ALTOS

XENIX/UNIX

Using the AOM Menu System

XENIX/UNIX
USING THE AOM
MENU SYSTEM

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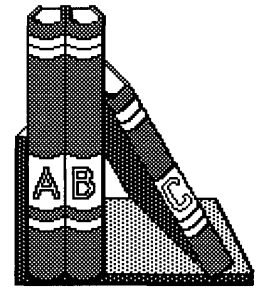


HOW TO USE THIS MANUAL

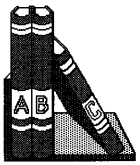
This manual explains how to use the Altos Office Manager (AOM) Menu System, an easy-to-use solution for your office needs. AOM provides simple commands for accessing system and application functions. This manual explains how to use AOM for the XENIX RunTime System and for UNIX System V.

WHICH PARTS TO READ

The manual is divided into two parts. Part I is for everyone; Part II is for the system administrator. Depending on how you want to use the AOM Menu System, you should refer to different parts of this manual.

Everyone should read the following chapters:

- Chapter 1, "Using the AOM Menu System," for explanations of how to log in and log out, and how to use the menus.
- Chapter 2, "Using Your Files and Directories," for explanations of how to back up and restore files, and how to manage your directories.
- Chapter 3, "Using the System," to learn about special AOM commands for maintaining backup copies of data files, sending messages, changing passwords, and using other system utilities.
- Appendix A, "Using the Ed and Vi Editors" for an explanation of the vi and ed editors.



If you are the system administrator read the chapters in Part II of this manual. They explain the following:

- Chapter 4, "The System Administrator", for an explanation of system administrator responsibilities, how to become a system administrator, and how to set up a password.
- Chapter 5, "Managing the System" for system management procedures, such as displaying processes and changing file permissions.
- Chapter 6, "Using the Menu Manager," for instructions on how to locate the AOM menus, install a new application, and change a menu.

You will find information about file transfer programs, modems, the Business Shell, setting up multiple AOM Menu Systems, and troubleshooting in the appendices at the end of this manual.

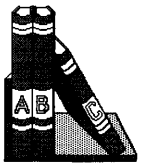
For information about any applications that have been installed with AOM on your system, refer to the appropriate application manual.

MANUAL CONVENTIONS

The following keys and symbols are used in this manual.

Symbols Used

Symbols	Description
boldface type	What you type or select
UPPERCASE	Used for menu names
nn	Number



Symbols	Description
[ ]	Used to indicate a specific system (XENIX or UNIX)

Throughout this manual, pictures at the tops of pages help you locate the information you want. There is a different picture associated with each chapter.

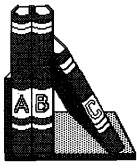
When information describes the XENIX or UNIX operating system, the term "operating system" or just "system" is used. If the description applies to only one system, the specific system will be stated.

You can use the AOM Menu System with a variety of terminals, each of which has a different keyboard. This manual uses notation to represent the keys you press when you use the Altos III; if your terminal doesn't have one of these keys, the table below lists alternate keys.

Alternate Keys

Key	Definition	Equivalent
Retn <Retn>	Carriage return	RETURN RETN
HELP	Display help text	?
HOME	Move to upper-left	CTRL-t
Break Del	Stop executing program	BREAK/DEL Rubout
Esc	Cancel a command	ESCAPE

Throughout most of the AOM Menu System, pressing the Esc key returns you to the menus without making any



changes. Typing a q returns you to the menus after the changes have been made (executed). Typing any key, or Retn, returns you to the menus after the changes you made have been executed and any messages are displayed.

Control Character Sequences

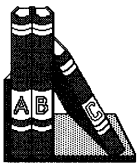
Control character sequences provide the terminal functions described in the chart below. To form a control sequence, press and hold down the Control key (represented in this manual as CTRL) while pressing the designated alpha key (lower-case letter).

Control Character	Function
CTRL-h	Backspaces and erases
CTRL-s	Stops scrolling
CTRL-q	Resumes scrolling
CTRL-x	Erases a line

RELATED MANUALS

If you have questions that this manual doesn't cover, refer to one of the following Altos manuals:

- The Owner's Guide, Setting Up Guide, or Operator's Guide for your computer shows how to connect your computer and run preliminary tests.
- The Installing XENIX manual for each system describes how to install the XENIX RunTime operating system.



- The Commands Directory for XENIX and UNIX alphabetically describes the commands and miscellaneous files available in the XENIX RunTime System.

- The individual application manuals describe information about that application.

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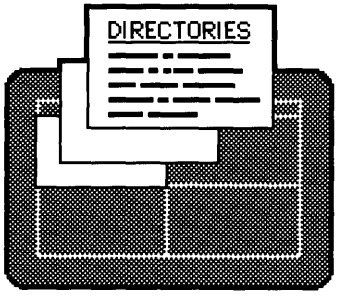
PART I — INFORMATION FOR EVERYONE

There are two main parts to this manual. Part I includes the following:

- Definition of the AOM (Altos Office Manager) Menu System
- Explanation of how to log in and log out
- Description of how to use the AOM Menu System
- Description of the AOM commands that enable you to manage your files and directories
- Description of commands to use certain system utilities
- Explanation of how to move between AOM and your operating system, and between AOM and BSH (if installed)

NOTE

If you are a system administrator and need to do such things as set up user accounts, configure ports, install an application program, or reorganize the AOM menus, turn to Part II first.



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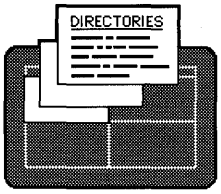


WHAT IS THE AOM MENU SYSTEM?

The Altos Office Manager Menu System, which will be referred to as AOM, provides a user-friendly interface to applications (such as Uniplex and File-it!) and specific system utilities (such as creating directories, backing up files, and listing files). AOM also provides simple procedures for installing application software and managing the system. This chapter explains how to get in to AOM and how to use it.

If you want to know which applications are installed, look at the Menu Manager page (see Chapter 6, "Using the Menu Manager" for how to read this page) or ask your system administrator.

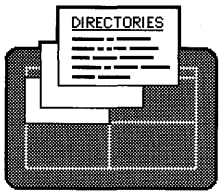
HOW TO START AOM

The way you get in to AOM depends on how your system is set up. After you log in:

- AOM may automatically be started.
- You may need to type the command **aom** at the system prompt.

This section explains how to log in to your system. The following sections explain what will occur after you log in, depending on how your system is set up.

Because many people can use your operating system at the same time, your system must be able to differentiate between you and other users. Before the system will process your requests, you must identify yourself by logging in.



A typical login sequence might look like Figure 1-1.

```
Altosnnn login:  wendy <Retn>
Password:

Welcome to XENIX
$
```

Figure 1-1. Typical Login

You may log in to the system by typing a user name (a unique name that has been assigned only to you). Or, you may log in by typing a project name (a name that has been assigned to you and several others).

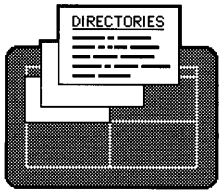
Usually, your system administrator assigns a user name and sets up a user account for you. Ask the system administrator for your user name; often it's your first name.

The "nnn" after the word Altos represents the system number.

NOTE

You might already have a system prompt ($), if so, just type:

```
$ login wendy <Retn>
```



NOTE

Be sure to type your user name exactly as it has been assigned to you, because your system differentiates between upper-case and lower-case letters.

Logging in Directly to AOM

If your system is set up to automatically enter AOM, after you log in you will see a screen similar to the one shown in Figure 1-2.

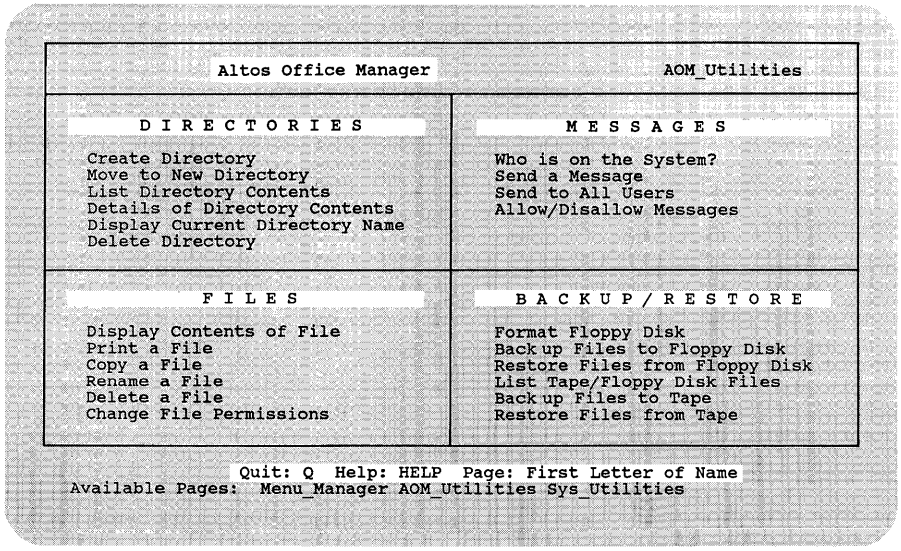


Figure 1-2. Initial AOM Menu System

You can now begin to use AOM. The section "How to Use AOM" later in this chapter explains the menu screen that you see and how to select commands and other menus. The following chapters explain how to use the commands in the AOM menus.

Entering AOM from the Operating System

If your system is set so the system prompt is displayed after you log in, then, at the system prompt type the command **aom**, then press **Retn**. You will see a screen similar to the one shown in Figure 1-2. You can now begin to use AOM.

HOW TO USE AOM

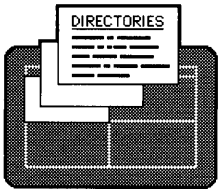
This section explains how to use the AOM menu screens. It defines the parts of the screen, how to select and cancel a command, how to choose another menu or page, and how to move the cursor around the page.

When you enter AOM, you will see four squares containing menus for the applications and utilities that are installed on your system. You will also see three lines of information about the menus.

The screen shown in Figure 1-3, contains the following parts:

- Menus
- Page Name
- Key Line
- Available Pages Line

The sections on the next pages explain these parts.



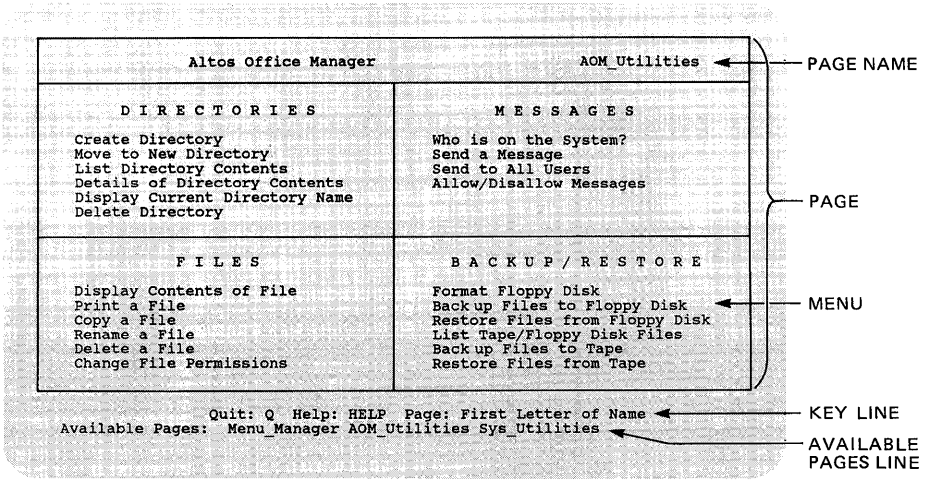
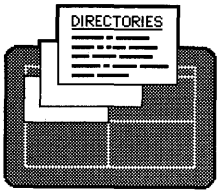


Figure 1-3. Parts of the AOM Screen

Menus

Each menu is a list of commands for performing utility and application functions.

For example, one of the menus in Figure 1-3 is called DIRECTORIES. This name enables you to access commands for managing directories, such as moving to a new directory and listing the contents of a directory.



Page Name

The AOM menus are organized on pages; each page has a name. For example, the page that contains the four menus DIRECTORIES, FILES, MESSAGES, and BACKUP/ RESTORE is called the AOM Utilities page. The name of the page is in the upper-right corner of the screen. Figure 1-4 shows the Utilities page.

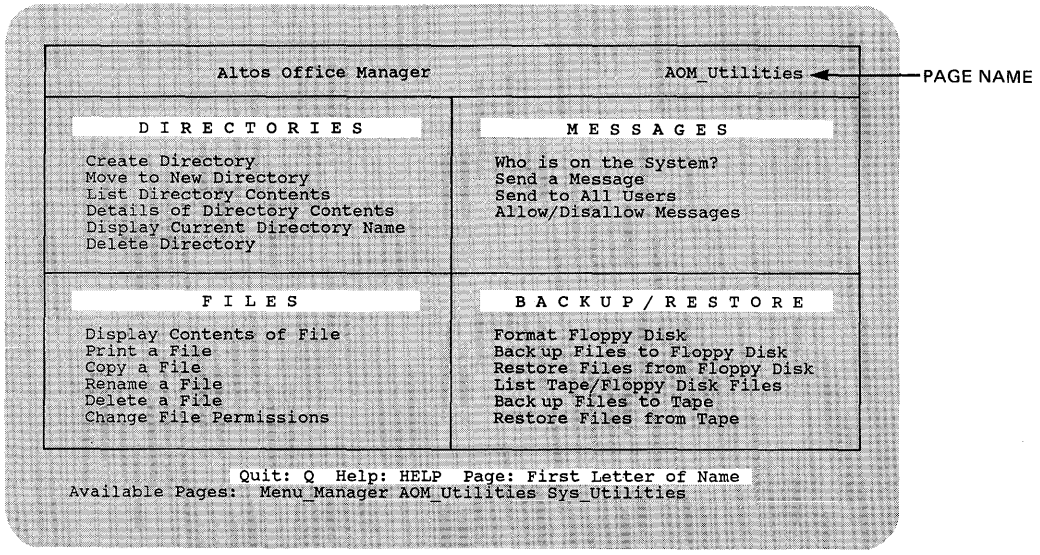


Figure 1-4. AOM Utilities Page

AOM includes at least three pages:

- AOM Utilities page
- Sys Utilities page
- Menu Manager

You will see these names at the bottom of your screen on the Available Pages Line (see explanation below). The names may be different and there may be more pages, depending on what your system administrator has set up for you.

To learn how to access a page and the commands on these pages, see "Introducing Menus and Pages" later in this chapter.

Key Line

The first line of words at the bottom of the screen is called the Key Line. These words tell you which keys to press to use AOM. Figure 1-5 shows the Key Line. This line changes to correspond to your terminal, so don't worry if your Key Line looks a little different from the one in this figure.

Available Pages Line

The line below the Key Line is the Available Pages Line. It contains the names of the available pages and looks similar to the one shown in Figure 1-5.

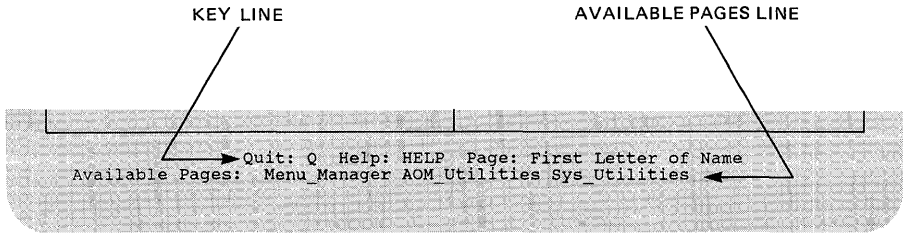


Figure 1-5. Key Line and Available Pages Line

Introducing Menus and Pages

AOM can contain from one to eight pages, depending on what the system administrator has set up. The names of three default pages are explained in this section. They are:

- AOM Utilities page
- Sys Utilities page
- Menu Manager page

The menus and commands contained on these pages are briefly described below. To learn how to access a page, see "Selecting a Page" in this chapter.

The AOM Utilities page, shown in Figure 1-5, contains the following utilities menus and commands:

- The DIRECTORIES menu contains commands for managing your directories, such as creating a directory and listing the files in a directory. See Chapter 2, "Using Your Files and Directories," for more details about these commands.

- The FILES menu contains commands for using your files, such as looking at the contents of your files, printing a file, and copying a file. See Chapter 2, "Using Your Files and Directories," for more details about these commands.

- The BACKUP/RESTORE menu contains the commands for maintaining your files and directories, such as formatting a floppy disk, and backing up and restoring files to floppy disk or tape. See Chapter 3, "Using the System," for more details about these commands.

- The MESSAGES menu contains the commands for checking to see who is logged in, sending a message to one user, sending a message to all users, and clearing a message from your screen. See Chapter 3, "Using the System," for details about these commands.

The Sys Utilities page contains system utility commands. It includes two menus, SYSTEM STATS and UTILITIES. If you are a system administrator, this page also includes the menus, SYSTEM ADMIN I and SYSTEM ADMIN II, which contain commands for changing system status. Figure 1-6 shows the Sys Utilities page.

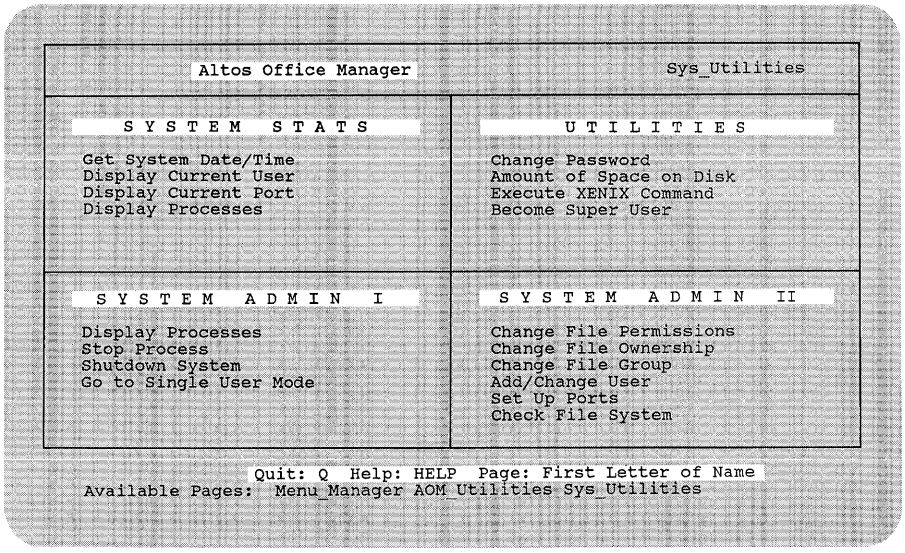
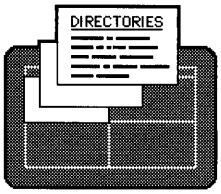


Figure 1-6. Sys Utilities Page

- SYSTEM STATS menu contains the commands for displaying the system date and time, the current user and port, and system processes. See Chapter 3, "Using the System," for more details about these commands.

- UTILITIES menu contains the commands for changing your password, checking the amount of space on the disk, using system commands, and becoming the system administrator. See Chapter 3, "Using the System," for more details about these commands.

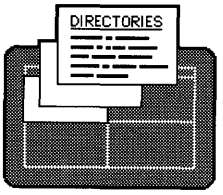


- SYSTEM ADMIN I menu contains the commands for managing system processes. See Chapter 5, "Managing the System," for more details about these commands.

- SYSTEM ADMIN II menu contains the commands for managing file permissions and ownerships, and setting up the system. See Chapter 5, "Managing the System" for more details about these commands.

There is another page that looks similar to these pages. It is called the Menu Manager page. The Menu Manager page shows you all the menus available and the page on which each menu is located. Figure 1-7 shows the Menu Manager page. This page will look different for the system administrator (see Chapter 6, "Using the Menu Manager").

The system administrator can also use the commands on the Menu Manager page to change the location of a menu on a page, change permissions of a menu, install a new menu (such as an application), and rename a page. See Chapter 6, "Using the Menu Manager" for more details about this page.




```
1. B_Page          2. C_Page          3. D_Page          4. E_Page
5. F_Page          6. G_Page          7. AOM_Utilities   8. Sys_Utilities

                                      1.
                                      2.
                                      3.
                                      4.
                                      5.
                                      6.
                                      7. Messages
                                      8. Utilities

1.
2.
3.
4.
5.
6.
7. Files
8.                                    7. Backup/Restore
                                      8.

Quit
To leave the Menu Manager, press RETN.
```

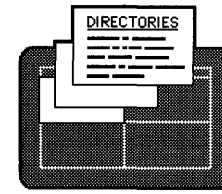
Figure 1-7. Menu Manager

Moving the Cursor

The highlighted area surrounding a command is called the cursor. You can move the cursor to any other menu or command on the screen by pressing the arrow keys. For example, try the following steps to learn how to move the cursor around the AOM Utilities page:

1. Press the **right arrow** key.

   The cursor moves from the Create Directory command in the DIRECTORIES menu to the Who is on the System? command in the MESSAGES menu.



2. Press the **down arrow** key several times to move the cursor to the Format Floppy Disk command in the BACKUP/RESTORE menu.

3. Press the **left arrow** to move to the Display Contents of File command in the FILES menu.

4. Press the **down arrow** until the Change File Permissions command is highlighted. Press the **down arrow** once more.

   The cursor wraps around the top of the screen to highlight the Create Directory command in the DIRECTORIES menu.

5. Press the **up arrow.**

   The cursor wraps around to the Change File Permissions command in the FILES menu. You can wrap the cursor around either from top to bottom (with the up arrow) or bottom to top (with the down arrow) as shown in Figure 1-8.

6. Press the **HOME key** to quickly move the cursor to the topmost command in the upper-left menu.

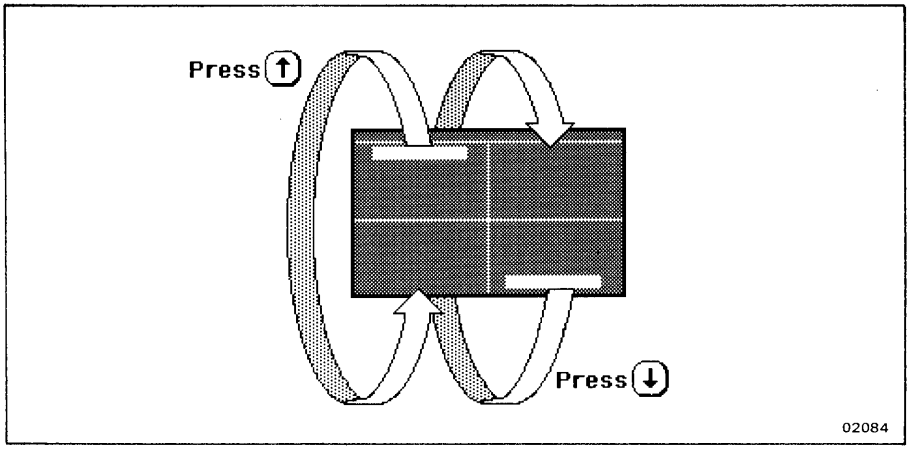


Figure 1-8. Cursor Wraparound

The next three sections explain how to select a page using page names; these sections also explain how to use numbers to select a menu or a command.

Selecting a Page

To select a page that contains the command you want to use, type the first letter of the page name. The page you selected will be displayed on your screen.

For example, type **s**. The Sys Utilities page will be displayed on your screen. This is the name of this page when it is first installed. Your system administrator may have changed the name.

NOTE

If you do not know what menus are on a page, you can look at the Menu Manager. For a description of the Menu Manager, refer to Chapter 7, "Using the Menu Manager."

Selecting a Menu

To select a menu on a page, type the number of the menu. The menus are numbered from 1 to 4, as shown in Figure 1-9.

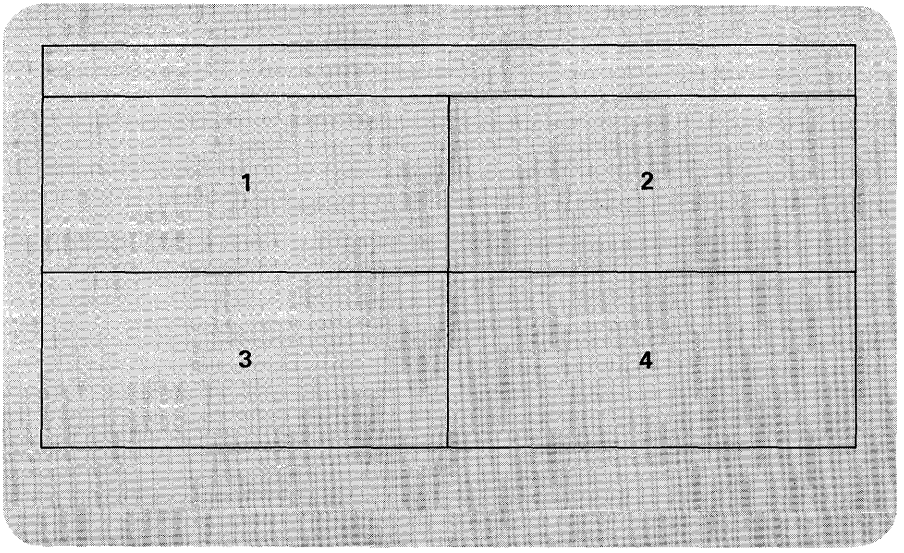


Figure 1-9. Numbering of Menus

For example, to move the cursor from the DIRECTORIES menu to the MESSAGES menu, as shown in Figure 1-10, press **2** (the number key at the top of the keyboard and on the numeric keypad for the Altos III).

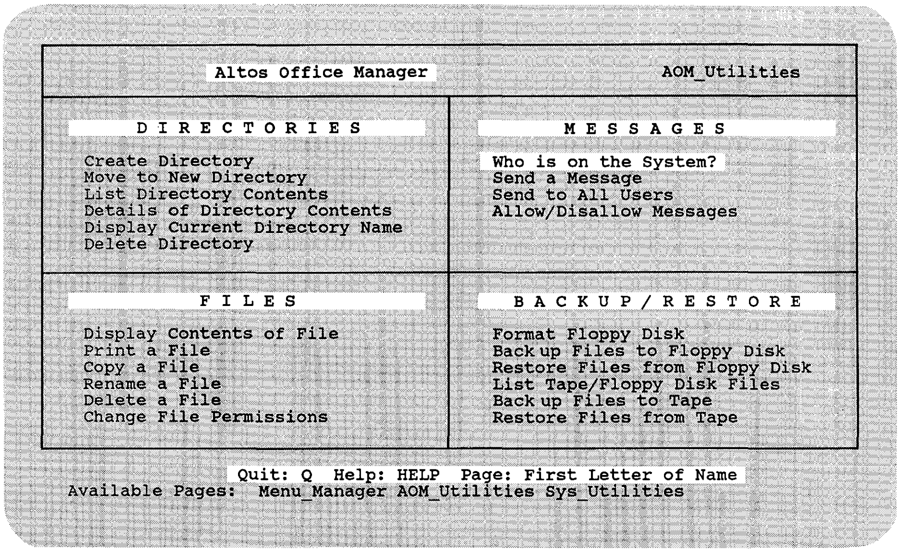
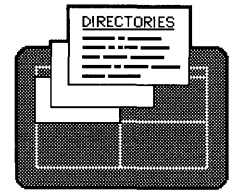


Figure 1-10. Selecting the MESSAGES Menu



Selecting a Command

Each one-line phrase in a menu is called a command. You use a command to tell AOM to do something. When you select a command, you are actually selecting a utility or application function.

To select a command, move the cursor to it and press **Retn.** Move the cursor to a command by pressing the **arrow keys** (see the section "Moving the Cursor" earlier in this chapter).

A quicker, but more complicated way, to select a command is to type the **number** of the menu, \ (back slash), then the **number** of the command, and press **Retn.** The menus and commands are invisibly numbered. The menus are one to four (left to right) and the commands are one to six (top to bottom). For example, if you are in the AOM Utilities page, to select the Print a File command in the FILES menu, type **3\2.**

If there are only three commands in a menu and you type **\5** for a command, the cursor moves to the third command (the last one in the menu).

Canceling a Command

If you change your mind about using a command, press **Esc** to cancel the command and return to the AOM menus.

For example, try moving the cursor to the **List Directory Contents** command in the DIRECTORIES menu, then press **Retn.** Type in the name **"test"**, then before pressing **Retn**, press **Esc.**

The AOM Utilities page returns to the screen.

GETTING HELP

To find out how to use a command in any menu, press **Help.** The top of the screen describes how to select a command. Below that, there is a description of the command you selected.

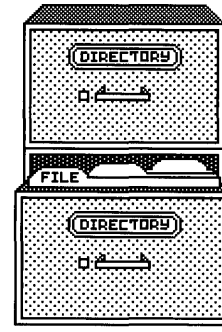
When you have finished reading the Help description, you can press any key to return to the AOM menus. If you want to leave the help screen and return to the AOM menus, just type **q.**

LOGGING OUT OR QUITTING

Type **q** when you want to leave AOM. The program returns you to whatever you were doing when you started AOM:

- If AOM appeared when you logged in, you will be logged out when you type q.
- If you typed aom from your system prompt to get into AOM, you will be returned to the system prompt when you type q. Then, to log out from the system, type **CTRL-d.**

CHAPTER 2
USING YOUR FILES AND DIRECTORIES



NAMING A FILE OR DIRECTORY. 2-3
PICKING AN ITEM FROM A LIST 2-6
USING DIRECTORIES 2-7
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Move into a New Directory 2-8
List the File Names in a Directory 2-9
List Details About Files in a Directory 2-10
Display the Name of the Current Directory 2-13
Delete a Directory 2-13
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Copy a File. 2-16
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Backing Up Files to Tape. 2-30
Listing Files on Tape 2-33
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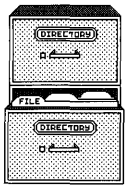


This chapter explains how to use directories and how to manage files. It describes tasks such as creating a directory, listing details about files in a directory, and changing file permissions.

NAMING A FILE OR DIRECTORY

Figure 2-1 shows an example of the directory and file structure of your operating system. Directories and files are arranged in a hierarchical structure, with root as the top directory. A single slash (/) indicates you are in the root directory.

When you first start AOM, you are in your home directory. Your directories and files are located in /usr. The name of the directory is a complete specification of where that directory is in relation to the total file system. For example, Terry has a file named "document" (see Figure 2-1). The full pathname of that file is /usr/terry/smith/document.

The full pathname of any directory or file begins at the root directory. This directory is always specified with a slash (/). A full pathname consists of a series of one or more directories and may contain a single file name. When specifying a full pathname of a file, be sure to include the initial slash (/) and a slash after each directory along the path.

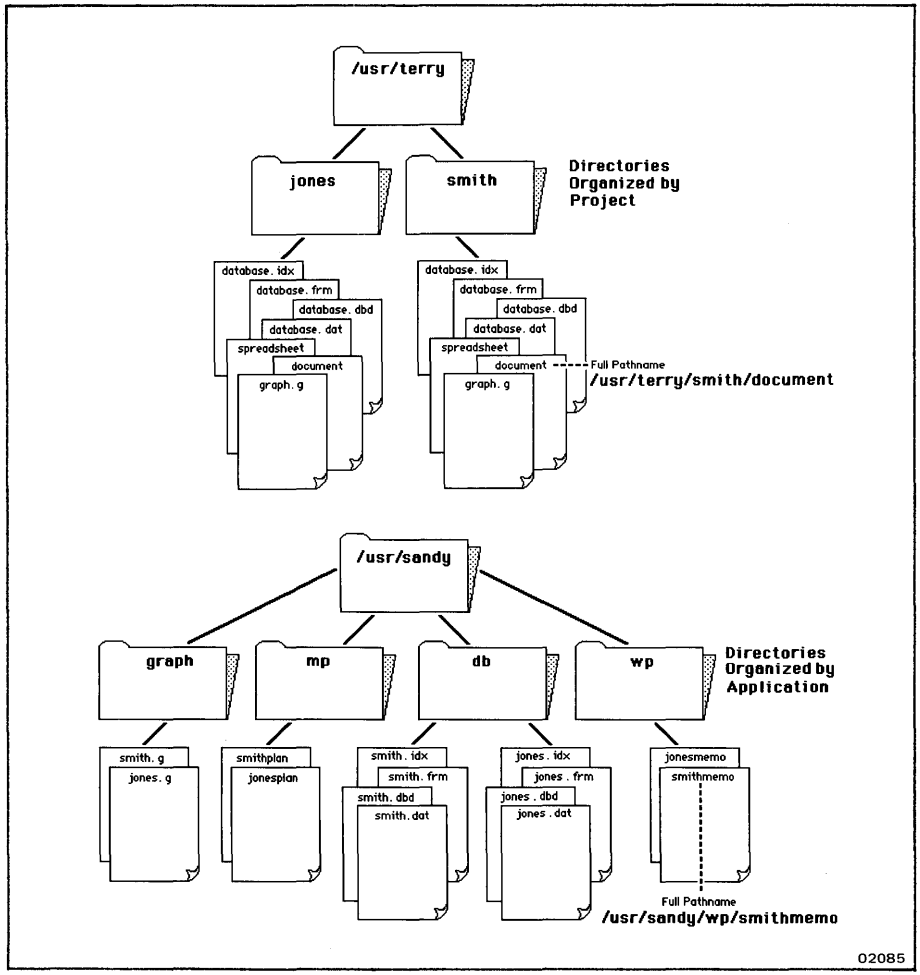
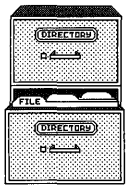


Figure 2-1. Directory Structure



Usually, a directory contains files on the same subject. Each directory and file must have a name that you assign (except your home directory, which is assigned by the system administrator). A file name must be unique. A directory name or a file name can have up to 14 characters. Because the following characters have special functions, do not use them in file names:

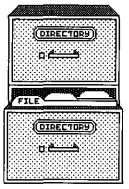
asterisk	*	left square bracket	[
comma	,	right square bracket	]
semicolon	;	slash	\
colon	:	backslash	/
question mark	?	left single quote	`
exclamation point	!	right single quote	'
left parenthesis	(	double quote	"
right parenthesis	)	space	

When you first create files, you may wish to place all of them in /usr/mydirectory (/usr/terry in Figure 2-1). However, as you become more adept, you can have directories and files that are many levels below /usr/mydirectory.

When you are working in a directory or file, it is called the "current" directory. To create or access a directory or file in your current directory, type the file name. To create or access a directory or file not in the current directory, you must specify the full pathname.

For example, there are many ways to access the file "smithmemo" in Figure 2-1. One way is to change your current directory to /usr/sandy/wp. You can then access the file by typing its name: smithmemo.

Another way to access smithmemo is to specify the full pathname: /usr/sandy/wp/smithmemo.



PICKING AN ITEM FROM A LIST

For many of the AOM commands you select, you need to enter a file or directory name. You can always type the name you want, but an easier way is to pick the name of an existing file or directory with the arrow keys. To pick a file name or directory name, do the following:

1. Press the **down arrow** key.

   A list of files in your current directory or a list of directories in the current directory that is appropriate for the command you selected is displayed.

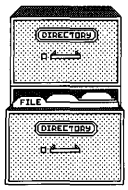
2. Continue pressing the down arrow to move the cursor down the list.

3. Press **Retn** when the cursor is at the name you want.

For example, select the Display Contents of File command. A message asks you to type a file name. Instead, press the **down arrow.** A list of files in your current directory is displayed. Continue pressing the **down arrow** to move the cursor down the list until you are located at the file you want. To select the file you want, press **Retn.**

NOTE

If you select this command, some of the characters on the screen may not make sense to you; don't worry these are special characters used in specific application files. To clear these characters from your screen, type **q** to return to the AOM menus.



USING DIRECTORIES

A directory is just like a file folder; the directory can be used to separate a group of files from your other files. A directory can also contain other directories, which in turn can contain files or more directories.

Create a Directory

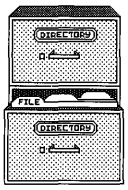
You'll find the commands for using directories in the DIRECTORIES menu, shown in Figure 2-2. Refer to this figure for the explanation of the individual commands in this section.

```
D I R E C T O R I E S

Create Directory
Move to New Directory
List Directory Contents
Details of Directory Contents
Display Current Directory Name
Delete Directory
```

Figure 2-2. DIRECTORIES Menu

To create a directory:

1. Select the **Create Directory** command. Chapter 1, "Using the AOM Menu Sytem," explains how to select commands.



2. Type the **name for the directory** you want to create, and press **Retn.**

The name can be up to 14 characters long, but it is usually easier to keep the name short. The characters you cannot use for file names are the same for directory names (see the section at the beginning of this chapter "Naming a File or Directory").

To use the directory, you need to move into it.

Move into a New Directory

There are several ways to move into a new directory. Step 2 below explains the different methods you can use.

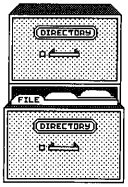
1. Select the **Move to New Directory** command.

   The current directory name is displayed at the top center of the screen.

2. Then, use one of the following methods to move to a new directory:

   - To move to a directory contained by the current directory (one directory down), press the **down arrow**; then pick the directory from the list by moving the cursor to the **directory name** and pressing **Retn.**

   - To move more than one directory down, type the portion of the **directory's pathname** beginning from the current directory. For example, if the jones directory in Figure 2-1 contains a directory named phasel, and if you are in /usr/terry, and want to move into directory phasel, type jones/phasel to move two directories down.



- To move one directory up, type .. (two periods).

- To move two directories up, type ../.. (two periods, a slash, and two periods).

- To move up and over to another directory, type ../ followed by the **directory name.** For instance, from /usr/terry/jones, type ../smith to move to the /usr/terry/smith directory.

If you prefer, type the full pathname of any directory to move to it.

3. End your entry by pressing **Retn.** A message displays the name of the directory you moved to.

List the File Names in a Directory

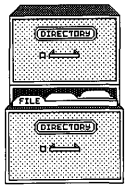
To see a list of the directory and file names in a directory:

1. Select **List Directory Contents.**

2. Type . and **Retn** to see the current directory list. To see the contents of any other directory, specify the directory the same way you would if you used the Move to New Directory command.

3. Press **Retn** to complete your entry. After a few seconds, the screen displays a list of names. These names can be directories and/or files.

   To see which are directories and which are files, use the XENIX command ls -F (refer to the Commands Directory).



If the list of names is too long to fit on one screen, a message tells you to press the space bar to display more of the list, or to press the **Esc** key to stop the listing and return to the AOM menus.

List Details About Files in a Directory

The Details of Directory Contents command displays more information about the files in a directory.

Select the directory by the same methods as those described for the List Directory Contents command.

Figure 2-3 is an example of showing details of files in a directory.

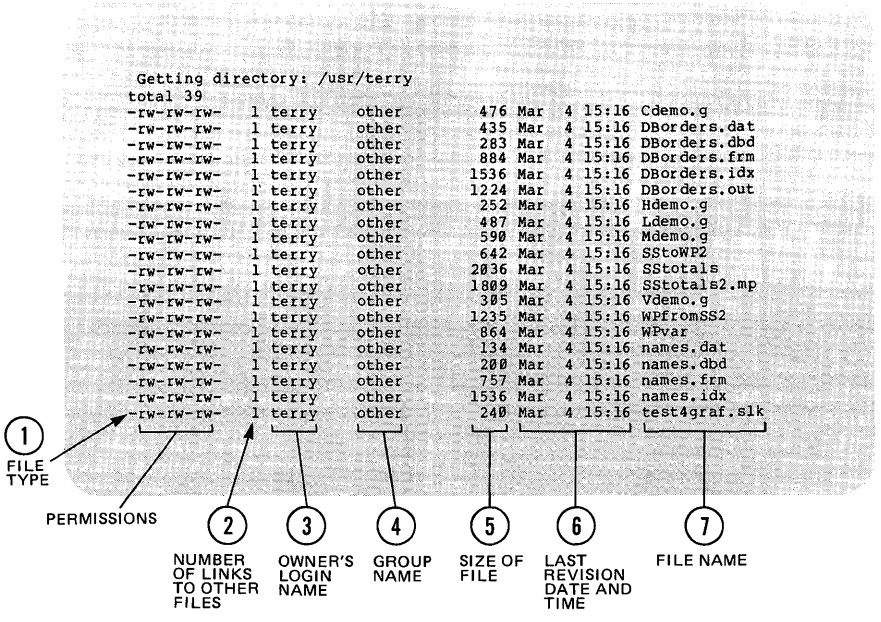


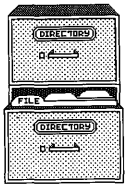
Figure 2-3. Detailed Directory Listing

You will see 10 characters in the first column. They have the following meaning:

- First character (the leftmost in the line) - If it is a dash, the item is a file. If it is a d, the item is a directory.

- Second through Tenth Characters (called permission characters) - The permission characters are:

  r (read) - being able to look at the contents of the file or directory.



w (write) -	being able to change the file or directory contents.
x (execute) -	being able to run the program (if this is a file) or move to the directory (if this is a directory).
- (no permission) -	not able to read, write, or execute the file or directory.

The permissions characters are arranged in three sets of three. Each of the nine character positions answers a question:

- The first three characters (rwx), in order, answer "Can the owner of this item read it, write it, or execute it?" The characters rwx mean yes for all three, but a dash in any position means no permission for that capability. For example, r-x means you can read and execute that file, but you can't write to it.

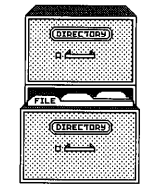
- The second three characters apply to users who are in the owner's group. User groups are set up by the system administrator.

- The third three characters are the permissions for any other user.

You can change the permissions for any file or directory that belongs to you with the Change File Permissions command, explained later in this chapter.

The remaining columns show the following information:

Column 2
Shows the number of links. The number of links for a file are important mainly for programmers. If you're



interested in linking files, refer to the Commands Directory manual for a description of the ln command.

Column 3
Shows the owner's name. The owner's name is the name of the user who created the file. You create a file within one of the application programs, or by copying the file from another user.

Column 4
Shows the group name. The group name of the owner of this file is displayed in the fourth column. The group name is "other" unless the system administrator changes it.

Column 5
Shows the size of the file in bytes. Each byte is roughly equivalent to a character.

Column 6
Shows the last revision date and time of a file, which are determined by the system time when the file was last changed. The time is shown in 24-hour time.

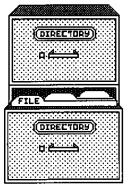
Column 7
Shows the file name (or directory name).

Display the Name of the Current Directory

If you ever forget where you are, select Display Current Directory Name. A message displays the full pathname of the current directory.

Delete a Directory

Before you delete a directory, you must delete all of the files or directories it contains by using the Delete File command (explained later in this chapter) and the Delete Directory command. When the directory is cleared of files and directories, do the following:



1. Select the **Delete Directory** command.

2. Pick the **directory name** from the list.

   If the directory isn't in the list, type the full pathname of the directory. If a message appears saying that the directory isn't empty, the directory wasn't cleared.

MANAGING FILES

You can manipulate files regardless of their origin (what application created them), with the commands in the FILES menu. Figure 2-4 shows the commands in the FILES menu. Refer back to this figure for individual explanations of these commands that are in this section.

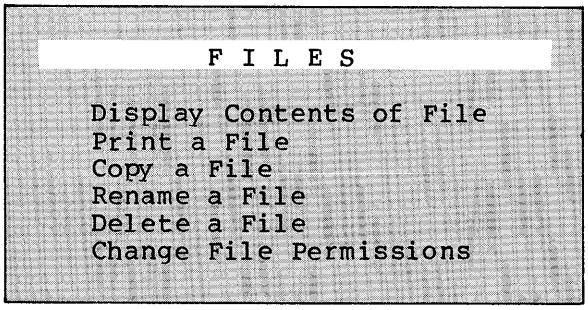
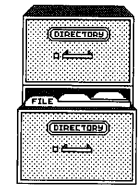


Figure 2-4. FILES Menu

You can display, print, or copy only the files that you own or that someone else has authorized you to read. You can delete a file only if you have permission to change it.



If you get the message "no file found" when you try to use one of the commands in the FILES Menu, it may mean one of the following:

- You don't own the file.
- You don't have permission to read it.
- It doesn't exist.
- You haven't specified the correct directory name; try using the full pathname.

Display the Contents of a File

If you've forgotten what a file contains, a quick way to look at it is with the Display Contents of File command.

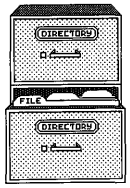
After you select the Display Contents of File command, pick the file from the list (for how to do this see the section in this chapter "Picking an Item from a List") or type its name. You can look at a file in another directory by typing the file's pathname.

Some files contain special characters if they are created by specific applications, so you might see some strange characters when the file is displayed on the screen or printed. If this occurs, refer to the specific application manual for how to print the file.

