IBM

Personal Computer
Productivity Series

Personal Communications Manager

Electronic Mail & Intelligent Terminal

by MICROCOM, Inc.

1502275

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First Edition (July 1983)

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Preface

This book provides you with the following information about the program:

- Product features and system requirements
- How to set up your computer to run Personal Communications Manager
- How to personalize standard **user functions**
- How to prepare and run the **terminal** emulator
- How to access information services
- How to run the program unattended
- How to create an address book for frequently contacted Personal Communications Manager users
- How to send, receive, and review **mail** items
- How to install your own text **editor** to write and edit messages
- How to troubleshoot problems and understand advisory messages.

Note: Terms that appear in **bold face** in this book are defined in Appendix G, *Glossary.*

Assumptions

If you are connecting to a **remote** computer, this manual assumes that you are already familiar with the procedure for contacting that computer. If not, you should refer to the remote computer's user manual for information about that computer.

How This Manual Is Organized

The first three chapters introduce you to the basics of Personal Communications Manager. Whether you are a new or an experienced computer user, you must read these pages before using Personal Communications Manager. Then go on to the tutorial in Chapter 4 where you will learn about changing a **user function**, creating an address book entry, addressing mail, reviewing a **log**, sending mail, and reviewing a piece of received mail. Chapters 5 through 12 are reference material.

This manual has 12 chapters and 6 appendixes.

- Chapter 1 contains introductory information about the program, including a list of functions and features. It also describes the hardware and software needed to run the program.

- Chapter 2 contains information about menus and related advisory messages. You are told about the different screens, how to give answers to questions asked by Personal Communications Manager, and how to specify telephone numbers.

- Chapter 3 contains instructions for customizing your program, making a Work copy of your Personal Communications Manager diskette, and configuring the program.

- Chapter 4 contains tutorial material about personalizing an information service setup file, creating an address book entry, addressing a mail item, preparing to send mail, reviewing a sample mail item, and discarding the tutorial files.

- Chapter 5 contains information about using Personal Communications Manager to **emulate** an **intelligent terminal**. Interactive operations and commands are discussed including how to send and receive files.

- Chapter 6 contains material about information services and how you can modify the sample terminal setup files included on the Personal Communications Manager master diskette to connect to Dow Jones, THE SOURCE, and CompuServe.

- Chapter 7 contains an overview of **electronic mail** and Personal Communications Manager's electronic mail operation. This chapter contains information about the different types of files that can be sent and received, how they are handled by Personal Communications Manager, and how the program keeps track of outgoing and incoming mail items.

- Chapter 8 contains information about Personal Communications Manager's address book feature and how items are added, changed, or removed from an address book. This chapter also tells how the entries in an address book can be grouped into distribution **lists** for automatic addressing of mail items.

- Chapter 9 contains information about addressing message or data files to other Personal Communications Manager users, reviewing the status of these items, and maintaining a record of outgoing mail traffic.

- Chapter 10 contains information about the unattended electronic mail feature, the process that takes place when this is started, and the advisory messages that are associated with the procedure.

- Chapter 11 contains information about reviewing received message or data files, how to handle these files, and the record of incoming mail traffic.

- Chapter 12 contains information about specifying a user-provided text editor for use with Personal Communications Manager.

The appendixes contain technical and other helpful information about using Personal Communications Manager. Appendix A, Appendix B, and Appendix C will be helpful to all users. Appendix D, Appendix E, and Appendix F provide technical information for understanding and modifying the function of the program. Unless you are an experienced computer user, you may only need the information contained in Appendix A, Appendix B, and Appendix C.

- Appendix A lists the messages that you may encounter when using the program and provides some troubleshooting guides in the event you are having a problem getting Personal Communications Manager to run properly.

  Note: You should review the contents of Appendix A when you are becoming familiar with Personal Communications Manager. Doing this will make using the program easier.

- Appendix B contains a brief introductory overview to the basics of computer telecommunications.

- Appendix C contains guidelines about using Personal Communications Manager to communicate with a remote terminal .

- Appendix D is a chart of the **ASCII** character codes.

- Appendix E contains guidelines for creating your own **modem driver**.

- Appendix F describes the Microcom Networking Protocol.

- Appendix G is a glossary containing some of the terms used in the text.

At the back of this book is an index containing references to each of Personal Communications Manager's features and requirements.

Contents

Chapter 1. Introduction

What Is Personal Communications Manager?

Personal Communications Manager is a computer program that lets your IBM Personal Computer communicate over standard telephone lines with other computers in two ways. First, in an **attended mode** of operation, by emulating an intelligent terminal attached to a remote computer you can control the communication process and the dialog between the computers. Second, in an **unattended mode** of operation, called electronic mail, your computer automatically sends and receives messages and the contents of files to other computers equipped with this program or most other MICRO/Courier[1] products. (Refer to Appendix F for an explaination of other products that can communicate with Personal Communications Manager.)

Everyone is familiar with the telephone and how it is used to communicate over distances. You speak into the mouthpiece of your handset and are heard in the earpiece of the remote handset, and vice versa. Computers use telephone lines to communicate too. This is called telecommunications. Instead of spoken words, computers use electronic codes made up of zeros

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1 MICRO/Courier is a trademark of Microcom, Inc.

and ones -- in different patterns for each character -- to communicate information back and forth between computers or the terminals that are linked to them.

The program uses these standard codes to communicate over telephone lines with other computers, either in unattended, Personal Communications Manager-to-Personal Communications Manager mode, or under direct user control, emulating an intelligent terminal. The coded electrical signals (pulses) are converted into audio frequencies so they can be sent across telephone lines, then decoded back into electrical pulses for computer use by a device called a modem.

What Can You Do With It?

As a terminal emulator, your IBM Personal Computer can dial into remote computers and send or receive files or other information from your keyboard conducting an **interactive** dialog with the remote computer. This lets you obtain information from public computer information services, and send information or messages to these services.

In addition, Personal Communications Manager can automatically transmit memorandums, documents, programs, data, VisiCalc[2] templates, MultiPlan[3] files, graphic images...indeed, anything stored in a file...quickly, inexpensively, and reliably to another computer equipped with the program. This is Personal Communications Manager's electronic mail/unattended mode. In unattended mail mode, you can transmit only

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2 VisiCalc is a trademark of VisiCorp.
3 MultiPlan is a trademark of Microsoft, Inc.

to other systems that are also in mail mode. You can receive messages from an **ASCII** terminal or from a computer that is also in mail mode.

In unattended electronic mail mode, Personal Communications Manager replaces the process of writing a letter, looking up an address and addressing an envelope, putting your letter in a mailbox, and collecting and opening your own mail. The program makes performing all this work as simple as inserting a diskette and entering a few commands on your keyboard. The program automatically dials the phone number and connects to another system. It lets you select the date and time of day your files are sent. This lets you make your calls when telephone rates are lowest, and frees your computer for other tasks during normal business hours.

When you are running Personal Communications Manager, you are guided through each step with menu choices and messages prompting you for information (hereafter called **prompts**) on the display screen.

What Do You Need?

To run Personal Communications Manager, you must have the following:

- An IBM Personal Computer with at least 128K bytes of memory and at least one of the following:
  - One dual-sided diskette drive
  - One fixed disk with one dual-sided diskette drive

- One of the following display and **adapter** combinations:

  - **Monochrome** display adapter with an IBM Monochrome Display

  - Color/graphics adapter with IBM Color Display, composite monitor, or black and white or color television with an RF modulator.

- An IBM **autodial** modem, or an **asynchronous** communications adapter with one of the following modems:

  - Microcom Series RX/1000 modem or Series PCS/2000 modem (300 or 1200 **baud**)

  - Hayes Smartmodem[4] (300 or 1200 baud)

  - Other user supplied modem (this may place a limit on full use of Personal Communications Manager. See Appendix E for more information.)

    Note: If you are using an external modem, you should verify that it is properly grounded.

- Appropriate cable(s) for the modem used.

- IBM Personal Computer Disk Operating System version 2.10.

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4 Smartmodem is a trademark of Hayes Microcomputer Products, Inc.

Note: The DOS 2.10 files that are required to run Personal Communications Manager are furnished on the master diskette that you receive with this package.

Further, an 80-column printer is recommended but is not required. Personal Communications Manager can produce printed reports of your mail activity (incoming and outgoing mail logs) and can print the text of messages.

Syntax Conventions

Personal Communications Manager uses the IBM Personal Computer Disk Operating System (**DOS**) file specification and naming standards. Therefore, you should be familiar with the information contained in the IBM *Disk Operating System* manual regarding files, directories, and pathnames before using your program.

Different Display Screens

Personal Communications Manager is intended to run on various **configurations** of IBM Personal Computers, having different numbers of characters on a display line. In some cases, information that would appear on a single line on an 80-column display appears on two different lines on a 40-column display. In one or two others, the displayed information is shortened on the 40-column display format.

```
                              Configuration

Your name (for outgoing mail):        Alison King

Your phone number (for replies):      1-201-555-2415

Editor filename:                      edlin.com

Paginate printouts:                   no

Drives for receiving:                 a

Modem:                                IBM modem (103)
                                      tone dialing
                                      asynch port: COM1

Directory for log files:              a:

Display type:                         black and white

Is this correct (y/n)? [ ]

Press Esc to exit
```

Figure 1-1. A Sample 80-Column Display

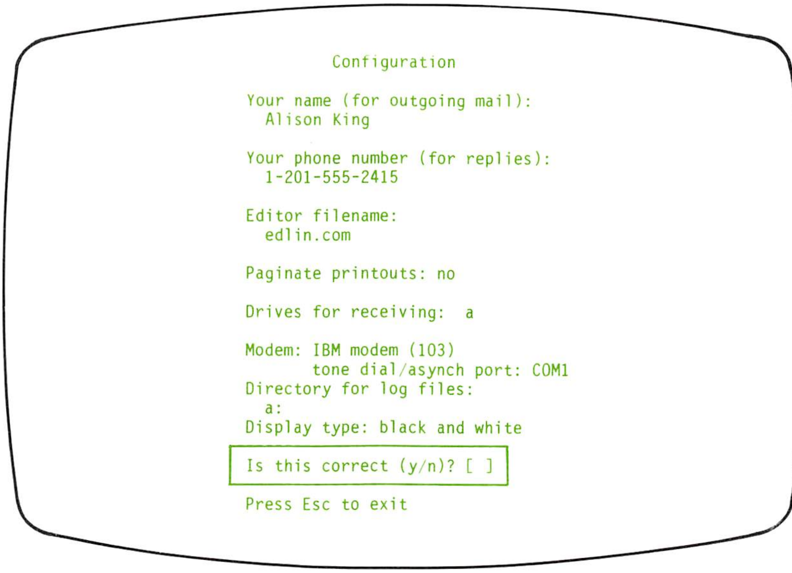

Figure 1-2. A Sample 40-Column Display

In addition, the computer may have either a monochrome or a color display. When a color display is present, certain messages appear on the screen in a different color than the other text in order to attract your attention.

Chapter 2. Personal Communications Manager General Information

This chapter covers the following information about using Personal Communications Manager:

- functions available from the main menu
- using menus and **work screens**
- correcting entries
- frequently used keys
- using a printer
- specifying telephone numbers.

You should read this chapter carefully for an understanding of how you use the features of the program.

The Main Menu

After configuring your system, the first menu that appears is the main menu. Picture the main menu as the trunk of a tree. Each branch from the trunk could represent a choice from the main menu. Each of these branches could contain smaller branches representing another menu or a work screen (a series of prompts requesting you to make entries), depending upon the choice you've made.

Again, there may be several levels of menus and/or work screens displayed to complete an operation. When you complete an operation, simply press Esc to return to the previous menu level -- to climb back down the tree.

Personal Communications Manager's main menu is the starting point for all features of the program.

```
                    Personal Communications Manager


                      1. Enter Terminal Emulator

                      2. Enter Electronic Mail

                      3. Edit File

                      4. Reconfigure

                      5. Exit Program



Make selection (1-5): [ ]
```

Figure 2-1. The Personal Communications Manager Main Menu

The main menu choices and primary functions of Personal Communications Manager are:

1. Enter Terminal Emulator

This choice allows your IBM Personal Computer to emulate an intelligent terminal to contact remote computers.

2. Enter Electronic Mail

This choice allows you to address mail, send or receive mail, and review any mail you've sent or received. You can also update the address book.

3. Edit File

This choice allows you to create or revise the text of any message with your own text editing program.

4. Reconfigure

This choice allows you to change the information about your computer contained in the configuration file.

5. Exit Program

Stops the program and returns you to system level.

When you select any of the first four choices, the program displays another menu or a work screen for that particular choice, as shown in Figure 2-2.

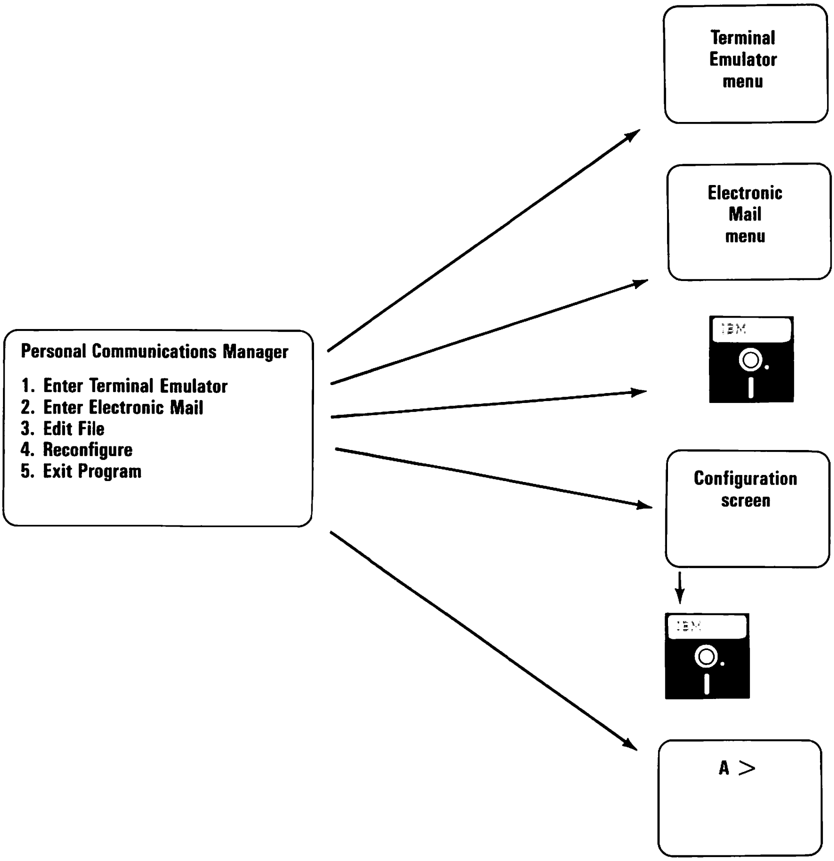

Figure 2-2. Personal Communications Manager Primary Function Menus

Using Menus

When each menu appears, you press a number corresponding to the choice you want. The number you type appears at the bottom of the display. Pressing Enter causes the menu or work screen for this choice to appear.

When you complete a task or operation, pressing Esc causes you to move "back down the tree" to the previous menu.

Menu Screens and Advisory Messages

Figure 2-3 illustrates the location of the prompts and messages that appear in a typical display when running Personal Communications Manager.

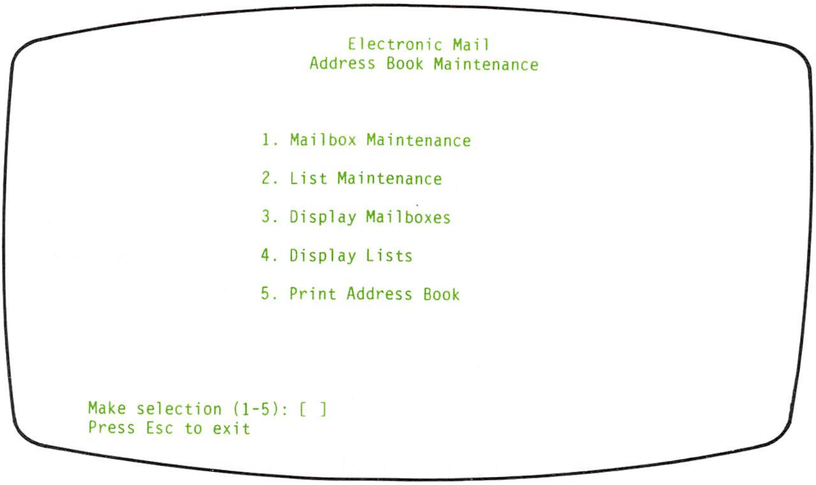

Figure 2-3. Personal Communications Manager Display Standards

- **Headers**--The top of the display shows the names of the choices you've made as you step into and out of the menus. This gives you a visual check on where you "are".

- Menus and prompts--The center of the display shows the menu choices and the related prompts needed to select the program's features.

- Display messages--The bottom lines of the display are for

  - status messages--which indicate the program is running or has completed an operation

- user messages--which ask you to re-attempt invalid entries

- error messages--which show the program is unable to do a requested operation.

Work Screens

Often, the program prompts you to type responses to questions or prompts on the display. The responses you type appear in **fields** of predetermined lengths. These entry fields appear on the screen bounded by square bracket characters. The length of these entry fields varies depending upon the information you are asked to enter. Each character you type appears in the next available spot in the field. For example:

Your name (for outgoing mail): [John Smith   ]

If you try to type more characters into an entry field than there is space available, the IBM Personal Computer beeps. The last character on a multiple character entry beeps a warning.

Personal Communications Manager often displays in an entry field the value it has stored in memory as the last entry made for a question. This is a **default** value. If a default value appears, you can select it as your response by pressing Enter. Pressing any other valid **alphanumeric** key clears the entry field, displaying the key typed as the first character.

If you typed an entry by mistake into a field displaying a default value, pressing Home restores the original value.

Correcting Work Screen Entries

There are eight ways of changing an entry you've typed into a work screen input field. You can use either:

- the backspace key
- the Home key
- the Ins key
- the Cursor Up key
- the Cursor Down key
- the Cursor Left key
- the Cursor Right key
- the Del key.

These keys can be used in the following ways when you are making a work screen entry.

backspace — Moves the **cursor** one character position to the left and erases the character it falls upon.

Home — Clears the input field, if no default was present, and places the cursor in the first entry position.

If a default was present and you typed a valid character (clearing the displayed default), the Home key restores the default value to the entry field.

Ins	Changes from replace mode to insert mode. Pressing the Ins key again **toggles** back to replace mode. In insert mode, the cursor is a block in character position. Typed characters are inserted in the text of the entry and any characters to the right of the cursor are moved to the right. In replace mode, the cursor is an underline in a character positon. Typed characters replace characters in the text of the entry.
Cursor Up	Moves the **selection window** up one setting on the Display/Change Communications Settings screen.
Cursor Down	Moves the selection window down one setting on the Display/Change Communications Settings screen.
Cursor Left	Moves the cursor one character position to the left each time it is pressed.
Cursor Right	Moves the cursor one character position to the right each time it is pressed.
Del	Deletes the character or command the cursor is on.

Frequently Used Keys

There are additional keys on the IBM Personal Computer keyboard that are frequently typed or pressed with Personal Communications Manager.

Enter Pressing Enter tells the program that you have finished entering your command or menu choice.

Esc In general, pressing Esc stops what you are currently doing and returns you to the previous menu. When printing, pressing Esc cancels the printout and returns you to the current menu or work screen. In Interactive mode, pressing Esc cancels any active user function. On the Display/Change Communications Settings work screen, pressing Esc saves any changes you may have made and returns you to the previous menu.

Alt Alt identifies command entries in the Terminal Emulator. Unlike the other keys in this list, Alt is pressed *and held* while another key is pressed. In Terminal Emulator mode all characters *except* those pressed with an Alt key (or the function keys F1-F10) are sent to the remote computer. Any keystrokes typed that are related to a command entry (such as a send file name) are not sent to the remote system.

End End terminates entry of a user function or certain commands within a user function. This permits entry of carriage return characters within a user function.

Spacebar In general, Spacebar is used to continue from an error condition or advisory message. On the Display/Change Communications Settings work screen, pressing Spacebar changes a communications setting from a group of options displayed on the screen. In Interactive mode, Spacebar can be used to cancel an active wait during the execution of a user function.

Ctrl-Num Lock The Ctrl-Num Lock keys are pressed together to suspend output to a printer or to the display.

Fn-Pause The Fn-Pause keys are used in the same way as the Ctrl-Num Lock keys.

> **Note:** Depending upon the model of IBM Personal Computer keyboard you are using you press either Ctrl-Num Lock or Fn-Pause.

Using a Printer

You can use Personal Communications Manager to print your address book, any of your terminal options files, your Incoming and Outgoing Mail logs, and any mail of **class** message. To use the printer functions, you should know a few things about using a printer with the program.

- Pressing Esc stops the printer. There may be a slight delay before the printer actually stops. Using the Ctrl-Num Lock or Fn-Pause keys together pauses the printer. Pressing any other key resumes the printout.

- If you are having difficulties using any of the program's print functions, check for these conditions:

  - Printer is not correctly cabled to the system.

  - Printer power is not on.

  - Printer is not **on-line**.

  Under most circumstances, an error message will be displayed. Where error messages are not displayed, the program is waiting for correction of one of the above conditions.

- If you answered **Y** to the Paginate Printouts question, when you configured your program, you should adjust the paper in your printer so that the printhead is at the top of a page of paper. Otherwise, the **paginate** function will not correctly print one item on each page of paper.

Specifying Telephone Numbers

Personal Communications Manager may be used in a wide variety of home, office, or professional environments. Accordingly, up to 33 characters or spaces can be entered in the telephone number entry field when you are specifying addressees. The exception to this is your own telephone number entry in the configuration file. That entry is 30 characters. By permitting extra characters, the program lets you format telephone number entries, enter access or account numbers, and enter a special pause character that makes the autodialing function of the program's unattended mode compatible with different telephone equipment.

A telephone number entry may include any valid number or character you enter. The contents of this entry are passed to the modem without interpretation by the program. The only exception is the pause character "@". This character is interpreted by the program's autodialing function as a command to pause for three seconds, allowing for the dialing needs of different telephone systems. All other entries into the telephone number field, including spaces, dashes, or parentheses typed in for formatting (readability) purposes in the telephone number, are passed to the modem for handling. Formatting characters are limited to those supported by the modem you are using.

Touch-tone[1] telephones utilize the characters # and *. Personal Communications Manager passes these characters to the modem if they appear in a telephone number entry. Some communication networks need these characters.

The following are examples of valid telephone number entries:

    4355553456

    435 555 3456

    1-435-555-3456

    *9 @ 1 @ (435) 555-3456

---

1 Touch-tone is a trademark of the American Telephone and Telegraph Corp.

9@1234@90123456 @@1-435-555-3456

The third example includes the prefix 1, needed by a number of regional telephone companies to access long distance lines. The fourth example includes the prefix *9 that might be needed to access an outside phone line from a site within an office using a central telephone switchboard. The last example shows a hypothetical private (leased line) communications or alternative long distance service access number and multiple @'s for longer pauses.

Chapter 3. Getting Started

What You Should Do First

Personal Communications Manager is shipped on one dual-sided diskette labeled "Personal Communications Manager". This is your master diskette. In a moment, you will use it to make a Work copy of Personal Communications Manager for day-to-day use. After making the Work copy, put the master diskette away in a safe place. It will serve as your backup. If sometime in the future your Work copy becomes unusable, you can use the master diskette to make a new one.

About Setup Configuration Selection

The configuration you select in the setup procedure determines where programs and data are stored on the Work diskette(s). The setup procedure for one dual-sided diskette drive or a fixed disk involves making a copy of required files from the master diskette.

The setup procedure for 2 diskette drives involves splitting the files from the master diskette onto 2 Work diskettes. The system files, address book, and log files for recording incoming and outgoing mail are put on the diskette for drive A. This gives you the maximum available space for mail and facilitates the use of multiple address books. The remaining files are put on the diskette for drive B and drive B becomes the default drive while the program is running.

Personal Communications Manager includes a setup procedure that creates a pair of Work diskettes that run on a system with two single-sided diskette drives. However, the setup procedure itself requires a dual-sided diskette drive.

> **Note:** All setup procedures require that drive A be a dual-sided diskette drive.

Step 1. Start Your System

Place your Personal Communications Manager master diskette in diskette drive A. Power on your system; or if your system is already powered on, press Ctrl, Alt and Del to restart. The screen prompts you for a new date and time. Enter the appropriate responses.

> **Note:** It is very important to always enter the correct date and time when using this program. Many of Personal Communication Manager's functions rely on the correct time and date in order for them to operate as you expect.

Step 2. Begin the Setup Program

After you enter the date and time the screen clears. A new screen describing the configurations available for running the system appears.

Step 3. What Kind of System

Type of Disk Storage

The program can be set up to run on a number of different disk drive configurations.

Setup 1: Two Single-Sided Diskette Drives

This setup copies the system, log and Tutorial files to a diskette that will be run in drive A. The remaining files are copied to a diskette that will be run in drive B.

Note: This is the only option that is available on a single-sided diskette drive system.

Setup 2: Two Dual-Sided Diskette Drives

This setup copies the system, log and tutorial files to a diskette that will be run in drive A. The remaining files are copied to a diskette that will be run in drive B. If your system has two dual-sided diskette drives, you have the option of choosing either this setup or Setup 3. The advantage of using Setup 2 is that it provides more space on drive A for sending and receiving mail and provides space on drive B for most editing programs.

Setup 3: One Dual-Sided Diskette Drive

This setup copies all the required files on one diskette that will be run in drive A. You would choose this setup if your system has only one dual-sided diskette drive or if you have a fixed disk but choose to run Personal Communications Manager from a diskette. You would also choose this setup if you have a fixed disk on which you are maintaining a DOS system of a different level than the level required by the Personal Communications Manager.

Setup 4: One Fixed Disk and One Diskette Drive

This setup copies the program to a subdirectory on the fixed disk called "PCM." With this setup, DOS Version 2.10 must be on the fixed disk. If you choose to maintain a DOS version other than DOS 2.10 on your fixed disk, select Setup 3 and run Personal Communications Manager from diskette.

Type of Display

The program can be set up to display either 40 or 80 column screens.

