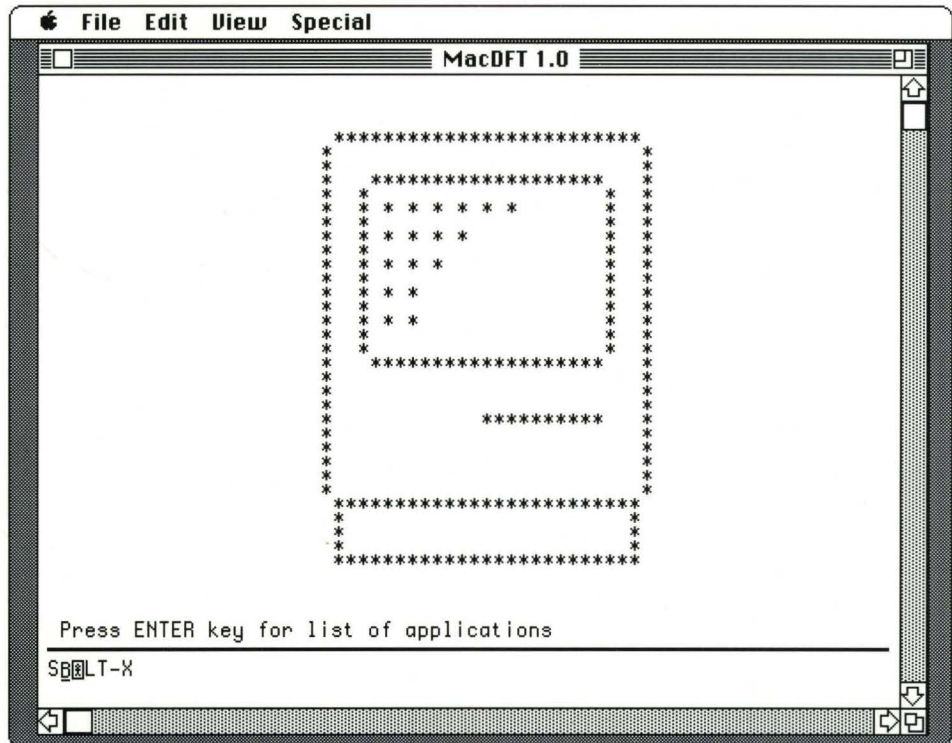


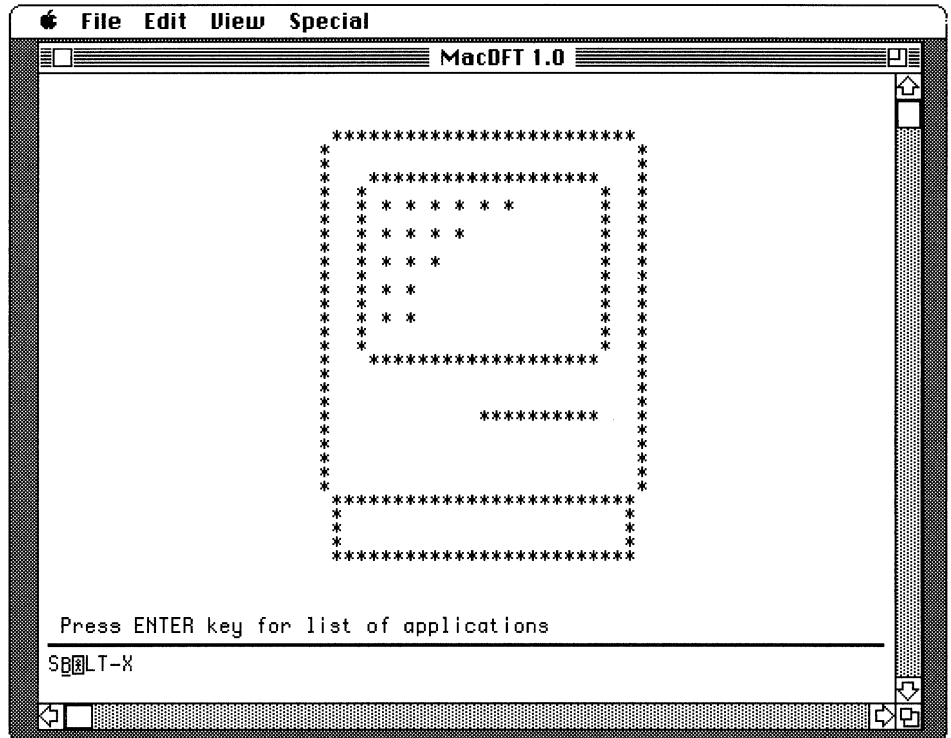


MacDFT™ User's Guide





MacDFT™ User's Guide



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Radio and television interference

This equipment described in this manual generates, uses, and radiates radio-frequency energy. If it is not installed and used properly—that is, in strict accordance with the instructions in this manual—it may cause interference with radio communication.

This equipment has been tested and found to comply with the limits for a Class A computing device in accordance with the specifications in Subpart J of Part 15 of FCC rules. These specifications are designed to provide reasonable protection against such interference when the equipment is operated in a commercial environment.

Operation of this equipment in a residential area is likely to cause interference, in which case the user, at the user's own expense, will be required to take whatever measures may be necessary to correct the interference.

△ **Important** This product was tested for FCC compliance under conditions that included the use of shielded cables and connectors between system components according to the standards for RG-62 cables. It is important that you use coaxial cables and connectors to reduce the possibility of causing interference to radios, television sets, and other electronic devices. For Apple peripheral devices, you can obtain the proper shielded cables from your authorized Apple dealer. For non-Apple® peripheral devices, contact the manufacturer or dealer for assistance. △

About This Guide

THIS USER'S GUIDE TELLS YOU HOW TO INSTALL AND USE THE MACDFT™ application. MacDFT enables your Macintosh® II computer to emulate the IBM family of 3270 terminals. This guide also explains how to install the Apple® Coax/Twinax card.

What you need to know

To use this manual successfully, you should be familiar with the operation of your Macintosh II computer. For example, you should feel comfortable using the mouse and desktop. If you have just received your Macintosh II equipment and have never used a Macintosh before, check your owner's guide for information on setting up and using the Macintosh.

- △ **Important** When you're setting up your new Macintosh equipment, you can save yourself a step by installing the Coax/Twinax card at the same time that you install the video card. Follow the video card installation directions in your Macintosh owner's guide to install the Coax/Twinax card. Installation procedures for the Coax/Twinax card are also included in Chapter 2 of this guide. △

What's covered in this guide

Here's a description of what you'll learn in each chapter. Note that the chapters should be read in consecutive order, since each chapter builds on concepts presented in the preceding chapter.

- Chapter 1, "Introducing MacDFT," describes the features of MacDFT and tells you what you'll need to get started.
- Chapter 2, "Setting Up MacDFT," explains how to install your Coax/Twinax card, attach the coaxial cable, and install the MacDFT software.
- Chapter 3, "Configuring MacDFT," explains how to configure MacDFT and save your configuration choices in a MacDFT configuration document.
- Chapter 4, "Communicating With a Host," discusses how to launch and operate the MacDFT application.
- Chapter 5, "Using the Keyboard and Keypad," addresses how to customize your keyboard and keypad for terminal emulation sessions.
- Chapter 6, "Transferring Files," describes file transfer between the Macintosh and the IBM host.

The appendixes contain valuable information:

- Appendix A, “Reading the Status Line,” describes some of the status line messages that you’ll see when using MacDFT.
- Appendix B, “MacDFT Error Messages,” describes error messages generated by MacDFT and suggests possible solutions to problems.
- Appendix C, “Supported Environments,” lists the terminals that MacDFT emulates, host connections, and other features supported by MacDFT.

The glossary at the end of this manual includes Macintosh-related terms and other computer terms that you might find helpful. New terms are presented in **boldface** type and are usually defined in the text. All terms that appear in boldface are defined in the Glossary.

Terminology and conventions

This section explains terminology used in this manual and shows some of the conventions used to highlight information.

Macintosh II

The term *Macintosh II* is used to refer to all Macintosh II computers, including the Macintosh IIx and the Macintosh IIcx computers.

3270

The term *3270* is used to refer to the family of IBM Information Display System terminals.

3X74

The number *3X74* refers to IBM’s 3174 or 3274 control units.

Special messages

Look for these special cues throughout the guide.

- ❖ *Note:* A note like this presents additional information or interesting sidelights.

△ **Important** Be sure to read everything that's labeled with the word *Important*. △

▲ **Warning** Warnings like this indicate potentially serious problems. ▲

A special typeface indicates text that you should type:

It looks like this.

Related manuals

For information about how to use your Macintosh computer, refer to the following manuals, which came with your Macintosh computer:

- *Macintosh II Owner's Guide:* This manual explains how to set up and use your Macintosh II.
- *Macintosh Utilities User's Guide:* This manual describes how to initialize, or format, your hard disk. The *Macintosh New Features Update* booklet explains how to install the system software.

You might want to refer to the manuals that came with your host network equipment. In addition, many books are available that explain various aspects of 3270 communication. For example, see the following IBM documentation:

- *IBM 3270 Information Display System Information (GA27-2739-21):* This book describes various components of IBM's 3270 Information Display Systems, including terminals, personal computers, printers, and control units.

- *IBM 3270 Information Display System: 3274 Control Unit Description and Programmer's Guide (GA23-0061)*: This guide provides system-level reference material and describes programming characteristics of 3274 control units and attached terminals.

Introducing MacDFT

THE MACDFT™ APPLICATION ALLOWS YOUR APPLE® MACINTOSH® II computer to emulate an **IBM 3270 Information Display System** terminal. **Terminal emulation** means that the Macintosh appears to the IBM host as a 3270 display terminal, without any apparent operational differences between the Macintosh and an actual 3270 terminal. This chapter describes the features of MacDFT and tells you what you need to get started.

The Apple Coax/Twinax card

To use MacDFT, you must install the Apple Coax/Twinax card in your Macintosh II computer. The card plugs into one of the **Nubus** slots in the Macintosh II and connects to an IBM host via a 3X74 **control unit** using standard RG-62AU coaxial cable.

The Coax/Twinax card is an intelligent communication card based on the Macintosh Coprocessor Platform™. With its own microprocessors, operating system, and memory, this card operates independently of the memory and processing ability of the Macintosh computer. Because all the communication processing is done on the Coax/Twinax card, communication between the Macintosh and the host does not affect the speed of Macintosh applications. Chapter 2 tells how to install your interface card and connect your coaxial cable.

Upgrading the memory for the Coax/Twinax card

You can upgrade the memory on your Coax/Twinax card by adding the Macintosh Coprocessor Platform card expansion kit. The standard card is equipped with 512K (kilobytes) of memory; using the Macintosh II Macintosh Coprocessor Platform card expansion kit, you can increase the memory on your communication card to 1 MB (megabyte). The Macintosh Coprocessor Platform card expansion kit is available through authorized Apple dealers, who can install it on the Coax/Twinax card.

❖ *Note:* MacDFT 1.0 does not require additional memory on the Apple Coax/Twinax card.

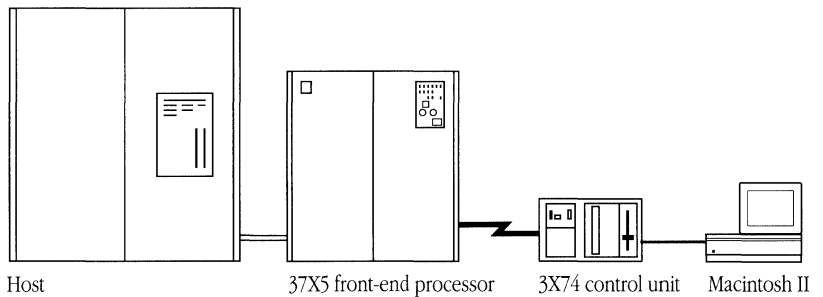
About MacDFT

MacDFT enables you to have terminal emulation with Macintosh user interface enhancements such as pull-down menus and windows. You can share data between the Macintosh and the IBM **host computer** either by copying and pasting data from applications, or by transferring files. MacDFT functions under MultiFinder™.

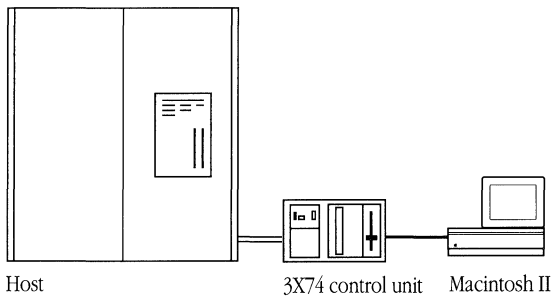
Using MacDFT, your Macintosh can emulate an IBM 3270 Information Display System terminal and communicate with an IBM host through a 3174 or 3274 control unit. The control unit links the terminal and the host. The control unit and host can be configured in several ways. The configuration of the control unit and host determines the type of terminal your Macintosh II emulates. Figure 1-1 shows two typical configurations for Macintosh connections to a local and remote host.

■ **Figure 1-1** The Macintosh connected to a control unit and a host

**Remote configuration
with MacDFT software**



**Local configuration
with MacDFT software**



- Coaxial cabling ———
- Channel connection = = =
- Remote connection ⚡

A terminal, or computer emulating a terminal, can communicate with an IBM host that supports either a single **session** or multiple sessions. The control unit port, the configuration of the host, and the configuration of the MacDFT software determine which communication mode your Macintosh can use. With MacDFT version 1.0 software, you can connect your Macintosh to a 3270 network and emulate a single 3270 terminal session. Future versions of MacDFT will support multiple sessions running concurrently.

What you need to get started

You can use MacDFT on any of the Macintosh II family of computers, with the standard or extended keyboard.

△ **Important** Your Macintosh II must have system software version 6.0.3 or a later version. △

To use MacDFT, you must have the following:

- the *MacDFT 1.0* disk
- an Apple Coax/Twinax card
- a coaxial cable connected to a 3174 or 3274 control unit

On the IBM host, you need the appropriate file transfer software:

Software	Part number
MVS/TSO operating environment	5665-311
VM/SP host operating environment	5664-281

Appendix C lists the IBM host and communications equipment with which MacDFT works.

Setting Up MacDFT

THIS CHAPTER EXPLAINS HOW TO INSTALL THE COAX/TWINAX CARD AND MacDFT software. If you have just received your new Macintosh II, you must first set it up before you install MacDFT. You should install your Coax/Twinax card at the same time that you install your video card. See your Macintosh owner's guide for instructions on how to install the video card. If your Macintosh personal computer is already set up, you can skip to "Installing the Hardware for MacDFT," where card installation is also covered.

Before you begin

If you have just received your Macintosh II equipment and have never used a Macintosh before, check your Macintosh II owner's guide for information on setting up and using your new computer. You must know some of the basic information on how to use the Macintosh computer before installing and using MacDFT.

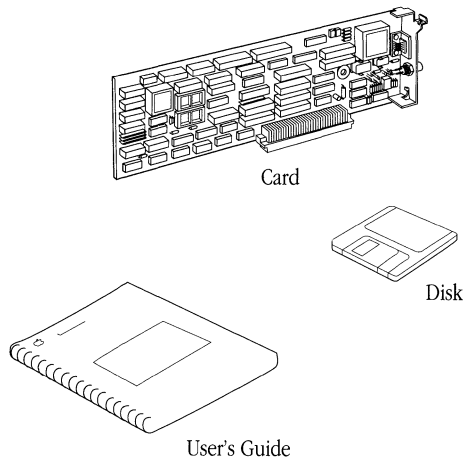
After setting up your Macintosh, you might want to use the tutorial disk to learn about the Macintosh computer. Your owner's manual explains how to use the tutorial. Once you feel comfortable using the mouse and the desktop, you should initialize your hard disk and install the system software. Follow the instructions in the hard disk owner's guide.

