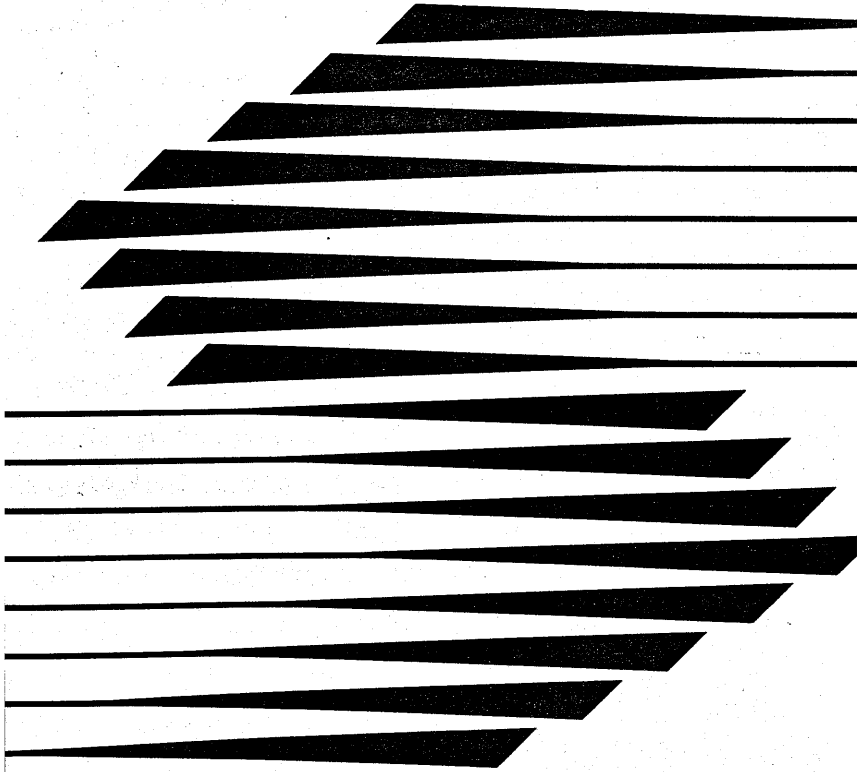


PC/HOST File Transfer and Terminal Emulator Program User's Guide and Reference

Productivity Family



A productivity tool that lets the IBM Personal Computer emulate an IBM 3101 Display Terminal and transfer files to various hosts using the IBM 3708 Network Conversion Unit or IBM 3710 8-PA Network Controller.

PC/HOST File Transfer and Terminal Emulator Program User's Guide and Reference

Productivity Family



**Personal
Computer
Software**

First Edition (September, 1986)

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About This Manual

This manual describes how to use the PC/HOST File Transfer and Terminal Emulator Program (FTTERM).

Who Should Read This Manual

Users of the PC/HOST File Transfer and Terminal Emulator Program (FTTERM) should read this manual for instructions on:

- Making a working copy of FTTERM
- Communicating with a host computer, using an IBM Personal Computer (PC) as an IBM 3101 Display Terminal
- Transferring files between a PC and a host computer
- Creating and modifying configuration files.

System administrators for an IBM 3708 Network Conversion Unit or an IBM 3710 Network Controller using an 8-Port Asynchronous Adapter (8-PA) should read this manual for instructions on creating or modifying terminal definitions that take advantage of FTTERM capabilities.

What You Need to Know

To use FTTERM, you do not need to have any particular technical knowledge, but you do need to be familiar with the following subjects:

- *All users.* You need to be familiar with:
 - IBM Personal Computer Disk Operating System (DOS), particularly its file system, file naming conventions, and basic DOS commands like FORMAT and COPY
 - General PC operation, including using the keyboard, handling diskettes, and loading DOS
 - The host system, particularly the system type (such as VM/CMS), logon procedure, file system, and file naming conventions
 - The characteristics of the communication line, including:
 - Line speed
 - Parity type
 - Number of stop bits.

You can obtain this information from the host system administrator. For online information services, consult the documentation provided by the service organization.

- *3708 and 3710 8-PA users.* You need to be familiar with:
 - Which ports you can access, and their respective communication line characteristics
 - The logon procedure for the 3708 or 3710 8-PA.