The following are examples of 80 column displays:

1. An IBM Monochrome Display

2. An IBM Color Display.

The following are examples of 40 column displays:

1. A color television

2. A monochrome monitor attached to the color graphics adapter

3. A composite monitor.

Step 4. Specifying the System

Press any key when you are ready to go on to the next screen. You will now specify the type of disk **storage** and the type of display for which you are configuring. Usually these are the same as the ones on which the setup program is running.

To specify the system enter "setup" followed by one blank space, a number from 1 to 4 to specify the diskette drive configuration, another blank space, and the number 40 or 80 to specify the number of columns on your display. A correct entry will look like:

```
setup n1 n2
```

Where n1 can be one of the setup numbers (1-4) and where n2 can be either the number 40 or 80.

For example:

```
setup 3 80
```

would set up the program to run on one dual-sided diskette drive with an 80 column display.

Step 5. Making the Work Copy

Follow the prompts displayed on the screen. Place diskette(s) in the drive specified. This process copies files from your master diskette onto your Work diskette(s) or fixed disk.

Installing DOS

The DOS 2.10 system files required by Personal Communications Manager are furnished on your master diskette.

IBMBIO.COM (hidden file)

IBMDOS.COM (hidden file)

COMMAND.COM (system file)

The diskette setup procedures automatically install these DOS 2.10 files on your Work diskette. To install a new version of DOS on your Work diskette, use the DOS SYS command to copy the hidden files and the DOS COPY command to copy the file COMMAND.COM.

Do not copy these three system files to your fixed disk. To run Personal Communications Manager from your fixed disk, you must already have the complete DOS 2.10 installed on the fixed disk. Refer to the DOS manual for instructions.

> **Note:** These three DOS 2.10 system files are not compatible with some of the DOS 2.00 external commands.

If you have a fixed disk system with DOS 2.00 installed, you should run Personal Communications Manager from diskette(s).

Automatic Startup

For all three diskette based systems the setup program copies an automatic startup file onto the Work diskette for drive A. This allows the program to begin executing automatically each time the system is powered on or restarted. For the fixed disk system, a file called PCM.BAT is copied to the root **directory**. To start up the program in this configuration, type "pcm" and press Enter. If you would like the program to start up every time you power on or restart you should rename the file PCM.BAT to AUTOEXEC.BAT.

A Word About Copies of Personal Communications Manager

Copies of the same Personal Communications Manager program diskette cannot communicate with one another. In order to communicate with another Personal Communications Manager, each computer must have its own original master diskette.

> **Warning:** Any unauthorized copies of this program cause the program to malfunction or halt. Alteration of the program will also cause the program to halt.

Configuring Your Program

Whenever you run Personal Communications Manager, some of its automatic functions need presupplied information about your computer. Each time you load the program into your IBM Personal Computer, it looks on the disk for certain information about:

- your name
- your computer's telephone number
- the name of your editing program
- printer pagination option
- incoming file storage drives
- information about your modem

- modem type
- telephone line type
- asynchronous **port** selected

- the directory for log files
- type of display you are using.

The *first* time you run Personal Communications Manager you are asked for this information. You must enter answers to these initial configuration questions. These questions appear one at a time. After responding to each, your entries are placed in a "configuration" file for use the next time you start up the program.

Starting Personal Communications Manager

To start Personal Communications Manager, you must first **load** the program into the IBM Personal Computer's memory.

If Personal Communications Manager is to be loaded from a diskette, the steps for loading the program are:

1. Place the Work diskette(s) in the diskette drive(s).

2. Turn the IBM Personal Computer power on, or if the computer power is already on, press and hold Ctrl, Alt and Del simultaneously.

   If the program is to be loaded from your fixed disk, enter

```
PCM
```

In a few seconds, the DOS date and time prompts appear. Personal Communications Manager operation depends on having the correct time of day and date entered. Be sure you enter the correct time of day, using 24-hour notation. After you enter the values for date and time, you see the notice:

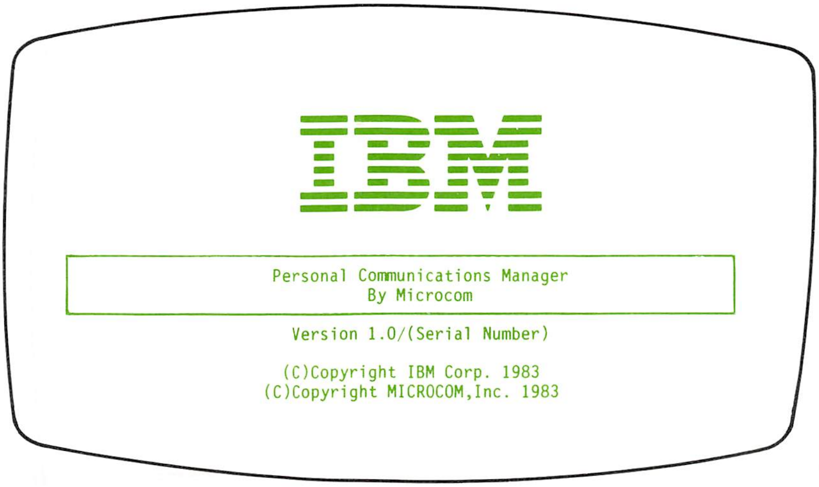

Figure 3-1. The Initial Personal Communications Manager Screen

Personal Communications Manager now presents the main menu. However, the very first time you run the program, certain computer information and user identification data is not present on the Work disk. You must place it there before you can use the program.

Every other time you start the program this information is available and the program's main menu appears.

You must answer the questions on the Configuration work screen. Each of the prompts appears sequentially, one to a work screen. When all of the entries have been made, the Configuration summary screen shown in Figure 3-2 is displayed and you are asked to confirm that all of the entries are correct.

```
                              Configuration

Your name (for outgoing mail):        Alison King

Your phone number (for replies):      1-201-555-2415

Editor filename:                      edlin.com

Paginate printouts:                   no

Drives for receiving:                 a

Modem:                                IBM modem (103)
                                      tone dialing
                                      asynch port: COM1

Directory for log files:              a

Display type                          black and white


Is this correct (y/n)? [ ]
```

Figure 3-2. The Configuration Summary Screen

Entering Information About Yourself

To enter the correct information about your IBM Personal Computer's configuration, you type the answer and then press Enter. The following pages show the questions in the order they appear, and the correct way to give an answer. Prompts and responses are shown in green.

If you make a typing mistake the backspace key erases each character the cursor falls upon in the line you typed. When all the entries have been made, you may change any of them before the information is placed in the file.

The first two prompts ask you about your name and telephone number. These entries are the "return address" on each of your outgoing mail items.

The first prompt for this work screen is:

```
Your name (for outgoing mail): [                         ]
```

Type your name or company name. Up to 25 characters are permitted. Then press Enter.

This entry accompanies every outgoing mail item sent.

The next prompt is

```
Your phone number (for replies): [                  ]
```

Type the telephone number of the phone line attached to your computer. Then press Enter. Up to 30 characters are permitted.

Your phone number is included for your addressee's information with every outgoing mail item you send, like the return address on an envelope. You'll probably want to include your area code, especially if you expect to transmit mail items to addressees outside your area. A sample entry here might be 1-201-555-2415. Refer to the section in Chapter 2, *Specifying Telephone Numbers*, if you need more information.

Specifying Your Editor

The next configuration prompt is:

```
Editor filename: [edlin.com]
```

This prompt refers to the text editing program you will use with Personal Communications Manager whenever you select item #3, Edit File, from the main menu. The default value displayed is the filename of the IBM DOS line editor, Edlin.

If you want to use Edlin as your editor, simply press Enter to accept the displayed filename. If you have another program, type its filename. See Chapter 12, *Specifying Your Editor*, for more information.

If you have not already installed your editor, the following prompt and message appear:

```
Is the filename correct (y/n)? [ ]
```

```
File Not Found.
```

Type **y** and press Enter to continue.

Setting Your Printer for Paging Your Printouts

The next configuration prompt is:

```
Paginate printouts (y/n)? :[n]
```

This question asks if you want your printer to do a **form feed** between each item printed. If you answer yes, each mail item or summary is printed on a separate sheet of computer paper. Pagination is supported for IBM Personal Computer compatible printers.

Press Enter to accept the displayed default **n**.

The paginate option form feeds at the end of the following print functions:

- Print Mail
- Print Log
- Print Address Book
- Print Terminal Options

Identifying Received File Storage

The next prompt refers to the disk drives on which incoming mail items are kept.

> **Note:** This prompt does not appear if you have a one drive system.

The prompt is:

```
Number of drives for receiving: [1]
```

The default number of drives is 1; up to 4 are permitted. Enter the drive **specifiers** for the storage location for incoming mail. Incoming files are placed on the first drive with sufficient space to receive each mail item.

As one "fills up" (or lacks the space to receive a larger file), the next is automatically used.

Answer with the drive specifier(s) appropriate for your computer. For example, a three-drive configuration might be described as follows:

```
Enter letter for drive #1: [c]
Enter letter for drive #2: [b]
Enter letter for drive #3: [a]
```

In this example, the fixed disk drive (drive "c" or a portion of a fixed disk subsystem designated as "c") is chosen as the main incoming file storage site. When its storage space is filled, the program uses the next drive, and so on.

Specifying Your Modem

The next prompts describe the type of modem you are using with your IBM Personal Computer. Depending upon your entries some or all of these prompts appear.

The first modem configuration prompt is:

```
Modem type (i/m/h/d/o): [i]
    i = IBM modem
    m = Microcom modem
    h = Hayes Smartmodem
    d = manual dial modem
    o = other modem
```

The entry you make for Modem type describes the type of modem you have.

If a manual dial modem is specified, the program is limited to terminal emulator mode only. This means that you cannot use the program's unattended Electronic Mail features.

The next prompts are related to the modem entry you make. Tone indicates touch-tone telephones; pulse indicates rotary dial telephones.

Your entry describes the type of telephone line you are using with your computer. You may enter either:

```
Default dialing mode (t/p):  [t]
   t = tone
   p = pulse
```

If you specified an IBM modem (i), this next question does not appear.

```
Modem speed (h/l): [l]
```

If the modem you are using is Bell 103 compatible (300 baud), it is a low speed modem. If the modem you are using is a Bell 212A compatible (1200 baud), it is a high speed modem.

Type either **h** (high) or **l** (low) and press Enter.

Most Bell 212A compatible modems can send and receive at either 300 baud or 1200 baud. These modems will send at the speed that you specify and will receive at either 300 baud or 1200 baud in response to the speed of the incoming data.

Like the previous question, if your modem is not an IBM modem *and* there are two communications adapters on your system, you are asked to enter the port number that is connected to your modem. If you specified an IBM modem, this question is not asked.

```
Comm adapter port (1/2): [1]
```

Enter the communications adapter port # connected to your modem and press Enter.

The following prompt will appear only if you have specified other modem for modem type.

```
Modem driver filename: [                    ]
```

Enter the name of the modem device driver for your "other" modem.

> **Note:** Personal Communications Manager is designed to use any modem that has a corresponding modem driver. Some modems may not allow the full function of unattended mode. Refer to Appendix E. *Modem Drivers* for the minimum modem requirements to fully support Personal Communications Manager.

Using a Hayes Smartmodem

If you are using a Hayes Smartmodem with Personal Communications Manager, the switches inside the front panel of the modem must be set as shown in Figure 3-3. This setting supports the extended error handling capabilities of the program.

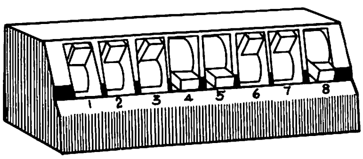

Figure 3-3. The Configuration Switches for the Smartmodem

Setting Up Your Log Directory

The next prompt in the Configuration work screen asks about where you want to put your log files (address book, incoming and outgoing mail logs).

```
Directory for log files:[a:                    ]
```

If your program is executing from a diskette, accept the default of **a:** by pressing enter. If your program is executing from a fixed disk, type **c:** and press Enter.

This entry describes the name of the directory to be used for storage of the program's data files. These files contain the **Outgoing Mail Log** entries, the **Incoming Mail Log** entries, and the address book file.

Specifying Color or Monochrome Display

The next configuration prompt appears only if your computer has a color graphics capability.

```
Display type (c/b): [c]
  c=color
  b=black and white
```

Type the character that identifies the type of display device you are using with the program.

Completing the Configuration

After the last configuration prompt is answered, all of your entries are redisplayed as shown in Figure 3-2. You are then prompted:

```
Is this correct (y/n)? [ ]
```

Whenever you fill in a work screen (a series of prompts and responses that the program uses to obtain information), you are asked after the last question if your entries are correct. This is called the confirmation prompt.

If the entries are correct, you type **y** and press Enter. If you wish to change any of the entries you have made, typing **n** and then pressing Enter lets you go back to the first prompt. All of the entries you made appear as default values. By pressing Enter as each prompt and its default value appear, that entry is confirmed. When you reach the entry you want to change, simply type the new value into the entry field and press Enter. Then continue accepting the remaining defaults until the confirmation prompt reappears.

Type **y** to accept your entries and press Enter.

After a few seconds the Personal Communications Manager main menu appears. You have now configured your program.

Reconfiguring Your System

The configuration procedure you do with a new Personal Communications Manager program diskette is identical to the Reconfigure selection from the main menu. If you ever change your configuration -- change modems or move your computer to a new telephone number, for instance -- use the Reconfigure feature to make the necessary changes.

Everything you've learned in this chapter applies to using any of the work screens that appear in the different Personal Communications Manager functions.

Chapter 4. Trying It Out -- A Tutorial

The following tutorial acquaints you with major Personal Communications Manager functions and usage. Each should take you only a few minutes to complete, but the hands-on, step-by-step approach gives all levels of computer users an insight into using this program.

This chapter covers:

Using the Terminal Emulator

- loading and reviewing a communications setup file

Using Electronic Mail

- creating a mailbox entry
- adding a mailbox to a list
- automatically sending messages or other mail items
- reviewing a received message.

The Personal Communications Manager program diskette contains sample files for the tutorials.

This tutorial chapter contains six different tutorials -- steps to follow to acquaint yourself with using the program. The text that is printed in green is the prompts and keyboard entries that you make as you follow each step of the tutorial.

Step 1. Preparing to Connect to an Information Service

In this part of the tutorial you will learn how to load and review an options file.

Your program disk contains three options files, predefined for three different information services:

- Dow Jones News Retrieval Service[1] in the file DOWJONES
- THE SOURCE[2] in the file SOURCE
- CompuServe[3] in the file COMPUSRV

A terminal options file is made up of two parts, communications settings and user functions. Using the Terminal Emulator menu choice Display/Change Comm. Settings lets you adjust the program's communication settings so that you can contact different remote computers. Once you have chosen the communication settings for a specific remote computer, you can retain them in a terminal options file.

---

1 Dow Jones News Retrieval Service is a registered trademark of Dow Jones and Company, Inc.

2 THE SOURCE is a servicemark of SOURCE Telecomputing Corporation, A subsidary of The Readers Digest, Inc.

3 CompuServe is a trademark of CompuServe, Inc.

Selection #3, Create/Edit User Function, lets you create and retain the text and commands you would enter from the keyboard when you are communicating with a remote computer. Up to ten different user functions can be kept with each terminal options file.

Loading an Options File

First, start the program using the description in Chapter 3.

When the main menu appears, choose item #1, Terminal Emulator, by typing **1** and then press Enter.

The Terminal Emulator menu appears on the screen.

```
                    Terminal Emulator

          1. Enter Interactive Mode

          2. Display/Change Comm. Settings

          3. Create/Edit User Function

          4. Save Terminal Options

          5. Load Terminal Options

          6. Print Terminal Options

          7. Display Directory



Make selection (1-7): [ ]
Press Esc to exit
```

Figure 4-1. The Terminal Emulator Menu

Next, you will load the options file for THE SOURCE information service.

> Type **5** to choose Load Terminal Options and press Enter.

The bottom of the screen now displays a window that contains the prompt

```
Load from filename: [PCMTERM.DAT].
```

> Type

```
SOURCE
```

> and press Enter.

The options file SOURCE has been loaded into memory. Next you will review the contents of this file using other choices on the Terminal Emulator menu.

Reviewing an Options File

To review the options file:

Type **2** and press Enter.

This causes the Change Communication Settings work screen to appear.

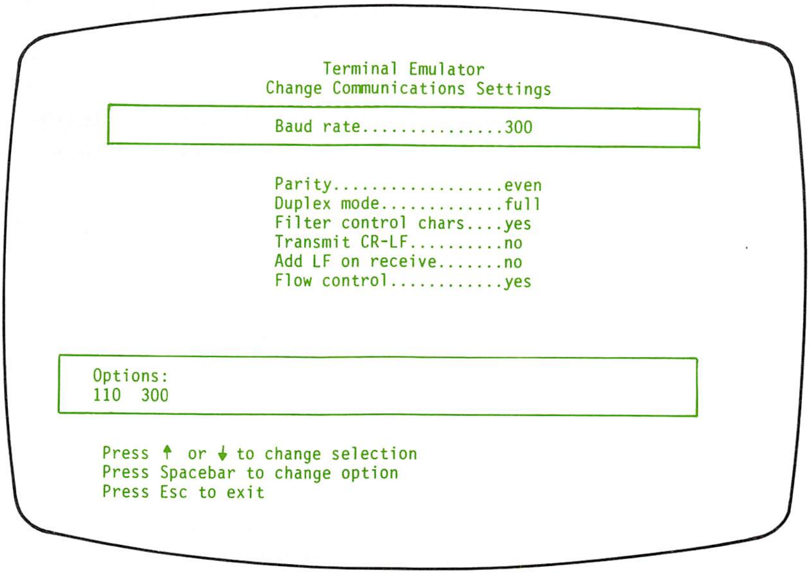

Figure 4-2. The Change Communications Settings Work Screen

Notice the two windows on the screen. The top window surrounds the communication setting for Baud Rate and the bottom contains the word "Options" and the available settings for Baud Rate. At the bottom of the screen are the advisories:

```
Press ↑ or ↓ to change selection
Press Spacebar to change option
Press Esc to exit
```

Press Spacebar a few times.

Observe how the setting for Baud Rate changes each time you press Spacebar.

Return the Baud Rate option to its setting of **300**. Next, press Cursor Down to move the selection window to Parity.

Observe how the Options window at the bottom of the screen is updated with the available settings for Parity.

Using the Cursor Up and Cursor Down keys review all of the different options and settings. When you are done, press Esc to return to the Terminal menu.

Note: An additional option appears on the display if you are using a Microcom modem.

Refer to Chapter 5 for additional information on terminal options.

Reviewing the User Functions

In addition to the communication settings you loaded from the SOURCE file, two user functions have been loaded into your computer's memory. These user functions have been predefined for general usage. Later you should modify them for your own personal usage. Customizing the user functions contained on your program disk is the subject of Chapter 6, *Accessing Information Services.*

For this tutorial, you will review one of the user functions that are part of the SOURCE terminal options file. Each of the options files can contain up to ten user functions, each identified by one of the function keys.

From the Terminal menu choose Create/Edit User Function by typing **3** and pressing Enter.

A prompt appears in a window at the bottom of the Terminal menu screen directing you to press one of the function keys to enter your choice.

Press F1.

The Create/Edit User Function work screen appears as shown in Figure 4-3.

```
                         Terminal Emulator
                     Create/Edit User Function 1

   <A>uto answer     <D>ial phone      <P>rinter echo     <T>ime wait
   <B>reak           <E>xit            <R>eceive file     <W>ait
   <C>lear display   <H>ang up         <S>end file
                     F1-F10 Invoke user function


«D-555-4567......................»«W-identifier|00.20|H»a«W-:|00.20|H»source

13;prim;«W->|00.20|H»your ID and password here Ø



   Type text or Alt-<x> for command
   Press End when finished
   Press Esc to cancel
```

Figure 4-3. The Create/Edit User Function Work Screen

The top of the Create/Edit User Function work screen contains the interactive commands that can be entered into a user function. The middle of the screen displays the text and command entries made in the user function itself. The bottom lines of the screen display the advisory messages about how to enter commands or text, what key to press to finish an entry, and how to return to the Terminal Emulator menu.

Command Delimiters in User Functions

Each command entry in a user function is set apart by an opening and a closing character. These characters, the command delimiters, are « and »

When user functions are displayed or printed, the following graphic characters are used to define the action of these commands.

«	Begins a user function command
»	Ends a user function command
-	begins a character compare
|	Defines an action to be taken if the previous compare either times out or never occurs. The actions possible are:

|H	Hang up.
|Fx	Start another user function.
|	Wait forever.

Entries within a user function that are *not* enclosed in the command delimiter brackets are the text characters that are sequentially transmitted to the remote system.

The user function F1 from the SOURCE setup file contains the following entries:

«D-555-4567» DIAL the telephone number 555-4567.

«W-identifier | 00.20 | H» WAIT until the text "identifier" is received from the remote computer. If the matching string is not received within 20 seconds, hang up the telephone.

a Send the character "a" to the remote computer.

«W-: | 00.20 | H» WAIT until a colon ":" is received from the remote computer. If the matching string is not received within 20 seconds, hang up the telephone.

source13;prim; Send the text "source13;prim;" to the remote computer.

«W-> | 00.20 | H» WAIT until the character ">" is received from the remote computer. If the matching string is not received within 20 seconds, hang up the telephone.

your ID and password here Ø Send the text "your ID and password here" to the remote computer followed by a carriage return, "Ø".

This entire dialog can be accomplished by simply pressing the F1 key upon entering interactive mode. Of course, this user function would need to be modified for each individual user. The local telephone number to be dialed by the user function must be changed and the text of your own ID number and password (that lets you gain access to the remote computing service), must be inserted by replacing the text "your ID and password here".

Changing a Single User Function Entry

You are going to make a new telephone number entry in this user function.

Press and hold the Alt key and type **d**.

Notice that part of the advisories displayed on the bottom of the screen have been removed and replaced with the prompt

```
Enter telephone number:
[                ]
```

Type the telephone number

```
5553456
```

and press Enter.

The user function now contains two DIAL commands. You want to remove the old number from the screen. The cursor is resting on the first command delimiter character of the original DIAL command.

Press Del.

The entire entry «D-555-4567..................» is removed from the user function.

If the cursor is beneath the first command delimiter of a command, the Del key erases the entire command. Text within a command cannot be edited. If the cursor is beneath an individual character within a text string, the Del key removes only that character. The cursor can be moved using the cursor left and the cursor right keys. These keys will move the cursor to the next command or one character at a time within a text string.

Saving the Modified User Function

Whenever you enter the Create/Enter User Function work screen you can either review or change and retain the selected user function. Pressing the End key places any changes you've made into your computer's memory and returns you to the Terminal Emulator menu. If you attempt to exit the Terminal Emulator menu, without first saving the changes that you have made, a warning message "Terminal option changes will be lost" appears and you are given a choice of exiting or not. If you choose not to exit, you can then select the Save Terminal Options choice from the menu to permanently retain your new user function or communications settings in a setup file.

The user function work screen also advises that you can "Press Esc to cancel" if you do not want to change the file, or you do not want to keep the changes you've made, if any. For the purposes of this tutorial, the operation will now be cancelled and the program will return to the Terminal Emulator menu.

Press Esc.

You are then prompted with the message

```
Discard new function (y/n)? [ ]
```

Type **Y** and press Enter.

Exact step-by-step instructions on how to customize the user functions included on the program disk are contained in Chapter 6, *Accessing Information Services*.

Press Esc.

This prompt appears.

```
Terminal options will be lost.
Do you want to exit (y/n)? [ ]
```

Type **y** and press Enter.

Step 2. Creating a Mailbox Entry

In order to send a mail item using Personal Communications Manager's unattended electronic mail mode, you usually create a **mailbox** for the **addressee** if you expect to send mail to that site often. A mailbox contains the addressee's name, the telephone number of the remote computer, and their modem speed.

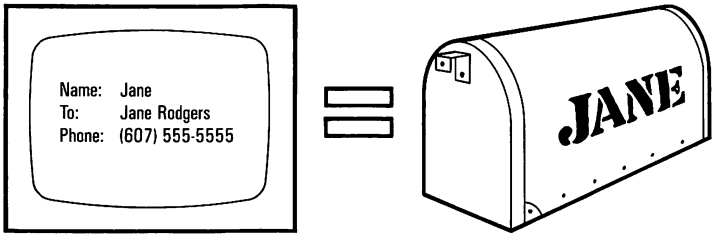

Figure 4-4. A Personal Communications Manager Mailbox

Each time you create a mailbox, you give it a name of up to eight characters. This mailbox entry is automatically put in the address book. You can enter up to 40 different mailboxes in an address book.

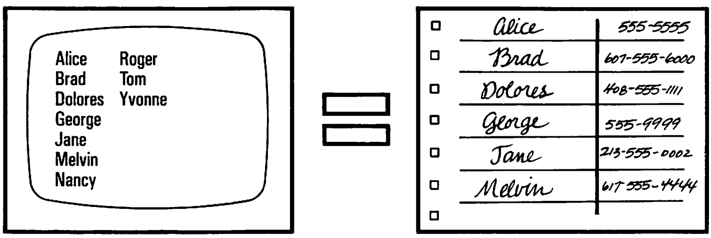

Figure 4-5. A Personal Communications Manager Address Book

Address book entries can be grouped together into lists -- like a distribution list for a memorandum. Personal Communications Manager can have up to ten lists in an address book, each with its own unique name and description. If you enter a list name for a mailing, the program automatically addresses the mail item you are sending to each mailbox on the list.

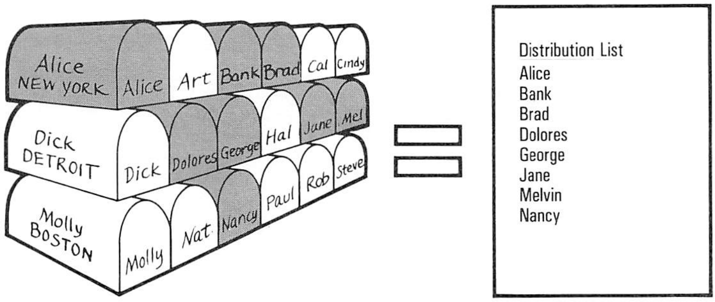

Figure 4-6. A Mail List

The program disk includes a sample address book file containing entries for five New England Sales Office mailboxes. This file is accessed when you enter Address Book Maintenance. These sales office mailboxes are also grouped together into a mail list.

