. (When they're being used as the source of updates, the system disk and the system tools disk must be named System.Disk and System.Tools. If they aren't, the Installer doesn't know where to look for the necessary files.)

  Click Cancel. Then click Quit (or choose Quit from the File menu) to quit the Installer. When you return to the Finder desktop, rename the necessary source disk icons. Then run the Installer again and install the necessary updates. The message should not appear again except when the computer is prompting you to swap disks.

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You see the message "Disk Directory Full."

The disk on which you're trying to install an update already has the maximum of 51 items in the main directory. (This situation can occur either when you're trying to install an application update in the main directory or when you're trying to install a system update and the disk doesn't already include a System folder.)

Click OK. If you were trying to install an application update, you may want to install the update in a folder. If you were trying to install a system update, you'll need to return to the Finder and either discard at least one item from the disk or nest at least one item within a folder. Then run the Installer again and install the desired update.

When creating a new folder in which to install an application update, you see the message, "Disk Full."

There isn't enough room on this disk to accommodate the new folder you're trying to create. Either use another disk or create space on this disk. (To create space, quit the Installer and use the Finder to copy files to another disk, drag files you no longer need on this disk into the Trash, and choose Empty Trash from the Special menu.)

If you want to know how much room is available on a disk and how much room a folder or file takes up, quit the Installer. When you return to the Finder, select the desired disk, folder, or file icon and choose Icon Info from the Special menu. The size information you see depends on what type of icon you selected.

- If you selected a disk icon, the Size line on the General card shows the amount of space used and the amount of space available on the disk.
- If you selected a folder icon, the Size line on the General card shows the message "use calculate icon . . ." Click the icon of a calculator at the lower-right corner of the General card. In a moment, the Size line shows the amount of space the folder's contents take up on the disk, both in bytes and in kilobytes (K).
- If you selected a file icon, the Size line on the General card shows the amount of space the file takes up on the disk, both in bytes and in kilobytes (K).

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When creating a new folder in which to install an application update, you see the message "Invalid Pathname Syntax."

The name you provided for the new folder doesn't conform to the naming rules for the ProDOS file system. Click OK, and then provide a valid ProDOS name. (For information on ProDOS naming rules, see "To Rename Icons" in Chapter 3.)

When creating a new folder in which to install an application update, you see the message "Pathname is too long."

The Installer cannot handle a pathname longer than 65 characters (including the colons that separate parts of the pathname), and updates can be nested no more than nine levels deep (the disk plus eight folders).

Click OK. Then either install the update in an existing folder or quit the Installer and use the Finder to shorten the names of one or more of the nested folders involved.

When you're installing the AppleShare on 3.5 Disk update, you see the message "WARNING: This update makes a 3.5-inch disk into an AppleShare disk. Files will be removed. Install any desired printer driver separately (only one will fit). Do NOT install this update on your only copy of the system disk."

Because of space constraints, a 3.5-inch disk cannot accommodate the complete system files *and* AppleShare. The AppleShare on 3.5 Disk update gives you an abbreviated version of the system files, removing all but the bare essentials. Be sure you aren't installing this update on your only copy of the system disk. (In fact, you'll probably want to install it on a blank disk.)

If you want to install the update, click Perform This Update. Otherwise, click Skip This Update.

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When you're installing the Local Network Startup update, you see the message "WARNING: Install this update only on non-server disks. This update installs system files for starting up over the network. Some files, including the Finder, are removed. Proceed with caution."

The Local Network Startup update creates a disk that lets you start up directly from a file server but does not give you access to the Finder. If the disk you're installing this update on contains the Finder, the Finder will be removed during the installation. Be sure you aren't installing this update on your only copy of the system disk. (In fact, you'll probably want to install it on a blank disk.)

If you want to install the update, click Perform This Update. Otherwise, click Skip This Update.

When you're installing the Server Network Startup update, you see the message "WARNING: Install this update only on a file server's startup volume. This update installs system files for starting up over the network. Some files, including ProDOS, are removed. Proceed with caution."

When the Server Network Startup update is installed on the startup volume of a file server, network users can start up directly from a file server without using a startup disk in a local disk drive. This update should be installed only on the startup volume of a file server, and only by the network administrator.

If you want to install the update, click Perform This Update. Otherwise, click Skip This Update.

When you're installing an update on a file server volume, you see the message "Access error. Cannot change file."

You don't have the Make Changes privilege for the file server volume or the System folder on the file server volume. (Or, if you're installing an application update in a folder, the privileges for the folder.)

If you're the network administrator, log on as the administrator and install the update. Otherwise, ask the administrator to install the update for you.

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The Control Panel—and other new desk accessories, if any are installed on the startup disk—are dimmed in the Apple menu, and you can't get to the Desk Accessories menu by pressing Command-Control-Esc.

You've installed one or more system updates on the current startup disk. Until you restart your computer, desk accessories are not available. Click Quit, and then click Restart System. When you see the Finder desktop, all your desk accessories will be available to you.

When you click Quit in the Installer, you see the message, "An update has altered system files on the startup disk. You cannot quit the Installer without restarting your system."

You've installed one or more system updates on the current startup disk. In order for the computer to recognize those updates during the current work session, you must restart the computer. Click the Restart System button. The computer restarts from the current startup disk, and in a few moments you return to the Finder desktop.

If you inadvertently installed a system update on the current startup disk and wish to remove it before proceeding, click Cancel. Then select the name of the unwanted system update in the window on the left and click Remove. The Installer removes the update from the current startup disk. When you quit the Installer, you'll see the same message alerting you that the Installer has altered system files on the current startup disk. Click Restart System.

△ **Important** Removing an update that you've installed is not always the same as not having installed it in the first place. (When you install AppleShare on 3.5 Disk, for example, there isn't room for all system files, so the Installer creates an abbreviated version by removing certain files. Subsequently removing the AppleShare on 3.5 Disk update cannot reinstate the files that have been deleted—it can only remove the files that have been added.) △

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Using the Advanced Disk Utility

This section describes some unexpected situations you may encounter when using the Advanced Disk Utility program on the *Apple IIGS System Tools* disk. (Instructions on using the Advanced Disk Utility are in Chapter 8 of this manual.)

When you open the Advanced Disk Utility and choose Initialize/Erase from the File menu, you see the message "You do not have the SCSI driver on your system disk . . . Therefore, you cannot partition this device."

You've connected a SCSI hard disk, but the current startup disk doesn't include the SCSI Hard Disk update. Click OK, then choose Quit from the File menu. When the Finder desktop appears, use the Installer to add the SCSI Hard Disk update to the current startup disk. (For instructions on using the Installer, see Chapter 7 of this manual.)

You can't erase, initialize, or zero a 3.5-inch or 5.25-inch disk because the appropriate buttons are dimmed in the Advanced Disk Utility screen.

The selected disk is write-protected. If you want to erase, initialize, or zero the disk, follow these steps:

- Eject the disk by pressing the eject button on the disk drive.

  When you eject the disk, the Advanced Disk Utility screen displays the next available disk.

- Remove the write-protection from the disk.

  For instructions, see "To Write-Protect a Disk" in Chapter 4.

- Reinsert the disk.

- Click the Disk button until the disk is selected.

  The Erase, Initialize, and Zero buttons will no longer be dimmed.

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You can't partition a disk because the Partition button is dimmed.

The selected disk is not a SCSI hard disk or SCSI hard disk partition. Other types of disks—3.5-inch disks, 5.25-inch disks, RAM disks, file server volumes, and non-SCSI hard disks—can't be partitioned.

You see the message "Uninitialized or no disk in drive" at the bottom of the Advanced Disk Utility screen.

The selected item is either an empty 5.25-inch disk drive or a hard disk or hard disk partition that has not been initialized. If you want to work with a 5.25-inch disk, insert the disk in the disk drive and close the disk drive door. If you want to initialize the selected hard disk or hard disk partition, click Initialize.

When initializing a disk, you see the message "Initializing or erasing unsuccessful. Invalid disk name specified."

You gave the disk a name that doesn't conform to the naming rules for the ProDOS file system. Repeat the initialization process, being sure to specify a valid ProDOS name. (For information on ProDOS naming rules, see "To Initialize a Disk" in Chapter 4.)

When initializing a disk, you see the message "This disk could not be initialized" at the bottom of the Advanced Disk Utility screen.

You've tried to initialize the startup disk. Because files on the startup disk are open and in use, it isn't possible to initialize the startup disk. If you want to initialize the disk, quit the Advanced Disk Utility, shut down the computer, and restart with a different startup disk. Then initialize the disk using either the Initialize command in the Disk menu or the Advanced Disk Utility.

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When initializing a hard disk partition, you see the message "Initialization failed! 'DISK NAME' was not a valid disk name."

When you named the partition in the Partition dialog box, you gave it a name that doesn't conform to the naming rules for the ProDOS file system. Click Disk until the partition is selected, and then initialize it again, being sure to specify a valid ProDOS name. (You don't need to repartition the hard disk.) For information on ProDOS naming rules, see "To Initialize a Disk" in Chapter 4.

When partitioning a SCSI hard disk, you see the message "Initialization of the disk 'DISK NAME' has been canceled. It will not be displayed in the Finder."

You clicked Cancel in the Initialize dialog box for the partition. The hard disk has been partitioned but this partition hasn't been initialized. Use the Advanced Disk Utility to initialize the partition, as explained in "Initializing" in Chapter 8.

When partitioning a SCSI hard disk, you see the message "Sorry . . . there is not enough room on the device. The partition will be set to the maximum possible size."

In setting the size of a partition, you exceeded the amount of space remaining on the hard disk. Click OK. The partition will be given all space that isn't already allocated to other partitions.

When partitioning a SCSI hard disk larger than 32 MB, you see the message "This file system won't use the entire disk."

You've allocated more than 32 MB to a single partition, but the ProDOS file system doesn't recognize part of any hard disk partition in excess of 32 MB. This message appears when the Initialize dialog box for that partition appears. Click Cancel. Then return to the Advanced Disk Utility screen and repartition the hard disk, being sure to create partitions no larger than 32 MB.

When you try to choose a new desk accessory from the Apple menu, you hear a beep, but nothing else happens.

You can't open a new desk accessory when the Advanced Disk Utility screen is displayed. Click Cancel, and then try again.

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Using the Control Panel desk accessory

This section describes some unexpected situations you may encounter when using either the text or graphic version of the Control Panel desk accessory. (Instructions on using the Control Panel are in Chapter 9 of this manual.)

A change you made in the Control Panel doesn't seem to have taken effect.

One of the following may be the cause:

- If you made the change in the text Control Panel, you pressed Esc instead of Return to return to the main menu. (Pressing Return saves any changes you made before returning you to the main menu; pressing Esc cancels any changes you made before returning you to the main menu.) Go back to the appropriate Control Panel menu and make the change again. Then press Return.
- If you made a change to the Slots options, the change doesn't take effect until you restart the computer. As soon as you restart, the new setting will be in effect.
- If you made a change in RAM disk size, the change doesn't take effect until you shut down the computer, switch it off, and then start it up again. (Or, if you turned on the "Resize after reset" option, the change will take effect when you restart the computer *with or without* switching off the power.)

There aren't as many Printer Port or Modem Port options as you expect.

The Printer Port and Modem Port options displayed in the Control Panel depend on the slot settings for slot 1 and slot 2, respectively. If either slot is set to AppleTalk, fewer options will be displayed for the corresponding port.

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When using a pop-up menu to change a setting in the graphic Control Panel, you don't see the setting you want.

When there are more settings in a pop-up menu than can fit on the screen at once, a black arrow at the top or bottom of the menu lets you know that there are more settings in that direction. Drag through the menu until the pointer reaches the arrow. More settings scroll into view. When the desired setting is highlighted, release the mouse button.

When using the pop-up menu for the Menu Blinking or Cursor Flash option, you don't see the setting you expect.

Unlike most Control Panel options, the Menu Blinking and Cursor Flash settings are stored only temporarily. Each time you start up or restart the computer, the standard settings—3 Times for Menu Blinking and Medium for Cursor Flash—are in effect, regardless of any changes you made during previous work sessions. If you prefer a nonstandard setting for one of these options, you must reset the option during each work session.

If you change one of these settings and return to the General options later during the same work session, the option will appear to have reverted to the standard setting. In reality, your change is still in effect—and will remain so until you restart or shut down the computer.

All the Control Panel options revert to their original settings (the ones set at the factory).

Running the diagnostic test (Command-Control-Option-Reset) or restoring the standard frequency settings (Option-Control-Reset, then 2) both cause Control Panel options to revert to their original settings. Reset the Control Panel options. If they revert to their original settings again, the computer's battery is running low. Have your authorized Apple dealer replace the battery.

The clock in the Time options of the Control Panel no longer keeps accurate time.

The computer's battery is running low. Have your authorized Apple dealer replace the battery.

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Using memory as a RAM disk

This section describes some unexpected situations you may encounter when using memory as a RAM disk. (Instructions on using memory as a RAM disk are in Chapter 10 of this manual.)

You see a message indicating that system error $0201 occurred.

The amount of memory allocated for use as a RAM disk doesn't leave enough memory available for the application you're trying to run. (If this message appears when you're starting up with a Finder-based startup disk, there isn't enough available memory to run the Finder.

If necessary, press Return. Then press Command-Control-Esc to go to the Desk Accessories menu. (You may need to press Command-Control-Reset before you'll be able to press Command-Control-Esc.) From there, use the text Control Panel to reduce the size of your RAM disk so that enough memory will be available for the application you're trying to use. (For instructions, see "To Get to the Text Control Panel" in Chapter 9 and "Setting RAM Disk Size" in Chapter 10.)

The Finder requires at least 512K of RAM. If you don't know how much memory another application requires, check in the manual that came with the application.

When trying to copy folders or files to the RAM disk, you see the message "The disk is full. Can't complete this operation."

There isn't enough memory allocated to the RAM disk to contain the items you're trying to copy. Click Cancel. Then, if you wish, increase the size of the RAM disk to accommodate the items. (For instructions, see "Setting RAM Disk Size" in Chapter 10.)

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When trying to copy the complete contents of a disk to the RAM disk, you see the message "There isn't enough room on 'RAM DISK NAME' to copy the contents of 'SOURCE DISK NAME'."

There isn't enough memory allocated to the RAM disk to accommodate the disk you're trying to copy. Click Cancel. Then, if you wish, increase the size of the RAM disk to accommodate the items. (For instructions, see "Setting RAM Disk Size" in Chapter 10.)

When trying to start up from the RAM disk, you see the message "Check startup device!"

Although it's possible to start up from a RAM disk, the amount of memory required by the GS/OS operating system usually makes this method of starting up impracticable.

If you do start up from a RAM disk and see the "Check startup device!" message, you didn't erase or initialize the RAM disk before copying the startup application and system files to the RAM disk. (Erasing or initializing prepares the RAM disk to be used as a startup disk.) Erase or intialize the RAM disk, copy the application and system files again, and restart the computer.

Using your Apple IIGS on a network

This section describes some unexpected situations you may encounter when using an AppleShare file server. (Instructions on using AppleShare file servers are in Chapter 11 of this manual.) If you encounter an unexpected situation when using a network printer, see "Printing a Document" earlier in this chapter for suggestions.

Remember that your network administrator is an important troubleshooting resource. If you can't figure out why something happened from the information in this section, ask the administrator for suggestions.

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Logging on from the Control Panel

This section lists unexpected situations you may encounter when trying to log on to an AppleShare file server from the Control Panel.

When you start up the computer, you see the message "AppleShare.FST requires AppleShare. Please enable AppleTalk in the Control Panel, install AppleShare on the boot disk and re-boot the system."

One of the following is the cause:

- The slot settings in the Control Panel are not set up for access to the AppleTalk network system. Press Return to continue starting up. When you see the Finder desktop, use either version of the Control Panel to change the appropriate slot settings.

  If your computer is connected to the network via the printer port, Slot 1 should be set to AppleTalk. If your computer is connected to the network via the modem port, Slot 2 should be set to AppleTalk. It's recommended—but not required—that you set slot 7 to AppleTalk as well. For more information, see "Activating Slots and Ports" in Chapter 9.

  When you restart the computer after changing the slot settings, you shouldn't see the message again.

- Some of the AppleTalk or AppleShare files are missing from the current startup disk. Press Return to continue starting up. Then use the Installer to reinstall the networking updates you need.

  If you're installing on a 3.5-inch disk, install AppleShare on 3.5 Disk and (if you wish) one network printer update. If you're installing on a hard disk, install AppleShare and as many network printer updates as you want. Then quit the Installer and click Restart System in the dialog box that appears. When the computer restarts this time, you shouldn't see the message again.

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You can't find the AppleShare file server you want in the Control Panel.

One of the following may be the cause:

- AppleShare isn't installed on your startup disk. Follow the instructions in "To Install the Appropriate Networking Updates" in Chapter 11.
- The computer's slot settings are incorrect in the Control Panel. If your computer is connected to the network via the printer port, Slot 1 should be set to AppleTalk. If your computer is connected to the network via the modem port, Slot 2 should be set to AppleTalk. It's recommended—but not required—that you set slot 7 to AppleTalk as well. For more information, see "Activating Slots and Ports" in Chapter 9.
- The file server isn't selected in the Control Panel. Follow the instructions in "To Log on to a File Server From the Control Panel" in Chapter 11.
- A lot of people may be using the file server or the network. Wait 15 or 20 seconds after you select the AppleShare icon in the Control Panel—or after selecting a zone in the AppleShare options—and see if the desired file server appears in the list.
- The file server has been shut down. It is sometimes necessary for the network administrator to shut down the file server to perform certain administrative tasks. Ask the administrator when the file server will be available again.
- Communication on the LocalTalk network has been interrupted. Ask the network administrator to check for disconnected LocalTalk cables between your computer and the file server you're trying to use.
- The file server is in a different zone. Make sure the correct zone is selected in the Control Panel.

You can't find your zone in the Control Panel.

Communication on the LocalTalk network may have been interrupted. Ask the network administrator to check for disconnected LocalTalk cables between your computer and the file server you're trying to use.

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You see the message "Unknown user or log on is disabled. Please retype the name or contact the server's administrator."

One of the following may be the cause:

- You made a typing error when supplying your user name. Try typing the name again.
- The network administrator gave you an incorrect user name. Check with the administrator to make sure you're using the correct name.
- You aren't allowed to log on to that file server. Ask the network administrator whether you have access to the file server in question.
- You're trying to log on as a guest to a file server that doesn't allow guests to have access. Ask the network administrator whether guests can have access to the file server in question.

Starting up over the network or logging on with a disk that doesn't include the Finder

This section lists unexpected situations you may encounter when trying to start up over the network or log on to an AppleShare file server with a startup disk that doesn't include the Finder.

You see the message "AppleShare.FST requires AppleShare. Please enable AppleTalk in the Control Panel, install AppleShare on the boot disk and re-boot the system."

One of the following is the cause:

- The slot settings in the Control Panel are not set up for access to the AppleTalk network system. Press Return. Then use the text Control Panel to change the appropriate slot settings.

  If your computer is connected to the network via the printer port, Slot 1 should be set to AppleTalk. If your computer is connected to the network via the modem port, Slot 2 should be set to AppleTalk. It's recommended—but not required—that you set slot 7 to AppleTalk as well. For more information, see "Activating Slots and Ports" in Chapter 9.

  If you're starting up over the network (rather than from a local disk), make sure that Startup is set to AppleTalk in the Slots menu.

  When you restart the computer after changing the slot settings, you shouldn't see the message again.

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- Some of the AppleTalk or AppleShare files are missing from the current startup disk. Press Return, then eject the disk and ask your network administrator to perform the necessary installation for you. (Or, if you have access to the *Apple IIGS System Disk* and the *Apple IIGS System Tools* disk, use the Installer to add the appropriate update: Server Network Startup if you want to start up over the network, Local Network Startup if you want to start up with a disk that doesn't include the Finder.)

  When you restart the computer after the necessary update has been installed, you shouldn't see the message again.

You see the message "Cannot load file Start.GS.OS."

One of the following is the cause:

- You don't have the See Files or See Folders privilege for the System folder on the file server's startup volume. Ask the network administrator to give those privileges to everyone on the network.
- The Server Network Startup update has not been installed on the startup volume of the file server. Ask the network administrator to install this update.

You see an error message numbered $0044, $0046, or $004E.

You don't have the necessary access privileges for your startup application or for some of the files or folders in the System folder on the startup volume. Ask the network administrator to give you the necessary privileges.

You see the message "Unknown user or login is disabled. Please retype the name or contact the network administrator."

One of the following may be the cause:

- You made a typing error when supplying your user name. Try typing the name again.
- The network administrator gave you an incorrect user name. Check with the administrator to make sure you're using the correct name.
- You aren't allowed to log on to that file server. Ask the network administrator whether you have access to the file server in question.
- You're trying to log on as a guest to a file server that doesn't allow guests to have access. Ask the network administrator whether guests can have access to the file server in question.

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You see the message "The server is not responding. You cannot connect to it."

There's a problem with the file server itself or with the network cables. Ask the network administrator to check the server and cables and resolve the problem.

You see the message "This file server uses an incompatible version of the AFP protocol. You cannot connect to it" or the message "This file server does not use a recognizable logon sequence. You cannot connect to it."

The file server is not running AppleShare File Server software version 2.0 or a more recent version. Ask the network administrator to upgrade the file server to version 2.0, or log on to a different file server that is running a compatible version of the software.

You see the message "The attempted connection to the server's volume has failed."

