Personal Communications/3270
for DOS (Entry-Level Mode)

IBM

Up and Running

Version 4.1

SC31-8263-00

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for DOS (Entry-Level Mode)

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SC31-8263-00

Note

Before using this information and the product it supports, be sure to read the general information under “Notices” on page ix.

First Edition (March 1996)

This edition applies to Version 4.1 of Personal Communications/3270 and to all subsequent releases and modifications until otherwise indicated in new editions or technical newsletters. Make sure you are using the correct edition for the level of the product.

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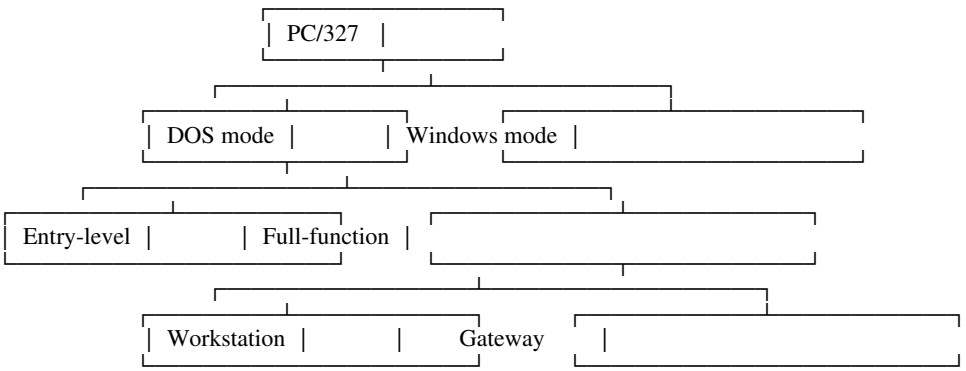
About This Product

IBM* Personal Communications/3270 (hereafter called ***PC/3270***) has two basic modes: ***DOS mode*** and ***Windows** mode***.

For a workstation, ***Windows mode*** provides PC/3270 functions under Microsoft** Windows.

Entry-level DOS mode provides control unit terminal (CUT) or Home3270 (3270 emulation via an asynchronous connection through a protocol converter or the AEA of an IBM 3174 Controller). ***Full-function DOS mode*** provides other connectivities for a workstation or a gateway.



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The following table summarizes the PC/3270 publications for each mode:

Table 1. PC/3270 Publications for Each Mode

Mode	Sub mode	Publications
DOS	Full-function	*Up and Running for DOS (Full-Function Mode)*, *SC31-8262* *Reference for DOS (Full-Function Mode)*, *SC31-8265* *Programmer's Guide for Windows and DOS (Full-Function Mode)***, *SC31-8266*
	Entry-level	*Up and Running for DOS (Entry-Level Mode)*, *SC31-8263* *Programmer's Guide for DOS (Entry-Level Mode)*, *SC31-8267*
Windows	—	*Up and Running for Windows*, *SC31-8261* *Reference for Windows*, *SC31-8264* *Programmer's Guide for Windows and DOS (Full-Function Mode)***, *SC31-8266*

* For the U.S. only.
** Common publications for full-function DOS and Windows modes.

The following table shows which publications are shipped with the PC/3270 product:

Table 2. PC/3270 Publications Shipped/Not Shipped with Product

Group	Publications	Windows	DOS (Full-function)	DOS (Entry)
Ship Group	*Up and Running*	Yes	Yes	Yes
Non-ship Group	*Reference*	Yes	Yes	
	*Programmer's Guide***	Yes	Yes	Yes

** Common publications for full-function DOS and Windows modes.

About This Book

This book explains how to use **PC/3270 Entry-level DOS mode** to simulate many of the functions of the keyboard and display screen in the IBM 3471 Display Station or the 3472 Color Display Station.

Who Should Read This Book

This book is for anyone who uses PC/3270 Entry-level DOS mode.

You should have a general knowledge of the IBM Personal Computer Disk Operating System (DOS) and be familiar with the host VM/CMS or MVS/TSO computer system.

How to Use This Book

Organization

This manual contains the following chapters and appendixes:

Chapter 1, “Introduction” on page 1 acquaints you with the PC/3270 and adapter.

Chapter 2, “Installation” on page 3 describes how to install the PC/3270 on a diskette or hard (fixed) disk.

Chapter 3, “Starting PC/3270” on page 19 describes how to start the PC/3270.

Chapter 4, “Using the Keyboard” on page 27 describes how the PC/3270 redefines the keyboard to emulate an IBM 3471 Keyboard (U.S. English) and explains the key combinations used to switch between the host session and personal computer session.

Chapter 5, “Using the Utilities” on page 47 describes how to use various PC/3270 utilities.

Appendix A, “Messages” on page 83 explains the messages that can appear on the screen.

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Appendix B, “OIA in Host Computer Mode” on page 95 explains the symbols that appear in the Operator Information Area of the screen.

Appendix C, “Home3270” on page 103 describes how the PC/3270 works with a protocol converter.

Appendix D, “Transferring a File” on page 113 describes how to transfer files between the IBM Personal Computer and either VM/CMS or MVS/TSO.

Appendix E, “Using IBM Enhanced Connectivity Facilities” on page 135 describes how to install and load IBM Enhanced Connectivity Facilities with the PC/3270 and provides a brief introduction on how to use it.

Appendix F, “National Language Support” on page 141 explains how the PC/3270 translates input/output data when it is configured to work in a language other than U.S. English.

Appendix G, “PC/3270 Compatibility” on page 147 describes compatibility considerations when using the PC/3270 and other software products.

Appendix H, “Creating a Patch File” on page 153 describes creating a patch file for a diskette system and a hard disk system. This appendix also contains some tips on using the EDLIN editor.

Appendix I, “DOS Operations” on page 157 describes the DISKCOPY and FORMAT commands.

Appendix J, “Problem Solving” on page 161 describes how to determine whether a problem is caused by hardware, software, or the user.

Highlighting Conventions

This book uses the following highlighting conventions:

UPPERCASE	Uppercase type indicates DOS and host programs, commands, and options.
Bold	Bold type indicates prompts and messages as displayed on the screen.
Bold Monospace	Bold monospace type indicates text that you enter to accomplish the actions stated for the example. Lowercase bold monospace used in example text generally indicates a variable. On example screens, bold monospace type indicates the literal text displayed. Bold monospace is also used for file and directory names.
Monospace	Monospace type indicates variables for placeholders, parameters, and file names. When you enter a command, replace all variables with the appropriate file name, number, or option. On an example display screen, regular monospace type indicates a variable quantity other than a default value. Monospace type is also used for examples.
Italics	Italic type indicates a special emphasis in text, or a reference citation.
Bold Italics	Bold italic type indicates a term that is defined in the immediate context of its use.

Terminology Used

Throughout this manual, the term ***PC*** is used when referring to the following:

IBM Personal Computer
IBM Personal Computer XT
IBM Personal Computer AT
IBM Personal System/2 (PS/2)
Thinkpad
Personal System/ValuePoint

The term ***emulation adapter*** refers to the IBM PC 3278/3279 Emulation Adapter and the IBM 3270 Connection.

The term ***asynchronous adapter*** refers to the IBM Personal Computer Asynchronous adapter (for an IBM Personal Computer, or Personal Computer XT), IBM Persaonl Computer AT Serial/Parallel Adapter, IBM PS/2 Dual Asynchronous Adapter/A, and IBM PS/2 Multi-Protocol Adapter/A.

The term ***protocol converter*** refers to the IBM 3174/Asynchronous Emulation Adapter, IBM 3708 Network Conversion Unit, IBM 7171 ASCII Terminal Control Unit, and IBM 9370 ASCII Subsystem Controller.

The term ***DOS*** refers to the IBM Disk Operating System program Version 3.3 or later.

The term ***Press Ctrl+Alt+Del*** means:

1. Press and hold the Ctrl and Alt keys.
2. Press the Del key.
3. Release the keys.

Similarly, the term ***Ctrl+Esc*** means:

1. Press and hold the Ctrl key.
2. Press the Esc key.
3. Release both keys.

Related Publications

For a list of related publications, refer to “Bibliography” on page 167.

Chapter 1. Introduction

Getting Started with PC/3270

PC/3270 allows a PC to simulate many of the functions of the following display stations:

IBM 3471 Display Station
IBM 3472 Color Display Station

PC/3270 has two ways to connect a PC to the host computer:

Coaxial control unit terminal (CUT) attachment through control unit
Asynchronous communication attachment through protocol converter (Home3270)

A PC with an emulation adapter is required when PC/3270 is used with the coaxial CUT attachment. When PC/3270 is used with Home3270, a PC with an asynchronous adapter is required (not required if using the IBM Personal System/2). For more information about the emulator adapter, the asynchronous adapter, the control unit, and the protocol converter, refer to Appendix G, “PC/3270 Compatibility” on page 147.

With PC/3270 and an adapter, you have dual session capability. The IBM PC can be used as:

A PC with its own application programs and its own data storage
A terminal attached to a host computer, using application programs under the host’s supervision as well as host data storage.

Data can be transferred between the PC and a host computer when PC/3270 is used with the IBM host-supported File Transfer Program. For more information about file transfer, refer to Appendix D, “Transferring a File” on page 113.

You can combine the PC’s and the host processor’s resources when PC/3270 is used with the IBM Enhanced Connectivity Facilities. For more information, refer to Appendix E, “Using IBM Enhanced Connectivity Facilities” on page 135.

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Minimum Requirements

For information on the minimum requirements for using PC/3270, refer to Appendix G, “PC/3270 Compatibility” on page 147.

Note: For the latest information on hardware and software that can be used with this PC/3270 program, ask an IBM authorized dealer or your local IBM representative.

Compatibility

For information on using PC/3270 and other software products, refer to Appendix G, “PC/3270 Compatibility” on page 147.

Chapter 2. Installation

This chapter describes how to install PC/3270 on a diskette or hard (fixed) disk. To begin, first make copies of your original PC/3270 diskettes, then use the backup copies as your work diskettes. Store the originals for safety purposes. You can use the DOS DISKCOPY command to make backup copies.

Installing PC/3270

You can install PC/3270 on either a hard disk or a blank diskette as described below. You can also install PC/3270 from CD-ROM. Refer to the CD-ROM manual for more information.

Note: To install PC/3270 on a hard disk, there must be a minimum of 1.5MB of free space on the hard disk.

If you install PC/3270 on blank diskettes, you cannot use the **CONFIG.EXE**, which enables the user to redefine the PC/3270 configuration using the installed diskettes.

1. Insert the *Personal Communications/3270 Entry-Level DOS Mode - Diskette 1 (Installation)* into drive A.
2. Type **A:** at the DOS prompt and press Enter.
3. Type **INSTALL** at the DOS prompt and press Enter.
4. The IBM Logo panel is displayed for a few seconds.

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5. The following panel appears after the logo panel.

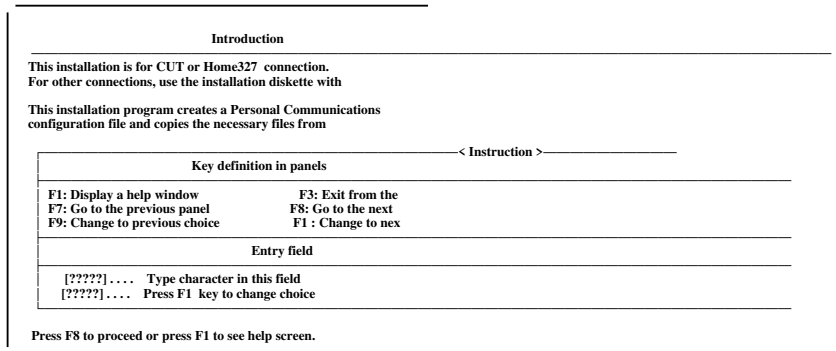


Figure 1. Introduction Panel

Note: This panel highlights the installation program operations. Pressing F1 displays a help panel and provides more details of the installation program operations.

6. Press F8 to continue.
7. The following panel appears.

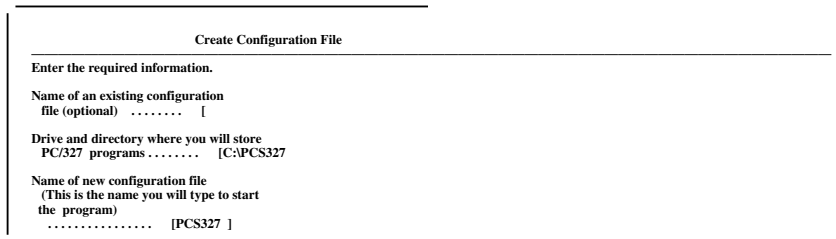


Figure 2. Create Configuration File Panel

a. Type information in the entry fields as follows:

Name of an existing configuration file

Enter the existing configuration file name if you are retrying the installation or installing PC/3270 using a configuration file that is provided by your system administrator. Otherwise, leave the field blank.

Drive and directory where you will store PC/3270 programs

Change this if necessary. The system default is:

C:\PCS327

The drive and directory can differ if you are using an existing configuration file.

Name of new configuration file

Enter the configuration file name that you are creating. This file name is actually used as a start command (a batch file) of PC/3270 after the installation.

b. Press F8 to continue.

8. The following panel appears.

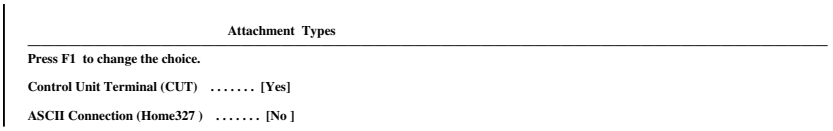


Figure 3. Attachment Types Panel

a. Select the attachment type that you want. You can select only one attachment type.

b. Press F8 to continue.

c. Depending on the panel that appears, go to the appropriate step as follows:

Panel Title	Go To
CUT Configuration	Step 9 on page 6.
Emulation Parameters	Step 10 on page 8.

The figure below shows the sequence of panels displayed in the following installation process.

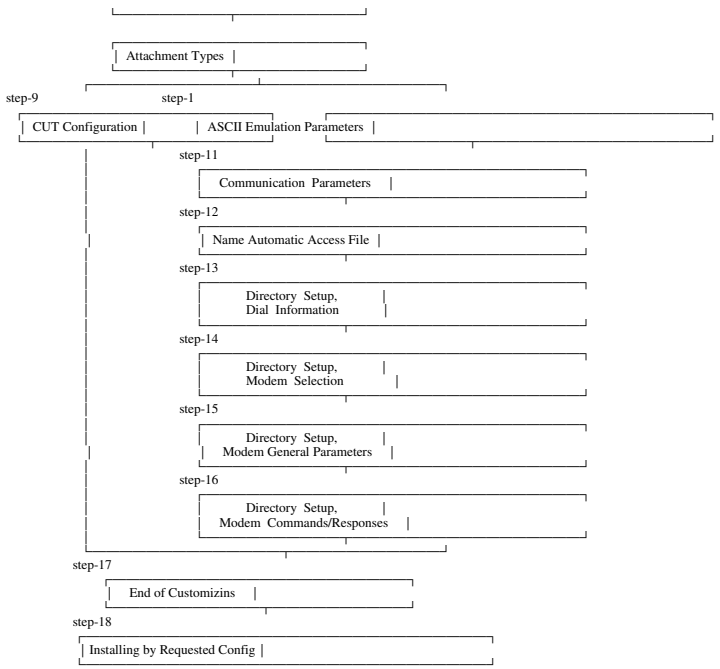


Figure 4. Panel Flow for the Installation Process

9. The following panel appears.

```
                Control-Unit Terminal(CUT) Configuration

Press F9 or F1  to change the choice.

PC/327  starts automatically after power on .  [No ]

Font to be used in 327  session . . . . . .  [PC font    ]

Keyboard Type . . . . . . . . . . . . . . .  [XT

Country . . . . . . . . . . . . . . . . . .  [U.S (English)

Keyboard layout . . . . . . . . . . . . . .  [Emulation]

327  Numeric Lock . . . . . . . . . . . . .  [No ]

Enhanced 327  attributes   . . . . . . . . .  [Continuous]

High-Level-Language Application-Program
  Interface (HLLAPI) . . . . . . . . . . . .  [No ]

Enhanced Connectivity Facilities (ECF). . . .  [No ]
```

Figure 5. Control Unit Terminal (CUT) Configuration File Panel

a. Select the emulation options that you want. The following table describes each option.

Option	Definition
PC/3270 starts automatically after power on	**Yes:** PC/3270 starts when you perform a system reset on the PC. **No:** The DOS session appears when you perform the system reset on the PC. To start PC/3270, enter the start command at the DOS prompt.
Font to be used in 3270 session	**PC font:** This is the default font for the PC No hardware limitation No divider line **3270 font:** IBM 3270 style The display adapter must be a VGA or later With a divider line
Keyboard Type	The choices are: **XT:** PC XT keyboard. **AT:** PC AT keyboard. **Enhance:** PC Enhanced keyboard. **Host Connect:** Host-connected keyboard.
Country	The following are available: Austria, Belgium (Old), Belgium (New), Brazilian Portuguese, Canadian (Bilingual), Denmark, Finland, France, Germany, Italy, Latin American (Spanish), Netherlands, Norway, Portugal, Spain (Old), Spain (New), Sweden, Switzerland-French, Switzerland-German, U.K. (English), U.S. (English). **Note:** For France, Italy, and U.K. (English), two keyboard layouts for the PC Enhanced Keyboard are provided as follows: **France:** #120 or #189 **Italy:** #141 or #142 **U.K. (English):** #166 or #168
Keyboard Layout	This option determines whether PC/3270 sends the 3278/3279 scan codes or native scan codes. **Emulation:** 3278/3279 scan codes No hardware limitation **Standard:** Native scan codes A PC Enhanced or Host-connected keyboard is required. An Advanced PC 3278/3279 Emulation Adapter or 3270 Connection Card Version B is required Ask your system administrator for further information.
3270 Numeric Lock	Select **Yes** for PC/3270 to support 3270 numeric field processing.

Option	Definition
Enhanced 3270 Attributes	This option is available only on the PS/2 Models 35, 40, 56, or 57. **No:** The 3270 underscore attribute is not supported. **Continuous:** The underscore attribute appears as a continuous line. **Broken-bar:** The underscore attribute appears as a dotted line.
High-Level-Language Application-Program Interface (EEHLLAPI)	Select **Yes** if you use the EEHLLAPI program with PC/3270. The start command (**.BAT**) enables the EEHLLAPI. Home3270 does not support GDDM-PCLK.
Enhanced Connectivity Facilities (ECF)	Select **Yes** if you use the ECF support. The start command (**.BAT**) enables the ECF.

b. Press F8 to continue.

c. Go to step 17 on page 16.

10. The following panel appears.

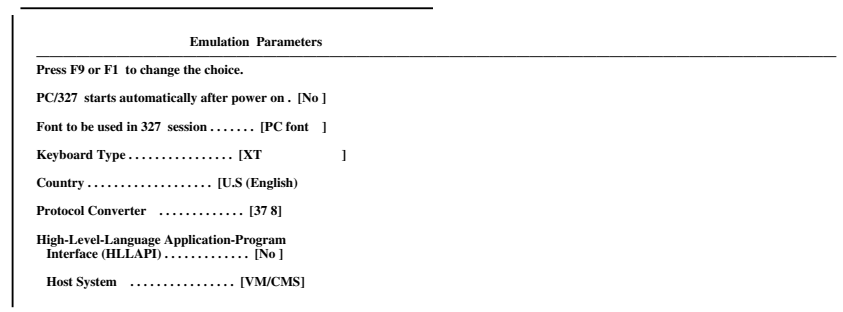


Figure 6. Emulation Parameters Panel

a. Select the emulation options that you want. The following table describes each option.

Option	Definition
PC/3270 starts automatically after power on	**Yes:** PC/3270 starts when you perform a system reset on the PC. **No:** The DOS session appears when you perform the system reset on the PC. To start PC/3270, enter the start command at the DOS prompt.

Option	Definition
Font to be used in 3270 session	**PC font:** This is the default font for the PC No hardware limitation No divider line **3270 font:** IBM 3270 style The display adapter must be a VGA or later With divider line
Keyboard Type	The choices are: **XT:** PC XT keyboard. **AT:** PC AT keyboard. **Enhance:** PC Enhanced keyboard. **Host Connect:** Host-connected keyboard.
Country	The following are available: Austria, Belgium, Canadian (Bilingual), Denmark, Finland, France, Germany, Italy, Latin American (Spanish), Netherlands, Norway, Portugal, Spain, Sweden, Switzerland-French, Switzerland-German, U.K. (English), U.S. (English).
Protocol Converter	This option determines which protocol converter is attached to PC/3270. The choices are: 3708, 7171, 3174, 9370, 3708A, or 3174I Select 3174I when you use the VSE/IWS file transfer program with the protocol converter 3174.
High-Level-Language Application-Program Interface (HLLAPI)	Select **Yes** if you use the HLLAPI program with PC/3270. The start command (**.BAT**) enables the HLLAPI.
Host System	This option determines which host system is attached to PC/3270. The choices are: VM/CMS, MVS/TSO, IWS or CICS. When CICS is selected, the following set command must be listed in AUTOEXEC.BAT. `Set ind$file = DXBT`

b. Press F8 to continue.

11. The following panel appears.

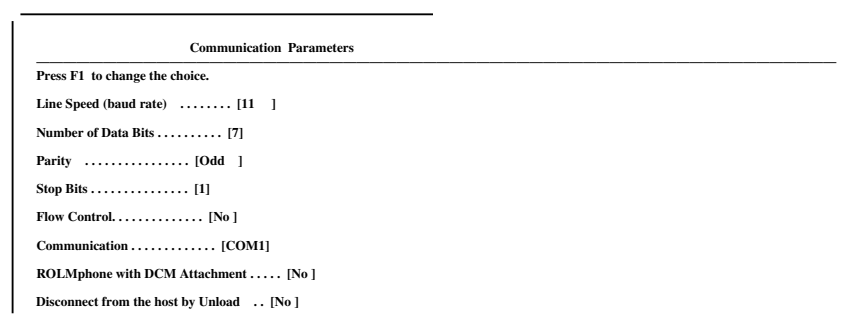


Figure 7. Communication Parameters Panel

a. Select the communication parameters that you want. The following table describes each parameter.

Parameter	Definition
Line Speed (bit per second)	Sets the line speed (baud rate) for the communication line. The choices are: 110, 150, 300, 600, 1200, 2400, 4800, 9600, 14400, 19200, 38400, or 57600
Number of Data Bits	Sets the number of data bits that are sent during a transmission over the communication line. **7:** 7 data bits plus a parity bit **8:** 8 data bits plus a parity bit unless no parity is sent.
Parity	Provides a means of checking the accuracy of transmitted data. **Odd:** Odd parity **Even:** Even parity **Mark:** Mark parity **Space:** Space parity **None:** No parity
Stop Bits	Signifies the end of transmitted character.

Parameter	Definition
Flow Control	Allows PC/3270 to pace the rate of character transfer to avoid sending or receiving characters faster than they can be processed. **Notes:** 1. For IBM 7171 with an EC level before A31864, this parameter should be No. 2. Select RTS/CTS in this parameter when you use PC/3270 with the CCITT V.42bis or MNP Class5 modems. **XON/XOFF** means that PC/3270 stops sending when it receives an XOFF (DC3) character from the host, and resumes when it receives an XON (DC1). PC/3270 can also send XOFF and XON to the host when the host is sending characters faster than PC/3270 can receive them. **RTS/CTS** means that PC/3270 stops sending when it detects the CTS signal drops, and resumes when it detects the signal is raised. PC/3270 can also turn the RTS signal on and off to an attached modem when the modem is sending characters faster than PC/3270 can receive them.
Communication	Determines the PC communication port that PC/3270 will use for data communications. COM1 through COM4 are the choices.
ROLMphone with DCM Attachment	PC/3270 does some special communication signal processing when attached through a ROLMphone with DCM. **Yes** means that PC/3270 only uses 'data set ready' (DSR) to determine connections when attached this way. Special communication processing is done for a ROLMphone with DCM. **No** means that PC/3270 uses both 'data set ready.' (DSR) and 'carrier detect' (CD) to determine connections. No special communication processing is done.
Disconnect from the host by Unload	Determines if the host connection is dropped (DTR goes low) when PC/3270 is removed from the PC main storage. **Yes** means that the host connection is dropped when PC/3270 is unloaded. **No** means that the host connection remains active even though PC/3270 is unloaded.

b. Press F8 to continue.

12. The following panel appears.

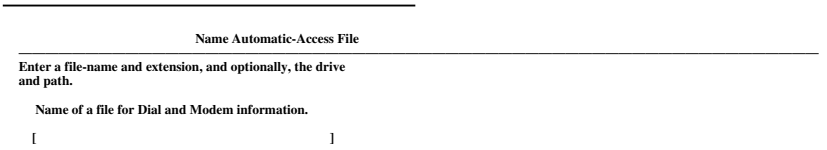


Figure 8. Name Automatic-Access File Panel

a. Specify the file name that contains the Auto Dial information. The default file name is **PCSDIAL.DIR**. This file will be used when the auto dial program executes.

b. Press F8 to continue.

13. The following panel appears.

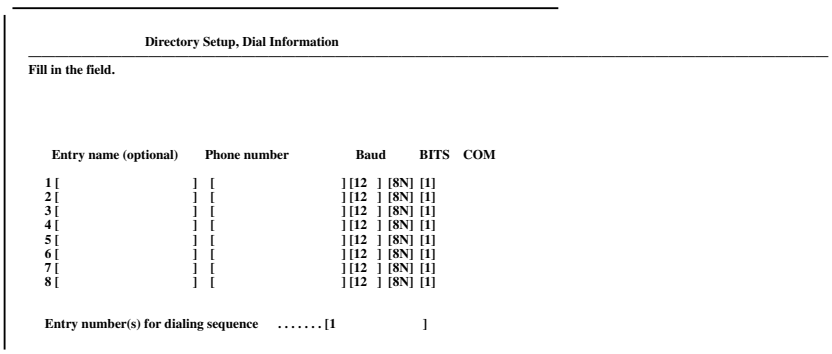


Figure 9. Directory Setup, Dial Information Panel

a. Define the contents of the automatic-access file specified by step 12 on page 11.

b. The **Entry name** is a message that is displayed when the PCSDIAL program runs. It is used as a reminder of the calling destination. This option is not required.

The **Phone number** is the number you dial for network access. It includes any access codes, such as 9 for an outside line, and codes for your long distance service.

The **Baud** option specifies the line speed in bits per second (bps) that is used for this connection. It is a Data Terminal Equipment (DTE) speed for communications between your PC and modem. Basically, the speed is the same as the Public Switched Telephone Network (PSTN) speed. The default value is 1200 bps. If you use a CCITT V.42bis or MNP class 5 modem, you can set the line speed greater than the PSTN speed. For example, when the PSTN speed is 9600 bps, you can set the DTE speed to:

38400 bps when the CCITT V.42bis modem is used
19200 bps when the MNP Calss 5 modem is used.

Remember that both your modem and the host-side modem have the same capability and the same setting.

The **BITS** option specifies the character representation transferred on your network. The default value is 8N, which means a character consists of 8 data bits with no parity bit appended.

The **COM** option specifies the PC communication port number that is used for the connection. It can be scrolled to a number from 1 to 4. The default value is 1.

The **Entry Number(s) for dialing sequence** option specifies the order in which the entries are dialed by the PCSDIAL program. If you specify "123" in this field, the PCSDIAL program attempts to dial entry 1 first. If the first call is not established, the PCSDIAL program attempts to dial entry 2. And if the second call fails, the PCSDIAL program attempts to dial entry 3. The default value is 1, which means the PCSDIAL program attempts to dial entry 1 only.

c. Press F8 to continue.

14. The following panel appears.

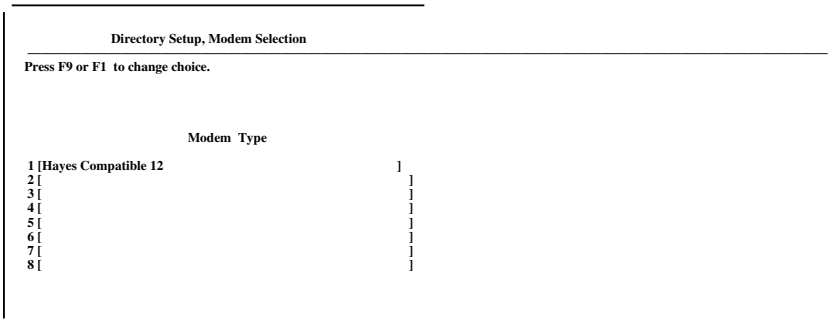
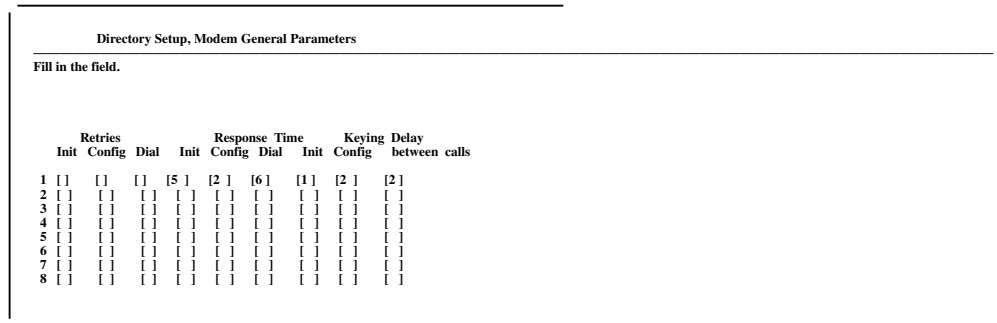


Figure 10. Directory Setup, Modem Selection Panel

a. Select the **Modem type** that you want. By pressing F9 or F10, and scrolling, several modem types are displayed. You can select a modem type for each dial entry. If you cannot find your modem in the list, select the modem type "User Programmable" and fill in the modem commands/responses on a later screen by referring to your modem manual.

b. Press F8 to continue.

15. The following panel appears.



Directory Setup, Modem General Parameters

Fill in the field.

	Retries			Response Time			Keying Delay		
	Init	Config	Dial	Init	Config	Dial	Init	Config	between calls
1	[ ]	[ ]	[ ]	[5]	[2]	[6]	[1]	[2]	[2]
2	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
3	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
4	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
5	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
6	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
7	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]
8	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]	[ ]

Figure 11. Directory Setup, Modem General Parameters Panel

a. Fill in the fields for the modem general parameters. Following are descriptions for each parameter.

   The **Retries** option specifies the number of times the PCSDIAL program retries an initialization, configuration, or dial command to your modem.

   The **Response Time** option specifies the amount of time in seconds that the PCSDIAL program waits for your modem to respond to an initialization, configuration, or dial command before it retries the command or assures the command was completed.

   The **Keying Delay** option specifies the amount of time in tenths of a second the PCSDIAL program waits before it sends the next character of an initialization or configuration command to your modem. This option prevents the PCSDIAL program from sending characters faster than the modem can recognize them.

   The **Delay Between Calls** option specifies the amount of time in seconds that the PCSDIAL program waits before it retries the next dial command.

b. Press F8 to continue.

16. The following panel appears.

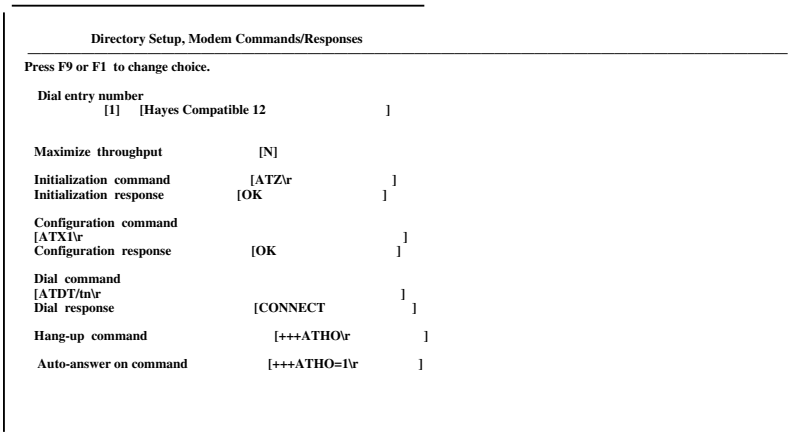


Figure 12. Directory Setup, Modem Commands/Responses Panel

a. Fill the fields. Following are the descriptions for each field.