In this part of the tutorial you will learn

- how to review your address book
- how to add a new entry, a mailbox, to the address book
- how to add a new entry to a distribution list.

Reviewing Mailboxes in the Address Book

First, you should review the current sales office list to pick a unique mailbox name for the new sales office.

> From the main menu, select item #2, Electronic Mail. When the Electronic Mail menu appears, select item #4, Address Book Maintenance.

```
                        Electronic Mail
                    Address Book Maintenance


                 1. Mailbox Maintenance

                 2. List Maintenance

                 3. Display Mailboxes

                 4. Display Lists

                 5. Print Address Book



Make selection (1-5): [ ]
Press Esc to exit
```

Figure 4-7. The Address Book Maintenance Menu

From the Address Book Maintenance menu, select item #4, Display Lists, and press Enter.

The Display Lists work screen appears on the screen. Each assigned list is displayed in alphabetical order. Each of the assigned mailboxes is displayed in alphabetical order within each list. In the tutorial example one list is already included in the address book, the salesofc list.

```
                         Electronic Mail
                    Address Book Maintenance
                          Display Lists
------------------------------------------------------------------------------
 List name: salesofc
 Desc: New England Sales Offices
 Mailboxes:
 hartford nashua   waterbry worcest
------------------------------------------------------------------------------




  Press Spacebar for next page
  Press Esc to exit
```

Figure 4-8. The Display Lists Work Screen

Review the contents of the salesofc list, then press Esc once to return to the Address Book Maintenance menu.

Assigning a Mailbox

To add another address to this list, you first need to make a new mailbox entry with the Mailbox Maintenance work screens.

From the Address Book Maintenance menu, select item #1, Mailbox Maintenance. When the first Mailbox Maintenance work screen appears, press Ins to Add a Mailbox.

In response to the prompt

```
Mailbox name: [        ]
```

Enter

```
portland
```

The second Mailbox Maintenance work screen is shown below in Figure 4-9.

```
                    Electronic Mail
                Address Book Maintenance
                   Mailbox Maintenance


                Name:    portland

                To:






Press Esc to exit
```

Figure 4-9. The Add/Change Mailbox Work Screen

You are going to make a mailbox entry for the newest branch office in Portland, Maine. The phone number for their Personal Communications Manager computer is 207-555-1101 and they are using a 300 baud (low speed) modem. When the second Add/Change Mailbox work screen appears, the entry you made on the first screen appears as the default value for Name. In response to the prompt

```
To: [                              ]
```

Enter

```
Portland, ME Sales Office
```

In response to the prompt

```
Phone number:[                         ]
```

Enter

```
207-555-1101
```

In response to the prompt

```
Destination modem speed (h/l): [L]
```

press Enter to accept the displayed default value **L** (low speed).

Confirm that these entries are correct by typing **y** and pressing Enter.

Press Esc to return to the Address Book Maintenance menu.

Reviewing Addresses

Any time you want to check the contents of your mailboxes you can tell the program to either display or print the Address Information. Let's review the contents of the sample Address Book file.

From the Address Book Maintenance Menu, select item #3, Display Mailboxes.

This causes the Display Mailboxes work screen to appear.

```
                         Electronic Mail
                    Address Book Maintenance
                        Display Mailboxes

Name      To Specifier                  Phone Number              Speed

hartford Hartford, CT Sales Office      t 1 @ (203) 555-1001        L
nashua   Nashua, NH Sales Office        6035551100                  L
portland Portland, ME Sales Office      207-555-1101                L
provdnce Providence, RI Sls Ofc         1-401-555-1200              L
waterbry Waterbury, CT Sales Ofc        9 @ 1 @ (203) 555-9490      L
worcest  Worcester, MA Sls Office       9@2345@1-555-2345           L




   Press Spacebar for next page
   Press Esc to exit
```

Figure 4-10. The Display Mailboxes Work Screen

Each of the assigned mailboxes, including the Portland mailbox you've just entered, are displayed. Lets review each of the entries.

hartford Hartford, CT Sales Office t 1 @ (203) 555-1001 L

This telephone number includes the permitted command character t, which instructs the modem to dial with tones rather than pulses for this call.

nashua Nashua, NH Sales Office 6035551100 L

This telephone number was entered without formatting characters. There are no special characters or switchboard instructions.

Tutorial

portland Portland, ME Sales Office
207-555-1101 L

This is the entry you just made.

provdnce Providence, RI Sls Ofc
1-401-555-1200 L

This telephone number includes permitted formatting characters, dashes, to enhance its readability.

waterbry Waterbury, CT Sales Ofc 9 @ 1
@ (203) 555-9490 L

This telephone number includes pause characters, spaces, and other permitted formatting characters.

worcest Worcester, MA Sls Office
9@2345@@1-555-2345 L

This telephone number includes multiple pause characters to accommodate the needs of the telephone switchboard, a local user access number (for a special phone line or service), and the number of the Personal Communications Manager computer in the Worcester office.

Adding an Entry to a List

You want to include the new Portland office on the salesofc list. You will now add this mailbox to the list.

```
                Electronic Mail
            Address Book Maintenance
                List Maintenance

        Name     Description
        ------------------------------------
        salesofc New England Sales Offices


              Lists available:   9


Press Ins to add/change list
Press Del to delete list
Press Esc to exit
```

Figure 4-11. List Maintenance Screen

Press Esc to return to the Address Book Maintenance menu, select item #2, List Maintenance.

When the List Maintenance screen appears, press Ins.

You will be prompted for the list name you want to add/change.

```
List name: [          ]
```

type

```
salesofc
```

and press Enter to obtain the List Maintenance work screen.

Press Enter again to accept the default description.

Notice that the mailboxes named portland and providence are displayed in **normal video**. In response to the prompt

```
Mailbox to add/remove: [          ]
```

Enter

```
portland
```

The mailbox name "portland" now appears in **reverse video** indicating that it has been added to the list and will automatically be included in any mailings addressed to the salesofc list. When prompted with

```
Mailbox to add/remove: [          ]
```

again, press Esc until you return to the Electronic Mail menu.

In this part of the tutorial you learned about:

- creating a mailbox entry using Address Book Maintenance choice #1, Mailbox Maintenance
- reviewing assigned mailboxes on a mailbox list by using Address Book Maintenance choice #2, List Maintenance
- displaying the status of mailboxes when they are assigned to lists
- using valid telephone entries.

Step 3. Addressing Mail

Before mail can be sent via Personal Communications Manager, it must first be addressed, in much the same way as an envelope is addressed for a letter. In this part of the tutorial you will learn how to:

- select the proper Address Mail feature by addressee type and type of mail

- enter mail header information

- review the outgoing mail log.

Before proceeding with this part of the tutorial, you must have the Electronic Mail menu on your screen.

From the Electronic Mail menu, select item #2, Review/Address Outgoing Mail.

From the Review/Address Outgoing Mail menu select item #1, Address Mail. Press Enter to get the Address Mail menu.

```
                    Electronic Mail
              Review/Address Outgoing Mail
                      Address Mail

              1. Address Message to Mailbox

              2. Address Message to List

              3. Address Message to Phone Number

              4. Address Data to Mailbox

              5. Address Data to List

              6. Address Data to Phone Number

              7. Display Directory

There are 0 entries in the log

Make selection (1-7): [ ]
Press Esc to exit
```

Figure 4-12. The Address Mail Menu

The Address Mail menu gives you the choice of sending messages or data to:

- a mailbox (a single addressee)
- a list (a group of mailboxes)
- a telephone number.

  Note: Messages and data are handled differently by Personal Communications Manager. A message is intended to be read by a person and data is intended to be retained and processed by a computer. The difference is meaningful when using Personal Communications Manager functions that review incoming and outgoing mail items. Refer to Chapter 7, *Electronic Mail*, for more information.

The Address Message To Phone Number function lets you send a message to a computer that is not listed--for whatever reason--in your assigned mailbox directory.

For example, you may not wish to establish a mailbox entry every time you want to send a message to a one-time addressee.

Addressing an Outgoing Mail Item

In this tutorial, you will send a sample memo (memo.txt) to the salesofc list. You will be using a work screen to enter the information that the program needs to create a mail header (like the envelope for a letter) that accompanies each mail item sent.

From the Address Mail menu, select item #2, Address Message To List, by typing **2** and pressing Enter.

In response to the prompt

```
List name: [          ]
```

type

```
salesofc
```

(for the Sales Offices list) and press Enter.

This causes the Description: field to display the description entered for the salesofc list, New England Sales Offices.

Now that Personal Communications Manager knows who to send to, it wants to know what to send.

Enter the name of the tutorial file

```
A:MEMO.TXT
```

Tutorial

or, if you have Personal Communications Manager installed on your fixed disk, enter

```
C:MEMO.TXT
```

Personal Communications Manager lets you include a brief note about the contents of the mail item. In response to the prompt

```
Subject: [          ]
```

Enter

```
Rescheduled meeting
```

Personal Communications Manager needs to know when to send the message to each of the sites listed in the salesofc list. The screen now prompts:

```
Enter date and time to send:
Date: [MM-DD-YY]
Time: [HH:MM]
```

Note: The current date and time appear as default values.

Enter the date in the format MM-DD-YY or MM/DD/YY. Two digits each for month, day, and year, using dashes or slashes to separate the entries. If the date you wished to send these messages was September 12, 1983, the correct entry is 9-12-83 or 9/12/83.

Type an entry and press Enter.

Complete the next entry by typing

```
23:05
```

and pressing Enter.

PCM maintain time internally in military or 24-hour time. Time is specified from midnight until noon as 00:00 to 12:00. Past 12:00 noon the time continues to increment. For example, 1:00 PM is specified as 13:00 and 5:30 PM is specified as 17:30. All time entries must be made in this 24-hour format.

This entry tells the program to begin checking its Outgoing Mail Log for files to send at 11:05pm, a few minutes after long distance telephone calls have dropped to their lowest rates.

> **Note:** It is important that you have entered the correct date and time when you started the program. The automatic Send/Receive Mail feature depends on having the correct time from DOS available from the IBM Personal Computer's internal clock. Be certain that the current time and date is correct.

When this is completed, the prompt

```
Is this correct (y/n)? [ ]
```

appears.

> If you've made your entries correctly, type **y** and press Enter.
>
> If you have not, type **n** and correct the faulty entry.

Each mail item is now immediately added to Personal Communications Manager's Outgoing Mail Log--the system file that contains a list of each outgoing mail item--and queued to be sent later.

Checking the Outgoing Mail Log

Let's examine the Outgoing Mail Log now to see how outgoing mail is queued to be sent.

> Press Esc to return to the Review/Address Outgoing Mail menu. Select item #2, Review Log, and press Enter.

As we've said, the Outgoing Mail Log contains information describing which mail items are to be sent to whom and when they are to be sent.

```
   STAT MAILBOX  SUBJECT
A       hartford Rescheduled meeting
B       nashua   Rescheduled meeting
C       portland Rescheduled meeting
D       waterbry Rescheduled meeting
E       worcest  Rescheduled meeting




Select log entry by letter: [a]
Esc to exit
```

Figure 4-13. The Outgoing Mail Log Summary Screen

Each item's mail header (name of addressee and subject) appears on the screen with an identifying alphabetic character that permits you to examine it further. The status of this item is also displayed on the Outgoing Mail Log screen.

Notice that the message subject "Rescheduled Meeting" appears next to each of the five sales office addressees. This lets you know that your instructions have been followed; you have successfully addressed your mail.

Press Esc until the program returns to the Electronic Mail menu.

In this part of the tutorial you've learned how to

- prepare to send either messages or data to a list.
- prepare to send the same message to a group of mailboxes on a list using Address Mail menu selection #2, Address Message To List
- review the Outgoing Mail Log.

Step 4. Setting Up to Send the Mail

This part of the tutorial covers the unattended mode of Personal Communications Manager usage -- the Send/Receive Mail feature. You will set up to send mail items but will stop before the program actually starts dialing.

Setting up for sending or receiving messages or data is usually the last thing you do each day with your computer. The program's Send/Receive Mail feature can also be set up at any time of day. If your computer and telephone line are not otherwise occupied, the computer can "listen" for incoming mail items.

Initiating the Outgoing Mail Log Scan

The Send Mail feature reviews each entry in the Outgoing Mail Log and, at the appropriate time, attempts to send the mail item to the remote Personal Communications Manager system.

> From the Electronic Mail menu select item #1, Send/Receive Mail.

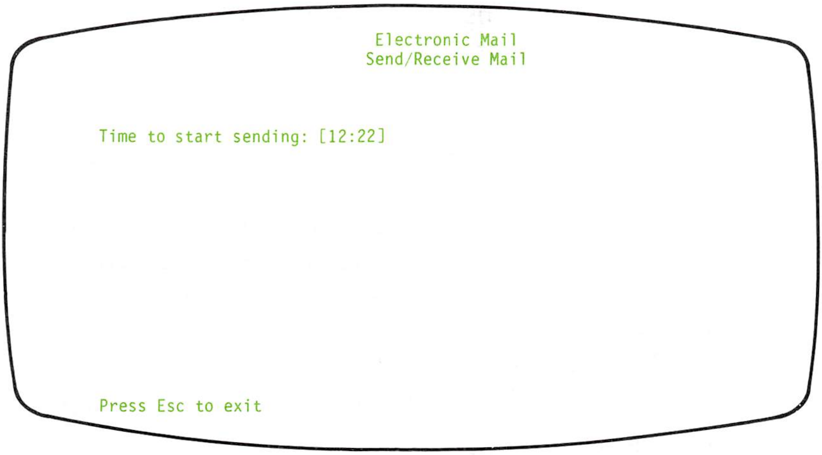

Figure 4-14. The Send/Receive Mail Work Screen

When you choose Send/Receive Mail from the Electronic Mail menu, you are prompted

`Time to start sending: [HH:MM]`

You will enter the time of day 23:05 (24-hour format for 11:05pm) that you want the Send/Receive Mail feature to begin checking its Outgoing Mail Log for the first file to be sent out. When that time arrives, the program scans the Outgoing Mail Log and immediately attempts to send any mail items whose Time To Send entry in the Log has been passed. Until then, the Send/Receive Mail feature listens for incoming mail.

When all mail has been sent, the program continues to listen for incoming messages until instructed otherwise.

> Respond to the "Time to start sending" prompt by entering

`23:05`

If you have more than one diskette drive the next prompt appears. It is the same as the configuration question about the number of receive directories.

The default values entered in the configuration file appear on the screen. Pressing Enter for each of the displayed default disk identifiers confirms your choices. You may change any of the values *for this send/receive session* without affecting the contents of the Configuration file.

When the work screen is completed, the final prompt:

```
Is this correct (y/n)? [ ]
```

Type **y** and press Enter to confirm the values.

After you accept your entries, the Send/Receive Mail function immediately checks for available files. You should stand by until the Send and Receive Mail status screen appears. Depending upon the number of outgoing mail items, the wait could be anywhere from a few seconds to a minute or two. While this is going on, an advisory message appears: "Checking files. Please stand by."

Note: If the filenames queued in the Outgoing Mail Log are not available, an advisory message appears on the display and you are asked to confirm that you wish to proceed. If the files are available, this advisory does not appear.

The Send/Receive Status Display

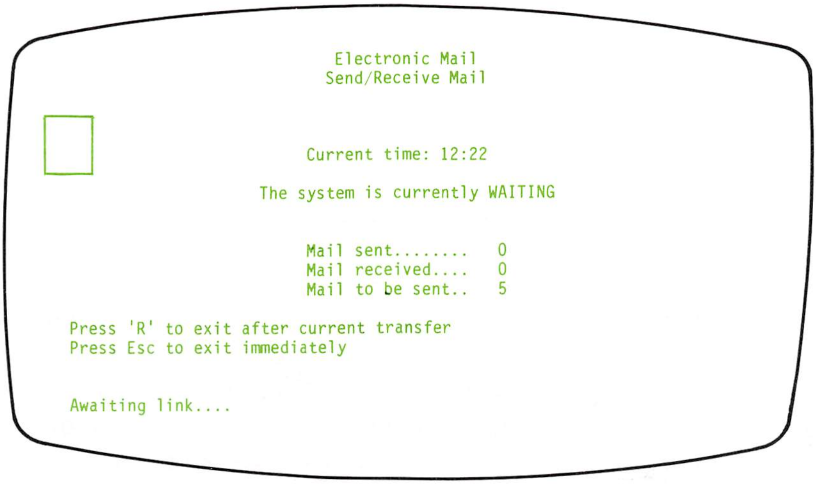

Figure 4-15. The Send/Receive Mail Status Display

The Send/Receive Mail status screen appears after the program completes the setup process for unattended mode. This screen indicates that the program is now ready to send and receive mail items. The window at the upper left of the screen, the monitor block, displays communications activity.

Since you told the program to start sending mail at 11:05pm, it waits until the computer's internal clock tells it that the time has arrived to begin checking for mail items to send. In the meantime, Personal Communications Manager is now in unattended "receive mail" mode. It answers any incoming calls and retains the received messages for later review.

Ending an Unattended Session

The Send/Receive Mail status screen displays instructions about terminating the Send/Receive Mail operation.

You can immediately stop sending or receiving a mail item by pressing Esc. If you press R the Electronic Mail menu appears *after* the current file is sent or received.

Press Esc to stop the Send/Receive Mail feature and return to the Electronic Mail menu.

Note: There is a brief pause before any activity appears to take place after you press Esc.

If you press Esc when the program is either sending or receiving mail, the mail item will not be received (if incoming) or sent (if outgoing). In both cases, the sending Personal Communications Manager program retries to send during its next Send/Receive Mail session.

If you had actually sent some mail (instead of going through the steps in this part of the tutorial), you could check the delivery status of the queued mail items by returning to the Review/Address Outgoing Mail menu and selecting Review Log in order to view the Outgoing Mail Log. Mail items successfully sent are marked "sent" in the Outgoing Mail Log.

For the purposes of this tutorial, you no longer need the messages just queued in the Outgoing Mail Log. They should be removed from the log.

From the Electronic Mail menu select item #2, Review/Address Outgoing Mail.

From the Review/Address Outgoing Mail menu select item #7, Delete All Mail.

The following prompt appears

```
Delete (y/n) [ ]
```

Type y and press Enter.

Press Esc until the program returns to the Electronic Mail menu.

In this part of the tutorial you've learned about:

- sending mail items at a prespecified time using Send/Receive Mail option #1
- terminating the Send/Receive feature using r, R, or Esc.

Step 5. Reviewing Incoming Messages

Review Incoming Mail is the third choice on the Electronic Mail menu. If you've received mail in Send/Receive Mail mode, (indicated by a non-zero number in the *Mail Received* field), the Review Incoming Mail selection lets you review the received messages.

The Review Incoming Mail menu choices let you:

- view the Incoming Mail Log summary
- print the entire Incoming Mail Log
- print the mail header and text of all message files
- erase all the received files and log entries.

To begin this part of the tutorial, follow these steps:

Select #3, Review Incoming Mail, from the Electronic Mail menu by typing **3** and pressing

Enter. When the Review Incoming Mail menu appears, select item #1, Review Log. Type **1** and press Enter.

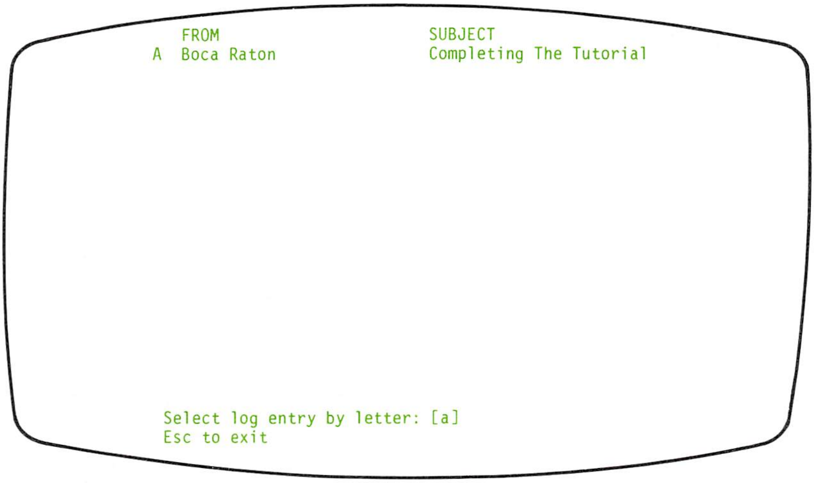

Figure 4-16. The Received Mail Log

Messages and data received with Send/Receive Mail are noted in the Incoming Mail Log. This log looks like the Outgoing Mail Log. The mail headers for received files appear on the screen in the order that they were received. An identifying alphabetic character, the sender's name, and the subject of the received mail item is displayed.

It looks like there is a mail item waiting for you. The instructions at the bottom of the screen tell you how to proceed.

> Press Enter to view the highlighted Incoming Mail Log entry.

More of the mail header is now displayed, along with the Examine Log Entry menu.

```
                    Electronic Mail
                 Review Incoming Mail
                      Review Log
                  Examine Log Entry

           1. Display Message Text
           2. Print Message Text
           3. Delete Log Entry and Save File
           4. Delete Log Entry and File

 From:     Boca Raton
 Tel:      305-555-7395
 To:       Alison King

 Subject:  Completing the Tutorial
 Received: 06-15-83 10:13     Drive: a
 Class:    Message            Speed: L

Make selection (1-4): [ ]
Press Esc to exit
```

Figure 4-17. The Mail Header and Examine Log Entry Menu

To view the "received mail item":

> Select item #1, Display Message Text, by typing **1** and pressing Enter.

As the message says, this is the end of the tutorial. You no longer need this incoming message.

> Press the Spacebar to return to the Examine Log Entry screen.

> Then select #4, Delete Log Entry and File.

In this part of the tutorial you've learned about:

- checking the Incoming Mail Log by using Review Incoming Mail choice #1, Review Log
- picking a received mail item for review by typing its identifier

- displaying the text of received messages by using Examine Log Entry menu choice #1, Display Message Text.

Step 6. Completing the Tutorial

If you've been following this tutorial, you've been introduced to Personal Communications Manager and how it works. The techniques you've learned apply throughout the program. Experiment with the program to become familiar with every screen and every menu, but remember that some of the features do not operate unless there are mail items in either the Outgoing or Incoming Mail Logs.

This is the end of the tutorial section.

Press Esc until the program returns to the main menu.

Chapter 5. Emulating An Intelligent Terminal

The Terminal Emulator feature of Personal Communications Manager enables your IBM Personal Computer to emulate an intelligent terminal for communication with a wide variety of computers and terminals. Terminal Emulator mode links your IBM Personal Computer with information networks, remote computing services, time sharing computers, and other personal computers.

Terminal Emulator mode is Personal Communications Manager's attended communications feature. You communicate directly with other computers -- controlling the communications process -- with commands entered from the keyboard. Every keystroke typed is sent to the remote computer and text received appears on your display.

Terminal Emulator mode also lets you:

- send files
- retain incoming text or **binary** files on disk
- print while on-line to remote computers
- create predefined command and text strings (user functions)
- retain and reuse **communication setups**

What Is a Terminal?

A terminal is a device for communicating with a computer. The terminal is either connected directly to the computer by a cable or through a telephone line. A terminal sends or receives information sent between its user/operator and the host computer.

In the earliest days of computing, terminals were mechanical Teletype machines or specially designed typewriters. Messages or commands typed on the keyboard appeared on the paper at the same time. Replies from the computer were also printed on the terminal. The only way of making a record of the dialog between the user and the computer was on paper. The "printing" type of terminal is still considered "standard" in many places.

When non-printing cathode ray tube (CRT) terminals appeared, they were "replacements" for the costly printing terminal. They became the most popular devices for communicating with a computer. Instead of printing the dialog between the user and the computer, the information appeared on a display. There wasn't a method to retain the dialog between the user and the computer. Soon, advanced models of these display terminals were available. These could be made to communicate with a variety of different computers by the user, and retain the data sent back and forth.

Today, most microcomputers can emulate a terminal for this type of computer communication. In addition, these microcomputers can also keep a permanent record of the information sent to the user by the computer.

Personal Communications Manager is a program that lets your IBM Personal Computer emulate an ASCII terminal.

The Terminal Emulator Menu

Selecting the first item, Terminal Emulator, on Personal Communications Manager's main menu displays this menu:

```
                    Terminal Emulator

                1. Enter Interactive Mode
                2. Display/Change Comm. Settings
                3. Create/Edit User Function
                4. Save Terminal Options
                5. Load Terminal Options
                6. Print Terminal Options
                7. Display Directory

Make selection (1-7): [ ]
Press Esc to exit
```

Figure 5-1. The Terminal Emulation Menu

Figure 5-2 gives an overview of Terminal Emulator features.