You don't have access to one of the file server volumes you tried to connect to. Ask the network administrator to give you the necessary access privileges for that volume, or log on to a different volume.

You see the message "Your startup configuration has not been set up properly. Contact the network administrator."

The file containing the name of your startup application, prefix (if any), and printer (if any) is damaged. Ask the network administrator to set a valid startup application, prefix, and printer.

You see the message "Contact the network administrator. This startup path was not found."

The pathname of your startup application is incorrect. Either one or more names within the pathname have changed, or the access privileges to the file server volume or one of the folders have changed.

Make a note of the startup pathname given in the message, and then ask the network administrator to set your startup application again.

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You see the message "Contact the network administrator. An error occurred launching the startup path."

You probably don't have the appropriate access privileges to launch the startup application.

Make a note of the startup pathname given in the message, and then ask the network administrator to make sure you have the proper access privileges.

Using an AppleShare file server

This section lists unexpected situations you may encounter when trying to use an AppleShare file server.

When copying an item from an AppleShare file server volume to a local disk, you see the message, "The file/folder name 'ICON NAME' is unacceptable to the destination file system."

The item you're trying to copy has a name that is acceptable to the AppleShare file system (used on the file server volume) but not to the ProDOS file system (used on the local disk). You have several options:

- The suggested name is a translation of the AppleShare name into an acceptable ProDOS name. (Characters other than letters, numbers, or periods are changed to periods, and the name is shortened to 15 characters.) If you want to accept the suggested name, click OK.
- If you don't like the suggested name, type a new name that conforms to ProDOS naming rules (described in Chapter 3), and then click OK.
- If you're copying several items and want to skip this item, click the Skip File button.
- If you're copying several items and want *all* names that don't conform to ProDOS naming rules to be translated automatically, click the "Translate bad file names" button.
- If you're copying several items and want to skip *all* items whose names don't conform to ProDOS naming rules, click the "Skip bad file names" button.
- If you decide to cancel the copying operation altogether, click Cancel.

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You see the message "The changes to some folders could not be applied (access privileges error)."

You clicked Apply to Enclosed Folders but you don't own one or more folders inside the selected folder.

Click OK. Then click the Apply button if you want to apply the new access privileges to the volume. If you want to change the privileges for enclosed folders that you own, select each folder separately and change the privileges. For instructions, see "To Set Access Privileges for a Folder" in Chapter 11.

Using peripheral devices

This section describes unexpected situations you may encounter when using peripheral devices other than a keyboard, mouse, or printer. (See "Using the Mouse and the Keyboard" and "Printing a Document," both earlier in this chapter, for troubleshooting suggestions related to those devices.)

When using any peripheral device, make sure that the Control Panel setting for the appropriate slot is correct. (For complete guidelines, see "Activating Slots and Ports" in Chapter 9.)

Using a monitor

Here are some unexpected situations you might encounter with your monitor.

The image on the screen is rolling or out of alignment.

The Apple IIGS is sending signals to the monitor according to the standard for most countries (50 hertz) instead of the United States standard (60 hertz), or vice versa. Press Option-Control-Reset. Then press either 2 (to restore the standard U.S. setting) or 3 (to restore the other setting). When you reset the frequency, all other Control Panel options revert to their original settings, so you'll need to go to the Control Panel and reconfigure your system to match your individual preferences.

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The text on the screen is fuzzy or unreadable.

One of the following may be the cause:

- The contrast is too bright or too dim. Adjust the contrast knob on your monitor.
- The monitor cable isn't properly plugged into the computer. Switch off the computer, wait at least 30 seconds, and then secure the connection.
- You're using a composite color monitor and the application is displaying text in the 80-column mode. If the application gives you a choice between 40-column and 80-column display, choose 40. If the application doesn't give you a choice, change the Columns setting in the Control Panel to 40.

Text and background colors are so similar that the text is unreadable.

First try adjusting the contrast and brightness on your monitor. If that doesn't improve the contrast, you can restore the original Control Panel settings for text and background by pressing Option-Control-Reset and then 2 (for the United States) or 3 (for other countries). If there still isn't enough contrast, try changing the Type option in the Display menu of the Control Panel to Color, even if you're using a monochrome monitor.

❖ *Note:* Pressing Option-Control-Reset also restores all other Control Panel options to their original settings. You may need to return to the Control Panel to change some settings back to your preferences.

Little apples and check marks appear instead of uppercase, inverse text.

The apples and check marks are called **MouseText.** MouseText characters replaced a redundant set of characters in earlier models of the Apple II family. Older applications using that redundant character set will now display MouseText characters in place of uppercase, inverse text. The MouseText characters don't affect the way an application works, so if they don't bother you, go ahead and use the application. If they do bother you, ask your authorized Apple dealer or the manufacturer of the application if a newer version of the application is available.

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There isn't enough contrast between colors on the display.

The application was designed for earlier models of the Apple II family. The Apple IIGS generates slightly different colors. Try changing the Type option in the Display menu of the Control Panel to the opposite setting. (The display type doesn't have to match the kind of monitor you're using.)

The screen is full of 2's or meaningless characters.

The application you're using was designed for earlier models of the Apple II family. Leave the application disk in the disk drive, press Command-Control-Esc, choose Alternate Display Mode from the classic desk accessories menu, and press Return. When you're finished using the application, choose Alternate Display Mode again to restore the standard display.

You can't get color display even though you're using a color monitor.

One of the following may be the cause:

- The monitor is set to monochrome (black-and-white) mode. Change the switch on your monitor to color mode.
- You're using a composite color monitor with a text-based application. Unlike RGB color monitors, composite monitors can't display 80-column text clearly in color mode, so they may switch automatically to monochrome mode for text-based applications. You'll get color display when you use graphics-based applications.

The 40-column display changes to an 80-column display and clears the screen when you press Control-Reset.

You've changed the Columns option in the Control Panel to 80, but the application you've just been using can display text only in the 40-column mode. Pressing Control-Reset put you back in the 80-column mode. You don't need to do anything further, unless you prefer the 40-column mode. (In that case, simply change the setting in the Control Panel.)

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Using 3.5-inch and 5.25-inch disk drives

Here are some unexpected situations you might encounter when using 3.5-inch and 5.25-inch disk drives.

When starting up the computer, you see the message "UniDisk3.5 requires a driver. Install UniDisk3.5 driver on boot disk and re-boot system."

The current startup disk (or *boot disk,* in computer jargon) doesn't include the UniDisk 3.5 update. Press Return to continue starting up. When the Finder desktop appears, use the Installer to add the UniDisk 3.5 update to the current startup disk. (For instructions on using the Installer, see Chapter 7 of this manual.)

When you quit the Installer, a dialog box will appear letting you know that you must restart (or *re-boot,* in computer jargon) the computer. Click Restart System. In a few moments you'll see the Finder desktop, and the computer will recognize your UniDisk drive.

The Finder doesn't recognize all the disk drives connected to the disk drive port.

One of the following may be the cause:

- If you have more than one type of drive, you've connected the drives in the wrong order. Apple 3.5 Drives must come first in the daisy chain, followed by UniDisk 3.5-inch disk drives, and then Apple 5.25 Drives.

  Shut down and switch off the computer, wait at least 30 seconds, and then reconnect the drives in the correct order.

- You've connected more drives to the disk drive port than the computer can recognize. (The disk drive port can accommodate a maximum of two Apple 3.5 Drives, four UniDisk drives, and two Apple 5.25 Drives. But it cannot accommodate more than four disk drives in all.

  Shut down and switch off the computer, wait at least 30 seconds, and remove the necessary drives to conform with the maximums described above.

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Using a hard disk

Here are some unexpected situations you might encounter when using a hard disk.

When starting up the computer, you see the message "SCSI device requires a driver. Please install the SCSI driver on boot disk and re-boot system"

The current startup disk (or *boot disk,* in computer jargon) doesn't include the SCSI Hard Disk update. Press Return to continue starting up. When the Finder desktop appears, use the Installer to add the SCSI Hard Disk update to the current startup disk. (For instructions on using the Installer, see Chapter 7 of this manual.)

When you quit the Installer, a dialog box will appear letting you know that you must restart (or *re-boot,* in computer jargon) the computer. Click Restart System. In a few moments you'll see the Finder desktop, and the computer will recognize your hard disk.

A hard disk icon doesn't appear on the Finder desktop when you start up the computer.

One of the following may be the cause:

- The hard disk isn't switched on. In order for the Finder to recognize a hard disk, the hard disk must be switched on and up to speed before you start up (or restart) the computer.

  Switch on the hard disk, wait about 10 seconds for it to come up to speed, and then restart the computer.

- The Control Panel setting for the slot containing your SCSI card isn't set to Your Card.

  Use the Control Panel to change the slot setting to Your Card. Then restart the computer. When you see the Finder desktop, the hard disk icon should appear.

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- There's only one SCSI device attached to the SCSI card, but you've used two SCSI cable terminators on the device.

  When you're connecting only one SCSI device, you should use only one SCSI cable terminator (unless you're using a cable extender). Shut down the computer, switch off the computer and the SCSI hard disk, wait at least 30 seconds, and then reconnect the SCSI cables and cable terminators according to the instructions in "SCSI Hard Disks, CD-ROM Drives, and Other SCSI Devices" in Appendix A of this manual.

- There's more than one device daisy-chained to the SCSI card, but only one SCSI cable terminator in the SCSI chain.

  When you're connecting two or more SCSI devices, you must use two cable terminators (unless a device in the chain is from a manufacturer other than Apple and has an internal terminator). Shut down the computer, switch off the computer and all SCSI devices, wait at least 30 seconds, and then reconnect the SCSI cables and cable terminators according to the instructions in "SCSI Hard Disks, CD-ROM Drives, and Other SCSI Devices" in Appendix A of this manual.

Using a modem

Here are some unexpected situations you might encounter when using a modem.

Every character appears twice on the screen when you're sending a message.

Your Apple IIGS is echoing every character you send on the screen, and the other computer is echoing every character it receives back to your screen. Deselect the Echo setting in the communications application (or in the Modem Port options in the Control Panel).

A line of meaningless characters appears on the screen when you send or receive messages over phone lines.

The computer on the other end of the phone line is sending information to your computer in a form your computer can't understand. If you're trying to connect to an information service, check the materials you received from the service to see what specifications the other computer is using, and change the way your computer is set up to exchange information, either by using your communications application or by changing the Modem Port settings in the Control Panel. For more information, see "Modem Port and Printer Port" in Chapter 9.

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Characters are lost during information exchange.

One of the following may be the cause:

- There's too much noise or distortion on the phone lines to transmit information at the speed you're using. Sign off and reestablish communication. If that doesn't work, change to a lower baud, if possible, on both the sending and the receiving end. (Changing the baud on only one end of the line will make the problem worse.)
- Buffering is turned off. (This is particularly likely to be the cause if you're losing only an occasional character.) Turn on the Buffering option in the Modem Port options in the Control Panel.
- Someone is trying to use another extension on the telephone line (or, if your telephone is on a party line, someone else is trying to use the telephone). Try again when the line is available.

Information you send through the modem doesn't appear on your screen.

The other computer isn't echoing information back to your computer as it receives it, probably because it's using a half-duplex modem. Turn on the Echo setting in the communications application (or in the Modem Port menu of the Control Panel).

- *Exception:* Many communications applications that use passwords turn off the Echo setting while you're entering your password. (That way, no one can watch the screen to learn your password as you type it.)

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Your communications application works with a modem connected to a Super Serial Card, but not with a modem connected to the Apple IIGS modem port.

One of the following may be the cause:

- The modem port is configured incorrectly. Check the specifications in the manual that came with the modem and then use either the communications application or the Modem Port options in the Control Panel to reconfigure the port correctly.
- Your communications software works only in conjunction with a particular integrated circuit on the Super Serial Card. Either use a Super Serial Card or get a communications application designed for the Apple IIGS.

You lose the connection with the remote computer or information service.

Your telephone has a call-waiting feature and someone is phoning you. When you're ready to reestablish the connection, dial the temporary cancellation code for the call-waiting feature. (On most call-waiting systems, 1170 is the appropriate code.)

If you think there's a serious problem

If you're having a problem that you haven't been able to solve with any of the suggestions in this chapter, try repeating whatever you were doing and see if the same thing happens again. (You may simply have made an inadvertent keystroke or mouse movement without realizing it.)

If the same thing happens when you repeat the same steps, you may want to run a short diagnostic test to make sure there isn't a serious problem with your computer.

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△ **Important** If you have changed any settings in the Control Panel (as explained in Chapter 9), they will be restored to the original settings—the ones set at the factory—when you run the diagnostic test. You must return to the Control Panel if you want to change them back. △

Follow these steps to run the diagnostic test:

1. With the power on, hold down the Command, Control, and Option keys while you press and release the Reset key.

   Or, if the power is off, simply hold down Command and Option while you switch on the computer's power.

2. Wait for a message on the screen giving the results of the test.

   After about 35 seconds you should see the message "System Good." If you see the message "System Bad" followed by a string of letters, make a note of the letters and contact your authorized Apple dealer.

3. If your system is good, restart your computer.

   Insert a startup disk in your startup drive, then hold down Command and Control while you press and release Reset.

If you need more help

If this chapter hasn't provided an explanation for an unexpected situation or event, there are a number of places you can turn for more information.

- Often the best source of help is another Apple II user. If you know people who have had a lot of experience with Apple II computers, check with them to see if they can explain what you're experiencing. (A good way to meet other Apple II users is through an Apple user group. For information on joining a user group, see "User Groups" at the end of Chapter 2 in *Getting Started With Your Apple IIGS*.)
- Your authorized Apple dealer should also be able to answer most questions you have about the Apple IIGS.

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APPENDIX A

Connecting Additional Devices

THIS APPENDIX DESCRIBES HOW TO CONNECT OPTIONAL PERIPHERAL DEVICES to your Apple IIGS computer. The instructions in this appendix assume that you've already set up your computer and attached the keyboard, mouse, monitor, and 3.5-inch or 5.25-inch disk drives. If you haven't, refer to Chapter 1 of *Getting Started With Your Apple IIGS* for setup instructions before you read this appendix.

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△ **Important** Your computer should be switched off but its power cord should be plugged into a grounded outlet. (Leaving the power cord plugged in keeps the computer grounded.) If the power has been on, wait at least 30 seconds after switching it off before you connect or disconnect any devices or interface cards.

When plugging devices into an outlet, be sure to use a grounded outlet. △

Serial printers

Printers can be divided into two general categories: serial printers and parallel printers. A **serial printer** receives information from the computer over a single wire, whereas a **parallel printer** receives information over several wires at the same time.

Serial printers can be plugged into the printer port on the back panel of the Apple IIGS. Parallel printers require an interface card. Both serial and parallel printers can be used with the Apple IIGS. If you have a parallel printer, refer to "Devices With Interface Cards" later in this appendix for instructions on installing the card and connecting the printer to it.

The instructions in this section are for **local printers**—printers that you connect directly to the computer and that can be used only from your computer. If your Apple IIGS is part of a network and you'll be using shared printers over the network, refer to the *LocalTalk Cable System Owner's Guide* for instructions on connecting the printer to the network. Also refer to "Network Printing" in Chapter 11 for instructions on using network printers.

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To connect an ImageWriter or similar printer

Follow these steps to connect an ImageWriter I, ImageWriter II, ImageWriter LQ, or similar printer to the Apple IIGS:

1. Connect either end of the printer cable to the printer.
2. Connect the other end of the printer cable to the printer port on the back of the Apple IIGS. (If necessary, you can use the modem port instead.)
3. If necessary, plug the printer's power cord into the printer.

   If your printer has a built-in power cord, skip to step 4.
4. Plug the three-prong end of the power cord into a grounded outlet.

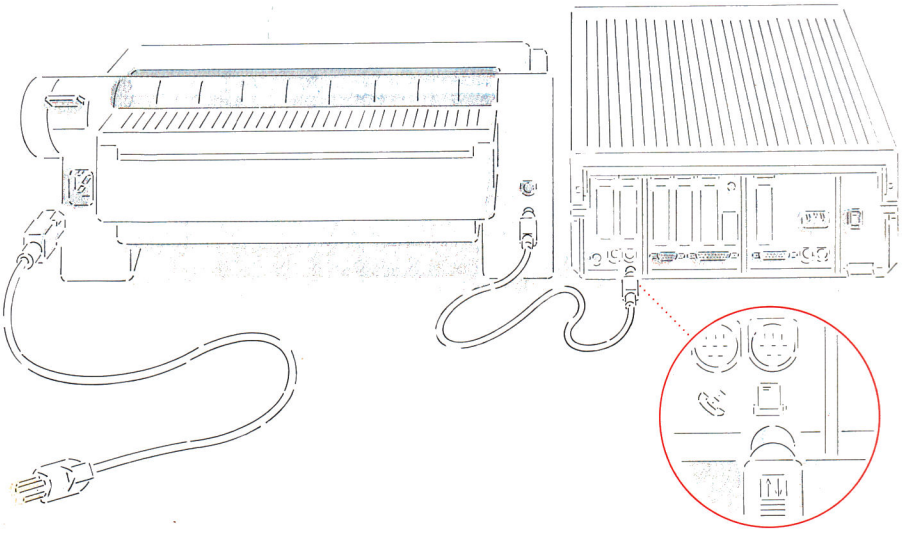

Figure A-1 Connecting an ImageWriter printer

5. Install the appropriate update on your startup disks.

   For instructions, see Chapter 7, "Using the Installer."
6. Use the Control Panel to specify the printer type and the port to which the printer is connected.

   For more information, see "DC Printer" in Chapter 9.

For instructions on printing, see "Printing Documents From the Finder" in Chapter 6, or refer to the manuals that came with your printer and with the application you're using.

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To connect a LaserWriter

To connect a LaserWriter, LaserWriter Plus, LaserWriter IINT, or LaserWriter IINTX printer to your Apple IIGS, you need to create a "mini-network" using two LocalTalk Locking Connector Kits.

Follow these steps to connect the LaserWriter:

1. Connect the cable of one LocalTalk connector box to the printer port on back panel of the Apple IIGS. (If necessary, you can use the modem port instead.)
2. Connect the cable of the other LocalTalk connector box to the LaserWriter.
3. Connect either end of a LocalTalk cable to one of the sockets on the LocalTalk connector box connected to the Apple IIGS.
4. Connect the other end of the LocalTalk cable to one of the sockets on the LocalTalk connector box connected to the printer.

△ **Important** The two LocalTalk connector boxes should be connected by *only one* LocalTalk cable. (In other words, one socket on each connector box should be empty.) △

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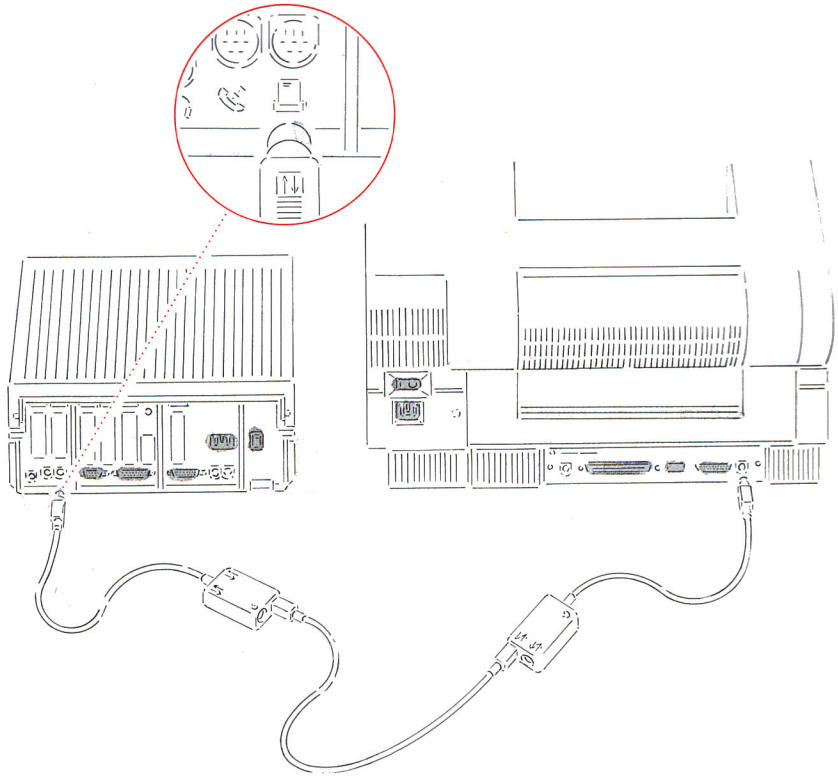

Figure A-2 Connecting a LaserWriter printer

5. Install the LaserWriter update on your startup disks.

   For instructions, see "To Install the Appropriate Networking Updates" in Chapter 11.

6. Use the Control Panel to choose the printer.

   For instructions, see "To Choose a Network Printer" in Chapter 11.

For instructions on printing, see "Printing Documents From the Finder" in Chapter 6, or refer to the manuals that came with your printer and with the application you're using.

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Modems

A **modem** (short for *modulator/demodulator*) is a device that converts (modulates) computer signals into tones that can be sent over phone lines. A modem on the receiving end then converts (demodulates) the tones to their original computer-readable form.

There are two kinds of modems: direct-connect and acoustic-coupler. With a **direct-connect modem** (the more common variety), you plug the modem directly into the phone jack. With an **acoustic-coupler modem,** you put the telephone handset into a pair of rubber cups.

The instructions in this section are for direct-connect modems. If you have an acoustic-coupler modem, refer to the setup instructions in the manual that came with the modem.

