



A/UX[®] Essentials

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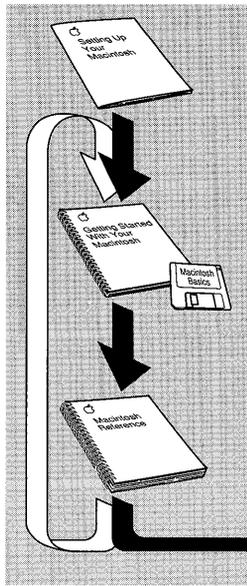
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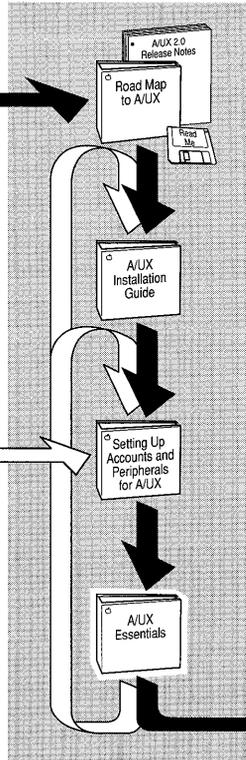
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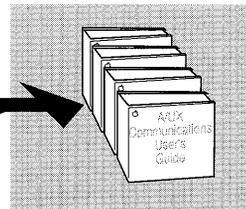
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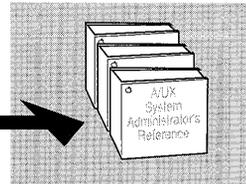
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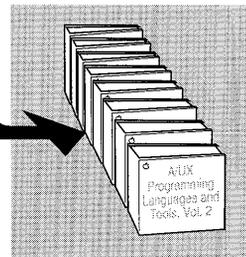
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Preface

Welcome to the A/UX[®] 2.0 operating system on your Macintosh[®] computer. A/UX 2.0 brings the Macintosh interface to the traditional UNIX[®] environment. It weds Macintosh ease of use to UNIX standards, power, and programmability.

This book, *A/UX Essentials*, presents the basic skills you need to use A/UX 2.0. Many of the chapters contain tutorials to help you learn the essential techniques and concepts. You can read through this guide in sequence or go directly to the information you need. However, if you are unfamiliar with A/UX, you should go through the first four chapters before proceeding on your own.

This chapter contains the following sections:

- What is A/UX 2.0?
- Who should use this guide?
- How to use *A/UX Essentials*
- Conventions used in this guide

What is A/UX 2.0?

A/UX 2.0 brings together two outstanding computing environments: the UNIX and the Macintosh environments.

Why UNIX?

The UNIX operating system has become very important because it is a standards-compliant, multitasking, multi-user operating system.

A **multitasking** system is one that allows you to run many processes at the same time. Thus, instead of having to wait while your computer prints a text file, you can work on another project while the printing is in progress.

A **multi-user** system allows many users to work on the same system at the same time. This allows them to share files and information.

The basic A/UX operating system is a combination of the best of the UNIX systems (UNIX System V.2 plus extensions from BSD 4.2 and 4.3).

Why the Macintosh interface?

A/UX 2.0 enhances the A/UX operating system with the Macintosh Finder™ interface. This enhancement differentiates A/UX 2.0 from all other versions of UNIX. With A/UX 2.0 you can do the following:

- Use menu commands and manipulation of icons to open, move, rename, or copy files and applications on the A/UX and the Macintosh file systems simultaneously.
- Store Macintosh files and applications in the A/UX file system as well as in the Macintosh file system.
- Use the Macintosh files or off-the-shelf Macintosh applications while running A/UX exactly as you use them while running the Macintosh Operating System. This is true whether they are stored under the A/UX file system or a Macintosh file system.

- Run several applications at the same time, taking advantage of both Macintosh functionality and A/UX multitasking capabilities. You can run several Macintosh applications simultaneously as well as A/UX applications.

Commando, a command-building tool

In addition to wedding the Finder's ease of use to the capabilities of UNIX, A/UX 2.0 also adds dialog boxes for running almost all of the more than 500 hundred UNIX commands available in A/UX. This means that you can now use the many options and utilities that UNIX and A/UX make available without having to learn the complex commands and options themselves. Each dialog box allows you to use the mouse to select the options.

Commando is described in full in Chapter 4, "Using Commando."

Two file systems on one personal computer

Without having to stop and restart the computer, you can run Macintosh software applications while using A/UX. Furthermore, you can do so while A/UX processes are running.

A/UX 2.0 allows you to have both the A/UX file system and the Macintosh file system on the same computer. It is important to remember that you do not need to run your Macintosh applications from a Macintosh file system. Although A/UX 2.0 is shipped with a small Macintosh file system (called MacPartition), from which A/UX is launched, you can store your Macintosh applications as well as your Macintosh files under your A/UX 2.0 file system. You can also move Macintosh files into the A/UX file system to gain the advantages of using A/UX file-access permissions and A/UX backup tools.

In addition, while running A/UX 2.0 you can use floppy disks that are configured for the Macintosh and additional Macintosh HFS hard disks.

Thus, you can take advantage of the functionality of both operating systems at the same time.

Who should use this guide

A/UX Essentials contains information that is important to anyone who plans to use A/UX 2.0. It presents concise tutorials that introduce you to the Macintosh way of interacting with the traditional UNIX environment and information summaries that briefly explain the functionality of essential parts of A/UX.

Although everyone who uses A/UX 2.0 should consult *A/UX Essentials* to become familiar with the new look and functionality of A/UX 2.0, this guide is particularly designed for users who are not experienced with A/UX or other versions of UNIX. It will also prove useful to those who are somewhat new to the Macintosh computer, although this guide assumes that you are already familiar with the basic Macintosh skills. You should be sure to read *Macintosh User's Guide: Essentials* and to follow the tour disk, *A Tour of Your Macintosh*.

The road map diagram, just before the beginning of the Table of Contents, illustrates the learning path for A/UX 2.0.

How to use *A/UX Essentials*

This guide is meant to be an introduction to A/UX 2.0. You should read at least the first four chapters and work through the tutorials in those chapters. Once you are comfortable with the basics of A/UX 2.0, you may want to use this book as a reference work.

If you are familiar with earlier versions of A/UX (or other versions of UNIX) and with the Macintosh Finder, you may need only to scan through the table of contents or the index to locate information that is new to you.

A/UX Essentials contains the following chapters:

- Chapter 1, “Starting and Finishing a Work Session,” teaches you how to start the system, log in, log out, and move between A/UX and the Macintosh Operating System. Chapter 1 also introduces other skills and information essential to getting started.
- Chapter 2, “Getting Around in A/UX,” teaches you how to manipulate the A/UX file system and use files and folders. It also introduces you to essential information about access permissions.
- Chapter 3, “Customizing Your Work Environment,” explains how to use the Control Panel and other devices to create precisely the work environment that you need.
- Chapter 4, “Using Commando,” describes a major innovation of A/UX 2.0, Commando, which allows you to run UNIX and A/UX commands with Macintosh-like dialog boxes.
- Chapter 5, “Using CommandShell,” shows you how to use the A/UX command-line interface in a CommandShell window. This allows you to work directly with the A/UX operating system using traditional UNIX commands.
- Chapter 6, “Writing With TextEditor,” is an introduction to the Macintosh-style text editor, which allows you to create and edit text-only files using the Macintosh menus and a mouse.
- Chapter 7, “Printing in A/UX,” describes the different kinds of printer connections and the various ways of sending a file to the printer while using A/UX.
- Chapter 8, “Communicating With Others,” describes ways of sending mail and messages to other A/UX users.
- Chapter 9, “A/UX Reference,” presents a brief summary of all menus and menu commands in the A/UX Finder, CommandShell, and TextEditor.
- Chapter 10, “Troubleshooting,” shows how to solve some problems that may arise while you are using A/UX 2.0.
- Chapter 11, “Where to Go From Here,” gives you information on resources available for learning more about A/UX.
- The Glossary contains definitions of all A/UX terms newly introduced in this guide.

Terminology: UNIX-style plus Macintosh-style

Although A/UX 2.0 weds two traditions, UNIX and Macintosh, these two environments imply two different traditions of terminology. For example, Macintosh users are all familiar with the word “folder.” It represents essentially what UNIX users call a “directory.” The term “folder” is particularly meaningful when you are using the Finder, where it is represented by a file-folder icon. When you are entering commands in a CommandShell window, however, it’s best to think of it as a directory, especially when you are entering such commands as “make directory” (`mkdir`) or “change directory” (`cd`).

For that reason, this guide uses Macintosh terminology when describing how to work with the Finder and traditional A/UX (or UNIX) terminology when describing operations done in a CommandShell window.

Conventions used in this guide

A/UX guides follow specific conventions. Words that require special emphasis appear in specific fonts or font styles. The following sections describe the conventions used in all A/UX guides.

Keys and key combinations

Certain keys on the keyboard have special names. These modifier and character keys, often used in combination with other keys, perform various functions. In this guide, the names of these keys are in Initial Capital Letters followed by SMALL CAPITAL letters.

The key names are

CAPS LOCK	ESCAPE	SHIFT
COMMAND	LEFT ARROW	TAB
CONTROL	RETURN	UP ARROW
DOWN ARROW	RIGHT ARROW	

For example, suppose you enter

Apple`e`

instead of

Apple

To erase the additional *e*, you would position the cursor (or insertion point) to the right of the word and press the DELETE key once.

Sometimes you will see two or more names joined by hyphens. The hyphens indicate that you use two or more keys together to perform a specific function. For example,

Press COMMAND-K

means “Hold down the COMMAND key and press the K key.”

Terminology

In A/UX guides, a certain term can represent a specific set of actions. For example, the word *enter* indicates that you type an entry and press the RETURN key. The instruction

Enter `1s`

means “Type `1s` and press the RETURN key.”

Here is a list of common terms and the corresponding actions you take.

Term	Action
Choose	Activate a command in a menu. To choose a command from a pull-down menu, click once on the menu title while holding down the mouse button, and drag down until the command is highlighted. Then release the mouse button.
Click	Press and then immediately release the mouse button.
Drag	Position the pointer on an object, then press and hold down the mouse button while moving the mouse. Release the mouse button when the object reaches the desired position on the screen.
Enter	Type the letter or letters and press the RETURN key.
Press	Type a <i>single</i> key <i>without</i> pressing the RETURN key. Or position the pointer on an object and hold down the mouse button.
Select	Position the pointer on a selectable object and click the mouse button.
Type	Type an entry <i>without</i> pressing the RETURN key.

The Courier font

Throughout A/UX guides, words that you see on the screen or that you must type exactly as shown are in the `Courier` font.

For example, suppose you see the instruction

Type `date` on the command line and press RETURN.

The word `date` is in the `Courier` font to indicate that you must type it.

Suppose you then read this explanation:

Once you type `date` and press RETURN, you'll see something like this:

```
Tues Oct 17 17:04:00 PDT 1989
```

In this case, `Courier` is used to represent exactly what appears on the screen.

All A/UX manual page names are also shown in the `Courier` font. For example, the entry `ls(1)` indicates that `ls` is the name of a manual page.

Font styles

Words that you must replace with a value appropriate to a particular set of circumstances appear in *italics*. For example, if you see

```
cat filename
```

replace the italicized word with the name of the file you wish to view. If you want to view the contents of a file named `Elvis`, type the word `Elvis` in place of *filename*. In other words, enter

```
cat Elvis
```

New terms appear in **boldface** where they are defined.

A/UX command syntax

A/UX commands follow a specific command syntax. A typical A/UX command has this form:

```
command [flag-option] [argument]...
```

The following table outlines the elements of an A/UX command.

Element	Description
<code>command</code>	The command name.
<i>flag-option</i>	One or more optional arguments that modify the command. Most flag options have the form [- <i>opt</i> ...], where <i>opt</i> is a letter representing an option. Most commands have one or more flag options.
<i>argument</i>	A modification or specification of a command, usually a filename or symbols representing one or more filenames.
[]	Brackets used to enclose an optional item—that is, an item that is not essential for execution of the command.
...	Ellipses used to indicate an argument that can be repeated any number of times.

For example, the `wc` command is used to count lines, words, and characters in a file. Here is the full syntax for that command, including all possible flag options and the optional argument *name*.

```
wc [-c] [-l] [-w] [name...]
```

Thus, you can enter

```
wc -w /Priscilla
```

to count all of the words in the file `/Priscilla`, where `wc` is the name of the command, `-w` is the flag option that instructs the command to count all of the words in the file, and the optional argument `/Priscilla` is the file to be searched.

Command reference notation

A/UX Command Reference, *A/UX Programmer's Reference*, and *A/UX System Administrator's Reference* contain references for commands, programs, and other related information. Material is organized within these references by section numbers. The standard A/UX cross-reference notation is

cmd (sect)

where *cmd* is the name of the command, file, or other facility; *sect* is the section number where the entry resides.

- Items followed by section numbers (1M), (7), or (8) are listed in *A/UX System Administrator's Reference*.
- Items followed by section numbers (1), (1C), (1G), (1N), and (6) are listed in *A/UX Command Reference*.
- Items followed by section numbers (2), (3), (4), and (5) are listed in *A/UX Programmer's Reference*.

For example,

`cat(1)`

refers to the command `cat`, which is described in Section 1 of *A/UX Command Reference*.

References can be also called up on the screen. Use the `man` command to display pages from reference manuals, known as manual pages, directly on the screen. For example, enter the command

```
man cat
```

to display the manual page for the `cat` command, including its description, syntax, options, and other pertinent information. To exit, press the Space bar until you see a shell prompt, or type `q` at any time to return immediately to your shell prompt.

Cross-referencing

An A/UX guide often refers to information discussed in another guide in the suite. The format for this type of cross-reference is “Chapter Title,” *Name of Guide*.

For a complete description of A/UX guides, see *Road Map to A/UX*. This guide contains descriptions of each A/UX guide, part numbers, and ordering information for all the guides in the A/UX documentation suite.

Chapter 1 **Starting and Finishing a Work Session**

This chapter explains how to start a work session and what to do when you're ready to quit working for the time being. It also explains how to shut down the computer and how to get to the Macintosh® Operating System (Macintosh OS).

Before using this guide, you need to know basic Macintosh skills, such as clicking, dragging, pulling down menus and choosing from them, and using Macintosh windows. If you are new to the Macintosh computer, take the tour on the tour disk provided with your Macintosh computer or read the appropriate sections in the *Macintosh User's Guide; Essentials*.

This chapter contains the following sections:

- Starting the computer
- Starting A/UX
- Logging in
- Login options
- Logging out
- Looking up A/UX and UNIX commands on line
- Working with Macintosh files in A/UX
- Getting to the Macintosh OS
- Getting your bearings
- Shutting down A/UX
- About system administration

Although you may find it useful to go through this entire chapter in sequence, you may also use it as a reference work by going directly to the appropriate section.

Starting the computer

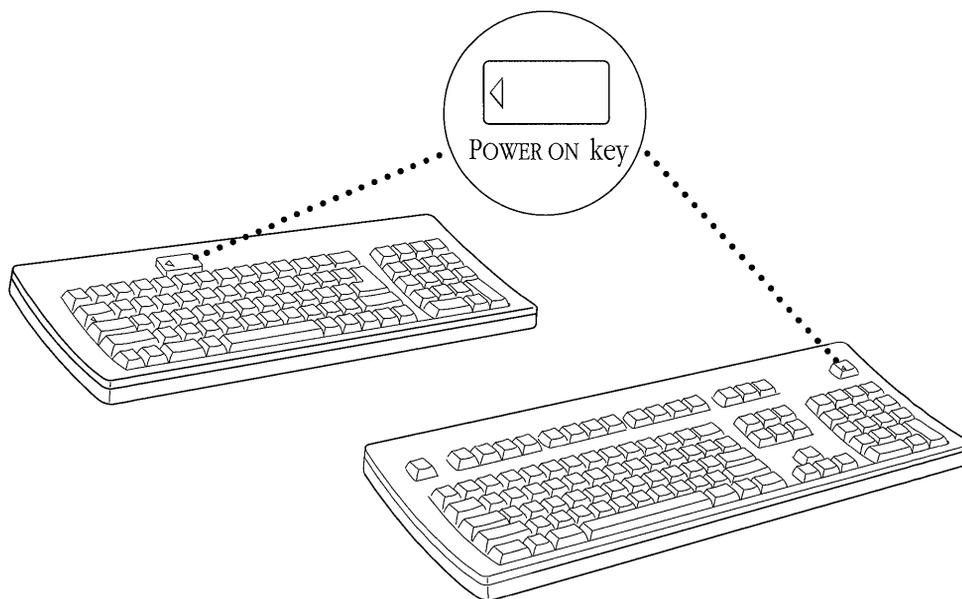
Before you start the computer, you or the system administrator should set up your hardware according to the instructions that were packaged with it, and should install A/UX® 2.0 by following the directions in the *A/UX Installation Guide*. You also may connect and configure peripheral devices by using *Setting Up Accounts and Peripherals for A/UX*.

Turn on the power as follows:

- **Press the POWER ON key, which is shown in Figure 1-1.**

The POWER ON key is the key with a small triangle. It is at the top of the keyboard in the middle or the right corner.

- **Figure 1-1** The POWER ON key



If you are using a Macintosh SE-30, turn on the computer with the power switch at the back of the machine.

The computer begins working and displays the message: “Welcome to Macintosh.” This message indicates that the computer is searching for system software. If A/UX Startup is set as the startup application on your startup disk, the system automatically goes through the loading and launching process. Continue with the section called “Loading and Launching,” later in this chapter.

Starting A/UX

As shipped, A/UX does not start up automatically unless you or the system administrator set it to start automatically. Although the installation instructions advise setting automatic startup, your system may be set for manual startup of A/UX.

Setting automatic A/UX startup

If your system has not been set to start A/UX automatically, you can set it to do so after the MacPartition disk icon is displayed (Figure 1-2), and before you start A/UX manually. Follow these steps:

- 1. Double-click the MacPartition icon to open the MacPartition window.**
- 2. Select the A/UX Startup icon by highlighting it. Do not double-click the icon.**
- 3. Choose Set Startup from the Special menu.**
- 4. Select A/UX Startup.**
- 5. Click OK.**

For further information on setting automatic A/UX Startup, see *A/UX Local System Administration*.

Starting A/UX manually

If A/UX Startup is not set as the startup application, you need to run the A/UX Startup application manually. Follow these steps to start up A/UX:

1. Locate the disk called MacPartition.

A disk icon labeled MacPartition (Figure 1-2) is located near the right edge of the screen.

■ Figure 1-2 The MacPartition icon



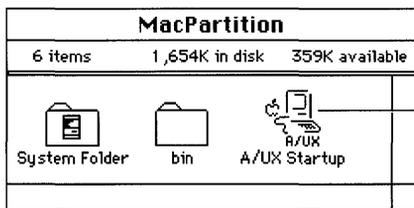
MacPartition

This icon represents a small part of your disk space that contains the Macintosh file system. The A/UX Startup program, which is used to launch the A/UX operating system, is contained here.

2. Double-click the MacPartition icon.

Figure 1-3 shows the contents of the MacPartition disk.

■ Figure 1-3 MacPartition



A/UX Startup icon

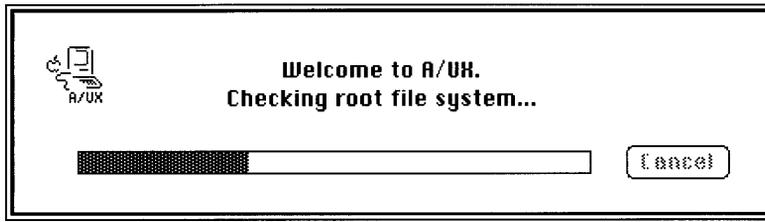
3. Double-click the A/UX Startup icon to launch A/UX.

Position the pointer over the icon and double-click to open the application. A/UX moves through the loading and launching process.

Loading and launching

As A/UX Startup runs, a series of screens appears that inform you of the progress of the startup. One of these screens is shown in Figure 1-4.

- **Figure 1-4** A startup screen



Your screen displays the status of the startup process. The A/UX Startup application performs a check of the file systems each time you start A/UX and prompts you to fix any file-system problems identified during the check. For example, problems may be caused if the system was shut down improperly the last time it was used. These problems usually are corrected during this file-system check. This check may last for several minutes.

- △ **Important** A/UX may report alert messages during the startup sequence. In some cases, you need to supply information in response to the message. When you click OK in the alert box, a window appears, into which you can enter any information that the program requests. △

At the end of the startup process, the Login dialog box appears. Proceed with the next section (“Logging In”) to learn about logging into different accounts in A/UX.

Logging in

You start working with A/UX by logging in to the system. Unlike the Macintosh OS, A/UX supports many user accounts on a single computer. Therefore, the process of logging in is necessary to tell the system what account you’re permitted to use and to place you in that account.

The Login dialog box

When you log in, you give the system two pieces of information:

- your login name
- your password

You may log in to several types of accounts:

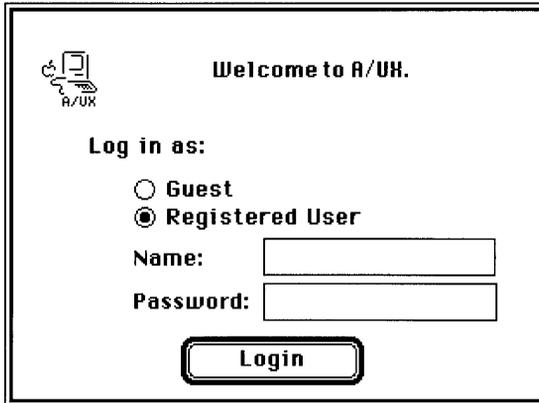
- the *root* account for system administrators
- the *start* account for tutorials
- the *Guest* account for guest users
- your own *user* account (if the system administrator has assigned you one)

This section describes how to log in to these accounts.

As soon as A/UX Startup has finished running, the Login dialog box appears. You can log in whenever you see the Login dialog box, which is shown in Figure 1-5.

- ◆ *Note:* A group of login options is available to you while the Login dialog box is displayed. These options include changing your password and changing your session type. These login options are explained later in this chapter. See “Login Options.”

■ **Figure 1-5** The Login dialog box



To **log in** means to enter the name that identifies an account and to enter the account's password (if required). The three sections that follow describe how to log in to the start account, the Guest account, and the user and root accounts. Refer to the section of this chapter that describes how to log in to the account you wish to use.

△ **Important** A/UX is **case sensitive**, that is, it distinguishes between uppercase and lowercase letters. If your login name is supposed to be `john`, but you type `John`, A/UX won't recognize it because of the uppercase `J`. This is true of all character strings that A/UX reads, such as commands, passwords, folder names, and so on. △

Logging in for the tutorials

The start account contains the files associated with the various tutorials in this book. You should log in to this account whenever you're using a tutorial presented in this guide.

To log in to the start account, follow these steps:

1. While the Login dialog box is displayed, click the Registered User button, unless it is already selected.

2. Type `start` as the login name.

The login name for the tutorial account is `start`. Notice that all the letters in the name `start` are lowercase. Remember to enter the login name exactly as specified, using lowercase letters unless capital letters are specified.

3. Press RETURN.

This action moves the cursor to the Password text box. You can also press TAB or click the Password text box to move there. A/UX asks you for a password to ensure system security. Each account has a password so that only the person who is entitled to use that account has access to it. To change the password for your account, see “Changing Your Password,” later in this chapter.

4. Type `my.password` or use the password given to you by the system administrator.

A gray rectangle expands through the Password text box as you type each character.

Since the password `my.password` appears in this book, it’s a good idea to change this password immediately, to prevent anyone from breaking into your system by using the `start` account. Your system administrator may already have changed the password.

See “Changing Your Password,” later in this chapter, for more information on security and passwords.

5. Click Login or press RETURN.

If the password and the login name are correct, you’re logged in. If you type the wrong login name or password, a warning dialog box appears. Try again, and be sure that you are typing lowercase and uppercase letters as required.

If you made a mistake while typing your login name or password, you can use either of two methods to correct your typing:

- **Press DELETE once to erase the last character you typed. Repeat this action to erase additional single characters.**
- **Select a block of text by dragging over it and then press DELETE.**

You can type the login name or password again.

Proceed to “You’re Ready to Work,” later in this chapter.

Logging in to the Guest account

If your system administrator has not set up a personal login account for you, you can use the Guest account.

To log in to the Guest account, follow these steps:

1. While the Login dialog box is displayed, click Guest.

This Login dialog box may be slightly different from the one in Figure 1-5. For example, the text box for the password may be missing.

2. Click Login or press RETURN.

The system administrator may have set up the system so that you do not need to enter the Guest account password.

- If you aren’t required to enter a password, the Name and Password fields do not appear when you click the Guest radio button.
- If the Name and the Password fields appear in the Login dialog box, you need a password. As configured upon shipment, A/UX allows you simply to press RETURN twice after you type your account name, which in effect enters a blank password.
- For the sake of system security, the system administrator may set a password. If you are required to enter a password, see your system administrator or the person in charge of the Guest login account.

See “Changing Your Password,” later in this chapter, for more information on security and passwords.

If the password and the login name are correct, you’re logged in. Proceed to “You’re Ready to Work,” later in this chapter.

If you made a mistake while typing your login name or password, you can use either of two methods to correct your typing:

- **Press DELETE once to erase the last character you typed. Repeat this action to erase additional single characters.**
- **Select a block of text by dragging over it and then press DELETE.**

You can type the login name or password again.

Logging in to your user account or the root account

Your personalized user account allows you full use of the files, programs, and utilities that you created or that the system administrator created for you. It also contains files that specify preferences about your work habits, such as the pattern of your desktop. Your system administrator has set up the account by using the `adduser` script described in *A/UX Local System Administration* or by following standard A/UX procedures for setting up a user account. You should log in to this account whenever you’re working with A/UX (but log in to the start account when using the tutorials in this book).

You can also use these instructions to log in to the root account provided for system administration tasks. Substitute the name `root` for your user name.

To log in to your user account or the root account, follow these steps:

- 1. While the Login dialog box is displayed, click the Registered User button, unless it is already selected.**

2. Type your login name.

If you are logging in to the root account, type `root`. If you are logging in to a user account, type the login name assigned to you by your system administrator. Remember to enter the login name exactly as specified, using lowercase letters unless capital letters are specified.

If the system administrator created your user account without assigning a password, you may be asked to assign your own password by typing it into the space provided.

3. Press RETURN.

This action moves the cursor to the Password text box. You can also press TAB or click the Password text box to move the cursor here. A/UX asks you for a password to ensure system security. Each account has a password so that only the person who is entitled to use that account has access to it. To change your account password, see “Changing Your Password,” later in this chapter.

4. Type your password.

A gray rectangle expands through the Password text box as you enter each character.

5. Click Login or press RETURN.

If the password and the login name are correct, you're logged in. Proceed to the section called “You're Ready to Work.”

If you made a mistake while typing your login name or password, you can use either of two methods to correct your typing:

- **Press DELETE once to erase the last character you typed. Repeat this action to erase additional single characters.**
- **Select a block of text by dragging over it and then press DELETE.**

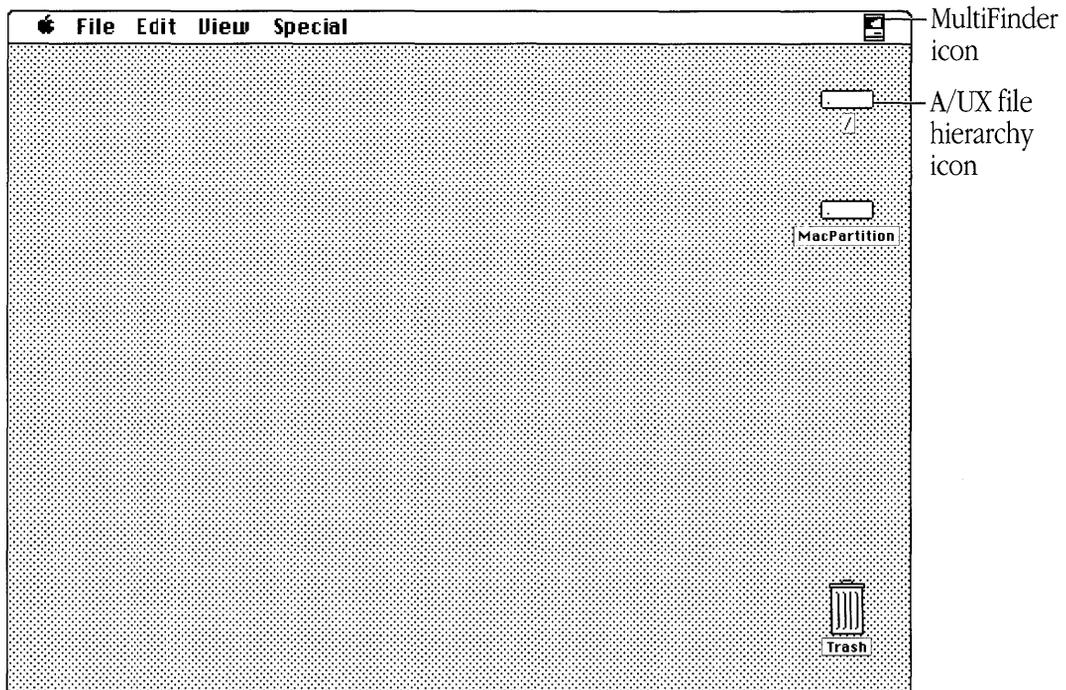
You can type the login name or password again.

You're ready to work

The A/UX Finder™ interface now appears, as shown in Figure 1-6. This is a special application that manages the A/UX desktop. It displays icons that represent the available A/UX and Macintosh file systems. The Finder makes it easy to work with disks, files, programs, and utilities. Use the Finder to open a folder or a file or to execute a program by double-clicking its icon.

If you started A/UX manually, by opening the MacPartition folder and double-clicking the A/UX Startup icon, the MacPartition folder is still open. You can close it by clicking the close box at the upper left of the MacPartition folder's window. If your system starts A/UX automatically, the MacPartition folder is not open when the Finder appears.

■ **Figure 1-6** The A/UX Finder



If your system administrator has set up a personal login account for you, a folder icon labeled with your login name appears near the right edge of your screen. This represents your **home directory folder**. If you logged into the start account (or the Guest account), the start (or the Guest) folder is your home directory folder. The home directory folder contains the startup files, any customized programs or utilities, and any files that belong to that account.

If you are using a home directory folder that is shared by others, such as the start folder or the Guest folder, another user may have moved its icon off the desktop (probably by choosing Put Away in the File menu). To locate the start folder or the Guest folder, follow these steps:

1. Double-click the A/UX file hierarchy icon, at the upper right of the screen.

This is the disk icon with the slash (/) label. This action opens the root folder.

2. Double-click the folder labeled users.

Both the start and the Guest folders are now visible. Other users' home directory folders may also be located here.

- ◆ *Note:* If others have used your system before you, you may see the same windows that were displayed when the previous user logged out. It's possible, therefore, that a window may be covering the icon for your home directory folder. If so, you may have to move some of the windows to find the icon.

You're ready to work. When you're ready to stop working, see the section "Logging Out," later in this chapter, for instructions on logging out of A/UX.

Login options

While the Login dialog box is displayed, you may select one of two options: Change Password and Change Session Type. You can ignore these options unless you plan to (1) change your password, (2) change the session type for using older third-party Macintosh applications that only run in a 24-bit environment, (3) run the console emulator, or (4) run special interfaces that are purchased separately (such as X11). Unless you need to do one of these, you can ignore the login options.

When the Login dialog box is on the screen, display the Options menu, which is in the menu bar at the top of your screen. If you have already logged in and the A/UX Finder is displayed, you can redisplay the Login dialog box by choosing Logout in the Special menu (located in the menu bar at the top of the screen).

The Options menu gives you the following choices:

- **Change Password:** This allows you to change your password. For directions, see “Changing Your Password,” later in this chapter.
- **Change Session Type:** This allows you to run certain older Macintosh applications that use memory differently than the newer applications do. It also allows you to display an A/UX Console Emulator. See “Changing Your Session Type,” later in this chapter.

Changing your password

It's important to change your password often to prevent others from discovering the password and logging in to your account. Use a password that you can remember without writing it down. Don't use a password that is easy to deduce, such as your name spelled backward, your computer login name in capital letters, or the name of a family member.

Display the Login dialog box. If you are already logged in, you must choose Logout from the A/UX Finder's Special menu to display the Login dialog box. Follow these steps to change your password.

1. Choose Change Password from the Options menu.

The Change Password dialog box appears.

It lists the special restrictions that apply to the characters you can use in a password. See `passwd(1)` in *A/UX Command Reference* for more information. If your system administrator has overridden these requirements, a description of them does not appear in the dialog box.

2. Type your login name.

3. Type your old password.

4. Type your new password.

5. Click OK.

Another dialog box directs you to confirm your new password.

6. Type your new password again.

7. Click OK.

The Login dialog box appears again, with the Name and Password fields filled in. You thus have the opportunity to use the Options menu again before completing your login, if necessary.

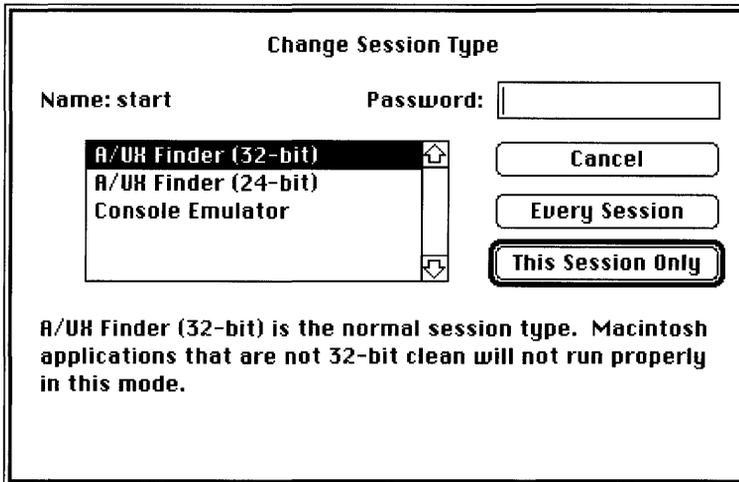
8. Click the Login button.

You are logged in to A/UX. Your new password takes effect. You will have to enter it the next time you log in.

Changing your session type

When you choose Change Session Type in the Options menu (with the Login dialog box displayed), you see the dialog box shown in Figure 1-7:

- **Figure 1-7** The Change Session Type dialog box



A/UX is shipped with the following options:

- **A/UX Finder (32-bit):** This is the default setting. For a description of this option, see the next section, “32-Bit Address Versus 24-bit Address.”
- **A/UX Finder (24-bit):** For a description of this option, see the next section, “32-Bit Address Versus 24-bit Address.”
- **Console Emulator:** This causes a command line interface to appear on your screen. Because this feature is meant primarily for debugging purposes, you will most likely not need to use it. If you want to work with the traditional UNIX-style command-line interface, see “Using the A/UX System Console” in Chapter 5, “Using CommandShell.”

Certain other interfaces that can be purchased separately, such as X11, may be listed in the menu (below Console Emulator), if they have been installed.

32-bit address versus 24-bit address

If you plan to use A/UX with Macintosh files and with software created for the Macintosh computer, you may run into trouble using some older programs created for older versions of the Macintosh computer. The reason is that two kinds of Macintosh applications run in A/UX: **24-bit addressed** applications and **32-bit clean** applications. These terms describe how the application uses memory.

A/UX is set to run in 32-bit addressing mode by default. If you need to change the setting, do so when you log in. See “Login Options,” earlier in this chapter. Unfortunately, it’s not easy to tell what software will run in 32-bit addressing mode until you try to run it. If the software doesn’t work properly, try setting the login mode to 24-bit addressed, as follows:

- 1. Choose Logout in the Special menu under the A/UX Finder.**

After a short wait, the Login dialog box appears.

- 2. Type your login name in the appropriate text box.**

- 3. Choose Change Session Type in the Options menu.**

You see the dialog box shown in Figure 1-7.

- 4. Type your login name and password in the appropriate fields.**

- 5. Choose A/UX Finder (24-Bit).**

- 6. Click This Session Only.**

If you want to use this session type whenever you log in, click Every Session.

The Login dialog box reappears. Note that the password, which you entered into the Change Session Type dialog box, has been transferred to the Login dialog box.

- 7. Complete the login process.**

△ **Important** When you run applications in 24-bit addressing mode, you don’t have access to the entire Macintosh-like environment that exists in 32-bit addressing mode. Turn on 24-bit addressing mode only when it’s necessary. △

When you start an application that is not certified as being 32-bit clean, a warning box appears informing you of this fact. If you know that the application runs properly, you can turn off the warning box by following the directions in the section called “Not 32-Bit Clean” in Chapter 10, “Troubleshooting.”

Logging out

When you finish your work with A/UX, end your work session by logging out. To log out, do this:

- **Choose Logout in the Special menu under the A/UX Finder.**

The system reminds you to save all your unsaved work.

After you log out, the Login dialog box reappears, indicating that you have logged out successfully. The computer remains on, ready for the next user to log in.

Looking up A/UX and UNIX commands on line

There are many places in *A/UX Essentials* where you are advised to check *A/UX Command Reference* for information on A/UX and UNIX commands. You may find the information by displaying the on-line manual pages (usually called the `man` pages). Do this as follows:

1. **With A/UX running, choose CommandShell from the Apple menu.**
2. **In the CommandShell window, type `man commandname` and press RETURN.**

The on-line manual entry for the command you entered in place of *commandname* is displayed.

For instructions on using the `man` command, do the following:

- **Enter `man man` in the CommandShell window.**

Working with Macintosh files in A/UX

You can use Macintosh applications and Macintosh files while you are running A/UX 2.0. This is true whether the files or applications are stored on a disk formatted for the Macintosh or in your A/UX file system. In addition, you can easily move your Macintosh application and files to your A/UX file system (see “Storing Macintosh Files” in Chapter 2, “Getting Around in A/UX”), and you can work with them just as you do when working in the Macintosh OS. The advantage of moving them into the A/UX file system is that you can then use A/UX backup facilities and A/UX file permissions with your Macintosh files.

However, you may wish to store your Macintosh files and applications in a Macintosh file system so that you can use them when you have the Macintosh OS running. Although A/UX can recognize files that are stored in a Macintosh file system, the Macintosh OS can not recognize files that are stored in the A/UX file system.

Using files on HFS hard disks

The MacPartition icon represents a small Macintosh file system on your disk. You can use this for storing Macintosh files, if you wish to. However, since MacPartition doesn't contain a great deal of memory, you may want to add a second hard disk with the Macintosh file system.

If a second hard disk with the Macintosh file system is attached to your computer and is running, after you log in to your account (as described in “Logging In,” earlier in this chapter) you should see an icon representing the Macintosh hard disk in addition to the icons representing the MacPartition disk, the root file system, and your home directory folder. Figure 1-8 shows a hard-disk icon. Although the disk icon illustrated here is labeled Mac Disk, the one on your system will have whatever label has been assigned to it.

- **Figure 1-8** A hard-disk icon



Mac Disk

- **Open the hard disk by double-clicking its icon or by selecting the icon and choosing Open in the File menu.**

You see a window showing the contents of the hard disk.

You can open, change, copy, and use files just as you do in the Macintosh OS. For more information on specific abilities, see *Macintosh Reference*, which was shipped with your computer, and the owner's guide that came with your hard disk.

Working with files on HFS floppy disks

You can work with files stored on a floppy disk whenever you are logged in to an A/UX user account. With A/UX running, follow these steps:

- 1. Be sure that you are in the A/UX Finder by choosing Finder from the Apple menu.**
- 2. Insert the disk into a floppy disk drive.**

An icon representing the disk appears at the right edge of the screen.

- 3. Open the disk by double-clicking its icon or by selecting the icon and choosing Open in the file menu.**

You see a window showing the contents of the disk.

You can open, change, copy, and use files just as you do in the Macintosh OS. For more information on specific abilities, see *Macintosh Reference*, which was shipped with your computer.

For more information on inserting floppy disks and using them for backing up files, see "Backing Up and Restoring Critical Files" in Chapter 2, "Getting Around in A/UX."

Getting to the Macintosh OS

Sometimes you may want to use the Macintosh OS exclusively. If the power has been turned off, follow the directions in the next section (“If the Power is Off”).

If A/UX is running, proceed to the section after that, “If A/UX is Running.”

If the power is off

If the power has been turned off, and if A/UX Startup is set as the startup application on the startup disk, you need to cancel the automatic startup procedure. Follow these directions.

During the initial five seconds of the startup procedure, you can click Cancel on the startup screen to interrupt the procedure. Follow these steps:

1. Press the POWER ON key to turn on the computer.

First the copyright screen appears.

2. With the copyright screen displayed, hold down the COMMAND key while pressing the period key.

If the copyright screen disappears before you have time to do this, a startup screen appears.

3. If the copyright screen has vanished before you could perform step 2, click Cancel during the first five seconds of the startup procedure.

You see the A/UX Startup window with the A/UX Startup # prompt.

4. Choose Quit from the File menu.

The Macintosh OS Finder appears. Icons for the Macintosh HFS hard disks connected to your system appear on the right side of the screen. Note that the A/UX root (/) disk does not appear. The Macintosh OS does not recognize the A/UX file system.

To begin using a file on your Macintosh OS hard disk, open it by double-clicking its icon. Refer to the *Hard Disk SC Owner's Guide* or to the owner's guide that came with your computer for information about setting up and using files and folders on this disk.

If A/UX is running

If the computer is on and running A/UX, follow these directions:

- 1. Choose Restart from the Special menu, with either the Finder or the Login dialog box displayed.**

The Restart dialog box appears.

- 2. Enter the root password in the appropriate text box.**

If you are already logged in as the root user, you are not asked for the root password here.

- 3. If others are using the system, type a warning message in the next text box.**

Your message is broadcast to other users.

If you are the sole user of this system, you are not asked for this information.

- 4. Type a number specifying the delay, in minutes, between the time the message is transmitted and the time other users must have completed logging out.**

Give other users a reasonable amount of time to save their work and to log out.

If you are the sole user of this system, you are not asked for this information.

- 5. Click Restart.**

- 6. With the copyright screen displayed, hold down the COMMAND key while pressing the period key.**

If the copyright screen disappears before you have time to do this, a startup screen appears.

- 7. Click Cancel during the first five seconds of the startup procedure.**

- 8. Choose Quit from the File menu.**

The Macintosh OS Finder appears. Icons for the Macintosh OS hard disks connected to your system appear on the right side of the screen. Note that the A/UX root (/) disk does not appear. The Macintosh OS does not recognize the A/UX file system.

To begin using a file on your Macintosh HFS hard disk, open it by double-clicking its icon. Refer to the *Hard Disk SC Owner's Guide* or to the owner's guide that came with your computer for information about setting up and using files and folders on this disk.

Getting your bearings

This section describes how to find out what account you're using, what you are allowed to do with it, and how to work in a different account than the one you are currently logged in to.

Who are you?

If you forget your login name, use the `whoami` command to find out what it is.

Follow these instructions.

- 1. Choose CommandShell from the Apple menu.**

A window appears on the screen. CommandShell and the shell language are described in Chapter 5, "Using CommandShell." For now, think of the CommandShell window as a way to communicate with the computer.

- 2. Enter the command: `whoami`**

Remember that you enter a command by typing the command and pressing the RETURN key. In a few seconds you see a response that identifies the account name.

- 3. Choose Finder from the Apple menu.**

This action returns you to the Finder.

What are you allowed to do?

Table 1-1 shows what types of actions you can perform and where you can find more information about these tasks.

■ **Table 1-1** What you can do

Who you are	What tasks you can do	Where to find information
Regular user	Log in and log out	Chapter 1
	Use A/UX programs and utilities	Chapter 2
	Create, print, manage, and store documents	<i>A/UX Command Reference</i>
	Use conforming Macintosh applications and desk accessories	<i>Macintosh Reference</i>
	Change your password	Application user's guide
	Connecting to a network	Chapter 1
		<i>Setting Up Accounts and Peripherals for A/UX</i>
Guest user	Same as regular user	
Root user	All the above, plus:	
	Add user accounts:	<i>Setting Up Accounts and Peripherals for A/UX</i>
	Turn the system off and start it up again	Chapter 1
	Add and manage peripheral devices	<i>Setting Up Accounts and Peripherals for A/UX</i>
	Set up and manage a network	<i>A/UX Network System Administration</i>

Using a different user account after logging in

While you're working in one login account, you may want to accomplish some task in a different login account without logging out of the system and logging back in to the other account. When you do this, you have become a **substitute user**. The ability to become a substitute user is useful if you need to work in another account briefly. For example, if you need to perform a system-administration task, but you are currently working in a user account, you can temporarily use the root account, perform the task, then return to your user account without having to log out and log back in twice.

This section lists the steps you take to accomplish this.

To become a substitute user, you must work in a CommandShell window. The CommandShell window actually removes you from the A/UX Finder temporarily and places you in a traditional UNIX-style environment. You are a substitute user only as long as you are working in that CommandShell window. When you return to the A/UX Finder, you are still working in the same account you were logged in to before you became a substitute user.

You can work in any account if you know its login name and its password. Becoming a substitute user does not log you out of your own account and in to a new account; it merely allows you to work in the other account temporarily. As soon as you log out of the other account, you are again working in your own account.

1. Choose CommandShell from the Apple menu.

A window appears with the cursor blinking in the upper-left corner.

2. Enter the command `su` plus a space, and the login name of the new account.

The `su` (substitute user) command allows you to work in a different account from the one you are currently logged in to. After you type `su`, leave a space and type the login name of the new account. Then press RETURN. A/UX displays the following prompt:

Password:

You need to know the password for the new account to complete this procedure.

3. Type the password.

No characters are displayed as you type the password here.

4. Press RETURN.

When you press RETURN, A/UX reads the password. If the login name and the password are correct, you may begin to work in the new account. If either the login name or the password is incorrect, you see the following message:

```
su: Sorry
```

In this case, you are still working in the same account you were originally using.

Shutting down A/UX

You may sometimes need to shut down A/UX to do system maintenance, for instance, to add peripheral devices to a network or to repair a file system. To shut the system down properly, you need to know the password for the root account.

- ▲ **Warning** Don't use the switch on the back of the Macintosh computer to turn it off while A/UX is running. Doing so may corrupt the file system and may cause a loss of data. Always use the correct shutdown procedure to turn off the computer. ▲

Shutting down the computer

Follow these steps to shut down the computer:

1. **With either the Finder or the Login dialog box displayed, choose Shut Down from the Special menu.**

You see the Shut Down dialog box, shown in Figure 1-9.

■ **Figure 1-9** The Shut Down dialog box



2. Enter the root password in the appropriate text box.

If you logged in as the root user, you are not asked for this password.

3. If others are using the system, type a warning message in the next text box.

Your message is broadcast to other users.

If you are the sole user of this system, you are not asked for this information.

4. Type a number specifying the delay, in minutes, between the time the message is transmitted and the time the other users must have completed logging out.

Give the other users a reasonable amount of time to save their work and to log out.

If you are the sole user of this system, you are not asked for this information.

5. Click Shut Down.

If you want to shut down and start up again immediately, choose Restart, instead of Shut Down, from the Special menu. The Restart dialog box appears. The procedure is the same as the shutdown procedure.

About system administration

When several people use an A/UX system, a system administrator must maintain the system. The system administrator sets up user accounts, keeps track of passwords, sends out messages regarding procedures and schedules, watches out for system security, and serves as a troubleshooter for any problems that arise.

When you're using A/UX, you may be the only person using the computer and must therefore act as your own system administrator. The system administrator uses the root account to perform maintenance tasks. This account has access to all files in the entire file system. Thus, if you're the system administrator for your A/UX system, you should log in to your user account to do your normal work. Then, when you need to perform a maintenance task, you should log out and log in again using the root account.

Maintaining the start account

The `start` folder contains a script called `setup`. After someone uses the `start` folder for tutorials, the material in this folder may well be altered. To restore it to its original condition, run the `setup` script as follows:

- **Double-click the setup icon in the start folder.**

The `start` folder is restored to its original form.

For further information on system administration, see *Setting Up Accounts and Peripherals for A/UX* and *A/UX Local System Administration*.

Chapter 2 **Getting Around in A/UX**

This chapter describes how you use files in A/UX. It explains how file systems are structured, which file systems you can use, and how to maintain your files.

Before using this guide, you need to know basic Macintosh skills, such as clicking, dragging, pulling down menus and choosing from them, and using Macintosh windows. If you are new to the Macintosh computer, take the tour on the tour disk provided with your Macintosh computer or read the appropriate sections in the *Macintosh User's Guide; Essentials*.