   The **Dial Entry Number** option is the same as the name selected in the Directory Setup, Modem Selection screen and cannot be changed.

   The **Maximize Throughput** option can be scrolled between N and Y. The default is N, no advanced modem configuration command is used for the CCITT V.42bis or MNP Class 5 connection. If you select Y in this filed, the Advanced Dial Facility program gets an appropriate advanced configuration command for the selected modem type in the Directory Setup, Modem Selection screen.

   The **Initialization Command** option specifies the initialization command that is sent to your modem.

   The **Initialization Response** option specifies the response from your modem that the PCSDAIL program uses to determine if the initialization command has been accepted. If no initialization response is entered, the PCSDIAL program waits for the amount of time that is specified in the Response Time option and assumes that your modem is initialized.

   The **Configuration Command** option specifies the configuration command that is sent to your modem.

   The **Configuration Response** option specifies the response from your modem that the PCSDAIL program uses to determine if the configuration command has been accepted. If no configuration response is entered, the PCSDIAL program waits for the amount of time that is specified in the Response Time option and assumes that your modem is configured.

The **Dial Command** option specifies the dial command that is sent to your modem. The default string is ATDT/tn\r. If you use pulse dialing, change the string to ATDP/tn\r. In the string, two special symbols are used:

/tn The location where the telephone number from the Phone Number option is inserted.

/sp The location where the line speed in bits per second (bps) from the Baud option is inserted.

The **Dial Response** option specifies the response from your modem that the PCSDIAL program uses to determine if the dial command has been accepted. If no dial response is entered, the PCSDIAL program waits for the amount of time that is specified in the **Response Time** option and assumes that the dial command is accepted.

Note: The initialization, configuration, and dial commands, include special characters that cannot be entered easily from the keyboard. Use the following character sequences to enter these characters:

\n	New line or line feed
\t	Tab
\b	Backspace
\r	Carriage return
\f	Form feed
\\	Backslash (\)
\nnn	An ASCII character by decimal code

b. Press F8 to continue.

17. The following panel appears.

```
                    End of Customization

You have now completed your selections and are ready to save
Press one of the following keys to proceed:

   F6: Save configuration file

   F7: Review and change your selections
```

Figure 13. End of Customization Panel

Press F6 to create your configuration file with the file extension **.BAT** according to your selections, or press F7 to review and change previous selections.

18. The following panel appears.

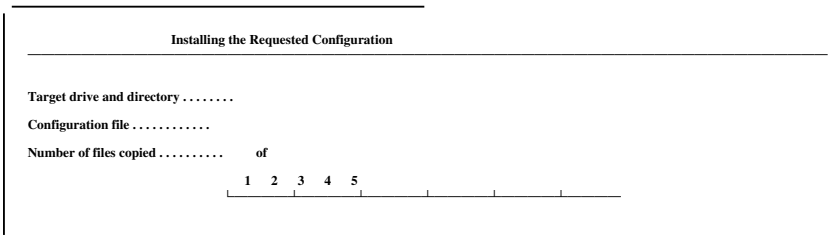


Figure 14. Installing the Requested Configuration Panel

Follow the instructions on the panel to replace the diskettes, and press Enter.

At this point, your installation process has been completed. To start PC/3270, follow the instructions on the panel. Depending on your selection, you will either:

Turn off, then turn on the PC, or
Exit the installation program by pressing F3

For starting PC/3270, refer to Chapter 3, “Starting PC/3270” on page 19.

Chapter 3. Starting PC/3270

After you have installed PC/3270 onto diskette or hard disk, you are ready to use a host and PC session.

Note: Do not press Ctrl + Esc while the automatic dial program (PCSDIAL.EXE) is running when PC/3270 is configured as Home3270.

Starting the Host Session

You can start a host session in either of two ways.

1. If you installed PC/3270 with the installation option:

   PC3270 starts automatically after power on = Yes,

   you can start a host session by the following procedure.

   Turn on the PC if you have not already done so. If the system unit is already on, press **Ctrl+Alt+Del** to perform a system reset, or type **AUTOEXEC.**

   If the host computer provides a logo, it appears on the screen now. Anytime a screen generated by the host computer appears on the screen, you are in the Host Computer Session and the keyboard functions change. Pressing **Ctrl+Esc** again returns you to the PC screen and PC keyboard functions.

2. If you installed PC/3270 with the installation option:

   PC3270 starts automatically after power on = No,

   you can start a host session with or without an **AUTOEXEC.BAT** file. Do the procedures described in the following sections.

When you turn on the system unit or perform a system reset, DOS is automatically loaded and started. DOS looks for a file called **AUTOEXEC.BAT** on the default drive. If DOS finds this file, all commands in the file are executed. (Refer to the IBM PC Disk Operating System manual for more information on the **AUTOEXEC.BAT** file.)

To start PC/3270 using the **AUTOEXEC.BAT** file, go to the next section.

To start PC/3270 without using the **AUTOEXEC.BAT** file, go to “Starting a Host Session without the AUTOEXEC.BAT File” on page 21.

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Starting a Host Session with the AUTOEXEC.BAT File

Setting up the AUTOEXEC.BAT File

This section describes how to load PC/3270 using an **AUTOEXEC.BAT** file.

To start PC/3270, set up the **AUTOEXEC.BAT** file first as follows:

If you want to start PC/3270 from the diskette, make sure the diskette was formatted with the **/S** option.

Look for the **AUTOEXEC.BAT** file on the default drive.

If you have no **AUTOEXEC.BAT** file on the default drive, you must create the file using a PC editor program such as EDLIN.

Add the PC/3270 configuration file (**PCS327 .BAT** as default) created by the PC/3270 installation process to an existing **AUTOEXEC.BAT** file using a editor program.

When you have set up the **AUTOEXEC.BAT** file, you are ready to load PC/3270 into the PC memory and operate the PC in a dual session.

Starting PC/3270

1. If you start up PC/3270 from a diskette, insert the prepared diskette into diskette drive A and close the door. If you prepared two diskettes, insert the first diskette into diskette drive A; insert the second diskette into diskette drive B.

   If you start up PC/3270 from the hard disk, leave the diskette drive door open.
2. Turn on the PC, if you have not already done so. If the system unit is already on, press **Ctrl+Alt+Del** to perform a system reset. The PC/3270 logo appears:
3. The IBM Logo panel will disappear after a few seconds. You will then see the DOS prompt. Press **Ctrl+Esc**.

If the host computer provides a logo, it appears on the screen now. Whenever a screen generated by the host computer appears on the display, you are in the Host Computer Session and the keyboard functions change. Pressing **Ctrl+Esc** again returns you to the PC screen and PC keyboard functions.

If you customized PC/3270 as an ASCII connection, you might need to do the dialing process to an attached modem. After the dial process completes, the host computer provides a logo screen to PC/3270.

The host session remains active until you turn off the system unit, press **Ctrl+Alt+Del**, or unload PC/3270. Performing any one of these actions stops the current host session.

Starting a Host Session without the AUTOEXEC.BAT File

This section describes how to load PC/3270 without using the **AUTOEXEC.BAT** file.

1. Insert a DOS system diskette into drive A.

   Note: If you have a hard disk, you do not have to use the DOS system diskette. You can load DOS from a hard disk.

2. Turn on the PC, if you have not done so. If the system unit is already on, press **Ctrl+Alt+Del** to perform a system reset.
3. If PC/3270 is on a hard disk, type the path to the subdirectory that you specified in the Create Configuration File panel during the installation procedure. For example, if you installed PC/3270 in the **PCS327** subdirectory on the hard disk:
   a. Type **C:** and press Enter.
   b. Type **CD PCS3270** and press Enter.
4. If PC/3270 is on a diskette, insert the diskette into diskette drive A: type **A**; and press Enter.
5. Type the entry emulator configuration file (**.BAT**) specified in the **Name of new configuration file** field in the Create Configuration File panel. If you use the default file (**PCS327 .BAT**), type **PCS3270** and press Enter.
6. The PC/3270 logo appears.
7. When the DOS prompt appears, press **Ctrl+Esc.**

If the host computer provides a logo, it appears on the screen now. Whenever a screen generated by the host computer appears on the display, you are in the Host Computer Session and the keyboard functions change. Pressing **Ctrl+Esc** again returns you to the PC screen and PC keyboard functions.

If you customized PC/3270 as an ASCII connection, you might need to do the dialing process to an attached modem. After the dial process completes, the host computer provides a logo screen to PC/3270.

The host session remains active until you turn off the system unit, press **Ctrl+Alt+Del**, or unload PC/3270. Performing any one of these actions stops the current host session.

Start Options

Basically the start options for **PC327 .COM** are provided by the installation process. But four additional start options are available that are not provided by the installation process. If you want to use these start options, you have to append these start options followed by a PC/3270 statement in the PC/3270 configuration file using an editor such as EDLIN.

The options are:

N Do not display the IBM logo when starting PC/3270.
PC/3270 is started and the DOS prompt is displayed.

R Start with the session in resume mode. This is identical to pressing **Ctrl+R** while in the host session. Refer to “Resume (Ctrl + R)” on page 28. It enables the PC session to run while the host session is active. Depending on how your PC program writes to the screen, you might find this option distracting. Refer to “Personal Computer Update Screens” on page 30

M Change the start address of DCA segment. This option is avalable when PC/3270 is configured to the CUT connection and the installed COAX card is IBM 3278/3279 Emulation Adapter Version B. To use a segment address other than hex CE00, add an optional parameter such as:
PC3270 M=D0
M=D0 means the segment address will be relocated to D0000h.

P Add the optional parameter when PC/3270 is started with IBM 3270 Emulation Credit Card.

The start options can be used singly or in combinations. They can be in any order. Some examples of these options are:

To start PC/3270 without displaying the IBM logo, type:

PC3270 N

To start PC/3270 without displaying the IBM logo and with the PC session is resume mode, type:

PC3270 N R

How to Use IBM 3270 Emulation Credit Card Adapter Enablers

Once you have successfully installed PC/3270 entry-level DOS mode, the following EXE files related to this function reside on your target drive and directory:

PCSCCA.EXE
CS3270.EXE
PNT3270.EXE
SHRP3270.EXE
TOSH3270.EXE.

To have PC/3270 work with the IBM 3270 Emulation Credit Card Adapter, you have to load the IBM 3270 Emulation Credit Card Adapter enabler programs, and then load PC/3270.

Loading Enablers

To load the IBM 3270 Emulation Credit Card Adapter enabler programs in your PC, put the PCSCCA statement, with the following optional parameters, on the bottom line of your AUTOEXEC.BAT.

[d:][path]PCSCCA B=xx S=y PE=zzzz

where

d: Drive where PC/3270 resides

path Directory where PC/3270 resides

B Start address of DCA segment buffer (such as C0, C2, ..., DE)

When you alocate it to the system memory D0000H, specify D0 on this parameter.

S PCMCIA slot number (such as 1, 2, 3, or 4)

When the PCMCIA card service interface (release 2.00) is available on your PC, this parameter is ignored.

PE Point enabler alternatively called (such as PNT, SHRP, or TOSH)

When your computer uses a PCMCIA-interface LSI chip other than Intel an 82365SL chip, specify SHRP or TOSH as this parameter. SHRP is designed to work with Sharp 6781 and TOSH is designed to work with Toshiba T3300SL.

The default is: PCSCCA B=CE S=1 PE=PNT .

Loading PC/3270

This procedure assumes that the PC/3270 startup BAT file has been configured appropriately.

Add the following two optional parameters to the PC3270 statement in your PC/3270 startup BAT file.

PC327 .... M=xx P

where

M — Start address of the DCA segment buffer (such as C0, C2, ..., DE)

This value must be the same as the one specified by B=xx in PCSCCA.EXE.

P — Tells PC3270.COM to use the IBM 3270 Emulation Credit Card for the CUT connection.

Using the 3270 Credit Adapter in a Port Replicator

If you use a 3270 Credit Card Adapter in one of the slots of the ThinkPad 750 Port Replicator Model I, and PCMCIA Card Services is not installed, you must specify the IO-port address (3E2) of the PCMCIA controller in the port replicator by means of the **PCIC=** optional parameter. When you execute PCSCCA, add **PCIC= 3E2** as follows;

PCSCCA B=CE S=1 PCIC= 3E2

Note: In this example, the upper and lower slots of the port replicator are recognized as 1 and 2 respectively. Therefore the 3270 card would be in the upper slot.

If Card Services is installed, the **PCIC** parameter is ignored because Card Services can automatically detect the IO-port address.

Changing the Adapter Buffer Address

With an ISA-bus PC, PC/3270 assumes that the base address of the memory (8KB) to be used for the adapter's shared-RAM buffer is CE . But if this address range is already being used or is reserved by other hardware or software, you can change the address within the range C -DE by adding the **M=xx** parameter to the PC3270 command in your startup BAT file. **xx** represents the first two hexadecimal digits of the buffer address in 8KB units; valid values are **C , C2, C4, ... ,DE**. For example,

PC327 M=D2 .....

This example shows that D2 is to be used as the adapter-buffer address. This parameter is effective with ISA-bus adapters (IBM 3278/79 Emulation Adapter Version B). For Micro Channel adapters, PC/3270 automatically determines the buffer address.

Chapter 4. Using the Keyboard

Using PC/3270, you can work with either a PC session or a host session. The session you are working with is displayed on the screen and the keyboard functions correspond with the session. In the PC session, the keyboard acts as a PC keyboard. In the host session, PC/3270 redefines some of the keys to act as a display station such as the IBM 3471 or 3472.

While you are working with one session, the other can continue running. PC/3270 uses a device called “update screens” to indicate how the session you are not working with has progressed.

In the host session, you can use the IBM 3174/3274 entry assist function if the controller supports it.

This chapter describes:

Key combinations, including:

- The combination of keys to switch between sessions
- The combinations of keys to either suspend or resume operation of a PC session while you are working with a host session
- The combination of keys to exit PC/3270
- The combination of keys to switch to the PC/3270 Utility screen
- The combination of keys to alternate between a blinking cursor and a non-blinking cursor
- The combination of keys to alternate between a underscore cursor and a block cursor
- The combination of keys to alternate between click mode and non-click mode

Update screens, including how PC/3270 presents update screens and how you can use them.

How to use the PC keyboard when you are working with a host session.

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Key Combinations

Switch Screens (Ctrl + Esc)

The switch screen (SWSC) function is used to switch between the PC session and the host computer session.

If you try to switch from the PC session to the host session when the display is currently in graphics mode unsupported by PC/3270, you will hear a *beep* and the switch will not take place. This is done so that the PC screen does not become meaningless when you switch to the host session. You need to exit from the unsupported mode before switching to the host session.

Note: If you have suspended a PC operation using the Pause key, press any character key to continue the PC operation before using the switch screen function.

Suspend (Ctrl + S)

This key combination suspends PC operations when the host session is active. This is the normal (default) condition when PC/3270 is first loaded and remains in effect until the resume function is used. Suspend can only be entered from the host computer session.

This key combination is available when PC/3270 is customized as CUT. In Home3270, the key combination sends the ASCII DC3 (XOFF) character to the host computer.

Resume (Ctrl + R)

The resume function resets the suspended PC application and allows the PC application to be performed concurrently with an active host session. Resume can be entered only from the host computer session. When resume is entered from the host session, any suspended PC operations are resumed.

This key combination is available when PC/3270 is customized as CUT. In Home3270, the key combination sends the ASCII DC1 (XON) character to the host computer.

Exit (Ctrl + 5)

The exit function (Ctrl + numeric keypad 5) allows you to exit PC/3270 and return memory to DOS. The host computer session is ended, and PC/3270 must be reloaded before starting another dual session. This function is active only from the host session.

Note: Use the 5 located on the numeric keypad on the right side of the keyboard.

Warning: If you exit the PC/3270 program with the exit function, you also exit EEHLLAPI or EESRPI. To use EEHLLAPI and EESRPI again, you must reload PC/3270, EEHLLAPI, or EESRPI.

When PC/3270 is customized as Home3270, the exit function disconnects the line to the host computer and returns the storage to DOS.

Cursor Blink

The cursor blink function allows you to change between a blinking cursor and non-blinking cursor.

Notes:

1. This function is available on the PS/2 Models 35, 40, 56, and 57.
2. Cursor Blink key combinations are as follows:

   Alt+F10: Enhanced keyboard
   Alt+F22: Host-connected keyboard

Alternate Cursor

The alternate cursor function allows you to change between an underscore cursor and a block cursor.

Note: Alternate cursor key combinations are as follows:

Alt+F11: Enhanced keyboard

Alt+F23: Host-connected keyboard

Click on/off

This allows you to turn the cursor click function on or off. If click is on, a beep sounds whenever a character key is pressed in the host session.

Note: Click on/off key combinations are as follows:

Alt+F12: Enhanced keyboard

Alt+F24: Host-connected keyboard

Alt+numeric 3: PC, PC XT, PC AT keyboard

Personal Computer Update Screens

Most PC routines use the Basic Input Output System (BIOS) to write to the screen. When the BIOS is used, the host computer screen is stored and the PC update screen is displayed. This only applies if you are in the host session.

Note: A PC routine that performs a direct memory write to the screen does not display an update screen. PC messages appear superimposed on the host computer screen. You retain the information from the host computer session, but lose the update screen. If PC messages appear superimposed on the host computer screen, you can suspend the PC session by pressing **Ctrl**+**S**.

A PC update screen does not indicate a session change. The update screen is only a message sent by the PC to indicate its progress. When the update screen appears, you have the following options:

Continue typing. The host computer screen returns with all characters entered from the keyboard displayed.

Press any key. The host computer screen returns.

Note: Any keys pressed are entered in the host computer session.

Press **Ctrl**+**Esc**. Exits the host computer session and allows you to respond to a PC update screen.

IBM PC Keys with IBM 3471/3472 Typewriter Key Functions

PC/3270 redefines the IBM PC keyboard in the host computer session to incorporate the functions of the IBM 3471/3472 typewriter keyboard. For more information about redefining the keyboard, refer to Chapter 5, “Using the Utilities.”

There are four types of keyboards that can be redefined:

The PC and PC XT keyboard

The PC AT keyboard

The Enhanced PC keyboard

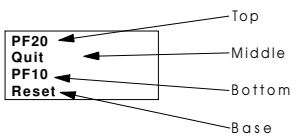
The Host-connected keyboard

Refer to the “Keyboard Layouts” section in *Quick Reference for Entry-level DOS Mode*.

The keyboard template is separately available.

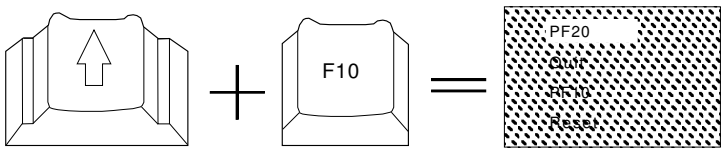
Place the keyboard template that corresponds to your keyboard on the keyboard. The color-coded template shows the functions of the PC keyboard in the host computer session.

The key buttons on the template are divided into four areas: top, middle, bottom, and base, which correspond to Shift, Ctrl, base and Alt, respectively. A different function is associated with each area. For example, the F10 key on the PC keyboard has these four functions:

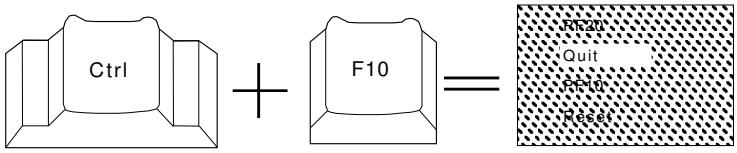


The location of each function designates how that key is used to obtain the desired functions:

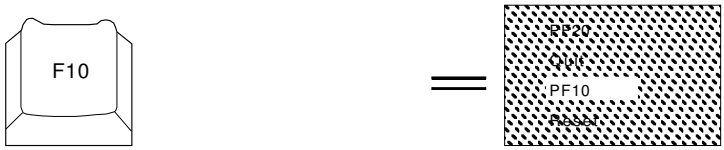
Functions printed on the top (and in red on the keyboard template) are obtained by pressing **Shift** and the key. For example:



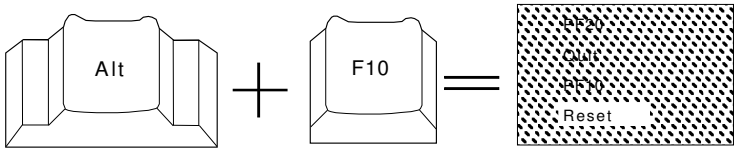
Functions printed in the middle (and in blue on the keyboard template) are obtained by pressing **Ctrl** and the key. For example:



Functions printed at the bottom are **unassisted** by any other key. For example:



Functions printed on the base (and in green on the keyboard template) are obtained by pressing **Alt** and the key. For example:



Summary of IBM 3471/3472 Keyboard Functions

The following summary of IBM 3471/3472 keyboard functions helps you identify the PC keys that emulate IBM 3471/3472 keyboard functions in a host computer session.

Note: The PC Caps Lock key works slightly different than the 3278 Shift lock key. Only alphabetic characters can be locked in uppercase with Caps Lock, regardless of which session you are using. Any other character requires the assistance of the Shift key. If you press Shift while in Caps Lock, the Alphabetic keys have their unassisted or lowercase functions.

The following table shows the keys you press to get the function for an IBM PC, PC XT, or PC AT keyboard.

Workstation Key Functions

Function	CUT Mode		Home3270
	Emulation	Standard	
Switch Screens	Ctrl+Esc	N/A	Ctrl+Esc
Suspend DOS	Ctrl+S	N/A	N/A
Resume DOS	Ctrl+R	N/A	N/A
Exit	Ctrl+Num_5	N/A	Ctrl+Num_5
Num Lock	Num Lock	N/A	Num Lock
Break	N/A	N/A	Ctrl+ScrollLock

3270 Key Functions

Function	CUT Mode		Home3270
	Emulation	Standard	
Alternate Cursor	Alt+PageUp	N/A	Alt+PageUp
ATTN	Alt+F1	N/A	Alt+F1
Backspace	Backspace	N/A	Backspace
Backtab	Shift+Tab	N/A	Shift+Tab
Clear	Alt+F2	N/A	Alt+F2
Change Screen	Alt+Ins	N/A	Alt+Ins
Clicker On/Off	Alt+PgDn	N/A	Alt+PgDn
Cursor Blink On/Off	N/A	N/A	N/A
Cursor Select	Alt+F3	N/A	Alt+F3

Function	CUT Mode		Home3270
	Emulation	Standard	
Delete	Del	N/A	Del
Dup	Shift+ ScrollLock	N/A	Shift+ ScrollLock
Enter	+ or *	N/A	+ or *
Erase EOF	Alt+F6	N/A	Alt+F6
Erase Input	Alt+End or Ctrl+F4	N/A	Alt+End or Ctrl+F4
Field Mark	ScrollLock	N/A	ScrollLock
Home	Home	N/A	Home
Ident	Alt+↓or Ctrl+F7	N/A	Alt+↓or Ctrl+F7
Insert	Ins	N/A	Ins
New Line	Enter	N/A	Enter
PA1	PgUp	N/A	PgUp
PA2	-	N/A	-
PA3	N/A	N/A	N/A
PF1	F1	N/A	F1
PF2	F2	N/A	F2
PF3	F3	N/A	F3
PF4	F4	N/A	F4
PF5	F5	N/A	F5
PF6	F6	N/A	F6
PF7	F7	N/A	F7
PF8	F8	N/A	F8
PF9	F9	N/A	F9
PF10	F10	N/A	F10
PF11	Shift+F1	N/A	Shift+F1
PF12	Shift+F2	N/A	Shift+F2
PF13	Shift+F3	N/A	Shift+F3
PF14	Shift+F4	N/A	Shift+F4
PF15	Shift+F5	N/A	Shift+F5
PF16	Shift+F6	N/A	Shift+F6
PF17	Shift+F7	N/A	Shift+F7
PF18	Shift+F8	N/A	Shift+F8
PF19	Shift+F9	N/A	Shift+F9
PF20	Shift+F10	N/A	Shift+F10

Function	CUT Mode		Home3270
	Emulation	Standard	
PF21	N/A	N/A	N/A
PF22	N/A	N/A	N/A
PF23	N/A	N/A	N/A
PF24	N/A	N/A	N/A
Print	Alt+F7	N/A	Alt+F7
Quit	Alt+F4 or Ctrl+F10	N/A	Alt+F4 or Ctrl+F10
Reset	Alt+F10	N/A	Alt+F10
Sys Req	Alt+* or Ctrl+F1	N/A	Alt+* or Ctrl+F1
Tab	Tab	N/A	Tab
Test	Alt+ScrollLock or Ctrl+F8	N/A	Alt+ScrollLock or Ctrl+F8
←	←	N/A	←
→	→	N/A	→
—	Alt+←	N/A	Alt+←
—	Alt+→	N/A	Alt+→

Note: The following table summarizes the key functions supported differently by the four protocol convertors.

3270 Key Function	3174	3708	7171	9370
ATTN	Yes	Yes	No	No
Ident	Yes	Yes	No	No
Quit	Yes	Yes	No	No
Sys Req	Yes	Yes	No	No
Test	Yes	No	Yes	Yes
Print	Yes	Yes	No	No

The following table shows the keys you press to get the function for an IBM Enhanced keyboard.

Workstation Key Functions

Function	CUT Mode		Home3270
	Emulation	Standard	
Switch Screens	Ctrl+Esc	Ctrl+Esc	Ctrl+Esc
Suspend DOS	Ctrl+S	Ctrl+S	N/A

Function	CUT Mode		Home3270
	Emulation	Standard	
Resume DOS	Ctrl+R	Ctrl+R	N/A
Exit	Ctrl+Num_5	Ctrl+Num_5	Ctrl+Num_5 or Ctrl+End
Num Lock	Num Lock	Num Lock	Num Lock
Break	N/A	N/A	Ctrl+Pause

3270 Key Functions

Functions	CUT Mode		Home3270
	Emulation	Standard	
Alternate Cursor	Alt+F11	Alt+F11	Alt+F11
ATTN	Esc	Esc	Esc
Backspace	Backspace	Backspace	Backspace
Backtab	Shift+Tab	Shift+Tab	Shift+Tab
Clear	Pause	Pause	Pause
Change Screen	Alt+Ins	Alt+Home	Alt+Ins
Clicker On/Off	Alt+F12	Alt+F12	Alt+F12
Cursor Blink On/Off	Alt+F10	Alt+F10	Alt+F10
Cursor Select	Alt+F9	Alt+F9	Alt+F9
Delete	Delete	Delete	Delete
Dup	Shift+Insert	Shift+Insert	Shift+Insert
Enter	Ctrl(right) or Enter	Ctrl(right) or Enter	Ctrl(right) or Enter
Erase EOF	End	End	End
Erase Input	Alt+End	Alt+End	Alt+End
Field Mark	Shift+Home	Shift+Home	Shift+Home
Home	Home	Home	Home
Ident	Shift+PrSc	Shift+PrSc	Shift+PrSc
Insert	Insert	Insert	Insert
New Line	Enter	Enter	Enter
PA1	Page Up	Page Up	Page Up
PA2	Page Down	Page Down	Page Down
PA3	N/A	Shift+PageUp	Shift+PageUp
PF1	F1	F1	F1
PF2	F2	F2	F2
PF3	F3	F3	F3

Functions	CUT Mode		Home3270
	Emulation	Standard	
PF4	F4	F4	F4
PF5	F5	F5	F5
PF6	F6	F6	F6
PF7	F7	F7	F7
PF8	F8	F8	F8
PF9	F9	F9	F9
PF10	F10	F10	F10
PF11	F11	F11	F11
PF12	F12	F12	F12
PF13	Shift+F1	Shift+F1	Shift+F1
PF14	Shift+F2	Shift+F2	Shift+F2
PF15	Shift+F3	Shift+F3	Shift+F3
PF16	Shift+F4	Shift+F4	Shift+F4
PF17	Shift+F5	Shift+F5	Shift+F5
PF18	Shift+F6	Shift+F6	Shift+F6
PF19	Shift+F7	Shift+F7	Shift+F7
PF20	Shift+F8	Shift+F8	Shift+F8
PF21	Shift+F9	Shift+F9	Shift+F9
PF22	Shift+F10	Shift+F10	Shift+F10
PF23	Shift+F11	Shift+F11	Shift+F11
PF24	Shift+F12	Shift+F12	Shift+F12
Print	Alt+F7	Alt+F7	Alt+F7
Quit	Alt+ Ctrl(left)	Alt+ Ctrl(left)	Alt+ Ctrl(left)
Reset	Ctrl(left)	Ctrl(left)	Ctrl(left)
Sys Req	Alt+PrSc	Alt+PrSc	Alt+PrSc
Tab	Tab or + (num)	Tab or + (num)	Tab or + (num)
Test	Alt+ScrollLock	Alt+ScrollLock	Alt+ScrollLock
←	←	←	←
→	→	→	→
—	Alt+←	Alt+←	Alt+←
—	Alt+→	Alt+→	Alt+→

Note: The following table summarizes the key functions supported differently by the four protocol convertors.

3270 Key Function	3174	3708	7171	9370
ATTN	Yes	Yes	No	No
Ident	Yes	Yes	No	No
PA3	No	Yes	Yes	Yes
Quit	Yes	Yes	No	No
Sys Req	Yes	Yes	No	No
Test	Yes	No	Yes	Yes
Print	Yes	Yes	No	No

The following table shows the keys you press to get the function for an IBM Host-connected keyboard.

Workstation Key Functions

Function	CUT Mode		Home3270
	Emulation	Standard	
Switch Screens	Ctrl+Esc	Ctrl+Esc	Ctrl+Esc
Suspend DOS	Ctrl+S	Ctrl+S	N/A
Resume DOS	Ctrl+R	Ctrl+R	N/A
Exit	Ctrl+Num_5	Ctrl+Num_5	Ctrl+Num_5 or Ctrl+End
Num Lock	Num Lock	Num Lock	Num Lock
Break	N/A	N/A	Ctrl+/

3270 Key Functions

Function	CUT Mode		Home3270
	Emulation	Standard	
Alternate Cursor	AltCr	AltCr	AltCr
ATTN	Attn	Attn	Attn
Backspace	Backspace	Backspace	Backspace
Backtab	BackTab	BackTab	BackTab
Clear	Clear	Clear	Clear
Change Screen	ChgSc	ChgSc	ChgSc
Clicker On/Off	Alt+F24	Alt+F24	Alt+F24
Cursor Blink On/Off	CrBnk	CrBnk	CrBnk
Cursor Select	CrSel	CrSel	CrSel
Delete	Delete	Delete	Delete
Dup	Dup	Dup	Dup

Function	CUT Mode		Home3270
	Emulation	Standard	
Enter	Ctrl(right) or Enter	Ctrl(right) or Enter	Ctrl(right) or Enter
Erase EOF	ErEOF	ErEOF	ErEOF
Erase Input	ErInp	ErInp	ErInp
Field Mark	FldMk	FldMk	FldMk
Home	Alt+Rule	Alt+Rule	Alt+Rule
Ident	Ident	Ident	Ident
Insert	Insert	Insert	Insert
New Line	Enter	Enter	Enter
PA1	PA1	PA1	PA1
PA2	PA2	PA2	PA2
PA3	PA3	PA3	PA3
PF1	F1	F1	F1
PF2	F2	F2	F2
PF3	F3	F3	F3
PF4	F4	F4	F4
PF5	F5	F5	F5
PF6	F6	F6	F6
PF7	F7	F7	F7
PF8	F8	F8	F8
PF9	F9	F9	F9
PF10	F10	F10	F10
PF11	F11	F11	F11
PF12	F12	F12	F12
PF13	F13	F13	F13
PF14	F14	F14	F14
PF15	F15	F15	F15
PF16	F16	F16	F16
PF17	F17	F17	F17
PF18	F18	F18	F18
PF19	F19	F19	F19
PF20	F20	F20	F20
PF21	F21	F21	F21
PF22	F22	F22	F22
PF23	F23	F23	F23

Function	CUT Mode		Home3270
	Emulation	Standard	
PF24	F24	F24	F24
Print	Print	Print	Print
Quit	Quit	Quit	Quit
Reset	Reset	Reset	Reset
Sys Req	Sys Req	Sys Req	Sys Req
Tab	Tab	Tab	Tab
Test	Test	Test	Test
←	←	←	←
→	→	→	→
—	—	—	—
—	—	—	—

Note: The following table summarizes the key functions supported differently by the four protocol convertors.