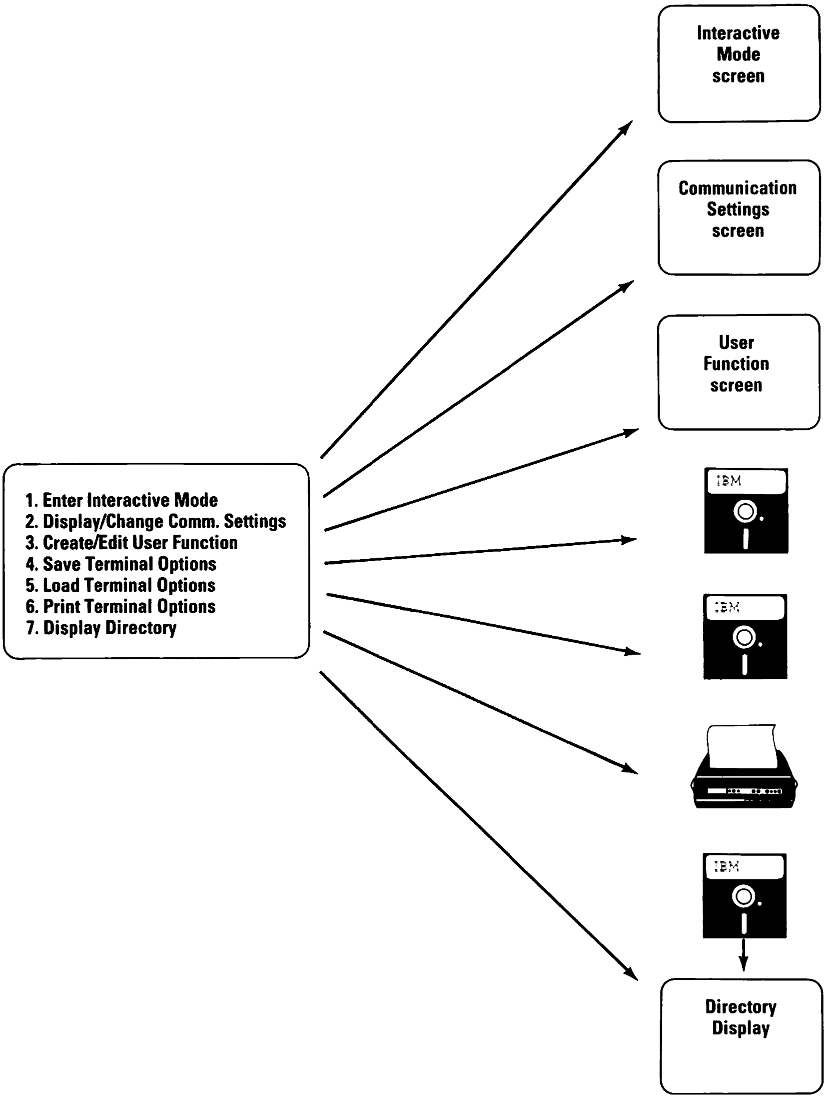

Figure 5-2. An Overview of Terminal Emulator Features

Interactive Operation

Selecting #1, Enter Interactive Mode, from the Terminal Emulator menu, gives you direct control of the interactive communications process. Your IBM Personal Computer emulates a display terminal. Whatever you type on the keyboard is sent to the remote computer, except when you press the combination Alt followed by a letter, this identifies the entry as an interactive command.

The Interactive mode screen has two parts. The bottom of the screen displays command and status advisories. This part of the Interactive mode display is always visible when you are on-line to a remote computer. The top part of the screen is for viewing incoming and outgoing characters. This part of the screen also displays Interactive mode commands. You can recall the command list to the screen at any time by pressing Alt-Q.

Interactive Mode Commands

The Interactive Mode commands that you can enter are shown on the following screen, and then explained.

```
                    Terminal Emulator
                     Interactive Mode

               ALT-A...Auto answer
               ALT-B...Send break
               ALT-C...Clear display
               ALT-D...Dial telephone
               ALT-E...Exit interactive mode
               ALT-H...Hang up telephone
               ALT-P...Printer on/off
               ALT-Q...Help
               ALT-R...Receive file control
               ALT-S...Send file control
               F1-F10..User functions



NO Connect  12:26:50   Printer OFF    Snd   ON   Rcv   ON   ALT Q--Help
```

Figure 5-3. The Interactive Mode Command Display

Alt-A Auto answer

Puts your modem in Auto-Answer mode, awaiting an incoming telephone call. If a call comes in, the modem answers with a **carrier**. If the modem calling does not place a carrier on the line within 30 seconds, the phone is hung up and the modem waits in auto-answer mode for another call. Until it is connected, you may press Esc to end the Auto-Answer state.

Alt-B Send break

Sends a BREAK over the communication line for 300 **milliseconds**. The status line of the screen displays "Break" until your next keystroke. BREAK signals *attention* to the other system. Some host computers interpret the BREAK signal in different ways.

Alt-C Clear display

Erases all text from the display. This has no effect on the status and message portion of the display.

Alt-D Dial telephone

Directs the program to initiate a telephone call to a phone number. Displays the last number dialed as a default phone number. You can enter a new number. After dialing, Personal Communications Manager waits 30 seconds for a carrier before hanging up the phone. The user function is not ended by an unsuccessful attempt.

Alt-E Exit Interactive mode

Returns you to the Terminal Emulator menu.

Alt-H Hang up telephone

Terminates the link to the other computer. You are asked to confirm this with the prompt:

```
Hang up (y/n)? [y]
```

Alt-M Enter/Leave modem cmd state

This command is only available and displayed if you specify a Microcom modem with your computer. When modem command state is ON, you can give commands directly to your modem. When you are in modem command state, all other Interactive Mode commands are active except Alt-A, D, E, and H.

This is intended for use while you are connected. It allows you to execute modem commands without interrupting the connection. For information about operating your Microcom modem, refer to the modem user guide.

Alt-P Printer on/off

Turns printer on or off during an Interactive session. When the printer is ON, all data received on the communications line is printed. In addition, if your communications are set for half **duplex**, all data sent to the communications line is also printed.

> **Note:** If the printer is not able to accept data at the same rate as the communications line, characters may be lost.

Alt-Q Help

Displays the Interactive Mode command screen. Whatever is currently displayed is overwritten by the commands list. The interactive screen is redisplayed by pressing Esc.

Alt-R Receive file control

Directs the incoming text to be stored on a disk under a specified receive file name. For more information, see "Receiving Files" in this chapter.

Alt-S Send file control

Begins sending the contents of a specified file to the remote computer. For more information, see "Sending Files" in this chapter.

F1 - F10 User functions

Pressing one of the Function keys causes one of the defined user functions to begin. A user function is a sequence of commands and text that is defined using the Create/Edit User Functions work screen from the Terminal Emulator menu. For more information, see "Personalized User Functions" in this chapter.

Status and Advisory Display

The bottom lines of the Interactive Mode screen display the communications status advisories and error messages. On an 80-character display this area is two lines deep, on a 40-character display, three lines deep.

```
NO Connect  12:26:50   Printer OFF     Snd    ON   Rcv   ON   ALT Q--Help
```

Figure 5-4. The 80-Character Display Status Fields

```
NO Connect  00:15:17   Printer OFF
Snd     ON  Rcv    ON  Alt Q--Help
```

Figure 5-5. The 40-Character Display Status Fields

These Interactive mode status fields display the following advisories:

NO Connect The current status of the telephone connection, either "NO Connect", "Connect", or "RL Connect" (reliable link connection).

Terminal

time indicator Displays either the time of day (if not connected) or the elapsed time (since a connection was made to a remote computer). Elapsed time is indicated by an "e" following the time display.

Printer Indicates whether the printer is ON or OFF for printing received information.

Snd Indicates whether a send file is active (F) or paused (P). A "U" in this field indicates a user function is in progress. The current activity is displayed as a message beneath the status advisory field.

When **flow control** is enabled, either ON or OFF is displayed, indicating flow control status.

Rcv Indicates whether a receive file is active (F) or paused (P). The current activity is displayed as a message beneath the advisory field.

When flow control is enabled, either ON or OFF is displayed, indicating flow control status.

Alt-Q The keystrokes Alt-Q will display the interactive commands on the screen.

Sending Files

You can send the contents of any file from either a diskette or fixed disk to a remote computer using the Interactive command Alt-S (Send file control).

When you initially invoke the Send File Control command during an interactive dialog, you enter the name of the file you want to send. If this file is available, it is then immediately sent to the remote computer. While this file is being sent you can stop or pause the file by typing the Alt-S command again. You are then prompted:

```
Pause or End (p/e)? [ ]
```

If the file is being sent and you want to stop it, type **E**. If you want to pause the file, type **P**. If you paused sending the file, typing Alt-S a third time, gives you the choice of resuming (type **R**) or ending (type **E**) the outgoing file.

Notes:

1. The Send File command within a user function returns control to that user function when the file has been completely sent.

2. Before you send a file you must first insure that your remote computer is in the proper state for receiving your data.

Sending Non-Text Files

You can send binary files to remote computers using Personal Communications Manager's Terminal Emulator. If you are sending binary files, set your communications settings as follows:

```
Parity................none
Transmit CR-LF........yes
```

Terminal

Receiving Files

All data received from a remote computer can be put in a file by using the Interactive mode command Alt-R (Receive File Control). If the filename specified for storage of incoming data already exists, you are given the choice of appending the incoming information to the existing file or overwriting the existing file with the new information. If you choose to **overwrite** the file, the current information in that file is lost.

Like the Send File Control command, if you are currently receiving a file for disk storage, you can pause, end, and resume (after a pause) storing the file by typing the Alt-R command again.

```
Pause or end (p/e)? [ ]
```

Once paused, a third Alt-R command gives you the choice of ending this file.

```
Resume or end (r/e)? [ ]
```

Notes:

1. Pausing a receive file does not stop the other system from continuing to transmit.

2. Incoming data is automatically appended to Receive files opened from a user function that use an existing file name.

Receiving Non-text Files

You can receive and store a non-text binary file from a remote computer with the Terminal Emulator. If you intend to receive a binary file, set your communication settings as follows:

```
Parity................none
Filter control chars..no
Add LF on receive.....no
Flow Control..........no
```

Communications Settings

The second choice on the Terminal Emulator menu, Display/Change Comm. Settings, displays the following work screen:

```
                    Terminal Emulator
              Change Communications Settings

              Baud rate.............300

              Parity................even
              Duplex mode...........full
              Filter control chars...yes
              Transmit CR-LF.........no
              Add LF on receive......no
              Flow control...........yes

Options:
 110 300

 Press ↑ or ↓ to change selection
 Press Spacebar to change option
 Press Esc to exit
```

Figure 5-6. The 80 Column Communication Settings Work Screen

> **Note:** 40 and 80 column displays present this work screen differently.

The up and down arrows move the selection window between communications settings, and the spacebar changes the value of each setting.

When you have made your choices, pressing Esc returns you to the Terminal Emulator menu.

The communications settings are:

Baud rate The baud rate is the number of bits-per-second speed for sending and receiving data (110 baud = 10 cps, 300 baud = 30 cps, 1200 baud = 120 cps, 2400 baud = 240 cps, 4800 baud = 480 cps, 9600 baud = 960 cps). See Appendix B for more information about baud rates. Depending on the modem attached to your computer, different baud rate settings are available.

Parity **Parity** determines the character format. If no parity is selected, eight data bits are sent and received for each character. Other parity choices select seven bits and the specified parity.

Duplex mode Half duplex displays characters as they are entered and sent to the remote computer. Full duplex displays a character when and if it is returned by the remote computer. See Appendix B for more information about full and half duplex.

> **Note:** If you are seeing "double letters" on the screen, change from half duplex to full duplex. If nothing is appearing on the display screen, change from full duplex to half duplex.

Filter Control Chars If the **control character** filter is on, all received characters are adjusted to seven bits and most received control characters are not written to disk, printed, or displayed on the screen. Some characters are not changed:

carriage return (ASCII 13)

line feed (ASCII 10) This character is converted to a carriage return on the display screen.

form feed (ASCII 12)

tab (ASCII 9)

backspace (ASCII 8)

bell (ASCII 7)

Transmit CR-LF If Transmit CR-LF is ON, a line feed character is appended to any transmitted carriage return. If it is OFF, line feeds are removed from tranmsitted files.

Add LF on receive If Add LF on receive is ON, all incoming carriage return characters will have a line feed appended to them.

Flow control **No** - No flow control **protocol** is active. **Yes** establishes the Xon and Xoff protocol using Ctrl-Q and Ctrl-S.

When sending a file to a remote computer under this flow control protocol, if the remote computer's receive **buffer** fills up, that computer sends an Xoff (transmit off) command to your computer, which, in turn, pauses sending its file until an Xon character is received, indicating the remote computer is again ready to receive your file. If you are receiving a file and your receive buffer fills, your computer automatically sends an Xoff character to the remote computer and sends an Xon character when it is ready to continue receiving incoming data.

Notes:

1. Make sure the remote computer is using Xon/Xoff flow control if you are using flow control.

2. If you are using flow control, then Xon and Xoff characters appearing in a send file will interfere with the flow control protocol and perhaps even cause a failure.

Personalized User Functions

The third choice on the Terminal Emulator menu is Create/Edit User Function. A user function is a predefined character string made up of Interactive Mode commands and other text characters. This command and character string is automatically sent to a remote computer with a single keystroke.

This feature permits entry, review, and editing of up to 10 different user functions to be kept with each terminal setup file created for a specific remote computer. Depending upon the display characteristics of your computer a user function may contain either a maximum of 306 characters (for a 40-column display) or 512 characters (for an 80-column display). The length of each user function depends on the available number of displayable characters on the screen.

If a user function is full, the computer beeps and no additional keystrokes are accepted. Further, no entries are allowed after an Exit command or chain to another user function command.

When you are in Interactive Mode a defined Function key (F1-F10) causes the related user function to be sent. Each command or text string appears on the screen as it is sent.

When you choose the Create/Edit User Function, you must press a function key to display. When you make an entry, the Editing Function screen shown in Figure 5-7. appears. If the function key entered was already defined, it appears on the screen along with the command and prompt text. If it is not already defined, only the command and prompt texts appear. The lower center of the screen is where the user function entries appear.

Each User Function is made up of a series of commands and text strings. Commands cause the execution of a function. by the program and text strings are data to be sent.

Commands

There are two types of commands. Self-contained commands which cause the execution of a function without any additional information. For example, Alt-C <C> clears the screen. The second type of commands are those commands that prompt the user for additional information and append this information to the command. For example, Alt-T prompts for real or elasped time. Responding R or r (real time), an additional prompt asks for a real time entry and for example creates the command «Tr13:30»

The prompted data that was entered in this example cannot be edited. To change a command you should delete and reenter the entire command in place. The Del key deletes the entire command.

Text

When you are entering or editing text in a User Function, all the edit keys are active except the (up arrow) and (down arrow). To enter special characters, such as Esc, or Backspace, activate the Ins key followed by the special character.

```
                         Terminal Emulator
                    Create/Edit User Function 3

   <A>uto answer      <D>ial phone       <P>rinter echo     <T>ime wait
   <B>reak            <E>xit             <R>eceive file     <W>ait
   <C>lear display    <H>ang up          <S>end file
                      F1-F10 Invoke user function


«D-222-555-1144.....................»password«W-identifier|00:20|H»ibm« W-serv
ice??|00:20|H»airline reservations




   Type text or Alt-<x> for command
   Press End when finished
   Press Esc to cancel
```

Figure 5-7. The User Function Editing Screen

Every keystroke typed on the IBM Personal Computer keyboard can be in a user function, including Interactive mode commands.

User functions may be chained by using the Invoke User Function command at the end of the first user function. Refer to Chapter 6, *An Advanced Example: Programming An Unattended User Function* for an example of how to chain user functions.

Note: Commands and text strings can only be inserted *before* an Invoke User Function or Alt-E command.

At the bottom of the display are advisories that instruct you to

```
Type text or Alt-(x) for command
Press End when finished
Press Esc to cancel.
```

Additional Commands

There are two additional commands available for user functions. These are **T - time wait** and **W - wait**. These are in addition to the Interactive commands and can be used only in user functions.

Alt-T - Time Wait

The time wait command lets you specify a time delay in one of two forms. The first is elapsed time in seconds and tenths. The permitted value is between the range .1 and 59.9 seconds. In this case, the user function pauses for this length of time before continuing. The second form of time delay is a time of day (real time) entry, entered as HH:MM. In this case, the user function pauses until that time of day arrives. This form uses the internal clock in your computer.

Warning: Check that the internal clock time value is correct before using a Time or Wait command.

Alt-W - Wait

The wait command also has two forms. The wait command pauses the user function until a matching text string is received, then continues with the remaining commands or text. You can specify that it wait "forever" or for a certain amount of time to pass before passing on to another user function. The elapsed time entry is entered as minutes and seconds. Up to 23 minutes, 59 seconds are allowed. This time entry is the limit you want the user function to pause. If that time is reached, a further entry can specify an action to take place (jump to another user function or hang up the telephone). If no time entry is made, the default Wait time is 2.0 seconds.

The wait command can also be used without a specific matching text string requirement. In this form, wait results in a pause until *any* character is received from the remote system. Again, an elapsed time entry can be included to limit the amount of time to pause. Pressing Spacebar during a Wait command ends the wait state and lets the program proceed with the next entry in the user function. Pressing Esc ends the user function completely.

> **Note:** Text strings with the Wait command must match exactly (upper and lower case) what is sent from the remote computer. "Space" is considered a character.

Saving and Loading Terminal Setup Files

The fourth and fifth choices on the Terminal Emulator menu, Save Terminal Options and Load Terminal Options respectively, permit the storage and retrieval of the predefined communications settings and user functions. When you create a specific terminal setup with the Display/Change Comm. Settings feature, you may keep it in a specified file with the Save Terminal Options choice from the Terminal menu. The setup can then be loaded into memory using the Load Terminal Options choice from the same menu, before you begin Interactive mode.

Your Work diskette contains a file named "PCMTERM.DAT" that contains a standard terminal options setup. This default file is automatically loaded each time you enter the Terminal Emulator feature. If you want to change any of the default values in this file, simply use the **Display/Change Comm. Settings** selection from the Terminal menu, make your changes, then use **Save Terminal Options** to save your settings in the default file name "PCMTERM.DAT".

If you want to save a changed version of PCMTERM.DAT for later use, simply specify the filename under which you want to store this set of options. If you want the new settings to become your default values, save the changes under the filename PCMTERM.DAT

Printing Terminal Options

At any point when you are using the Terminal Emulator feature, you can obtain a printed copy of the current communications settings and any predefined user functions by selecting the sixth choice on the Terminal Emulator menu, Print Terminal Options.

This directs the contents of the current setup file, including any user functions to the printer. Like all printouts, you can use the Ctrl-Num Lock or Fn-Pause keys to suspend printing.

Note: User functions may contain characters that are unprintable unless you are using a graphics printer. Some serial printers may be affected by control characters in these functions.

Terminal

Chapter 6. Accessing Information Services

What Are Information Services?

Information services are businesses that offer a wide variety of information and computing services to their subscribers. These companies usually charge connect time and storage fees. Subscribers communicate with the host computers via telephone lines from their home or office, using a personal computer or terminal.

There are many companies offering a wide range of "information products" or remote computing services. Some specialize in financial information and news. Others offer services to specific industries or classes of customers. These could range from law libraries for attorneys, or technical information for engineers, to consumer information about food, travel, energy management, sports scores or airline schedules. The current offerings are many, and the number of firms offering data banks is growing daily.

How Do You Access Them?

Information services are accessed by the Terminal Emulator function of the program. Typically, a person wanting to obtain these services enters into an agreement with the company -- she becomes a subscriber -- to pay for the amount of time and the type of services used. The company gives them an account number and a unique **password**.

Then, anytime a subscriber wants to obtain information on some subject, he simply dials a telephone number (usually a local number) and communicates with the remote computer using his computer or terminal. There is an initial question and response dialog as the subscriber identifies himself to the remote computer. This is logging onto the computer. Once logged-on, the subscriber then chooses from a menu of available services and interacts with the remote computer to leave messages, acquire data files, or perform other functions.

When finished, the subscriber logs off, and the remote computer makes an entry in its files describing how long the subscriber was on-line and if he obtained any information that involves additional charges. The subscriber receives a bill for his usage.

Creating a User Function

The following information describes the process of connecting to an information service and how a user function is created for this task. The next sections of this chapter tell you how to modify the sample terminal options files included on your Work diskette or fixed disk.

User functions contain the interactive commands or responses a Personal Communications Manager user types on the IBM Personal Computer's keyboard and any incoming text that prompts a user to type a response or command. The following example describes the dial-up, **logon**, and service selection dialog that takes place when a subscriber to the Dow Jones News Service connects with Personal Communications Manager.

After the step-by-step dialog, you are shown how to enter this same prompt and response dialog into a Personal Communications Manager user function.

A Simple Example

1. This is an example of how you would manually logon to Dow Jones through Tymnet[1] or a similar local access service.

2. First you would place Personal Communications Manager in interactive mode and use the Dial Phone command (Alt-D). You would be prompted for a telephone number entry. The local access number for Tymnet is typed in and Personal Communications Manager attempts the link.

3. If the attempt was successful, the status advisory at the bottom of the interactive mode display would change from dialing to connect and the herald message from Tymnet would appear:

   ```
   please type your terminal identifier
   ```

4. You would then press **A** once and wait for Tymnet to send the next prompt. After an identifying system number is sent the next remote computer prompt would appear:

   ```
   please log in:
   ```

---

1 Tymnet is a trademark of Tymshare Company, Inc.

5. The logon response tells Tymnet which computing service is requested. You would type:

```
DOW1;;
```

without pressing Enter.

6. After a few seconds, Dow Jones would prompt with:

```
WHAT SERVICE PLEASE????
```

Dow Jones offers a variety of data services, so the user should make a choice based on the known offerings. The Dow Jones News Service is chosen when you would type:

```
DJNS
```

and press Enter.

7. The remote computer would then prompt for the user's password -- the authorization and billing identifier:

```
ENTER PASSWORD
MMMMMMMMMMMMMM
QQQQQQQQQQQQQQ
@@@@@@@@@@@@@@
```

8. You would then type your password and press Enter, completing the process to sign onto the Dow Jones News Service.

This process can take a minute or so, but Personal Communications Manager's user function feature makes it much easier. This entire dialog can be written as a user function and one keystroke can enter the entire logon automatically.

This example is on your Work diskette or fixed disk under the filename DOWJONES.

Load the file DOWJONES using selection #5, Load Terminal Options, from the Terminal Emulator menu.

To edit this user function, choose #3 Create/Edit User Function from the Terminal Emulator menu. The following prompt appears at the bottom of the screen:

```
Press function key to edit: [ ]
```

Press F1. The Create/Edit User Function work screen appears.

```
                         Terminal Emulator
                     Create/Edit User Function 1

<A>uto answer      <D>ial phone          <P>rinter echo        <T>ime wait
<B>reak            <E>xit                <R>eceive file        <W>ait
<C>lear display    <H>ang up             <S>end file
                   F1-F10 Invoke user function

«D-555-4567........................»«W-identifier|00:20|H»a«W-please log in:|0
0:20|H»DOW1;;«W-WHAT SERVICE PLEASE????|00:20|H»DJNSØ«W-ENTER PASSWORD|00:20|H»
your password hereØ



Type text or Alt-<x> for command
Press End when finished
Press Esc to cancel
```

Figure 6-1. The Create/Edit User Function Work Screen

The entire logon process can be entered as a single user function using the following commands and text string entries:

Entry	Meaning
«D555-4567.....................»	DIAL the phone number 555-4567. The periods following the telephone number entry reserve the remaining space in the telephone number entry field.
«W-identifier | 00:20 | H»	WAIT for incoming text "identifier". If the matching string is not received within 20 seconds, hang up the telephone.
a	Send the terminal identifier "a"

«W-please log in: | 00:20 | H» WAIT for incoming text "please log in:" If the matching string is not received within 20 seconds, hang up the telephone.

DOW1;; Send the remote service identifier "DOW1;;"

«WHAT SERVICE PLEASE???? | 00:20 | H» WAIT for incoming text "WHAT SERVICE PLEASE????". If the matching string is not received within 20 seconds, hang up the telephone.

DJNSØ Send the specific service name "DJNS" followed by a carriage return. A carriage return is represented by a (Ø) on the display.

«W-ENTER PASSWORD | 00:20 | H» WAIT for incoming text "ENTER PASSWORD" If the matching string is not received within 20 seconds, hang up the telephone.

your password hereØ Send the password required for access to the system and your account followed by a carriage return.

At this point, the user function entries are finished -- every command and prompt response resides within the user function.

If you had typed these entries yourself and elected to retain them to use again, you would now select option #4 Save Terminal Options from the Terminal Emulator menu and enter a filename. To use this user function later, all you need to do is

1. Load this terminal options file using #5, Load Terminal Options, from the Terminal Emulator menu.

2. Select #1 Interactive Mode.

3. Press F1.

The entire sequence takes place automatically and, in a few seconds, you are logged on to the remote computing service.

Notes:

1. When you use a user function sequence, the baud rate and parity settings must match the time sharing service. Be sure to confirm this.

2. Flow control cannot be used when accessing the Dow Jones News Service.

Personalizing the Personal Communications Manager Setup Files

Personal Communications Manager comes with three sample terminal options files for three popular information services. These files are:

- DOWJONES -- The Dow Jones News/Retrieval Service

- COMPUSRV -- The CompuServe service

- SOURCE -- THE SOURCE Information Network

Each of these files was created for your use. You must change part of the contents of each of these files in order to customize them for your own use. Two of the files contain two user functions, a third contains seven different user functions. You should alter some of the entries in each of these user functions so that, if you are a subscriber to any of these information services, you can use them as a basis for your own user functions.

In each of the following examples, the changes you should make are:

- insert a local telephone number
- insert your user ID
- insert your password

Obtain this information from each service when you become a subscriber.

Follow this procedure to load and modify a user function for any of the sample terminal options files included on your Work diskette.

1. Enter Terminal Emulator Mode.
2. Select #5. Load Terminal Options from the menu.
3. Enter the name of the file you want to modify.
4. When the file is loaded, select #3. Change/Edit User Function.
5. Press a function key corresponding to the user function you want to modify.

Note: Each of the following descriptions of the user functions contained in each options file is identified by its function number (F1, F2, etc.).

6. After you have made your modifications save the modified function using the Save Terminal Options choice from the Terminal Emulation menu. Use the same filename as when you originally loaded the file.

The CompuServe Setup File

The CompuServe terminal options file is called "COMPUSRV" on your Work diskette. User function F1 is used to contact a direct CompuServe system, user function F2 is used to contact CompuServe through the Tymnet service.

CompuServe User Function F1

Entry	**Meaning**
«D-555-4567.................»	DIAL the telephone number 555-4567. **You should replace this entry with a local telephone number.**
«Te05.0»	TIME (elapsed) command. Pause for five seconds.
Ctrl-C	Transmit the keystrokes Ctrl-C (shows as a heart on the display). This is a required part of the CompuServe logon sequence.
«W-: | 00:20 | H»	WAIT command (20 seconds). Wait for the character ":" (colon) to be

received from the remote system. Note that the colon is the last character in a string of characters sent by the remote system. You do not need to put the entire character string into a user function, just the last unique character(s). If the matching string does not arrive within 20 seconds, hang up the telephone.

your User ID here∅ Transmit your user ID followed by a carriage return (∅). **You should replace this entry with your own user ID.**

«W-: | 00:20 | H» WAIT command (20 seconds). Wait for the character ":" (colon) to be received from the remote system. If the matching string does not arrive within 20 seconds, hang up the telephone.

your password here∅ Transmit your unique password followed by a carriage return. The last character in the text string is a carriage return character. **You should replace this entry with your own password.**

CompuServe User Function F2

Entry **Meaning**

«D-555-4567................» DIAL the telephone number 555-4567. **You should replace this entry with the local telephone number of the Tymnet service.**

«W-identifier | 00:20 | H» WAIT command (20 seconds). Pause until the text string "identifier" has been received. If the matching string does not arrive within 20 seconds, hang up the telephone.

a Transmit the character "a" to the remote system. This is your terminal identifier code.