Print a File

To print a file:

1. Select the **Print a File** command.
2. Select the file name by pressing the **down arrow** and selecting from the list or by **typing the file name**, then press **Retn.**



If your system has more than one printer, a message asks you to type the name of the printer to use.

3. Press **Retn.**

   A few seconds later, the file begins printing.

If you want to see how a file will look when it is printed, display the file with the Display Contents of File command (explained earlier in this chapter) before you print it.

Copy a File

You can copy a file from the current directory or from any other directory. You can also copy files from other users, as long as you have read permission for the other user's file.

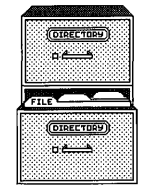
Use the Details of Directory Contents command (explained earlier in this chapter) to see what the permissions are for a file. Use the Change File Permissions command (explained later in this chapter) to change the permissions for any of your own files.

To copy a file:

1. Select the **Copy a File** command.

2. If the file is in the current directory, press the **down arrow** until the cursor is at the file you want. If the file is in another directory, type the **file's pathname.** To select the file, press **Retn.**

   A message asks you for the file name to which you want to copy the selected file.



3. Type the file name to place the file in the current directory. Type a pathname to put the file in another directory, or just the directory name if you want to use the same file name in a different directory.

4. Press **Retn.**

   You will see a message that says the file you selected was "copied to" the new file name you typed in.

   If you do not see this message, the copy wasn't made. You should try the command again, being sure to type the correct name of the file from which you are copying. If you type a pathname for the name to copy to, make sure that directory exists. If you still have trouble, see your system administrator for help.

Rename a File

Renaming a file is similar to copying it, except you finish with only one copy of the file, under the new name. You must have write permission for a file to rename it.

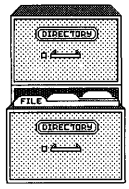
Select the **Rename a File** command, then follow the instructions (starting with step 2) for copying a file, as explained above.

Delete a File

You must have write permission for a file and the directory containing the file to delete a file.

To delete a file:

1. Select the **Delete a File** command.



2. Press the **down arrow** key, and pick the file from the list; or type the file name (or its pathname, if necessary).

3. Press **Retn.**

   A message asks you to confirm that you want to delete this file.

4. Type **y** to continue with the deletion, or type **n** to cancel it.

5. Press **Retn.**

   If you get a message other than the message saying that file is deleted, the file wasn't deleted. Either you mistyped the name of the file, or you aren't authorized to delete it.

Change File Permissions

You must own a file or directory (or be the system administrator) to change who is permitted to use a file.

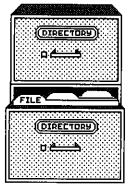
There are three categories of permissions for a file:

- Read -- (look at its contents)
- Write -- (change its contents)
- Execute -- (use the file as a command) or search (move into the directory)

To change the permissions on a file:

1. Select the **Change File Permissions** command.

2. Type the **name of the file**, or pick it from the list.



3. Press **Retn.**

If you own the file, the screen looks much like Figure 2-5.

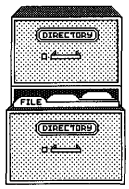
```
Function ---- >  Change File Permissions of mymail

Use left and right arrow keys to move to the permission you wish to change.
                Press SPACE BAR to change permissions.
              To make the changes and quit, type 'q'.

 Owner's Permissions:      Group's Permissions:      All Others' Permissions:
  Read   Write  Execute     Read   Write  Execute     Read   Write   Execute
   yes    yes     no         yes    yes     no         yes    yes      no
```

Figure 2-5. Changing File Permissions

The types of users are grouped into three categories:

- Owner's Permissions
- Group's Permissions
- All Others' Permissions

The person who created or copied the file is the owner. If there are other users in your group, your system administrator can tell you who they are. All other users means anyone who logs into the system.



Change the permissions of the file by pressing the **space bar** until you see yes or no under the type of permission.

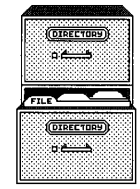
For example, if you want the group permission for a file to be yes for the read permission, move the cursor under "Read" for the Group's Permission category, then press the **space bar** until you see yes.

BACKING UP AND RESTORING FILES

As a precaution against loss of files, you can copy (back up) your files onto a floppy disk or tape. You can use a backup copy of a file to transfer the file in to another system. You can back up entire directories or just a few files.

If you want to back up a large quantity of files, you'll find it's much quicker to back up to tape. If you want to copy a few files from your system to load in to another system, it's usually easier to back up to a floppy disk.

The commands for copying files to and from tape or disk are in the BACK UP/RESTORE menu, shown in Figure 2-6. Refer to this figure when you read about the individual commands in this section.




```
B A C K U P / R E S T O R E

Format Floppy Disk
Back Up Files to Floppy Disk
Restore Files from Floppy Disk
List Tape/Floppy Disk Files
Back Up Files to Tape
Restore Files from Tape
```

Figure 2-6. BACK UP/RESTORE Menu

Floppy Disks

This section explains how to format a disk, back up to and restore files from a floppy disk, and how to list the files on the floppy. It explains how to use wildcard characters to simplify the process of backing up several files. This section explains how to format (prepare the disk) before you back up files.

Formatting a Floppy Disk

Before you can back up files to a floppy disk, you must format the disk. The formatting process prepares a disk to receive data and deletes any information currently recorded on the disk.

Before you begin, make sure there is no write-protect tab on the disk. Figure 2-7 shows the write-protect tab.

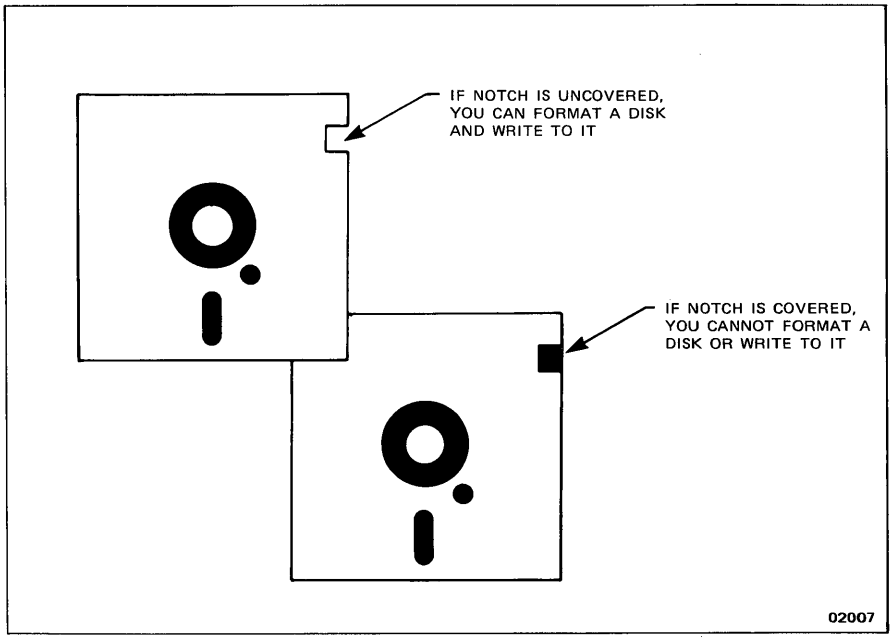
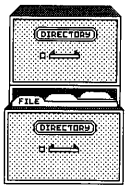


Figure 2-7. Remove Write-Protect Tab to Format a Disk

1. Select the **Format Floppy Disk** command.

   Chapter 1, "Using the AOM Menu System," explains how to select commands. For some systems, your screen will look similar to Figure 2-8. For the 2086 series and the 3068 series, your screen will look similar to Figure 2-9.




```
XENIX FLOPPY DISK FORMAT rev 1.1

Choose :  1 - Format floppy diskette
          2 - Quit

Command:
```

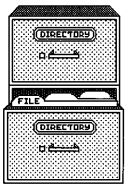
Figure 2-8. Screen for Format Floppy Disk Option

```
XENIX FLOPPY DISK FORMAT

Choose one :

      1 - Altos format /dev/fdnnnxxn
      2 - IBM-AT (slow) format    SYSTEM /dev/fdnnnxxn
      3 - IBM-AT (fast) format    SYSTEM /dev/fdnnnxxn
      4 - Quit

Command:[default Altos]
```

Figure 2-9. Screen for Format Floppy Disk Option (2086 and 3068)

2. Choose the appropriate **number** to format the disk you are using.

3. Make sure the disk contains no information you value. Then, insert the floppy disk in the drive, and press **Retn.**



Periods are displayed as the disk begins formatting. When the process is finished, the formatting choices are displayed again.

4. If you want to format another disk, repeat steps 2 through 4. If you don't want to format any more disks, type the **number for Quit**, and press **Retn** to quit this command. Make sure you format enough disks before you start backing up files.

Backing Up Files to Floppy Disk

Before you begin backing up, think about how you want to restore the files:

- If you want to restore files into another directory either on your own system or another one, move into the directory containing the files. This way you can restore the files into any directory you choose.

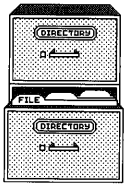
- If you want to make sure the files retain their full pathnames when restored, move into the root (/) directory.

To move into another directory, select the Move to New Directory command in the DIRECTORIES menu. To learn how to use this command, refer to the section "Move into a New Directory" in this chapter.

To back up files:

1. Make sure you format enough floppy disks to contain the files. If you run out, you'll have to cancel the Back Up command to format more disks and begin the back up again. A floppy disk holds approximately 250 (8 1/2 x 11) printed pages.

   You can see the number of bytes in a file by using the Details of Directory Contents command (see



"Using Directories" in this chapter more details about this command).

2. Move into the appropriate directory, as explained above.

3. Select the **Back Up Files to Floppy Disk** command.

4. Insert a formatted disk in the drive. Make sure the write protect tab is removed. (see Figure 2-7).

5. **Press any key.**

6. Enter the **names of the files** to back up. You can do this in several ways:

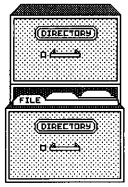
   - To back up the current directory and the contents of all its files and directories, type * (an asterisk) and press **Retn.**
   - To back up one file, type its **name** and press **Retn.**
   - To back up several files at a time, use **wildcard characters.** Refer to the section "Using Wildcard Characters" in this chapter for instructions.
   - Type the **full pathname** if you aren't in the directory you want to back up or if you want to retain the same pathname.

7. Press **Retn.**

   A list of backup types is displayed.

8. Type **a, b,** or **c,** depending on the type of backup you're making:

   a. Appends files if you want to add any file(s) to the end of the disk. The existing files



on the disk aren't disturbed. If one of the files you're appending has the same name as an existing file, the latest appended version will be the one restored.

b. Updates files if you want to copy any new files or updates any files that have changed since you last backed up to this disk.

c. Creates a new backup on a disk if you want to erase the contents of the disk and start over with the current files you chose.

The files are listed on the screen as they are copied. If you copy so many files that you fill up the disk, a message tells you to take out the disk and insert a formatted disk.

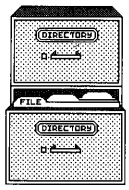
9. Type **y** and press **Retn** to continue.

   If you need more than one disk to back up a series of files or directories, record the sequence of the backup on the disk label with a felt-tip pen. For example, if you back up three disks, mark the disks 1 of 3, 2 of 3, and 3 of 3. When you restore the files, you must restore them in the order you backed them up.

1Ø. When the backup is finished, **press any key** to continue.

Using Wildcard Characters

When you back up files, you may not want to use only the asterisk (*) character because it copies all the files from the current directory and from all directories below. However, if you want to copy several files, typing the file names may take a long time. Wildcard characters can speed this process.



There are three kinds of wildcard characters you can use:

- ***** (the asterisk), which stands for any number of any characters and also no characters in a set position. For instance, entering ***out** copies all files whose names end with the characters out.

- **?** (the question mark), which stands for any one character. For instance, entering **???out** copies all file names with six characters that have the last three characters as out.

- **[]** (left and right brackets), which enclose a list or range of single characters. Entering **[abc]out** copies files named aout, bout, and cout. Entering **[d-g]out** copies files named dout, eout, fout, and gout. Entering single characters between the brackets is a list, and entering two characters separated by a hyphen is a range.

You can use the wildcard characters in combination:

???out*2 copies the following files (among others):

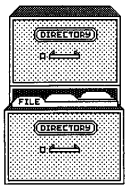
```
135outjkjkjk2
jkjoutj2
abcout2
```

***[1-5]out** copies these files (among others):

```
jkjkj2out
r4out
13244out
```

out[s4c]? copies these files (among others):

```
outs3
out4u
outc9
```



An asterisk at the end will copy files from subdirectories. For instance, **out*** copies these files (among others):

```
out.dbd
out.dat
outside/more
outside/sheet
outside/document/jones
out
```

Listing Files on Disk

To list the contents of a disk or tape, follow these steps:

1. Select the **List Tape/Floppy Disk Files** command.
2. Type **b** for a floppy disk.
3. Insert the tape or disk in the drive.
4. **Press any key** to continue.

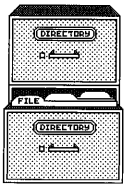
The contents of the tape or disk are displayed.

Restoring Files from Floppy Disk

Before you restore files from a disk, list the contents of the disk with the List Tape/Floppy Disk Files command.

If the names in the list begin with / (a slash), they will be restored with their full pathnames from the root directory. Be careful which files you restore, because any files with the same pathnames will be overwritten by the restored files.

Otherwise, decide into which directory you want to copy the files. If files with the same names already exist



in the directory you choose, they will be overwritten. If the disk you're restoring from contains files with partial or full pathnames, new directories will be created if they don't already exist.

To restore files:

1. Move to the directory into which you want to copy the files.

2. Select the **Restore Files from Floppy Disk** command.

3. Insert the disk you want to restore from, if it isn't already inserted. If you are restoring from a series of backup disks, begin with the first disk. A message will tell you when to insert the next disk.

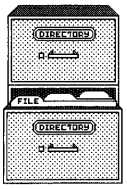
4. Then, **press any key.**

   You can type four types of entries:

   - ***** (an asterisk) to restore all of the files from the disk
   - A **file name** to restore just one file
   - A **directory name** to restore all files in a directory
   - **Several file names** separated by spaces to restore two or more files

   You cannot use wildcard characters (other than *) for restoring files.

5. After completing your entry, **press Retn.** After a few seconds, the names of the files being restored are listed on the screen.



Cartridge Tapes

This section explains how to back up and restore files to tape, and how to list the files on the tape. If you need to back up and restore files in other ways, refer to the following:

- For XENIX, refer to the archive and restor in the Altos XENIX Commands Directory.
- For UNIX, refer to the finc, frec, and volcopy in the Altos UNIX System V Commands Directory.

Backing Up Files to Tape

The procedure to back up to tape is a little different than to back up to floppy disk.

To back up to tape:

1. Set the tape unit's power switch to **ON.**
2. Make sure the tape is blank; it does not need to be formatted.
3. Move into the appropriate directory, as explained in the section "Backing Up Files to Floppy Disk" in this chapter.
4. Select the **Back Up Files to Tape** command.
5. Insert a tape in the drive. Make sure the arrow is Not set to SAFE so writing is allowed. (see Figure 2-10).

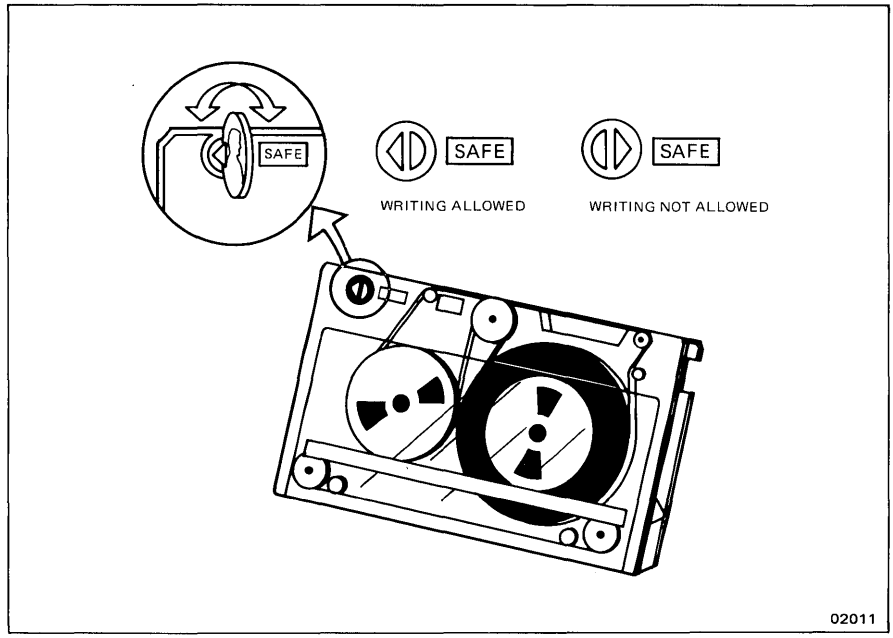
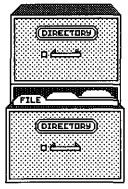


Figure 2-1Ø. Arrow on Tape Drive is Not Set to SAFE

6. Enter the **names of the files** to back up.

   You can do this in several ways:

   - To back up the current directory and the contents of all its files and directories, type * (an asterisk) and press **Retn.**
   - To back up one file, type its **name** and press **Retn.**
   - To back up several files at a time, use **wildcard characters.** Refer to the section "Using Wildcard Characters" in this chapter for instructions.



- Type the **full pathname** if you aren't in the directory you want to back up.

A new back up tape is automatically created.

CAUTION

This new procedure writes over all data that is currently on the tape, so be sure there is nothing on the tape you need.

The files are listed on the screen as they are copied. If you copy so many files that you fill up the tape, a message tells you to take out the tape and insert another one.

7. Type **y** and press **Retn** to continue.

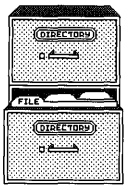
   If you need more than one tape to back up a series of files or directories, record the sequence of the backup on the tape. For example, if you back up three tapes, mark the disks 1 of 3, 2 of 3, and 3 of 3. When you restore the files, you must restore them in the order you backed them up.

   When the backup is finished, a message tells you to press any key to continue.

Listing Files on Tape

To list the contents of a tape, follow these steps:

1. Select the **List Tape/Floppy Disk Files** command.
2. Type **a** for a tape.
3. Then, insert the tape in the drive.
4. **Press any key** to continue.



The contents of the tape are displayed.

Restoring Files from Tape

The procedure for restoring files from tape is a little different from restoring files from floppy disk.

To restore files:

1. Make sure the tape unit is turned on.

2. Move to the directory into which you want to copy the files. See the previous section in this chapter "Restoring Files From Floppy Disk" for general information about being in the correct directory.

3. Select the **Restore Files from Tape** command.

4. Insert the tape you want to restore from, if it isn't already inserted. If you are restoring from a series of backup tapes, begin with the first tape. A message will tell you when to insert the next tape.

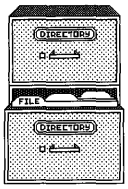
5. Then, **press any key.**

   You can type four types of entries:

   - ***** (an asterisk) to restore all of the files from the tape.
   - A **file name** to restore just one file.
   - **Several file names** separated by spaces to restore two or more files.

   You cannot use wildcard characters (other than *) for restoring files.

6. After completing your entry, press **Retn.**



After a few seconds, the names of the files being restored are listed on the screen.

Backing Up an Entire Hard Disk to Tape

This section explains how to back up a hard disk to tape. It explains how to back up an entire hard disk or only part of it, and to back up more than one hard disk. You must be the system administrator to do this procedure (see Part II of this manual).

To back up a hard disk:

1. Select the **Move to Directory** command.

   You will be prompted for the directory name.

2. Type / (slash) for the root directory (top level), then press **Retn.**

3. **Press any key** to return to the DIRECTORIES menu.

4. Select the **List Directory Contents** command, then type . to see a list of the root directory.

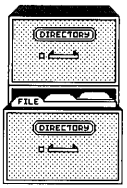
   For the first hard disk, you will see system files as well as your user files. For other disks, you will see only the user files.

5. **Press any key** to return to the AOM menus.

6. Select the **Back Up Files to Tape** command.

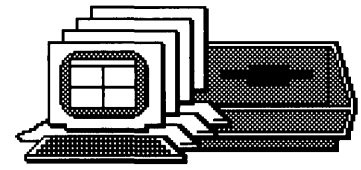
   You will be prompted for the directory names.

7. If you want to back up the entire disk, type **usr** for the first disk, **usr2** for the second hard disk, and so on. If you want to back up only certain files, type the **names you noted in step 4.** Then, press **Retn.**



If you need more than one tape to back up a series of directories, you will be prompted to insert a second tape. Write on a tape label the sequence of the backup.

CHAPTER 3
USING THE SYSTEM



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DISPLAYING SYSTEM STATISTICS

The SYSTEM STATS menu contains commands for checking information about the system, such as displaying what current users are logged in to the system. Figure 3-1 shows the commands in the SYSTEM STATS menu. Refer to this figure when you read the description for each command in this menu.

```
S Y S T E M  S T A T S

Get System Date/Time
Display Current User
Display Current Port
Display Processes
```

Figure 3-1. SYSTEM STATS Menu

Get the System Date and Time

The latest file revision date and time for each of your files is set according to the system time. To check the system time:

1. Select the **Get System Date/Time** command.

   The date and time are displayed in the SYSTEM STATS menu, as shown in Figure 3-2.

```
S Y S T E M  S T A T S

Sunday November 10, 1985

Time : 5:25 pm
```

Figure 3-2. Displaying the Date and Time

2. **Press any key** to return to the SYSTEM STATS menu.

   For XENIX, you must be a system administrator logged in as root or admin to change the date and time. Refer to the date command in the XENIX Commands Directory. UNIX allows you to change the date and time whether or not you are a system administrator. Refer to the date command in the UNIX System V documentation.

Display a User's Login

You may want to check what user is logged in at a particular terminal. For example, you may want to use someone else's terminal, or someone may be logged in at your terminal.

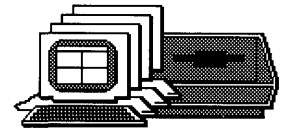
1. Select the **Display Current User** command.

   The current user login name is displayed.

2. **Press any key** to return to the SYSTEM STATS menu.

Display a User's Port

You may want to display what port you are currently logged into. The Display Current Port command displays port names, such as /dev/tty2 and /dev/console.



1. Select the **Display Current Port** command.

   Your port name is displayed.

2. **Press any key** to return to the menus.

Display Processes

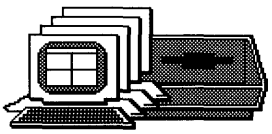
You may occasionally find problems with the processes running on your system, such as a program running continuously (looping) or locking up your terminal.

All processes on the system are assigned a process identification (PID) number. To identify the process causing the problem, select the **Display Processes** command.

For an explanation of what you see, refer to the section "Display Processes" in Chapter 5.

USING SYSTEM UTILITIES

The commands in the UTILITIES menu enable you to change a password, check the amount of free space on disk, use a system command, or become a system administrator. Figure 3-3 shows the commands in the UTILITIES menu. Refer to this figure when you read the description for each command in this menu.




```
U T I L I T I E S

Change Password
Amount of Space on Disk
Execute XENIX Command
Become System Admin
```

Figure 3-3. UTILITIES Menu

Set and Change Your Password

The only way the computer knows who you are is with a log-in name. Everyone in your company could know this log-in name and could log in and use your files. To avoid this, set up a log-in password for yourself.

To create a password or to change one:

1. Select the **Change Password** command.

   The prompt "Old password:" is displayed if you are creating a password.

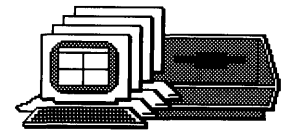
2. Type the **old password**, then press **Retn.**

   The prompt "New password:" is displayed.

3. Type a **new password**, then press **Retn.**

   Make your password at least six characters long. You can use any keys on the keyboard. Choose a sequence of keys that are easy for you to remember, but difficult for someone else to guess.

   A message asks you to retype your new password.



4. Type your **password** again exactly as you did in step 2. Press **Retn.**

5. **Press any key** to return to the UTILITIES menu.

Display the Amount of Space on the Hard Disk

To see how much free space is available on the system's hard disk, select the Amount of Space on Disk command. After several seconds, a message displays /dev/hdØb, followed by a number of blocks and inodes.

Each block contains 512 bytes. Every character is roughly equivalent to a byte, including special characters that don't display on the screen like line feeds, and carriage returns. This gives you an idea of how much room is left on the disk.

If the figure is below 5ØØ blocks, it's time to get more space by backing up the file (if you want to save it), then deleting files you do not need on the system.

Execute a System Command

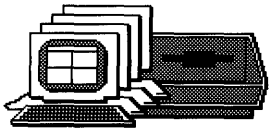
To use any system command that would ordinarily be typed from the system prompt ($ or #), use the Execute System Command.

You can select this command in two ways:

- Select the **Execute System** command in the UTILITIES menu and press **Retn.**

- Type **!** from any of the AOM menus.

You can type one command at a time. If you want to execute more than one command, type them on the same line, separated by semicolons.



Refer to the following section "Moving Between Shells" for how to move to the Business Shell (BSH). Appendix D in this manual explains how to use BSH.

Become a System Administrator

Some system commands can be used only by the system administrator. You select this command if you want to give system maintenance or administration commands at the prompt.

Be aware that this command takes you to the system prompt to do system administration procedures; you cannot use certain AOM commands, such as commands for managing the menu manager. For how to give commands in the AOM Menu System as a system administrator, see Chapter 4 in Part II of this manual.

1. Select the **Become System Admin** command.

   You will be prompted for the system administrator password, if one has been established.

2. Type the **password.**

   You will see the prompt #, which indicates that you can now use all system commands. Remember, this does not include certain AOM commands, such as ones for using the Menu Manager.

3. Type **system commands.**

4. When you are finished with system administration, type **CTRL-d** at the system prompt to return to the UTILITIES menu.

   You are no longer the system administrator and cannot give system administration commands.

SENDING MESSAGES

The commands for sending and receiving messages are included in the MESSAGES menu, shown in Figure 3-4. Refer to this figure when you read the description for each command in this menu.

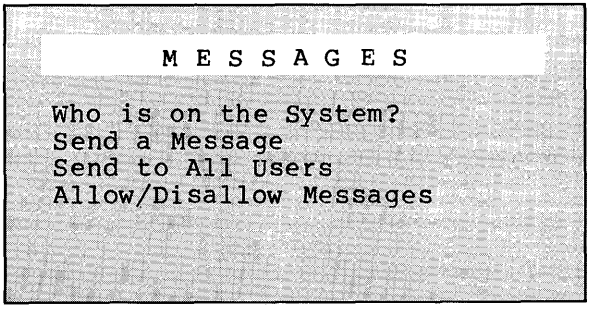


Figure 3-4. MESSAGES Menu

When you send a message, it interrupts whatever other users are doing and displays the message wherever the cursor is positioned on the screen of the user to whom you have sent the message.

If you have an urgent message to send, use the Send a Message, or Write to All Users commands in the MESSAGES menu. If the message is not urgent, you may want to use another mail system, if one is installed on your system.

Check to See Who is Logged In

You cannot send a message to a user who isn't logged in. To see who is logged in, select the **Who is on the System?** command.

After a few seconds, the list of users appears on your screen as shown in Figure 3-5. The categories tell you each user's login name, the terminal they are using, and the date and time they logged in.

```
Function -----  > List users on the system


      NAME     TERMINAL    LOGIN  TIME
     --------------------------------
      kim       console  Jun 26 09:36
      terry     tty2     Jun 26 08:40
      chris     tty4     Jun 26 10:20
```

Figure 3-5. List of Users on the System

Press any key to return to the AOM MESSAGES menu.

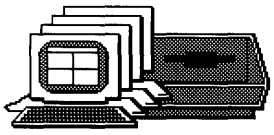
Send a Message to One User

You can send a message to just one user. The user must be logged in at the time you send the message. The section "Checking to See Who is Logged In" (earlier in this chapter) explains how to check who is currently logged in.

1. Select the **Send a Message** command.

2. Type the **name of the user** to whom you want to send a message.

   Be prepared to type your message immediately.



3. Press **Retn.**

   The user's terminal beeps, and lets the user know that a message will be arriving from you.

   Whatever the user was doing is interrupted, but not canceled.

4. Press **Retn** and type **your message.**

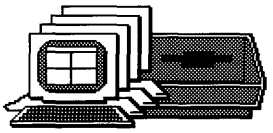
   Press a **Retn** before you reach the end of each line or the text may wrap to the next line in the middle of a word. Each time you press Retn, that portion of your message is displayed on the other user's terminal.

5. When you are finished with your message, press **Retn** to move the cursor to the beginning of the next line, then press **CTRL-d.**

   The other user can then continue at their terminal with whatever they were doing. To learn how to clear the screen of the message, read the section "Clear a Message From Your Screen" later in this chapter.

NOTE

If you get the message "Permission denied" just after entering the user's name, that user has disallowed messages. To send a message to that person, that user must allow messages, as explained later under the section "Allow or Disallow Messages" in this chapter.



Send a Message to All Users

You can send a message to all users who are currently logged in.

1. Select the **Write to All Users** command.

2. With this command, you have as much time as you need to compose your message. Type the **message** you want to send. When you are finished, press **Retn**, then press **CTRL-d**.

   After you press **CTRL-d**, all users are notified that a broadcast message is arriving. Then your message is displayed.

Clear a Message From Your Screen

A message that you receive has no effect on the contents of the file you're using or on the command you're using; however to clear the message from your screen:

- If you're using an AOM command, press **Esc** to get out of it. Then, **reselect the command.**

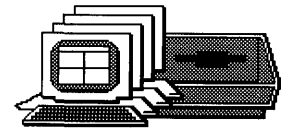
- If you have the AOM menus displayed, select **HELP**, then type **q** to return to the menus.

Allow or Disallow Messages

If you don't want to be interrupted by any messages, you can disallow them. You are initially set to have messages allowed.

To disallow messages:

1. Select the **Allow/Disallow Messages** command.



2. Type **a**.

   A message tells you that messages are disabled.

3. **Press any key** to return to the MESSAGES menu.

   To allow messages again, just type **b** in step 2.

MOVING BETWEEN SHELLS

You can move from within AOM to your operating system to use system commands. You can then easily move back into AOM. You can also move between AOM and BSH. This section explains how to accomplish these moves.

Access the Operating System from the AOM Shell

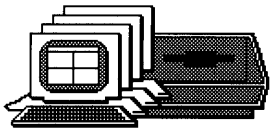
If you are working in AOM and decide you want to use a command at the system prompt, you can access the operating system by doing the following:

1. Type **!** (exclamation mark).

   You will see a message telling you to type a command.

2. You can now type the **system command** you want to use.

   For example, let's say the cursor is at the Change Directory command in AOM, but you want to first check the files in the current directory to make sure a file is not in that one. You can quickly go to the system prompt by typing an **!** (exclamation mark) and typing the XENIX command **ls** to list the files in the current directory.



The contents will be listed, then you will be prompted to press any key, which will return you to the AOM Menu System. Figure 3-6 shows what this example would look like on your screen.

You can type several commands by typing a **;** between the commands.

```
Function -----> Execute XENIX command

Enter XENIX command: ls /usr/terry
2docs           augweekl        newdoc
names.out       mycalendar      dailynov1
standrdltr      ssexample       meetings



Press any key to continue.
```

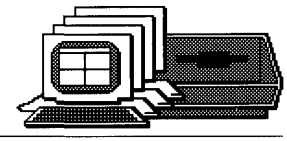
Figure 3-6. Accessing XENIX From AOM

Access the AOM Shell from the Operating System

If you are in the operating system and want to return to the AOM shell, do the following:

At the system prompt, type **aom**.

You will be returned to the AOM shell. You can now continue selecting AOM commands.



Move Between the AOM Shell and the BSH Shell

You can move between the AOM Shell and the BSH Shell, if they are both installed on your system.

If you are using the AOM Shell and want to move to the BSH shell, type **!** (exclamation mark) and **bsh**. You will see the BSH Menu System.

If you have moved to the BSH Shell, then want to return to the AOM shell, type **!** (exclamation mark) and **aom**. You will see the AOM Menu System.

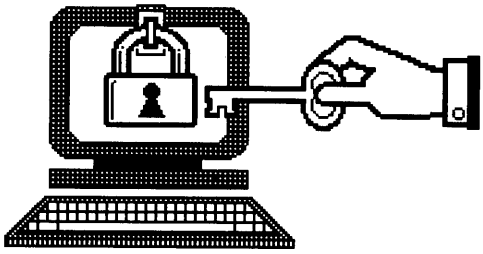
PART II — INFORMATION FOR THE SYSTEM ADMINISTRATOR

Part II is for the person who installs the software and maintains the system. That person is called the system administrator. This part of the manual describes the following:

- The responsibilities of a system administrator.
- How to set up the system administrator password.
- How to manage the operating system.
- How to use the Menu Manager.

This part of the manual assumes you have read the first part of this manual and are familiar with the operating system.

CHAPTER 4
THE SYSTEM ADMINISTRATOR



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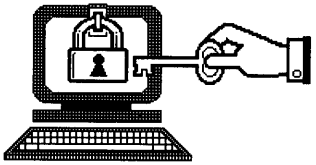
SETTING UP SYSTEM ADMINISTRATOR PASSWORD. 4-5



RESPONSIBILITIES

The system administrator needs to periodically check and maintain the operating system to keep it running smoothly.

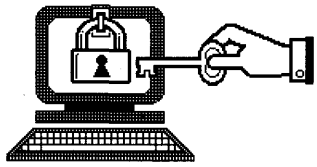
The responsibilities for managing the system include such procedures as:

- Adding or changing user accounts
- Setting up (configuring) ports and printers
- Checking and cleaning up files
- Backing up the file system
- Managing disk space
- Stopping a process or the system
- Changing permissions when necessary

The responsibilities for organizing and maintaining the AOM Menu System include such procedures as:

- Installing and updating applications
- Moving a menu to a different page
- Renaming a page

To perform system administration procedures you must log in as System Administrator (admin) or as root. The next section explains these two log in procedures.



BECOMING THE SYSTEM ADMINISTRATOR

To become a system administrator and perform system administration procedures, you must follow a specific procedure when you log in.

To log in as system administrator, do the following:

1. Type **admin** or **root** (for UNIX) at the login prompt.

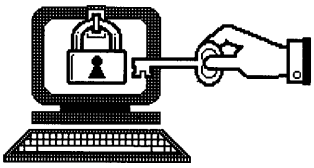
   You will be prompted for a password if one has been set up.

2. Type the **password** for your system.

   If the system is set up to automatically put you in the AOM Menu System, you will see the first page. If you are not automatically put in AOM, type **aom**, then **Retn.** You can then go to the System Utilities page or the Menu Manager page and access the commands you need to use. Refer to Chapters 5 and 6 for how to use these commands.

NOTE

You can also become a system administrator after you log in by selecting the Become System Admin command in the AOM UTILITIES menu. However, you will only be able to use commands at the system prompt and not in the AOM Menu System because this command takes you out of AOM until you press the key to return to the menus.



SETTING UP SYSTEM ADMINISTRATOR PASSWORD

For system security, you will want to set passwords for the admin and root login accounts. The following procedure explains how to change or set a password for admin and root.

1. Log in as admin or root (for UNIX).

   You will be put in to AOM (if this is your default shell).

2. Select the **Change Password** command in the AOM UTILITIES menu. If you logged in as root, continue with step 3.

   The message "Old password:" is displayed on the screen if you are changing a password.

3. Type the **old password**, then press **Retn**. The message "New password:" is displayed on the screen.

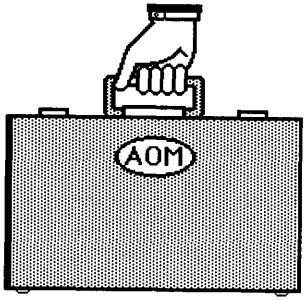
4. Type a **new password**, then press **Retn**.

   For XENIX, make the password at least six characters. It can be made up of any keys on the keyboard. Choose a sequence of keys that are easy for you to remember, but difficult for someone else to guess. For UNIX, there are no restrictions for the password.

   A message asks you to retype your new password.

5. Type your **password** again, exactly as you did in step 2, then press **Retn**.

CHAPTER 5
MANAGING THE SYSTEM



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Changing a Port 5-20
Setting Up a Printer 5-22
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USING THE SYSTEM ADMIN I MENU

Commands for maintaining the system are included in the SYSTEM ADMIN I menu, shown in Figure 5-1. Refer to this figure when you read about the individual commands in this section.

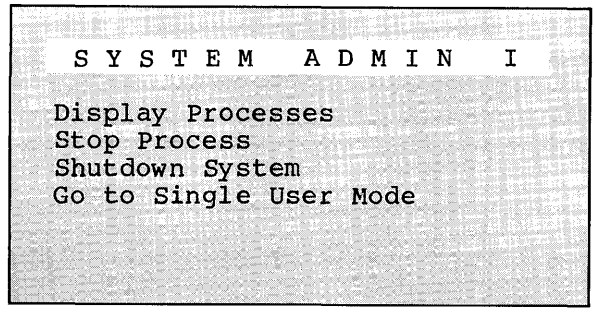
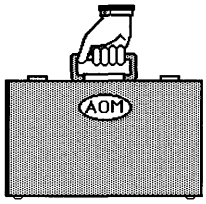


Figure 5-1. The SYSTEM ADMIN I Menu

Display Processes

At times you'll want to look at information about the processes (programs) running on your system. For instance, there may be a process that is taking too long to complete or is causing a terminal to hang (not operate). If this happens, you can identify the process causing the problem and then stop it.

To display information about active processes, select the Display Processes command. Figure 5-2 shows an example of a Process Status screen.




```
Function ----- > Display Processes

 F  S    UID   PID  PPID  C  PRI  MI  ADDR  SZ  WCHAN  STIME  TTY  TIME CMD
 1  S   terry 1822     1  0   30  20    4C  24  9d40  09:07:12 co  0:01 -sh
 1  S   root  1978     1  0   40  20    37  16  f000  09:30:20  3  0:11 /etc/ed
```

Figure 5-2. A Process Status Screen

The column headings and their meanings are explained in TABLE 5-1 (below).

Table 5-1. Explanation of a Process Status Screen

Column Heading	Meaning
F	Flags associated with the process: Ø1: in core Ø2: system process Ø4: locked in core (physical I/O) 1Ø: being swapped 2Ø: being traced by another process
S	State of the process O: nonexistent S: sleeping W: waiting R: running I: intermediate Z: terminated T: stopped

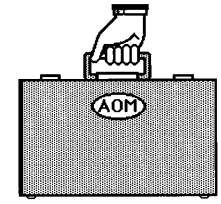
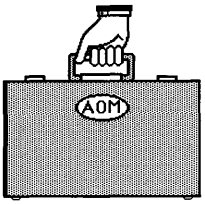


Table 5-1. Explanation of a Process Status Screen (Cont.)

Column Heading	Meaning
UID	The login name of the process initiator.
PID	The process identification (PID) number.
PPID	The process identification number for the parent process.
C	Process utilization for scheduling.
PRI	Priority of the process; high numbers are low priority.
NI	Number used in priority computation.
ADDR	If resident in memory, the core address. Otherwise, the disk address.
WCHAN	The event for which the process is waiting (sleeping). If blank, the process is running.
STIME	The starting time of the process
TTY	The number of the tty (terminal or printer) controlling the process.
TIME	The cumulative execution time for the process.
CMD	The name of the process.



Stop a Process

To stop a process that is causing a problem, do the following:

1. Display all the processes as described above.

2. Write down the process identification **(PID) number** of the process you want to stop; you'll find this number in the fourth column.

3. Select the **Stop Process** command in the SYSTEM ADMIN I menu.

   You will be prompted to enter the process id number (PID).

4. Type the **PID number** of the process you want to stop.

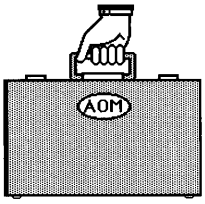
CAUTION

Don't stop the init, swapper, setmode processes for XENIX and UNIX. Also, for XENIX, don't stop the update process and for UNIX, the vhand process. Stopping these processes might cause some problems.

Stop and Start the Operating System

If you have to turn off the power or reset the system, first make sure there are no users on the system. You must also become the system administrator (see the section "Becoming the System Administrator" in chapter 4).

The procedures for stopping the operating system depend on the system you are using. For XENIX, the system is stopped completely; for UNIX, the system is brought to Single User Mode.



The following procedure explains how to stop and start the XENIX operating system. To stop and start the UNIX operating system, see the Installing UNIX manual.

1. **Send a message** to all users that you are going to shut down the system (see the section "Send a Message to All Users" in Chapter 3).

2. Check to see if anyone is still logged in (see the section "Check to See Who is Logged In" in Chapter 3).

3. Select the **Shutdown System** command.

   A prompt on the screen asks you to specify the number of minutes until shutdown (0-15).

4. Type the **number of minutes.**

   The system will send a message to all users to finish and log out because the system will shut down in the number of minutes you specified.

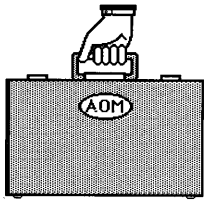
5. If there is a floppy disk in the disk drive, remove it.

   You'll know the system has shut down when you see the following message on the console:

   ```
   ** Normal System Shutdown **
   ```

To start XENIX after stopping it, you can either turn the system off, then on, or reset the system.

If your system was not shut down properly, a file checking program will begin. For XENIX, you may first receive a message that the system was not shut down properly and the root file system will be cleaned. You can type **no** to avoid cleaning.



For UNIX, the file system is checked, then the message "Boot UNIX no sync" is displayed. At this point, you turn the RESET/RUN key to RESET, then back to RUN, to start the system again.

The system validates the consistency of the disk file system, which may have been damaged, and automatically repairs it.

If there is no damage to the system, you will see the following:

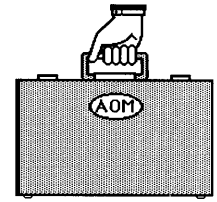
```
/dev/root
** Phase 1 - Check Blocks and Sizes
** Phase 2 - Check Pathnames
** Phase 3 - Check Connectivity
** Phase 4 - Check Reference Counts
** Phase 5 - Check Free List
nn files nnn blocks nnn free
```

If the file system was damaged, it is automatically repaired by the system, then the system displays a log of the corrections that were made.

CAUTION

Make sure that all users are logged out before doing a file system check because the system may be shut down while doing this check. When there are no users on the system, go into Single User Mode (see the next section).

After the file system has been repaired, the system reboots automatically and asks you to enter the time and date.



If you have any doubt whether the file system has been repaired satisfactorily, you can restore the hard disk from backup files.

Go to Single User Mode

When you need to become the only user on the system (for example, to stop the system), use the Single User Mode. You must be logged in as root to work in this mode.

You should always go into Single User Mode before using the check file system program because open files might be removed and the system might be shut down (see "Check the File System" in this chapter).

To go to Single User Mode:

1. Select the **Go To Single User Mode** command.

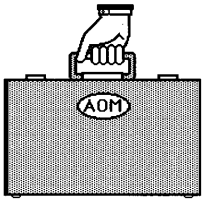
   For XENIX, you see a prompt asking you to specify the number of minutes before shutdown. The screen displays the following:

```
Minutes until shutdown? (0-15)
```

   For UNIX, AOM automatically begins shut down to single user mode after one minute.

2. [XENIX only] Type the **number of minutes** and press **Retn.**

3. [XENIX only] After the specified time, XENIX shuts down, reboots, then displays on the screen:




```
System Maintenance mode (single user)
#


[UNIX only] After the specified time, UNIX goes
into Single User Mode.  It displays on the
screen a series of messages and finally:

INIT:  SINGLE USER MODE
```

At this point, you can work in the shell as the system administrator. For how to bring the system back up for other users in UNIX, see the Installing UNIX V 2.2 manual.

For XENIX, to bring the system back up for other users, do the following:

1. Type **options**, then press **Retn.**

   You will see the Options menu.

2. Type **a** to display the login prompt on all terminals in the system.

USING THE SYSTEM ADMIN II MENU

Other commands for maintaining the system are in the SYSTEM ADMIN II menu, shown in Figure 6-3. You must be the system administrator to use the commands on this menu. Refer to this figure when you read about the individual commands in this section.