3270 Key Function	3174	3708	7171	9370
ATTN	Yes	Yes	No	No
Ident	Yes	Yes	No	No
PA3	No	Yes	Yes	Yes
Quit	Yes	Yes	No	No
Sys Reg	Yes	Yes	No	No
Test	Yes	No	Yes	Yes
Print	Yes	Yes	No	No

The next section describes the entry assist functions. They are available only when PC/3270 is customized as CUT. For the Home3270 users, skip this section.

Keys Used for IBM 3174/3274 Entry Assist Functions

The entry assist function helps you when you are creating or revising text on the 3270 display. The IBM 3174/3274 controller must be configured appropriately.

If the installation supports entry assist, the display has:

A scale line for establishing margins and tab stops, which is available on demand

Screen margins

Tabbing

Audible end-of-line signal

Word wrap (automatic new line)

Repeat-action (typematic) forward and reverse cursor movement by word (the cursor moves to the beginning of the next word or the previous word)

Word delete

Repeat-action (typematic) character delete

Repeat-action (typematic) error-correcting backspace when in insert mode

A cursor position indicator that can be displayed on demand

The following entry assist functions differ, according to the **Keyboard Layout** parameter specified during installation.

Emulation Keyboard Layout:

You can enter entry assist (DOC) mode directly.

The DOC symbol appears in the OIA at the bottom of screen when you press:

- Ctrl+F5 on the PC, PC XT, or PC AT keyboard
- Alt+F1 on the Enhanced PC keyboard

Standard Keyboard Layout:

You must enter extended select mode before entry assist mode.

The ExSel symbol ▶ appears in the OIA at the bottom of screen when you press:

- Alt+Esc on the Enhanced PC keyboard
- ExSel on the Host-connected keyboard

The DOC symbol appears in the OIA at the bottom of screen when you press:

- F1 on the Enhanced PC keyboard
- F13 on the Host-connected keyboard

The following summary of the functions helps you identify PC key combinations that emulate the entry assist function keys. These key combinations are valid only when you are in entry assist mode. For complete information, refer to *IBM 3270 Information Display System: Entry Assist IBM 3174/3274 Control Unit.*

The following table shows the keys you press to get the function for an IBM PC, PC XT, or PC AT keyboard. **3270 Entry Assist Functions**

Function	CUT Mode	
	Emulation	**Standard**
Change Format	Alt+F5	N/A
Cursor Position	Alt+↑	N/A
Doc On/Off	Alt+Home or Ctrl+F5	N/A
Next Word	Alt+→	N/A
Previous Word	Alt+←	N/A
Word Delete	Alt+Del	N/A
Word Wrap	Alt+F9 or Ctrl+F9	N/A

The following table shows the keys you press to get the function for an IBM Enhanced PC keyboard.

3270 Entry Assist Functions

Function	CUT Mode	
	Emulation	**Standard**
Change Format	Alt+F3	Alt+Esc+F3
Cursor Position	Alt+F8	Alt+F8
Doc On/Off	Alt+F1	Alt+Esc+F1
Next Word	Alt+→	Alt+→
Previous Word	Alt+←	Alt+←
Word Delete	Alt+Delete	Alt+Delete
Word Wrap	Alt+F2	Alt+Esc+F2

The following table shows the keys you press to get the function for an IBM Host-connected keyboard. **3270 Entry Assist Functions**

Function	CUT Mode	
	Emulation	
Change Format	Alt+F3	ExSel+F15
Cursor Position	Alt+F8	Alt+F8
Doc On/Off	Alt+F1	ExSel+F13
Next Word	—	—
Previous Word	—	—
Word Delete	DelWd	DelWd
Word Wrap	Alt+F2	ExSel+F14

X.21/X.25 Network Keys

When PC/3270 is attached to an X.21/X.25 network via the control unit, you can connect to either a host system that has been pre-defined by the control unit customization or to a host system specified by the user.

The key operations for X.21/X25 Network are usable only when the Standard Keyboard Layout was specified during the installation. The following X.21/X.25 network keys are defined when ExSel is pressed.

The following table shows the keys you press to get the function for an IBM PC, PC XT, or PC AT keyboard.

X.21/X.25 Network Keys

Function	CUT Mode	
	Emulation	Standard
Direct Call	N/A	N/A
Dial Call	N/A	N/A
Local	N/A	N/A
Communication	N/A	N/A
Disconnect	N/A	N/A

The following table shows the keys you press to get the function for an IBM Enhanced PC keyboard.

X.21/X.25 Network Keys

Function	CUT Mode	
	Emulation	Standard
Direct Call	N/A	Alt+Esc+F4
Dial Call	N/A	Alt+Esc+F5
Local	N/A	Alt+Esc+F6
Communication	N/A	Alt+Esc+F7
Disconnect	N/A	Alt+Esc+F9

The following table shows the keys you press to get the function for an IBM Host-connected keyboard.

X.21/X.25 Network Keys

Function	CUT Mode	
	Emulation	Standard
Direct Call	N/A	ExSel+F4
Dial Call	N/A	ExSel+F5
Local	N/A	ExSel+F6
Communication	N/A	ExSel+F7
Disconnect	N/A	ExSel+F9

Response Time Monitor Key

If the control unit enables the response time monitor function, this key allows you to check the response time of the host computer. The time appears in columns 19 through 26 in the OIA.

The following table shows the keys you press to get the function for an IBM PC, PC XT, or PC AT keyboard.

Response Time Monitor Keys

Function	CUT Mode	
	Emulation	Standard
Response Time Monitor	N/A	N/A

The following table shows the keys you press to get the function for an IBM Enhanced PC keyboard.

Response Time Monitor Keys

Function	CUT Mode	
	Emulation	Standard
Response Time Monitor	N/A	Alt+Esc+F11

The following table shows the keys you press to get the function for an IBM Host-connected keyboard.

Response Time Monitor Keys

Function	CUT Mode	
	Emulation	Standard
Response Time Monitor	N/A	ExSel+F19

Chapter 5. Using the Utilities

The 3270 Setup and Utility is a set of programs that support the PC/3270's operations such as:

- 3270 display setup
- 3270 keyboard definition utility
- File transfer utility
- Vital product data setup (only for CUT attachment)

The automatic dial utility, which is directly invoked from the DOS prompt, is available for Home3270.

The patch utility, which is directly invoked from the DOS prompt, is also used to install software changes.

You can select each function through the 3270 Setup and Utility panel. The 3270 Setup and Utility panel appears when the PCSUTIL program is started in the DOS session. To start PCSUTIL, change the drive and directory to those for PC/3270 and type **PCSUTIL**.

You see the IBM logo panel for a few seconds.

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And then you see the 3270 Setup and Utility main panel like below.

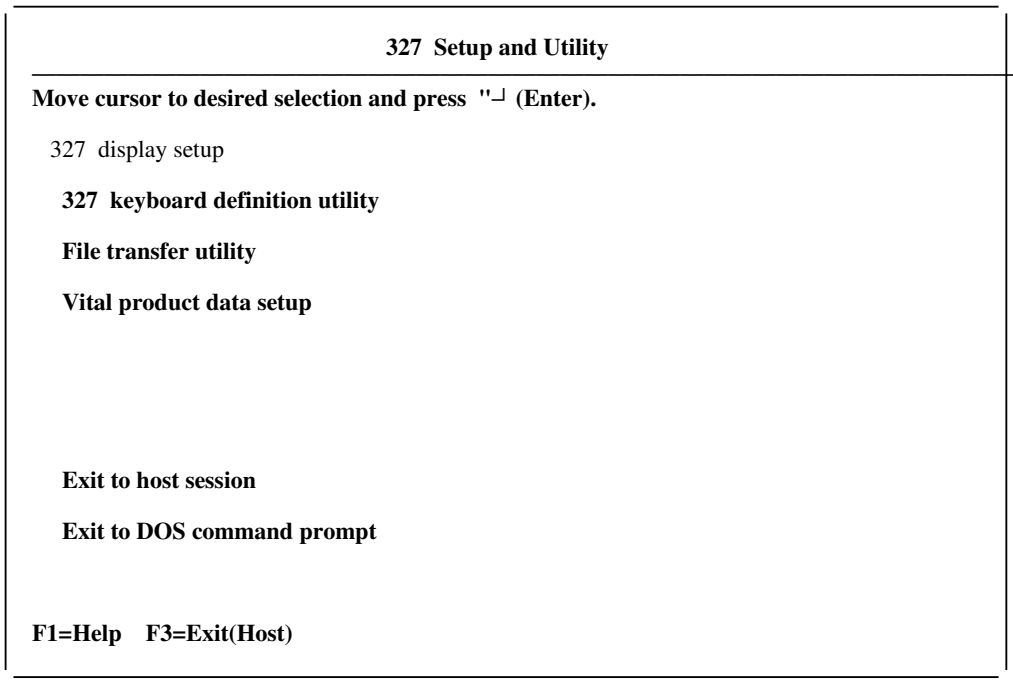


Figure 15. 3270 Setup and Utility Panel

The 3270 Setup and Utility contains or invokes the following utility programs:

3270 display setup
Allows you to change the cursor style and blinking state, clicker tone, alarm tone, auto dim delay, mono case, four base color mapping, screen color mapping, and extended color mapping.

3270 keyboard definition utility
Allows you to change the keyboard layout in the host session.

File transfer utility
Provides a panel-driven file transfer capability between the host system and your PC.

Note: This choice is not available when PC/3270 is not running.

Vital product data setup
Allows you to enter vital product data.

Note: This selection is not available when PC/3270 is customized as Home3270. Refer to page Figure 3 on page 5.

The following keys control the 3270 Setup and Utility:

Esc	Cancel the selections and exit the panel
F1	Display a help panel
F2	Select the desired choice
F3	Save the selection and exit the panel
F7	Go to the previous panel
F8	Go to the next panel

3270 Display Setup

The 3270 Display Setup consists of three panels if you have a color monitor. The first panel provides choices such as cursor style and blinking state, clicker tone, alarm tone, auto dim delay, and mono case.

To display the 3270 Display Setup panels, do the following:

1. Type **PCSUTIL** at the DOS prompt and press Enter.
2. Select **3270 Display Setup** and press Enter. The following panel appears.

```
                    327 Display Setup                    More:  +

Move cursor to desired choice, then press F2 to select.

  Cursor Style  . . . . . .    Underline   Block
    Blink . . . . . .          Yes         No

  Clicker . . . . . .          Normal      Error      Off
    Tone  . . . . . .          Low         Middle     High

  Alarm . . . . . .            On          Off
    Tone  . . . . . .          Low         Middle     High


  Auto dim  . . . . . .        Yes         No
    Delay (minutes) . . . . .  5           1          2

  Mono case . . . . . .        Yes         No




Esc=Cancel  F1=Help  F2=Select  F3=Exit  F6=Reset values  F8=Forward
```

Figure 16. 3270 Display Setup Panel 1

3. Place the cursor on the choice you want and press F2 to make selections.

You can change the following display characteristics:

Cursor style and blinking state
You can select either underline cursor or block cursor. The blinking state can also be selected.

Note:

You can change the cursor style or blinking state by the AltCr or CrBnk key.

You can change the cursor blinking state on some models of the PS/2.

Clicker state and tone
When you set Clicker to **Normal**, you hear the clicker beep for every keystroke except for keystrokes that are not allowed. When you set Clicker to **Error**, you hear the clicker beep only for keystrokes that are not valid.

Alarm state and tone
You can turn on the alarm beep and change the tone, or you can turn off the alarm.

Auto dim state and delay
When you set the auto dim function to **On**, the host session screen becomes blank if you do not press a key for a specified length of time (**Delay**). The screen is restored when you press any key. The first keystroke restoring the screen is discarded and not passed to the session.

Note: This function is available with VGA or later compatible display adapters only.

Mono case
When you set the mono case function to **Yes**, all alphabetic characters are displayed as capitalized characters on the screen

Note: When PC/3270 works as the CUT emulator and the control unit is using CECP, this function is not available.

Pressing F8 displays the second panel. This panel allows you to change the four base color and screen color mappings. If your monitor is a monochrome model, the second panel does not appear. If PC/3270 works as Home3270, this panel does not appear because an attached protocol converter does not support the field attributes.

The four base color mapping is a group of colors that can be assigned to a 3270 display field. You can assign one of seven colors to each 3270 field as shown on the panel.

The screen color is a color that appears behind and around the text. The standard screen color is black. You can assign one of eight colors to the screen color as shown on the panel.

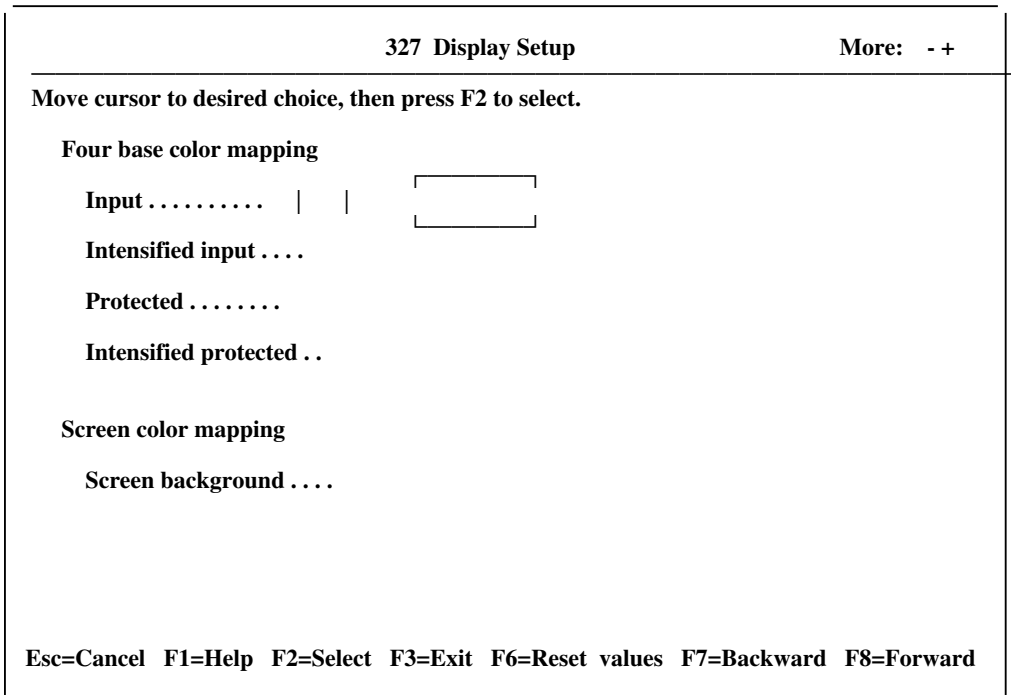


Figure 17. 3270 Display Setup Panel 2

The display fields are normally redefined by the host application program. The color fields are the original color definitions for the 3270 screen.

The following color fields can be redefined by the 3270 Display Setup:

Input Fields where you can enter characters

Intensified input
Fields where you can enter characters and the displayed text is highlighted.

Protected Fields where you cannot enter characters

Intensified protected
Fields where you cannot enter characters and the displayed text is highlighted.

Pressing F8 displays the third panel. This panel allows you to change the extended color mapping. If your monitor is a monochrome model, the third panel does not appear.

The extended color is a host application programmable color. You can assign one of seven colors to each extended color attribute as shown on the panel.

The screen color is a color that appears behind and around the text. The standard screen color is black. You can assign one of eight colors to the screen color as shown on the panel.

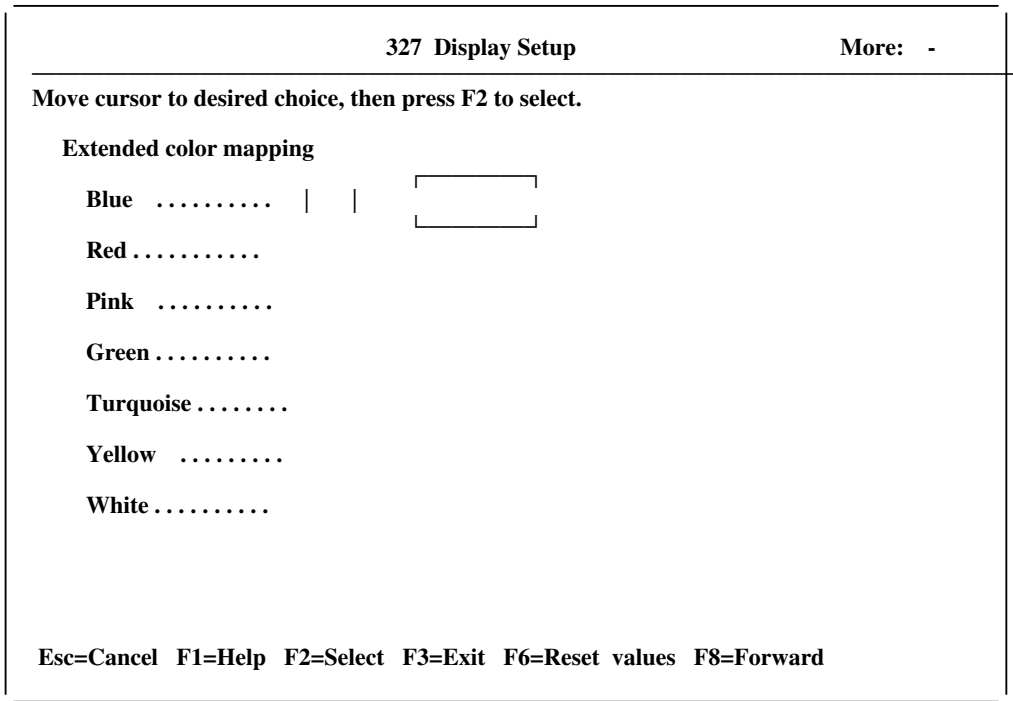


Figure 18. 3270 Display Setup Panel 3

3270 Keyboard Definition Utility

This utility enables you to define your own keyboard layout for the host session. This utility allows you to:

- Configure the host session keyboard definitions for the IBM PC, the IBM PC XT, the IBM PC AT, the IBM Enhanced PC keyboard, and the Host-connected keyboard
- Swap, copy, delete any of the keyboard functions and remap them in almost any position of the keyboard
- Save multiple keyboard definitions according to the configuration file.

The following sections describe in detail how to use the keyboard definition utility.

Before You Begin

Before using the keyboard definition utility, make sure that PC/3270 has been started.

Starting the Keyboard Definition Utility

To display the following panel:

1. Type **PCSUTIL** at the DOS prompt and press Enter.
2. Select **Keyboard Definition Utility** and press Enter.

   Note: When PC/3270 is not running, this selection does not appear.

   The following panel appears.

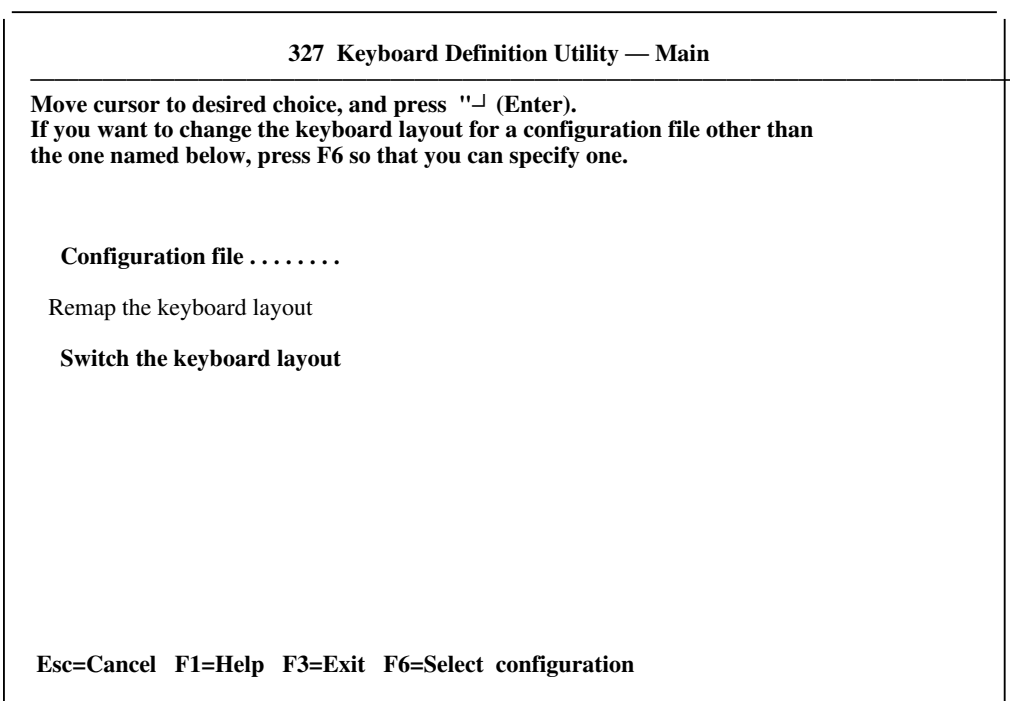


Figure 19. 3270 Keyboard Definition Utility — Main Panel

3. Place the cursor on the choice you want and press Enter to make selections.

The Keyboard Definition Utility provides a series of panels that support the definition of the keyboard layout. In the initial panel, you can select the following:

Configuration file
: If you have more than one configuration file for PC/3270, you can assign a redefined keyboard layout for each configuration file. To change the configuration file, press F6 and type in the configuration file name in the Select panel.

Remap the keyboard layout
: To define the keyboard layout, follow the instructions on each panel or press F1 for help information. The “Swap Key Assignments Example” on page 55 shows an example of swapping the key assignments.

Switch the keyboard layout
: You can change the keyboard layout for the configuration file that is currently displayed. The change becomes immediately effective on the host sessions as well as the configuration file.

Changing Key Mapping

You can change key mapping by using the following keyboard definition utility functions:

Swap Key Assignments

Copy key Assignments

Delete Key Assignments

Swap Key Assignments Example

The following example shows how to swap the key assignments of letters **a** and **b**.

1. Select **Remap the keyboard layout** in the 3270 Keyboard Definition Utility panel. The 3270 Keyboard Definition Utility - Remap 1 panel appears.

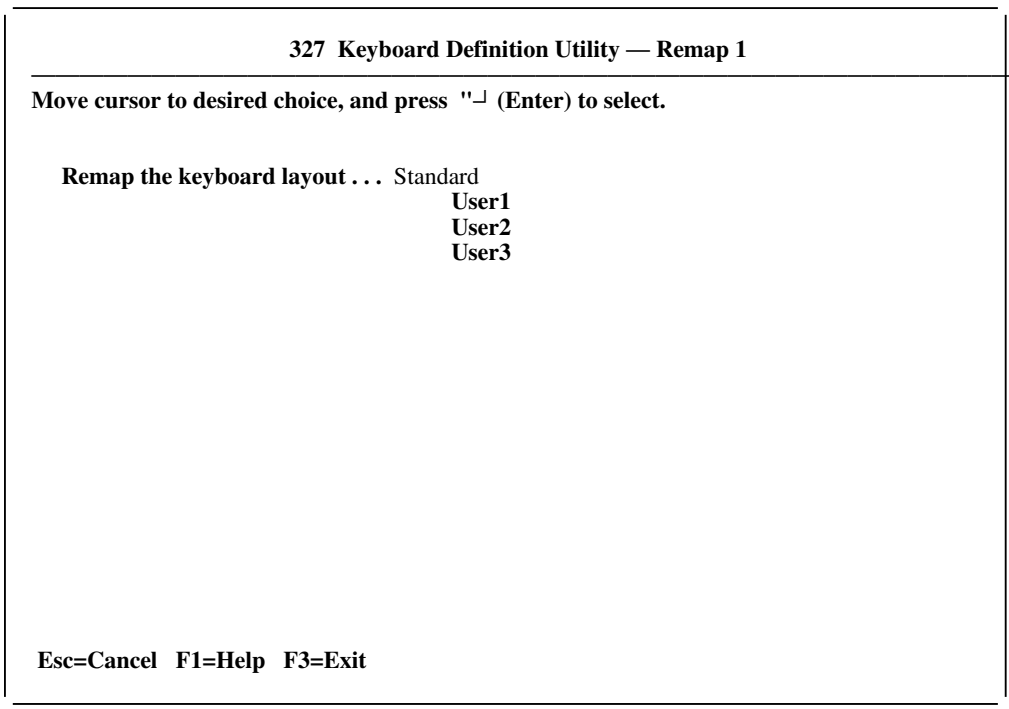


Figure 20. 3270 Keyboard Definition Utility — Remap 1 Panel

2. Select **Standard** and press Enter. The 3270 Keyboard Definition Utility - Remap 2 panel appears.

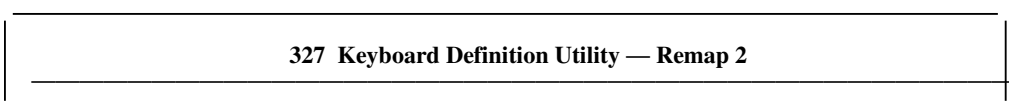
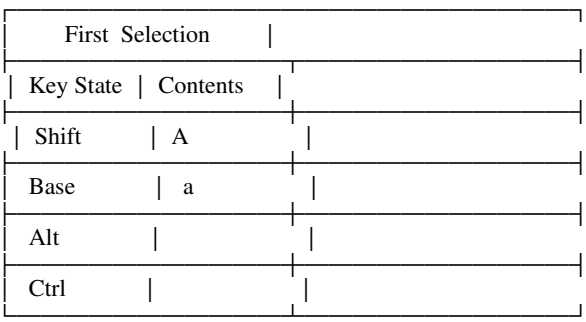


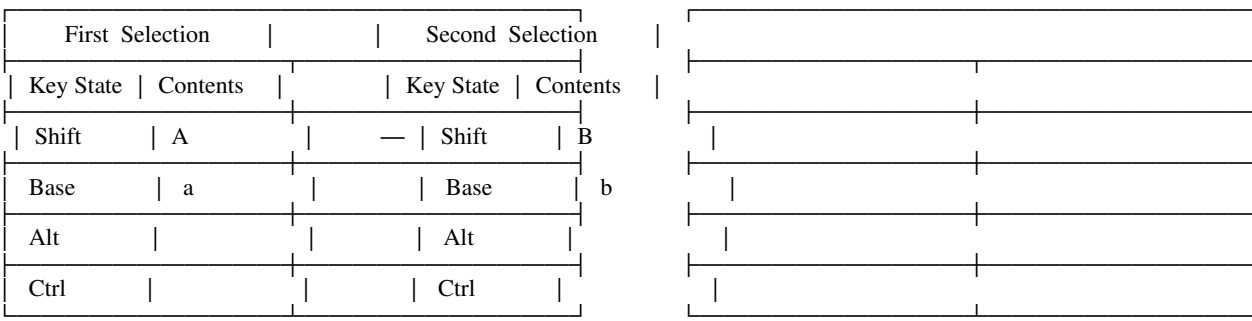
Figure 21. 3270 Keyboard Definition Utility — Remap 2 Panel

3. Press F6 to select the swap key function. The 3270 Keyboard Definition Utility - Remap 2 (Swap) panel appears.

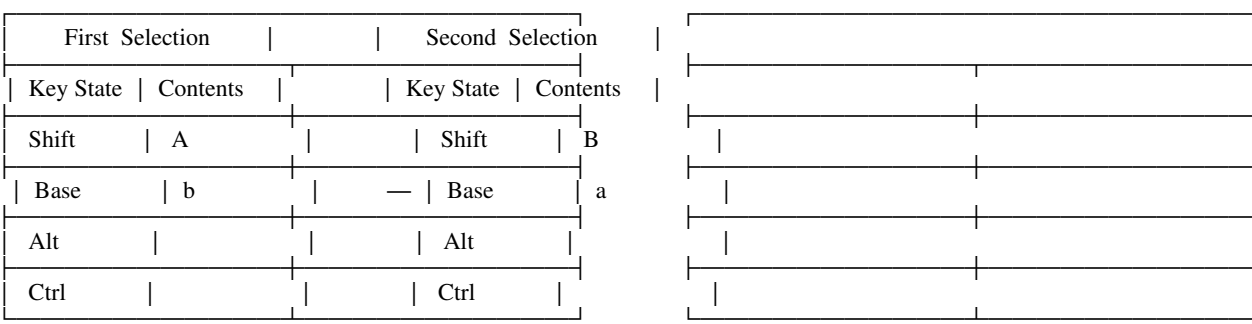
4. Select key **A** and press Enter. The First Selection window appears.