What you need to install MacDFT

To install MacDFT, you should have an Apple Coax/Twinax card, this manual, and a disk labeled *MacDFT 1.0*, as shown in Figure 2-1. Your Management Information System (MIS) department should have provided an installed control unit with a coaxial cable attached.

❖ *Note:* You'll also need a Phillips screwdriver to install your card.

■ **Figure 2-1** What you need to install MacDFT



Installing the hardware for MacDFT

This section tells you how to install your hardware, which means installing your card and attaching the coaxial cable. If you have already installed your Coax/Twinax card, skip ahead to the section called “Installing MacDFT Software.”

Unpacking the card

Keep the card in its protective, antistatic bag until you're ready to install it. When you take the card out of the bag, hold it by the edges, not by the components. Be sure not to touch the gold pins on the bottom edge of the card.

Installing the card

Follow these steps to install the Coax/Twinax card.

1. Turn off the power.

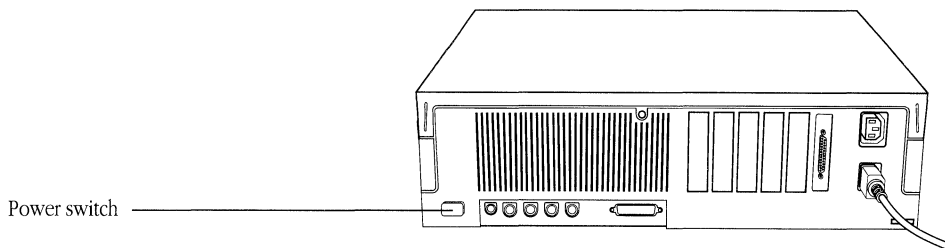
Figure 2-2 shows the power switch on the back of the computer.

▲ **Warning**

Make sure that the power to all your computer equipment is turned off, but leave the power cords plugged into a grounded outlet. This keeps your computer system safely grounded.

Check the power indicator light on the front of the computer to make sure the power is off. If the power has been on, wait at least five minutes before continuing, to allow the power supply case inside the computer to cool down. ▲

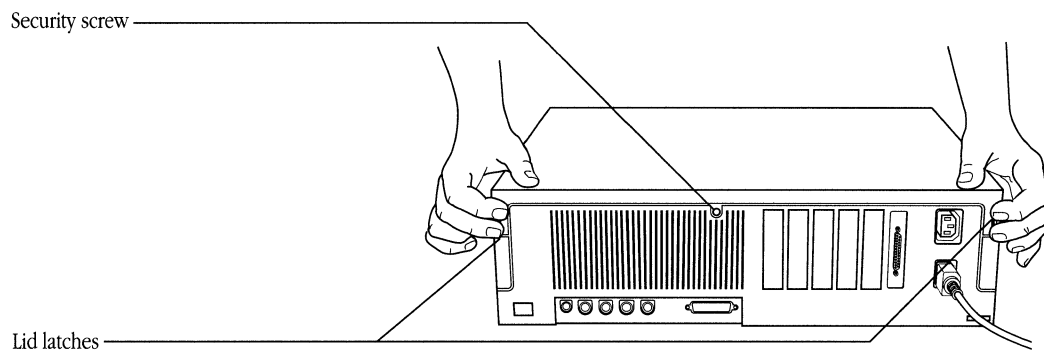
■ **Figure 2-2** Make sure the power is off



2. Remove the computer's lid.

- a. Using a Phillips screwdriver, remove the security screw at the top center of the computer's rear panel.
- b. Grasp the rear corners of the case, as shown in Figure 2-3.
- c. Press on the lid latches with your fingers while you lift up the back of the lid.
- d. When you feel the lid release, lift it off the case and put it aside.

■ **Figure 2-3** Removing the lid



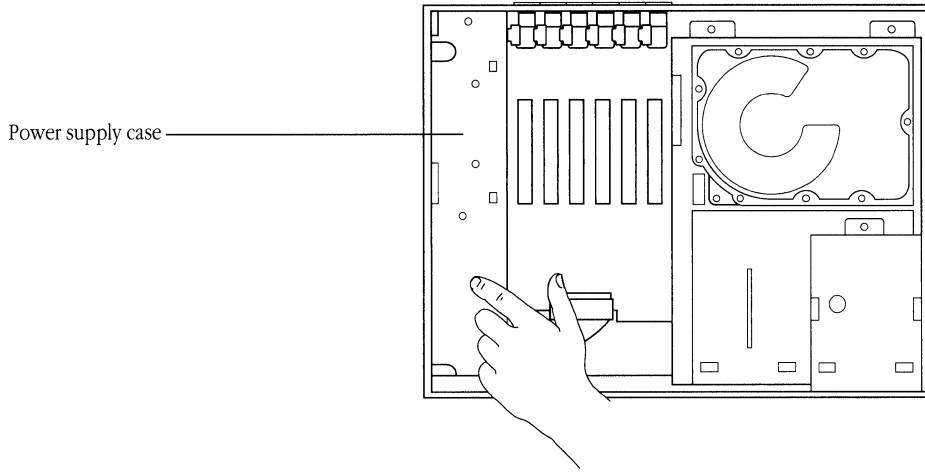
3. When the power supply case has cooled down, touch the metal part of it, as shown in Figure 2-4.

Touching the metal part of the power supply case discharges any static electricity that may have built up on your clothes or body.

▲ **Warning**

Remember, the power supply can get very hot in normal use. If the computer has been on, wait at least five minutes for the metal case to cool down before you touch it. ▲

■ **Figure 2-4** Touching the power supply case

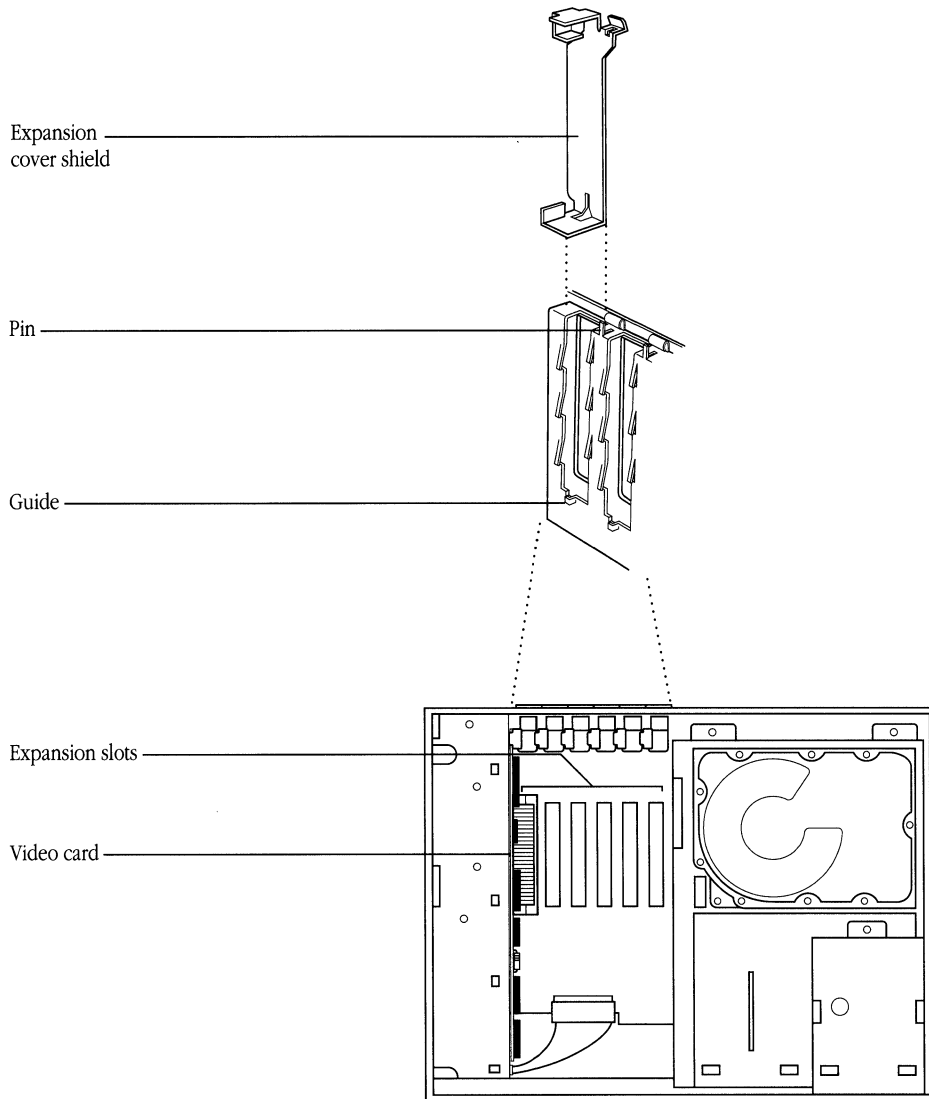


4. Select an expansion slot and find the expansion cover shield that's directly behind it.

The expansion slots are narrow plastic strips, as shown in Figure 2-5. You can install the Coax/Twinax card in any slot.

- ❖ *Note:* Install the card in a slot where the outside cables are least likely to interfere with other cables.

■ **Figure 2-5** The expansion slots and expansion cover shield



5. Remove the expansion cover shield that's behind the expansion slot you intend to use.

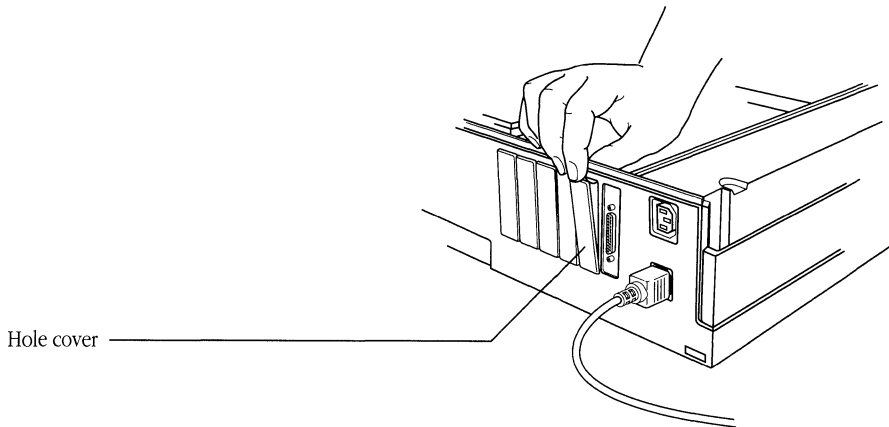
Lift up the shield until its free of the guide and pin. Save the shield; it protects the interior of your computer, and you will need to reinsert it if you take the card out of the slot later.

❖ *Note:* Attached to the end of the card is a shield that will replace the shield you just removed. It fits into the guide the same way that the expansion cover shield fits.

6. Push out the plastic hole cover that lines up with the slot you plan to use.

- a. Grasp the cover, with your thumb inside the computer and your fingers outside.
- b. Push the cover out with your thumb and set it aside, as shown in Figure 2-6.

■ **Figure 2-6** Removing the hole cover

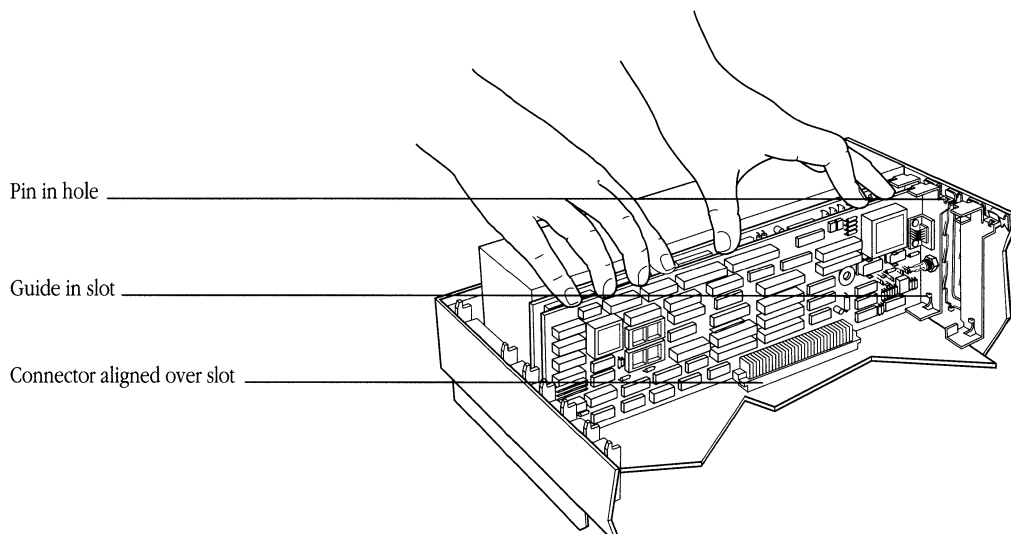


7. Insert the Coax/Twinax card into the expansion slot.

- a. Pick up the card by the edges or the top corners. (Avoid touching the pins on the bottom of the card.)
- b. The expansion cover shield on the back of the card attaches to the inside of the back panel in the same way as the shield you removed in step 5. Align the card so that the guide is through the lower slot in the shield, and the pin sticks up slightly through the hole at the top of the shield, as shown in Figure 2-7.
- c. Align the connector on the bottom of the card directly over the slot.
- d. Place one hand on the top of the card, directly over the connector area, and then push down firmly until the connector is fully seated. To see if the card is properly connected, lift it gently. If it resists and stays in place, it's connected.

△ **Important** Don't force the card into place. If you meet a lot of resistance, pull the card out and try again. Don't wiggle the card from side to side when you insert it. Wiggling the card puts unnecessary stress on the card and slot. △

■ **Figure 2-7** Aligning the card

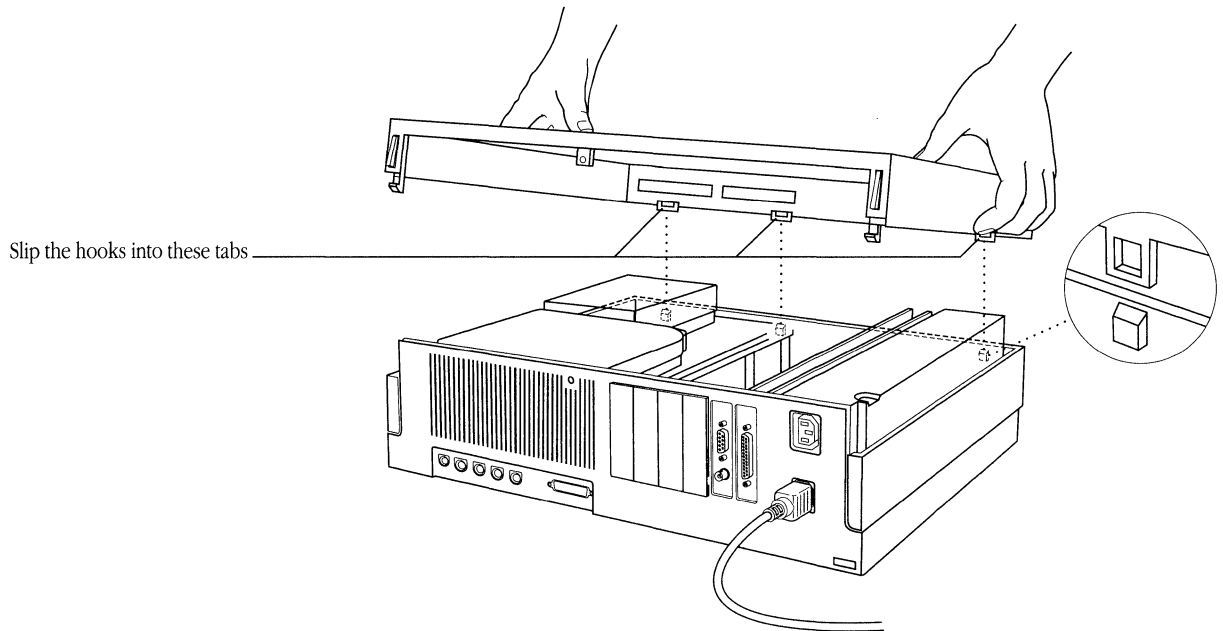


8. Replace the computer's lid.

- a. Tip the front of the lid down so that the three square fasteners on the lid catch the three hooks inside the front of the computer's case. (See Figure 2-8.)
- b. Lower the back of the lid onto the case and press down until the rear latches snap into place.
- c. Press on the front of the lid to ensure that the square brackets are fully seated on their hooks.
- d. Reinsert and tighten the security screw.