You can obtain this information from the system administrator for the 3708 or 3710 8-PA.

- *Modem users.* You need to be familiar with the modem's setup procedures, diagnostic procedures, and command set.

What You Will Find in This Manual

This manual contains two parts:

“Part 1. PC/HOST File Transfer and Terminal Emulator Program (FTTERM) User's Guide” contains the following chapters:

Chapter 1, “Introduction,” introduces FTTERM and its functions. It also lists the hardware and software that you need to run FTTERM.

Chapter 2, “Preparing to Use FTTERM,” describes how to make a working copy of the FTTERM program diskette.

Chapter 3, “Using FTTERM,” describes how to load FTTERM, start a host session, and switch between FTTERM functions. It also describes various details of using FTTERM, such as accessing the help screens, loading a configuration file, and switching between concurrent and nonconcurrent modes.

Chapter 4, “Transferring Files Using the Protocol Conversion Method,” provides step-by-step procedures for transferring files with *SNA hosts* through a 3708 or 3710 8-PA operating in *protocol conversion* mode.¹ (See “Terminology” on page 1-4 for

¹ Technical note: In *protocol conversion* mode, the 3708 or 3710 8-PA converts communications between the host (SNA protocol) and the PC, which is emulating a 3101-type display device. The PC

explanations of SNA host and protocol conversion.) This chapter also explains the file transfer options for each type of SNA host.

Chapter 5, “Transferring Files Using the Native Emulation Method,” provides step-by-step procedures for transferring files with SNA hosts or *ASCII hosts* using *native 3101 emulation*.² (See “Terminology” on page 1-4 for explanations of ASCII host and native emulation.) This chapter also describes the FILECONV program that converts files between binary and ASCII formats.

“Part 2. PC/HOST File Transfer and Terminal Emulator Program (FTTERM) Reference,” contains the following appendixes:

Appendix A, “File Transfer Messages,” lists the messages that FTTERM can display during file transfer operations. It includes an explanation and a recommended action for each message.

Appendix B, “FTTERM Menus,” explains each item on the File Transfer Main Menu and the File Transfer Main Menu – Native Emulation.

communicates with the 3708 or 3710 8-PA using a start/stop protocol and the ASCII character set. The 3708 or 3710 8-PA, in addition to performing protocol conversion and ASCII/EBCDIC conversion, enables the PC to be used as a 3270-type display device.

² Technical note: In *native emulation mode*, FTTERM transfers files line-by-line using a start/stop protocol and the ASCII character set. If the PC is communicating through a 3708 or 3710 8-PA, the device operates in one of the following modes:

- For ASCII hosts, the 3708 or 3710 8-PA operates in *ASCII passthru* mode. It performs no protocol or data conversion.
- For SNA hosts, the 3708 or 3710 8-PA operates in *protocol enveloping* mode. It performs ASCII/EBCDIC conversion and attaches SNA headers to host-bound records. It removes SNA headers from PC-bound records.

Appendix C, “Creating and Modifying Configuration Files,” describes how to use the FTSETUP program to create and modify configuration files, and to select a default configuration file.

Appendix D, “Sample Configuration Files,” includes specific information about each of the sample configuration files supplied with FTTERM.

Appendix E, “IBM 3708 and 3710 8-PA Considerations,” provides information about terminal definitions for the 3708 and 3710 8-PA that support FTTERM. This information is intended for the system administrator of the 3708 or 3710 8-PA.

Appendix F, “3101 Emulation Comparison,” contains reference information about FTTERM’s 3101 terminal emulation program.

Appendix G, “National Language Considerations,” explains the character translation tables used by FTTERM and the host file transfer programs to support national language PC keyboards. It lists the standard host character translation tables.

Appendix H, “Using FTTERM with ROLM Data Communications Equipment,” describes how to use FTTERM with ROLM equipment, including how to configure the ROLM equipment.

Appendix I, “Service Registration,” contains a form to register your copy of the FTTERM program. Please fill it in and mail the original to the address on the reverse side of the form. No postage is necessary if mailed in the United States.