5. Select key **B** and press Enter. The Second Selection window appears in addition to the First Selection window.



6. Press the Down Arrow to select the Key State Base **a** in the First Selection window. Press the Right Arrow to go to the Second Selection window. Press the Down Arrow to select the Key State Base **b** in the Second Selection window. And finally press Enter to swap these two values. You can see both windows have changed as follows:



7. Press F3 to exit. The save panel appears.

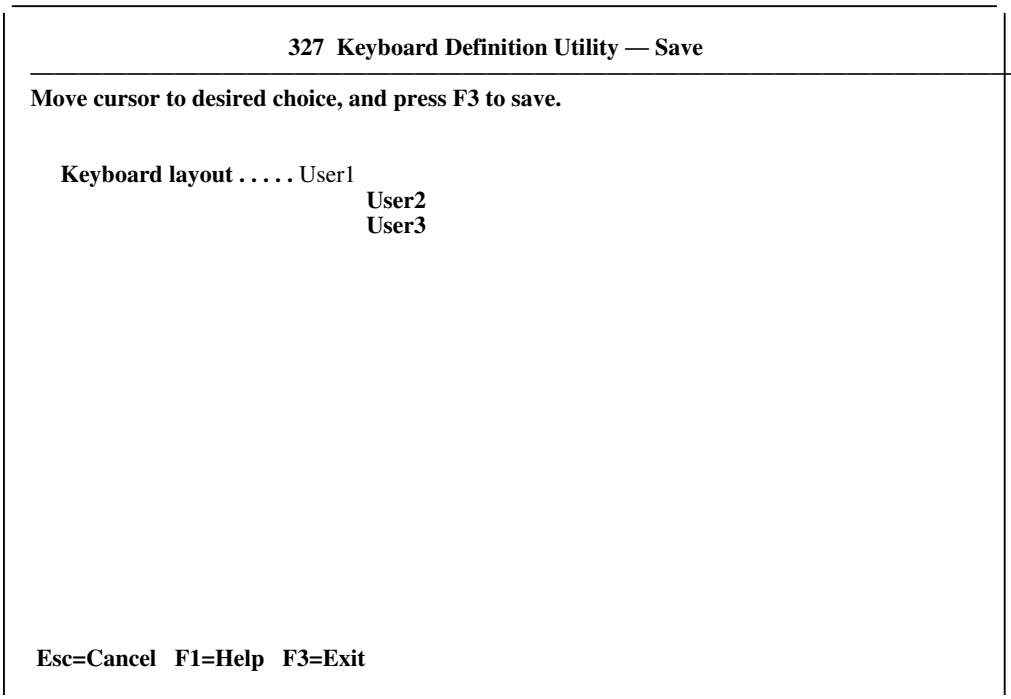


Figure 22. 3270 Keyboard Definition Utility — Save Panel

8. Select the keyboard layout (User1, User2, or User3) that you want to assign the change.

9. Press F3 to exit. The main panel appears.

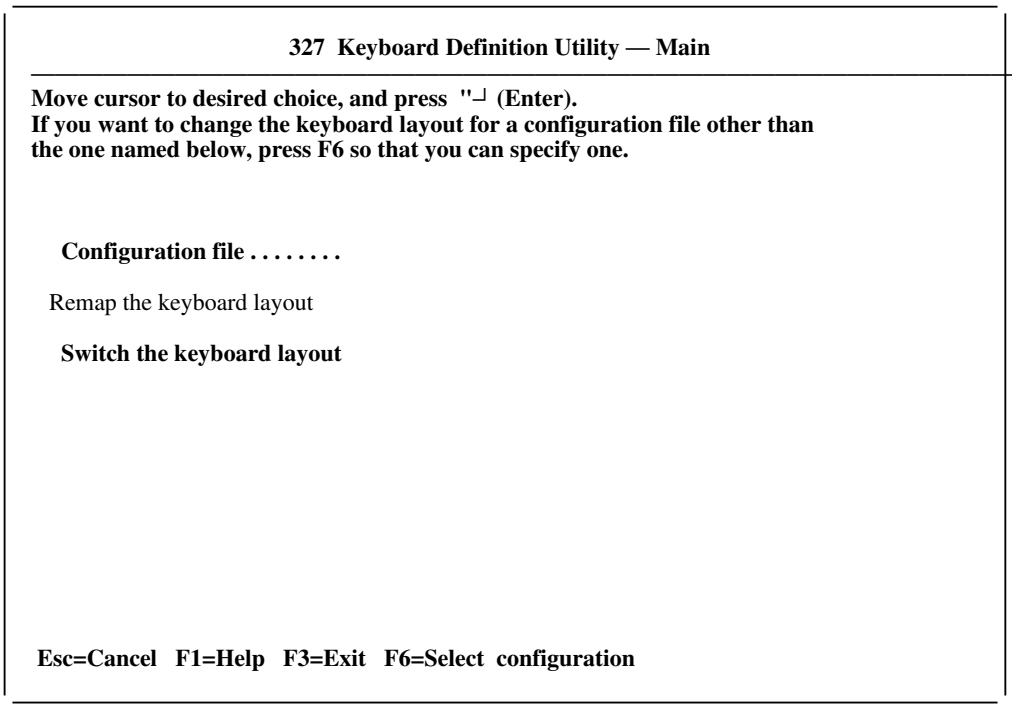


Figure 23. 3270 Keyboard Definition Utility — Main Panel

10. Select **Switch the keyboard layout** and press Enter. The 3270 Keyboard Definition Utility - Switch panel appears.

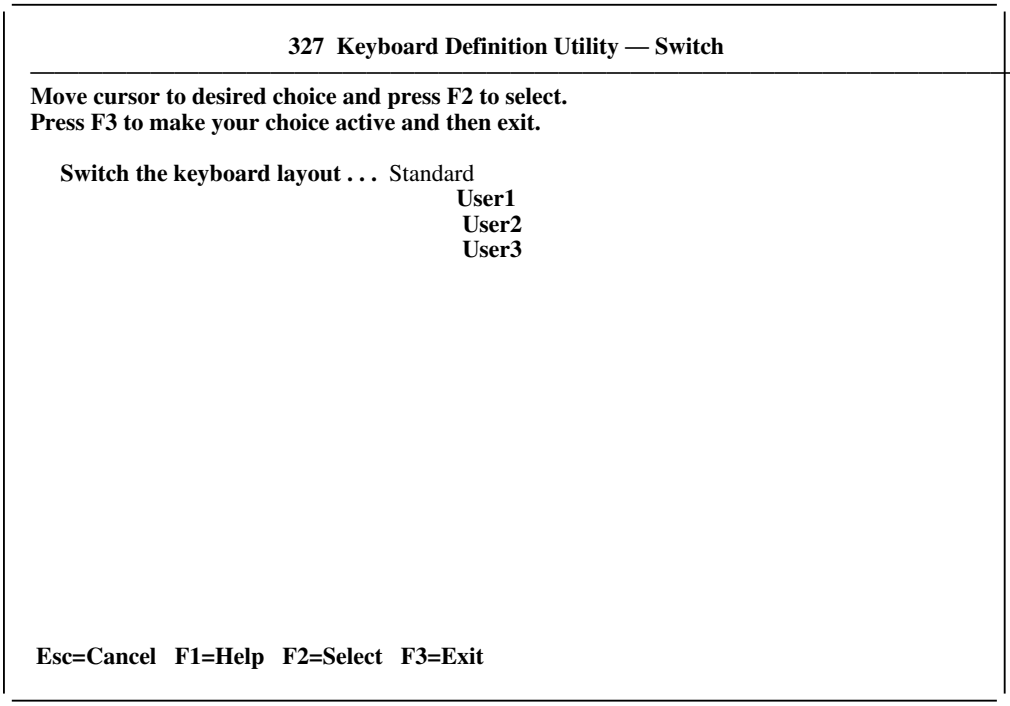


Figure 24. 3270 Keyboard Definition Utility — Switch Panel

11. Select **User1** and press F3.

The key assignment is swapped.

Copy Key Assignments Example

The following example shows how to copy the key assignment of letter **a** to the key assignment of letter **b**.

1. Select **Remap the keyboard layout** in the 3270 Keyboard Definition Utility panel. The 3270 Keyboard Definition Utility - Remap 1 panel appears.

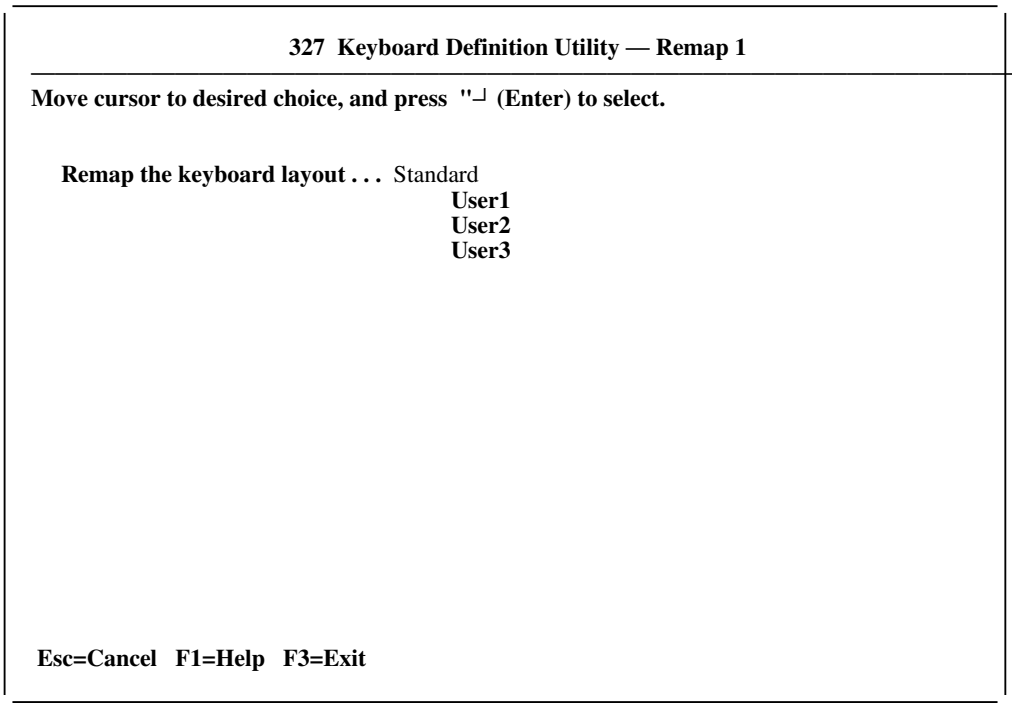


Figure 25. 3270 Keyboard Definition Utility — Remap 1 Panel

2. Select **Standard** and press Enter. The 3270 Keyboard Definition Utility - Remap 2 panel appears.

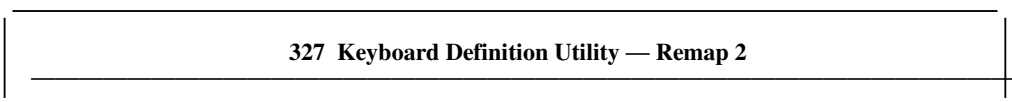
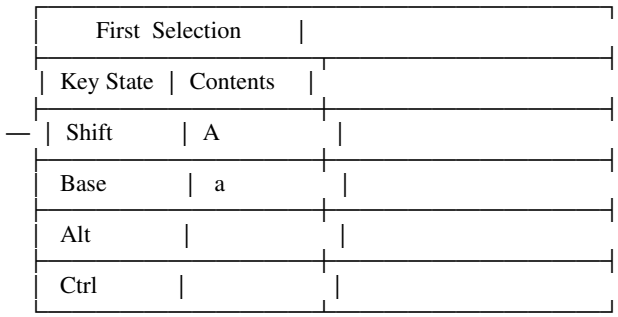
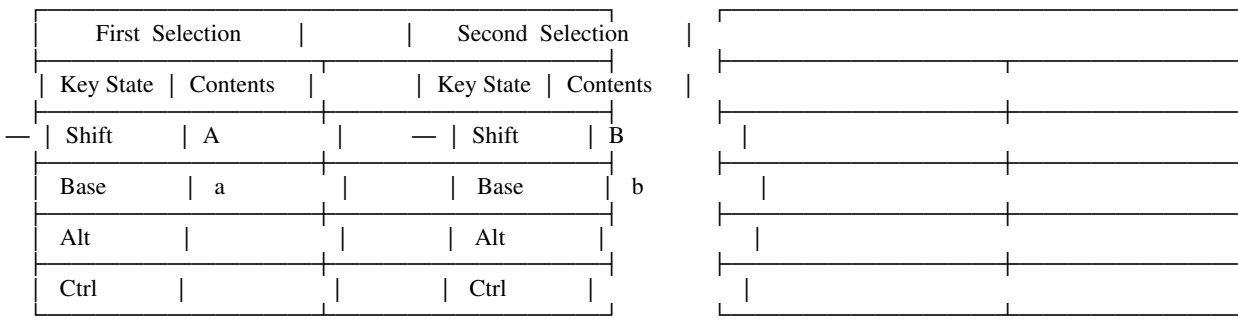


Figure 26. 3270 Keyboard Definition Utility — Remap 2 Panel

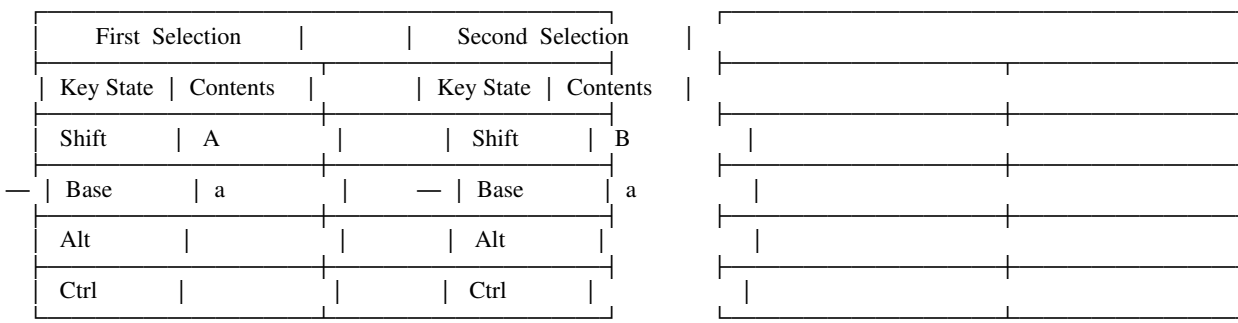
3. Press F5 to select the copy key function. The 3270 Keyboard Definition Utility - Remap 2 (Copy) panel appears.
4. Select key **A** and press Enter. The First Selection (source) window appears.



5. Select key **B** and press Enter. The Second Selection (destination) window appears in addition to the First Selection, as shown below.



6. Press the Down Arrow to select the Key State Base **a** in the First Selection window. Press the Right Arrow to go to the Second Selection window. Press the Down Arrow to select the Key State Base **b** in the Second Selection window. And finally press Enter to copy the First (source) value into the Second (destination) value. You can see the windows have changed as follows:



7. Press F3 to exit. The save panel appears.

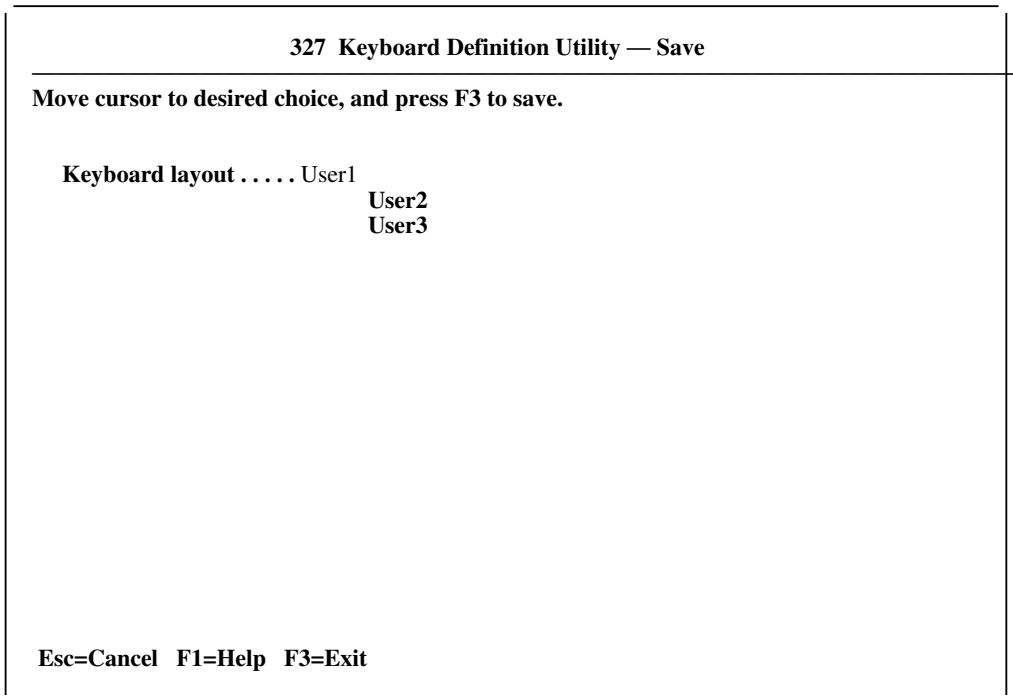


Figure 27. 3270 Keyboard Definition Utility — Save Panel

8. Select the keyboard layout (User1, User2, or User3) that you want to assign the change.
9. Press F3 to exit. The main panel appears.

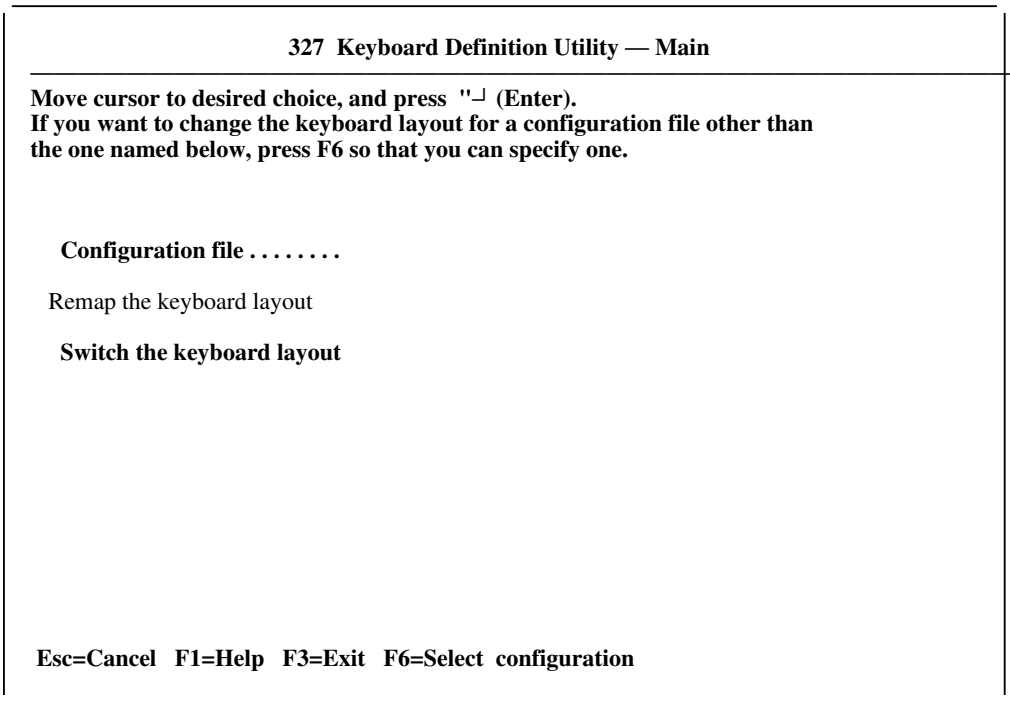


Figure 28. 3270 Keyboard Definition Utility — Main Panel

10. Select **Switch the keyboard layout** and press Enter. The 3270 Keyboard Definition Utility - Switch panel appears.

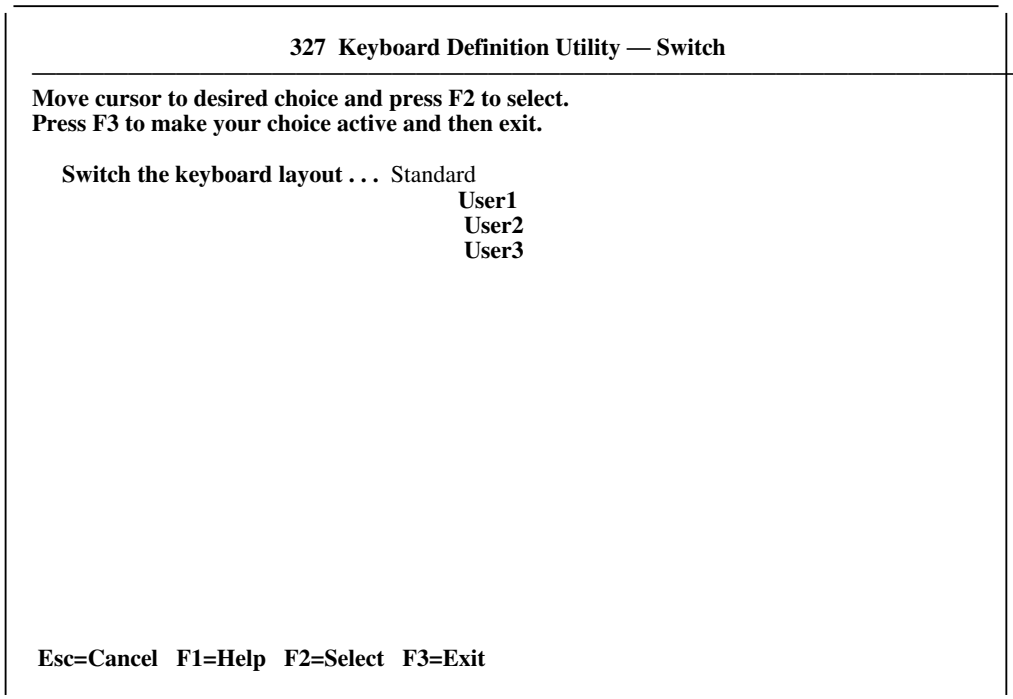


Figure 29. 3270 Keyboard Definition Utility — Switch Panel

11. Select **User1** and press F3. The key assignment is copied.

Delete Key Assignments Example

The following example shows how to delete the key assignment of letter **a**.

1. Select **Remap the keyboard layout** in the 3270 Keyboard Definition Utility panel. The 3270 Keyboard Definition Utility - Remap 1 panel appears.

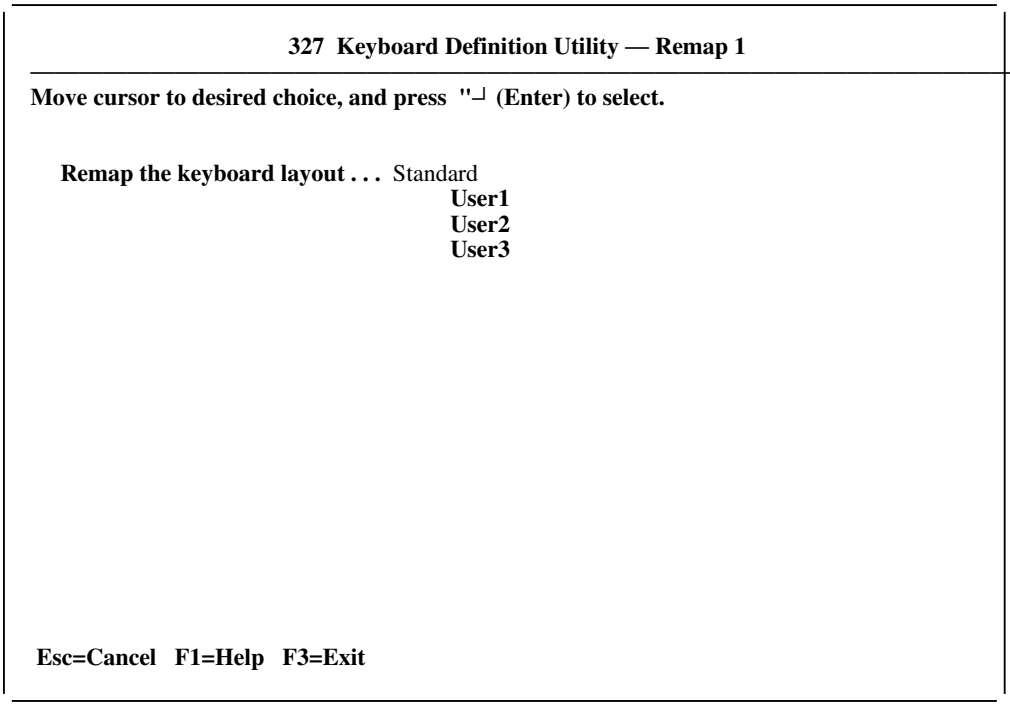


Figure 30. 3270 Keyboard Definition Utility — Remap 1 Panel

2. Select **Standard** and press Enter. The 3270 Keyboard Definition Utility - Remap 2 panel appears.

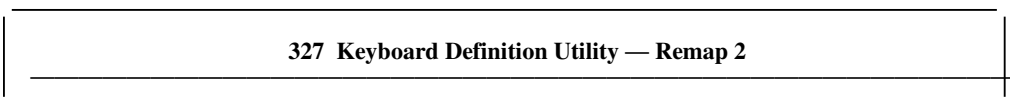
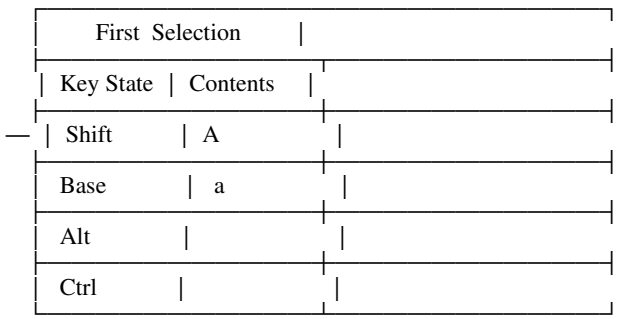
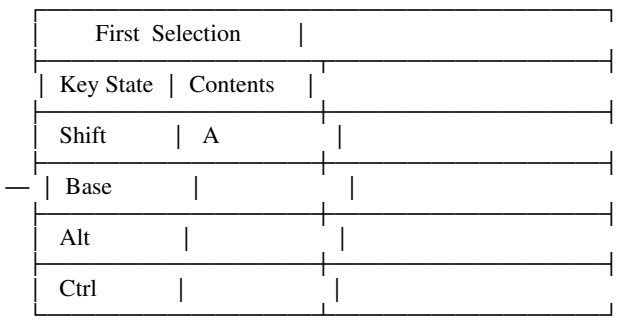


Figure 31. 3270 Keyboard Definition Utility — Remap 2 Panel

3. Press F4 to select the delete key function. The 3270 Keyboard Definition Utility - Remap 2 (Delete) panel appears.
4. Select key **A** and press Enter. The First Selection (current) window appears.



5. Press the Down Arrow to select the Key State Base **a** in the First Selection window. Press Enter to delete. You can see the window has changed as follows:



6. Press F3 to exit. The save panel appears.

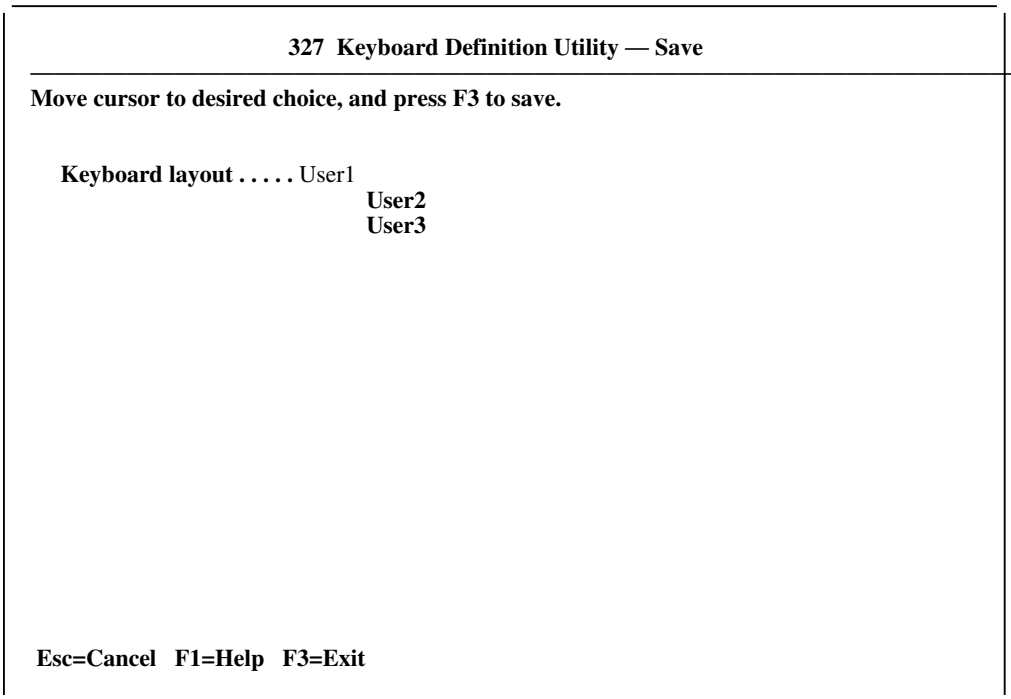


Figure 32. 3270 Keyboard Definition Utility — Save Panel

7. Select the keyboard layout (User1, User2, or User3) that you want to assign the change.
8. Press F3 to exit. The main panel appears.

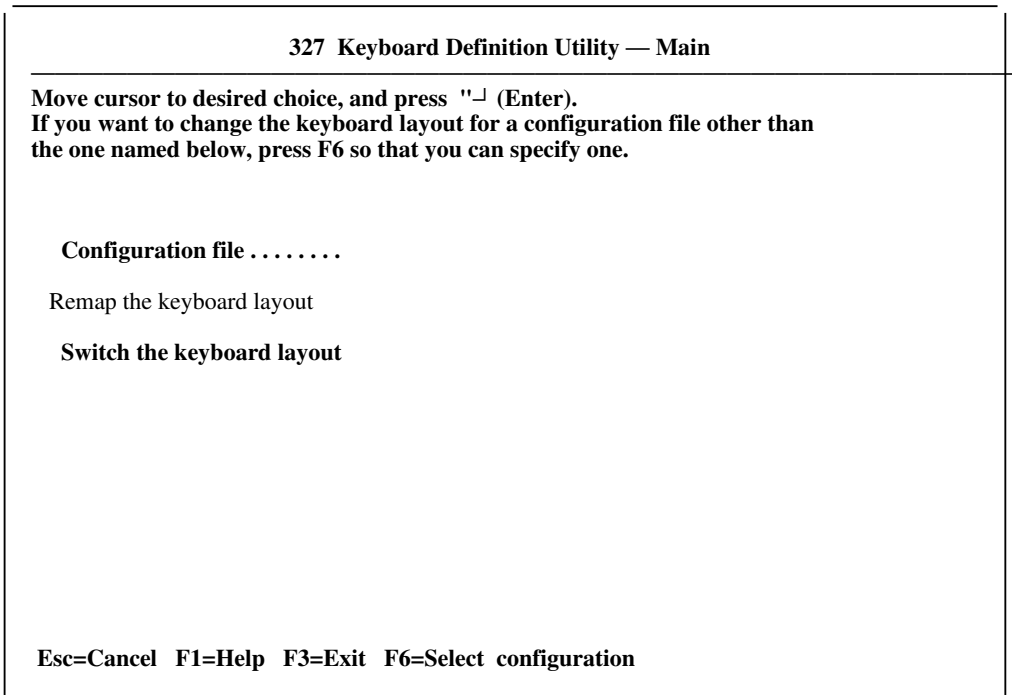


Figure 33. 3270 Keyboard Definition Utility — Main Panel

9. Select **Switch the keyboard layout** and press Enter. The 3270 Keyboard Definition Utility - Switch panel appears.

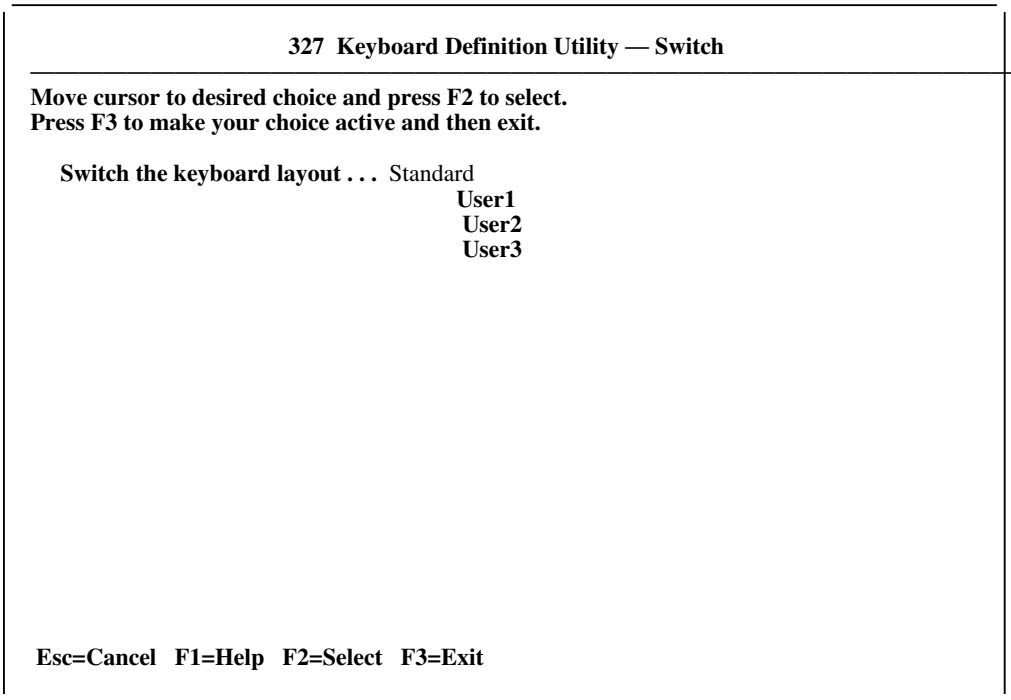


Figure 34. 3270 Keyboard Definition Utility — Switch Panel

10. Select **User1** and press F3.

    The key assignment is deleted.

File Transfer Utility

This utility enables you to transfer a PC file to the host system (SEND), or transfer a host system file to the PC (RECEIVE).

Note: You can also transfer files by issuing appropriate commands from the DOS command prompt. Refer Appendix D, “Transferring a File” on page 113

To display the 3270 File Transfer Utility panel:

1. Type **PCSUTIL** at the DOS prompt and press Enter.
2. Select **File Transfer Utility** and press Enter.

   Note: When PC/3270 is not running, this selection does not appear.

The following panel appears.