You are now ready to connect the Macintosh to your host.

■ **Figure 2-8** Replacing the lid

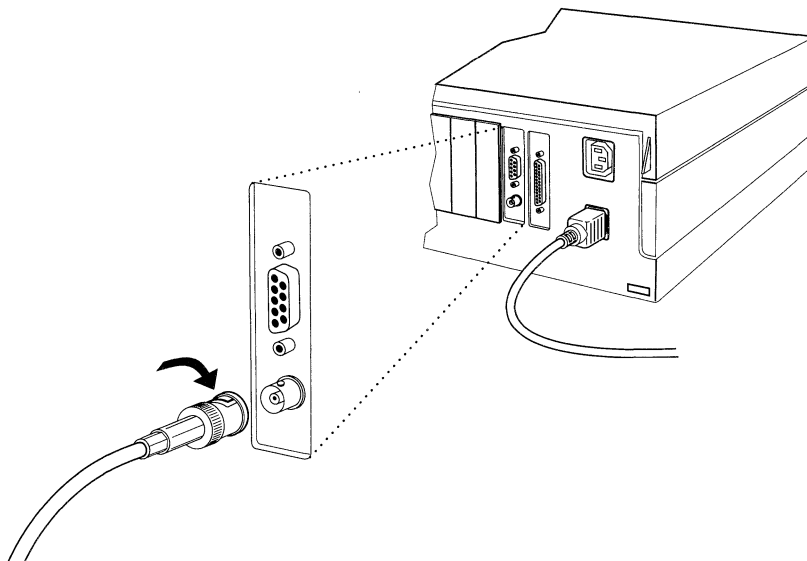


Connecting the coaxial cable

The Coax/Twinax card has a **coaxial connector** to which you connect the coaxial cable. The other end of this cable should be connected to your installed control unit. Figure 2-9 illustrates how to connect the coaxial cable to your Macintosh.

-
- ▲ **Warning** It is important to use coaxial cables built to the RG-62AU standard, to avoid radio and television interference. ▲

■ **Figure 2-9** Connecting the coaxial cable to the Macintosh



Installing MacDFT software

Insert the MacDFT disk into your disk drive. Double-click the disk to open it. You should see the following **icons**, which are shown in Figure 2-10:

- the MacDFT application
- the MacDFT Config file
- the Apple Real-time Operating System Environment (A/ROSE™) Prep file

■ **Figure 2-10** Icons on the MacDFT disk

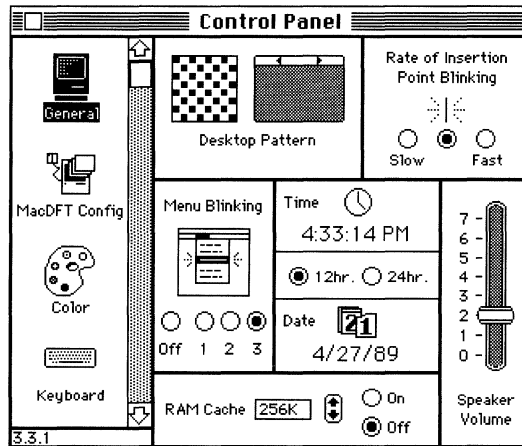


Drag the MacDFT application to your hard disk. Drag the MacDFT Config file and the **Apple Real-time Operating System Environment (A/ROSE)** Prep file to your Macintosh System Folder. The MacDFT Config file contains the driver and configuration information for MacDFT. The A/ROSE Prep file contains software that communicates between the communication card and the Macintosh II.

After you put these files in place on your hard disk, restart your Macintosh computer. When you open the Control Panel, you will see the MacDFT Config icon displayed. Figure 2-11 shows the Control Panel with the MacDFT Config icon installed.

- △ **Important** If you have not installed the Coax/Twinax card, the MacDFT Config icon will not appear on the Control Panel. See “Installing the Hardware for MacDFT,” earlier in this chapter, for installation instructions for the card. △

■ **Figure 2-11** The Control Panel with the MacDFT Config icon

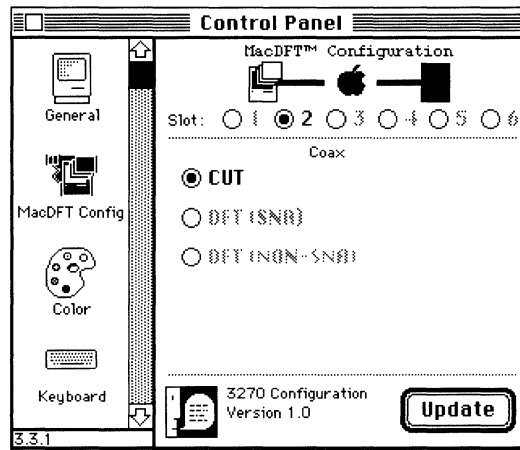


After you **select** the MacDFT Config icon from the Control Panel, the MacDFT Control Panel will appear. It shows the slot in which your Coax/Twinax card is installed, and the CUT button. Figure 2-12 shows the MacDFT Control Panel. The Control Panel displays CUT as the selected option. CUT is an acronym for **Control Unit Terminal**, a terminal emulation mode that supports one session. The other options, DFT (SNA) and DFT (NON-SNA), are dimmed because these options are not available in MacDFT application version 1.0.

Click the Update button at the bottom of the Control Panel. Clicking this button tells MacDFT in which slot your Coax/Twinax card is installed, and creates a MacDFT Prefs file in your System folder. After clicking the Update button, you see a message telling you that the configuration is updated.

When you see the MacDFT icon on your hard disk and the MacDFT Config icon in your Control Panel, you have installed your software.

■ **Figure 2-12** MacDFT Control Panel



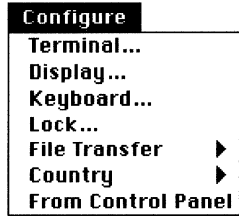
Configuring MacDFT

BEFORE USING MACDFT ON YOUR MACINTOSH II COMPUTER TO EMULATE AN IBM 3270 Information Display System terminal, you must configure your MacDFT software. Host equipment is configured according to the available equipment and needs of the users. You must configure MacDFT to communicate with each host configuration. So that your MacDFT software can emulate certain features of the IBM terminals, you can use a configuration document to store your configuration choices. Using a MacDFT configuration document, you can launch your MacDFT application without having to enter configuration information each time.

This chapter tells you how to customize your sessions and save your choices in configuration documents. You can then use your customized MacDFT configuration document to start a MacDFT session that contains your choices for terminal type, display options, file transfer, and other terminal emulation options.

Customizing a configuration document

- **Figure 3-1** MacDFT Configure menu



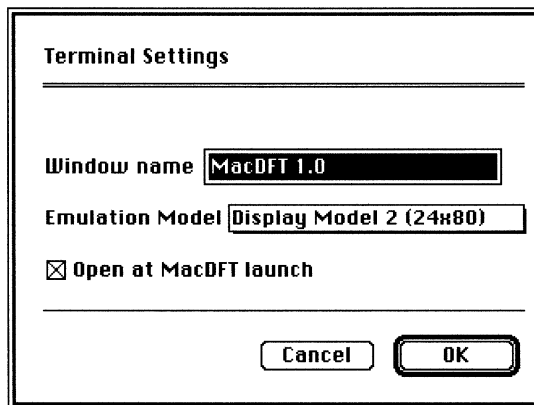
When you first double-click the MacDFT application, you use a default configuration that causes the Macintosh to emulate a **model 2** terminal. You can customize your application by choosing commands from the Configure menu, as shown in Figure 3-1. Each menu command gives you options for customizing your MacDFT document.

The next few pages explain how to use all the commands in the Configure menu except the Keyboard command, which is covered in Chapter 5, and the File Transfer commands, which are discussed in Chapter 6. Switch Settings for display options are also described in this chapter. The Switch Settings command is in the Command menu.

Choosing terminal settings

The Terminal Settings **dialog box** lets you make choices about the terminal that your Macintosh II emulates while using the MacDFT application. Figure 3-2 shows the dialog box that appears when you choose the Terminal command from the Configure menu.

- **Figure 3-2** Terminal Settings dialog box



This dialog box lets you configure your terminal emulation session by making these choices:

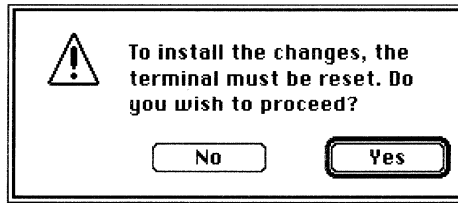
- **Window name** You can rename your session window. Rename your session window by typing over *MacDFT 1.0* with the session name you have chosen. Having names for sessions is helpful if you log on to several hosts. You can rename the window name in each configuration file that you use.
- **Emulation model** Figure 3-3 shows the menu from the Terminal Settings dialog box that lets you choose the display model you want MacDFT to emulate. The numbers refer to the number of rows and columns each emulated terminal provides.
- **Open at MacDFT launch** This **check box** tells MacDFT to open an emulation window when you launch MacDFT, thereby starting the session with the host. If you deselect this option, you can open a window after launching MacDFT by choosing the Start Emulation command from the Command menu.

▲ **Warning** Make your terminal settings choices before logging on to the host; if you don't, you must reset the terminal to put your choices into effect. The MacDFT application will display the **alert box** shown in Figure 3-4. If you click Yes, your connection with the host is reset and you may have to log on again to the host. If you do not want to reset the session, click No. ▲

■ **Figure 3-3** Emulation Model pop-up menu



■ **Figure 3-4** “Terminal settings” alert box

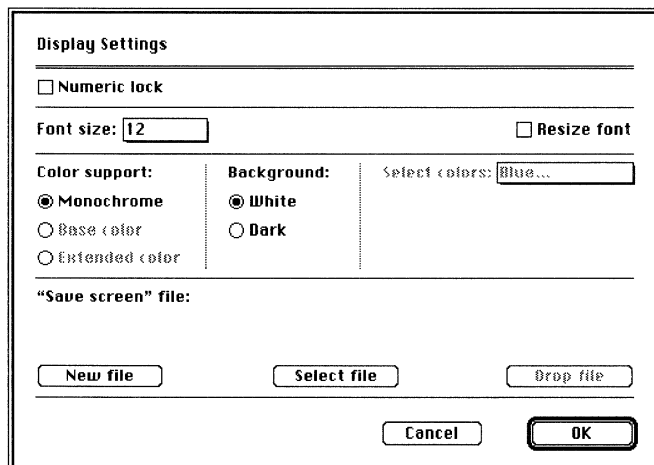


Choosing display settings

When you choose the Display command, a dialog box appears that lets you choose display options. You can use each of the display options with default settings for your terminal emulation session, or select choices that you store in your configuration document. During a MacDFT session, you can change the display options, except for Numeric lock, without resetting the terminal.

Figure 3-5 shows the default options you see when you choose the Display command. Each of these options is described after the figure.

■ **Figure 3-5** Display Settings dialog box



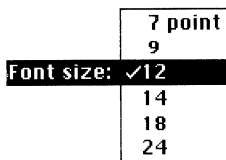
Choosing numeric lock

If you select this option, you can use only numbers (0 through 9), the DUP key, the period (.), and the minus sign (-) when you are typing data into a field that is defined by the host application as numeric.

Choosing font size

You can choose the font size either by choosing the “Font size” pop-up menu or by choosing the “Resize font” option. The “Font size” menu, as shown in Figure 3-6, lets you select a font size. The “Resize font” option lets you choose whether to automatically change the font to fit the terminal model that the MacDFT software is emulating.

■ **Figure 3-6** “Font size” menu



- **Font size** The “Font size” option lets you change the font size through the font menu. If you click this box, you see a pop-up menu that shows your font size choices. The default font size is 12 points. To change the font size, choose either 7, 9, 14, 18, or 24 points.
- **Resize font** The “Resize font” option allows you to choose whether to change the font size automatically when you change terminal types. The default font size is the largest font for a given terminal model that fits in a fully expanded window. The default MacDFT window size is 24 rows by 80 columns. If you want to change window dimensions, use the **size box** at the lower-right corner of your window to resize the window.

Table 3-1 shows the terminal types and the default font size.

■ **Table 3-1** Terminal models and default font sizes

Terminal model	Font size	Rows and columns
Model 2	12 points	24 x 80
Model 3	9 points	32 x 80
Model 4	7 points	43 x 80
Model 5	7 points	27 x 132

You can make two choices for resizing the font:

- **“Resize font” unselected** If you use this default setting, the window changes to accommodate the rows and columns; the font size remains the same size you have chosen from the “Font size” menu. If you choose this option, you can see all your columns and rows. In some cases, the window may not be able to display all the rows and columns, and you must use the **scroll bars** to display additional data.
- **“Resize font” selected** If you select this option, MacDFT changes the font size to fit the terminal model you have selected, as shown in Table 3-1. This choice lets you display the full column width associated with each model type, except for model 5, where you must use the horizontal scroll bars to see all 132 columns. The window size also changes to accommodate the extra rows and columns; the font size remains the same.

Choosing colors

Choices for colors depend on whether you are using a color monitor and whether the attached control unit supports color. Figure 3-7 shows the portion of the Display Settings dialog box that lets you choose colors.

■ **Figure 3-7** Color options

Color Support:	Background:	Select colors: <input type="text" value="Blue..."/>
<input type="radio"/> Monochrome	<input type="radio"/> White	
<input type="radio"/> Base color	<input checked="" type="radio"/> Dark	
<input checked="" type="radio"/> Extended color		

- **Color support** The menu shows three **buttons** labeled “Monochrome,” “Base color,” and “Extended color.” (“Base color” and “Extended color” are dimmed if you use a monochrome monitor or if you have the Control Panel for the monitor set to monochrome.) You have these choices for color if you have a color monitor:
 - **Monochrome** If you click this button, the monitor displays black and white.
 - **Base color** If you click this button, the monitor can display four colors: white, red, blue, and green.
 - **Extended color** If you click this button, the monitor can display seven colors: white, red, blue, green, pink, yellow, and turquoise.
- **Background** You can choose your background color by clicking either White or Dark. The default background for MacDFT is the dark background, which is the default background for IBM terminals.
 - ❖ *Note:* If you choose to have a white background, MacDFT will display *white* data from the host in black.

■ **Figure 3-8** “Select colors” menu

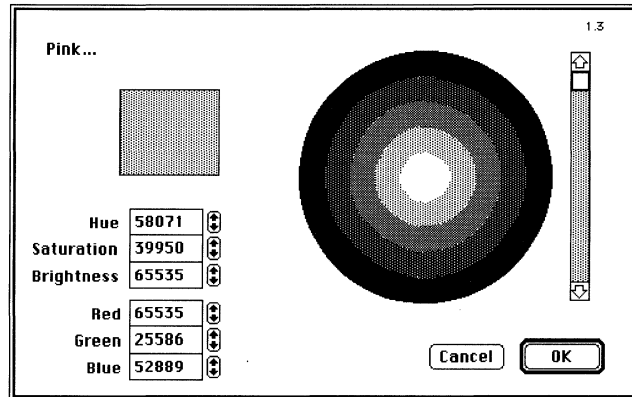


- **Select colors** If you have chosen base or extended colors, you can choose the colors for your background and for the **status line**. Figure 3-8 shows the pop-up menu that lets you choose colors.