Related Manuals

Manuals related to PC operation and DOS are:

- *IBM Personal Computer Guide to Operations*
- *IBM Personal Computer Disk Operating System*

Manuals that contain information that is related to FTTERM's 3101 emulation program are:

- *An Introduction to the IBM 3101 Display Terminal, GA18-2051*
- *IBM 3101 Display Terminal Description, GA18-2033.*

The manual that provides technical information about file transfers with CICS hosts is:

- *CICS/VS 3270-PC File Transfer Program Program Description/Operations Manual, SH20-6306.*

Manuals that provide technical information about file transfers with VSE/SP hosts using Intelligent Workstation Support (IWS) are:

- *VSE/SP Planning, SC33-6177*
- *VSE/SP Messages and Codes, SC33-6181*
- *VSE/SP System Use, SC33-6174.*

Manuals that can help a system administrator customize the FTTERM terminal definitions at the 3708 are:

- *IBM 3708 Network Conversion Unit Planning, GA27-3609*
- *IBM 3708 Network Conversion Unit Configuration Workbook, GA27-3656*
- *IBM 3708 Network Conversion Unit Configuration Reference, GA27-3726.*

Manuals that can help a system administrator create a user defined terminal to support FTTERM at the 3710 8-PA are:

- *IBM 3710 Network Controller Planning*, GA27-3431
- *IBM 3710 Network Controller Configuration Workbook*, GA27-3869.

When contacting online information services, refer to the documentation provided by the service organization for instructions on contacting the host, logging on and off, and using the service.

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Notes:

About this Chapter

This chapter introduces the functions of the PC/HOST File Transfer and Terminal Emulator Program (FTTERM). It also lists the hardware and software that you need to run FTTERM.

FTTERM is an IBM Personal Computer¹ (PC) licensed program product that includes:

- An IBM 3101 Display Terminal emulation program that lets the PC communicate with a host computer
- A file transfer program that lets the PC exchange files with several types of host computers
- A setup program for configuring FTTERM for different hosts and online information services.
- Several sample configuration files that let FTTERM communicate with different hosts and online information services.

“Terminology” on page 1-4 defines selected terms that appear frequently in this manual. See the Glossary for a complete list of terms.

¹ In this manual, the terms *personal computer* and *PC* refer to several models and configurations. See “Required Hardware” on page 1-12 for a list of supported PC configurations.

Terminology

SNA Hosts and ASCII Hosts

SNA hosts are host computers that use the IBM SNA (System Network Architecture) communication standard. FTTERM can use either the protocol conversion method or the native emulation method when transferring files with SNA hosts.

ASCII hosts are host computers that use the ASCII (American Standard Code for Information Interchange) communication standard. FTTERM can use only the native emulation method when transferring files with ASCII hosts. *Note: In this manual, ASCII refers to asynchronous ASCII data and devices only.*

Protocol Conversion Method and Native Emulation Method

It is not necessary to have a technical understanding of these terms to use FTTERM. They simply provide a way to distinguish FTTERM's two file transfer methods.

Briefly, the *protocol conversion method* transfers a file in units equivalent to a screen of data. It involves conversion between the SDLC protocol of an SNA host and the start-stop protocol of a PC. The protocol converter is an IBM 3708 or 3710 8-PA.

Protocol conversion is the preferred file transfer method for SNA hosts that have the appropriate host file transfer program listed in "Required Software" on page 1-14.

The *native emulation method* transfers files line-by-line using the start-stop protocol of the PC. This method must be used to transfer files with all ASCII hosts, and with SNA hosts that do not meet the requirements for protocol conversion.

Alphanumeric Files and Binary Files

Alphanumeric files consist of letters, numbers, and other data that can be printed or displayed by the PC. Most data files at the PC or host (including program source code) are alphanumeric.

Binary files consist of data that generally cannot be printed or displayed. Most PC program files (including all COM and EXE type files) are binary.

Emulating a 3101 Display Terminal

A PC uses FTTERM to communicate with a host computer. FTTERM lets the PC emulate (work like) a 3101 Display Terminal when communicating with SNA hosts and ASCII hosts.

For FTTERM to communicate with SNA hosts, a 3708 or 3710 8-PA must be used between the PC and the host. The PC can be attached to the 3708 or 3710 8-PA either directly or through a modem.