This chapter contains the following sections:

- Identifying what you see on the screen
- Using the Finder
- Finding commands and utilities
- The A/UX Finder icons
- Protecting your files and folders
- Using folders
- Manipulating your files
- Storing Macintosh files
- Backing up and restoring critical files
- Pathnames in the A/UX file system

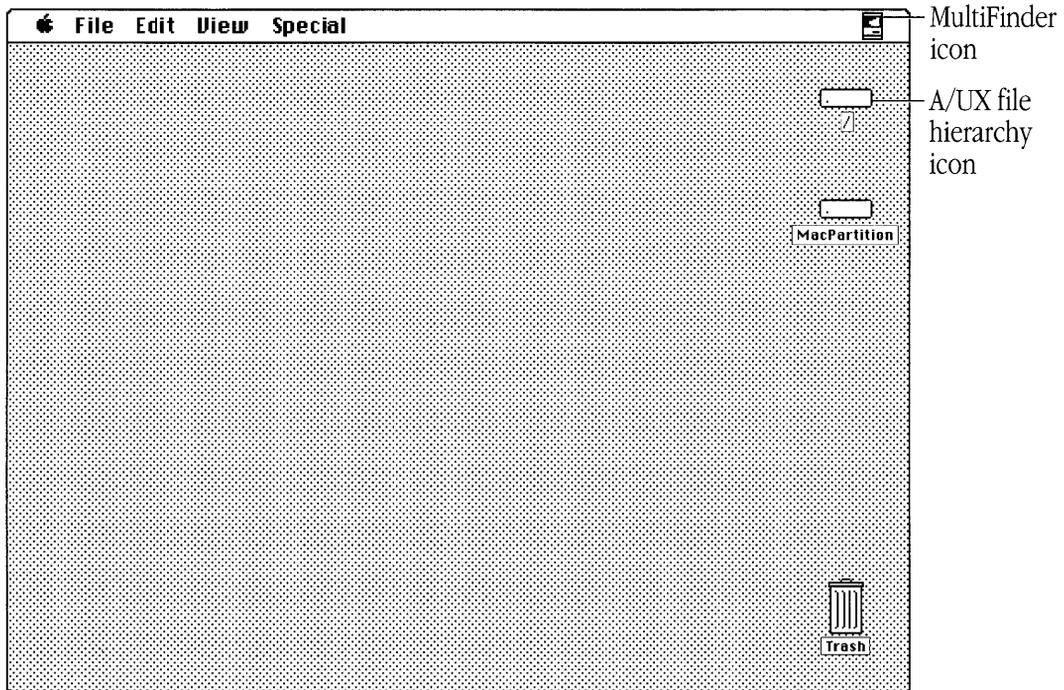
You can read this chapter in sequence or go directly to the section that contains the information you need.

Identifying what you see on the screen

This section identifies the various objects that appear on the screen in A/UX 2.0. When you log in to A/UX 2.0, you don't automatically see the command-line interface familiar to most UNIX users. A/UX starts up with the A/UX Finder interface, an application that is similar to the Macintosh Finder in functionality and appearance. It's a graphical representation of the operating system that presents icons based on real-world metaphors.

If you're familiar with the Macintosh Finder, you will recognize the A/UX Finder shown in Figure 2-1. Note that the MacPartition folder is not open in Figure 2-1. As you learned in Chapter 1 ("Starting and Finishing a Work Session"), this window is open if you have started A/UX manually. It is not displayed if you have set A/UX to start automatically.

■ Figure 2-1 The A/UX Finder



Using the Finder

The Finder graphically represents a desktop environment. It displays icons that represent objects (such as files or folders) in the A/UX file system. Each icon identifies an object or function by its resemblance to a real-world object. For example, if you toss a document into a trash can, you dispose of it; in the Finder, if you drag a file icon to the Trash icon, you remove it from your disk.

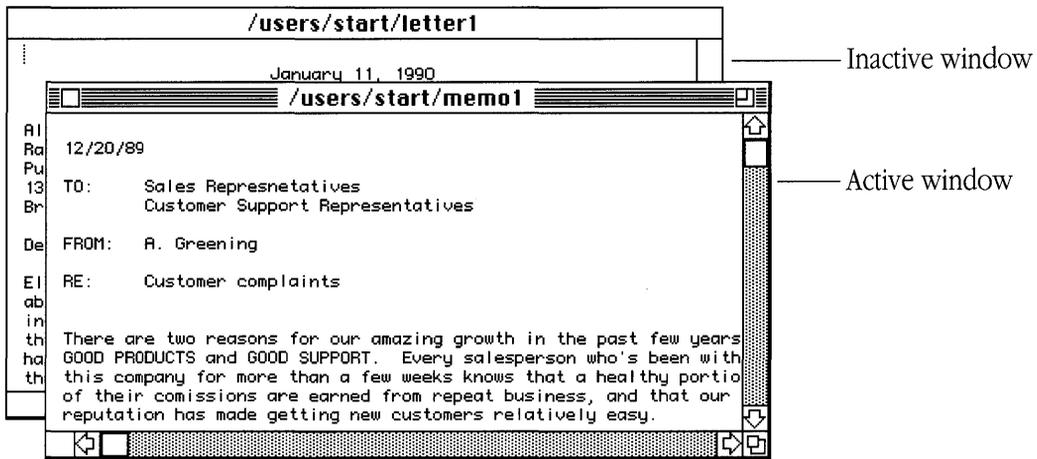
If you are acquainted with recent Macintosh models, you may be familiar with MultiFinder®, which enhances the Finder. A/UX 2.0 has MultiFinder installed permanently, and so MultiFinder runs automatically when you start A/UX. For those who are not acquainted with MultiFinder, its enhancements to the Finder are listed here. The A/UX Finder allows you to do the following:

- You can work with different A/UX and Macintosh applications concurrently. You can copy and paste information between documents and applications easily and quickly, without having to save the file from one application before you open a file from the other application.
- You can have immediate access to the Finder without having to close the application you're using. Thus, you can open additional applications whenever you wish, rename or delete documents you aren't working on, and so on.
- A/UX is a multitasking system. That means that you can run several applications *at the same time*. Since the A/UX Finder allows you to open several applications at once, applications may work in the background (for example, to print a long document) while you use another application, such as a spreadsheet.

Using several applications at one time

The A/UX Finder allows you to display many windows at the same time. You can work with a text editor in one window; then, while the document is being sent to the printer (and without closing the text editor window), you can display another window to work with a second application. The application with which you are currently working is in the **active window**, which always has stripes running across the title bar. It is always in the foreground. If the other windows in the A/UX Finder occupy the same screen area, all the other windows are behind the active window. Figure 2-2 shows an active and an inactive window.

■ **Figure 2-2** An active and an inactive window



- ◆ *Note:* Although you can work only in the active window, the applications used in the other windows may well be running and processing their instructions. This is called running an application in the background, or **backgrounding** a process. The phrase *inactive window* merely indicates that you cannot interact with the window for the moment; under A/UX, it does not indicate that the application used in that window is not running.

Finding commands and utilities

The A/UX Finder provides menus that allow quick access to common commands used for file-system organization. These menus are available on the menu bar at the top of the screen. You can open a menu, look for a command, and choose it from the menu. The list that follows shows the standard menu titles and the types of commands you'll find in each menu.

- **Apple menu:** Desk accessories and active applications
- **File menu:** commands to manipulate files
- **Edit menu:** commands to edit or change filenames or folder names
- **View menu:** commands to change the way folder contents appear on the screen
- **Special menu:** commands that act on the Finder or the operating system

In Chapter 9, "A/UX Reference," you'll find a complete list of the menu commands with brief descriptions of the actions associated with the commands.

The A/UX Finder icons

The A/UX operating system contains many files and folders, each of which is represented by an icon in the A/UX Finder. This section illustrates what icons you see and what they represent.

Folders and documents

A reminder about terminology: In traditional UNIX® terminology, the term "directory" is used for the object that is called a "folder" in the Macintosh environment. Thus, in traditional UNIX terms, the file system contains mainly two types of file: plain files and directories. Directories, in turn, can contain plain files and other directories. This is also true of A/UX.

Although users who are using A/UX in the CommandShell will find it useful to think in traditional UNIX terms, and will refer to “directories” rather than “folders,” those who are using the Macintosh desktop interface will probably prefer to think in terms of the folder and file icons that are in the Finder. Because the Finder is discussed in this section, the term “folder” is used consistently here. In sections that discuss the A/UX command line interface, which is in the style of the UNIX system (for example, in “Pathnames in the A/UX File System,” later in this chapter) the word “directory” is used.

The A/UX Finder represents files and folders with distinctive icons. Since a folder can contain files and other folders, folders are represented by the file folder icon familiar to Macintosh users. The folder is much like a regular file folder in a real office. It contains files and other folders that are related to each other or to a common topic.

You can give a folder any name that makes sense to you. You can put files in folders, and folders in folders, to the degree that satisfies your need for organization. If you have permission to open a folder, when you open it you see a window with icons representing the folder’s contents.

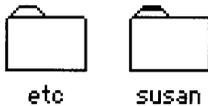
The icon for a given file or folder changes according to the user permissions (for a description of permissions, see “Protecting Your Files and Folders” later in this chapter). Icons that are shaded, for example, indicate that you do not have read and/or write permission. Note that this refers only to your permissions. Other users have different permissions, and their own permissions are therefore reflected in the icons they see.

Folder icons

This section illustrates the different folder icons that you may see in the A/UX Finder.

Folder icons: The two icons in Figure 2-3 represent folders for which you have read and execute permission. You may or may not have write permission. The marked tab on the folder on the right indicates that you own the folder (that is, you created it, or ownership has been transferred to you).

■ **Figure 2-3** Folder icons



Dimmed folder icon: This icon (Figure 2-4) indicates that you cannot open this folder, nor can you change any of its contents.

■ **Figure 2-4** Dimmed folder icon



Drop box icon: This icon (Figure 2-5) represents a folder for which you have write and execute permission only. You cannot see or read the files in the folder, but you can place files in it.

- **Figure 2-5** Drop box icon



Current system folder icon: This icon (Figure 2-6) represents the system folder that the system is currently using.

- **Figure 2-6** Current system folder icon



File, application, and utility icons

The following icons represent various kinds of files, commands, scripts, and applications. In A/UX 2.0 you can use applications and utilities from both A/UX and Macintosh file systems.

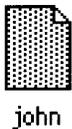
A/UX text-file icon: This icon (Figure 2-7) represents a text file for which you have read permission. When you double-click this icon, the file opens using the default text editor. For information on the default text editor, see Chapter 6, “Writing with TextEditor.”

- **Figure 2-7** A/UX text-file icon



Nonexecutable file (without read permission) icon: This icon (Figure 2-8) represents any nonexecutable file to which you are denied read permission. For example, it could be a text file, a shell script, or an application (to which you are denied execute permission as well as read permission).

- **Figure 2-8** Nonexecutable file (without read permission) icon



Nonexecutable data file icon: This icon (Figure 2-9) represents a file that is not a text file and that you may not execute.

■ **Figure 2-9** Nonexecutable data file icon



UNIX (A/UX) command icon: This icon (Figure 2-10) represents an A/UX command. When you double-click this icon, you see a Commando dialog box, which allows you to run the command.

■ **Figure 2-10** UNIX (A/UX) command icon



Shell script icon: Note the similarity between this icon (Figure 2-11) and an A/UX command icon (Figure 2-10). This icon functions as though it were a UNIX command icon, that is, double-clicking the icon displays a Commando dialog box. If no Commando dialog box has been created for the shell script, a default dialog box appears, which allows you to enter the script's options and arguments. For further information on Commando dialog boxes, see Chapter 4, "Using Commando."

■ **Figure 2-11** Shell script icon



basename

Executable file (without read permission) icon: This icon (Figure 2-12) represents a file that you can run (such as an application), but for which you do not have read permission. Many applications (such as those supplied by third-party developers) represent their products with their own custom-designed icons, which appear in place of this icon.

■ **Figure 2-12** Executable file (without read permission) icon



joan

HyperCard application icon: This icon (Figure 2-13) represents the HyperCard application. Under A/UX 2.0, you may run Macintosh applications, such as HyperCard, by double-clicking the icon just as you do under the Macintosh OS. The application may be stored in a Macintosh file system (for example, on a Macintosh hard disk), or in your A/UX 2.0 file system.

- **Figure 2-13** An application icon



Available file systems

This section describes icons that represent available file systems. In A/UX 2.0 you can mount and use both A/UX and Macintosh file systems. The icons described in this section represent the different file systems you can access.

A/UX file hierarchy icon: This icon (Figure 2-14) represents the top level of the A/UX file hierarchy.

- **Figure 2-14** A/UX file hierarchy icon



Macintosh hard disk icon: This icon (Figure 2-15) represents a hard disk that contains a Macintosh file system.

- **Figure 2-15** Macintosh hard disk icon



MacPartition

Macintosh floppy disk icon: This icon (Figure 2-16) represents a floppy disk with a Macintosh file system.

- **Figure 2-16** Macintosh floppy disk file icon



text backup

Useful Commands

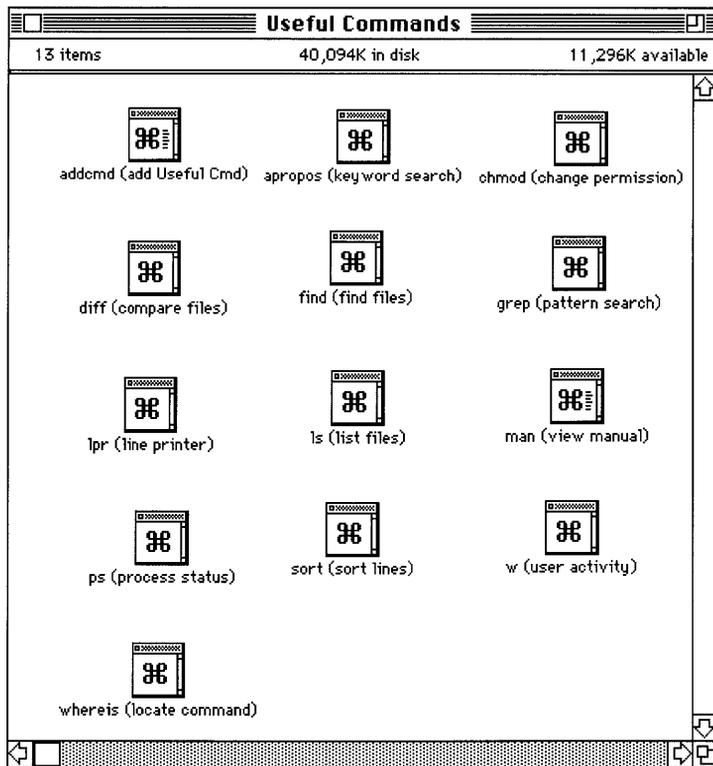
When you open the start folder, the Guest folder, or your home directory folder, you see a folder icon labeled Useful Commands. This folder contains a collection of frequently used A/UX commands. To use these commands, follow these directions:

1. **Double-click the Useful Commands folder icon.**

This opens the folder shown in Figure 2-17 and displays the icons that represent the commands.

Note that when you open this folder, the icons may be so close together that their labels overlap. You may click and drag them to arrange them as illustrated in Figure 2-17 or you may choose By Name in the View menu. This lists the contents of the folder alphabetically by name.

■ **Figure 2-17** The Useful Commands folder



2. Double-click the icon for the command you want to execute.

A Commando dialog box for that command appears. For details on Commando, see Chapter 4, “Using Commando.”

You may try this now by double-clicking the `ls` icon. The use of this icon is described in Chapter 4, “Using Commando.” Click Cancel to close the dialog box.

Commands in the Useful Commands folder

There are two versions of the Useful Commands folder: one in your home directory and another in the root account.

The Useful Commands directory in a user’s home directory contains the following commands (for further information about these commands, see *A/UX Command Reference*):

- **addcmd (add Useful Cmd):** Adds the desired command to the Useful Commands folder by creating a link to the actual command. See the next section, “Adding New Commands to the Useful Commands Folder.”
- **apropos (keyword search):** Performs a keyword search of the synopses of the on-line manual pages.
- **chmod (change permission):** Allows you to change the permissions of a file or a directory.
- **diff (compare files):** Compares two text files and shows the lines that differ.
- **find (find files):** Finds and displays the location of a file.
- **grep (pattern search):** Searches files to find lines that match a given pattern.
- **lpr (line printer):** Sends a file to the printer.
- **ls (list files):** Lists the files and directories in a given directory.
- **man (view manual):** Displays the on-line manual page for a given command.
- **ps (process status):** Prints information about the active processes.
- **sort (sort lines):** Sorts the lines of designated files and displays the results.
- **w (user activity):** Prints a summary of all activity on the system, including what every user is doing.
- **whereis (locate command):** Finds the location of the specified command in the file system.

The Useful Commands folder in the root account contains the following commands in addition to those listed above:

- **adduser (add new user):** Adds a new user account to the system.
- **date (change date):** Displays and sets the current date and time.
- **df (disk freespace):** Displays the number of free blocks and free inodes available for a mounted file system.
- **fsentry (install filesystem):** Creates an entry in the file system table (`/etc/fstab`).
- **mount (mount filesystem):** Used in mounting a file system.
- **newconfig (configure system):** Invokes the commands necessary to prepare and configure a new kernel.
- **setport (set serial port):** Adds or modifies entries for serial ports.
- **settimezone (set timezone):** Sets the time zone.
- **umount (unmount filesystem):** Used to unmount a file system.

Adding new commands to the Useful Commands folder

As you become more familiar with A/UX 2.0, you may want to add to this folder the commands you find most useful.

The Useful Commands folder contains an icon labeled `addcmd`. This icon represents a script that allows you to add an A/UX command to the Useful Commands folder.

To add a command, follow these steps:

1. **Double-click the `addcmd` icon.**

The dialog box illustrated in Figure 2-18 appears.

- **Figure 2-18** The addcmd dialog box

The image shows a dialog box titled "addcmd Options". It contains several sections:

- addcmd Options**: A section header.
- Command name:** A text input field.
- Output**: A text input field.
- Error**: A text input field.
- Command Line**: A text input field containing the text "addcmd".
- Help**: A text area containing the text "Add a command to your 'Useful Commands' folder. addcmd puts a symbolic link to the command in your 'Useful Commands' folder."
- Buttons**: Two buttons, "Cancel" and "addcmd", located at the bottom right of the dialog box.

2. Type the command in the text box labeled “Command name”.

You can type a phrase in parentheses describing the command, if you wish.

For example, type the following: `who (list users)`.

3. Click the **addcmd** button.

When you redisplay the Useful Commands folder, you will see an icon representing the command you have added. If you have followed the directions in step 2, the icon is labeled `who (list users)`.

Command storage locations

Once you become familiar with the A/UX file system, you'll recognize common storage locations for programs. Unless you are the system administrator, you should not modify any files in the system folders. Some of the locations are listed here. Note that their locations are described as A/UX pathnames; for information on pathnames, see “Pathnames in the A/UX File System,” later in this chapter.

- **/mac/bin**—applications, such as TextEditor or CommandShell, that are UNIX-like but have Macintosh features
- **/mac/sys/System Folder**—Macintosh programs, desk accessories, and the System Folder and its contents
- **/etc**—system administration files

Protecting your files and folders

A/UX is a multi-user system that allows you to share files with other users. It also provides a way to protect your files and folders so that only you (or a restricted group of users) can open, read, change, or run them. Just as only the person who knows an account's password can log in to that account, only users with the correct access permissions can use files or folders. The person who owns the folder or file (that is, the one who created it or who has been granted ownership) controls the accessibility of that folder or file. The only exception to this is the person who is logged in as root. That person has access to all files. For that reason, only the system administrator has permission to log in as root, under most circumstances. Because of these special privileges, the person logged in as root is called the **superuser**.

File access permissions

File access permissions determine who can use a particular file and what they can do with it. Three types of permission exist. You can set **read permission**, **write permission**, and **execute permission** for each file.

- **Read permission** allows you to open the file and read it.
- **Write permission** allows you to change the file.
- **Execute permission** allows you to run an executable file, such as an application or a script.

Categories of users

Every file's permissions grant or deny access to the file according to the user's membership in one or more of three categories. A description of these three categories follows:

- **Owner (sometimes called User) permission**

The person who owns the file. If the file has **owner permission**, the person who is logged in as the owner of the file can use it. The **owner** of a file or folder is the user who created it. Ownership can be transferred to a different user with the `chown` command. For further information on the `chown` command, see `chown(1)` in *A/UX Command Reference*.

- **Group permission**

A specific named group of users. If the file has **group permission**, those who are assigned to this group can use it.

- **Others (sometimes called World) permission**

Everyone who has an account on the system. If the file has **others permission**, everybody logged in can use it.

Therefore, each form of permission (read, write, and execute) can be assigned to the owner, to a specified group of users, and/or to all users logged in to the system.

Checking a file's permissions

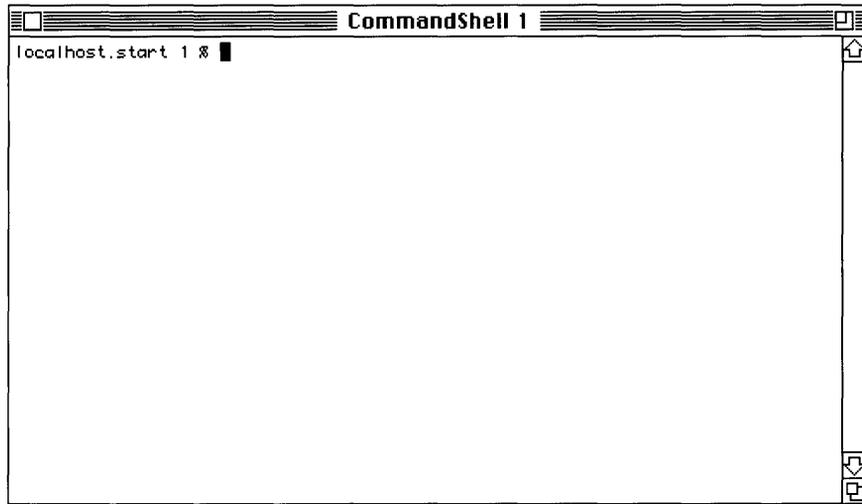
To check the current permissions of a file, you must examine its so-called **long listing**.

Check the permissions of the file called `letter1` in the `start` directory. During the course of this brief tutorial, you are working in a CommandShell window. Therefore, this tutorial uses UNIX-style A/UX terminology; that is, the `start` *directory* rather than the `start` *folder*.

1. **Choose CommandShell from the Apple menu.**

A CommandShell window appears, as shown in Figure 2-19.

- **Figure 2-19** A CommandShell window



If a CommandShell window does not appear, choose Open from the File menu after choosing CommandShell from the Apple menu. For details on CommandShell windows, see Chapter 5, “Using CommandShell.”

2. **To be sure that you are in the `start` directory, enter:**

```
cd /users/start
```

The command `cd` means “change directories.” For an explanation of the pathname `/users/start` (and of pathnames in general), see “Pathnames in the A/UX File System,” later in this chapter.

3. **Enter the command: `ls -l` (there is a space between `ls` and `-l`). Be sure that you type the letter “`l`” and not the number “one.”**

This displays a long listing of the contents of the directory in which you are working. A **long listing** indicates more than just the filename. It indicates the permissions, the owner, the size of the file, the date on which the file was last modified, and other information.

Look for the line labeled `letter1` in the column on the right. The line appears as follows:

```
-rw-r--r-- 1 start project 1289 Jan 18 19:20 letter1
```

Each column gives some information about the file `letter1`:

- **-rw-r--r--**: the file's permissions (explained below)
- **1**: the number of links. You need not be concerned with this
- **start**: the name of the file's owner (in this case, the file is owned by whoever is logged into the `start` account)
- **project**: the name of the group
- **1289**: The size of the file (in bytes)
- **Jan 18 09:20**: The date and time on which the file was last modified
- **letter1**: The filename

The first column of that line contains the following string of characters:

```
-rw-r--r--
```

If `letter1` were the name of a directory within the `start` directory (that is, if it were a **subdirectory**), the first character would be the letter `d` rather than a dash. The fact that the first character is a dash means that `letter1` is a regular file, not a directory.

There are nine more characters on the line. Consider them in three groups of three characters each:

```
rw- r-- r--
```

- The first group of three characters refers to owner (or user) permission.
- The second group of three characters refers to group permission.
- The third group of three characters refers to others (or world) permission.

As for the characters themselves, they have the following meanings:

- **r** means read permission has been granted.
- **w** means write permission has been granted.
- **x** means execute permission has been granted (for executable files only, such as programs or shell scripts, and for most folders).
- **-** means permission has been denied.

Furthermore, for each group of three, these characters always occur in the same order: **rwX**. That is, you are always told first about read permission, then about write permission, and finally about execute permission.

Thus, **-rw-r--r--** means:

- **-** This is a file, not a directory.
- **rw-** The owner of the file has read and write permission, but not execute permission. This is a nonexecutable file. If you accidentally assign it execute permission, the system will attempt to treat it like a shell script when you double-click its icon. This will result in an error message.
- **r--** The group has read permission only. No one in the group can change this file.
- **r--** All others (besides the owner of the file and the group) have read permission only. No one but the owner can change this file.

Changing file access permissions

The `chmod` (change mode) command allows you to change the permissions for any file that you own. You use `chmod` to grant or to deny read, write, and execute permissions for the three categories of user.

During the course of this brief tutorial, you will work in a CommandShell window. Therefore, this tutorial uses A/UX terminology, which is like the terminology of the UNIX system; that is, the *start directory* rather than the *start folder*.

In the section “Checking a File’s Permissions,” earlier in this chapter, you learned that the file `letter1` in the `start` directory allows only read permission to the group.

Since this tutorial consists of changing the permissions of a file whose owner is `start`, you must be logged in as `start`. If you are not logged in as `start`, follow these directions:

- 1. If you have been working in a CommandShell window, make the A/UX Finder active again by choosing Finder in the Apple menu or by clicking the MultiFinder icon (at the upper right corner of the screen).**
- 2. Choose Logout in the Special menu of the A/UX Finder.**
- 3. When the Login dialog box appears, log in as start.**

Follow the login instructions in “Logging In for the Tutorials” in Chapter 1, “Starting and Finishing a Work Session.”

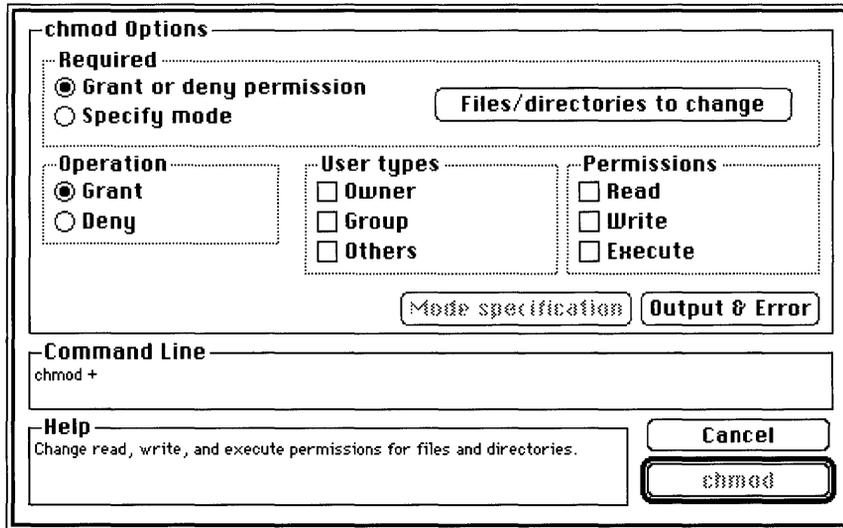
To practice granting write permission to the group, you first need to display the Commando dialog box for the `chmod` command. Complete the following steps:

- 1. If you have been working in a CommandShell window, make the A/UX Finder active again by choosing Finder in the Apple menu or by clicking the MultiFinder icon (at the upper right corner of the screen).**
- 2. With the start folder open, double-click the Useful Commands icon to display the Useful Commands folder.**
- 3. Double-click the `chmod` icon.**

The Commando dialog box for the `chmod` command appears on the screen. Figure 2-20 shows the `chmod` commando dialog box.

Commando is a tool that helps you build commands in the A/UX command line. Chapter 4 (“Using Commando”) explains Commando in detail. For now, continue with the steps presented in this tutorial.

- **Figure 2-20** The `chmod` Commando dialog box



To execute `chmod` with this dialog box, do the following:

1. **Be sure that the “Grant or deny permission button” is clicked.**
2. **Under Operation, click the Grant button (if it isn’t already highlighted).**
3. **Under “User types,” click Group.**

This tells the system that you are about to change permissions for the group.

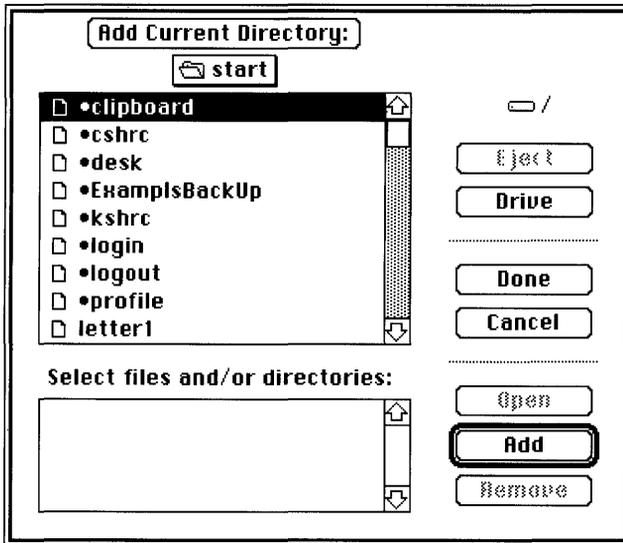
4. **Under Permissions, click Write.**

You don’t need to grant read permission because the group already has it.

5. **Click the “Files/directories to change” button.**

In response, the system displays the dialog box shown in Figure 2-21.

■ **Figure 2-21** Files to Change dialog box



6. **Choose `letter1` in the list by double-clicking it (or by selecting it and clicking Add).**

This places the filename `letter1` in the “Select files and/or directories” box.

7. **Click Done.**

This redisplay the `chmod` Commando dialog box.

8. **Click `chmod`, which is at the lower right corner of the dialog box.**

Now follow the directions under “Checking a File’s Permissions,” earlier in this chapter, to see the new permissions for `letter1`.

Change the permissions back by denying write permission to the group. Simply follow the procedure you just used to grant write permission to the group. The difference now is that instead of clicking the Grant button, you click the Deny button.

You can also use `chmod` to grant or deny permission for folders. However, be careful when you're granting or denying folder permissions. The terms "read," "write," and "execute" have special meanings when applied to folder permissions. See the next section, "Folder and Directory Access Permissions," for more information.

If you want detailed information about the `chmod` command, see `chmod(1)` in *A/UX Command Reference*. For more information about file-protection schemes, see *A/UX Local System Administration*.

Folder and directory access permissions

You can set the access permissions of folders or directories that you own. Folder and directory access permissions can be somewhat confusing because they have the same names as file access permissions (read, write, and execute), but they affect folders and directories differently than they affect files. In addition, directory access permissions in the CommandShell work somewhat differently than folder access permissions in the A/UX Finder.

The following general rules apply to directory access permissions if you are working in the CommandShell:

- **Read permission** allows you to read the contents of a directory (that is, to list its contents with the `ls` command and many of the command's options; see Chapter 4, "Using Commando"). However, it doesn't allow you to go into the directory or to add, rename, or remove any of its contents.
- **Execute permission** allows you to enter the directory, but you cannot list its contents, nor can you add, remove, or rename its contents. You can access the items in the directory only if you know their names.
- **Write permission** allows you to add or to remove items from the directory, or to rename them, if you already know the items' names. However, you cannot enter the directory, nor can you list its contents.

These permissions are usually used in combination, although they may be of some use individually. For example, a directory that has only execute permission can be used to prevent snooping by unauthorized users.

UNIX directory permissions in the CommandShell work differently than folder permissions in the A/UX Finder because in order to see what a folder contains in the A/UX Finder, or to remove or rename anything in the folder, you must open the folder by double-clicking it. Since that is equivalent to entering the folder, you need read and execute permission. In fact, the A/UX Finder insists that you have execute permission before you can do anything useful with a folder.

The following list shows the permissions you need in order to perform various operations upon a folder in the A/UX Finder:

- **To open a folder and read its contents**, you need read and execute permissions.
- **To open a folder and add, rename, or remove files**, you need read, write, and execute permissions.
- **To add items to a folder that you cannot open and whose contents you cannot see, rename, or remove**, you need write and execute permissions. This folder is commonly called a drop box, because once you add an item to it, that item is available only to a user who has at least read and execute permissions.

Note, however, that if you are using the CommandShell, you can use UNIX commands to manipulate an item in a drop box, provided that you already know the item's name. As mentioned above, A/UX directory permissions allow a user with write and execute permission to enter and to change the contents of a directory.

Changing folder permissions

To change the permissions for a folder, follow the directions given earlier in this chapter in "Changing File Access Permissions." The only difference is that instead of selecting a filename from the list of items in the directory (Step 6), you click the Add Current Directory button above the directory name (shown in Figure 2-21).

Default access permissions

When you create a file or a folder, the system automatically assigns certain preset access permissions for you, your group, and other system users. As shipped, the A/UX default access permissions are listed in the following sections.

For regular nonexecutable files

The default access permissions for newly created regular text files are as follows:

- **Owner:** read, write
- **Group:** read
- **Others:** no permission

Folders and executable files

Newly created folders and compiled programs are automatically assigned the following default permissions:

- **Owner:** read, write, execute
- **Group:** read, execute
- **Others:** no permission

Shell scripts

A shell script is a text file that consists of one or more A/UX commands that run as a program when you double-click the file's icon in the A/UX Finder. A/UX does not know that a newly created shell script is anything other than a regular text file. Therefore, it assigns the default permissions for a text file. After you create a shell script, assign execute permission as follows:

- **Enter the command:** `chmod +x filename` (in a CommandShell window).

The command `chmod +x` automatically enhances the default permissions to the shell script as follows:

- **Owner:** read, write, execute
- **Group:** read, execute
- **Others:** no permission

Changing default permissions

To change the default permissions, use the `umask` command. The use of this command is described in `sh(1)` in *A/UX Command Reference*.

Using folders

When you log in to your A/UX system, your home directory folder appears on the right side of the desktop.

The home directory folder contains any files that are specific to your user account. You should store all your files in it, as well as any applications you like to use, unless there is a specific reason for storing them in a different folder (for example, certain applications might require their own folders, or you may be sharing applications with other users).

You can customize your working environment by altering the information stored in system files in your home directory folder. Chapter 3, “Customizing Your Work Environment,” explains how to do this.

Looking at the contents of a folder

Folders in A/UX behave as they do in the Macintosh OS. To see what your current folder contains, you open the folder. Follow these steps:

1. Click your home directory folder to select it.

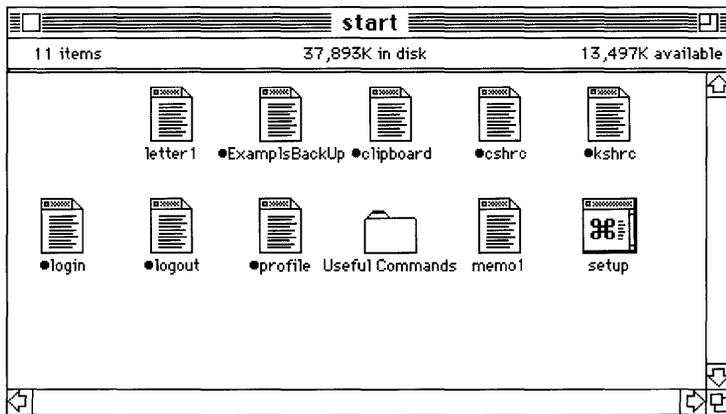
The icon is highlighted to show that it is selected.

2. Choose Open from the File menu.

You can also double-click a folder icon to open it. A window appears showing you the contents of the folder. You can change the way the contents appear by using the commands in the View menu.

Figure 2-22 shows the contents of the `/users/start` folder.

- **Figure 2-22** The contents of the folder `/users/start`



Moving to a different folder

From your home directory folder you can move to other folders.

When you move to a new folder, it becomes the current folder. Follow these steps:

- 1. Locate the folder that you want to use.**
- 2. Double-click the folder to open it.**

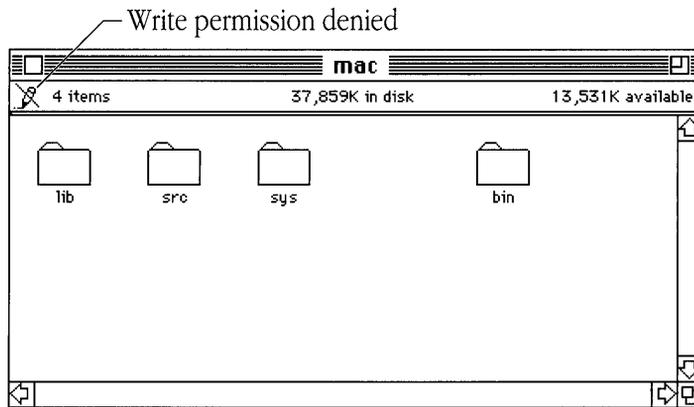
You can now look at or use the contents, if you have the appropriate permission (see “Folder and Directory Access Permissions,” earlier in this chapter).

Creating a new folder

To create a new folder in which to store files, you must have write and execute permissions in its parent folder. See “Folder and Directory Access Permissions,” earlier in this chapter, for information about access permissions.

- ◆ *Note:* If write permission to the newly opened folder is denied, the icon representing a pencil with a line through it appears in the upper-left corner of its window, as in Figure 2-23.

■ **Figure 2-23** Write permission to a folder denied



Follow these steps to create a new folder in the start folder:

1. **Double-click the start folder (if it isn't already open).**
2. **Choose New Folder from the File menu.**

A new folder (called “Empty Folder”) appears selected in the directory. Figure 2-24 shows a new folder.

3. **Type a name for the folder.**

As soon as you begin typing, the highlighted name “Empty Folder” is replaced by the characters you type.

The folder name can have up to 31 characters. Use only letters, numbers, or the underscore character. Do not use the slash character. It is best to use an underscore character instead of a space, or to precede a space with a backslash character.

■ **Figure 2-24** A new folder



Removing a folder

To remove a folder, you must have correct access permissions (see “Folder and Directory Access Permissions,” earlier in this chapter). You can remove a folder only when its contents are not in use.

To remove the folder you created in the previous section, follow these steps.

1. Click the new folder to select it.

2. Drag the folder to the Trash.

When the Trash icon is selected, release the mouse button. If you’re sure you still want to get rid of the folder, proceed to step 3. However, you can still retrieve the folder if you decide you don’t want to remove it. Double-click the Trash icon. The folder appears in the Trash window. You can drag it to the folder in which you want to store it.

3. Choose Empty Trash from the Special menu.

The folder is now removed permanently from the file system. If you don’t choose Empty Trash, the folder is thrown away at an unspecified time, depending on your actions. For example, the Trash is emptied automatically when you log out. Also, some applications automatically empty the Trash when they are opened.

Manipulating your files

You can create files; copy or move them to a new location; view, edit, or print them; and analyze, compare, or sort their contents. This section describes how to manipulate your files with the A/UX Finder. Before carrying out the instructions in this section, you must have the appropriate access permissions. For information about A/UX CommandShell command equivalents, see Chapter 3, “Customizing Your Work Environment.” See also *A/UX Command Reference*.

Creating a file

You can create new files in several ways:

- **Create a file with one of the A/UX text editors.**

See Chapter 6, “Writing with TextEditor,” for details.

- **Select a file and choose the Duplicate command in the File menu of the A/UX Finder.**

This creates a new file whose contents are identical to those of the old file. If it is a text file, you can use a text editor to change its contents and save it under a new name.

Opening a file

You can open any file that appears as an icon in the A/UX Finder.

1. **Locate the file’s icon in the appropriate folder.**

2. Double-click the file's icon.

If you have opened an icon representing an A/UX command, CommandShell is launched, the CommandShell menu bar appears, and a new CommandShell window appears. Then you see a Commando dialog box that allows you to build the command. See Chapter 4, “Using Commando,” for more information about Commando.

If you open a text file, the default text-editing application also opens. For details on the default text editor, see Chapter 6, “Writing with TextEditor.”

Copying a file

Follow these steps to make a copy of a file:

1. **Select a file by clicking its icon in the Finder.**
2. **Choose Duplicate from the File menu.**

A new file icon appears with the name “Copy of *filename*,” as shown in Figure 2-25.

- **Figure 2-25** A copy of a file



letter1



Copy of letter1

Renaming a file

To change the name of a file, you simply edit it in the Finder. Follow these steps.

1. Select the file you want to rename.

The icon appears selected, and the pointer turns to an I-beam when positioned in the title area.

2. Position the I-beam where you want to edit, then click.

- If you want to change the entire name of the file, drag over the name and press DELETE.
- If you want to add to the name, click in the space where you want to add text.
- If you want to replace text, select the text block.

3. Type the new name.

A filename can be up to 31 characters long. Use only letters, numbers, or the underscore character. Do not use the slash character. It is best to use an underscore character instead of a space, or add a backslash character before the space.

Moving a file

To move a file to a new location in the file system, drag it to the desired spot. Follow these steps:

1. Locate the file you want to move by opening folders until you see the icon that represents the file.

2. Locate the destination for the file.

The destination folder doesn't have to be open; you can drag a file to a closed folder. You must have write and execute permissions for the destination folder before you can put a file in it.

3. Drag the file to the new location.

An outline of the file icon moves as you drag. When you release the mouse button, the file icon appears in the new location.

- ◆ *Note:* If you drag an icon between file systems (for example, from the the hard disk to a floppy disk or from a Macintosh to an A/UX file system), the file or folder you drag is copied rather than moved. For further information on dragging an icon between file systems, see “Copying Between Macintosh and A/UX File Systems,” later in this chapter.

Removing a file

To remove a file, follow these steps:

1. Locate the file you want to remove by opening folders until you see the icon that represents the file.

2. Drag the file to the Trash.

When the Trash icon is selected, release the mouse button. If you're still sure that you want to get rid of the file, proceed to step 3. However, you can still retrieve the file if you decide you don't want to remove it. To retrieve it, double-click the Trash icon. The file appears in the Trash window. You can drag it to the folder in which you want to store it.

3. Choose Empty Trash from the Special menu.

The file is now removed permanently from the file system. If you don't choose Empty Trash, the file is thrown away at an unspecified time, depending on your actions. For example, the trash is emptied automatically when you log out. Also, some applications automatically empty the trash when they are opened.

Locating a file

If you can't remember where you stored a file, you can search for it by using the Find File accessory or the A/UX `find` command (which will probably work much more quickly).

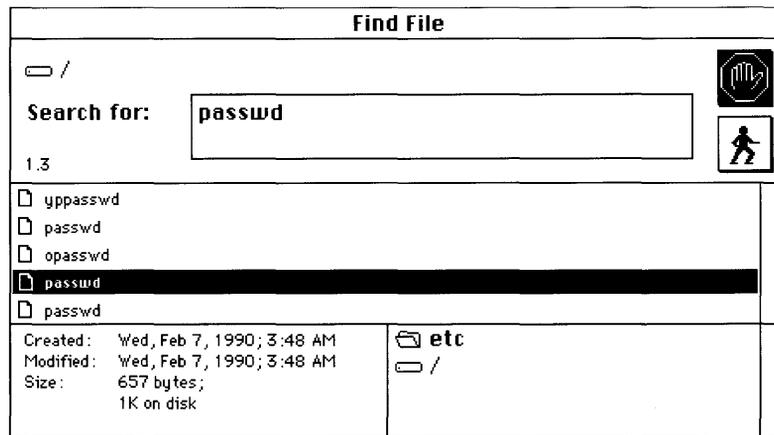
The Find File Accessory

Find File is a Macintosh desk accessory that searches both the A/UX and Macintosh file systems for a filename or part of a filename. Follow these steps to locate a file:

1. **Choose Find File from the Apple menu.**

A dialog box appears, as shown in Figure 2-26.

■ **Figure 2-26** The Find File dialog box (after the search)



2. **Type the name of the file for which you want to search. Type `passwd` for this tutorial.**

You can type the whole name or part of a name. Find File will report any filename that contains the string of letters you type.

3. **Press RETURN or double-click the “run” icon (the picture of the person running).**
4. **After the names of the found files appear, click the name of the file you want to locate.**

The file location appears in the bottom right of the box, as shown in Figure 2-26. The full path is indicated, starting at the root (`/`), which is the lowest item in the bottom-right window. You may have to scroll down to see the beginning of the path.

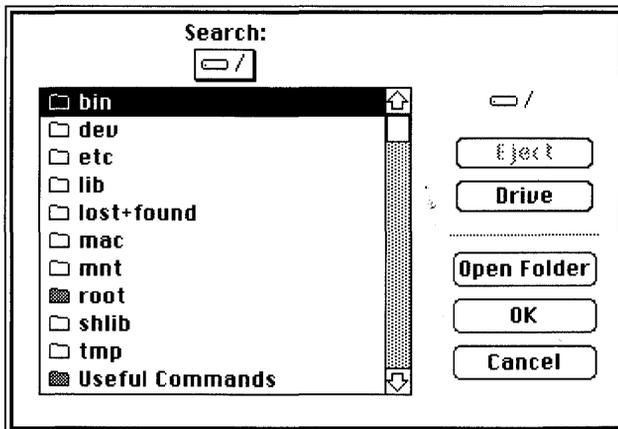
5. **Click the close box to exit Find File.**

If you have some idea of where the file you’re looking for is located, you can narrow the search as follows:

1. **With the Find File dialog box displayed, choose Search Here in the Find File menu of the menu bar.**

The Search Here dialog box appears, as in Figure 2-27.

- **Figure 2-27** The Search Here dialog box



2. Use this dialog box to locate and choose the starting point of the search.

The `find` utility

A/UX provides a utility to search the file system for filenames. Follow these steps to use the `find` utility. In this tutorial, you will find the location of a file called `passwd`.

1. Double-click the `find` icon in the Useful Commands folder.

A Commando dialog box appears for the `find` utility, as shown in Figure 2-28.

■ Figure 2-28 The `find` Commando dialog box

find Options

Required

- Start at current directory
- Specify start point

File name:

Print file pathname

Match any file type

- Regular files only
- Directories only
- Block devices only
- Character devices only
- Named pipes only
- Symbolic links only
- Sockets only

Command Line

Help

Find files with the specified characteristics. You must specify the starting directory and at least one other option. NOTE: if invoked from the Finder, your home folder is the current directory.

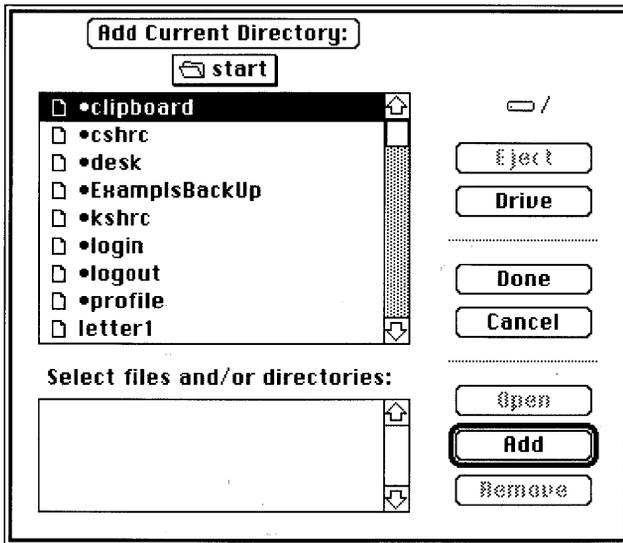
2. Click the “Specify start point” button.

This allows you to tell the system where to begin the search. The only thing you know about the `passwd` file is that it is one of the files used by the system. For this reason, chances are that it is not too far from the root. Therefore, you will start the search from the root.

3. Click the “Starting directory(s)” button.

The dialog box shown in Figure 2-29 appears.

■ **Figure 2-29** The Starting Directory(s) dialog box



4. Click the icon representing the A/UX root, at the upper right of the dialog box.

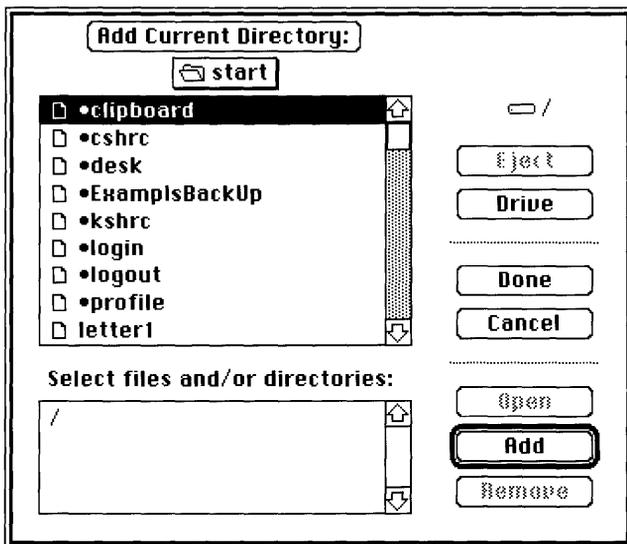
Note that the same icon now appears just below the Add Current Directory button. That means that the root is now the current directory as far as this dialog box is concerned.

5. Click the Add Current Directory button.

The slash character, which represents the root, appears in the box labeled “Select files and/or directories,” at the bottom of the screen.

The filled-in dialog box is shown in Figure 2-30.

- **Figure 2-30** The Starting Directory(s) dialog box filled in



6. Click the Done button.

The find Commando dialog box now reappears.

7. Type passwd in the “File name” text box.

The filled-in Commando dialog box is illustrated in Figure 2-31.

- **Figure 2-31** The `find` Commando dialog box filled in

find Options

Required

Start at current directory

Specify start point

Starting directory(s)

File name:
passwd

Print file pathname

Match any file type

Regular files only

Directories only

Block devices only

Character devices only

Named pipes only

Symbolic links only

Sockets only

File parameters More options

Command Line

find / -name passwd

Help

Find files with the specified characteristics. You must specify the starting directory and at least one other option. NOTE: if invoked from the Finder, your home folder is the current directory.

Cancel

find

8. Click “Print file pathname.”

9. Click the “find” button at the lower right of the dialog box.

After a few moments, you see a CommandShell window listing the pathnames of all files named `passwd`.

- ◆ *Note:* The `find` command searches for an independent word, that is, in the example given above, it finds only files named `passwd`, and ignores those named `yppasswd`, `opasswd`, etc.