You can pick the exact shade of blue, red, and other colors that you want to use for the named IBM color, for the window background, and for the status line. Figure 3-9 shows the **color wheel** that you use for selecting your colors.

To alter the color of the background or status line, select the item that you want to modify. For example, say you wanted to change the color of the status line to pink. You would choose the “Status line” command from the “Select colors” menu. Use the cursor on the color wheel and the scroll bars to modify the color. The scroll bar controls the brightness of the color; the cursor on the color wheel changes the hue. When you have selected the exact shade of pink that you want for the status line, click OK.

■ **Figure 3-9** “Color wheel” dialog box



Saving screens

The Display Settings dialog box lets you name the file in which to save a screen image that you see during a MacDFT session. Saving screens is explained in Chapter 4.

Saving configuration settings

You can change configuration settings either before or during a session. After you have completed a session, if you have made changes to the configuration, MacDFT queries whether you want to save these changes in your configuration document. If you click Yes, MacDFT asks you to name the configuration document: you can save the changes either to the document with which you launched the session, or to a new document. If you click No, any changes made to the configuration document are not saved.

Multiple configuration documents

You can create several configuration files. If you use more than one host or application, you can create a configuration file for each. Having several configuration documents is particularly helpful if you need different display or terminal settings for each host or host application.

For example, say you saved your configuration settings from a session while you were logged on to a host running **VM/CMS**. If you launch this document and you log on to a host running **MVS/TSO**, you can modify your settings, and save these modifications, using the Save As command.

Locking MacDFT

The MacDFT application allows you to use a password as a **security lock mechanism**. This security lock mechanism is similar to the lock and key on a 3278 terminal, but locking is done by the application software rather than a physical lock and key. The lock prevents users who do not know your password from using MacDFT on your Macintosh, but it does not prevent them from using the Macintosh.

Setting a password

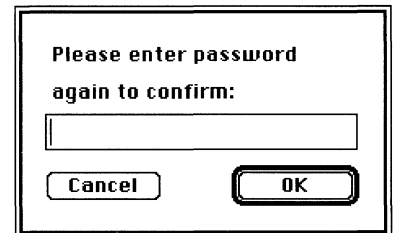
To lock your MacDFT application, choose the Lock command from the Configure menu and type a password when MacDFT prompts you, as shown in Figure 3-10. When you type a password, the letters you type are masked out on the screen by asterisks (*). Your password can be up to 16 characters long.

When you are typing your password, you see the dialog box shown in Figure 3-10. After you enter or delete your password, you see the dialog box in Figure 3-11, prompting you to confirm your password.

■ **Figure 3-10** “New password” dialog box

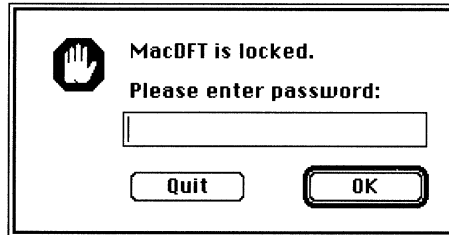


■ **Figure 3-11** “Password confirmation” dialog box



The dialog box in Figure 3-12 appears when you launch MacDFT after using the Lock command. After you have chosen your password, MacDFT asks you for this password each time you launch. After you type your password, the MacDFT software lets you launch your application.

■ **Figure 3-12** “MacDFT locked” alert box



Changing or deleting a password

You can change or delete your password after you have entered the correct password. First, choose the Lock command from the Configure menu.

- To change your password, type a new password in the text box. A dialog box appears that asks you to type your new password again. Type your new password exactly as you typed it the first time.
- To delete your password, type no characters; just click OK. When you are asked to confirm your password, click OK again. After you delete the password and click OK, MacDFT is unlocked.

Lost password

If you have lost or forgotten your password, you or your system administrator can launch an unlocked copy of MacDFT. Copy the unlocked copy to your hard disk, launch the application, and choose a new password. Be sure to discard the locked copy.

Country customization

MacDFT can be localized for use in different countries. Supported countries will appear when you click the Country menu option.

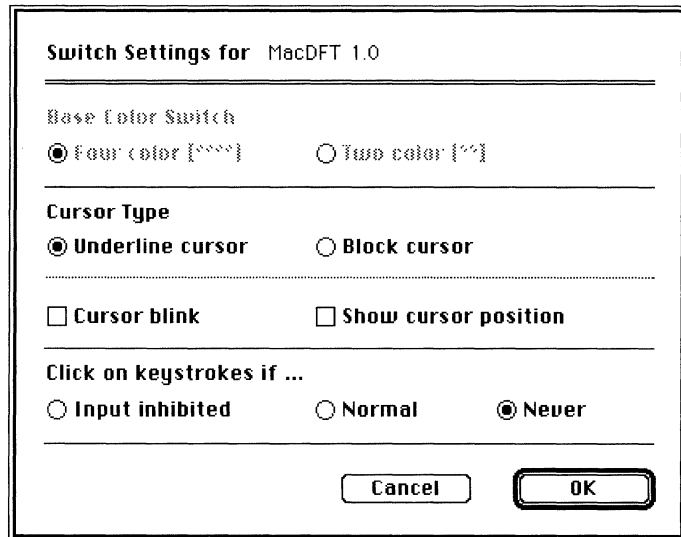
Configuring from the Control Panel

This command allows you to reconfigure MacDFT from one Coax/Twinax card to another card. When you choose this command, your session will be reset, and the current values configured in the Control Panel will be used to start the new session.

Choosing switch settings

You can change Switch settings by choosing the Display Switches command in the Command menu. Switch settings are displayed in a dialog box as check boxes and buttons, as shown in Figure 3-13.

■ **Figure 3-13** “Switch settings” dialog box



If you make a change to the “Switch settings” dialog box, you can save the change as part of your configuration document. See the section titled “Saving Configuration Documents,” earlier in this chapter.

Figure 3-13 shows the default settings for the options in the “Switch settings” dialog box. To change a setting, click a check box or button. An *X* in a check box or a dark circle in a button indicates that the option is chosen; an empty check box or button means that the option is not chosen.

- **Base Color Switch** You can choose either four color or two color for your base color selection.
 - If you select “Two color,” base color is not used and the session operates using two colors, emulating a monochrome display.
 - If you select “Four color,” the terminal runs in normal base color mode, except when extended color attributes are specified by the host; in this case, the switch setting is ignored.

The base color switch is dimmed if monochrome has been selected in the Display Settings dialog box, if you have a monochrome monitor, or if you have color monitor that is configured for monochrome in the Control Panel.

- **Cursor Type** The cursor can indicate its position by underlining the character or by forming a block around the character. The default is underline; if you select “Block cursor,” the host displays a rectangle surrounding the character on which the cursor lies.
- **Show cursor position** If you choose “Show cursor position,” the current cursor position is displayed on the status line at the right side. The cursor position is indicated by two numbers separated by a slash (/); for example, *06/07* means that the cursor is on the sixth row and seventh column.
- **Cursor blink** You can choose whether you want your cursor to blink.
- **Click on keystrokes if** You can choose when you want your keystrokes to click. If you choose this option, MacDFT simulates the click of the emulated terminal.

Communicating With a Host

THE MACDFT PROGRAM ALLOWS YOU TO USE YOUR MACINTOSH II COMPUTER to communicate with an IBM host. This chapter describes the procedures for launching MacDFT, copying and pasting data between applications that you run on the host and on the Macintosh computer, and terminating the session. It also addresses printing, using Autokey features, and using the Command menu.

When you use MacDFT on your Macintosh computer connected to a host via a control unit, your computer has these capabilities:

- You can use the MacDFT program to read and edit files or execute programs on your IBM host.
- You can copy and paste text between applications running on the Macintosh and the IBM host.
- You can transfer whole documents between the Macintosh and IBM host by using the File Transfer command. File transfer is described in Chapter 6.

Launching MacDFT

To begin a terminal-emulation session, you can either double-click the MacDFT application icon or double-click a MacDFT configuration document.

Launching from the icon

If you double-click the MacDFT application icon, MacDFT **launches** the default configuration settings that causes the Macintosh to emulate a model 2 terminal.

You can also launch MacDFT by simultaneously pressing the Command key and double-clicking the application icon. This causes the New and Open commands to be enabled in the File menu, letting you open a customized configuration document or a new configuration document.

Launching a configuration document

If you double-click a configuration document that you have customized as described in Chapter 3, MacDFT software emulates the terminal type and display choices you have configured.

Starting an emulation session

After launching MacDFT, you see the host's initial log-on screen. Typically, you must have an account and password to log on to a host.

- ❖ *Note:* If you are unsure about your host account or password, see your system administrator for this information. Follow the procedures at your site to log on to the host.

After logging on to the host, you can do all the things that you normally would do while logged on to a host, such as browsing and editing files, using **host applications**, and executing programs. You can also change your display options, and copy and paste text between applications that are running on the host and on the Macintosh.

- ❖ *Note:* If you do not see on-line symbols in the status line, your coaxial cable may not be connected. Check the coaxial cable attached to your Macintosh II. If the coaxial cable is correctly attached and you do not see on-line symbols, call your system administrator to determine the problem.

Changing display options

To change your display options during a terminal emulation session, choose the Display command from the Configure menu. Choose from the options listed in the Display Settings dialog box. For information on how to configure these options, see Chapter 3.

Copying and pasting host data

MacDFT allows you to use the standard Macintosh copy and paste functions to transfer information between documents. MacDFT supports copying and pasting text between applications on the Macintosh computer, such as MacWrite®, and text editing applications on the host, such as XEDIT. If you are not familiar with copying and pasting text between documents, see your Macintosh II owner's guide.

Copying text

You can copy text between applications that run on the host and your Macintosh computer.

Copying text from the Macintosh to the host

To copy data from the Macintosh and paste it to the IBM host application, follow these steps:

1. In the application window, select the text you want to copy. Then choose the Copy command from the Edit menu.
 2. Click the MacDFT session window.
 3. Select the host application into which you want to copy text.
 4. Place your cursor where you want the text to appear, and choose the Paste command from the Edit menu.
- ❖ *Note:* Some applications on the host have protected **fields**, that is, fields in which you are not allowed to type. If you paste text into an application that has protected fields, pasting stops when you get to a protected field. Pasting data that you have copied from a host application may have an extra character space in every field.

Copying text from the host to the Macintosh

To copy data from the host and paste it to the Macintosh, follow these steps:

1. Select the text that you want to copy from the host application. Then choose the Copy command from the Edit menu.
 2. Select the Macintosh application into which you want to copy text.
 3. Place your cursor where you want the text to appear, and choose the Paste command from the Edit menu.
- ❖ *Note:* Pasting data copied from a host application may have an extra character space in every field.

Copying tables

The Copy Table command in the Edit menu lets you copy tabular information from the host to an application on the Macintosh. This command is useful for copying information into spreadsheets or databases on the Macintosh computer. The Copy Table command translates a string of two or more spaces into a tab character.

To copy tabular information, follow these steps:

1. Open the host application and select the information you want to copy.
 2. Copy the information by choosing the Copy Table command.
 3. Choose the Paste command from the Edit menu, and paste the text you copied into a Macintosh file or application.
- ❖ *Note:* You can use the Command key while selecting text to modify the selection rectangle. If you hold down the Command key while selecting text, you can copy sections of text that do not extend to the window margin.

- **Figure 4-1** File menu with Close, Close All, and Quit commands



Terminating the session

The File menu provides commands for terminating a MacDFT session. Figure 4-1 shows the File menu with the Close, Close All, and Quit commands for terminating a session. Typically, you must log off the host before terminating the session. If you are unsure about your site's procedures, see your system administrator.

Close

The Close command closes the session on the host, but keeps the configuration document that you launched open. After using the Close command, you can start a new session by choosing the Start Emulation command from the Command menu.

Close All

The Close All command closes the session and configuration document, but keeps you in the MacDFT application. You can start another emulation session by choosing the New or Open command from the File menu, and then choosing the Start Emulation command from the Command menu.

When you choose the Close All command, MacDFT queries whether you want to save your configuration document. If you have changed your settings; click Yes if you want to save your changes; click No if you do not want to save your changes. To start a new emulation session, you must reconnect.

Quit

The Quit command terminates your session and closes the MacDFT application. If you have made changes to the configuration, MacDFT queries whether you want to save these changes in your configuration document. If you click Yes, MacDFT asks you to name the configuration document; you can either save the changes to the document with which you launched the session, or to a new document. If you click No, any changes you have made to the configuration document are not saved.

Printing with MacDFT

You can print documents and files produced during your MacDFT session. You can use either an Apple printer that is connected to your Macintosh, or an IBM printer that is connected to the control unit to which your Macintosh is connected.

△ **Important** You cannot use your Apple printer for host-initiated printing. △

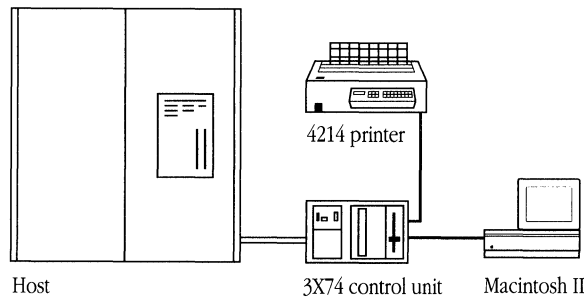
Printing documents on an Apple printer

If your Macintosh II is connected to an Apple printer, you can print Macintosh-resident documents during a MacDFT session. You can use any type of printer supported by Apple. You can print documents that you have created during a MacDFT session, or documents that you have downloaded from the host.

Printing documents on an IBM printer

You can print host-resident documents during a MacDFT session to an IBM printer that is connected to your control unit or host. Use the print commands that are supported in your IBM environment. Figure 4-2 shows one possible configuration of MacDFT with a system printer attached to the control unit.

■ **Figure 4-2** MacDFT configuration with an IBM printer



Printing or saving a screen image

The File menu, as shown in Figure 4-3, has two commands for creating screen images: Print Screen and Save Screen on disk.

- ❖ *Note: Local copy*, as it is understood by the IBM community, means sending a snapshot of your screen to the control unit, which prints it on a 3287 printer. MacDFT version 1.0 does not support host or terminal local copy. However, you can create a screen image that you can save to disk or print from the Macintosh II computer during a MacDFT session.

■ **Figure 4-3** File menu

File	
New...	⌘N
Open...	⌘O

Close	⌘W
Close All	

Save	⌘S
Save As...	
Revert	

Transfer Files...	

Page Setup...	
Print Screen	⌘P
Save Screen on Disk	⌘D

Quit	⌘Q

Print Screen

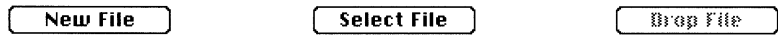
To print a terminal screen that you see during a MacDFT session, choose the Print Screen command. The terminal screen image is printed to an Apple printer that is available to your Macintosh II.

Save Screen on Disk

MacDFT lets you save a screen image that you see during a MacDFT session. The Save Screen on Disk command is dimmed until you have chosen the Display command and selected either the New File or Select File button in the Display Settings dialog box. The screen image is saved as a text file. Figure 4-4 shows you the portion of the Display Settings dialog box that lets you name the screen image.

■ **Figure 4-4** “Save screen’ file” option

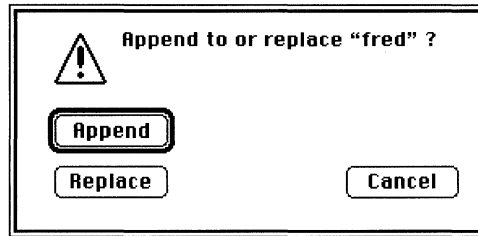
“Save screen” file:



The Display Settings dialog box lets you choose one of the three buttons:

- **New file** Select this option to create a new filename on your disk. MacDFT will then prompt you for a new filename.
- **Select file** After you choose this option, you see the alert box in Figure 4-5. This option lets you choose whether to append to or replace the contents of a file on your disk with a new screen image.