FTTERM supports the following SNA host operating systems:

- VM/CMS
- MVS/TSO
- CICS/MVS or CICS/VSE
- VSE/SP with Intelligent Workstation Support (IWS).

FTTERM can communicate with ASCII hosts through a direct connection or through a modem. It can also communicate with ASCII hosts through a 3708 or 3710 8-PA.

See “Required Software” on page 1-14 for SNA and ASCII host software requirements.

Regarding File Transfer

While using the PC as a 3101 Display Terminal, you can transfer files between the PC and a host computer. The files can be *alphanumeric files*, such as documents, or *binary files*, such as compiled programs.

File Transfer Methods

FTTERM has two methods of transferring files: the protocol conversion method and the native emulation method. Most of the technical differences between the methods do not concern the user. There are, however, certain operational differences. For example, each method has its own file transfer menu.

You specify the file transfer method in a *configuration file*. (See “Configuration File Overview” on page C-4.)

In general, the protocol conversion method is used with SNA hosts and the native emulation method is used with ASCII hosts. You may use the native emulation method with SNA hosts as well, if the SNA host does not have the host file transfer program listed under “Required Software” on page 1-14, or if you just want basic 3101 emulation capabilities.

File Transfer Sources and Destinations

FTTERM lets you transfer files between the sources and destinations shown in Figure 1-1.

Source	Destination
PC DOS file (alphanumeric)	ASCII or SNA host file (alphanumeric) PC printer
PC DOS file (binary)	SNA host file (binary) ASCII host file (converted)
ASCII or SNA host file (alphanumeric)	PC DOS file (alphanumeric) PC printer
SNA host file (binary)	PC DOS file (binary) PC printer
PC DOS screen	SNA host file PC DOS file PC printer
ASCII host screen	PC DOS file PC printer
SNA host screen	SNA host file PC DOS file PC printer

Figure 1-1. File Transfer Sources and Destinations

File Transfer Advantages

FTTERM's ability to transfer files between a PC and a host computer provides these advantages:

- Field personnel can exchange files with the home office. For example, a sales representative can place orders using an IBM PC *Convertible*. The VM host at the home office can send electronic mail back to the PC.
- If you run large programs or use large amounts of data, you can store and process the data on a host system, freeing the PC for other uses.
- You can copy information from the PC display to a file at the PC or the host. The information can be produced by a PC program, a host program, or an online information service such as the IBM Information Network. You can store the displayed

data (a chart or table, for example) for editing or inclusion in a document. You can also print the displayed data at the PC printer.

Additional FTTERM Features

This section introduces some of the advanced features of FTTERM.

Concurrent and Nonconcurrent Mode

FTTERM normally runs in *concurrent* mode. In concurrent mode, you can start a file transfer, switch to the PC DOS session, and run PC programs during the file transfer. You use special key sequences to switch between the host, PC DOS, and file transfer functions.

If desired, you can switch from concurrent to *nonconcurrent* mode. When FTTERM is in nonconcurrent mode, you cannot run PC programs during the file transfer. Nonconcurrent mode has the advantage of performing faster file transfers.

See “Selecting Concurrent or Nonconcurrent Mode” on page 3-17 for more information.

Transferring Individual Files or Groups of Files

FTTERM provides two ways of specifying the source and destination for a file transfer:

- For individual files, online prompts help you to enter the transfer command in the correct format. (You can bypass these prompts when you become familiar with the command formats.)

- For groups of files, FTTERM can process a *batch file* that contains up to 20 file transfer commands. This lets you transfer a number of files with a single command. It works for protocol conversion transfers only.

You can create the batch file with any text editor. See “Using a Batch File to Transfer Multiple Files” on page 4-35 for more information.

Help Windows

FTTERM and FTSETUP provide *help windows* when you press Alt-F1. The help windows can help you use the file transfer menus, enter file transfer commands, and work with configuration files.

See “Displaying FTTERM’s Help Windows” on page 3-20 for more information.

Configuration Files

FTTERM uses *configuration files* to define the details of how the PC operates during host sessions and file transfers. FTSETUP helps you to create and change configuration files to match the requirements of different hosts. For more information, see:

- “Configuration File Overview” on page C-4
- “Preparing and Selecting a Default Configuration File” on page 2-17
- Appendix C, “Creating and Modifying Configuration Files.”