«W-: | 00:20 | H» WAIT command (20 seconds). Pause until the character ":" (colon) is received from the remote system. If the matching string does not arrive within 20 seconds, hang up the telephone.

CPSØ Transmit the character string "CPS" followed by a carriage return (Ø) to the remote system.

«W-ID: | 00:20 | H» WAIT command (20 seconds). Pause until the characters "ID:" are received from the remote system. If the matching string does not arrive within 20 seconds, hang up the telephone.

your user ID hereØ Transmit your unique user ID to the remote system, followed by a carriage return. **You should replace this entry with your own user ID.**

«W-Password: | 00:20 | H» WAIT command (20 seconds). Pause until the text string "Password:" is received from the remote system. If the matching string does not arrive within 20 seconds, hang up the telephone.

your password here∅ Transmit your unique password to the remote system, followed by a carriage return. **You should replace this entry with your own password.**

THE SOURCE Setup File

THE SOURCE setup file on your Work diskette is called "SOURCE". The user function F1 is used to contact THE SOURCE Information Service through the Tymnet network. User function F2 is used to contact THE SOURCE through the Telenet[2] network.

THE SOURCE User Function F1

Entry	Meaning
«D-555-4567..............»	DIAL the telephone number "555-4567". **You should replace this entry with the local access telephone number for Tymnet.**
«W-identifier | 00:20 | H»	WAIT command (20 seconds). Wait for the text string "identifier" to be received from the remote computer. If the matching string does not arrive within 20 seconds, hang up the telephone.
a	Transmit the character "a" to the remote computer. This is the terminal identifier entry.

2 Telenet is a trademark of GTE Telenet.

«W-: | 00:20 | H» WAIT command (20 seconds). Pause until the character ":" is received from the remote computer. If the matching string does not arrive within 20 seconds, hang up the telephone.

source13;prim; Transmit the text string "source13;prim;" to the remote system. This is the service specifier for logging onto THE SOURCE network through Tymnet.

«W-> | 00:20 | H» WAIT command (20 seconds). Pause until the character ">" is received from the remote computer. If the matching string does not arrive within 20 seconds, hang up the telephone.

your user ID and password hereØ Transmit the text string that contains your unique user ID and password followed by a carriage return (Ø) to the remote system. The Tymnet logon procedure requires that the ID and password be sent as one string. **You should replace this entry with your own ID and password.**

THE SOURCE User Function F2

Entry **Meaning**

«D-555-4567................» DIAL the telephone number "555-4567". **You should replace this entry with the local access number for THE SOURCE through Telenet.**

«Te02.0»	TIME (elapsed) command. Pause for two seconds after the connection is established.
Ø	Transmit the carriage return character (Ø) to the remote computer.
«Te00.5»	TIME (elapsed) command. Pause for one half second.
Ø	Transmit a second carriage return to the remote computer
«W-= | 00:20 | H»	WAIT command (20 seconds). Pause until the character "=" is received from the remote computer. If the matching string does not arrive within 20 seconds, hang up the telephone.
D1Ø	Transmit the characters "D1" followed by a carriage return to the remote system. The characters "D1" are used to identify your service request to the remote computer.
«W-@ | 00:20 | H»	WAIT command (20 seconds). Pause until the character "@" is received from the remote computer. If the matching string does not arrive within 20 seconds, hang up the telephone.
C 30128Ø	Transmit the characters "C 30128" followed by a carriage return to the remote system.
«W-> | 00:20 | H»	WAIT command (20 seconds). Pause until the character ">" is

received from the remote system. If the matching string does not arrive within 20 seconds, hang up the telephone.

your ID and password hereØ Transmit the text string "your ID and password here" followed by a carriage return to the remote computer. **You should replace this entry with your own ID and password.**

An Advanced Example: Programming an Unattended User Function

The third Terminal options file on your Work diskette or hard file is "DOWJONES". It contains the two "local" user functions similar to those in the COMPUSRV and SOURCE options files. The necessary changes to DOWJONES functions F1 and F2 are identical to the changes that should be made to the "COMPUSRV" and "SOURCE" user functions. Accordingly, the two "DOWJONES", F1 and F2 are not outlined here.

In addition to the user functions F1 and F2, the user functions F3, F4, F8, F9, and F10 are also included in the DOWJONES terminal options file. These five other user functions are "programmed" for unattended operation. They are examples of Personal Communication Manager user function capabilities and should give you an insight into setting up your own special functions. Review these functions carefully.

The "advanced" Dow Jones user function begins with F10. This function simply waits for a specified time of day to be reached, then passes control to another user function, F3.

User function F3 contains several references to user function F9. If, for some reason, the attempt to contact the local Tymnet telephone number or service connection fails, a "try again" loop happens. If user function F3 is completed, control is passed to user function F4 where the automated incoming file activities begin. If there are problems with attempting to obtain the desired information, control is passed to user function F8.

User function F8 halts the process, avoiding unneccesary connection charges. User function F9 begins the connection-interrogation process all over again. In most cases, there should be no problems logging onto remote computing services. The way in which user functions F3, F4, F8, F9, and F10 are designed will take care of the possibility that a problem might occasionally occur.

Because this "programmed" set of user functions is performed in "order", this advanced example begins with the first step, function F10.

Dow Jones User Function F10

Entry	Meaning
«Tr23:15»	TIME (real time) command. Pause until the time of day 11:15pm (23:15) is reached.
«F3»	Pass control to user function F3.
	Alt-E or a function key entered in a user function, ends the user function. Nothing can be entered after either of these commands.

Dow Jones User Function F3

Entry	Meaning
«D-555-4567............»	DIAL the telephone number "555-4567". **You should replace this telephone number with the number of the local Tymnet service for the Dow Jones Service.**
«W-identifier | 00:20 | F9»	WAIT command (20 seconds). Pause until the text string "identifier" arrives from the remote computer. If the matching text string does not arrive within twenty seconds, pass control to user function F9.
a	Send an "a" in response to "identifier".
«W-please log in: | 00:20 | F9»	WAIT command (20 seconds). Pause until the text string "please log in:" arrives from the remote computer. If the matching text string does not arrive within twenty seconds, pass control to user function F9.
DOW1;;	Transmit the text string "DOW1;;" to the remote system. This is the required service request identifier for the Dow Jones service on Tymnet.
«W-WHAT SERVICE PLEASE???? | 00:20 | F9»	WAIT command (20 seconds). Pause until the text string "WHAT SERVICE PLEASE????" arrives from the remote computer. If the matching text string does not arrive within 20 seconds, pass control to user function F9.

DJNSØ Transmit the text string "DJNS", followed by a carriage return, to the remote computer.

«W-ENTER PASSWORD | 00:20 | F9» WAIT command (20 seconds). Pause until the text string "ENTER PASSWORD" arrives from the remote computer. If the matching text string does not arrive within twenty seconds, pass control to user function F9.

your password hereØ Transmit the text "your password here" followed by a carriage return, to the remote computer. **You should replace this text with your own password.**

«F4» Pass control to user function F4.

Dow Jones User Function F4

This user function handles the dialog between the Dow Jones system and your computer *after* your system is successfully logged-on to the remote computer.

Entry	**Meaning**
«W-ENTER QUERY | 00:20 | F8»	WAIT command (20 seconds). Pause until the text string "ENTER QUERY" arrives from the remote computer. If the matching text string does not arrive within twenty seconds, pass control to user function F8.
//CQØ	Transmit the text string "//CQ" followed by a carriage return to the

remote computer. This is a required entry for obtaining the stock quotation facility from the Dow Jones service.

«W-ENTER QUERY | 00:20 | F8» WAIT command (20 seconds). Pause until the text string "ENTER QUERY" arrives from the remote computer. If the matching text string does not arrive within twenty seconds, pass control to user function F8.

«R-A:IBMQUOTE..................» Open receive file on drive A named "IBMQUOTE". This entry was made from the user function work screen and the related prompt work screen.

IBMØ Transmit the text string "IBM" followed by a carriage return.

«W-IBM | 00:20 | F8» WAIT command (20 seconds). Pause until the text string "IBM" arrives from the remote computer. If the matching text string does not arrive, pass control to user function F8.

«W-STOCK | 00:20 | F8» WAIT command (20 seconds). Pause until the text string "STOCK" arrives from the remote computer. If the matching text string does not arrive, pass control to use function F8.

«Te20.0» TIME (elapsed) command. Pause for 20 seconds then go to next command entry in the user function.

«F8»	Pass control of user function F4 to user function F8.

Dow Jones User Function F8

This user function is "called" from many of the command entries in user function F4. Its purpose is to disconnect the connection after you have been logged onto the system and your usage billing minutes have started to be counted.

Entry	**Meaning**
«B»«B»«B»	Send BREAK three times to the remote computer.
«Te02.0»	TIME (elapsed) command. Pause for two seconds.
DISCØ	Transmit the text string "DISC" followed by a carriage return to the remote computer. The Tymnet-Dow Jones system requires the "DISC" command in order to disconnect (to log off your account) from the remote computer.
«Te20.0»	TIME (elapsed) command. Pause for twenty seconds.
«Re»	End receive file command. Close the file opened in user function F4.
«H»	HANG UP telephone command. Terminate this programmed user function.

Dow Jones User Function F9

This user function is "called" from many of the commands in user function F3. Its purpose is to "loop back" to the function F3 after hanging up the telephone connection. If any of the Wait command periods expire, this function restarts the attempt-to-connect process.

Entry	Meaning
«H»	The HANG UP telephone command. Terminates the current telephone connection.
«F3»	Passes control to user function F3. This begins the attempt-to-connect process again.

Chapter 7. Electronic Mail

What is Electronic Mail?

Electronic mail is the term given to the process of sending and receiving messages and data between computers and/or remote intelligent terminals. This differs from regular mail in that electronic mail is essentially paperless. The mail items are made up of bits of information sent between computers and viewed by recipients on a display. The advantages of electronic mail over regular mail are considerable. Speed of delivery, reduced cost in preparing and handling of a letter or other document, the elimination of unnecessary media itself, all are persuasive reasons for using electronic communications instead of manually prepared and handled letters.

With Personal Communications Manager's electronic mail features you can send preprepared messages and files. Also, when in electronic mail mode, files or messages can be sent to your system from another computer in electronic mail mode, or from an attended terminal.

The Electronic Mail Menu

Enter Electronic Mail is choice #2 on Personal Communications Manager's main menu. Selecting it causes the Electronic Mail menu to appear.

```
                         Electronic Mail

                    1. Send/Receive Mail

                    2. Review/Address Outgoing Mail

                    3. Review Incoming Mail

                    4. Address Book Maintenance




Make selection (1-4): [ ]
Press Esc to exit
```

Figure 7-1. The Electronic Mail Menu

Each of the choices on the Electronic Mail menu is the subject of its own chapter in this manual. Briefly, these choices are:

1. Send/Receive Mail

Initiates the unattended send/receive mail process. Any mail items queued in the Outgoing Mail Log are sent at their predetermined times. Incoming mail items are noted in the log and stored on disk.

2. Review/Address Outgoing Mail

Select or enter the addressee(s) for a particular mail item, review or update mail status, create a printed copy of a message or the Outgoing Mail Log, or remove an entry from the log.

3. Review Incoming Mail

Display, print, archival storage, or removal of received mail items, and print the Incoming Mail Log.

4. Address Book Maintenance

Create, review, revise, or delete addressee information stored in a Personal Communications Manager data file.

Electronic Mail Features

The following illustration shows the Electronic Mail functions.

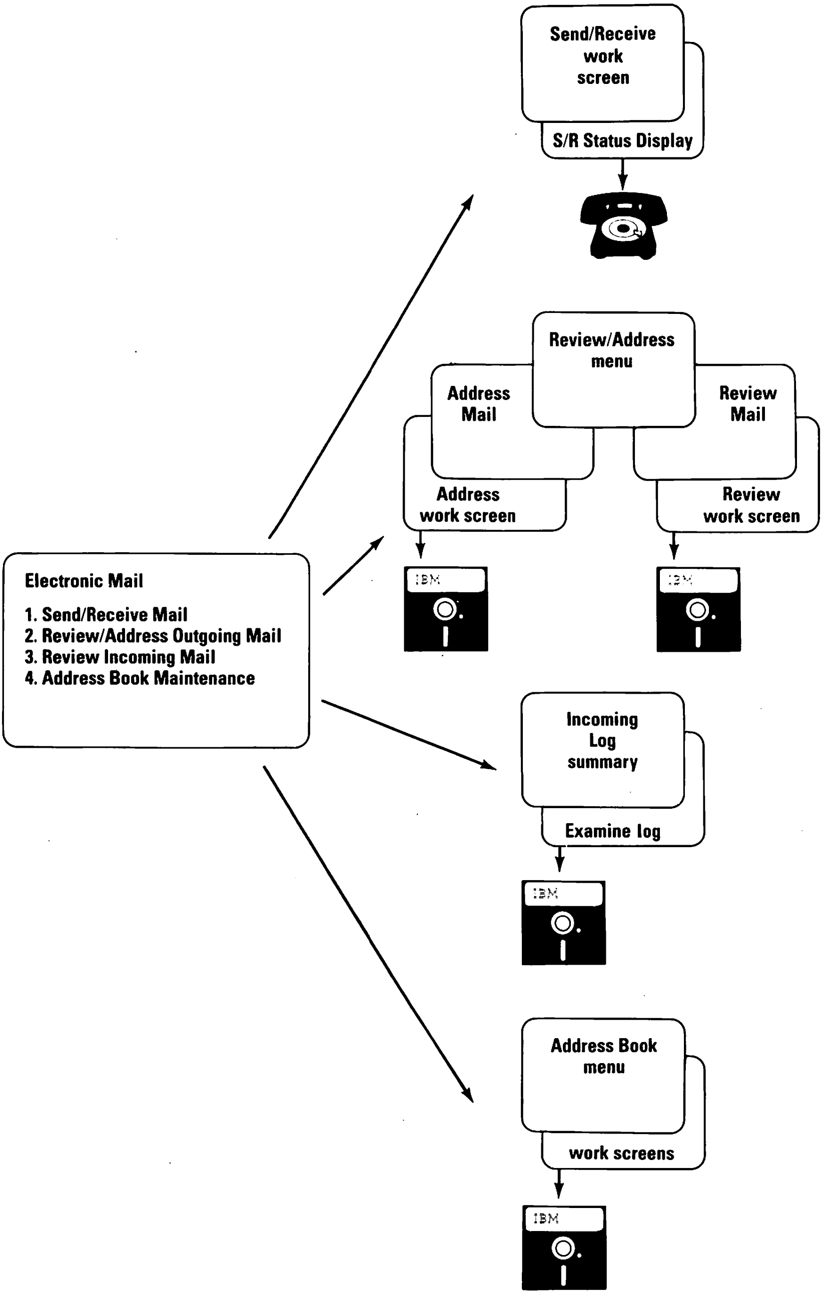

Figure 7-2. The Electronic Mail Functions

Personal Communications Manager Electronic Mail Standards

Mail Headers

When a mail item is prepared for sending to a remote Personal Communications Manager site, information is collected from three sources:

- the configuration file
- the address book file
- keyboard entries.

When the mail item is later accessed, this information appears as a mail header. Each outgoing and incoming mail item includes a header, in the same way a letter has an addressee and return address on the envelope.

An Outgoing Mail Log header contains the following information:

- scheduled time and date to be sent
- addressee's name
- mailbox name or destination telephone number
- addressee's telephone number
- subject of the mail item

- file name
- mail class (message, text data, or binary data).
- modem speed

```
--------------------------------------------------------------------------------
   Status:    to be sent at 05-23-83 23:02

   To:        Hartford, CT Sales Office          Mailbox: hartford
   Tel:       t 1 @ (203) 555-1001
   Subject:   Reschedule meeting

   File:      memo.txt
   Class:     Message              Speed: L
--------------------------------------------------------------------------------
```

Figure 7-3. A Sample Outgoing Mail Log Header

Personal Communications Manager displays the mail header information both in summary form and in complete detail (for each specified mail item) when you choose #2, Review Log, on the Review/Address Outgoing Mail menu.

Mail Logs

The program maintains two separate log files. One contains information about outgoing mail items, and the other contains information about incoming mail items. These are the Outgoing Mail Log and the Incoming Mail Log. Each log may have up to one hundred (100) entries in the file.

Whenever a piece of mail is prepared to be sent, an entry is automatically made in the Outgoing Mail Log. This log entry contains the information shown above.

Whenever a piece of mail is received by the program, much of the same information is noted in the Incoming Mail Log, with a few additions. The following information appears in an Incoming Mail Log entry:

- sender's name
- sender's telephone number
- addressee's name
- subject of the item (assigned by the sender)
- date and time received
- mail class
- the drive where the item can be found
- the modem speed

```
--------------------------------------------------------------------
     From:      Mary Webb
     Tel:       555-4567
     To:        David Webb

     Subject:   The Source terminal options file
     Received:  06-14-83 18:51         Drive: a
     Class:     Message                Speed: H
--------------------------------------------------------------------
```

Figure 7-4. A Sample Receive Mail Log Header

Types of Mail

Items of mail to be sent by Personal Communications Manager are either message or data files. The program processes message and data files in different ways.

Depending upon which of the Address Mail choices was made, the mail header shows **Class** as Message, Text Data, or Binary Data.

Message Files

Messages are meant to be read or printed. You can view a message on the screen by selecting Display Message Text or print a message by selecting Print Message Text. Figure 7-5 shows a sample message.

```
To: All Readers
From: Boca Raton

Subject: The Personal Communications Manager program

       The Personal Communications Manager program may eventually replace
our entire overnight letter delivery requirements.  Please prepare a brief
analysis of the possible cost savings from its use.


Accounting Department
```

Figure 7-5. A Sample Message

Data Files

The purpose in sending data, on the other hand, is to have it transferred to the storage device on another computer. Data files cannot be displayed or printed by Personal Communications Manager. When you address data, you must specify whether it contains standard text (ASCII format) or some other type of nonstandard (or binary) data format, that cannot be displayed in a coherent form without prior processing by a computer program.

Text data files might contain the output from spreadsheet or data management programs. These files could be loaded into a similar program at the remote site for further processing or examination.

Binary data files might contain the contents of computer programs that can be run on a similar computer at a remote site. In both these cases, the contents of the files are not likely to be read or understood without processing by another computer or computer program.

Chapter 8. The Address Book

A key feature of Personal Communications Manager is the ability to create "address books" of frequently contacted Personal Communications Manager users and to group addressees into distribution lists for automatic mailings. An address book file contains up to:

- 40 mailboxes, each containing
  - the addressee's name
  - the telephone number of the remote system
  - the modem speed at the remote site.
- 10 lists, each containing up to 40 different mailbox entries.

Mailbox entries can be assembled into lists. The program lets you create up to ten different lists, each identified by a unique list name. Each list may contain some or all of the assigned mailboxes. When you mail an item to a list, that item is automatically sent to each addressee on the list as if you had entered each addressee in the Outgoing Mail Log one at a time.

Using the Address Book Maintenance function, you can enter, change and delete mailbox or list information. This feature lets you:

- predefine mailboxes
- create lists of addressees
- change or remove mail boxes or lists
- create multiple address book files.

The Mailbox Directory Maintenance Menu

When you select Address Book Maintenance from the Electronic Mail menu, the screen displays the following menu:

```
                         Electronic Mail
                     Address Book Maintenance


                 1. Mailbox Maintenance

                 2. List Maintenance

                 3. Display Mailboxes

                 4. Display Lists

                 5. Print Address Book




Make selection (1-5): [ ]
Press Esc to exit
```

Figure 8-1. The Address Book Maintenance Menu

An overview of these four Address Book Maintenance features is shown in Figure 8-2.

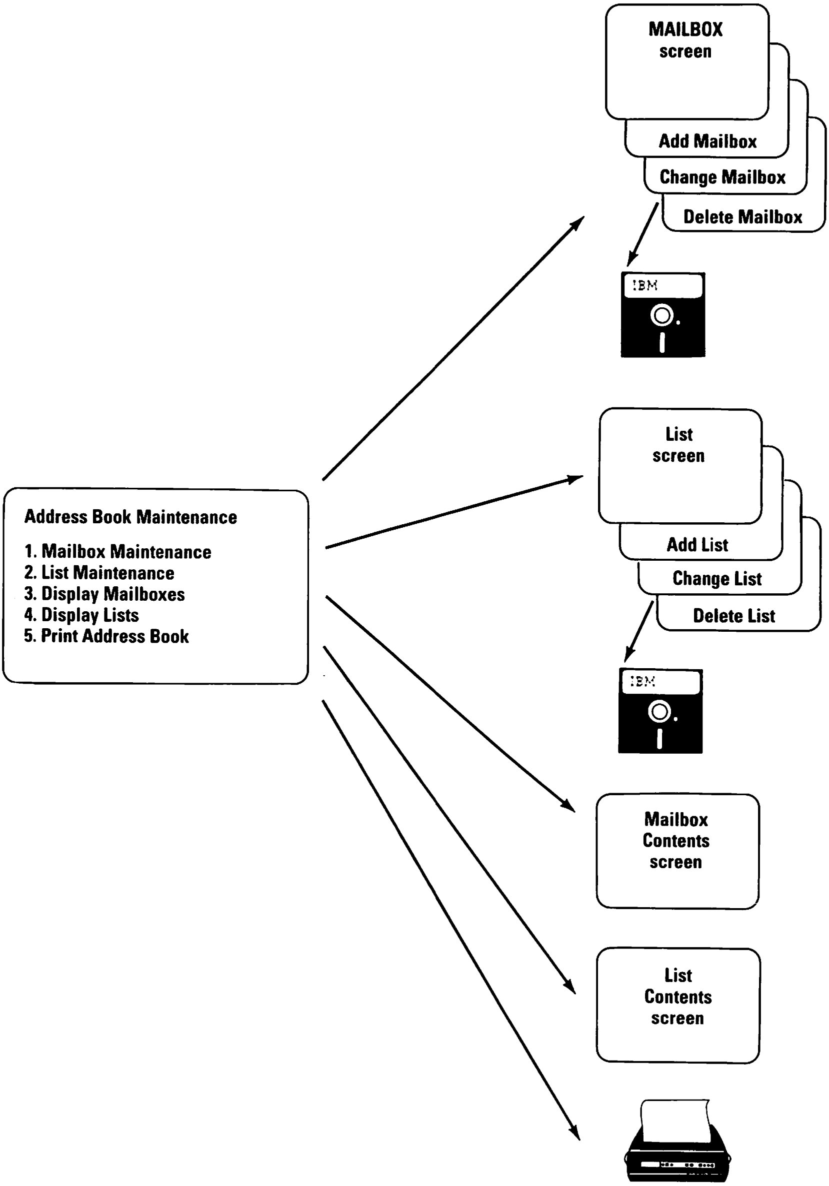

Figure 8-2. An Overview of Address Book Maintenance

Creating Mailboxes

When you select #1, Mailbox Maintenance, from the Address Book Maintenance menu, the assigned mailboxes are alphabetically displayed in left-justified columns. Each time you add, change, or delete a mailbox name, the list is sorted again and displayed.

```
                         Electronic Mail
                     Address Book Maintenance
                        Mailbox Maintenance


                hartford
                nashua
                provdnce
                waterbry
                worcest




                Mailboxes available: 35


Press Ins to add/change mailbox
Press Del to delete mailbox
Press Esc to exit
```

Figure 8-3. The Mailbox Maintenance Screen

At the bottom of the screen are prompts that give you the choice to add or change a mailbox, delete a mailbox, or return to the Address Book Maintenance menu. Pressing the Ins key and entering a new mailbox name causes the Add/Change Mailbox Work screen to appear (Figure 8-4).

```
                    Electronic Mail
               Address Book Maintenance
                  Mailbox Maintenance

          Name:    sample

          To:      Doc Writer

          Phone number:  617-555-0000

          Destination modem speed (h/l):  H

 Is this correct (y/n)? [ ]

 Press Esc to exit
```

Figure 8-4. The Add/Change Mailbox Work Screen

A mailbox name can be up to eight characters in length. If the name you entered on the Mailbox Maintenance screen is not assigned the following entry fields are empty:

To: Enter the name or company name of the addressee for this mailbox. There is space for 25 text characters.

Phone: Enter the remote computer's telephone number for this addressee. There is space for 33 text characters and spaces.

Destination modem speed (h/l): Enter **h** (for 1200 baud) or **l** (for 300 baud). This describes the operating speed of the remote modem.

When you confirm your entries, the mailbox is included in the Address Book.

If the mailbox name entered already exists, the entry fields displayed contain the current information for that mailbox. You can edit the contents of any field in the normal manner. You might do this whenever an addressee moves to a new site, changes their telephone number, or adds another modem.

Deleting a Mailbox

If you press Del while the Mailbox Maintenance screen is displayed and enter the name of the mailbox you want to remove, the Delete Mailbox screen appears. When you confirm removal of the displayed mailbox entry, the mailbox is removed from the Address Book *and* from each list in which it appears.

Creating Mail Lists

A feature of the program permits the grouping of selected mailboxes into a list for automatic mailings to the list. This lets you address a single message or data file to multiple mailboxes with one brief command. A list may have up to forty mailboxes. An individual mailbox may appear on more than one list.

Whenever you choose Address Message to List or Address Data to List from the Address Mail menu, each addressee on the specified list is automatically entered into the Outgoing Mail Log **queue** along with the selected mail item.

Lists are created or changed using the Add/Change or Delete List work screens available from the List Maintenance screen.