Follow these steps to connect a modem to the Apple IIGS:

1. Connect either end of the modem cable to the modem.
2. Connect the other end of the modem cable to the modem port on the back of the Apple IIGS.
3. Disconnect the telephone cable from your telephone and connect it to the appropriately marked telephone jack on your modem.
4. Connect one end of the telephone cable provided with your modem to the jack on your telephone.
5. Connect the other end of the telephone cable to the other jack on your modem.

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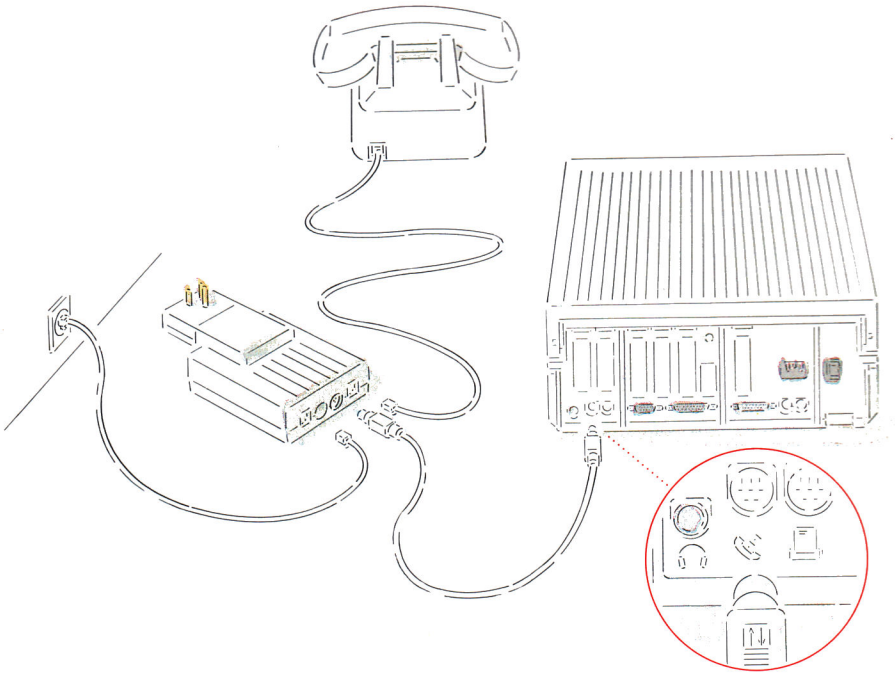

Figure A-3 Connecting a modem

6. Plug the modem's power connector or power cord into the modem.

   Some modems, such as the Apple Personal Modem, have a power connector that you attach to the body of the modem. Others have a power cord.

7. Plug the modem's power connector or power cord into a grounded outlet.

The Apple IIGS is designed to work automatically with the Apple Personal Modem and many other popular modems. If you have trouble communicating with other computers through your modem, you may need to change the configuration of the modem port. For instructions, see "Modem Port and Printer Port" in Chapter 9.

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UniDisk 3.5-inch disk drives

UniDisk 3.5-inch disk drives can be connected either to an interface card in a slot or to the disk drive port. If you're connecting a UniDisk drive to an interface card, refer to the instructions in "Devices With Interface Cards" later in this chapter.

The easiest way to differentiate UniDisk drives from Apple 3.5 Drives is by color: UniDisk drives are white, and Apple 3.5 Drives are platinum (the same color as the computer). Each type of drive is also identified on its underside.

You connect a UniDisk drive to the disk drive port in the same way you connect Apple 3.5 Drives and Apple 5.25 Drives. But there are some additional guidelines when connecting UniDisk drives:

- When connecting one or more UniDisk drives in a daisy chain with other types of drives, the UniDisk drive or drives must come *after* any Apple 3.5 Drives in the chain and *before* any Apple 5.25 Drives in the chain.
- You can connect as many as four UniDisk drives to the disk drive port—but the total of *all* drives connected to the port should not exceed four. (In other words, if you connect four UniDisk drives, you can't connect any other drives.)

Follow these steps to connect a UniDisk drive to the disk drive port:

1. Make sure the computer is plugged in and switched off.

   Connecting a disk drive when the power is on, or within 30 seconds of switching off the power, could seriously damage the disk drive and your computer.

2. Disconnect any Apple 5.25 Drives that are connected to the computer's disk drive port, either directly or in a chain with Apple 3.5 Drives.

   To disconnect a drive, loosen the thumbscrews until you're able to remove the cable from the disk drive port on the computer (or on the back of the previous drive in the chain).

3. Connect the disk drive cable of the UniDisk drive to the disk drive port on the back of the last Apple 3.5 Drive in the chain—or, if there are no Apple 3.5 Drives connected to the computer, to the disk drive port on the back panel of the computer.

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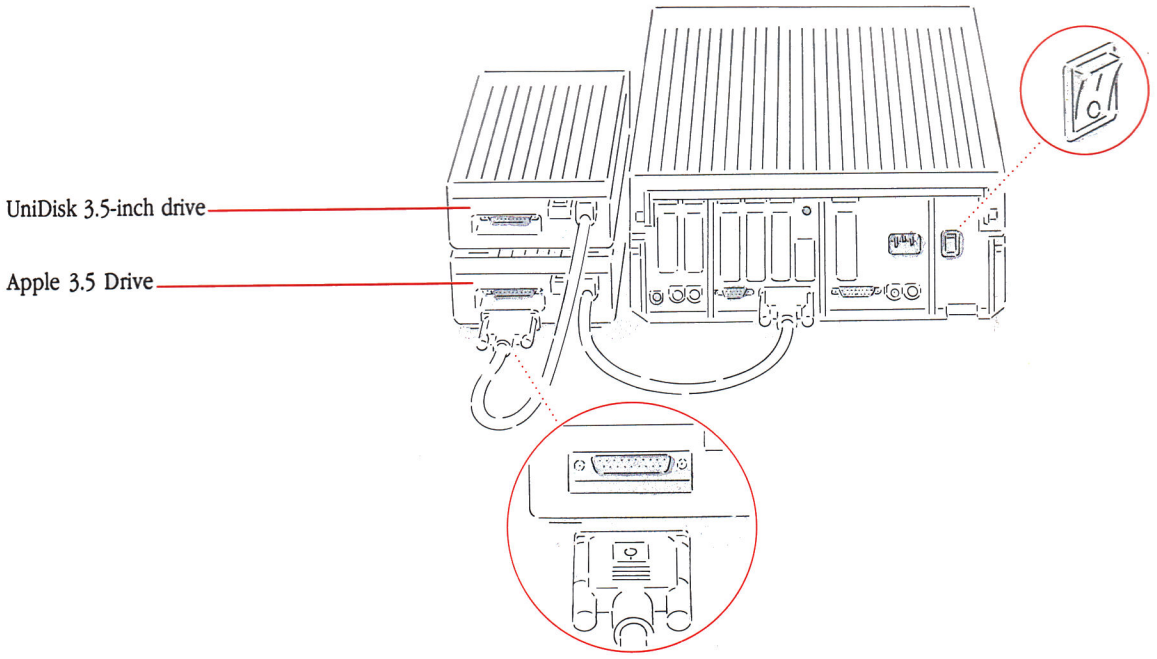

Figure A-4 Connecting a UniDisk drive to an Apple 3.5 Drive

4. Connect the disk drive cable of each additional UniDisk drive to the disk drive port on the back of the drive you just connected.

   Keep in mind that you can't connect more than four drives to the disk drive port.

5. Reconnect any Apple 5.25 Drives that you disconnected in step 2.

   Connect the disk drive cable of the Apple 5.25 Drive to the disk drive port on the back of the last UniDisk drive in the chain.

   If you have two Apple 5.25 Drives, connect the second drive to the first.

6. Install the UniDisk update on your startup disks.

   For instructions, see Chapter 7, "Using the Installer."

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Apple IIGS Memory Expansion Card

Your Apple IIGS has a megabyte of built-in RAM. You can increase the amount of available memory with the Apple IIGS Memory Expansion Card and up to three Apple II 256K Memory Expansion Kits.

The memory expansion card alone adds 256K of RAM to the Apple IIGS. And each memory expansion kit adds another 256K. Thus a fully loaded memory expansion card—that is, one with three memory expansion kits installed—adds an entire megabyte of RAM, doubling the computer's memory.

This section explains how to install the memory expansion card in the Apple IIGS. If you purchased one or more memory expansion kits, ask your authorized Apple dealer to install the kits on the memory expansion card before you install the card.

Follow these steps to install the memory expansion card:

1. If the computer is on, switch off the computer's power, but leave the power cord plugged into a grounded outlet.
2. Remove the lid of the Apple IIGS.

   Wrap your hands around the rear corners of the computer's case and push in the lid latches with your index fingers while you lift the lid with your thumbs and middle fingers. When you feel the lid release, lift it all the way off the case and put it aside.

   Don't try to remove the lid by pulling up on the lip near the top of the back panel. This lip is not part of the lid.

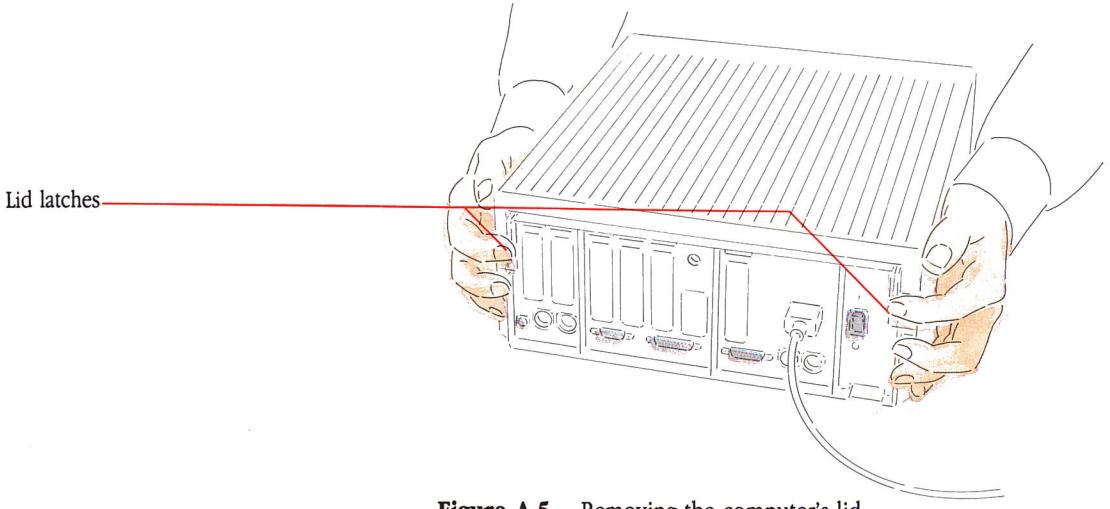

Figure A-5 Removing the computer's lid

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3. If necessary, remove the memory expansion card from its anti-static plastic bag.

   The two small plastic jumper blocks that come with the memory expansion card are used when memory expansion kits are installed on the card. If your authorized Apple dealer has installed three memory expansion kits for you, he or she will also have installed both jumper blocks. (Only one of the jumper blocks is used when installing one or two kits.)

△ **Important** Be sure to set any unused jumper blocks aside in a safe place—your dealer will need them if you decide to add more memory to the card later. △

When you handle the card, avoid touching the gold "fingers" along the bottom edge. The moisture from your fingers can attract dust that would weaken the card's connection to the computer.

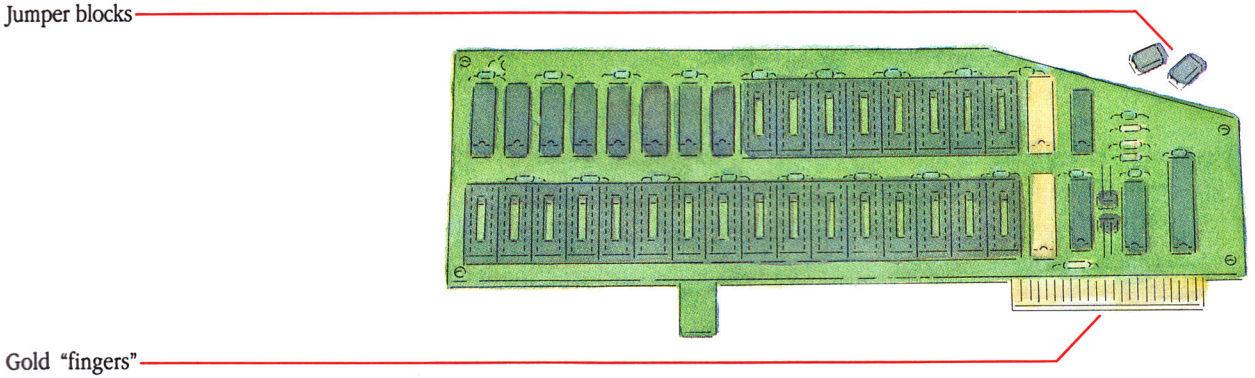

Figure A-6 The Apple IIGS Memory Expansion Card

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4. Touch the power supply case inside the computer.

   Touching the power supply case discharges any static electricity that may be on your clothing or your body.

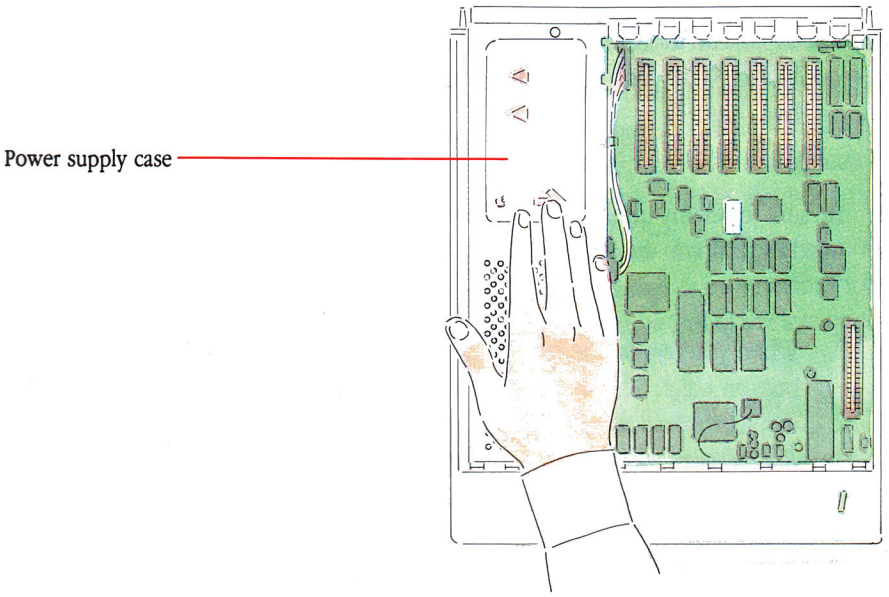

Figure A-7 Discharging static electricity

5. Insert the card in the memory expansion slot.

   The side of the card with the integrated circuits should face the left—that is, toward the power supply case.

   Align the gold fingers with the memory expansion slot. Then rock the card gently forward and back—that is, keeping it perpendicular to the main circuit board—until it's firmly seated in the slot. You'll have to exert some pressure to seat the card securely in the slot, but don't wiggle it from side to side.

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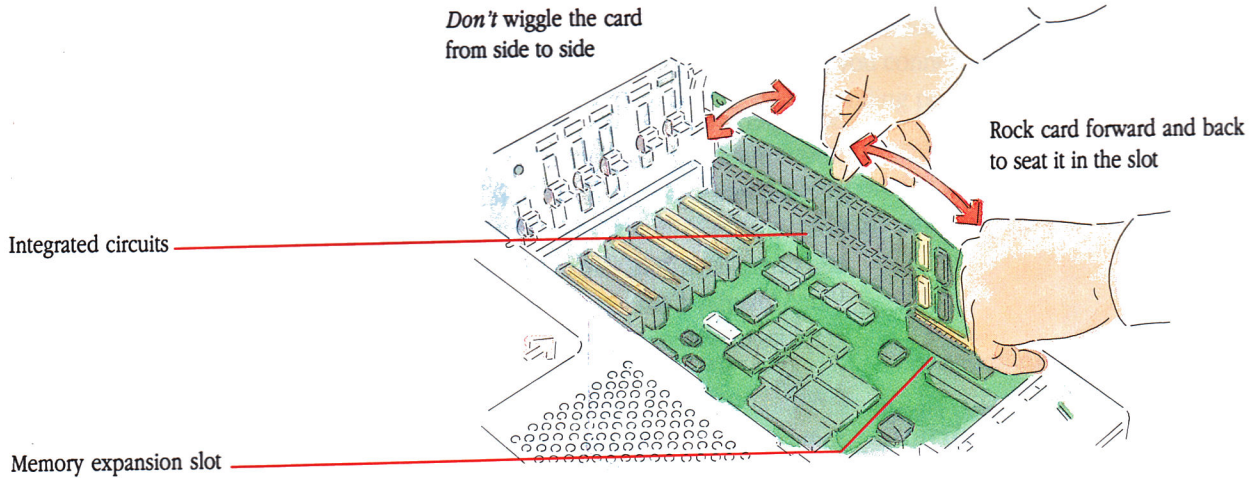

Figure A-8 Inserting the card

- *Inserting other cards:* If you have peripheral devices that must be connected to the computer through interface cards rather than directly into ports, you may want to install the interface cards now, while you have the computer's lid off. For instructions, see "Devices With Interface Cards" (the next section).

6. Replace the computer's lid.

   Lay the front edge of the lid in the groove in the front of the computer's case and lower the back edge of the lid into place. Press down on the back corners of the lid until you hear the latches snap shut.

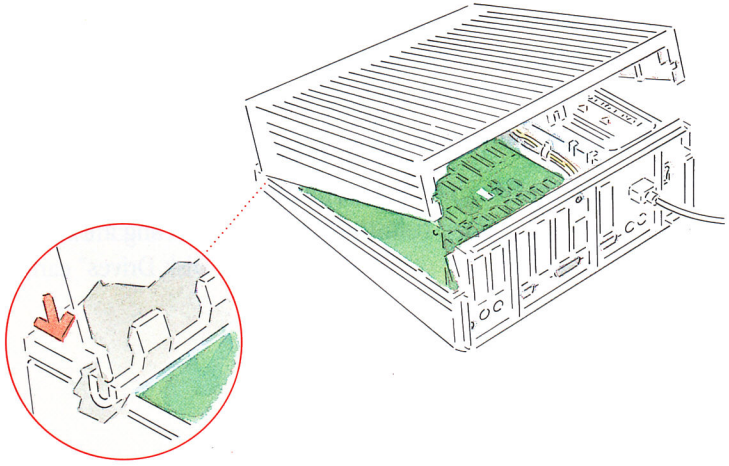

Figure A-9 Replacing the computer's lid

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Devices with interface cards

Some peripheral devices are designed to be connected to the Apple IIGS through interface cards that you insert into slots on the computer's main circuit board. These interface cards contain special circuitry required for the computer to communicate with the attached devices. Other interface cards add capabilities unrelated to peripheral devices. For example, the Apple II Video Overlay Card lets you superimpose computer-generated text and graphics on video images from an external source such as a VCR.

△ **Important** Some interface cards designed for the Apple IIe won't work in the Apple IIGS. In most cases, the functions you need to add to the Apple IIe by installing cards (faster processing, an 80-column display, RGB color, additional memory) are built into the Apple IIGS. If you have any questions about whether a card will work with your Apple IIGS, consult your authorized Apple dealer. △

Some devices that require interface cards to work with other models of the Apple II can be plugged directly into ports on the Apple IIGS, provided that the connector on the device's cable matches the port on the computer's back panel. (In the case of a serial printer or a modem, you can use the port even if the connectors don't match; just get an Apple IIGS peripheral adapter cable from your authorized Apple dealer.)

If you're installing a SCSI card, you'll also need to read "SCSI Hard Disks, CD-ROM Drives, and Other SCSI Devices" later in this chapter for special guidelines about connecting SCSI devices.

UniDisk 3.5-inch disk drives can be connected either to an interface card in a slot or to the disk drive port. If you connect a UniDisk drive to an interface card, you must set the System Speed to Normal in the Control Panel. For instructions on connecting a UniDisk drive to the disk drive port, see "UniDisk 3.5-Inch Disk Drives" earlier in this chapter.

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Recommended slots

Before you connect any devices with interface cards, you should know which slots to use. Keep in mind that when you connect a device to a card in a slot, you won't be able to use the corresponding port to connect another device.

The following table shows the recommended slots for several types of devices, as well as the corresponding port that will be unavailable. If the device you're connecting isn't listed in the table, use the slot recommended in the manual that came with the device.

Slot	Interface card	Corresponding port
Slot 1	Printer	Printer port
Slot 2	Modem	Modem port
Slot 3	No card	None
Slot 4	Primary input device (keyboard or mouse)	Keyboard/mouse port
Slot 5	3.5-inch disk drive	Disk drive port (if used for 3.5-inch drives)
Slot 6	5.25-inch disk drive	Disk drive port (if used for 5.25-inch drives)
Slot 7	Any card	None

For more detailed information on recommended slots, see "Activating Slots and Ports" in Chapter 9.

Connecting a device with an interface card

This section gives general instructions for connecting peripheral devices to the Apple IIGS through interface cards. If you're connecting a device at the same time as a memory expansion card (described earlier in this chapter), you've probably already completed the first three steps of this process.