Auto-Dial Capability

Modem users can add auto-dial definitions when they create or modify a configuration file. An auto-dial definition consists of the modem's dial command and a telephone number.

The auto-dial definition lets you call a host by selecting it from an online directory instead of entering the dialing sequence manually. FTTERM displays the Auto-Dial Directory when you begin the steps for establishing a host session.

See "Defining Auto-Dial Sequences" on page C-24 for more information.

Keyboard Definitions

One of the functions of a configuration file is setting up the way the PC keyboard emulates the 3101 keyboard. This is called the *keyboard definition*.

When you use FTSETUP to specify a keyboard definition, you can configure the following keyboard characteristics:

- Substitutes for 3101 keys that are not on the PC keyboard, such as CLEAR
- Substitutes for 3270 Display Terminal keys for use during SNA host sessions, such as RESET and PA1
- Keys that represent strings of text, such as a modem command or a logon sequence.

See "Defining the Keyboard" on page C-30 for more information.

Color, Highlighting, Status Line, and MLU Support

If you are using a color display, FTTERM lets you select from eight predefined color combinations by pressing **Alt-F5**. The colors are used on the FTTERM menus, FTSETUP screens, and help windows only.

In addition, the 3708 offers terminal selections that support the following FTTERM capabilities during an SNA host session:

- The use of color on color monitors or highlighting on monochrome monitors
- The positioning of a status line on the PC display's 25th line
- Support for addressing the PC display and printer as separate multiple logical units (MLUs). This allows the PC printer to be used as a host system printer while a host session is in progress.

See Appendix E, "IBM 3708 and 3710 8-PA Considerations," for information about these terminal selections. The information is intended for system administrators who want to customize the terminal definitions for the 3708 or create similar terminal definitions for a 3710 8-PA.

National Language Character Set Support

For those who are using national language keyboards, FTTERM includes translation tables to ensure that displayable characters remain consistent when alphanumeric files are converted between ASCII and EBCDIC formats. FTTERM supports the following national language keyboards:

- Canadian French
- French

- German
- Italian
- Spanish
- UK English
- US English.

See Appendix G, “National Language Considerations,” for more information.

ROLM CBX II Support

FTTERM lets you connect the PC to an ASCII host, 3708, or 3710 8-PA by way of a ROLM CBX II (computerized branch exchange). See Appendix H, “Using FTTERM with ROLM Data Communications Equipment,” for instructions on using the PC devices that support the ROLM CBX II.

What You Need To Use FTTERM

To install and run FTTERM, you need the following hardware and software.

Required Hardware

- One of the following models of the IBM PC:
 - Personal Computer
 - Personal Computer – Extended (PC XT)
 - Personal Computer – Advanced Technology (PC AT)
 - 3270 PC not using the Control Program
 - 3270 PC AT not using the Control Program
 - *Portable PC*
 - *PC Convertible.*

- A minimum of 256K bytes of random access memory (RAM).
- Two spare diskettes for creating an FTTERM working diskette and a FILECONV working diskette (not required for PCs with a fixed disk).
- An IBM Monochrome Adapter, Color/Graphics Adapter, or Enhanced Graphics Adapter connected to a video monitor capable of displaying 80 columns.
- One of the following asynchronous adapters (not required if you are using a ROLM data communication device or an internal modem):
 - IBM PC Asynchronous Communications Adapter (for an IBM PC, PC XT, or *Portable* PC)
 - IBM PC AT Serial/Parallel Adapter
 - IBM PC *Convertible* Serial/Parallel Adapter.
- *ROLM CBX II users.* One of the following:
 - ROLMphone with the Data Communication Module (DCM)
 - ROLM Juniper II feature
 - ROLM Data Terminal Interface (DTI)
 - ROLM Integrated Personal Computer Interface (IPCI) card or IPCI AT card, as appropriate.
- One of the following modems (not required if the PC is connected directly to a 3708, 3710 8-PA, or ASCII host):
 - Bell 203 compatible 300 baud modem
 - Bell 212-A compatible 1200 baud modem such as the IBM 5841 1200bps Modem
 - CCITT Recommendation V.22bis compatible 2400 baud modem.