When you select #2, List Maintenance, from the Address Book Maintenance menu, each of the currently defined lists appear on the screen (Figure 8-5).

```
                         Electronic Mail
                     Address Book Maintenance
                         List Maintenance

                 Name     Description
                 ------------------------------------
                 salesofc New England Sales Offices
                 sample   Tutorial Example




                 Lists available:   8


Press Ins to add/change list
Press Del to delete list
Press Esc to exit
```

Figure 8-5. The List Maintenance Screen

At the bottom of the screen are prompts that give you the choice to add or change a list, delete a list, or return to the Address Book Maintenance menu. Pressing the Ins key causes the following prompt to appear:

```
List Name: [           ]
```

After entry of a list name, the Add/Change List work screen appears (Figure 8-6).

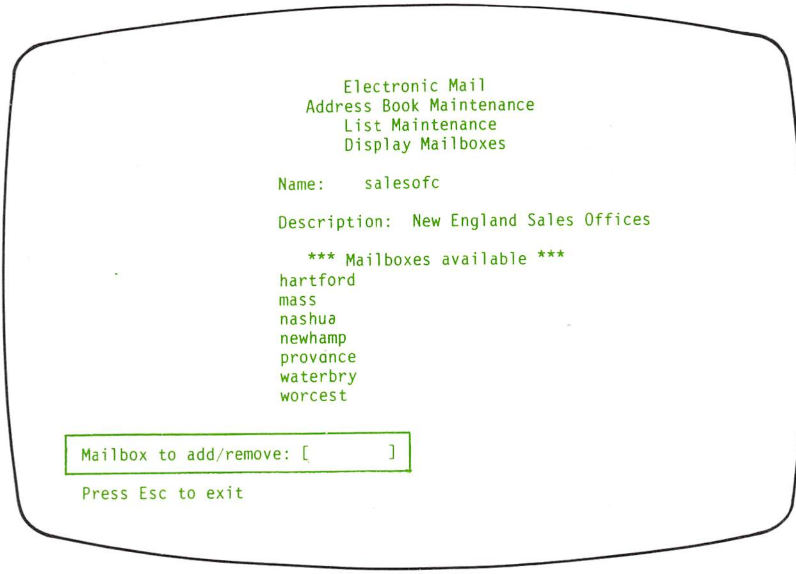

Figure 8-6. The Add/Change List Work Screen

A list name can be up to eight characters in length. If the list name entered on the List Maintenance screen is already assigned, the Description field displays its identifier. When Enter is pressed, all available mailboxes appear. Mailboxes included on this list appear in reverse video. Enter the name of the mailbox you want to add or remove. Each name you add to a new list appears in reverse video after you enter it.

To remove a mailbox from a list, simply enter its name. It is removed from the list and displayed in normal video.

Deleting a Mail List

If you press Del while the List Maintenance work screen is displayed, then enter the name of the list you want to remove, the Delete List work screen appears (Figure 8-7.).

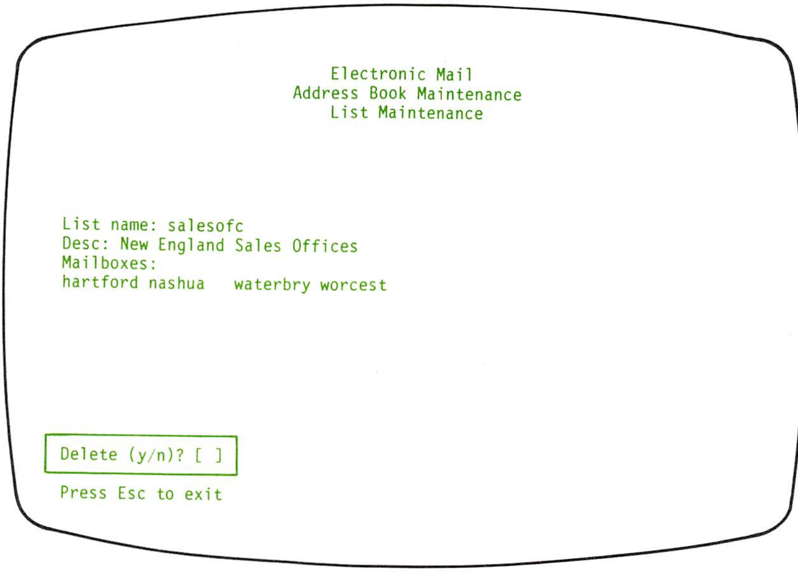

Figure 8-7. The Delete List Work Screen

The Delete List work screen displays the name you entered, the list identifier, and of all the mailboxes on the list. When you confirm your choice, the list is deleted from the address book. This has no effect on the contents of the mailboxes on the list.

Displaying Address Book Information

When you select #3, Display Mailboxes, from the Address Book Maintenance menu, all of the assigned mailboxes in the address book appear in alphabetical order on the screen. Depending upon the characteristics of your display, either 14 entries (80-column display) or 6 entries (40-column display) are shown on a screen. Pressing the Spacebar displays additional pages of entries, if there are any.

When you select #4, Display Lists, from the Address Book Maintenance menu, all of the assigned lists in the address book appear on the screen. Each is displayed in alphabetical order by list name and each list display contains the mailboxes assigned to it, also displayed in alphabetical order. Depending upon the display characteristics of your computer, you may see one or more lists per page of display.

```
                         Electronic Mail
                    Address Book Maintenance
                        Display Mailboxes

Name      To Specifier              Phone Number                     Speed
arizona   Bob Schwartz              308-555-0110                       L
calif     Francie                   567-555-6262                       L
chapter   Doc Writer                667-555-0000                       H
colorao   Susan                     334-555-8182                       L
example   Remote System Name        627-555-0099                       L
idaho     Frank                     444-555-1202                       L
montana   Greg                      111-555-5678                       L
nevada    Billy                     448-555-4848                       L
newmexic  Charles Lucky             578-555-5789                       L
oregon    Bill Oliver               414-555-0001                       L
texas     Jim                       494-555-8447                       L
utah      Joe                       303-555-7721                       L
washingt  Arnold Miller             119-555-8833                       L
wyoming   Ken                       222-555-0987                       L

Press Spacebar for next page
Press Esc to exit
```

Figure 8-8. Sample Mailbox Display

Printing Address Book Information

When you select #5, Print Address Book, from the Address Book Maintenance menu, the entire contents of the address book, mailboxes and lists, if any, are printed. You can pause the printout by pressing the Ctrl-Num Lock or Fn-Pause keys. Printing restarts by pressing any other key.

A sample Address book printout is shown in Figure 8-9. below.

```
--------------------------------------------------------------------
Address book for Alison King on 06-14-1983 at 18:08:11
--------------------------------------------------------------------

Mailboxes:

    Name       To specifier                 Phone number            Speed

    hartford   Hartford, CT Sales Office    t 1 @ (203) 555-1001     L
    nashua     Nashua, NH Sales Office      6035551100               L
    provdnce   Providence, RI Sls Ofc       1-401-555-1200           L
    waterbry   Waterbury, CT Sales Ofc      9 @ 1 @ (203) 555-9490   L
    worcest    Worcester, MA Sls Office     9@2345@@1-555-2345       L

--------------------------------------------------------------------
   List name: salesofc
   Description: New England Sales Offices
   Mailboxes:
   hartford nashua   waterbry worcest
--------------------------------------------------------------------
```

Figure 8-9. A Printed Address Book

Advanced Technique: Creating Multiple Address Books

If your mailing requirements exceed the maximum of 40 individual mailboxes or 10 lists permitted in a single address book, you can create multiple address books.

There are two methods for doing this. The first method is to have a separate diskette for each address book. This method is probably best suited for systems with two diskette drives. The second method is to make a new DOS sub-directory for each new address book. This second method is probably best suited for users with either a fixed disk or a one diskette drive system.

Users with one diskette drive should choose between the two, basing their decision on the amount of free space they have available on their Work diskette. If there is room to add a subdirectory containing a new address book and matching set of log files, then use the subdirectory method. Otherwise, use the second method.

For example, lets say that sometime after you have been using the program you find that your company's list of suppliers and distributors will no longer fit on one address book. The solution is to split up the address book into two books, one for suppliers and one for distributors. Because your system has a two double-sided diskette drives, you decide to use the first method and put the new address book on a separate diskette.

Method 1

The following steps describe the procedure for a two diskette drive system.

1. Make a copy of your diskette labeled Work - A Log using the DOS DISKCOPY command.

2. Use Address Book Maintenance to delete entries no longer required by one address book and add new ones to each address book.

   Note: A printed copy of your current address book contents will be useful during this procedure.

Method 2

The following steps describe the procedure for creating a new address book within a sub-directory on the same disk or diskette.

1. Create a sub-directory using the DOS MKDIR command and then copy the MCADDR.DAT, MCOUTLOG.DAT and MCINLOG.DAT files it.

2. To access each address book, specify the pathname to these files by changing the program's "Directory for Log Files" entry in the configuration file.

3. Use Address Book Maintenance to delete entries no longer required by one address book and add new ones to each address book.

The following steps describe the procedure for creating a new address book, using a separate diskette, for a one diskette drive system.

1. Copy the files MCADDR.DAT, MCOUTLOG.DAT, and MCINCLOG.DAT from your Work diskette to a new formated diskette.

2. Use Address Book Maintenance to delete entries no longer required by one address book and add new ones to each address book.

   Note: MCADDR.DAT, MCOUTLOG.DAT, and MCINLOG.DAT are the program's log files. They must be kept on the same diskette or sub-directory because they are all accessed through the pathname provided by the program's configuration.

Chapter 9. Review/Address Outgoing Mail

The Personal Communications Manager Review/Address Outgoing Mail feature prepares messages or data for transmittal. Review/Address Outgoing Mail functions let you:

- address mail to predefined mailboxes or lists
- send mail to specific telephone numbers
- review the status of mail items
- print outgoing mail items
- remove items from the Outgoing Mail Log queue
- requeue all mail not sent

The Review/Address Outgoing Mail Menu

When you select item #2, Review/Address Outgoing Mail, from the Electronic Mail menu, the menu shown in Figure 9-1 appears.

```
                    Electronic Mail
              Review/Address Outgoing Mail

            1. Address Mail

            2. Review Log

            3. Print Log

            4. Print Mail

            5. Retry Mail Not Sent

            6. Delete Mail Already Sent

            7. Delete All Mail

There is 1 entry in the log


Make selection (1-7): [ ]
Press Esc to exit
```

Figure 9-1. The Review/Address Outgoing Mail Menu

Figure 9-2 presents an overview of the various Review/Address Mail options.

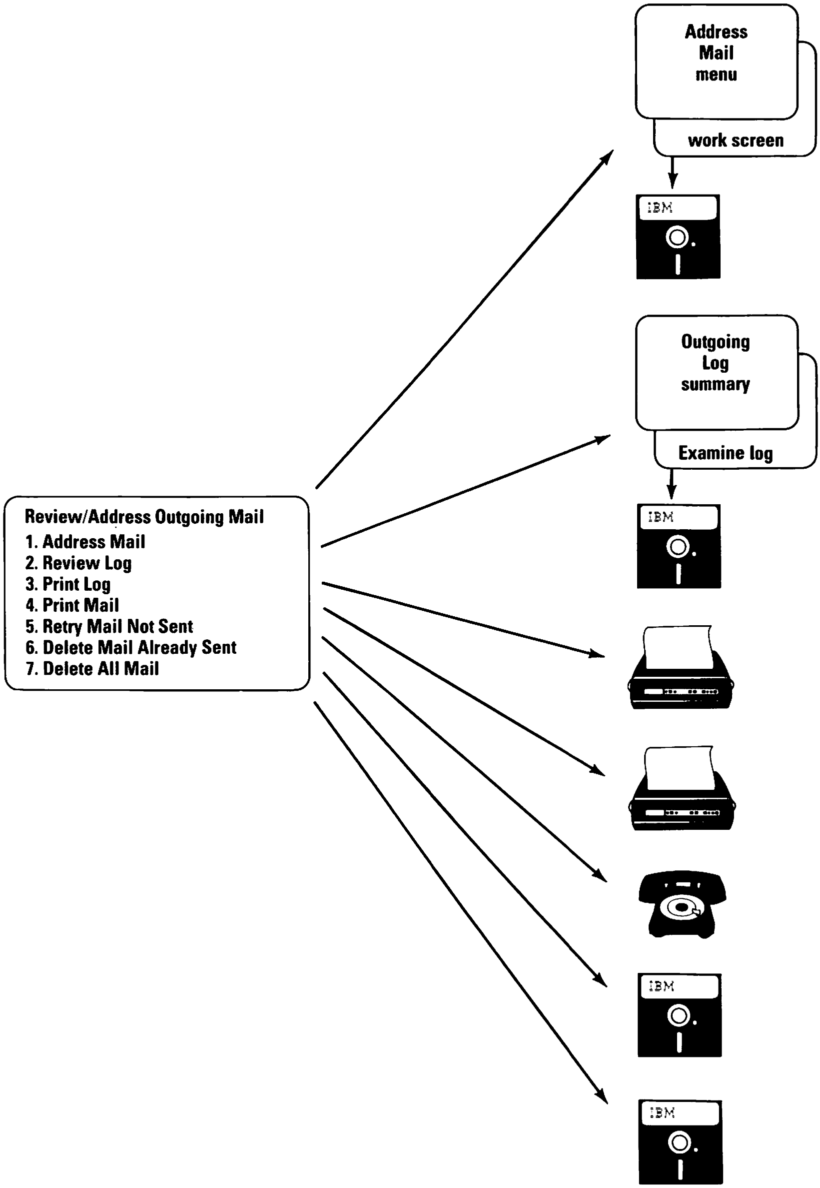

Figure 9-2. Overview of Review/Address Mail Functions

The Address Mail Menu

When you choose the Address Mail function from the Review/Address Outgoing Mail menu, the menu shown in Figure 9-3 appears. These choices let you queue either message or data files.

```
                    Electronic Mail
              Review/Address Outgoing Mail
                     Address Mail

            1. Address Message to Mailbox

            2. Address Message to List

            3. Address Message to Phone Number

            4. Address Data to Mailbox

            5. Address Data to List

            6. Address Data to Phone Number

            7. Display Directory

There is 1 entry in the log


Make selection (1-7): [ ]
Press Esc to exit
```

Figure 9-3. The Address Mail Menu

These functions let you:

1. Address Message to Mailbox

Creates an Outgoing Mail Log entry for a specified message to be sent to a predefined mailbox.

2. Address Message to List

Creates Outgoing Mail Log entries for a specified message for each mailbox included in a predefined list. Note that *separate* entries are made in the Outgoing Mail Log for *each* mailbox on the selected list, as if you had addressed the message to each individually.

3. Address Message to Phone Number

This Address Mail function is useful for sending messages to a Personal Communications Manager computer that is not a previously assigned mailbox entry.

4. Address Data to Mailbox

Lets you send any non-message files or other information to a predefined mailbox. The work screen prompts for sending data are identical to the Address Message to Mailbox prompts except for the addition of the following prompt:

```
Text or binary data (t/b)? [ ]
```

Note: Binary data is sent "as is" but CR-LF characters (carriage return - line feed) in text data are processed as in messages.

5. Address Data to List

Lets you send non-message files or other information to a predefined list. Prompts are identical to Address Message to List prompts except for the addition of the text or binary data question.

6. Address Data to Phone Number

Lets you send non-message files or other information to a specified telephone number rather than a mailbox or list. The prompts are identical to Address Message to Phone Number prompts except for the addition of the text or binary data question.

7. Display Directory

Displays the contents of a specified directory on the screen.

Preparing Mail Headers

When you choose any of the Address Mail functions, the program presents a work screen that prompts for mail header information. Depending upon your choice, some or all of the following prompts appear:

Mailbox name: [ ]

Enter the name of the predefined mailbox for the addressee to whom you are sending this mail item.

List name: [ ]

Enter the name of the mail list (a predefined group of mailboxes) to whom you are sending this mail item.

Phone number: [ ]

Enter the telephone number of the remote computer (not predefined with a mailbox entry) to whom you wish to send this mail item. You can enter up to 33 characters or spaces.

To: [ ]

The addressee's name from the selected mailbox or the description of the list appears if you are addressing to a mailbox or a list. If you are addressing to a phone number, the entry that last appeared in this field, for this session, is displayed.

Filename: [ ]

Enter the name of the message or data file to be sent. Before addressing a file to a remote computer, you would usually have a message or data file ready to send. If you have not yet created the file, the program allows you to address a non-existent file. It prompts for confirmation of the filename if it doesn't find it on the disk or diskette you specified. This lets you prepare the Outgoing Mail Log queue in advance of preparing the actual file to be sent. This field defaults to the last entry in this session.

Text or binary data (t/b): [t]

Enter **t** if your data is in standard ASCII format. Otherwise Enter **b**.

Subject: [ ]

Enter an optional word or phrase describing the subject of the message. You can enter up to 40 characters. This entry appears in the Outgoing Mail Log summary. This field defaults to the last entry in this session.

Enter date and time to send: [ ]

Enter the date and time of day you want this mail item to be sent. Dates are entered in either of two formats: MM/DD/YY or MM-DD-YY. The dashes or slashes must be in the date entry. The colon must be in the time entry. These fields default to the present system date and time. To send a file *immediately* accept these defaults.

Is this correct? (y/n) [ ]

Confirm your entries.

Reviewing Outgoing Mail

When you queue a mail item with the Address Mail function, the mail header information is entered into the Outgoing Mail Log. The Outgoing Mail Log summary appears when you select #2, Review Log, from the Review/Address Outgoing Mail menu. Each item in the Outgoing Mail Log has an identifying alphabetic character. This character is used to select a mail item for closer review.

An Outgoing Mail Log summary entry contains:

- a screen-dependent identifying character
- the current send status
- the mailbox name
- the subject of the mail item.

The Outgoing Mail Log Summary

```
  STAT MAILBOX  SUBJECT
A SENT <phone>  source:ibm to hayes in UM
B SENT arizona  The Source Setup String
C ERR  calif    The Source Setup String
D <3>  nevada   The Source Setup String
E <8>  oregon   The Source Setup String
F      utah     The Source Setup String
G      washingt The Source Setup String







 Select log entry by letter: [a]
 Esc to exit
```

Figure 9-4. The Outgoing Mail Log Summary

If the Outgoing Mail Log summary takes more than one screen for display, additional "pages" appear by pressing Spacebar. The complete mail header and status can be viewed for any mail item by entering its alphabetic character. This causes the Examine Log Entry menu and the mail header to appear.

The Outgoing Mail Log may contain up to 100 entries. Entries in the Outgoing Mail Log are not automatically removed after they are sent to a remote computer.

Summary Status of Mail Items

The second column heading in the Outgoing Mail Log summary is Status. The information in this column indicates whether or not a piece of mail has been successfully sent. The status for a mail item could be:

(blank)

Indicates that the time to transmit has not yet arrived or that the Send/Receive function has not been accessed since the log entry was made. The detailed mail header contains the advisory message "To be sent at" followed by the date and time specified for this file to be transmitted.

SENT

The item was successfully sent. The detailed mail header contains the exact time it was sent.

<n>

The mail was unable to be sent. The "n" value displayed indicates how many attempts remain. (Mail items are automatically attempted nine times each.)

ERR

The mail could not be sent. One of the following occurred:

- The connection failed.
- The remote disk was full.
- The file was too large (not enough space on the remote disk).
- A remote Incoming Mail Log error occured.
- A local disk error occured.

This item's complete mail header contains the advisory message and the number of retries remaining, if any, for this mail item.

Examining Outgoing Mail Log Entries

When you display the Outgoing Mail Log summary, the entry identifiers appear in reverse video. Pressing Enter will display the first log entry in detail. You may selectively view each Outgoing Mail Log entry, in any order, by typing its corresponding entry identifier and pressing Enter.

When you select an Outgoing Mail Log entry for viewing, the Examine Log Entry menu appears.

```
                         Electronic Mail
                   Review/Address Outgoing Mail
                           Review Log
                         Examine Log Entry

                  1. Display Message Text

                  2. Print Message Text

                  3. Delete Log Entry

   Status:    to be sent at 05-05-83 12:57

   To:        Bob Schwartz                        Mailbox: arizona
   Tel:       333-555-0110
   Subject:   The Source Setup String

   File:      source
   Class:     Binary data          Speed: L

  Make selection (1-3): [ ]
  Press Esc to exit
```

Figure 9-5. The Examine Log Entry Menu and Mail Header

The Examine Log Entry functions are:

1. Display Message Text

Displays the contents of files of class message only. Binary or text data files are not displayed.

2. Print Message Text

Prints the mail header and related file of class message. Binary or text data files are not printed.

3. Delete Log Entry

Removes the Outgoing Mail Log entry. This does not effect the contents of the related file.

Print Log

Print Log is item #3 on the Review/Address Outgoing Mail menu. This lets you create a printed copy of all the mail headers in the Outgoing Mail Log.

```
--------------------------------------------------------------------------
    Outgoing mail log for Alison King          06-14-1983 at 19:12:39
--------------------------------------------------------------------------

--------------------------------------------------------------------------
   Status:    to be sent at 06-14-83 19:08

   To:        Hartford, CT Sales Office         Mailbox: hartford
   Tel:       t 1 @ (203) 555-1001
   Subject:   Rescheduled Meeting

   File:      a:memo.txt
   Class:     Message             Speed: L
--------------------------------------------------------------------------


--------------------------------------------------------------------------
   Status:    to be sent at 06-14-83 19:08

   To:        Nashua, NH Sales Office           Mailbox: nashua
   Tel:       6035551100
   Subject:   Rescheduled Meeting

   File:      a:memo.txt
   Class:     Message             Speed: L
--------------------------------------------------------------------------


--------------------------------------------------------------------------
   Status:    to be sent at 06-14-83 19:08

   To:        Waterbury, CT Sales Ofc           Mailbox: waterbry
   Tel:       9 @ 1 @ (203) 555-9490
   Subject:   Rescheduled Meeting

   File:      a:memo.txt
   Class:     Message             Speed: L
--------------------------------------------------------------------------


--------------------------------------------------------------------------
   Status:    to be sent at 06-14-83 19:08

   To:        Worcester, MA Sls Office          Mailbox: worcest
   Tel:       9@2345@@1-555-2345
   Subject:   Rescheduled Meeting

   File:      a:memo.txt
   Class:     Message             Speed: L
--------------------------------------------------------------------------
```

Figure 9-6. A Printed Outgoing Mail Log

If you specify pagination in the configuration file then one header per page is printed.

Print Mail

Print Mail is item #4 on the Review/Address Outgoing Mail menu. This lets you create both a printed copy of the Outgoing Mail Log and archival copies of all mail items of file type "message". Binary and text data files are not printed. When selected, printing begins and continues until interrupted or stopped.

```
--------------------------------------------------------------------------------
    Outgoing mail log for Robert Ralston              08-16-1983 at 15:29:44
--------------------------------------------------------------------------------

--------------------------------------------------------------------------------
    Status:   to be sent at 08-17-83 19:21

    To:       Waterbury, CT Sales Ofc                 Mailbox: waterbry
    Tel:      9 @ 1 @ (203) 555-9490
    Subject:  Rescheduled Meeting

    File:     a:memo.txt
    Class:    Message                Speed: L
--------------------------------------------------------------------------------

August 16, 1983

TO: New England Regional Sales Offices
FROM: R. Ralston

RE: Rescheduled Fall 1983 Sales Meeting

The Fall'83 Sales Meeting will now be held September 26th at the Boston Road Inn
,
Sudbury, Massachusetts.  The meeting will begin at 8:30am with breakfast.

The meetings will conclude with lunch on Tuesday, the 27th.  Contact Lynn
Campbell at corporate to reconfirm your reservations.

Bring your territory surveys.


Robert Ralston
```

Figure 9-7. A Sample of the Print All Mail Function

Retry Mail Not Sent

Retry Mail Not Sent is item #5 from the Review/Address Outgoing Mail menu. The program attempts to send a mail item to a remote computer up to nine times before waiting for further instructions.

The Retry feature resets the "transmissions attempted" counter to zero (allowing nine more tries), regardless of the number of retries remaining, for each mail item that previously was not transmitted, for whatever reason.

This will not only reset the counter but will also try to transmit all unsuccessful mail starting at the time you entered in response to the Time to start sending prompt on the Send/Receive Mail work screen.

Delete Outgoing Mail

The last two choices on the Review/Address Outgoing Mail menu are #6, Delete Mail Already Sent, and #7 Delete All Mail. These choices only clear items from the Outgoing Mail Log. They have no effect on the contents of the related files.

Choice #6 deletes only the log entries that are marked as being already "sent".

Choice #7 deletes all of the entries from the log.

Since you are allowed a maximum of 100 entries in this log, it is recommended that you periodically print the log and delete the mail already sent. This makes room in your Outgoing Mail Log for more entries.

Chapter 10. Sending/Receiving Mail

Send/Receive Mail is Personal Communications Manager's unattended mode. With this feature, the program automatically sends or receives messages or data files at any time of day or night.

The Send/Receive Mail process permits you to:

- Send up to 100 mail items at any one time from the Outgoing Mail Log queue.
- Send and receive mail to and from other Personal Communications Manager-compatible systems. See Appendix F, *The Microcom Networking Protocol* for a list of compatible systems.
- Receive messages from other asynchronous terminals.

If your program is busy sending messages, or your computer is otherwise busy when a remote Personal Communications Manager call comes in, that computer automatically reattempts to get through at a later time. If the program is receiving messages when outgoing mail is to be sent, it waits for a few minutes and tries again. If the remote computer's telephone is busy or otherwise unavailable, the program repeatedly tries--up to nine times--to get your message through.

If you have queued multiple mail items to the same addressee, the program checks the time and date specified for each one and sends as many as possible during the same link session.

Note: Keep in mind that if your phone line runs through a switchboard, you may not be able to receive incoming calls after-hours unless you make advance arrangements.

The Send/Receive Mail Process

When you begin unattended Send/Receive Mail operation, the program performs an intricate process to send your mail items reliably and at the time you want them to go out. The program takes the following steps to perform its unattended operation:

1. It checks the modem status, resetting it to the proper configuration (if it had been changed) for use with Send/Receive Mail mode.

2. It asks you for the time of day you want it to begin scanning the Outgoing Mail Log for items whose time-to-send has already been reached and therefore should be sent.