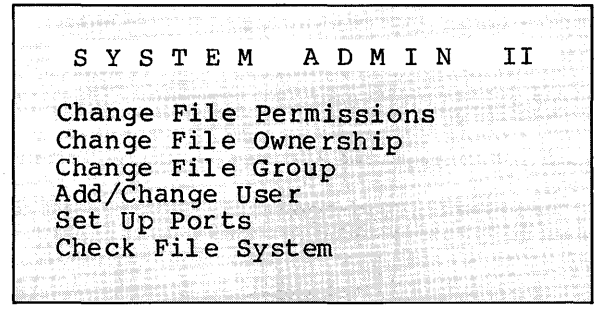


Figure 5-3. The SYSTEM ADMIN II Menu

Change File Permissions

From time to time, you may need to change who is permitted to use a file or directory. For a description of the Change File Permissions command, refer to the section "Change File Permissions" in Chapter 2.

Change File Ownership

When you create a file or directory, it belongs to you. To change file ownership, so the file belongs to someone else, select the Change File Ownership command.

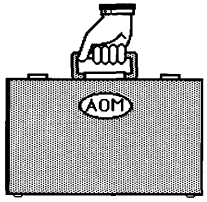
To change ownership:

1. Select the **Change File Ownership** command.

   You are prompted to type the name of the file.

2. Type the **name of the file** and press **Retn.**

   You are prompted for the login name of the new owner.



If you type a file name that AOM doesn't recognize, your files are listed on the screen, and you are prompted to pick from the list. Press the **down arrow** key to the appropriate file name, and press **Retn.**

3. Type the **login name** of the new owner and press **Retn.**

4. **Press any key** to return to the SYSTEM ADMIN I menu.

If you can't change the ownership, the file may not belong to you. Only the system administrator can change the ownership of files belonging to others on the system.

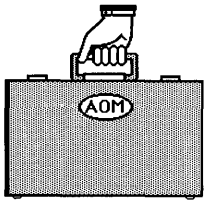
Change File Group

When you create a file or directory, it is usually assigned to the group named "other." Select the List Details of Directory Contents command in the DIRECTORIES menu (see Chapter 2), to see the name of the group.

There can be more than one group per system. This command is useful if there is more than one group on a system and you don't want a particular group to be able to read, write, or execute the other group's files. The system administrator can create a new group by using the Add/Change User command.

NOTE

For this command, you do not have to be a system administrator to change the group name of a file that belongs to you.



To change the group:

1. Select the **Change File Group** command.

   You are prompted for the name of the file.

2. Type the **name of the file.**

   You are prompted for the name of the group to which you want to change.

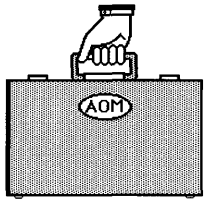
3. Type the **name of the group.**

   If you pick a group name that AOM doesn't recognize, you see a message telling you that the group name is unknown.

Add and Change User Accounts

The system administrator can set up and change a user login account for each person using the system. Figure 5-4 shows the information that can be changed for a user login account. To do this, select the **Add/Change User** command.

When you first select the Add/Change User command, you will see just the top row of commands shown in Figure 5-4 and the prompt "Command?" at the bottom of the screen. Then, when you select the add or change command and type a user name, you will see the login account information for that user.




```
                        User Administration

Commands: show, add, delete, change, user, Users, group, Groups, help, !, quit


          a. User:              terry
          b. User Id:           119
          c. Group:             Other
          d. Group Id:          1
          e. Password:          <SET>
          f. Full Name:         terry
          g. Directory:         /usr/terry
          h. Shell:             /bin/aomlogin


          q. (quit -- return to top level)


     Which field?
```

Figure 5-4. User Login Account

Descriptions of each command and how to select a command are in the following sections of this chapter.

User Administration Commands

Command words appear at the top of the User Administration screen. To set up a user account, use a combination of two command words, typing the first letter of each word. Table 5-2 shows the commands and a description of each command.

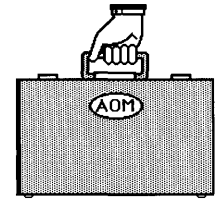


Table 5-2. User Administration Commands

Command	Description
add user	Adds a new user to the system
add group	Adds a new group to the system
delete user	Deletes a user from the system
delete group	Deletes a group from the system
show user	Displays a user's attributes
show group	Displays a group's attributes
change user	Changes a user's attributes
change group	Changes a group's attributes
show Users	Shows all current users
show Groups	Shows all current groups
! shell command	Returns to XENIX Shell; execute commands
help	Displays the help screen
quit	Returns to AOM, Business Shell, or XENIX Shell.

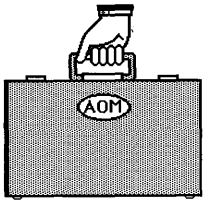
Adding a User Account

When you create or change a user account, use the following guidelines:

1. Make the user name short (the user will enter it often). A user name can have up to 8 letters or numbers, but it cannot contain a space.

   The user enters the name exactly as created. Use only lower-case letters.

2. Do not use a name with any upper-case letters unless that person actually has a terminal that has only upper-case letters. If a name is created with any upper-case letters, the system assumes that the user has a terminal with only upper-case



letters, such as a Teletype. The use of the system is thereby constrained.

3. To remove a password, change the password to <NOT SET> by typing **e** then press **<Retn>**.

4. Choose the shell the user will log in to. By default, new users log in to AOM (bin/aomlogin).

The shells are:

- /bin/aomlogin -- Altos Office Manager Shell (with menus)
- /bin/bsh -- Business Shell (with menus)
- /bin/sh -- XENIX and UNIX Shell
- /bin/csh -- C Shell (XENIX Development System and UNIX system).

To create a user account:

1. Type **a**.

   The word "add" appears at the bottom of the screen.

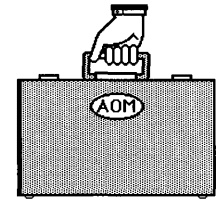
2. Type **u**.

   The word "user" appears next to add. At this point, you can get out of the command by pressing DEL.

3. Type a **user name**, and press **Retn**.

   You can only enter one user or group at a time.

The system automatically assigns user ID, group ID, full name, directory, and shell. Shells can be one of the following: Altos Office Manager Shell, Business Shell, or XENIX Shell.



NOTE

If your system is on a network, make sure the user ID and account name are the same on all machines in the network.

For example, to add a user named kim, type the following:

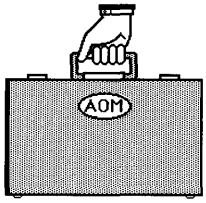
add user kim <Retn>

A message on the screen tells you that the system is updating the new user kim. The screen then displays the system settings for kim (see Figure 5-5). To change a setting, type the single letter that is to the left of each line.

Initially, the password is not set. New users should set their own password by using the Change Password command in the AOM UTILITIES menu, described in Chapter 3, Using the System.

The text <SET> in the password line means a password has been assigned for that account. If you want to unset a password, type **e** and press **Retn.** The password line displays <NOT SET>.

If AOM is not automatically displayed on the screen after a user logs in, you can set the account so AOM is the default log in shell by changing the shell to be /bin/aomlogin.




```
                        User Administration
Commands: show, add, delete, change, user, Users, group, Groups, help, !, quit

                        a. User:       kim
                        b. User ID:    28
                        c. Group:      other
                        d. Group Id:   1
                        e. Password:   <NOT SET>
                        f. Full Name:  kim
                        g. Directory:  /usr/kim
                        h. Shell:      /bin/aomlogin

                        q. (quit -- return to top level)


Command: add user kim
```

Figure 5-5. Example of Creating a New User Account

4. Type **q** when you are finished. A message on the screen tells you the system is installing files for the new user. You can then enter another User Administration command, or type **q** to return to AOM.

Set Up the Ports for Terminals and Printers: Configure a Port

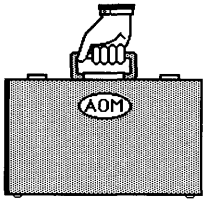
Your system is already set up so you can connect Altos terminals and standard printers to the ports on the system. See your installation manual for the settings for your system.

When you first install your system, you may need to change the settings of a port to tell the system what kind of terminals and printer(s) are connected.

Select the **Set Up a Port** command. The screen displays the current terminal and printer assignments for the ports on your system. Figure 5-6 shows an example of an eight-user system.

```
                    PORT CONFIGURATION UTILITY
                    ==========================

Now loading the port configuration information ... loaded!


Hardware  Software  Device    Terminal  Printer  Baud  Parity  Word    Modem
 Name      Name      Type      Type     Number   Rate          Len
--------  --------  --------  --------  -------  ----  ------  ------  -----
PORT00    console   terminal  altos3             9600
PORT01    tty01     printer             default        none    8 bits
PORT02    tty02     terminal  altos3             9600
PORT03    tty03     terminal  altos3             9600
PORT04    tty04     terminal  altos3             9600
PORT05    tty05     terminal  altos3             9600
PORT06    tty06     terminal  altos3             9600
PORT07    tty07     terminal  altos3             9600
PORT08    tty08     terminal  altos3             9600

Commands:   (c)hange port,     (d)isplay,   (h)elp,     (q)uit
            (r)emove port,     (t)est printer

Type a command (c, d, h, q, r, t) and press RETURN:
```

Figure 5-6. Set Up a Port Screen



Port configuration commands are

```
c    = change a port assignment
d    = display all port assignments
h    = display the port configuration help message
q    = exit from the port configuration program
r    = remove a port assignment t = test a printer
```

To select a command, type the **first letter of the command** and press **Retn.**

Changing a Port

This procedure is for XENIX only. For UNIX, refer to UNIX System V documentation.

To change the settings for a port:

1. Type **c** and press **Retn** to change a port assignment.

   A message on the screen prompts you to type a port name.

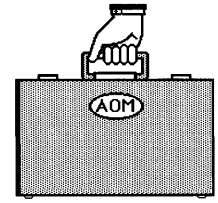
2. Type the **port hardware or software name.**

   For example, type port 2 and press Retn for the terminal connected to port 2.

   The screen displays the current settings for that port.

3. You are prompted for the type of device connected to that port; valid device types are terminal, printer, and none (no device connected). Specify a new type of **device**, or press **Retn** to leave this setting unchanged.

4. For terminals, the screen displays the terminal type, for example, altos3 for the Altos III terminal.



Type a **?** and press **Retn** to scroll through the screens of terminal names. **Press any key** plus **Retn** to return to the terminal selection screen.

Type the **terminal name** that corresponds to your terminal type, or press **Retn** to leave this setting unchanged.

5. A message tells you that there is no auxiliary (transparent) printer on that port. That is, there is no printer connected to the terminal that is connected to that port.

   If you want to connect an auxiliary printer, type **y** and press **Retn;** otherwise, press **Retn** to leave this setting unchanged.

6. Then, the screen displays the current speed (baud rate) for that port. Possible speeds are 110, 150, 300, 1200, 1200P, 2400, 4800, 9600, or 19200. If you type an incorrect speed, the system shows the possible speeds.

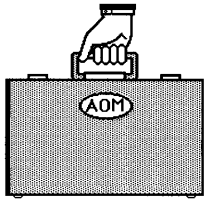
   Specify a **new speed,** or press **Retn** to leave this setting unchanged.

7. A message tells you there is no modem on that port.

   Type **y** and press **Retn** if you wish to connect a modem, or press **Retn** to leave this setting unchanged.

The final settings are displayed for that port, and the command line reappears on the screen. If you are finished changing the settings and want to resume installation, type **q** and press **Retn.**

The system asks for confirmation that the port assignments are correct. If they are correct, type **y** and press **Retn.** The system updates the port configuration information.



Setting Up a Printer

Your system is already set up for either a serial or parallel printer.

To add a printer, or change a printer port:

1. Specify **"printer"** for device type in Step 3, Changing a Port.

2. Next, a message asks you to specify a **printer number** for the port. Valid numbers are Ø through 9. The default printer is printer Ø. For example, the first (default) printer number is Ø, the second printer is 1.

NOTE

Use a Centronics interface on the parallel port.

If you are setting up a parallel printer, skip steps 3 through 6; they do not apply.

3. The screen displays the current speed (baud rate) for that port. Possible speeds are 11Ø, 15Ø, 3ØØ, 12ØØ, 12ØØP, 24ØØ, 48ØØ, 96ØØ, or 192ØØ. Specify a **new speed**, or press **Retn** to leave this setting unchanged.

4. Next, the screen displays the current parity setting, either odd, even, or none. Specify a **new parity**, or press **Retn** to leave this setting unchanged.

5. If you change the parity setting, the word length (in bits) is automatically adjusted for you. For no parity, the word length is 8, for odd or even parity, the word length is 7.

6. Finally, a message tells you there is no modem on that port. Type **y** and press **Retn** if you wish to connect a modem, or press Retn to leave this setting unchanged.

The screen displays the final settings for that port. Then the command line reappears on the screen. At this point, you should test the printer port.

Testing a Printer

After you set up a port for a printer, test it by selecting **t**, test a printer.

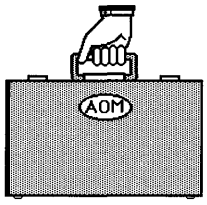
1. Type a **printer number or port name.** For example, if you just set up port 7 for printer 1 (the second printer on your system), you can type either port Ø7 or 1.

   A message tells you the system is testing the printer you specified, and the screen displays the settings for that port.

Then the following display appears on the screen:

```
ABCDEFGHIJKLMNOPQRSTUVWXYZ

abcdefghijklmnopqrstuvwxyz

Ø123456789!@#$%^&*()[]{};':",./<>?
```

The printer should print this display, and advance to the top of the next page.



If the display prints correctly, the printer is set up correctly.

However, if the serial printer does not print correctly, check one or more of the following:

- Baud rate on the printer
- Parity setting on the printer
- Printer setting for linefeed or carriage return
- Printer setting for XON/XOFF protocol
- Word length setting
- Printer cable

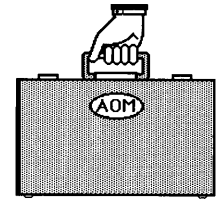
If the parallel printer does not print correctly, check the printer manual and one or all of the following:

- Paper or ribbon
- ON LINE setting
- Printer cable

When you finish setting up the ports, type **q** and press **Retn** to quit. The following messages appear:

```
Are you certain the port assignments are now
correct?  (y/n)
```

Type **y** and press **Retn** to confirm.



After you type **y**, a message on the screen tells you that the port configuration program has concluded.

Check the File System

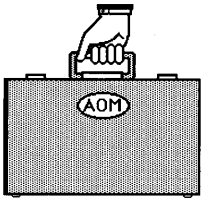
The Check File System command checks the root file system, which is the building block of your operating system. Sometimes there are inconsistencies in the file system control information and/or bad data in files.

CAUTION

Go into Single User Mode before checking the file system. Open files may be removed and the system might be shut down.

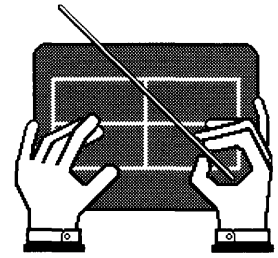
When you select the Check File System command, the screen displays a sequence similar to the following:

```
/dev/root

** Phase 1 - Check Blocks and Sizes
** Phase 2 - Check Pathnames
** Phase 3 - Check Connectivity
** Phase 4 - Check Reference Counts
** Phase 5 - Check Free List
nn files nnn blocks nnnnn free
```



As you can see, each phase of this program checks a different part of the file system. If the file system has problems, the system tells you about it, and then repairs it automatically. For more detailed information about this command, see the fsck command in the Commands Directory.

CHAPTER 6
USING THE MENU MANAGER



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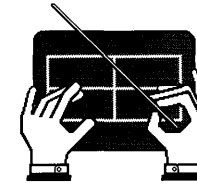


This chapter explains how to use the Menu Manager. You can use the Menu Manager to see what utilities and applications are installed on your AOM system, and to see the location of a menu on a page.

To get to the Menu Manager from any page, type **m**. The Menu Manager will look similar to the one shown in Figure 6-1.

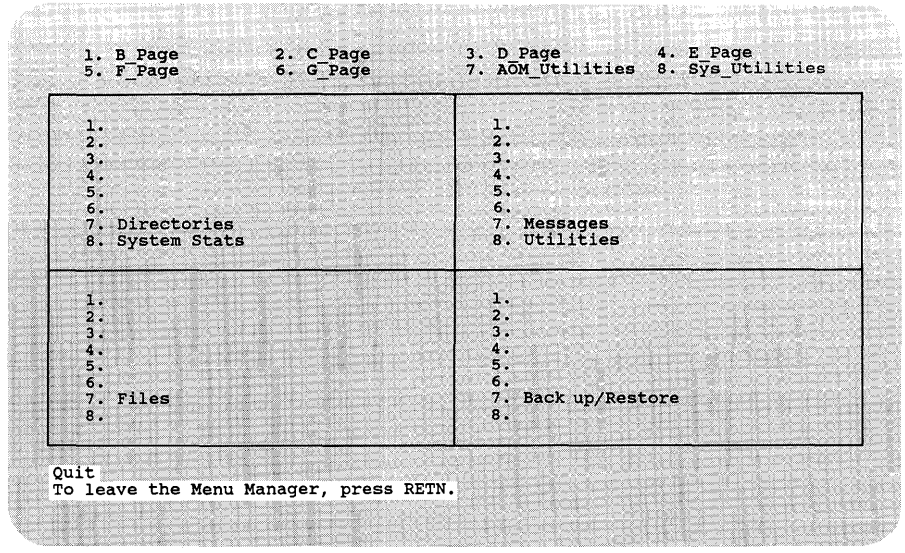
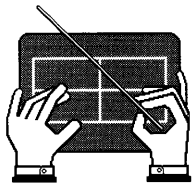


Figure 6-1. Menu Manager for Everyone



If you log in as admin or root, you can also use the Menu Manager to manage applications. AOM displays a row of commands at the bottom of the screen. The system administrator can use these commands to:

- Install, update, add, and remove applications.
- Move menus from one page to a different page.
- Change the permission on a menu so only the system administrator has access to it.
- Change the name of a page.

Figure 6-2 shows the Menu Manager for the system administrator.

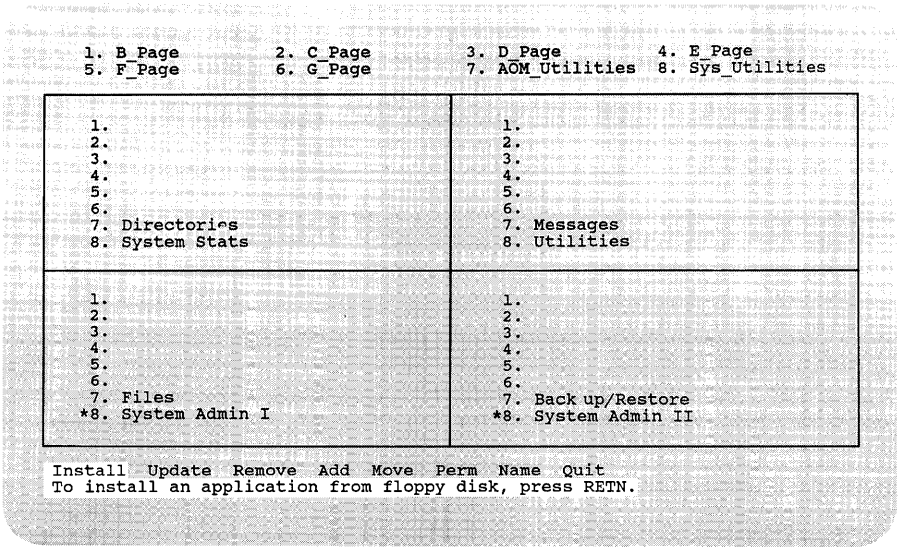
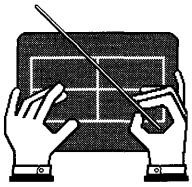


Figure 6-2. Menu Manager for the System Administrator

VIEWING THE MENU MANAGER

The Menu Manager looks similar to an AOM page; it is also divided into four areas. These four areas, called menu blocks, contain lists of the available AOM menus.

The lists of AOM menus are numbered; these numbers indicate the page on which the menu is located. For example, the 7 in front of the DIRECTORIES menu in Figure 6-2, means the menu DIRECTORIES is located on page 7.



To access this page, you need the page name. The page names are listed above the menu blocks in two rows of names, numbered one through eight; these are the page numbers and their names. For example, "7. AOM Utilities" is page number 7, named AOM Utilities. The DIRECTORIES menu is on page 7, so to access the DIRECTORIES menu you must select the AOM Utilities page.

To select the page, type **a**, which is the first letter of the AOM Utilities page. For a more detailed description of how to select a page, see the section "Selecting a Page" in Chapter 1.

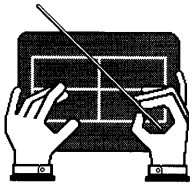
If there are no menus on a page, nothing is shown for that page number.

An asterisk in front of a menu indicates that only a system administrator has access to that menu. For more information about the asterisk, refer to "Changing Permission on a Menu" in this chapter.

The menu blocks also show you where on a page the menu is located. For example, "7. Files" in the lower-left menu block (as shown in Figure 6-2), means the FILES menu is located at the lower-left corner of page 7. (Files might not be at 7. if your system administrator has set up your menus differently.)

LEAVING THE MENU MANAGER

To leave the Menu Manager, press **q** for Quit. You will return to the menu displayed last on your screen.



INSTALLING AN APPLICATION

To install an application into AOM, use the Install command to copy the application from a floppy disk.

To install an application:

1. Select the **Install** command by moving the cursor to the command and pressing **Retn**, or by typing **i** (see Figure 6-3).

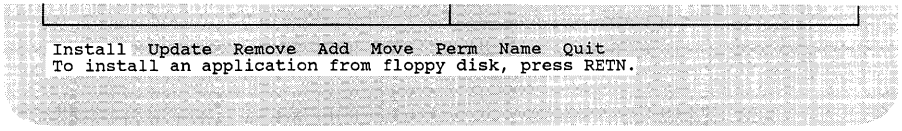
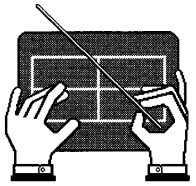


Figure 6-3. Install Command

2. Insert the floppy disk that contains the application you want to install into the disk drive.

3. **Press any key** to continue with the installation.

   You will see the names of the files being installed and information about the number of bytes and blocks for each file. (Figure 6-4 shows an example of the CALENDAR menu being installed.) The installation instructions for the application are displayed.




```
x Calendar.hlp, 24832 bytes, 49 tape blocks
x Calendar.msg, 6700 bytes, 14 tape blocks
                .
                .
                .
update linked to install

        Installation Procedure for The Altos Calendar Manager

This installation procedure must be run by root (super-user)
Press RETURN to continue, or DELETE to abort.

Moving programs to usr/bin ...

Moving library to /usr/lib/CM ...


Installation of The Altos Calendar Manager completed
Press any key to continue.
```

Figure 6-4. Application Being Installed

4. Follow the instructions on the screen, or refer to the application manual to complete the installation.

   When installation is complete, a message tells you to press any key to continue.

5. **Press any key.**

   The menu is displayed, showing the name of the application in the first available page. There is a short delay while the files are being installed, then the cursor returns to the Menu Manager commands. To learn how to move the application to another page, see "Moving a Menu to a Different Location" in this chapter.

UPDATING AN APPLICATION

If an application is already installed in AOM, you can update the installed version by using the Update command to copy the new version from a floppy disk.

To update an already installed application:

1. Select the **Update** command moving the cursor to it and pressing **Retn,** or typing **u** (see Figure 6-5).

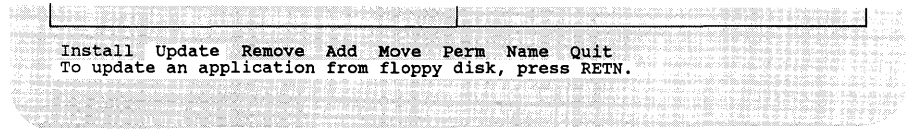
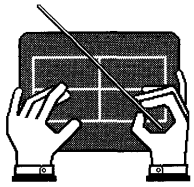


Figure 6-5. Update Command

2. Insert the floppy disk with the application you want to update into the disk drive.

3. **Press any key** to continue the update. You will see the names of the files being updated and information about the number of bytes and blocks for each file (Figure 6-6 shown an example of the CALENDAR menu being updated.)

   The update instructions for the application are displayed.




```
x Calendar.hlp, 24832 bytes, 49 tape blocks
x Calendar.msg, 6700 bytes, 14 tape blocks
                .
                .
                .
update linked to install

       Installation Procedure for The Altos Calendar Manager

This installation procedure must be run by root (super-user)
Press RETURN to continue, or DELETE to abort.

Moving programs to usr/bin ...

Moving library to /usr/lib/CM ...


Installation of The Altos Calendar Manager completed
Press any key to continue.
```

Figure 6-6. Example Applications Update

4. Follow the instructions on the screen, or refer to the application manual to complete the update.

   When the update is complete, a message tells you to press any key to continue.

5. **Press any key.**

   The menu is displayed, showing the name of the application in the first available page. There is a short delay while the files are being updated, then the cursor returns to the Menu Manager commands. The old menus for the application you

are updating are removed before the new one(s) are added.

To learn how to move the application to another page, see "Moving a Menu to a Different Location" in this chapter.

REMOVING A MENU

If you no longer want a menu in AOM, you can remove it from AOM, but still keep it on your system in case you want to add it back later.

To remove a menu from AOM:

1. Select the **Remove** command by moving the cursor to the command and pressing **Retn**, or typing **r** (see Figure 6-7).

2. The cursor moves to the menu in the upper-left menu block.

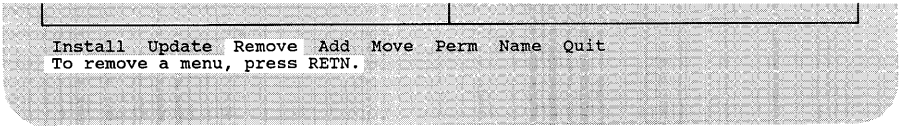
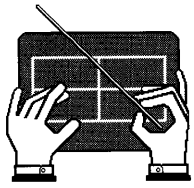


Figure 6-7. Remove Command



3. Move the cursor to the menu you want to remove.

4. Press **Retn**.

   The menu is removed from the screen and the cursor returns to the Remove command.

The menu is removed from AOM, but not from the system. Later, if you want to use this menu, you can add it back into AOM. To learn how to add the menu into AOM from the system, refer to the next section in this chapter.

ADDING A MENU

You can add an application or utility that is on the system into AOM by using the Add command to add a menu. Remember that a menu is simply an interface, or way to access, an application or utility.

To add a menu:

1. Select the **Add** command by moving the cursor to it and pressing **Retn**, or by typing **a** (see Figure 6-8).

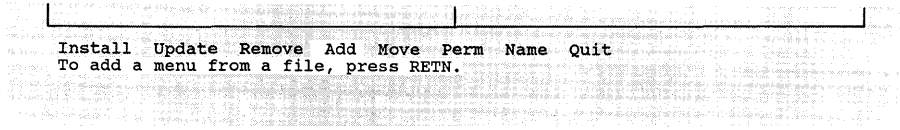


Figure 6-8. Add Command

2. At the prompt, type the **name of the file** that contains the application you want to add.

   Menus for the applications you have installed are in the /usr/aom/menu directory. To see which AOM applications you can add, list the contents of the /usr/aom/menu directory. To learn how to list the contents of a directory, see "Listing the Details about Files in a Directory" in Chapter 2.

3. Type the **file name,** then press **Retn.**

   The Menu Manager is displayed, showing the application name in the first available page number.

   For example, the Menu Manager might look like Figure 6-2. Then, if you type /usr/aom/menu/fileit, and press **Retn,** the Menu Manager will then show the File-it! menu name in the upper-left menu block at page number 1 (see Figure 6-9).

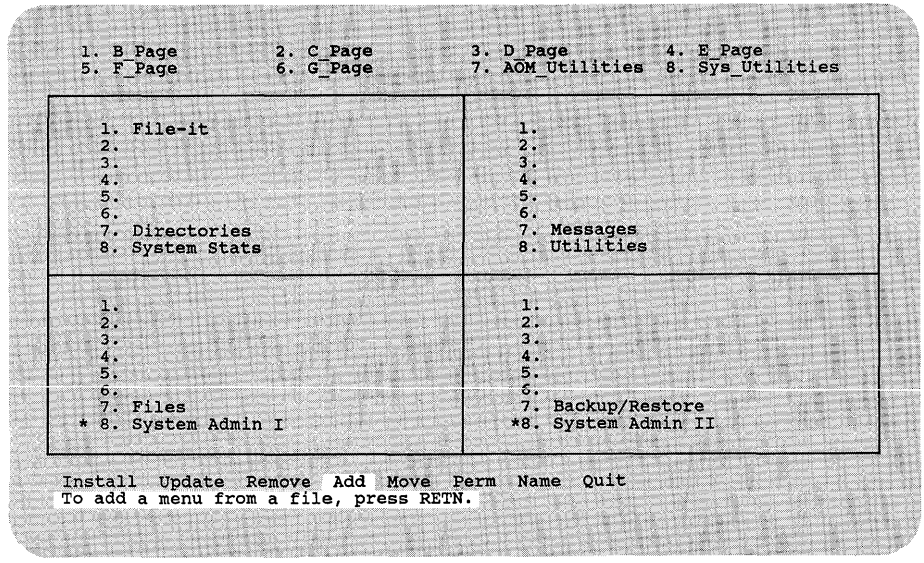
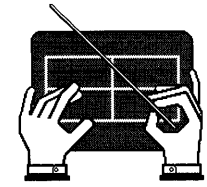


Figure 6-9. Adding a Menu

MOVING A MENU TO A DIFFERENT LOCATION

You may want to move a menu from one location to another by using the Move command. To move a menu from one location to another:

1. Select the **Move** command by moving the cursor to it and pressing **Retn**, or by typing **m** (see Figure 6-10).



The cursor moves to the first menu in the upper-left menu block, and a message tells you to press **Retn** to choose a menu, or press **Esc** to cancel this command.

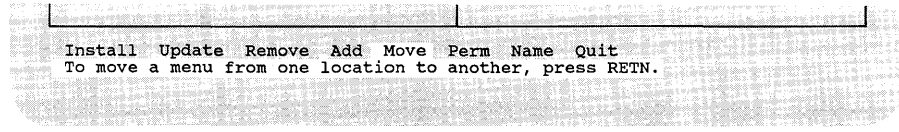


Figure 6-10. Move Command

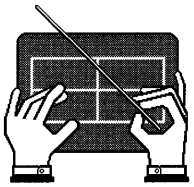
3. Move the cursor to the menu that you want to move, then press **Retn.**

   The cursor moves back to the first menu in the upper-left menu block and you will again see the message about pressing **Retn** to choose a menu, or pressing **Esc** to cancel the command.

4. Move the cursor to the **page number** where you want the menu to be located, then press **Retn.**

   The menu name is moved to the new location. The cursor is returned to the Move command.

When you leave the Menu Manager, then select the page you moved the menu to, you will see the menu on that page. You can move a menu to any available page.



CHANGING PERMISSIONS ON A MENU

As a system administrator, you can change the permission on any of the menus installed in AOM so that only you have access to that menu.

To change the permissions on menus:

1. Select the **Perm** command by moving the cursor to the command and pressing **Retn**, or by typing **p** (see Figure 6-11).

   The cursor moves to the first menu in the upper-left menu block. A message tells you to press the space bar to change the permission on the menu, or to press Esc to cancel the command.

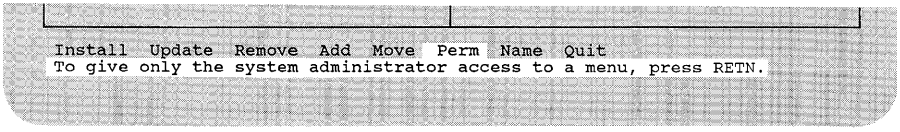


Figure 6-11. Perm Command

3. Move the cursor to the menu you want to change, then press the **space bar.**

   An asterisk is displayed to the left of the page number and the menu name. You can continue changing permission on other menus by moving the cursor to the menu, then pressing the space bar.

4. When you are done, press **q** to quit, or **Esc** to cancel the command.

NOTE

To change the permission back so anyone can use the menu, move the cursor to the menu you want to change, then press the space bar. The asterisk is removed.

CHANGING THE NAME OF AN AOM PAGE

You can change the name of an AOM page to something you like better by using the Name command.

All the AOM page names are numbered and listed across the top of the Menu Manager. There are eight pages as Figure 6-12 shows.

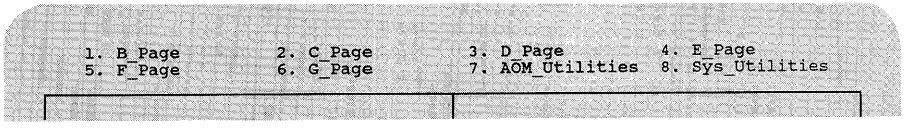
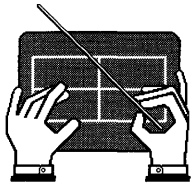


Figure 6-12. Page Names



To change the name of an AOM page:

1. Select the **Name** command by moving the cursor to it and pressing **Retn**, or by typing **n** (see Figure 6-13).

   The cursor moves to the first AOM page name in the rows of names at the top of the Menu Manager. A message tells you to press Retn to select the page you want to rename, or press Esc to cancel the command.

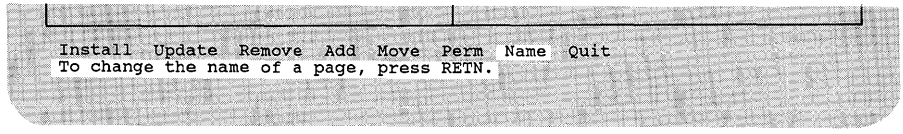


Figure 6-13. Name Command

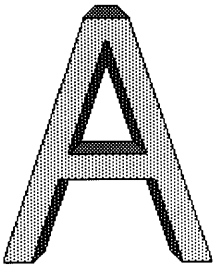
3. Move the cursor to the page you want to name, then press **Retn**.

   The existing name is removed.

4. Type the **name of the page.** The name can contain up to 15 characters, and must start with a letter that is different from the existing page names.

5. Press **Retn**.

   The name is inserted and the cursor returns to the Name command.



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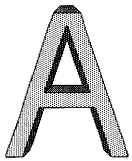

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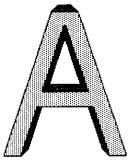

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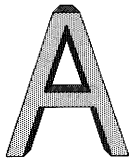

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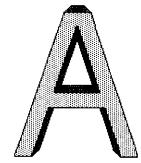


INTRODUCTION

You have a choice of two editors in your operating system - Ed and Vi. Ed is a line-oriented text editor. Vi (which stands for "visual") is a screen editor. A screen editor displays the text you are editing on the entire screen.

The following section explains the ED editor. The Vi editor is explained later in this appendix (Page A-22).

ED EDITOR

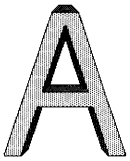
Ed is an interactive program for creating, viewing, and modifying files. It allows you to enter a single command or manipulate text on a line-by-line basis. A line consists of a single command or text entered until you press the Retn key. Once you are in the proper operating mode, you can enter text as you would on a typewriter.

Ed is adequate for creating simple text files (i.e., creating files for the electronic mail program), or performing system maintenance functions (such as modifying the ttys file).

This appendix will give you enough information about the ed text editor for most of your daily needs.

ED Basic Concepts

Before using ed, you should be familiar with some basic concepts. This section explains some information you will need to know.



Files and Directories

A file is a collection of information, either text or data. Each file has a name. Files are normally grouped under directories. Similar files are normally grouped under the same directory.

Text

The term "text" refers to a document (such as a memo), or data for a program.

Buffer and Disk Space

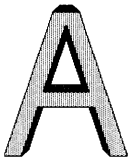
The buffer serves as a temporary work space. Text being worked on is put in the buffer. You need to copy (write) your file from the buffer to the hard (or floppy) disk to save it. Otherwise, when you exit the editor your file will be lost. Don't worry, ed will tell you how to save your file.

Command Mode and Input Mode

Ed has two modes: the command mode and the input mode. The first mode allows you to give the editor directions; the second mode allows you to enter and manipulate text or data.

You instruct the ed text editor what to do with your file by entering commands while in the command mode. Most commands consist of a single lower-case letter, such as "a" for adding text, or "m" for moving text. Each command is entered on a separate line. You can enter commands as soon as you invoke the ed editor.

Enter the input mode from the command mode by entering the appropriate commands, which are described below. Once you are in the input mode, you can add text to the ed editor buffer area.



Error Messages

When you are in the command mode and you make an error while entering commands, or when you press the Return key without entering a command first, the system displays an error message. You will also get a zero response when you invoke ed with a file name that is not present in the current directory. If you are creating a new file, ignore the zero. If you are requesting an existing file, be sure you are in the proper directory and that the file you are requesting exists in that directory.

Invoking the ED Text Editor

To invoke the ed text editor from AOM, select the Execut System Command in the AOM Utilities menu, (see Chapter 3). Then, type **ed.**

To invoke the ed text editor from the Business Shell, type **f**, Edit a File (ed).

The system enters the ed text editor and prompts you with

```
Name of file(s) to invoke editor on ?
```

Enter the name of the file you want to view, create, or modify, and press **<Retn>.**

If you select an existing file, the editor responds with the number of bytes in that file and an asterisk(*). One byte holds one character (letter, number, space, punctuation mark, or special symbol). The editor is now in the command mode awaiting further instructions from you.

If you select a new file name, the editor responds with

```
0
*
```

The asterisk (*) is the editor prompt. In the examples below, do not type in the asterisk.

The system searches for the file and responds with a zero indicating that the file is not present. This is the editor's way of letting you know it is a new file (that is, a file that contains zero bytes). The editor is now in the command mode (shown with the *) waiting further instructions from you.

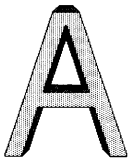
Creating a New File

You create a new file by invoking the ed text editor with a new file name. See Chapter 2 for file name limitations.

Basic ED Commands

Here are some of the basic ed commands.

Command	Function
a	Adds text to a file
.	Exits from add or append (a) command mode
p	Prints or lists a file



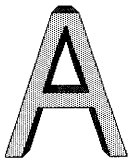
Command	Function
s	Substitutes or makes changes within a line
u	Undoes the last command
d	Deletes line(s)
m	Moves lines around in a file
r	Reads or appends existing files to the current file
w	Writes (saves) current file to disk
q	Quits or exits the editor

Adding Text (Lines) to a File (a)

To add text to a new or existing file, use the a command. This command enables you to enter text on the "blank" lines that follow. Each time you press <Retn>, a new line becomes available.

When you are adding text to a newly created file, enter **a <Retn>**. For example, type **f** on the Business Shell menu. The screen displays

```
Name of file(s) to invoke editor on? example <Retn>
*a <Retn>
This is the text portion of a newly <Retn>
created file, named example. Once I <Retn>
have finished adding lines of text, I <Retn>
will exit the input mode by entering a <Retn>
period followed by pressing the Return <Retn>
key.
<Retn>
```



To add text, you can enter the input mode in the following ways:

- Type **a <Retn>** to add text after the current line in the file.
- Type **Na <Retn>** to add text after line N (a specific line number) in the file.
- Type **i <Retn>** to add text before the current line in the file.
- Type **Ni <Retn>** to add text before line N in the file.

Exit the input mode by entering:

. <Retn>

To add lines starting with line 26, enter

***25a**

Displaying (Printing) a File (p)

To display the file or current line on your terminal, use p, the print command. You can display part or all of the file by entering one of the following:

- Type **1,$p** to display the entire file.
- Type **Np** to display line N.
- Type **N,Zp** to display lines N through Z.

For example, to display the contents of the "example" file created above, enter

```
*1,$p <Retn>
This  is  the  text portion of  a  newly
created  file,  named example.   Once  I
have  finished adding lines of  text,  I
will  exit the input mode by entering  a
period  followed by pressing the  Return
key.
```

Note the "a" and "." are not displayed.

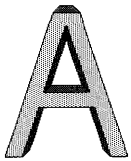
The example below displays lines 4 and 5 of the example file:

```
*4,5p <Retn>
will  exit the input mode by entering  a
period  followed by pressing the  Return
```

The command

```
*.
```

will also display the current line.



Making Changes Within a Line (s)

To make changes within a line, use the s command. This command is useful for correcting typos, adding or deleting words, or substituting words with a line. The format for the s command is

```
line#s/old text/new text/p  <Retn>
```

where

line# = the line you want to change. If you do not enter a line number, the editor changes the current line.

s = the substitute command

old text = what you want to change

new text = what you want to change to

p = prints the line after the changes are made

Note that a period (.) in the old text matches any character.

For example, to correct the typo (budgt), enter

```
Your budgt figures are higher than projected.
*s/budgt/budget/p <Retn>
Your budget figures are higher than projected.
```

The editor replaces the word "budgt" with the word "budget."

For example, to delete a word(s) in a line, enter

```
Please submit your vacation schedules to me today.
*s/to me//p <Retn>
Please submit your vacation schedules today.
```

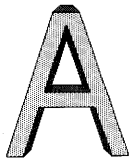
The words "to me" are deleted from the line.

For example, to change a word or words throughout a large file (a global change), use the format

```
*1,$s/manual/document/gp <Retn>
This  document describes the 586 computer system.
Refer to the reference document for more informa-
tion.  This document will be revised as needed.
```

This command substitutes the word "document" for the word "manual" throughout the file and then prints the last line of the last occurrence of the word that was changed. The "g" that was added to the command line indicates that it is a global substitution.

For example, to add text within the line by using the s command, enter




```
Please return the keys you borrowed.
*s/keys/keys and book/p <Retn>
Please return the keys and book you borrowed.
```

As you can see the s command is an important editing tool. You can reverse the last substitution you made by using u, the undo command. The undo command only reverses the most recent substitution and only works if the editor is currently positioned on the affected line. To use the undo command, enter

***u <Retn>**

Deleting Text (Lines) (d)

To delete lines of text, use the d command. The format for the d command is

(first line to delete), (last line to delete) d

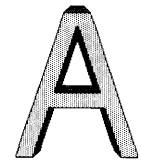
For example, if you want to delete line 4 of the file in the buffer, type

***4d <Retn>**

To delete more than one line, for example, lines 4 through 7 of the file, type

***4,7d <Retn>**

The delete command does not prompt you nor does it display the buffer. To display the file before or after deleting text, use the print (1,$p) command.



Moving Text (Lines) Around in a File (m)

To move lines of text around within the buffer, use the m command. For example, if you want to move lines 3 through 5 to the end of the buffer, type

***3,5m$ <Retn>**

The dollar sign ($) indicates the end of the file (last line).

Another example is

***3m1 <Retn>**

which moves line 3 after line 1.

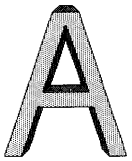
Combining Files (r)

You can combine more than one file in the ed text editor buffer by using the r command. This command allows you to "read" a file into the buffer without destroying anything that is already there. For example, you have a file named report, which contains a report of your expenses. You can edit a file or create a new file in the buffer and then combine it with an existing file (in this case report). Enter

***r report <Retn>**

This command causes the report file to be copied into the buffer after the text already there. You can rename the combined files by using the w command to write to the disk as shown below:

***w newfilename <Retn>**



Saving Your Text/Files (Copying File to Disk) (w)

To save your files, use the w command. This command makes a copy of the buffer contents and puts it on a storage medium such as a hard disk or floppy disk.

To save the additions or modifications you make to your file, exit the input mode and type **w**. The system responds with the number of bytes in the file. For example,

```
*w <Retn>
294
```

You now have a saved copy of your file with the latest changes. The text in the buffer remains unchanged. You can continue adding or modifying the buffer without affecting the saved file until you write to the disk again.

You should save the text in the buffer before you exit the editor. You should also write to the disk periodically while working on text in the editor buffer. This is important for the following reasons:

- If there is a power surge, power outage, or if someone accidentally resets the system, your text in the buffer is lost. If you save your file periodically (i.e., once a page), at the most, you only have to retype one page.

- If you are editing a large file and saving (writing) your text in the buffer periodically, you can recover from an error. For example, consider the following possible circumstances:

You invoke an existing file.

You add some new text (lines).

You save the additional lines by writing to the disk.

You make some changes to some existing lines.

You save the changes by writing to disk.

You accidentally type in the delete command and press <Retn>. You just lost several lines of text.

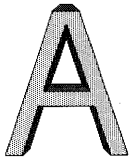
- If you exit the editor and re-invoke it, you recover the deleted lines and do not lose the changes made prior to the mistake. If you did not save the previous changes, when you invoke the editor, you have to re-enter the changes made before the last write command.