The modem cable must conform to the EIA 232-C standard. Consult the modem dealer or the system administrator for the correct cable.

- A 3708 or 3710 8-PA and the cable that connects it to a modem or Asynchronous Communications Adapter (not required for communicating with ASCII hosts).

Required Software

- The IBM PC Disk Operating System (DOS), Version 2.0 or later.
- To transfer files with an SNA host through a 3708 or 3710 8-PA using protocol conversion, one of the following versions of the 3270 PC File Transfer Program is required at the SNA host:
 - IND\$FILE for VM/CMS (Program Number 5664-281)
 - IND\$FILE for MVS/TSO (Program Number 5665-311)
 - IND\$FILE for CICS/MVS or CICS/VSE (Program Number 5798-DQH).

For hosts running VSE/SP, Release 2.1 and later, no additional software is required. FTTERM communicates with the standard Intelligent Workstation Support (IWS) program.

- For transmitting files to an ASCII or SNA host using native emulation, the host must have a *line-oriented* data entry program, such as a text editor.

The host system administrator can verify whether the host requirements are met.

Chapter 2. Preparing to Use FTTERM

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About this Chapter

This chapter describes:

- Taking inventory to make sure you have received the correct items in the FTTERM package.
- Making a working copy of the FTTERM program diskette. Users of fixed disk systems will copy the FTTERM files to the fixed disk.
- Selecting a character translation table. A character translation table ensures the correct handling of certain characters during file transfers.
- Requirements for preparing and selecting a default configuration file. This section describes the general procedure and refers you to detailed procedures elsewhere in this manual.

Taking Inventory

The following list describes the items you should have received in the FTTERM package. If any item is missing, contact your place of purchase.

- One copy of this manual.
- An FTTERM registration card located in Appendix I. Complete the registration card and return it to IBM. Doing so lets IBM notify you of updates to FTTERM.
- One 5-1/4 inch diskette labelled "PC/HOST File Transfer and Terminal Emulator Program." This is the program diskette for all PCs except the PC *Convertible*.

- One 3-1/2 inch diskette labelled “PC/HOST File Transfer and Terminal Emulator Program.” This is the program diskette for the PC *Convertible*.

This manual refers to either of these diskettes as the *FTTERM program diskette*.

Making a Working Copy of FTTERM

This section includes three procedures, separated according to the model of PC:

- One-drive PCs
- Two-drive PCs
- Fixed-disk PCs.

Procedure for One-Drive PCs

Follow these steps if the PC has a single diskette drive and no fixed disk. You will need the following diskettes:

- The FTTERM program diskette
 - Two spare diskettes, which are referred to as the *FTTERM working diskette* and the *FILECONV working diskette*.
1. Label one spare diskette “FTTERM Working Diskette” or equivalent.
 2. Turn on the PC and load DOS in the normal way. (If you need help with this step, refer to the IBM PC *Guide to Operations*.) The DOS system prompt appears on the display:

A>

3. Prepare to format the FTTERM working diskette by entering:

FORMAT /S

The /S option copies files to the working diskette that will enable you to load DOS from it. (If you need help with this step, refer to the FORMAT command in the IBM PC *Guide to Operations*.)

4. In response to the message that appears, remove the DOS diskette and insert the FTTERM working diskette. Press Enter to proceed.
5. After the FTTERM working diskette has been formatted, enter an N to return to DOS.
6. Change the current drive from drive A to drive B by entering:

B:

You will see:

A>B:

Insert diskette for drive B: and
strike any key when ready

7. The correct diskette (the FTTERM working diskette) is already in position. Press any key to proceed.
8. Prepare to copy the FTTERM files from the program diskette to the working diskette by entering:

A:COPYFILS

You will see:

B>A:COPYFILS

Insert diskette for drive A: and
strike any key when ready

As the FTTERM files are copied to the FTTERM working diskette, you will be prompted to exchange diskettes several times. Remember:

- The **diskette for drive A:** is the FTTERM program diskette.
- The **diskette for drive B:** is the FTTERM working diskette.

When the copying is finished, B > appears.