3. It checks the Outgoing Mail Log for the names of the files you want to send.

4. It checks the Incoming Mail Log to see if there are available entry positions in the log to note the arrival of any mail items. (The Incoming Mail Log can hold up to 100 entries.)

5. It checks the specified disks for available space on which to store incoming mail items and displays the amount of space available.

The Send/Receive Mail Work Screen

When you begin the Send/Receive Mail process, the Send/Receive work screen appears (Figure 10-1).

```
                              Electronic Mail
                             Send/Receive Mail


   Time to start sending:   [HH:MM]








   Is this correct (y/n)? [ ]

   Press Esc to exit
```

Figure 10-1. The Send/Receive Mail Work Screen

You enter the Time to start sending. The current time of day appears as a default value. No mail is sent until the time you entered is reached because the Send/Receive Mail function does not scan the Outgoing Mail Log until this time arrives. Entering a time earlier than the current time means a time in the next day. This allows you to have a receive-only machine for up to the next 24 hours.

> **Note:** You should use this feature with the Retry Mail Not Sent function to avoid having to readdress each attempted but unsent mail item. If you accept the default value, the program will attempt to send all retried mail immediately.

If you have specified more than one drive for receiving in your configuration, the remaining prompts for storage of incoming mail items appear. The entries you made earlier in the configuration file appear as default values. You may edit or accept these entries in the normal way. The entries made at this point do not change the configuration values. They are used only for this session.

Send/Receive Advisory Messages

After you respond to the setup prompts for the Send/Receive Mail process, the advisory message "Checking files. Please stand by." appears. You should remain at the computer. The program is checking the Outgoing and Incoming Mail Logs and disks.

If any of the mail items in the Outgoing Mail Log are not available, you are given a choice to exit the Send/Receive process.

If you elect to continue after you've been notified that some mail items are not available, the entries are marked and the program transmits only available items.

Other advisory messages may also appear on the display during the setup process as each step of the process occurs. These messages may describe:

- The amount of free space on each of the specified receive drives.

- Any problems encountered during the preparation for the Send/Receive operation.

The advisory messages you may encounter and any corrective actions are self-explanatory.

The Send/Receive Status Display

When the Send/Receive Mail setup is complete, the Personal Communications Manager Send/Receive Mail status display appears.

```
                         Electronic Mail
                        Send/Receive Mail

                       Current time: 13:03

                 The system is currently WAITING

                       Mail sent........   0

                       Mail received....   0

                       Mail to be sent..   6

   Press 'R' to exit after current transfer
   Press Esc to exit immediately

   Awaiting link...
```

Figure 10-2. The Send/Receive Mail Status Screen

This screen indicates the program is in unattended mode. The following information appears on this status screen:

Current time: the time of day (24-hour time notation)

The system is currently: the current status block may contain one of three words:

	WAITING (neither sending nor receiving) SENDING (currently sending a message) RECEIVING (currently receiving a message)
Mail sent........	the number of mail items successfully sent so far
Mail received....	the number of mail items received so far
Mail to be sent..	the number of unsent mail items remaining in the Outgoing Mail Log

The Monitor Block

In the upper-left corner of the Send/Receive Mail display is the transmit/receive monitor block -- a part of the display large enough to display eight characters, four by two.

The top line in the monitor block displays the last characters transmitted by the program. When mail items are being sent these characters are constantly updated. Characters appear here much faster than they are sent on the communications line. The bottom line in the block displays the last four characters received from a remote computer.

The purpose of the monitor block is to give you a visual check that characters are actually being sent or received.

A Cautionary Note about Displays

Repeated overnight Send/Receive Mail sessions over an extended period of time may cause the screen to retain a faint image of the Send/Receive Mail status display. This can be avoided by using the brightness and/or contrast controls on the monitor to reduce the display image to a bare minimum during unattended sessions.

Stopping Personal Communications Manager Transmissions

The Send/Receive Mail process is stopped by either pressing Esc or by pressing **R** or **r**. These keystrokes are immediate and deferred halts, respectively.

The Esc key is an immediate halt. By pressing Esc you instruct the program to immediately stop, regardless of its current status, and return to the Electronic Mail menu. There may be a slight delay after the halt command is given before anything appears to take place.

After you give the immediate halt command, but before you regain user control, the program closes any open files. If the program was receiving at the time you gave the immediate halt command, the partially received file is lost. If the program was transmitting at the time, the file is retransmitted-- in its entirety--the next time the Send/Receive mode is entered.

Pressing **R** or **r** produces a deferred halt. By pressing this key you instruct the system to return to the Electronic Mail menu *after* it has completed sending or receiving the current file.

> **Note:** When you leave unattended mail mode the number of mail items sent and received are reset to zero.

Automatic Retries

If for any reason the program is unable to send a mail item (remote phone busy, data error, and so on), it waits approximately 15 minutes before trying to retransmit the mail item. The program attempts to transmit a file a maximum of nine times. After the first unsuccessful attempt, the status entry in the Outgoing Mail Log appears as **<8>** (indicating the number of retries that will be attempted before the program waits for other instructions). When a previously failed transmission is successsful, the Outgoing Mail Log status for that item changes to sent.

Reasons for a Failure To Send

Some of the reasons the program may not be able to send a message on the first attempt are:

- The receiving computer is either busy or not powered up and therefore does not answer the telephone call.

- A bad connection or line noise interferes with the flow of data.

- A system or disk error occurs at either end.

- The program is not correctly configured.

- The message or data file is too large for the disk space available on the receiving computer.

Remember that you can reactivate all of the mail items that failed to transmit properly for another nine retries by using the Review/Address Outgoing Mail function, Retry Mail Not Sent, regardless of the number of retries left for any specific file.

Receiving From a Remote Terminal

Personal Communications Manager's unattended Send/Receive mode can receive messages from a remote system or terminal that supports asynchronous telecommunications. Someone calling your Personal Communications Manager is prompted to enter some "sender" information (for the received mail header), then to send her message a line at a time. The remote terminal user must press Spacebar slowly several times for the program to acknowledge the connection.

See Appendix C for more information about receiving mail from a remote terminal.

Chapter 11. Review Incoming Mail

When Personal Communications Manager receives mail in its Send/Receive mode, it stores the mail item on a disk and notes its arrival in the Incoming Mail Log.

Later, you can review your received mail by choosing item #3, Review Incoming Mail, from the Electronic Mail menu. This function is similar to Review/Address Outgoing Mail. It lets you:

- review all received mail
- print received messages
- review or print the Incoming Mail Log
- remove entries from the Incoming Mail Log

The Review Incoming Mail Menu

When you select Review Incoming Mail the following menu appears:

```
                    Electronic Mail
                 Review Incoming Mail


          1. Review Log

          2. Print Log

          3. Print Text

          4. Delete All Mail



There is 1 entry in the log


Make selection (1-4): [ ]
Press Esc to exit
```

Figure 11-1. The Review Incoming Mail Menu

An overview of Review Incoming Mail features is shown in Figure 11-2.

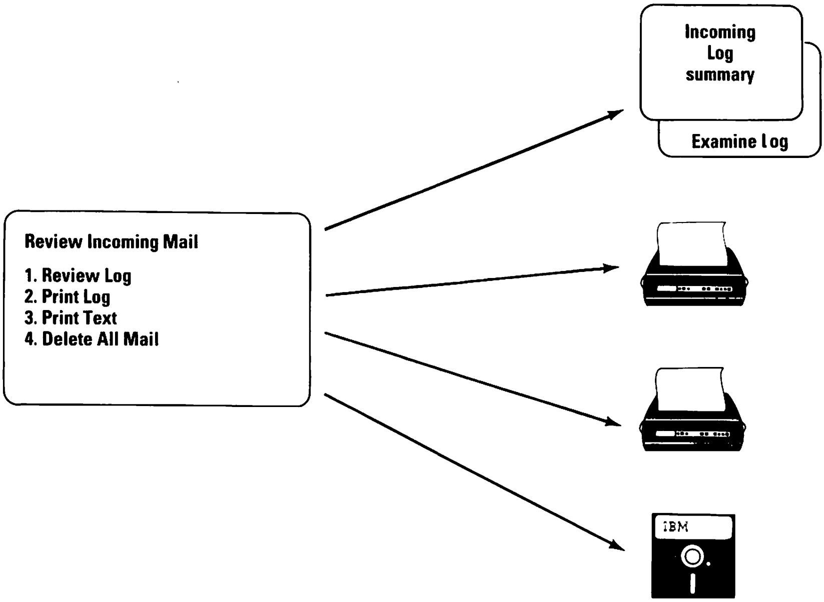

Figure 11-2. An Overview of Review Incoming Mail

Examining Incoming Mail

The first choice on the Review Incoming Mail menu, Review Log, displays the Incoming Mail Log summary in the same way as the Outgoing Mail Log summary is displayed.

The Incoming Mail Log Summary

The Incoming Mail Log summary contains:

- mail item identifying character
- sender's name
- subject of the mail item

You review received messages the same way you review outgoing mail. Type an alphabetic character to select an item for a more detailed review or press Spacebar to view additional pages of the Incoming Mail Log.

Examining Incoming Log Entries

When you choose a specific mail item to review, the Examine Log Entry menu appears.

```
                              Electronic Mail
                           Review Incoming Mail
                                Review Log
                            Examine Log Entry

                    1. Display Message Text

                    2. Print Message Text

                    3. Delete Log Entry and Save File

                    4. Delete Log Entry and File
------------------------------------------------------------------------------
    From:     Mary Webb
    Tel:      555-4567
    To:       David Webb

    Subject:  The Source terminal options file
    Received: 06-14-83 18:51      Drive: a
    Class:    Message             Speed: H
------------------------------------------------------------------------------
   Make selection (1-4): [ ]
   Press Esc to exit
```

Figure 11-3. The Examine Log Entry Menu

The Examine Log Entry menu choices are:

1. Display Message Text

Displays the message on the display. Binary or text data files are not displayed.

2. Print Message Text

Prints the mail header and the text of the message. Binary or text data files are not printed.

3. Delete Log Entry and Save File

Removes the entry from the Incoming Mail Log after allowing you to rename the received file. This is a valuable "housekeeping" function and should be used often to clear the Incoming Mail Log yet retain important files.

> **Warning:** Do not use an "RMF" file extension when renaming a file you intend to keep.

4. Delete Log Entry and File

Removes the entry from the Incoming Mail Log and *erases* the related file from the storage diskette. You are prompted to confirm this choice.

Printing Incoming Mail

The second choice on the Review Incoming Mail menu, Print Log, prints the current Incoming Mail Log.

```
------------------------------------------------------------------------------
     Incoming mail log for David Webb                 06-14-1983 at 19:03:26
------------------------------------------------------------------------------

------------------------------------------------------------------------------
    From:     Mary Webb
    Tel:      555-4567
    To:       David Webb

    Subject:  The Source terminal options file
    Received: 06-14-83 18:51       Drive: a
    Class:    Message              Speed: H
------------------------------------------------------------------------------


------------------------------------------------------------------------------
    From:     Mary Webb
    Tel:      555-4567
    To:       David Webb

    Subject:  The Dow Jones terminal options file
    Received: 06-14-83 18:52       Drive: a
    Class:    Message              Speed: H
------------------------------------------------------------------------------


------------------------------------------------------------------------------
    From:     Mary Webb
    Tel:      555-4567
    To:       David Webb

    Subject:  The CompuServe terminal options file
    Received: 06-14-83 18:52       Drive: a
    Class:    Message              Speed: H
------------------------------------------------------------------------------
```

Figure 11-5. A Printed Incoming Mail Log

For archival and control purposes you should create a daily or weekly record of received mail. You can make notes on that printout of the new filename (if any) you've assigned to the messages and the directory into which you've transferred a file.

Deleting Incoming Mail

After all received mail items have been reviewed, renamed, and/or printed, the Incoming Mail Log should be cleared, using Review Incoming Mail choice #4, Delete All Mail.

Note: The Delete All Mail function erases the received files from disk. It clears all entries in the Incoming Mail Log and the related files.

Chapter 12. Specifying your Editor

Personal Communications Manager is designed to use the text editing or word processing program you prefer as your editor. When you are configuring your system, you specify the filename of the program that you want to use for this purpose. At the end of an editing session you return to the Personal Communications Manager Main Menu.

How to Install and Access Your Editor

The default editor for Personal Communications Manager is the DOS line editor Edlin.

When you select #3, Edit File, from the main menu you will be prompted for a filename. Specify the name of the file to be created or edited. Without clearing the screen Edlin will prompt you with either:

```
End of input file
*
```

Edlin has successfully loaded your file

or

```
New file
*
```

for a created file.

Note: Failure to provide a filename when prompted will cause Edlin to fail. An error message will be displayed and the program will return you to the main menu.

The message, End of input file, tells you that Edlin was able to load your entire file into memory. New file, indicated Edlin has created a new file for you. The asterisk is Edlin's command prompt telling you it is ready for your command. When you exit Edlin, the screen clears and you return to Personal Communications Manager's main menu. A description of all of Edlin's commands are found in the IBM *Disk Operating System* manual.

If your editor is made up of only one file (a single module editor), it may reside in any directory of any drive as long as you include a valid pathname (30 characters or less including the filename) with the filename when you configure your program. Edlin is an example of a single module editor.

If your editor is made up of more than one file (a multi-module editor) it must reside entirely within the same directory as Personal Communications Manager. IBM Personal Editor is an example of a multi-module editor. It is made up of three files, PE.EXE, PE.HLP (the help module), and PE.PRO (the key definitions module).

There are other editors that are multi-module but, because they are copy protected, cannot be copied into the same directory as Personal Communications Manager. Easywriter[1] is an example of this type of

---

[1] Easywriter is a trademark of Information Unlimited Software,Inc.

editor. See the section in this chapter that refers you to a particular system configuration for further system-specific information about this type of editor.

Note: Some editors allow you to change the system default drive. If you change the default drive during an editing session you must restore it before exiting the editor.

Editors for One Diskette Drive Systems

If you are going to use Edlin as your editor, copy the file EDLIN.COM from you DOS diskette to your Work diskette. Before attempting to copy other editors or word processors to your Work diskette, first check the amount of free space available against the amount of space required by the editor. If there is enough room, copy it to your Work diskette.

If your editor either will not fit on your Work diskette or cannot be copied because of copy protection, you will need to maintain a second diskette. This second diskette should contain your editor, your Incoming and Outgoing Mail Log files, your Address Book and your mail files. Copy the files MCINCLOG.DAT, MCOUTLOG.DAT and MCADDR.DAT to your editor diskette. Using this configuration you will need to swap your Work diskette with you editor diskette as prompted, when your editor is loaded and again after you exit back to Personal Communications Manager. Because your address book and log files are on your editor diskette you should also swap your Work diskette with your editor diskette whenever you enter electronic mail mode, as soon as the Electronic Mail Mode screen appears, and then again before you return to the main menu.

Editors for Two Diskette Drive Systems

If you are going to use Edlin as your editor, copy the file EDLIN.COM from your DOS diskette to your Work B Program diskette. Before attempting to copy other editors to your Work B Program diskette first check the amount of free space available against the amount of space required by the editor. If there is enough room, copy it to your Work B program diskette.

If you editor either will not fit on your Work B Program diskette or is copy protected, you will need to keep your editor on a third diskette.

Using this configuration you will need to swap your Work B Program diskette with your editor diskette as prompted, when your editor is loaded and then again after you exit back to Personal Communications Manager. You should keep your mail files for sending and receiving on your Work A Log diskette not on your editor diskette.

> **Note:** Editors that cannot be run on drive B are not supported in a two drive system configuration. For example Easywriter cannot run from drive B.

Editors for Fixed Disk Systems

If you are going to use Edlin as your editor, and it already resides on your fixed disk, reconfigure the program giving a valid pathname to it. If you don't already have Edlin on your fixed disk, copy it from your DOS diskette to the sub-directory PCM.

If you are going to use another editor and it is a single module editor, make sure it is on your fixed disk and then specify a valid pathname to it in your configuration. If it's a multi-module editor you should copy it to the PCM sub directory. If it cannot be copied because it is copy protected, you should specify in your configuration that it is on drive A.

Appendix A. Messages

While using Personal Communications Manager you may meet with circumstances where something unexpected happened.

The following list of advisory messages and their meanings will help you out of some of these situations. Some of the problems you meet may be hardware-related. Others occur because of improper use of the software. It is a good idea to review this Appendix *before* you have difficulties. This will ensure against problems in the future.

Some "error traps" are built into this program. In most cases, an advisory message appears on the screen describing the problem. Typically, you can correct these situations easily, usually by reentering the information requested.

At other times, you are attempting to proceed with an operation that the program believes is *incorrect* because of some condition it believes is present. Listed next are some of the possible advisories you might see on occasion while using Personal Communications Manager.

Most of the advisories include a suggestion on how to proceed. A few don't. These are more serious errors. You must restart the program to get going again.

Personal Communications Manager Error and Advisory Messages

Access denied

A filename was specified with an invalid pathname, for example, the directory does not exist.

Already connected

You are already connected to a remote computer in interactive mode and have entered another Dial command.

Communications device not ready

Check communications adapter, cable, and modem for secure connection. If you specified an IBM modem verify that it is installed properly.

Communications failure

Either the telephone connection or the modem connection was interrupted, or the line became so noisy that repeated attempts to reliably transfer the file failed. Check cable connections and retry. Check the telephone number to ensure that you have a correct combination of numbers. Check that you have specified the correct modem driver in your configuration.

Create new (incoming log, outgoing log, address book, configuration) (y/n)?

You are attempting to use a Personal Communications Manager routine that accesses the Personal Communications Manager system file named in this message and the program cannot find the file. If you want a new file created, type **y** if not, type **n** If the file exists on another disk, do not recreate the file. Insert the proper disk and continue.

Data files can not be displayed

You have attempted to display a non message file. Only files of class message can be displayed.

Data files can not be printed

You have attempted to print a non message file. Only files of class message can be printed.

Device not ready

One of your peripherals (disk drive or printer) is not responding to the program's attempt to communicate with it. Check to see if it is ready (diskette correctly inserted), plugged in, and powered on. When you have corrected the problem, retry the operation again.

Device Failure

DOS detected an error attempting to read or write to a device. Use of a Non-DOS diskette or an unformated diskette will cause this error to occur.

Disk data error

Data was unable to be read or written correctly. This usually means the disk/diskette has developed an unusable section. Retry the operation again. If this error persists, do not use this disk/diskette anymore. Save any unaffected files.

Disk drive not ready

There is no diskette in the drive. Insert diskette and press Spacebar.

Disk full while closing rcv file

The disk has run out of available space and cannot store the contents of the buffer.

Disk full while writing rcv file

The diskette has run out of available space and cannot store the entire file.

Disk seek error

The fixed disk/diskette was unable to locate the proper track on the disk/diskette. A section of your disk may be unusable. Retry the operation again. If this error persists, refer to your DOS manual.

Disk write protected

You have attempted to write data onto a write protected diskette. Confirm that you are using the correct diskette. If you have the correct diskette, remove the write protect tab and retry.

Empty user function

The specified user function does not have any command or text entries.

Error closing receive file

While the file was being closed, a DOS error was detected. Refer to the IBM DOS manual for more information about DOS errors.

Error closing send file

While the file was being closed, a DOS error was detected. Refer to the IBM DOS manual for more information about DOS errors.

Error in user function

The current user function contains an error and has halted. Retry the user function. If this error persists, this terminal options file has been made unusable. Print the file to recover any usable data.

Error opening receive file

When the program attempted to open the specified file it encountered a difficulty. Check to see that the disk directory has not been made unusable. Make sure a diskette is in the drive.

Error sending to printer

The program failed to communicate with your printer. Check to see if the printer is plugged in, powered on, and ready.

Error reading disk send file

While the program was attempting to read the disk file a problem was encountered. The diskette may be damaged in some way. Refer to the IBM DOS manual for more information about DOS errors.

Error writing disk receive file

While the program was attempting to write data into a disk file a problem was encountered. The diskette may be damaged in some way. Refer to the IBM DOS manual for more information about DOS errors.

Exit modem command state first

You have attempted to use an interactive mode command while you are in modem command state. Enter an Alt-M command to leave modem command state.

File already opened

Within a user function you have attempted to open an already open send or receive file.

File data inconsistent

The contents of a Personal Communications Manager system file (logs or address book) have been made unusable. Delete the file from the disk and re-build it one of two ways:

- direct Personal Communications Manager to create a new file and reenter the information
- retrieve a backup copy from another disk

File not found

The file specified does not exist on the specified (or default) drive. Reenter the file name or select another one.

File not on same device

You have attempted to save a message or piece of data onto a disk/diskette other than the one it currently resides upon. Specify a valid pathname on the same disk/diskette on which the original file exists.

File not open

Within a user function, a reference to a file that was unsuccessfully opened was encountered. The user function has halted. Check the disk/diskette. It may be unusable. Within Edit File function, the filename specified as an editor must be a program file and have the extension

Illegal user function number

See "Incorrect string length"

Incorrect string length

The current user function has been made unusable and will not operate as expected. Check the diskette integrity and reenter the user function.

Insert disk with address book file

Personal Communications Manager needs the diskette containing the address book information to perform the requested task. Insert the diskette in the drive specified in your configuration. If you do not have one, press Spacebar to continue.

Insert disk with incoming log file

Personal Communications Manager needs the diskette containing the incoming mail log to perform the requested task. Insert the diskette in the drive specified in your configuration. If you do not have one, press Spacebar to continue.

Insert disk with outgoing log file

Personal Communications Manager needs the diskette containing the outgoing log file to perform the requested task. Insert the diskette in the drive specified in your configuration. If you do not have one, press Spacebar to continue.

Invalid date. Please reenter

An invalid date or delimiter was entered. The only valid delimiters are hyphens (-) and slashes (/).

Invalid filename

You have entered a filename that contains characters that may not be used in a filename. Refer to the IBM DOS manual for more information about valid filenames.

Invalid time. Please reenter

An invalid time or delimiter was entered. The only valid delimiters are the colon between the hours and minutes, and the minutes and seconds; and a period between the seconds and tenths of a second.

Invalid wait time or function

See "Incorrect string length".

List name not found

You have entered a name for a list that does not exist. Review the existing list names and make a new entry.

Mailbox name not found

You have entered a name for a mailbox that does not exist. Review the existing mailboxes and make a new entry.

Neither send nor receive enabled

You have entered Unattended Mail mode and have no available space to receive and nothing to send or the program was unable to find the filenames specified.

No entries in log

You attempted to review or print a mail log when it did not contain any entries.

No files found

Check your directory specifier or the contents of the specified directory by using option #7 on the Address Mail menu.

No lists assigned

You have asked to display list information and none are assigned.

No lists available

You have attempted to create a new list when ten lists are already assigned in the current address book or there is not enough available space on your diskette to save more lists. Either delete a list or use another address book file.

No mailboxes assigned

You have attempted to display mailbox information and none are assigned.

No mailboxes available

You have attempted to create a new mailbox entry when forty mailboxes are already assigned or there is not enough available space on your diskette to save more lists.. Either delete a mailbox entry or use another address book file.

No printer in system

You have attempted to print something and you do not have a printer adapter card in your computer.

Not a terminal options file

The file is not in the correct format. You probably specified an incorrect filename when attempting to load a terminal setup file. Check the disk directory and reenter the name.

Not enough disk space

There is insuffficent space on the diskette to perform the action you requested. Insert another diskette and reattempt, or remove files from the current diskette.

Path not found

You have misspecified a pathname. Check your entry or reenter the correct name.

Please enter a name

You have attempted to accept a default value that does not exist (for example: pressing Enter when the entry field is blank). Make a valid entry.

Please enter a number

See "Please enter a name" above.

Printer out of paper

A printer fault exists. Put paper in your printer.

Read fault

This is a critical DOS error. Refer to the IBM DOS manual for more information about DOS errors.

Receive file will be closed

You attempted to exit Terminal Emulator mode without closing an open receive file. The program will close the file if you exit.

RECEIVING DISABLED - log error

There is a problem with the Incoming Mail Log. No mail items can be received. Check the diskette for the log file (MCINCLOG.DAT). If the log file is present, delete and recreate it.

RECEIVING DISABLED - log full

The Incoming Mail Log is full. Only 100 entries can be made. Remove some or all of the log entries using the Delete Incoming Mail routine and reattempt to enter Send/Receive mode.

RECEIVING DISABLED - no space

There is insufficient space available on the disk/diskette specified for receiving mail items. Remove some of the files or use another disk/diskette, then reattempt to enter Send/Receive mode.

Remote disk full

There was insufficient room available on the remote disk/diskette for this file. The send file was too big for the remote computer to store. A write-protect tab may be on the remote diskette.

Remote file I/O error

The remote computer had a problem storing the mail item. The file was not successfully received.

Remote system error

The remote computer had a problem storing the mail item.

Reserved device names not allowed

Certain device names are "reserved" by DOS. You may not name any of your files with these device names. Refer to the IBM DOS manual for more information about reserved device names.

Sector not found

This is a critical DOS error. Refer to the IBM DOS manual for more information about DOS errors.

Send file I/O error

Your computer had a problem opening or reading the file. The file was not successfully sent.

Send file not found

The send file specified is not present on the diskette.

Send file will be closed

You attempted to exit Terminal mode without ending a paused send file. If you exit the file will be closed.

SENDING DISABLED - log error

There is a problem with the Outgoing Mail Log file. No mail items can be sent. You will need to delete the Outgoing Mail Log (mcoutlog.dat), create a new one and then readdress your mail, before you can continue.

Telephone will be hung up

You attempted to exit Terminal mode without entering a hangup command to your modem. The telephone will be hung up if you exit.

Terminal options will be lost

You attempted to exit Terminal mode without saving the entries or changes made to the terminal setup file. If you chose to exit these changes will be lost.

Too many entries in log

You attempted to add an entry to the Outgoing Mail Log (using Address Mail) when the Outgoing Mail Log is full. Only 100 entries may be in the log. Before additional entries are made, one or more entries must be removed using Delete Mail.

Unauthorized Copy

An unauthorized copy of your Personal Communications Manager diskette attempted to establish a connection.

Other Problems

The following is a list of other problems (not screen messages) you may encounter and their possible remedies.

Can't contact remote system

Is a "1" or other special number required in the telephone number entry? Check mailbox entry.

Not making or receiving calls

Check modem switch settings. You may need to exit and reenter Send/Receive mode after resetting modem switches and powering the modem off and on.