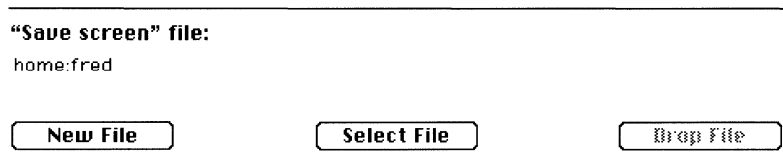
■ **Figure 4-5** “Append or replace” alert box



- **Drop file** Select this option to remove the filename and its path from the Display Settings dialog box.

Click OK at the lower-right corner of the Display Settings dialog box. MacDFT places the file in the window that is currently open, showing the pathname. The pathname shows the folder in which it resides on your disk. For example, Figure 4-6 shows a file that has been named.

■ **Figure 4-6** “Save screen’ file” option with a filename



After you have clicked either “New file” or “Select file,” name your file by typing the name under “Save screen’ file.” When you have the image on screen that you want to save, go to the File menu and choose the Save Screen on Disk command; this causes the screen image to be saved to your disk. In the example shown in Figure 4-6, the file “fred” will be saved to the disk “home.”

Before using the contents of a screen you have saved to disk, you must first open the file using a text processing application, such as MacWrite or Microsoft Word.

Using the Autokey menu

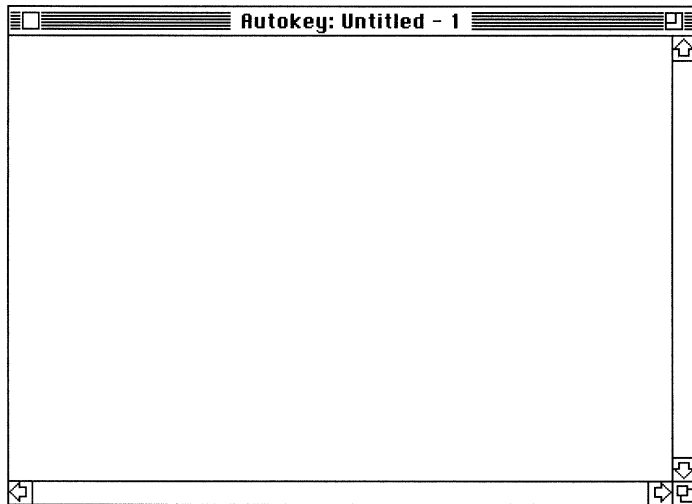
The Autokey feature lets you store strings of keystrokes that you use frequently in an emulation session. When you choose an Autokey item, the keystrokes stored in the Autokey item are played back as if you had just entered them with the keyboard. The Autokey menu is shown in Figure 4-7.

■ **Figure 4-7** Autokey menu



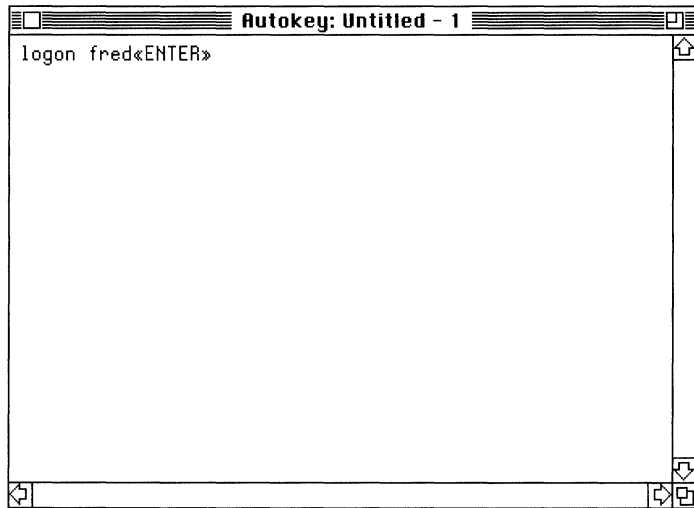
To create an Autokey sequence, go to the Autokey menu and choose New. You see a **text box** labeled "Autokey: Untitled," with a sequence number. Figure 4-8 shows "Autokey: Untitled -1."

■ **Figure 4-8** Autokey Untitled window



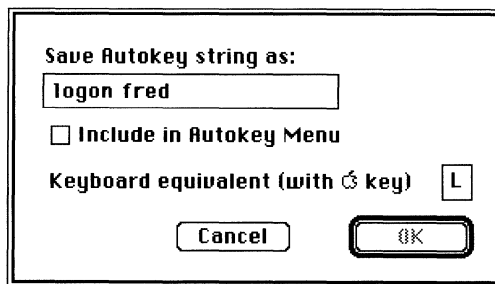
Type the string you want in the Autokey box. If you make a mistake, use the Cut or Clear command from the Edit menu. If you use the Delete key, it becomes part of the string. Figure 4-9 shows an Autokey window with text entered.

■ **Figure 4-9** Autokey window with string of text



Use the Save As command to give your Autokey a meaningful name. Figure 4-10 shows the dialog box you see when you choose the Save As command after entering text in an Autokey window. In this example, the log-on Autokey is named "logon fred." The maximum size for the Autokey name is 22 characters.

■ **Figure 4-10** Naming your Autokey

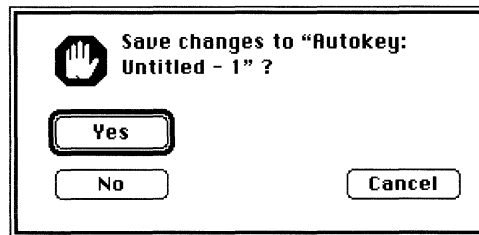


In the example in Figure 4-10, the “Include in Autokey Menu” box was selected, and the “Keyboard Equivalent” text box appears. You can assign a keyboard equivalent to your Autokeys. Be careful not to select one of the standard Macintosh keyboard equivalents, or one that is already assigned. If you select a duplicate, an alert box will tell you that you must rename the key. See your Macintosh owner’s guide for a list of assigned keys.

If you click “Include in Autokey menu,” Autokeys that you have created and saved in a configuration document are listed and can be played from the Autokey menu. Autokeys can also be assigned to and played from the Keypad dialog box, described in Chapter 5.

If you do not use the Save As command from the File menu after entering an Autokey string, you are prompted by the alert box shown in Figure 4-11.

■ **Figure 4-11** “Save changes” alert box



If you click Yes, you see the dialog box shown in Figure 4-10.

The Autokey feature provides commands to edit, delete, play, pause, and resume Autokey sequences that you have created.

Edit

The Edit command brings up a scrollable list of Autokey strings that exist in your current configuration document, and two buttons, Edit and Cancel. If you click a name from the list and choose the Edit command, you can edit the string and save it.

Delete

The Delete command lets you delete an Autokey entry. Select the Autokey item that you want to remove from the dialog box, and choose the Delete command.

Play

The Play command executes the Autokey sequence. For example, if you created an Autokey named “logon fred,” you can choose the Play command and choose “logon fred.” You can also add it to the Keypad, or play it by pressing its keyboard-equivalent keys. The host receives the message exactly as it was entered. You will see the letter *P* on the status line while you are playing the Autokey sequence.

Pause

The Pause command tells the Macintosh to halt execution of an Autokey command until you choose the Resume command from the Autokey menu. When you select Pause, the letters *PP* appear on the status line, indicating that you have clicked Pause, and the Resume command appears in the Autokey menu. The letters *PP* disappear after you choose the Resume command.

Cancel Autokey

The Cancel command tells the Macintosh to cancel the Autokey sequence.

Using the Command menu

The Command menu provides three functions for terminal emulation sessions. Figure 4-12 shows the Command menu.

■ **Figure 4-12** Command menu



Start Emulation

The Start Emulation command allows you to begin an emulation session after choosing the Close command from the File menu.

Display Switches

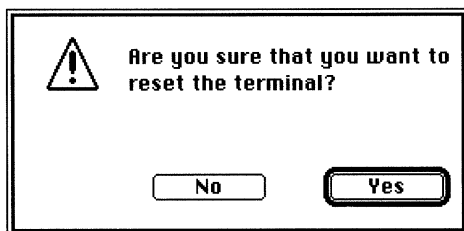
The Display Switches command lets you change display options using a dialog box. See the section in Chapter 3 titled “Choosing Switch Settings.”

Reset Terminal

The Reset terminal command lets you end your terminal emulation session and begin a new session immediately. Figure 4-13 shows the alert box that you see if you choose the Reset Terminal command.

If you click Yes, your connection with the host is ended and you are reconnected to the host. You may have to log on again. If you do not want to reset the session, click No.

■ **Figure 4-13** “Reset terminal” alert box

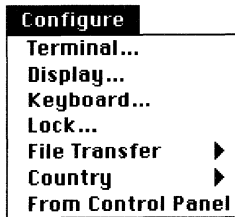


Using the Keyboard and Keypad

THE MACINTOSH KEYBOARD IS CONFIGURED TO FUNCTION AS AN IBM 3270 terminal keyboard. Since the Macintosh keyboard has features that differ from IBM keyboards, the MacDFT application provides two features that enable you to work efficiently with these differences. Using the Option and Command keys, you can use the Macintosh keyboard with the functionality of the IBM keyboard; and you can send IBM keystrokes from the Keypad menu. This chapter explains how to use and customize both of these features.

Macintosh and IBM 3270 keyboards

- **Figure 5-1** Configure menu



Because the IBM keyboard has some keys that are not standard on the Macintosh keyboard, MacDFT has a keyboard mapping feature. The keyboard mapping feature allows you to map key functions found on the 3270 terminal to the Macintosh standard or extended keyboard. These key functions are discussed in the section titled “3270 Keys.”

To display the Macintosh keyboard and IBM keyboard on your screen, pull down the Configure menu, and choose the Keyboard command. Figure 5-1 shows the Configure menu.

Mapping key functions

Figure 5-2 shows the dialog box that appears when you choose the Keyboard command. The keyboard window displays two keyboards: an IBM 3270 keyboard and either the standard or extended Macintosh keyboard, depending on which keyboard is connected to your Macintosh. Figure 5-2 shows the Macintosh extended keyboard.

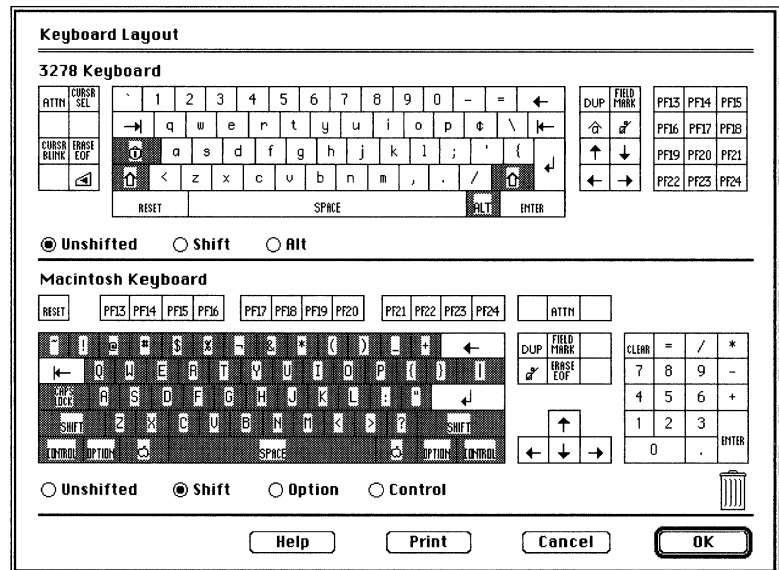
The 3270 keyboard is in the upper half of the window, and the Macintosh keyboard is in the lower half of the window. Keys that are dimmed cannot be mapped. You can reassign all 3270 keys to the Macintosh keyboard, except for the Lock, Shift, and Alt keys. You cannot reassign a 3270 key function to a dimmed key on the Macintosh keyboard.

Keyboard mapping tools

MacDFT provides buttons to help you map 3270 keys to the Macintosh keyboard. The 3270 keyboard has three buttons that represent modifier keys:

- Unshifted
- Shift
- Alt

■ **Figure 5-2** Macintosh and 3270 keyboards



The Macintosh keyboard has four buttons:

- Unshifted
- Shift
- Option
- Control

Clicking any of these buttons reveals the current key assignment associated with these modifier keys. The Shift button, for example, causes all the alphabetical keys to be displayed as uppercase letters. Try selecting each button to see how your screen display changes. On the Macintosh keyboard, you can use the buttons on the screen or the key on your keyboard to change your display.

You can map keys from the IBM keyboard that are combined with the Shift or Alt key to the Macintosh keyboard in either Unshifted, Shifted, Option, or Control mode. The keys that you can reassign are 3270 function keys: Enter, Program Function keys 1-24, PA1, PA2, Clear, Attn, Sys Req, Reset, the arrow keys, New Line, Home, Tab, Backtab, Insert, Delete, Erase EOF, Erase Input, DUP, and Field Mark. If you are already familiar with 3270 keys, you can skip ahead to “Mapping 3270 Function Keys to the Macintosh Keyboard.”

3270 keys

The 3270 keys are divided into four major groups according to function. The sections that follow provide an overview of 3270 keys. If you need instructions for using a key's function, refer to the host application's documentation.

Program Function keys

There are 24 Program Function (PF) keys, labeled PF1 through PF24 on your keyboard. The host application you are using assigns its own functions to these keys; refer to the application's manual for specific functions.

Program Attention keys

MacDFT supports two Program Attention keys, PA1 and PA2. The application program you are using determines the function of these keys.

3270 function keys

The 3270 function keys give commands that are standard throughout 3270 communication. Table 5-1 gives a complete name for each function and briefly describes each function.

Cursor movement keys

The cursor movement keys move the cursor on the screen. This function is local; no host processing is involved.

■ **Table 5-1** 3270 function keys

Key	Function
Clear	Clears the screen during a session.
DUP	Allows you to duplicate the information in one field into another field.
Enter	Sends a request for attention.
Erase to End of Field (EOF)	Erases data from the cursor location to the end of the input field.
Erase Input	Erases data in all input fields.
Field Mark	Puts the Field Mark character into the current input field. The application program determines its function.
Home	Returns the cursor to the first nonprotected field.
Newline	Moves the cursor to the next line, or to line one if there are no input fields.
System Request	Either sends a signal to the host system to tell the program you have a test request message, or clears the display screen and switches the display station between the application and the control program.
Attention	Requests the attention of the host.
Arrow keys	Moves the cursor in the direction of the arrow.

Table 5-2 shows key reassignment for special characters that do not exist in ASCII, but are used in EBCDIC.

■ **Table 5-2** Key reassignment for nonsupported Macintosh special characters

EBCEDIC character	Macintosh key (ASCII character)
The cent sign (¢)	[
Logical NOT sign (¬)	^
Broken vertical bar ()]

Mapping 3270 function keys to the Macintosh keyboard

When you map a 3270 function key to a key on the Macintosh keyboard, pressing that Macintosh key causes it to have the 3270 function. For example, you could map the 3270 delete symbol to the Macintosh keyboard with the Option button selected. When you press the Macintosh Option key and the key that you have mapped, you send a delete keystroke. This section explains how to change the function of a key and how to delete a function from the keyboard.