Storing Macintosh files

You can use Macintosh software and files regardless of their storage location (see “Working with Macintosh Files in A/UX” in Chapter 1, “Starting and Finishing a Work Session”). As a general rule, you will rarely move files between file systems. However, you may want to store Macintosh data files and applications in your A/UX file systems for several reasons; for example:

- to set A/UX access permissions for Macintosh text files
- to share Macintosh files with other users on an A/UX network
- to allow your Macintosh files to be backed up with A/UX backup utilities, along with your A/UX files

See the next section, “Copying Between Macintosh and A/UX File Systems.”

Copying between Macintosh and A/UX file systems

Copy Macintosh files to the A/UX file system or A/UX files to the Macintosh file system as follows:

1. Be sure that you are in the Finder.

The icon that represents the Macintosh hard disk or floppy disk must be visible. See “Working with Macintosh Files in A/UX” in Chapter 1, “Starting and Finishing a Work Session,” for further information.

2. Double-click the disk icon and all necessary folder icons until the appropriate file icon is visible.

3. Drag the icon of the file you want to transfer from the original location to the new location.

When you release the mouse button, a dialog box appears that shows the progress of the copy operation. This transfer actually makes a copy of the file in the new folder. The original file remains on the original disk.

Backing up and restoring critical files

This section presents the simplest ways for you to create backup copies of your critical files and of your whole system.

△ **Important** You should always have backup copies of your own files. A system administrator should do a periodic backup of all the files on your system. △

If you need to back up your entire disk, follow the instructions in “Using the `cpio` Utility to Back Up Your Entire Hard Disk.”

Inserting floppy disks

When you insert floppy disks, the system can respond in a variety of ways, depending on how the floppy disk was initialized and upon whether you are currently working in the Finder or in CommandShell.

If you want to back up a folder or a file by dragging an icon to the floppy disk’s icon, you need to be in the Finder and to insert a floppy disk that is initialized for the Macintosh file system. For further information on this method of backing up files, see “Dragging to Copy a File to a Floppy Disk,” later in this chapter.

If you want to use standard A/UX backup utilities, such as `tar` or `cpio`, you need to be in CommandShell and to use a destination disk that has been formatted. For further information on using `cpio`, see “Using the `cpio` Utility to Back Up Files,” later in this chapter.

For more information on the Finder, see “Identifying What you See on the Screen” and “Using the Finder,” earlier in this chapter.

For more information on CommandShell, see Chapter 5, “Using CommandShell.”

For information on making backup copies, see *A/UX Local System Administration*.

If you are in the Finder

If the floppy disk has been initialized for the Macintosh file system, its icon, shown in Figure 2-31, appears near the right edge of the screen.

- **Figure 2-32** A Macintosh floppy disk icon

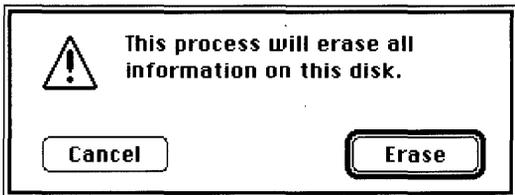
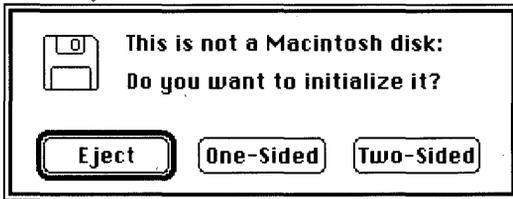


If the floppy disk has not been initialized for the Macintosh file system, you see a series of dialog boxes warning you that this is the case. These dialog boxes guide you through the initialization process.

- 1. In the first dialog box (illustrated in Figure 2-33), click Two-Sided.**
- 2. When the second dialog box appears, click Erase.**

You may click Cancel if the disk contains data that you don't want to erase.

■ **Figure 2-33** Disk-initialization dialog boxes



If you are in CommandShell

If the floppy disk has been initialized for A/UX data (for example, a UNIX file system, `tar`, or `cpio`) nothing happens; no icon appears and no dialog box appears. Therefore, you cannot use the Finder or the menus in the menu bar with this disk. You can work with it only by using A/UX command-line commands. You may use it for backing up files with A/UX backup utilities, such as `tar` or `cpio`.

If the floppy disk has never been initialized, or if it is initialized for a Macintosh file system, a dialog box (shown in Figure 2-34) asks you to specify whether you want to use it for the Macintosh file system or for an A/UX file system. A third choice is to eject the disk (and therefore to cancel the procedure).

- **Figure 2-34** Initializing for a Macintosh or an A/UX data disk



- If you click A/UX Data, after the initialization is complete, the disk behaves like the A/UX disk described above (that is, no icon appears, and so on).
- If you click the Macintosh button, the ensuing dialog boxes guide you through the initialization process for a Macintosh HFS file system disk. You must use the Macintosh disk with the Finder.

Dragging to copy a file to a floppy disk

A/UX 2.0 provides a very easy way to copy individual files and groups of files. Follow these steps:

1. **Be sure that you are in the Finder.**
2. **Insert a floppy disk (initialized for the Macintosh file system) into the disk drive.**

You see an icon representing the disk.

3. **Drag the icon of the file or folder that you want to copy to the floppy disk icon.**

A dialog box appears describing the progress of the copy operation.

You can shift-click to select multiple files or folders to back up.

Dragging to restore a file

A/UX 2.0 provides a very easy way to restore files or folders that were backed up by dragging their icons to a disk. Follow these steps:

- 1. Insert in the drive the floppy disk containing the file you want to restore.**

You see an icon representing the disk.

- 2. Double-click the disk icon to display a window with the disk's contents.**

- 3. Drag the icon of the file or folder that you want to copy to the folder where you want it to reside.**

A dialog box appears describing progress of the copy operation.

You can shift-click to select multiple files or folders to restore.

Using the `cpio` utility to back up files

A/UX provides several utilities to back up files. In this section you learn about the `cpio` (copy in and out) utility, which copies data in a stream of bits. This section describes one way to copy a file for backup purposes.

- 1. Choose CommandShell in the Apple menu.**

A window appears with a command prompt. For further information on the CommandShell, see Chapter 5, "Using CommandShell."

- 2. Insert a floppy disk into the disk drive.**

It should be initialized as an A/UX disk, not a Macintosh disk. (See "If You are in CommandShell," earlier in this chapter.) Since this is not a Macintosh disk, the desktop does not display an icon representing the disk.

- 3. Enter the command:**

```
echo filename | cpio -o > /dev/rfloppy0
```

Substitute the name of the file you want to copy for the italicized word. Your computer may have a second floppy disk drive available. If you are using the alternate drive, substitute `/dev/rfloppy1` for `/dev/rfloppy0`.

- ◆ *Note:* You can also use Commando to enter this command. See Chapter 4, “Using Commando,” for more information about Commando. The CommandShell window must be active before you insert the floppy disk, whether you use Commando or the preceding steps.

For more information on the `cpio` utility, see `cpio(1)` in *A/UX Command Reference*.

Using the `cpio` utility to restore files

The `cpio` (copy in and out) utility copies data in a stream of bits. This section describes one way to restore a file from a `cpio` copy of the file.

1. Choose CommandShell in the Apple menu.

A window appears with a command prompt. For further information on CommandShell, see Chapter 5, “Using CommandShell.”

2. Insert in the drive the floppy disk containing a file you want to restore.

Remember, you can restore a file in this way only if you used `cpio` to back it up.

Because the floppy disk does not contain a Macintosh file system, your desktop does not display a disk icon. However, when you specify the disk in the command line, the `cpio` utility will locate the disk and restore the file.

3. Enter the command:

```
cpio -iv filename < /dev/floppy0
```

Substitute the name of the file you want to copy for the italicized word. Your computer may have a second floppy disk drive available. If you are using the alternate drive, substitute `/dev/rfloppy1` for `/dev/rfloppy0`.

- ◆ *Note:* You can also use Commando to enter this command. See Chapter 4, “Using Commando,” for more information about Commando. The CommandShell window must be active before you insert the floppy disk, whether you use Commando or the preceding steps.

For more information on the `cpio` utility, see `cpio(1)` in *A/UX Command Reference*.

Using the `cpio` utility to back up your entire hard disk

You can use the `cpio` (copy in and out) utility to back up and restore your entire hard disk. This section describes how to back up your disk onto another hard disk. Before beginning, be sure that your destination hard disk has been initialized as an A/UX file system with the HD SC setup utility and is properly cabled to your system.

1. Choose CommandShell to bring the shell utility to the front layer.

A window appears with a command prompt. For further information on the CommandShell, see Chapter 5, “Using CommandShell.”

2. Enter the command:

```
find / -print | cpio -o > /dev/rdisk/c?d0s31
```

Substitute the SCSI ID number of the destination hard disk for the italicized question mark.

- ◆ *Note:* You can also use Commando to enter this command. See Chapter 4, “Using Commando,” for more information about Commando.

For more information on the `cpio` utility, see `cpio(1)` in *A/UX Command Reference*.

Using the `cpio` utility to restore the entire hard disk

This section describes one way to restore an entire disk from an external hard disk. Use this method if you previously used the `cpio` utility to back up the disk.

1. Choose CommandShell to bring the shell utility to the front layer.

A window appears with a command prompt. For further information on the CommandShell, see Chapter 5, “Using CommandShell.”

2. Enter the command:

```
cpio -id < /dev/rdisk/c?d0s31
```

In place of the question mark, type the SCSI ID number of the hard disk containing the backup data.

- ◆ *Note:* You can also use Commando to enter this command. See Chapter 4, “Using Commando,” for more information about Commando.

For more information on the `cpio` utility see `cpio(1)` in *A/UX Command Reference*.

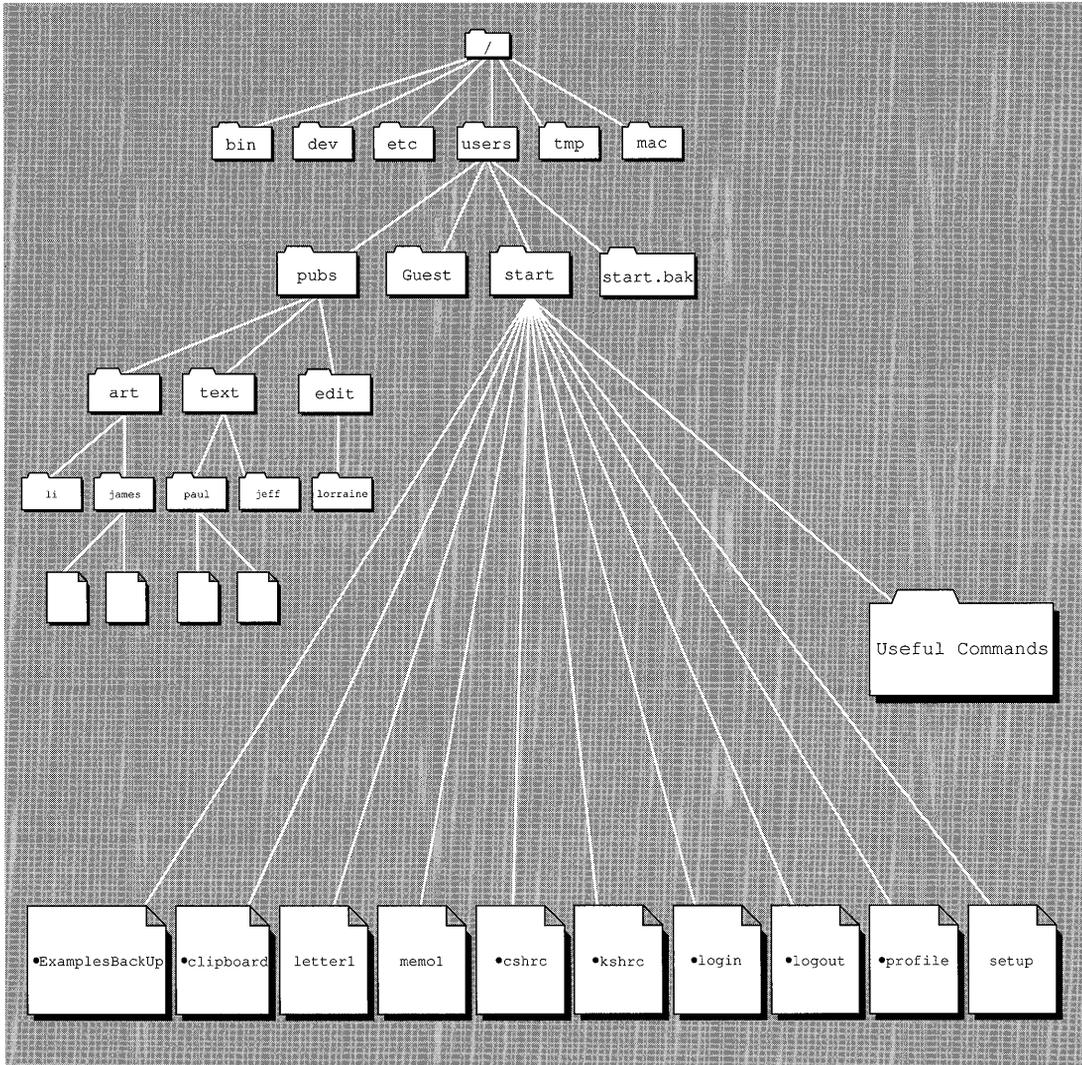
Pathnames in the A/UX file system

A/UX differs from traditional forms of UNIX in that A/UX has the friendliness of the Macintosh interface. It offers the easy-to-use Finder, which allows you to manipulate files and folders by manipulating their icons. However, if you need to work with the CommandShell command-line interface, you will find it necessary to understand traditional ways of describing a UNIX file system.

The “folders” of the Macintosh environment correspond to the “directories” of the UNIX world. Since this section describes the traditional UNIX way of using pathnames in the A/UX CommandShell window, the word “directory” is used here.

The A/UX file system is organized in a **hierarchy**. Figure 2-35 shows an example of this organization. Organized from top to bottom, the file system begins at the top with the root directory, which is always represented by the slash character(/). Branching downward from the root of the file system are the rest of the directories and files in the system. The root directory contains a number of directories that store the operating-system files and programs. There is only one A/UX file hierarchy for a given system. All additional directories, file systems, and files fall within this hierarchy.

■ **Figure 2-35** The A/UX file-system structure



Because of its hierarchical organization, A/UX uses pathnames to refer to files and directories. A **pathname** is a name that describes where the file or directory is located in the hierarchy. Here is an example:

```
/users/start/letter1
```

Here, the file named `letter1` is located within (or “below,” in UNIX terminology) the `start` directory, which is located below the `users` directory, which, in turn, is located below the root directory.

The directory in which you are currently working is the **current directory**. When you change directories, the directory you move to becomes your new current directory.

An **absolute pathname** of a file shows the complete path from the root to the file in question, by listing all directories that lead from the root directory and concluding with the filename itself. The first item in an absolute pathname is always the character `/`, which indicates the root. Thereafter, the slash character is used to separate the names of the directories. An example is

```
/users/start/letter1
```

We know that this is an absolute pathname because it begins with the slash character, and is thus tracing the path from its origin at the root. The subsequent slash characters separate the names of the `users` and the `start` directories, and the names of the `start` directory and file `letter1`.

A **relative pathname** lists the directories leading to the file, beginning with the current directory. For example, if the current directory is `/users`, then

```
start/letter1
```

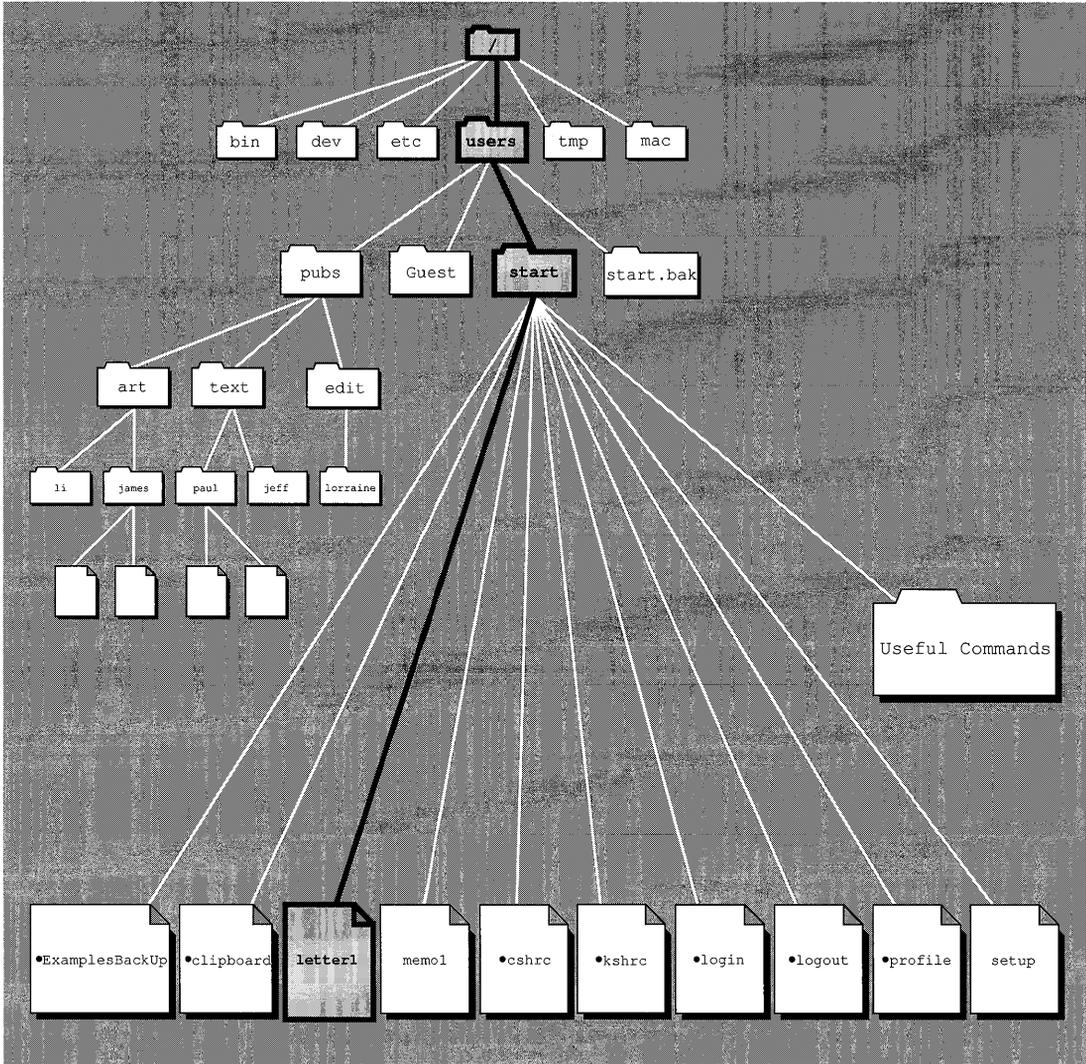
is the relative pathname of `/users/start/letter1`. Note that a relative pathname never begins with the `/` character, because it doesn’t start at the root.

The name of the file or of the directory whose path is being described is the last component of a pathname. Figure 2-36 shows an absolute pathname that ends with the filename.

When you are specifying a file that is in your current directory, just type the filename. You needn’t specify its directory, because you’re already working in that directory.

Two dots (`..`) are an abbreviation for “the directory that contains the current directory.” For example, if you are in the `/users/start` directory, you need only type the two dots (`..`) to specify the `/users` directory with a relative pathname.

■ **Figure 2-36** An absolute pathname



— = Currently active path

■ = Position on the path

Chapter 3 **Customizing Your Work Environment**

This chapter explains how to create your own personal System Folder so that you can customize the work environment of your user account.

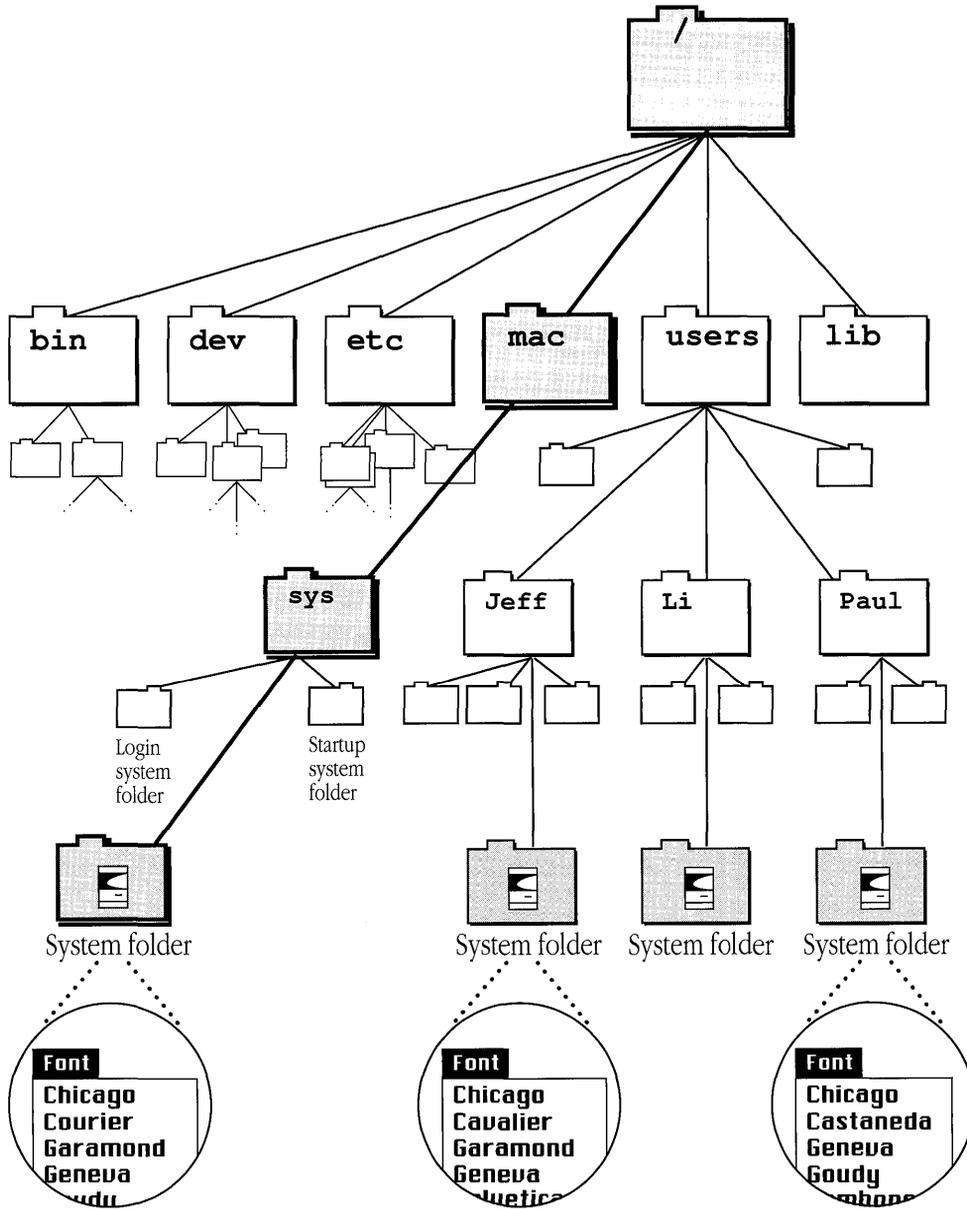
This chapter contains the following sections:

- Creating a personal system folder
- Changing your work environment
- Using desk accessories
- Using fonts
- Using the Control Panel

Creating a personal system folder

The A/UX system operates from a global System Folder that controls the operating environment for all users of the system. If your system has more than one user account, and you want to use fonts, desk accessories, or a desktop pattern different from the owners of the other user account(s), then you need to add a personal System Folder to your account. You may then customize your work environment by making changes to your personal System Folder.

■ **Figure 3-1** The global System Folder and the personal System Folder



Since A/UX is a multiuser system, there are certain aspects of A/UX that only the system administrator can change. Although you cannot alter the contents of the global System Folder, you can make changes to your personal System Folder in your user account, provided you have one.

If you do not have a user account, you need to create one or have one created for you. Contact your system administrator or see *Setting Up Accounts and Peripherals for A/UX* for information on creating your own.

Once you have a user account, check to see if it contains a personal System Folder. Double-click your user account folder that appears on the desktop. Look inside the folder for a folder named System Folder. If there is no system folder within your user account, you'll need to create one. You do this by running the shell script `systemfolder`. A **shell script** is a small program that is created to automate a frequently repeated task. You may also run shell scripts using Commando. To learn more about Commando, See Chapter 4, "Using Commando."

To create a personal System Folder, do the following:

- 1. Log in to your user account.**

To learn how to do this see "Logging In to Your User Account or the root Account" in Chapter 1, "Starting and Finishing a Work Session."

- 2. Open a CommandShell window by choosing CommandShell from the Apple menu.**

A new CommandShell window appears.

- 3. Type `systemfolder` at the CommandShell prompt and press RETURN.**

The `systemfolder` script runs, creating a copy of the global System Folder, and placing it in your user account.

Once you add to or modify your personal System Folder, you must log out and then log back in to see your changes take effect.

- 4. Log out of your user account by choosing Logout from the Special menu.**

Changing your work environment

You can personalize your user account in several ways. For example, you can change the speaker volume and the desktop pattern. You can also add and remove different fonts and desk accessories.

Using fonts

Fonts are a complete set of characters in one design, size, and style. Seven different fonts—Chicago, Courier, Geneva, Helvetica, Monaco, New York, and Times—are installed on your system at the factory. You may see more than these if the system administrator has added additional fonts to your system.

You can use an application called the Font/DA Mover to add fonts and desk accessories to your personal system (or remove them from your system). The Font/DA Mover icon is shown in Figure 3-2.

- **Figure 3-2** The Font/DA Mover icon



Font/DA Mover

The Font/DA Mover is on the Utilities disk that came with your computer. For easy access, copy the application to your hard disk.

Installing fonts on your personal system

To install additional fonts on your personal system, do the following:

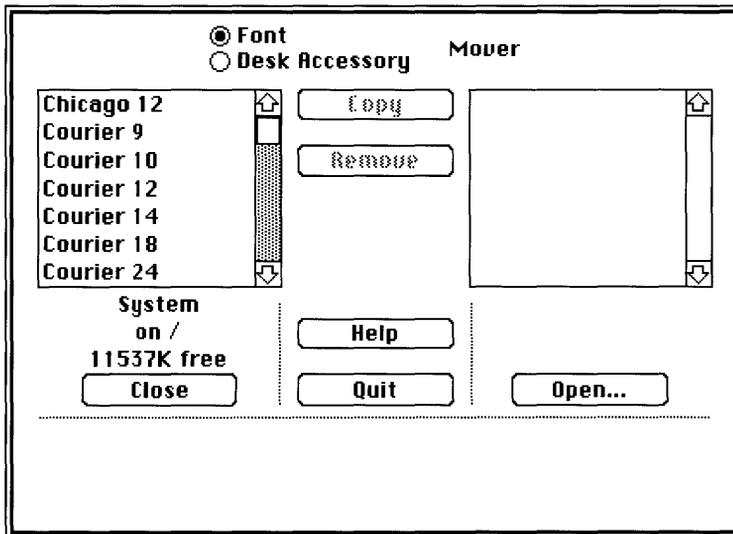
1. Log in to your user account.

To learn how to do this see “Logging In to Your User Account or the Root Account” in Chapter 1, “Starting and Finishing a Work Session.”

2. Open the Font/DA Mover by double-clicking its icon.

The Font/DA Mover window becomes active, with the Font option selected. Figure 3-3 shows the Font/DA Mover dialog box.

■ Figure 3-3 The Font/DA Mover dialog box



The box on the left contains a list of the fonts currently installed in the system.

3. Click the Open button, located below the empty list box at the right of the window.

A dialog box appears. Use this box to locate and open a font file. If necessary, use the Drive, Eject, and Open buttons to locate the font file you want. You may also insert a floppy disk that contains a font file.

4. Open the file containing the fonts.

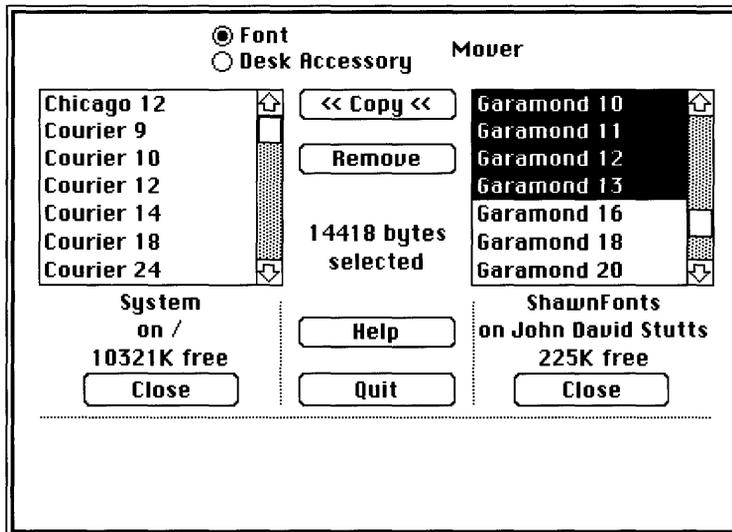
You can either double-click the filename, or select it and click the Open button.

The dialog box disappears, and the fonts in the file are shown in the list on the right of the Font/DA Mover dialog box.

5. Select the font you to want to install by clicking its name in the list on the right.

You may have to scroll through the list to find the font you want. The small arrows in the Copy button show the direction in which the selected fonts will move. Figure 3-4 shows the Font/DA Mover Copy dialog box.

■ **Figure 3-4** The Font/DA Mover Copy dialog box



A sample of the font appears in the message area at the bottom of the window, and the amount of disk space occupied by the font is displayed between the two list boxes.

You may select more than one font from the list by holding down the SHIFT key while clicking the names of the fonts. The combined size of your selection is displayed, but no sample appears in the message area.

6. Click Copy to add the selected font or fonts to your personal system.

A dialog box appears, warning you that the fonts you are installing may not appear in your system until you restart the machine. Logging out will achieve the same results. See step 9.

7. Click OK.

The items are copied into the target file. The names of the new fonts appear in alphabetical order in the list on the left.

8. Click Quit at the bottom center of the window when you have finished installing fonts.

Once you add to or modify your personal System Folder, you must log out and then log back in to see your changes take effect.

9. Log out of your user account by choosing Logout from the Special menu.

Removing fonts from your system

You may find it necessary to remove fonts from your system at some point to gain space in memory. To remove fonts from your personal system, do the following:

1. Log in to your user account.

To learn how to do this see “Logging In to Your User Account or the Root Account” in Chapter 1, “Starting and Finishing a Work Session.”

2. Open the Font/DA Mover by double-clicking its icon.

The Font/DA Mover window is made active, with the Font radio button selected. The box at the left contains a list of the fonts that are currently installed in your personal system.

3. Select the font you want to remove by clicking once on its name in the list on the left.

Scroll through the list of fonts if necessary to find the font you want to remove. A sample of the font is displayed in the message area at the bottom of the window, and the space the item occupies on the disk is displayed between the two list boxes. You may select more than one font from the list by holding down the SHIFT key while clicking the name of the font. The combined size of your selection is displayed, but no sample appears in the message area.

4. Click Remove to remove the selected font or fonts.

An alert box appears, asking you to confirm or cancel the action.

5. Click OK to remove the selected font.

If you change your mind, click Cancel.

6. Click Quit at the bottom center of the window when you have finished removing fonts.

Once you add to or modify your personal System Folder, you must log out and then log back in to see your changes take effect.

7. Log out of your user account by choosing Logout from the Special menu.

Using desk accessories

Desk accessories are mini-applications that are available from within most applications and are always available in the Finder. Seven desk accessories—the Alarm Clock, Calculator, Chooser, Find File, Key Caps, Scrapbook, and Control Panel—are installed automatically. You choose desk accessories from the Apple menu, found at the far left of the menu bar.

Installing desk accessories on your system

To install desk accessories on your personal system, do the following:

1. Log in to your user account.

To learn how to do this see “Logging In to Your User Account or the Root Account” in Chapter 1, “Starting and Finishing a Work Session.”

2. Open the Font/DA Mover by double-clicking its icon.

The Font/DA Mover window becomes active, with the Font option selected. At the left of the window you see a box containing a list of the fonts currently installed on your personal system. Figure 3-3 shows the Font/DA Mover dialog box.

3. Click Desk Accessory at the top of the window.

The list on the left changes to show the desk accessories currently installed on your personal system.

4. Click the Open button, located below the empty list box at the right of the window.

A dialog box appears. Use this box to locate and open the file containing the desk accessories you wish to add to your personal system. If necessary, use the Drive, Eject, and Open buttons to locate the file. Seven desk accessories are already installed on your A/UX system. Hundreds of other desk accessories are available from independent vendors, user groups, computer bulletin boards, and various other sources.

5. Open the file containing the desk accessories.

You can either double-click the filename, or select it and click the Open button.

The dialog box disappears, and the desk accessories in the file are listed in the box at the right of the Font/DA Mover dialog box.

6. Select the desk accessory that you want to install by selecting its name in the list on the right.

The small arrows in the Copy button show the direction in which the selected desk accessories will move. The amount of space occupied by the desk accessory (its “size”) is displayed between the two list boxes.

If you select more than one desk accessory from the list (by Shift-clicking), the combined size of your selection is displayed.

7. Click Copy to add the selected desk accessories to your personal system.

A dialog box appears, warning you that the desk accessories you are installing may not appear in your system until you restart the machine. Logging out will achieve the same results. See step 10.

8. Click OK.

The desk accessories are copied into your personal system. The names of the new desk accessories appear in alphabetical order in the list on the left.

9. Click Quit at the bottom center of the window when you have finished installing desk accessories.

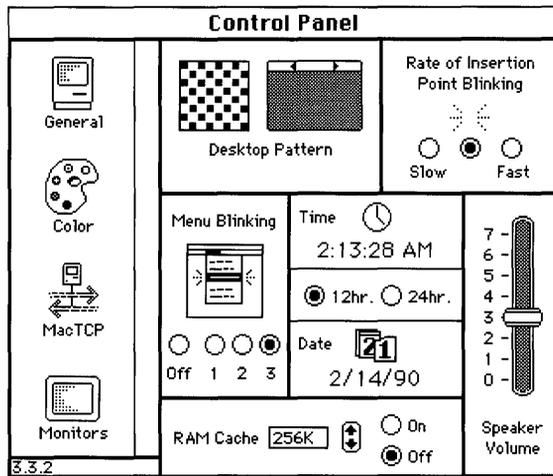
Once you add to or modify your personal System Folder, you must log out and then log back in to see your changes take effect.

10. Log out of your user account by choosing Logout from the Special menu.

Using the Control Panel

The Control Panel is a desk accessory that allows you to customize your work environment. You access the Control Panel by choosing it from the Apple menu. Figure 3-5 shows the General Control Panel.

■ **Figure 3-5** The General Control Panel



On the left side of the panel is a list of icons, such as Color, Monitors, Sound, and so on. You can scroll through the list to look at additional icons. When you click an icon, a set of features related to that icon appears at the right. When you select the General icon from the list, you'll find the settings for such items as Desktop Pattern and Menu Blinking in the panel on the right. Similarly, settings for Color, MacTCP, Monitors, and Sound, all appear on the right when you click the corresponding icon.

Changing the desktop pattern

You can change the pattern of your desktop by selecting a preset pattern or by creating your own.

Selecting a preset pattern

To select a preset pattern, do the following:

1. Log in to your user account.

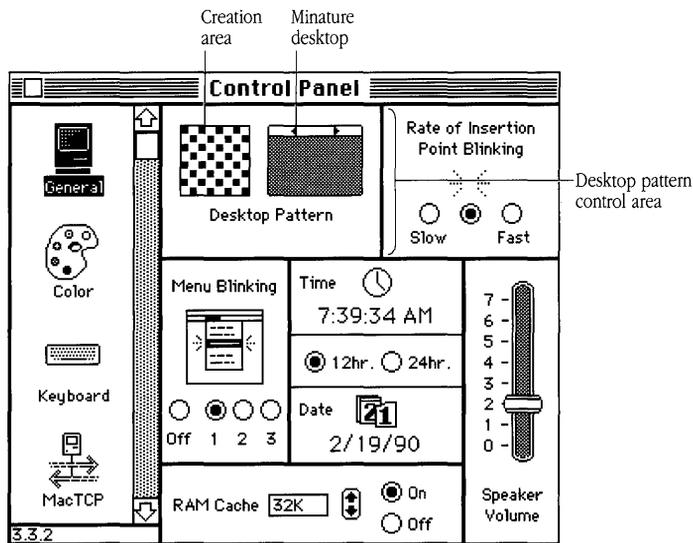
To learn how to do this see “Logging In to Your User Account or the Root Account” in Chapter 1, “Starting and Finishing a Work Session.”

2. Choose Control Panel from the Apple menu.

The General Control Panel appears.

The Control Panel shows a miniature desktop that displays a normal-sized and a magnified representation of the current desktop pattern. The desktop pattern control area is shown in Figure 3-6.

■ Figure 3-6 The desktop pattern control area



- 3. To see the preset patterns, click the white menu bar at the top of the miniature desktop.**

Each time you click the menu bar, a different pattern appears until you cycle through all of the preset patterns. There are 40 patterns to choose from. Once you have viewed all of the patterns, the cycle repeats.

- 4. Once you find a pattern you like, click once on the miniature desktop to select it.**
- 5. Click the close box in the upper-left corner of the Control Panel.**

The new desktop pattern appears on your screen.

Creating your own desktop pattern

To create a new desktop pattern, do the following:

- 1. Choose Control Panel from the Apple menu.**

The General Control Panel appears.

The Control Panel shows a miniature desktop that displays a normal-sized and a magnified representation of a pattern.

- 2. In the creation area at the left of the miniature desktop, click the dots you wish to change.**

Try dragging the pointer through the creation area while holding down the mouse button. Notice how clicking a black dot will change it to white and vice-versa. Try this technique a few times. The results appear in the miniature desktop area on the right.

- 3. Click once on the miniature desktop to select the new pattern.**
- 4. Click the close box in the upper-left corner of the Control Panel.**

The new desktop pattern appears on your screen.

Setting the blinking speed of the insertion point

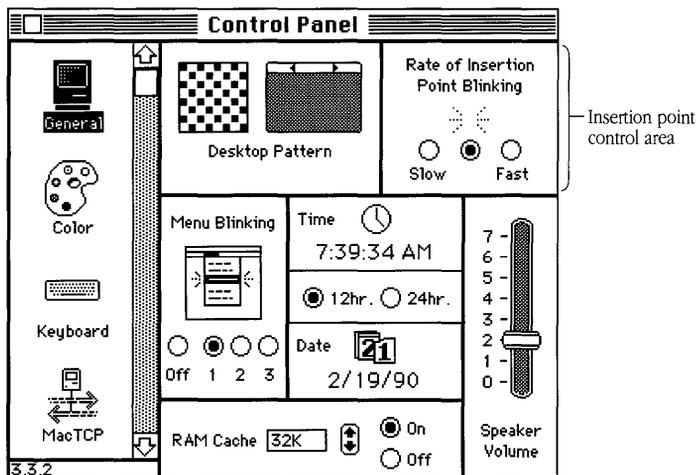
When you insert text in a CommandShell, TextEditor, or vi window, the insertion point blinks on and off so that it is easy to see. You can adjust the rate at which it blinks by doing the following:

- 1. Choose Control Panel from the Apple menu.**

The General Control Panel appears.

The insertion point control area is illustrated in Figure 3-7.

- **Figure 3-7** Insertion point control area



- 2. Click any button from Slow to Fast to set the rate at which the vertical bar marking the insertion point blinks.**

As you click each option, you will see the insertion point blink at the rate you have selected.

- 3. Click the close box in the upper-left corner of the Control Panel.**

The insertion point blinks at the rate you have set.

Setting the menu blinking speed

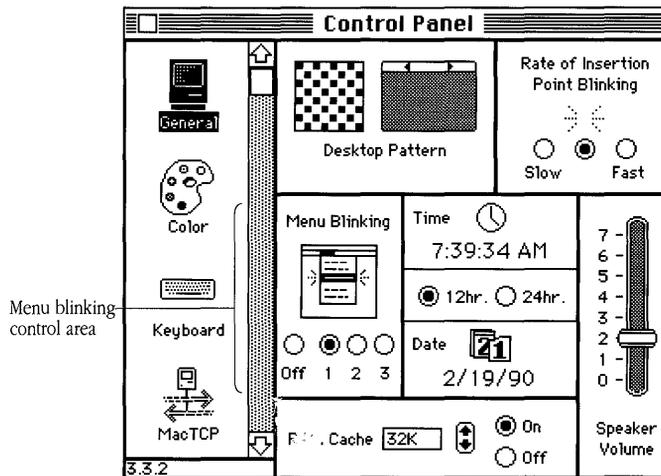
The menu blinking speed determines the number of times a menu command will blink when it is chosen. For example, when you select Print from the File menu, the command blinks three times (by default) to acknowledge the selection. To adjust the rate, do the following:

1. Choose Control Panel from the Apple menu.

The General Control Panel appears.

The menu blinking control area is illustrated in Figure 3-8.

■ Figure 3-8 Menu blinking control area



2. Click any button from 1 to 3 to determine the number of times commands blink when you choose them.

If you do not want the menu to alert you by blinking, click Off.

3. Click the close box in the upper-left corner of the Control Panel.

The menu blinks at the rate you have set.

Setting the time and date

Setting the time and date in A/UX is done using the `date` command. See Chapter 5 of the *A/UX Installation Guide* for more information.

Using color

When you select text or icons on the screen, they are highlighted. A **highlight** is text or icons that appear as light figures or letters on a dark background, rather than dark on light. Highlighting is accomplished by inverting the display. On a monochrome monitor, the highlight is always black or gray, but on a color monitor you can make your highlights as colorful as you like. You use the Color Wheel to change the highlight color.

To change the highlight color, do the following:

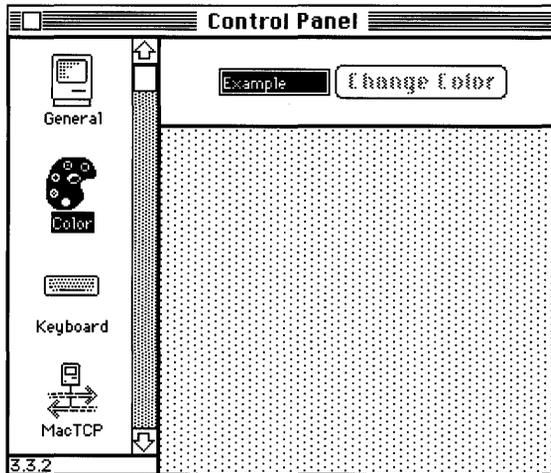
- 1. Choose Control Panel from the Apple menu.**

The General Control Panel appears.

- 2. Click Color in the list of icons on the left side of the Control Panel.**

If necessary, use the scroll bar to bring the Color icon into view. Figure 3-9 shows the Color Control Panel.

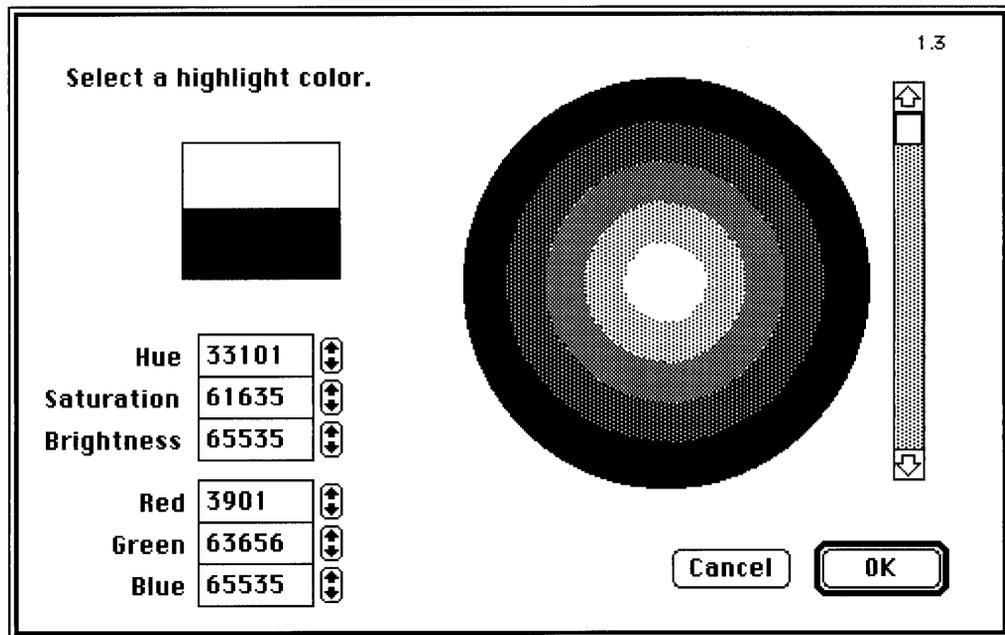
■ **Figure 3-9** Color Control Panel



You see an example of the current highlight color and the Change Color button.

3. Click Change Color.

The Color Wheel appears. The Color Wheel is illustrated in Figure 3-10.



With the standard Apple video card, you can display a maximum of 16 colors on the screen. If you have the video card expansion kit installed, you can display a maximum of 256 colors, chosen from a palette of over 16 million. The Color Wheel lets you controls these different color possibilities.

4. Click anywhere on the Color Wheel to display a new color.

When you do this, the color you have selected appears in the top half of the small display box in the upper-left corner of the window. The bottom half of the display box continues to show the current highlight color.

The colors at the outer edge of the wheel are the purest in hue. As you move toward the center of the wheel you increase the amount of white added to the pure hue (known as saturation). To change the brightness of the colors, use the scroll bar to the right of the color wheel. (Down makes colors darker; up makes them brighter.)

5. When you are satisfied with the color you have selected, click OK.

The new color replaces the old.

- ◆ *Note:* If you do not have the video card expansion kit installed (or choose to limit the number of colors displayed to fewer than 256), the results of choosing a color from the Color Wheel dialog box are sometimes unpredictable. The color you see is not necessarily the color you expected. Applications that use color may also impose their own definitions of the colors you can choose.

The Keyboard Control Panel

When you press and hold down a character key, that character appears again and again on the screen, filling the line of text until you release the key. You can set the rate at which the repeated character appears on the screen.

Setting the Key Repeat Rate

To set the Key Repeat Rate, do the following:

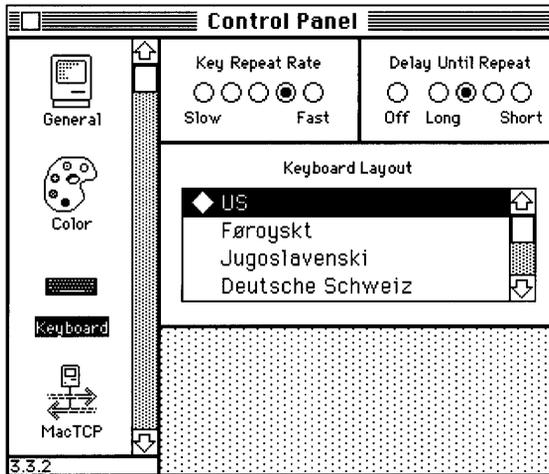
1. Choose Control Panel from the Apple menu.

The General Control Panel appears.

2. Click the Keyboard icon.

If necessary, use the scroll bar to bring the Keyboard icon into view. Figure 3-11 shows the Keyboard Control Panel.

■ **Figure 3-11** The Keyboard Control Panel



3. Click any button from Slow to Fast to set the rate.

Setting the Delay Until Repeat rate

To the right of the Key Repeat Rate box is the Delay Until Repeat box. It controls how long a key can be held down before the character begins repeating. To set the Delay Until Repeat rate, do the following:

1. Click the Keyboard icon if it isn't already highlighted.

If necessary, use the scroll bar to bring the Keyboard icon into view.

2. Click any button from Off to Short to set the rate.

Keys will not repeat if you click the Off button.

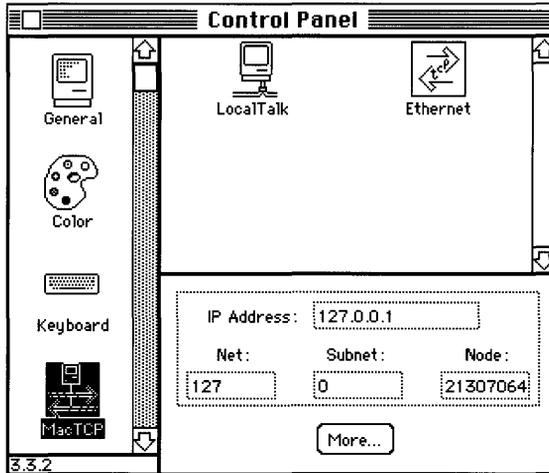
Keyboard Layout

In the middle of the Keyboard Control Panel, you see the Keyboard Layout control area. This allows you to choose different keyboard configurations for machines running international system software. Click once on the configuration you want to select.

MacTCP network controls

MacTCP is a utility that allows you to look at your network configuration. Although it appears in the Control Panel, you cannot make changes to the configuration. Figure 3-12 shows the MacTCP Control Panel.

■ **Figure 3-12** MacTCP Control Panel



Changing the display mode of your monitor

Some programs and utilities are hindered by the use of color, and you may need to turn off the color capabilities of your monitor at times. To adjust the characteristics of your monitor, do the following:

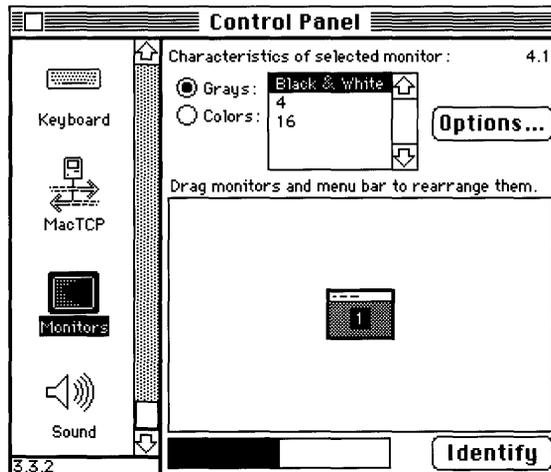
1. Choose Control Panel from the Apple menu.