Modem won't reset

Power the modem on and off.

Won't print

Check power cable. Check printer cable. Check printer switch settings. Is there a printer fault condition (paper, ribbon, etc.)?

Disk won't start or read

Verify that you have a system diskette using the DOS CHKDSK command. You should have on diskette two "hidden" files. With the directory (DIR) command verify that "command.com" is installed. Have alignment performed by qualified service technician.

Appendix B. Telecommunications Overview

The following pages provide an introduction to some basic telecommunications concepts.

Modems and Acoustic Couplers

The modem received its name from the process it performs. First, a computer's signals are **MO**dulated into audio frequencies, then transmitted over the phone line, and finally these signals are **DEM**odulated on the receiving end. Each character sent, either by typing on the keyboard of your computer or from a file you send, is converted by the modulator into a coded series of changes between two frequencies. When each end of the link is equipped with a modem, both can modulate and demodulate the transmitted information, converting it back to computer usable form.

Another device, an acoustic coupler, accepts the handset of a telephone receiver into a pair of tightly fitting rubber cups rather than establishing a direct connection to the telephone line. The acoustic coupler generates audio tone frequencies identical to the electrical signals of a modem.

The modems required for full function with this program are those that feature autodial commands, pause timing, pulse and tone dialing, status reporting, and auto answer. These commands are executed by the modem being an output of the computer. See Appendix E for more detail.

ASCII Characters

Most computers use a standard code called ASCII (American Standard Code for Information Interchange) to communicate with each other and their peripheral devices. Each character that can be sent by a computer or a terminal is identified by a unique pattern of zeros and ones ("bits"). Appendix D lists the ASCII character codes.

Stop and Start Bits

ASCII characters are further defined by additional bits that describe where each character in a stream of zeros and ones starts and stops. Logically enough, these are called start and stop bits.

Usually, the bit sequence is:

1 start bit

7 data bits

1 parity or data bit

1 or 2 stop bits (depending upon the remote system)

Parity

Because there are occasional problems due to noisy telephone lines, a third bit, the parity bit, may be included in addition to the start and stop bits with each character sent. Parity bits are used to help the receiving computer recognize faulty characters. The parity bit checking may be set to odd, even, space, mark, and none.

If the sum of the zeros and ones in a series of data bits is an odd number (1,3,5, etc.) and parity has been set to "even," then the computer includes a "1" bit to make the sum an even number. If parity is set to "odd," the parity bit included would be a "0." Parity may be set to even, odd, or none and the same technique applies. If parity is set to even and the sum of the data bits and parity bit is an odd number, the remote computer recognizes that a problem exists.

Parity	Action
Odd	Sum equals odd
Even	Sum equals even
Space	Parity bit is always 0.
Mark	Parity bit is always 1.
None	Parity bit is not checked.

Baud Rate

The last consideration for character recognition is the speed that the characters are sent. This is called the baud rate. Baud rate is roughly equal to ten times the character-per-second transmission speed. Thirty characters per second is about 300 baud or 300 bits per second. The number of times per second a modem can potentially shift between the "0" and "1" frequencies describing each bit depends upon the transmission speed selected.

Full and Half Duplex

Computers can communicate with other computers or terminals in either full duplex or half duplex mode. Computers using full duplex echo each received character back to the terminal. Each character sent or typed by the terminal appears on the display after it has been received back from the computer. In half duplex mode, a computer does not echo received characters, so each character typed or sent from a file is displayed on the screen as it is sent.

If your system is set for half duplex and the remote computer is using full duplex, double characters appear on your display. If this occurs, switch to full duplex. If the reverse is true, you're set for full duplex and *nothing* appears on the display, switch your system to half duplex.

Personal Communications Manager's Reliable File Transfer

During Personal Communications Manager-to-Personal Communications Manager communications, the contents of each data file is sent using the Microcom Networking Protocol, which includes the CRC

(Cyclical Redundancy Check) method of error detection to insure that the file is correctly received by the remote computer. See Appendix F for more information about the Microcom Networking Protocol.

If a file cannot be successfully sent, the receiving computer does not display any indication of the attempt, although the local Personal Communications program indicates that attempts have been made.

This file integrity checking is only done during unattended Personal Communications Manager-to-Personal Communications Manager links.

There are two other forms of file transfer. First, in unattended mode, the system is capable of answering an incoming call from an attended system (that is, a message being sent by a remote terminal under direct control of its operator). The incoming message is stored in a disk file and a Receive Log entry is made.

The second form of file transfer is in terminal (or attended) mode where you are communicating with a remote computer and are either receiving or sending information from or to that computer.

Appendix C. Communicating with a Remote Terminal

When Personal Communications Manager is in Send/Receive mode, it also accepts incoming calls from a remote terminal. A remote terminal user must follow the procedures described here to communicate with Personal Communications Manager.

Procedures for Communicating with Personal Communications Manager

1. Communication setups on the remote terminal must be as follows:

   Character code: ASCII

   Data rate: 300 baud or 1200 baud

   Bit framing: 10 bits per character:

      1 start bit

      7 data bits

      1 parity bit (ignored by Personal Communications Manager)

      1 stop bit

Note: This may also be specified as "8 data bits, no parity." However the extended character set (over 128 HEX) cannot be sent.

2. After dialing the Personal Communications Manager telephone number and receiving confirmation of a connection (as evidenced by a solid carrier detect light at the local terminal), *you must* press Spacebar slowly once or twice until the herald messages

```
Personal Communications Manager
nnnn bytes are available for this message
Enter message as prompted
```

   from the Personal Communications Manager appear.

3. After a few seconds, Personal Communications Manager prompts the caller for mail header information. Each caller entry line is identified by a > (the greater-than symbol). The mail header prompts are:

   TO:

   FROM:

   SUBJECT:

   REPLY TO TEL NUMBER:

   The caller with the remote terminal may either type an answer or simply press Enter for each of these prompts.

4. The remote caller can send up to 255 characters of information per line. Each line of input is ended by a RETURN character.

5. When the text of a message is completed, the last line of the message must be a Ctrl-Z character at the beginning of a separate entry line. The Personal Communications Manager system responds with the notice MESSAGE ACCEPTED. The character Ctrl-Z indicates the end of a message.

Other Considerations

- Personal Communications Manager's **Terminal Link** feature permits messages up to the amount of available memory to be stored. Personal Communications Manager signals the caller if a message reaches this limit with the advisory TEXT LIMIT NEAR.

- Multiple messages may be transmitted during a single Terminal Link session.

- Following entry of a message, a second ENTER MESSAGE prompt is sent to the remote caller by Personal Communications Manager. At this point the caller may end the connection and hang up.

- Messages not ending with the character Ctrl-Z on a separate line are discarded by Personal Communications Manager.

- Callers must wait for the > symbol before entering a new line.

Appendix D. The ASCII Character Codes

The following table lists all of the ASCII codes (in decimal and hexadecimal) and their associated characters. The column headed "Control Characters" lists the standard interpretations of ASCII codes 0 to 31 (usually used for control functions and communications).

ASCII Value	Hex Value	Character	Control Character
000	00	(null)	NUL
001	01	☺	SOH
002	02	☻	STX
003	03	♥	ETX
004	04	♦	EOT
005	05	♣	ENQ
006	06	♠	ACK
007	07	• (beep)	BEL
008	08	◘ (backspace)	BS
009	09	○ (tab)	HT
010	0A	◙ (line feed)	LF
011	0B	♂ (home)	VT
012	0C	♀ (form feed)	FF
013	0D	♪ (carriage return)	CR
014	0E	♫	SO
015	0F	☼	SI
016	10	►	DLE
017	11	◄	DC1
018	12	↕	DC2
019	13	‼	DC3
020	14	¶	DC4
021	15	§	NAK
022	16	▬	SYN
023	17	↨	ETB
024	18	↑	CAN
025	19	↓	EM
026	1A	→	SUB
027	1B	←	ESC
028	1C	∟ (cursor right)	FS
029	1D	↔ (cursor left)	GS
030	1E	▲ (cursor up)	RS
031	1F	▼ (cursor down)	US

ASCII Value	Hex Value	Character	ASCII Value	Hex Value	Character
032	20	(space)	064	40	@
033	21	!	065	41	A
034	22	"	066	42	B
035	23	#	067	43	C
036	24	$	068	44	D
037	25	%	069	45	E
038	26	&	070	46	F
039	27	'	071	47	G
040	28	(	072	48	H
041	29	)	073	49	I
042	2A	*	074	4A	J
043	2B	+	075	4B	K
044	2C	,	076	4C	L
045	2D	-	077	4D	M
046	2E	.	078	4E	N
047	2F	/	079	4F	O
048	30	0	080	50	P
049	31	1	081	51	Q
050	32	2	082	52	R
051	33	3	083	53	S
052	34	4	084	54	T
053	35	5	085	55	U
054	36	6	086	56	V
055	37	7	087	57	W
056	38	8	088	58	X
057	39	9	089	59	Y
058	3A	:	090	5A	Z
059	3B	;	091	5B	[
060	3C	<	092	5C	\
061	3D	=	093	5D	]
062	3E	>	094	5E	∧
063	3F	?	095	5F	—

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ASCII Value	Hex Value	Character
096	60	`
097	61	a
098	62	b
099	63	c
100	64	d
101	65	e
102	66	f
103	67	g
104	68	h
105	69	i
106	6A	j
107	6B	k
108	6C	l
109	6D	m
110	6E	n
111	6F	o
112	70	p
113	71	q
114	72	r
115	73	s
116	74	t
117	75	u
118	76	v
119	77	w
120	78	x
121	79	y
122	7A	z
123	7B	{
124	7C	¦
125	7D	}
126	7E	~
127	7F	⌂

ASCII Value	Hex Value	Character
128	80	Ç
129	81	ü
130	82	é
131	83	â
132	84	ä
133	85	à
134	86	å
135	87	ç
136	88	ê
137	89	ë
138	8A	è
139	8B	ï
140	8C	î
141	8D	ì
142	8E	Ä
143	8F	Å
144	90	É
145	91	æ
146	92	Æ
147	93	ô
148	94	ö
149	95	ò
150	96	û
151	97	ù
152	98	ÿ
153	99	Ö
154	9A	Ü
155	9B	¢
156	9C	£
157	9D	¥
158	9E	Pt
159	9F	ƒ

ASCII Value	Hex Value	Character	ASCII Value	Hex Value	Character
160	A0	á	192	C0	└
161	A1	í	193	C1	┴
162	A2	ó	194	C2	┬
163	A3	ú	195	C3	├
164	A4	ñ	196	C4	─
165	A5	Ñ	197	C5	┼
166	A6	ª	198	C6	╞
167	A7	º	199	C7	╟
168	A8	¿	200	C8	╚
169	A9	⌐	201	C9	╔
170	AA	¬	202	CA	╩
171	AB	½	203	CB	╦
172	AC	¼	204	CC	╠
173	AD	¡	205	CD	═
174	AE	«	206	CE	╬
175	AF	»	207	CF	╧
176	B0	░	208	D0	╨
177	B1	▒	209	D1	╤
178	B2	▓	210	D2	╥
179	B3	│	211	D3	╙
180	B4	┤	212	D4	╘
181	B5	╡	213	D5	╒
182	B6	╢	214	D6	╓
183	B7	╖	215	D7	╫
184	B8	╕	216	D8	╪
185	B9	╣	217	D9	┘
186	BA	║	218	DA	┌
187	BB	╗	219	DB	█
188	BC	╝	220	DC	▄
189	BD	╜	221	DD	▌
190	BE	╛	222	DE	▐
191	BF	┐	223	DF	▀

ASCII Value	Hex Value	Character
224	E0	α
225	E1	β
226	E2	Γ
227	E3	π
228	E4	Σ
229	E5	σ
230	E6	μ
231	E7	τ
232	E8	Φ
233	E9	θ
234	EA	Ω
235	EB	δ
236	EC	∞
237	ED	Ø
238	EE	ϵ
239	EF	∩
240	F0	≡
241	F1	±
242	F2	≥
243	F3	≤
244	F4	⌠
245	F5	⌡
246	F6	÷
247	F7	≈
248	F8	°
249	F9	•
250	FA	·
251	FB	√
252	FC	ⁿ
253	FD	²
254	FE	■
255	FF	(blank 'FF')

Appendix E. Modem Drivers

On the master program diskette labeled "Personal Communications Manager", is a copy of the source code for the IBM modem driver. The source code is in a file called EXMP__MD.ASM. This file contains a description of the program's modem driver interface and source code example.

This documentation is designed to be an aid for experienced programmers who are familiar with details of their autodial modem. This is not an instructional document. Not all autodial modems may be able to be used with this product. There is no implied or explicit guarantee that this example will enable other autodial modems to function with all of the facilities of Personal Communications Manager.

Personal Communications Manager is designed to address modem related functions through a defined modular interface. Modem related functions are provided at this interface by a modem driver, installed as a file, referenced through the filename specified under "other" modem query. This driver for the IBM modem is a sample driver which provides all of the required functions.

The driver is preceeded by specifications and the code is commented in order that it may be helpful in implementing additional modem drivers.

In order to be used with Personal Communications Manager, a modem should be Bell 103 or 212A compatible. It should be able to be controlled by commands sent to it from the IBM Personal Computer over the RS-232 connection. At a minimum, these commands should include the capability to:

- Dial the telephone and establish a data connection
- Detect an incoming call, answer the telephone and establish a data connection
- Once in the data mode, allow for transparent transfer of eight bit data
- Hang up the telephone

Appendix F. The Microcom Networking Protocol

Personal Communications Manager implements Level 2 of the Microcom Networking Protocol. This level provides for unattended reliable file transfer between any two systems supporting the Level 2 protocol implementation. The Microcom Networking Protocol also allows terminals to leave messages with a Personal Communications Manager operating in unattended receive mode.

Unattended Reliable File Transfer

The Microcom Networking Protocol uses the ISO Reference Model of Open System Interconnection to define seven subsystems which make up the data communications path between two communicating personal computers. In Level 2, three protocol layers are implemented: the session/file transfer layer, the link layer, and the physical layer. Peer-to-peer protocols are defined for the first two of these layers.

The session/file transfer protocol is used to establish a session connection between two Personal Communications Manager programs or other systems supporting Level 2 of the Microcom Networking Protocol. Within the context of such a session, the protocol provides for the transmission of one or mulitple files from the session initiator to the receiver.

To accomplish this, the protocol uses seven messages, or 'session protocol data units'. These messages are briefly described in the following sections:

The Session/File Transfer Layer

1. Session Request (SR): To establish a session connection, corresponding Personal Communications Managers exchange SR spdu's to communicate basic system and file system information. The SR message includes:

    - system type
    - file system type
    - system identification
    - local address.

    If both correspondents have the same system type and file system type, then the session is designated a 'native transfer' session. Otherwise, the session is a 'virtual transfer' session.

2. Session Close (SC): To terminate a session connection, the session initiator sends an SC spdu to the receiver. The receiver responds with a SC to complete orderly closing of the session. The SC message includes the session close reason.

3. File Start Request (FSR): To send a file, the session initiator sends an FSR spdu to communicate to the receiver information about the proposed file action. In Level 2, only the 'write new file' action is supported. The FSR message includes:

- file action type
- transfer mode
- filename
- password
- file type
- record length (eof marker)
- file length
- file label (message subject)
- destination (to-specifier).

4. File Start Acknowledgement (FSA): To respond to a file start request, the receiver sends an FSA spdu to communicate acceptance or rejection of the file action specified in the corresponding FSR spdu. The FSA message includes:

   - acknowledgement mode (accept/reject)
   - reject reason.

5. File Data message (FD): To send file data, the session initiator sends an FD spdu to the receiver. This message contains the actual file data. In Level 2, this message contains up to 256 octets of data.

6. File End Request (FER): To terminate a file action, the session initiator sends an FER spdu to inform the receiver that the action is complete. In Level 2, this message is used to indicate end-of-file or end of transfer due to file system error. This message includes the end status (normal/abnormal).

7. File End Acknowledgement (FEA): To respond to a file end request, the receiver sends an FEA spdu. In Level 2, this messge is used to indicate the success or failure of the file write action at the receiving system. This message includes:

   - end status

The Link Layer

The link protocol is used to provide a logical link between communicating personal computers. The logical link provides for data transparency, reliable data transfer, and flow control. The session/file transfer protocol relies on the link layer to provide these services.

To accomplish this, the link protocol defines four messages, or 'link protocol data units', and specifies the manner in which these messages are to be exchanged in order to reliably establish the link connection and transfer data on it. The link protocol uses a three-way handshake for reliable establishment. Reliable data transfer is achieved through the use of cumulative positive acknowledgement, error detection (via a 16-bit CRC), and retransmission.

Link messages and the manner in which they are exchanged are briefly discussed in the following subsections:

1. Link Request (LR): To establish a link connection, the LR, LA, and LT messages (LA and LT are described below) are used in a three-way exchange. The LR message includes:

- link id

- service class (defaulted in Level 2)

- credit allocation (defaulted in Level 2)

- maximum lpdu size (defaulted in Level 2)

The establishment exchange proceeds as follows:

a. The link initiator sends the receiver an LR lpdu.

b. If the parameters in the LR are acceptable to the receiver (using negotiation by rule), then receiver responds with its own LR lpdu. If the receiver desires to reject the link establishment attempt, it sends an LD lpdu.

c. If the receiver's LR parameters are acceptable to the initiator, then the initiator sends and LA lpdu to the receiver. This LA lpdu concludes the three-way handshake and establishes the link connection. The receiver will also accept the initiator's first LT lpdu to conclude link establishment should the initiator's LA not be received. If the initiator desires to terminate the link establishment attempt, it sends and LD lpdu in place of the LA lpdu.

2. Link Acknowledgement (LA): To acknowledge the receipt of link data, the receiver sends an LA lpdu to the sender. The LA message includes:

   - receive sequence number

   - credit allocation.

3. Link Data (LT): To send data to the receiver, the sender transmits an LT lpdu. This message includes:

   - send sequence number

   - user data.

4. Link Disconnect (LD): To reject link establishment or to abruptly terminate the link connection, a link correspondent send an LD lpdu. This message includes:

   - disconnect reason

   - user data.

The link layer protocol also specifies a message framing procedure designed for character-oriented transmission on the physical connection. This technique provides for lpdu synchronization and for data transparency. A technique similar to IBM/BSC and ISO standard R1745 is employed.

ASCII Terminal - Personal Communications Manager Communications

Personal Communications Manager also provides for an ASCII terminal to send a message to Personal Communications Manager operating in unattended receive mode. Interaction between the terminal and Personal Communications Manager is defined at two levels.

The terminal-Personal Communications Manager link connection supports asynchronous communications using a terminal character format of 7 or 8 data bits; even, odd, or no parity; and 1 stop bit. Personal Communications Manager always sends 8 data bits, no parity, with the high-order bit set to zero. Personal Communications Manager also stores terminal input characters in this format.

The terminal-Personal Communications Manager session connection consists of a series of Personal Communications Manager prompts and terminal responses. The terminal is prompted for the various portions of a Personal Communications Manager mail message.

Other Systems Supporting Electronic Mail

Personal Communications Manager is one of a family of products which support Level 2 of the Microcom Networking Protocol. Products supporting Level 2 of the Microcom Networking Protocol allow reliable unattended electronic mail communications between each other.

Personal computers with MICRO/Courier software (Version 2.0) support electronic mail communications with Personal Communications Manager.

Personal computers and terminals equipped with Microcom's Series PCS/2000 Networking Modem will also support electronic mail communications with Personal Communications Manager. The Series PCS/2000 (Bell 212A-compatible) incorporates support of the Microcom Networking Protocol. With its integral clock and 32,000 character buffer, the PCS/2000 will send or receive files whether your computer or terminal is on, off, or busy running other applications.

When the PCS/2000 is communicating with Personal Communications Manager, MICRO/Courier or another PCS/2000, it makes use of the Microcom Networking Protocol for error-free communications. When communicating with a Bell 212A or 103 compatible modem, the PCS/2000 supports unattended electronic mail, but does not perform error-detection and selective transmission.

Contact your personal computer dealer or Microcom for a list of leading personal computers for which MICRO/Courier software is available, or for more information on the Series PCS/2000 Networking Modem and other products supporting the Microcom Networking Protocol.

Appendix G. Glossary

This part of the book explains many of the technical terms you may read or hear about while using Personal Communications Manager.

adapter: A mechanism for attaching parts.

addressee: With Personal Communications Manager, the recipient of a mail item sent using the Electronic Mail feature.

alphanumeric: Text characters that are either letters of the alphabet or numbers between zero and nine, or combinations thereof.

ASCII: An acronym for American Standard Code for Information Interchange. A standard code used for exchanging information among data processing systems and associated equipment.

asynchronous: Without regular time relationship; unpredictable with respect to the execution of a program's instructions.

attended mode: Personal Communications Manager's Terminal Emulator function. It is used for interactive communication with other computers and terminals.

autodial: A function performed by a modem that dials a specified telephone number.

backup: Pertaining to a system, device, file, or facilty that can be used in case of a malfunction or loss of data.

baud: A unit of signaling speed equal to the number of discrete conditions or signal events per second (bits per second).

binary: Pertaining to a condition that has two possible values or states.

buffer: An area of storage that is used to compensate for a difference in rate of flow of data, or time of occurrence of events, when transferring data from one device to another.

carrier: A specific frequency tone used by modems and acoustic couplers to signal over telephone lines. When heard, it sounds like a shrill whistle on a telephone line.

class: The type of file being sent or received: ASCII text or binary data (data) or a printable mail item (message).

communication setups: User definable communication parameters that are used by Personal Communication Manager's interactive function to make your computer compatible with a remote computer.

configuration: The information about your specific hardware and software components.

control character: A character whose occurrence in a particular context initiates, modifies, or stops a control operation. A control operation is an action that affects the recording, procesing, transmission, or interpretation of data.

cursor: A movable marker that is used to indicate a position on a display.

default: A value or option that is assumed when none is specified.

directory: A table of identifiers and references to the corresponding items of data. For example, the directory for a diskette contains the names of files on the diskette (identifiers), along with information that tells DOS where to find the file on the diskette.

DOS: As used in this book, the IBM Personal Computer Disk Operating System.

duplex: In data communications, pertaining to a simultaneous two-way independent transmission in both directions.

editor: A program that is used to enter, change and delete text from a file.

electronic mail: The transmission of messages or data using telephone lines, i.e., "paperless" mail.

emulate: To imitate the performance or characteristics of a device.

field: In an entry, a specific area used for a particular category of data entry.

file: A set of related data treated as a unit.

flow control: A form of communication protocol that allows one computer to stop and start the transmission of data by the other.

form feed: A printer control code that causes the paper to advance either to the top of the next piece of paper or a certain number of lines.

header: The "envelope" that accompanies a transmitted or received file; for example, the sender/receiver information, where and when sent/received, the return "address" and related computer/modem information.

host: The remote system receiving an incoming call from your system is called the "host" computer. Often refers to large mainframe or timesharing computers.

ID: Identification.

Incoming Mail Log: A file that contains the name of each file received from a remote system during a Send/Receive mail session.

initialization: Beginning or starting a process.

intelligent terminal: A computer terminal capable of being configured to adapt to the communication requirements of a variety of remote computers. Often, it can also send and receive blocks of data or files.

interactive: A type of dialog between a local computer or terminal and a remote computing service or databank.

list: A predefined group of mailboxes.

load: To bring the contents of a disk file into memory.

log: A file containing entries that describe outgoing or incoming mail items.

logon: To make connection with a remote computer and then access its programs or data.

mail: The contents of a message or data file that has been addressed to a remote Personal Communications Manager system.

mailbox: The contents of the address file for a predefined remote Personal Communications Manager system.

millisecond: One thousandth of a second.

mode: The status or a feature of Personal Communications Manager.

modem: A device for communicating over telephone lines between two computers.

modem driver: A subprogram that handles I/O between the computer and the modem. This subprogram controls the functions that dial, answer and report status of communications.

monochrome: A display that cannot show colors. For example, a black and white or black and green display.

normal video: The presentation of light characters on a display with a dark background. (see reverse video).

on-line: Connected to a computer.

Outgoing Mail Log: A file that contains the name of the file for each mail item to be sent or already sent.

overwrite: To record into an area of storage so as to destroy the data that was previously stored there.

paginate: When printing, to "paginate" means to start at the beginning of a piece of computer paper; to begin each printed item on a new piece of paper.

parity: When transmitting, a parity bit may be added to each character code for error detection purposes.

password: A unique string of characters that is used to permit limited access to a computer system or certain information stored on a computer.

port: An access point for data entry or exit.

prompt: A question the program asks when it wants you to supply information.

protocol: A set of rules for communicating between two computers or a computer and a terminal.

queue: A line or list of items waiting for service; the first item that went into the queue is the first item to be serviced.

reconfigure: To change the contents of the configuration file used by Personal Communications Manager to identify your system and its peripherals.

remote: Another computer system some distance away.

reverse video: The presentation of dark characters on a display with a light background.

selection window: A moveable area on the Display/Change Comm. Settings work screen which highlights possible options.

scan: To review in sequence.

specifier: The explicit name or other identification entry for an item.

storage: A device, or part of a device, than can retain data. Memory.

terminal: A device, usually equipped with a keyboard and display, capable of sending information to and receiving information from a computer.

toggle: To switch from one operating state to the other.

unattended mode: Personal Communications Manager's Electronic Mail Function. The program will send and receive information without the user in attendance.

user function: A user definable group of interactive commands and/or text that can be set into operation by pressing a function key.

work screen: A series of prompts that appear on the display in sequence that ask for information needed by the program to perform some function.

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Reader's Comment Form

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YOU ACKNOWLEDGE THAT YOU HAVE READ THIS AGREEMENT, UNDERSTAND IT AND AGREE TO BE BOUND BY ITS TERMS AND CONDITIONS. YOU FURTHER AGREE THAT IT IS THE COMPLETE AND EXCLUSIVE STATEMENT OF THE AGREEMENT BETWEEN US WHICH SUPERSEDES ANY PROPOSAL OR PRIOR AGREEMENT, ORAL OR WRITTEN, AND ANY OTHER COMMUNICATIONS BETWEEN US RELATING TO THE SUBJECT MATTER OF THIS AGREEMENT.

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