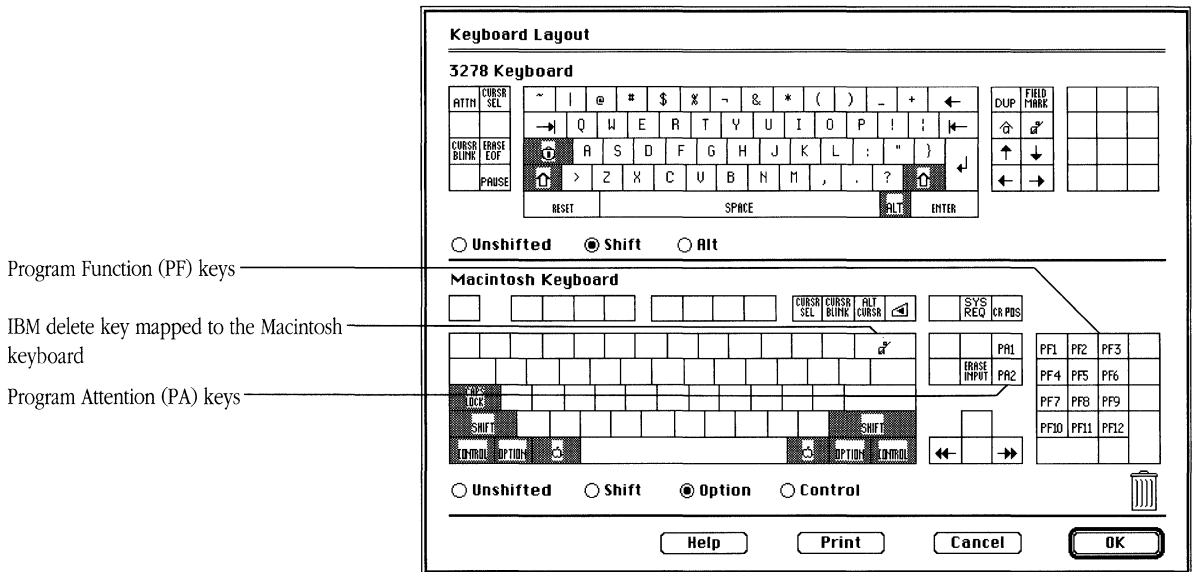
Changing the function of a key

Here are two ways to assign the function of an IBM key to a Macintosh key:

- Drag the key from the IBM keyboard, and position it on the Macintosh key on which you want to assign it. Release the mouse button.
- Click the key on the IBM keyboard that you want to move to the Macintosh keyboard. Click the key on the Macintosh keyboard that you want to have the function of the IBM key.

Figure 5-3 shows IBM keys assigned to the Macintosh keyboard.

■ **Figure 5-3** Keys with new functions



Deleting the function of a key

To delete the function of a key that is mapped with a 3270 function, click it and drag that key to the **trash can**, and release the mouse. The key where the 3270 function had been becomes blank.

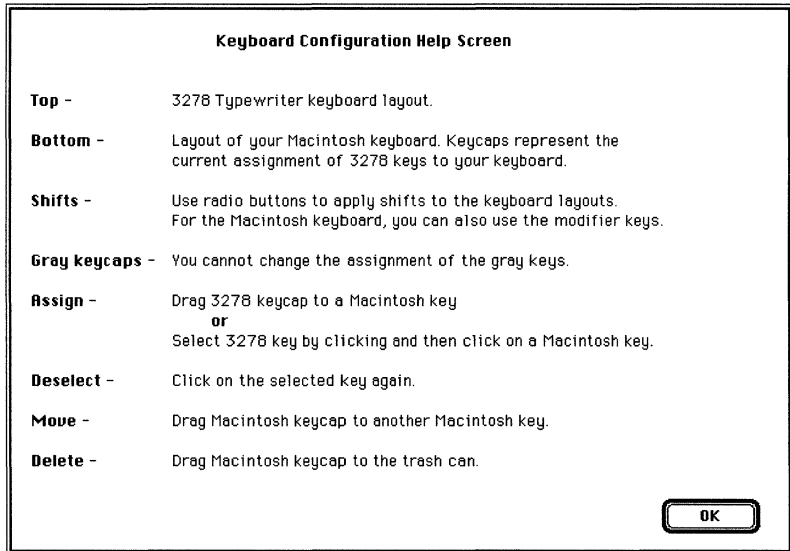
After you have deleted the 3270 function from a key, you can map another 3270 function key to the blank key, you can replace the key's original function, or you can leave it blank.

Saving your customized keyboard

When you have made all your key mapping selections, click the OK button to save your choices for this session. If you have made choices that you do not want to save, click the Cancel button. This causes the keyboard to revert to the last-saved keyboard settings. You can save your choices into a configuration document by choosing the Save As command from the File menu; your keyboard choices become part of the configuration document. For more information on configuration documents, see Chapter 3, "Configuring MacDFT."

The keyboard provides on-line help for using the keyboard. Select the Keyboard Help button from the Keypad dialog box. The Help screen in Figure 5-4 appears.

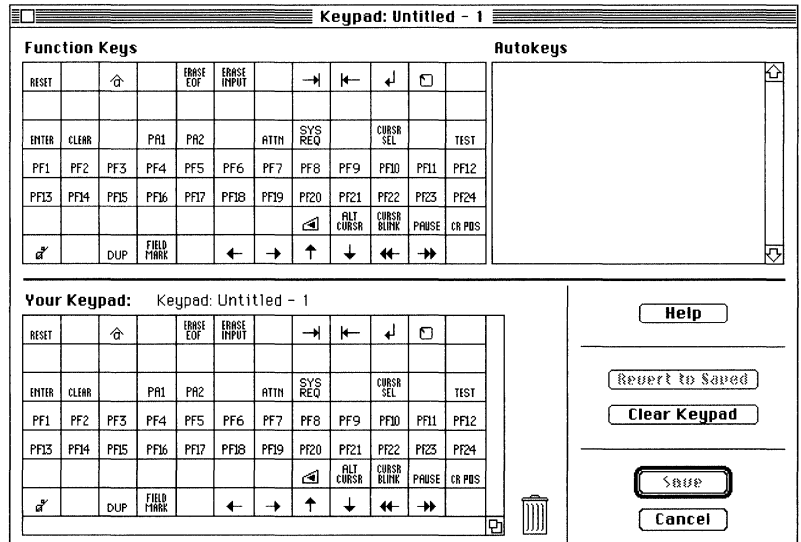
■ **Figure 5-4** Keyboard Help screen



Using the keypad

The keypad is a **tear-off menu** that enables you to send keystrokes without using the keyboard. You can create a customized keypad menu that contains the keystrokes you most frequently use, and tear it off to the corner of the window of your MacDFT session. The keypad configuration is shown in Figure 5-5.

■ **Figure 5-5** MacDFT keypad



Using the keypad commands

Clicking a key from the keypad produces the same result as pressing the key on your Macintosh keyboard, including the playback of any Autokey item that you assigned to the keypad.

Mapping a command on the keypad

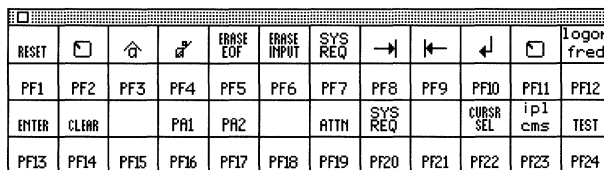
MacDFT lets you customize your own keypad by mapping 3270 function keys to the bottom keypad shown in Figure 5-5. To map a function from the Keypad menu, select the function by clicking it. Then, click any pad on the keypad. After saving the keypad, you can execute the function you have mapped by selecting it from the keypad. You save the keypad to which you have mapped functions by using the Save or Save As command from the File menu. To delete a function from the keypad, click the function and drag it to the trash can.

If you have created Autokeys with the Autokey menu, you can assign them to the Keypad. Select an Autokey item from the scrolling Autokey list, and click the new keypad where you want to place the Autokey. See Chapter 4 for more information about Autokey functions.

Creating a customized keypad

You can customize a keypad to contain the functions you use most frequently. Choose the New command from the Keypad menu. Assign the keys and Autokey items that you use frequently and save the customized keypad with a name. You can use the size box to resize your customized keypad. Figure 5-6 shows an example of a customized keypad.

■ **Figure 5-6** A customized keypad



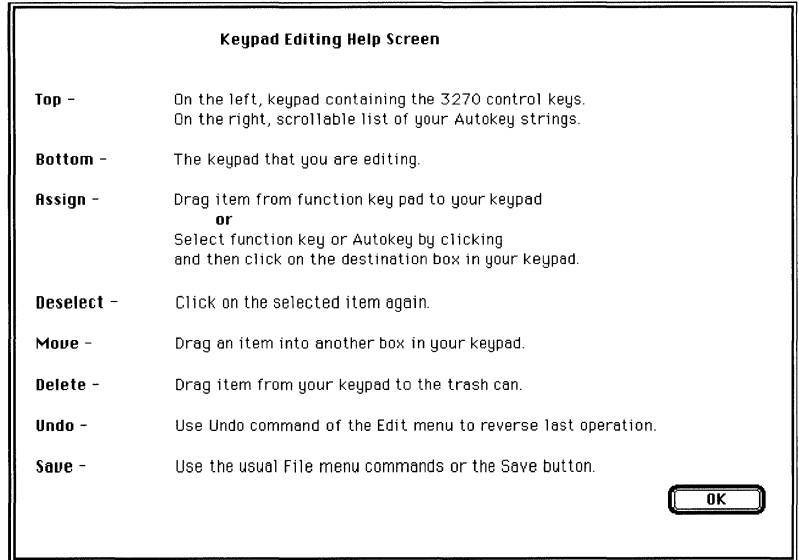
RESET				ERASE EOF	ERASE INPUT	SYS REQ					Logon fred
PF1	PF2	PF3	PF4	PF5	PF6	PF7	PF8	PF9	PF10	PF11	PF12
ENTER	CLEAR		PA1	PA2		ATTN	SYS REQ		CURS SEL	ip1 cms	TEST
PF13	PF14	PF15	PF16	PF17	PF18	PF19	PF20	PF21	PF22	PF23	PF24

Saving your customized keypad

When you have made all your keypad selections, click the Save button to save your choices. If you have made choices that you do not want to save, click either the Cancel or Revert to Saved button. This causes the keypad to revert to the last-saved keyboard settings. You can also save your choices into a configuration document by choosing the Save command from the File menu. Your keyboard choices become part of the current configuration document. For more information on configuration documents, see Chapter 3, “Configuring MacDFT.”

The Keypad provides on-line help for using the keypad. Click the Keypad Help button on the Keypad dialog box. The Help screen in Figure 5-7 appears.

■ **Figure 5-7** Keypad Help screen



Transferring Files

THE MACINTOSH AND THE IBM HOST RUNNING THE VM/CMS OR MVS/TSO operating system can share files through file transfer. Unlike copying and pasting, discussed in Chapter 4, file transfer lets you copy complete files between the Macintosh II computer and the IBM host. File transfer consists of two parts: configuring your choices for file transfer and executing file transfer commands. This chapter describes both parts of the file transfer process.

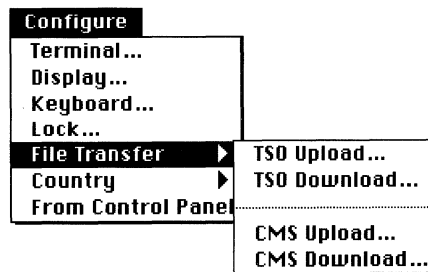
Configuring file transfer

The File Transfer command in the Configure menu lets you choose the direction for file transfer and the operating environment, either **VM/CMS** or **MVS/TSO**. You can either **upload** files from the Macintosh to the host running VM/CMS or MVS/TSO, or **download** files from the host to the Macintosh.

Figure 6-1 shows File Transfer command configuration options. These options are discussed in the next section.

After you have configured file transfer, all subsequent file transfers follow the choices you have made, until you choose the File Transfer command again. If you want to transfer another type of file, choose the File Transfer command from the Configure menu again, and choose the appropriate configuration for your next file transfer.

■ **Figure 6-1** File Transfer command



Selecting configuration choices

Because VM/CMS and MVS/TSO are different operating systems, each has different **parameters** that you must specify before transferring files between the host and the Macintosh. MacDFT supplies you with default file transfer parameters that are described in the section that follows. Each File Transfer configuration dialog box displays a different set of these file transfer parameters, depending on the file transfer direction, the file transfer mode, and the operating system. Unless otherwise stated, a parameter applies to both host environments.

△ **Important** You can change these values, but be sure that the host accepts the values you are selecting. If you are not sure what values the host accepts, check with your system administrator. When you upload a file that replaces or appends an existing file, you must specify the same configuration parameters as the existing file. △

■ Transfer Mode

- **Text** Use this option for files that contain Text only (ASCII characters only). Before uploading a file as a Text file, save it as “text only”; formatting information such as bold or italic is not transferred to the host.
 - **Binary** Use this option for files that contain non-ASCII characters. Binary files cannot be transferred as Text files. Text files, however, may be sent as Binary files.
 - **MacBinary** Use this option only for Macintosh-created files that you want to use on a Macintosh. MacBinary transfer preserves all the Macintosh-specific information needed by the Macintosh file system.
- ❖ *Note:* Text and binary file transfer modes do not preserve information needed by the Macintosh file system.

■ Other Option

- **CR is record separator** If you click this option, MacDFT software uses a carriage return (CR) as the record separator. This option works only for text files.
- **Append CR to each line** If you click this option, MacDFT uses a carriage return (CR) as the record separator. This option works only for text and binary files.

- **Append to Host File** If you click this option, MacDFT appends this file to the already existing host file named in the upload configuration dialog box. This option works only on text and binary files.
- **Overwrite Option** You can choose whether you want the file you are transferring to overwrite an existing file with the same name. Choose one of the following.
 - **Append to existing Macintosh file** If you click this option, MacDFT attaches this file to the named file in the “download” dialog box for text and binary files.
 - **Append to host file** If you click this option, MacDFT attaches this file to the file you type in host filename text box.
- **Record Format**
 - **Fixed** This option indicates that all records in the file have the same fixed length.
 - **Variable** This option indicates that the records in the file do not have the same length. A length field is available at the beginning of each record.
 - **Undefined** This option indicates that the file is not record oriented, and therefore does not have any length attributes.
- **CMS file mode** The file mode is split into two components, a letter and a number. The letter specifies the virtual disk on which the file is to be located: *A* is the primary disk, and is the default. The number signifies the access type: *1* is read/write, and is the default. List your file and type in the value for the file mode, if it is not *A1*.

- **TSO Allocation** You can change the value for TSO allocation and override the default allocation. Check with your system administrator for the appropriate range of values. You can specify space in tracks, block, or cylinders. Type the new values in the text box for primary and secondary space for TSO allocation, where primary and secondary are appropriate values for your host, as shown below.

```
space (qty, incr) [AVBLOCK (value) | TRACKS | CYLINDERS]
```

This command specifies the amount of space to be attached for a new file. Use `qty` and `incr` to specify the amount of primary and secondary allocations. The smallest quantity of space is `AVBLOCK`, the medium quantity is `TRACKS`, and the largest quantity is `CYLINDERS`. If you don't specify the TSO allocation option, TSO uses default values.

- **Record Size** Record size indicates the record size for the IBM file. The default for text files is 80 bytes; the default for binary or MacBinary files is 256 bytes. To change these values, type in the desired value for record size in the text box.
- **Block Size** Block size refers to the block size of the IBM file. The default is 800 bytes.

After you have made your selections, click OK. If you change your mind, click Cancel. To begin file transfer, use the Transfer Files command in the File menu.

Configuration for uploading a file to a host running MVS/TSO

Figure 6-2 shows the dialog box that you see when you choose the TSO Upload command from the File Transfer pop-up menu.

- **Figure 6-2** “TSO upload configuration” dialog box

TSO Upload Parameters

Transfer Mode

Text
 Binary
 MacBinary

Other Option

CR is record separator
 Append to host file

TSO Allocation

Record Size **Block Size**

Record Format Variable Fixed

After you have made your choices, click OK.

Configuration for uploading a file to a host running VM/CMS

Figure 6-3 shows the dialog box that you see when choose the CMS Upload command from the File Transfer pop-up menu.