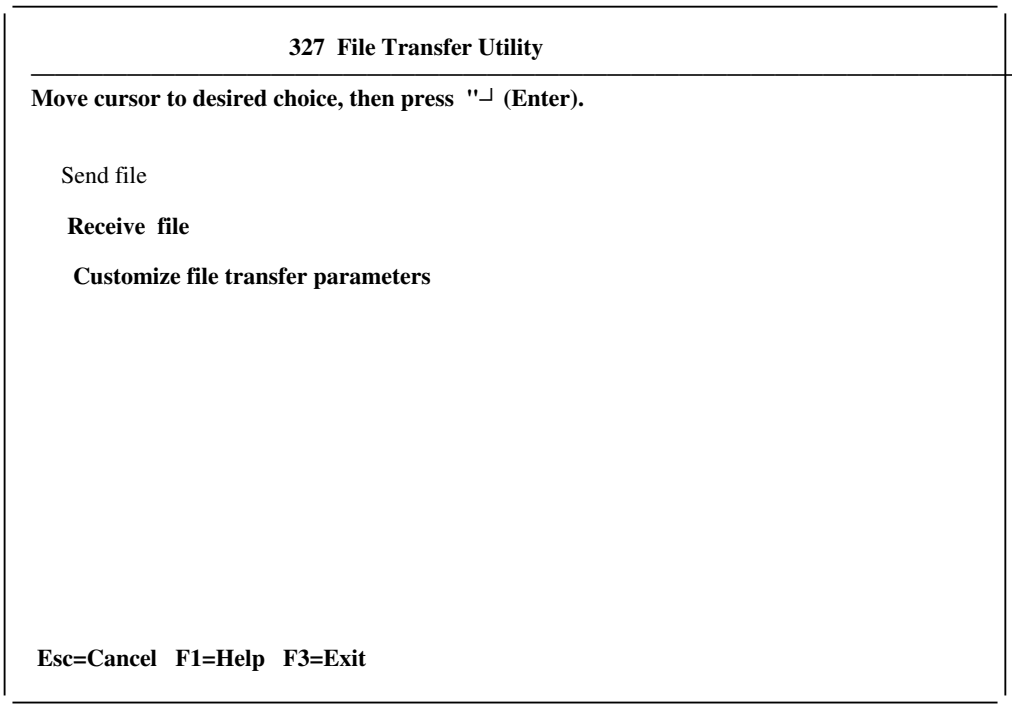


Figure 35. 3270 File Transfer Utility Panel

Note: Make sure that the target host session is ready to transfer files.

Send/Receive Files

When you want to transfer a PC file to the host system, select **Send file**. When you want to transfer a host file to the PC, select **Receive file**.

When you select **Send File** in the File Transfer Utility panel, the following panel appears.

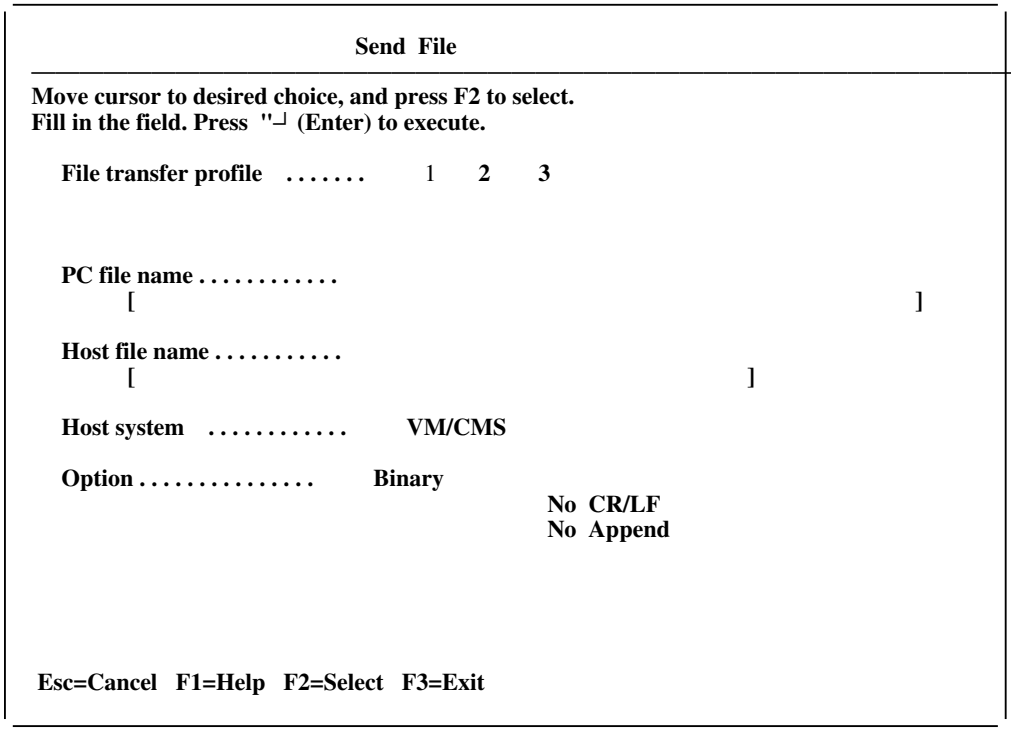


Figure 36. Send File Panel

In the Send File and Receive File panels, you need to select the following:

File transfer profile
The profile that is defined in Customize File Transfer Parameters.

PC file name
The PC file name that will be transferred from or to the host system.

Host file name
The host file name that will be transferred from or to the PC.

Host system
Either VM/CMS, MVS/TSO, CICS, or IWS that is defined in the file transfer profile.

Option
The options that are defined in the file transfer profile appear. A typical example for a text file is ASCII, CRLF, No Append: and for a program file: Binary, No Append.

File Transfer Parameters

To change the target host system or options in the Send File or Receive File panels, select **Customized File Transfer Parameters** in the 3270 File Transfer Utility panel. This option presents a series of panels that allow you to define options for each file transfer profile.

When you select **Customize File Transfer Parameters** in the 3270 File Transfer Utility panel, the following panel appears.

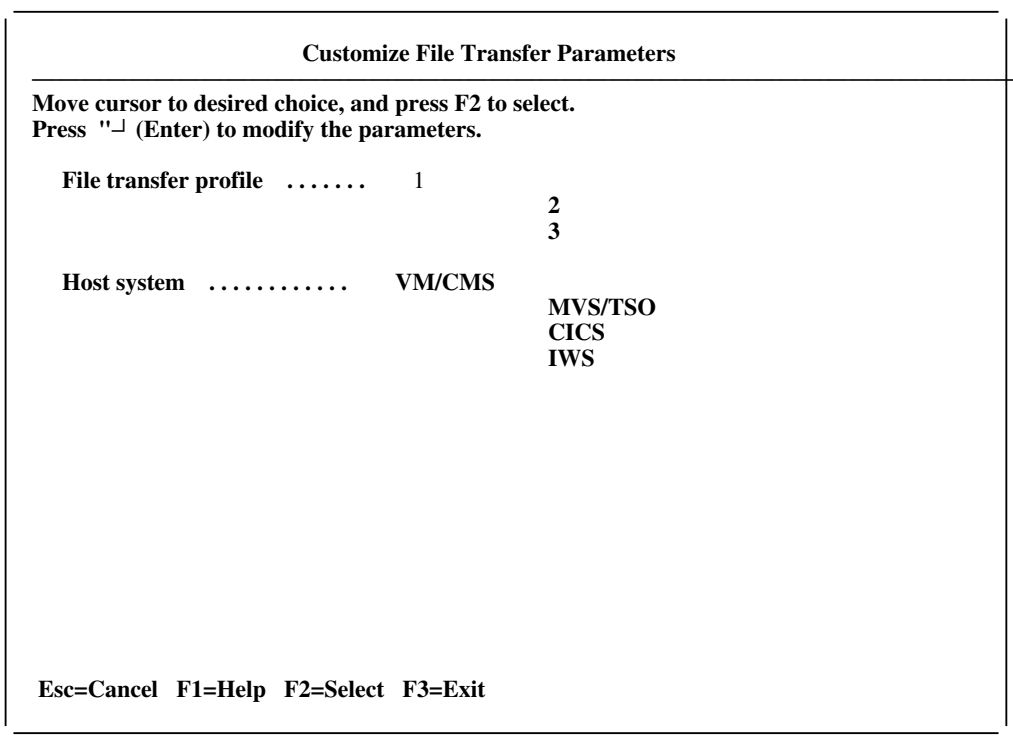


Figure 37. Customize File Transfer Parameters Panel

To define your file transfer profile:

1. Select the file transfer profile number that you want to define, and press F2.
2. Select the host system that you want to define the profile for, and press F2.
3. Press Enter to go to the panels defining or changing the parameters.

The following parameters are available:

ASCII ASCII to/from EBCDIC translation

CRLF Use CR/LF as record separator

APPEND Append to target file

LRECL Logical record length

BLKSIZE Block size of host file

RECFM Record format of host file

SPACE Units for space allocation

Note: The definitions of the parameters depend on the host system.

Vital Product Data Setup

Vital product data (VPD) provides network identification information for network asset management at the central site. The defined VPD is reported, when PC/3270 is customized to the Standard keyboard layout in the CUT connection and is attached to the controller or processor that supports the extended function feature (address 6) on the DCA interface.

To display the Vital Product Data Setup panel, do the following:

1. Type **PCSUTIL** at the DOS prompt and press Enter.
2. Select **Vital Product Data Setup** and press Enter. The following panel appears.

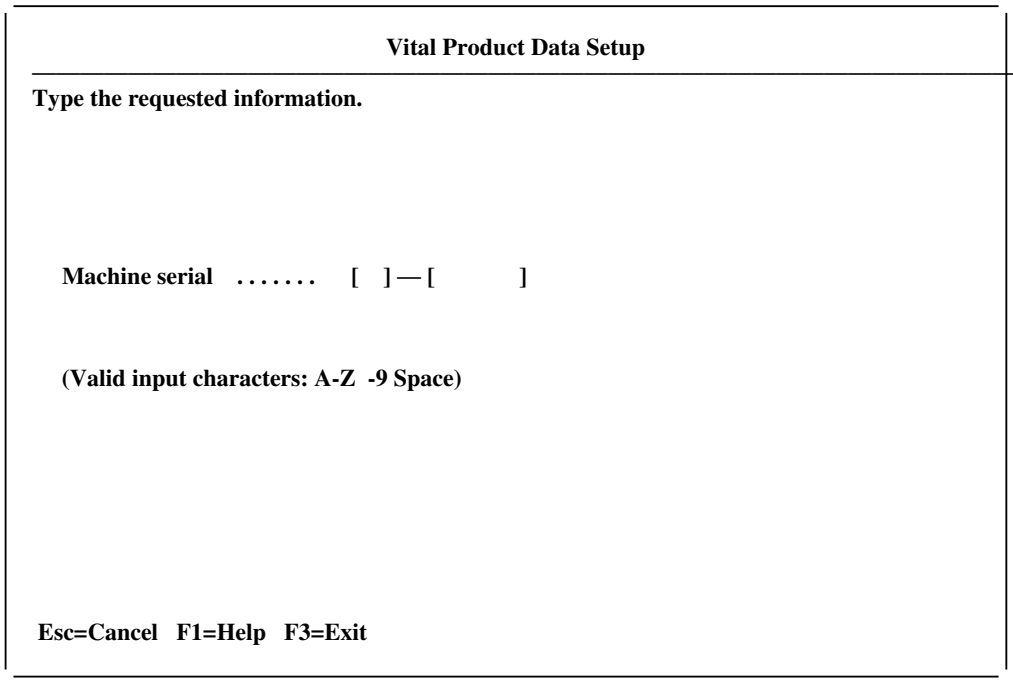


Figure 38. Vital Product Data Setup Panel

The VPD has nine bytes of data for uppercase alphanumeric characters. The VPD defined in this utility is permanently saved in the external file on the hard disk or diskette. The defined VPD becomes effective at the next initialization of the emulator.

Automatic Dial Utility

When you use Home3270, this function is very useful in your daily operation. When PC/3270 is attached to the asynchronous dial-in modem, you have to dial to your modem in order to establish the network connection. This utility automatically dials your modem and assures that the network connection is established.

Before using the function, you need to create or modify the automatic access file (PCSDIAL.DIR as default) during the installation/configuration process. Once you have completed preparing the automatic access file, you are ready to use this utility.

The automatic dial utility can be started either by:

1. Including a PCSDIAL [d:][path][file-name][.ext] statement at the bottom of line of the PC/3270 start-up BAT file
2. typing PCDIAL and pressing Enter at the DOS prompt.

When you put the PCSDIAL statement into your PC/3270 start-up BAT file, no PCSDIAL menu will be displayed on the screen.

The correct format of PCSDIAL is:

PCSDIAL [d:][path][file-name][.ext]

where

d: The drive that contains the automatic access file. You do not have to specify the drive if it is the same as the current default drive.

path The path where the file is located. You do not have to specify the path if it is the same as the current default path.

file-name The name of the automatic access file.

ext The extension of the automatic access file.

When you want to use PCSDIAL in the menu-driven manner, type PCSDIAL at the DOS prompt and press Enter. The first PCSDIAL screen will be displayed.

Note: As well as the automatic access file (PCSDIAL.DIR as default), you need to have PCSDIAL.EXE and its associated files (PCSDIAL.MPL and DIALHELP.DAT) in a directory to which you have access.

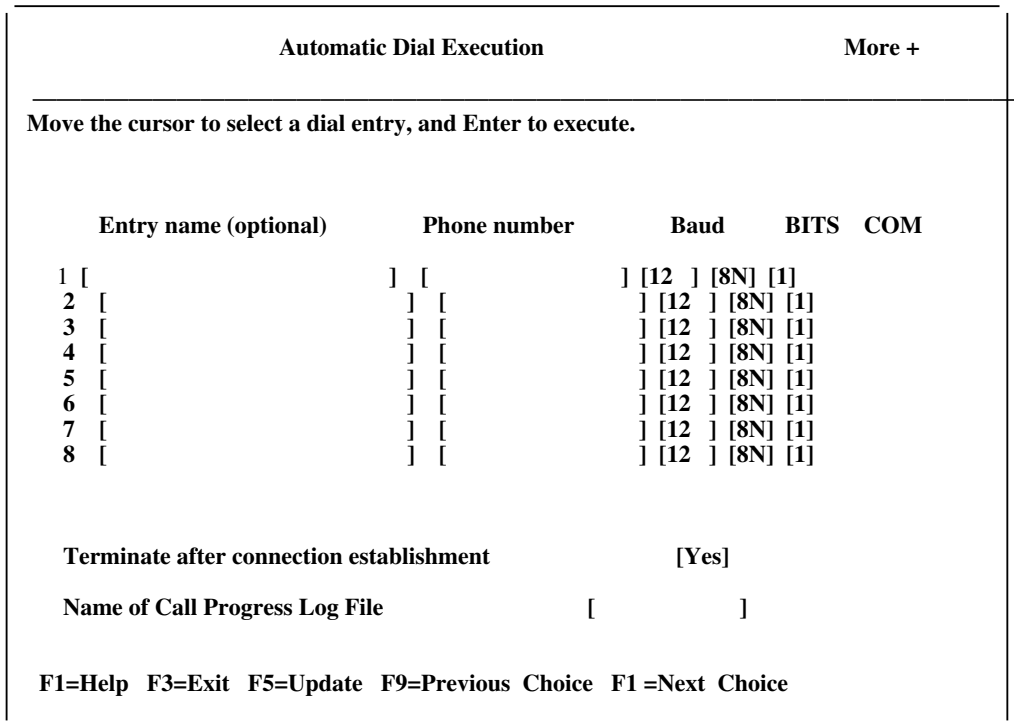


Figure 39. Automatic Dial Execution Panel I

The contents of the following entry fields are automatically retrieved from your dial directory file (PCSDIAL.DIR as default).

Entry Name (optional)
Phone Number
Baud
BITS
COM

The **Terminate after connection establishment** option specifies whether the PCSDIAL program terminates after the dial attempt has successfully completed. The default is **Yes**. If you specify **No**, the PCSDIAL program remains resident even if the dial attempt has failed.

The **Name of Call Progress Log File** option lets you obtain call progress messages from the PCSDIAL program. These messages are logged into the DOS file specified in the field. To view the contents of the file, use an appropriate DOS editor program. This message log is useful in determining where a problem is when you are unable to make a connection to the network.

Once you have selected the dial entry and pressed Enter, the second PCSDIAL screen is displayed.

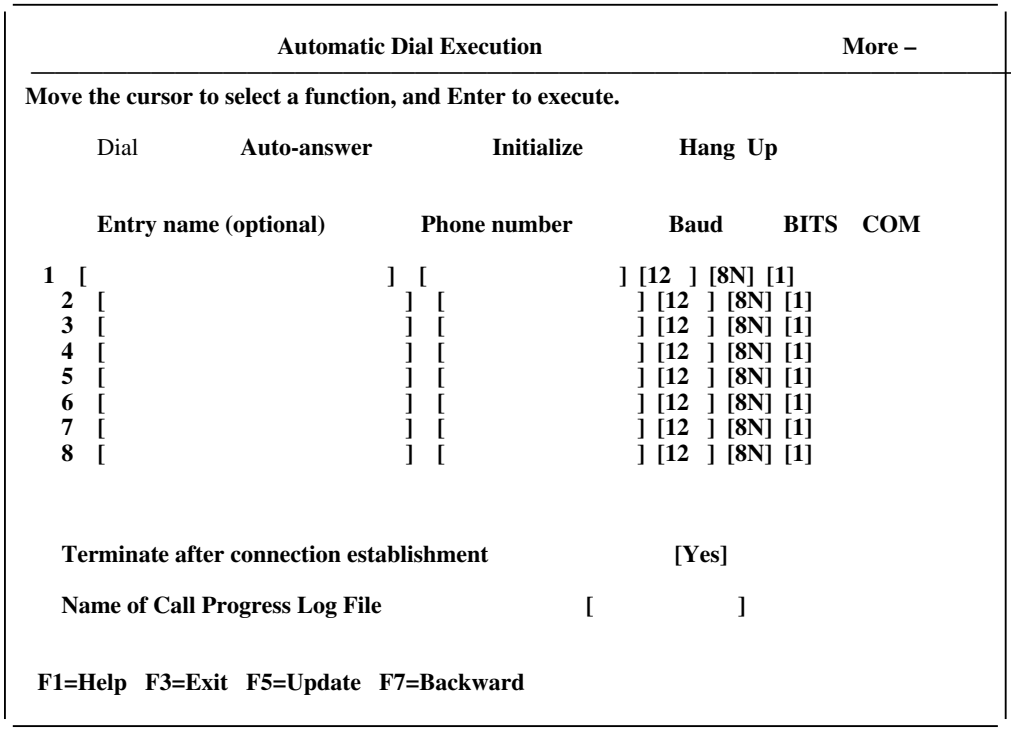


Figure 40. Automatic Dial Execution Panel II

You can select the following functions for the dial entry:

Dial	Attempt to dial your modem
Auto-answer	Set your modem to answer incoming calls automatically
Initialize	Initialize your modem
Hang Up	Disconnect your modem from your network

Patch Service Utility

The patch service utility is for anyone who is responsible for installing software changes. The patch service utility is a program that runs on DOS. To invoke this program in the PC session, enter the command INDPATCH and then follow the prompts on the screen. When instructed to press Enter in the procedures and prompts, use the Enter key in the typewriter key area. The program provides installation or removal of permanent changes, called **patches** or **fixes**, to the code and data. It also provides historical tracking and is limited to 100 PC/3270 patches per release. A problem that the patch service utility resolves is identified as an *Authorized Program Analysis Report (APAR).*

This section describes:

- Patch format
- How to create a patch file
- How to install a patch
- How to list the current system level and currently installed APARs
- How to remove a patch

Appendix A, “Messages” on page 83 contains error messages.

Patch Format

If you are unfamiliar with EDLIN or the procedure for editing a file, refer to Appendix H, “Creating a Patch File,” which outlines the steps required to create a patch file or to modify an existing patch file.

When IBM sends you a patch to solve a problem within PC/3270, it will be in a format like this example:

```
PRE LEVEL =  31
PRE APAR = IR2   1
ZAP PC327 .COM    (OFF= 1C4, VER=1 CD, REP=4242)
```

This is the data that must be entered in a patch file. Note that all patches must start with a PRE LEVEL line and end with a ZAP line. To create the patch file, type the data exactly as shown.

Creating a Patch File

Before installing the patches to the system diskette, create a *patch file* for each patch.

For a single diskette system, insert the existing system diskette to be patched in drive A and create all patch files on that diskette.

For a hard disk system, create the patch file on the hard disk.

For either installation, the patch file must be on the same diskette or disk and subdirectory where PC/3270 is installed. Use the EDLIN EDITOR or any equivalent editor that creates an ASCII character file to create a patch file in a PC session. To do this:

1. Create a new file using the APAR number for the file name with the editor that is on your system. Do not use a DOS file extension.

   Note: The APAR number is supplied with the patch.

2. Enter the written information you received from IBM.

   For example, if you received the following patch, use the editor to type the three lines exactly as supplied by IBM. Press Enter after each line of information. The file should look like this:

   ```
   PRE LEVEL =  31
   PRE APAR = IR2   1
   ZAP PC327 .COM      (OFF= 1C4, VER=1 CD, REP=4242)
   ```

3. Save the file in accordance with the editing procedures.

So far you have done the following:

1. Received the patch in written form.
2. Created a file in a PC session with each APAR number as the file name for each patch.
3. Entered the information for each patch into each file.

Note: A patch file contains one patch. If you get three patches to install, you must create three patch files, each with its own unique APAR number for the file name.

Now you are ready to install a patch.

Installing a Patch

A patch file must be on the same diskette or disk where PC/3270 is installed. If you installed PC/3270 in a subdirectory, the patch file must also be in the same subdirectory.

PC/3270 does not have to be active to use the patch program. However, if you have previously started PC/3270, the PC session must be active. If necessary, press **Ctrl**+**Esc** to switch to the PC session.

If PC/3270 was installed on a diskette, insert the diskette in drive A and make drive A the default by typing **A:**.

If PC/3270 was installed on a hard disk, make that disk the default drive by typing its identifying character and a colon (for example, **C:**).

If PC/3270 was installed in a subdirectory, make that subdirectory the default subdirectory using the DOS CHDIR (Change Directory) command.

Refer to the IBM *Disk Operating System* manual for further information about this command.

To install a patch, follow these steps.

1. At the DOS prompt, type **INDPATCH** and press Enter.

   The following prompt appears:

   <I>NSTALL, <R>EMOVE, OR <L>EVEL :

2. Type **I** and press Enter.

   The next prompt appears:

   TYPE APAR NUMBER OF PATCH AND
   PRESS ENTER,
   OR PRESS ENTER TO QUIT

3. Type the seven-character APAR number (for example, IR00055) and press Enter. This is also the file name that contains the patch. The ZAP data line associated with that APAR number appears on the screen.

   ZAP PC327 .COM (OFF= 1C4, VER=1 CD,
   REP=4242) Verify is correct

   A final prompt indicates that the patch has been installed:

   PAT26 PATCHES INSTALLED

Listing the Current System Level and Currently Installed APARs

You can look at your APAR History List to see the current system level and the currently installed APARs. To do this:

1. Type **INDPATCH** and press Enter.

   The following prompt appears:

   <I>NSTALL, <R>EMOVE, OR <L>EVEL :

2. Type **L** and press Enter.
   An APAR History List, a listing of currently installed APARs on the system, appears on the screen. Notice also the current system level. The screen should look something like this:

```
APAR History
System Level =  XXX

APAR     APAR     APAR     APAR     APAR     APAR     APAR
IR2   1 IR2   2 IR2   3 IR2   4 IR2   5 IR2   6 IR2   7
IR2   8 IR2   9 IR2  1  IR2  11 IR2  12 IR2  13 IR2  14

A>
```

Removing a Patch

When you remove a patch, it is removed from PC/3270 but the patch file is not deleted. Remember, the patch file is on the same diskette or hard disk as PC/3270. If you installed PC/3270 in a subdirectory, the patch file is in the same subdirectory.

If PC/3270 is in a subdirectory, make that subdirectory active with the DOS CHDIR (Change Directory) command. Refer to the IBM *Disk Operating System* manual for more information about this command.

To remove more than one patch, we recommend to remove the patches in the opposite order of installation. For example, to remove the following two APARs:

IR20002
IR20004

First remove APAR IR20004. At the DOS prompt:

1. Type **INDPATCH** and press Enter. The following prompt appears:

   ```
   <I>NSTALL, <R>EMOVE, OR <L>EVEL :
   ```

2. Type **R** and press Enter. The next prompt appears:

   ```
   TYPE APAR NUMBER OF PATCH AND
   PRESS ENTER, OR PRESS ENTER TO QUIT
   ```

3. Type the seven-character APAR number and press Enter. This is also the file name that contains the patch. The ZAP data line associated with that APAR number appears on the display.

   ```
   ZAP PC327 .COM (OFF= 1C4, VER=1 CD21C3,
   REP=42424242) Verify is correct
   ```

   A final prompt indicates that the patch has been removed:

   ```
   PAT27 PATCHES REMOVED
   ```

To remove APAR IR20002, repeat steps 1 through 3.

Appendix A. Messages

File Transfer Messages

TRANS01 **File transfer command being processed**

Explanation: This message appears when the file transfer command is entered and processing by the system has begun.

User Response: None.

TRANS02 **Number of bytes of file transferred so far:** ===> xxxx

Explanation: This is a progress message that tells you how many bytes of the PC file have been transferred to or from the host. The number is updated in increments of 4096 bytes. When the PC file size is not exactly divisible by 4096, the last update is less than 4096 and is followed by a completion message.

If the PC disk file being transferred is less than 4096 bytes, there is just one progress message for exactly the number of bytes in the file.

User Response: None.

TRANS03 **File transfer complete**

Explanation: The file transfer operation has been completed successfully. There is now a file either at the host or PC whose name and characteristics are those you specified in the SEND or RECEIVE command.

User Response: None.

TRANS04 **File transfer complete with records segmented**

Explanation: The file transfer operation has been completed. Any record greater than the set logical record length (LRECL) has been divided into multiple records.

User Response: None.

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TRANS05 TRANS10

TRANS05 **Personal Computer filespec incorrect: file transfer canceled.**

Explanation: You have made an error in the DOS file specification; for example, drive, path, file name, or extension.

User Response: Compare the DOS file specification in the file transfer command, which is still visible on the screen, with your manual to make sure that it conforms to the requirements for a file specification.

If the file specification is correct, it is possible that the specified file does not exist on the PC disk. Enter the DOS DIR command to check the PC file name and extension.

TRANS06 **Command incomplete: file transfer canceled**

Explanation: You did not enter any parameters after SEND or RECEIVE.

User Response: Refer to Appendix D, "Transferring a File" on page 113, for requirements of the SEND or RECEIVE commands and try again.

TRANS07 **Cannot link to host: file transfer canceled**

Explanation: This message indicates a program error.

User Response: If you see this message, file transfer is not working properly. Ask your service coordinator for assistance.

TRANS08 **Command transmit error: file transfer canceled**

Explanation: This message occurs when there is a program error or if a key that produces an incorrect code is pressed (for example, one that cannot be transmitted to the host).

User Response: Retry file transfer after carefully reading the instructions in this manual. Check the status of the host; there may be some information on the host session indicating the problem. If the message reappears when the file transfer is retried, ask your service coordinator for assistance.

TRANS09 **Error reading file from damaged Personal Computer disk: file transfer canceled**

Explanation: This message indicates that the PC diskette is probably damaged. The message also appears when you try to SEND a zero-length PC file.

User Response: Check the file length, using the DOS DIR command. If the file length is non-zero, replace the diskette.

TRANS10 **Host has not responded within timeout period: Refer to the user's guide for more information**

Explanation: The host has not responded to the file transfer within approximately one-half minute.

User Response: Use the SWSC (Ctrl+Esc) key to look at the host screen.

If X SYSTEM or X CLOCK appears in the host Operator Information Area, wait for it to clear. This indicates that the system is working slowly. Switch back to the PC screen to continue file transfer.

If the host is HOLDING, see the “User Response” for TRANS11.

To stop file transfer after several timeout messages:

1. Press Ctrl+Break.
2. Press Ctrl+Esc to switch to the host screen.
3. Press Reset to clear the Operator Information Area.
4. Press F2, possibly several times, until the host becomes ready.
5. Press Enter.
6. Press Ctrl+Esc to switch back to the PC screen. File transfer should be canceled.

TRANS11 **Lost contact with host: file transfer canceled**

Explanation: The host is inactive.

User Response: Use the SWSC (Ctrl+Esc) key to look at the host screen.

If the host is not ready (there might be a message), press Clear, possibly several times. If the host becomes ready, press Enter and switch back to the PC screen using the SWSC (Ctrl+Esc) key. File transfer should continue.

If file transfer does not continue, switch to the host screen and press F2, possibly several times, until the host becomes ready. Then press Enter and switch back to the PC screen using the SWSC (Ctrl+Esc) key. File transfer should be canceled.

If file transfer is not canceled, cancel both the host and PC sessions and retry.

TRANS12 **Error writing to damaged or full Personal Computer disk: file transfer canceled**

Explanation: This message indicates a damaged or full disk.

User Response: If the disk is damaged, replace it. If the disk is full, erase unwanted files or replace it.

TRANS13 **Error writing file to host: file transfer canceled**

Explanation: The file transfer has been canceled either by you or the program because of an error in SEND.

User Response: See “User Response” for TRANS11.

TRANS14 **Error reading file from host: file transfer canceled**

Explanation: The file transfer has been canceled either by you or the program because of an error in RECEIVE.

User Response: See “User Response” for TRANS11.

TRANS15 **Required host storage unavailable: file transfer canceled**

Explanation: You need more storage on your host system.

User Response: Ask your local host-system support-representative.

TRANS16 TRANS27

TRANS16	**Incorrect request code: file transfer canceled** **Explanation:** You have entered an incorrect command. **User Response:** Correct the command and retry.
TRANS17	**(TSO version) Missing or incorrect TSO data set name: file transfer canceled** **Explanation:** A TSO data set name is missing or is not the name of a sequential or partitioned data set. **User Response:** Correct the TSO data set name in the command and retry.
TRANS17	**(CMS version) Missing or incorrect CMS file name: file transfer canceled** **Explanation:** CMS file name is missing or incorrectly specified. **User Response:** Correct the CMS file name in the command and retry.
TRANS18	**Incorrect option specified: file transfer canceled** **Explanation:** You specified an incorrect option. **User Response:** Correct the command to specify an acceptable option and retry.
TRANS19	**Error while reading or writing to host disk: file transfer canceled** **Explanation:** There is not enough space available for data on the host. **User Response:** Look at the host session message for indications and correct the problem.
TRANS21	**Not enough Personal Computer memory available: file transfer canceled** **Explanation:** Your system does not have enough memory to transfer a file. **User Response:** Obtain additional memory.
TRANS26	**Unrecoverable system error: file transfer canceled** **Explanation:** This message indicates a program error. **User Response:** Ask your service coordinator for assistance.
TRANS27	**Communication sequence with host disrupted: file transfer canceled** **Explanation:** This message is displayed when you press Ctrl + Break, or when a program error has occurred. **User Response:** If it is a program error, ask your service coordinator for assistance.

TRANS28 **Invalid option** xxxxxxxx: **file transfer canceled**

Explanation: **xxxxxxxx** is replaced with the incorrect option. The error is one of the following:

The option is not recognized.

More than one mutually exclusive option was entered.

A code page translation option was entered while running in DOS 3.2.

User Response: Correct the option in the command and retry.

TRANS29 **Invalid option** xxxxxxxx **with RECEIVE: file transfer canceled**

Explanation: **xxxxxxxx** is replaced with the incorrect option. The option is not valid with RECEIVE, but can be used with SEND.

User Response: Remove the option from the command and retry.

TRANS30 **Invalid option** xxxxxxxx **with APPEND: file transfer canceled**

Explanation: **xxxxxxxx** is replaced with the incorrect option. The option is not valid with APPEND.

User Response: Remove the option from the command and retry.

TRANS31 **Invalid option** xxxxxxxx **without SPACE: file transfer canceled**

Explanation: **xxxxxxxx** is replaced with the incorrect option. The option can only be used if SPACE is also specified.

User Response: Remove the option from the command and retry.

TRANS32 **Invalid option** xxxxxxxx **with PDS: file transfer canceled**

Explanation: **xxxxxxxx** is replaced with the incorrect option. The option is not valid with a host partitioned data set.

User Response: Remove the option from the command and retry.

TRANS33 **Only one of TRACKS, CYLINDERS, AVBLOCK allowed: file transfer canceled**

Explanation: SPACE can be specified in units of either TRACKS, CYLINDERS, or AVBLOCK. Only one of these parameters can be used.