Exiting (Leaving) the Editor (q)

To leave the ed text editor (after saving the text), The use q command. For example,

```
*w <Retn>
134
*q <Retn>
```

The system exits the editor and returns to where you were before you invoked the editor.



If you attempt to exit the editor without saving (writing) your file, the system responds with a question mark and "warning: expecting 'w'." If you type **q** again, you exit the editor, and the text in the buffer is lost.

Examples

The examples in this section use the basic commands of the ed text editor.

Creating a New File

The following example creates a new file named "mtgnotice." You will create a file, print, edit, and save it on the disk.

Type **f** on Business Shell main menu. The screen displays the following:

```
Name of file(s) to invoke editor on? mtgnotice <CR>
Ø
*a <CR>
DATE:  February 14, 1985 <CR>
TO: Department Managers <CR>
FROM: John Wilson <CR>
SUBJECT: Scheduling Meeting Notice <CR>
<CR>
<CR>
We will meet on Tuesday, February 15, 1985, <CR>
at 2:ØØ in the engineering conference room <CR>
to go over the depatment planning schedules. <CR>
Please bring a copy of department's schedules. <CR>
. <CR>
*a <CR>
The meeting will last about 2 hours. <CR>
Each schedule should include man-hour <CR>
requirements, project start and completion <CR>
dates, and other pertinent information. <CR>
<CR>
Don't be late. <CR>
. <CR>
```

Printing the File

To print (display) the file, enter

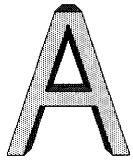
```
*1,$p <Retn>
DATE:  February 14, 1985
TO: Department Managers
FROM: John Wilson
SUBJECT: Scheduling Meeting Notice

We will meet on Tuesday, February 15, 1985,
at 2:00 in the engineering conference room
to go over the depatment planning schedules.
Please bring a copy of department's schedules.
The meeting will last about 2 hours.
Each schedule should include man-hour
requirements, project start and completion
dates, and other pertinent information.

Don't be late.
```

Editing the File

After reading the printed version on the screen, you decide to delete the line "Don't be late." Count the line number, starting with the first line and including blank lines. Since "Don't be late" is the sixteenth line, you can delete the line as follows:

```
*16d <Retn>
```

You notice that "department" is misspelled and that "your" is missing in the phrase "bring a copy of department's schedules." The substitute command can fix these errors.




```
*9s/depatment/department/p <Retn>
to go over the department planning schedules
*10s/of/of your/p <Retn>
Please bring a copy of your department's schedules.
```

You decide that the line "The meeting will last about 2 hours" should be the last line of the file. The text that follows needs to be moved above this sentence. Move line 12 through 14 after line 10 by entering

***12,14m10 <Retn>**

Paragraphs will make the memo easier to read. Add a blank line after a line by entering that line number and the a command. Press **<Retn>** twice to create a blank line. Enter

***10a <Retn>**
<Retn>
. <Retn>
***14a <Retn>**
<Retn>
. <Retn>

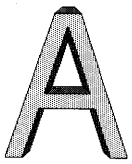
Displaying the File

Display the edited file on the screen by entering

```
*1,$p <Retn>
DATE:  February 14, 1985
TO: Department Managers
FROM: John Wilson
SUBJECT: Scheduling Meeting Notice


We will meet on Tuesday, February 15, 1985,
at 2:00 in the engineering conference room
to go over the department planning schedules.
Please bring a copy of your department's schedules.

Each schedule should include man-hour
requirements, project start and completion
dates, and other pertinent information.

The meeting will last about 2 hours.
```

When you are satisfied with the memo, save it and quit the editor.

```
w <Retn>
451
q <Retn>
```



INTRODUCTION

This section explains the vi editor. Vi stands for "visual." The vi editor is an interactive, visually-oriented text editor. Unlike ed, vi takes advantage of the entire terminal screen by displaying the text you are editing. When you use vi, it is not necessary to refer to lines by line numbers; you can move the cursor to any line or character.

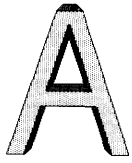
Like ed, vi places a copy of the file you are editing in the work buffer. To save the copy of the file, you write the contents back to the file.

VI EDITOR

Vi has two modes of operation: Command mode and Insert mode. In the command mode, vi accepts keystrokes as commands, responding to each command as you enter it. In the insert mode, vi accepts keystrokes as text, displaying the text as you enter it.

At the start of an editing session, vi is in the command mode. All commands take effect immediately; you do not need to press <Retn> to indicate the end of a command. When you create or edit a file, you will move between the command and insert modes. To return to the command mode, press the <Esc> key.

The first part of this appendix gives you some hands-on experience with vi. It introduces the basic concepts and shows you how to perform simple editing functions. The second part describes specific editing tasks. The third part explains how to set up your vi environment and how to set optional features. The fourth part is a summary of commands.



Because vi is such a powerful editor, it has many more commands than you can learn at one sitting. If you have not used a text editor before, the best approach is to become thoroughly comfortable with the concepts and operations presented in the fist part of this chapter, then refer to the second part for information on specific tasks. All the steps that you need to perform a given task are explained in each section, so some information is repeated. When you are familiar with the basic vi commands you can easily learn how to use the more advanced features.

If you have used a text editor before, you may want to turn directly to the second part of this chapter.

Learning the Basics

The following section introduces some basic vi concepts, and gives you hands-on experience using vi. In about one hour, you will learn how to enter and exit the editor, insert and delete text, search for patterns and replace them, and insert text from other files. The best way to learn vi is to actually use it, so don't be afraid to experiment.

Before you start, make sure that your terminal has been properly set up. See "Setting the Terminal Type," for more information about setting up your terminal for use with vi.

Entering the Editor

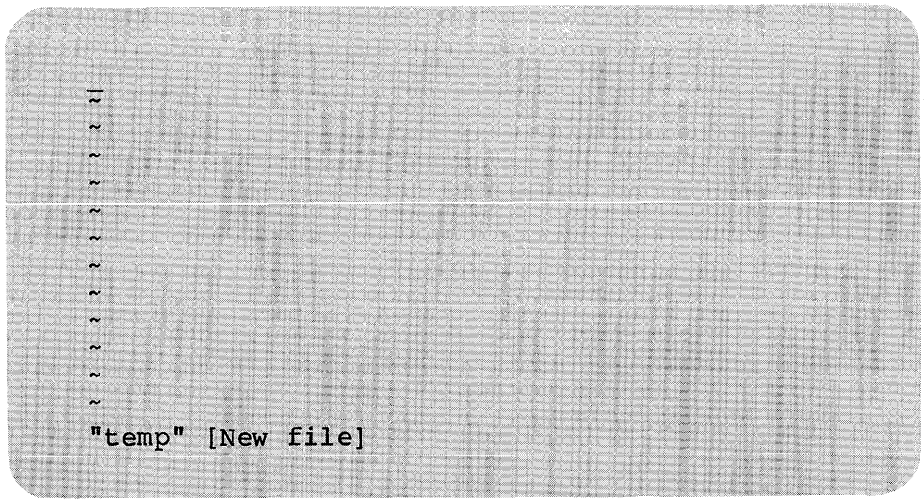
To enter the editor from AOM, select the Execute System Command in the AOM Utilities menu (see Chapter 3), and create a file named temp, type

vi temp <Retn>

If you are in the Business Shell, type

!vi temp <Retn>

Your screen will look like this:

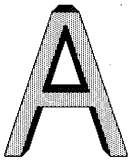


Note that we show a twelve-line screen to save space. In reality, vi uses whatever size screen you have.

Because this is a new file, the top line of your display is the only line in the file and is marked by the cursor (shown above as an underline character). In this chapter, when the cursor is on a character that character will be enclosed in square brackets ([]).

NOTE

The line containing the cursor is called the current line.



The tilde (~) marks empty lines in the file.

The file name "temp" appears on the status line at the bottom of the screen. This line is not part of the text in your file. Rather, the status line displays information, such as the name of the file you are editing, and as you will see later, other information.

Inserting Text

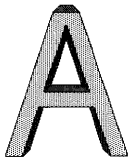
To begin, create some text in the file temp by using the i (insert) command. To do this, press

i

Next, type the following five lines so you have some text to experiment with. Press <Retn> at the end of each line. If you make a mistake, use the BACKSPACE key to erase the error and type the word again.

```
Files contain text.
Text contains lines.
Lines contain characters.
Characters form words.
Words form text.
~
~
~
~
~
~
```

Press **<Esc>** when you are finished.



Like most vi commands, the i command does not show on your screen. The command itself switches you from command mode to insert mode.

Once in insert mode, the characters you type are inserted into the file; they are not interpreted as vi commands. To exit insert mode and reenter command mode, press <Esc>.

Repeating a Command

The repeat command repeats the most recent insert or delete command. Since we have just executed an insert command, the repeat command repeats the insertion, duplicating the inserted text. The repeat command is executed by typing a period (.). So, to add five more lines of text, type a period.

The repeat command is repeated relative to the location of the cursor and inserts text below the current line (the line containing the cursor). Type a period (.), and your screen will look like this:

```
Files contain text.
Text contains lines.
Lines contain characters.
Characters form words.
Words form text.
Files contain text.
Text contains lines.
Lines contain characters.
Characters form words.
Words form text.
~
~
```

Undoing a Command

Another useful command is the undo command, u. Press

u

and notice that the five lines you just finished inserting are deleted or "undone."

```
Files contain text.
Text contains lines.
Lines contain characters.
Characters form words.
Words form text.
~
~
~
~
~
~
```

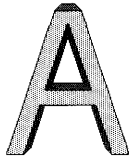
Now type **u** again, and the five lines are reinserted! The undo feature can be very useful in recovering from inadvertent deletions or insertions.

Moving the Cursor

Now let's learn how to move the cursor around on the screen. In addition to the arrow keys, the following letter keys also control the cursor:

h Moves the cursor one character to the left.

l Move the cursor one character to the right.



k Moves the cursor up one line.

j Moves the cursor down one line.

The letter keys are chosen because of their relative positions on the keyboard. Remember that the cursor movement keys only work in command mode.

Try moving the cursor using these keys or the arrow keys and other cursor movement keys explained below. (First make sure you are in command mode by pressing the <Esc> key.)

Type the **H** command to place the cursor in the upper left corner of the screen. Then type the **L** command to move to the lowest line on the screen. (Note that case is significant in our example: **L** moves to the lowest line on the screen; while **l** moves the cursor forward one character.) Next, try moving the cursor to the last line in the file with the goto command, G. If you type "2G," the cursor moow all these commands work, you'll delete various parts of the temp file. To begin, press <Esc> to make sure you are in command mode, then move to the first line of the file by typing

1G

At first, your file should look like this:

```
[F]iles contain text.
Text contains lines.
Lines contain characters.
Characters form words.
Words form text.
Files contain text.
Text contains lines.
Lines contain characters.
Characters form words.
Words form text.
~
~
```

To delete the first line, type

dd

Your file should now look like this:

```
[T]ext contains lines.
Lines contain characters.
Characters form words.
Words form text.
Files contain text.
Text contains lines.
Lines contain characters.
Characters form words.
Words form text.
~
~
~
```

Delete the word the cursor is sitting on by typing

dw

After deleting, your file should look like this:

```
[c]ontains lines.
Lines contain characters.
Characters form words.
Words form text.
Files contain text.
Text contains lines.
Lines contain characters.
Characters form words.
Words form text.
~
~
~
```

You can quickly delete the character at the cursor by pressing:

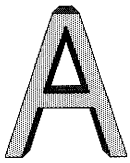
x

This leaves:

```
[o]ntains lines.
Lines contain characters.
Characters form words.
Words form text.
Files contain text.
Text contains lines.
Lines contain characters.
Characters form words.
Words form text.
~
~
~
```

Now type a w command to move your cursor to the beginning of the word "lines" on the first line. Then, to delete to the end of the line, type

d$



Your file looks like this:

```
ontains_
Text contains lines.
Lines contain characters.
Characters form words.
Words form text.
Files contain text.
Text contains lines.
Lines contain characters.
Characters form words.
Words form text.
~
~
~
```

To delete all the characters on the line before the cursor type

dØ

This leaves a single space on the line:

```
_
Lines contain characters.
Files contain text.
Text contaiart of the command.
```

To change "text" to "documents," press <Esc> to make sure you are in command mode, then type

:1,$s/text/documents/g

This command means "From the first line (1) to the end of the file ($), find text and replace it with documents (s/text/documents/) everywhere it occurs on each line (g)."

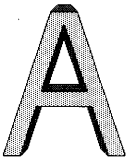
Press **<Retn>**. Your screen should look like this:

```
Files contain documents.
Text contains lines.
Lines contain characters.
Characters form words.
Words form documents.
Files contain documents.
Text contains lines.
Lines contain characters.
Characters form words.
[W]ords form documents.
~
```

Note that "Text" in lines two and eight was not changed. Case is significant in searches.

Just for practice, use the undo command to change "documents" back to "text." Press

u



Deleting

You can combine many delete commands with cursor movement commands, as explained below. The most common delete commands are

dd Deletes the current line (the line the cursor is on), regardless of the location of the cursor in the line.

dw Deletes the word at the cursor. If the cursor is in the middle of the word, deletes from the cursor to the end of the word.

x Deletes the character at the cursor.

d$ Deletes from the cursor to the end of the line.

D Deletes from the cursor to the end of the line.

dØ Deletes from the cursor to the start of the line.

. Repeats the last change. (Use this only if your last command was a deletion.)

To learn how all these commands work, you'll delete various parts of the temp file. To begin, press <ESC> to make sure you are in command mode, then move to the first line of the file by typing

1G

At first, your file should look like this:

```
[F]iles contain text.
Text contains lines.
Lines contain characters.
Characters form words.
Words form text.
Files contain text.
Text contains lines.
Lines contain characters.
Characters form words.
Words form text.
~
~
```

To delete the first line, type

dd

Your file should now look like this:

```
[T]ext contains lines.
Lines contain characters.
Characters form words.
Words form text.
Files contain text.
Text contains lines.
Lines contain characters.
Characters form words.
Words form text.
~
~
~
```

Delete the word the cursor is sitting on by typing

dw

After deleting, your file should look like this:

```
[c]ontains lines.
Lines contain characters.
Characters form words.
Words form text.
Files contain text.
Text contains lines.
Lines contain characters.
Characters form words.
Words form text.
~
~
~
```

You can quickly delete the character at the cursor by pressing:

x

This leaves:

```
[o]ntains lines.
Lines contain characters.
Characters form words.
Words form text.
Files contain text.
Text contains lines.
Lines contain characters.
Characters form words.
Words form text.
~
~
~
```

Now type a w command to move your cursor to the beginning of the word "lines" on the first line. Then, to delete to the end of the line, type

d$

Your file looks like this:

```
ontains_
Text contains lines.
Lines contain characters.
Characters form words.
Words form text.
Files contain text.
Text contains lines.
Lines contain characters.
Characters form words.
Words form text.
~
~
~
```

To delete all the characters on the line before the cursor type

dØ

This leaves a single space on the line:

```
_
Lines contain characters.
Files contain text.
Text contains lines.
Characters form words.
Words form text.
Lines contain characters.
Characters form words.
Words form text.
~
~
~
```

For review, let's restore the first two lines of the file.

Press **i** to enter insert mode, then type

Files contain text.
Text contains lines.

Press **<ESC>** to go back to command mode.

Searching for a Pattern

You can search forward for a pattern of characters by typing a slash (/) followed by the pattern you are searching for, terminated by a <CR>. For example, make sure you are in command mode (press <ESC>), then press

H

to move the cursor to the top of the screen. Now, type

/char

Don't press <Retn>. Your screen should look like this:

```
Files contain text.
Text contains lines.
Lines contain characters.
Characters form words.
Words form text.
Files contain text.
Text contains lines.
Lines contain characters.
Characters form words.
Words form text.
 ~
~
/char_
```

Press **<Retn>**. The cursor moves to the beginning of the word "characters" on line three. To search for the next occurrence of the pattern "char," press **n** (as in "next"). This will take you to the beginning of the word "characters" on the eighth line. If you keep pressing n, vi searches past the end of the file, wraps around to the beginning, and again finds "char" on line three.

Note that the slash character and the pattern that you are searching for appear at the bottom of the screen. This bottom line is the vi status line.

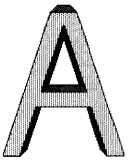
If you want to get status information about the file, press **CTRL-g**. Your screen should look like this:

```
Files contain text.
Text contains lines.
Lines contain characters.
Characters form words.
Words form text.
Files contain text.
Text contains lines.
Lines contain [c]haracters.
Characters form words.
Words form text.
~
"temp" [Modified] line 4 of 10 --4%--
```

The status line tells you the name of the file you are editing, whether it has been modified, the current line number, the number of lines in the file, and your location in the file as a percentage of the number of lines in the file. The status line disappears as you continue working.

Searching and Replacing

Let's say you want to change all occurrences of "text" in the temp file to "documents." Rather than search for "text," then delete it and insert "documents," you can do it all in one command. The commands you have learned so far have all been screen-oriented. Commands that can perform more than one action (searching and replacing) are line-oriented commands.



Screen-oriented commands are executed at the location of the cursor. You do not need to tell the computer where to perform the operation; it takes place relative to the cursor.

Line-oriented commands require you to specify an exact location where the operation is to take place.

Screen-oriented commands are easy to type, and provide immediate feedback; the change is displayed on the screen. Line-oriented commands are more complicated to type, but they can be executed independently of the cursor, and in more than one place in a file at a time.

Precede all line-oriented commands by typing a colon (:). The colon acts as a prompt on the status line. Enter line-oriented commands themselves on this line and terminate the command with a <CR>. In this chapter, all instructions for line-oriented commands will include the colon as part of the command.

To change "text" to "documents," press <ESC> to make sure you are in command mode, then type

:1,$s/text/documents/g

This command means "From the first line (1) to the end of the file ($), find text and replace it with documents (s/text/documents/) everywhere it occurs on each line (g)."

Press **<Retn>**. Your screen should look like this:

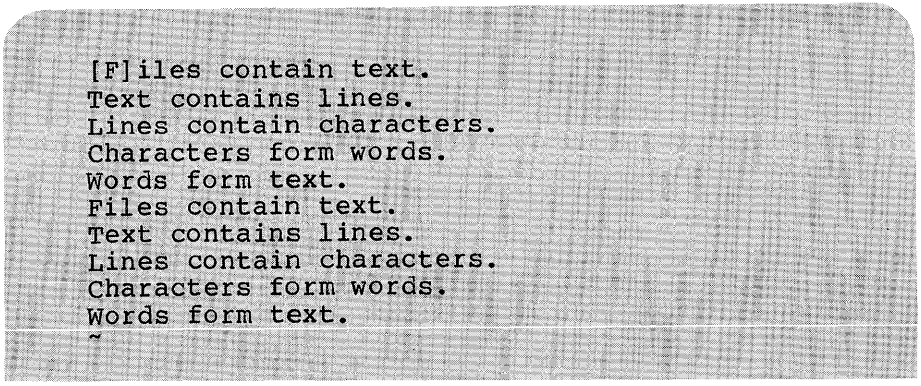
```
Files contain documents.
Text contains lines.
Lines contain characters.
Characters form words.
Words form documents.
Files contain documents.
Text contains lines.
Lines contain characters.
Characters form words.
[W]ords form documents.
~
```

Note that "Text" in lines two and eight was not changed. Case is significant in searches.

Just for practice, use the undo command to change "documents" back to "text." Press

u

Your screen now looks like this:



Leaving Vi

To save the changes you have made, exit the editor, and return to AOM or the Business Shell, type

:wq <Retn> or **:x <Retn>**

The name of the file, and its number of lines and characters are displayed on the status line:

"temp" [New file] 10 lines, 214 characters

Then the prompt appears. In this section we'll create a new file, and insert text into it from another file. First, create a new file named practice by typing

vi practice <Retn>

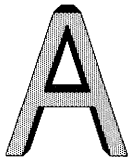
This file is empty. Let's copy the text from temp and put it in practice with the read command. Press <Esc> to make sure you are in command mode, then type

:r temp <Retn>

Your file should look like this:

```
[F]iles contain text.
Text contains lines.
Lines contain characters.
Characters form words.
Words form text.
Files contain text.
Text contains lines.
Lines contain characters.
Characters form words.
Words form text.
~
```

The text from temp has been copied and put in the current file practice. There is an empty line at the top of the file. Move the cursor to the empty line and delete it by typing **dd**.



You can execute commands outside of the vi file you are editing, such as date. To find out the date and time, type

:!date <Retn>

This displays the date, then prompts you to press <Retn> to reenter command mode. Go ahead and try it. Your screen should look similar to this:

```
Files contain text.
Text contains lines.
Lines contain characters.
Characters form words.
Words form text.
Files contain text.
Text contains lines.
Lines contain characters.
Characters form words.
Words form text.
~
:!date
Wed May 1 16:33:37 PST 1985
[Hit return to continue]_
```

Changing Your Display

Besides the set of editing commands described above, there are a number of options that you can set either when you invoke vi, or later when editing. These options allow you to control editing parameters such as line number display, and whether or not case is significant in searches. In this section you'll learn how to turn on line numbering, and how to look at the

current option settings. To turn on automatic line numbering, type

:set number <Retn>

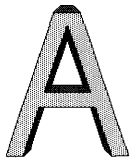
Your screen is redrawn, and line numbers appear to the left of the text. Your screen looks like this:

```
 1 Files contain text.
 2 Text contains lines.
 3 Lines contain characters.
 4 Characters form words.
 5 Words form text.
 6 Files contain text.
 7 Text contains lines.
 8 Lines contain characters.
 9 Characters form words.
10  Words form text.
~
~
```

You can get a complete list of the available options by typing

:set all <Retn>

Setting these options is described in "Setting Up Your Environment." Depending on what you are working on, and your own preferences, you will want to alter the default settings for many of these options.



Canceling an Editing Session

Finally, to exit vi without saving the file practice, type

:q! <Retn>

This cancels all the changes you have made to practice and, since it is a new file, deletes it. The prompt appears. If practice had already existed before this editing session, the changes you made would be disregarded, but the file would still exist.

In this section you learned how to get in and out of vi, insert and delete text, move the cursor, make searches and replacements, copy text from other files, and cancel an editing session. The following sections contain information about these commands and about vi's other commands and features.

Editing Tasks

The following sections explain how to perform common editing tasks.

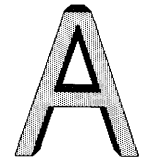
How to Enter the Editor

There are several ways to begin editing, depending on what you are planning to do. This section describes how to start, or "invoke" the editor and create a file. To invoke vi on a series of files, see "Editing a Series of Files."

With a File Name

The most common way to enter vi is to type vi and the name of the file you wish to edit:

vi filename <Retn>



If the file does not already exist, vi creates a new, empty file.

At a Particular Line

You can also enter the editor at a particular place in a file. For example, if you wish to start editing a file at line 100, type

vi +100 filename <Retn>

The cursor is placed at line 100 of filename.

At a Particular Word

If you wish to begin editing at the first occurrence of a particular word, type

vi +/word filename <Retn>

The cursor is placed at the first occurrence of word. For example, to begin editing the file temp at the the first occurrence of "contain," type

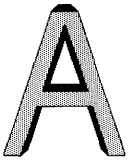
vi +/contain temp <Retn>

Moving the Cursor

Altos terminals have dedicated cursor keys: the left, right, up, and down arrow keys. Other keys also move the cursor; these keys are explained below. You can move the cursor only in command mode.

Moving the Cursor By Characters: h, j, l, SPACE, BACKSPACE

The SPACE bar and the l key move the cursor forward a specified number of characters. The BACKSPACE key and



the h key move it backward a specified number of characters. If no number is specified, the cursor moves one character. For example, to move backward four characters, type

4h

You can also move the cursor to a designated character on the current line. F moves the cursor back to the specified character, f moves it forward. The cursor rests on the specified character. For example, to move the cursor backward to the nearest p on the current line, type

Fp

To move the cursor forward to the nearest p, type

fp

The T and t keys work like f and F, but place the cursor immediately before the specified character. For example, to move the cursor back to the space next to the nearest p in the current line, type

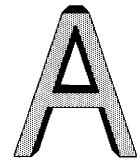
Tp

If the p were in the word telephone, the cursor would sit on the h.

The cursor remains on the same line when you use these commands. If you specify a number greater than the number of characters on the line, the cursor does not move beyond the beginning or end of that line.

Moving the Cursor by Words:
w, W, b, B, e, E

The w key moves the cursor forward to the beginning of the specified number of words. Nonalphabetic characters (such as !@#$%^&*()_+{}[]~|\`<>/) and



punctuation are considered words, so if a word is followed by a comma the cursor will count the comma in the specified number. For example, if the cursor rests on the first letter of the sentence

No, I didn't know he had returned.

and you press

6w

the cursor stops on the k in know.

W works the same way as w, but includes punctuation and nonalphabetic characters as part of the word. Using the above example, if you press

6W

the cursor stops on the r in returned; the comma and the apostrophe are included in their adjacent words. The e and E keys move the cursor forward to the end of a specified number of words. The cursor is placed on the last letter of the word. The e command counts punctuation and nonalphabetic characters as separate words; E does not.

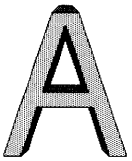
B and b move the cursor back to the beginning of a specified number of words. The cursor is placed on the first letter of the word. The b command counts punctuation and nonalphabetic characters as separate words; B does not. Using the above example, if the cursor is on the r in returned, type

4b

and the cursor moves to the t in didn't. Type

4B

and the cursor moves to the first d in didn't.



The w, W, b and B commands will move the cursor to the next line if that is where the designated word is, unless the current line ends in a space.

Moving the Cursor by Lines

Forward: j, CTRL-N, +, <Retn>, LINEFEED, $

The <Retn>, LINEFEED and + keys move the cursor forward a specified number of lines, placing the cursor on the first character. For example, to move the cursor forward six lines, type

6+

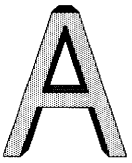
The j and CTRL-N keys move the cursor forward a specified number of lines. The cursor remains in the same column on the line, unless there is no character in that column, in which case it moves to the last character on the line. For example, in the following two lines if the cursor is resting on the e in characters, pressing "j" moves it to the period at the end of the second line:

```
Lines contain characters.
Text contains lines.
```

The dollar sign ($) moves the cursor to the end of a specified number of lines. For example, to move the cursor to the last character of the line four lines down from the current line, type

4$

Backward: k, CTRL-P



CTRL-P and k move the cursor backward a specified number of lines, keeping it in the same column on the line. For example, to move the cursor backward four lines from the current line, type

4k

Moving the Cursor on the Screen:
H, M, L

The H, M and L keys move the cursor to the beginning of the top, middle and bottom lines of the screen, respectively.

Moving Around in a File: Scrolling

The following commands move the file so different parts can be displayed on the screen. The cursor is placed on the first letter of the last line scrolled.

Scrolling Up Part of the Screen:
CTRL-u

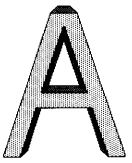
CTRL-u scrolls up one-half screen.

Scrolling Up the Full Screen:
CTRL-b

CTRL-b scrolls up a full screen.

Scrolling Down Part of the Screen:
CTRL-d

CTRL-d scrolls down one-half screen.



Scrolling Down a Full Screen: CTRL-f

CTRL-f scrolls down a full screen.

Placing a Line at the Top of the Screen: z

To scroll the current line to the top of the screen, press

z <Retn>

To place a specific line at the top of the screen, precede the "z" with the line number, as in

33z <Retn>

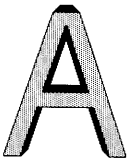
Line 33 scrolls to the top of the screen. For information on how to display line numbers, see "Displaying Line Numbers: number."

Inserting Text Before the Cursor: i and I

You can begin inserting text before the cursor anywhere on a line, or at the beginning of a line. In order to insert text into a file, you must be in insert mode. To enter insert mode press

i

The i does not appear on the screen. Any text typed after the i becomes part of the file you are editing. To leave insert mode and reenter command mode, press **<Esc>**. For more explanation of modes in vi, see "Inserting Text."



Anywhere on a Line: i

To insert text before the cursor, use the i command. Press the **i** key to enter insert mode, then begin typing your text. To leave insert mode and reenter command mode, press **<Esc>**.

At the Beginning of the Line: I

An I moves the cursor to the beginning of the current line and starts an insertion there.

Appending After the Cursor: a and A

You can begin appending text after the cursor anywhere on a line, or at the end of a line. Press <Esc> to leave insert mode and reenter command mode.

Anywhere on a Line: a

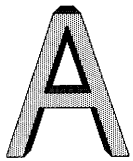
To append text after the cursor, use the a command. Press the **a** key to enter insert mode (the a does not appear on your screen), then begin typing your text. Press **<Esc>** to leave insert mode and reenter command mode.

At the End of a Line: A

An A moves the cursor to the end of the current line so you can append text there.

Correcting Typing Mistakes

If you make a mistake while you are typing, the simplest way to correct it is with the BACKSPACE key. Backspace across the line until you have backspaced over the mistake, then retype the line. You can only



do this, however, if the cursor is on the same line as the error.

Opening a New Line

To open a new line above the cursor, press **O**. To open a new line below the cursor, press **o**. Both commands place you in insert mode, and you may begin typing immediately. Press **<Esc>** to leave insert mode and reenter command mode.

You may also use the <Retn> key to open new lines above and below the cursor. To open a line above the cursor, move the cursor to the beginning of the line, press **i** to enter insert mode, then press **<Retn>**. (For information on how to move the cursor, see "Moving the Cursor.") To open a line below the cursor, move the cursor to the end of the current line, press **i** to enter insert mode, then press **<Retn>**.

Repeating the Last Insertion

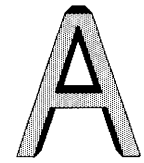
CTRL-@ repeats the last insertion. Press **i** to enter insert mode, then press **CTRL-@**.

CTRL-@ only repeats insertions of 128 characters or less. If more than 128 characters were inserted, CTRL-@ does nothing.

For other methods of repeating an insertion, see "Repeating the Last Insertion," "Inserting Text From Other Files," and "Repeating a Command."

Inserting Text From Other Files

To insert the contents of another file into the file you are currently editing, use the read command.



Move the cursor to the line immediately above the place you want the new material to appear, then type

:r filename <Retn>

where filename is the file containing the material to be inserted. The text of filename appears on the line below the cursor, and the cursor moves to the first character of the new text. This text is a copy; the original filename still exists. Inserting selected lines from another file is more complicated. The selected lines are copied from the original file into a temporary holding place called a "buffer," then inserted into the new file.

1. To select the lines to be copied, save your original file with the write command (**:w**), but do not exit vi.

2. Type

   :e filename <Retn>

   where filename is the file that contains the text you want to copy.

3. Move the cursor to the first line you wish to select.

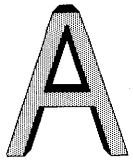
4. Type

   mk

   This "marks" the first line of text to be copied into the new file with the letter "k."

5. Move the cursor to the last line of the selected text. Type

   "ay'k



The lines from your first "mark" to the cursor are placed, or "yanked" into buffer a. They will remain in buffer a until you replace them with other lines, or until you exit the editor.

6. Type

:e# <Retn>

to return to your previous file. (For more information about this command, see "Editing a New File Without Leaving the Editor.") Move the cursor to the line above the place you want the new text to appear, then type

"ap

This "puts" a copy of the yanked lines into the file, and the cursor is placed on the first letter of this new text. The buffer still contains the original yanked lines.

You can have 26 buffers named a, b, c, up to and including z. To name and select different buffers, replace the a in the above examples with whatever letter you wish.

You may also delete text into a buffer, then insert it in another place. For information on this type of deletion and insertion, see "Moving Text."

Copying Lines From Elsewhere in the File

To copy lines from one place in a file to another place in the same file, use the co (copy) command.

Co is a line-oriented command, and to use it you must know the line numbers of the text to be copied and its destination. To find out the number of the current line type

:nu <Retn>

The line number and the text of that line are displayed on the status line. To find out the destination line number, move the cursor to the line above where you want the copied text to appear and repeat the :nu command. You can also make line numbers appear throughout the file with the linenumber option. For information on how to set this option, see "Displaying Line Numbers: number." The following example uses the linenumber option.

```
1 [F]iles contain text.
2 Text contains lines.
3 Lines contain characters.
4 Characters form words.
5 Words form text.
~
~
~
~
~
~
~
```

Using the above example, to copy lines 3 and 4 and put them between lines 1 and 2, type

:3,4 co 1 <Retn>

The result is

```
1 Files contain text.
2 Lines contain characters.
3 [C]haracters form words.
4 Text contains lines.
5 Lines contain characters.
6 Characters form words.
7 Words form text.
~
~
~
~
~
```

If you have text that is to be inserted several times in different places, you can save it in a buffer, and insert it whenever it is needed. For example, to repeat the first line of the following text after the last line:

```
[F]iles contain text.
Text contains lines.
Lines contain characters.
Characters form words.
Words form text.
~
~
~
~
~
~
~
```

1. Move the cursor over the F in Files. Type the following line, which will not be echoed on your screen:

   "ayy

   This "yanks" the first line into buffer a. Move the cursor over the W in Words.

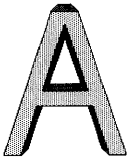
2. Type the following line:

   "ap

This "puts" a copy of the yanked line into the file, and the cursor is placed on the first letter of this new text. The buffer still contains the original yanked line.

Your screen looks like this:

```
Files contain text.
Text contains lines.
Lines contain characters.
Characters form words.
Words form text.
[F]iles contain text.
~
~
~
~
~
~
```



If you wish to "yank" several consecutive lines, indicate the number of lines you wish to yank after the name of the buffer. For example, to place three lines from the above text in the a buffer, type

"a3yy

For another method of placing text in a buffer, and more information about naming buffers, see "Insert- ing Text From Other Files."

Inserting Control Characters into Text

Many control characters have special meaning in vi, even when typed in insert mode. To remove their special significance, press CTRL-V before typing the control character. Note that CTRL-J, CTRL-Q, and CTRL-S cannot be inserted as text. CTRL-J is a newline character. CTRL-Q and CTRL-S are meaningful to the operating system, and are trapped by it before they are interpreted by vi.

Joining and Breaking Lines

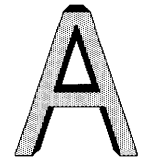
To join two lines press

J

while the cursor is on the first of the two lines you wish to join.

To break one line into two lines, position the cursor on the space preceding the first letter of what will be the second line, press

r



Deleting a Character: x and X

The x and X commands delete a specified number of characters. The x command deletes the character at the cursor; the X command deletes the character immediately before the cursor. If no number is given, one character is deleted. For example, to delete three characters following the cursor (including the character at the cursor), type

```
3x
```

To delete three characters preceding the cursor, type

```
3X
```

Deleting a Word: dw

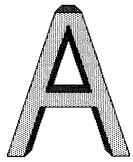
The dw command deletes a specified number of words. If no number is given, one word is deleted. A word is interpreted as numbers and letters separated by whitespace. When a word is deleted, the space after it is also deleted. For example, to delete three words, type

```
3dw
```

Deleting a Line: D and dd

The D command deletes all text following the cursor on that line, including the character the cursor is resting on. The dd command deletes a specified number of lines and closes up the space. If no number is given, only the current line is deleted. For example, to delete three lines, type

```
3dd
```



Another way to delete several lines is to use a line-oriented command. To use this command it helps to know the line numbers of the text you wish to delete. For information on how to display line numbers, see "Displaying Line Numbers: number."

For example, to delete lines 200 through 250, type

:200,250d <Retn>

When the command finishes, the message

50 lines

appears on the vi status line, indicating how many lines were deleted.

It is possible to remove lines without displaying line numbers using shorthand "addresses." For example, to remove all lines from the current line (the line the cursor rests on) to the end of the file, type

:.,$d <Retn>

The period (.) represents the current line, and the dollar sign stands for the last line in the file. To delete the current line and 3 lines following it, type

:.,+3d <Retn>

To delete the current line and 3 lines preceding it, type

:.,-3d <Retn>

Deleting an Entire Insertion

If you wish to delete all of the text you just typed, press **CTRL-U** while you are in insert mode. The cursor returns to the beginning of the insertion. The text of the original insertion is still displayed, and any text

you type replaces it. When you press **<Esc>**, any text remaining from the original insertion disappears.

Deleting and Replacing Text

Several vi commands combine removing characters and entering insert mode. The following sections explain how to use these commands.

Overstriking: r and R

The r command replaces the character at the cursor with the next character typed. To replace the character at the cursor with a "b," type

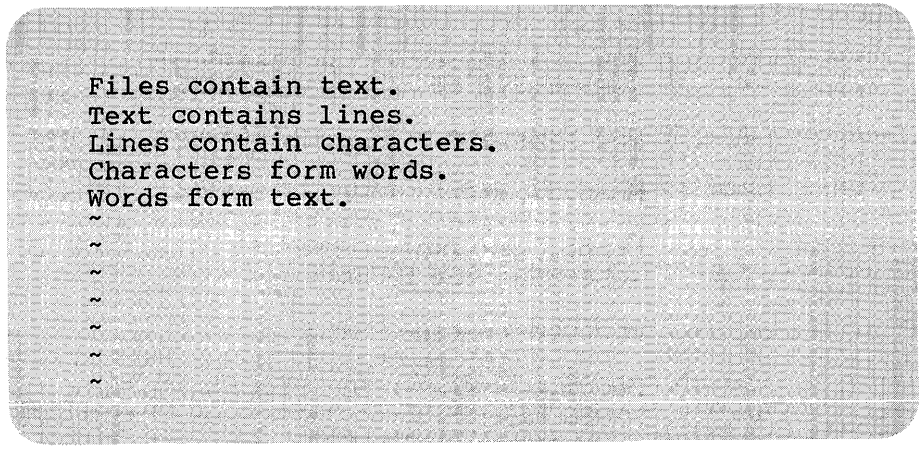
```
rb
```

If a number is given before r, that number of characters is replaced with the next character typed. For example, to replace the character above the cursor, plus the next three characters, with the letter "b," type

```
4rb
```

Note that you now have four "b"s in a row.

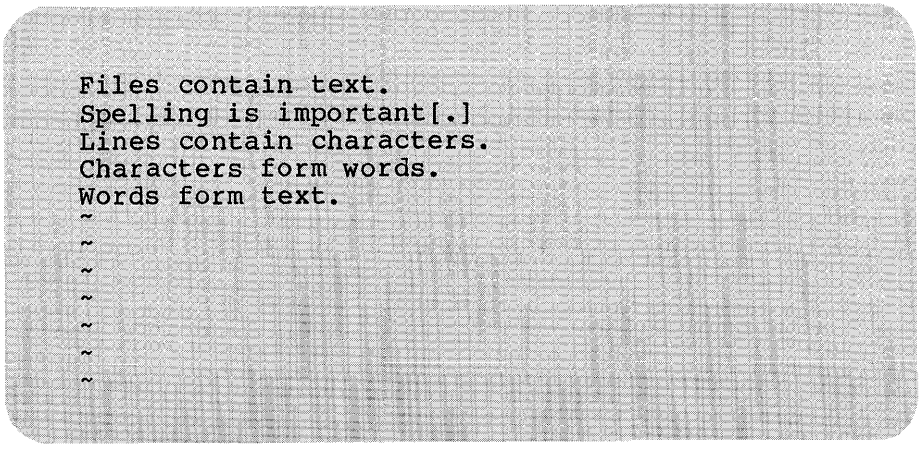
The R command replaces as many characters as you type, up to the end of the line. To end the replacement, press <Esc>. For example, to replace the second line in the following text with "Spelling is important.":

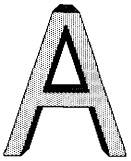


Move the cursor to the T in Text. Press **R**, then type

Spelling is important.

Press **<Esc>** to end the replacement. If you make a mistake, use the BACKSPACE key to correct it. Your screen should now look like this:





Substituting: s and S

The s command replaces a specified number of characters, beginning with the character at the cursor, with text you type in. For example, to substitute xyz for the cursor and two characters following it, type

3sxyz

The S command deletes a specified number of lines and replaces them with text you type. You may type as many new lines of text as you wish; S affects only how many lines are deleted. If no number is given, one line is deleted. For example, to delete four lines, including the current line, type

4S

This differs from the R command. The S command deletes the entire current line; the R command deletes text from the cursor onward.

Replacing a Word: cw

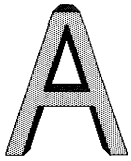
The cw command replaces a word with text you type. For example, to replace the word bear with the word fox, move the cursor over the b in bear. Type

cw

A dollar sign appears after the r in bear, marking the end of the text that is being replaced. Type

fox <Retn>

The rest of bear disappears and only fox remains.



Replacing the Rest of a Line: C

The C command replaces text from the cursor to the end of the line. For example, to replace the text of the sentence

Who's afraid of the big bad wolf?

from big to the end, move the cursor to the b in big and press

C

A dollar sign ($) replaces the question mark (?) at the end of the line. Type the following:

little lamb? <Esc>

The remaining text from the original sentence disappears.

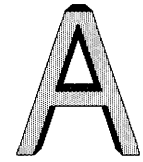
Replacing a Whole Line: cc

The cc command deletes a specified number of lines, regardless of the location of the cursor, and replaces them with text you type. If no number is given, the current line is deleted.

Replacing a Particular Word on a Line

If a word occurs several times on one line, it is often convenient to use a line-oriented command to replace it. For example, to replace the word removing with deleting in the following sentence:

In vi, removing a line is as easy as removing a letter.



Move the cursor to the beginning of that line, and type

:s/removing/deleting/g <Retn>

This line-oriented command means "Substitute (s) for the word removing the word deleting, everywhere it occurs on the current line (g)." If you don't include a g at the end, only the first occurrence of removing is changed.

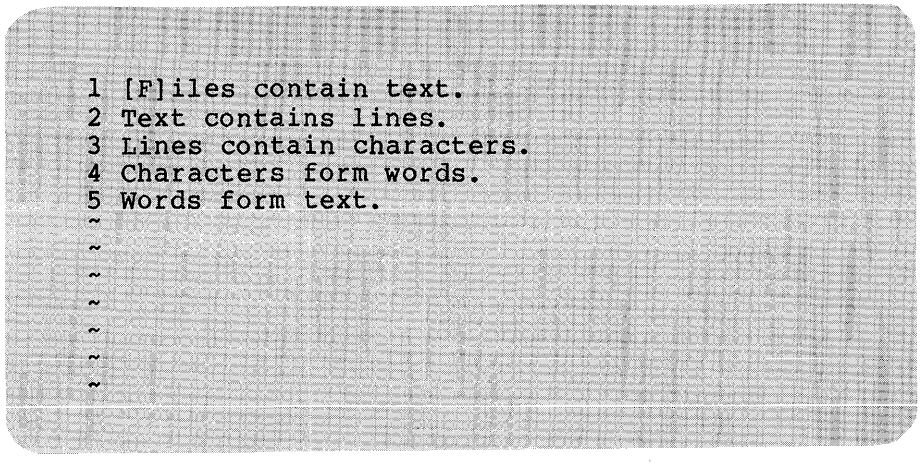
For more information on using line-oriented commands to replace text, see "Searching and Replacing."

Moving Text

To move a block of text from one place in a file to another, you can use the line-oriented m command. You must know the line numbers of your file to use this command. The linenumber option displays line numbers. To set this option, press <Esc> to make sure you are in command mode, then type

set linenumber

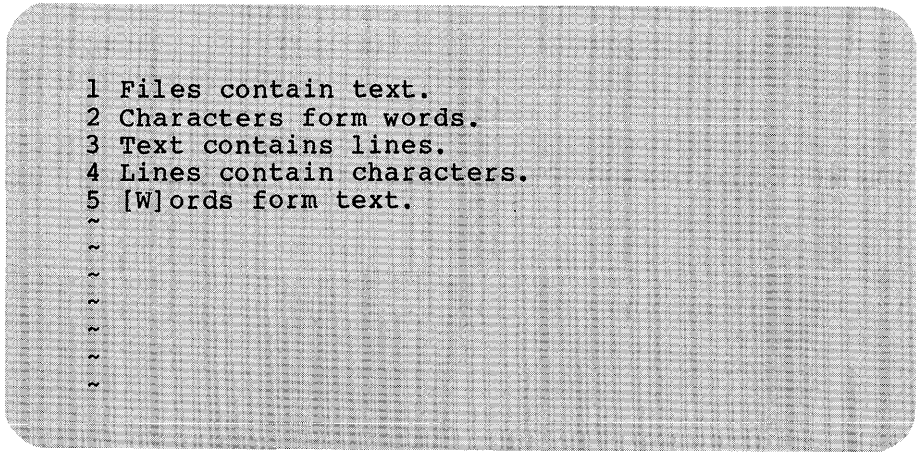
Line numbers will appear to the left of your text. (For more information on setting the linenumber option, see "Displaying Line Numbers: number" and "Finding Out What Line You're On.")