The General Control Panel appears.

2. Click the Monitors icon.

If necessary, use the scroll bar to bring the Monitors icon into view. Figure 3-13 shows the Monitors Control Panel.

■ Figure 3-13 Monitors Control Panel



3. Click either Grays or Colors.

If you have a color monitor, you may select the number of colors to which you want access.

4. Select the number of colors you want from the list on the right.

The choices are 2, 4, or 16 colors. If you have a color monitor with an expanded video card installed, you also have the choice of 256 colors available in the list.

5. Click the close box in the upper-left corner of the Control Panel.

◆ *Note:* A/UX supports only one monitor at a time.

Changing the alert sound setting

It is possible to change the sound that your computer makes when it beeps.

To change the alert sound setting, do the following:

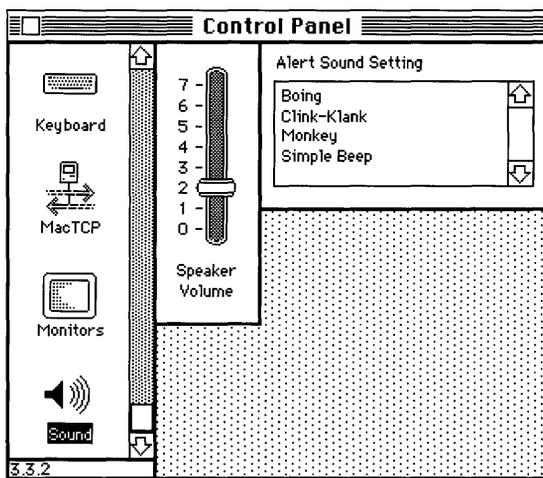
1. Choose Control Panel from the Apple menu.

The General Control Panel appears.

2. Click the Sound icon.

If necessary, use the scroll bar to bring the Sound icon into view. Figure 3-14 shows the Sound Control Panel.

■ **Figure 3-14** Sound Control Panel



3. Click a sound in the Alert Sound Setting box.

Your Macintosh computer comes with four sounds, Boing, Clink-Klank, Monkey, and Simple Beep. As you listen to each one, it is played at the volume you have selected.

- ◆ *Note:* It makes no difference whether you set the speaker volume here or in the General Control Panel. When you adjust the volume in one, the volume is adjusted in the other as well.

4. Click the close box in the upper-left corner of the Control Panel.

Now that you have learned about customizing your work environment, you may want to go on to the next chapter, “Using Commando,” to learn about commands and the Commando command-line building utility.

Chapter 4 **Using Commando**

This chapter explains how to use the Commando command-line building utility to build and run command lines in A/UX 2.0. It describes commands and their importance to A/UX, the different parts of a command line, and ways to use the Commando utility to simplify working with commands.

- What is Commando?
- What is a command?
- The parts of a Commando dialog box
- Invoking Commando

What is Commando?

The Commando command-line building utility lets you view and run most A/UX commands by means of special dialog boxes, rather than through the use of the traditional UNIX command line. Commando allows you to set flag options, open files, select folders, and access help information for commands and their options. Commando is also useful for building complex command lines. You can invoke Commando from either the Finder or the CommandShell environment.

What is a command?

A/UX uses executable files called **commands** to accomplish specific tasks. Over 500 executable commands are available in the A/UX operating system.

Commands are entered on the **command line**, the traditional interface used in UNIX operating systems to issue commands or start programs. The command line includes the command itself and any arguments and flag options. A command line in a CommandShell window is illustrated in Figure 4-1.

- **Figure 4-1** A command line in a CommandShell window



To gain access to the command line, you must first make a CommandShell window active. To do so, choose CommandShell from the Apple menu. The Apple menu is at the far left of the menu bar. If no CommandShell window appears, choose New from the File menu, or press COMMAND-N.

For instance, consider what happens when you type the command
date

on the command line and press RETURN.

In this case, the computer receives the instruction to display the current date and time on the screen. A/UX displays the information in the following fashion:

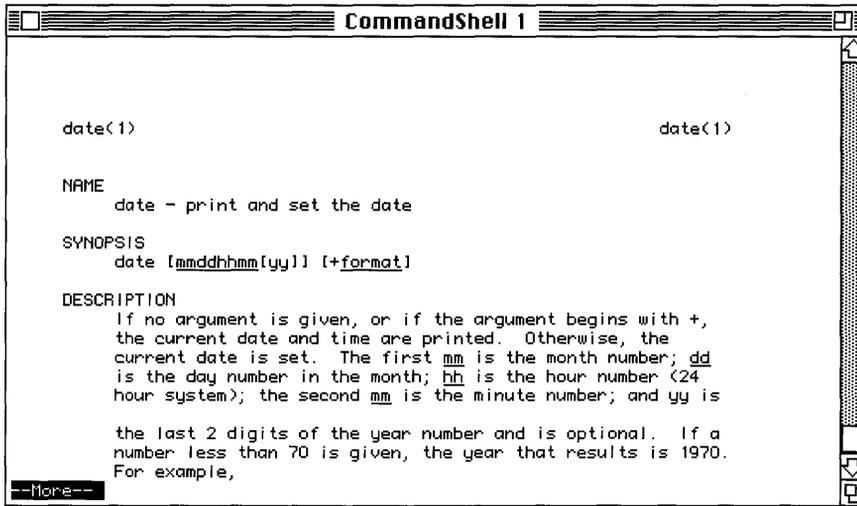
```
Tues Oct 17 17:04:00 PDT 1989
```

A description of every A/UX command can be found in *A/UX Command Reference*. You may also view the on-line manual page for any A/UX command by typing
man *command-name*

and pressing the RETURN key.

A **manual page** is an on-line version of the standard UNIX reference manual page that describes the function of a command and its options. Figure 4-2 shows part of the manual page for the `date` command.

■ **Figure 4-2** The date command manual page



Notice the word `More` is highlighted in the lower-left corner of the manual page. This means that more information about the command remains to be viewed. Press the Space bar to see the next screen. If you wish to cancel viewing the manual page, type `q`.

Identifying the parts of a command line

Command lines consist of up to three different parts: the command, flag options, and arguments. Figure 4-3 shows the parts of a command line.

■ **Figure 4-3** Parts of a command line



Flag options

Flag options alter the normal execution of a command. The user controls these options either by typing them on the command line or selecting them from a Commando dialog box.

For a complete list of all available flag options for every A/UX command, see *A/UX Command Reference* or check the appropriate on-line manual page.

Command arguments

Like flag options, **command arguments** are added to a command line, but they do not alter the command's execution. Filenames are often supplied as arguments to commands.

For example, by entering

```
cat letter1
```

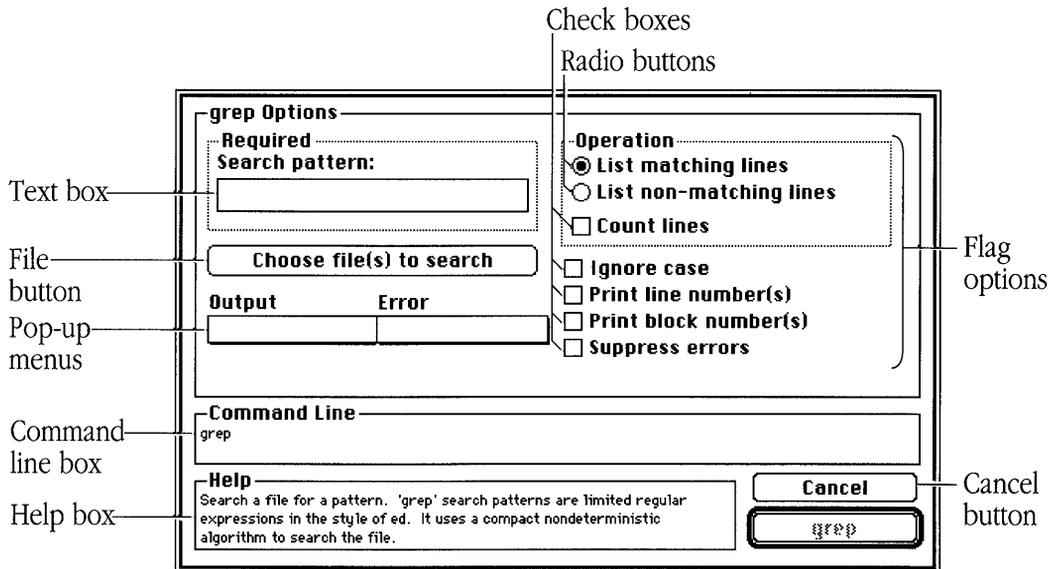
on the command line, you instruct the computer to display the contents of the file named `letter1`. The command `cat` instructs A/UX to display the contents of a file, and the argument `letter1` specifies the file on which A/UX is to operate.

The parts of a Commando dialog box

Because no two A/UX commands perform the same function, no two Commando dialog boxes are exactly the same. However, most Commando dialog boxes have the same basic elements: radio buttons, check boxes, text boxes, and file buttons. In addition, all Commando dialog boxes have a Help box, Output and Error pop-up menus, and standard file buttons, such as Cancel.

The `grep` Commando dialog box, shown in Figure 4-4, is an example that contains all of these elements. The `grep` command searches files for patterns.

■ **Figure 4-4** The `grep` Commando dialog box



The Help box

Although Commando is a useful tool for building command lines, it also serves as a quick command reference. At the bottom of every Commando dialog box you see a box labeled Help. This box contains a brief description of the command. The Help box also displays information about flag options. To see this information, click the desired flag option (either a radio button or a check box) and hold down the mouse button.

Radio buttons

Radio buttons are one way to select flag options in a Commando dialog box. **Radio buttons** are small circles organized into groups. Only one radio button in the group can be activated at any one time. They work like the buttons on a car radio; clicking any button on turns off all the others in the group.

Check boxes

Check boxes are used to select flag options in a Commando dialog box. When you click a check box, you may add an option or affect related options. Unlike radio buttons, check boxes are not mutually exclusive; you may click as many check boxes as you wish.

Text boxes

Text boxes serve several purposes in Commando dialog boxes. You enter text into a text box by clicking in the box and typing the information. In the example in Figure 4-4, you type the text pattern you wish the `grep` command to search for.

File buttons

File buttons are found in many different forms in Commando dialog boxes. Their main purpose is to grant you access to files and folders in order to add arguments to command lines. The file button shown in Figure 4-4 is used to select the files on which you wish to perform a pattern search.

Output and Error menus

Output and Error pop-up menus, which are available for every A/UX command, allow you to redirect output and error messages to a designated location. You may redirect it to a new file, an existing file, a null device, or choose not to redirect it at all. By default, standard output and error messages are sent to the active CommandShell window. Some Commando dialog boxes, like `ls`, shown in Figure 4-6, are equipped with dialog buttons that, when clicked, launch an additional dialog box containing the Output and Error pop-up menus.

Additional buttons

Each Commando dialog box is equipped with a Cancel button. Clicking the Cancel button will terminate any changes you have made in the Commando dialog box and return you to the active CommandShell window.

You may also see additional dialog buttons from time to time within Commando dialog boxes. Some of these dialog buttons, like the More options button in the `ls` Commando dialog box illustrated in Figure 4-6, contain additional flag options.

Invoking Commando

There are three different ways to gain access to a Commando dialog box. One method, double-clicking a command icon, is useful when you are working in the Finder. The most common method, typing the name of the command and choosing Commando from the Edit menu, is useful for building compound command lines when you are working in the CommandShell environment. Another method, typing `cmdo` followed by the name of the command, is useful when you are working in the CommandShell environment and want to run a command immediately. However this method of invoking Commando is *not* supported in 24-bit addressing mode.

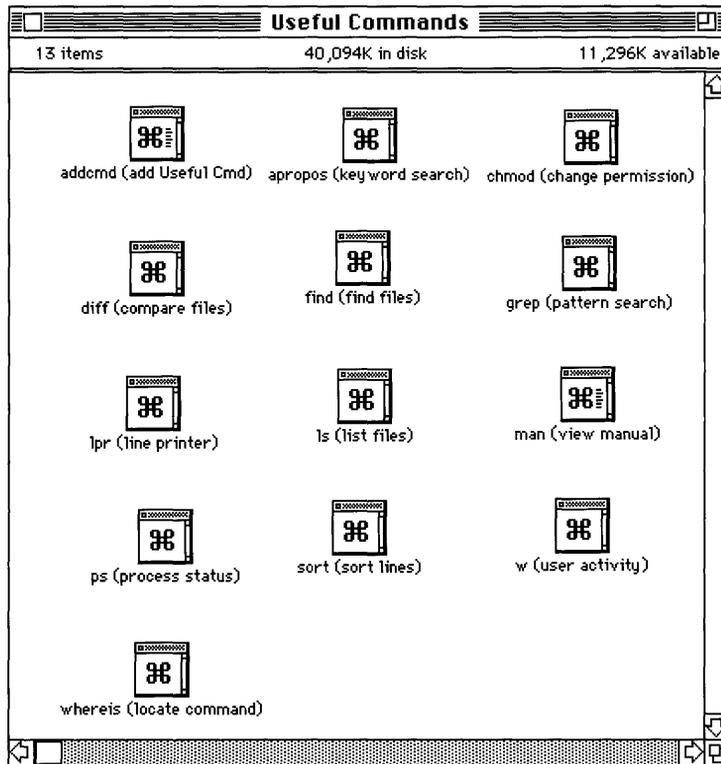
These three methods are described in greater detail in the next section.

Invoking Commando from the Finder

You can launch a Commando dialog box from the Finder by double-clicking the appropriate command icon.

When you log in to the start account and open the start folder, you will see a folder named Useful Commands. Inside this folder are a few of the most-commonly used A/UX commands. Figure 4-5 shows the Useful Commands folder.

■ **Figure 4-5** The Useful Commands folder



- ◆ *Note:* When you first open the Useful Commands folder, the names of the commands may overlap. If this is the case, you may want to re-arrange the commands within the window, or view the contents of the folder by name. To do so, choose by Name from the View menu.

For instance, to launch the `ls` Commando dialog box from the Finder, do the following:

- 1. Log in to the start account.**

See “Logging In to the Tutorial Account” in Chapter 1 “Starting and Finishing a Work Session,” for instructions on logging in to the start account.

- 2. Open the start folder.**

You can do this by either double-clicking the folder icon or selecting the folder and choosing Open from the File menu. Inside the `start` folder you see a folder named `Useful Commands`.

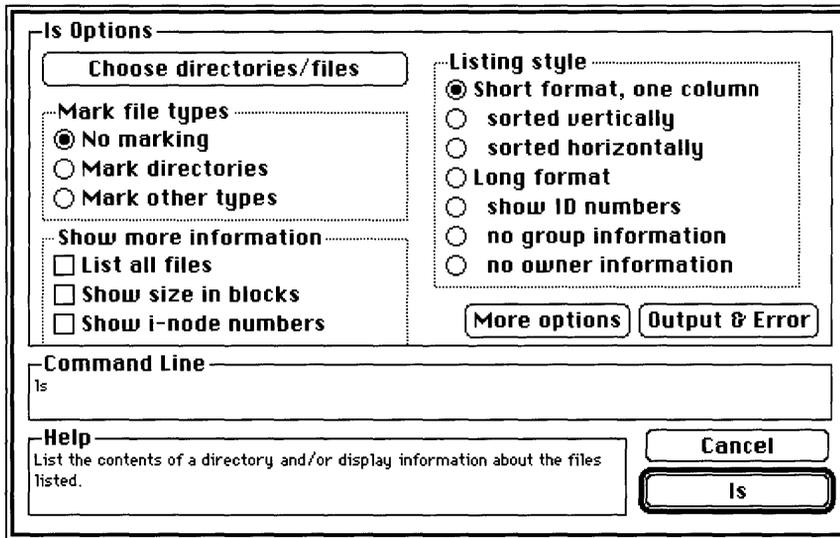
- 3. Open the Useful Commands folder.**

Inside the `Useful Commands` folder you see several commands.

- 4. Double-click the `ls` (list files) command icon.**

The `ls` Commando dialog box, shown in Figure 4-6, appears

- **Figure 4-6** The `ls` Commando dialog box



The `ls` Commando dialog box contains options that allow you to list the contents of folders.

5. **Click the “ls” button at the bottom-right corner of the dialog box.**

The `ls` Commando dialog box disappears, and a CommandShell window appears. The command runs. The results are automatically placed in the CommandShell window.

Because a simple `ls` command gives you a listing of the files in your current directory, the resulting list should look something like this:

```
Useful Commands
letter1
memo1
setup
```

- ◆ *Note:* Once you are in the CommandShell environment, you may easily return to the Finder by clicking the CommandShell icon at the right of the menu bar or by choosing Finder from the Apple menu.

Using COMMAND-K to build simple command lines

The most common method of invoking Commando is to type the name of the command in a CommandShell window and choose Commando from the Edit menu, or press COMMAND-K. This method of invoking Commando from a CommandShell window is very useful if you want to build compound command lines. This method differs from the other methods of invoking Commando in one significant way—the command is not immediately executed.

To invoke Commando in this manner, type
command-name

in a CommandShell window and choose Commando from the Edit menu or press COMMAND-K.

For example, to see a vertical list all of the files and directories in the `start` folder, do the following:

- ◆ *Note:* You may not be familiar with the term **directory**. Directories are the same as folders in A/UX.

1. **From the start account, open a CommandShell window by choosing CommandShell from the Apple menu.**

If a CommandShell window is already open, you can use it. You can also open a new CommandShell window by choosing New from the File menu, or pressing COMMAND-N.

2. **Type `ls` at the shell prompt, but do not press RETURN.**
3. **Choose Commando from the Edit menu or press COMMAND-K.**

The `ls` Commando dialog box appears.

4. **Click the “Mark directories” and “sorted vertically” radio buttons.**

Each button is organized in a different group within the dialog box, allowing you to choose both of them at the same time. As you click each of these buttons, hold down the mouse button and read the information in the Help box. This information will help you understand the function of each option.

5. **Click the “ls” button.**

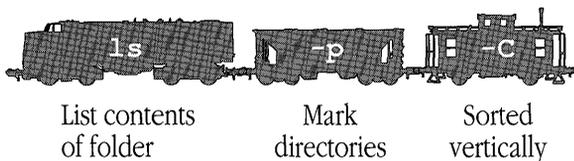
The `ls` Commando dialog box disappears, and the CommandShell window re-appears. The following command line appears in the window:

```
ls -p -C
```

Notice, however that the command does not run.

The flag options `-p` and `-C` are the result of clicking the Mark Directories and Sorted Vertically buttons. Figure 4-7 illustrates this concept further.

- **Figure 4-7** The `ls -p -C` command line



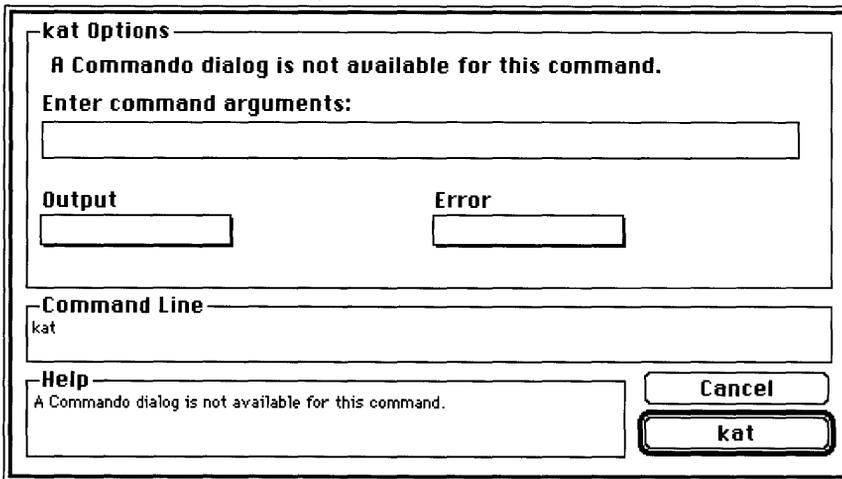
6. Press RETURN.

The `ls` command runs, and you see a list something like this one:

```
Useful Commands/      letter1      setup  
memol
```

- ◆ *Note:* If you misspell the name of command when attempting to invoke Commando, A/UX returns a dialog box warning you that a Commando dialog box is not available for the command you typed. For example, if you type “kat,” instead of “cat,” the dialog box in Figure 4-8 appears. Check the command name at the top of the Commando dialog box to make sure you typed the correct name. It may also be that a Commando dialog box doesn’t exist for the command you are trying to access.

■ **Figure 4-8** No Commando dialog box warning



Using the `cmdo` method to invoke Commando

Another way to invoke Commando from a CommandShell window is the `cmdo` method. This method is an easy way to access the Commando dialog box of your choice when you are working in the CommandShell environment and you want to run the command immediately. However, you can't use this method to build compound command lines.

To invoke Commando in this manner, type

```
cmdo command-name
```

and press RETURN. Make sure that you type a space between `cmdo` and the name of the command you wish to access.

Commando automatically searches the system for the appropriate Commando dialog box and places it on the screen. Once you select the various options you wish to add to the command, click the command name button (See Figure 4-4) in the lower-right corner of the Commando dialog box to run the command.

△ **Important** This method of invoking Commando will *not* work in 24 bit addressing mode. If you are working in 24-bit addressing mode, use the next method of invoking Commando. △

Using COMMAND-K to build compound command lines

A **compound command line** is the linking of two or more processes into one for simultaneous execution. This method of linking commands is known as **pipng**. To pipe two or more processes together, you type the pipe character on the command line. The **pipe** character is a vertical bar (`|`).

For example, suppose you want to list all the files in the `start` and `Guest` folders and determine the total number of files in both folders.

The following tutorial shows how to use a compound command line for this purpose.

1. From the start account, choose CommandShell from the Apple menu.

A CommandShell window appears.

2. Type `ls` at the shell prompt, but do not press RETURN.

3. Choose Commando from the Edit menu or press COMMAND-K.

The `ls` Commando dialog box appears.

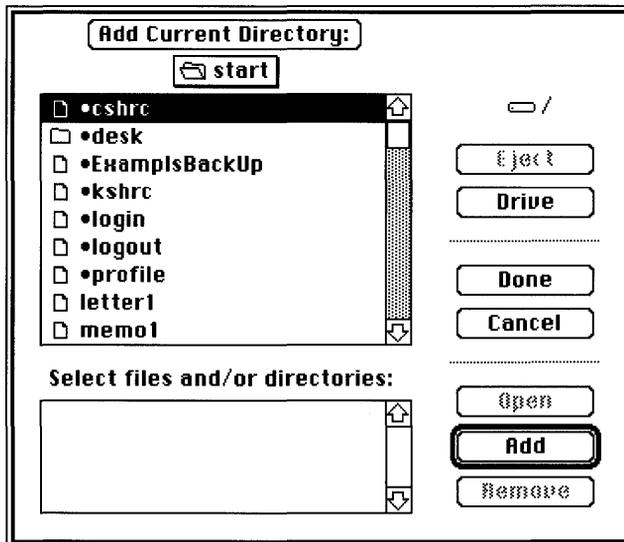
4. Click the “List all files” check box.

This flag option lists all of the files in the directories, including those beginning with a period (`.`), known as dot files.

5. Click the “Choose directories/files” button.

The dialog box shown in Figure 4-9 appears.

■ **Figure 4-9** The Choose Directories/Files dialog box



6. Click the Add Current Directory button at the top of the dialog box.

Since you logged in to the start account, the `start` directory is the current directory.

7. Select the Guest directory and click Add.

You may not see the `Guest` directory immediately. You may first have to open the `users` directory to select the `Guest` directory. To do this:

- Click the Drive button until the `/` partition is showing.
- Double-click the `users` directory.
- Click once on the `Guest` directory and click Add.

8. Click Done.

You return to the `ls` Commando dialog box.

9. Click the “ls” button, but do not press RETURN.

The `ls` Commando dialog box disappears, and the `CommandShell` window re-appears. The following command line appears in the window:

```
ls -a /users/start /users/Guest
```

Notice, however that the `ls` command does not run.

10. Press the Space bar and type the pipe (|) character.

The command line now looks like this:

```
ls -a /users/start /users/Guest |
```

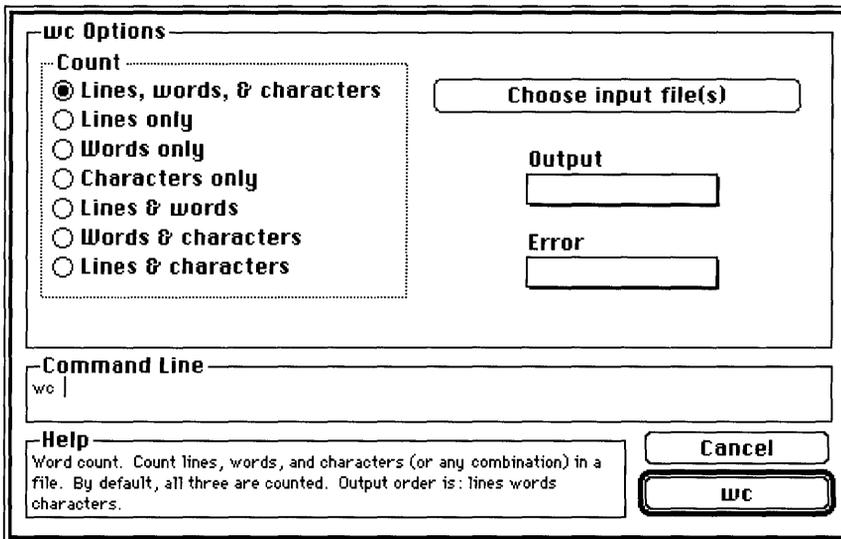
11. Press the Space bar and type wc, but do not press RETURN.

The `wc` command counts the number of lines or words in a file or folder.

12. Choose Commando from the Edit menu or press COMMAND-K.

The Commando dialog box illustrated in Figure 4-10 appears.

- **Figure 4-10** The `wc` Commando dialog box



13. Click the “Lines only” radio button.

This flag option counts the lines in each directory. In this example, each line is a separate file.

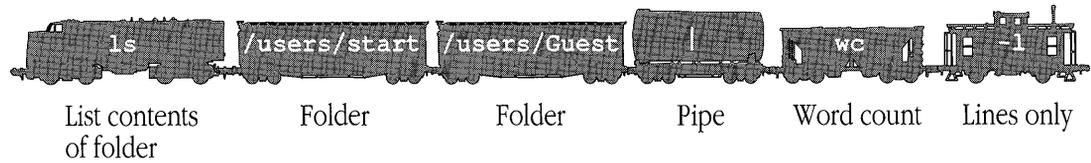
14. Click the “wc” button.

The `wc` Commando dialog box disappears, and the CommandShell window re-appears. The following command line appears in the window:

```
ls -a /users/start /users/Guest | wc -l
```

Notice, however, that the `ls` and `wc` commands do not run. Figure 4-11 illustrates the compound command line you have just created.

■ **Figure 4-11** A compound command line



15. Press RETURN.

The command line runs. The number of files in the two directories is displayed.

25

The resulting number may be different if files have been added to or deleted from the `start` or `Guest` directories.

Using Commando, you have learned how to use commands to perform specific functions. A/UX puts over 500 different commands at your disposal. To learn more about A/UX commands, see *A/UX Command Reference*, or check the appropriate on-line manual page.

Chapter 5 **Using CommandShell**

This chapter describes how to use CommandShell to interact with A/UX. CommandShell displays one or more windows that provide access to the A/UX operating system's traditional UNIX-style command-line interface. However, you can still use the mouse and menu commands to operate CommandShell windows, as you do in a Macintosh application. You can open several windows, move them, size them, and so on.

This chapter contains the following sections:

- What is CommandShell?
- Making CommandShell active
- Using the CommandShell windows
- Using the A/UX System Console
- Customizing CommandShell windows
- How the system warns you of an alert
- Using Macintosh editing tools in a CommandShell window
- Leaving CommandShell

Start by reading the first two sections of this chapter, (“What is CommandShell?” and “Making CommandShell Active”). You may then consult the remaining sections that describe the tasks you want to perform.

What is CommandShell?

When you start A/UX, you are ready to use the Finder (described in Chapter 2, “Getting Around in A/UX”). However, it may sometimes be useful for you to communicate with A/UX directly by entering A/UX commands on a command line, as is traditionally done on most UNIX systems. CommandShell allows you to display one or more windows in which you can enter A/UX commands directly. You can communicate with A/UX through any one of three standard shells:

- **C shell**
- **Bourne shell**
- **Korn shell**

A **shell** is an interface between you and A/UX. It accepts the commands that you enter and passes them on to A/UX. Each shell interprets your commands to A/UX in its own way. Since the C shell is the one most commonly used in UNIX systems, that is the default shell available to you when you log in (unless your system administrator has changed the default shell).

You can change to the Bourne or the Korn shell by using the `chsh` command. For further information on this command, see `chsh(1)` in *A/UX Command Reference*. You can change shells temporarily, while you are logged in, as follows:

- **To change to the Korn shell, display a CommandShell window and enter `ksh`.**
- **To change to the Bourne shell, display a CommandShell window and enter `sh`.**
- **To change to the C shell shell, display a CommandShell window and enter `cs`.**

The three shells are described in detail in *A/UX User Interface*.

Making CommandShell active

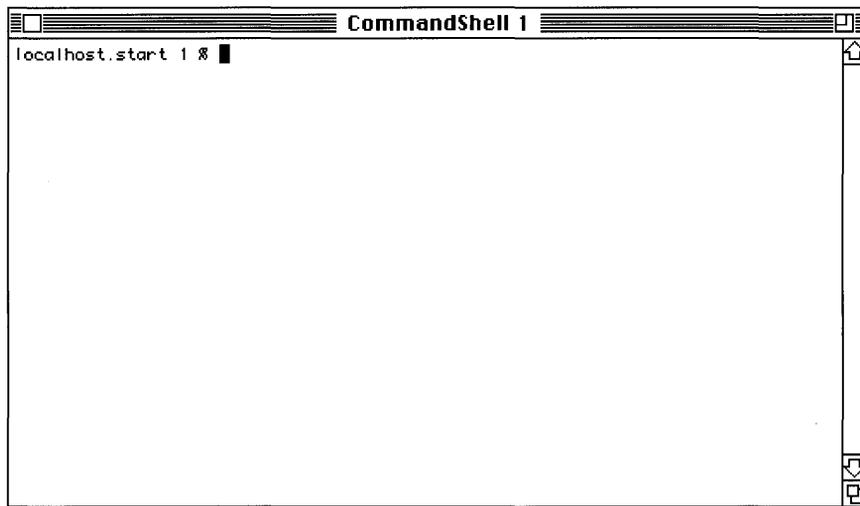
Before you read this section, you should have started A/UX and logged in to your user account. CommandShell runs whenever you are logged into A/UX. However, when you log in, the A/UX Finder is active, and its menu bar appears at the top of the screen. The CommandShell window is invisible.

To make CommandShell active:

- **Choose CommandShell from the Apple menu.**

A window labeled CommandShell 1 appears and becomes the active window (Figure 5-1). Instead of choosing the CommandShell command, you can simply click the MultiFinder icon at the upper-right corner of the menu bar. Every time you click this icon, another one of the applications that are running is brought to the foreground of the screen, and its front window is made active.

- **Figure 5-1** A CommandShell window



When the CommandShell window becomes active, the CommandShell menu bar appears. It contains commands that allow you to manage and manipulate the CommandShell windows and their contents.

Using the CommandShell windows

The following sections explain how to work with CommandShell using the menu commands. You can read through these sections sequentially or you can find the task you want to complete and go directly to the section that applies to it.

Displaying CommandShell windows

When you make CommandShell active, a CommandShell window appears. There are two ways to display more windows:

- **Choose New from the File menu .**
- **Press COMMAND-N.**

A new window appears in front of the existing window or windows. The windows are numbered in the order in which they are created (CommandShell 1, CommandShell 2, and so on).

- ◆ *Note:* Normally you can open up to 15 windows. However, it is best to use a large-screen monitor when you work with many windows at the same time.

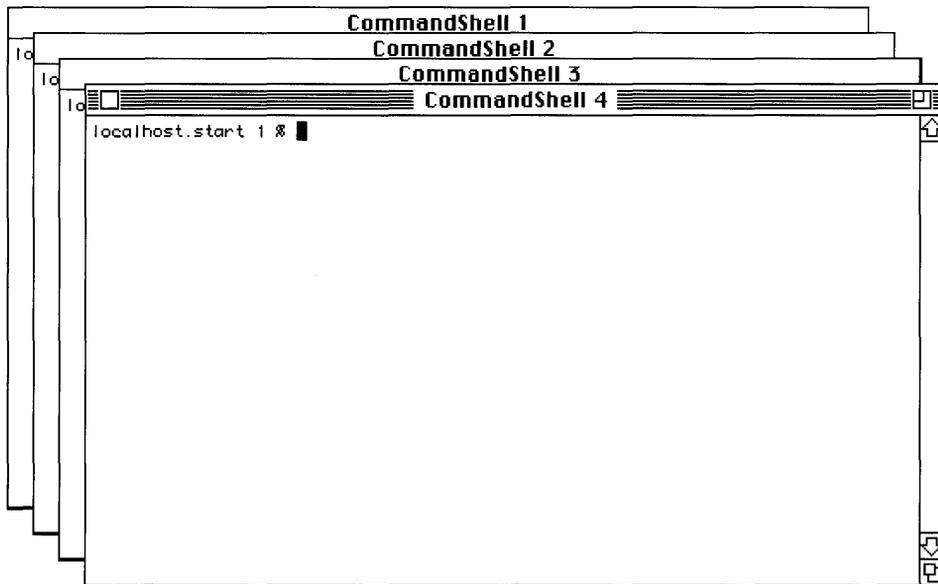
Arranging CommandShell windows

There are three ways to arrange CommandShell windows on the screen.

- **Standard position:** When you create a new window, it appears in front (and slightly below and to the right) of the previously created window, obscuring the windows behind it (Figure 5-2).
- **Tiled:** You can **tile** the windows to arrange them alongside each other with their edges touching, like tiles on a floor. For information on the different tiling patterns, see the next section, “Tiling Windows.”
- **Resizing and dragging:** You can arrange CommandShell windows on your desktop by using their resize boxes to resize the windows and by clicking on their title bars to drag the windows to new locations on the desktop.

Tiling windows reduces the size of the windows so that they fit on the screen.

- **Figure 5-2** Windows in standard position



- ▲ **Warning** Unlike a standard Macintosh window, if a CommandShell window is so reduced in size (because of tiling or resizing) that its contents become unreadable, CommandShell erases the obscured screen output. You cannot retrieve it by enlarging the window. ▲

Tiling windows

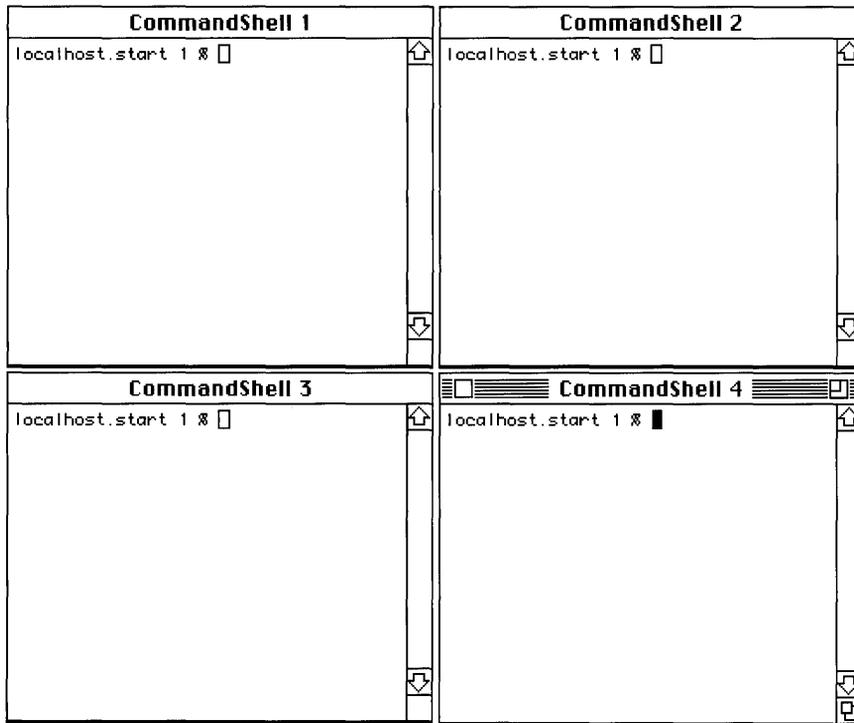
Tiling positions the windows alongside one another from right to left. Successive rows are placed from top to bottom in the order in which they were created. More than one window must be displayed before you can use the Tile command. Tiling resizes the windows so that they are all visible on the screen.

There are two ways to tile windows:

- **Choose Tile from the Window menu.**
- **Press COMMAND-T.**

Figure 5-3 shows the results of using the Tile command with four CommandShell windows displayed.

■ **Figure 5-3** Tiled windows



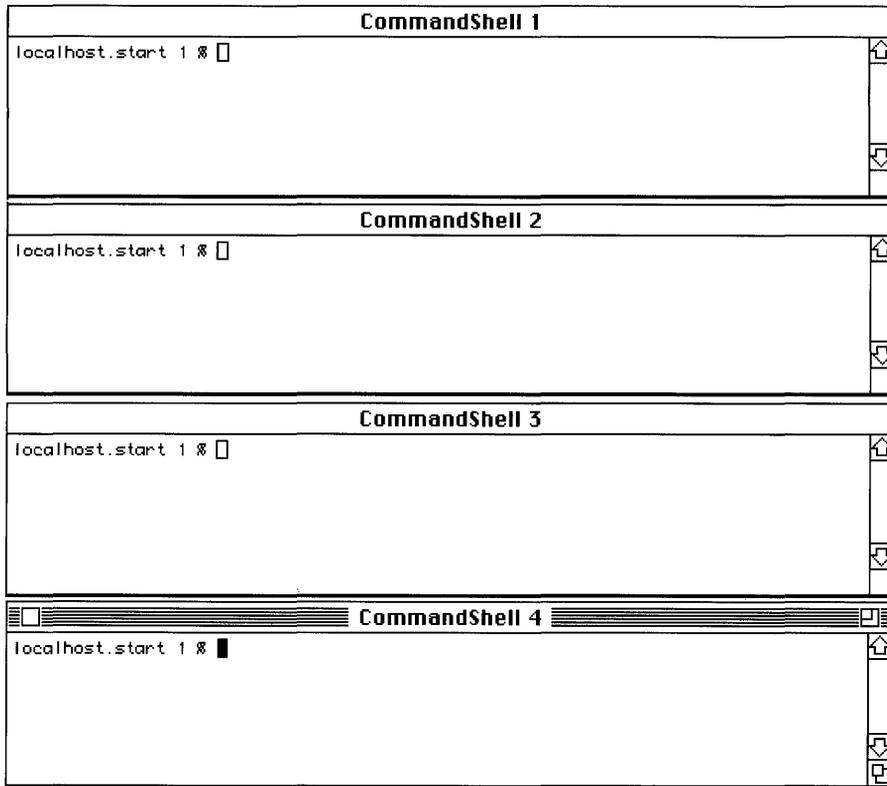
Tiling windows horizontally

Use the Tile Horizontal command in the Window menu to position the windows from top to bottom on the screen in the order in which they were created. CommandShell stretches the windows to fit the width of the screen and adjusts the height of the windows to accommodate the number of windows.

■ **Choose Tile Horizontal from the Window menu.**

Figure 5-4 shows the results of using the Tile Horizontal command with four windows displayed.

■ **Figure 5-4** Horizontally tiled windows



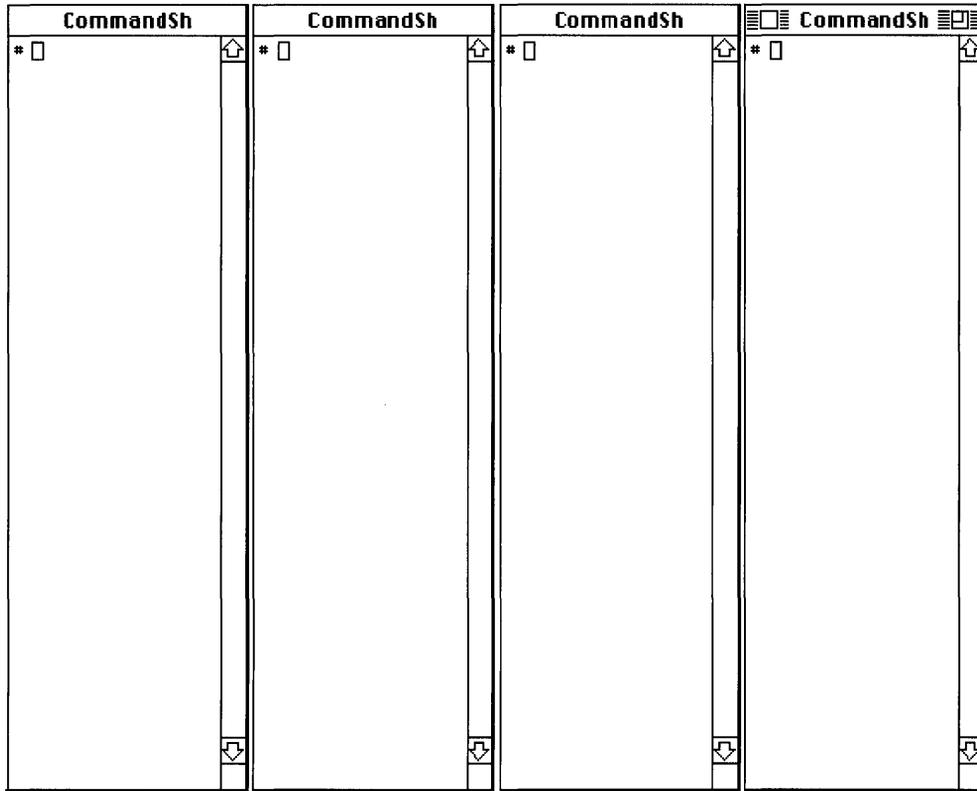
Tiling windows vertically

Use the Tile Vertical command in the Window menu to position windows from left to right on the screen in the order in which they were created. CommandShell stretches the windows to fit the height of the screen and adjusts the width of the windows to accommodate the number of windows.

■ **Choose Tile Vertical from the Window menu.**

Figure 5-5 shows the results of using the Tile Vertical command with four windows displayed.

- **Figure 5-5** Vertically tiled windows



Untiling windows

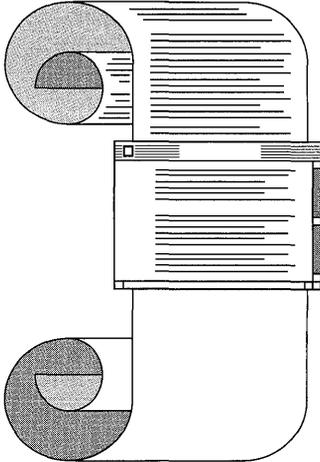
Use the Standard Positions command in the Window menu to reposition the windows in the original stacked order, from front to back and from top to bottom.

- **Choose Standard Positions from the Window menu.**

Recording the contents of a window

As new lines are added to a CommandShell window, the top lines may scroll past the top edge of the window, as is shown in Figure 5-6. CommandShell automatically records a preset number of these lines. This allows you to review them by scrolling upward.

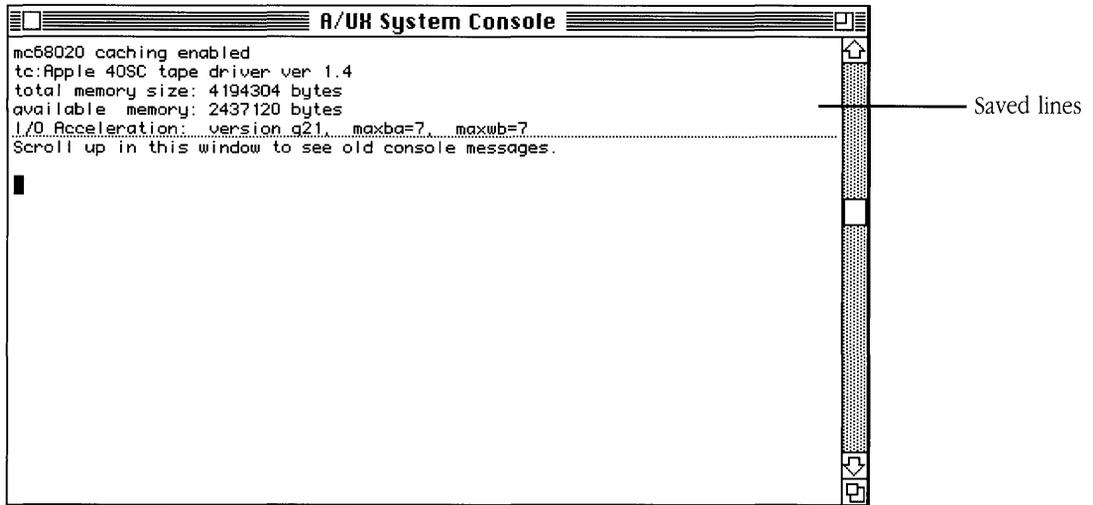
- **Figure 5-6** Saving window contents as they scroll off the top



By default, CommandShell records one thousand lines. For information on how to change this default, see “Customizing CommandShell Windows,” later in this chapter.

Figure 5-7 shows how the window looks after you use the scroll bar to redisplay the saved lines.

■ **Figure 5-7** Recorded window contents



- ◆ *Note:* CommandShell does not save any lines for use after you close the window. If you are working with text that you don't want to lose, save the contents to a file. If you have been working with a text editor, use its save commands to save the text to a file. To save A/UX command lines to a file, see "Saving a Selection in a New File," later in this chapter, or use the `script` command. For further information, see `script(1)` in *A/UX Command Reference*.

Canceling the recording of window contents

You can stop CommandShell from recording the top lines of the active window as follows:

- **Choose Don't Record Lines Off Top from the Commands menu.**

This command causes CommandShell to stop recording lines as they scroll past the top of the active window. Any lines already recorded are saved and are available for review. The command name in the Commands window changes to Record Lines Off Top. Choose this to begin recording the lines again in this same window.

Viewing recorded contents

There are several ways to view the recorded contents of a window.

- **Click or press the scroll arrow that points up.**

The lines that scrolled off the top of the window come into view, one line at a time. Release the mouse button to stop scrolling.

- **Drag the scroll box higher in the scroll bar.**

The window adjusts to display the area you identified. For example, if the lines you want to see are in the middle of the recorded lines, drag the scroll box to the middle of the scroll bar.

- **Click the gray area of the scroll bar.**

The scrolled contents are displayed one windowful at a time. Click above the scroll box if you want to scroll up; click below the scroll box if you want to scroll down.

For more information on using the scroll bar and on scrolling behavior, see the owner's guide that came with your computer.

Erasing recorded window contents

To erase recorded lines, do the following:

- **Choose Clear Lines Off Top from the Commands menu.**

The recorded lines are erased and are no longer available for review. The scroll bar becomes white. This command operates on the active window only.

Viewing windows

The following sections describe the different ways of hiding and showing windows and of moving them to and from the foreground of the screen.

Hiding a window

Note the names of the windows listed in the lower section of the Window menu in Figure 5-8. The outlined type means that the windows are visible on the screen.

- **Figure 5-8** The Window menu (all windows displayed)

Window	
Tile	⌘T
Tile Horizontal	
Tile Vertical	
Standard Positions	

Standard Size	⌘S
Full Height	⌘F
Zoom Window	⌘/
Hide "CommandShell 4"	⌘H
Show All Windows	
Last Window	⌘L
Rotate Windows	⌘R

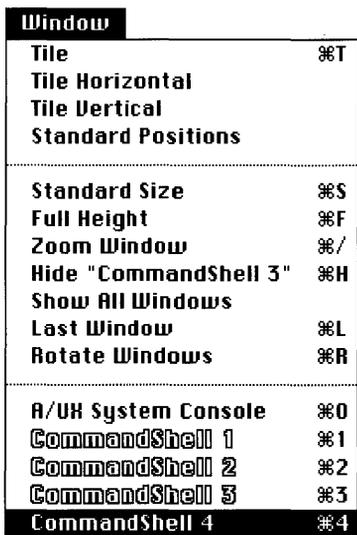
A/UH System Console	⌘0
CommandShell 1	⌘1
CommandShell 2	⌘2
CommandShell 3	⌘3
CommandShell 4	⌘4

There are two ways to make the active window disappear from view temporarily:

- **Choose Hide from the Window menu (illustrated in Figure 5-8).**
- **Press COMMAND-H.**

Now look at the window menu again. Although the window labeled CommandShell 4 is no longer visible on the screen, it is still listed in the Window menu. The window name now appears in plain text in the Window menu (Figure 5-9), indicating that it is hidden.

- **Figure 5-9** The Window menu (window 4 hidden)



The image shows a screenshot of the 'Window' menu in a Mac OS X environment. The menu is titled 'Window' and contains several options. The option 'Hide "CommandShell 3"' is highlighted, indicating it is the active selection. The option 'CommandShell 4' is listed at the bottom of the menu in plain text, indicating it is hidden. The other options are: 'Tile' (⌘T), 'Tile Horizontal', 'Tile Vertical', 'Standard Positions', 'Standard Size' (⌘S), 'Full Height' (⌘F), 'Zoom Window' (⌘/), 'Show All Windows', 'Last Window' (⌘L), 'Rotate Windows' (⌘R), 'A/UX System Console' (⌘O), 'CommandShell 1' (⌘1), 'CommandShell 2' (⌘2), and 'CommandShell 3' (⌘3).