User Response: Remove the unwanted option from the command and retry.

TRANS34 **CMS file not found: file transfer canceled**

Explanation: An existing CMS file must be specified for RECEIVE

User Response: Correct the CMS file specification in the command and retry.

TRANS35 TRANS99

TRANS35 **CMS disk is Read-Only: file transfer canceled**

Explanation: The CMS file mode specified for SEND must allow write access.

User Response: Correct the CMS file specification in the command and retry.

TRANS36 **CMS disk is not accessed: file transfer canceled**

Explanation: The CMS file mode is not in the CMS disk search order.

User Response: Access the required disk in CMS or correct the CMS file specification in the command. Retry the command.

TRANS37 **CMS disk is full: file transfer canceled**

Explanation: Either the CMS disk is full, the maximum number of files (3400) on the CMS disk has been reached, or the maximum number of data blocks (16060) per file has been reached.

User Response: Use another disk with enough space, or remove unwanted files from the specified disk. If the PC file is very large (more than 1 MB), consider dividing it into several pieces. Retry the command.

TRANS38 **PC/3270 not loaded: file transfer canceled.**

Explanation: You tried to SEND or RECEIVE without loading the PC/3270 program.

User Response: Load PC/3270, establish the host session, and try again.

TRANS85 **Incorrect system code page: file transfer canceled.**

Explanation: The code page in your system is not allowed for file transfers, or you specified a code page not supported by your country.

User Response: Load the correct code page for the system or specify a supported code page option (refer to Figure 41 on page 124) and try again.

TRANS98 **PC program error code xx xxxxxxxx: file transfer canceled**

Explanation: This message indicates a program error.

User Response: Ask your service coordinator for assistance.

TRANS99 **Host program error code xx xxxxxxxx: file transfer canceled**

Explanation: This message indicates a program error.

User Response: Ask your service coordinator for assistance.

Patch Installation Messages (PATnn)

There might be times when DOS messages appear, in addition to patch messages, while you are using the patch facility. If this happens, refer to the IBM PC *Disk Operating System* manual for explanations.

PAT01 **Empty patch file**

Explanation: Data was not found in the patch file specified.

User Response: Add the patch information to the failing patch file.

PAT02 **Zap data not specified**

Explanation: Zap data was not found in the patch file specified.

User Response: Add the zap information to the failing patch file. Press Enter after each entry in the patch file. Refer to “Creating a Patch File” on page 79 for further information.

PAT03 **Prerequisite system level not specified**

Explanation: The first entry in the patch file is a required system level, and none was found.

User Response: Add the system level as the first entry in the failing patch file.

PAT04 **Current - system level=(xxxx) But patch prerequisite is - system level=(yyyy)**

Explanation: The first entry in the patch file specified a prerequisite APAR level of (**yyyy**), but the system is currently at a system level of (**xxxx**).

User Response: Either upgrade the system level to (**yyyy**) or correct the patch file, whichever caused the failure.

PAT05 PAT08

PAT05 **Requested APAR (IR*xxxxx*) already installed**

Explanation: The APAR number specified is already installed on the system.

User Response: Verify that you typed in the correct APAR number. If you typed an incorrect APAR number, correct it and retry.

PAT06 **Requested APAR (IR*xxxxx*) not installed**

Explanation: The APAR you are trying to remove is not currently installed on the system.

User Response: Determine whether:

The APAR was removed previously or
An incorrect APAR number was specified.

PAT07 **Prerequisite APAR (IR*xxxxx*) not installed**

Explanation: The APAR number specified a prerequisite APAR of IR**xxxxx**, but that APAR is not currently installed on the system.

User Response: Verify that the prerequisite APAR entry in the patch file is correct. Then install the required prerequisite APAR and retry the operation.

PAT08 **INDQPCH.DAT history file not found on this diskette**

Explanation: Either:

The diskette you are attempting to patch is not a PC/3270 program diskette or
The **INDQPCH.DAT** history file has been deleted or is not on the diskette, the hard disk, or the subdirectory the patch is in.

User Response:

Place the PC/3270 diskette in the default drive or
If the history file INDQPCH has been deleted from the diskette, use the most current backup of your system diskette and install any fixes required to bring the system up to the current level.

PAT09 **Maximum APARs installed**

Explanation: The system allows a maximum of 100 APARs to be installed for a given refresh level.

User Response: Upgrade your system to the most current refresh level.

PAT10 **Patch file for APAR (IR**xxxxx**) not found**

Explanation: The APAR number was not found.

User Response: This error can be caused by:

Entering an incorrect APAR number or
Failing to specify the diskette drive identifier if the APAR file is on a diskette drive other than the current default drive or
The patch file is not on the diskette.

PAT11 **OFFset invalid or missing**

Explanation: The *OFF*= keyword in the zap data of the patch file was either missing or misspelled.

User Response: Correct the zap line and retry the operation.

PAT12 **VERify invalid or missing**

Explanation: The *VER*= keyword in the zap data of the patch file was either missing or misspelled.

User Response: Correct the zap line and retry the operation.

PAT13 **REPlace invalid or missing**

Explanation: The *REP*= keyword in the zap line of the patch file was either missing or misspelled.

User Response: Correct the zap line and retry the operation.

PAT14 **Invalid hex offset data**

Explanation: The offset data in the zap line either contained non-hexadecimal data or was missing.

User Response: Correct the zap data and retry the operation.

PAT15 **Invalid hex verify data**

Explanation: The verify data in the zap line either contained non-hexadecimal data or was missing.

User Response: Correct the zap data and retry the operation.

PAT16 PAT22

PAT16 **Invalid hex replace data**

Explanation: The replace data in the zap line either contained non-hexadecimal data or was missing. You might see "Verify is correct" before getting this message. This indicates that only the replace data is incorrect.

User Response: Correct the zap data and retry the operation.

PAT17 **Comma or parenthesis missing**

Explanation: A required delimiter is missing from the displayed zap line. You must use left and right parentheses and two commas in the zap line.

User Response: Correct the zap data and retry the operation.

PAT20 **PATCH =ZAP lmod (OFF=hhhh,VER=hhhh, REP=hhhhh) module not found**

Explanation: The module specified in the zap data was not found during patch data verification.

User Response:

If the zap data is incorrect, correct the data and retry the operation.
If the data is correct, determine why the module was not found. There might be:
- An incorrect diskette drive specifier, or
- A deleted module. If a module has been deleted, use a backup copy and retry the operation.

PAT21 **PATCH =ZAP lmod (OFF=hhhh,VER=hhhh, REP=hhhh) mismatch MODULE = MOD=hh**

Explanation: The verify data specified in the zap data line does not match the verify data in the module.

User Response:

If the zap data is incorrect, correct the data and retry the operation.
If the data is correct, record all data related to the problem and report the program to IBM. Include both:
- A screen printout
- A copy of the diskette

PAT22 **PATCH =ZAP lmod (OFF=hhhh,VER=hhhh, REP=hhhh) mismatch MODULE =MOD=hh**

Explanation: The verify data specified in the zap data line does not match the verify information in the module when you are removing patches.

User Response: The zap data file for this patch has been changed since the APAR was installed. Correct the data file and retry the operation.

PAT23 **Prerequisite APAR invalid or not specified**

Explanation: Either the keyword PRE or APAR is misspelled or missing on one of the APAR prerequisite entries.

User Response: Correct the keyword data and retry the operation.

PAT24 **Error in zap data – patches not installed**

Explanation: An error in the zap data was encountered. A preceding error message identified the type of error. This message always appears with another message.

User Response: Correct the problem identified by all preceding messages and retry.

PAT25 **Error in zap data – patches not removed**

Explanation: An error in the zap data was encountered. A preceding error message identified the type of error. This message always appears with another message.

User Response: Correct the problem identified by all preceding messages and retry.

PAT26 **Patches installed**

Explanation: The patch was installed, and the history file **INDQPCH.DAT** was updated.

User Response: None.

PAT27 **Patches removed**

Explanation: The patch was removed, and the history file **INDQPCH.DAT** was updated.

User Response: None.

SRPI Messages

SRPI903 **An interface problem exists between EESRPI and PC3270. Restart PC3270 with the ECF option. Then restart SRPI.**

Explanation: A PC software error has occurred.

User Response: Remove PC/3270 from memory, then reconfigure and restart PC/3270 with the ECF option. Then restart SRPI. If this message continues to occur, contact an IBM support representative.

SRPI904 **PC3270 was not loaded with the ECF option. Restart PC3270 with the ECF option. Then restart SRPI.**

Explanation: You did not specify the ECF option when creating a PC/3270 BAT file.

User Response: Remove PC/3270 from memory. Re-configure and restart PC/3270 with the ECF option. Then restart EESRPI.

SRPI905 **PC3270 is not loaded. Load PC3270 with the ECF option. Then restart SRPI.**

Explanation: You have attempted to start EESRPI without first starting PC/3270.

User Response: Start PC/3270 with the ECF option. Then start EESRPI.

SRPI906 **EESRPI is already loaded.**

Explanation: You have attempted to start EESRPI when EESRPI is already started.

User Response: To restart EESRPI, you must first remove PC/3270 from memory. Then start PC/3270 with the ECF option. Then start EESRPI. If you do not want to restart EESRPI, no further action is necessary.

Appendix B. OIA in Host Computer Mode

Status Indicators

In a host computer session, the bottom of your screen becomes the **Operator Information Area** (OIA), which shows operating and status messages. The messages are displayed as groups of symbols, words, and numbers, such as:

X meaning *Do Not Enter*

( ) meaning *time is required*

O representing a printer

The symbols, words, and numbers are combined to make messages. The messages are read from left to right. For example:

X ( ) meaning *Do Not Enter* because time is needed for the host system to perform a function.

X O—O meaning *Do Not Enter* because the printer you are using (system printer) is not operating properly.

Note: This section applies mainly when PC/3270 is customized as the CUT connection or Home3270 attached to 3174 AEA. For the status indicators when Home3270 is attached to 3708, refer to *IBM 3708 Network Conversion Unit Description*.

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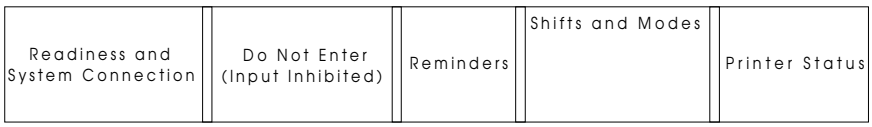
OIA

Operator Information Area

The operating and status messages are grouped into five categories. The messages are displayed in five different sections of the operator information area, as shown here:

Operator Information Area Layout



Status Indicator Reference Tables

The status indicators shown in the following tables appear only while you are using host computer mode. The tables list the status indicators that can appear in the operator information area.

The first column shows the message that appears on the screen when the PC font was specified during installation.

The second column briefly describes the message and, when applicable, tells what to do when the message appears on the screen.

The third column shows the message that appears on the screen when the 3270 font was specified during installation.

Messages are composed of groups of symbols that are read from left to right.

For further information on 3278 status indicators, refer to *IBM 3270 Information Display System, 3278 Display Station Operator's Guide*.

Readiness and System Connection Messages

What You See on the Screen (PC font)	What This Means	What You See on the Screen (3270 font)
4	**Ready** The 3274 Control Unit is ready (working).	4
S	**Ready** The 3174 Control Unit is ready (working).	**S**
A or **B**	**Online** The control unit's connection to the host system is non-SNA (A) or SNA (B).	**A** or **B**
	My Job Your display station is working with your job (application).	
♀	**System Operator** Your display station is connected to the system operator (host control program).	囚
?	**Unowned** Your display station is connected to the host system, but is not connected to your application program or the host control program.	?
TEST	**Test** Your display station is in test mode.	**TEST**
4700	**Ready** The 4701 Control Unit is ready (working).	**4700**

Do Not Enter Messages

What You See on the Screen (PC font)	What This Means	What You See on the Screen (3270 font)
X []	**Terminal Wait** Time is required for the host system to perform a function. Wait.	X
X ? +	**What?** The last operation was not accepted. Check to make sure the operation you want to perform is correct. Then press Reset and try again.	**X ?** +
X SYSTEM	**System Lock** The host system has locked your keyboard. Look for a message. Wait or press Reset.	**X SYSTEM**
X ← ♀ →	**Go Elsewhere** You tried to enter, insert, erase, or delete a character when the cursor was in a protected area. Press Reset to remove the message and unlock the keyboard. You might have to press Tab or Enter to move the cursor to an unprotected position.	**X** ← →
X ♀ >	**Too Much Entered** You tried to insert more data than this field can hold. Press Reset and correct the entry.	**X** >
X ♀NUM	**Numeric Data Only** You should enter only numbers in this field. Press Reset and then enter only numbers.	**X** **NUM**
X ♀#?	**What Number** You entered an incorrect printer ID number. Press Reset.	**X** **#?**
X -f	**Minus Function** The requested function is not available. Press Reset.	**X -f**
X ♀ X	**Operator Unauthorized** You are not authorized to do that function. Press Reset.	**X** **X**
X ←♀	**Operator Message Not Accepted** A message from the control operator was received and rejected. Press Reset.	**X**

What You See on the Screen (PC font)	What This Means	What You See on the Screen (3270 font)
X nn or X nnn	**Machine Check** Your system unit is not working properly. The error number, nn or nnn, defines the type of machine check. Press Reset to restore your keyboard and continue. If the problem persists, refer to the problem determination section of your *Guide to Operations.*	**X nnn**
X - X ¬ - nn X - X ¬ - nnn	**Communication Check** 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. If the problem persists, record the error number and ask your system administrator for assistance.	**X nn**
X PROG nn X PROG 4nn	**Program Check** The control unit detected a programming error in the data it received from the host system. The error number, nn or 4nn, defines the type of program check. If the problem persists, record the error number and ask your system administrator for assistance.	**X PROG nn** **X PROG 4nn**
X O-O []	**Printer Busy** The printer connected to your display is busy. If O-O is displayed at the right-hand end of the OIA, the printer is busy with your work. Wait for the print operation to finish or press DEV CNCL to cancel a pending print operation.	**X**
X O-O [] []	**Printer Very Busy** This message is the same as **Printer Busy** except more time is anticipated before your operation is accepted.	**X**
X O-ϕ	**Printer Not Working** The printer you are attached to is not operating properly. Press Dev Cncl. Then select another printer.	**X**
X - S	**Minus Symbol** The symbol key you pressed is not available. Press Reset.	**X - S**
X 2 % %	**Wrong Configuration** Your keyboard is not configured for that selection.	**X 2 % %**

OIA

Reminder Messages

What You See on the Screen (PC font)	What This Means	What You See on the Screen (3270 font)
- X ¬ - nn	**Communication Error Reminder**	**nn**
- X ¬ - nnn	The communication link connecting your control unit to the host system is producing errors.	or **X nnn**

Shifts and Mode Messages

What You See on the Screen (PC font)	What This Means	What You See on the Screen (3270 font)
^	**Insert Mode** Your display station is in insert mode. To turn off insert mode, press Reset.	^
↑	**Shift Mode** Your display station is in shift mode.	↑
DOC↓	**Document Mode** Your display station is in document mode. To turn off document mode, press DOC ON/OFF.	**DOC↓**
A	**CAPS Mode** Your display station is in capital shift mode.	A
NUM	**Numeric** The numeric lock function is on and the cursor is in a numeric field.	NUM

Printer Status Messages

What You See on the Screen (PC font)	What This Means	What You See on the Screen (3270 font)
O-O - -	**Assign Printer** When you are changing the printer ID or printer class, the two numbers you type are displayed in the underlined locations of the messages.	□-□ **- -**
O-O nn	**Printer Assignment** You are authorized to use the printer with ID nn.	□-□ **nn**
O-● nn	**Printer Printing** The printer with ID nn is printing your work.	□-■ **nn**
O-Ø nn	**Printer Failure** The printer with ID nn stopped while printing your work. Press Dev Cncl (Device Cancel) to remove this indicator.	□-▨ **nn**
O-O ? ?	**What Printer** Your printer assignment has changed. Press Ident to display the new printer ID.	□-□ **? ?**

Appendix C. Home3270

If PC/3270 is configured as Home3270, you can get the 3270 emulation capability with the Model 2 screen when an asynchronous communication port is connected to the IBM host system through the following protocol converters:

IBM 3174 Asynchronous Emulation Adapter (AEA)

IBM 3708 Network Conversion Unit

IBM 7171 ASCII Device Attachment Control Unit

IBM 9370 ASCII Subsystem

Terminal Emulation

When PC/3270 is configured as Home3270, it operates in full-duplex mode with an attached protocol converter. Its design is based on the IBM 3101 terminal, so many accepted single characters and character sequences received from the protocol converter are almost the same.

Single Character Accepted

PC/3270 accepts and takes actions when it receives the following single characters. Other single characters not listed below are accepted, but no actions are taken.

Single Characters	Action Taken
Alphanumeric and Other Characters	Displays the characters
Backspace (BS)	Moves the active position back one space
Bell (BEL)	Sounds a tone
Carriage Return (CR)	Moves the active position to the first column of the current row
Data Link Escape (DLE)	DLE sequence introducer
Device Control 1 (DC1)	Resumes data transmission
Device Control 3 (DC3)	Suspends data transmission
Escape (ESC)	ESC sequence introducer
Form Feed (FF)	Moves the active position down one row from its current position

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Considerations

Single Characters	Action Taken
Horizontal Tab (HT)	Moves the active position to the next tab stop
Line Feed (LF)	Same as Form Feed (FF)
Vertical Tab (VT)	Same as Form Feed (FF)
Shift In (SI)	Indicates that the number of data bits that follow represents 7 data bits when you select **7** as the **Number of Data Bits** field in the Communication Parameters panel (through 3174 only). Refer to Figure 7 on page 10.
Shift Out (SO)	Indicates that the number of data bits that follow represents 8 data bits in 7 data-bits representation when you select **7** as the **Number of Data Bits** field in the Communication Parameters panel (through 3174 only). Refer to page Figure 7 on page 10.

Character Sequence Accepted

PC/3270 accepts and responds to the following ESC sequences and DLE sequences. Other character sequences not listed below are considered command errors and no actions are taken.

3270 Function	Sequence Accepted
Block Cursor	ESC P 1
Change Color	ESC [<parm1> <parm2> m
Clear All	ESC L
Clear Tab	ESC 1
Cursor Down	ESC B
Cursor Home	ESC H
Cursor Left	ESC D
Cursor Right	ESC C
Cursor Up	ESC A
Data Compression	ESC] <count> <char>
Erase EOL/EOF	ESC I
Erase EOS	ESC J
Erase Input	ESC K
Highlighting Off	ESC [0 m
Highlighting On	ESC [1 m
Insert Cursor	ESC Z
Lock Keyboard	ESC :

3270 Function	Sequence Accepted
Mandatory Disconnect	DLE EOT
Read Cursor Address	ESC 5
Read Setup Switch	ESC 7
Read Status	ESC 6
Set Buffer Address	ESC X <row> <column>
Set Buffer Address to 25th Status Line	ESC X 8 <column>
Set Cursor Address	ESC Y <row> <column>
Set Cursor Address to 25th Status Line	ESC Y 8 <column>
Set Tab	ESC 0
Start Printer	DLE DC2
Stop Printer	DLE DC4
Underline Cursor	ESC P 0
Unlock Keyboard	ESC ;
Version Identifier	ESC [a m or ESC [b m

Single Character and Character Sequence Sent

The following table shows the single character and character sequences sent by the 3270 function key for the 3174 AEA and 3708 protocol converters.

3270 Function	Character or Character Sequence Sent
Attn	SOH
Backspace	ESC D
BackTab	ESC HT
Break	250 milliseconds break signal
ChgSc (only for 3174)	EM
Clear	ETX
Cursor Down	ESC B
Cursor Left	ESC D
Cursor Right	ESC C
Cursor Select	ESC k
Cursor Up	ESC A
Delete	DEL
Duplicate	EOT

Considerations

3270 Function	Character or Character Sequence Sent
Enter	CR
Erase EOF	ESC I
Erase Input	ESC K
Field Mark	ACK
Home	ESC H
Ident	ESC z
Insert	ESC R
New Line	LF
PA1	ESC ,
PA2	ESC .
PA3 (only for 3708)	ESC /
PF1	ESC 1
PF2	ESC 2
PF3	ESC 3
PF4	ESC 4
PF5	ESC 5
PF6	ESC 6
PF7	ESC 7
PF8	ESC 8
PF9	ESC 9
PF10	ESC 0
PF11	ESC -
PF12	ESC =
PF13	ESC !
PF14	ESC @
PF15	ESC #
PF16	ESC $
PF17	ESC %
PF18	ESC ^
PF19	ESC &
PF20	ESC *
PF21	ESC (
PF22	ESC)
PF23	ESC _
PF24	ESC +
Print	DLE

3270 Function	Character or Character Sequence Sent
Quit	CAN
Reset	DC2
System Request	ESC s
Tab	HT
Test (only for 3174)	DC4

Note: Neither the 3174 AEA nor 3708 support ESC J.

The following table shows the single character and character sequences sent by the 3270 function key for the 7171 and 9370 protocol converters.

3270 Function	Character or Character Sequence Sent
Backspace	ESC D
BackTab	ESC J HT
Break	250 milliseconds break signal
Clear	ESC L
Cursor Down	ESC B
Cursor Left	ESC D
Cursor Right	ESC C
Cursor Select	ESC K
Cursor Up	ESC A
Delete	DEL
Duplicate	VT
Enter	CR
Erase EOF	ESC I
Erase Input	ESC J ESC K
ESC J	ESC J
Field Mark	FF
Home	ESC H
Insert	ESC J DEL
New Line	BS
PA1	ESC J ,
PA2	ESC J .
PA3	ESC J /
PF1	ESC J 1
PF2	ESC J 2
PF3	ESC J 3

Considerations

3270 Function	Character or Character Sequence Sent
PF4	ESC J 4
PF5	ESC J 5
PF6	ESC J 6
PF7	ESC J 7
PF8	ESC J 8
PF9	ESC J 9
PF10	ESC J 0
PF11	ESC J -
PF12	ESC J =
PF13	ESC J !
PF14	ESC J @
PF15	ESC J #
PF16	ESC J $
PF17	ESC J %
PF18	ESC
PF19	ESC J &
PF20	ESC J *
PF21	ESC J (
PF22	ESC J)
PF23	ESC J _
PF24	ESC J +
Reset (9370)	DC2 DC4
Reset (7171)	DC2
Tab	HT
Test	ESC J ESC W

File Transfer

The file transfer function enables the PC/3270 user to download host files to the PC and PS/2, and to upload PC and PS/2 files to the host system. Both file transfer capabilities are performed through the protocol converter.

The following host file transfer programs are supported:

IBM 3270-PC File Transfer Program 5665-311 Release 1.1.1 (MVS/TSO)

IBM 3270-PC File Transfer Program 5664-281 Release 1.1.1 (VM/SP)

IBM CICS/VS 3270-PC File Transfer Program, 5798 DQH (CICS/VS)

VSE/System Product 3.2 with Intelligent Work Station (IWS) support

High-Level Language Application Program Interface

The High-Level Application Program Interface design for Home3270 is based on the Entry-Level Emulator for the CUT connection High-Level Language Application Program Interface (EEHLLAPI). Refer to the *PC/3270 V4.0 Programmer's Guide for DOS (Entry-Level Mode)* for details.

Utility

The 3270 Setup and Utility can be used in the same manner as PC/3270 for the CUT connection. Refer to Chapter 5, "Using the Utilities" on page 47 for details.

Protocol Converter Considerations

Functional Differences

Some 3270 functions provided by PC/3270 are differently supported by each protocol converter. They are the following.

25th status line (OIA)

When PC/3270 is attached to either a 3174 AEA or a 3708, the function can be used in the same manner as the 3270 display station.

Shared printing

When PC/3270 is attached to a 3174 AEA, a 3708, or a 9370, the function for host printing can be used. This means that a printer attached to your PC is available for host printing just as if it were separately attached to a 3174, a 3708, or a 9370.

Terminal Type and Terminal Definition Tables

When signing onto the 3270 terminal session, enter the terminal type listed below to use or select a terminal definition table (TDT) on the protocol converter for either a color monitor or a monochrome monitor.

Protocol Converter	Color	Monochrome
3174 AEA	FC	FM
3708	FTTERM Color	FTTERM Mono
7171	TDT	TDT
9370 ASCII	FTTERMC	FTTERMM

File Transfer Considerations

The following parameters must be configured in the protocol converters to support file transfer, and the IBM-host file transfer programs listed below are required.

For 3174 AEA (during customizing):

Bit 6 (File Transfer Aid) of Question 125 (Miscellaneous Feature Options) must be set to 1.
Question 731 (Flow Control Type) must be set to 1 (XON/XOFF).
For VM/CMS, IBM 3270-PC File Transfer Program Release 1.1.1.
For MVS/TSO, IBM 3270-PC File Transfer Program Release 1.1.1.
VSE System Product 3.2 with Intelligent Work Station (IWS) support.

For 9370:

Parity Errors = 2 (Ignore) must be defined.
Pacing must be set to 1 (XON/XOFF).
For VM/CMS, IBM 3270-PC File Transfer Program Release 1.1.1.
For MVS/TSO, IBM 3270-PC File Transfer Program Release 1.1.1.
VSE System Product 3.2 with Intelligent Work Station (IWS) support.

For 7171:

For 7171s at EC A31864 or greater, set the XON/XOFF pacing parameter to Yes during the PC/3270 installation/configuration procedure.
For VM/CMS, IBM 3270-PC File Transfer Program Release 1.1.1.
For MVS/TSO, IBM 3270-PC File Transfer Program Release 1.1.1.
VSE System Product 3.2 with Intelligent Work Station (IWS) support.

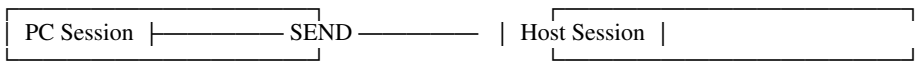
For 3708:

Transmit XON/XOFF must be set to 1.
For VM/CMS, IBM 3270-PC File Transfer Program Release 1 or later.
For MVS/TSO, IBM 3270-PC File Transfer Program Release 1 or later.
VSE System Product 2.1 with Intelligent Work Station (IWS) support.
VSE System Product 3.1 with Intelligent Work Station (IWS) support.
VSE System Product 3.2 with Intelligent Work Station (IWS) support.
For MVS/CICS and VSE/CICS, IBM CICS/VS 3270-PC File Transfer Program.

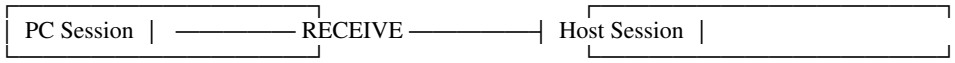
Appendix D. Transferring a File

File transfer allows you to use SEND and RECEIVE commands to transfer files between the PC and the host computer; the host computer must be using the operating system, VM/CMS (CMS), MVS/TSO (TSO), CICS, or VSE/IWS (IWS). The IBM host-supported File Transfer Program must be installed in the host computer.

The SEND command sends a copy of a file from the PC session to the host session.



The RECEIVE command transfers a copy of a file from the host session to the PC session.



Note: The Personal Computer must always be in DOS command mode to send files or receive files from the host computer.

The following sections describe the SEND command, the RECEIVE command, and each command syntax and provide examples in detail for VM/CMS and MVS/TSO. For CICS and VSE/IWS, ask your system administrator for specific information.

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SEND Command

General Information

File transfer uses both the PC session and the host session. Because the entire system is dedicated to file transfer, neither session can be used until file transfer is complete.

Except in response to messages or instructions in this manual, do not use the keyboard while file transfer is running. Attempts to enter other data during file transfer can cause file transfer to fail.

We recommend using a temporary file name when replacing an existing file.

The SEND command varies according to the type of host system.

The SEND command cannot be used when IBM Enhanced Connectivity Facilities are active.

Sending to VM/CMS

To send a file from the PC to a VM/CMS host session:

1. Make sure that the PC is in PC DOS command mode and the host session is in CMS command mode (the **Ready** message of the host system is displayed).
2. Switch to the host session (**Ctrl**+**Esc**).

3. **IMPORTANT:** Turn off unsolicited CMS messages (which interrupt the transfer process unless you respond to them) as follows:

   Enter the command

   SET MSG OFF

   on the command line of the CMS session before you begin file transfer.

   Enter the command

   SET MSG ON

   to turn the messages back on when the file transfer process has ended.

   If you transfer files often, create a **CMS EXEC** that disables messages before starting file transfer and enables them again after completion. The EXEC must be named **IND$FILE** and could contain the following CMS statements:

   ```
   &CONTROL OFF
   CP SET MSG OFF
   CP SET SMSG OFF
   CP SET WNG OFF
   IND$FILE &1 &2 &3 &4 &5 &6 &7 &8 &9 &1  &11 &12
   CP SET MSG ON
   CP SET SMSG ON
   CP SET WNG ON
   ```

   In this EXEC, messages are left enabled after file transfer is completed.

4. Switch to the PC session (**Ctrl**+**Esc**).
5. Enter the SEND command. For example, enter the following command (typed on one line):

   SEND PCFILE.TXT CMSFILE SCRIPT A (ASCII CRLF

   To send a text file, include the ASCII CRLF options. (Refer to “SEND Command Format” on page 120 for format examples, parameters, and options.)

   A message indicates when file transfer is complete, along with the number of bytes transferred.

6. Switch back to the host session (**Ctrl**+**Esc**).

Sending to MVS/TSO

To send a file from the PC to the MVS/TSO host session:

1. Make sure that the PC is in PC DOS command mode, and the host session is in TSO command mode.
2. Switch to the host session (**Ctrl**+**Esc**).
3. **IMPORTANT:** Turn off unsolicited messages (which interrupt the transfer process unless you respond to them) as follows:

   Enter the command

   PROFILE NOINTERCOM

   on the command line of the TSO session before you begin file transfer.

   Enter the command

   PROFILE INTERCOM

   to turn the messages back on when the file transfer process has ended.
4. Switch to the PC session (**Ctrl**+**Esc**).
5. Enter the SEND command. For example, enter the following command (typed on one line):

   SEND PCFILE.TXT TSODET.SCRIPT ASCII CRLF

   To send a text file, include the ASCII CRLF options. (Refer to “SEND Command Format” on page 120 for format examples, parameters, and options.)

   A message indicates when file transfer is complete, along with the number of bytes transferred.
6. Switch back to the host session (**Ctrl**+**Esc**).

PC/3270 clears the host session screen after file transfer is complete.

RECEIVE Command

General Information

File transfer uses both the PC session and the host session. Because the entire system is dedicated to file transfer, neither session can be used until file transfer is complete.

Except in response to messages or instructions in this manual, do not use the keyboard while file transfer is running. Attempts to enter other data during file transfer can cause file transfer to fail.

We recommend using a temporary file name when replacing an existing file.

The RECEIVE command varies according to the type of host session.

The RECEIVE command cannot be used when IBM Enhanced Connectivity Facilities are active.

Receiving from VM/CMS

To receive a file from the VM/CMS host session:

1. Check that the host session is in CMS command mode, and the PC is in PC DOS command mode.
2. Switch to the host session (**Ctrl**+**Esc**).
3. **IMPORTANT:** Turn off unsolicited CMS messages (which interrupt the file transfer process unless you respond to them) as follows:

   Enter the command

   SET MSG OFF

   on the command line of the CMS session before you begin file transfer.

   Enter the command

   SET MSG ON

   to turn the messages back on when the file transfer process has ended.

Or, if you transfer files often, create a **CMS EXEC** that disables messages before starting file transfer and enables them again after completion. The EXEC must be named **IND$FILE** and could look like this:

```
&CONTROL OFF
CP SET MSG OFF
CP SET SMSG OFF
CP SET WNG OFF
IND$FILE &1 &2 &3 &4 &5 &6 &7 &8 &9 &1  &11 &12
CP SET MSG ON
CP SET SMSG ON
CP SET WNG ON
```

In this EXEC, messages are left enabled after file transfer is completed.