Follow these steps to connect a device with a peripheral interface card:

1. If the computer is on, switch off the computer's power, but leave the power cord plugged into a grounded outlet.

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▲ Warning Before you connect any devices to your Apple IIGS, the power should be switched off. If the power has been on, wait at least 30 seconds after switching off the power before connecting or disconnecting devices.

Leave the power cord plugged into a grounded outlet while connecting or disconnecting devices. This keeps your computer system grounded. ▲

2. Remove the lid of the Apple IIGS.

   Wrap your hands around the rear corners of the computer's case and push in the lid latches with your index fingers while you lift the lid with your thumbs and middle fingers. When you feel the lid release, lift it all the way off the case and put it aside.

   Don't try to remove the lid by pulling up on the lip near the top of the back panel. The lip is not part of the lid.

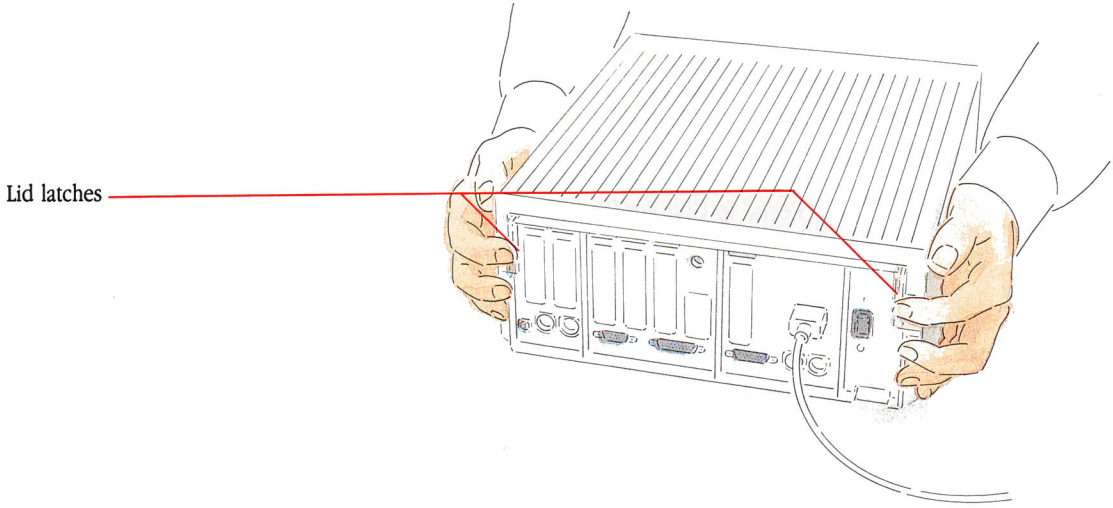

Figure A-10 Removing the computer's lid

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3. Touch the power supply case inside the computer.

   Touching the power supply case discharges any static electricity that may be on your clothing or your body.

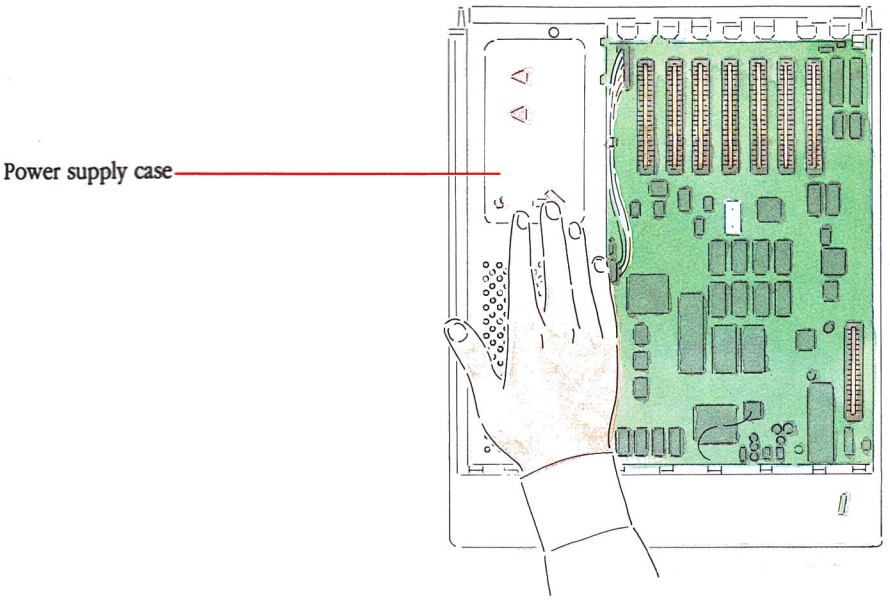

Figure A-11 Discharging static electricity

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4. Remove the plastic plug from one of the openings on the back panel.

   Find an opening that matches the size of the connector on the ribbon cable that came with the interface card. Turn the metal plug retainer (from inside the case) 90 degrees counterclockwise. Then remove the plug itself.

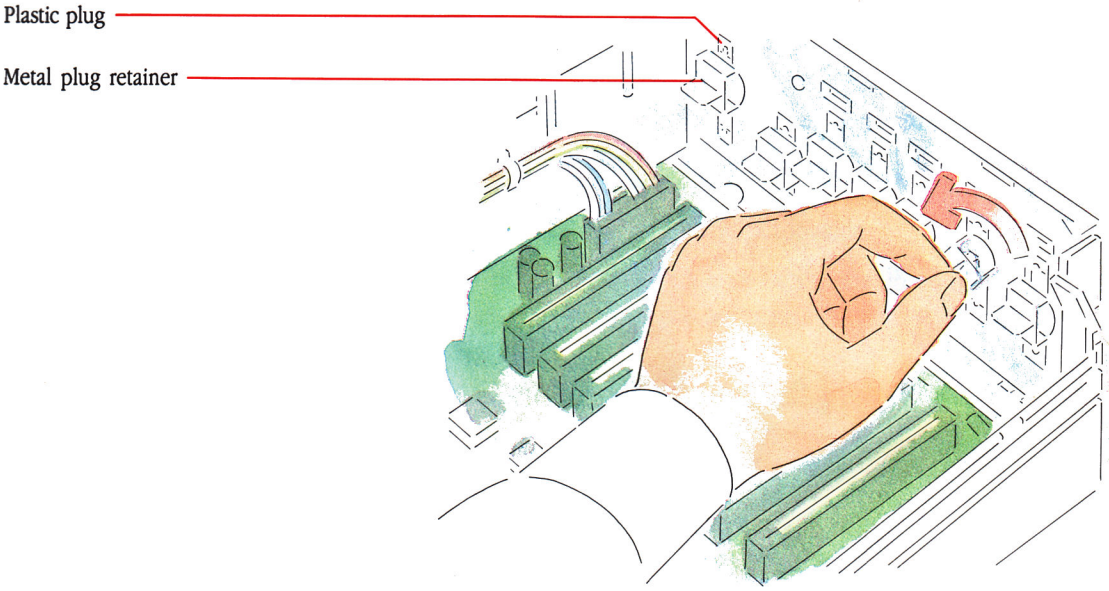

Figure A-12 Removing the plastic plug

▲ **Warning** Make sure the metal plug retainer doesn't fall into the computer case. Leaving a loose piece of metal on the circuit board may cause problems in the future.

If you notice that any openings don't have plastic plugs, or that any metal plug retainers are missing, check carefully to see whether the retainer has fallen into the computer case. If it has, replace it on the plastic plug or remove it. ▲

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5. Connect the ribbon cable to the inside of the back panel.

   Position the connector at the end of the ribbon cable against the opening on the back panel and screw in the bolts from the outside.

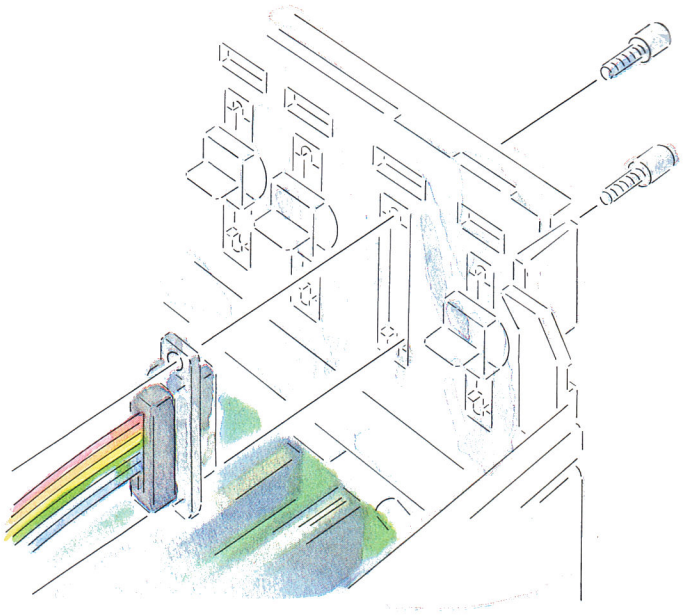

Figure A-13 Anchoring the cable connector to the back panel

By anchoring the connector to the back panel, you reduce stress on the cable and form a bond between the electromagnetic shielding on the computer's case and the shielding on the cable itself. This significantly reduces the possibility that your computer might generate radio-frequency interference.

6. If necessary, connect the ribbon cable to the card.

   Some interface cards come with the ribbon cable permanently attached. If that's the case with your card, skip to step 7.

   When you're joining the connectors, make sure the pins on one connector line up with the holes on the other connector.

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▲ **Warning** Be careful when connecting the ribbon cable to the card. Bending one of the pins or forcing a pin into the wrong hole can damage the connector, the peripheral device, or the computer. ▲

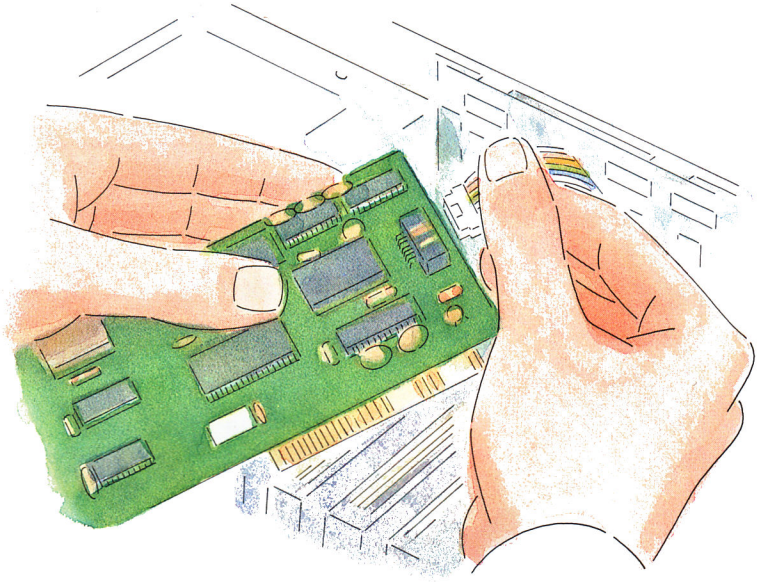

Figure A-14 Connecting the cable to the card

7. Insert the card in the slot you've chosen.

   When you handle the card, avoid touching the gold "fingers" along the bottom edge of the card. The moisture from your fingers can attract dust that would weaken the card's connection to the computer.

   The side of the card with the integrated circuits should face away from the power supply case. (By contrast, the memory expansion card's integrated circuits face *toward* the power supply case.)

   Align the gold fingers with the slot. Then rock the card gently forward and back—that is, keeping the card perpendicular to the main circuit board—until it's firmly seated in the slot. You'll have to exert some pressure to seat the card securely in the slot, but don't wiggle it from side to side.

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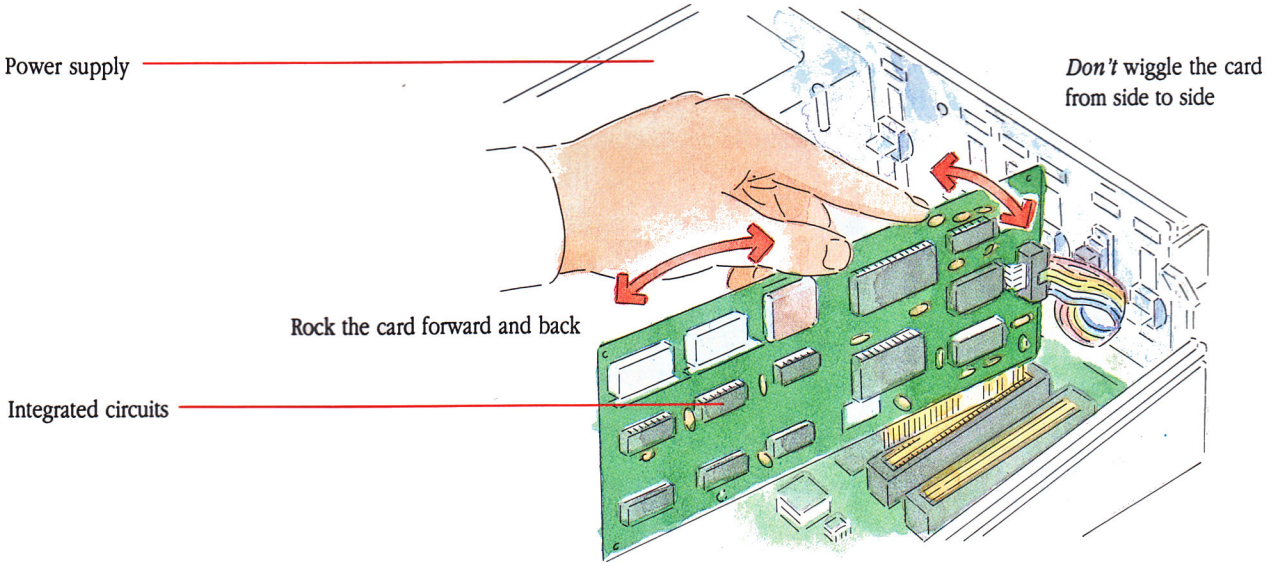

Figure A-15 Inserting the card

8. Connect the peripheral device cable to the ribbon cable connector on the back panel.

   Plug the connector at the end of the peripheral device cable into the connector on the back panel and gently tighten the thumbscrew on each side to secure the connection.

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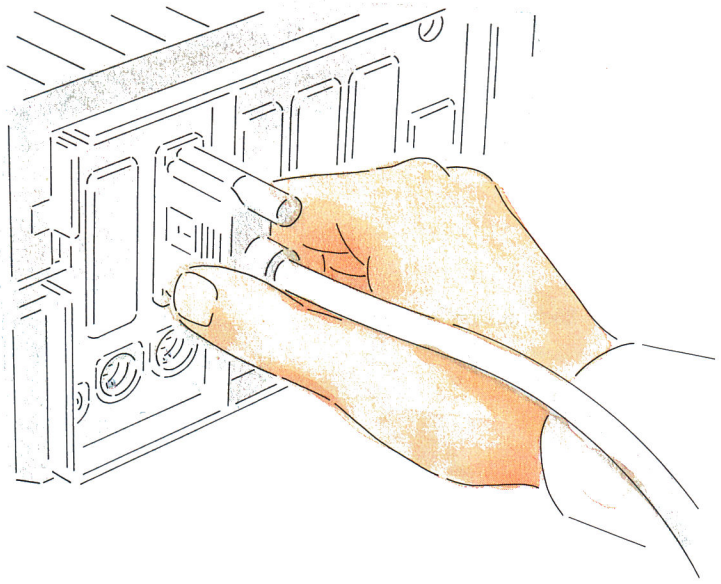

Figure A-16 Connecting the peripheral device cable

9. Repeat steps 3 through 8 for each additional device you're connecting.

▲ **Warning** If you install three or more cards—including the memory expansion card—you should also install a fan to keep your system from overheating. Fans for the Apple IIGS are available from your authorized Apple dealer. Installation instructions come with the fan. ▲

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10. Replace the computer's lid.

    Lay the front edge of the lid in the groove in the front of the computer's case and lower the back edge of the lid into place. Press down on the back corners of the lid until you hear the latches snap shut.

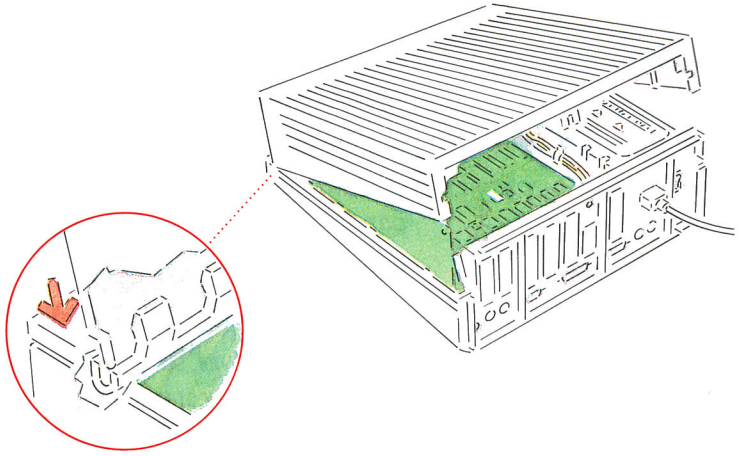

Figure A-17 Replacing the computer's lid

11. Use the Control Panel to activate the slot or slots in which you've installed cards.

    For instructions, see "Activating Slots and Ports" in Chapter 9.

12. Make a note of any new slot settings on the fold-out flap of the back cover of this manual for future reference.

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SCSI hard disks, CD-ROM drives, and other SCSI devices

The **Small Computer System Interface** (often shortened to **SCSI,** which is pronounced "SKUH-zee") is a standard used by many manufacturers who develop hardware and software products for use with personal computers such as the Apple IIGS. SCSI provides a fast and reliable way for computers and peripheral devices to exchange information.

SCSI is fast because it allows your computer and your SCSI peripheral devices to exchange eight bits of information at once, along separate tracks, *in parallel,* rather than sending bits one at a time, or *serially.*

Some popular SCSI devices for use with the Apple IIGS are hard disk drives, CD-ROM drives, and tape backup units.

- Hard disk drives, such as the Apple Hard Disk SC, offer much greater storage capacity and convenience than 3.5-inch or 5.25-inch disks.
- CD-ROM drives, such as the AppleCD SC™, let you access the data on **CD-ROMs**—discs on which approximately 550 MB of information are stored using laser technology.
- **Tape backup units** provide fast and accurate backup copies of the contents of an entire hard disk; they use a magnetic tape to store information.

To connect SCSI devices to your Apple IIGS, you need an **Apple II High-Speed SCSI Card,** a special interface card that provides your computer with the necessary circuitry to communicate in the SCSI standard. You can connect several SCSI devices in a chain, using a special set of cables called the **Apple SCSI cable system.**

❖ *Note:* You can also use the older Apple II SCSI Card with your Apple IIGS, but be sure it has the correct ROM. (The ROM should be labeled 341-0437-A Ver. 2.0.)

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You can chain as many as seven SCSI devices to each SCSI card you install in the computer. Here's a summary of what cables you'll need:

- For the first SCSI device you connect, you need a SCSI system cable and a SCSI cable terminator.
- For the second device, you need a SCSI peripheral interface cable and a cable terminator.
- For each additional SCSI device, you need a SCSI peripheral interface cable.
- If you want to position the devices far apart, you may need one or more SCSI cable extenders. (You will also need a second cable terminator if you're connecting only one SCSI device and if you have the Apple II SCSI Card.)

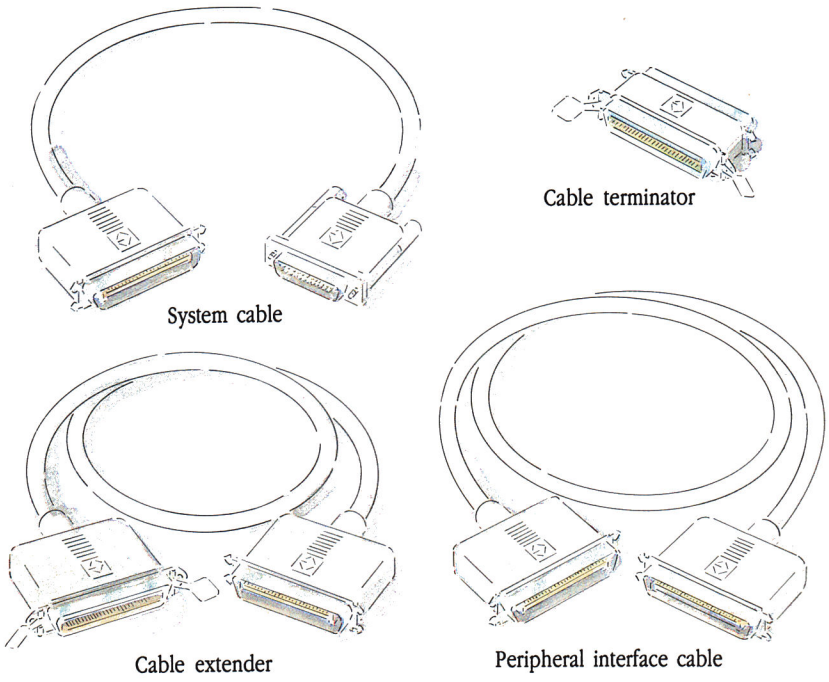

Figure A-18 The Apple SCSI cable system

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Setting the SCSI ID numbers of your devices

The computer and each SCSI device connected to a SCSI card must have a unique ID number between 0 and 7. This number gives the computer's operating system a way of identifying devices in a SCSI chain and determines the priority of the devices.