Window	
Tile	⌘T
Tile Horizontal	
Tile Vertical	
Standard Positions	

Standard Size	⌘S
Full Height	⌘F
Zoom Window	⌘/
Hide "CommandShell 3"	⌘H
Show All Windows	
Last Window	⌘L
Rotate Windows	⌘R

A/UX System Console	⌘O
CommandShell 1	⌘1
CommandShell 2	⌘2
CommandShell 3	⌘3
CommandShell 4	⌘4

Showing a hidden window

To show a window that has been hidden, do the following:

- **Choose the hidden window's name from the Window menu.**

The window reappears in front of the other windows on the desktop. The window name now appears in outlined type in the Window menu.

Showing all hidden windows

To show all windows that have been hidden, do the following:

- **Choose Show All Windows from the Window menu.**

The windows reappear in front of any other windows on the desktop. The window names are outlined in the Window menu.

Alternating two windows to and from the foreground

There are two ways to move two windows alternately to the foreground of the screen:

- **Choose Last Window from the Window menu.**
- **Press COMMAND-L.**

The previously visible window moves in front of the currently visible window. Repeating this command reverses them again.

Moving a specific window to the front

There are three ways to move a specific window in front of any other windows:

- **Choose the window name from the Window menu.**
- **Click a visible part of the window.**
- **Press COMMAND-*window number* (limited to numbers 1 through 9).**

The specified window moves in front of any other windows on the desktop.

Moving the rearmost window to the front

There are two ways to move the rearmost window in front of all the other windows:

- **Choose Rotate Windows from the Window menu.**
- **Press COMMAND-R.**

The rearmost window moves to the front.

Closing CommandShell windows

Before you can close an individual window, it must be the active window.

Closing a window

There are three ways to close an active window:

- **Choose Close from the File menu.**
- **Press COMMAND-W.**
- **Click the close box of the window.**

The CommandShell window disappears from the screen.

- ◆ *Note:* CommandShell does not save any lines for use after you close the window. If you are working with text that you don't want to lose, save the contents to a file. If you have been working with a text editor, use its save commands to save the text to a file. To save A/UX command lines to a file, see "Saving a Selection in a New File," later in this chapter, or use the `script` command. For further information, see `script(1)` in *A/UX Command Reference*.

If you close a window in which a process or a program is running, the process is halted. An alert box warns you of this and gives you the option of keeping the window open.

Closing all open windows

To close all the open windows at once:

- **Choose Close All Windows from the File menu.**

The CommandShell windows disappear from the screen.

If you close a window in which a process or a program is running, the process is halted. An alert box warns you of this.

Using the A/UX System Console

When you are working in A/UX, the system may generate messages regarding its status. In a traditional UNIX environment, these messages are sent to the console window, which displays them. Typically the system administrator monitors this terminal for messages and maintains the system according to the information. In A/UX 2.0, the system messages are shown in the A/UX System Console, a CommandShell window that you display by choosing its name from the Window menu.

Looking at the A/UX System Console window

To look at the contents of the A/UX System Console window, follow these steps:

- 1. If you haven't already done so, choose CommandShell from the Apple menu.**

This action displays an active CommandShell window and makes the CommandShell menu commands available.

- 2. Choose A/UX System Console from the Windows menu, or press COMMAND-0 (that is, the number "zero," not the letter "Oh").**

This action displays the A/UX System Console window. For more information on the messages that you might see in the window or for information on how to respond to a request for information, see *A/UX Local System Administration*.

Clearing the A/UX System Console window

To clear the messages from the A/UX System Console window, follow this step:

- **Choose Clear Lines Off Top from the Commands menu.**

This action clears all the information from the window. You should clear this window periodically so that you can tell when new messages appear.

Closing the System Console window

Close the System Console window just as you do any CommandShell window (see “Closing CommandShell Windows” earlier in this chapter). Note that unlike other CommandShell windows, when you close the System Console window, nothing in the window is lost. Closing the System Console window is equivalent to hiding it.

Customizing CommandShell windows

If you use CommandShell windows often, you may find it convenient to establish an ideal arrangement of windows, so that as soon as you log in to A/UX, the windows are set up exactly the way you want.

Saving the layout of your CommandShell windows

The Save Preferences command (in the File menu) allows you to save the following specifications:

- notification level preferences (see “How the System Warns You of an Alert,” later in this chapter)
- the positions and sizes (in rows and columns) of all CommandShell windows
- the windows’ stacking order
- the titles of the windows
- the fonts and point sizes of text in the windows
- whether a given window is visible or hidden

- whether a given window is zoomed or not, and the sizes (in pixels) of its zoomed and unzoomed states
- whether lines are to be saved off the top of the screen, and the number of lines to be saved (see “Recording the Contents of a Window,” earlier in this chapter; see also “Presetting Window Defaults,” later in this chapter)
- the initial command to be run in the window (see “Presetting Window Defaults,” later in this chapter)

To save these settings, follow these steps:

1. Arrange the windows just as you want them to be.

Be sure that you have chosen any special formatting features that you want (such as fonts).

2. Choose Save Preferences in the File menu.

Restoring the window layout to the saved preference

If you have saved your window preferences but have changed the window layout on your screen, you can instantly restore your preferred layout as follows:

- **Choose Restore From Preferences in the File menu.**

Presetting window defaults

The Active Window Settings command in the Preferences menu allows you to do the following:

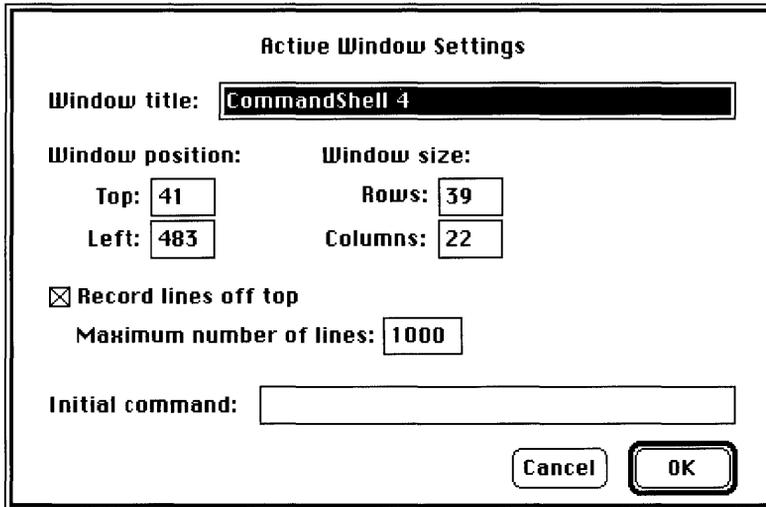
- save an initial command to execute upon login
- change the title of the window
- change the number of lines to save

Follow these steps:

- **Choose Active Window Settings in the Preferences menu.**

The dialog box shown in Figure 5-10 appears.

- **Figure 5-10** The Active Window Settings dialog box



The name of the active window is highlighted in the top line.

You can change any or all of the settings in this dialog box. After you click OK, the saved settings become the new defaults for displayed windows.

Notice that the check box “Record lines off top” is selected by default. If you click it, the X mark disappears and recording of lines is turned off. You can also change the maximum number of lines recorded, but only if “Record lines off top” is selected.

In the “Initial command” text box, you can enter a command to be run as soon as you log in.

Presetting the appearance of new windows

You can change the default settings that control the appearance of new windows before you create them. Follow these steps:

- **Choose New Window Settings from the Preferences menu.**

The dialog box shown in Figure 5-11 appears.

- **Figure 5-11** The New Window Settings dialog box

New Window Settings

Window Title Prefix:

Window Cascade Origin: Window Size:

Top: Rows:

Left: Columns:

Font: Size:

Maximum number of lines recorded off top:

You can decide to extend the active window settings to all new windows. To do so, click Use Active Window Settings.

If you wish to label new windows with a prefix other than “CommandShell,” type the prefix in the Window Title Prefix text box.

This dialog box also allows you to preset the window size, the screen font to be used in the window, and the maximum number of lines to be saved.

To preset a default position for the upper left corner of the first window of a group of stacked windows, enter the coordinates (in pixels) in the Window Cascade Origin text box.

How the system warns you of an alert

If the system needs to bring an alert to your attention (for example, if the system administrator is preparing to shut down the system), an icon flashes in the menu bar and an alert box appears. If CommandShell is not the active application, a diamond-shaped symbol also appears alongside CommandShell in the Apple menu. Choose this to activate CommandShell; then choose A/UX System Console from the Windows menu to display the alert message.

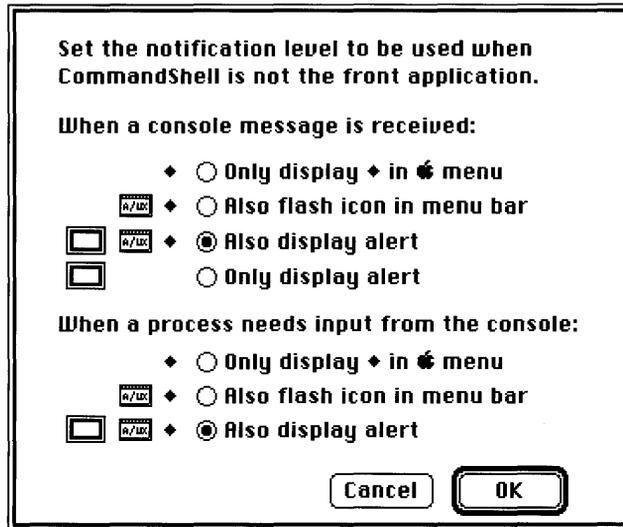
You can change this default to suppress the alert box, the flashing menu-bar icon, or both.

To change this default, do the following:

1. **Choose Notification Levels in the Preferences menu.**

The dialog box shown in Figure 5-12 appears.

■ **Figure 5-12** The Notification Levels dialog box



2. **When you have clicked the appropriate buttons, click OK.**

Using Macintosh editing tools in a CommandShell window

You can use some of the standard Macintosh editing procedures while working in CommandShell windows. This allows you to paste a series of commands or a long, complex command into another window without having to retype it. When you press RETURN, A/UX runs the copied command.

Copying text

To copy text, follow these steps:

- 1. Select the text you want to copy.**
- 2. Choose Copy from the Edit menu or press COMMAND-C.**

The highlighted text is copied to the Clipboard. You can paste the Clipboard contents as many times as you want. For more information about the Clipboard and its contents, see the owner's guide that came with your computer.

Pasting text

Once you have copied text to the Clipboard, you can paste the text in a CommandShell window.

To paste text, do this:

- 1. Place the insertion point where you want the pasted material to appear.**
- 2. Choose Paste from the Edit menu or press COMMAND-V.**

The text is pasted, beginning at the cursor location. You can paste the Clipboard contents as many times as you want, until you replace them by copying something else. For more information about the Clipboard and its contents, see the owner's guide that came with your computer.

Changing the font or font size

You can change the appearance of all the text in a window by changing the font or font size. The choices available in the Font menu are the monospaced fonts in the System file.

- **Choose the font or font size from the Font menu.**

All text in the window changes to the new font or font size.

Saving a selection in a new file

You can save the contents of a CommandShell window in a file in A/UX. Follow these steps to create a new file and then write the selection to disk in the new file. When the text is present in a CommandShell window, follow these steps:

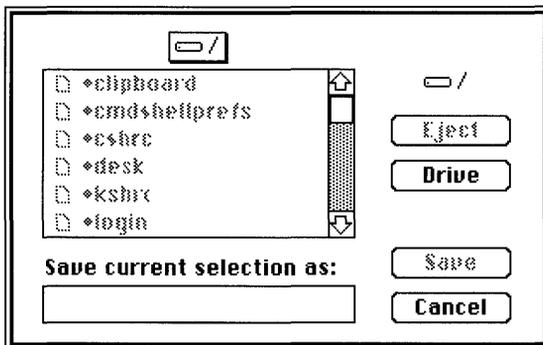
- 1. Select the text you want to copy into a new file.**

The text appears highlighted.

- 2. Choose Save Selection from the File menu.**

The Save Selection dialog box shown in Figure 5-14 appears.

- **Figure 5-14** The Save Selection dialog box



3. Type a name for the new file.
4. Click Save.

Printing the contents of a CommandShell window

You can print all or part of the contents of a CommandShell window as follows:

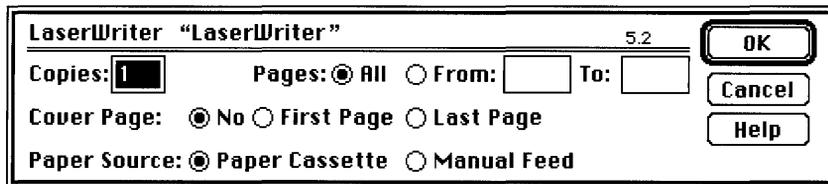
1. Select the portion of the window that you wish to print.

You can select the entire contents of the window by choosing Select All in the Edit menu.

2. Choose Print Selection in the File menu.

The Print dialog box shown in Figure 5-15 appears.

- **Figure 5-15** Print dialog box



3. Click OK to print.

Leaving CommandShell

Make sure that you have saved any work that you complete in CommandShell windows before you return to the A/UX Finder. There are two ways to leave CommandShell:

- **Choose another application from the Apple menu.**

This action moves the CommandShell window to the background of the screen. The Finder is now active.

- **Choose Hide CommandShell Windows from the Apple menu.**

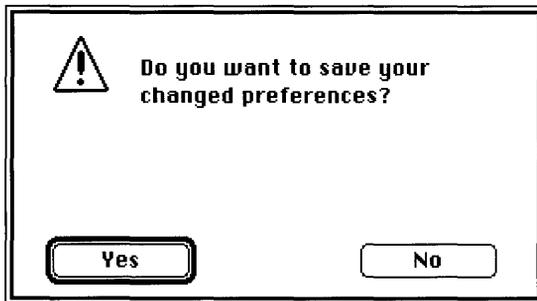
This action closes all the windows and sets aside the utility until you reactivate it. This method reduces screen clutter while you work on other applications.

There is no Quit command in the CommandShell's File menu, because CommandShell is an application that must always be running. It is needed to handle console messages that the system displays for your information.

When you log out or shut down the system, if you have changed your window preferences with the Save Preferences command in the File menu, you are asked whether or not you want to save the changed preferences.

The dialog box shown in Figure 5-16 appears.

- **Figure 5-16** The Save Changed Preferences dialog box



Click Yes to save the changed preferences or No to abandon them.

Chapter 6 **Writing With TextEditor**

This chapter describes how to use the TextEditor application to create and to edit text files. It presents tutorials with step-by-step instructions that show you how to accomplish simple writing and editing tasks.

This chapter contains the following sections:

- What is TextEditor?
- Creating a new document
- Saving a new document
- Editing an existing document
- Formatting and other features
- Printing
- Quitting TextEditor

You may read through this chapter in sequence or go directly to the section that interests you. If you are not accustomed to Macintosh editing tools, work through the tutorials.

What is TextEditor?

TextEditor allows you to create and edit text files using the mouse and menu commands in the traditional Macintosh manner. It creates a file that contains only the text characters that you type on your keyboard (including tab and return characters). This is called a **text-only file** (or an **ASCII text file**). When you create a document with word-processing or desktop-publishing software, unless you save the file as “text only,” the file contains many formatting commands. Although these formatting commands are invisible on your screen, they confuse other programs that try to use your file. A text-only file can be read by any text editor or word processor. Moreover, you can use it to write programs or shell scripts, which should never contain hidden formatting characters.

To preserve the text-only nature of TextEditor’s text files and still allow you certain formatting choices, TextEditor gives you the option of saving the file’s formatting information, but it saves this information in a separate file called a **resource fork** and saves the text characters in a text-only file. These formatting choices include adjusting the tab settings and choosing fonts, among others. These features are described later in this chapter.

Since TextEditor reads and writes text-only files, you can use it to work with files created with any other text-only text editor. Thus, you can edit MacWrite® files saved with the Text-Only option. When you select the Open command, TextEditor’s standard file dialog box displays a list of all text files in the folder (or the “current directory,” in UNIX parlance), regardless of what program was used to create the file.

The resource fork has the same filename as the text file, but it is preceded by a percent sign (%).

Like most UNIX systems, A/UX 2.0 also comes with a commonly used UNIX text editor called `vi` (*Visual Editor*). If you are an experienced `vi` user, you can continue to use `vi` to read and write text files from the CommandShell command line. For information on CommandShell, see Chapter 5, “Using CommandShell.” Naturally, TextEditor can read and edit text files created with `vi`, and vice versa.

The fact that TextEditor is designed for the Macintosh interface makes it quick and easy to learn and to use. When you finish going through the tutorials in this chapter, you should have no trouble creating and editing text with TextEditor.

The default text editor

As shipped, A/UX 2.0 uses TextEditor as its default text editor. This means that whenever you double-click the icon of a text-only file, TextEditor begins operating, and the text appears in a TextEditor window.

To set a different editor as the default editor, you need to know where in the file system the editor you want is located, that is, you need to know its pathname. For information on pathnames, see “Pathnames in the A/UX File System,” in Chapter 2, “Getting Around in A/UX.”

You can change the default text editor by changing an **environment variable** in the `.login` file in your home directory folder (assuming that you are working in the C shell). Notice that the name of this file begins with a period (`.`). It is therefore called a **dot file**.

- ◆ *Note:* In A/UX, as in other versions of UNIX, dot files are used to give special directions to the system. Whenever you type a dot file’s name in a CommandShell window, remember to begin the filename with a period. However, in the A/UX Finder, the labels of the dot files’ icons are preceded by a bullet (•) instead of a period.

If you are working in the C shell, whenever you log in to your account, the system reads your `.login` file to create your working environment (or the `.profile` file if you are working in the Korn shell or the Bourne shell).

To change your default text editor in the `.login` file, follow these steps:

- 1. The A/UX Finder should be displayed on your screen. Be sure that your home directory folder is open. Double-click the `.login` file icon to open the file.**
- 2. At the end of the file, add a new line as follows:**
`setenv FINDER_EDITOR editorpathname`

Replace the word in italics with the full pathname of the editor you wish to set as the default editor. For example, if another user has changed the default editor, you can change it back to TextEditor by typing TextEditor’s pathname as the last item on the line, as follows:

```
setenv FINDER_EDITOR /mac/bin/TextEditor
```

Note that there is a space before the editor's pathname (`/mac/bin/TextEditor`, in the case of `TextEditor`).

3. **Save the changed `.login` file.**
4. **Log out and log in again, so that the system rereads the `.login` file.**

Creating a new document

The following section teaches you how to turn `TextEditor` on and create a document. During the course of these tutorials, please be sure that you have logged in as `start` and are working in the `start` folder.

Starting `TextEditor`

You may start `TextEditor` from the A/UX Finder by double-clicking the `TextEditor` icon or by double-clicking a text-file icon (provided that `TextEditor` is the default editor). You may also start `TextEditor` from a `CommandShell` window.

If you are working in a `CommandShell` window, you can start `TextEditor` simply by entering the command `TextEditor`. An untitled `TextEditor` window appears.

The following tutorials teach you how to work with `TextEditor` after starting it from the Finder. However, once you have used the tutorials and are familiar with `TextEditor`, you will have no difficulty in using it no matter how you start it.

Starting `TextEditor` from the A/UX Finder

This tutorial teaches you how to start `TextEditor` from the A/UX Finder by double-clicking the `TextEditor` icon.

To find the `TextEditor` icon, you need to open the `/mac/bin` folder (for a description of pathnames such as `/mac/bin`, see “Pathnames in the A/UX File System,” in Chapter 2, “Getting Around in A/UX”). Follow these steps:

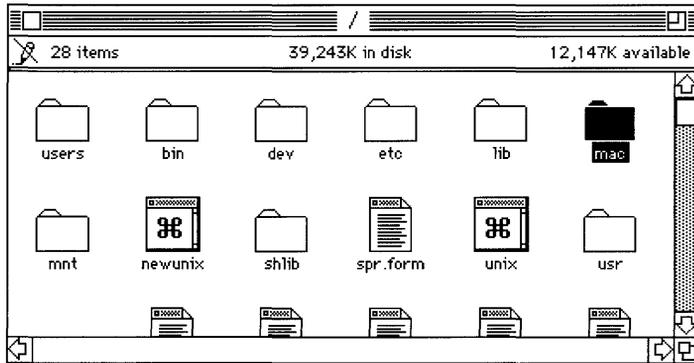
1. **Double-click the icon for the `root` folder (see Figure 6-1).**

■ **Figure 6-1** The `root` folder icon



The `root` folder opens, displaying the `mac` folder icon (see Figure 6-2).

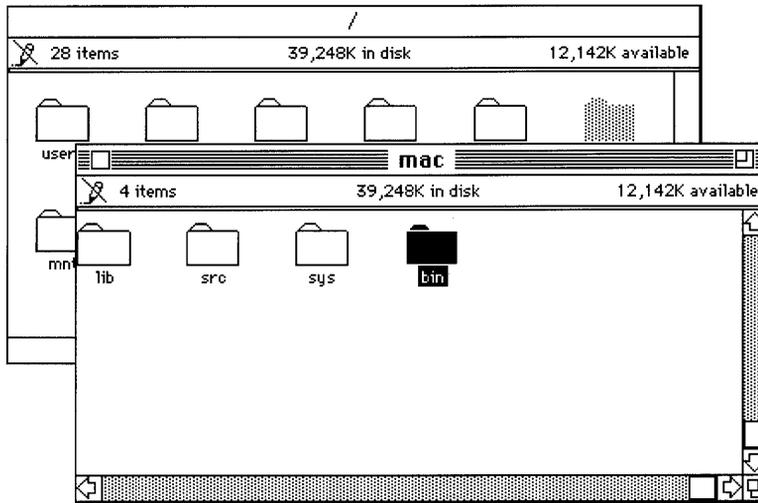
■ **Figure 6-2** The `root` folder with the `mac` folder icon selected



2. **Double-click the `mac` folder icon.**

The `mac` folder opens, displaying the `bin` folder icon (see Figure 6-3).

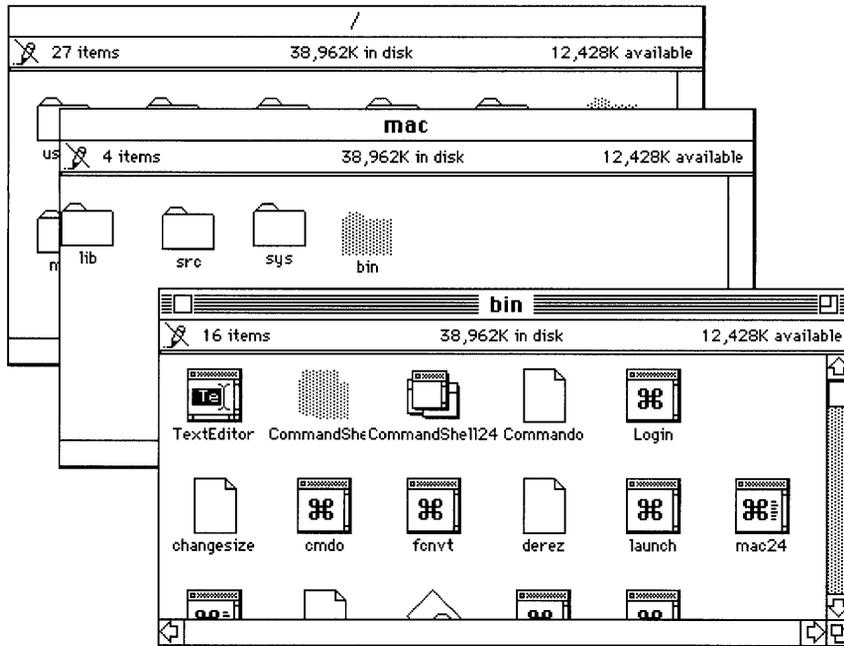
- **Figure 6-3** The `mac` folder with the `bin` folder icon selected



3. Double-click the `bin` folder icon.

The `bin` folder opens, displaying the TextEditor icon (see Figure 6-4).

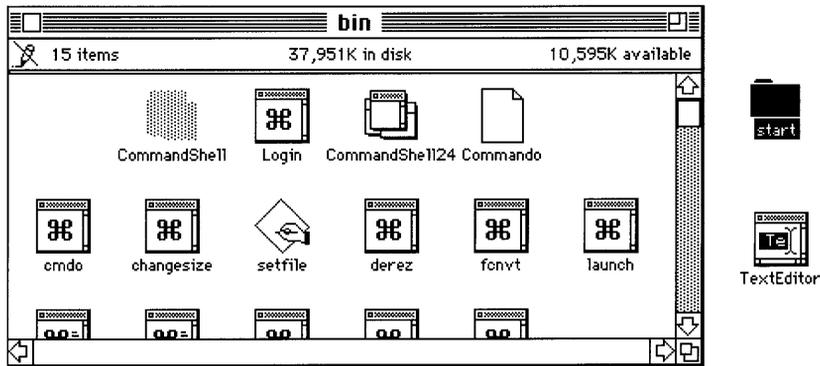
- **Figure 6-4** The TextEditor icon in the bin folder



4. **Select the TextEditor icon and drag it to the desktop.**

Figure 6-5 shows the TextEditor icon on the desktop. You can now use it without having to open folders.

- **Figure 6-5** The TextEditor icon on the desktop



Now that you have found the TextEditor icon and moved it to the desktop, use it to create a new document as follows:

- **Double-click the TextEditor icon.**

An TextEditor window named “Untitled” appears. You can now begin to create your text file.

Entering text

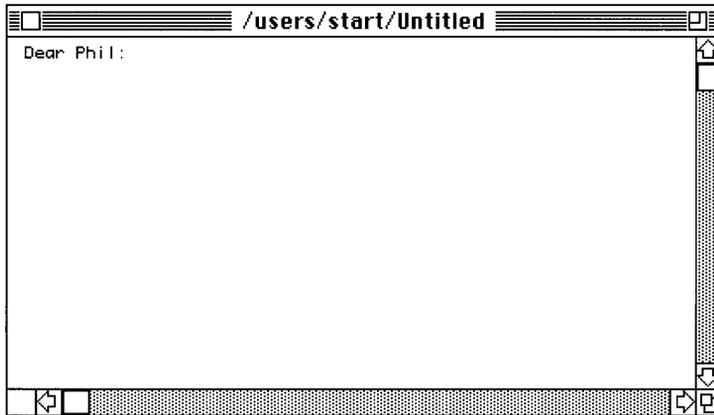
Begin by creating an office memo.

1. **Type the following:**

Dear Phil:

Your screen should look like the one in Figure 6-6.

■ **Figure 6-6** Starting to enter text



2. Press the RETURN key twice and continue typing:

I received your letter about the purchase of land for a new office building.

You have probably typed past the edge of the screen. Unlike many word processors, TextEditor does not automatically move to the next line when you type past the right edge of the screen. This is a feature that programmers find useful.

You need to move the cursor to the beginning of a word that is near the right edge of the screen; then press RETURN.

3. Move the I-beam to where you want the line break to be; then click.

This places the insertion point on the line. You can also move the insertion point to the left by pressing and holding the LEFT-ARROW key.

4. Press RETURN to move the rest of the sentence to the next line.

5. Move the insertion point to the end of the text and press RETURN twice to start a new paragraph.

6. Continue typing (remember to press RETURN to go to the next line before you reach the edge of the screen again):

It's true that the financial reports for the last quarter are not in yet, but there is a general feeling that the numbers look good. This might be the perfect time to submit your plan.

7. Press RETURN twice to create a new paragraph, then type:

I don't want to rush you, but perhaps you should get ready to take advantage of a real opportunity.

Cutting and pasting text

The sentence that you typed in step 7 might look better right before the material you typed in step 6. The two paragraphs would then read as follows:

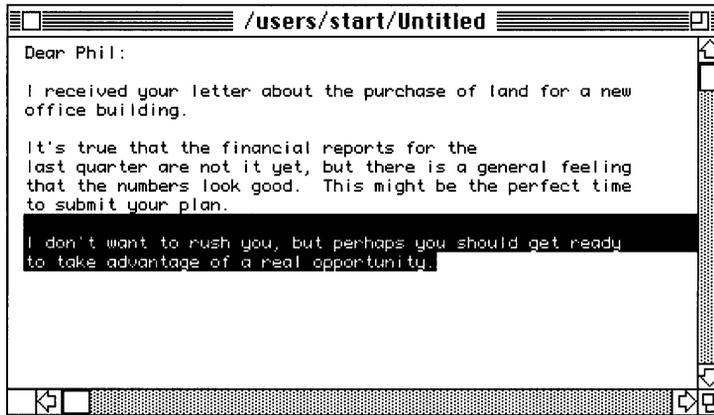
I don't want to rush you, but perhaps you should get ready to take advantage of a real opportunity.

It's true that the financial reports for the last quarter are not in yet, but there is a general feeling that the numbers look good. This might be the perfect time to submit your plan.

- 1. Place the I-beam just before the first letter of the sentence beginning: "I don't want"**
- 2. Hold down the mouse button and move the mouse so that the I-beam moves past the period after the phrase "real opportunity."**
- 3. Release the mouse button.**

The text is now selected, as in Figure 6-7.

- **Figure 6-7** The selected block of text



You can perform various operations with a block of selected text. In this case, you are going to cut and paste the text.

4. Choose Cut in the Edit menu.

The selected text disappears. The passage you have cut is saved on the Clipboard. If you choose the Show Clipboard command in the Edit menu, you see a window showing the selected text saved in the Clipboard. For now, continue with step 5.

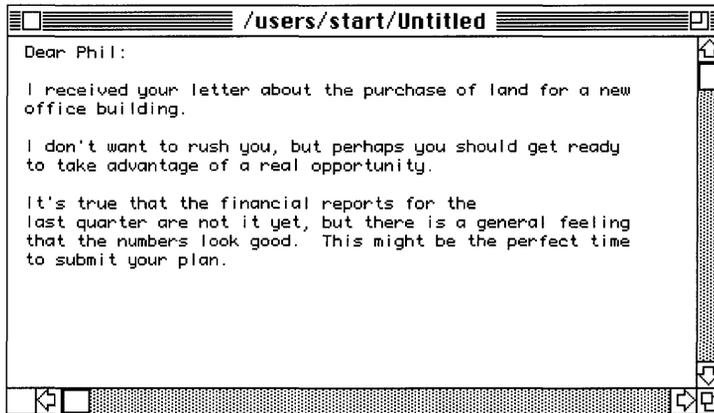
5. Move the I-beam to the end of the first paragraph and click RETURN twice to create a new paragraph.

This places the insertion point where you are going to paste the text that you just cut.

6. Choose Paste from the Edit menu.

The selected text appears in its new location, as in Figure 6-8.

- **Figure 6-8** The text pasted in place



The selected text remains on the Clipboard until you replace it with another block of selected text. If you wanted to, you could paste copies of it in any number of other places in the document.

To save this memo to a file, see the next section, “Saving a New Document.”

Saving a new document

Since this document is new, you must save it and give it a filename. Follow these directions:

1. Display the File menu.

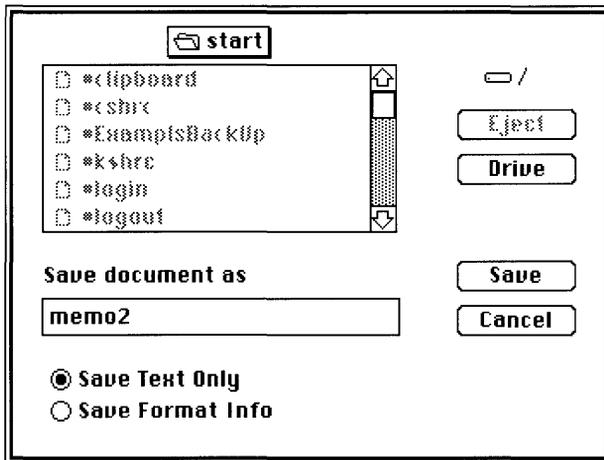
These four commands allow you to save a file:

- Save
- Save As
- Save a Copy
- Revert to Saved

2. Choose Save As.

The Save As dialog box, shown in Figure 6-9, asks you to select a name for the file.

■ Figure 6-9 The Save As dialog box



3. Type the name `memo2` in the highlighted field, labeled “Save document as.”

4. Be sure that the Save Text Only radio button is selected.

If you had used any of the formatting options (described later in this chapter), you could have saved them in a separate file by selecting Save Format Info. The document would then be saved in two files, `memo1` and `%memo1`. The second of these (the resource fork), would preserve the formatting information. However, since you haven't used the formatting options, it isn't necessary to create an extra file.

5. Click Save.

The memo is saved as a file with the filename `memo2`.

The other Save commands work as follows:

- **Save:** If the file in the active window has already been given a filename, the Save command automatically saves it under its current name, without closing it. The original version of the file of that name is overwritten in the process. This menu item is dimmed (and therefore cannot be used) if the file hasn't been modified since it was last saved.
- **Save As:** In addition to using this command to name a new file (as you have just done), you can use it while working on a file that already has a name. This lets you save an edited file under a new name, leaving the original intact. The file that you originally opened remains unchanged, just as it was when last saved.
- **Save a Copy:** The Save a Copy command saves the file, in its current state, under a new filename. You can then continue editing the *original* file.
- **Revert to Saved:** Use the Revert to Saved command to throw away any changes you have made since you last saved the document. This command is dimmed if the document has not been modified since it was last saved.

Editing an existing document

The following tutorials show how to edit or rewrite a document file that already exists.

Opening the file

Suppose you want to edit a text file that already exists. If TextEditor is running, you can open the file for editing by choosing Open from the File menu. This allows you to open any text-only file, regardless of what application was used to create the file.

If you are in the Finder, and if TextEditor is your system's default text editor, you need only double-click the icon of the file to be edited (or click it once to select it and choose Open from the File menu). TextEditor starts running and the file you have clicked is opened for editing.

If TextEditor is not still running, follow these steps:

- 1. Open the `start` folder if it is not already open.**
- 2. Double-click the file icon labeled `memo1`.**

The file named `memo1` is opened, and the document is displayed. You are ready to alter this document and to save it under a new name.

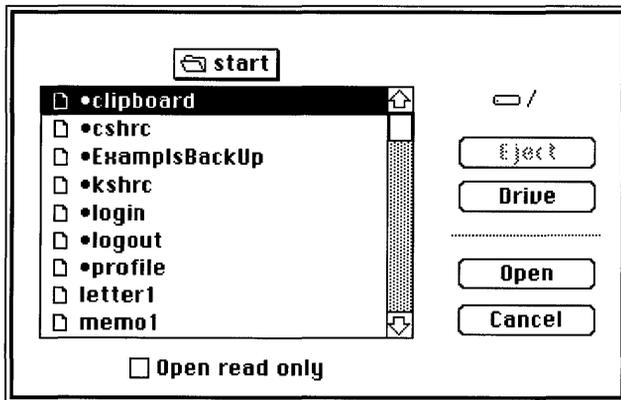
If you have not quit TextEditor since the last tutorial, it is still running and you are working in the `start` folder. Be sure that you are logged in as `start` and are working in the `start` folder, which contains all the tutorial material.

Follow these steps:

- 1. Choose Open in the File menu.**

The dialog box shown in Figure 6-10 appears:

- **Figure 6-10** The Open dialog box (filled in)

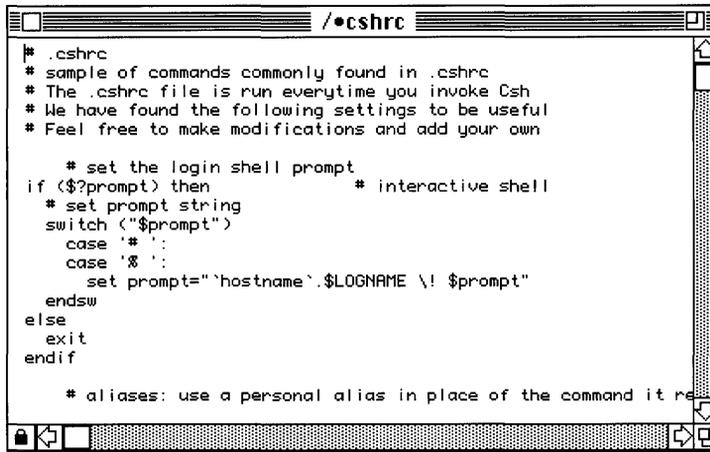


2. Double click the file named `memo1`.

The document appears in a window and is ready for editing.

- ◆ *Note:* You can open a file to which you have read permission but not write permission. To do this, be sure that you have selected “Open read only” (at the bottom of the Open dialog box, Figure 6-10). If you open a document to which you do not have write permission, a lock icon appears at the bottom right of the window, as in Figure 6-11. You can read the document but you cannot change it.

■ **Figure 6-11** A read-only document



```
#!/.cshrc
# .cshrc
# sample of commands commonly found in .cshrc
# The .cshrc file is run everytime you invoke Csh
# We have found the following settings to be useful
# Feel free to make modifications and add your own

# set the login shell prompt
if (!$?prompt) then
    # set prompt string
    switch ("${prompt}")
    case '# ':
    case '% ':
        set prompt="hostname`.$LOGNAME \! $prompt"
    endsw
else
    exit
endif

# aliases: use a personal alias in place of the command it re
```

Write permission denied

Deleting and rewriting text

Notice the sentence that begins halfway through the second line of the first paragraph (“Every salesperson who’s . . .”).

1. **Use your mouse to highlight the phrase “Every salesperson who’s”; this is now the selected text.**

If you’ve forgotten how to select text, place the blinking cursor just before the word “Every” and hold down the mouse button while moving the mouse. Drag the cursor just past the word “who’s”; then release the mouse button.

2. **When the phrase is selected, type the following:
The salespeople who have**

The selected text disappears as soon as you begin to type. This is the fastest way to replace a block of text. It saves you the trouble of first deleting text and then typing the new text.

3. Follow the same steps to select the letter “s” at the end of the word “knows” in the next line; then press BACKSPACE to delete the letter.

Copying and pasting between documents

Next, you will add the entire memo you have just edited to the bottom of a business letter. The letter is in the `start` folder, in the file named `letter1`.

First you have to select the material to be copied, as follows:

1. **With the window that contains `memo1` displayed, choose Select All in the Edit menu.**

This highlights the entire document.

2. **Choose Copy in the Edit menu.**

The selected text (in this case, the entire memo) is saved on the Clipboard.

3. **Choose Open in the File menu.**

This displays a list of all the files in the `start` folder. See Figure 6-10.

Now prepare the document that is to receive the copied text as follows:

1. **Double-click `letter1`.**

2. **Scroll to the end of the letter (drag down the scroll box at the right of the screen).**

3. **Place the insertion point at the end of the signature and press RETURN twice to start a new paragraph; then choose Shift Left in the Edit menu to move the insertion point to the left margin.**

4. **Type the following PS:**

PS: To give you a clear idea of our level of commitment to customer support, I'm appending a memo I recently sent to my staff.

5. **Press RETURN twice to skip two lines, then choose Paste from the Edit menu.**

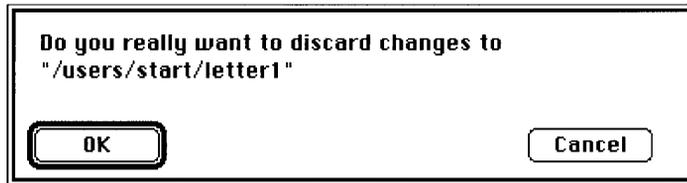
All of the copied text appears at the insertion point.

Since other users will use these tutorials, don't save the changes. Follow these steps:

- 1. Choose Revert to Saved in the File menu.**

The Revert to Saved command causes all changes to the document to be removed. The dialog box shown in Figure 6-12 appears.

- **Figure 6-12** The Revert to Saved dialog box



- 2. Click OK.**

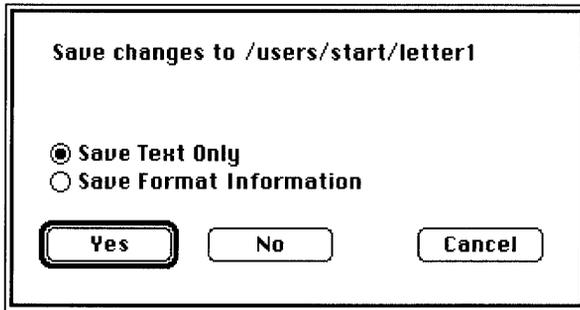
- 3. Click the close box of the window (the small square at the upper left of the window).**

The window that contains memo1 is still displayed. Close it without saving the changes, as follows:

- 1. Choose Close from the File menu. This is the same as clicking the close box.**

The dialog box shown in Figure 6-13 appears.

- **Figure 6-13** The Save Changes dialog box



2. **When the dialog box asks you whether you want to save the changes, click No.**

This is a convenience for the next user of the `start` folder. Naturally, in a real-world work situation, you would probably click Yes to save your changes.

Finding and changing text

One of the most important time-saving features of a text editor is its ability to search through a document for a specific word, phrase, or string of characters and to change it automatically.

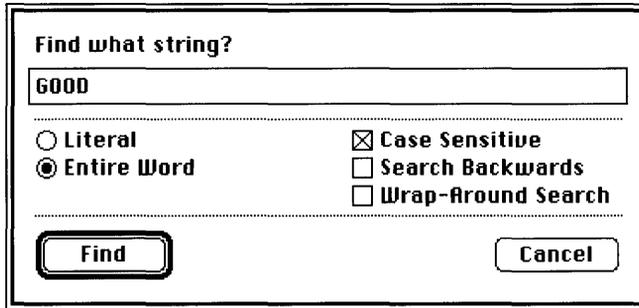
Finding text

To find a word, phrase, or character string, choose Find in the Find menu. Follow these steps:

1. **Open the `start` folder and double-click the `memo1` icon to open the document.**
2. **Choose Find in the Find menu.**

The dialog box shown in Figure 6-14 appears.

- **Figure 6-14** The Find dialog box (filled out)



3. Click the Entire Word button and the Case Sensitive button.

Click the Entire Word button to tell the system to find the item only when it is an independent word (that is, when it is not part of another word). You would click Literal instead of Entire Word if you wanted to search for a string of characters even when they are embedded in another word. Thus, if you click Literal and search for the word “it,” the system finds “bit,” “split,” “flit,” and so on.

Click the Case Sensitive button to tell the system to search only for words with the same uppercase and lowercase letters as the word you indicate.

4. Type GOOD in the field labeled “Find what string?”

5. Click Find.

Notice that the word GOOD in line 2 is highlighted.

The Find dialog box gives you the following options as well:

- **Search Backwards:** Searches backward from the current selection to the beginning of the file. (Normally, the search moves forward and stops at the end of the file.)
- **Wrap-Around Search:** Searches forward from the location of the cursor to the end of the file, then starts again at the beginning of the file and continues the search up to the starting cursor position.

▲ TIP

Hints on using Find: You can reverse the direction of a current search operation by pressing SHIFT as you select the menu item or pressing SHIFT as you click OK. For example, if you are in the middle of a file and you want to find a string that occurs earlier in the document, hold down the SHIFT key as you click Find. The search then proceeds backward through the first part of the file. The direction is changed for the current search only. ▲

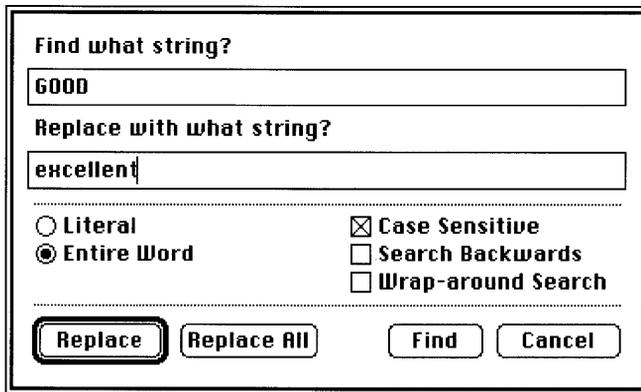
Replacing text

To find a word, phrase, or text string and replace it automatically with a different word, phrase, or text string, follow these steps:

1. **Open the *start* folder; then open *memo1*.**
2. **Choose *Replace* in the *Find* menu.**

The Replace dialog box appears, as in Figure 6-15:

- **Figure 6-15** The Replace dialog box (filled out)



The image shows a 'Replace' dialog box with the following fields and options:

- Find what string?** Text field containing 'GOOD'.
- Replace with what string?** Text field containing 'excellent'.
- Options:**
 - Literal**
 - Case Sensitive**
 - Entire Word**
 - Search Backwards**
 - Wrap-around Search**
- Buttons:** Replace, Replace All, Find, Cancel.

3. Click Entire Word and Case Sensitive.

Click the Entire Word button to tell the system to find the item only when it is an independent word (that is, when it is not part of another word). You would click Literal instead of Entire Word if you wanted to search for a string of characters even when they are embedded in another word. Thus, if you click Literal and search for the word “it,” the system finds “bit,” “split,” “flit,” and so on.

Click the Case Sensitive button to tell the system to search only for words with the same uppercase and lowercase letters as the word you indicate.

4. Type **GOOD** in the field labeled “Find what string?”

5. Type **excellent** in the field labeled “Replace with what string?”

6. Click Find.

Notice that the word `GOOD` in line 2 is highlighted.

7. Click Replace (or press RETURN).

The word `GOOD` is replaced by the word `excellent`, and the next occurrence of `GOOD` is highlighted after a few moments, allowing you to repeat the operation.

If you want to skip this occurrence of the word without changing it, you could click Find. TextEditor would then leave the highlighted word unchanged and would search for its next occurrence.

The Replace dialog box gives you these options as well:

Replace All: Changes all occurrences of the word `GOOD` (or whatever string you indicate) automatically.

Cancel: Removes the dialog box. No further action is taken.

Search Backwards: Searches backward from the current selection to the beginning of the file. (Normally, the search moves forward and stops at the end of the file.)

Wrap-Around Search: Searches forward from the location of the cursor to the end of file, then starts again at the beginning of the file and continues the search up to the starting cursor position.

Formatting and other features

If you use any formatting features, you can save the formatting information by selecting Save Formatting Information in the Save As dialog box. This causes an extra file to be saved (called a resource fork), which contains the formatting information.

The Edit menu and the Window menu make the following features available to you:

- selecting fonts (for screen display and for printing)
- selecting tab settings
- automatically aligning text with the previous line (Auto Indent)
- showing invisible characters, such as tabs, spaces, and returns
- shifting a block of text left or right by one tab stop
- aligning selected text with the top line of the selection
- arranging multiple windows to be stacked one over the other or tiled (alongside one another)
- marking a place in the file

The sections below explain how to use these features.

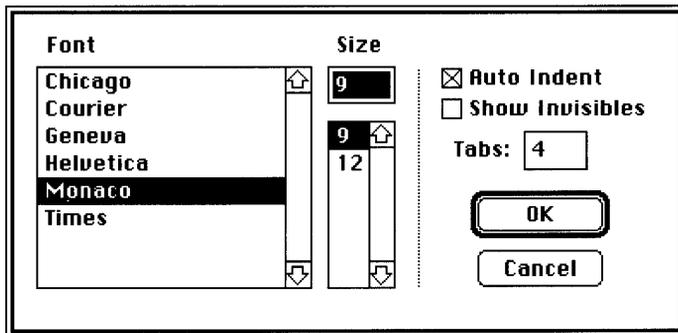
Selecting Fonts

To change fonts, follow these directions:

- 1. Choose Format in the Edit menu.**

The Format dialog box appears (Figure 6-16).

- **Figure 6-16** The Format dialog box (changing fonts)



- 2. Select the desired font and size.**

- 3. Click OK.**

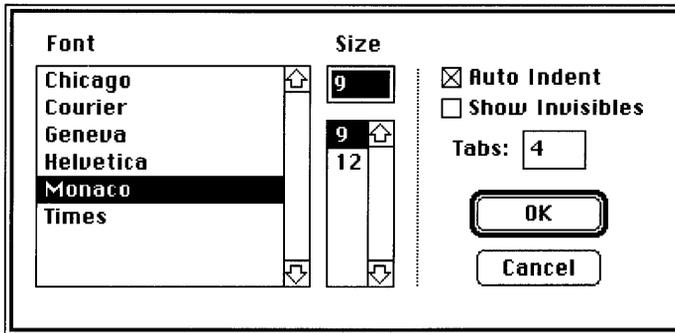
Selecting tab settings

To change tab settings, follow these directions:

- 1. Choose Format in the Edit menu.**

The Format dialog box appears (Figure 6-17).

- **Figure 6-17** The Format dialog box



2. To change the tab setting, type the desired number of spaces in the Tabs field.
3. Click OK.

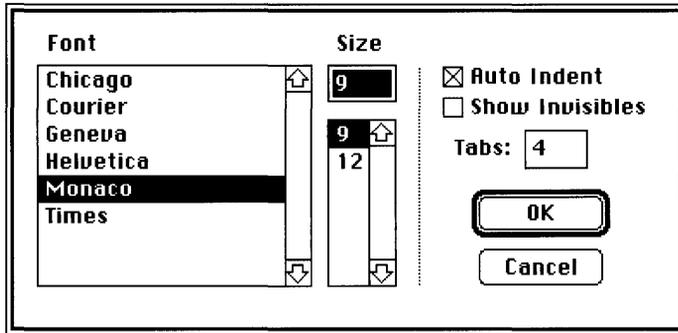
Automatically aligning text

Auto Indent aligns a selected block of text or a line with the previous line. To turn Auto Indent on, follow these steps:

1. **Choose Format in the Edit menu.**

The Format dialog box appears (Figure 6-18).

■ **Figure 6-18** The Format dialog box



2. Click Auto Indent so that an X shows in the check box.

You can click it again to remove the X, thus turning Auto Indent off.