4. Switch to the PC session (**Ctrl**+**Esc**).
5. Enter the RECEIVE command for VM/CMS. For example, enter the following command (typed on one line):

   RECEIVE PCFILE.TXT CMSFILE SCRIPT A (ASCII CRLF

   To receive a text file, include the ASCII CRLF options. (Refer to "RECEIVE Command Format" on page 128 for format examples, parameters, and options.)

   A message indicates when file transfer is complete, along with the number of bytes transferred.
6. Switch back to the host session (**Ctrl**+**Esc**).

   PC/3270 clears the host session screen after file transfer is complete.

Receiving from MVS/TSO

To receive a file from the MVS/TSO host session at the PC:

1. Check that the host session is in TSO command mode, and the PC is in PC DOS command mode.
2. Switch to the host session (**Ctrl**+**Esc**).
3. **IMPORTANT:** Turn off unsolicited messages (which interrupt the transfer process unless you respond to them) as follows:

   Enter the command

   PROFILE NOINTERCOM

   on the command line of the TSO session before you begin file transfer.

   Enter the command

   PROFILE INTERCOM

   to turn the messages back on when the file transfer process has ended.
4. Switch to the PC session (**Ctrl**+**Esc**).

5. Enter the RECEIVE command for MVS/TSO. For example, enter the following command (typed on one line):

   RECEIVE PCFILE.TXT TSODET.SCRIPT ASCII CRLF

   To receive a text file, include the ASCII CRLF options. (Refer to "RECEIVE Command Format" on page 128 for format examples, parameters, and options.)

   A message appears to indicate when file transfer is complete, along with the number of bytes transferred.

6. Switch back to the host session (**Ctrl**+**Esc**).

PC/3270 clears the host session screen after file transfer is complete.

Command Syntax and Examples

Command Format Notation

Throughout this appendix, the following notation is used to show how the **SEND** and **RECEIVE** commands are formatted.

Capital Letters indicate a *keyword* parameter. Type the word exactly as it is shown, in any combination of uppercase and lowercase letters.

Italics Letters indicate a replaced-word parameter. The italics word represents the *kind* of information, rather than the exact information that must be supplied; the actual entry replaces the italics description. Type the correct entry in any combination of uppercase and lowercase letters.

Brackets, [ ], indicate an optional parameter. To include optional information, do not type the brackets, only the information inside the brackets.

Bars, | , indicate a choice of parameters. If a group of options is shown and the individual options are separated by bars, choose one of the options in the group. If none of these options is chosen, the default value is used. Do not type the bar.

Commas, Colons, and Parentheses must be entered as shown. When they appear within brackets, they are optional and are used only if the accompanying option is used.

SEND Command Format

The SEND command varies according to the type of host session.

VM/CMS

If the host system is VM/CMS, use the following format for the SEND command.

[*d:*]**SEND** [*d:*] [*path*] *filename*[.*ext*] *fn ft* [*fm*] [*(options*]

Notes:

1. Do not type spaces between the drive specifier, path, file name, and extension.
2. Do not use SEND keywords, such as ASCII, CRLF, or P850 as the file name or file type.

Refer to Table 3 for format definitions.

MVS/TSO

If the host system is MVS/TSO, use the following format for the SEND command (typed on one line).

[*d:*]**SEND**[*d:]* [*path*] *filename*[.*ext*] *data set name* [(*member name*)] [*/password*][*options*]

Notes:

1. Do not type spaces between the drive specifier, path, file name, and extension.
2. Do not use SEND keywords, such as ASCII, CRLF, or P850 as the file name, data set name, or member name.

Refer to Table 3 for format definitions.

Table 3 (Page 1 of 4). SEND Command Format Definitions

Command/ Parameter/ Option	Definition	Notes
d:	The PC drive specifier. When placed before the word SEND, *d:* is the drive where the **SEND.COM** file resides. This parameter is required before the SEND command only if the current drive is not the drive where the **SEND.COM** file resides. If you omit this parameter, DOS uses the current drive.	
SEND	The command name that transfers a file from the PC to the host computer.	

Table 3 (Page 2 of 4). SEND Command Format Definitions

Command/ Parameter/ Option	Definition	Notes
d:	The PC drive specifier used to indicate the drive where the PC file to be transferred resides. If you omit this parameter, DOS uses the current drive.	
path	List of directory names that define the location of the file to be sent to the host computer.	Surround the path with two backslashes, or DOS will not recognize the entire command.
filename	Name of the PC file to be sent to the host computer. The file name can be from 1 to 8 characters.	
.ext	The PC file extension. It is required if the name of the file being sent has an extension. An extension starts with a period, has 1 to 3 characters, and follows immediately after the file name. For example: **91PRICES.AUG** where **.AUG** is the extension.	
fn	CMS file name. Can be from 1 to 8 characters.	Valid for VM/CMS only.
ft	CMS file type.	Valid for VM/CMS only.
fm	CMS file mode. If this mode is omitted, the default is A1.	Valid for VM/CMS only.
data set name	TSO data set name. You can type single quotation marks around the combined data set and member name to show that the user ID is not prefixed.	Valid for MVS/TSO only.
(member name)	Name of a member in the directory of a partitioned data set. The data set must already exist in the host computer.	Valid for MVS/TSO only.
/password	Required if password protection has been specified for the TSO data set.	Valid for MVS/TSO only.
Options*		Not valid for members of a partitioned data set in MVS/TSO.
APPEND	Allows you to attach a PC file to the end of a host file. The APPEND parameter overrides any specified values for LRECL and RECFM.	If APPEND is not specified when the file name is the same as an existing CMS file, the PC file being transferred replaces the existing host file.
ASCII	Specifies that the file stored on the PC storage medium in ASCII form is to be converted to EBCDIC during the transfer to the host computer. (Usually, alphanumeric data is encoded in ASCII on the PC and EBCDIC on the host computer.) Specify the ASCII parameter when sending ASCII (text) files to the host so that the file is in a readable form when it is on the host.	
CRLF	Specifies that carriage return/line feed characters present in the file are recognized and deleted before being stored on the host storage medium. Usually, alphanumeric data on the PC contains CRLF characters at the end of each line. If CRLF characters are contained in the file, specify the CRLF parameter when sending alphanumeric (text) files to the host. This allows you to read the file when it is on the host.	

* Parentheses ( ) are required around options for VM/CMS.

Table 3 (Page 3 of 4). SEND Command Format Definitions

Command/ Parameter/ Option	Definition	Notes
LRECL n	Specifies the logical record length of the host file, where *n* is the number of characters in each record. If LRECL is omitted, the default value is 80 for new files. If you are replacing a file, the default characteristics are those of the existing file. If you are appending a file, LRECL is ignored. When working with variable-length records, *n* is the maximum size the host accepts. If you do not send a record of the maximum size, the LRECL becomes the longest record actually sent.	
BLKSIZE (n)	The block size of the host data set where *n* is the length in bytes of a data block. If BLKSIZE is omitted, the default is LRECL for new files. If you are appending or replacing a file, BLKSIZE is ignored.	TSO only.
TIME n	If the host system is slow and fails to respond within a certain period during file transfer, you will see the error message TRANS1 Host has not responded within timeout period; then file transfer will be terminated. You can make the timeout period longer by adding the **TIME n** option. n is the maximum number of seconds that the file transfer program will wait for a response from the host system; when this option is omitted, the timeout period is 30 second by default. Valid values of **n** are 3 to 36 . An example of the use of this option is: SEND PC327 .TXT PC327 TEXT A (ASCII CRLF TIME 15	
RECFM (F | V |U)	Specifies the record format and characteristics of the host file. RECFM is followed by an F, V, or U (TSO only). F specifies that the file contains fixed-length records. Fixed-length records are padded on the host with trailing space characters if the PC has sent a record shorter than the specified length. V specifies that the file contains variable-length records. U specifies that the data set contains records of undefined-length. If you use the APPEND option, RECFM is ignored. If RECFM is not specified for new files, the default is F when CRLF is not specified. When CRLF is specified, the default is V. If RECFM is not specified for existing files, the default is the RECFM of the existing file. If consecutive sets of carriage return/line feed characters are sent to the host with no data between the sets, the host program operator creates a one-character record consisting of a space character for each occurrence for variable-length records; or the host program creates a record of the specified length consisting of space characters for fixed-length records.	U is for TSO only.

Table 3 (Page 4 of 4). SEND Command Format Definitions

Command/ Parameter/ Option	**Definition**	**Notes**
SPACE (q[,i]) [AVBLOCK (value)] [TRACKS] [CYLINDERS] where q = quantity i = increment	Amount of space to be allocated for a new data set. If SPACE is used, you can use one of the three options to specify the units used for quantity and increment: – AVBLOCK(value) – TRACKS – CYLINDERS If none of these options is specified, the system defaults to the value of BLKSIZE.	TSO
P850**	Specifies that the file stored on the PC should be converted from code page 850 ASCII to EBCDIC. (This option is for users who do not have code page 850 loaded in their PC. If you have code page 850 loaded and specify the ASCII option alone, the code page 850 translation occurs automatically.)	
P437**	Specifies that the file stored on the PC should be converted from code page 437 ASCII to EBCDIC. (This option is for users who do not have code page 437 loaded in their PC. If you have code page 437 and specify the ASCII option alone, code page 437 translation occurs automatically.)	
P860**	Specifies that the file stored on the PC should be converted from code page 860 ASCII to EBCDIC.	
P863**	Specifies that the file stored on the PC should be converted from code page 863 ASCII to EBCDIC.	
P865**	Specifies that the file stored on the PC should be converted from code page 865 ASCII to EBCDIC.	

**Only one of these options can be specified at a time.

Code Pages

Figure 41 specifies the code pages for each country.

Country/Region or Language	Supported Code Page
Belgium	850, 437
Canadian-French	863, 850
Denmark	850, 865
Finland	850, 437
France	850, 437
Germany	850, 437
Italy	850, 437
Latin America	850, 437
Netherlands	850, 437
Norway	850, 865
Portugal	850, 860
Spain	850, 437
Sweden	850, 437
Swiss-French	850, 437
Swiss-German	850, 437
United Kingdom	437, 850
United States	437, 850

Figure 41. Supported Code Pages

Warning: If you configure DOS for a language that does not match the PC/3270 language, the results of an ASCII translation will be unpredictable.

Examples of the SEND Command for VM/CMS

The following examples are variations of the SEND command for VM/CMS.

Note: Each of the following commands must be typed all on one line.

To send a PC file from the default drive to create a new file on the CMS A-disk and specify the maximum record length as 132:

SEND PCFILE.TXT CMSFILE SCRIPT A1 (ASCII CRLF LRECL 132 RECFM V

This command sends a file named **PCFILE.TXT** from the default drive to the CMS A-disk. It creates a new **SCRIPT** file named **CMSFILE** on the A-disk. The records in the file can vary in length up to a maximum of 132 characters.

To send a PC file from the default drive to replace a file on the CMS A-disk:

SEND PCFILE.TXT CMSFILE SCRIPT A1 (ASCII CRLF

This command sends a PC file named **PCFILE.TXT** from the default drive to the CMS A-disk. You do not need to name the PC drive if it is the default drive. The file replaces a **SCRIPT** file named **CMSFILE**. The new **CMSFILE** has the same record length and format as the old **CMSFILE**.

If you do not have a file called **CMSFILE SCRIPT** on the A-disk, **PCFILE** is added to the A-disk as a new file called **CMSFILE SCRIPT**. The records in the file can vary in length up to a maximum of 80 characters.

To send a PC file from a drive other than the default to replace a file on the CMS B-disk:

SEND A:PCFILE.TXT CMSFILE SCRIPT B1 (ASCII CRLF

This command sends a PC file named **PCFILE.TXT** from a diskette in drive A to the CMS B-disk. It replaces a **SCRIPT** file named **CMSFILE** or a creates new file.

To send a file from a hard disk and add it to the end of a file on a CMS A-disk:

SEND C:PCFILE.TXT CMSFILE SCRIPT A1 (ASCII CRLF APPEND

This command sends a PC file named **PCFILE.TXT** from the hard disk to the CMS A-disk. It adds the file to the end of a **SCRIPT** file named **CMSFILE** on the CMS A-disk.

To send a file from a subdirectory on a hard disk to the CMS A-disk:

SEND C:\SUBDIR1\PCFILE.TXT CMSFILE SCRIPT A1 (ASCII CRLF

This command sends a file named **PCFILE.TXT** from a subdirectory named **SUBDIR1** on the hard disk to the CMS A-disk. It replaces a **SCRIPT** file, named **CMSFILE**, on the CMS A-disk.

To send a binary file from a hard disk to the CMS A-disk:

SEND C:PCFILE.COM CMSFILE COMBIN A1

This command sends a file named **PCFILE.COM** from the hard disk to the CMS A-disk. No translation occurs. This is the way to send a binary file such as a **.COM** or **.EXE** file.

To send a file from the hard disk to the CMS A-disk with alternate code page translation:

SEND C:PCFILE.TXT CMSFILE SCRIPT A1 (ASCII CRLF P85

This command sends a file named **PCFILE.TXT** from the hard disk to the CMS A-disk. The file is translated from ASCII to EBCDIC using code page P850 and is named **CMSFILE SCRIPT** A1.

Additional Information

If you need additional information about CMS or DOS, refer to the following manuals:

VM/370 CMS User's Guide

IBM Virtual Machine Facility/370: CMS Command and Macro Reference

IBM PC *Disk Operating System*

Examples of the SEND Command for MVS/TSO

The following examples are variations of the SEND command for TSO.

To send a file from the default drive to replace a file on the TSO host computer:

SEND PCFILE.TXT TSODSET.SCRIPT ASCII CRLF

This command sends a file named **PCFILE.TXT** from the default drive to the TSO host computer. It replaces a data set named **TSODSET.SCRIPT** on the TSO volume.

To send a file from a drive other than the default to the TSO host computer:

SEND A:PCFILE.TXT TSODSET.SCRIPT ASCII CRLF

This command sends a file named **PCFILE.TXT** from a diskette in drive A to the TSO host computer. It replaces a data set named **TSODSET.SCRIPT** on the TSO volume.

To send a file from the default drive to the TSO host computer and add it to the end of a TSO data set:

SEND A:PCFILE.TXT TSODSET.SCRIPT ASCII CRLF APPEND

This command sends a file named **PCFILE.TXT** from a diskette in drive A to the TSO host computer. It adds it to the end of a data set named **TSODSET.SCRIPT** on the TSO volume.

To send a file to the TSO host computer and add it to the end of a TSO data set that has a password:

SEND A:PCFILE.TXT TSODSET.SCRIPT/BRILLIG3 ASCII CRLF APPEND

This command sends a file named **PCFILE.TXT** from a diskette in drive A to the TSO host computer. It adds it to the end of a data set named **TSODSET.SCRIPT** on the TSO volume. This data set has a password of **BRILLIG3**.

To send a file from a subdirectory on the hard disk to a partitioned data set on the TSO host computer:

SEND C:\SUBDIR1\PCFILE.TXT TSODSET.SCRIPT(MEMBER1) ASCII CRLF

This command sends a file named **PCFILE.TXT** from a subdirectory named **SUBDIR1** on the hard disk to the TSO host. It replaces a member named **MEMBER1** in a partitioned data set named **PCFILE.SCRIPT** on the TSO volume.

To send a file to a partitioned data set that has a password:

SEND A:PCFILE.TXT TSODSET.SCRIPT (MEMBER2)/SLITHY11 ASCII CRLF

This command sends a file named **PCFILE.TXT** from a diskette in drive A to the TSO host computer. It adds it as a member named **MEMBER2** to a partitioned data set named **TSODSET.SCRIPT** on the TSO volume. This data set has a password of **SLITHY11**.

To send a file from the default drive and add it as a new data set on the TSO volume:

SEND PCFILE.TXT TSODSET.SCRIPT/VORPAL34 ASCII CRLF LRECL(132) BLKSIZE(132) RECFM(V) SPACE(2 ,1) TRACKS

This command sends a file named **PCFILE.TXT** from the default drive to the TSO host computer. It adds it as a new data set named **TSODSET.SCRIPT** on the TSO volume. A password of **VORPAL34** is assigned to it. The records in the data set can vary in length up to a maximum of 132 characters. The data blocks are the same length as the records. Twenty tracks are set aside for this data set. If more tracks are needed, they are added in groups of 10.

To send a binary file from the hard disk to the TSO host computer:

SEND C:PCFILE.COM TSODSET.BIN

This command sends a file named **PCFILE.COM** from the hard disk to the TSO host computer. The host file is named **TSODSET.BIN.** No translation occurs. This is the way to send a binary file such as a **.COM** or **.EXE file**.

To send a file from the hard disk to the TSO host computer with alternate code page translation:

SEND C:PCFILE.LST TSODSET.SCRIPT ASCII CRLF P85

This command sends a file named **PCFILE.LST** from the hard disk to the TSO host computer. The file is translated from ASCII to EBCDIC using code page 850 and is named **TSODSET.SCRIPT**.

Additional Information

If you need additional information about TSO or DOS, refer to these books:

IBM *OS/VS2 TSO Terminal User's Guide*

IBM *OS/VS2 TSO Command Language Reference*

IBM PC *Disk Operating System*

RECEIVE Command Format

The RECEIVE command varies according to the type of host session.

VM/CMS

To transfer files from VM/CMS to the PC, use the following format.

[*d:*]**RECEIVE** [*d:*] [*path*] *filename* [.*ext*] *fn ft* [*fm*] [*(options*]

Notes:

1. Do not type spaces between the drive specifier, path, file name, and extension.
2. Do not use RECEIVE keywords, such as ASCII, CRLF, or P850 as the file name or file type.

Refer to Table 4 for format definitions.

MVS/TSO

To transfer files from MVS/TSO to the PC, use the following format (typed on one line).

[*d:*]**RECEIVE** [*d:*][*path*] *filename*[.*ext*] *data set name* [*(member name)*][*/password*][*options*]

Notes:

1. Do not type spaces between the drive specifier, path, file name, and extension.
2. Do not use RECEIVE keywords, such as ASCII, CRLF, or P850 as the file name, data set name, or member name.

Refer to Table 4 for format definitions.

Table 4 (Page 1 of 3). RECEIVE Command Format Definitions

Command/ Parameter/ Option	Definition	Notes
d:	The PC drive specifier. When placed before the word RECEIVE, *d:* is the drive where the **RECEIVE.COM** file resides. This parameter is required before the RECEIVE command only if the default drive is not the drive where the **RECEIVE.COM** file resides. If you omit this parameter, DOS uses the current drive.	
RECEIVE	The command name that transfers a file from the host computer to the PC.	

Table 4 (Page 2 of 3). RECEIVE Command Format Definitions

Command/ Parameter/ Option	Definition	Notes
d:	The PC drive specifier. Indicates the drive that will receive the file being transferred from the host computer. If you omit this parameter, DOS uses the current drive.	
path	List of directory names that specifies the directory in which the transferred file is to be placed.	Surround the path with backslashes, or DOS will not recognize the entire command.
filename	Name of the PC file when it has been received by the PC.	
.ext	The PC file extension. Required to store the file from the host computer with a file name that has an extension. (Refer to the IBM PC *Disk Operating System* manual for further information.) An extension starts with a period, has 1 to 3 characters, and follows immediately after the file name. For example: **91PRICES.AUG** where **.AUG** is the extension.	
fn	CMS file name. The file name can be from 1 to 8 characters.	Valid for VM/CMS only.
ft	CMS file type.	Valid for VM/CMS only.
fm	CMS file mode. If this mode is omitted, the default is A1.	Valid for VM/CMS only.
data set name	TSO data set name. You can type single quotation marks around the combined data set and member name to show that the user ID is not prefixed.	Valid for MVS/TSO only.
(member name)	Name of a member in the directory of a partitioned data set. The data set must already exist in the host computer.	Valid for MVS/TSO only.
/password	Required if password protection has been specified for the TSO data set.	Valid for MVS/TSO only.
Options*		
APPEND	Allows you to attach a host file to the end of a PC file.	If APPEND is not specified when the file name is the same as an existing PC file, the file being transferred replaces the existing PC file.
ASCII	Specifies that the file stored on the host computer storage medium in EBCDIC form is to be converted to ASCII during the transfer to the PC.	Store the file on the PC storage medium in ASCII form so that the file can be displayed on the PC.
CRLF	Specifies that trailing spaces be deleted and carriage return/line feed characters inserted as the last two characters of each line when a file is stored on the PC storage medium. This allows you to read the file when it is on the PC.	

Table 4 (Page 3 of 3). RECEIVE Command Format Definitions

Command/ Parameter/ Option	Definition	Notes
TIME n	If the host system is slow and fails to respond within a certain period during file transfer, you will see the error message TRANS1 Host has not responded within timeout period; then file transfer will be terminated. You can make the timeout period longer by adding the **TIME n** option. n is the maximum number of seconds that the file transfer program will wait for a response from the host system; when this option is omitted, the timeout period is 30 second by default. Valid values of **n** are 3 to 36 . An example of the use of this option is: SEND PC327 .TXT PC327 TEXT A (ASCII CRLF TIME 15	
* Parentheses ( ) are required around options for VM/CMS.		
P437**	Specifies that the file from the host be converted from code page 437 ASCII to EBCDIC. (This option is for users who do not have code page 437 loaded in their PC. If you have code page 437 loaded and specify the ASCII option only, the code page 437 translation occurs automatically.)	
P850**	Specifies that the file from the host be converted from EBCDIC to code page 850 ASCII. (This option is for users who do not have code page 850 loaded in their PC. If you have code page 850 loaded and specify the ASCII option only, the code page 850 translation occurs automatically.)	
P860**	Specifies that the file from the host be converted from EBCDIC to code page 860 ASCII.	
P863**	Specifies that the file from the host be converted from EBCDIC to code page 863 ASCII.	
P865**	Specifies that the file from the host be converted from EBCDIC to code page 865 ASCII.	
** Only one of these options can be specified at a time.		

Examples of the RECEIVE Command for VM/CMS

The following examples are variations of the RECEIVE command for VM/CMS.

Note: Each of the following commands must be typed all on one line.

To receive a file from the CMS A-disk to the default drive for a PC session:

RECEIVE PCFILE.TXT CMSFILE SCRIPT A1 (ASCII CRLF

This command transfers a **SCRIPT** file named **CMSFILE** from the CMS A-disk to the PC session. It adds the file to the default drive (diskette or hard disk) with the name **PCFILE.TXT**.

To receive a file from the CMS B-disk and replace a file on a drive other than the default:

RECEIVE A:PCFILE.TXT CMSFILE SCRIPT B1 (ASCII CRLF

This command transfers a **SCRIPT** file named **CMSFILE** from the CMS B-disk to a drive other than the default for the PC session. It replaces a file named **PCFILE.TXT** on drive A.

To receive a file from the CMS A-disk and add it to the end of a file on a hard disk:

RECEIVE C:PCFILE.TXT CMSFILE SCRIPT A1 (ASCII CRLF APPEND

This command transfers a **SCRIPT** file names **CMSFILE** from the CMS A-disk to the PC session. It adds it to the end of a file named **PCFILE.TXT** on drive C.

To receive a file from the CMS A-disk and place it in a subdirectory on the default drive:

RECEIVE \SUBDIR1\PCFILE.TXT CMSFILE SCRIPT A1 (ASCII CRLF

This command transfers a **SCRIPT** file named **CMSFILE** from the CMS A-disk to the default drive. It creates a file named **PCFILE.TXT** in a subdirectory named **SUBDIR1** or replaces it if it already exists.

Additional Information

If you need additional information about VM/CMS or DOS, refer to these books:

VM/370 CMS User's Guide

IBM Virtual Machine Facility/370: CMS Command and Macro Reference

IBM PC *Disk Operating System*

Examples of RECEIVE Command for MVS/TSO

The following examples are variations of the RECEIVE command for TSO.

To receive a data set from a TSO host to the default drive for the PC session:

RECEIVE PCFILE.TXT TSODSET.SCRIPT ASCII CRLF

This command transfers a data set named **TSODSET.SCRIPT** from the TSO volume to the PC session. It adds it to the default drive with the name **PCFILE.TXT**.

To receive a data set from a TSO host computer to a drive other than the default drive:

RECEIVE A:PCFILE.TXT TSODSET.SCRIPT ASCII CRLF

This command transfers a data set named **TSODSET.SCRIPT** from the TSO volume. It creates a file named **PCFILE.TXT** on a diskette in drive A or replaces it if it already exists.

To receive a data set from a TSO host computer and add it to a PC file:

RECEIVE A:PCFILE.TXT TSODSET.SCRIPT ASCII CRLF APPEND

This command transfers a data set named **TSODSET.SCRIPT** from the TSO volume. It adds it to the end of a file named **PCFILE.TXT** on the diskette in drive A.

To receive a data set from a TSO host computer and place it in a subdirectory on a hard disk:

RECEIVE C:\SUBDIR1\PCFILE.TXT TSODSET.SCRIPT ASCII CRLF

This command transfers a data set **TSODSET.SCRIPT** from the TSO volume. It creates a file named **PCFILE.TXT** in a subdirectory named **SUBDIR1** on the hard disk or replaces it if it already exists.

To receive a data set that has a password from a TSO host computer (to a drive other than the default:) and add it to a PC file that already exists.

RECEIVE A:PCFILE.TXT TSODSET.SCRIPT/BRILLIG3 ASCII CRLF APPEND

This command transfers a data set named **TSODSET.SCRIPT** from the TSO volume. The data set has the password **BRILLIG3**. The data set is added to the end of a file named **PCFILE.TXT** on the diskette in drive A.

To receive a member of a partitioned data set from a TSO host computer at the PC session:

RECEIVE C:\SUBDIR1\PCFILE.TXT G:TSODSET.SCRIPT(MEMBER1) ASCII CRLF

This command transfers a member named **MEMBER1** from a partitioned data set named **TSODSET.SCRIPT**. The member is placed on the C drive in a subdirectory named **SUBDIR1**. It creates a file named **PCFILE.TXT** or replaces it if it already exists.

To receive to the PC session a member of a partitioned data set that has a password and add it to a PC file that already exists.

RECEIVE A:PCFILE.TXT TSODSET.SCRIPT(MEMBER2)/SLITHY11 ASCII CRLF APPEND

This command transfers a member named **MEMBER2** from a partitioned data set named **TSODSET.SCRIPT** from the TSO volume. The data set has a password of **SLITHY11.** The member is added to a file named **PCFILE.TXT** on the diskette in diskette drive A.

Additional Information

If you need additional information about the TSO and DOS parameters, refer to these manuals:

IBM *OS/VS2 TSO Terminal User's Guide*

IBM *OS/VS2 TSO Command Language Reference*

IBM PC *Disk Operating System*

Appendix E. Using IBM Enhanced Connectivity Facilities

This appendix describes how to start the programs necessary for using IBM Enhanced Connectivity Facilities (ECF). These facilities work only when PC/3270 is customized as the CUT emulation program.

This appendix also provides a brief introduction to IBM Enhanced Connectivity Facilities. Also refer to the *Introduction to IBM System/370* to IBM PC Enhanced Connectivity Facilities* for a more detailed description.

Refer to Appendix A, “Messages” on page 83 for messages that appear when IBM Enhanced Connectivity Facilities are active.

Introduction to IBM Enhanced Connectivity Facilities

IBM Enhanced Connectivity Facilities consists of software designed to connect PCs and host computers so that many host services and resources become available to PC application programs.

Host resources include databases containing frequently updated information, host files, fast printers, direct access storage space for storing and sharing vast amounts of information, and communications facilities that link users and data.

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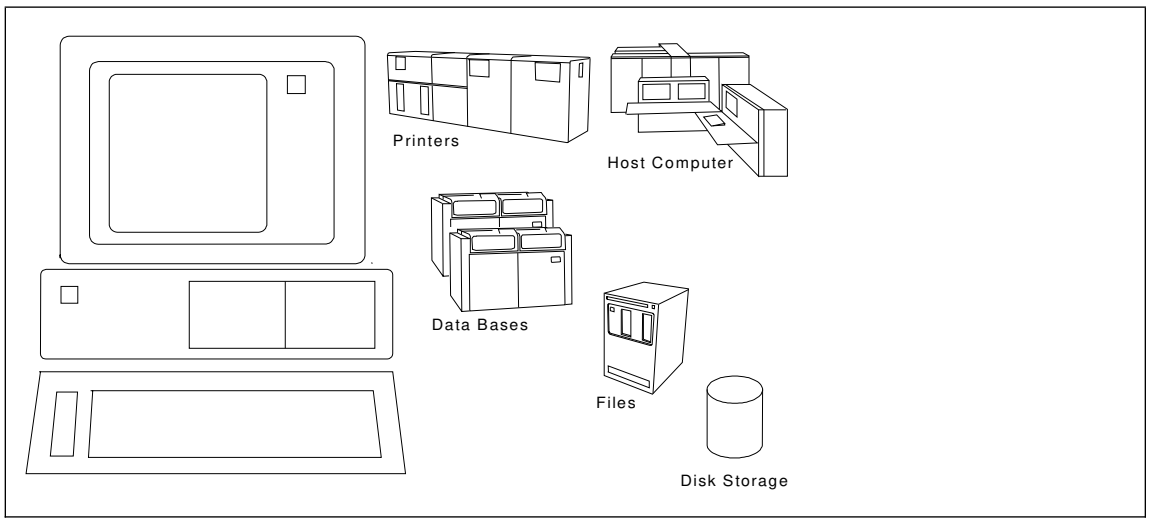
Using ECF



Access to selected MVS/XA* and VM/SP host services is provided by host programs called *servers* and PC programs called *requesters*. This terminology comes from the fact that the PC or application program "requests a service" and the host computer "serves the request." Access to each service is provided by a paired server and requester, referred to as a *server-requester* (or *servers-requesters*, for more than one pair).

IBM Enhanced Connectivity Facilities includes a *Server-Requester Programming Interface*, which can be used to develop your own servers and requesters. The Server-Requester Programming Interface (SRPI) makes it easier for you to develop servers and requesters, because programmers do not need detailed knowledge of communication protocols. The interface is the same in all supported communication environments.

IBM Enhanced Connectivity Facilities Characteristics

Figure 42 on page 137 identifies the basic characteristics of IBM Enhanced Connectivity Facilities. IBM Enhanced Connectivity Facilities consist of the following components:

The PC application program making the request, which is referred to as the *requester*.

* Trademark of the International Business Machines Corporation.

The host application program that services the request, which is referred to as the *server*.

A consistent interface for handling communications between requesters and servers. The function provided by the 3270 Emulation program and hosts is referred to as a *router*. The routers provide a Server-Requester Programming Interface (SRPI), which supplies a request interface for requesters or a reply interface for servers. This interface isolates requesters and servers from the underlying communication environment.

The SRPI provides a consistent interface for programs in PCs to obtain services, data, or both from host systems.

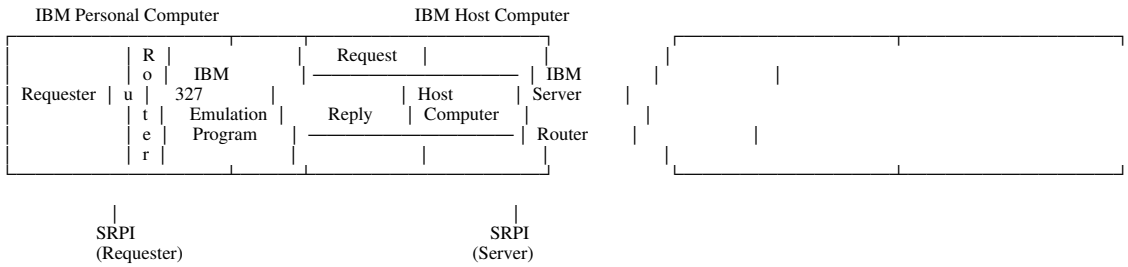


Figure 42. Characteristics of IBM Enhanced Connectivity Facilities

Note: The file transfer SEND and RECEIVE commands cannot be used when a host router is active.

Starting a Dual Session

This section describes how to start PC/3270 with IBM Enhanced Connectivity Facilities. Before going to the procedure, make sure that you have installed PC/3270 with the ECF by responding **Yes** to ECF in the Create Configuration File panel during the installation procedure.

The following procedure starts a dual computer session. This allows you to operate the PC as a host computer or a PC.