■ **Figure 6-3** “VM/CMS upload configuration” dialog box

VM/CMS Upload Parameters

Transfer Mode

Text
 Binary
 MacBinary

Other Option

CR is record separator
 Append to host file

File Mode

Record Size

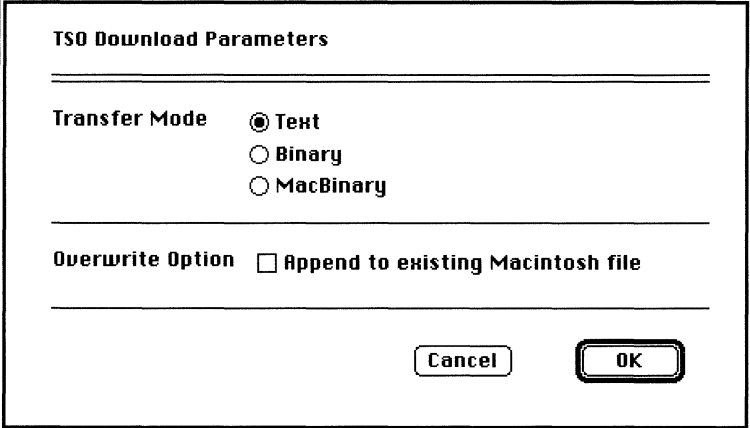
Record Format Variable Fixed

After you have made your choices, click OK.

Configuration for downloading a file from a host running MVS/TSO

Figure 6-4 shows the dialog box that you see when you choose the TSO Download command from the File Transfer pop-up menu.

■ **Figure 6-4** “TSO download configuration” dialog box



The dialog box is titled "TSO Download Parameters" and is enclosed in a rectangular border. It contains two main sections separated by horizontal lines. The first section is labeled "Transfer Mode" and has three radio button options: "Text" (which is selected), "Binary", and "MacBinary". The second section is labeled "Overwrite Option" and has a single checkbox option: "Append to existing Macintosh file". At the bottom right of the dialog box, there are two buttons: "Cancel" and "OK".

After you have made your choices, click OK.

Configuration for downloading a file from a host running VM/CMS

Figure 6-5 shows the menu that you see when you choose the CMS Download command from the File Transfer pop-up menu.

■ **Figure 6-5** “VM/CMS download configuration” dialog box

VM/CMS Download

Transfer Mode **Text**
 Binary
 MacBinary

Overwrite Option **Append to existing Macintosh file**

CMS File Mode

After you have made your choices, click OK.

Transferring files

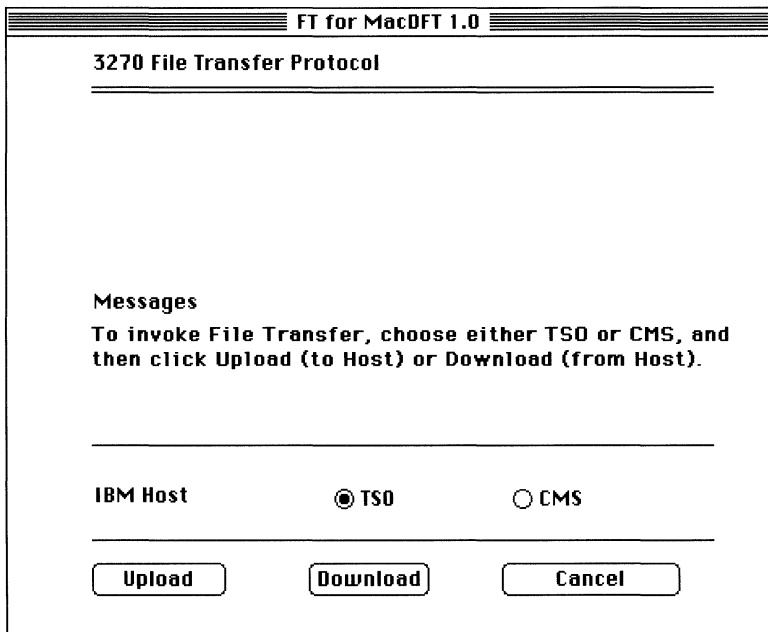
To execute file transfer, choose the Transfer Files command from the File menu. You must be logged on to the host, and the Ready prompt must be displayed. You cannot use any host application while transferring files.

- ❖ *Note:* Because of the way data is stored and formatted on the Macintosh, some reformatting of text files is necessary after a file is uploaded to the host.

Choosing the Transfer Files command from the File menu brings up the “File transfer” dialog box, shown in Figure 6-6.

- **Choose the host operating environment** Click either TSO or CMS. You must be sure that the host operating environment you choose matches the host to which you are logged on. The default operating system is the one you most recently configured in the File Transfer command in the Configure Menu.

- **Figure 6-6** “File transfer” dialog box



- **Choose the direction for file transfer** Click either Upload or Download to go to the next dialog box for file transfer. The “Upload” dialog box is shown in Figure 6-7; the “Download” dialog box is shown in Figure 6-8.

Figure 6-7 shows the dialog box that appears when you click the Upload button in the “File transfer” dialog box (shown in Figure 6-6). This example shows a listing of files that can be uploaded to the host.

Follow these directions to upload a file:

1. Type the host filename and file type in the text box.
2. Select the folder from which the file will be uploaded. Figure 6-7 shows the files that can be uploaded from the *special projects* folder. If you want to choose another folder, click the text box for folders to choose the folder you want.
3. Click the Macintosh filename in the list.
4. Click the Upload button to start the file transfer. If you click Cancel, you return to terminal emulation.

△ **Important** If you are uploading a file to a VM/CMS host, you must specify the filename and file type. If you do not specify the file mode, the default file mode, A1, is used. Files to be uploaded cannot be in use. △

■ **Figure 6-7** “Upload” dialog box

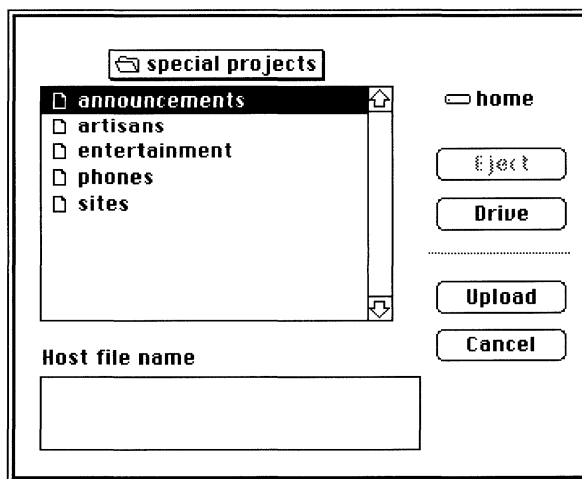


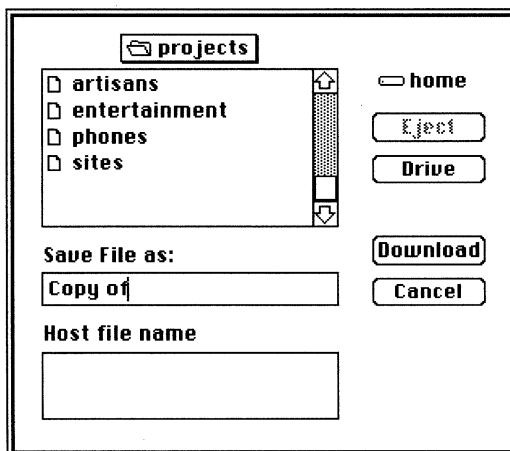
Figure 6-8 shows the dialog box that appears when you click the Download button in the “File transfer” dialog box.

Follow these directions to download a file:

1. Type the Macintosh filename in the upper text box. You can either type over the “Copy of” portion of the upper text box, or type after the words “Copy of” to name the file that you are downloading.
2. Type the host filename in the lower text box.
3. Choose the folder to which the file will be downloaded. When you download a file, the file is placed in the folder shown in the dialog box, above the file listing. If you want to choose another folder, click the text box for folders to choose the folder you want.
4. Click the Download button to start the file transfer. If you click Cancel, you return to terminal emulation.

△ **Important** If you are downloading a text file, it will be stored on the Macintosh as a MacWrite file. △

■ **Figure 6-8** “Download” dialog box



The dialog box shown in Figure 6-9 appears after you have clicked either the Upload or Download button. It shows the “File transfer” dialog box with the filenames for the host and Macintosh files, and the file transfer status displayed in the Messages area.

△ **Important** The “Transfer mode” field shows Text. If you want to transfer the file as a binary or MacBinary file, you must click the “Abort transfer” button and return to the File Transfer command in the Configure menu. If you choose the “Abort transfer” button, MacDFT leaves file transfer and returns to terminal emulation. △

■ **Figure 6-9** Beginning file transfer

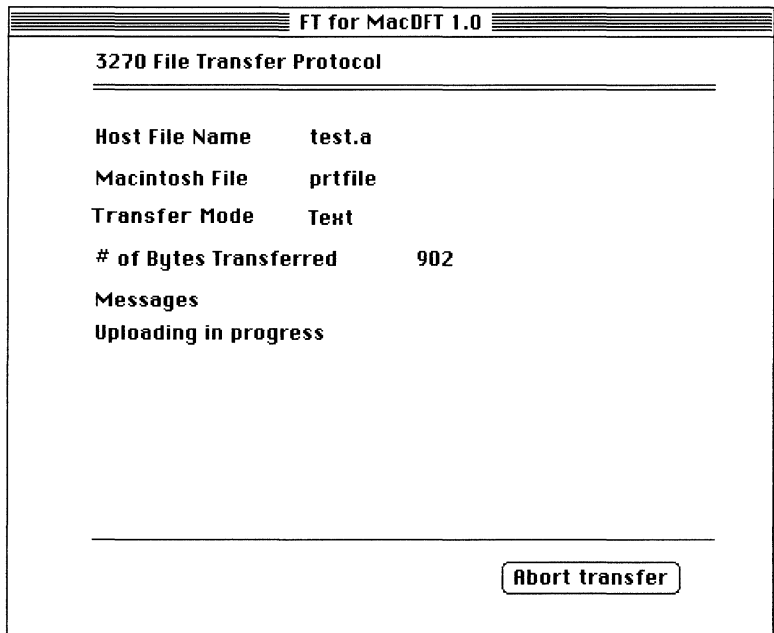


Figure 6-10 shows the “File transfer” dialog box with the message that the file transfer is in progress. The dialog box also will display the number of bytes that have been transferred.

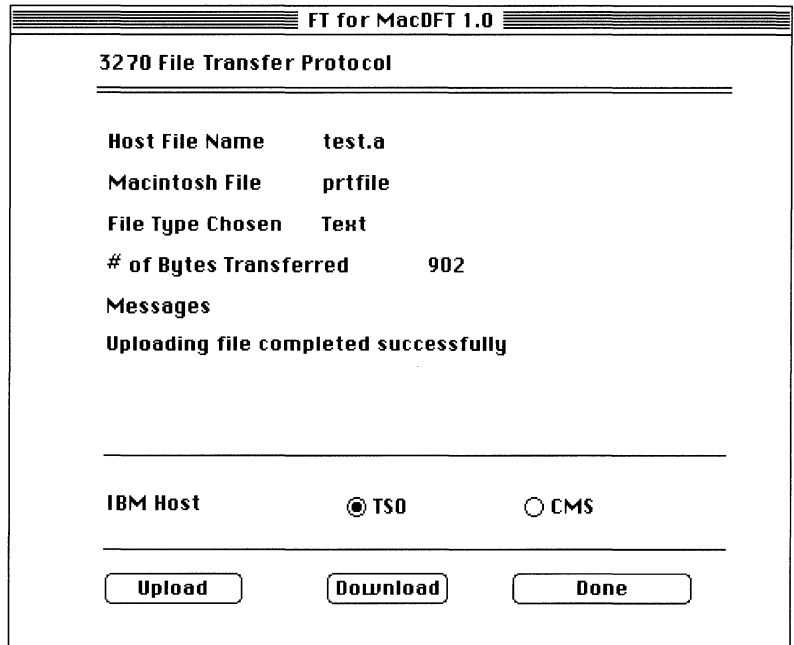
■ **Figure 6-10** File transfer in progress



Figure 6-11 shows the “File transfer” dialog box when file transfer is complete. The dialog box displays the number of bytes that have been transferred and any informational or **error messages**. Error messages are listed in Appendix B.

If you are finished transferring files, click Done. If you want to transfer another file, click Upload or Download.

■ **Figure 6-11** Completed file transfer



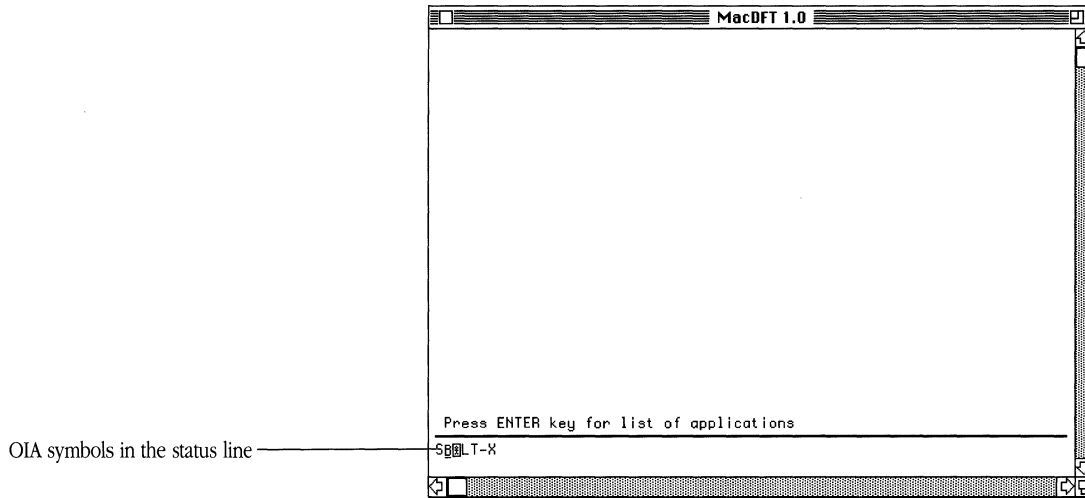
Reading the Status Line

THE STATUS LINE AT THE BOTTOM OF THE TERMINAL EMULATION SCREEN displays messages from the host and control unit. These messages tell the status of the host, control unit, and applications that you are running.

This appendix shows some of the status line messages most frequently seen while using MacDFT, but does not cover all of the possible messages. IBM documentation provides a comprehensive description of these messages and of problem resolution. If you do not understand status line messages, ask your system administrator for assistance.








The status line is displayed at the bottom of your Macintosh screen when your Macintosh is connected to a control unit. The status line displays **Operator Information Area** (OIA) messages about the host or control unit to which your Macintosh is connected. This information appears as symbols, numbers, and letters. Figure A-1 shows a MacDFT terminal emulation screen with OIA messages in the status line.

■ **Figure A-1** MacDFT screen with OIA symbols



The symbols sent by the IBM host are shown in Table A-1. Status line messages are made up of one or more OIA symbols that read from left to right.

■ **Table A-1** OIA symbols

Symbol	Message
	Means do not enter (input inhibited)
	Means time is required
	Represents a display unit or printer
	Signifies a malfunction
-	Signifies a connection
	Signifies that your Macintosh computer is connected to your application program
	Signifies that your Macintosh is connected to your system operator (control program)
	Signifies that your Macintosh is connected to the host system, but that your application program or control program is not connected
TEST	Occurs when the TEST key is pressed, and indicates that the Macintosh is in TEST mode from the host

The section that follows gives examples of status messages, classified by type.

Readiness and system connect messages

The readiness and system connection symbols are displayed in the first six character spaces in the status line. These symbols are used singly or in combinations to indicate the readiness of your Macintosh, control unit, or host.