To insert lines 2 and 3 between lines 4 and 5, type

:2,3m4 <Retn>

Your screen should look like this:



To place line 5 after line 2, type

:5m2 <Retn>

After moving, your screen should look like this:

```
1 Files contain text.
2 Characters form words.
3 [W]ords form text.
4 Text contains lines.
5 Lines contain characters.
~
~
~
~
~
~
~
```

To make line 4 the first line in the file, type

:4mØ <Retn>

Your screen should look like this:

```
1 [T]ext contains lines.
2 Files contain text.
3 Characters form words.
4 Words form text.
5 Lines contain characters.
~
~
~
~
~
~
~
```

You can also delete text into a temporary storage place, called a buffer, and insert it wherever you wish. When text is deleted it is placed in a "delete buffer." There are nine delete buffers.

The first buffer always contains the most recent deletion. In other words, the first deletion in a given editing session goes into buffer 1. The second deletion also goes into buffer 1, and pushes the contents of the old buffer 1 into buffer 2. The third deletion goes into buffer 1, pushing the contents of buffer 2 into buffer 3, and the contents of buffer 1 into buffer 2. When buffer 9 has been used, the next deletion pushes the current text of buffer 9 off the stack and it disappears.

Text remains in the delete buffers until it is pushed off, or until you quit the editor, so it is possible to delete text from one file, change files without leaving the editor, and place the deleted text in another file.

Delete buffers are particularly useful when you wish to remove text, store it, and put it somewhere else. Use the following text as an example:

```
[F]iles contain text.
Text contains lines.
Lines contain characters.
Characters form words.
Words form text.
~
~
~
~
~
~
~
```

Delete the first line by typing

dd

Delete the third line the same way. Now move the cursor to the last line in the example and press

"1p

The line from the second deletion appears:

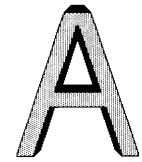
```
Text contains lines.
Characters form words.
Words form text.
[L]ines contain characters.
~
~
~
~
~
~
~
~
```

Now type

"2p

The line from the first deletion appears:

```
Text contains lines.
Characters form words.
Words form text.
Lines contain characters.
[F]iles contain text.
~
~
~
~
~
~
~
```



Inserting text from a delete buffer does not remove the text from the buffer. Since the text remains in a buffer until it is either pushed off the stack or until you quit the editor, you may use it as many times as you wish.

It is also possible to place text in named buffers. For information on how to create named buffers, see "Inserting Text From Other Files."

Searching: / and ?

You can search forward and backward for patterns in vi. To search forward, press the slash (/) key. The slash appears on the status line. Type the characters you wish to search for. Press **<Retn>**. If the specified pattern exists, the cursor will move to the first character of the pattern. For example, to search forward in the file for the word account, type

/account <Retn>

The cursor is placed on the first character of the pattern. To place the cursor at the beginning of the line above account, for example, type

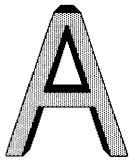
/account/-

To place the cursor at the beginning of the line two lines above the line that contains account, type

/account/-2

To place the cursor two lines below account, type

/account/+2



To search backward through a file, use ? instead of / to start the search. For example, to find all occurrences of account above the cursor, type

?account

To search for a pattern containing any of the special characters (. * \ [ ] ~ $ and ^), each special character must be preceded by a backslash. For example, to find the pattern U.S.A., type

/U\.S\.A\./

You can continue to search for a pattern by pressing

n

after each search. The pattern is unaffected by intervening vi commands, and you can use n to search for the pattern until you type in a new pattern or quit the editor.

Vi searches for exactly what you type. If the pattern you are searching for contains an uppercase letter (for example, if it appears at the beginning of a sentence), vi ignores it. To disregard case in a search command, you can set the ignorecase option:

:set ignorecase <Retn>

By default, searches "wrap around" the file. That is, if a search starts in the middle of a file, when vi reaches the end of the file it will "wrap around" to the beginning, and continue until it returns to where the search began. Searches will be completed faster if you specify forward or backward searches, depending on where you think the pattern is.

If you do not want searches to wrap around the file, you can change the "wrapscan" option setting. Type

:set nowrapscan <Retn>

For more information about setting options, see "Setting Up Your Environment."

Searching and Replacing

The search and replace commands allow you to perform complex changes to a file in a single command.

The syntax of a search and replace command is

```
g/pattern1/s/[pattern2]/[options]
```

Brackets indicate optional parts of the command line. The g tells the computer to execute the replacement on every line in the file. Otherwise the replacement would occur only on the current line. The options are explained in the following sections.

To explain these commands we will use the temp file.

```
[F]iles contain text.
Text contains lines.
Lines contain characters.
Characters form words.
Words form text.
~
~
~
~
~
~
~
```

Replacing a Word

To replace the word contain with the word are throughout the file, type the following command:

:g/contain /s//are /g <Retn>

This command says "On each line of the file (g), find contain and substitute for that word (s//) the word are, everywhere it occurs on that line (the second g)." Note that a space is included in the search pattern for contain; without the space contains would also be replaced. After the command executes your screen should look like this:

```
[F]iles are text.
Text contains lines.
Lines are characters.
Characters form words.
Words form text.
~
~
~
~
~
~
~
```

Printing All Replacements

To replace contain with are throughout the file, then print every line changed, use the p option:

:g/contain /s//are /gp <Retn>

After the command executes, each line in which contain was replaced by are is printed on the lower part of the screen. To remove these lines, redraw the screen by pressing CTRL-L.

Choosing a Replacement

Sometimes you may not want to replace every instance of a given pattern. The c option displays every occurrence of pattern and waits for you to confirm that you want to make the substitution. If you press y the substitution takes place; if you press <Retn> the next instance of pattern is displayed.

To run this command on the temp file, type

:g/contain/s//are/gc <Retn>

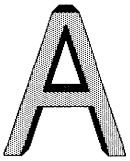
The first instance of contain appears on the status line:

Files contain text.

Press **y**, then **<Retn>**. The next occurrence of contain appears.

Pattern Matching

Search commmands often require, in addition to the characters you want to find, a context in which you want to find them. For example, you may want to locate every occurrence of a word at the beginning of a line. Vi provides several special characters that specify particular contexts.



Matching the Beginning of a Line

When a caret(^) is placed at the beginning of a pattern, only patterns found at the beginning of a line are matched. For example, the following search pattern only finds text when it occurs as the first word on a line:

:/^text/ <Retn>

To search for a caret that appears as text you must precede it with a backslash (\).

Matching the End of a Line

When you put a dollar sign ($) at the end of a pattern, only patterns found at the end of a line are matched. For example, the following search pattern only finds text when it occurs as the last word on a line:

:/text$/ <Retn>

To search for a dollar sign that appears as text you must precede it with a backslash (\).

Matching Any Single Character

In a search pattern, the period (.) matches any single character except the newline character. For example, to find all words that end with ed, use the following pattern:

:/.ed / <Retn>

Note the space between the d and the backslash.

To search for a period in the text, you must precede it with a backslash (\).

Matching a Range of Characters

A set of characters enclosed in square brackets matches any single character in the range designated. For example, the search pattern

:/[a-z]/ <Retn>

finds any lowercase letter. The search pattern

:/[aA]pple/ <Retn>

finds all occurrences of apple and Apple.

To search for a bracket that appears as text, you must precede it with a backslash (\).

Matching Exceptions

A caret (^) at the beginning of string matches every character except those specified in string. For example the search pattern

:[^a-z] <Retn>

finds anything but a lowercase letter or a newline.

Matching the Special Characters

To place a caret, hyphen or square bracket in a search pattern, precede it with a backslash. To search for a caret, for example, type

:/\^/ <Retn>

If you need to search for many patterns that contain special characters, you can reset the magic option. To do this, type

:nomagic <Retn>

This removes the special meaning from the characters ., \, $, [and]. You can include them in search and replace commands without a preceding backslash. Note that the special meaning cannot be removed from the special characters star (*) and caret (^); these must always be preceded by a backslash in searches.

To restore magic, type

:set magic <Retn>

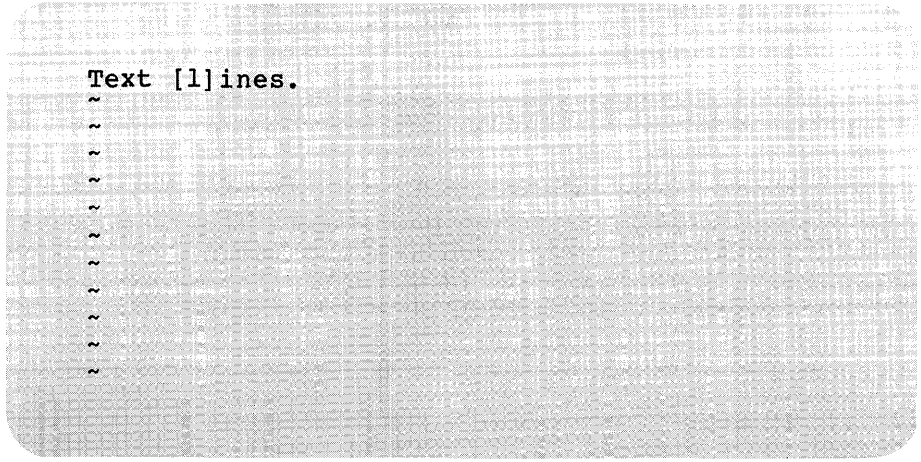
For more information about setting options, see "Setting Up Your Environment."

Undoing a Command: u

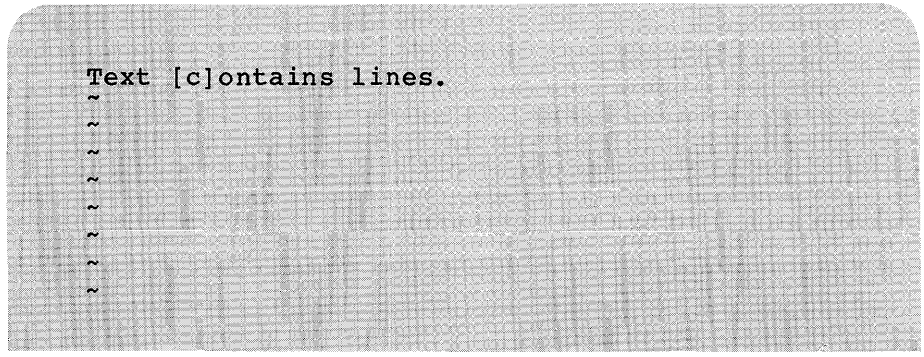
Any editing command can be reversed with the "undo" command. Undo works on both screen-oriented and line-oriented commands. For example, if you have deleted a line and then decide you wish to keep it, press u and the line will reappear. Use the following line as an example:

```
[T]ext contains lines.
~
~
~
~
~
~
~
~
~
~
~
```

Place the cursor over the c in contains, then delete the word with the dw command. Your screen should look like this:



Press **u** to undo the dw command. Contains reappears:



If you press **u** again, contains is deleted again:

```
Text [l]ines.
~
~
~
~
~
~
~
~
~
~
```

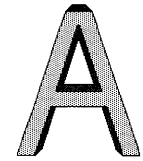
It is important to remember that u only undoes the last command. For example, if you make a global search and replace, then delete a few characters with the x command, pressing u will undo the deletions but not the global search and replace.

Repeating a Command: .

Any screen-oriented vi command can be repeated with the repeat (.) command. For example, if you have deleted two words by typing

2dw

you may repeat this command as many times as you wish by pressing the period (.). Cursor movement does not affect the repeat command, so you may repeat a command as many times and in as many places in a file as you wish.



The repeat command only repeats the last vi command. Careful planning can save time and effort. For example, if you want to replace a word that occurs several times in a file (and for some reason you do not wish to use a global command), use the cw command instead of deleting the word with the dw command, then inserting new text with the i command. By using the cw command you can repeat the replacement with the dot (.) command. If you delete the word, then insert new text, dot only repeats the replacement.

Leaving the Editor

There are several ways to exit the editor and save any changes you may have made to the file. One way is to type

:x <Retn>

This command replaces the old copy of the file with the new one you have just edited, quits the editor, and returns you to the shell. Similarly, if you type

ZZ

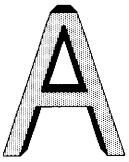
the same thing happens, except the old copy file is written out only if you have made any changes. Note that the **ZZ** command is not preceded by a colon, and is not echoed on the screen.

To leave the editor without saving any changes you have made to the file, type

:q!

The exclamation point tells vi to quit unconditionally. If you leave out the exclamation point

:q



vi will not let you quit. You will see the error message:

No write since last change (:quit! overrides)

This message tells you to use ":q!" if you really want to leave the editor without saving your file.

Saving a File Without Leaving the Editor

There are many occasions when you must save a file without leaving the editor, such as when starting a new shell, or moving to another file. Before you can perform these tasks you must first save the current file with the write command:

:w <Retn>

You do not need to type the name of the file; vi remembers the name you used when you invoked the editor. If you invoked vi without a filename, you may name the file by typing

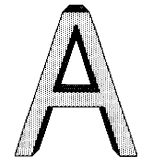
:w filename <Retn>

where filename is the name of the new file.

Editing a Series of Files

Entering and leaving vi for each new file takes time, particularly on a heavily used system, or when you are editing large files. If you have many files to edit in one session, you can invoke vi with more than one file name, and thus edit more than one file without leaving the editor, as in:

vi file1 file2 file3 file4 file5 file6 <Retn>



But typing out many file names is tedious, and you may make a mistake. If you mistype a file name, you must either backspace over to mistake and retype the line, or kill the whole line and retype it. It is more convenient to invoke vi using the special characters as abbreviations. To invoke vi on the above files without typing each name, type

vi file* <Retn>

This invokes vi on all files that begin with the letters file. You can plan your file names to save time in later editing. For example, if you are writing a document that consists of many files, it would be wise to give each file the same file name extension, such as ."s." Then you can invoke vi on the entire document:

vi *.s <Retn>

You can also invoke vi on a selected range of files:

vi [3-5]*.s <Retn>

or

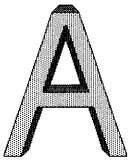
vi [a-h]* <Retn>

To invoke vi on all files that are five letters long, and have any extension:

vi ?????.* <Retn>

When you invoke vi with more than one file name, you will see the following message when the first file is displayed on the screen:

x files to edit



After you have finished editing a file, save it with the write command (:w), then go to the next file with the next command:

:n <Retn>

The next file appears, ready to edit. It is not necessary to specify a file name; the files are invoked in alphabetical (or numerical, if the file names begin with numbers) order. If you forget what files you are editing, type

:args <Retn>

The list of files appears on the status line. The current file is enclosed in square brackets.

To edit a file out of order, such as file4 after file2, type

:e file4 <Retn>

instead of using the next command. If you type

:n <Retn>

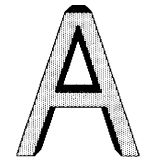
after you finish editing file4, you will go back to file3.

If you wish to start again from the beginning of the list, type

:rew <Retn>

To discard the changes you made and start again at the beginning, type

:rew! <Retn>



Editing a New File Without Leaving the Editor

You can start editing another file anywhere on the system without leaving vi. This saves time when you wish to edit several files in one session that are in different directories, or even in the same directory. For example, if you have finished editing /usr/joe/memo and you wish to edit /usr/mary/letter, first save the file memo with the w command (**:w**), then type

:e /usr/mary/letter <Retn>

/usr/mary/letter appears on your screen.

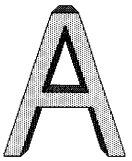
NOTE

You must write out your file with the write command (:w) if you want to save the changes you have made. If you try to edit a second file without writing out the first file, the message "No write since last change (:e! overrides)" appears. If you use :e! all your changes to the first file are discarded.

If you want to switch back and forth between two files, vi remembers the name of the last file edited. Using the above example, if you wish to go back and edit the file /usr/joe/memo after you have finished with /usr/mary/letter, type

:e# <Retn>

The cursor is positioned in the same location it was when you first saved /usr/joe/memo.



Leaving the Editor Temporarily: Shell Escapes

You can execute any command from within vi using the shell "escape" (as in, "escape from vi") command, !. For example, if you wish to find out the date and time, type

:!date <Retn>

The exclamation point sends the remainder of the line to the shell to be executed, and the date and time appear on the vi status line. You can use the ! to perform any command. To send mail to joe without leaving the editor, type

:!mail joe <Retn>

Type your message and send it. Then, the message

[Hit return to continue]

appears. Press **<Retn>** to continue editing.

If you want to perform several commands before returning to the editor, you can invoke a new shell:

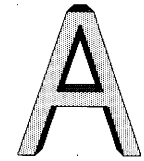
:!sh <Retn>

The prompt appears. You may execute as many commands as you like. Press **CTRL-d** to terminate the new shell and return to your file.

If you have not written out your file before a shell escape, you will see the message:

[No write since last change]

It is a good idea to save your file with the write command (:w) before executing an escape, just in case something goes wrong. However, once you become an experienced vi user, you may wish to turn off this



message. To turn off the "No write" message, reset the warn option, as follows:

```
:set nowarn <Retn>
```

For more information about setting options in vi, see "Setting Up Your Environment."

Performing a Series of Line-Oriented Commands: Q

If you have several line-oriented commands to perform, you can place yourself temporarily in line-oriented mode by typing

```
Q
```

while you are in command mode. A colon prompt appears on the status line.

Commands executed in this mode cannot be undone with the u command, nor do they appear on the screen until you re-enter normal vi mode. To re-enter normal vi mode, type

```
vi
```

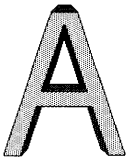
Finding Out What File You're In

If you forget what file you are editing, press **CTRL-G** while you are in command mode. A line similar to the following appears appears on the status line:

```
"memo" [Modified] line 12 of 100 --12%--
```

From left to right, the following information is displayed:

- The name of the file
- Whether or not the file has been modified



- The line number the cursor is on
- How many lines there are in the file
- Your location in the file (expressed as a percentage.)

This command is also useful when you need to know the line number of the current line for a line-oriented command.

The same information can be obtained by typing

:file <Retn>

or

:f <Retn>

Finding Out What Line You're On

To find out what line of the file you are on, type

:nu <Retn>

This command displays the current line number and the text of the line. To display line numbers for the entire file, see "Displaying Line Numbers: number."

Solving Common Problems

The following is a list of common problems that you may encounter when using vi, along with the probable solution.

I don't know which mode I'm in.

Press **<Esc>** until the bell rings. When the bell rings you are in command mode.

I can't get out of a subshell.

Press **CTRL-d** to exit any subshell. If you have created more than one subshell (not a good idea, usually), keep pressing **CTRL-d** until you see the message:

[Hit return to continue]

I made an inadvertent deletion (or insertion).

Press **u** to undo the last delete or insert command.

There are extra characters on my screen.

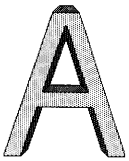
Press **CTRL-l** to redraw the screen.

When I type, nothing happens.

Vi has crashed and you are now in the shell with your terminal characteristics set incorrectly. To reset the keyboard, slowly type

stty sane

then press **CTRL-j** or LINEFEED. Pressing CTRL-j instead of <Retn> is important here, since it is quite possible that the <Retn> key will not work as a newline character. To make sure that other terminal characteristics have not been altered, log off, turn your terminal off, turn your terminal back on, and then log back in. This should guarantee that your terminal's characteristics are back to normal. This procedure may vary somewhat depending on the terminal.



The system crashed while I was editing.

Normally, vi will inform you (by sending you mail) that your file has been saved before a crash. The file can be recovered by typing

vi -r filename <Retn>

If vi was unable to save the file before the crash, it is irretrievably lost.

I get a colon on the status line when I press <Retn>.

You are in line-oriented command mode. Type

vi

to return to normal vi command mode.

I get the error message "Unknown terminal type [Using open mode]" when I invoke vi.

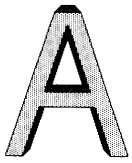
Your terminal type is not set correctly. To leave open mode, press **<Esc>**, then type

:wq <Retn>

Turn to "Setting the Terminal Type" for information on how to set your terminal type correctly.

SETTING UP YOUR ENVIRONMENT

You can set a number of options that affect your terminal type, how files and error messages are displayed on your screen, and how searches are performed. You can set these options with the set command while you are editing, or you can place tgen in the vi startup file, .exrc. (The .exrc file is explained in "Customizing Your Environment: The .exrc



File.") The following sections describe the most commonly used options and how to set them.

Setting the Terminal Type

Before you can use vi, you must set the terminal type, if this has not already been done, by defining the TERM variable in your .profile file. The TERM variable is a number that tells the operating system what type of terminal you are using. To determine this number you must find out what type of terminal you are using. If you don't know your terminal type or its number, consult your System Administrator.

For these examples, we will use an Altos III terminal. For the Altos III, the TERM variable is "altos3." To set your terminal type, place the following commands in the file .profile:

```
TERM=altos3
export TERM
```

Setting Options: The set Command

The set command is used to display option settings and to set options.

Listing the Available Options

To get a list of the options available to you and how they are set, type

```
:set all <Retn>
```

Your display should look similar to this:

```
noautoindent    open                          noslowopen
autoprint       nooptimize                    tabstop=8
noautowrite     paragraphs=IPLPPPQPP LIbp     taglength=Ø
nobeautify      noprompt                      ttytype=hl9
directory=/tmp  noreadonly                    term=hl9
noerrorbells    redraw                        noterse
hardtabs=8      report=5                      warn
noignorecase    scroll=4                      window=8
nolisp          sections=NHSHH HU             wrapscan
nolist          shell=/bin/sh                 wrapmargin=Ø
magic           shiftwidth=8                  nowriteany
nonumber        noshowmatch
```

This chapter discusses only the most commonly used options. For information about the options not covered in this chapter, see vi in the Commands Directory for each system.

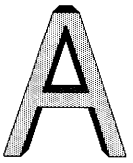
Setting an Option

To set an option, use the set command. For example, to set the ignorecase option so that case is not ignored in searches, type

:set noignorecase <Retn>

List causes the "hidden" characters and end-of-line to be displayed. The default setting is nolist. To display these characters, type

:set list <Retn>



Your screen is redrawn. The dollar sign ($) represents end-of-line and CTRL-i (^I) represents the tab character.

Ignoring Case in Search Commands: ignorecase

By default, case is significant in search commands. To disregard case in searches, type

:set ignorecase <Retn>

To change this option, type

:set noignorecase <Retn>

Displaying Line Numbers: numbers

It is often useful to know the line numbers of a file. To display these numbers, type

:set number <Retn>

This redraws your screen. Numbers appear to the left of the text. To remove line numbers, type

:set nonumber <Retn>

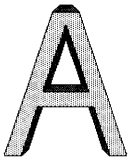
Printing the Number of Lines Changed: report

The report option tells you the number of lines modified by a line-oriented command. For example,

:set report=1 <Retn>

reports the number of lines modified, if more than one line is changed. The default setting is

report=5



which reports the number of lines changed when more than five lines are modified.

Changing the Terminal Type: term

If you are logged in on a terminal that is a different type than the one you normally use, you can check the terminal type setting by typing:

:set term <Retn>

See "Setting the Terminal Type" for more information about TERM variables.

Shortening Error Messages: terse

After you become experienced with vi, you may want to shorten your error messages. To change from the default (noterse), type

:set terse <Retn>

When terse is set the message

No write since last change, quit! overrides

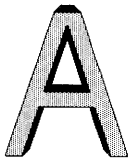
becomes

No write

Turning Off Warnings: warn

After you become experienced with vi, you may want to turn off the error message that appears if you have not written out your file before a shell escape (:!) command. To turn these messages off, type

:set nowarn <Retn>



The nomagic option allows the inclusion of the special characters (. \ $ [ ]) in search patterns without a preceding backslash. This option does not affect caret (^) or star (*); they must be preceded by a backslash in searches regardless of magic. To set nomagic, type

:set nomagic <Retn>

Limiting Searches: wrapscan

By default, searches in vi "wrap" around the file until they return to the place they started. To save time you may want to disable this feature. Type:

:set nowrapscan <Retn>

When this option is set, forward searches go only to the end of the file, and backward searches stop at the beginning.

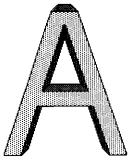
Turning on Messages: mesg

If someone sends you a message with the write command while you are in vi, the text of the message will appear on your screen. To remove the message from your display, press CTRL-L. When you invoke vi, write permission to your screen is automatically turned off, preventing write messages from appearing. If you wish to receive write messages while in vi, type:

:set mesg <Retn>

Customizing Your Environment: The .exrc File

Each time vi is invoked, it reads commands from the file named .exrc in your home directory. This file sets your preferred options so that they do not need to be set each time you invoke vi. A sample .exrc file follows:




```
set number
set ignorecase
set nowarn
set report=1
```

Each time you invoke vi with the above options, your file is displayed with line numbers, case is ignored in searches, warnings before shell escape commands are turned off, and any command that modifies more than one line will display a message indicating how many lines were changed.

Vi Quick Reference

The following pages briefly describe the basic the commands discussed in this appendix.

Vi Quick Reference

Entering /Leaving Vi

% vi name	edit name at top
% vi +n name	... at line n
% vi + name	... at end
% vi -r	list saved files
% vi -r name	recover file name
% vi name ...	edit first; rest via :n
% vi -t tag	start at tag
% vi +/pat name	search for pat
% view name	read only mode
wq or x	exit from vi, saving changes

The display

Last line	Error messages, echoing input to : / ? and !, feedback about i/o and large changes.
@ lines	On screen only, not in file.
~ lines	Lines past end of file.
^x	Control characters, ^? is delete.
tabs	Expand to spaces, cursor at last.

Vi states

Command	Normal and initial state. Others return here. ESC (escape) cancels partial command.
Insert	Entered by a i A I o O c C s S R. Arbitrary text then terminates with ESC character, or abnormally with interrupt.
Last line	Reading input for : / ? or !; terminate with ESC or CR to execute, interrupt to cancel.

Counts before Vi commands

line/column number	z G |
scroll amount	^D ^U
replicate insert	a i A I
repeat effect	most rest

Simple commands

dw	delete a word
de	... leaving punctuation
dd	delete a line
3dd	... 3 lines
itextESC	insert text abc
cwnewESC	change word to new
easESC	pluralize word
xp	transpose characters

Insert and replace

```
a       append after cursor
i       insert before
A       append at end of line
I       insert before first non-blank
o       open line below
O       open above
rx      replace single char with x
R       replace characters
```

Operators (double to affect lines)

```
d       delete
c       change
<       left shift
>       right shift
!       filter through command
=       indent for LISP
y       yank lines to buffer
```

Miscellaneous operations

```
C       change rest of line
D       delete rest of line
s       substitute chars
S       substitute lines
J       join lines
x       delete characters
X       ... before cursor
Y       yank lines
```

Yank and put

```
p       put back lines
P       put before
"xp     put from buffer x
"xy     yank to buffer x
"xd     delete into buffer x
```

Undo, redo, retrieve

```
u       undo last change
U       restore current line
.       repeat last change
"dp     retrieve d'th last delete
```

Interrupting, cancelling

ESC	end insert or incomplete cmd
^?	(delete or rubout) interrupts
^L	reprint screen if ^? scrambles it

File manipulation

:w	write back changes
:wq	write and quit
:q	quit
:q!	quit, discard changes
:e name	edit file name
:e!	reedit, discard changes
:e + name	edit, starting at end
:e +n	edit starting at line n
:e #	edit alternate file
^^	synonym for :e #
:w name	write file name
:w! name	overwrite file name
:sh	run shell, then return
:!cmd	run cmd, then return
:n	edit next file in arglist
:n args	specify new arglist
:f	show current file and line
^G	synonym for :f
:ta tag	to tag file entry tag
^]	:ta, following word is tag

Positioning within file

^F	forward screenfull
^B	backward screenfull
^D	scroll down half screen
^U	scroll up half screen
G	goto line (end default)
/pat	next line matching pat
?pat	prev line matching pat
n	repeat last / or ?
N	reverse last / or ?
/pat/+n	n'th line after pat
?pat?-n	n'th line before pat
]]	next section/function
[[	previous section/function
%	find matching ( ) { or }

Adjusting the screen

^L	clear and redraw
^R	retype, eliminate @ lines
zCR	redraw, current at window top
z-	... at bottom
z.	... at center
/pat/z-	pat line at bottom
zn.	use n line window
^E	scroll window down 1 line
^Y	scroll window up 1 line

Marking and returning

``	previous context
''	... at first non-white in line
mx	mark position with letter x
`x	to mark x
'x	... at first non-white in line

Line positioning

H	home window line
L	last window line
M	middle window line
+	next line, at first non-white
-	previous line, at first non-white
CR	return, same as +
j or	next line, same column
↓ or k	previous line, same column

Character positioning

↑	first non white
0	beginning of line
$	end of line
h or ->	forward
l or <-	backwards
^H	same as <-
space	same as ->
fx	find x forward
Fx	f backward
tx	upto x forward
Tx	back upto x
;	repeat last f F t or T
,	inverse of ;
|	to specified column
%	find matching ({) or }

Words, sentences, paragraphs

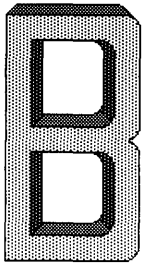
w	word forward
b	back word
e	end of word
)	to next sentence
}	to next paragraph
(	back sentence
{	back paragraph
W	blank delimited word
B	back W
E	to end of W

Commands for LISP

)	Forward s-expression
}	... but don't stop at atoms
(	Back s-expression
{	... but don't stop at atoms

Corrections during insert

^H	erase last character
^W	erases last word
erase	your erase, same as ^H
kill	your kill, erase input this line
\	escapes ^H, your erase and kill
ESC	ends insertion, back to command
^?	interrupt, terminates insert
^D	backtab over autoindent
↑^D	kill autoindent, save for next
0^D	... but at margin next also
^V	quote non-printing character



APPENDIX B
FILE TRANSFER PROGRAMS

INTRODUCTION. B-3
Setup Procedures B-3
Determining Procedures B-9
FTP FOR CP/M AND MP/M TO XENIX/UNIX B-9
FTP FOR XENIX/UNIX TO XENIX/UNIX. B-12
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INTRODUCTION

The File Transfer Program (FTP) transfers ASCII text files or binary data files from XENIX/UNIX-to-XENIX/UNIX, MP/M-to-XENIX/UNIX, and XENIX/UNIX-to-MP/M on Altos computer systems. You should be familiar with your operating system and MP/M before you use these programs. For some systems, Concurrent CP/M is used instead of MP/M.

The programs only transfer files; they do NOT convert MP/M programs to system compatible programs or system programs to MP/M programs.

NOTE

Use the FTP program between Altos computer systems. For transferring files remotely between Altos computer systems, use the cu or uucp utility. These utilities are described in the XENIX Development System manual and the UNIX System V Commands Directory.

Setup Procedures

Before you transfer files, do the following:

1. Connect the physical port on each machine via a null-modem cable. Refer to the chart on the next page to determine the appropriate port. Refer to Figures B-1, B-2 and B-3 if you need to make a null-modem cable.

System	Sending/Receiving Operating System	Default Port
ALTOS 486	XENIX CP/M, MP/M	5
ALTOS 586 586T	XENIX CP/M, MP/M	6
ALTOS 986 986T	XENIX CP/M, MP/M	6 1Ø
ALTOS 1Ø86	XENIX	any
ALTOS 2Ø86	XENIX	any
ALTOS 86ØØ	XENIX CP/M, MP/M	6 8
ALTOS 3Ø68	UNIX CP/M, MP/M	any

You may need to disconnect the printer cable before installing the null-modem cable, or install a selector switch.

Figure B-1 shows how to make a null-modem cable to connect two Altos computers, one having a 9-pin RS-232 connector, and the other having a 25-pin connector. This cable has a female 9-pin connector on one end and a male 25-pin connector on the other end.

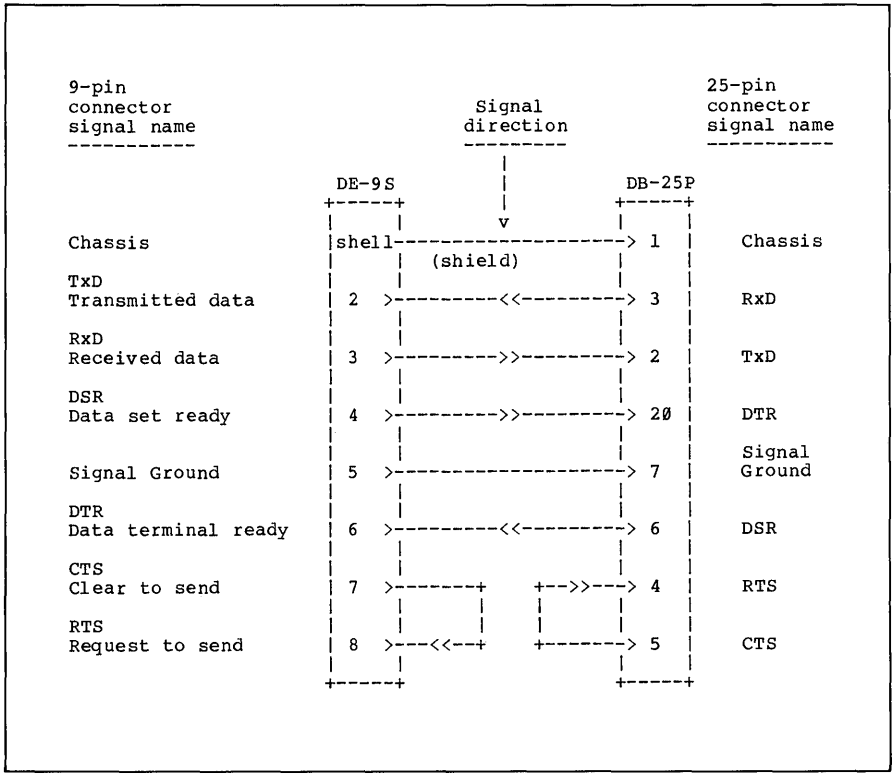


Figure B-1. 9 to 25 Pin Connectors

Figure B-2 shows how to make a null-modem cable connect two Altos computers that both have 9-pin RS-232 connectors. This cable has a female 9-pin connector on each end.

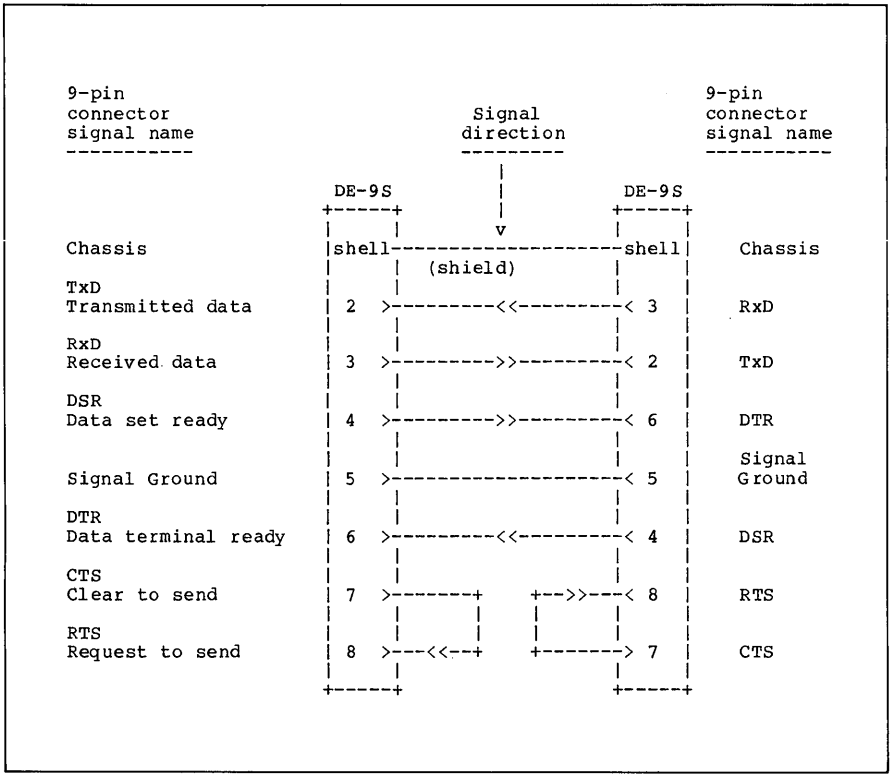


Figure B-2. 9 to 9 Pin Connectors

Figure B-3 shows how to make a null-modem cable to connect two Altos computers, both of which have 25-pin RS-232 connectors. This cable has male 25-pin connectors on each end.

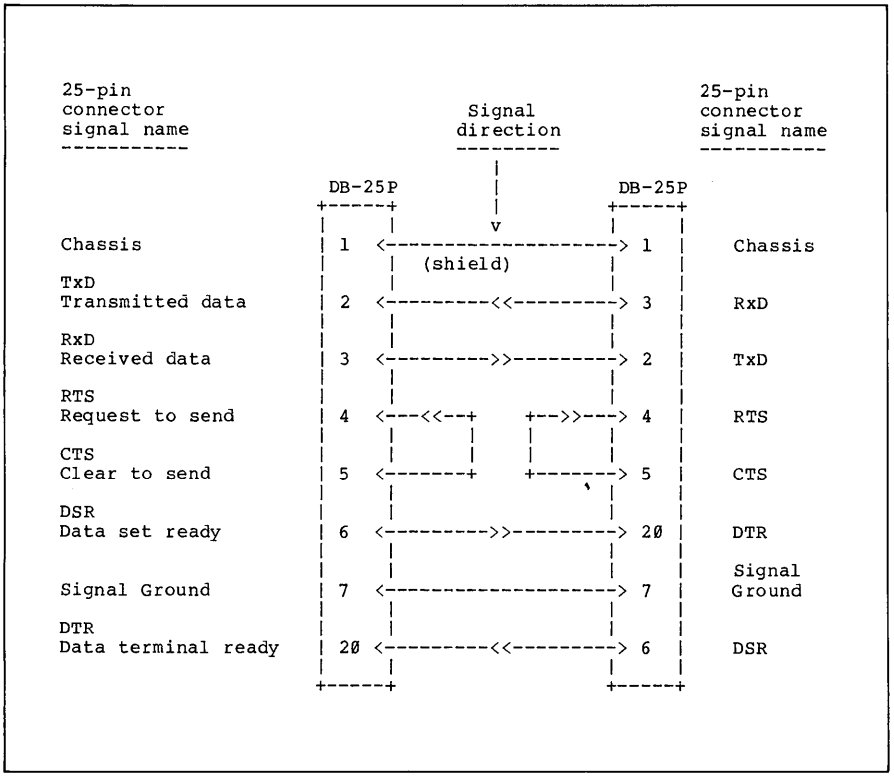


Figure B-3. 25 to 25 Pin Connector

2. The operating system can use any available port, but first you must disable it. To disable the sending/receiving port(s), become the system administrator, then type:

   # disable device <Retn>

where:

   device = the port to which the null-modem cable is attached. For example, /dev/tty6.

NOTE

If your Altos system has WorkNet, do not use the WorkNet port for the file transfer program.

If the cable gets disconnected during transmission, wait for the file transfer procedure to stop (takes up to a minute) before restarting on the same port. Otherwise, the first file transfer procedure interferes with the second.

3. Select the same baud rates for both machines. For MP/M 16-bit machines, enter **MPMSETUP <Retn>** then alter the port configuration to set the correct baud rate.

   Altos systems can run at 9600 baud on send and receive. Use the AOM Set Up Ports command to set the correct baud rate.

4. Make sure file names are compatible between systems (later you can copy the file and rename it). Files sent from MP/M or CP/M systems to your operating system contain 11 characters; some characters may be trailing spaces. If you

enclose the entire file name in quotes, the system recognizes it as the intended file name.

Determining Procedures

Refer to the sections in the chart below to determine the appropriate file transfer procedure.

Sending Operating System	Receiving Operating System	Use Procedure
CP/M - MP/M	XENIX/UNIX	FTP for MP/M to XENIX/UNIX
XENIX/UNIX	XENIX/UNIX	FTP for XENIX/UNIX to XENIX/UNIX
XENIX/UNIX	CP/M - MP/M	FTP for XENIX/UNIX to MP/M

FTP FOR CP/M AND MP/M TO XENIX/UNIX

FTP resides on both MP/M master distribution diskettes and transfers files to a XENIX/UNIX system from any 8- or 16-bit Altos Computer System. FTP provides full error checking. Correction is accomplished by re-transmission of data blocks.

Follow the setup procedures on pages B-3 and B-4.

It does not matter which side, sending or receiving, is started first, as long as both sides are started within one minute of each other.

Start the sending side by entering one of the following commands:

```
ØC>ftp86 filename <Retn>

          or

ØC>ftp86 u: filename <Retn>
```

where:

filename = the name of the file you are transferring.

u: = the drive letter of the destination disk. If no drive letter is specified, the logged disk is the destination disk.

Next, a message on the screen asks you to choose the port number you are using for the FTP procedure.

The sending side displays an "s" every few seconds until communication is established with the other side.

Start the receiving side of the transfer by using the command format

```
$ ftp   -f device   -s speed   name  <Retn>
```

where:

device = the special file device that transfers files between machines. For example, the default device is /dev/tty6 (port 6) on the 586/986 series. If you don't specify the device, omit the "-f" also. Then FTP uses the default device.

speed = transmission speed: 1200, 2400, 4800, or 9600 bits per second. The default is 9600 baud. If you don't specify the speed, omit the "-s" also. Then FTP uses the default speed.

name = directory, if other than home directory. For example, if you want to transfer the file "update" to your directory "newdir," enter "newdir" as the name.

The receiving FTP periodically displays a "w" while waiting for the sender to become active.

For example, to transfer the file named "update" to the "newdir" directory on the XENIX system, enter

Sending Side: 0C> **ftp86 update <Retn>**

Receiving Side: $ **ftp -f /dev/tty2 -s 4800 newdir <Retn>**

If you do not start procedures within a minute of each other, the system times out and the $ prompt reappears. To redisplay the MP/M prompt, press **CTRL-c**. Then restart the procedures.

After the transfer, file names that don't have 11 characters contain trailing spaces. For example, the file named update has 6 letters and 5 trailing spaces.

Rename a transferred file so XENIX or UNIX easily recognizes the file. Be sure to type the name and number of trailing spaces (up to 11 characters). Enclose the 11 characters in single quotation marks. For example,

$ **mv 'UPDATE ' update <Retn>**

FTP FOR XENIX/UNIX TO XENIX/UNIX

FTP can transfer files between two Altos Computer Systems running the XENIX or UNIX operating system.

Follow the setup procedures on pages B-3 and B-4.

It does not matter which side, sending or receiving, is started first, as long as both sides are started within one minute of each other.

Start the FTP utility by using the following command format on the sending computer:

```
ftp   -f device   -s speed   name
```

where:

device = the port to which the null-modem cable is attached. For example, the default device on the 586/986 series is port 6. The sending/receiving port numbers don't have to be the same. If you don't specify the device, omit the "-f" also. Then FTP will use the default device.

speed = transmission speed: 1200, 2400, 4800, or 9600 bits per second. The default is 9600 baud. If you don't specify the speed, omit the "-s" also. Then FTP will use the default speed.

name = the name of the file you are sending.

The sending side displays an "s" every few seconds until communication is established with the other side.

Enter the FTP utility on the receiving computer using the format

```
ftp   -f device   -s speed   name
```

where:

device = the port to which the null-modem cable is attached. For example, the default device on the 586/986 series is port 6. The sending/receiving port numbers don't have to be the same. If you don't specify the device, omit the "-f" also. Then FTP will use the default device.

speed = transmission speed: 1200, 2400, 4800, or 9600 bits per second. The default is 9600 baud. If you don't specify the speed, omit the "-s" also. Then FTP will use the default speed.

name = the name of the file you are sending.

The receiving device can differ from the sending device; however, the speed of the two systems must be the same. Enter the name only if you want to specify a directory for the transferred file other than your home directory.

The receiving side displays a "w" every few seconds. During the file transfer, the FTP outputs an "*" after each successful transfer of 128-byte block increments. A "?" is displayed each time a block is retransmitted to overcome a transmission error. If you receive many "?"s, decrease the baud rate.

For example, to transfer the file named "newfile" on the sending system to the directory "/tmp" on the receiving system, enter

Sending Side: $ **ftp -f /dev/tty2 -s 4800 newfile <Retn>**

Receiving Side: $ **ftp -f /dev/tty5 -s 4800 /tmp <Retn>**

FTP FOR XENIX/UNIX TO MP/M

The file transfer program, FTP, can transfer files from a XENIX or UNIX system to an MP/M system.