1. If you start PC/3270 by the diskette, insert the diskette into drive A and close the drive door.

   If you are using a hard disk, leave the drive A door open.

2. Turn on the PC, if you have not already done so. If the system unit is already on, press **Ctrl+Alt+Del** to perform a system reset.

3. Choose one of the following:

   If PC/3270 is on the hard disk, type **C:** and press Enter.

   If PC/3270 is on the system diskette in the drive A, type **A:** and press Enter.

   If PC/3270 is on the diskette in the drive B, type **B:** and press Enter.

4. Change to the directory containing the configuration file (**.BAT**) specified in the Create Configuration File panel, if necessary.
5. Type the PC/3270 configuration file specified in the Create Configuration File panel during the installation procedure. If you are using the default configuration file (**PCS327 .BAT**), type **PCS3270** and press Enter.

   The IBM logo appears on the screen for a few seconds.
6. When the DOS prompt appears, press **Ctrl+Esc.**

Starting the Host Router

The following procedure starts a host router.

1. Log on to the system.
2. Choose one of the following:

   To start the host router for VM, type **CMSSERV (CUT)** and press Enter.

   To start the host router for TSO, type **MVSSERV** and press Enter.

   Following are additional parameters for MVSSERV:

   NOTRACE Specify NOTRACE or leave blank to run MVSSERV without sending messages to a trace data set on the host. Use this condition for production work. When testing requesters and servers, use TRACE or, preferably, IOTRACE to obtain complete diagnostic information about the MVSSERV session.

   TRACE Specify TRACE to record all terminal messages as well as most diagnostic messages in a trace data set. The TRACE parameter requires a pre-allocated trace data set in which to store the messages.

   IOTRACE Specify IOTRACE to record all terminal messages in a trace data set on the host. In addition to the messages recorded with the TRACE parameter, the IOTRACE parameter records data sent between the host and the IBM PC, and information about the data flow.
3. Press **Ctrl**+**Esc** to return to the PC session. The host router is now active.

Starting the Requester

To use IBM Enhanced Connectivity Facilities, you must also start a requester as follows:

1. Switch to the PC session (press **Ctrl**+**Esc**).
2. Follow the directions on the screen for the requester you have chosen.

Note: The requester does not come with PC/3270. It is available separately.

Stopping IBM Enhanced Connectivity Facilities

To stop IBM Enhanced Connectivity Facilities, do the following:

1. Switch to the host session (press **Ctrl**+**Esc**).
2. Press F3.
3. Switch to the PC session (press **Ctrl**+**Esc**).
4. Stop the requester using the directions for the chosen requester.

Appendix F. National Language Support

National Language Support allows you to configure your PC/3270 and EEHLLAPI to support keyboards, file transfer, and other functions for different languages. The support for a language assumes that you have an IBM PC and a control unit configuration specific to that language.

Supported Languages

The supported language depends on whether PC/3270 is customized for the CUT connection or Home3270, because language support is managed by an attached control unit or protocol converter.

CUT Connection

Austria/Germany
Belgium (Old)
Belgium (New)
Brazilian Portuguese
Canada (Bilingual)
Denmark
Finland/Sweden
France
Italy
Latin America (Spanish)
Netherlands
Norway
Portugal
Spain (Old)
Spain (New)
Switzerland-French
Switzerland-German
United Kingdom
United States

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National Language Support

Home3270

Austria/Germany
Belgium
Canada (Bilingual)
Denmark
Finland/Sweden
France
Italy
Latin America (Spanish)
Netherlands
Norway
Portugal
Spain
Switzerland-French
Switzerland-German
United Kingdom
United States

Country Specifications

The CUT connection supports the following PC and host code pages.

Keyboard Country	PC Code Pages	EBCDIC	CECP	Character Set
Austria/Germany	437/850	273-1	697-1	265
Belgium (Old)	437/850	274-1	N/A	269
Belgium (New)	437/850	500-1	697-1	1114
Brazilian Portuguese	850/437	037-1	697-1	1114
Canada (Bilingual)	863/850	037-1	697-1	905
Denmark	865/850	277-1	697-1	281
Finland/Sweden	437/850	278-1	697-1	285
France (120)	437/850	297-1	697-1	1129
France (189)	437/850	297-1	697-1	1129
Italy (141)	437/850	280-1	697-1	293
Italy (142)	437/850	280-1	697-1	293
Latin America (Spanish)	437/850	284-1	697-1	309
Netherlands	437/850	037-1	697-1	101
Norway	865/850	277-1	697-1	281
Portugal	860/850	037-1	697-1	1114
Spain (Old)	437/850	284-1	697-1	650
Spain (New)	437/850	284-1	697-1	650
Switzerland - French	437/850	500-1	697-1	908
Switzerland - German	437/850	500-1	697-1	908
United Kingdom (166)	437/850	285-1	697-1	313
United Kingdom (168)	437/850	285-1	697-1	313
United States	437/850	037-1	697-1	101

National Language Support

Home3270 supports the following PC and host code pages when PC/3270 is attached to the IBM 3174 with an Asynchronous Emulation Adapter.

Keyboard Country	PC Code Pages	EBCDIC	CECP	Character Set
Austria/Germany	437/850	273-1	697-1	265
Belgium	437/850	500-1	697-1	1114
Canada (Bilingual)	863/850	037-1	697-1	905
Denmark	865/850	277-1	697-1	281
Finland/Sweden	437/850	278-1	697-1	285
France	437/850	297-1	697-1	1129
Italy	437/850	280-1	697-1	293
Latin America (Spanish)	437/850	284-1	697-1	309
Netherlands	437/850	037-1	697-1	101
Norway	865/850	277-1	697-1	281
Portugal	860/850	037-1	697-1	1114
Spain	437/850	284-1	697-1	650
Switzerland - French	437/850	500-1	697-1	908
Switzerland - German	437/850	500-1	697-1	908
United Kingdom	437/850	285-1	697-1	313
United States	437/850	037-1	697-1	101

Answers to Control Unit Customization Question #121

The table below shows, for each country, the correct response to the Control Unit (3274 or 3174) Customization Question #121.

Country	3274	3174
Austria/Germany	03	03
Belgium	04	N/A
Belgium (with RPQ7L0577)	04	04
Brazilian Portuguese	N/A	49
Canada (with RPQ7L0624)	29	29
Denmark	07	07
Finland/Sweden	24	24
France	30	30
Italy	15	15
Latin America (with RPQ7L0626)	19	19
Netherlands	N/A	47
Norway	23	23
Portugal	28	28
Spain	19	N/A
Spain (with RPQ7L0626)	19	19
Switzerland - French (with RPQ7L0811)	32	41
Switzerland - German (with RPQ7L0811)	31	42
United Kingdom	22	22
United States	01	01

Appendix G. PC/3270 Compatibility

This appendix describes the operating environment required by PC/3270 and compatibility considerations for using PC/3270 and other software products.

Note: For the latest information on hardware and software that can be used with this PC/3270 program, ask your authorized IBM PC dealer or local IBM representative.

Hardware Requirements

Minimum requirements for an IBM Personal Communications/3270 Version 3.1 workstation consist of:

IBM PS/2 Models 25, 25-286, 25 LS, 30, 30-286, 35 LS, 35 SX, 40 SX, L40 SX, 50, 50Z, N51 SLC, N51 SX, 55 SX, 55 LS, 56 SX, 56 LS, 56 SLC, 56 SLC LS, 57 SX, 57 SLC, M57 SLC, CL57 SX, 60, 65 SX, 70, 70-486, P70, P75, 80, 90 XP, 95 XP, IBM PC, IBM PC XT, IBM PC XT 286, or IBM PC AT

Keyboard

- PC XT
- PC AT
- Enhanced
- Host Connected

Display Adapter

- Monochrome Display and Printer Adapter
- Color Graphic Adapter
- Enhanced Graphic Adapter
- Multi-Color Graphic Array
- Video Graphic Array
- 8514 Display Adapter/A
- Extended Graphic Array (XGA*)
- Video Graphics Array Plus

Display Monitor

- IBM 5151
- IBM 5152

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- IBM 5153
- IBM 5154
- IBM 8503
- IBM 8504
- IBM 8506
- IBM 8507
- IBM 8508
- IBM 8512
- IBM 8513
- IBM 8514
- IBM 8515
- IBM 8516
- IBM 8518

One dual-sided diskette drive (5.25 or 3.5-inch)

Requirements for CUT Connection

The following are requirements for environments where CUT connection is in use:

System Memory: From 24KB to 46KB of main storage is required depending on:

- Customized options
- Release level of the IBM 3270 Connection or the IBM 3278/3279 Emulation Adapter

An additional 14KB and application space is required for EEHLLAPI, and an additional 18KB and requester space is required for Enhanced Connected Facilities.

One of the following communication adapters:

- IBM 3270 Connection — For the IBM PS/2 Models 50, 50Z, N51 SLC, N51 SX, 55 SX, 55 LS, 56 SX, 56 LS, 56 SLC, 56 SLC LS, 57 SX, 57 SLC, M57 SLC, CL57 SX, 60, 65 SX, 70, 70-486, P70, P75, 80, 90 XP, and 95 XP.
- IBM 3278/3279 Emulation Adapter — For the IBM PC, PC XT, PC XT 286, PC AT, PS/2 Models 25, 25 LS, 25-286, 30, 30-286, 35 SX, 35 LS, 40 SX and L40 SX.

A customer-supplied coaxial cable or either IBM Cabling System or telephone twisted-pair cable. Use with telephone twisted-pair also requires that the ROLM 3270 Coax-to-Twisted Pair Adapter (3270-CTPA) be used with the IBM 3270 Connection or the IBM 3278/3279 Emulation Adapter for attachment to the IBM 3174 or 3274 Subsystem Control Unit.

Use of file transfer when attached to the IBM 3174 Subsystem Control Unit requires that the control unit be customized with the File Transfer Aid selected. For details refer to the *IBM 3174 Subsystem Control Unit Customizing Guide*, GA23-0214.

Attachment to the IBM 4701 Finance Communications Controller requires the Device Cluster Adapter (#3101). File transfer is not supported with the IBM 4701 Finance Communication Controller.

Attachment to the IBM 43xx Systems requires the Display/Printer Integrated Communications Adapter. Attachment to the IBM 4361 can also be via the Workstation Adapter.

The communication adapter can be attached to the following control units or adapters:

- IBM 3274 Subsystem Control Unit
- IBM 3174 Establishment Control Unit
- IBM 4321/4331 Display/Printer Adapter with the specify code number 9843 installed
- IBM 4361 Display/Printer Adapter
- IBM 4701 Finance Communication Controller, using feature code number 3101
- IBM 937x Workstation Subsystem Controller
- IBM 3814 Channel Switching System

Requirements for Home3270

The following are requirements for environments where Home3270 is in use:

System Memory: From 58KB to 64KB of main storage is required depending on the customized conditions.

An additional 15KB and application space is required for EEHLLAPI.

One of the following asynchronous adapters (not required if using the IBM PS/2 native asynchronous support):

- IBM PC Asynchronous Communications Adapter
- IBM PC AT Serial/Parallel Adapter
- IBM PS/2 Dual Asynchronous Adapter/A
- IBM PS/2 Multi-Protocol Adapter/A

One of the following IBM protocol converters:

- IBM 3174 with the Asynchronous Emulation Adapter (AEA)
- IBM 3708 Network Conversion Unit
- IBM 7171 ASCII Terminal Control Unit
- IBM 9370 ASCII Subsystem Controller

One of the following ROLM devices:

- ROLMphone 244PC
- ROLMphone with a Data Communications Modem (DCM)
- ROLM Juniper II

Software Requirements

This program is designed to operate with the following:

IBM PC Disk Operating System (DOS):

- Version 3.3
- Version 4.0 with PTF UR24270
- Version 5.0
- Version 6.1

Requirements for CUT Connection

For Enhanced Connectivity Facilities, one of the following must be installed at the host system:

- VM/SP Release 5
- VM/SP Release 6
- TSO/E Version 1, Release 3
- TSO/E Version 1, Release 4
- TSO/E Version 2, Release 1

Note: Complementary support of CUT mode on IBM System/370 to IBM PC Enhanced Connectivity Facilities is provided by PTFs.

VM/SP Release 5 requires PUT 8706, APAR VM28510, PTF UV90227

TSO/E Version 1, Release 3 requires APAR OZ97852, PTF UY90083

The licensed programs required to be installed on the host computer for File Transfer are:

For MVS/TSO - IBM 3270 PC File Transfer Program, 5665-311

For VM/SP - IBM 3270 PC File Transfer Program, 5664-281

For CICS/MVS* - IBM 3270 PC File Transfer Program, 5798-DQH

VSE System Product 2.1 with Intelligent Work Station (IWS) support

VSE System Product 3.1 with Intelligent Work Station (IWS) support

VSE System Product 3.2 with Intelligent Work Station (IWS) support

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Requirements for Home3270

The licensed programs required to be installed on the IBM 43xx, 937x or 30xx host computer for File Transfer are:

When a 3174 AEA, 7171 or 9370 ASCII Subsystem is used for the protocol converter:

- For MVS/TSO - IBM 3270 PC File Transfer Program, 5665-311 Release 1.1.1
- For VM/SP - IBM 3270 PC File Transfer Program, 5664-281 Release 1.1.1
- VSE System Product 3.2 with Intelligent Work Station (IWS) support

When a 3708 is used for the protocol converter:

- For MVS/TSO - IBM 3270 PC File Transfer Program, 5665-311 Release 1.1.1
- For VM/SP - IBM 3270 PC File Transfer Program, 5664-281 Release 1.1.1
- For CICS/MVS - IBM 3270 PC File Transfer Program, 5798-DQH
- VSE System Product 2.1 with Intelligent Work Station (IWS) support
- VSE System Product 3.1 with Intelligent Work Station (IWS) support
- VSE System Product 3.2 with Intelligent Work Station (IWS) support

Hardware Compatibility

PC/3270 is functionally compatible with most of the 3270 base data stream alphanumeric application environments that support the IBM 3471 or 3472 (for Model 2 screen), with certain restrictions. Programming changes are required if necessary functions are not available.

General Limitations

This section describes general limitations to the use of PC/3270.

Network Compatibility Option Limitations

The following restrictions must be observed when operating PC/3270 and PC Local Area Network Program 1.34 (or DOS LAN Requester Version 1.3 and 2.0) concurrently:

IBM PC Local Area Network Program 1.34 must be loaded before PC/3270 is loaded.

PC/3270 must be run in resume (Ctrl+R) mode.

When a message notification occurs, any keystroke returns the system to the host screen.

The PC/3270 program runs concurrently with all configurations of IBM PC Local Area Network Program 1.34:

- Redirector
- Receiver
- Messenger
- Server

Using PC/3270 with Applications

Many IBM software products run concurrently with PC/3270 on the IBM PC. Ask your marketing representative for specific details.

Applications can operate concurrently with PC/3270 if they do not:

Overlay the DOS or BIOS area of storage.

Use interrupt vectors hex 7A or 7F.

Use adapter I/O port, hex 2D0 through hex 2DF.

Program the 8259 interrupt controller.

Use cassette interrupt hex 15 with a function call in the AH register of hex FF.

Disable interrupts, fail to issue an end-of-interrupt (IRET) on a hardware interrupt level, or mask selected interrupt levels for more than 100 milliseconds.

Use the Ctrl+Esc key combination.

Write directly to the video buffer.

Check display mode. When an user presses the hot key from the PC session to the host session, PC/3270 checks the display mode. If this mode is 11 or greater, or any advanced functions of an installed IBM Personal System/2 Adapter (4050) are invoked, a beep is issued and the user remains in the PC session.

Note: Applications that write directly to the video buffer must be run in suspended mode.

Appendix H. Creating a Patch File

This appendix explains how to create a patch file on both a diskette system and a hard disk system. It also contains some tips on using EDLIN.

Creating a Patch File on a Diskette System

1. Insert the DOS diskette in drive A.
2. Insert the PC/3270 diskette in Drive B.

   Note: If your system has only one diskette drive, simply insert a blank diskette when prompted for drive B.
3. At the DOS prompt (A>), type the following:

   EDLIN B:IRxxxxx

   where IRxxxxx is the APAR number for the patch you are creating. Look at the patch you received to determine this number.
4. Press Enter.
5. When EDLIN is ready, the following message appears on the screen:

   New file
6. To begin typing the first line in the patch file, type the following command:

   I
7. Press Enter. The following prompt appears:

   1

   Note: The 1 is the number “one”, not the letter L.
8. Next to the * prompt, type the first line of the written patch. When you have typed the entire line, press Enter.

   The following prompt appears:

   2
9. Type the second line of the patch. When you have typed the entire line, press Enter.
10. Continue this procedure until you have entered all the lines of the patch. Be sure to copy each line exactly as it is written.
11. When you have finished entering all the patch lines, press **Ctrl**+**Scroll Lock**.

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The following prompt appears:

12. Type the following command to save the file:

    E

13. Press Enter. The DOS prompt (A>) appears on the screen.
14. Follow the instructions in the section “Installing a Patch” on page 79 to install the patch file you have created.

Creating a Patch File on a Hard Disk System

1. At the DOS prompt (C>), type the following:

   EDLIN B:IRxxxxx

   where IRxxxxx is the APAR number for the patch you are creating. Look at the written patch you received to determine this number.

2. Press Enter. When EDLIN is ready, the following message appears on the screen:

   New file

3. To begin typing the first line in the patch file, type the following command:

   I

4. Press Enter. The following prompt appears:

   1

   Note: The 1 is the number “one”, not the letter L.

5. Next to the * prompt, type the first line of the patch. When you have typed the entire line, press Enter.

   The following prompt appears:

   2

6. Type the second line of the patch. When you have typed the entire line, press Enter.
7. Continue this procedure until you have entered all the lines of the patch. Be sure to copy each line exactly as it is written.
8. When you have finished entering all the patch lines, press **Ctrl**+**Scroll Lock**.

   The following prompt appears:

9. You are now ready to save your patch file. Type the following command to save the file:

   E

10. Press Enter. The DOS prompt (A>) appears on the screen.
11. Follow the instructions in the section "Installing a Patch" on page 79 to install the patch file you have created.

Tips for Using EDLIN

The following are a few helpful tips for using EDLIN. For additional information on using EDLIN, refer to the section "The EDLIN Commands" in your *DOS Reference* manual.

To retype a line, press **Ctrl**+**Scroll Lock**. Next to the EDLIN prompt (*), type the number of the line you want to retype. The line number will appear with the EDLIN prompt. Retype the line with corrections.

To add lines at the end of the file, press **Ctrl**+**Scroll Lock**. Type the following command next to the EDLIN prompt (*).

A

The line number for the next line will appear with the EDLIN prompt (*). Continue entering lines using the procedures outlined above for your system.

Appendix I. DOS Operations

This appendix describes the DISKCOPY and FORMAT command operations.

DISKCOPY Command Operation

The DISKCOPY command copies the contents of the diskette in the source drive to the diskette in the target drive. If necessary, the target diskette is formatted during the copy.

Copy a Diskette Using Drive A

The following steps describe the DISKCOPY operation using drive A. This procedure requires the source diskette that contains information to copy, and a blank, formatted target diskette, that receives the information.

1. When the PC is ready, you should see the DOS prompt.

   C:>

   The appearance of the prompt depends on your PC configuration.

2. Type **DISKCOPY A: A:** and press Enter. The following message appears:

   Insert SOURCE diskette in drive A:

   Press any key to continue . . .

3. Insert the source diskette in drive A, and press Enter. After several seconds, the following message appears:

   Insert TARGET diskette in drive A:

   Press any key to continue . . .

4. Insert the target diskette in drive A, and press Enter.

   You might need to insert and remove the diskettes several times following the screen messages. The PC cannot read all the data on the source diskette at one time and has to copy it part by part.

   When the diskette is copied, the following message appears:

   Copy another (Y/N)?

5. Type **N** and press Enter. The DISKCOPY operation is completed.

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Note: If the following message is displayed, insert your system diskette (DOS Startup) in drive A and press any key when ready:

```
Insert diskette with \COMMAND.COM in drive
A and press any key when ready
```

Diskette and Diskette Drive Compatibility

DISKCOPY can be used only with certain combinations of diskette drives and diskettes. If an incorrect combination is specified, information on the target diskette can be lost and the system displays an error message.

Single-sided diskette drives

5.25-inch diskettes

- Single-sided 160KB/180KB to a single-sided 160KB/180KB

Double-sided diskette drives

Warning: You might not be able to reliably read the 3.5-inch single-sided 160KB/180KB or double-sided 320KB/360KB diskette types in a single-sided or double-sided diskette drive if the diskette was written in a high-capacity drive.

5.25-inch diskettes

- Single-sided 160KB/180KB to a single-sided 160KB/180KB
- Double-sided 320KB/360KB to double-sided 320KB/360KB
- High-capacity 1.2MB diskette with a high-capacity 1.2MB diskette

3.5-inch diskettes

- Double-density 720KB to double-density 720KB
- High-density 1.44MB to high-density 1.44MB

FORMAT Command Operation

The FORMAT command makes the disk or diskette ready to receive information.

Warning: FORMAT destroys all data on the disk.

Format a Diskette Using Drive A

The following steps describe the FORMAT operations using drive A.

1. When the PC is ready, you should see the DOS prompt.

   C:>

   The appearance of the prompt depends on your PC configuration.

2. Type **FORMAT A:** and press Enter. The following message appears:

   Insert new diskette for drive A:
   and press Enter when ready...

3. Insert the diskette that you are going to format, and press Enter. After a few minutes, the following message appears:

   Volume label (11 characters, ENTER for none)?

4. Press Enter. After several messages are displayed, the following message appears:

   Format another (Y/N)?

5. Type **N** and press Enter. The FORMAT operation is completed.

Note: If the following message is displayed, insert your system diskette (DOS Startup) in drive A and press any key when ready:

Insert diskette with \COMMAND.COM in drive
A and press any key when ready

The following table shows the supported media types and possible *size* values:

Drive Type	Recommended Size	Additional Sizes
160KB/ single-sided 5.25-inch diskettes	160K	none
180KB/ single-sided 5.25-inch diskettes	180K	160K
320KB/ double-sided 5.25-inch diskettes	320K	180K, 160K
360KB/ double-sided 5.25-inch diskettes	360K	320K, 180K, 160K
720KB/ double-sided 3.5-inch diskettes	720K	none
1.2MB double-sided 5.25-inch diskettes	1200K, 1.2M	360K, 320K, 180K, 160K
1.44M double-sided 3.5-inch diskettes	1440K, 1.44M	720

Do not format 2.0MB capacity or high density (HD) diskettes in a 720KB drive.

DOS Operations

To format a diskette labeled 1.0MB capacity, 2HC, or with no label, in a 1.44MB drive, use the FORMAT command with the parameter: /F:720.

To format a diskette labeled 2.0MB capacity or HD, in a 1.44MB drive, use the FORMAT command without the /N and /T parameters.

The following table shows the valid FORMAT parameters for specific disk types:

Disk Type	Parameters Allowed
160KB/180KB	/S, /V:label, /1, /8, /B, /4, /F:size
320KB/360KB	/S, /V:label, /1, /8, /B, /4, /F:size
640KB/720KB	/S, /V:label, /N, /T, /B, /F:size
1.2MB	/S, /V:label, /N, /T, /B, /F:size
Hard disk	/S, /V:label, /B

Appendix J. Problem Solving

The problem determination tables in this appendix help you determine if a problem is hardware-related, software-related, or caused by operator error.

We assume you are familiar with the problem determination tools available for your host system. The tables included here do not attempt to be host-specific or all-inclusive.

Be sure your host computer is available and the coaxial cable is connected when PC/3270 is used as the CUT connection.

Be sure your host computer is available, an appropriate protocol converter is attached, a supported modem is in use with a correct setup, and the appropriate modem cable is in use when PC/3270 is used as Home3270.

Refer to the IBM PC *Guide to Operations* or *Quick Reference* for hardware-related problems.

Refer to Appendix A, “Messages” for messages that occur during file transfer, keyboard redefinition, color selection, patch utility processing, and when using IBM Enhanced Connectivity Facilities.

Refer to Appendix B, “OIA in Host Computer Mode” for messages appearing in the operator information area of your screen in the host computer session.

How to Read Problem Determination Tables

Choose the section of this chapter that best describes the problem you are experiencing.

If you are unable to start your system properly, go to “System Startup” on page 162.

If you are having difficulty transferring files from host to PC or PC to host, go to “File Transfer” on page 163.

If you are having trouble running your PC software, go to “PC Application” on page 164.

If the printer attached to your PC is not working correctly, go to “PC Printer” on page 164.

If your keyboard does not function properly, go to “Keyboard” on page 165.

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System Startup

This table helps you determine why your system is not starting properly.

Question	Yes	No
1. Did the power-on self-test (POST) run correctly and without any error messages the last time you turned your system on?	Go to question 2.	Refer to the IBM PC *Guide to Operations* or *Quick Reference*.
2. PC/3270 must be the last resident program loaded by DOS when the PC is turned on or you perform a system reset. Have you loaded any programs other than DOS and PC/3270?	Restart your PC. Load PC/3270 immediately after loading DOS. Go to question 3.	Go to question 3.
3. Do you have the PC/3270 loaded?	Ask your service coordinator for assistance.	Go to question 4.
4. Load PC/3270. Did it load successfully?	Ask your service soordinator for assistance.	Go to question 5.
5. Load your DOS system diskette. Did DOS load successfully?	Go to question 6.	Refer to the IBM PC *Guide to Operations*. or *Quick Reference*.
6. Insert the PC/3270 Program diskette that you received with this manual into drive A. Type: **PC327** and press Enter. Did the program load successfully?	Refer to Chapter 2, Installation and Chapter 3, Starting PC/3270. There is a problem with the diskette you created or the files copied onto the hard disk.	Contact the point of purchase of your PC/3270.

File Transfer

Before you use this table to determine your transfer problem, make sure that your PC is in PC DOS command mode and that the host computer is ready to receive commands.

Question	Yes	No
1. Is the failure the result of the host being inoperative?	Try the operation when the host is available.	Go to question 2.
2. Was the file transfer command typed into the PC after a DOS prompt was displayed?	Go to question 3.	Retry entering the command from PC DOS command mode.
3. Does a problem exist with the transferred file, even though file transfer was completed without an error message?	Check for the following: An error in source data set or incorrect options specified (ASCII or CRLF). An unrequested APPEND (default is REPLACE). An error displayed in the host session not generated by file transfer. Press **Ctrl**+**Esc** to view host screen. **Note:** If the host is TSO, there are potential problems with user catalogs.	Go to question 4.
4. Did file transfer stop and display an error message?	Refer to Appendix A, “Messages” for further information.	Go to question 5.
5. Did the file transfer stop without messages?	Go to question 6.	Ask your service coordinator for assistance.
6. Switch to your host computer session. Are any messages or status information displayed?	Correct the condition and retry.	Ask your service coordinator for assistance.

PC Application

This table helps you determine the cause of a software application problem when PC/3270 is loaded.

Question	Yes	No
1. Load DOS without PC/3270. Does the PC application work with DOS alone?	Go to question 2.	The problem is with the PC application. Report the problem to the point of purchase.
2. When PC/3270 is loaded, does the application observe the restrictions imposed on applications by PC/3270?	Ask your service coordinator for assistance.	The application cannot be run concurrently with PC/3270.
Note: Some applications cannot be used with PC/3270. Refer to Appendix G, "PC/3270 Compatibility" on page 147.		

PC Printer

This table helps you determine why the printer attached to your PC is not working correctly.

Question	Yes	No
1. Is your printer turned on, attached, online, and loaded with paper?	Go to question 2.	Go to question 3.
2. Did you receive a message indicating that the printer is not ready?	Go to question 3.	Go to question 4.
3. Ready the printer and retry. **Note:** If the printer is turned off, not attached, offline, or there is no paper, an error condition occurs. Is the printer operating correctly?	Resume normal operations.	Refer to the IBM PC *Guide to Operations* or *Quick Reference*.
4. Press and hold the Shift key and then press your print key. Did the printer print the information from the screen correctly?	Resume normal operations.	Refer to the IBM PC *Guide to Operations* or *Quick Reference*.

Keyboard

Use this table if your keyboard does not function properly.

Note: If your keyboard has been redefined using the Keyboard Redefinition utility, your host keyboard layout might not match the layout of the keyboard templates. Refer to "3270 Keyboard Definition Utility" on page 52 for information about activating the default keyboard definition.

Question	Yes	No
1. Can you switch sessions (**Ctrl**+**Esc**)? **Note:** Make sure the PC session is not paused.	Go to question 4.	Go to question 2.
2. Restart your system and load PC/3270. Can you switch sessions?	Resume normal operations.	Go to question 3.
3. Restart your system and load DOS. Try entering characters. Do the correct characters appear on the screen?	Ask your service coordinator for assistance.	Refer to the IBM PC *Guide to Operations*, or *Quick Reference*.
4. Do characters appear in the right case?	Go to question 6.	Go to question 5.
5. Press and release the Caps Lock key. Do characters appear in the right case?	Resume normal operation.	Refer to the IBM PC *Guide to Operations*, or *Quick Reference*.
6. Do numbers appear when you try to move the cursor?	Go to question 7.	Resume normal operation.
7. Press and release the Num Lock key. Do numbers appear when you try to move the cursor?	Refer to the IBM PC *Guide to Operations*, or *Quick Reference*.	Resume normal operation.
8. Do numbers appear when you try to type a symbol?	Go to question 9.	Ask your service coordinator for assistance.
9. Be sure to use the shift key when typing the symbols above numbers even when the Caps Lock is active. Are you using the Shift key to obtain symbols?	Refer to the IBM PC *Guide to Operations*, or *Quick Reference*.	Resume normal operations.

Bibliography

Note: Ask your IBM representative or IBM PC dealer to order any of the following publications.

IBM Personal Communications/3270 Publications

Programmer's Guide for DOS (Entry-Level Mode)

IBM Personal Computer Publications

BASIC

Disk Operating System

Introduction to IBM System/370 to IBM Personal Computer Enhanced Connectivity Facilities

Guide to Operations

Hardware Maintenance and Service

MACRO Assembler

Technical Reference

IBM Programmer's Guide to the Server-Requester Programming Interface for the IBM Personal Computer and the IBM 3270 PC

IBM Personal Computer XT Publications

Guide to Operations

Hardware Maintenance and Service

Technical Reference

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IBM Personal Computer AT Publications

Guide to Operations

Installation and Setup

Disk Operating System

Technical Reference

Hardware Maintenance and Service

IBM Personal Computer 3278/3279 Emulation Adapter and 3270 Connection Publications

Hardware Maintenance and Service

Guide to Operations (This publication cannot be ordered separately; it is included with the IBM Personal Computer 3278/3279 Emulation Adapter.)

Technical Reference

IBM 3270 Information Display System Publications

3270 Feature Description

Entry Assist User's Guide, 3270 Control Unit

Introduction

3270 Installation Manual – Physical Planning

Physical Planning Template (English)

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IBM 3274 Control Unit Publications

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Model 41C Setup Instructions

3274 Customization Guide

Description and Programmer's Guide

Site Planning and Preparation Guide for 3274 Models 41A, 41C, 41D, and 61C

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IBM 3174 Control Unit Publications

IBM 3174 Customization Guide

IBM 3174 User's Guide

IBM 3174 Help Desk

IBM 3174 Functional Description

IBM 3174 Site Planning Guide

IBM 3708 Network Conversion Unit Publications

IBM 3708 Network Conversion Unit Planning and Installation

IBM 7171 ASCII Device Attachment Control Unit Publications

IBM 7171 ASCII Device Attachment Control Unit Reference Manual and Programming Guide

IBM 9370 Information System ASCII Subsystem Publications

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CMS Command and Macro Reference

User's Guide

IBM Programmer's Guide to the Server-Requester Programming Interface for VM/System Product

MVS TSO (TSO) Publications

OS/VS2 TSO Command Language Reference

OS/VS2 TSO Terminal User's Guide

IBM TSO Extensions Programmer's Guide to the Server-Requester Programming Interface for MVS/Extended Architecture

IBM Host File Transfers Publications

CICS/VS 3270-PC File Transfer Program Description/Operation Manual

VSE/SP Planning

VSE/SP Messages and Codes

VSE/SP System Use

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