Control unit ready symbols

S or $\boxed{4}$ These symbols indicate that the control unit to which your Macintosh is connected is ready for operation. An S indicates that your Macintosh is connected to a 3174 control unit. A $\boxed{4}$ indicates that your Macintosh system is connected to a 3274 control unit.

On-line symbols

\underline{A} or \underline{B} A Ready symbol must be displayed on your screen before an \underline{A} or a \underline{B} (on-line symbols) can be displayed. These symbols tell you that the Macintosh is connected (on line) to the host.

If your display is attached and on line to the control unit, the on-line symbol is displayed to tell you which of two sets of rules governs your transactions with the host. Certain keyboard functions and the meanings of some OIA symbols differ, depending on which set of rules is governing. \underline{A} indicates that your Macintosh is attached to a control unit that is not running SNA, and \underline{B} indicates that your Macintosh is attached to a control unit that is running SNA.

The on-line \underline{A} symbol turns off when you perform any action at your Macintosh that requires a response from the host system. When the host system responds, the \underline{A} turns on again. Whether or not the off/on action is apparent depends on how busy the host system is and how quickly it responds.


“Do not enter” messages

Do not enter (input inhibited)


X The X (“do not enter”) symbol tells you that your host will not accept input from your keyboard. Additional symbols are always displayed to the right of the X to define why your keyboard is inhibited.

When the “do not enter” message appears, your host will not accept data from your keyboard. The reasons why the “do not enter” message comes on are discussed in the descriptions that follow. Each description also tells you how to turn off the “do not enter” message and restore your keyboard.


Wait

-  The host needs more time to perform the function you requested. You must wait for the function to be completed.


Try it again

-  All or part of the last operation that you tried was not accepted by your Macintosh. Check your MacDFT window to make sure that the operation you want to perform is correct, press the RESET key to restore your keyboard, and try the operation again. Do not try to type while the X symbol is displayed.

System lock


-  The host has disabled your keyboard after processing your entry. The host may send you a message on your Macintosh, explaining the reason for disabling your keyboard. You can either wait for the host to restore your keyboard, or press the RESET key to restore your keyboard. You can access the RESET key from the keypad or the keyboard.

Go elsewhere

-  You have tried to take an action in the wrong location, such as
- entering, inserting, erasing, or deleting a character when the cursor is in a protected field
 - performing a cursor-select operation when the cursor is not in a valid cursor-select field

To restore your keyboard, press the RESET key, then move the cursor to another position or take a different action.

Too much data

-  You have entered more data into a field than it can hold. Press the RESET key to restore your keyboard; then correct the entry.

Numeric data only




XNUM You have entered a nonnumeric character, other than 0 through 9, the DUP key, the period (.), and the minus sign (-), into a numeric field. Press the RESET key to restore your keyboard; then enter numeric data.

What number?






X# Only certain numbers can be entered for the operation you are performing. Press the RESET key to restore your keyboard; then enter the correct number.

Minus function

X-f The function or operation that you requested is unavailable. Press the RESET key and check the OIA for other symbols to determine if the function is permanently or temporarily unavailable. Here are some examples:

  or 

- If either of these sets of symbols is displayed, the function is permanently unavailable. Press the RESET key to restore your keyboard; then take other action.

   or  

- If either of these sets of symbols is displayed, the CURSR SEL, ATTN, PA, and PF keys are nonfunctional at this time. Press the RESET key to restore your keyboard, then take other action.



- If this symbol is displayed and none of the above symbol combinations is displayed, the function is temporarily unavailable. Press the RESET key to restore your keyboard, and try the function again.

Communication Check

X- nn or nnn

There is a problem with the communication line between the control unit and the host system. The error number *nn* or *nnn* defines the type of Communication Check. For example, the number *505* indicates that the control unit is not working. Press the RESET key to restore your keyboard, and try again. This message is in the first six character positions in the status line. If you see these symbols in character position 21 of the status line, the message indicates a Communication Reminder message. See your system administrator if this message persists.

Program Check

XPROG *nn* or *nnn*

The control unit detected a programming error in the data received from the host. The error number *nn* or *nnn* defines the type of Program Check. Press the RESET key to restore your keyboard, and continue. If the problem persists, consult your system administrator.

Mode symbols

MacDFT displays two mode symbols:

- numeric lock
- insert

Numeric lock

NUM This symbol appears when you select Numeric Lock through the Display Settings command from the Configure Menu, and your cursor is in a host-defined numeric field. *NUM* appears in the center of your status line.

Insert

- ^ This symbol appears when you select insert mode in your terminal emulation session. The IBM keyboard has an Insert key that can be used from the Macintosh keyboard; see Chapter 5 to learn how to map IBM keys to the Macintosh keyboard. The Insert Key message is located in the center of your status line.

MacDFT messages

The Play and Play Pause messages appear on the status line during MacDFT sessions.

Play

- P** *P* indicates that a recorded message is being sent to the host. Examples of situations that cause the *P* message to appear include an Autokey string, text that is being pasted into a host session, or a key from the Keypad.

Play pause

- PP** *PP* indicates that the Autokey is pausing while sending a recorded message. Use the Resume key in the Autokey menu to continue playing the Autokey sequence.

MacDFT Error Messages

ERROR MESSAGES COME FROM THE MACINTOSH COMPUTER, THE HOST, AND THE application that you are running. This appendix describes error messages that are generated by the MacDFT application. For information on messages from the Macintosh, or for general Macintosh troubleshooting information, see your Macintosh II owner's guide. For information on messages from the host, see your host documentation or your system administrator. Also, see Appendix A for status line messages from the host.

About MacDFT error messages

MacDFT displays error messages in either an alert box or a warning box. The sections that follow contain strings of text that MacDFT displays in alert boxes. An alert box or warning can display one or more strings that explain the current situation and may suggest a solution.

Alert boxes notify you whenever an unusual situation occurs. Alert boxes inform you about choices you can make, given the situation. For severe problems, messages are placed in warning boxes .

Figures B-1 and B-2 show examples of alert and warning boxes. Note that the alert box contains a triangle surrounding an exclamation point (!), whereas the warning box contains the stop-sign octagon with a hand in the “Stop!” position.

The alert box in Figure B-1 lets you choose whether to install changes and reset the terminal.

■ Figure B-1 Alert box example

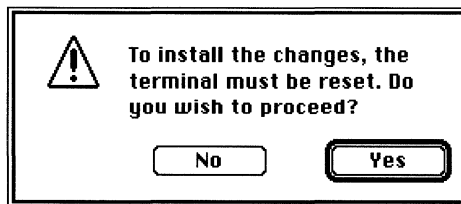
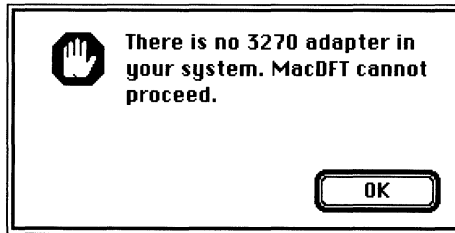


Figure B-2 shows a warning message. It informs you about a situation and forces you to acknowledge it by clicking the OK button.

■ **Figure B-2** Warning box example



Password error messages

Incorrect password

You have typed your password incorrectly. Please try it again. See Chapter 3 for more information about passwords.

Password is too long

You have typed a password with too many characters. You can use up to 16 characters for your password. See Chapter 3 for more information about passwords.

**Password confirmation failed.
Please try again**

You have typed your password incorrectly. Please try it again. See Chapter 3 for more information about passwords.

Hardware error messages

Driver cannot be opened

Make sure that your application is installed correctly. See Chapter 2.

Host session cannot be established

Check with your system administrator if the host and control unit are on line. Make sure that your coaxial cable is attached to your Coax/Twinax card. See Chapter 2 for information about how the cable should be attached.

There is no 3270 adapter in your system. MacDFT cannot proceed

You need a Coax/Twinax card to use MacDFT. If you have a card, make sure it is properly installed. See Chapter 2.

Configuration error messages

Please check the *MacDFT User's Guide* for the required configuration

This message appears when you do not have the correct hardware and software to run MacDFT. See "What You Need to Get Started" in Chapter 1.

Duplicate or reserved keyboard equivalent

The Macintosh has assigned this key as a reserved keyboard equivalent. Choose another keyboard equivalent.

A name may not begin with a space or contain characters ";^</("

An Autokey name cannot contain these characters.

Please do not use the names of 3270 control keys for your Autokey strings: they are reserved

Do not use names like DUP, PF1, or PA2. These names are reserved. You can use the functionality of these keys through the keypad or the keyboard.

Too many resources

You can have only 43 keypad menus.

MacDFT configuration files cannot be printed. Use Open or New command in the File menu to open a configuration document

You cannot print configuration documents. If you want to see the information in them, use the Open command in the File menu to open a configuration document.

Cursor cannot be positioned here because the default screen size has been set by the host

You have clicked or pointed outside of the space currently available to the terminal. Move your cursor.

File transfer error messages

Error writing file to host: File transfer canceled

Try file transfer again. See Chapter 7 for more information on file transfer. If this problem persists, check with your system administrator.

File transfer canceled

Try file transfer again. See Chapter 7 for more information on file transfer. If this problem persists, check with your system administrator.

Host timeout occurred

Try your command again or call your system administrator. If this problem persists, check with your system administrator. If you click OK, then press the Enter key, you may see a host-generated message explaining the timeout.

Insufficient memory space

There is not enough memory on your Macintosh. Close other applications before using the File Transfer command.

Checksum error

Cancel the File Transfer command, then try again. If this problem persists, check with your system administrator.

Closing local file error

Cancel file transfer and try again. If this problem persists, check with your system administrator.

Creating local file error

Cancel file transfer and try again. If this problem persists, check with your system administrator.

Supported Environments

MACDFT EMULATES THE 3270 FAMILY OF IBM TERMINALS. THIS APPENDIX lists terminals that MacDFT emulates, and supported hosts and control units.

Emulated terminals

Table C-1 lists IBM display terminals that your Macintosh running MacDFT can emulate.

■ **Table C-1** Terminals that your Macintosh running MacDFT can emulate

Terminal type	Model numbers
3278 monochrome	2, 3, 4, 5
3279 Model 2 or 3 Base and extended color	S2A, S2B, S3A, S3B
3178 monochrome	C3
3179 Model 1, seven color	2

Note: Each terminal has an 87-key typewriter keyboard a with numeric keypad.

Supported host and control units

MacDFT supports IBM S/370 architecture machines, running MVS/XA, MVS/SP, or VM/SP. The Macintosh running MacDFT software can attach to the 3174 or 3274 control unit Category A devices. Table C-2 shows the supported control unit configuration for MacDFT.

■ **Table C-2** Control unit configuration

Control unit model	Configuration support	Microcode release
3174	A	2 or higher
3274	D	65 or higher

Glossary

alert box: A type of dialog box that appears on the screen when the user is in a crucial situation or is about to make a crucial decision. An alert box can warn of dangerous situations, recommend corrective actions, or provide information that might change the user's plans. See also **dialog box**.

Apple Real-time Operating System Environment (A/ROSE): A process that provides message passing between the Coax/Twinax card and the main logic board of the Macintosh II.

Autokey: A feature of MacDFT that lets the user create strings of text, or keystrokes, that the user can play in the same sequence by pressing an assigned keyboard-equivalent key, or by choosing the Play command in the Autokey menu.

button: A small screen object, usually labeled with text. Clicking a button performs the action described by the button's label.

check box: A special kind of button that indicates whether a certain option is on or off. The option is on if the box is checked, off if it is not. Check boxes appearing together in the same context are independent of each other; any number of boxes can be checked or unchecked.

click: The action of pressing down the mouse button and quickly releasing it while the mouse remains stationary.

coaxial cable: One type of medium used to connect a terminal to a control unit.

coaxial connector: The part of the Coax/Twinax card that connects to the coaxial cable.

color wheel: A large on-screen item that appears when you click the Change Color button after selecting the Color icon in the Control Panel or Display Settings dialog box. By clicking on a portion of the color wheel, you can change the highlight color for your screen. See also **icon**.

Control Panel: A desk accessory that allows you to change certain basic characteristics of the Macintosh interface, such as the desktop pattern, the volume level, and the key repeat rate.

control unit: A peripheral node that can control a variety of devices.

Control Unit Terminal (CUT): A mode of IBM terminal emulation that runs one session.

dialog box: A window-like box that contains a message requesting more information from the user. Although dialog boxes appear in many different situations, they always appear when the user chooses a menu item that is followed, in the menu itself, by ellipses (...).

dimmed: When words or icons appear in gray, they are dimmed. Menu items are dimmed when they cannot be chosen; folder icons are dimmed when they are open. See also **icon**.

Distributed Function Terminal (DFT): A mode of IBM terminal emulation that runs up to five sessions.

download: To transfer a file from the host to the Macintosh.

drag: The action of placing the pointer on an object by using the mouse, pushing down the mouse button, moving the pointer to a new location on the screen, and releasing the mouse button.

error message: A message displayed or printed to tell you of an error or problem in the execution of a program or in your communication with the system. An error message often appears in the form of an alert box, and is often accompanied by a beep.

expansion card: A circuit board that implements specialized functions not otherwise supported by the computer.

field: A subdivision of a record, usually consisting of a single item of information related to the rest of the record.

host application: An application that runs on the **host computer**.

host computer: A multi-user computer, such as a minicomputer or mainframe, that serves as a central processing unit for a number of terminals. See also **mainframe**.

IBM 3270 Information Display System: See **model 2-5 terminal**.

icon: An image that graphically represents an object, a concept, or a message. Screen icons in mouse-based applications represent disks, documents, application programs, or other things you can select and open.

launch: To put a program into action; to initiate a program.

mainframe: A large computer, generally with a high level of processing power and the capacity to support many users at once.

model 2-5 terminals: The different models of the **IBM 3270 Information Display System**. Each model displays a different configuration of rows and columns.

MVS/TSO: An IBM host operating environment.

NuBus: An address bus and data bus incorporated into the system architecture of the Macintosh II. The NuBus architecture lets you add a variety of components to the system, by means of expansion cards installed in NuBus expansion slots inside the Macintosh II.

Operator Information Area (OIA): In the IBM 3270 Information Display System, the area near the bottom of the display area where terminal or system status information is displayed in symbols. This area is also called the *status line*. See also **IBM 3270 Information Display System**.

parameter: A value passed to or from a function or other routine.

scroll bar: A scroll bar is a light gray rectangle having on each end an arrow in a square box. Vertical scroll bars are on the right side of the associated document, while horizontal scroll bars run along the bottom of the window.

security lock mechanism: A lock-and-key mechanism on an IBM 3278 terminal that allows the user to prevent others from using it.

select: To designate where the next action will take place. To select by using a mouse, you click an icon or drag across information. See also **click, drag**.

session: A data "conversation" between two devices on a network.

size box: The box in the lower-right corner of a window that the user can drag in order to enlarge or reduce the window.

status line: The line at the bottom of the MacDFT terminal emulation screen that displays OIA messages. See also **Operator Information Area (OIA)**.

Systems Network Architecture (SNA): A set of communication protocols developed by IBM for transmission of data. A key purpose of SNA is to allow different types of terminals and devices to communicate over a network.

tear-off menu: A menu that the user can "tear" from the menu bar and move around the screen like a window.

terminal emulation: Software that allows a personal computer to communicate with a host computer by transmitting in the form used by the host's terminals. See also **host computer**.

text box: A place in a dialog box in which you type text.

trash can: An icon that initially appears in the lower-right corner of the desktop. You can remove files, folders, and applications from storage media by dragging their icons into the trash can.

upload: To transfer a file from the Macintosh to the host.

VM/CMS: An IBM host operating environment.

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Apple Computer, Inc.

20525 Mariani Avenue
Cupertino, California 95014
(408) 996-1010
TLX 171-576

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