The computer's ID number is 7—the highest priority. The devices in the SCSI chain can have ID numbers from 6 to 0. Each device must have its own number. Here are some guidelines to help you decide what ID numbers to assign:

- If you'll be using a SCSI device as your startup device, set its ID number to 6—next in priority after the computer itself.
- If you're connecting two or more devices, set ID numbers according to the frequency with which you're likely to use the devices—higher numbers for devices used more frequently.

If you have an Apple SCSI device, follow these steps to set the SCSI ID number for each SCSI device you'll be connecting to the Apple IIGS. (If you have a SCSI device from another manufacturer, refer to the manual that came with it for instructions on setting the SCSI ID number.)

1. Make sure the device is switched off.
2. Insert the point of a push pin or straightened paper clip into the SCSI ID number switch and push gently.

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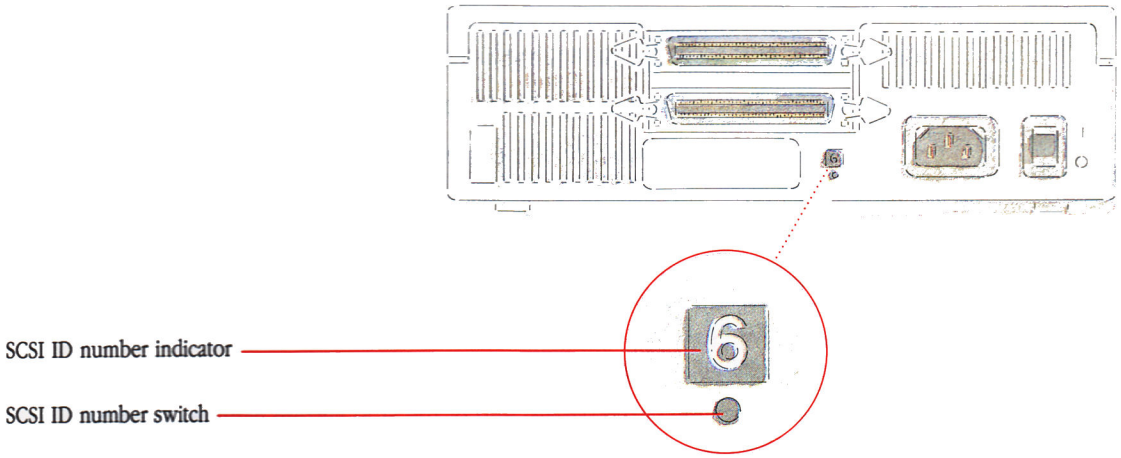

Figure A-19 Setting the SCSI ID number

As you push, the number increases. If you accidentally go past the number you want, keep pushing repeatedly until the number cycles around again.

Connecting a single SCSI device

To connect a single SCSI device, you need

- an Apple II High-Speed SCSI Card (or Apple II SCSI Card)
- a SCSI system cable
- a SCSI cable terminator

If you want to place the device more than 18 inches from the computer, you'll also need

- a SCSI cable extender
- a second cable terminator if you have the Apple II SCSI Card

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If you'll be connecting more than one device, refer instead to the instructions in the next section, "Connecting Multiple SCSI Devices."

Follow these steps to connect a single SCSI device to your Apple IIGS:

1. If necessary, switch off the computer's power, but leave the power cord plugged into a grounded outlet.
2. Install the SCSI card in one of the computer's internal slots.

   For instructions, see "Devices With Interface Cards" earlier in this appendix. If you don't know which slot to use, see the guidelines in "Activating Slots and Ports" in Chapter 9.
3. Connect the 25-pin (small) end of the SCSI system cable to the SCSI card's ribbon cable connector and tighten the thumbscrews.

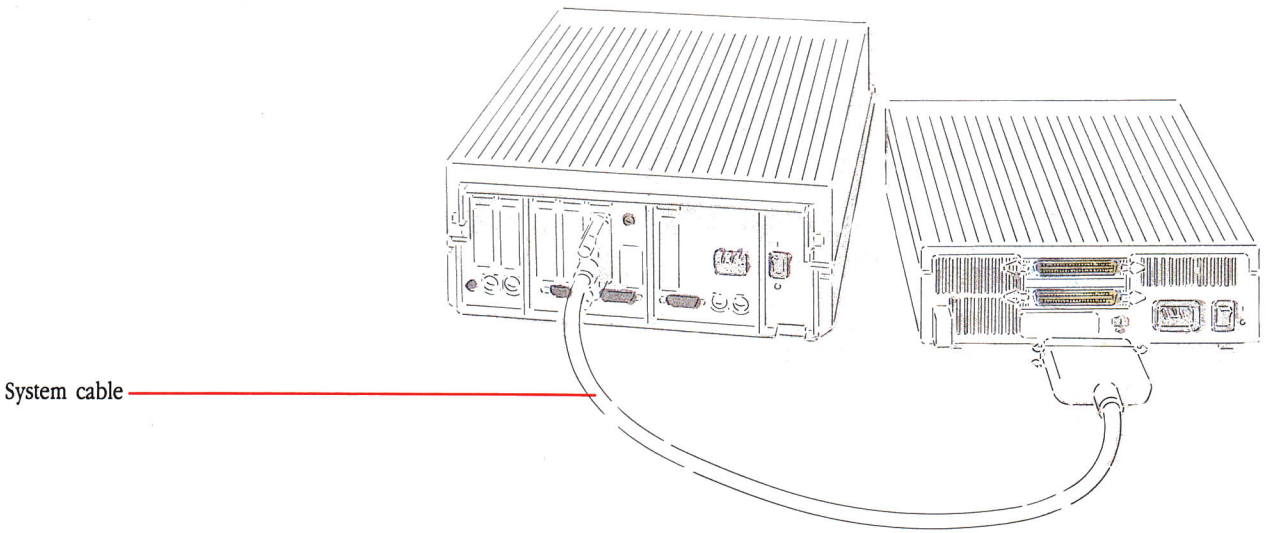

Figure A-20 Connecting the system cable

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4. This step differs slightly depending on which SCSI card you have and on whether you're using a SCSI cable extender.

   - If you aren't using a cable extender, connect the 50-pin (large) end of the SCSI system cable to the lower SCSI connector on the back of the SCSI device and snap the clips into the clip brackets to secure the connection.
   - If you are using a cable extender, connect one end of the cable extender to the 50-pin (large) end of the SCSI system cable and snap the clips into the clip brackets to secure the connection. Then connect the other end of the cable extender to the lower SCSI connector on the back of the SCSI device and snap the clips into the clip brackets to secure the connection. (If you have the Apple II SCSI Card, place a cable terminator between the system cable and the extender cable.)

5. Connect the SCSI cable terminator to the upper SCSI connector on the back of the SCSI device and snap the clips into the clip brackets to secure the connection.

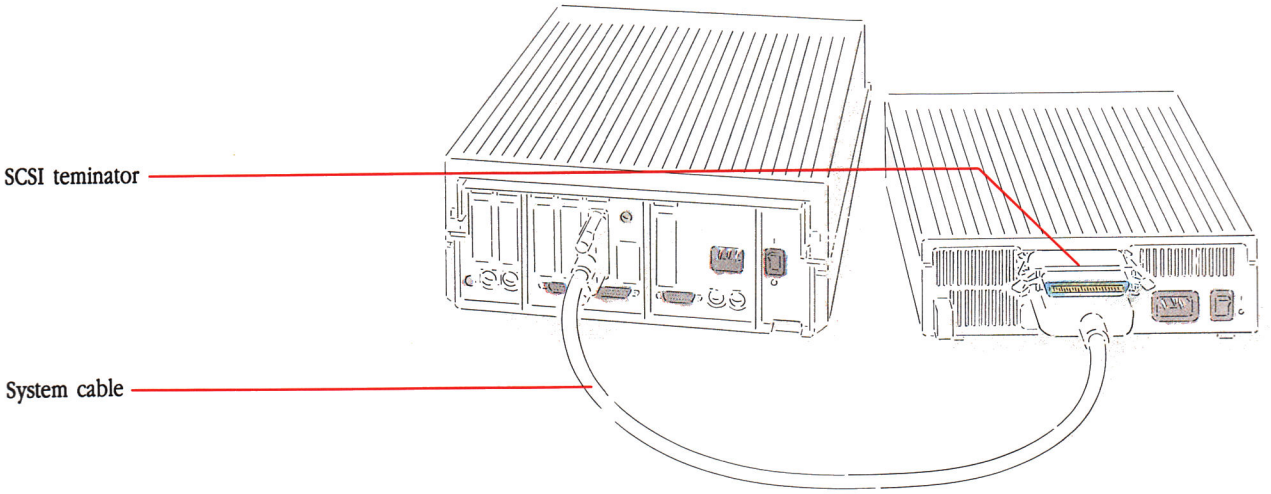

Figure A-21 The completed connection

6. Turn on the computer and use the Control Panel to activate the slot in which you installed the SCSI card.

   For instructions, see "Activating Slots and Ports" in Chapter 9.

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7. Install the appropriate update on your startup disks, including the current startup disk.
   - If you've connected a SCSI hard disk, install the SCSI Hard Disk update.
   - If you've connected a CD-ROM drive, install the CD-ROM update.
   - If you've connected any other SCSI device, refer to the manual that came with the device for instructions on installing the necessary software support for the device.

   For instructions on installing updates, see Chapter 7, "Using the Installer."
8. If you've connected a SCSI hard disk that will be your startup device, install Latest System Files, SCSI Hard Disk, and any other updates you need on the hard disk.

   For instructions, see Chapter 7, "Using the Installer."
9. If you've connected a SCSI hard disk that will be your startup device, use the Control Panel to set your startup slot to the slot containing the SCSI card.

   For instructions, see "Activating Slots and Ports" in Chapter 9.
10. Restart the computer.

    For instructions, see "To Restart the Computer From the Finder" in Chapter 6.

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Connecting multiple SCSI devices

To connect two or more SCSI devices, you need

- an Apple II High-Speed SCSI Card (or an Apple II SCSI Card)
- a SCSI system cable
- a SCSI peripheral interface cable
- a SCSI cable terminator (and a second terminator if you have the Apple II SCSI Card)

For each additional SCSI device in the chain, you need an additional peripheral interface cable.

If you want to place any devices farther apart than the cables allow, you'll also need one or more SCSI cable extenders.

If you'll be connecting only one device, refer to the instructions in "Connecting a Single SCSI Device" instead.

Follow these steps to connect more than one SCSI device to your Apple IIGS:

1. If necessary, switch off the computer's power, but leave the power cord plugged into a grounded outlet.
2. Install the SCSI card in one of the computer's internal slots.

   For instructions, see "Devices With Interface Cards" earlier in this appendix, or refer to the manual that came with your SCSI card.
3. Connect the 25-pin (small) end of the SCSI system cable to the SCSI card's ribbon cable connector and tighten the thumbscrews.

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4. This step differs slightly depending on which SCSI card you have and on whether you're using a SCSI cable extender.

   - If you aren't using a cable extender, connect the 50-pin (large) end of the system cable to the lower SCSI connector on the back of the first SCSI device and snap the clips into the clip brackets to secure the connection. (If you have the Apple II SCSI Card, place a cable terminator between the system cable and the connector on the device.)
   - If you are using a cable extender, connect one end of the cable extender to the 50-pin (large) end of the system cable and snap the clips into the clip brackets to secure the connection. Then connect the other end of the cable extender to the lower SCSI connector on the back of the SCSI device and snap the clips into the clip brackets to secure the connection. (If you have the Apple II SCSI Card, place a cable terminator between the system cable and the cable extender.)

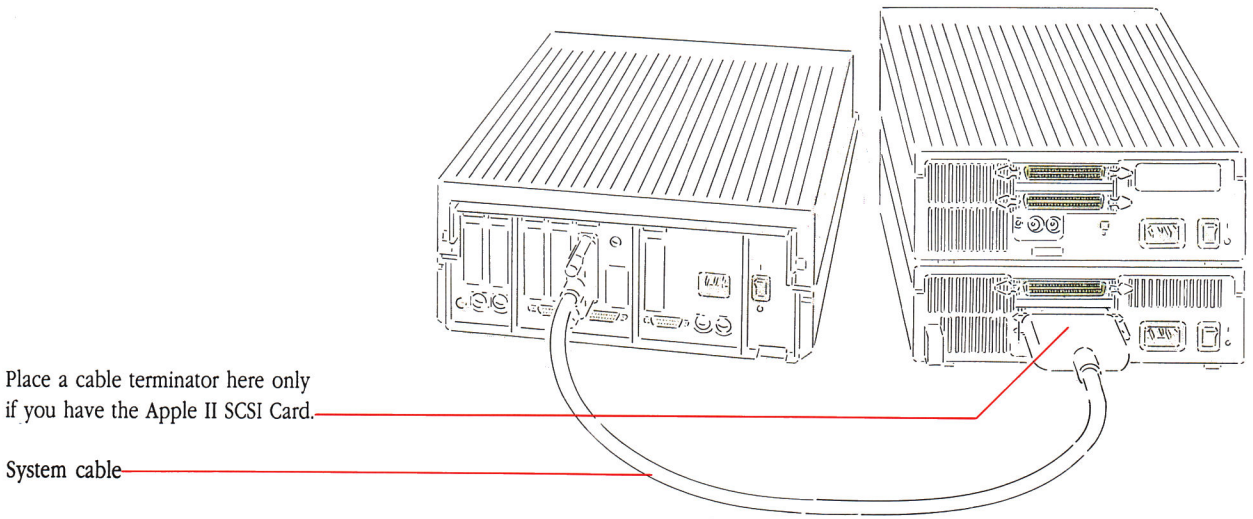

Figure A-22 Connecting the cable terminator and the system cable

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5. Connect either end of a SCSI peripheral interface cable to the upper SCSI connector on the back of the first device and snap the clips into the clip brackets to secure the connection.
6. Connect the other end of the SCSI peripheral interface cable to the lower SCSI connector on the back of the second device and snap the clips into the clip brackets to secure the connection.

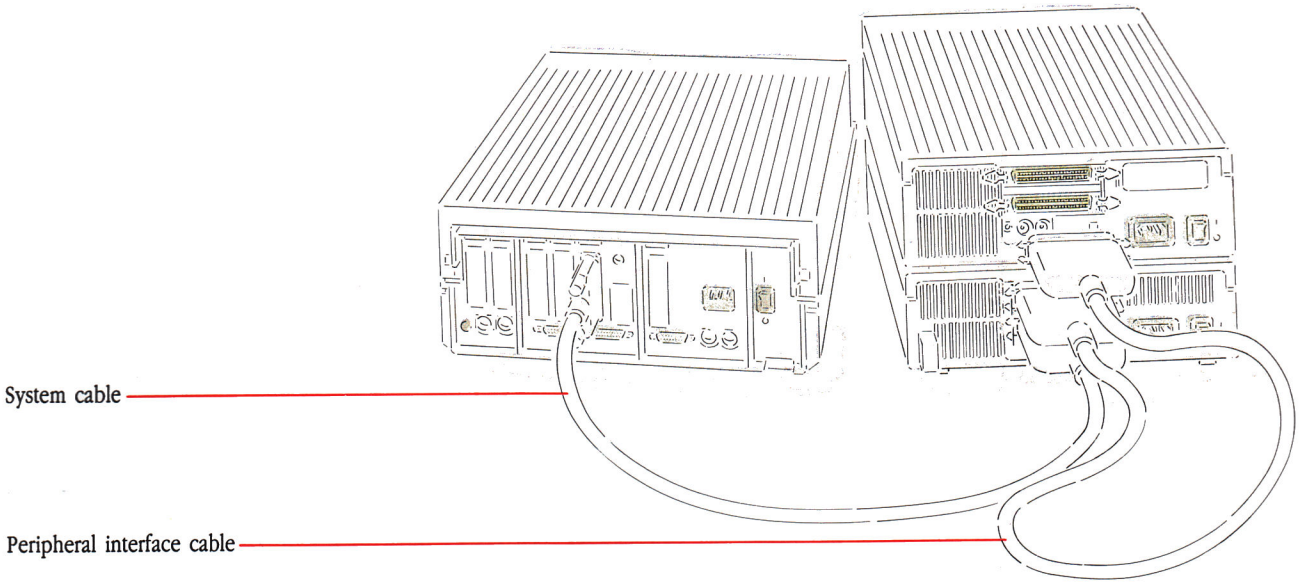

Figure A-23 Connecting the peripheral interface cable

7. Repeat steps 5 and 6 for each additional SCSI device you want to connect.

△ **Important** You can have no more than seven devices in a SCSI chain.

The total length of the cable system you use in a SCSI chain must not exceed 20 feet (6.5 meters).

Do not use more than two SCSI cable terminators in a SCSI chain, including the built-in terminator on the Apple II High-Speed SCSI Card. △

8. Connect a SCSI cable terminator to the upper SCSI connector on the back of the last device you connected and snap the clips into the clip brackets to secure the connection.

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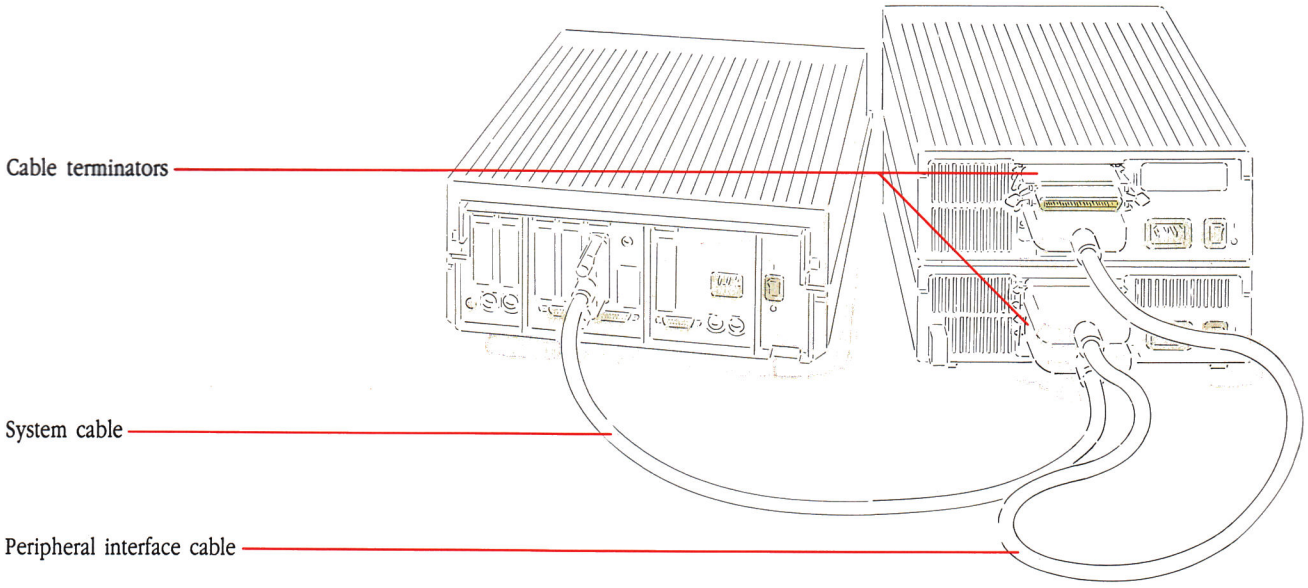

Figure A-24 A completed chain with two devices

9. Turn on the computer and use the Control Panel to activate the slot in which you installed the SCSI card.

   For instructions, see "Activating Slots and Ports" in Chapter 9.

10. Install the appropriate updates on your startup disks, including the current startup disk.

    - If you've connected a SCSI hard disk, install the SCSI Hard Disk update.
    - If you've connected a CD-ROM drive, install the CD-ROM update.
    - If you've connected any other SCSI device, refer to the manual that came with the device for instructions on installing the necessary software support for the device.

    For instructions on installing updates, see Chapter 7, "Using the Installer."

11. If you've connected a SCSI hard disk that will be your startup device, install Latest System Files, SCSI Hard Disk, and any other updates you need on the hard disk.

    For instructions, see Chapter 7, "Using the Installer."

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12. If you've connected a SCSI hard disk that will be your startup device, use the Control Panel to set your startup slot to the slot containing the SCSI card.

    For instructions, see "Activating Slots and Ports" in Chapter 9.

13. Restart the computer.

    For instructions, see "To Restart the Computer From the Finder" in Chapter 6.

And more . . .

There's a wide variety of other peripheral devices you can attach to your computer. Your authorized Apple dealer can help you learn more about the devices available for the Apple IIGS.

- *By the way:* If a hand-operated control, a graphics tablet, a plotter, or some other device is described as an Apple Desktop Bus (ADB) device, you attach it to the Apple Desktop Bus port on the back panel of the Apple IIGS (where the keyboard is usually plugged in) or to the connector on the keyboard (where the mouse is usually plugged in).

  Any time you connect an ADB device, be sure the computer is switched off and plugged in. If the computer has been on, wait at least 30 seconds after switching off the power before you connect or disconnect any ADB devices.

The following list should give you an idea of the variety of devices you can use with your Apple IIGS.

- *Hand-operated controls:* Hand-operated controls (such as joysticks and game paddles) are used mostly to control the movement of creatures and objects in games. You can plug many hand-operated controls into the port on the back panel marked with the icon of a joystick.
- *Headphones:* You can connect headphones to your Apple IIGS; you plug them into the jack on the back panel marked with a headphone icon.

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- *Musical Instrument Digital Interface (MIDI):* The Apple MIDI Interface, which you plug into the modem port, lets you use your Apple IIGS as a music synthesizer and control device for electronic keyboards and drum machines.