3. Click OK.

Showing invisible characters

Spaces, tabs, returns, and control characters don't appear on your screen unless you click Show Invisibles. Follow these steps:

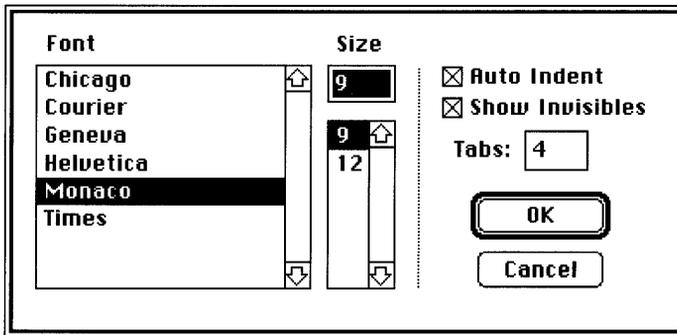
1. Choose Format in the Edit menu.

The Format dialog box appears (Figure 6-19).

2. Click Show Invisibles so that an X shows in the check box.

You can click it again to remove the X, thus hiding the invisible characters.

- **Figure 6-19** The Format dialog box (show invisibles)



3. Click OK.

When you choose Show Invisibles, the invisible characters are displayed as follows:

tab	△
space	◇
return	↵
all other control characters	¿

Shifting a block of text left or right

To shift an entire block of text one tab stop to the left (or the right), follow these directions:

1. **Select the block of text.**
2. **Choose Shift Left (or Shift Right) from the Edit menu.**

Aligning text with the top line of text

To align a block of text with the top line of the selection, follow these directions:

- 1. Select the block of text.**
- 2. Choose Align from the Edit menu.**

Arranging multiple windows

If you are editing several documents at once, you have a choice of stacking or tiling the windows. The tutorial that follows shows you how to do this.

Stacking and tiling windows

To see the difference, follow these steps:

- 1. Choose Open in the File menu.**
- 2. Double click the file named `memo1` in the `start` folder.**

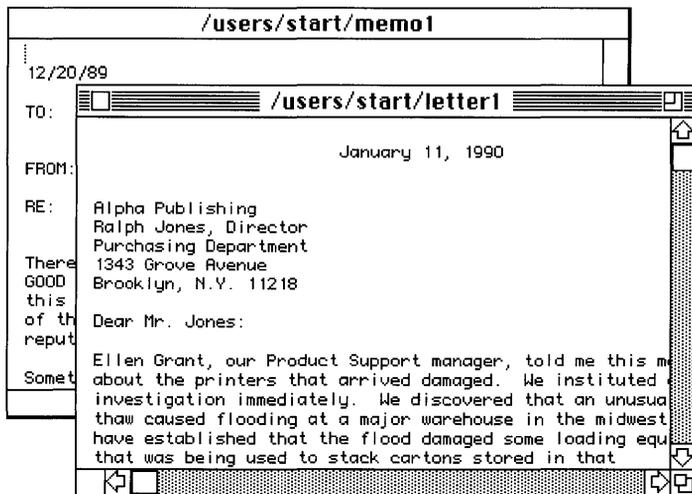
The document appears in a window and is ready for editing.

- 3. Choose Open in the File menu.**

4. Double click the file named **letter1**.

The windows are stacked by default, as in Figure 6-20.

■ **Figure 6-20** Stacked windows

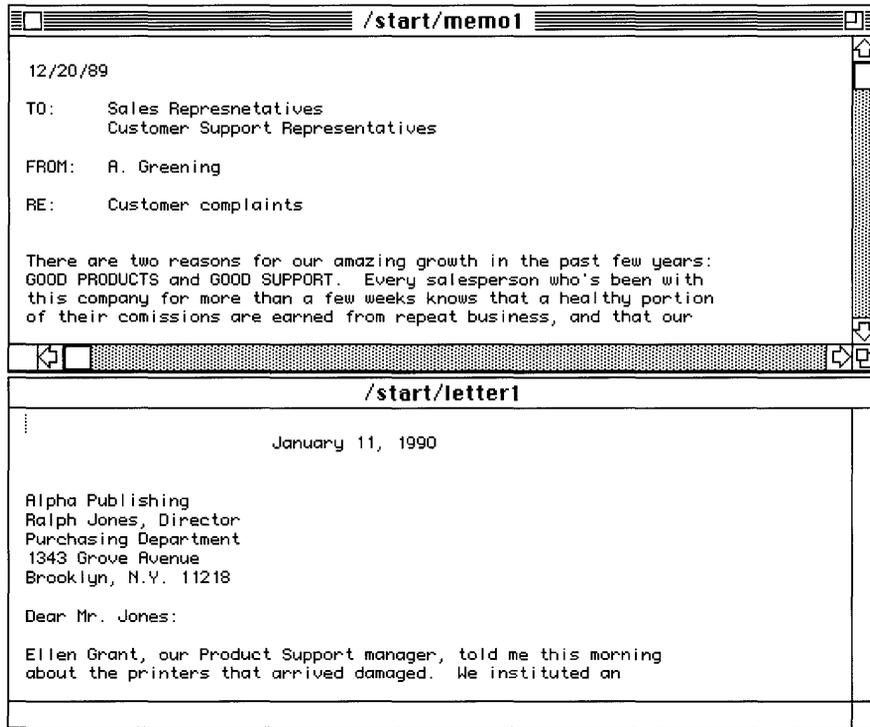


To tile the windows, follow this step:

■ **Choose Tile Windows from the Window menu.**

The windows are laid out alongside one another, as in Figure 6-21. Note that the sizes of the windows change so that they fit on the screen.

■ **Figure 6-21** Tiled windows



Tiling makes it easy to work with several windows at once. To use this feature most effectively, however, it's best to have a large monitor. On a small monitor, the windows may become too small.

△ **Important** When a window becomes too small, the text in the window disappears and is lost. You have to reopen the file in a larger window. △

To return the windows to a stacked layout, do as follows:

- **Choose Stack Windows in the Window menu.**

The windows are now stacked as in Figure 6-20, earlier in this chapter.

Marking a place in the file

If you need to return periodically to specific locations in a long or complex document, you can place invisible named markers at those points. You can then jump instantly to any of the marked places in the document. This saves you the time and trouble of having to scroll through the document to find those places.

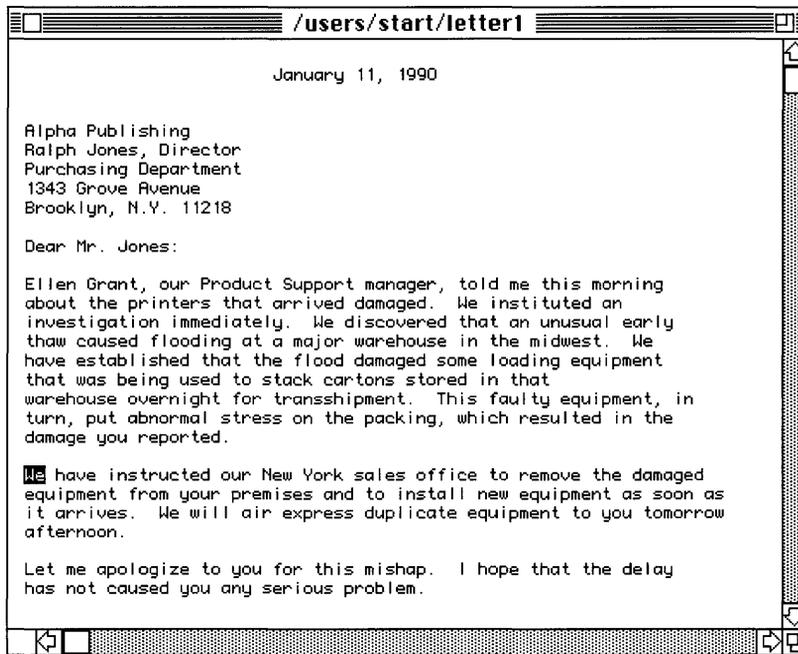
The following tutorial teaches you how to mark and unmark a document. The tutorial uses `letter1` (in the `start` folder) as a sample document, although marking is most useful in long, complex files.

You will place two named markers in `letter1`, the first at the beginning of the second paragraph (“We have instructed . . .”) and the second at the beginning of the third paragraph (“Let me apologize . . .”).

- 1. Highlight the word “We” at the beginning of the second paragraph.**

This is shown in Figure 6-22.

- **Figure 6-22** Highlighting to place a marker



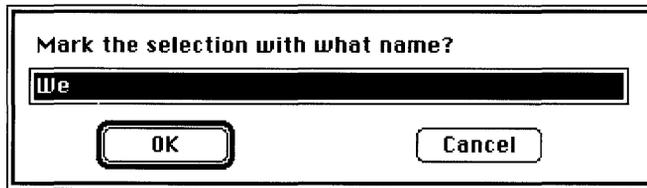
2. Choose Mark in the Mark menu (Figure 6-23).

- **Figure 6-23** The Mark menu before the markers are created



The dialog box illustrated in Figure 6-24 appears.

■ **Figure 6-24** The Mark dialog box



The text box contains the highlighted word, which you will use as the name of the marker. If you want to give the marker a different name, type it in the text box.

3. Click OK.

You have named the first marker "We."

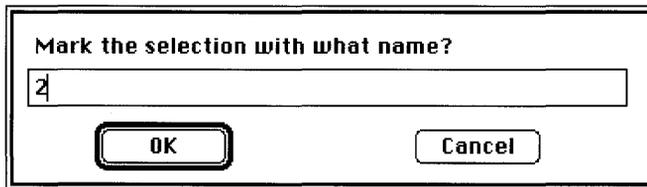
4. Place the insertion point at the beginning of the third paragraph of letter1.

5. Choose Mark in the Mark menu again.

6. Type the numeral 2. That will be the name of the second marker.

The resulting dialog box is shown in Figure 6-25.

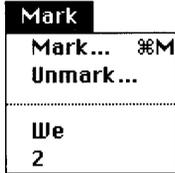
■ **Figure 6-25** The Mark dialog box with mark 2



7. Click OK.

Now display the Mark menu. It contains a list of the invisible named markers that you have placed in the document (Figure 6-26).

- **Figure 6-26** The Mark menu with the list of markers



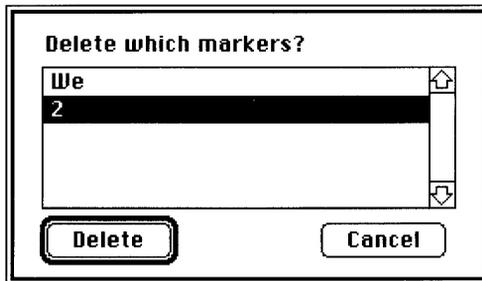
Choose We. The insertion point moves to the We marker. Choose 2 and the insertion point moves to the third paragraph.

To remove markers, follow these steps:

1. Choose Unmark in the Mark menu.

The dialog box illustrated in Figure 6-27 appears.

- **Figure 6-27** The Unmark dialog box



2. **Highlight the name of the marker you wish to remove. Select marker 2 (as shown in Figure 6-27).**
3. **Click Delete.**

If you look at the Mark menu, you will see that the marker you have deleted is no longer on the list.

Printing

TextEdit allows you either to print an entire document or a selection from a document. Be sure that your computer is properly connected to a printer and that you have used the Chooser (in the Apple menu) to choose a printer. For information on printer connections, see Chapter 7, "Printing in A/UX."

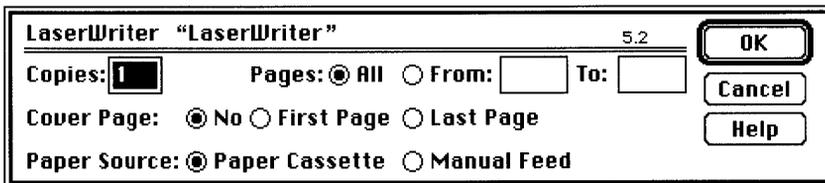
Printing an entire document

To print an entire document, follow these steps:

1. **Open the document in TextEditor.**
2. **Choose Print Window from the File menu.**

You see the Print dialog box, shown in Figure 6-28.

- **Figure 6-28** The Print dialog box



3. Click OK to begin printing.

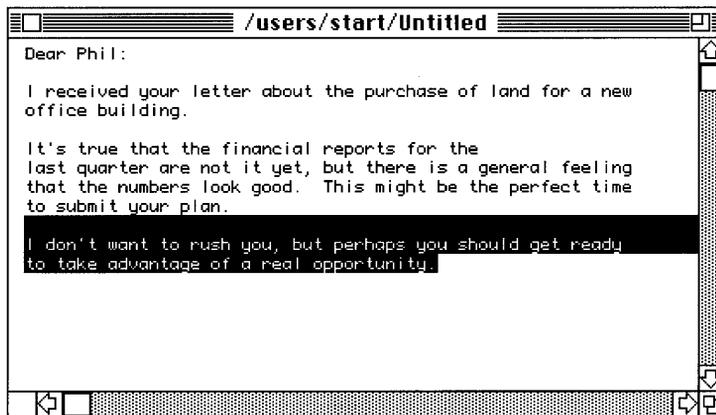
Printing a selection of a document

To print a selection of the document, first select a block of text as follows:

1. **Place the insertion point at the beginning of the desired selection.**
2. **Hold down the mouse button and drag to the end of the desired selection.**

The selected text is highlighted, as shown in Figure 6-29.

- **Figure 6-29** A selected block of text



3. Choose Print Selection in the File menu.

The Print dialog box appears, as shown in Figure 6-28, earlier in this chapter.

4. Click OK to start printing.

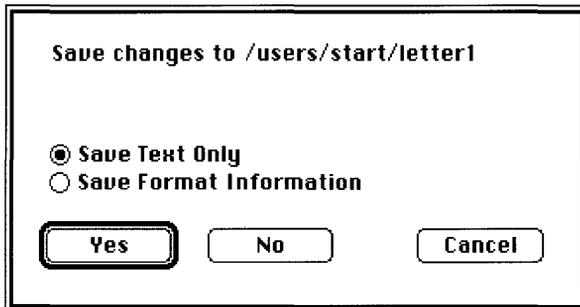
Quitting TextEditor

You may want to quit TextEditor to perform other tasks or to take a break. If so, do as follows:

- **Choose Quit from the File menu.**

If you have made changes to a file, you see a Save Before Quitting dialog box (shown in Figure 6-30), which asks you whether you want to save those changes.

- **Figure 6-30** Save Before Quitting dialog box



Click Yes to save, click No to quit without saving, or click Cancel to cancel the Quit command.

To save the document as text-only file, click Save Text Only. To save a resource fork file with formatting information (in addition to the text file), click Save Format Information.

Chapter 7 **Printing in A/UX**

This chapter explains how to print files using A/UX 2.0 printing utilities. It also gives a brief overview of the types of printers and printing software available.

This chapter contains the following sections:

- Understanding printing
- Printing a Macintosh document from A/UX
- Printing text files
- Printing a selection from CommandShell

You can read this chapter in its entirety or go directly to those sections that are of use to you.

Understanding printing

A/UX 2.0 provides several printing utilities, which print files created by a text editor (such as `vi` or `TextEdit`), a word processor, or other Macintosh or UNIX applications.

Before you can print a document, you must have a printer connected to your system or to the network, and the printer must be configured to your system software. Your system administrator should set up the printer for you. If you are the system administrator, see *Setting Up Accounts and Peripherals for A/UX*. Consult *A/UX Local System Administration* or *A/UX Network System Administration* for more details on connecting a printer on an AppleTalk network and administering networked printing.

Printer connections

You can connect a printer in three basic ways.

- **AppleTalk® network system printer: The printer is connected via the LocalTalk™ cable system and/or EtherTalk® interface card, router, and built-in AppleTalk software.**

Any computer on the network can send files created with a text editor or a Macintosh application to the printer. The files are printed in the order in which they are received.

- **Direct-connect ImageWriter® printer: The printer is connected directly to a serial port on the Macintosh computer.**

Any user with an account on the computer to which the printer is connected can print an A/UX file.

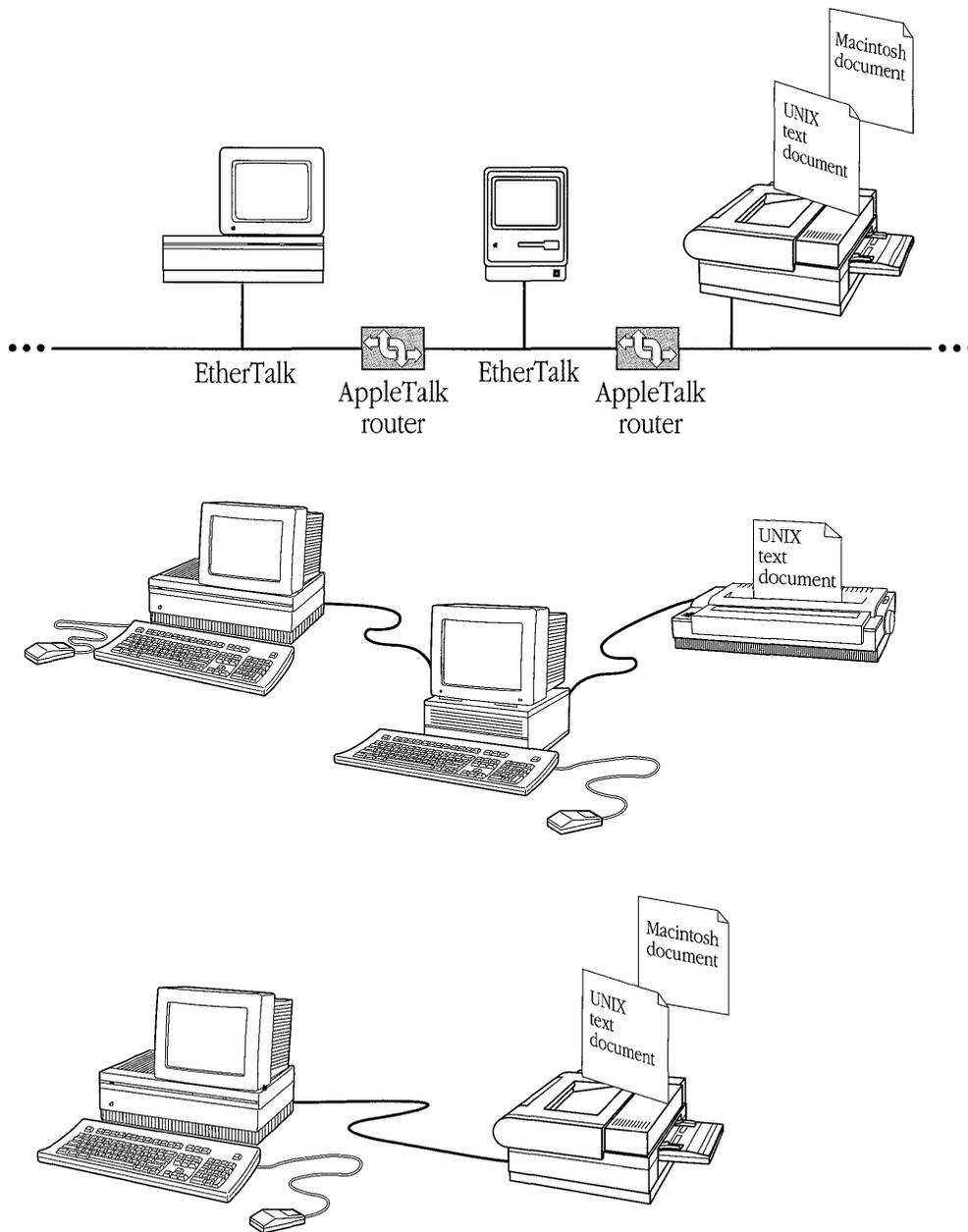
- ◆ *Note:* A LaserWriter® IISC printer that is directly connected to the SCSI port won't work with A/UX 2.0.

- **Remote UNIX printer: The printer is connected to another A/UX or UNIX computer by the lpr spooler.**

Any computer on the network can send text files to the printer. The files are printed in the order in which they are received.

Figure 7-1 shows the different printer configurations.

■ **Figure 7-1** Three types of printer connections



Printing a Macintosh document from A/UX

To print a Macintosh file from A/UX (for example, one created by a third-party application or by TextEditor), you must have either a printer that is directly connected to the computer or else an AppleTalk network printer (or one that is compatible with AppleTalk software) connected via LocalTalk (or EtherTalk) cables, router, and built-in AppleTalk software.

Printing from the Finder

Follow these steps to print a Macintosh document from the Finder:

1. **Select the document you want to print by clicking its icon.**
2. **Choose Print from the File menu.**

You see the Print dialog box, as in Figure 7-4.

3. **Click OK.**

This action is the same as printing a document from the Finder in the Macintosh OS.

You can also consult the manual that came with the application for more information on printing.

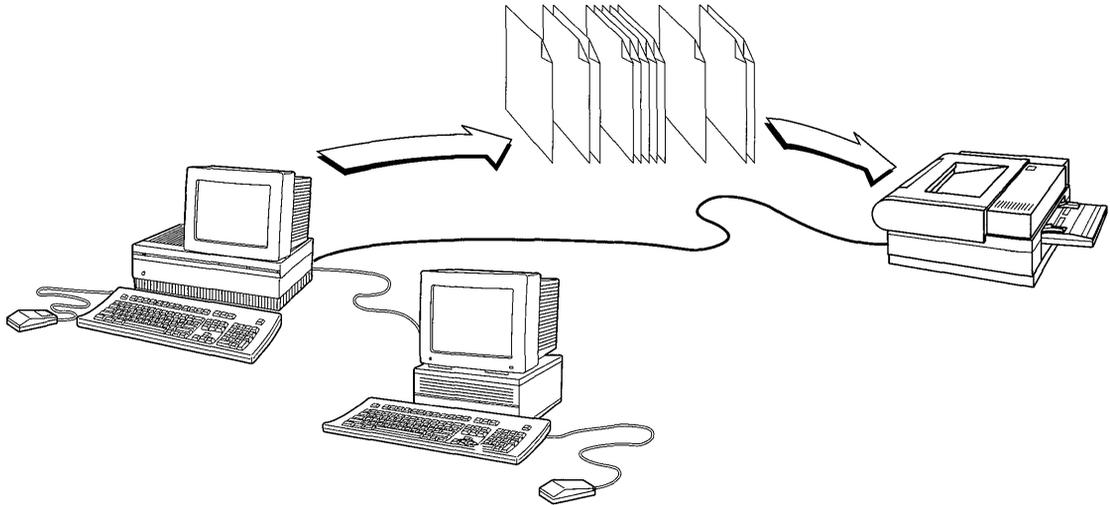
Printing text files

You can use the A/UX `lpr` (“line printer”) command to print files created with text editors (such as `vi` or TextEditor). Several sample files exist in the `start` folder. This tutorial uses one of the sample files.

A/UX **spools** the files to be printed, that is, it stores them in memory until the printer is ready for them. The spooler prints them in the order in which they are received.

Figure 7-2 illustrates the printing queue.

■ **Figure 7-2** The printing queue



- ◆ *Note:* The `lpr` spooler doesn't format documents. You must use a formatting command such as `pr` or `troff` to format documents before you send the job to the printer.

Selecting an AppleTalk printer

Before A/UX can print a file, it must know which printer to use. Use the Chooser (in the Apple menu) to select a printer. Some applications direct you to choose Page Setup after using the Chooser. For further information, see the guide that came with the application.

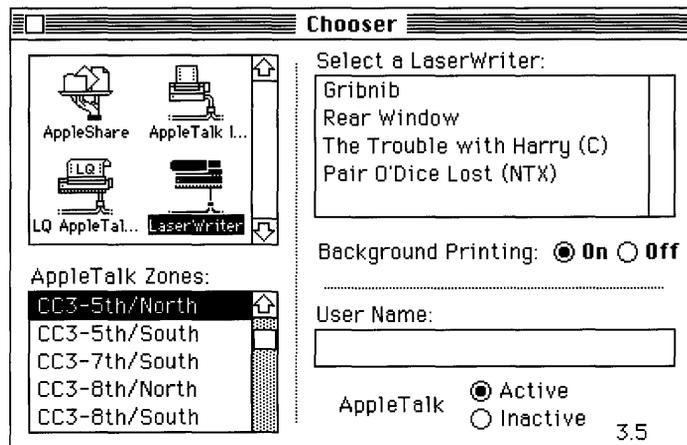
You can choose any printer that has been connected to your network or your computer via AppleTalk software and LocalTalk (or LocalTalk-compatible) and/or EtherTalk cables.

Follow these steps:

1. Choose Chooser from the Apple menu.

The Chooser dialog box appears, as shown in Figure 7-3. You see an icon representing each of the printer types for which you have printer resources installed in the currently active system file.

■ **Figure 7-3** The Chooser dialog box



2. Click the icon representing the type of printer you want to use.

3. If necessary, activate the AppleTalk software by clicking AppleTalk Active.

If the radio button is already selected, go on to the next step. A few seconds after you select the radio button, the names of any zones appear in the AppleTalk Zones box. If you don't have zones, skip to step 5.

4. Select the appropriate zone from the AppleTalk Zones list.

The zone name is highlighted.

5. Select the appropriate printer name in the AppleTalk printer list.

The printer name is highlighted.

6. Type your name in the User Name text box.

Your name appears automatically in the Chooser box from now on, until you change startup disks.

7. Click the close box.

The Chooser dialog box disappears, and you are ready to print.

Sending a file to a printer through AppleTalk

To use the `lpr` command, follow these steps:

- 1. Log in to the start account.**
- 2. Use the Chooser in the Apple menu to select a printer.**
- 3. Choose CommandShell from the Apple menu.**
- 4. Enter the command:**
`lpr letter1`

This command sends the file `letter1` to the printer.

Sending a file to a direct-connect printer

To use the `lpr` command, follow these steps:

- 1. Log in to the start account.**
- 2. Choose CommandShell from the Apple menu.**

3. **If you are using a direct-connect ImageWriter printer, enter the command:**

```
lpr -Piw letter1
```

This command sends the file `letter1` to the printer.

Sending a file to a remote UNIX printer

To use the `lpr` command, follow these steps:

1. **Be sure that your `/etc/printcap` file has been set up.**

For information on setting it up, see Chapter 9, “Connecting Your Computer to a Network,” in *Setting Up Accounts and Peripherals for A/UX*.

2. **Log in to the `start` account.**
3. **Choose CommandShell from the Apple menu.**
4. **Enter the command:**

```
lpr -P printername letter1
```

Replace the italicized word with the name of the printer that you want to use. This command sends the file `letter1` to the printer.

Finding out how many files are waiting in the printing queue

A/UX spools printing jobs, placing them in a queue of first-come, first-served precedence. If you share your printer and there are other jobs ahead of yours, those jobs are printed first. Your file is printed when your turn comes.

- **To get a list of the print jobs in the printing queue, enter the command: `lpq`**

A list appears that may look something this:

Rank	Owner	Job	Files	Total size
active	jms	3	<i>filename</i>	720 bytes
1st	pzp	4	<i>filename</i>	1500 bytes
2nd	alp	5	<i>filename</i>	2451 bytes

The first column shows the rank, the second shows the initials of the owner of the file sent to the printer, the third shows the identification number of the print job, the fourth column shows the filename (including its path), and the last column shows the size of the file.

Canceling a printing job

If you want to cancel a printing job before it's completed but after you've sent it to the printer, you can do so by using the `lprm` command with the ID number of the printing job.

- **Enter:**
`lprm ID-number`

Substitute the ID number of the printing job (such as `lpr 398`) for `ID-number`.

The following message appears as A/UX cancels the job.

ID-number dequeued

For more information about `lpr`, see `lpr(1)` in *A/UX Command Reference*. For more information about `cancel`, see `lp(1)` in *A/UX Command Reference*. Refer also to *A/UX Network System Administration*.

Printing a selection from CommandShell

If you have a printer connected to an AppleTalk network, you can print a selection from a CommandShell window.

If you have a selection of text in your CommandShell window (for instance, a series of commands that you want to save in hard copy), print the selection as follows:

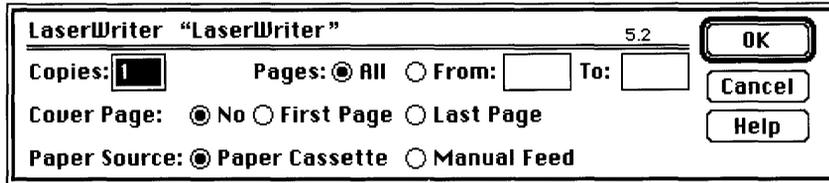
1. **Click and drag to select the text you want to print.**

The text appears highlighted.

2. Choose Print Selection from the File menu.

The Print dialog box appears, as in Figure 7-4.

■ **Figure 7-4** The Print dialog box



3. Click OK to print or click Cancel to cancel the printing command.

To set printing specifications for the selection, use the Page Setup command in the File menu. See the owner's guide that came with your computer for more information on Page Setup.

Chapter 8 **Communicating With Others**

This chapter describes how to use the `mail` utility to send a message, how to share files with other users on a network by using Network File System (NFS) protocols, and how to use files on an AppleShare® file server.

With the `mail` utility you can send a message to yourself, to another user or group of users with accounts on your computer, or to an account on a remote computer connected by a network.

This chapter contains the sections that follow:

- Sending a message to another UNIX user
- Sending mail over the Internet
- Sending mail over UUCP
- Receiving mail
- Reading mail
- Exiting mail
- Sharing files via NFS
- AppleShare access

Two A/UX mail utilities exist. This chapter describes the `/usr/bin/mailx` program, but not the `/bin/mail` program. The name `mail` is defined in `/etc/.profile` and in `/etc/.cshrc` so that it runs the program `mailx`. For further information, see “Using `mail`” in *A/UX Communications User's Guide*, and `mail(1)` and `mailx(1)` in *A/UX Command Reference*.

Sending a message to another UNIX user

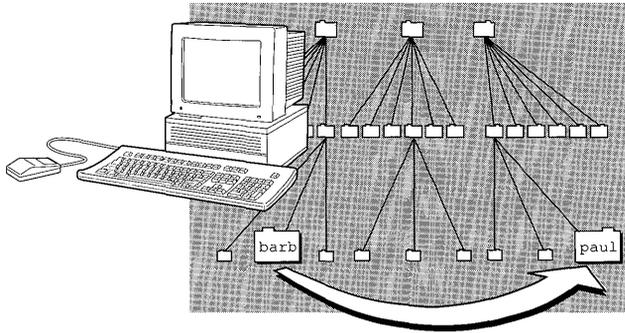
You can use the `mail` utility to send electronic messages to and receive messages from other users on your machine. If your machine is connected to other machines by either the UUCP or the Internet network facility, you can send mail to users in other locations.

Here are a few of the ways you can use `mail`:

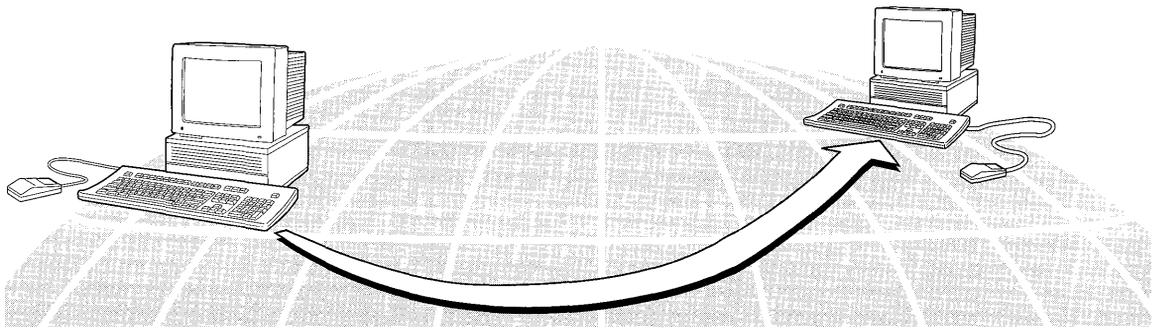
- If you are the only user on your machine and you don't have network access, you can send mail to yourself.
- If you share your computer, you can send messages to the other users of your computer and they can send them to you.
- If your computer is connected to a local area network, you can send messages to and receive messages from the other people on the network.
- If you are connected to large networks via the UUCP or the B-NET facility, you can send messages to and receive messages from the other people on the network, even from continents away.

Figure 8-1 shows several ways to use mail.

- **Figure 8-1** Using mail to communicate with other A/UX users



A. Mail from user to user



B. Mail from location to location.

To send a message to another UNIX user, complete the instructions in the sections that follow.

Sending a message to a user account on your machine

This section describes how to send a message to a user account on the same computer that you're using. To send a message to someone, you start up the `mail` utility, type the message, and then send the message. The following sequence of steps explains the process. If you're not already logged in to the system, log in using the `start` account.

1. Choose CommandShell from the Apple menu.

2. Enter the command: `mail start`

A CommandShell window appears with the `mail` command prompt. The arguments you type on the command line following the `mail` command specify the address of the message you type. You can specify one name, or several names separated by spaces, as addresses.

You use the login name of the person you want to receive the message. In this example, the message goes to the `start` account. Next, you see the prompt:

```
% mail start
Subject:
```

3. Enter the following: `sample session`

The cursor waits on the next line, ready for you to insert text.

4. Type the following:

```
Dear friend,
This sample mail message proves that I can communicate
electronically.
Bye.
```

5. Press RETURN.

Doing this starts a new line.

6. Press CONTROL-D.

This command sends the message. The system replies with the message `EOT` (for *end of transmission*) below the message you typed, to signify that you've sent the message successfully, as shown here:

```
EOT
%
```


Because you specified the start account in the `mail` command, `mail start`, the message is sent to the account you're using. Had you specified a different user name as the argument, the message would have been sent to that user account. Wait a few minutes for the mail to arrive.

7. Press RETURN a few times.

When the mail has arrived, the shell prompt and the following message appear:

```
You have mail.
```

8. Enter this command: `mail`

Using the `mail` command alone causes the `mail` utility to display a list of the messages you have received. You should have at least one message. You see a listing like this on your screen:

```
A/UX Release 2.0 Type ? for help.
"usr/mail/start": 1 message 1 new
>N 1 start Fri Apr 18 12:05 12/220 sample session
?
```

9. Enter the following: `1`

The number identifies the message you want to read. If you have several messages, you'll see a listing for each one with a corresponding number. The message appears on your screen, as shown next. You can type the number of the message you want to read.

```
Message 1:
From start Fri Apr 10 12:19 PDT 1987
To: start
Subject: sample session
Status: R
Dear friend,
This sample mail message proves that I can communicate
electronically.
Bye.
?
```

The question mark prompt appears at the end of the message so that you can enter a new command when you're done reading the current message. If you type `?` you see a listing of the available commands and their meanings.

10. Press CONTROL-D.

The message is automatically saved, and you exit the `mail` utility. While A/UX is saving the message, the system prints

```
Held n message in /usr/mail/start
```

where *n* is the number of the message that was saved.

If you exit `mail` by entering `q` or `quit`; the system also saves the message.

You can repeat the steps presented here, substituting the login name of another user account on your machine, to send a message to that account. Use this step to try it:

■ Enter this command `mail name`

Replace *name* with the login name of the person you're addressing.

If you type several login names as part of the mail command, the message goes to all those users. For example, the command

```
mail lori jeff laura linda
```

will send the subsequently typed message to those four user accounts.

Canceling a message you don't want to send

If you decide not to send a message while you're writing it, you can cancel the message by doing this:

1. Press CONTROL-C.

Doing this sends the interrupt signal to the system. When you press CONTROL-C, `mail` prints the message

```
(Interrupt--one more to kill letter)
```

2. Press CONTROL-C again.

Doing this cancels the letter. A/UX stores canceled letters in the file `dead.letter` in your home directory. You can delete these files by dragging them to the Trash and using the Empty Trash command in the Special menu.

Sending a mail message to a user on your local network

To send a message to someone, you start up the `mail` utility, type the message, and then send the message. The following sequence of steps explains the process. The steps will work only if you are connected to other A/UX users on a network. If you're not already logged in to the system, log in using the `start` account.

1. Choose CommandShell from the Apple menu.

A CommandShell window appears with the shell prompt.

2. Enter the following: `mail username`

Substitute the login name of someone on your network for the word in italics.

3. Type your message.

4. Press RETURN.

Doing this starts a new line.

5. Press CONTROL-D.

The `mail` utility prints EOT (for *end of transmission*), and you return to the shell. When the user to whom you sent the message logs in, this message appears in a CommandShell window:

```
You have mail.
```

The mail is the message you sent, as well as any other messages sent to that user, preceded by a line identifying you (your login name) as the sender, and the date and time the message was sent.

Sending mail over the Internet

Before you can use this facility, be sure that your system administrator has connected your system to the network and configured it properly. For further information, see *A/UX Network System Administration*.

The Internet is the world-wide network consisting of computers linked together by TCP/IP-based protocols. The A/UX implementation of Internet software is based on TCP/IP.

Sending mail to someone over the Internet is just like sending mail to another user account on your system, although the form of the address is different.

For example, if you're sending mail to the user `pete` on a remote machine over the Internet, you start by doing this:

- **Enter the command `mail pete@rhost`**

Replace *rhost* with the name of the remote host. The rest of the process works as in the tutorial just presented.

Sending mail over UUCP

Before you can use this facility, be sure that your system administrator has connected your system to the network and configured it properly. For further information, see *A/UX Network System Administration*.

Sending mail to someone over UUCP is just like sending mail to anyone else, except that the form of the address is different.

For example, if you're sending mail to the user `pete` on a remote machine over UUCP, you start by doing this:

- **Enter the command `mail rhost\!pete`**

where *rhost* is the name of the remote host.

You need the backslash (\) only if you're working in the C shell.

The rest of the process works the same way as in the previous tutorial.

UUCP can use other machines that receive and forward mail to send messages all over the world. In this case, you need to use a “path” that specifies each machine along the way as shown here:

```
mail rhost1\!rhost2\!rhost3\!pete
```

For more information, refer to *A/UX Communications User's Guide*.

Sending mail to more than one person

To send the same message to more than one person, list each addressee's login name on the command line when you start up `mail`.

For example, to send the same message to several people on your network whose login names are `lori`, `dave`, `mike`, and `jeff`, you enter:

```
mail lori dave mike jeff
```

Then proceed as with any `mail` message.

If you want to send mail to more than one person on the same remote machine over Internet, you must type each person's address separately. For example, if the users with login names `linda`, `tony`, `sharon`, and `laura` are all on a remote machine over Internet, you enter:

```
mail linda@rhost tony@rhost sharon@rhost laura@rhost
```

(where *rhost* is the name of the remote host) and proceed as with any `mail` message.

If you want to send mail to more than one person on the same remote machine over UUCP, you must type each person's address separately. For example, if users with the login names `don`, `vicki`, `bob`, and `jackie` are all on the machine *rhost* over UUCP, you enter

```
mail rhost\!don rhost\!vicki rhost\!bob rhost\!jackie
```

(where *rhost* is the name of the remote host) and proceed as with any `mail` message.

Use the backslash (\) before the exclamation mark if you are working in the C shell.

Receiving mail

The `mail` system collects your incoming messages in a file called the *system mailbox*. If you receive a message while you're working, the message

`You have mail.`

is stored in a CommandShell window. The next time you log in, CommandShell posts a message in a window. The A/UX system is automatically set to check every 60 seconds to see if new mail has arrived for you. This procedure is set in the `/etc/profile` system file.

Reading mail

When you want to read your mail, exit any interactive program you are running (such as `TextEdit`).

1. Choose CommandShell from the Apple menu.

This displays a CommandShell window with a shell prompt.

2. Enter this command: `mail`

If you don't have any mail, the message

`no mail for name`

appears, where *name* is your login name.

When you have mail, each message is summarized in a numbered list that shows the author's login name, the subject, and the date it was sent. To display this summary, complete step 3.

3. Enter this command: `n`

4. Press RETURN or enter the number of the message you want to read.

Pressing RETURN causes `mail` to display the first message. If you enter the number of a message, A/UX displays that message. For example, if you have 11 messages and you want to read message 7, enter 7. The header at the top of a message tells you who sent the message, when it was sent, and what it's about. A question mark prompt appears at the end of the message. After you read the message, press RETURN, and the next message is displayed.

5. Repeat step 3 to read more messages.

If you want to read a specific message from the list, do so by specifying the message number. If you press RETURN again, A/UX displays the next message.

Deleting a message

You can delete one or more messages you receive when you finish reading them. To delete all messages, do this:

- Enter the following: **d**

To delete a specific message:

- Enter the following: **d n**

Substitute the message number for *n*. The `mail` utility deletes the message or messages.

Saving a message in a particular file

If you want to save a message in a file, you can tell `mail` to save it and give it a filename. If the filename you give doesn't exist, the system creates the file and puts the message in it.

- **Enter the following: `s` *messagenumber filename***

For example, if you enter `s 4 memo.lori`, the `mail` utility saves the fourth message on the list in a file named `memo.lori`.

Exiting `mail`

There are two ways to exit the `mail` utility. The first way follows any delete commands you have given. The second way ignores any delete commands and restores mail to the way it was when you started up the `mail` utility.

To quit `mail`, do this:

- **Enter the following: `q`**

The `q` command (for *quit*) removes messages you marked for deletion, places any unread messages on the unread list, and terminates the `mail` program. If you exit `mail` using `q`, you cannot restore a message you have deleted.

If you change your mind and wish to restore a deleted message before you exit the `mail` program, use the `x` command to leave `mail`. To quit `mail` and keep all your messages, do this:

- **Enter the following: `x`**

The `x` command (for *exit*) restores any deleted messages, places any messages you read back on the new message list, and terminates the `mail` program.

Additional `mail` capabilities

The `mail` utility gives you several other helpful abilities, such as editing messages, replying to messages, and so on. For more information about these and other `mail` functions, refer to *A/UX Communications User's Guide*.

Sharing files via NFS

Sharing files means that more than one user, on more than one system, can have access to the same files. The Network File System protocols provide a file-sharing mechanism for many different kinds of computers. Usually one or more “file servers” provide files for a number of clients. Each user on a client machine is able to access the files from the server. Once NFS is set up, using files from a file server on a remote machine is just like using files on your local machine. Check with your system or network administrator to find out more about NFS in your organization. For information on how to set up and mount an NFS file server, see *A/UX Network System Administration*.

AppleShare access

Like the Macintosh OS, A/UX allows you to be an AppleShare client. You simply choose the Chooser in the Apple menu, double-click the AppleShare icon, and select a server from the list of servers. After you log in as guest or as the registered user, the icon for the server appears on your desktop. You can then use the files on that volume. Server icons or file icons that are greyed out are not available for your use.

See your AppleShare administrator for more information on connecting to an AppleShare network.

- ◆ *Note:* Your A/UX machine cannot be used as an AppleShare server, that is, files on your machine cannot serve users on other machines.

Chapter 9 **A/UX Reference**

This chapter provides a quick reference for the menu commands that you encounter while working in the Finder environment, the CommandShell environment, and the TextEditor application. This chapter describes the function of each command in the order in which they appear in each menu.

This chapter contains three sections:

- The Finder environment
- The CommandShell environment
- The TextEditor application

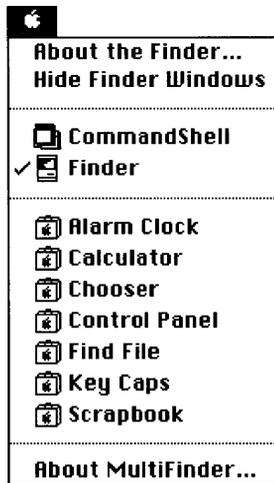
The Finder environment

This section describes the commands to which you have access when you are working in the Finder. The Finder is an application that allows you to have more than one application open and running at the same time. The Finder also grants you easy access to all of the files, applications, and utilities on your system.

The Apple menu

The Apple menu contains the list of available applications, desk accessories, and information items identifying versions of software and their developers. Figure 9-1 shows a sample Apple menu. Yours will contain the desk accessories and applications that you have installed on your system.

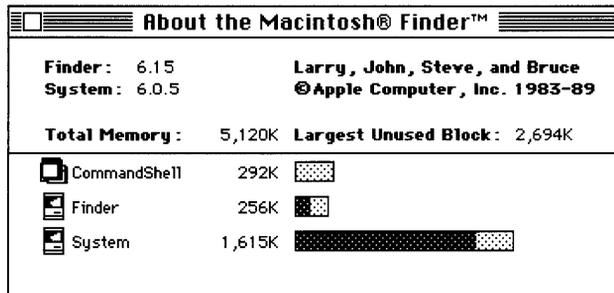
- **Figure 9-1** The Apple menu



About the Finder

This command identifies the Finder version and the developers who wrote the Finder. When you change to another application, this command becomes “About *application-name...*” and displays proprietary information about the active application. Figure 9-2 shows the About the Finder dialog box.

- **Figure 9-2** About the Finder dialog box



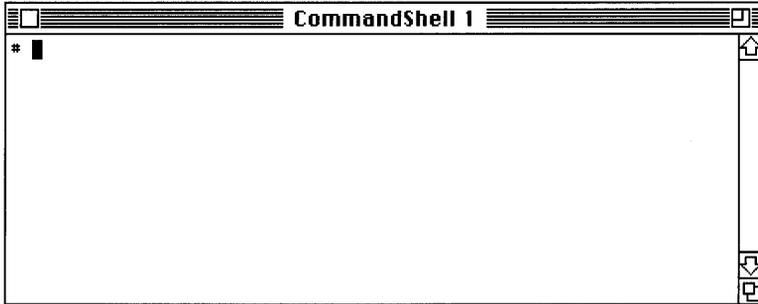
Hide Finder Windows

This command closes all Finder windows and displays an untitled CommandShell window.

CommandShell

This command displays an untitled CommandShell window like the one in Figure 9-3.

■ **Figure 9-3** A CommandShell window



Finder

This command returns you to the Finder desktop from whatever process A/UX is running.

Desk accessories

Desk accessories are like mini-applications that you may want to use while you're working in the Finder or another application. Seven desk accessories—Alarm Clock, Calculator, Chooser, Control Panel, Find File, Key Caps, and Scrapbook—are shipped with your computer. See the owner's guide that came with your Macintosh computer for information about these seven desk accessories.

List of open applications

The next portion of the Apple menu lists the names of the open applications. A check mark appears next to the name of the active process.

The File menu

The File menu, shown in Figure 9-4, contains the commands that manage your desktop environment.

■ **Figure 9-4** The File menu

File	
New Folder	⌘N
Open	⌘O
Print	
Close	⌘W

Get Privileges	⌘P
Get Info	⌘I
Duplicate	⌘D
Put Away	

Page Setup...	
Print Directory...	

Eject	⌘E

New Folder

This command creates a new folder, also called a directory, in the active window. Each new folder is created with the name Empty Folder. You can immediately change the name of the folder by typing a new name while the title is still selected. The Command-key equivalent is COMMAND-N.

Open

This command opens the selected file in the Finder. This can be a folder, an application, or a file. The Command-key equivalent is COMMAND-O.

Print

This command prints whatever item is selected in the Finder.

Close

This command closes the active window. The Command-key equivalent is COMMAND-W.

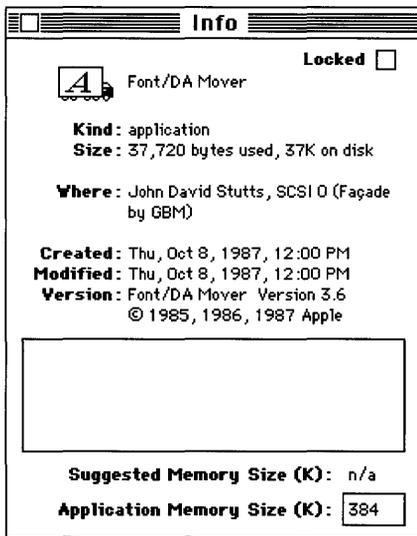
Get Privileges

This command displays the privileges for each, file, folder, or application. The Command-key equivalent is COMMAND-P.

Get Info

This command displays a window that contains file information about the currently selected item. Figure 9-5 shows the Get Info window for the Font/DA Mover.

■ Figure 9-5 The Get Info window



You can use this command only in the Finder. The Get Info window reports the kind of file, its size, its location, its creation date, the date the file was last modified, and the version of the application that was used to create the file. The window also contains an editable text field in which you can store comments about the file. It is useful to store such information as the version of the file, other files related to this one, or the version of the application, if it's not reported by the application. The Command-key equivalent is COMMAND-I.

Duplicate

This command makes a copy of a selected file, folder, or application. The Command-key equivalent is COMMAND-D.

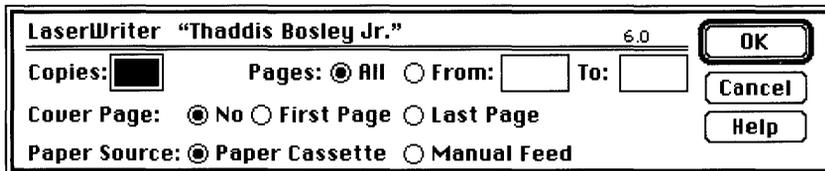
Put Away

This command restores to its original location a file, folder, or application that was moved to the desktop.

Page Setup

This command presents the Page Setup dialog box for the printer type that you have selected in the Chooser. Figure 9-6 show the Page Setup dialog box for a LaserWriter printer.

- **Figure 9-6** The LaserWriter Page Setup dialog box



Print Directory

This command prints a listing of the contents of the active window. When you choose this command, the Print dialog box appears. When you click OK, a directory listing is sent to the printer you have identified in the Chooser.

- ◆ *Note:* “Directory” is a term that is used frequently in UNIX. In this case, a **directory** is a pictorial, alphabetical, or chronological list of the contents of a folder or disk.

Eject

This command ejects the selected disk. The Command-key equivalent is COMMAND-E.

The Edit menu

The Edit menu, shown in Figure 9-7, contains commands that you use to edit text in windows. You can also use the editing commands with most desk accessories.