FTP runs on the XENIX or UNIX system, and FTP runs on the MP/M system during file transfer between your system and MP/M.

Follow the setup procedures on pages B-3 and B-4.

It does not matter which side, sending or receiving, is started first, as long as both sides are started within one minute of each other.

Start the FTP utility by using the following command format on the sending system:

```
ftp   -f device   -s speed   name
```

where:

device = port to which the null-modem cable is attached. For example, /dev/tty2. If you don't specify the device, omit the "-f" also. Then FTP will use the default device.

speed = transmission speed: 1200, 2400, 4800, or 9600 bits per second. The default is 9600 baud. If you don't specify the speed, omit the "-s" also. Then FTP will use the default speed.

name = the name of the file you are sending.

For example, to transfer a file named SAMPLE.TXT to the MP/M system, enter

```
$ ftp -f /dev/tty2 -s 4800 SAMPLE.TXT <Retn>
```

The sending side displays an "s" every few seconds until communication is established with the other side.

Start the receiving side by entering one of the following commands:

```
ØC>FTP86
```

or

```
ØC>FTP86 u:
```

where:

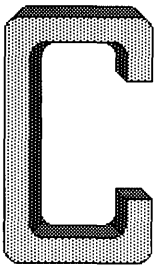
u: = the drive letter of the destination disk. If no drive letter is specified, the logged disk is the destination disk.

Next, a message on the screen asks you to choose the port you are using for the FTP procedure.

The receiving side periodically displays a "w" while waiting for the sender to become active. If the XENIX prompt reappears, the receiving side normally does not exit by itself; type **CTRL-c** to get back to the MP/M prompt.

During the file transfer, the FTP utility outputs an "*" after each successful transfer of 128-byte block increments. A "?" is displayed each time a block is retransmitted to overcome a transmission error. If you receive many "?"s, decrease the baud rate.

APPENDIX C
MODEMS

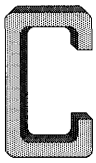


Altos systems support remote communication over telephone lines. You can attach most commercially available asynchronous modems to an Altos system using one of the modem cables described below. Some models of Racal-Vadic, Cermetek, and Hayes have been used successfully with Altos systems.

When using modems on ports 1 through 6 of the Altos 586/986 series, make sure that your CPU is jumpered as shown in the chart below.

Port	Location	Non-modem jumpers	Modem jumpers
1	E-28	4-6, 1-3	3-4, 5-6
2	E-26	4-6, 1-3	3-4, 5-6
3	E-24	2-4, 3-5	1-3, 4-6
4	E-20	4-6, 1-3	3-4, 5-6
5	E-18	4-6, 1-3	3-4, 5-6
6	E-17	4-6, 1-3	3-4, 5-6

With the jumpers in these positions, the Altos 586/986 series will support terminals, printers, or modems on these ports.



All other Altos systems do not require jumper pinning for modems.

To set up a terminal port (ttyn) for dial in modem use, type:

```
# disable ttyn <CR>
# /etc/modem ttyn <CR>
# enable ttyn <CR>
```

To set up a terminal port (ttyn) for dial out modem use, type:

```
# disable ttyn <CR>
# /etc/modem ttyn <CR>
```

where:

ttyn = the tty device that has the modem attached. For example, if you are setting up port 5, type **tty5** for the 586/986 series or **tty05** for the 2086 series.

NOTE

The disable command isn't necessary if the port is already disabled.

The modem command (shown above) causes the operating system to log you out and to terminate your foreground processes when you hang up. Execute this command once for every port with a modem attached to your Altos system. Edit the /etc/rc file to include the modem command for each port with a modem, so it will be executed every time the system is brought up for multi-user operation.

If you want to remove a modem from a port, type the following commands:

```
# disable ttyn <CR>
# /etc/unmodem ttyn <CR>
```

If you then want someone to log in on the port, type the following command:

```
# enable ttyn <CR>
```

NOTE

The disable command isn't necessary if the port is already disabled.

The following diagrams show pinouts for modem cables for different machines. Additional cable pinouts for different types of modems are shown in the Owner's Guide for your system.

System	RS-232 Connector Type	See Figure
2086 series, 3068	9 pins on all ports	C-1
886	9 pins on tty01 thru tty06 25 pins on tty07 and tty08	C-1 C-2
586/986 series, 486	25 pins on all ports	C-2

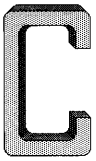


Figure C-1 shows how to connect a Prometheus ProModem 1200 or D.C. Hayes Smartmodem 1200 to an Altos computer that has a 25-pin RS-232 connector. This cable has male 25-pin connectors on each end.

NOTE

DTR (at the computer) must be high for output to occur. A high-to-low signal causes a hang up; a low-to-high signal enables you to log in.

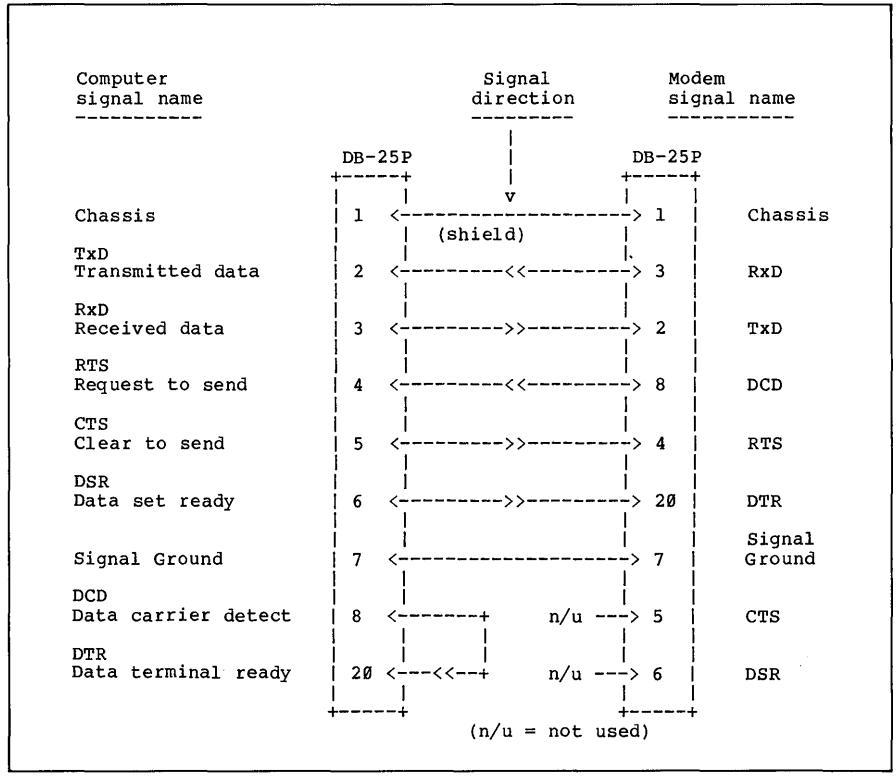


Figure C-1. 25 to 25 Pin Connectors

Hayes switch settings are as follows:

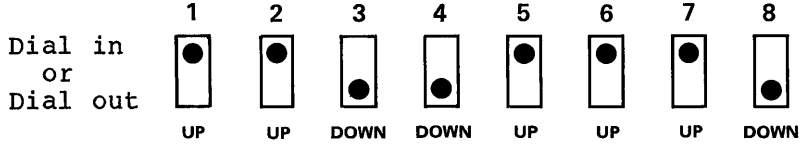


Figure C-2 shows how to connect Altos 9-pin to Prometheus ProModem 1200, D.C. Hayes Smartmodem 1200, and other similar modems. This cable has a female 9-pin connector on one end and a male 25-pin connector on the other.

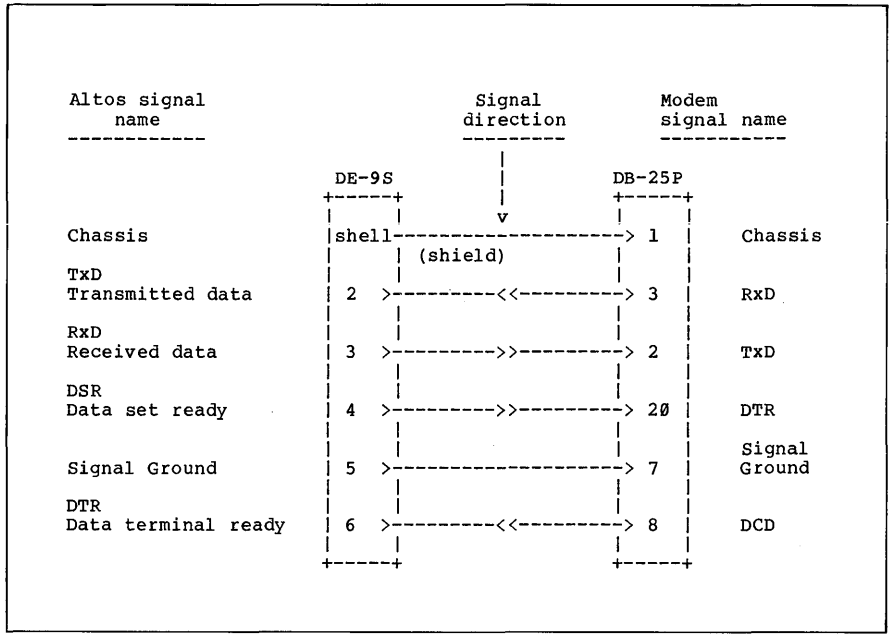
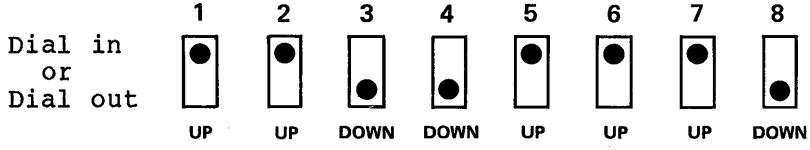
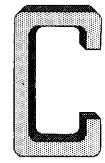


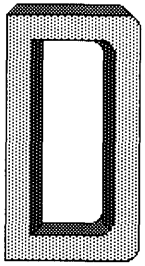
Figure C-2. 9 to 25 Pin Connectors

Hayes switch settings are as follows:





Appendix C of the XENIX Development System Programmer's Guide and the UNIX System V documentation tell you how to use cu and uucp with modems.



APPENDIX D:
BUSINESS SHELL MENU SYSTEM

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ACCESSING THE BUSINESS SHELL MENU SYSTEM

This section describes how to use the Business Shell and its programs. You use these programs to create directories and files, send messages to other users, and save and restore files. Figure D-1 on the next page shows the organization of the Business Shell menus. (The UNIX System V menus will look a little different.)

If BSH is set up as your default shell, you will automatically enter BSH when you log in. If it is not your default shell, then **at the system prompt, type bsh and <Retn>.** To learn how to log in to the system, refer to Chapter 1, "Using the AOM Menu System" in Part I of this manual.

How to Use the Business Shell

The Business Shell accesses programs for file management that a regular user needs and system management utilities that an administrator needs. These programs ask you for appropriate information, and then do the necessary work for you. The Business Shell menus group programs so you can access them efficiently.

To select a program, **type the letter to the left of that program, but do not press the Return key.** Sometimes another menu appears with additional selections that you can choose (e.g., Back up/Restore Files).

To return to the previous menu, press the Return key when any menu prompt is displayed.

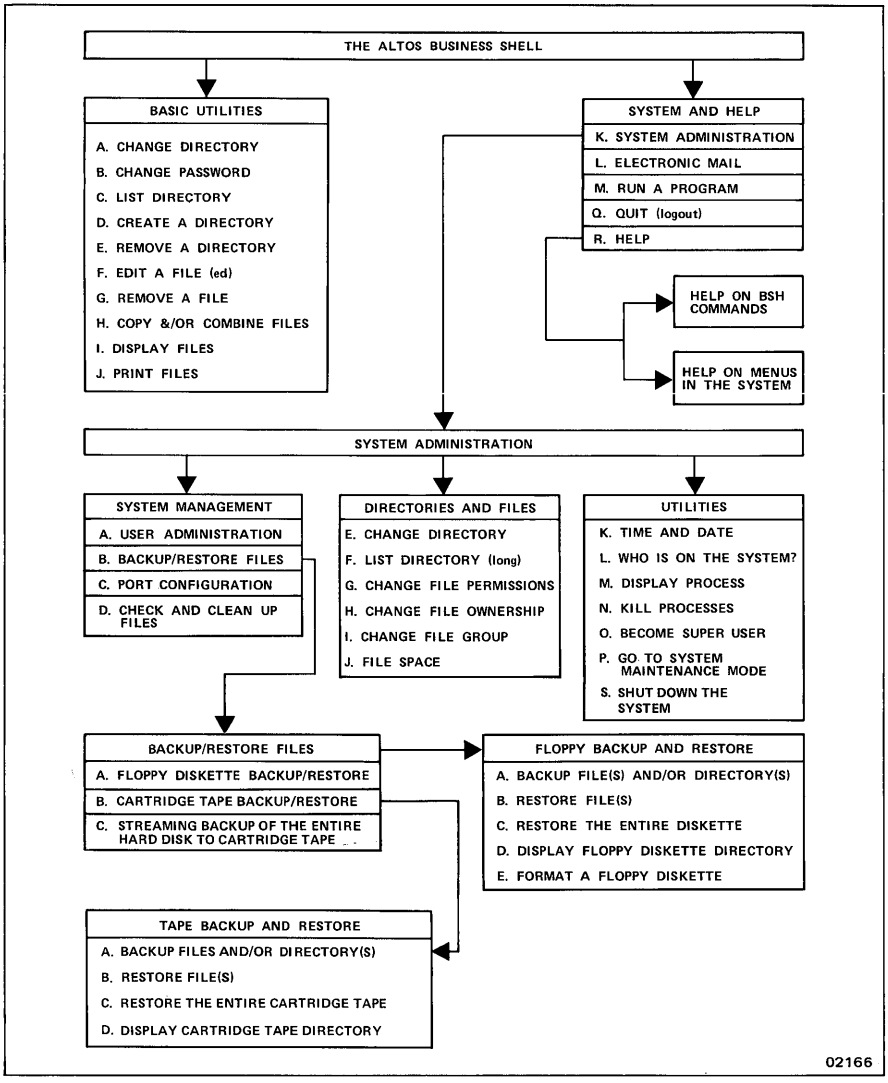


Figure D-1. Organization of the Business Shell Menu System

Fast Mode/Slow Mode

The Business Shell operates in either fast mode or slow mode.

In the fast mode, when you type a letter for a menu item, the system responds immediately. You do not need to press the Return key.

In the slow mode, the system does respond until you press the Return key.

In either mode, when you wish to enter a command that does not begin with a lower-case alphabetic character, such as ?, ??, or Name?, you must end the command by pressing the Return key.

To change from the fast mode (the factory or default setting) to the slow mode, enter

```
Type a letter to make your selection > ?mode
Mode = FAST; change to slow?  (y/n) y
```

BASIC UTILITIES

Basic utilities you can access include:

- Change directory
- Change password
- Create a directory
- List directory
- Remove a directory
- Create and edit a file
- Remove a file
- Copy and/or combine files

- Display files
- Print files

Figure D-2 shows the Business Shell main menu, which contains Basic Utilities and System and Help selections.

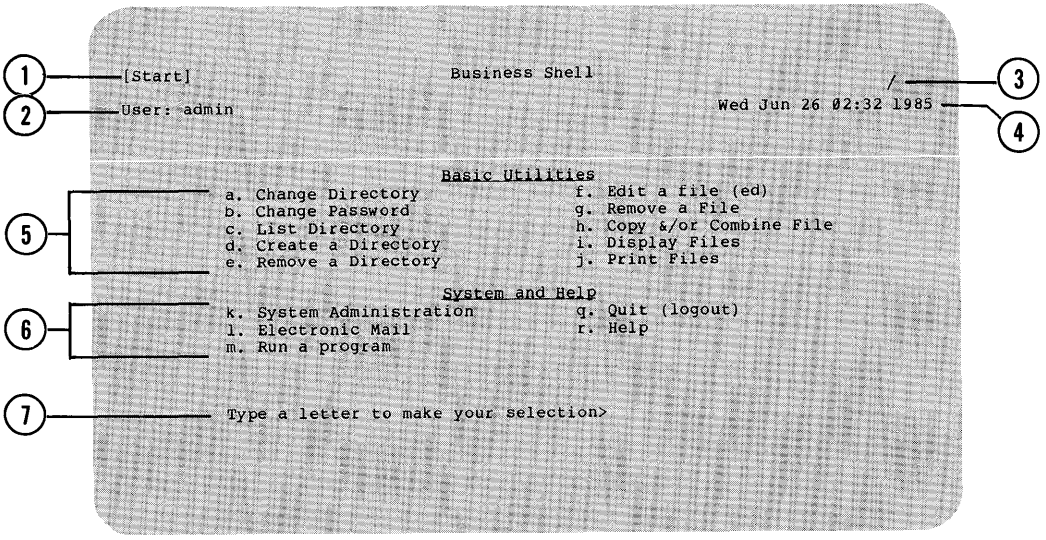


Figure D-2. The Business Shell Main Menu

The parts of the menu are defined as follows:

1. The name of the menu

2. The current user (your login name)

3. The complete pathname

4. The date and time

5. The basic utilities

6. The system and help utilities

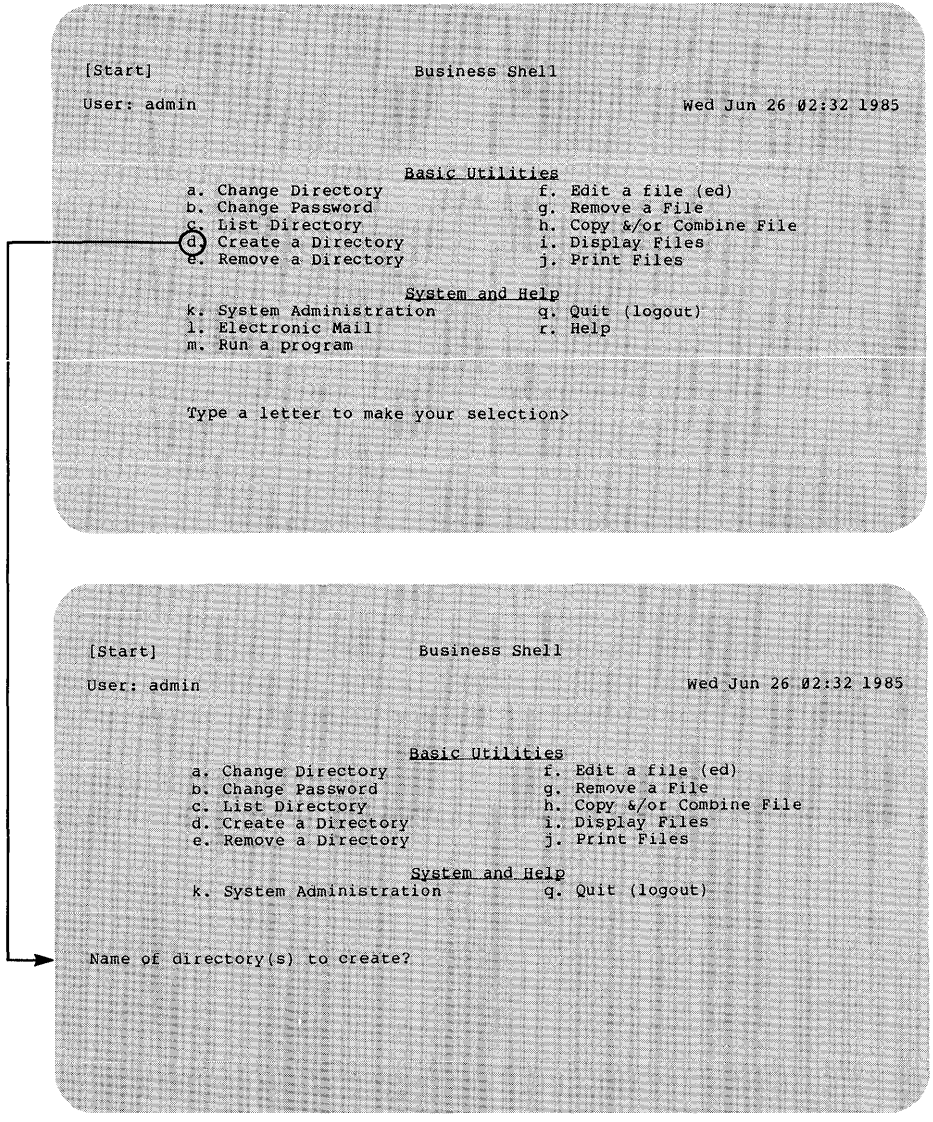
7. The menu prompt

Create a Directory

We recommend that you set up a directory to contain related files. Then, you can go directly to a set of files. This is similar to opening a file drawer devoted to one subject. You can also create a directory (called a subdirectory) within a directory.

It's best to limit the number of files contained in a directory. If a directory contains more files than can fit on a screen when you display the directory contents, archive or remove the files you no longer need, or create a subdirectory in that directory.

To create a directory, type **d**, Create a Directory. The prompt "Name of directory(s) to create?" appears. Enter the name of the directory you wish to create, and press <**Retn**>.


[Start]
Business Shell
User: admin
Wed Jun 26 02:32 1985
Basic Utilities
a. Change Directory
b. Change Password
c. List Directory
d. Create a Directory
e. Remove a Directory
f. Edit a file (ed)
g. Remove a File
h. Copy &/or Combine File
i. Display Files
j. Print Files
System and Help
k. System Administration
l. Electronic Mail
m. Run a program
q. Quit (logout)
r. Help
Type a letter to make your selection>
[Start]
Business Shell
User: admin
Wed Jun 26 02:32 1985
Basic Utilities
a. Change Directory
b. Change Password
c. List Directory
d. Create a Directory
e. Remove a Directory
f. Edit a file (ed)
g. Remove a File
h. Copy &/or Combine File
i. Display Files
j. Print Files
System and Help
k. System Administration
q. Quit (logout)
Name of directory(s) to create?

To verify that the directory was created, type **c**, List Directory.

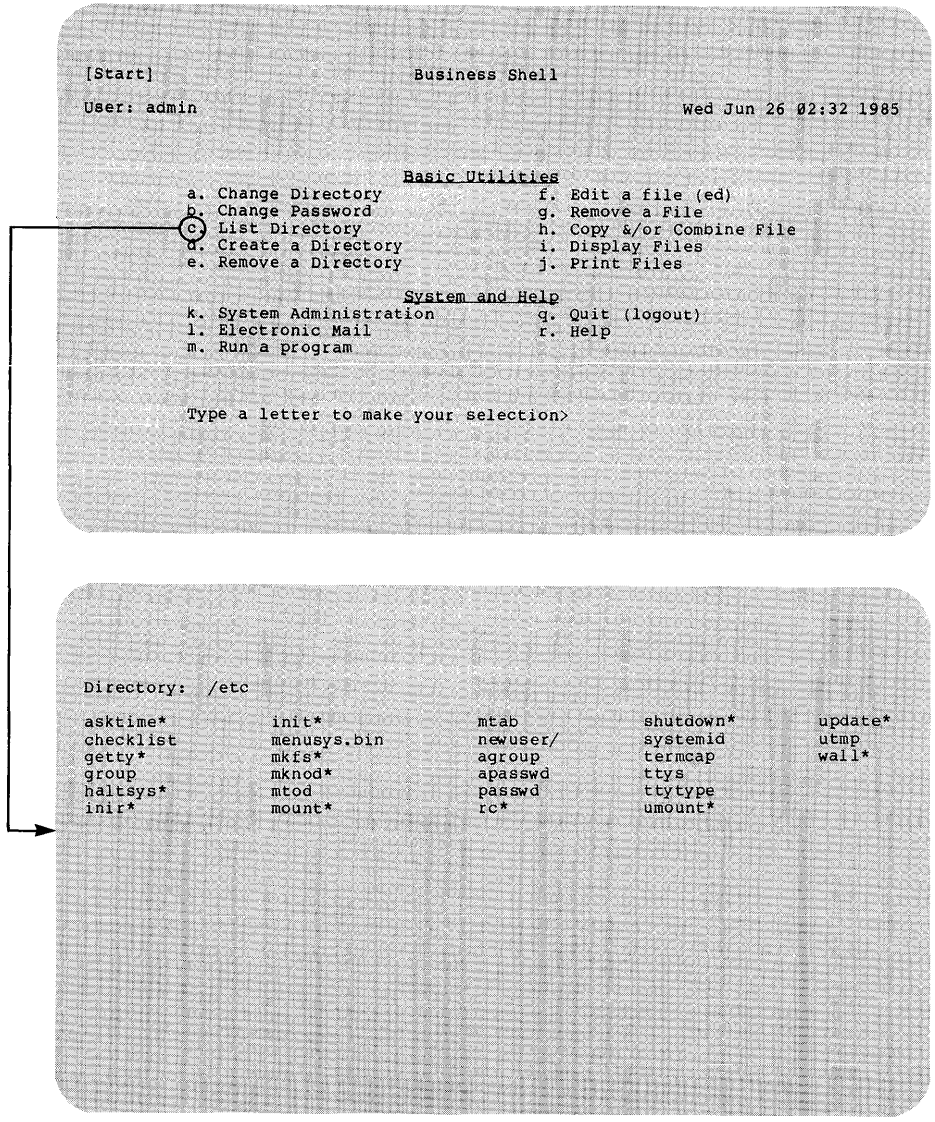
If you have two hard disks and are working on the first hard disk, you can create/access directories and files on the second hard disk. Select **a**, Change Directory, and type **/usr2** and press **<Retn>**.

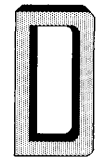
Your working directory is now on the second hard disk.

You can, if you wish, work from the first to the second hard disk. For example, if you are working on the first hard disk and want to create a directory named accounting on the second hard disk, select **d**, Create a Directory, and type **/usr2/accounting** and press **<Retn>**.

List a Directory

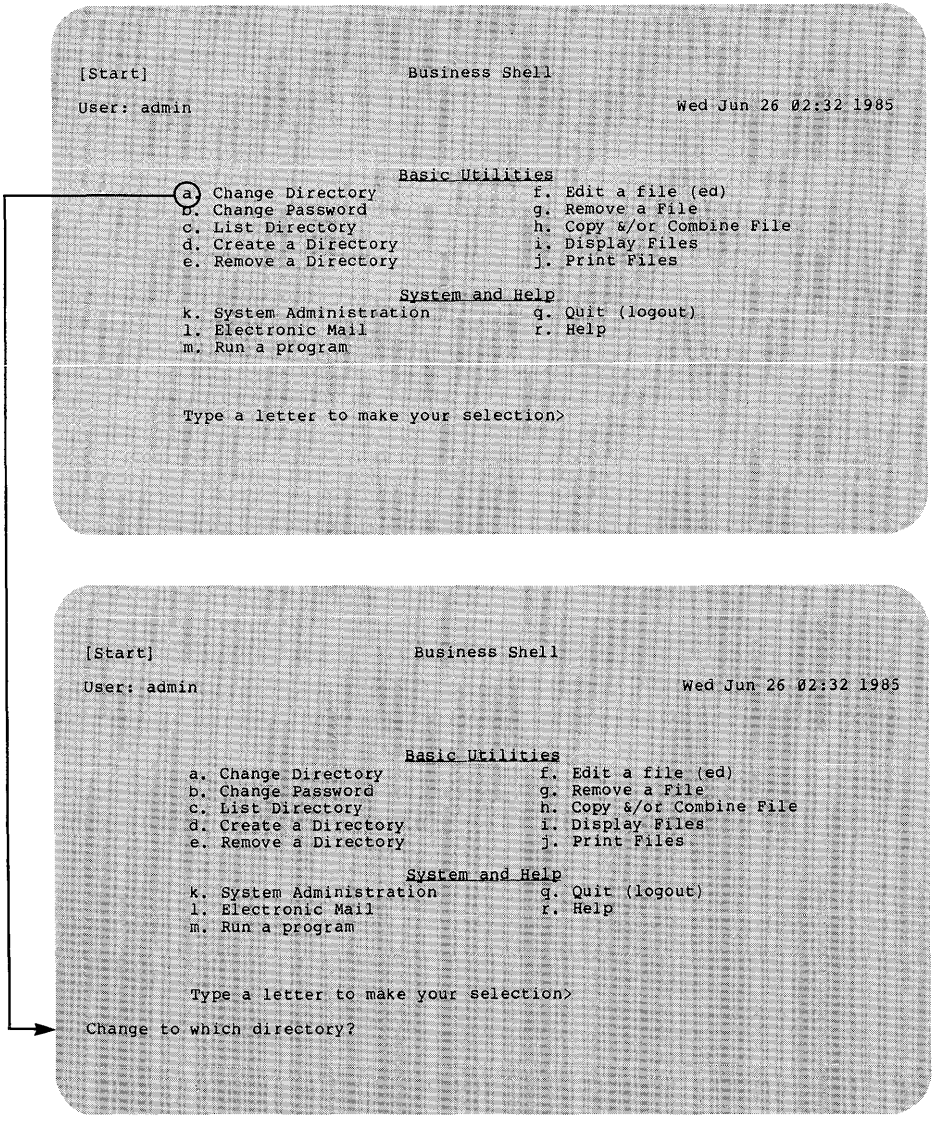
To list the contents of a directory, type **c**, List Directory. Directories within directories are indicated by a slash (/) after the name, for example, newuser/.


[Start]
Business Shell
User: admin
Wed Jun 26 02:32 1985
Basic Utilities
a. Change Directory
b. Change Password
c. List Directory
d. Create a Directory
e. Remove a Directory
f. Edit a file (ed)
g. Remove a File
h. Copy &/or Combine File
i. Display Files
j. Print Files
System and Help
k. System Administration
l. Electronic Mail
m. Run a program
q. Quit (logout)
r. Help
Type a letter to make your selection>
Directory: /etc
asktime* init* mtab shutdown* update*
checklist menusys.bin newuser/ systemid utmp
getty* mkfs* agroup termcap wall*
group mknod* apasswd ttys
haltsys* mtod passwd ttytype
inir* mount* rc* umount*



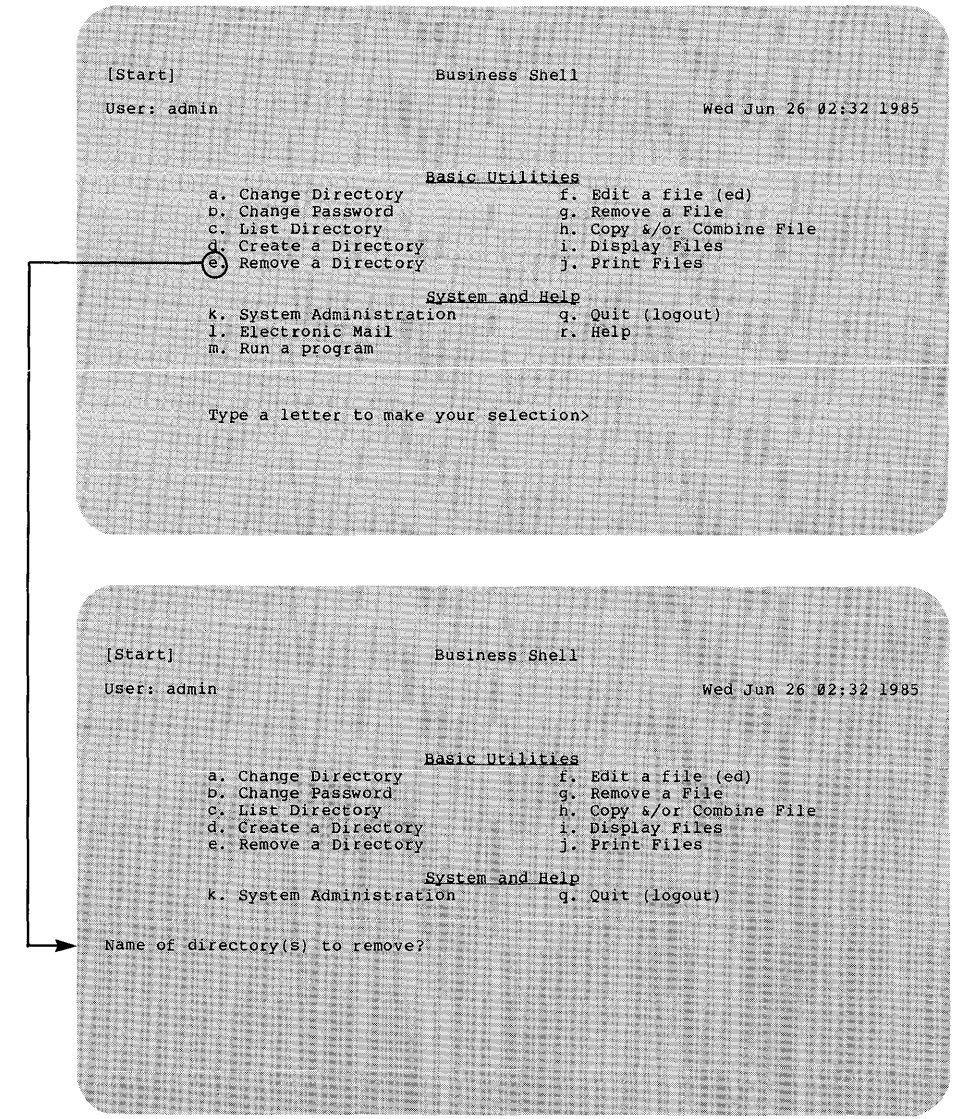
Change a Directory

To change to another directory, type **a**, Change Directory. The prompt "Change to which directory?" appears. Enter the name of the directory you wish to access, and press <**Retn**>. The system changes to the specified directory and places the name of that directory above the date in the upper-right corner of the Business Shell menu.


[Start]
Business Shell
User: admin
Wed Jun 26 02:32 1985
Basic Utilities
a. Change Directory
b. Change Password
c. List Directory
d. Create a Directory
e. Remove a Directory
f. Edit a file (ed)
g. Remove a File
h. Copy &/or Combine File
i. Display Files
j. Print Files
System and Help
k. System Administration
l. Electronic Mail
m. Run a program
q. Quit (logout)
r. Help
Type a letter to make your selection>
[Start]
Business Shell
User: admin
Wed Jun 26 02:32 1985
Basic Utilities
a. Change Directory
b. Change Password
c. List Directory
d. Create a Directory
e. Remove a Directory
f. Edit a file (ed)
g. Remove a File
h. Copy &/or Combine File
i. Display Files
j. Print Files
System and Help
k. System Administration
l. Electronic Mail
m. Run a program
q. Quit (logout)
r. Help
Type a letter to make your selection>
Change to which directory?

Remove a Directory

To remove a directory, type **e**, Remove a Directory. The prompt "Name of directory(s) to remove?" appears. Enter the directory(s) and press **<Retn>**. Note that you can't be working in the directory that you want to remove. Check your current pathname, which is displayed in the upper-right corner above the date. If necessary, change the directory by selecting the Change Directory menu item.


[Start]
Business Shell
User: admin
Wed Jun 26 02:32 1985
Basic Utilities
a. Change Directory
b. Change Password
c. List Directory
d. Create a Directory
e. Remove a Directory
f. Edit a file (ed)
g. Remove a File
h. Copy &/or Combine File
i. Display Files
j. Print Files
System and Help
k. System Administration
l. Electronic Mail
m. Run a program
q. Quit (logout)
r. Help
Type a letter to make your selection>
[Start]
Business Shell
User: admin
Wed Jun 26 02:32 1985
Basic Utilities
a. Change Directory
b. Change Password
c. List Directory
d. Create a Directory
e. Remove a Directory
f. Edit a file (ed)
g. Remove a File
h. Copy &/or Combine File
i. Display Files
j. Print Files
System and Help
k. System Administration
q. Quit (logout)
Name of directory(s) to remove?

After removing a directory, type **c**, List Directory, to verify that it was removed.

CAUTION

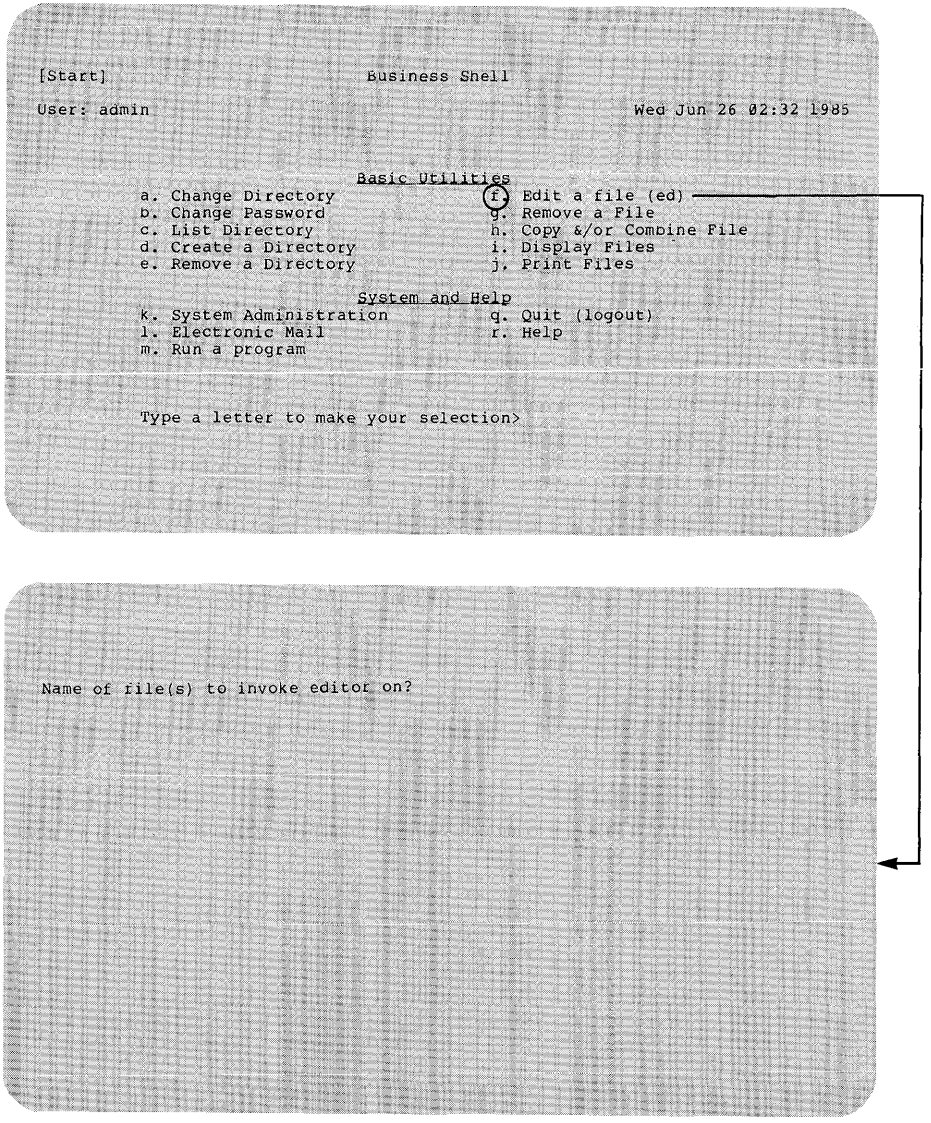
When you remove a directory, all of the files in that directory are also removed. If you want to save a file, copy it to another directory before you remove the first directory.

Create and Edit a File

A computer file is similar in concept to a paper file; they both contain information. A file can contain the text of a letter, financial data, or a list of customers. A file can contain as little or as much information as you want.

To create and edit a file, type **f**, Edit a File (ed). The prompt "Name of file(s) to invoke editor on?" appears. Enter the file name and press **<Retn>** to start your editing session. Refer to Invoking the Ed Text Editor in Chapter 4 for editing instructions.

To leave the editor, type **q <Retn>**.


[Start] Business Shell
User: admin Wed Jun 26 02:32 1985
Basic Utilities
a. Change Directory
b. Change Password
c. List Directory
d. Create a Directory
e. Remove a Directory
f. Edit a file (ed)
g. Remove a File
h. Copy &/or Combine File
i. Display Files
j. Print Files
System and Help
k. System Administration
l. Electronic Mail
m. Run a program
q. Quit (logout)
r. Help
Type a letter to make your selection>
Name of file(s) to invoke editor on?

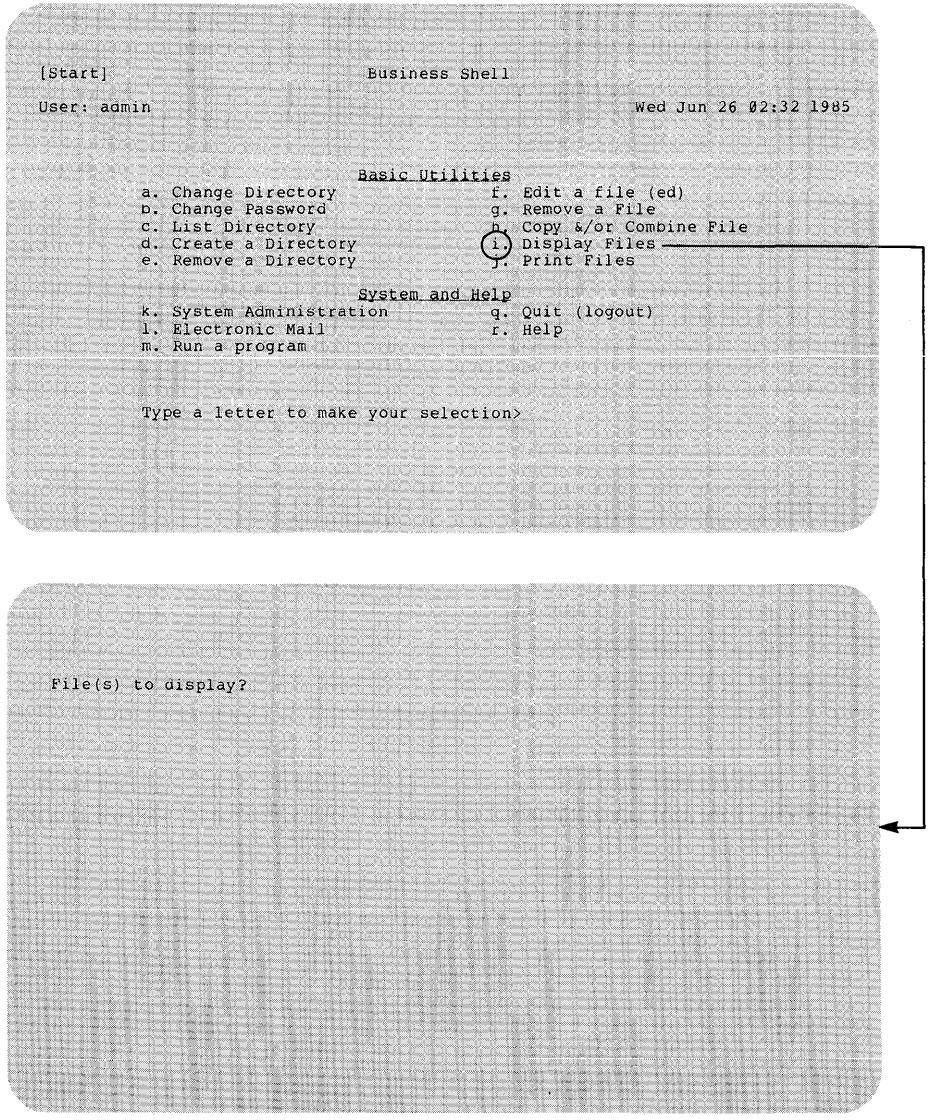
Display a File

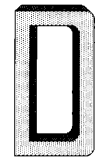
To display a file, type **i**, Display Files. The prompt File "File(s) to display?" appears. Enter one or more files, each separated by a space and press **<Retn>**. Enter the full pathname of the file; if it's in your current directory, just enter the file name.

The content of the first file is displayed. If a file is longer than one screen, "--More--" and the percentage of text that has been displayed appears at the bottom of the screen. Press **Space Bar** to see the next screenful. Press **<Retn>** to display each subsequent line in the file.

If you enter more than one file name, press **<Retn>** to view the next file.