  Other manufacturers also offer interface cards that give the Apple IIGS MIDI capability.

- *Audio digitizers:* An audio digitizer lets you input sounds from a stereo system, an electronic instrument, or a microphone. The sounds are recorded on a disk in digital form (that is, translated into the computer's language of 0's and 1's), and you can then use the computer to edit and play back those sounds.

- *Coprocessor cards:* A coprocessor card is an interface card containing a microprocessor that works with or overrides the microprocessor that comes with your computer. With a coprocessor you can take advantage of software developed for other computers—software that wouldn't otherwise work on an Apple IIGS.

  One common coprocessor card is the PC Transporter card, which lets you use applications based on the MS-DOS operating system (the operating system used with IBM PCs and compatible computers). With this card installed in your Apple IIGS, you can run MS-DOS applications.

  Another popular coprocessor card for the Apple IIGS is the Z80 card, which lets you use applications based on the CP/M operating system. There are more than 20,000 CP/M-based applications, many of them in the public domain.

- *Graphic digitizers:* A graphic digitizer converts photographic images into a digital form that the computer can display on the screen, save on a disk, and print.

- *Plotters:* A plotter allows you to draw charts, graphs, floor plans, and similar graphics by means of pens whose movements are controlled by the computer.

- *Graphics tablets:* As the name implies, a graphics tablet is a device for drawing pictures. Signals sent out by a special pen are detected by wires in the tablet and sent to the computer as x and y coordinates that can be displayed on the screen. The pen works with applications designed to receive input from a graphics tablet.

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- *Home control devices:* You can attach a home control device to an electrical outlet and program it to turn on a light, a coffee maker, a radio, a sprinkler, or another appliance.
- *Optical character readers (OCRs):* With an OCR, you can scan pages of typed or typeset text into a computer—a valuable service if you have a lot of paper documents that need to be entered into your computer.
- *Light pens:* A light pen sends instructions to the computer when you point to choices on the screen. It works with applications designed to receive input from a light pen.
- *Adaptive devices for the disabled:* A number of adaptive devices—including speech synthesizers, voice input devices, Braille keyboards and printers, breath-operated keyboards, and optical keyboards operated with light pens—are available for the Apple IIGS. Contact one of the following organizations for more information:

  Apple Computer, Inc.
  Office of Special Education and Rehabilitation
  20525 Mariani Avenue, Mail Stop 43-S
  Cupertino, CA 95014
  (408) 974-7910 or (408) 996-1010
  TDD (408) 974-7911

  Trace Research and Development Center
  University of Wisconsin
  S-151 Waisman Center
  1500 Highland Avenue
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Apple IIGS Features and Specifications

THIS APPENDIX LISTS THE FEATURES AND SPECIFICATIONS OF THE APPLE IIGS, provides information about service and support, and gives a list of reference manuals about the Apple IIGS and related topics.

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Features

- 65C816 microprocessor (a 16-bit processor that has a clock rate up to three times faster than the 8-bit processor on earlier models of the Apple II)
- Apple II–compatible (can run thousands of applications, including many developed for other computers in the Apple II family)
- 1 MB of RAM
- 256K of ROM
- Applesoft BASIC in ROM
- Super Hi-Res graphics (640 pixels horizontally by 200 pixels vertically with 4 colors per line and 128 colors per screen; 320 pixels horizontally by 200 pixels vertically with 16 colors per line and 256 colors per screen; 4096 possible colors); supports all other Apple II graphics modes (Lo-Res, Hi-Res, Double Hi-Res)
- built-in clock allows documents to be marked with the date and time created or revised
- ability to set the built-in clock, customize the look of the display, and alter the feel of the computer system by using the text Control Panel desk accessory in ROM (or, when running system software version 5.0, by using the graphic Control Panel from the Apple menu)
- ability to use desk accessories (miniature applications such as the graphic Control Panel) without leaving main application
- built-in 80-column capability, eliminating need for a special interface card to get the 80-column display required by many business applications
- choice of color for text, background, and border of display when using text-based applications and an analog RGB color monitor; choice of color for border of display when using any application or monitor (with monochrome monitors, border choice is among black, white, and shades of gray)
- with appropriate software, ability to generate 15-voice sound and simulate human speech
- built-in support for standard peripheral devices through ports on back panel; up to four disk drives (3.5-inch or 5.25-inch), printer, modem, mouse, monochrome monitor, analog RGB color monitor, and AppleTalk network connection can be attached without interface cards

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- seven general-purpose slots for adding devices or capabilities that require a nonstandard interface, such as SCSI hard disks and other SCSI devices, video overlay capability, and so on
- memory expansion slot for Apple IIGS Memory Expansion Card; card expandable to 1 MB; total expansion potential of slot (with memory expansion cards from other manufacturers) is 7 MB
- detached keyboard with numeric keypad
- keyboard microprocessor supports adaptive features for disabled users
- mouse
- choice of Dvorak and eight international keyboard layouts

Programming languages available

BASIC

C

FORTH

Fortran

LISP

Logo

Modula-2

Pascal

6502/65C02 assembly language

65C816 assembly language

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Specifications

Display

The Apple IIGS supports six different video display modes. The mode used depends on the software, although you can alternate between 40 and 80 columns by using the Control Panel. The six display modes are:

- 40-column text mode—40 columns by 24 rows
- 80-column text mode—80 columns by 24 rows
- Lo-Res graphics mode—16 colors, 40 horizontal by 48 vertical blocks
- Hi-Res graphics mode—6 colors, 280 horizontal by 192 vertical dots
- Double Hi-Res graphics mode—black and white, 560 horizontal by 192 vertical dots; 16 colors, 560 horizontal by 192 vertical dots
- Super Hi-Res graphics mode—4 colors, 640 horizontal by 200 vertical dots; 16 colors, 320 horizontal by 200 vertical dots

In the text modes, the Apple IIGS generates 96 ASCII characters in uppercase and lowercase and also generates 32 graphics characters, called *MouseText*. Text is formed by a 5 by 7 dot matrix and can appear on the screen as normal, inverse, or flashing.

Color is sent as an NTSC signal or an RGB signal.

Microprocessor

The Apple IIGS uses a 65C816 microprocessor, operating at up to 2.8 MHz. The chip has six 16-bit registers: the accumulator, two index registers, the direct register, the stack pointer, and the program counter. It has three 8-bit registers: the data bank register, the program bank register, and the status register. The data bus is 8 bits wide, and the address bus is 24 bits wide, giving the microprocessor an address range of 16,777,216 bytes.

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Memory

The Apple IIGS comes with 1 MB of RAM on the main circuit board (expandable to 8 MB through the memory expansion slot) and 256K of ROM. The ROM contains the Apple IIGS System Monitor, Applesoft BASIC interpreter, Control Panel desk accessory, 80-column display firmware, and high-level software tools such as the Memory Manager.

The System Monitor includes a machine-language disassembler, automatic input/output device assignment, keyboard and screen-editing features, and routines to examine and modify registers.

Keyboard

Detached.

Choice of standard keyboard configuration, Dvorak configuration, or one of eight international configurations.

Service and support

To help you get the best performance from your system, Apple Computer, Inc., has established a worldwide network of full-support authorized Apple dealers. If you need answers to technical questions or information about product updates, your authorized Apple dealer can help you. Apple's Technical Support organization backs each dealer and international technical support group via the AppleLink network, a state-of-the-art on-line electronic information service, to ensure prompt, reliable assistance.

Your dealer has the latest information on new hardware and software products as well as product updates. If you wish to upgrade your system, your dealer can help you select compatible components.

If your product requires service, your local authorized Apple dealer is trained and ready to support you. Apple provides factory-quality parts and the latest available diagnostic equipment to the more than three thousand authorized Apple service centers throughout the world. Apple guarantees parts and warranty labor. (Regulations in each country determine the length of warranty. Some restrictions may apply, depending on the country of original purchase.)

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If for some reason you cannot return to the authorized dealer from whom you purchased your system, go to the nearest service location. For the location nearest you, in the United States or Canada, call or write to one of the following:

Apple Computer, Inc.
Attn: Customer Relations
20525 Mariani Avenue
Cupertino, CA 95014
USA
(800) 538-9696

Apple Canada, Inc.
7495 Birchmount Road
Markham, Ontario, L3R 5G2
Canada
(800) 268-7796 or
(800) 268-7637

For locations in other countries, either call the Apple headquarters in your country or write to the United States address given above.

Apple also offers service options designed to meet your needs. One of these is the Apple*Care*® Service Agreement (available in the United States, Canada, and Australia only), which extends full warranty coverage up to three years. Your Apple*Care* contract will be honored at any participating authorized Apple dealer within the country of purchase—an added benefit if you relocate. Local service means time saved in getting your Apple system back to work.

You can purchase Apple*Care* at any time, but it's a good idea to purchase it with your system, or at least before your warranty has expired, to avoid an inspection at your own expense.

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Reference manuals

The following manuals, published by APDA™ (formerly the Apple Programmer's and Developer's Association) or by Addison-Wesley Publishing Company, Inc. (except where noted), are available at selected bookstores or through your authorized Apple dealer.

Overview

Programmer's Introduction to the Apple IIGS
Technical Introduction to the Apple IIGS

Firmware and hardware

Apple IIGS Firmware Reference
Apple IIGS Hardware Reference

Development environment

Apple IIGS ProDOS 16 Reference
Apple IIGS Programmer's Workshop Reference
Apple IIGS Programmer's Workshop Assembler Reference
Apple IIGS Programmer's Workshop C Reference
Apple IIGS Toolbox Reference: Volume 1
Apple IIGS Toolbox Reference: Volume 2
ProDOS 8 Reference

Related manuals

Apple Human Interface Guidelines: The Apple Desktop Interface
Apple Numerics Manual
Applesoft BASIC Programmer's Reference
Applesoft BASIC Programming With ProDOS
Apple IIe Technical Reference Manual
The C Programming Language, by Brian W. Kernigham and Dennis M. Ritchie. Englewood Cliffs, N.J.: Prentice-Hall, 1978.
Programming the 65816, by David Eyes and Ron Lichty. New York: Brady Communications (a division of Simon & Schuster), 1986.

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About APDA

APDA provides a wide range of development products and documentation, from Apple and other suppliers, for programmers and developers who work on Apple equipment. For information about APDA, contact

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Apple Computer, Inc.
20525 Mariani Avenue, Mailstop 33-G
Cupertino, CA 95014-6299

(800) 282-APDA (800-282-2732)
Fax: 408-562-3971
Telex: 171-576
AppleLink: APDA

If you plan to develop Apple-compatible hardware or software products for sale through retail channels, you can get valuable support from Apple Developer Programs. Write to

Apple Developer Programs
Apple Computer, Inc.
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The ultimate Apple II online $FR.EE library!

Scanned by Dr. Kenneth Buchholz

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Glossary

access: To get information from something, such as a file server volume or an information service.

access privileges: The privileges, given to or withheld from network users, to open, change, or delete folders and files stored on an AppleShare file server. By setting access privileges, you can control who may use the information stored on a file server.

acoustic-coupler modem: A type of modem with a cradle that uses a standard telephone handset to send and receive information. Compare **direct-connect modem.**

active window: The frontmost window on the desktop; the window whose title bar is highlighted with four horizontal lines. You make a window active in order to perform your next action there. To make a window active, click anywhere in the window.

adaptive device: Any device that meets someone's special needs for using a computer; examples of adaptive devices are Braille keyboards and printers, breath-operated keyboards, and speech synthesizers.

ADB: See **Apple Desktop Bus.**

Advanced Disk Utility: A program on the *Apple IIGS System Tools* disk that lets you prepare disks to receive information. You can use the program to partition hard disks and to zero, initialize, and erase 3.5-inch disks, 5.25-inch disks, hard disks, hard disk partitions, and RAM disks.

American National Standards Institute: See **ANSI**.

American Simplified Keyboard: A keyboard layout designed to increase typing speed and efficiency by locating the keys used most often in the home row. Also called the *Dvorak keyboard.* Compare **Qwerty keyboard.**

American Standard Code for Information Interchange: See **ASCII.**

analog RGB color monitor: A type of color monitor that accepts separate analog signals for the primary colors red, green, and blue. (Hence the *RGB* in the name.) The intensity of each primary color can vary continuously, making it possible to display many shades and tints of color.

analog signal: A signal that varies continuously over time rather than being sent and received as a sequence of discrete values or levels. Compare **digital signal.**

ANSI: Acronym for *American National Standards Institute.* An organization that sets standards for many technical fields and provides the most common standards for personal computers.

<Any User>: The user name assigned to everyone who logs on to an AppleShare file server as a guest.

Apple Desktop Bus (ADB): A port on the back panel of the Apple IIGS for connecting the keyboard, the mouse, and other ADB devices. It's called a "bus" because the signals sent by several devices can "ride" the same cable.

Apple key: On older Apple II keyboards, a name used for the **Command key.**

Apple menu: In graphics-based applications, the menu at the leftmost end of the menu bar, whose title is represented by the Apple logo (a multicolored, striped apple symbol). The Apple menu contains the graphic Control Panel and any new desk accessories (NDAs) you've installed in the Desk Accessories folder within the System folder on your startup disk.

Apple I: The prototype for the Apple II family of computers; designed by Apple Computer co-founder Steve Wozniak.

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Apple SCSI cable system: The connective hardware used to link Small Computer System Interface (SCSI) devices to a computer and to one another. See also **SCSI.**

AppleShare-aware application: A program designed to be used with AppleShare file servers.

AppleShare file server: A combination of AppleShare File Server software, one or more hard disks, and a Macintosh computer that allows network users to store and share applications, folders and documents over the AppleTalk network system. The same Macintosh computer can be used as both an AppleShare file server and an AppleShare print server.

AppleShare print server: A combination of AppleShare Print Server software and a Macintosh computer that stores documents sent to it over the network and manages the printing of those documents on a printer. The same Macintosh computer can be used as both an AppleShare print server and an AppleShare file server.

Applesoft BASIC: The Apple II "dialect" of the BASIC programming language; Applesoft BASIC is built into all Apple II computers. See also **BASIC.**

AppleTalk network system: A group of interconnected computers and peripheral devices, together with the software and connective hardware needed to link them. If your computer is part of an AppleTalk network system, you can share peripheral devices and network services (such as an AppleShare file server) with other network users.

Apple II: A family of computers, including the Apple IIGS, the Apple IIe, the Apple IIc Plus, the Apple IIc, the Apple II Plus, and the Apple II.

Apple II High-Speed SCSI Card: An interface card that you install in one of the slots on the main circuit board so that you can connect Small Computer System Interface (SCSI) devices to the Apple IIGS and the Apple IIe. See also **SCSI.**

application software: Any computer program designed for a particular purpose, such as home finance, education, or word processing. Application programs are often referred to as *applications* for short. Compare **system software.**

arrow keys: The keys in the lower-right corner of the Apple IIGS keyboard. In many applications, you use the arrow keys (sometimes called the *cursor keys*) to move the cursor or insertion point in the direction indicated by the arrow.

ASCII: Acronym for *American Standard Code for Information Interchange;* pronounced "ASK-ee." A communications code that defines the way letters, numbers, and punctuation marks are represented by the computer.

assembly language: A programming language very close to the language of electrical impulses that is the "native tongue" of the Apple IIGS. The native assembly language for the Apple IIGS is the 65816 instruction set.

audio digitizer: A peripheral device that converts sound input from a stereo system, an electronic instrument, or a microphone into a form that the computer can process, save on a disk, and play back. (Once the sounds are in digital form, they can be edited.)

auto-repeat: The automatic repetition of the keys on the Apple IIGS keyboard; if you hold one key down, the computer will keep generating that character until you release the key or press another key. You can turn off the auto-repeat feature using the Control Panel.

backspace: To move the cursor or insertion point to the left by pressing the Delete key (which generally erases as it backspaces) or the Left Arrow key (which generally backspaces without erasing).

backup copy: A duplicate of a disk or file, which you make as a safeguard in case anything happens to the original. Making a backup copy of a disk or file is like making a photocopy of a paper document.

BASIC: Acronym for *Beginners All-purpose Symbolic Instruction Code.* The most popular language for personal computers; a version of BASIC called *Applesoft BASIC* is built into your Apple IIGS.

baud: The rate of transmission used in exchanging information between a computer and its peripheral devices, or between two computers.

BBS: See **bulletin board system.**

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Beginners All-purpose Symbolic Instruction Code: See **BASIC.**

binary system: A numbering system in which every number is expressed as a combination of 0's and 1's. The binary system is perfectly suited to computers because the computer's microprocessor is made up of switches—like light switches—that can be either on or off. On is usually represented as the number 1, off as 0.

bit: Contraction of the words *binary* and *digit*. The smallest item of useful information a computer can handle, usually represented as a 1 or a 0. Eight bits equal one **byte.**

block: A unit of information usually equivalent to 512 bytes—or roughly 512 characters.

boot: See **start up.**

buffer: An area of memory where information is kept until the computer or a peripheral device is ready to deal with it.

bug: An error in an application program or system software. According to computer industry folklore, the expression was coined in the early days of computing, when a moth once got inside a room-size computer and caused the computer to break down.

bulletin board: On an AppleShare file server, a folder that all users can see the contents of but that only the owner can change. A bulletin board folder functions in much the same way as a cork board in a classroom or office. Not the same as *bulletin board system (BBS).*

bulletin board system (BBS): A computerized version of the bulletin boards frequently found in supermarkets; places to leave electronic messages and to advertise things you want to buy or sell. One thing you can get from a computerized bulletin board that you can't get from a corkboard is free software. See **public-domain software.**

bus: A path along which information is transmitted electronically in a computer or between a computer and its peripheral devices.

button: In graphics-based applications, a rectangle with rounded corners that appears in a dialog box. You click buttons to designate, confirm, or cancel an action. See also **mouse button.**

Bypass: An option in AppleShare Print Server software that, when selected, allows network users to print a document from a workstation directly to a captured printer, without using the print server.

byte: A sequence of eight bits that represents an instruction, a letter, a number, or a punctuation mark.

Cancel button: A button that appears in many dialog boxes. Clicking the Cancel button cancels whatever activity is in progress.

Caps Lock key: A key that you can lock into place so that letters you type will come out capitalized. Caps Lock affects only alphabetic keys—not numbers or symbols.

captured printer: When using AppleShare Print Server software, a printer that is controlled by the print server. Captured printers print only documents sent to them by the print server, unless the Bypass option is selected.

card: A circuit board that you can install in a slot inside the Apple IIGS to expand the computer's memory, give the computer the means to communicate with a peripheral device, or add some capability to the computer.

carriage return (CR): A nonprinting character that tells the computer or printer to end one line of text and start another. In word-processing applications, carriage returns are frequently used to end paragraphs. Even though you usually can't see them, you can delete carriage returns the same way you delete other characters.

case: The outer covering of the computer.

catalog: See **directory.**

CDA: See **classic desk accessory.**

CDEV: Abbreviation for *Control Panel Device.* A category, such as General, Keyboard, or Slots, of options you can change in the graphic Control Panel.

CD-ROM: Acronym for *compact disc read-only memory.* A disc that uses laser technology to store approximately 550 megabytes of data. A CD-ROM is like a phonograph record in that you can play it but you can't record information on it.

CD-ROM drive: A device, such as the AppleCD SC, that reads the information from a CD-ROM and transmits the information to the computer.

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central processing unit (CPU): The "brain" of the computer; the microprocessor that actually performs the computations in machine language. Some people use the term *CPU* to refer to the entire component—namely, the computer—that includes the central processing unit.

character: A letter, number, or other symbol.

character generator: The integrated circuit responsible for printing characters on the screen in text mode.

character set: The letters, numbers, and symbols that can be generated by pressing keys on a keyboard.

check box: The small box associated with an option in a dialog box; when clicked, the check box activates or deactivates the option. (When an option is activated, an X appears in the check box.)

chip: An electronic circuit—including components and interconnections—entirely contained in a single piece of semiconducting material, usually silicon. Same as *integrated circuit.*

choose: To pick a command from a menu. Usually you choose a command after selecting something for the Apple IIGS to act on.

circuit board: A board containing both embedded circuitry and a collection of attached integrated circuits. The computer's main circuit board, interface cards, and memory expansion card are all examples of circuit boards.

circuitry: A network of wires, integrated circuits, resistors, and other electronic devices and connections, over which electrical impulses travel.

classic desk accessory (CDA): A "mini-application" that you can use without leaving your main application. Classic desk accessories are available from the Desk Accessories menu, which you can reach by pressing Command-Control-Esc whenever the computer is on.

Clear key: A key on the numeric keypad. Pressing Clear usually works the same way that pressing Control-X does in many applications.

click: To position the pointer on an object on the screen, then press and quickly release the mouse button.

Clipboard: The holding place for what you last cut or copied; a buffer area in the computer's memory. Information on the Clipboard can be inserted (pasted) into documents.

clock rate: The rate at which bits move from one internal component to another.

close box: The small box on the far-left end of the title bar of an active window. Clicking the close box closes the window.

Color menu: In the Finder and other graphics-based applications, a menu that lets you color the background and outline of icons.

color monitor: A display device that lets you display text and graphics in color.

column: In text-based applications, a way of designating the number of characters that fit on the computer's display. A column is one character wide.

command: An instruction that you give to the computer.