- **Figure 9-7** The Edit menu

Edit	
Undo	⌘Z
.....	
Cut	⌘H
Copy	⌘C
Paste	⌘V
Clear	
Select All	⌘A
.....	
Show Clipboard	

Undo

This command nullifies the last text editing or formatting change that you made. It does not nullify command execution. The Command-key equivalent is COMMAND-Z.

Cut

This command copies any selected text to the Clipboard and removes the text from the window. The text is stored in the Clipboard until it's replaced by text sent there as the result of another Cut or Copy command. The Command-key equivalent is COMMAND-X.

Copy

This command copies any selected text to the Clipboard but does not remove it from the window. The text is stored in the Clipboard until it's replaced by text sent there as the result of another Cut or Copy command. The Command-key equivalent is COMMAND-C.

Paste

This command inserts the contents of the Clipboard into the window starting at the insertion point. The Command-key equivalent is COMMAND-V.

Clear

This command removes any selected text from the window. Text removed with the Clear command is no longer available. Choosing Clear is equivalent to pressing the DELETE key.

Select All

This command selects all of the text in the window. The Command-key equivalent is COMMAND-A.

Show Clipboard

This command displays the contents of the Clipboard in a separate window.

The View menu

The View menu provides commands to alter how the contents of a disk or a folder are displayed in the Finder. A check mark appears next to the active listing type. The View menu is shown in Figure 9-8.

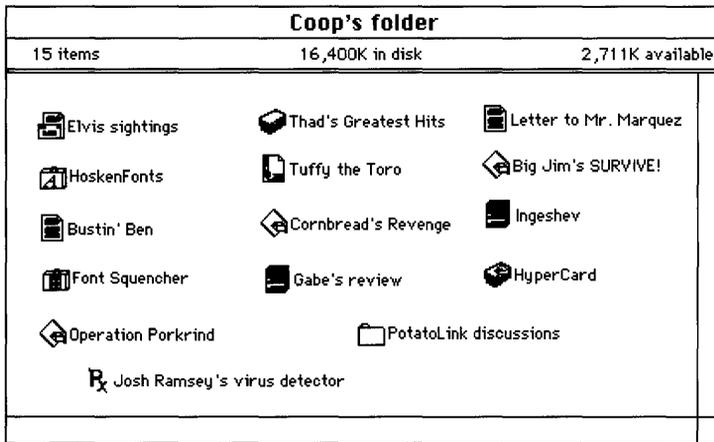
- **Figure 9-8** The View menu



by Small Icon

When you view the contents of a disk or folder by small icon, you see a miniaturized representation of the icons of the different files, applications, and folders it contains. Figure 9-9 shows a folder whose contents are viewed by small icon.

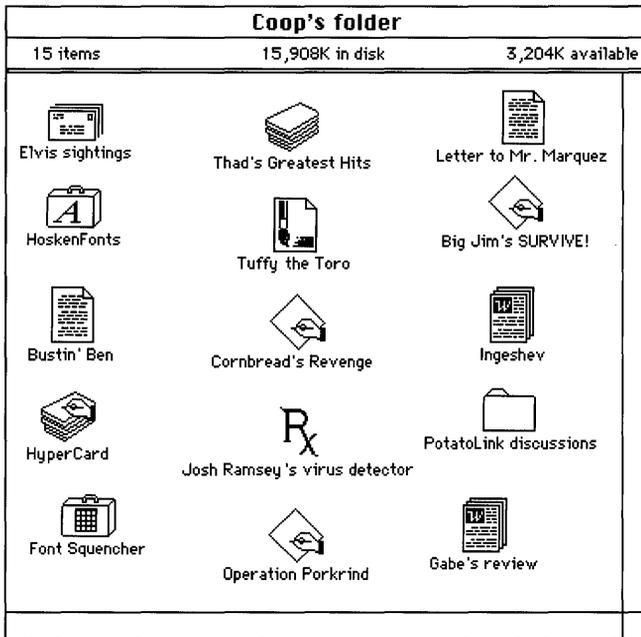
- **Figure 9-9** A folder's contents viewed by small icon



by Icon

When you view the contents of a disk or folder by icon, you see the full-size representation of the icon of each file, folder, or application. Figure 9-10 shows a folder whose contents are displayed by icon.

■ **Figure 9-10** A folder's contents viewed by icon



by Name

When you view the contents of a disk or folder by name, an alphabetized list of the different files, applications, and folders appears in the window. Figure 9-11 shows a folder whose contents are displayed by name.

■ **Figure 9-11** A folder's contents viewed by name

Coop's folder			
Name	Size	Kind	Last Modified
Big Jim's SURVIVE!	12K	application	Thu, Apr 13, 1989 11:26 AM
Bustin' Ben	2K	MacWrite 4.6 doc...	Fri, Dec 8, 1989 3:01 PM
Cornbread's Revenge	12K	application	Thu, Apr 13, 1989 11:26 AM
Elvis sightings	1K	AppleLink 5.0 doc...	Tue, Oct 24, 1989 3:57 PM
Font Squencher	2K	Font/D'A Mover d...	Tue, Dec 2, 1986 8:34 AM
Gabe's review	3K	Microsoft Word 4...	Fri, Dec 8, 1989 10:47 AM
HoskenFonts	123K	Font/D'A Mover d...	Wed, Jan 17, 1990 2:08 PM
HyperCard	390K	application	Wed, Feb 8, 1989 4:09 PM
Ingeshev	3K	Microsoft Word 4...	Fri, Dec 8, 1989 10:51 AM
Josh Ramsey's virus de...	62K	application	Fri, Jan 13, 1989 12:11 PM
Letter to Mr. Marquez	2K	MacWrite 4.6 doc...	Fri, Dec 8, 1989 3:01 PM
Operation Porkrind	12K	application	Thu, Apr 13, 1989 11:26 AM
PotatoLink discussions	--	folder	Thu, Feb 15, 1990 2:40 PM
Thad's Greatest Hits	19K	Empty Library do...	Fri, Jan 19, 1990 2:22 PM
Tuffy the Toro	4K	MacPaint document	Thu, Jan 18, 1990 5:23 PM

The list you see has four columns:

- **Name:** This column shows the name of the files, folders, or applications in the window.
 - **Size:** This column shows how much memory the item occupies on the disk.
 - **Kind:** This column shows whether an item is an application, folder, or file. If it is a file, the file type is shown.
 - **Last Modified:** This column shows the date and time that the file, application, or folder was last changed.
- ◆ *Note:* You may need to enlarge the window to see all of the information.

by Date

When you view the contents of a disk or folder by date, the different files, applications, and folders in the window are displayed with the most recently created or modified one listed first. Figure 9-12 shows a folder's contents viewed by date.

■ **Figure 9-12** A folder's contents viewed by date

Coop's folder				
Name	Size	Kind	Last Modified	
<input type="checkbox"/> PotatoLink discussions	--	folder	Thu, Feb 15, 1990	2:40 PM
<input type="checkbox"/> Thad's Greatest Hits	19K	Empty Library do...	Fri, Jan 19, 1990	2:22 PM
<input type="checkbox"/> Tuffly the Toro	4K	MacPaint document	Thu, Jan 18, 1990	5:23 PM
<input type="checkbox"/> HoskenFonts	123K	Font/DA Mover d...	Wed, Jan 17, 1990	2:08 PM
<input type="checkbox"/> Bustin' Ben	2K	MacWrite 4.6 doc...	Fri, Dec 8, 1989	3:01 PM
<input type="checkbox"/> Letter to Mr. Marquez	2K	MacWrite 4.6 doc...	Fri, Dec 8, 1989	3:01 PM
<input type="checkbox"/> Ingeshev	3K	Microsoft Word 4...	Fri, Dec 8, 1989	10:51 AM
<input type="checkbox"/> Gabe's review	3K	Microsoft Word 4...	Fri, Dec 8, 1989	10:47 AM
<input type="checkbox"/> Elvis sightings	1K	AppleLink 5.0 doc...	Tue, Oct 24, 1989	3:57 PM
<input checked="" type="checkbox"/> Big Jim's SURVIVE!	12K	application	Thu, Apr 13, 1989	11:26 AM
<input checked="" type="checkbox"/> Cornbread's Revenge	12K	application	Thu, Apr 13, 1989	11:26 AM
<input checked="" type="checkbox"/> Operation Porkrind	12K	application	Thu, Apr 13, 1989	11:26 AM
<input checked="" type="checkbox"/> HyperCard	390K	application	Wed, Feb 8, 1989	4:09 PM
<input checked="" type="checkbox"/> Josh Ramsey's virus de...	62K	application	Fri, Jan 13, 1989	12:11 PM
<input type="checkbox"/> Font Squencher	2K	Font/DA Mover d...	Tue, Dec 2, 1986	8:34 AM

by Size

When you view the contents of a disk or folder by size, the applications, files, and folders in the window are listed in order, from largest to smallest. Figure 9-13 shows a folder's contents viewed by size.

■ **Figure 9-13** A folder's contents viewed by size

Coop's folder				
Name	Size	Kind	Last Modified	
HyperCard	390K	application	Wed, Feb 8, 1989	4:09 PM
HoskenFonts	123K	Font/D&A Mover d...	Wed, Jan 17, 1990	2:08 PM
Josh Ramsey's virus de...	62K	application	Fri, Jan 13, 1989	12:11 PM
Thad's Greatest Hits	19K	Empty Library do...	Fri, Jan 19, 1990	2:22 PM
Big Jim's SURVIVE!	12K	application	Thu, Apr 13, 1989	11:26 AM
Cornbread's Revenge	12K	application	Thu, Apr 13, 1989	11:26 AM
Operation Porkrind	12K	application	Thu, Apr 13, 1989	11:26 AM
Tuffy the Toro	4K	MacPaint document	Thu, Jan 18, 1990	5:23 PM
Gabe's review	3K	Microsoft Word 4...	Fri, Dec 8, 1989	10:47 AM
Ingeshev	3K	Microsoft Word 4...	Fri, Dec 8, 1989	10:51 AM
Bustin' Ben	2K	MacWrite 4.6 doc...	Fri, Dec 8, 1989	3:01 PM
Font Squencher	2K	Font/D&A Mover d...	Tue, Dec 2, 1986	8:34 AM
Letter to Mr. Marquez	2K	MacWrite 4.6 doc...	Fri, Dec 8, 1989	3:01 PM
Elvis sightings	1K	AppleLink 5.0 doc...	Tue, Oct 24, 1989	3:57 PM
PotatoLink discussions	--	folder	Thu, Feb 15, 1990	2:40 PM

The size of a file, application, or folder is the amount of memory it occupies. After the name of the item you see a number followed by a K, or kilobyte, which is equal to 1024 bytes. The number 390K next to the application HyperCard means that it occupies 390 kilobytes of memory on the disk. A standard double-sided floppy disk can hold up to 800K of memory. The average hard disk containing A/UX can hold up to 80 megabytes of information. A megabyte is equal to 1024 kilobytes.

by Kind

When you view the contents of a disk or folder by kind, the files, folders, and applications are listed alphabetically by type. Figure 9-14 shows a folder's contents viewed by kind.

■ **Figure 9-14** A folder's contents viewed by kind

Coop's folder				
Name	Size	Kind	Last Modified	
Big Jim's SURVIVE!	12K	application	Thu, Apr 13, 1989	11:26 AM
Cornbread's Revenge	12K	application	Thu, Apr 13, 1989	11:26 AM
Elvis sightings	1K	AppleLink 5.0 doc...	Tue, Oct 24, 1989	3:57 PM
HyperCard	390K	application	Wed, Feb 8, 1989	4:09 PM
Josh Ramsey's virus de...	62K	application	Fri, Jan 13, 1989	12:11 PM
Operation Porkrind	12K	application	Thu, Apr 13, 1989	11:26 AM
Thad's Greatest Hits	19K	Empty Library do...	Fri, Jan 19, 1990	2:22 PM
Font Squencher	2K	Font/DA Mover d...	Tue, Dec 2, 1986	8:34 AM
HoskenFonts	123K	Font/DA Mover d...	Wed, Jan 17, 1990	2:08 PM
Tuffy the Toro	4K	MacPaint document	Thu, Jan 18, 1990	5:23 PM
Bustin' Ben	2K	MacWrite 4.6 doc...	Fri, Dec 8, 1989	3:01 PM
Letter to Mr. Marquez	2K	MacWrite 4.6 doc...	Fri, Dec 8, 1989	3:01 PM
Gabe's review	3K	Microsoft Word 4...	Fri, Dec 8, 1989	10:47 AM
Ingeshev	3K	Microsoft Word 4...	Fri, Dec 8, 1989	10:51 AM
PotatoLink discussions	--	folder	Thu, Feb 15, 1990	2:40 PM

The Special menu

The Special menu contains the commands you use to log out, shut down the system, and restart the computer. It also provides commands that you use for special tasks, such as deleting the files that you placed in the Trash. Figure 9-15 shows the Special menu.

■ **Figure 9-15** The Special menu



Clean Up

This command rearranges any selected icons on a disk or in a folder so that they are easier to see. You may use this command only when you are viewing the contents of a disk or folder by icon or by small icon.

Empty Trash

This command deletes any items you have placed in the Trash. Once you empty the Trash, the items are no longer recoverable.

Erase Disk

This command completely eradicates any information on the selected disk. To use this command, you must first highlight the name of the disk you wish to erase.

Set Startup

This command allows you to select any applications, desk accessories, and files that you wish to be automatically opened when you start up your A/UX system.

Restart

This command shuts down the computer and starts it up again. You must enter the root user's password to use this command.

ShutDown

This command shuts down the computer. It does not run the A/UX `shutdown` program. You must enter the root user's password to use this command.

Logout

This command ends the current work session. When you choose this command, all open applications are closed, and you return to the Login dialog box.

The CommandShell utility

This section describes the commands to which you have access when you're working with the CommandShell utility. This utility is an application that presents a window interface you use to communicate instructions to the computer. You access the CommandShell utility by choosing it from the Apple menu.

The CommandShell File menu

The CommandShell File menu contains the commands that manage the CommandShell window environment. Figure 9-16 shows the CommandShell File menu.

■ **Figure 9-16** The CommandShell File menu



New

This command creates a new CommandShell window and places it on the desktop. The Command-key equivalent is COMMAND-N.

Open

This command displays a dialog box that allows you to open a selected file. The Command-key equivalent is COMMAND-O.

Close

This command closes the selected item. The Command-key equivalent is COMMAND-W.

Save Selection

This command displays a dialog box that allows you to save, under a name you specify, any text you select in a CommandShell window.

Save Preferences

This command saves any changes you have made to a CommandShell window.

Restore From Preferences

This command causes a CommandShell window to revert to the state it was in when you last saved the preferences, providing you have made any changes since then. If you have not altered the window, the command is dimmed on the menu.

Page Setup

This command displays a dialog box allowing you to alter printer settings.

Print Selection

This command displays a dialog box that allows you to send to the printer any data you have selected in a CommandShell window.

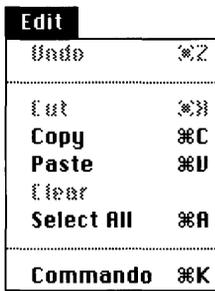
Close All Windows

This command closes all CommandShell windows on the desktop.

The CommandShell Edit menu

The CommandShell Edit menu, shown in Figure 9-17, contains the commands that you use to edit text in windows. In addition, you can also access the Commando utility from this menu.

■ **Figure 9-17** The CommandShell Edit menu



Edit	
Undo	⌘Z
Cut	⌘X
Copy	⌘C
Paste	⌘V
Select All	⌘A
Commando	⌘K

Undo

This command nullifies the last text editing or formatting change that you made. It does not nullify command execution. The Command-key equivalent is COMMAND-Z.

Cut

This command copies any selected text to the Clipboard and removes the text from the window. The text is stored in the Clipboard until it's replaced by text sent there as a result of another Cut or Copy command. The Command-key equivalent is COMMAND-X.

Copy

This command copies any selected text to the Clipboard but does not remove it from the window. The text is stored in the Clipboard until it's replaced by text sent there as a result of another Cut or Copy command. The Command-key equivalent is COMMAND-C.

Paste

This command inserts the contents of the Clipboard into the window, starting at the insertion point. The Command-key equivalent is COMMAND-V.

Clear

This command removes any selected text from the window. Text removed with the Clear command is no longer available. Choosing Clear is equivalent to pressing the DELETE key.

Select All

This command selects all of the text in the window. The Command-key equivalent is COMMAND-A.

Commando

This command invokes the Commando command-line building utility. This is especially useful when you are creating a compound command line in a CommandShell window. The Command-key equivalent is COMMAND-K.

The CommandShell Window menu

The CommandShell Window menu contains the commands you use to manipulate and access CommandShell windows. Figure 9-18 shows the CommandShell Window menu.

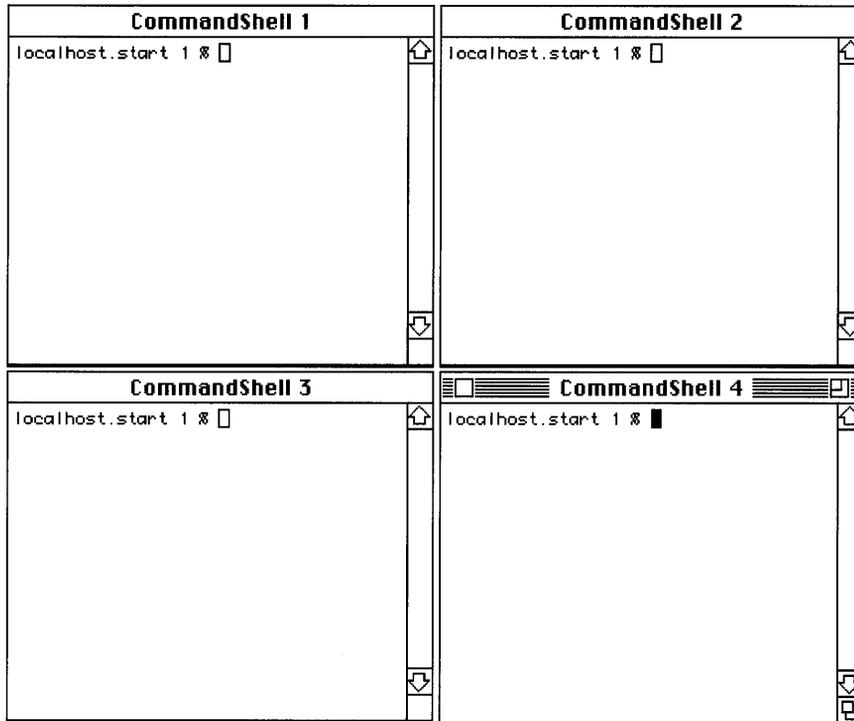
■ **Figure 9-18** CommandShell Window menu

Window	
Title	⌘T
Title Horizontal	
Title Vertical	
Standard Positions	
<hr/>	
Standard Size	⌘S
Full Height	⌘F
Zoom Window	⌘/
Hide "CommandShell 4"	⌘H
Show All Windows	
Last Window	⌘L
Rotate Windows	⌘R
<hr/>	
A/UX System Console	⌘0
CommandShell 1	⌘1
CommandShell 2	⌘2
CommandShell 3	⌘3
CommandShell 4	⌘4

Tile

This command rearranges all windows on the desktop as shown in Figure 9-19.

■ **Figure 9-19** Tiled windows

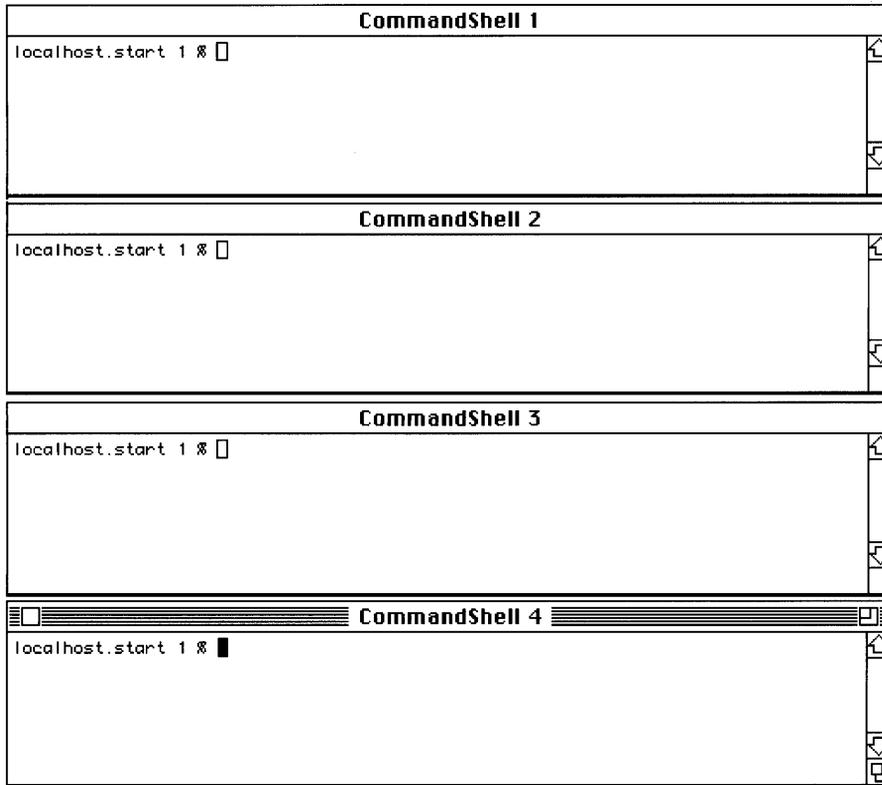


The Command-key equivalent is COMMAND-T.

Tile Horizontal

This commands rearranges all windows on the desktop as shown in Figure 9-20.

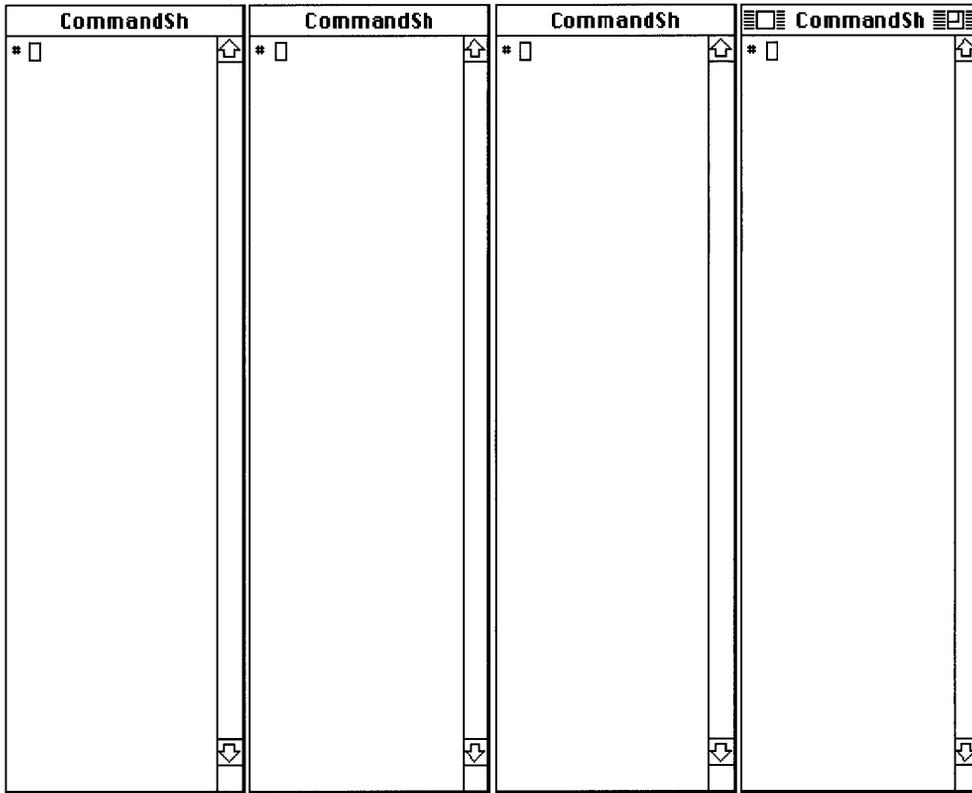
■ **Figure 9-20** Horizontally tiled windows



Tile Vertical

This command rearranges all windows on the desktop as shown in Figure 9-21.

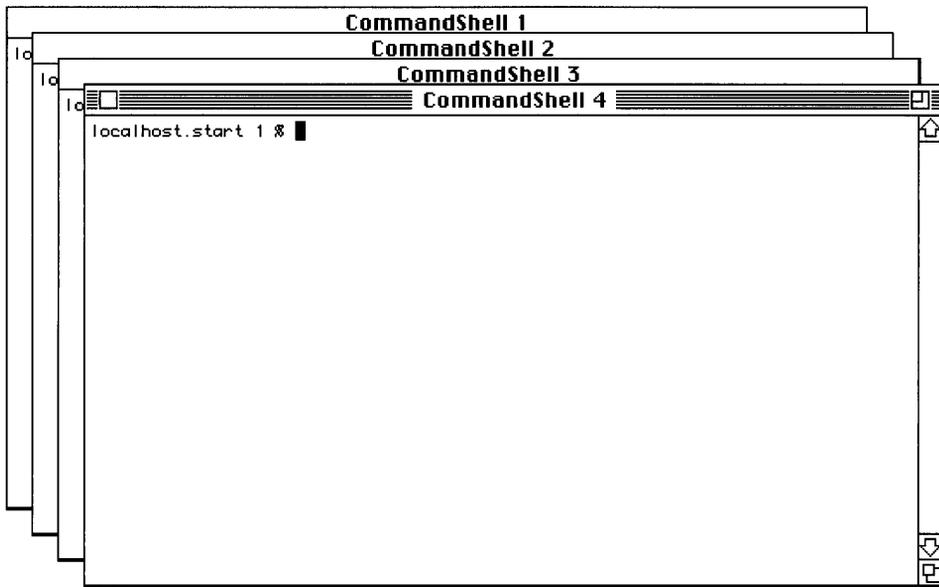
■ **Figure 9-21** Vertically tiled windows



Standard Positions

This command rearranges all windows on the desktop as shown in Figure 9-22.

■ **Figure 9-22** Standard window positioning



This is the standard stacking arrangement of all CommandShell windows as they are created.

Standard Size

This command returns the active window to its standard size, provided it has been changed. The Command-key equivalent is COMMAND-S.

Full Height

This command changes the size of the active window so that it is as long as the screen will allow. The Command-key equivalent is COMMAND-F.

Zoom Window

This command increases the size of the active window so that it is as large as the screen will allow. Choosing Zoom Window is equivalent to clicking the zoom box in the upper-right corner of the window. The Command-key equivalent is COMMAND-/.

Hide Window-Title

This command hides the active window from view. The window is not closed but merely hidden from view. All accessible CommandShell windows are listed at the bottom of the Window menu. The Command-key equivalent is COMMAND-H.

Show All Windows

This command displays all of the CommandShell windows listed at the bottom of the Window menu, including the A/UX System Console Window, which contains system messages about all of the currently running A/UX system processes.

Last Window

This command retrieves the last window you accessed *before* you activated the current window. The Command-key equivalent is COMMAND-L.

Rotate Windows

This command brings the rearmost window to the front each time the command is chosen from the menu. The Command-key equivalent is COMMAND-R.

A/UX System Console

This commands activates the A/UX System Console window, which contains system messages about all of the currently running A/UX system processes. The Command-key equivalent is COMMAND-0 (zero).

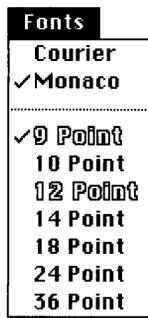
Names of all accessible CommandShell windows

This is not a command, but a listing of all currently accessible CommandShell windows. This list includes any hidden windows as well. Choosing a window name in the list activates that window.

The CommandShell Fonts menu

The CommandShell Fonts menu, shown in Figure 9-23, contains the list of available fonts that you can use in CommandShell windows. Only monospaced fonts are supported in CommandShell. When you choose a font, all of the text in the window, not just the selected text, is displayed in that font.

- **Figure 9-23** The CommandShell Fonts menu

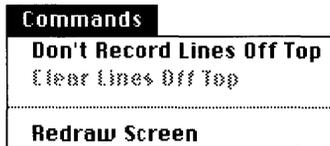


The CommandShell Fonts menu also allows you to select point sizes, which determine the size of the text both as displayed on the screen and as printed. The smallest size is 9 point, and the largest is 36 point.

The CommandShell Commands menu

The CommandShell Commands menu allows you to change the environment within CommandShell windows. The CommandShell Commands menu is shown in Figure 9-24.

- **Figure 9-24** The CommandShell Commands menu



Don't Record Lines Off Top

This command marks the window as the barrier for text entry. Any text exceeding the boundaries of the active window is not recorded and thus not accessible. When this command is active, the menu command reads Record Lines Off Top, which allows you to scroll through the window and access data.

Clear Lines Off Top

This command erases any information that scrolls off the top of a CommandShell window.

Redraw Screen

This command redraws all of the pixels that make up the screen. You use this command if at some point a window is not completely redrawn.

The CommandShell Preferences menu

The CommandShell Preferences menu allows you to edit some of the properties of a CommandShell window. Figure 9-25 shows the CommandShell Preferences menu.

- **Figure 9-25** The CommandShell Preferences menu



Notification Levels

This command displays a dialog box that allows you to control how system messages are displayed when CommandShell is *not* the active application.

New Window Settings

This command displays a dialog box in which you set some of the default parameters, such as font and font size, for a new CommandShell window.

Active Window Settings

This command displays a dialog box that allows you to alter some of the properties of the active window, such as the name of the window. The Command-key equivalent is COMMAND-E.

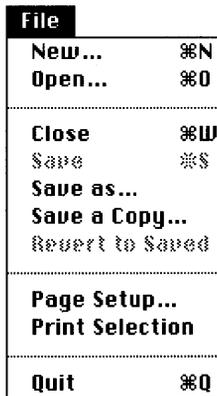
The TextEditor application

TextEditor is a word-processing application with which you create text documents using the mouse and Macintosh-like editing techniques. TextEditor is similar to the popular UNIX text-editing application `vi`, but it is much easier to use.

The TextEditor File menu

The TextEditor File menu, shown in Figure 9-26, contains the commands for creating, opening, printing, closing, and saving TextEditor files.

■ **Figure 9-26** The TextEditor File menu

A screenshot of the TextEditor File menu. The menu is titled "File" in a dark header. It contains several items, some with keyboard shortcuts. The items are: "New..." with shortcut ⌘N, "Open..." with shortcut ⌘O, "Close" with shortcut ⌘W, "Save" with shortcut ⌘S, "Save as...", "Save a Copy...", "Revert to Saved", "Page Setup...", "Print Selection", and "Quit" with shortcut ⌘Q. The menu is divided into sections by horizontal lines.

File	
New...	⌘N
Open...	⌘O

Close	⌘W
Save	⌘S
Save as...	
Save a Copy...	
Revert to Saved	

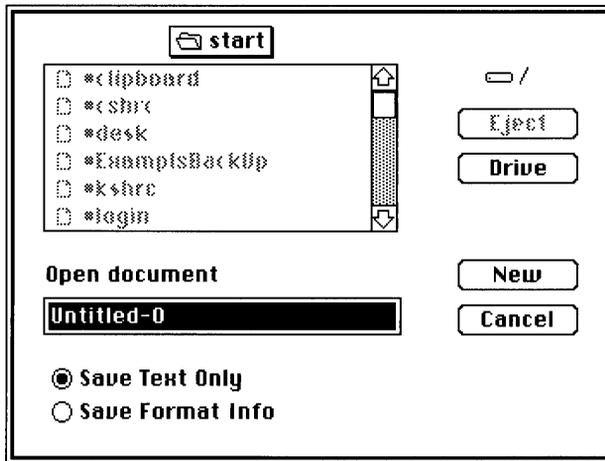
Page Setup...	
Print Selection	

Quit	⌘Q

New

This command creates a new document. When you choose New, you see the New dialog box, shown in Figure 9-27. In this dialog box, you to enter a name and select a folder location for the document to be stored. The Command-key equivalent is `COMMAND-N`.

■ **Figure 9-27** New dialog box



Open

This command allows you to open documents created with TextEditor and any text-only file stored in the A/UX file system. When you choose Open, you see an Open dialog box that allows you to select any text file. The Command-key equivalent is COMMAND-O.

- ◆ *Note:* If you try to open a document that's already open in another window, that window is brought to the front. Whenever you open a file, it appears in a new window.

Close

This command closes the active window. The Command-key equivalent is COMMAND-W.

Save

This command saves the file in the active window under the file's current name, without closing the window. This menu item is dimmed if the contents of the window haven't been modified since the file was last saved. The Command-key equivalent is COMMAND-S.

Save As

This command displays a dialog box that allows you to make a copy of the currently active file, which you must then save under a different name. This action saves the current contents of the window as the Save as file, and allows you to continue editing the new file. The old file is closed without saving, under its original name.

Save a Copy

This command displays a dialog box that allows you to save the current state of the active window to a new file on a disk with the name Copy Of *Filename*. You can then continue editing the old file.

Revert to Saved

This command throws away any changes you have made since you last saved the file in the active window. This command is dimmed if the file has not been modified since you last saved it.

Page Setup

This command displays a dialog box that allows you to set parameters for printing a file. The standard Page Setup dialog box for the type of printer that you have selected in the Chooser is displayed. See the owner's guide that came with your Macintosh computer for more information about the Page Setup dialog box.

Print Selection

This command prints the entire contents of the active window.

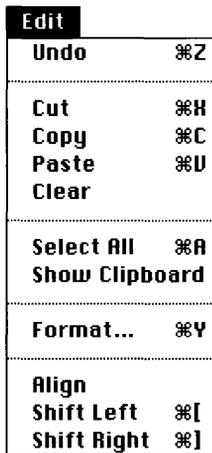
Quit

This command closes the TextEditor application and returns you to the Finder, first allowing you to save all open files. The Command-key equivalent is COMMAND-Q.

The TextEditor Edit menu

The TextEditor Edit menu, shown in Figure 9-28, contains a few special menu items in addition to the usual Macintosh editing commands. You use these commands to edit or change the contents of the active window.

- **Figure 9-28** The TextEditor Edit menu



Edit	
Undo	⌘Z
Cut	⌘H
Copy	⌘C
Paste	⌘V
Clear	
Select All	⌘A
Show Clipboard	
Format...	⌘Y
Align	
Shift Left	⌘[
Shift Right	⌘]

Undo

This command nullifies the last text editing or formatting change that you made. The Command-key equivalent is COMMAND-Z.

Cut

This command copies any selected text to the Clipboard and removes the text from the window. The text is stored in the Clipboard until it's replaced by text sent there as a result of another Cut or Copy command. The Command-key equivalent is COMMAND-X.

Copy

This command copies any selected text to the Clipboard but does not remove it from the window. The text is stored in the Clipboard until it's replaced by text sent there as a result of another Cut or Copy command. The Command-key equivalent is COMMAND-C.

Paste

This command inserts the contents of the Clipboard into the window at the insertion point. The Command-key equivalent is COMMAND-V.

Clear

This command removes any selected text from the window. Once text is removed using the Clear command, it is no longer available. Choosing Clear is equivalent to pressing the DELETE key.

Select All

This command selects all of the text in the window. The Command-key equivalent is COMMAND-A.

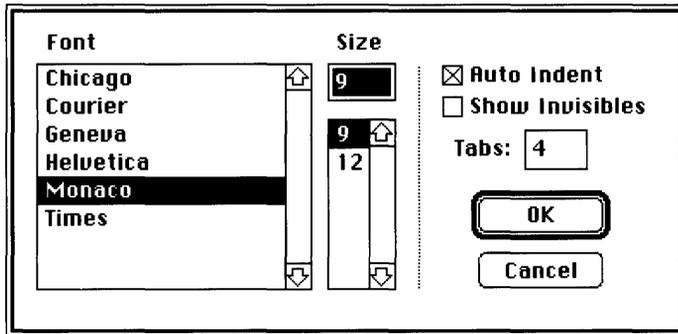
Show Clipboard

This command displays the contents of the Clipboard in a separate window.

Format

This command displays a dialog box offering a selection of fonts and sizes that you can apply to text selected in a TextEditor window. Figure 9-29 shows the TextEditor Format dialog box.

- **Figure 9-29** The TextEditor Format dialog box



The Command-key equivalent is COMMAND-Y.

- ◆ *Note:* All of the text in the active window, not just the current selection in that window, is shown in the selected font and font size.

Align

This command aligns any selected text with the top line of the selection.

Shift Left

This command moves any text that you select in a TextEditor window one tab stop to the left. The Command-key equivalent is COMMAND-[.

Shift Right

This command moves any text that you select in a TextEditor window one tab stop to the right. The Command-key equivalent is COMMAND-].

- ◆ *Note:* If you hold down the SHIFT key while choosing Shift Left or Shift Right, the selected text shifts by one space rather than by one tab.

The TextEditor Find menu

The TextEditor Find menu, shown in Figure 9-30, contains the commands for searching for and replacing text.

- **Figure 9-30** The TextEditor Find menu

A screenshot of the TextEditor Find menu. The menu title 'Find' is in a dark box at the top left. Below it, the menu items are listed with their keyboard shortcuts: 'Find...' with ⌘F, 'Find Same' with ⌘G, 'Find Selection' with ⌘H, and 'Display Selection' (which is bolded). A horizontal dotted line separates these from the replacement options: 'Replace...' with ⌘R and 'Replace Same' with ⌘T.

Find	
Find...	⌘F
Find Same	⌘G
Find Selection	⌘H
Display Selection	
.....	
Replace...	⌘R
Replace Same	⌘T

Find

This command displays the Find dialog box and finds the string that you specify. By default, the editor searches forward from the currently selected text in the active window (and does not wrap around). The Command-key equivalent is COMMAND-F.

Find Same

This command repeats the last Find operation on the active window. The Command-key equivalent is COMMAND-G.

Find Selection

This command finds the next occurrence of the search string in the active window. The Command-key equivalent is COMMAND-H.

Display Selection

This command causes the currently selected text in the active window to scroll into view.

Replace

This command searches for a specified string throughout a file and replaces that string with a different string. The Command-key equivalent is COMMAND-R.

Replace Same

This command repeats the last Replace operation. The Command-key equivalent is COMMAND-T.

The TextEditor Mark menu

A **marker** is a portion of text that has been given a name. Markers are useful for navigating within a window, and they can simplify many search expressions. The upper part of the TextEditor Mark menu contains the commands Mark and Unmark, and the lower part lists all existing markers. To jump to the location of a marker, you simply choose the name of the marker you want from the TextEditor Mark menu, shown in Figure 9-31.

■ **Figure 9-31** TextEditor Mark menu



Mark

This command displays a dialog box that allows you to create a new marker within a TextEditor file. The Command-key equivalent is COMMAND-M.

Unmark

This command displays a dialog box that allows you to remove a marker from a TextEditor file.

The TextEditor Window menu

The TextEditor Window menu allows you to tile or stack any TextEditor windows on the desktop. The TextEditor Windows menu is shown in Figure 9-32.

■ **Figure 9-32** The TextEditor Window menu



Tile Windows

This command tiles any open windows as shown in Figure 9-19.

Stack Windows

This commands stacks any open windows as shown in Figure 9-22.

List of open windows

This is not a command, but a listing of all of the currently open TextEditor windows. A check mark appears next to the active window.

Chapter 10 **Troubleshooting**

This chapter lists some common problems users encounter and gives some suggested remedies. This is by no means a complete list of all the problems that can arise. However, the chapter describes some useful techniques to try when you don't know what to do and you can't find an expert in the next office.

This chapter contains the following sections:

- Startup problems
- Problems at login
- The monitor screen is frozen
- Handling A/UX System Console alerts
- The printer does not respond
- The icons have disappeared from the A/UX Finder
- The bell sound is deactivated in CommandShell
- The console emulator appears upon login
- A Macintosh application does not open
- Not 32-bit clean

Startup problems

This section lists some signs of trouble at startup and gives some remedies to try.

The power doesn't go on

If the computer fails to respond when you press the POWER ON key, follow these steps:

1. **Check to see that the power cord is properly plugged in to a power source and to the computer itself.**

The computer may be plugged in to an outlet that has no power or to an extension power strip that has no power.

2. **If the power source is functioning, check the cable that connects the keyboard to the computer.**

Perhaps your keypress is not being sent to the computer.

A floppy disk icon with a question mark appears

This icon means that the system cannot find the boot disk. Try the following:

1. **Be sure that the external hard disk is turned on.**
2. **Restart the computer (with the restart switch). The computer may not have recognized all your disks during startup.**
3. **Be sure that the SCSI cables are connected properly and that the SCSI chain has been terminated properly.**

This is described in *Setting Up Accounts and Peripherals for A/UX*.

4. **Try reinstalling your Macintosh OS system software.**

See the installation manual that came with the software.

Problems at Login

When you log in to the system, several error messages might appear. A few are listed here.

Unknown user name

The following message appears:

```
Sorry, that user name is unknown. Please retype the name or contact
the system administrator.
```

Either you have typed your login name incorrectly or your login name has not been entered correctly in `/etc/passwd`.

Try retyping you login name; be sure to duplicate the uppercase and lowercase of the name exactly. A/UX is case sensitive.

If that doesn't help, contact your system administrator.

Incorrect password

The following message appears:

```
Sorry, your password in incorrect. Please reenter it.
```

When you reenter your password, be sure to duplicate the uppercase and lowercase of the password exactly. A/UX is case sensitive.

If that doesn't help, contact your system administrator.

Inaccessible home directory

The following message appears:

```
Your home directory, ----, is inaccessible. Perhaps that directory
is on a file system which is not mounted. Please contact the system
administrator.
```

Contact your system administrator.

The monitor screen is frozen

If the screen doesn't respond while you are working in the Finder, and you can't log out or shut down, try the following:

1. **Check the connections between the mouse, the keyboard, and the computer.**
2. **If these connections are in order, press COMMAND-CONTROL-E to redisplay the Login dialog box.**

You can then choose Restart or Shut Down from the Special menu.

If you are working in a CommandShell window and the screen stops accepting input from the keyboard, try the following:

1. **Check the connections between the mouse, the keyboard, and the computer.**
2. **Type `stty sane` and press CONTROL-J.**

Although the screen doesn't respond when you type `stty sane`, pressing CONTROL-J is equivalent to pressing RETURN and should force a line break. After the line breaks, your screen may respond normally.

3. **If the computer is still frozen, press COMMAND-CONTROL-E to redisplay the Login dialog box. You can then choose Restart or Shut Down from the Special menu.**

Handling A/UX System Console alerts

When the system alerts you of a problem, a message flashes on your screen. In order to read the message, you need to open CommandShell and display the A/UX System Console window.

Follow these steps:

1. **If you are working in the A/UX Finder, you will see a diamond-shaped icon blinking alongside the CommandShell command in the Apple menu. Choose CommandShell.**
2. **When CommandShell opens, choose A/UX System Console from the Windows menu.**

The A/UX System Console window appears and displays the warning message.

For further information on the A/UX System Console window, see “Using the A/UX System Console” and “How the System Warns you of an Alert” in Chapter 5, “Using CommandShell.”

Typical A/UX System Console alerts

Shutdown warning

Normally, when the A/UX System Console displays an alert, it also gives directions for dealing with the situation. The most common alert concerns the imminent shutdown of the system.

When planning to shut down the system for maintenance, the system administrator is prompted to broadcast a message warning users of the fact. This gives you time to save your files and to log out of the system, so that your work is not damaged.

File system full

If the message “File system full” is blinking on and off several times a minute, a process that is filling up the file system may be running. If you are running the process, stop the process and clear the space. If you are not the sole user and you are not running the process, see the system administrator.

The printer does not respond

If the printer does not respond when you send a file to be printed, try the following:

1. **Check the cable between the printer and the computer. Be sure that the connectors have been plugged in to the correct ports.**
2. **Check that the printer is turned on.**
3. **Be sure that the printer has paper.**

The icons have disappeared from the A/UX Finder

If the desktop becomes corrupted (one symptom is that the icons do not appear in the A/UX Finder), you can often repair it by rebuilding the desktop database.

- ◆ *Note:* Rebuilding the desktop database might take 20 minutes or more. If you have other file systems mounted in addition to A/UX, it might save a lot of time if you unmount them before performing this operation.

Rebuild the desktop database as follows:

1. **Choose Logout from the A/UX Finder's Special menu.**
2. **When the Login dialog box reappears, type your login name and your password, and click Login.**
3. **A window with the message Login session for (and your login name) appears. When that message disappears, leaving a blank screen, press COMMAND-OPTION.**
4. **A dialog box appears, asking you whether you want to rebuild the desktop database. Click OK.**

The bell sound is deactivated in CommandShell

If the bell doesn't ring when it should, reactivate it as follows:

1. **Choose Control Panel in the Apple menu.**
2. **Select the Sound icon at the left side of the Control Panel.**
You may have to scroll down to display the Sound icon.
3. **If the volume is turned too low, raise the indicator on the Speaker Volume bar.**
4. **Click the close box.**

The Console Emulator appears upon login

If you log in and the Console Emulator appears instead of the A/UX Finder, it may mean that somebody was using your user account and changed the session type to Console Emulator.

1. **At the command line, enter the following: `mac32`**
2. **If you want to display the A/UX Finder for 24-bit addressed software, enter: `mac24`**

For further information on the Console Emulator, see Chapter 5, "Using CommandShell." For further information on 32-bit and 24-bit addressing, see "32-Bit Address Versus 24-Bit Address" in Chapter 1, "Starting and Finishing a Work Session."

A Macintosh application does not open

If you are trying to use a Macintosh application, and it refuses to open or to respond properly, it may be that you do not have the proper file access permissions for the application.

Follow the directions for checking permissions given in “Checking a File’s Permissions” in Chapter 2, “Getting Around in A/UX.”

If you do not have read permission for the application, you will not be able to open it.

If necessary, change the permissions. See “Changing File Access Permissions” in Chapter 2, “Getting Around in A/UX.”

Not 32-bit clean

There is a dialog box that warns you that the application you are about to use may not be 32-bit clean. If it appears whenever you start an application that you know works well under A/UX 2.0, you can turn off the dialog box by using the `changesize` script. You must have write permission to this script. You must either be logged in as root or must have the system administrator change your permissions.

Run the `changesize` script as follows:

1. **Open the `/mac/bin` folder (by double-clicking the `/` icon, then the `mac` icon, then the `bin` icon).**
2. **Double-click the `changesize` icon.**

The Commando dialog box shown in Figure 10-1 appears.

- **Figure 10-1** The changesize dialog box

changesize Options

Operation

Modify fields

View current fields

Required

Choose application

Preferred memory size:

Minimum memory size:

Output **Error**

SIZE flags **More SIZE flags**

Command Line

changesize

Help

Change the fields of a file's SIZE resource. This command is an MPW tool that allows the user to modify any of the fields of an application's SIZE resource. It also will display the current fields of the SIZE resource.

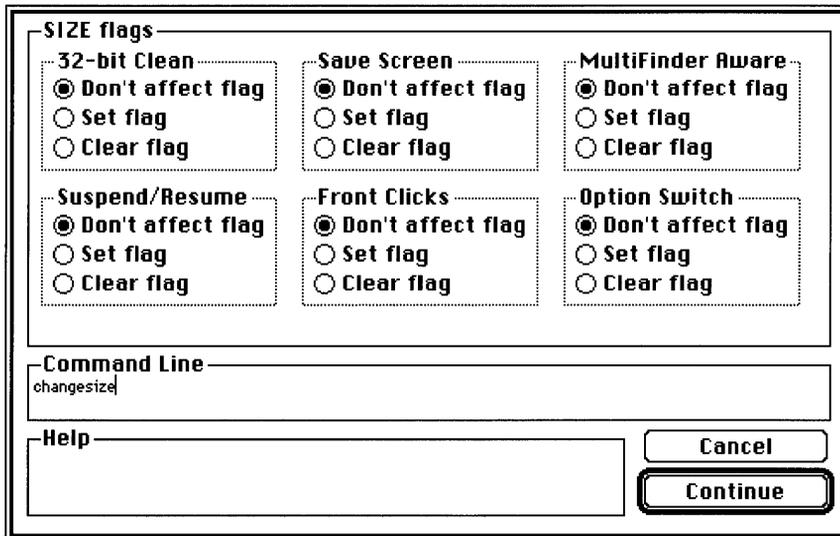
Cancel

changesize

3. Select **"SIZE flags"** at the middle right of the dialog box.

The dialog box shown in Figure 10-2 appears.

■ **Figure 10-2** The SIZE Flags dialog box



4. Select "Set flag" in the 32-bit Clean box.

5. Click Continue.

The original `changesize` dialog box reappears.

6. Select "Choose application."

7. When the list of available files appears, select the application you plan to use.

8. Click `changesize`.

Chapter 11 **Where to Go From Here**

Congratulations! You now know the basics of the A/UX 2.0 operating system. This chapter presents a brief overview of the places you might look to learn more about A/UX and your Macintosh computer. This chapter contains the following sections:

- Finding resource materials
- Learning more about your Macintosh computer
- Learning more about system administration
- Learning more about commands
- Learning about creating, formatting, and printing documents
- Learning about developing in the A/UX environment

You can read the entire chapter to familiarize yourself with all of the available resources materials, or you can read the section that directs you to material that you need immediately.

Finding resource materials

Apple Computer, Inc. provides a variety of reference material to help you use your computer and its operating systems. You can find information in the places listed here:

■ **A/UX Accessory Kit**

This kit contains the four guides necessary to install and configure A/UX, to use it, and to learn about the system and its documentation. It comes with the operating system software.

■ **Macintosh Accessory Kit**

This kit contains the system software and guides necessary to set up, configure, and use a Macintosh computer. The kit comes with the computer.