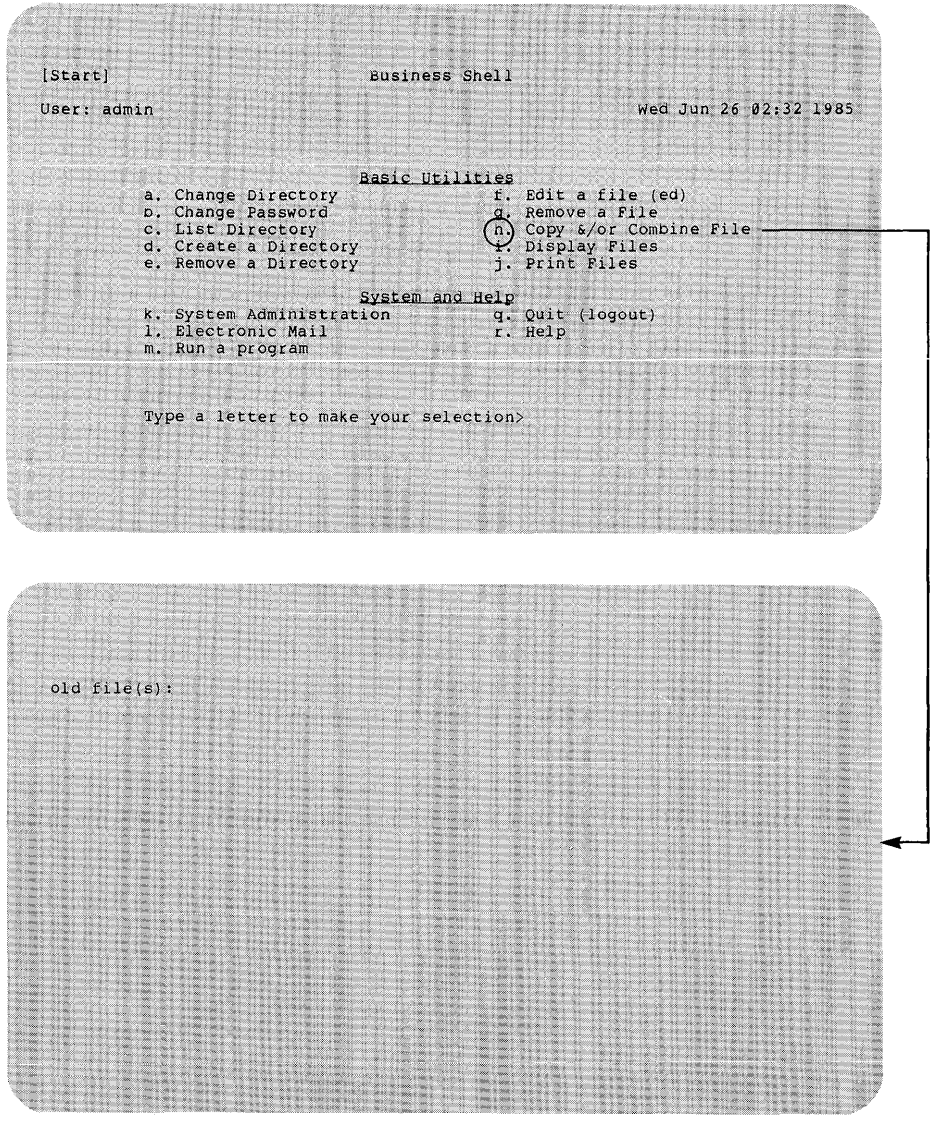
You can exit the file at any time without affecting its contents by pressing **Break/Del**.


[Start]
Business Shell
User: admin
Wed Jun 26 02:32 1985
Basic Utilities
a. Change Directory
b. Change Password
c. List Directory
d. Create a Directory
e. Remove a Directory
f. Edit a file (ed)
g. Remove a File
h. Copy &/or Combine File
i. Display Files
j. Print Files
System and Help
k. System Administration
l. Electronic Mail
m. Run a program
q. Quit (logout)
r. Help
Type a letter to make your selection>
File(s) to display?



Copy and Combine Files

To copy or combine files, type **h**, Copy and/or Combine Files. You are prompted for the names of the "old file(s)" and the "new file." The names of the old and new files must be different.


[Start]
Business Shell
User: admin
Wed Jun 26 02:32 1985
Basic Utilities
a. Change Directory
b. Change Password
c. List Directory
d. Create a Directory
e. Remove a Directory
f. Edit a file (ed)
g. Remove a File
n. Copy &/or Combine File
i. Display Files
j. Print Files
System and Help
k. System Administration
l. Electronic Mail
m. Run a program
q. Quit (logout)
r. Help
Type a letter to make your selection>
old file(s):

For example, if you enter a single old file, junel, and a single new file, junel.new, your directory now contains two files with different names and identical content. You have a back-up file for security. Should you destroy part of a file, you can retrieve the other copy. Note that the old file contents will write over the contents (if any) in the new file.

You can copy two or more files into a new file; when prompted for old files, separate file names with a space. Files are attached one after the other in the order you enter them. To copy files from the first to the second hard disk, enter

```
old file(s)     /usr/dirname/filename
new file        /usr2/dirname/filename
```

where

dirname = the name of the directory.

filename = the name of the file you wish to copy.

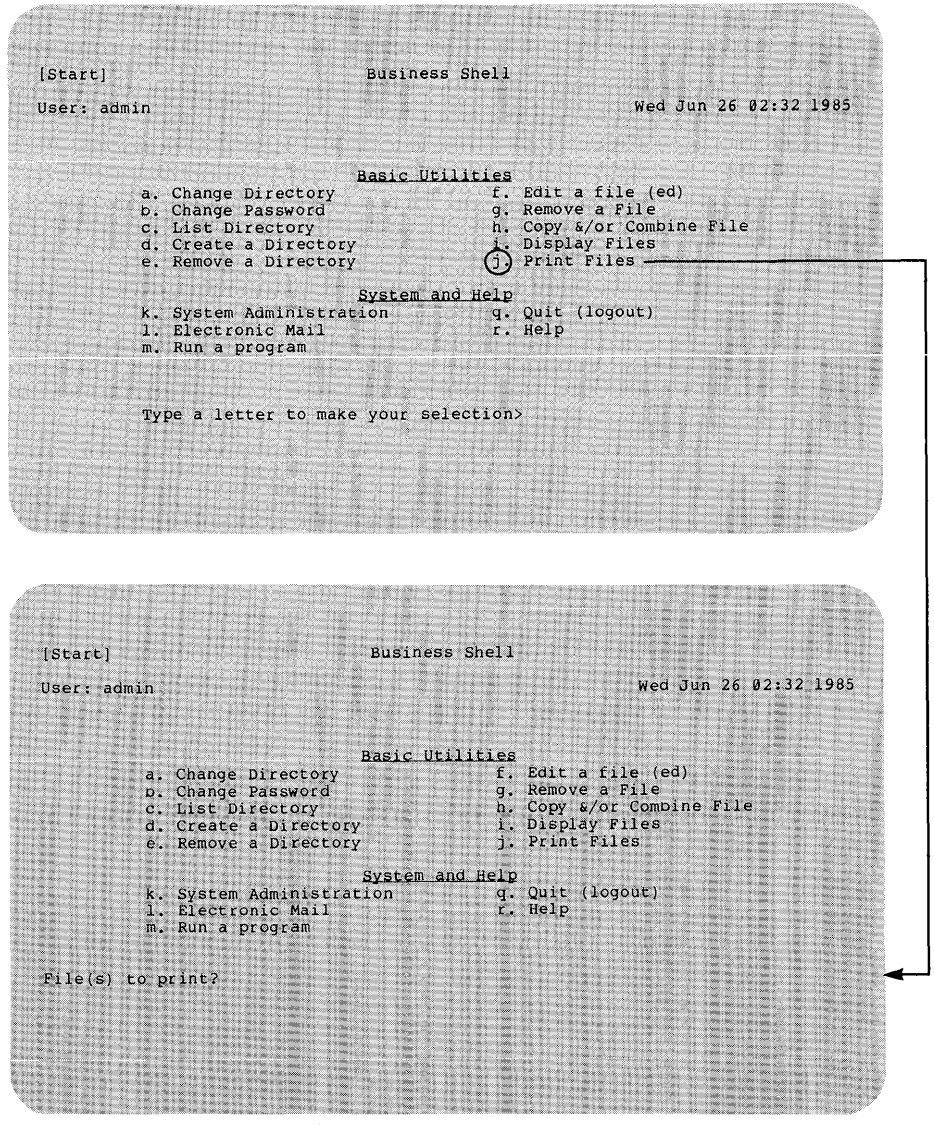
You can omit the new name if you want the file name to be the same on both disks.

For example, to copy a file named sales (in the accounting directory on the first disk), enter

```
old file(s)     /usr/accounting/sales
new file        /usr2/accounting
```

Print a File

To print files, type **j**, Print Files. The prompt "File(s) to print?" appears. Enter the name of the file to be printed and press **<Retn>**. If you want to print more than one file, separate file names with a space. (Your system must be configured to a connected printer.)

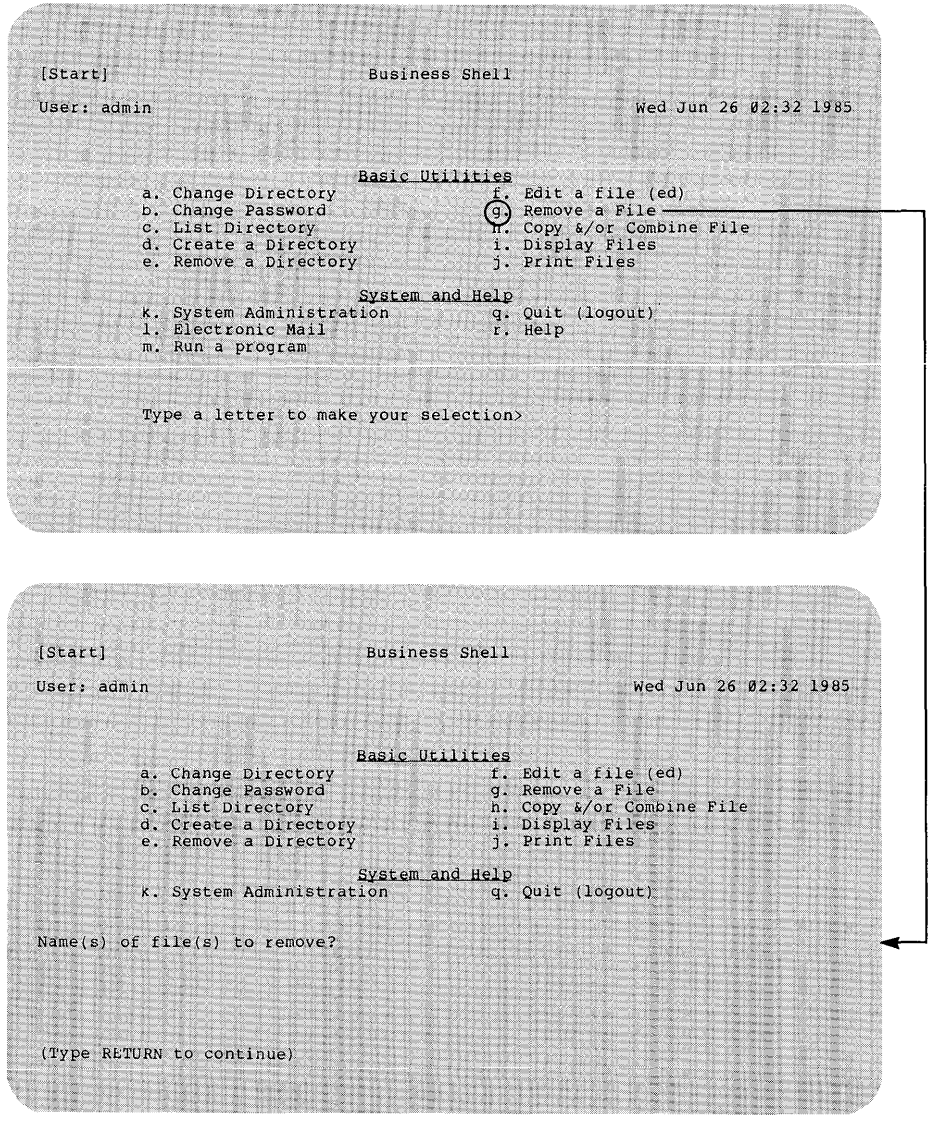

[Start]
Business Shell
User: admin
Wed Jun 26 02:32 1985
Basic Utilities
a. Change Directory
b. Change Password
c. List Directory
d. Create a Directory
e. Remove a Directory
f. Edit a file (ed)
g. Remove a File
h. Copy &/or Combine File
i. Display Files
j. Print Files
System and Help
k. System Administration
l. Electronic Mail
m. Run a program
q. Quit (logout)
r. Help
Type a letter to make your selection>

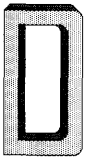
[Start]
Business Shell
User: admin
Wed Jun 26 02:32 1985
Basic Utilities
a. Change Directory
b. Change Password
c. List Directory
d. Create a Directory
e. Remove a Directory
f. Edit a file (ed)
g. Remove a File
h. Copy &/or Combine File
i. Display Files
j. Print Files
System and Help
k. System Administration
l. Electronic Mail
m. Run a program
q. Quit (logout)
r. Help
File(s) to print?

Remove a File

To remove a file, type **g**, Remove a File. The prompt "Name(s) of file(s) to remove?" appears. Enter the file name or multiple file names each separated by a space, and press **<Retn>**. List the directory to verify file removal.

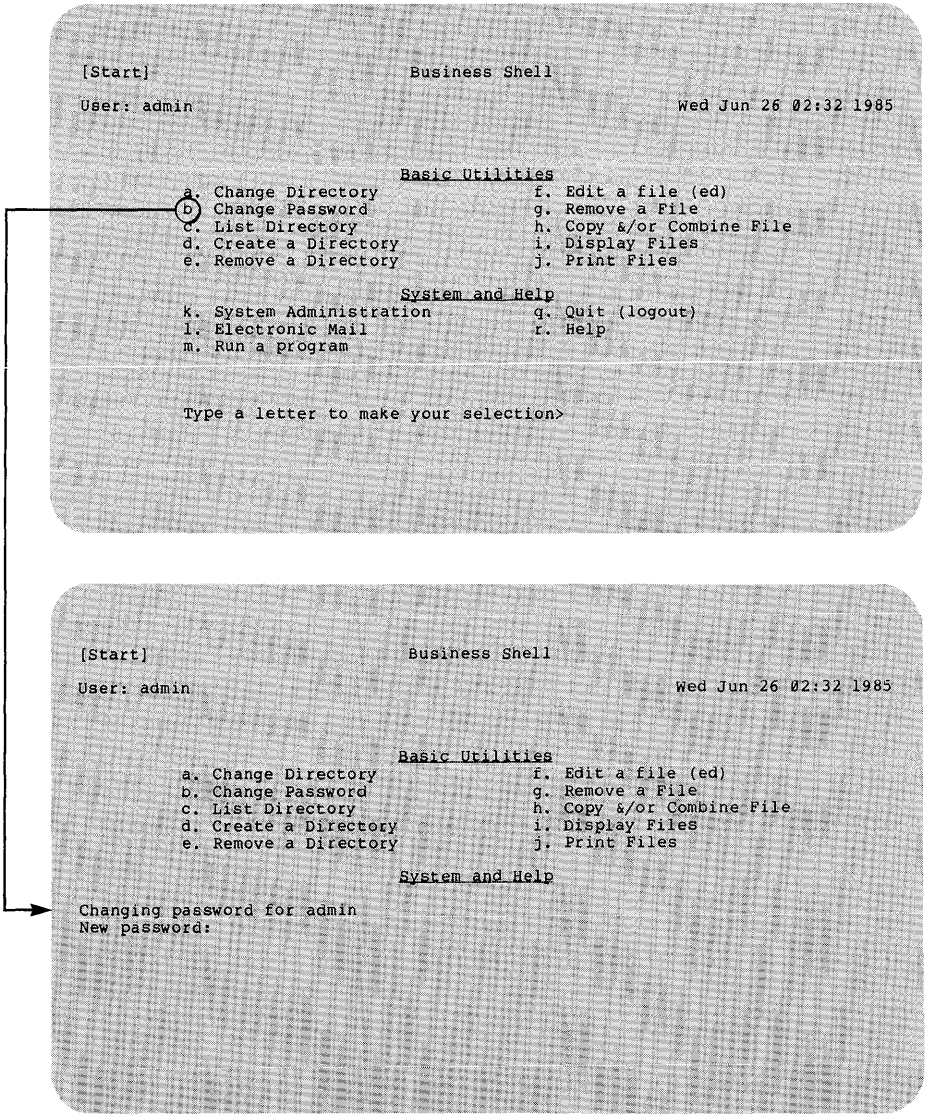
If you enter a directory name instead of a file name, the word "directory" appears and nothing is deleted.


[Start]
Business Shell
User: admin
Wed Jun 26 02:32 1985
Basic Utilities
a. Change Directory
b. Change Password
c. List Directory
d. Create a Directory
e. Remove a Directory
f. Edit a file (ed)
g. Remove a File
h. Copy &/or Combine File
i. Display Files
j. Print Files
System and Help
k. System Administration
l. Electronic Mail
m. Run a program
q. Quit (logout)
r. Help
Type a letter to make your selection>
[Start]
Business Shell
User: admin
Wed Jun 26 02:32 1985
Basic Utilities
a. Change Directory
b. Change Password
c. List Directory
d. Create a Directory
e. Remove a Directory
f. Edit a file (ed)
g. Remove a File
h. Copy &/or Combine File
i. Display Files
j. Print Files
System and Help
k. System Administration
q. Quit (logout)
Name(s) of file(s) to remove?
(Type RETURN to continue)



Change a Password

To change your password, type **b**, Change Password. You are prompted to enter your old password. You are asked to enter a new password, and then asked to retype the new password. The password does not show on the screen. (Chapter 3 describes more about passwords.)


[Start]
Business Shell
User: admin
Wed Jun 26 02:32 1985
Basic Utilities
a. Change Directory
b. Change Password
c. List Directory
d. Create a Directory
e. Remove a Directory
f. Edit a file (ed)
g. Remove a File
h. Copy &/or Combine File
i. Display Files
j. Print Files
System and Help
k. System Administration
l. Electronic Mail
m. Run a program
q. Quit (logout)
r. Help
Type a letter to make your selection>
[Start]
Business Shell
User: admin
Wed Jun 26 02:32 1985
Basic Utilities
a. Change Directory
b. Change Password
c. List Directory
d. Create a Directory
e. Remove a Directory
f. Edit a file (ed)
g. Remove a File
h. Copy &/or Combine File
i. Display Files
j. Print Files
System and Help
Changing password for admin
New password:

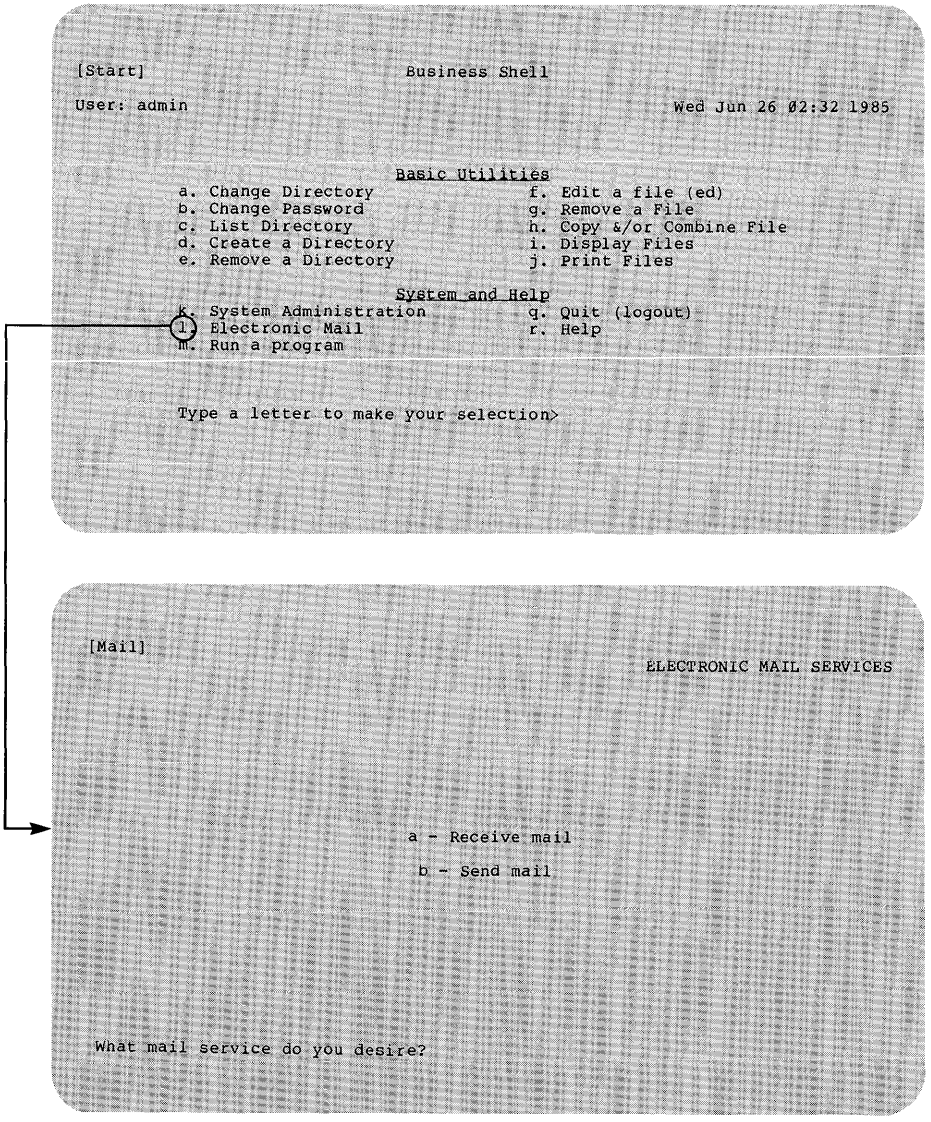
SYSTEM AND HELP

You can use system administration utilities, run a program, see help screens, log out of the system, and send and receive electronic mail by using the System and Help menus.

Using Electronic Mail

The system provides a convenient way for you to send and receive messages to other users on the system via electronic mail. After receiving mail, you can save it in various places (files) or discard it.

To send and receive mail, type **1**, Electronic Mail. The prompts "Receive mail" or "Send mail" appear.


[Start]
Business Shell
User: admin
Wed Jun 26 02:32 1985
Basic Utilities
a. Change Directory
b. Change Password
c. List Directory
d. Create a Directory
e. Remove a Directory
f. Edit a file (ed)
g. Remove a File
h. Copy &/or Combine File
i. Display Files
j. Print Files
System and Help
k. System Administration
l. Electronic Mail
m. Run a program
q. Quit (logout)
r. Help
Type a letter to make your selection>
[Mail]
ELECTRONIC MAIL SERVICES
a - Receive mail
b - Send mail
What mail service do you desire?

Sending Mail

To send mail, type **b**. Enter the login name of the person(s) you are writing; separate names with a space and press **<Retn>**. Then type the message, using the keys shown in the chart below for editing.

Keys	Results
Arrow keys	Move the cursor
BACKSPACE	Deletes a character to the left of the cursor
DEL CHAR	Deletes a character at the cursor
INS CHAR	Inserts a character at the cursor
<Retn>	Ends a line; goes to the beginning of the next line

When finished, send the message by typing **<Retn>** and **<CTRL-d>**. Press **<Retn>** to return to the previous menu.

Receiving Mail

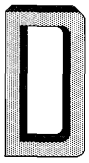
To receive mail, type **a**. All messages in your mail file are displayed, one after the other, starting with the most recent one. After a message displays, a question mark (?) prompt appears. When the ? prompt displays, you have the options shown in the chart on the next page.

Options	Results
<Retn>	Displays the next message. If there are no more messages, returns you to the previous menu
d <Retn>	Deletes the last message, displays the next message
m user <Retn>	Mails the message to a specified user
p <Retn>	Displays the previous message again
q <Retn>	Quits, returns to the prompt line
s [file] <Retn>	Saves message in your current directory's mbox file, or the file you specify
w [file] <Retn>	Writes the message (without heading) to your current directory's mbox file, or the file you specify
x <Retn>	Exits to the prompt line without changing the message

Running a Program

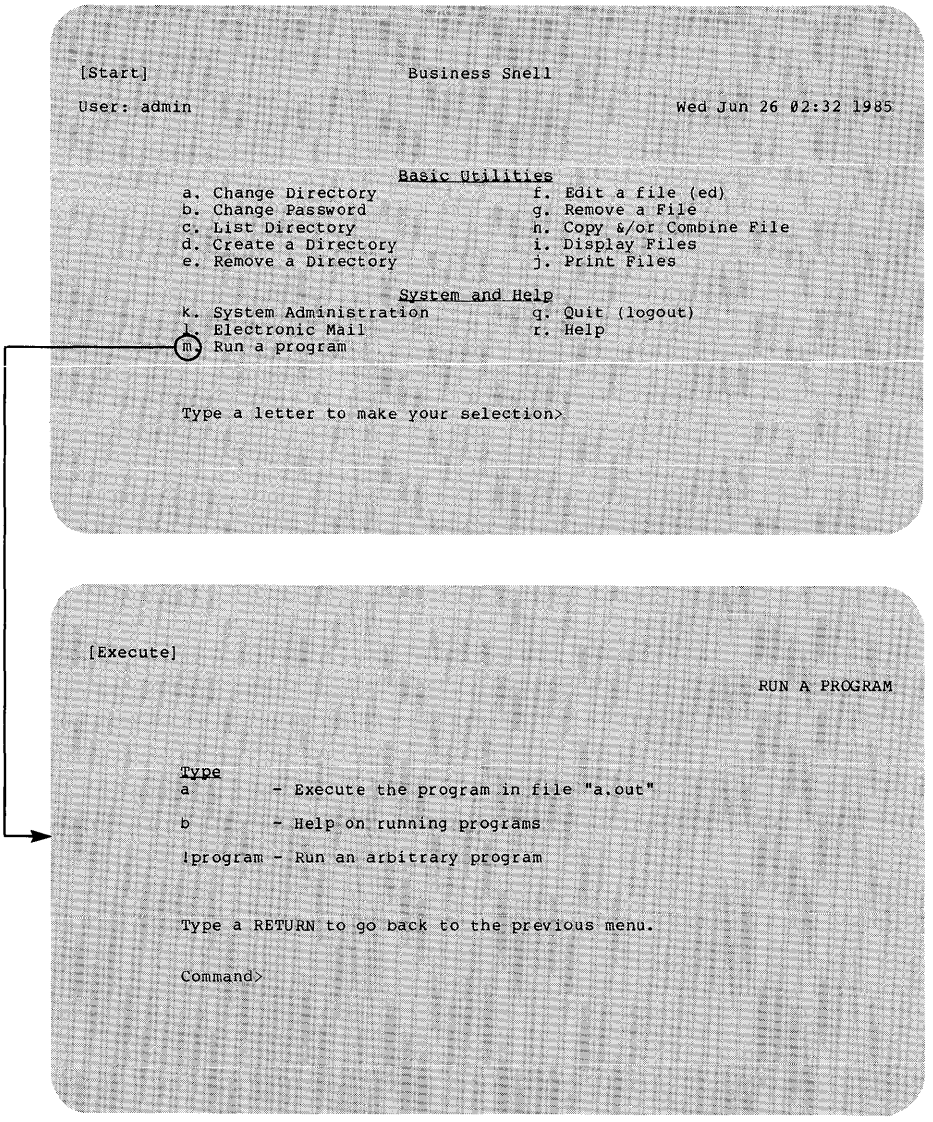
All of the menu items in the menu systems are programs. When you select a menu item you are in effect causing the program to execute. For example, pressing the **f** key in the Business Shell, causes execution of the "editor" program.

You may want to run a program that is not in the Business Shell. To do so, type **m**, Run a Program, under the System and Help section of the Business Shell main menu.



Executing a Program

You can execute a program in either an a.out or arbitrary file. Type **a** to execute the program in the a.out file. The a.out file usually contains the result of the last compilation.


[Start]
Business Shell
User: admin
Wed Jun 26 02:32 1985
Basic Utilities
a. Change Directory
b. Change Password
c. List Directory
d. Create a Directory
e. Remove a Directory
f. Edit a file (ed)
g. Remove a File
n. Copy &/or Combine File
i. Display Files
j. Print Files
System and Help
k. System Administration
l. Electronic Mail
m. Run a program
q. Quit (logout)
r. Help
Type a letter to make your selection>
[Execute]
RUN A PROGRAM
Type
a - Execute the program in file "a.out"
b - Help on running programs
!program - Run an arbitrary program
Type a RETURN to go back to the previous menu.
Command>

Using the ! Command

You can run a program by entering the "!" command from almost all menu prompts in the Business Shell. When you enter "!," you exit from the Business Shell and can enter system commands directly. Then you can use system commands (including commands not available through the Business Shell). Refer to the section "Moving Between Shells" in Chapter 3 for details.

OBTAINING HELP WHILE IN THE BUSINESS SHELL

The Business Shell contains Help menus for each menu in the system. To display Help information for the menu in which you are working, enter **? <Retn>**. The Help description for the menu is displayed. The commands that give help information are as follows:

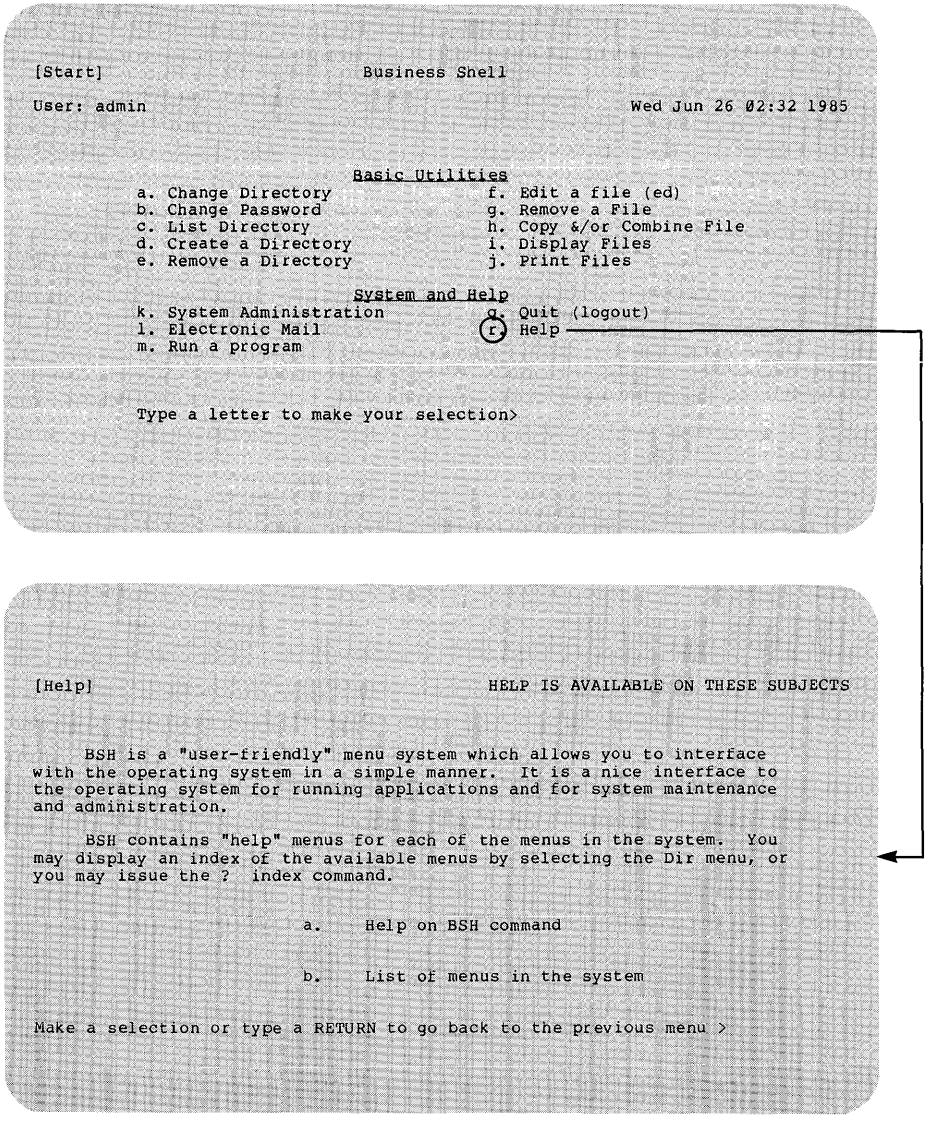
<Retn>	Display help for current menu
Name? <Retn>	Display help for the named menu
Mail? <Retn>	Display help for the "mail" menu
index <Retn>	Display an index of the available menus

When asking for help for a named menu (for example, **Backup? <Retn>**), capitalize the first letter of the name (so the menu system doesn't think you are selecting a menu item).

To display the Help menu, type **r**, Help, under the System and Help section of the main menu. You have the option of selecting

a. A list of Business Shell commands

b. A list of menus in the system


[Start]
Business Shell
User: admin
Wed Jun 26 02:32 1985
Basic Utilities
a. Change Directory
b. Change Password
c. List Directory
d. Create a Directory
e. Remove a Directory
f. Edit a file (ed)
g. Remove a File
h. Copy &/or Combine File
i. Display Files
j. Print Files
System and Help
k. System Administration
l. Electronic Mail
m. Run a program
q. Quit (logout)
r. Help
Type a letter to make your selection>
[Help]
HELP IS AVAILABLE ON THESE SUBJECTS
BSH is a "user-friendly" menu system which allows you to interface with the operating system in a simple manner. It is a nice interface to the operating system for running applications and for system maintenance and administration.
BSH contains "help" menus for each of the menus in the system. You may display an index of the available menus by selecting the Dir menu, or you may issue the ? index command.
a. Help on BSH command
b. List of menus in the system
Make a selection or type a RETURN to go back to the previous menu >

Business Shell Commands

When you type **a**, command descriptions are displayed as follows:

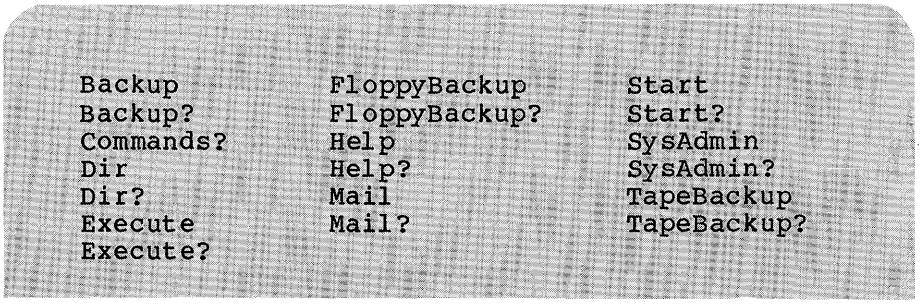
Command Type	Explanation
prompt <Retn>	Executes the function associated with the menu entry (for example, type either a, b, or c).
Menu <Retn>	Goes to the named menu.
<Retn>	Returns to the preceding menu. By entering successive Retns, you can retrace the path through the menus.
? <Retn>	Shows the help menu for the current display. Return from a help menu by entering **<Retn>**.
?? <Retn>	Displays the command menu.
name? <Retn>	Displays help information for the named menu.
!command	Retn Causes immediate exit to the system shell. The rest of the line is executed in a sub-shell. Return to the Business Shell by entering **<Ctrl-d>**. You can select a specific shell: the standard system shell (sh) or the Business Shell (bsh). See the section "Moving Between Shells" in Chapter 3.
?index <Retn>	Displays the name of every menu in the current menu system. The "Dir" menu contains a short version of the index.

Command Type	Explanation
?mode <Retn>	Sets the mode as either fast-mode or slow-mode.
Quit <Retn>	Exits the Business Shell and returns control to the system.

For more information, see the detailed Help menus with in the Business Shell by typing **r** (Help).

Business Shell Menus

When you type **b**, menus in the system are listed:



BECOMING THE SYSTEM ADMINISTRATOR

The section below explains how to become system administrator (super user) after you are in BSH. Refer to Chapter 4 "The System Administrator" in Part II for an explanation of how to become the System Administrator before getting into BSH or AOM.

How to become the system administrator (super user) once you have logged in:

1. If you are in the Business Shell (as a regular user), type **k**, System Administration. Then type **o**, Become Super User.

2. When you are prompted for the password, enter root's password.

When you finish the system administration function(s), you can return to your user account by pressing **q** in the Business Shell.

The system administrator responsibilities are explained in Chapter 4. A special password should be set up for the system administrator. The section Setting and Changing Passwords in Chapter 1 explains how to set up a password.

SYSTEM ADMINISTRATION MENU

The rest of this chapter tells you how to check and maintain the system, e.g., back up and restore files, add a new user, and change file ownership.

To access the system administration utilities from the Business Shell, type **k**, System Administration. The System Administration menu appears (see Figure D-3).

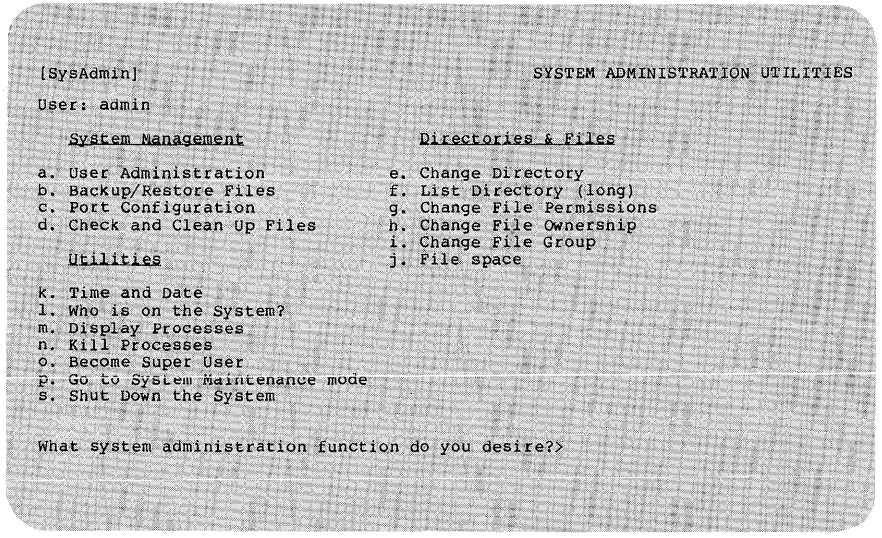


Figure D-3. The System Administration Menu

USER ADMINISTRATION

To add users to the system or change user characteristics,

1. Access the Business Shell as the super user.
2. Type **k** to access the System Administration menu.
3. Type **a** to access the User Administration program.

The User Administration screen appears (see Figure D-4). The User Administration commands and guidelines for creating or changing a user account are explained in the section "Add and Change User Accounts" in Chapter 5.

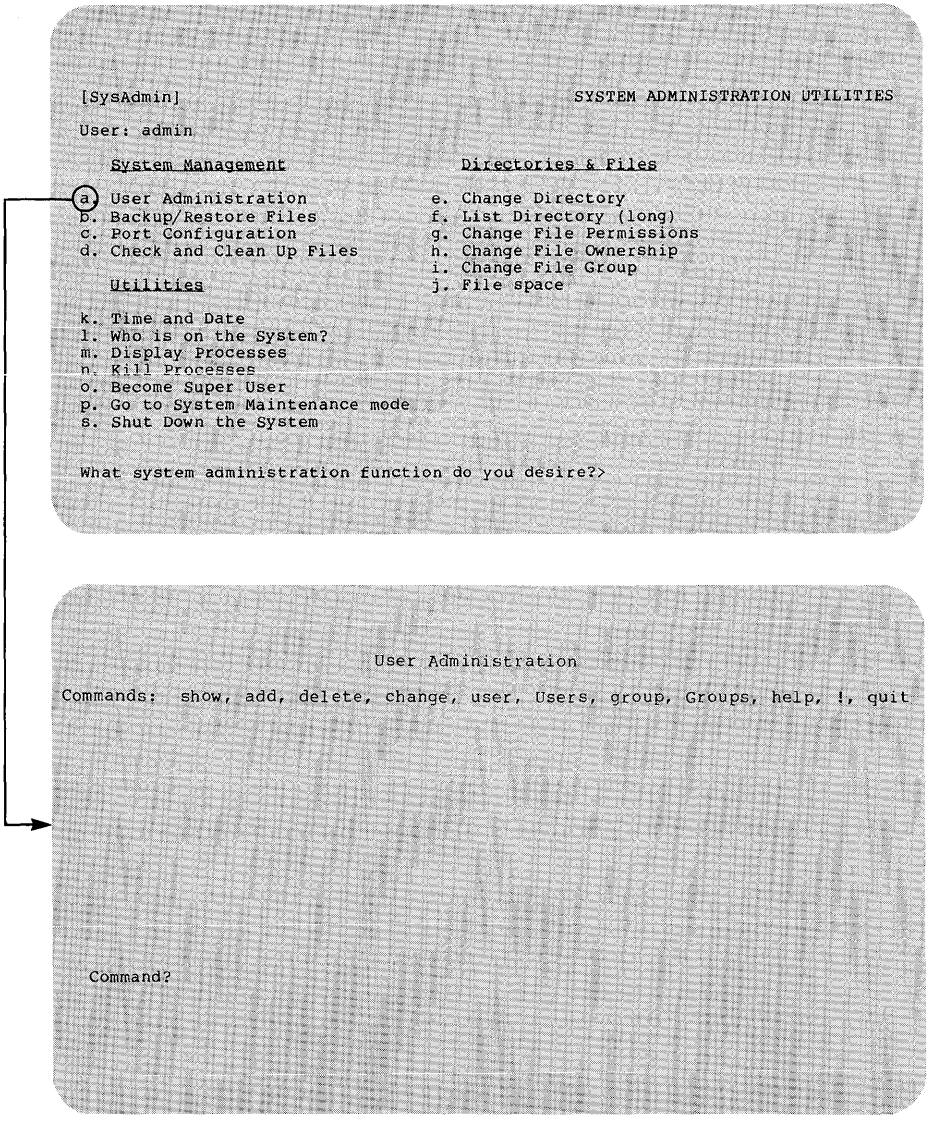


Figure D-4. User Administration Screen

CONFIGURING THE PORTS

For your system to work properly with a printer or terminal, the system needs to know certain things about that printer or terminal. Your system is already set up so you can connect Altos terminals and standard printers to the ports on the back of the computer.

If you want to connect another type of printer or terminal, use the Port Configuration program. You must be the super user (admin or root) to use this program.

You can't change a port while it is being used, so ask the user to log off before you begin.

To access the port configuration program,

1. Type **k** to select the System Administration menu.

2. Type **c** to select the Port Configuration program. The following screen shows an example of the terminal and printer assignments for the ports on an Altos 2086 system for 10 users (your screen may differ slightly).

NOTE

To stop the screen from scrolling (the text rolling up on the screen), press **<Ctrl-s>**. To continue scrolling, press **<Ctrl-q>**.

```
[SysAdmin]                                   SYSTEM ADMINISTRATION UTILITIES

User: admin

   System Management                         Directories & Files

a. User Administration                    e. Change Directory
b. Backup/Restore Files                   f. List Directory (long)
c. Port Configuration                     g. Change File Permissions
d. Check and Clean Up Files               h. Change File Ownership
                                          i. Change File Group
   Utilities                              j. File space

k. Time and Date
l. Who is on the System?
m. Display Processes
n. Kill Processes
o. Become Super User
p. Go to System Maintenance mode
s. Shut Down the System

What system administration function do you desire?>
```

```
PORT00    console   terminal  altos3          9600
PORT01    tty01     printer          default        none   8 bits
PORT02    tty02     terminal  altos3          9600
PORT03    tty03     terminal  altos3          9600
PORT04    tty04     terminal  altos3          9600
PORT05    tty05     terminal  altos3          9600
PORT06    tty06     terminal  altos3          9600
PORT07    tty07     terminal  altos3          9600
PORT08    tty08     terminal  altos3          9600
PORT09    tty09     terminal  altos3          9600
PARALLEL  plp       none

Commands:   (c)hange port,    (d)isplay,   (h)elp,    (q)uit
            (r)emove port,    (t)est printer

Type a command (c, d, h, q, r, t) and press RETURN:
```

Port configuration commands are explained in the section "Set Up the Ports for Terminals and Printers: Configure a Port".

BACKING UP AND RESTORING FILES

You should regularly back up the file system on your hard disk by making copies of those files on floppy disk or tape. If your system is used heavily, you should back up weekly, or better yet, daily.

You should make several copies of sensitive or potentially expensive data or programs. If a file system crash occurs, or if your tape or floppy disk becomes damaged, you will then have a backup copy.