Command key: The key on the Apple IIGS keyboard marked with both the outline of an apple (Ⓐ) and a propeller symbol (⌘). When pressed in conjunction with another key, the Command key makes the other key behave differently. The Command key controls the operation of other keys but has no effect if pressed alone. Compare **Control key; Option key.**

communications software: Applications that make it possible for your computer to exchange information with other computers and with information services over telephone lines.

compact disc read-only memory: See **CD-ROM.**

compatibility: The condition under which devices or programs can work with each other. For example, the Apple IIGS can run many applications developed for earlier models of the Apple II family. Those applications are said to be *compatible with* the Apple IIGS.

composite color monitor: A monitor that uses composite signals to display information. Also called an *NTSC color monitor.*

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composite signal: A video signal that includes both display information and the synchronization (and other) signals needed to display it.

computer: An electronic device that performs predefined (programmed) computations at a high speed and with great accuracy; a machine that is used to store, transfer, and transform information.

computer system: A collective term for a computer and everything attached to it.

configure: To change software or hardware actions by changing settings. For example, you use the Control Panel to configure the printer port so that your computer will send information to the printer in a format that the printer can understand.

contrast knob: A control on your video display that lets you adjust the contrast between light and dark on the screen.

Control key: A key on the Apple IIGS keyboard that, when pressed in conjunction with another key, makes the other key behave differently. The control key controls the operation of other keys but has no effect if pressed alone. Compare **Command key; Option key.**

controller card: See **disk drive controller card.**

Control Panel: A desk accessory that lets you set the time of the built-in clock and tailor certain features of your computer system to suit your individual preferences—for example, the color of text and background on the screen, the volume of the built-in speaker, the slot from which the computer starts up, and so on. There are two versions of the Control Panel: a classic desk accessory, called the *text Control Panel,* that's built into the computer and is available through the classic Desk Accessories menu; and a new desk accessory, called the *graphic Control Panel,* that's part of system software version 5.0 and is available through the Apple menu of the Finder (or any graphics-based application that supports the Apple menu).

Control Panel Device: See **CDEV.**

Control Program for Microprocessors: See **CP/M.**

coprocessor card: A card that includes a microprocessor which overrides or works with the microprocessor on the main circuit board. The main reason for using a coprocessor card is to be able to work with disks initialized for other operating systems.

copy-protect: To make it difficult for someone to duplicate a disk. Not the same as *write-protect.*

CP/M: Abbreviation for *Control Program for Microprocessors.* An operating system that works with the 8080 microprocessor. You can run CP/M software on the Apple IIGS by installing a Z80 card.

CPU: See **central processing unit.**

CR: See **carriage return.**

cursor: A blinking underline, rectangle, or other symbol that marks your place on the screen. It shows you where your next action will take place. Sometimes called an *insertion point.* Compare **pointer.**

cursor keys: The keys (usually called the *arrow keys*) in the lower-right corner of the Apple IIGS keyboard; in many applications, you use these keys to move the cursor or insertion point in the direction indicated by the arrow.

cut: To remove text or graphics from a document by using the Cut command. The most recent "clipping" is stored on the Clipboard of the Apple IIGS so that you can paste it somewhere else if you wish.

daisy-chain: To connect a series of peripheral devices so that the first device is attached directly to the computer, the second device is attached to the first device, and so on.

data: Information, especially raw or unprocessed information.

database application: A type of application that helps you keep track of lists of information. Database applications make it easy to recall and update information and to create reports using subsets of information.

data bit: A bit in a communication transfer that contains actual information. Compare **stop bit.**

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Data Carrier Detect: See **DCD.**

data disk: A disk that contains your work—letters, budgets, pictures, and so on—but that contains no application programs. Compare **program disk; startup disk.**

Data Set Ready: See **DSR.**

Data Terminal Ready: See **DTR.**

DCD: Abbreviation for *Data Carrier Detect.* A handshake signal used to regulate the flow of data between the computer and a peripheral device.

debug: To locate and correct "bugs"—errors or the causes of problems or malfunctions in a computer program. See also **bug.**

dedicated server: A computer that is used exclusively as a file server, print server, or both. (The same computer cannot be used as both a server and a workstation on the network at the same time.)

default: A preset response or setting, used unless you specify something different.

Delete key: A key on the Apple IIGS keyboard used in many applications to erase the character to the left of the cursor or insertion point.

desk accessory: A "mini-application" that you can use without leaving your main application. See also **classic desk accessory; new desk accessory.**

desktop: In graphics-based applications, the computer's working environment on the screen. In the Finder, for example, the desktop displays the Trash icon, the icons of any disks to which you have access, and the windows of any disks or folders you've opened.

destination disk: The disk onto which you are copying or moving. (The **source disk** is the disk from which you're copying or moving.)

destination folder: The folder into which you're copying or moving. (The **source folder** is the folder from which you're copying or moving.)

device: See **peripheral device.**

dialog box: A box that the Apple IIGS displays to request information or ask you to confirm an action. In many cases, dialog boxes containing warnings are accompanied by a beep.

digital signal: A signal that is sent and received as a sequence of discrete values or levels rather than continuously. Compare **analog signal.**

digitizer: See **audio digitizer; graphic digitizer.**

dimmed command: A command that you can't choose under the present circumstances.

direct-connect modem: A modem that you plug directly into a phone jack. With a direct-connect modem, the computer automates the process of dialing and answering the telephone when you're connecting to a remote computer. Compare **acoustic-coupler modem.**

directory: A list of all the files on a disk or in a folder. Sometimes called a *catalog.* See also **subdirectory.**

directory dialog box: A special type of dialog box, used in graphics-based applications, that allows you to open or save a file.

disk: A flat, circular magnetic surface, made either of metal or of plastic coated with iron oxide. You can buy applications prerecorded on disks, and you save your work on blank disks. See also **5.25-inch disk; hard disk; 3.5-inch disk.**

disk drive: A peripheral device that loads information saved on a disk into the memory of the computer and saves information from the memory of the computer onto a disk.

disk drive controller card: A circuit board that provides the necessary circuitry to connect disk drives to the Apple IIGS. (You can connect 3.5-inch and 5.25-inch disk drives directly to the disk drive port on the back panel of the Apple IIGS, so a disk drive controller card isn't required.)

disk drive light: A light, usually on the front of a disk drive, that comes on when the drive is loading information from a disk or storing information on a disk. Sometimes called an *in-use light.* When the light is off, it's safe to insert or eject disks. When the light is on, don't remove the disk in the drive.

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Disk menu: A Finder menu that lists commands that affect whole disks—commands like Initialize, Erase, Verify, and Eject.

disk name: The name of a disk or its main directory. Compare **pathname.**

disk operating system: See **operating system.**

display: A general term used to describe what you see on your screen when you're using a computer or to describe the monitor itself.

document: A discrete collection of information you create with a computer program. Examples of documents are memos, pictures, and budgets. Compare **file.**

DOS 3.3: One of several operating systems that can be used with the Apple IIGS. *DOS* is an acronym for *Disk Operating System;* 3.3 is the version number.

double-click: To position the pointer where you want an action to take place, and then press and release the mouse button twice in quick succession without moving the mouse.

Double Hi-Res: A graphics mode that can display information using a rectangular array of 560 horizontal by 192 vertical dots for black and white and for 16 colors.

Down Arrow key: A key on the Apple IIGS keyboard used in many applications to make the cursor move down one line.

download: To send a file from one computer to another.

drag: To position the pointer on something, press and hold the mouse button, move the mouse, and then release the mouse button. When you release the mouse button, you either highlight a selection or move an object to a new location.

drive: See **disk drive.**

drive number: The number indicating which connector on a disk drive controller card a particular drive is connected to.

drop folder: On an AppleShare file server, a folder that only the owner can see the contents of but that all users can add contents to. A drop folder functions in much the same way as a locked mailbox or suggestion box.

DSR: Abbreviation for *Data Set Ready.* A handshake signal used to regulate the flow of data between the computer and a peripheral device.

DTR: Abbreviation for *Data Terminal Ready.* A handshake signal used to regulate the flow of data between the computer and a peripheral device.

Dvorak keyboard: A keyboard layout designed to increase typing speed and efficiency by locating the keys used most often in the home row. Also called the *American Simplified Keyboard.* Compare **Qwerty keyboard.**

echo: A copy on your own screen of a message you send via a modem. The echo can come from the remote computer (the computer on the other end of the phone line) or from your own computer.

Edit menu: A menu in most graphics-based programs that lists editing commands such as Copy, Cut, and Paste.

8-bit processor: A microprocessor that can work with 8 bits of data at a time.

80-column card: An interface card that makes it possible for some models of the Apple II to display text in 80-column form instead of the standard 40-column form. (The Apple IIGS has built-in 80-column display capability, so it doesn't require an 80-column card.)

80-column display: A text mode in which 80 characters per line (rather than 40) are displayed on the screen.

eject: To remove a disk from a disk drive.

Enter key: A key on the numeric keypad that confirms a choice or tells a program you're ready to proceed. (In most cases, the Return key also serves this function.)

error message: A message that appears on the computer's screen to alert you to a failure in the communication process. Error messages are often accompanied by beeps.

Esc key: A key on the Apple IIGS keyboard used in many applications to get back to a menu or to cancel a procedure that's in progress. (*Esc* is an abbreviation for *escape.*)

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even parity: An error-checking system in which the sending device adds an extra bit, set to 0 or 1 as necessary, to make the total number of 1 bits add up to an even number. The receiving device then counts the 1 bits. If the total is an even number, the receiving device assumes that the message came through intact. Compare **odd parity.**

Everyone: A user category to which you can assign access privileges. This category includes all registered users and guests (if guests are allowed access to the file server volume in question).

extended 80-column card: An interface card used in the Apple IIe that adds 64K of memory and makes it possible for the computer to display information in 80-column format instead of the standard 40-column format. (The Apple IIGS has built-in 80-column display capability and 1 megabyte of memory, so it doesn't require an extended 80-column card.)

file: A named collection of information stored on a disk—either information created by a user, or prerecorded information such as an application program or a system file. Compare **document.**

file management: A general term for copying files, deleting files, and other housekeeping chores involving the contents of disks.

File menu: A menu in most graphics-based applications that lists commands affecting whole documents or applications—commands like Open, Save, Print, and Quit.

filename: The name you give your file (document) before you save it on a disk.

file server: A computer, equipped with special software and one or more mass storage devices (such as hard disks), that allows computer users in a network to store and share applications, documents, and other information.

file server volume: A disk connected to a file server that network users employ to store and share information.

file system: A system for organizing the sections on a disk so that your application can keep track of where data is stored. You must initialize any disks you'll be using with a particular application for use with that application's file system.

file system translator (FST): A program that tells GS/OS how to read and write data to disks that use a particular file system, such as AppleShare.

Finder: An application that helps you manage the way information is stored on disks. The Finder also lets you move quickly from one application to another.

firmware: Programs stored permanently in read-only memory (ROM).

5.25-inch disk: A disk 5.25 inches in diameter, with a storage capacity of 143K (the equivalent of about 70 pages of text). For many years, 5.25-inch disks were the only type of disks you could use with Apple II computers. Compare **3.5-inch disk.**

folder: A subdirectory or an icon that represents a subdirectory. Folders give you a visual representation of documents that you have grouped together on a disk.

font: A complete set of characters in one design, size, and style.

format: The physical division of space on a disk into sections—somewhat like parking spaces in a parking lot—where information can be stored. A disk's format is established as part of the initialization process.

Fortran: Acronym for *Formula Translator.* A high-level programming language suited especially to applications requiring extensive numerical calculations.

40-column display: A text mode in which 40 characters per line (rather than 80) are displayed on the screen.

freeware: Public-domain software that you can receive at no cost. Bulletin board services are a good source of freeware.

FST: See **file system translator.**

function: A built-in formula you can use in a spreadsheet to calculate an average, a square root, and so on.

function key: A key that tells an application to carry out a particular activity or function (print a document, save a document, and so on). Some applications use the number keys on the numeric keypad as function keys.

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garbage: A string of meaningless characters that bears no resemblance to your document. Garbage characters are often an indication that your computer and peripheral device are using different bauds or data formats.

graphic Control Panel: The new desk accessory version of the Control Panel, which is part of system software version 5.0 and is available through the Apple menu of the Finder (or any graphics-based application that supports the Apple menu). See also **Control Panel;** compare **text Control Panel.**

graphic digitizer: A peripheral device that converts photographic images into a form that the computer can process, save on a disk, display on the screen, and print. (Once an image is in digitized form, it can be edited.)

graphics application: Any application program in which you work with graphics; examples are art applications, business graphics applications, and clip-art applications.

graphics-based application: An application that uses a graphics mode to display information. In most graphics-based applications, the mouse rather than the keyboard is the primary means of communication with the computer.

graphics mode: A way of displaying text and graphics on the screen. In a graphics mode, images are formed by patterns of dots.

graphics tablet: A device for drawing pictures. A special pen sends out signals that are detected by wires in the tablet and sent as x and y coordinates to the screen.

group: A named collection of registered users of an AppleShare file server. Groups can be designated only by the network administrator.

Group: A user category to which you can assign access privileges. This category includes any registered users who are members of the group associated with the folder.

GS/OS: The current operating system for the Apple IIGS.

guest: Someone who logs on to an AppleShare file server without providing a registered user name or password. The user name assigned to someone who logs on as a guest is <Any User>.

hand-operated controls: Peripheral devices, such as joysticks and game paddles, used in games and simulation applications to move objects on the screen.

handshake signal: A signal that regulates the flow of data between the computer and peripheral devices.

hard copy: A printed copy of an electronic document.

hard disk: A storage device that can hold much more information than a 3.5-inch disk or a 5.25-inch disk. Unlike 3.5-inch and 5.25-inch disks, a hard disk is sealed into its drive and is not removable.

hardware: Those parts of the computer system that you can see and touch: the computer, the peripheral devices, the cables used to connect them, and the cords that supply them with power. Compare **software.**

hertz (Hz): The unit of frequency of vibration or oscillation, defined as the number of cycles per second. Named for the physicist Heinrich Hertz. The frequency setting used for monitors in the United States is 60; the setting used in most other countries in 50.

highlight: To make something visually distinct. For example, when you select an icon, it becomes highlighted—the outline and icon name are white on a black background rather than the usual white-on-black.

Hi-Res: A graphics mode that can display information using a rectangular array of 280 horizontal by 192 vertical dots.

home control device: A peripheral device that allows your computer to regulate the temperature of your home, turn lamps on and off, monitor smoke detectors or burglar alarms, or control a number of other household appliances.

home row: The row of keys on the keyboard where the fingers rest when they aren't reaching for other keys. In the standard keyboard layout, the home row contains A, S, D, F, G, and so on. In the Dvorak keyboard layout, the home row contains the most frequently used keys (A, O, E, U, I, and so on).

Hz: See **hertz.**

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icon: (1) A symbol on the back panel of the computer that shows you where to plug in a peripheral device. (2) In graphics-based applications, a symbol on the screen that represents a disk, a document, or something else you can select.

information service: A large database that you can subscribe to, letting you receive news, stock prices, electronic mail, or other services via your modem.

initialize: To divide a disk into sections where information can be stored and to write a file system on the disk so that an application can keep track of where data is stored. Disks must be initialized before you can save information on them.

input: Information traveling into the computer (like keypresses and mouse movements).

input/output (I/O): Refers to the means by which information is exchanged by the computer and its peripheral devices.

insertion point: A blinking vertical or horizontal line that marks your place on the screen. The insertion point shows you where your next action will take place. Also called the *cursor.* Compare **pointer.**

Installer: A program on the *Apple IIGS System Tools* disk that lets you add or remove capabilities from your startup disks. For example, if you're connecting a SCSI hard disk, you need to install the SCSI Hard Disk update to your startup disks.

integrated circuit: An electronic circuit—including components and interconnections—entirely contained in a single piece of semiconducting material, usually silicon. Often referred to as a *chip.*

interface: The way things communicate. See also **parallel interface; serial interface; user interface.**

interface card: A circuit board that you plug into one of the slots in the Apple IIGS to link certain peripheral devices to the computer.

internet: Two or more networks connected to form a larger network.

inverse characters: Characters that appear in the opposite format from normal. For example, if characters are ordinarily light on a dark screen, inverse characters would show up as dark on a light screen. Inverse characters are used as a form of highlighting.

I/O: See **input/output.**

I/O error message: A message you see when there's a problem with the way information is being exchanged by the computer and its peripheral devices.

jacket: The covering that protects a 5.25-inch disk.

joystick: A peripheral device that moves creatures and objects in games.

justify: To format a page of text so that the left margin, the right margin, or both margins are a constant width for all lines.

K: See **kilobyte.**

keyboard: A peripheral device that provides a common way to communicate with the computer. The computer's keyboard looks like the keyboard on a typewriter, but the keys on a computer keyboard can be programmed for many uses.

keyboard buffer: A special part of memory where keypresses are stored until the computer is ready to act on them.

keypad: See **numeric keypad.**

kilobyte (K): A unit of measure for computer memory; 1 kilobyte equals 1024 bytes. See also **byte; megabyte.**

laser printer: A printer that produces typeset-quality text and graphics using laser technology.

Left Arrow key: A key on the Apple IIGS keyboard used in many applications to move the cursor or insertion point one character to the left. (In some applications, the cursor or insertion point erases characters as it moves to the left.)

LF: The character that instructs the computer to advance to the next line. (The event generated by the LF character is called a *line feed*—hence the abbreviation LF.)

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light pen: A peripheral device shaped like a pen that sends instructions to the computer when you point to choices on the screen. Light pens work only with applications designed to receive input from them.

line break: The end of a line of text on the screen or on a printed page. You can force a line break by pressing Return, or you can let the application break lines for you.

line feed: An advance to the next line. See also **LF.**

load: To transfer data or programs into the computer from a disk.

local disk: Any disk in a disk drive connected directly to the computer. Compare **file server volume.**

local printer: A printer connected directly to a computer and available only from that computer. Compare **network printer.**

LocalTalk connector box: A piece of hardware, consisting of a small box with an attached cable, that you use to connect your computer to the AppleTalk network system.

log off: To end a work session on an AppleShare file server.

log on: To identify yourself to an AppleShare file server from a workstation.

Lo-Res: A graphics mode that can display information using a rectangular array of 40 horizontal by 48 vertical blocks.

machine language: The binary language of 0's and 1's that is the only language the computer understands. All other programming languages, like BASIC, must be translated into this binary code before the computer can understand them.

main circuit board: A large circuit board that holds RAM, ROM, the microprocessor, custom integrated circuits (chips), and other components.

mainframe computer: A central processing unit or computer that is much larger and more powerful than a minicomputer or a personal computer (microcomputer). Mainframe computers are sometimes called *mainframes* for short.

main menu: The first menu you see in text-based applications. The main menu presents the application's top level of options.

Make Changes: The access privilege that allows someone to make changes to a folder's contents.

mass storage device: A device such as a hard disk or a CD-ROM that can store much more information than 3.5-inch or 5.25-inch disks.

megabyte (MB): A unit of measure for computer memory; 1 megabyte equals 1,048,576 bytes (each byte being enough memory to represent a single character). See also **byte; kilobyte.**

megahertz (MHz): One million cycles per second.

memory: Integrated circuits (chips) that store instructions for the microprocessor. There are two kinds of memory: temporary memory (called *random-access memory* or *RAM*) and permanent memory (called *read-only memory* or *ROM*). The contents of RAM disappear when you switch off the power; the contents of ROM do not.

memory expansion card: An interface card that you install in the memory expansion slot in the Apple IIGS to increase the computer's random-access memory.

memory expansion slot: The slot in which you install a memory expansion card.

menu: A list of choices presented by an application.

menu bar: In graphics-based applications, the horizontal strip at the top of the screen that contains menu titles.

menu title: In graphics-based applications, a word, phrase, or picture in the menu bar that designates one menu. When you point to a menu title and hold down the mouse button, you can see the commands in the menu.

MHz (megahertz): One million cycles per second.

microprocessor: The "brain" of the computer; the integrated circuit that performs the actual calculations. Also called the *central processing unit (CPU)*. The Apple IIGS has a 65C816, 16-bit microprocessor.

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MIDI: Abbreviation for *Musical Instrument Digital Interface.* A software and hardware standard set by the music industry that allows different electronic instruments to communicate with one another and with computers. The Apple MIDI Interface is a device that plugs into the modem port of the Apple IIGS and lets you use your computer as a music synthesizer or as a control device for electronic musical instruments.

MIDI card: An interface card that lets you use your Apple IIGS as a music synthesizer or as a control device for electronic musical instruments.

mode: A state that determines the computer's behavior. See also **graphics mode; text mode.**

modem: Short for *modulator/demodulator.* A device that links your computer to another computer or to an information service over phone lines. See also **acoustic-coupler modem; direct-connect modem.**

modifier key: A key that generates no events of its own but changes the meaning of other keys or of mouse actions. The modifier keys on the Apple IIGS keyboard are Command, Control, Option, and Shift.

monitor: A peripheral device that displays instructions from the application to you and shows what you've typed into the computer's memory. A monitor is like a television set without channels.

monochrome monitor: A black-and-white, amber-and-black, or green-and-black monitor.

mouse: The small device you roll around on a flat surface next to your computer. When you move the mouse, the pointer on the screen moves correspondingly.

mouse button: The button on top of the mouse. You press the mouse button to choose commands from menus or when you want to move items around on the screen.

MouseText: Special characters, including check marks and little apples, used in some text-based applications.

MS-DOS: The operating system for applications designed to run on IBM PCs and compatible computers. You can run MS-DOS software on the Apple IIGS by installing a PC Transporter card.