■ **A/UX User's Documentation Suite**

This suite is available in several different bundles addressing the needs of specific users. You can purchase this suite through your authorized A/UX dealer or representative.

This includes the following bundles:

- user's documentation bundle
- system administrator's documentation bundle
- programmer's documentation bundle

For a complete list of the guides contained in each of these bundles, see *Road Map to A/UX*.

■ **Apple Technical Library**

This set of books describes the hardware and software of the Macintosh family of computers. The books are official technical publications from Apple Computer, Inc., and are published by Addison-Wesley Publishing Company. You can find these books in most well-stocked bookstores.

Learning more about your Macintosh computer

To learn more about your Macintosh computer and the Macintosh OS, see the set of books that came with it. The owner's guides describe the computer, the Macintosh OS, and Macintosh utilities and programs. The guides also show you how to accomplish tasks with the Macintosh computer. In most cases, Macintosh applications and utilities work similarly in A/UX. For more in-depth explanation of such features as the Finder, the Control Panel, or care of your computer, see the Macintosh owner's guide.

Learning more about system administration

To help you learn about system administration tasks, Apple Computer, Inc. provides several guides.

- ***Setting Up Accounts and Peripherals for A/UX***

This book describes how to add user accounts and peripheral devices, such as printers and additional hard disks, to an A/UX system. It includes a section on adding a computer to an existing network using the built-in AppleTalk facility or a compatible communications card.

This guide comes with the A/UX software in the A/UX Accessory Kit.

- ***A/UX Local System Administration***

This book describes the duties of the administrator of a single A/UX system. It includes information on making backups of files and maintaining a healthy file system.

- ***A/UX Network System Administration***

This book describes how to set up and maintain a simple network. It includes a discussion of TCP/IP software utilities, Yellow Pages services, and Network File Services (NFS™). It also contains information on how to print using the AppleTalk network and AppleTalk protocol.

- ***A/UX System Administrator's Reference***

This reference manual contains an entry for each system administration command. Each entry gives the command name, describes the syntax, lists the associated files, and provides cross-references. This reference includes a section of entries for device drivers and device interfaces and a section of entries for system-maintenance procedures.

These guides are available in the System Administrator's Documentation bundle.

Learning more about commands

To learn about commands you have several resources.

- **Type *commandname* COMMAND-K in a CommandShell window.**

In response, the computer displays a Commando dialog box that describes available options and demonstrates the correct command syntax. For further information on Commando, see Chapter 4, "Using Commando."

- **Enter `man commandname` in a CommandShell window.**

In response, the computer displays the reference manual page that describes the command in detail. You can read through the entire description or find only the options that you need. Each manual entry presents an example of the correct syntax.

- ***A/UX Command Reference
Section 1(A-L)***

This reference manual contains an entry for each user command beginning with the letters A through L. Each entry lists the command name, describes the syntax, and lists the associated files and commands.

- ***A/UX Command Reference
Section 1(M-Z) and 6***

This reference manual contains an entry for each user command beginning with the letters M through Z. Each entry lists the command name, describes the syntax, and lists the associated files and commands. This manual also includes similar entries about the game programs included in A/UX 2.0.

- ***A/UX Reference Summary and Index***

This guide catalogs the other reference manuals in three ways. It presents a list of all A/UX commands by function, synopses of all A/UX commands organized alphabetically, and a keyword index of all the command reference entries. The command synopses and list of commands by function lead you to the information in *A/UX Command Reference* and *A/UX System Administrator's Reference*. The index serves all volumes.

These guides are available in the programmer's documentation bundle.

Learning about creating, formatting, and printing documents

To learn about using the A/UX text-processing and text-formatting tools see the guides listed here.

- ***A/UX Text Editing Tools***

This book describes the editing tools provided with A/UX. It contains detailed instructions and sample sessions for using `vi`, `ex`, `ed`, and `sed`.

- ***A/UX Text Processing Tools***

This book describes the text-formatting tools that make up AT&T's Documentor's Workbench (DWB), version 2.0. It also describes other text-processing tools that come with A/UX, such as `grap` and `TranScript™`.

These guides are available in the user's documentation bundle.

To find out more about using Macintosh applications to write, design, lay out, and print documents, see the guides that come with each application.

To learn about printing documents with A/UX tools you can consult several guides.

- ***Setting Up Accounts and Peripherals for A/UX***

This book describes how to set up a printer. It comes with the A/UX software in the A/UX Accessory Kit.

- ***A/UX Network System Administration***

This book describes how to set up and maintain a simple network. It includes a discussion of using TCP/IP software utilities, Yellow Pages services, and Network File Services (NFS). It also includes information on how to print using the AppleTalk network and the AppleTalk protocol.

- ***A/UX Local System Administration***

This book describes the duties of an administrator of a single A/UX system. It includes information on setting up and configuring the kernel for peripheral devices, such as printers.

These guides are available in the system administrator's documentation bundle.

- ***A/UX User Interface***

This book describes the Bourne, C, and Korn shell programs distributed with A/UX. You use the shell language to communicate with the operating system to accomplish tasks.

This guide is available in the user's documentation bundle.

Learning about developing in the A/UX environment

To find out about development platforms and tools, see these guides:

- ***A/UX Toolbox: Macintosh ROM Interface***

This book describes what the A/UX Toolbox is, how to use the A/UX Toolbox to implement the Macintosh user interface on applications that run under the A/UX operating system, and how to port existing Macintosh applications to A/UX.

- ***A/UX Programming Languages and Tools, Volumes 1 and 2***

These books describe the programming languages, their accompanying subroutine libraries, the utility programs, the compilers, and the associated program-generating tools provided with A/UX.

- ***A/UX Programmer's Reference, Volumes 1 and 2***

These reference manuals contains information for programmers. These manuals consists of entries for system calls, subroutines, file formats, and miscellaneous facilities.

These guides are available in the programmer's documentation bundle.

- ***Building A/UX Device Drivers***

This book describes how to build A/UX device drivers and how peripheral devices interact with A/UX. This book is available from APDA™ as part of the kit called A/UX Device Drivers Kit.

- ***A/UX Network Applications Programming***

This book describes the A/UX programming interfaces for the programmer who wishes to write network applications based on AppleTalk, Network File Services (NFS), Yellow Pages, and Internet software. This book is available from APDA.

Glossary

A/UX Startup: The Macintosh application that launches A/UX. If you cancel the automatic launch of A/UX, you are in **MacPartition** from which you can run some system administration commands.

absolute pathname: The complete name of a file, given by listing all of the directories leading down to that file, starting from root (/) and concluding with the filename itself. The directories leading to the file are separated from each other and from the filename by slashes. For example, `/etc/passwd` is the absolute pathname of the system password file, `passwd`, located in the `etc` directory beneath the root (/) directory.

access class: A designation for access permissions to A/UX files and directories; the three access classes are user, group, and others. The user, or owner, is the person who created the file; the group consists of people, including the owner, who typically work together and need to share files easily; the others class consists of all people using a local system. A file or directory can be set to have different access permissions for each class.

active window: The frontmost window on the desktop; the window where the next action will take place. An active window's **title bar** is highlighted.

algorithm: A step-by-step procedure for accomplishing a task or solving a problem.

alias: An alternate name used to invoke or identify a command, a network host, a list of users, or some other applicable entity.

Apple Desktop Bus (ADB): A low-speed, input-only serial bus that connects the keyboard, mouse, and optional input devices to the system bus.

application: A program used to perform a particular task, such as computer-aided drawing, document preparation, accounting, or payroll management.

archive: (1) A collection of files, plus a table of contents. Archives are used mainly as libraries to be searched by the link editor `ld`. (2) Any collection of files saved simultaneously for backup purposes.

argument: A piece of information included on the command line in addition to the command; the shell passes this information to the command, which then modifies its execution in some particular way. Filenames, for example, are often supplied as arguments to commands, so that a command will operate on the named file.

argument list: All of the arguments passed to a program.

ARPANET: A wide area network that links government, academic, and industrial installations around the world. Primarily connecting research sites, the ARPANET was developed in the 1960s by the Advanced Research Projects Agency of the U.S. Department of Defense. See also **Defense Data Network**.

ASCII text file: See **text file**.

assembly code: A source file written in a low-level programming language that corresponds to a specific computer's binary machine language.

asynchronous communication: A method of data transmission in which the receiving and sending devices don't share a timer and no timing data is transmitted. See also **synchronous communication**.

asynchronous I/O: The capability to perform an I/O operation while its calling process continues to run. With synchronous I/O, the calling process sleeps until the I/O operation is finished.

autoconfiguration: An A/UX facility that automatically configures device drivers into the kernel upon system startup.

autorecovery: An A/UX facility that automatically repairs damaged file systems and rebuilds a good system if at all possible.

A/UX command: The name of an executable file distributed with the A/UX operating system. For example, `ls` is a binary executable distributed in the `/bin` directory that prints directory information to the terminal; typing `/bin/ls` as a command causes the file to execute. See also **shell program, built-in shell command**.

A/UX Toolbox: Libraries, subroutines, and utilities that provide access from A/UX to the Macintosh Operating System and to the Macintosh User Interface Toolbox in the Macintosh II or IIX ROM.

background job: A process executed by the shell such that the shell is not suspended while waiting for the process to finish. By default, a process starts in the foreground, and the shell waits until the process has finished executing before the shell returns its prompt. You run a process in the background by appending an ampersand character (&) to the end of a command line; the shell prompt reappears instantly, allowing you to run multiple processes simultaneously. See also **foreground job**.

backslash: The character \, often used as an **escape character**.

bang: The exclamation point (!), used as a syntactic element by the C shell, by `uucp`, and by other utilities.

baud rate: The measure of the signal changes per second sent over a transmission line. This usually corresponds to the total number of bits per second sent over the line.

Berkeley Software Distribution (BSD): A version of the UNIX operating system developed at the University of California at Berkeley. The A/UX operating system incorporates many of the features of 4.2 BSD.

binary file: A file, such as a machine language program, whose data is to be interpreted in binary form. See also **text file**.

bit map: (1) A set of bits that represents the state of a corresponding set of items. (2) In QuickDraw™, a pointer to a bit image, the row width of that image, and its boundary rectangle.

block: A group regarded as a unit; usually refers to data, or to memory in which data is stored.

block device: A secondary storage device, such as a disk or tape drive, from which a file system can be mounted.

block I/O: The transfer of data that consists of chunks of contiguous information. By default, block I/O consists of 1024-byte chunks under A/UX. See also **character I/O**.

B-NET: The A/UX implementation of the **TCP/IP** protocols and utilities.

boot: To start an operating system by loading it into the computer's memory.

boot block: The first block of a file system. The boot block contains the system's startup instructions.

boot device: The peripheral device that reads an operating system's initial startup instructions.

boot disk: The disk that contains the initial startup instructions for an operating system.

Bourne shell: The standard UNIX System V command interpreter. See also **shell**.

bridge: An intelligent link between two or more networks, especially those employing the same media or protocols. See also gateway.

BSD: See **Berkeley Software Distribution**.

buffer cache: A holding area in main memory where read and write information for block I/O is temporarily stored.

built-in shell command: A command written into the shell itself rather than in a separate executable file. Built-in shell commands are generally used for writing shell scripts.

button: A pushbutton-like image in dialog boxes where you click to designate, confirm, or cancel an action.

C: A portable, high-level language that also offers very low-level operations, making it a flexible and efficient language for both application and system programming. A/UX itself is written almost entirely in C.

canonical: Adhering to standard, accepted, or authoritative procedures or principles.

carriage return: See **newline**.

case sensitive: Able to distinguish between uppercase characters and lowercase characters. Programming languages are case sensitive if they require all uppercase letters, all lowercase letters, or proper use of uppercase and lowercase. For example, Applesoft BASIC recognizes only uppercase. Instant Pascal, however, is not case sensitive; you can use any combination of uppercase and lowercase letters you like.

central processing unit (CPU): The “brain” of the computer; the microprocessor that performs the actual computations in machine language.

character device: Any device other than a **block device**. Character devices include terminals, modems, and network interfaces.

character I/O: The transfer of data one character at a time, rather than in blocks of characters. See also **block I/O**.

check boxes: A small box associated with an option in a dialog box. When you click the check box, you may change the option or affect related options.

checksum: The result of an arithmetic operation on a set of data; for example, the sum of bytes in a file. A checksum is used to help verify the integrity of data through stages of processing.

child process: A copy of a process, submitted for execution by another process. The original process is called the **parent process**, and the child is created by the system call `fork`.

choose: To pick a command by dragging through a menu. You often choose a command after you've selected something for the program to act on; for example, selecting a disk and choosing the Open command from the File menu.

click: (v.) To position the pointer on something, and then press and quickly release the mouse button. (n.) The act of clicking.

client: A computer that has access to services on a network. The computers that provide services are called **servers**. A user at a client may request file access, remote login, file transfer, printing, or other available services from servers. In X window system, a client is a program.

close box: The small white box on the left side of the title bar of an active window. Clicking it closes the window.

coaxial cable: A cable consisting of two concentric conductors: an inner wire and an outer, braided sleeve.

command interface: The convention for interacting with A/UX by entering a command line.

command line: The entire input string that you enter in response to the shell prompt to issue a command or to start a program. The command line includes the command itself and any **arguments** and **flag options**.

command mode: The operating state in which a program (such as a text editor) interprets the characters you type as commands, rather than as data to be entered into a file.

Commando: A command-building tool in A/UX 2.0 that displays a dialog box for UNIX and A/UX commands. This allows you to select the option flags you want without having to use the command line interface. Commandso also allows you to pipe commands.

CommandShell: An A/UX 2.0 application that displays a window for using the command line interface. You can manipulate CommandShell windows just as you do Macintosh windows.

comment: Information that is ignored by a program such as a compiler. A comment normally includes instructions, references, or notes for people inspecting a source file.

Common Object File Format (COFF):

The output file produced on A/UX systems by the assembler (`as`) and the link editor (`ld`). The term “common” refers to how this format is used on a number of processors and operating systems, including A/UX.

concurrent processing: The ability of an operating system to execute multiple programs simultaneously.

console: The main terminal (that is, keyboard and screen) of your system. The console must be connected to your system. The console receives log and error messages from the operating system that are not sent to any other terminal.

control character: A nonprinting character that orders an action to be performed. For example, the **interrupt character** (by default, entered by holding down CONTROL and pressing C) interrupts a program’s execution and returns you to the shell prompt.

cooked input: Data that has been processed by a terminal driver’s line discipline. Special characters such as the **erase** and **kill characters** cause the line discipline to convert the raw data accordingly.

cooked mode: A terminal driver’s method of operation that converts data sent from the keyboard or to the terminal screen. This conversion is performed by a line discipline to accommodate interactive use of the system. For example, an *erase* character sent from the keyboard causes the line discipline to delete the preceding character; the terminal driver then sends the converted data to the reading process. See also **raw mode**.

C shell: The standard BSD and A/UX command interpreter. See also **shell**.

current directory: The last directory into which you moved with the `cd` command; this directory is the starting reference point for all **relative pathnames** you enter. Also called the *working directory*.

cursor: A symbol on the screen that indicates your position on the command line or inside a file. The cursor is usually a small box or an underscore, and it usually blinks.

daemon: A noninteractive process that manages services. Network daemons, for example, automatically handle incoming network connection requests.

data bits: Data communications bits that encode transmitted characters or numbers.

DDN: See **Defense Data Network**.

decrement: In programming, to decrease the value of a variable used as a counter. See also **increment**.

Defense Data Network: A single, wide area, packet-switching network that integrates the ARPANET research network and the MILNET defense network.

demand memory paging: An A/UX facility that allows the kernel to use secondary storage (usually a hard disk) to store inactive portions of processes while main memory holds active portions.

demon: See **daemon**.

demount: See **unmount**.

dereference: In programming, to obtain a value referenced by a pointer.

device: A part of the computer, or a piece of external equipment, that can transfer information.

device driver: Kernel-level software that controls the exchange of information between a process and a device.

device file: A file that represents a device. For example, an A/UX process reading from or writing to the device file `/dev/rfloppy0` is actually reading from or writing to the first 3.5-inch disk drive on the Macintosh II. Also called *special file*.

device number: A number that contains both the major number and the minor number of a device. See **major number** and **minor number**.

device switch: A data structure composed of the addresses of routines that manage I/O for a device.

dialog: In reference to the Macintosh user interface, this is the same as **dialog box**.

dialog box: A box that contains a message requesting more information from you. Sometimes the message warns you that you're asking your computer to do something it can't do or that you're about to destroy some of your information. In these cases, the message is often accompanied by a beep.

directory: A file that contains a list of other files; similar to a folder in a Macintosh hierarchical file system.

directory hierarchy: The collection of all files on the currently mounted file systems. See also **hierarchy**.

Documentor's Workbench (DWB): A group of utilities used for formatting files. Files formatted by DWB utilities can be printed on a wide variety of output devices.

dot file: A file whose filename begins with a period. UNIX reads these files for specific information concerning login and configuration of the environment, the shell, etc.

double click: (n.) Two mouse clicks in quick succession, interpreted as a single command. The action of a double click is different from that of a single click: for example, clicking an icon selects the icon; double-clicking an icon opens it.

double-click: (v.) 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.

drag: To position the pointer on something, press and hold the mouse button, move the mouse, and release the mouse button. When you release the mouse button, you either confirm a selection or move an object to a new location.

DWB: See **Documentor's Workbench**.

effective user ID: One of two user IDs associated by the kernel with a process (see also **real user ID**). When necessary for execution, the effective user ID for a process can be changed by programs to temporarily allow different permissions. After completing the task that required the different permissions, the effective user ID is set back to its original permissions. See also **user ID**.

end-of-file (EOF): Under A/UX, the position of one byte past the last byte in a file; this is equal to the actual number of bytes in the file and is also known as the *logical end-of-file*. If a program calls a routine that uses the physical end-of-file convention, the logical end-of-file is used instead.

environment: A list of characteristics that identifies you to the system and influences and constrains your access to it. You can modify many of these characteristics. See environment variable.

environment variable: A characteristic controlling your use and access of the system that is available to the current shell and all of the child processes invoked from that shell. See also **shell variable**.

EOF: See **end-of-file**.

erase character: The keyboard character that, when pressed, erases the last character you typed. By default, this character is entered by pressing the DELETE key.

escape character: A character that causes a program to interpret the following character or characters in a special way. For the `nroff` and `troff` utilities, for example, the escape character is a backslash (\), a nonprinting character that allows you to insert a command in a line of text.

Ethernet: A standard network communications specification generally using a type of coaxial cable to connect computers in a local area network. The Ethernet specification was developed by Digital Equipment Corporation, Intel Corporation, and Xerox Corporation.

exec: A system call and a built-in shell command that loads a program file and execute it by overlaying the address space of the calling process.

export: (1) To pass the value of a **shell variable** to a **child process**. (2) To make local file systems available to remote users.

export: The built-in shell command for the Korn or Bourne shell that passes the values of shell variables to child processes.

field: A data item separated from other data by blanks, tabs, or other specific delimiters.

file: For UNIX operating systems, an array of bytes; no other structure is implied by UNIX systems, which even treat peripheral devices like files.

file descriptor: A number used to identify a file.

file handling system: The set of data structures, commands, and subroutines used to manipulate files and data stored on physical devices.

file mode: See **permissions**.

filename: On UNIX System V operating systems, the name of a file, consisting of up to 14 characters and specified without listing the directory under which the file is located. For example, `passwd` is the filename for the system password file. See also **pathname**.

filename expansion: A procedure performed by the shell that derives a list of files from a single, shorthand filename containing metacharacters. Also called *globbing*.

file system: A logical device (such as a disk partition) that contains the data structures that implement all or part of the **directory hierarchy**.

filter: A utility that transforms its input in some way and writes this transformed data to the standard output. Lines submitted as input to the `sort` command, for example, are reordered so that the lines in the output are arranged alphabetically or numerically.

Finder: The application that maintains the Macintosh desktop and starts up other programs at the request of the user. You use it to manage documents and applications, and to get information to and from disks. It's the desktop you see upon starting up your computer, unless you have specified a different startup application.

flag option: An argument included on the command line that instructs a program to alter its output or to change its mode of execution. A flag option is usually a hyphen followed by one or more characters. For example, the `-l` flag option to the `ls` command makes this utility print extra information, such as the date a file was last saved. Flag options are sometimes referred to as *keyletters*.

floating-point notation: A method of representing numbers inside the computer by which the decimal point (or more correctly, the binary point) is permitted to “float” to different positions within the number. Some of the bits within the number itself are used to keep track of the point’s position. This method is useful for quickly calculating complex mathematical operations.

folder: (1) For the BSD `mailx` program, a file that you create for saving similar mail messages. (2) A holder of documents and applications on the Macintosh desktop. Macintosh folders, like UNIX file system directories, allow you to organize information in a hierarchical fashion.

font: A collection of print characters unified by a distinctive look. Times Roman, for example, is the default font for `troff`.

foreground job: The process attached to the terminal. The shell waits until the foreground job has finished executing before the shell returns its prompt and gives you control again of the terminal. See also **background job**.

fork: (n.) One of the two parts of a Macintosh file; the data fork contains data accessed via the Macintosh File Manager, and the resource fork contains data used by the application, such as menus, fonts, and icons. (v.) To create a new process with the `fork` system call.

fork: A system call that creates a new process.

format: (1) To divide a disk into tracks and sectors where information can be stored. Blank disks must be formatted before you can save information on them. (2) To process a text file for output with a utility such as `nroff` or `troff`. See also **formatter**.

formatter: A utility that processes text for output to a device. The `nroff` and `troff` utilities, for example, are formatters that justify the margins, center the titles, number the pages, and perform other enhancements that improve the printed appearance of text files.

Fortran-77: A high-level programming language especially useful for mathematical and scientific applications.

frame: The time elapsed from the start bit to the last stop bit during serial communication.

full-duplex communication: A method of data transmission where two devices transmit data simultaneously.

full pathname: See **absolute pathname**.

function: A subroutine—that is, a preprogrammed calculation—that can be carried out on request from any point in a program.

gateway: A computer that connects two or more networks, especially those using different media or protocols. See also **bridge**.

GID: See **group ID**.

globbing: See **filename expansion**.

group ID (GID): A number that indicates a group to which you belong at login time. As a member of a group, you have access to certain files and directories shared by other members of your group. Each user login name has at least one group ID associated with it.

group permission: Permission for the designated group of users to use a file or a directory.

header file: A file whose contents will be included with the source file at compile time—it contains function declarations, macros, types, and defines used by the compiler. Also called *include file*.

here document: Input to a shell script command that is embedded inside the script itself.

Hierarchical File System (HFS): A method of organization in which disk files are grouped together within directories and subdirectories (folders within folders). HFS is used on hard disks and on 800K disks. In a hierarchical file system, a file is specified by its pathname, rather than by a single filename.

hierarchy: A directory and any files or subdirectories residing under it. See also **directory hierarchy**.

highlight: To make something visually distinct. For example, when you select a block of text using MacWrite, the selected text is highlighted—it appears as light letters on a dark background, rather than dark-on-light.

home directory: The directory named by your environment variable `$HOME`. The home directory is usually the first directory you enter upon login, as designated in the file `/etc/passwd`. You can tailor your environment by modifying various files in your home directory.

home directory folder: The folder that represents the user's home directory on the A/UX Finder.

host: A computer connected to a network.

icon: An image that graphically represents an object, a concept, or a message.

include file: See **header file**.

increment: In programming, to increase the value of a variable used as a counter. See **also decrement**.

inode: A data structure that defines a file by describing the disk layout of the file data, its permissions, and its access times.

input mode: See **insert mode**.

insert mode: The state whereby a program (such as a text editor) accepts the characters you type as data rather than as commands. Also called *input mode*.

interactive editor: A utility for entering and manipulating text while you view the text. TextEditor and `vi` are both interactive. See also **stream editor**.

interactive program: A program that allows you to enter additional commands and data during its execution instead of making you enter all of your commands and data as flag options and arguments on the command line. The `vi` and `mail` utilities are examples of interactive programs.

International Standards Organization

(ISO): A standards organization composed of representatives from the national standards bodies of 63 member countries. This organization has developed standards for pin assignments in data communication plugs, has promulgated the layered model of communications protocols, and has specified and approved protocols for many of the layers in the layered model.

internet: (1) A group of networks interconnected by bridges or gateways. (2) The Internet, used as a proper noun, usually refers to the TCP/IP-based Defense Data Network (DDN), descendent of the DARPA (Defense Advanced Research Projects Agency) Internet (also called the ARPANET). (3) When the proper noun is used as an adjective (for example, Internet domain) this refers to a networking standard used by the DDN.

internet address: An address for a computer on a network. The internet address consists of a network number and a host number that is unique for that network.

interprocess communication: A mechanism for transmitting information between processes. Interprocess communication mechanisms supported by A/UX include **semaphores, messages, shared memory, signals,** and **sockets.**

interrupt: An exception signaled to the processor by a device or by software to notify the processor of a change in condition; for example, an interrupt is signaled at the completion of an I/O request.

interrupt character: The keyboard character that, when pressed, interrupts execution of a program and returns you to the shell prompt. By default, CONTROL-C is the A/UX interrupt character (issued by holding down CONTROL while pressing C).

interrupt handler: A routine that services interrupts.

interrupt priority level: A number identifying the importance of the interrupt. It indicates which device is interrupting and which interrupt handler should be executed.

interrupt vector: A pointer to an interrupt handler.

i-number: The offset of a particular inode within the i-list.

I/O redirection: See **redirection.**

I/O request: A request for input from or output to a file or a device.

ISO: See **International Standards Organization.**

job: A process that can be stopped, restarted, and moved between foreground and background processing from the C shell.

job number: The identification number of a process executed in the background under the C shell. The job number appears next to the command name when you execute the `jobs` command.

Kermit: A remote terminal and file-transfer software program used for connecting **microcomputers** and **mainframe computers** across modems and serial lines.

kernel: A UNIX program that manages the system hardware. For example, the kernel manages files, communicates with peripherals, and handles other low-level resource management tasks.

keyletter: See **flag option.**

kill character: The keyboard character that, when pressed, erases the current command line from the shell. After you press the line kill character, the cursor moves to a new line, and you can enter a new command. CONTROL-U is the A/UX default kill character (issued by holding CONTROL down while pressing U).

Korn shell: A command interpreter that combines many of the best features found in the standard System V shell (the Bourne shell) and the standard BSD shell (the C shell). See also **shell**.

LAN: See **Local Area Network**.

library: A collection of related functions or declarations available to a program for linking at compile time.

line editor: A utility for entering and manipulating text. The commands to add or change text are entered from a command prompt, they only operate on the lines you specify, and you cannot always see the results of your changes right away. The `ed` and `ex` utilities are line editors. See also **screen editor**.

link: (1) To give an alternative name to a file. See also **unlink**. (2) In programming, to collect one or more routines into an executable program.

list: To display on a monitor, or print on a printer, the contents of memory or of a file.

local area network (LAN): A group of computers connected for the purpose of sharing resources. The computers on a LAN are typically joined by a single transmission cable, and are located within a small area such as a single building or section of a building.

local system: The computer from which a user originates a network command. See also **remote system**.

local system administration: Management of a single computer. This includes such functions as starting up and shutting down the system, adding and removing user accounts, and backing up and restoring data. See also **network administration**.

logical disk: A disk partition that is treated by the operating system as a separate disk. See also **partition**.

log in: To identify yourself to the system by entering the login name of your account and your account password.

login name: The name of a user's account. Used for identification purposes.

login prompt: The prompt (usually `login:` on UNIX systems) by which a system tells you that it is ready to accept your login name.

login shell: The shell that automatically runs after you successfully log in. See also **shell**.

long listing (ls -l): A listing of the files in a directory. This is called a long listing because it lists more information than a simple listing, including the permissions, the size of each file, owner, the number of links, and the date on which the file was last modified.

lpr system: A collection of programs and files that are used to manage UNIX printer operations. These include the print spooler and a series of maintenance commands.

Macintosh Operating System: The lowest-level software in the Macintosh. It does basic tasks such as I/O, memory management, and interrupt handling.

Macintosh User Interface: The standard conventions for interacting with Macintosh computers. The interface ensures users a consistent means of interacting with all Macintosh computers and the applications designed to run on them.

MacPartition: The name of the hard disk that contains a Macintosh partition with the A/UX Startup application.

macro: A collection of instructions or requests invoked by a single name.

mainframe computer: A central processing unit or computer that is larger and more powerful than a minicomputer or a personal computer (microcomputer). Frequently called *mainframe* for short.

main logic board: A large circuit board that holds RAM, ROM, the microprocessor, custom-integrated circuits, and other components that make up the computer.

main memory: The part of a computer's memory whose contents are directly accessible to the microprocessor. Programs and data are usually loaded into main memory, where the computer keeps information while you're working. Secondary memory stores the information when you are not using it. See also **secondary memory**.

major number: One of two numbers contained in the inode for a device. The major number identifies a particular device driver (terminal, disk, and so on). See also **minor number**.

makefile: A file containing a collection of operations used by the `make` utility to construct related files.

menu: A list of choices presented by a program, from which you can select an action. With Macintosh-style programs, menus appear when you use the mouse to point to and press on titles in the menu bar at the top of the screen. Dragging through the menu and releasing the mouse button while a command is highlighted chooses that command.

message list: An argument that allows you to specify a group of mail messages by number or name to various `mail` commands.

message name: The login name of a user who sent you a message. The message name can be used as an argument to many `mail` commands.

messages: A group of system calls that allow processes to communicate by sending formatted data streams to each other.

metacharacter: A character interpreted by a program as standing for other characters or as designating a special function. For example, the ampersand (&) metacharacter at the end of a command line causes the shell to run the command as a background job.

microcomputer: A computer, such as any of the Apple II or Macintosh computers, whose processor is a *microprocessor*.

minor number: One of two numbers contained in the inode for a device. The minor number provides a unit number for the device. See also **major number**.

mode: See **permissions**.

mount: To install a file system onto the directory hierarchy. See also **unmount**.

mouse: A small device you move around on a flat surface next to your computer. The mouse controls a pointer on the screen whose movements correspond to those of the mouse. You use the pointer to select operations, to move data, and to draw with in graphics programs.

mouse button: The button on the top of the mouse. In general, pressing the mouse button initiates some action on whatever is under the pointer, and releasing the button confirms the action.

multitasking: The ability of an operating system like A/UX to execute multiple processes simultaneously by sharing its central processor and peripherals among processes.

multi-user: A mode or ability of an operating system to support several people using the same computer simultaneously.

network: A collection of interconnected, individually controlled computers, along with the hardware and software used to connect them. A network allows users to share data and peripheral devices and to exchange electronic mail.

network administration: Management of the software and hardware that connects computers in a network. This includes such functions as assigning addresses to hosts, maintaining network data files across the network, and setting up internetwork routing. See also **local system administration**.

Network File System (NFS): A protocol suite developed and licensed by Sun Microsystems that allows different makes of computers running different operating systems to easily share files and disk storage.

newline: A character that indicates the end of a sequence of bytes. Conventionally, the UNIX operating system interprets the line feed character, the carriage return character, and both together, as a newline character. On the terminal, this character starts a new line by moving the cursor to the first position of the next line. From A/UX, the newline can be entered by pressing RETURN or by holding down CONTROL while pressing J.

NFS: See **Network File System**.

object file: The form of a routine produced by a language translator such as a compiler or assembler. An object file can be linked to other object files to build a program. See also **source file**.

Open System Interconnection (OSI): A logical structure for network operations standardized within the ISO. OSI provides a network design framework to allow equipment from different vendors to be able to communicate.

operating system: Low-level software that controls a computer by performing such basic tasks as I/O, memory management, and interrupt handling.

OSI: See **Open System Interconnection**.

packet: A unit of data and its control information transmitted across a network. A single message may be carried by one or more packets.

page: In A/UX, a 4-kilobyte portion of a program that is defined by the kernel for transfer between main memory and disk storage. See **paging**.

page fault: An interrupt that causes the page of data or code needed by a program to be read from disk storage into main memory. See also **page** and **paging**.

page offset: The left margin of a printed page. The default page offset for both `nroff` and `troff` is 1 inch.

page swapping: See **paging**.

paging: A method by which some operating systems (including A/UX) use secondary memory to store inactive portions of processes while active portions are held in main memory. When a process is executing, a portion of its code and data resides in main memory. Other portions, divided into pages, are automatically read in from disk storage as needed. When the system runs low on free main memory, the kernel makes more available by writing unneeded pages back out to disk. The kernel shuffles pages in and out of main memory and disk storage until the process has executed. Also called *page swapping*.

parent process: A process that has forked a child process. See also **child process**.

parity bit: A data communications bit used to verify that data bits received by one device match the data bits transmitted from another device.

parity error: The condition resulting when the **parity bit** received by a device isn't what was expected.

partition: A set of contiguous **blocks** on a **physical disk**.

pathname: A filename prefixed by its directory location. A pathname may contain a list of directories, separated from the filename and from each other by slashes. Each item in a pathname is located in the directory named to its left. For example, `/etc/passwd` is a pathname for the system password file, `passwd`, located in the `etc` directory beneath root (`/`). See also **absolute pathname** and **relative pathname**.

peripheral device: A piece of hardware, such as a disk drive, modem, printer, or terminal, that is connected to a computer and used for reading or writing data.

permissions: Authorization to read, write, or execute a file or directory. Under UNIX operating systems, each capability is assigned on an individual, group, and system-wide basis. Also called the *file mode*.

physical disk: The entire set of disk **blocks** that exist on the actual disk drive hardware.

PID: See **process ID**.

pipe: (n.) (1) A command line that connects two or more commands in a series so that the output of one command becomes the input to the next. (2) An intermediate file in which data is passed from one process to another. (v.) To connect two or more commands in a series so that the output of one command becomes the input to the next.

pipeline: See **pipe**.

pointer: (1) A small shape on the screen that follows the movement of the mouse or shows where your next action will take place. The pointer can be an arrow, an I-beam, a crossbar, or a wristwatch. (2) An item of information consisting of the memory address of some other item. For example, Applesoft BASIC maintains internal pointers to the most recently stored variable, the most recently typed program line, and the most recently read data item, among other things. The 6502 uses one of its internal registers as a pointer to the top of the stack.

port: (n.) (1) A socket on the back panel of a computer where you plug in a cable for connection to a network or a peripheral device. (2) A connection between the central processor unit and main memory or a device (such as a terminal) for transferring data. (v.) To move software from one computer environment to another.

positional parameter: A variable set on the command line of a shell script and operating as an argument to the script. This variable is called by number, usually 0 through 9, within the shell script. The number refers to the position of the parameter on the command line.

postfix notation: In programming languages, a type of notation in which the variable is followed by the operator (in C, for example, either ++ to increment the variable or -- to decrement the variable). Postfix notation changes the value of the variable after the value has been used. See also **prefix notation**.

postfix operators: See **postfix notation**.

postprocessor: A utility that accepts as its input the output from another utility. For example, `psdit` is a postprocessor that accepts `troff` output and transforms it into a form suitable for printing on Apple LaserWriters and other PostScript-supported printers.

prefix notation: In programming languages, a type of notation in which the variable is preceded by the operator (in C, for example, either ++ to increment the variable or -- to decrement the variable). Prefix notation changes the value of the variable before using its value. See also **postfix notation**.

preprocessor: (1) A utility used to transform data that is then written to another utility. For example, `tbl` is a preprocessor that formats tables from properly coded text files; the output of this processor is usually piped to a more general text formatter like `troff`. (2) A function of certain compilers that provides file inclusion, comment deletion, and macro substitution.

print spooler: A utility that writes a representation of a document's printed image to disk or to memory, schedules it to print in a queue of other jobs, and then prints it.

process: An instance of a program in execution. Usually one copy of a program is stored on a UNIX system like A/UX, but multiple instances of the program—each having its own address space—can be executed simultaneously as separate processes.

process ID (PID): A unique number assigned to each process being executed on the system. The PID is listed with its associated command when you enter the `ps` command. The PID is sometimes called the *process number*.

process scheduling: Multitasking process management performed by the kernel. The central processor unit (CPU) can only execute processes one at a time. By equitably scheduling their execution, the kernel lets multiple processes share the CPU efficiently.

process status: The names, states, and process numbers of commands submitted for execution; the `ps` command displays this information.

program: A file containing coded instructions to the computer. A compiled program is a file created first in source code, then transformed by the compiler into object code. A **shell script** is a program that does not need to be compiled because it is interpreted by the shell.

prompt: A character or string of characters displayed on the terminal when a program is waiting for input from you. The Bourne and Korn shells, for example, are set by default to display the dollar sign (\$) as their prompt; the C shell is set by default to display the percentage sign (%) as its prompt.

protocol: A set of defined communications rules.

pull-down menu: A menu that is hidden until you move the pointer to its title and press the mouse button.

QuickDraw: The part of the Macintosh User Interface Toolbox that performs all graphic operations on the Macintosh screen.

quoting mechanism: Special syntax in the command line that tells the shell to interpret metacharacters literally, or to control the type of substitution allowed in the command.

radio button: A common type of control in dialog boxes. Radio buttons are small circles organized into families—clicking any button on turns off all of the others in the family, like the buttons on a car radio.

raw I/O: Data transferred directly between a device and user address space. Raw I/O bypasses kernel buffers, resulting in faster data transfer.

raw mode: A method of device driver operation that passes data between a terminal and a process without performing any conversions on the data. See also **cooked mode**.

read permission: permission to read a file.

real user ID: One of two user IDs associated by the kernel with a process (see also **effective user ID**). The real user ID identifies the user who is responsible for the process.

record: A string of data whose structure and interpretation is determined by an application program.

redirection: A feature of the shell that allows you to pass the output of a command to a file or device instead of to the terminal screen, and to supply a command with input from a file or device instead of from the keyboard.

regular expression: A notation that uses a special set of metacharacters for specifying a text pattern. For example, the `vi` and `ex` editors use the `^` metacharacter at the beginning of a regular expression to stand for the beginning of a line; therefore the regular expression `^A` stands for the set of all lines that begin with an uppercase A.

relative pathname: The name of a file, given by listing the directories leading to that file in relation to the current working directory. Directories common to both the working directory and the file are not included in the relative pathname. See also **absolute pathname**.

remote system: On a network, any computer other than the **local system**.

resource: (1) Synonymous with **device driver**. A *printing resource* is a system file that lets you print on a corresponding printer attached to the computer. (2) Data or code stored in a resource file and managed by the Resource Manager.

resource fork: The part of a file that contains data used by an application, such as menus, fonts, and icons. An executable file's code is also stored in the resource fork. Sometimes called a *resource file*.

restricted shell (rsh): A program that confines a user to a subset of the A/UX system commands.

ROM: An acronym for *read-only memory*, which is memory whose contents can be read, but not changed, and is used for storing permanent information. For example, the ROM in the Macintosh II contains the routines for the Macintosh user interface.

root: (1) The top directory in a UNIX directory hierarchy. Written as a slash (/), it is the first element in every absolute pathname. (2) The user with unlimited system privileges. Also called the *superuser*.

root directory: See **root (1)**.

root file system: The file system that is always present on a UNIX system; the root file system can never be unmounted.

root user: See **root (2)**.

routine: A part of a program that accomplishes some task subordinate to the overall task of the program.

SCC: See **Serial Communications Controller**.

SCCS: See **Source Code Control System**.

screen editor: A utility for entering and manipulating text. A screen editor displays the contents of a file by a full screen at a time. The commands to add or change text are entered anywhere on the screen, and the screen changes immediately to reflect the changes. The `vi` utility, for example, is a screen editor. See also **line editor**.

script: A file containing commands. See also **shell script**.

scroll bar: A rectangular bar that may be along the right or bottom of a window. Clicking or dragging in the scroll bar causes your view of the document to change.

SCSI: See **Small Computer System Interface**.

secondary memory: Data and program storage for a computer. Secondary memory stores its information on physical media such as disk or tape. Secondary memory offers slower access time to data than main memory, but provides more capacity. See also **main memory**.

secondary shell prompt: A character displayed by the shell when the shell expects further input from you. For the Bourne and Korn shells, this character is set by default to be the greater-than sign (>), while for the C shell it is set as the question mark (?). The prompt appears, for example, when you use a multiline construct at the initial shell prompt. The secondary shell prompt reappears on each line until the final delimiter or the *interrupt* character is entered.

select: (v.) To designate where the next action will take place. To select using a mouse, you click an icon or drag across information. In some applications, you can select items in menus by typing a letter or number at a prompt, by using a combination keypress, or by using arrow keys. (n.) A command to a device such as a printer to place it into a condition to receive data.

semaphores: A group of system calls that allow processes to synchronize execution.

serial communication: Data communicated over a single-path communication line, one bit at a time.

Serial Communications Controller

(SCC): The chip on the Macintosh II main logic board that handles serial I/O through the modem and printer ports.

serial lines: Data transmission lines over which information is transmitted sequentially, one bit at a time.

server: A computer that provides a particular service across a network. The service may be file access, login access, file transfer, printing, and so on. Computers from which users initiate the service are called **clients**.

setuid: A subroutine for setting the **real** and **effective user ID**.

shared memory: A mechanism that allows processes to share parts of their virtual address space with each other.

shell: A utility that accepts your commands, interprets them, and passes them on to the appropriate programs for execution. A/UX provides three shells: Bourne, C, and Korn. Each can be used as an interpreted programming language. Through **shell variables** and **environment variables**, you can tailor the environment of your shell for your own needs.

shell command: See **built-in shell command**.

shell layer: An instance of a shell, invoked by the `sh1` program. Through this program, you can simultaneously run up to seven shell layers.

shell program: A series of commands to be executed by the shell. A shell program may be entered at the shell prompt or stored in a file. Shell programs that are stored in files are referred to as **shell scripts**. Shell programs are sometimes called *user-defined commands*.

shell prompt: A character or string of characters displayed on the terminal to show that the shell is waiting for input from the user. The Bourne and Korn shells, for example, are set by default to display the dollar sign (\$) as their prompt; the C shell is set by default to display the percentage sign (%) as its prompt.

shell script: A shell program contained in a text file. Entering the name of the shell script from the command line executes the commands listed in the shell script.

shell variable: A variable local to the shell. A shell variable is available only to the current invocation of the shell, not to any of its subshells or spawned processes. See also **environment variable**.

Shift-click: A technique that allows you to extend or shorten a selection by positioning the pointer at the end of what you want to select and holding down the Shift key while clicking the mouse button.

shutdown permission: Access granted to the root user to run the shutdown program. The shutdown program brings the system to an almost inactive state before you turn off its power.

signal: A software interrupt that causes a program to be temporarily diverted from its normal execution sequence. A/UX uses both System V and BSD signals. Signals can be issued, handled, and otherwise manipulated via a set of **system calls**.

signal catcher: A function that detects the interrupt sent from a signal system call. See also **signal**.

signal handler: A function that performs the required processing upon receipt of a signal. See also **signal**.

size box: A box in the lower-right corner of some active windows. Dragging the size box resizes the window.

Small Computer System Interface

(SCSI): A specification of mechanical, electrical, and functional standards for connecting small computers with intelligent peripherals such as hard disks, printers, and optical disks.

socket: On a network, a communication mechanism originally implemented on the BSD version of the UNIX operating system. Sockets are used as endpoints for sending and receiving data between computers.

Source Code Control System (SCCS):

A collection of commands used to control changes to text files, such as source code and documentation. SCCS protects files by controlling access and update privileges, and by preventing more than one user at a time from updating a file. SCCS also maintains an audit trail of revisions.

source file: A text file containing coded instructions to the computer. A source file generally cannot be executed by the computer; instead, the source file must be compiled and linked to produce an executable **program**.

spawn: To create and execute a new process with the **fork** and **exec** system calls.

special file: See **device file**.

spooler: See **print spooler**.

Stand-Alone Shell: The `sash` application that launches A/UX. You can run a limited number of system administration commands from the Stand-Alone Shell.

standard error output: The data stream used for error messages returned by a program. By default, the shell directs error output to your terminal screen.

standard input: The data stream used for input to a command. By default, the shell accepts as input the characters you type from your keyboard. The less-than sign (<) directs the shell to accept input from a file or device.

standard output: The data stream used for output from a command. By default, the shell directs this to the terminal screen. The greater-than sign (>) directs the shell to write the output to a file or device.

start bit: A serial communications bit that signals that the next bits transmitted are data bits.

stop bit: A serial communications bit that signals the end of data bits.

stream editor: A utility for manipulating text. Rather than allowing you to move back and forth within a file interactively, a stream editor processes the text in a single pass. The `sed` utility, for example, is a stream editor. See also **interactive editor**.

Streams: A collection of tools that assist programmers to modularize data transfer between device drivers and processes.

string option: A setting specified by a set of characters.

subdirectory: A directory that is subordinate to another directory.

subshell: A new shell that is created from an existing shell. The subshell, or “child” shell, inherits the environment of its parent.

substitute user (su): The substitute user command (su) allows you to work in an account other than the one you are currently logged in to.

superblock: The block following the boot block on every file system. The superblock contains the main information about the file system, such as its name, its size, and lists of the free blocks and free i-nodes.

superuser: The user with unlimited system privileges. Also called *root*.

suspend character: From the shell, a character (by default, CONTROL-Z under A/UX) that stops the foreground job and returns you to the shell. Entering the command `fg` brings the suspended job back to the foreground, where it resumes execution.

SVID: See **System V Interface Definition**.

swap space: A disk partition used for temporarily storing unneeded pages of code and data. See also **page** and **paging**.

synchronous communication: A method of data transmission that uses a clocking signal on both the sending and the receiving device to ensure an integral number of time intervals between characters. See also **asynchronous communication**.

system call: A kernel-level procedure that can be invoked by any application. System calls are documented in Section 2 of *A/UX Programmer's Reference*.

System V: The AT&T standard UNIX operating system. System V Release 2 forms the foundation of the A/UX system.

System V Interface Definition (SVID): AT&T's formal specification for compatibility with the UNIX operating system. A/UX adheres fully to the SVID.

System Folder: The Macintosh folder containing the System file and related utilities.

system mailbox: A file in `/usr/mail` for holding your incoming electronic mail messages until you read them, at which time they are appended by default to the file `mbox` in your **home directory** and deleted from `/usr/mail`.

TCP/IP: See **Transmission Control Protocol/Internet Protocol**.

terminal: A device through which you interact with the computer; namely, the keyboard, mouse, or other input device and the monitor. See also **console**.

terminal emulation: An imitation of a terminal type.

text box: The place or places in any dialog box where you can type information.

text file: A file containing information expressed in text form and whose contents are interpreted as characters using the American Standard Code for Information Interchange (ASCII) format. See also **binary file**.

text only file: See **text file**.

32-bit clean: Macintosh applications whose memory addressing is completely compatible with A/UX 2.0. Software that is not 32-bit clean is referred to as 24-bit addressed. A/UX 2.0 allows you to select a 24-bit addressed session type if you need to use older Macintosh applications that are not 32-bit clean.

tilde escape: The tilde character (~), used as an escape character to signal that the next input string is a command.

tile: To arrange a group of windows so that their edges are touching one another (like the tiles on a tiled floor), rather than overlapping one another.

title bar: The horizontal bar at the top of a window that shows the name of the window's contents. You can move the window by dragging the title bar.

toggle option: See **toggle variable**.

toggle variable: A setting for the shell environment that may be turned ON or OFF with the `set` or `unset` command. For example, the `set noclobber` command entered from the C shell turns on a toggle variable that helps ensure existing files are not accidentally overwritten.

token: A sequence of characters delimited so as to be identified by a compiler.

Transmission Control Protocol/Internet Protocol

(TCP/IP): A suite of networking protocols developed initially for the U.S. Department of Defense.

tree structure: The layout of a UNIX directory hierarchy. Organized like an inverted tree, the directory hierarchy begins with the root directory at the top. Branching downward from the root are the rest of the directories and files in the system.

tty: A terminal; `TTY` is abbreviated from *teletypewriter*, which was the first terminal device used on the UNIX operating system.

UFS: UNIX file system, a synonym for 4.2 or BSD file system..

uid: See **user ID**.

umount: A system-administration command that removes a local file system.

24-bit addressed: See **32-bit clean**.

UNIX operating system: A general-purpose time-sharing system and related set of utilities, originally developed at AT&T Bell Laboratories. A/UX is an enhanced version of the UNIX operating system for the Macintosh SE/30 and Macintosh II family of computers.

unlink: To remove a directory entry for a file. See also **link**.

unmount: To remove a file system from the directory hierarchy. See also **mount**.

user-defined command: See **shell program**.

user ID: A number that identifies a user at the time of login. Often called `uid`.

user interface: The rules and conventions by which a computer system communicates with the person operating it.

user name: See **login name**.

user permission: Permission for the owner of the file to use it. If a file has only user permission, no other users may read it, write to it, or run it.

utility: A software tool used for building or maintaining systems or applications. UNIX provides hundreds of utilities, including compilers, editors, and text formatters.

volume: A piece of storage medium formatted to contain files. A volume can be an entire disk or only part of a disk.

wide area network (WAN): A system of interconnected local area networks that spans a wide geographical area.

window: (1) The area that displays information on a desktop; you view a document through a window. You can open or close a window, move it around on the desktop, and sometimes change its size, scroll through it, and edit its contents. (2) The portion of a collection of information (such as a document, picture, or worksheet) that is visible in a viewport on the display screen. Each window is internally represented in a window record.

word: (1) The computer's native unit of data. The Macintosh II uses a 32-bit word. (2) For the shell and other programs, a string of nonblank characters bounded by the space character, the tab character, or the beginning or the end of the input line.

working directory: See **current directory**.

world permission: Permission for all the users of a system to use a file.

write permission: Permission to write to a file.

Yellow Pages: A network database facility for sharing a common database of user information across a local area network.

zoom box: A small box with a smaller box enclosed in it found on the right side of the **title bar** of some windows. Clicking the zoom box expands the window to its maximum size; clicking it again returns the window to its original size.

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