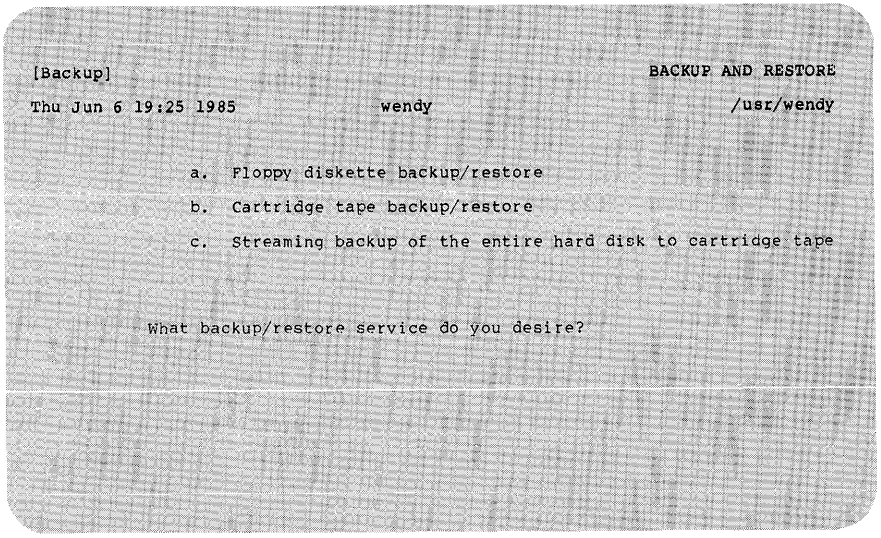
You can back up and restore single files and whole directories or subdirectories.

1. Type **k** to access the System Administration menu.

2. Type **b** to access the Backup/Restore Files menu.

3. The Backup/Restore menu appears. You can back up to floppy disk and tape. (The Backup/ Restore menu for UNIX, does not include streaming backup.)

For information about naming files, see the section "Naming a File or Directory" in Chapter 2.



Floppy Disk Backup/Restore

You can back up and restore directories and files on floppy disk.

Formatting Disks

To save a file or a group of files, you need a sufficient number of floppy disks that have been formatted for double-density operation.

To estimate the number of floppy disks you will need, each disk can hold about 250 printed pages. Files are saved across disk boundaries, so you can use all disk space. Be sure to format enough floppy disks

before you begin the backup process. Remove the write-protect tab before you format the floppy disk (see Figure 2-7 in Chapter 2 for a picture of the write-protect tab). Remember that formatting a disk will erase any information on the disk, so be sure the disk contains no information you value.

To format a floppy disk,

1. Type **k**, System Administration.

2. Type **b**, Backup/Restore Files.

3. Type **a**, Floppy Diskette Backup/Restore.

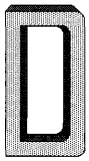
4. Type **e**, Format a floppy disk.

You are prompted to choose a number:

```
1 - Format Floppy Diskette
2 - Quit
```

For Altos systems with a dual-speed floppy drive (i.e., the 2086) the screen looks like this:

```
1 - Altos format                          /dev/fd096ds9
2 - IBM-AT (slow) format     XENIX        /dev/fd048ds9
3 - IBM-AT (fast) format     XENIX        /dev/fd096ds15
4 - Quit

Command: [default Altos]
```



CAUTION

The 2086 system has a dual-speed floppy disk drive. Floppy disks designed for a high speed drive cannot be used on a low speed drive, and floppy disks designed for a low speed drive cannot be used on a high speed drive.

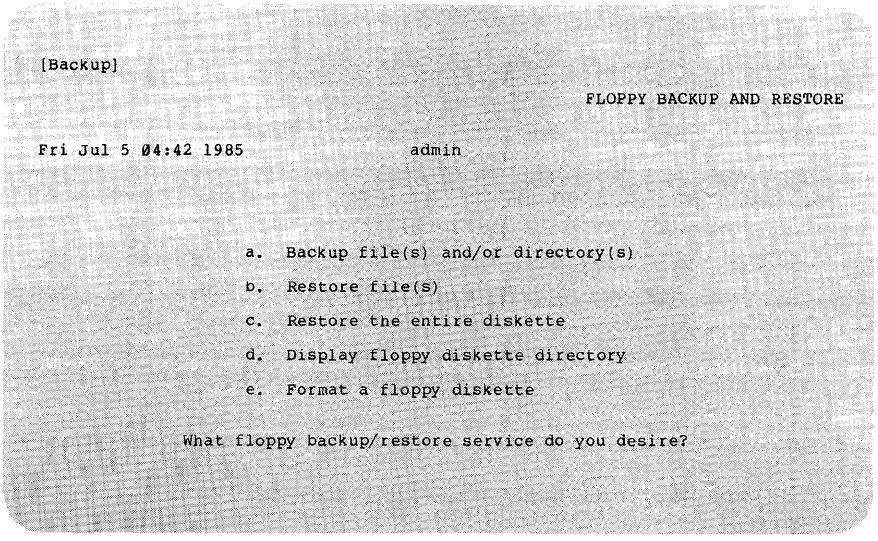
The 2086 system will determine what type of floppy disk you have before the system begins copying the files to the floppy disk.

The directions on the screen will tell you when to insert a floppy disk for formatting.

Backing Up Files

To back up a file on floppy disk,

1. Type **k**, System Administration.
2. Type **b**, Backup/Restore Files.
3. Type **a**, Floppy Diskette Backup/Restore. The Floppy Backup and Restore menu appears on the screen.

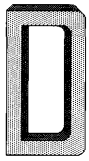


Type **a**, Backup file(s) and/or directory(s). Then type the name of the file(s) and/or directory(s) you wish to back up. Separate names with a space.

The form of file and directory names you use is important. If you specify a file or directory with a complete pathname, such as

/usr/john/tempest.c <Retn>

the backup procedure makes note that a complete pathname was used. When the file is restored, it's put back as /usr/john/tempest.c, regardless of the working directory of the restorer. The restore overwrites any previous file of that name, and, if necessary, creates



a directory in which to put it. A complete pathname is one that begins with "/."

The system tells you to remove and insert floppy disks whenever files or directories are too big for a single disk. Label and number the disks. (Be sure to indicate the total number, such as 1 of 5, 2 of 5, and so forth.) The sequence of disks is important because files are being saved across disk boundaries. The first part of a file may be on one disk, the rest on the next disk. Restore files in the order they were backed up. When you finish, store the floppy disks in a safe place.

Restoring Files

To restore a directory with all its subdirectories and files, do the following:

1. Insert the first floppy disk in the sequence.

2. Change to the name of the directory to be restored.

3. Type **b**, Restore file(s) or **c**, Restore the entire diskette.

For example, to restore all the files in the directory named /usr/wendy (the only contents of one floppy disk), insert the disk, and type **c**, Restore the entire diskette.

It is not necessary for the restore designation to match the designation used to save the files. In the example above, the /usr/wendy files can be restored from files saved under /usr.

Listing Saved Files

To list the files on a floppy disk, type **e**, Display floppy diskette directory.

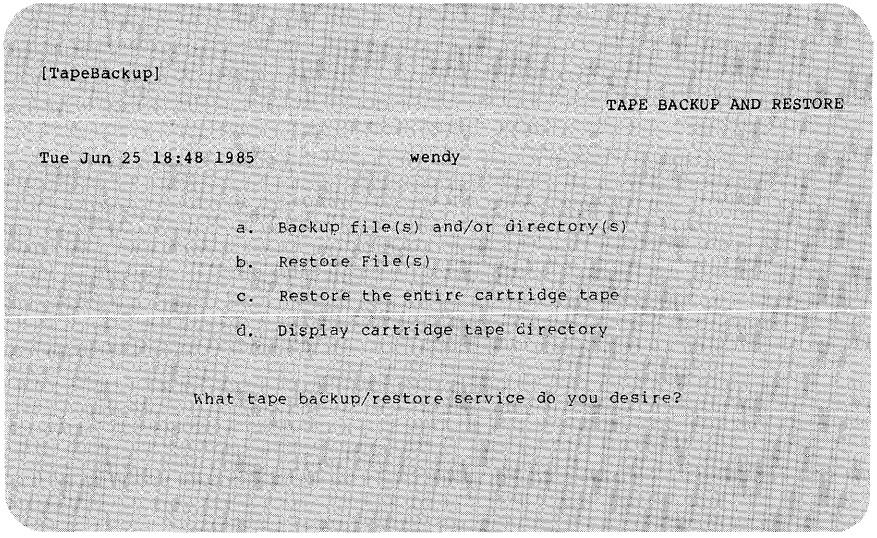
Cartridge Tape Backup/Restore

You can back up and restore from the hard disk to cartridge tape. You must be system administrator to use this procedure.

To back up to cartridge tape,

1. Type **k**, System Administration.
2. Type **b**, Backup/Restore Files.
3. Type **b**, Cartridge Tape Backup/Restore.

The Cartridge Tape Backup/Restore menu appears.



Select **a** to back up file(s) and/or directory(s). Enter the name of the file(s) and/or directory(s) when you are prompted, and press **<Retn>**.

Additional information about using tape backup is available in the help menus.

To restore the contents of your hard disk from tape:

- Type **b** to restore file(s). A message on the screen asks you to enter the name of the file(s), then press **<Retn>**.
- Type **c** to restore the entire cartridge tape. A message on the screen asks you to place the tape in the drive and press RETURN when ready.

CAUTION

If you restore the entire cartridge tape, you will overwrite all existing data on the hard disk and restore the hard disk to the condition it was when the backup was made.

Streaming Mode Tape Backup/Restore [XENIX Only]

In XENIX, you can back up and restore from the hard disk to tape using the streaming mode. You must be system administrator to use this procedure.

NOTE

The 586/986 do not have the streaming backup option.

Backing Up Files

To back up the entire hard disk to tape in the streaming mode,

1. Type **k**, System Administration.
2. Type **b**, Backup/Restore Files.
3. Type **c**, Streaming backup of the entire hard disk to cartridge tape.

A message on the screen asks you to place a tape in the drive, and press **<Retn>** when ready.

After you insert the tape and press **<Retn>** the screen displays information about the backup. For example,

```
Tape number: 1
Date created: Mon Oct 29 16:11:11 1984
Starting block number: Ø
File system name: /dev/rhdØb
```

The entire file system on the hard disk is copied to the tape. This process can take from 15 to 2Ø minutes for a 4Ø-megabyte hard disk. If you want to stop the backup, press **Break/Del**.

During the backup procedure, the system may find a disk sector that should not be used. The system flags that sector and displays a message about the bad sector. When you restore the file system, any bad sectors are skipped.

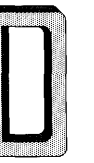
If you want to restore the file system from the tape to the hard disk, use the restore option on the main menu (see the next section for directions).

Restoring Files

To restore the entire contents of your hard disk from tape,

1. Shut down and reboot XENIX from the "XENIX Root File System" floppy disk (follow the procedures described in your Installing XENIX manual).

2. From the main menu, enter **c <Retn>**, Restore data to the hard disk from cartridge tape.



3. Insert the tape and follow the instructions on the screen.

CAUTION

The restore utility will overwrite all existing data on the hard disk and restore the hard disk to the condition it was when the backup was made.

Backing Up/Restoring the Second Hard Disk

To back up all files on the second hard disk,

1. Insert the tape.
2. Enter **b <Retn>** Cartridge Tape Backup/Restore.
3. Enter

```
/etc/umount /dev/hdla <Retn>
archive /dev/rhdla /dev/rsct <Retn>
```

For the 586/986, enter

```
/etc/umount /dev/hdla <Retn>
dump 0uf /dev/rct /dev/hdla <Retn>
```

To restore files from cartridge tape to the second hard disk,

1. Insert the tape.
2. Enter **b <Retn>**, Cartridge Tape Backup/Restore.
3. Enter

```
/etc/umount /dev/hdla <Retn>
recover /dev/rsct /dev/rhdla <Retn>
```

For the 586/986, enter

/etc/umount /dev/hdla <Retn>
restor rf /dev/rct /dev/hdla <Retn>

CHECKING AND CLEANING UP FILES

The file system check program examines and cleans up the file system. You should use this program at least once a day, as it can improve system performance. All users should be logged off.

CAUTION

The System may be shut down by this procedure.

To verify and repair any inconsistencies in the /dev/root file system:

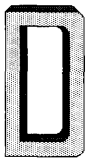
1. Log in as system administrator and type the password. The Business Shell main menu appears on the screen.

2. Type **k** to select the System Administration.

3. Type **d**, Check and Clean Up Files.

For an explanation of the file system check program, see the section "Check the File System" in Chapter 5.

The system automatically clears and salvages the file system, and then shuts down the system. Restart the system. See Booting From the Hard Disk later in this chapter for instructions for XENIX. For how to bring UNIX up for all users, see the UNIX System V documentation.



OTHER UTILITIES

The utilities discussed in this section are listed in the Utilities and Directory Files menus in the System Administration menu. The Change Directory utility is discussed in the previous section "BASIC UTILITIES". Becoming the super user is discussed at the beginning of this chapter.

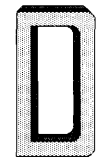
Listing Directory

Listing your current directory in the long format displays access permissions, the number of characters in the file, and the date of the last changes made to the file.

To list your current directory, type **k**, System Administration. Then type **f**, List Directory (long).

```
[SysAdmin]                                    SYSTEM ADMINISTRATION UTILITIES

User: admin

   System Management                          Directories & Files

a. User Administration                        e. Change Directory
b. Backup/Restore Files                       f. List Directory (long)
c. Port Configuration                         g. Change File Permissions
d. Check and Clean Up Files                   h. Change File Ownership
                                              i. Change File Group
   Utilities                                  j. File space

k. Time and Date
l. Who is on the System?
m. Display Processes
n. Kill Processes
o. Become Super User
p. Go to System Maintenance mode
s. Shut Down the System

What system administration function do you desire?>
```

```
Directory:   /etc

total 152
-rwxr-xr-x   1   root     sys          329   Jan 27  00:00   asktime*
-rw-r--r--   1   root     sys           10   Jan 27  00:00   checklist
-rwx--x--x   1   root     sys         1982   Jan 27  00:00   getty*
-rw-r--r--   1   root     0             44   Jan 27  00:00   group
-rwx--x---   1   root     sys         3564   Jan 27  00:00   haltsys*
-rwx--x--x   1   root     sys         1230   Jan 27  00:00   inir*
-rwx--x--x   1   root     sys         4784   Jan 27  00:00   init*
```



The directory name and size are at the top of the listing. The size of the directory is given in 512-byte blocks for the 586 and 986 and 1K byte blocks for the 2086 series, 586T, 986T, and 3068. See Displaying Disk Usage for more information about blocks. The columns in this listing are explained in the section "List Details About Files in a Directory" in Chapter 2.

Changing File Permissions

To change file permission, type **k**, System Administration. Then type **g**, Change File Permissions. The prompt "File(s) for which permissions are to be changed?" appears. Enter the file name (or names separated by a space) and **<Retn>**. The screen displays the current permissions and prompts: "Change files to permission." The sections "Change File Permissions" and "List Details About Files in a Directory" in Chapter 2 explain the meaning of the permission symbols (-rwx).

First, enter the class(es) of users for which permission is to be changed. This is some combination of

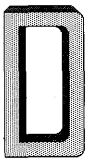
u = user (you)
g = group
o = other
a = all three: u, g, and o (the default).

You can add (+) or remove (-) one of the three permissions: "r" (read), "w" (write), or "x" (execute). For example, if you want group members to execute one of your files, enter

g+x <Retn>

If you want to deny group members and all others read permission for a file, enter

go-r <Retn>



Changing File Ownership

To change file ownership, type **k**, System Administration. Then, type **h**, Change File Ownership. The prompt "File(s) for which ownership is to be changed?" appears. Enter the file name(s) and press **<Retn>**. You are shown the current owner(s) for the file(s), and prompted "Change file to owner." Enter a valid owner name. When you list the directory, that directory's file(s) and new owner are displayed.

Changing File Groups

To change file groups, log in as super user. Type **k**, System Administration. Then, type **i**, Change File Group. The prompt "file(s) for which the group is to be changed?" appears. Press **<Retn>** if you wish to see the current groups for the files. After you enter the file name(s), the "current group(s) for these files" displays. Then the prompt "Change files to group:" appears. Enter a valid group name.

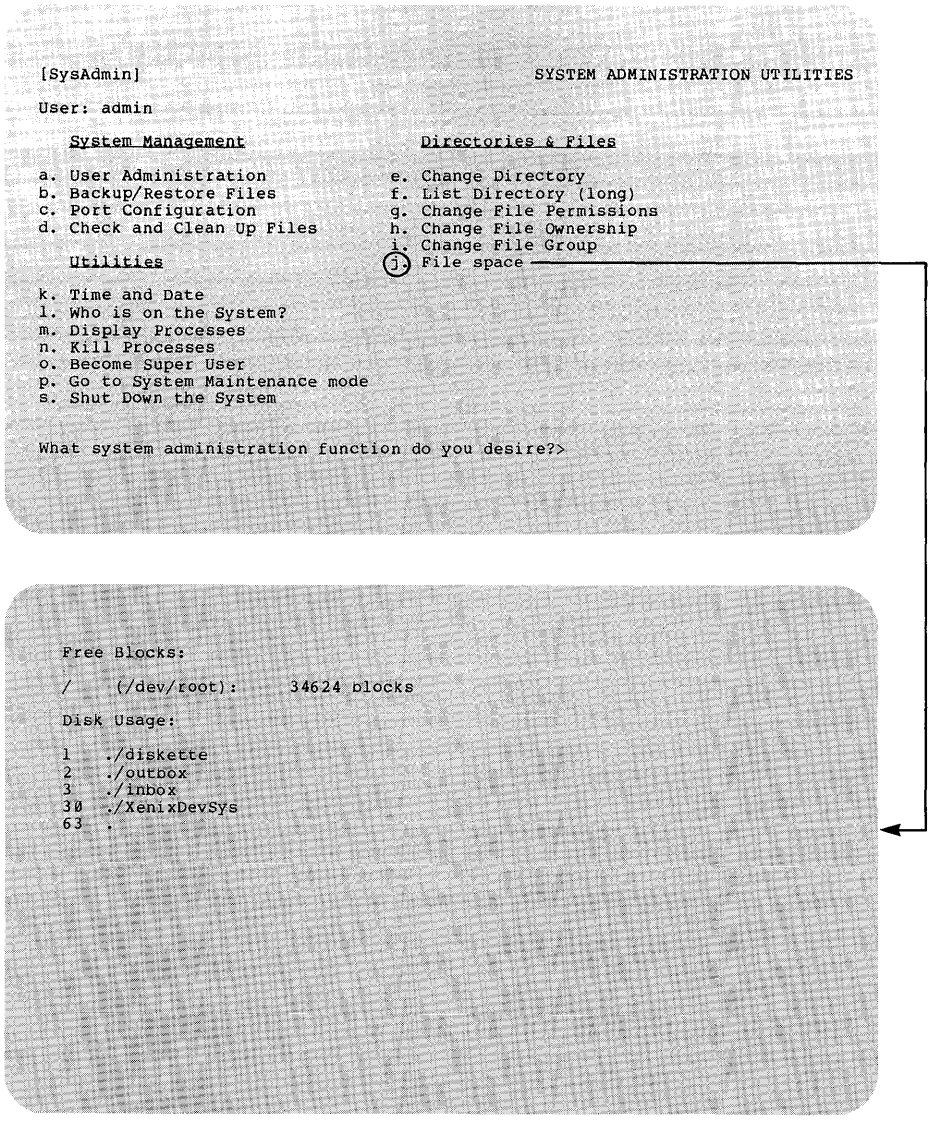
Displaying Disk Usage (File Space)

To see how much free space is available on the system's hard disk, select j. File Space. After several seconds, a message displays /dev/hd0b, followed by a number of blocks and inodes.

Each block contains 512 bytes for the 586 and 986, and 1K bytes for the 2086 series, 586T, 986T, and 3068. Every character is roughly equivalent to a byte, including special characters that don't display on the screen like line feeds, and carriage returns. This gives you an idea of how much room is left on the disk.

If the number of blocks is below 500, you should consider obtaining additional space by deleting files no longer used.

To display disk usage, type **k**, System Administration. Then type **j**, File Space.



The screen displays

- The remaining disk space (free blocks)
- The directories and their block size (in 512-byte blocks)
- The total number of the blocks in your current directory (denoted by the period).

To determine individual file sizes, display disk usage in the system shell (see the XENIX Commands Directory and the UNIX Commands Directory).

Displaying or Setting the Date and Time

To display or set the date and time, type **k**, System Administration. Then type **k**, Time and Date. You can press **<Retn>** to display the date and time.

You will see the prompt:

```
Current date and time:
  - type RETURN to see the date and time,
  - type YYMMDDHHMM to set the date and time
```

NOTE

(UNIX displays YYMMDDhhmm)

You can set the time and date by entering the year, month, day, hour, and minutes using the format:

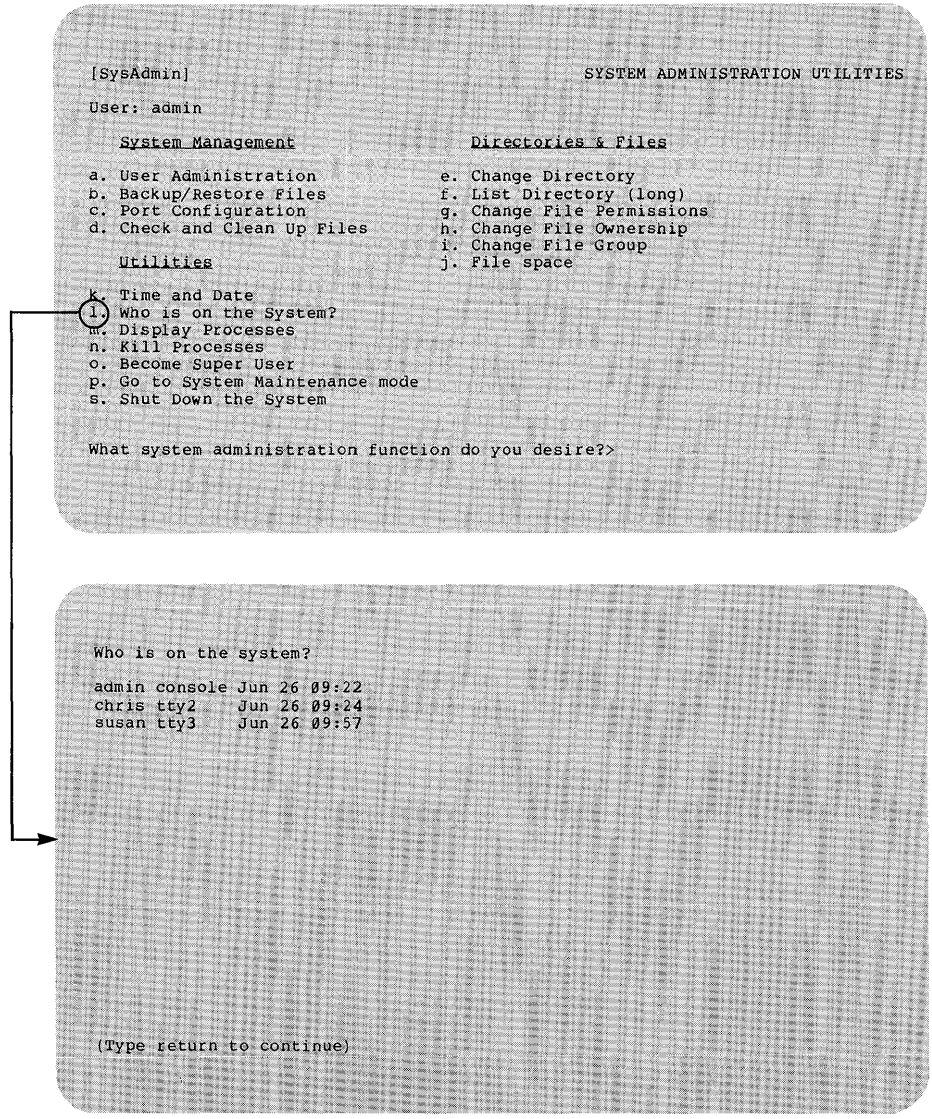
```
YY = current year
MM = current month
DD = current day of month
HH = hour (24 hour clock) (hh for UNIX)
MM = minutes (mm for UNIX)
```

For example, enter December 31, 1984, 2:30 p.m. as

```
8412311430 <Retn>
  | | | | |
1984 | 31| |
     |   |_|
   12    |
       2:30 pm
```

Displaying Who is on the System

To display who is currently logged on the system, type **k**, System Administration. Then type **l**, Who is on the System?


[SysAdmin] SYSTEM ADMINISTRATION UTILITIES
User: admin
System Management
a. User Administration
b. Backup/Restore Files
c. Port Configuration
d. Check and Clean Up Files
Utilities
k. Time and Date
l. Who is on the System?
m. Display Processes
n. Kill Processes
o. Become Super User
p. Go to System Maintenance mode
s. Shut Down the System
Directories & Files
e. Change Directory
f. List Directory (long)
g. Change File Permissions
h. Change File Ownership
i. Change File Group
j. File space
What system administration function do you desire?>
Who is on the system?
admin console Jun 26 09:22
chris tty2 Jun 26 09:24
susan tty3 Jun 26 09:57
(Type return to continue)

Displaying Processes

All processes on the system are assigned a process identification (PID) number.

Occasionally, a program may go awry; it may loop forever or lock up your terminal. If this happens, identify the process causing the problem.

To display currently active processes, type **k**, System Administration. Then type **m**, Display Processes, to display information on all system processes in the long listing format. The column headings that appear on the screen are explained in the section Display Processes in Chapter 3.

```
[SysAdmin]                                  SYSTEM ADMINISTRATION UTILITIES

User: admin

   System Management                        Directories & Files

a. User Administration                   e. Change Directory
b. Backup/Restore Files                  f. List Directory (long)
c. Port Configuration                    g. Change File Permissions
d. Check and Clean Up Files              h. Change File Ownership
                                         i. Change File Group
   Utilities                             j. File space

k. Time and Date
l. Who is on the System?
m. Display Processes
n. Kill Processes
o. Become Super User
p. Go to System Maintenance mode
s. Shut Down the System


What system administration function do you desire?>
```

```
Process Status

F S UID   PID PPID C  PRI NI ADDR SZ WCHAN STIME    TTY   TIME CMD
3 S root    0    0 11   0 20 20    4  49e0       ?    ?   290:56 swapper
0 S root    1    0  0  30 20 123  16 5ac2       ?    ?     0:02 /etc/init
0 S root   34    1  0  28 20 193  12 4336  14:13:00 2     0:00 -2 (getty)
1 S root   31    1  0  40 2b  3a  12 f000  15:12:00 co    0:01 /etc/update
0 S root   63    1  0  30 2b 10b  12 5aea       .   co    0:03 -sh -c /usr/lib/bsh
0 S root   78   63 24  30 20 143  36 5b3a       .   co    1:08 /usr/lib/bin
1 R root 112   78 27  57 2b  2e  44            .   co    0:01 ps -alx
```

Killing Processes

You may find it necessary to stop a process because, for example, it locks up a terminal so you can't enter anything, or it is consuming too much of the system's resources that other tasks cannot be performed.

You can stop (kill) your own process, but you must be super user to kill another user's process. To kill a process,

1. Type **k**, System Administration, under the System and Help section of the main menu.

2. Type **m** to display system processes. Write down the process identification (PID) number for the processes you want to kill.

3. Then type **n**, Kill Processes. The prompt "Kill which processes?" displays.

4. Enter the process identification (PID) number (or numbers, separated by spaces) and press **<Retn>**.

After you kill a process, the main menu returns to the screen.

CAUTION

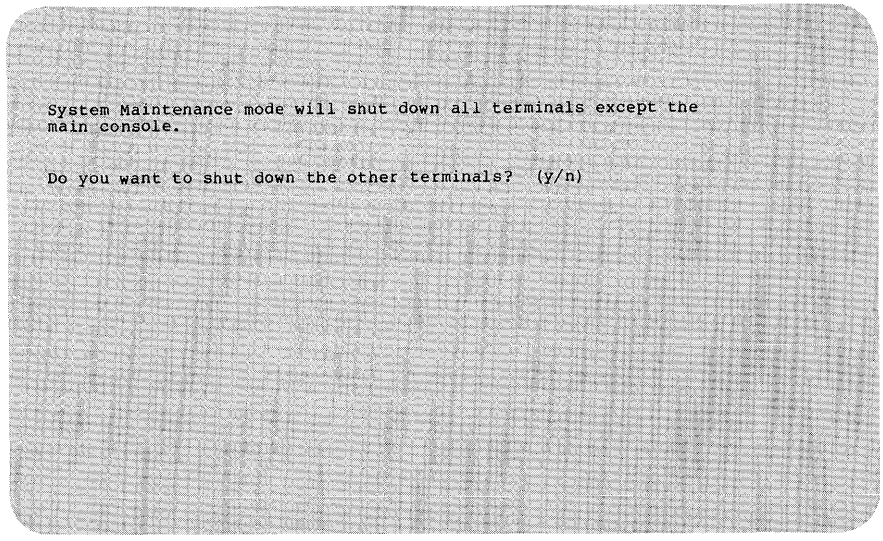
You should know which processes are safe to kill. Some processes must continue to run for the system to operate properly.

If you receive the message, "No such process," the process may have completed. Verify by displaying the process.

System Maintenance Mode

You can go to System Maintenance mode when you need to become the only user on the system. You can then, for example, install WorkNet.

To go to System Maintenance mode, type **p** from the System Administration menu. The screen displays the following:



To shut down other terminals, enter **y <Retn>**. A message will ask you to enter the number of minutes (Ø-15) until shutdown.

For XENIX, type in the number of minutes. After the specified minutes, XENIX shuts down, reboots, and displays the following:

```
System Maintenance mode (single user)
#
```

For UNIX, BSH automatically assigns a default time of 60 seconds, then begins shutting down the system. After the specified time, UNIX goes into Single User Mode. It displays on the screen a series of messages and finally:

```
INIT: SINGLE USER MODE
```

At this point you can work in the shell as the super user.

To bring the XENIX back up for other users, display the Options menu by typing **options <Retn>**. When you are finished with system maintenance, return to the Options menu by typing **a <Retn>**.

For UNIX, to bring the system back up for other users, see the System V Installing UNIX manual.

SHUTTING DOWN THE SYSTEM

If you have to turn off the power or reset your Altos computer system, you need to shut it down properly. You must be the super user to perform this function. For the UNIX operating system, the system is not shut down, but instead is brought to Single User Mode.

For how to stop and start the UNIX operating system, see the System V Installing UNIX manual.

To shut down the system for XENIX,

1. Log in as **admin** on the system console, and enter admin's password when prompted.

2. Type **k**, System Administration.

3. Type **s**, Shut Down the System.

The remaining steps for this shut down procedure for XENIX is explained in the section "Stop and Start the Operating System" in Chapter 5.

RECOVERING FROM IMPROPER SHUTDOWN

If the operating system is not shut down properly, a file checking program will begin. For XENIX, a you may receive the following message after you restart the system:

```
The system was not shut down properly.
The root file system will be cleaned.
(Type "no" only if you want to avoid cleaning.)
```

For UNIX, fsck runs, then the message "Boot UNIX no sync" is displayed. At this point, you turn the RESET/RUN key to RESET, then back to RUN, to start the system again.

The system validates the consistency of the disk file system, which may have been damaged, and automatically repairs it. If there is no damage, you will see the following:

```
/dev/root
** Phase 1 - Check Blocks and Sizes
** Phase 2 - Check Pathnames
** Phase 3 - Check Connectivity
** Phase 4 - Check Reference Counts
** Phase 5 - Check Free List

nn files nnn blocks nnn free
```

If the file system was damaged, it is repaired automatically and the system displays a log of the corrections that were made.

Then the system reboots automatically and asks you to enter the time and date.

If you have any doubt whether the file system has been repaired satisfactorily, you can restore the hard disk from backup files.

MOVING BETWEEN SHELLS

You can move between the Business Shell and the operating system, and between the Business Shell and AOM. The section "Moving Between Shells" in Chapter 3 explains how to do these moves.

BOOTING FROM THE HARD DISK

The following procedure explains how to start up (boot) the XENIX system from the hard disk. For how to boot the UNIX system from hard disk, refer to the System V Installing UNIX manual.

1. Be sure that your terminal is connected to the console on the Altos computer system.

2. Turn on the Power Switch or, with the power on, reset the system. The screen displays

```
PASSED POWER-UP TEST
Monitor Version n.nn

Press any key to interrupt boot
```

Don't press a key, the monitor will go to the hard disk and read in the XENIX operating system. This requires about 20 seconds or so. Go to step 3.

If you happen to press a key, within a few seconds you will see a choice of possible entries for booting. Enter 1 to boot from the hard disk.

```
Enter (1) to boot from Hard Disk
Enter (2) to boot from Floppy Disk

Enter option:  1
```

3. A message appears that tells the version of XENIX and amount of available memory on your system.

   On some systems you will see a message asking you to press **CTRL-d** to proceed with normal startup or enter the root password for system maintenance mode. When you are finished with system maintenance, press **CTRL-d** to continue.

4. The screen displays the date and time. For example,

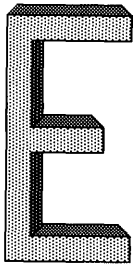
```
I think it's Thu Sep 27 18:08:10 1984
Enter date (yymmdd) or press RETURN
Enter time (hhmm) or press RETURN
```

   Sometimes you may get a different message. It starts "The system was not shut down properly..." If you see this message, see Recovering From Improper Shutdown in this chapter.

5. When the login prompt appears on all terminals, respond with your user name and password, if one has been set.

LOGGING OUT

When you are finished working on the system, you should log out. To log out from the Business Shell main menu, enter **q**, Quit. Depending on how your system is set up, you may return to the system prompt. To log out from the system prompt, type **CTRL-d <Retn>**.



APPENDIX E
AOM ERROR MESSAGES

If a message appears on your screen that you don't understand, consult the following alphabetical list. Each message is followed by a description that tells you why the message appeared, and what to do about it.

If you see a message that is not on this list, it may be a system or application message. For these messages, consult the individual application manuals and the following manuals:

> XENIX Commands Directory (see messages in the section "Miscellaneous Files")
>
> System V Programmer and Error Message Reference

Cannot access file (file name).

> You tried to access a file that does not exist or that you do not have permission to read. Type another file name or ask the owner of the file to change the permissions so you can access it.

Cannot open directory (directory name).

You tried to access files in a directory that you do not have permission to search. Ask the owner of the directory to change the permissions so you can search it.

Cannot open file (file name).

You tried to access a file that does not exist or that you do not have permission to read. Type another file name or ask the owner of the file to change the permissions so you can access it.

Cannot read directory (directory name).

You tried to look at the contents of a directory you don't have permission to read. If you need to see the contents ask the owner to change the directory's permissions.

Directory already exists.

You tried to create a new directory that already exists. Select the Create Directory command again and type another name.

File already exists.

You tried to create a new file that already exists. Select the Create File command again and type another name.

File (file name) not found.

You typed the name of a file that doesn't

exist. Select a name from the list below.

Help file not found: (file name)

AOM is unable to read one of the files in the /usr/aom/help directory. See your system administrator for help.

Invalid file given -- pick a file name below:

You typed the name of a file that does not exist, or you typed the name incorrectly. Move the cursor to the file name that you do want in the list below, and press **Retn.** If you do not see the file you want, you may be in the wrong directory. Type the full pathname.

Invalid directory given -- pick a file name below:

You typed the name of a directory that does not exist, or you typed the name incorrectly. Move the cursor to the directory name that you do want in the list below, and press **Retn.** If you do not see the directory you want, you may be in the wrong directory. Type the full pathname.

Invalid file or directory name entered.

You typed the name of a directory or file that does not exist, or you typed the name incorrectly. Move the cursor to the file or directory name that you do want in the list below, and press **Retn.** If you do not see the file or directory you want, you may be in the wrong directory. Type the full pathname.

Mismatch -- password unchanged.

You didn't type your password exactly the same way twice while using the Change Password command. Select the command again and type the password again.

No directory found

You tried to pick a directory from the list. There are no directories contained in the current directory. Move to the directory that contains the directory you want.

No file found

You tried to pick a file from the list. There are no files in this directory. Move to the directory that contains the file you want.

Please use a longer password.

You typed a new password that is shorter than six characters. Type a new password of at least six characters.

Please use at least one non-numeric character.

You typed a new password with only numbers in it. Type a new password with at least one letter in it.

Sorry.

You became system administrator and typed the wrong password. Select the Become System Admin command, and type the password again.

Unable to copy (file name).

You tried to copy a file that does not have permission for you to copy. If you are not the owner, ask the owner to change the permissions.

Unable to copy (directory name).

You tried to copy a directory that does not have permission for you to copy. If you are not the owner, ask the owner to change the permissions.

Unable to delete (file name)

You tried to delete a file. You typed a file name incorrectly or one that doesn't exist. Select the Delete a File command again, and type another file name.

Unable to initialize graphics.

AOM could not read the /usr/aom/AOMcap file. Change the permissions on this file so that AOM can read it.

Unable to initialize menu text.

AOM could not read the /usr/aom/aomtext file. Change the permissions on this file so that AOM can read it.

Page name cannot begin with the same letter as an existing page.

You tried to name a page using a name that starts with the same letter as a name that already exists or that starts with M (reserved for Menu Manager)

or Q (reserved for Quit). Select the Name command again, and type another name.

Unable to initialize page names.

You cannot read the file /usr/aom/aomnames. See your system administrator for help.

Unable to initialize terminal: (terminal type)

AOM could not find your terminal type in the /etc/termcap file. Select the Set Up Ports command and check the list to see if your terminal is set to the correct terminal type. If it is not, type the correct terminal type.

Unable to move to directory: (directory name)

You tried to move a directory that doesn't exist, or you may be in the wrong directory. Select the Move to New Directory command again, and type in another directory name, or type the full pathname.

Unable to rename (file name).

You tried to rename a file and you do not have write permission on the directory into which you are moving the file.

Unable to rename (directory name).

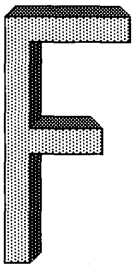
You tried to rename a directory and you do not have write permission on the directory into which you are moving the directory. Ask the owner to change the permissions on the directory so that you can access the directory.

You cannot change permissions on this file.

You tried to change the permissions on a file you don't own. Ask the owner to change the permissions on the file.

You cannot open this file

Someone changed the permissions for the help files. See your system administrator for help.



APPENDIX F
INSTALLING MULTIPLE AOM MENU SYSTEMS

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CHANGING THE USER'S ENVIRONMENT F-4
TAILORING AOM MENUS F-5

INTRODUCTION

You can set up different menu systems for different users on the same system. For example, you might want to set up one menu system for personnel and one for accounting. This reduces the number of menus each user sees, and also provides a degree of data security and privacy.

For example, you might want to set up a menu system for personnel that would include only the database, word processing, and utilities menus. You might want to set up a different menu system for accounting that would include only the spreadsheet, graphics, word processing, and utilities menus.

The following procedures explain:

1. How to set up individual AOM menu systems.

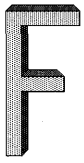
2. How to tailor them for specific groups of users.

SETTING UP MENU DIRECTORIES

First, determine how many different sets of menus you need to set up. If you want to set up one for four users in accounting, and another one for three users in personnel, then you need to set up two directories to hold the tailored menus.

1. Log in as root.

2. Create a directory (that will contain the menus) for each different type of user. The directory can be located in any /usr directory or sub-directory.



For example, you might create the directories, /usr/acctg/aom and /usr/inven/aom, for accounting and inventory users, respectively.

3. Copy the following AOM menu files from the /usr/aom directory to each of the directories that you created in step 2:

   - aom.msgs
   - aomnames
   - aomtext
   - aomplanes

CHANGING THE USER'S ENVIRONMENT

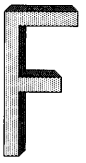
4. Next, you need to add the AOMDIR environment variable to each user's .profile file.

   Use the Uniplex, vi, or ed editor to modify each user's .profile file. Add commands to set the AOMDIR variable and to export it.

   For example, using the accounting directory you set above, enter these statements in the .profile files for each user in the accounting group:

   AOMDIR=/usr/acctg/aom <Retn>
   export AOMDIR <Retn>

   You must be a system administrator to change .profile files that are not your own. For more information about the .profile file, see miscellaneous files in the XENIX Commands Directory or special files in the UNIX Commands Directory.



TAILORING AOM MENUS

This section explains how to create the different AOM Menu Systems that each user will see.

At this point, you should have already created and tested any application menus to be used.

NOTE

When you install an application, the menu will be moved in to the directory /usr/aom/menu. When you list this directory, you will see the application installed, no matter what directory AOMDIR was set to when you did the installation. You can add the menu to any menu system with the add command; there is no need to install it again. (See Chapter 6, "Using the Menu Manager").

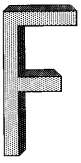
To tailor the menus for each user, make sure you're logged in as root, and perform these steps:

1. Set the AOMDIR environment variable and export it for the directory that you created in the first section in this appendix.

   For example, to set AOMDIR variable and export it for the accounting directory, type the following at the system prompt:

   AOMDIR=/usr/acctg/aom <Retn>
   export AOMDIR <Retn>

   Make a note of the type of user (for example, accounting) indicated by the directory in the AOMDIR command. In steps 2-7 below, you will be tailoring menus for that group.



2. Start AOM by typing **aom** and pressing **Retn.**

3. Select the Menu Manager by typing **m.**

4. Rearrange or delete the menus that come with AOM (if necessary). Use the instructions in Chapter 6, "Using the Menu Manager".

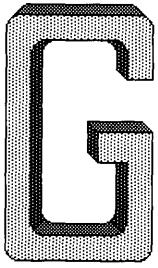
5. For any application already installed on your system, use the add command on the AOM Menu Manager page. Otherwise, use the install command. To put the menu in to different menu systems, install the menu in to one menu system then add it to the others.

   Place the menus in the appropriate locations on the menu displays using the instructions in Chapter 6, "Using the Menu Manager".

6. Leave AOM by typing **q** and pressing **Retn** on the Altos Office Manager screen.

Repeat steps 1-6 for the remaining directories that you created in the section "Setting Up Menu Directories".

7. When you're finished tailoring each group's menus, log out.



APPENDIX G: TROUBLESHOOTING

If you perform daily preventive maintenance procedures, such as checking and cleaning up files, saving and backing up files, managing disk space on the system, and monitoring processes, your operating system should run smoothly.

However, emergencies do occur. The system may be shut down improperly due to a power failure or someone accidently resetting it.

AOM displays error messages on your terminal. Additional error messages can also come from the operating system and individual application programs that you have installed.

Some errors, such as the entering of illegal commands, are simple errors that an individual user can solve. Others, such as bad sectors on the hard disk, may require the use of Altos diagnostics.

If the problem persists, and you have tried all of the available maintenance tools listed in this chapter, try checking and cleaning up files by selecting the Check File System command in the SYSTEM ADMIN II menu in AOM or by typing **d** on the System Administration menu in BSH. If you still cannot fix the problem, use the system Diagnostics.

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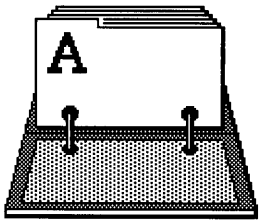

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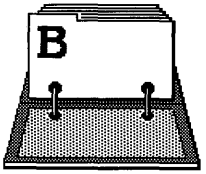

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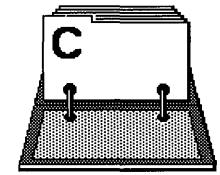

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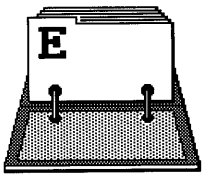

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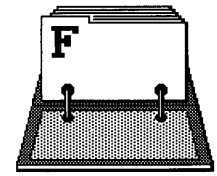

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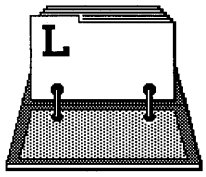

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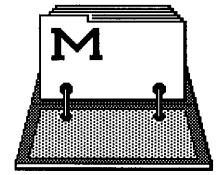

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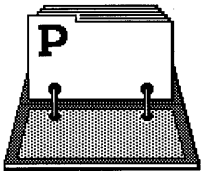

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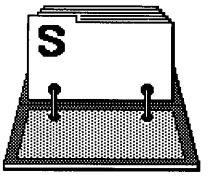

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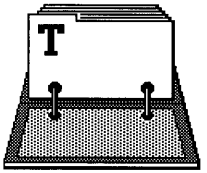

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READER COMMENT FORM

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