Musical Instrument Digital Interface: See **MIDI.**

music synthesizer: A device that can generate a variety of sounds, including simulations of traditional musical instruments.

National Television Standards Committee: See **NTSC.**

nest: To store in a folder one or more levels removed from the main (disk) directory. You can nest items in folders within folders within folders within folders. . . .

network: A group of computers linked together so that their users can share information and peripheral devices.

network administrator: The person who sets up, maintains, and troubleshoots a network.

network printer: Any printer, connected to a network, that can be shared by network users. Compare **local printer.**

new desk accessory (NDA): A "mini-application" that you can use without leaving your main application. New desk accessories are available from the Apple menu whenever you're using the Finder or any graphics-based application that supports the Apple menu.

Nobody: A user category to which you can assign access privileges. This category excludes all registered users and guests—even the folder's owner.

NTSC: Abbreviation for *National Television Standards Committee.* An organization that defines the standard format for transmitting broadcast video signals in the United States.

NTSC color monitor: See **composite color monitor.**

numeric keypad: The number keys, on the right side of the Apple IIGS keyboard, that are laid out like the keys on an adding machine. In most cases, you can use these keys interchangeably with the number keys on the top row of the keyboard. Some application programs use the keys of the numeric keypad as special function keys.

OCR: Abbreviation for *optical character reader.* A peripheral device that scans pages of typed or typeset text and "reads" the characters into the computer.

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odd parity: An error-checking system in which the sending device adds an extra bit, set to 0 or 1 as necessary, to make the total number of 1 bits add up to an odd number. The receiving device then counts the 1 bits. If the total is an odd number, the receiving device assumes that the message came through intact. Compare **even parity.**

open: To make available. You open documents in order to work with them. In the Finder, opening an icon causes a window displaying the contents of the icon to appear on the desktop.

Open Apple key: On older Apple II keyboards, the name for the **Command key.**

operating system: A set of programs that, among other things, controls the way information is loaded into memory, the way the computer works with that information, the way information is stored on a disk, and the way the computer communicates with a printer and other peripheral devices. GS/OS, ProDOS 16, ProDOS 8, DOS 3.3, and Apple Pascal are some of the operating systems available for the Apple IIGS.

optical character reader: See **OCR.**

Option key: A key on the Apple IIGS keyboard that, when pressed in conjunction with another key, creates a special effect. (The Option key controls the operation of other keys but has no effect if pressed alone.) On older Apple II keyboards, this key was labeled ◆ and was called the *Solid Apple key*. Compare **Command key; Control key.**

output: Information traveling out of the computer.

owner: The registered user who created or was assigned ownership of a folder on an AppleShare file server volume.

Owner: A user category to which you can assign access privileges. This category includes only the folder's owner. (If the folder is owned by <Any User>, however, all network users will have the privileges assigned to the Owner category.)

Owner & Group: A user category to which you can assign access privileges. This category includes the owner and any registered users who are members of the group associated with the folder.

parallel device: A printer or other device that sends and receives data several bits at a time over several separate wires. Compare **serial device.**

parallel interface: An interface in which a computer and a peripheral device exchange information several bits at a time along several separate wires. Compare **serial interface.**

parallel printer: A printer that receives information from the computer several bits at a time each over its own wire. A parallel printer must be connected to the Apple IIGS through an interface card. Compare **serial printer.**

parity: A way of checking data to make sure that bits of data didn't get lost or garbled during transmission. See also **even parity; odd parity.**

Pascal: (1) One of several operating systems that can be used with the Apple IIGS. (2) A structured programming language taught in high school and college computer-science courses because it stresses a systematic approach to problem solving.

password: A secret word that gives you, but no one else, access to your data on a file server or to messages sent to you through an information service.

paste: To insert a copy of the contents of the Clipboard—whatever was last cut or copied—at the insertion point.

pathname: The complete name of a document, beginning with the name of the disk (sometimes called the *volume name*), followed by the names of any subdirectories or folders the document is in, and the name of the document itself. It's called a pathname because it describes the path or route to the document.

PC Transporter card: A coprocessor card that lets you use applications based on the MS-DOS operating system (the operating system used with IBM PCs and compatible computers).

peripheral device: A device that's connected to the computer, such as a printer or a modem.

peripheral interface card: See **interface card.**

pixel: Contraction of the phrase *picture element.* A dot on the screen, used in graphics mode to form text and graphics.

plotter: A device that prints charts and graphs by means of pens whose movements are programmed.

point: To position the pointer on an object or character on the screen.

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pointer: In graphics-based applications, a marker that moves across the screen when you move the mouse across your desk. Compare **cursor.**

pop-up menu: A menu of options (for example, in the graphic Control Panel) in which only the selected option is visible unless you press to make the other options "pop up."

port: A socket on the back panel of the Apple IIGS for connecting peripheral devices.

power light: A light that tells you whether the Apple IIGS or a peripheral device is on.

power strip: A device that plugs into one grounded three-hole outlet, but that can accommodate two or more three-pronged plugs. A power strip is useful if you have more than two devices that need to be plugged into a grounded three-hole outlet.

prefix: A partial pathname—the name of the disk and, if you like, the name of one or more subdirectories or folders. Applications that ask you to type a pathname usually let you set a prefix so that you don't have to type the complete pathname every time you want to work with documents on a particular disk or in a particular subdirectory or folder. Once a prefix is set, all you do is type the rest of the pathname.

press: (1) To position the pointer on something and then hold down the mouse button without moving the mouse. (2) To hold down a key on the keyboard.

primary group: The AppleShare group with whom a user most often shares folders and documents stored on a file server. Primary groups are specified by the network administrator.

printer: A device that produces a paper copy of the information you create using the computer.

ProDOS: Acronym for *Professional Disk Operating System.* (1) One of several operating systems for the Apple IIGS. See also **operating system.** (2) One of three file systems currently supported by GS/OS. (The others are AppleShare, used on AppleShare file server volumes, and High Sierra/ISO 9660, used on CD-ROMs.) The ProDOS file system is used on 3.5-inch disks, 5.25-inch disks, hard disks, hard disk partitions, and RAM disks when working with those disks in the Finder.

program: (v.) To write instructions for a computer. (n.) A set of instructions that tells a computer what to do.

program disk: A disk that contains an operating system and a self-starting application program.

programmer: A person who writes computer programs.

prompt: A character displayed on the screen to indicate that the user can take some action. For example, a bracket prompt ( ]) is used in the Applesoft BASIC programming language.

proportional scroll box: The white box in a scroll bar. The position of the proportional scroll box in the scroll bar indicates the position of what's in the window relative to the entire directory or document. The size of the box relative to the size of the bar indicates how much of the window is visible.

public-domain software: Software that is not copyrighted. You can get it at user group meetings or through computer bulletin boards. See also **freeware; shareware.**

pull-down menu: A menu that is hidden until you use the mouse to press its title.

Qwerty keyboard: The most commonly used keyboard layout in the United States, named for the first six letters in the top row of letter keys. Also called the *Sholes keyboard.* Compare **Dvorak keyboard.**

RAM: See **random-access memory.**

RAM chip: An integrated circuit that you install on your memory expansion card when upgrading the card's memory.

RAM disk: A cross between a disk and random-access memory. Like a disk, it must be initialized before you can put files on it and must be addressed by its disk name or by its slot number. Like RAM, it offers fast access to information but cannot store information permanently—everything is erased from the RAM disk when you switch off the computer's power.

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random-access memory (RAM): Built-in computer memory where applications and data are stored temporarily for the microprocessor. Anything stored in RAM is erased when you switch off the power; you must save the information on a disk if you want a permanent copy.

read: To transfer information from a disk into the computer's memory.

read-only memory (ROM): Permanent computer memory. Applesoft BASIC is stored in ROM, as are other programs that regulate communication between the microprocessor and other parts of the computer system.

registered user: A user of an AppleShare file server who has been given a user name and password by the network administrator.

remote computer: The computer on the other end of the phone line. You can use your Apple IIGS, a modem, and a communications application to communicate with a remote computer—across the street or on the other side of the globe.

Reset key: The key on the Apple IIGS keyboard marked with a triangle (◁). You can press Reset in combination with Command and Control to restart the computer. You press Reset in combination with Control to enter the Applesoft BASIC programming environment.

resolution: The degree of clarity of your display. An RGB color monitor has better resolution than a composite color monitor.

Return key: A key on the Apple IIGS keyboard that you press to move the cursor or insertion point to the beginning of the next line. The Return key is also used in many applications to accept choices or to indicate that you've finished doing something and are ready to proceed.

RGB color monitor: A type of color monitor that can display text in color and in 80-column format. (*RGB* is an abbreviation for *red, green, blue*—the three primary colors from which all screen colors are derived.)

Right Arrow key: A key on the Apple IIGS keyboard used in many applications to move the cursor or insertion point one character to the right.

ROM: See **read-only memory.**

ROM disk: ROM chips on a memory expansion card that can contain application programs.

row: A horizontal arrangement of character cells (in text mode) or pixels (in graphics mode) on the screen.

save: To store an application or data on a disk, as opposed to storing it temporarily in the memory of the computer.

scan: To search in the slots of the computer for a disk drive controller card. The computer scans when you first switch on the power. It looks first in slot 7 (or the corresponding port); if it doesn't find a startup device there, it proceeds to the next-highest-numbered slot until it finds a startup device.

screen: The part of the monitor where information is displayed.

scroll: To move through a document so that you can see a different part of it.

scroll arrow: An arrow on either end of a scroll bar. Clicking the scroll arrow moves the document one line in the direction indicated. Pressing the scroll arrow causes continuous scrolling.

scroll bar: A rectangular bar along the right side or along the bottom of a window. Clicking in the scroll bar or dragging the scroll box causes what's visible in the window to change.

scroll box: The box within a scroll bar. The position of the scroll box in the scroll bar indicates the position of what's currently in the window relative to the entire document. You can drag the scroll box to a different location within the scroll bar to move to a different location in the document.

SCSI: Acronym for *Small Computer System Interface;* pronounced "SKUH-zee." An industry standard interface that provides high-speed access to peripheral devices and allows them to be daisy-chained to a single port or card.

sector: Part of a **track** on a disk.

See Files: The access privilege that allows someone to open and copy the documents and applications in a folder.

See Folders: The access privilege that allows someone to see the folders in a folder.

select: In graphics-based applications, to designate where the next action will take place. To select something, you click it or drag across it.

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select button: A button on a printer that determines whether the printer should accept data from the computer or instructions from other buttons on the printer control panel (like the line feed button and the form feed button).

serial device: A device that sends and receives data one bit at a time over a single wire. Compare **parallel device.**

serial interface: An interface in which a computer and a peripheral device exchange information one bit at a time along a single wire. Compare **parallel interface.**

serial port: One of two ports (the printer port and the modem port) on the back panel of the Apple IIGS designed for serial devices.

serial printer: A printer that receives information from the computer one bit at a time, over a single wire. Compare **parallel printer.**

shareware: Public-domain software that you can try out for free, but for which you're honor-bound to pay either a stipulated fee or a donation of your choosing if you decide to continue using it.

Shift-click: To hold down the Shift key as you click to select items on the screen. Shift-clicking lets you select multiple items that are not grouped together on the screen.

Shift key: A key on the Apple IIGS keyboard that you can press in combination with another key to get an uppercase letter or the upper character on a two-character key.

Sholes keyboard: The most commonly used keyboard layout in the United States, named for Christopher Sholes, the inventor of the typewriter. Also called the *Qwerty keyboard.* Compare **Dvorak keyboard.**

simulation: A computerized representation of something in action.

16-bit processor: A microprocessor that can work with 16 bits of information at a time.

65C816: The 16-bit microprocessor used in the Apple IIGS.

size box: A box on the lower-right corner of some active windows that lets you resize the window.

slash: A character (/) that's often used to separate the parts of a pathname.

slot: A long, narrow socket inside the Apple IIGS that lets you connect a printer or other peripheral device to the computer by plugging in an interface card.

slot number: The number indicating which slot a particular device is connected to. There are seven general-purpose slots on the main circuit board for connecting peripheral devices to the computer. They are numbered from 1 to 7, with 1 on the left as you face the front of the computer. If your device is connected to a port instead of a slot, you can identify the device by the slot number that corresponds to the port.

Small Computer System Interface: See **SCSI.**

smart port: Another name for the disk drive port. Disk drives connected to the disk drive port appear to be connected to a card in either slot 5 or slot 6, depending on whether they're 3.5-inch drives or 5.25-inch drives. Because the port "knows" what kind of device is connected, it's described as "smart."

software: Instructions, usually stored on disks, that tell the computer what to do. Compare **hardware.**

Solid Apple key: The name for the Option key on older Apple keyboards. The name derives from the fact that the key was marked with the filled-in symbol of an apple (🍎) rather than the word *Option.*

source disk: The disk from which you are copying or moving. (The **destination disk** is the disk onto which you're copying or moving.)

source folder: The folder from which you're copying or moving. (The **destination folder** is the folder into which you're copying or moving.)

Space bar: The bar at the bottom of the keyboard. Pressing the Space bar inserts a space character in your text at the insertion point.

space character: A text character whose printed representation is a space. You generate the character when you press the Space bar.

Special menu: A Finder menu that lists a variety of "housekeeping" commands such as Clean Up, Empty Trash, and Shut Down.

speech synthesizer: An interface card that allows a computer application to imitate human speech.

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spreadsheet application: An application that simplifies financial planning, cost estimating, and other arithmetic tasks. Spreadsheets are laid out in columns and rows.

stand-alone computer: A computer that is not connected to any other computers as part of a network. Compare **workstation.**

start up: To load an application from a disk into the memory of the computer. In computer jargon, starting up is also called *booting.*

startup disk: A disk with the necessary software to start up the computer.

startup drive: The disk drive in which the computer looks first for a startup disk.

stop bit: A bit used to indicate the end of a character during data transmission. Compare **data bit.**

subdirectory: A directory within a directory. You can use subdirectories to group related documents together. Same as **folder.**

Super Hi-Res: A graphics mode that can display information using a rectangular array of 640 horizontal by 200 vertical dots in 4 colors or 320 horizontal by 200 vertical dots in 16 colors.

Super Serial Card: A serial interface card manufactured by Apple Computer. You don't need to use a Super Serial Card with the Apple IIGS because the serial interface is built in and can be accessed through the printer and modem ports.

surge protector: A device that protects your computer equipment from damage in the event of a surge of electrical current. Some power strips have built-in surge protectors.

syntax: The rules that govern the structure of statements or instructions in a programming language or in an operating system.

syntax error message: A message you see when you misspell a command or give a command that the computer doesn't understand.

synthesizer: See **music synthesizer.**

system operator (SYSOP): The person who operates a computerized bulletin board.

system software: Software that supports application programs by managing system resources such as memory and input/output devices.

Tab: A key on the Apple IIGS keyboard that, when pressed, moves the insertion point to the next tab marker.

tab marker: A character that indicates the position to which the cursor or insertion point will move when you press the Tab key.

tape backup unit: A peripheral device (usually a SCSI device) that lets you duplicate on magnetic tape the information on a hard disk. The alternatives to using a tape backup device are copying onto a second hard disk (which requires the purchase of an additional hard disk) or copying onto dozens of 3.5-inch disks (which is time-consuming).

telecommunication: The exchange of information with other computers or with commercial information services over phone lines. To telecommunicate, you need a computer, a modem, communications software, and a similar setup on the other end of the phone line.

text-based application: An application that uses one of the text modes to display information. In most text-based applications, the keyboard rather than the mouse is the primary means of communication with the computer.

text Control Panel: The classic desk accessory version of the Control Panel, which is built into the computer and is available through the classic Desk Accessories menu. See also **Control Panel;** compare **graphic Control Panel.**

text generator: Circuitry and firmware that prints characters on the screen in response to keypresses.

text mode: A way of displaying text on the screen. In a text mode, characters fit in a 40-column by 24-line grid or in an 80-column by 24-line grid.

3.5-inch disk: A magnetic disk, 3.5 inches in diameter, housed in a rigid plastic case. The most common storage medium used with the Apple IIGS. A double-sided 3.5-inch disk can store 800K of information (the equivalent of about 400 pages of text). Compare **5.25-inch disk.**

title bar: The horizontal bar at the top of a window that shows the name of the window and lets you move the window.

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track: One of a series of concentric circles that are magnetically drawn on the recording surface of a disk as part of the initialization process. Tracks are further divided into 8 to 12 consecutive sectors.

transmitting device: The computer that is sending information.

Trash: An icon that represents the place where you discard files and folders when you no longer need them.

troubleshooting: Diagnosing and solving a problem.

Up Arrow key: A key on the Apple IIGS keyboard used in many applications to make the cursor or insertion point move up one line.

update: A hardware or software capability you can add to disks using the Installer.

user group: A computer club whose members share information and public-domain, freeware, and shareware programs—often programs they've written themselves.

user interface: The way information is exchanged between a computer and a person.

user name: A unique name assigned to a registered user of an AppleShare file server and used to identify that user on the network.

video monitor: See **monitor.**

View menu: A Finder menu that lets you change the way you view the contents of windows on the desktop.

voice input device: A device that translates the spoken word into a form that some software can process.

volume: See **disk; file server volume.**

volume name: See **disk name.**

window: In graphics-based applications, one or more areas on the screen showing one or more documents at a time.

word-processing application: Any application designed to make writing and editing easier and faster.

workstation: A computer you can use to do your work and to send and receive information over the network. Compare **stand-alone computer.**

write: To record information on a disk.

write-protect: To prevent changes to the contents of a disk by covering the notch on the side of a 5.25-inch disk or by sliding the small plastic tab to uncover the square hole on a 3.5-inch disk. Not the same as *copy-protect.*

XOFF: An ASCII character that tells the transmitting device to halt transmission.

XON: An ASCII character that tells the transmitting device to resume transmission.

Z80 card: A coprocessor card that lets you run programs based on the popular CP/M operating system.

zero: To eliminate the disk directory, all files and folders, and the file system from a disk so that no amount of manipulation can recover the information that was on the disk. (When you zero a disk, only the tracks and sectors remain.) A disk that has been zeroed must be reinitialized before it can be used to store information.

zone: One or more networks, collectively identified by a zone name, that are part of a larger, interconnected network. Zones make it easier for network users to find network devices and services.

zoom box: The small box in the upper-right corner of a window. Clicking the zoom box expands the window to its maximum size. Clicking it again returns the window to its previous size.

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TELL APPLE about your Apple IIGS and the documentation you received with it by answering the questions below. Detach, fold, and seal this postage-paid form and mail it to Apple.

Please circle the number of your answer below. If you have more than one answer to a question, circle all the numbers that apply.

1. How would you rate your Apple IIGS overall?
   poor **1** **2** **3** **4** **5** **6** excellent

2. Where did you purchase your Apple IIGS?
   1 dealer
   2 corporate purchase
   3 education purchase
   4 Apple developer program
   5 other

3. If you owned an Apple computer before buying your Apple IIGS, which one did you have?
   1 Apple II family
   2 Apple III family
   3 Lisa family
   4 Macintosh family

4. In addition to your Apple IIGS, what other computer(s) do you regularly use?
   1 Apple II family
   2 Macintosh family
   3 MS-DOS-compatible computer
   4 other

5. How long have you been using Apple II computers?
   1 less than a month
   2 one to six months
   3 six months to a year
   4 one to two years
   5 two to three years
   6 more than three years

6. Where is your Apple IIGS used most often?
   1 home
   2 work
   3 school
   4 other

7. Who in your household uses the Apple IIGS?
   1 male adult
   2 female adult
   3 male child
   4 female child

8. What application software will you be using most often with your Apple IIGS?
   1 word processing
   2 spreadsheet
   3 database
   4 communication
   5 education
   6 graphics
   7 art
   8 games
   9 other

9. What storage devices do you use with your Apple IIGS?
   1 3.5-inch disk drive(s)
   2 5.25-inch disk drive(s)
   3 hard disk drive(s)
   4 CD-ROM drive(s)

10. What printer do you use with your Apple IIGS?
    1 ImageWriter or ImageWriter II
    2 ImageWriter LQ
    3 LaserWriter family
    4 other dot matrix printer
    5 other laser printer
    6 daisy-wheel printer
    7 thermal transfer printer
    8 ink jet printer

11. Which other products do you use with your Apple IIGS?
    1 modem
    2 memory expansion card
    3 SCSI card
    4 AppleTalk
    5 AppleShare
    6 sound expansion card
    7 accelerator card
    8 other

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12. How easy was your Apple IIGS to set up?
difficult **1** **2** **3** **4** **5** **6** very easy

13. Did you use *Getting Started with Your Apple IIGS* to help you set up?
1 no **2** yes

14. How did you learn to use your Apple IIGS?
1 *Your Tour of the Apple IIGS*
2 *Getting Started With Your Apple IIGS*
3 *Apple IIGS Owner's Reference*
4 knowledgeable friend or co-worker
5 other non-Apple documentation
6 class
7 trial and error

15. If you used the *Your Tour of the Apple IIGS* tour disk, how much did it help you to learn to use your computer?
not helpful **1** **2** **3** **4** **5** **6** very helpful

16. If you could make one suggestion for improving the Apple IIGS, what would it be?

_____

_____

_____

_____

_____

_____

Moisten and seal. (Please do not staple or tape.)

- Contact your authorized Apple dealer when you have questions about Apple products. Dealers are trained by Apple Computer and are given the resources to handle service and support. If you need the name of an Apple dealer in your area, call toll-free 800-538-9696.

Thank you!

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