9. Enter **DIR** to verify that the FTTERM working diskette contains the following files:

```
COMMAND.COM
FTTERM.EXE
FTSETUP.EXE
FTTERM.HLP
FTSETUP.HLP
IBM3708.SET
DOWJONES.SET
SOURCE.SET
SEND.COM
RECEIVE.COM
DEFAULT.TBL
DEFAULT.SET
```

Note: The order of the files can vary.

See "FTTERM Files" on page 2-14 for a description of each file.

10. Change the current drive from drive B to drive A by entering:

A:

You will see:

B>A:

Insert diskette for drive A: and
strike any key when ready

11. Remove the FTTERM working diskette and insert the DOS diskette.
12. Label the remaining spare diskette "FILECONV Working Diskette" or equivalent.
13. Prepare to format the FILECONV working diskette by entering:

FORMAT

14. In response to the message that appears, remove the DOS diskette and insert the FTTERM working diskette. Press Enter to proceed.
15. After the FILECONV working diskette has been formatted, enter an N to return to DOS.
16. Remove the FILECONV working diskette and insert the FTTERM program diskette.
17. Copy the FILECONV program from the program diskette to the FILECONV working diskette by entering:

COPY FILECONV.EXE B:

You will see:

A>COPY FILECONV.EXE B:

Insert diskette for drive B: and
strike any key when ready

Remove the FTTERM program diskette and insert the FILECONV working diskette. Press any key to proceed. When the file has been copied, you will see:

1 File(s) copied.

18. Do one of the following:

- If you are using a standard (United States English) keyboard, you can now store the FTTERM program diskette in a safe place and proceed to “Preparing and Selecting a Default Configuration File” on page 2-17.
- If you are using a national language keyboard, proceed to “Selecting a Character Translation Table” on page 2-15.

Note: If you have received a preconfigured version of FTTERM you may not have to select a character translation table (national language keyboard users only) or a default configuration file. Ask the person who provided the FTTERM program diskette whether you must do these procedures.

Procedure for Two-Drive Systems

Follow these steps if the PC has two diskette drives and no fixed disk. You will need the following diskettes:

- The FTTERM program diskette
 - Two spare diskettes, which are referred to as the *FTTERM working diskette* and the *FILECONV working diskette*.
1. Label one spare diskette “FTTERM Working Diskette” or equivalent and insert it in drive B.
 2. Turn on the PC and load DOS in the normal way. (If you need help with this step, refer to the *IBM PC Guide to Operations*.) The DOS system prompt appears on the display:

A>

3. Prepare to format the FTTERM working diskette by entering

```
FORMAT B:/S
```

The */S* option copies files to the working diskette that will enable you to load DOS from it. (If you need help with this step, refer to the *FORMAT* command in the *IBM PC Guide to Operations*.)

4. In response to the message that appears, press *Enter* to proceed.
5. After the FTTERM working diskette has been formatted, enter an *N* to return to DOS.
6. Remove the DOS diskette from drive A and insert the FTTERM program diskette.
7. Change the current drive from drive A to drive B by entering:

```
B:
```

You will see:

```
A>B:  
B>
```

8. Copy the FTTERM files from the program diskette to the working diskette by entering:

```
A:COPYFILS
```

When the copying is finished, *B >* appears.

9. Enter **DIR** to verify that the **FTTERM** working diskette contains the following files:

```
COMMAND.COM
FTTERM.EXE
FTSETUP.EXE
FTTERM.HLP
FTSETUP.HLP
IBM3708.SET
DOWJONES.SET
SOURCE.SET
SEND.COM
RECEIVE.COM
DEFAULT.TBL
DEFAULT.SET
```

Note: The order of the files can vary.

See “**FTTERM Files**” on page 2-14 for a description of each file.

10. Change the current drive from drive **B** to drive **A** by entering:

A:

You will see:

```
B>A:
A>
```

11. Remove the **FTTERM** program diskette from drive **A** and insert the **DOS** diskette.
12. Remove the **FTTERM** working diskette from drive **B**.
13. Label the remaining spare diskette “**FILECONV Working Diskette**” or equivalent and insert it into drive **B**.

14. Format the FILECONV working diskette by entering:

```
FORMAT B:
```

15. In response to the message, press any key to proceed.

16. After the FILECONV working diskette has been formatted, enter an N to return to DOS.

17. Remove the DOS diskette from drive A and insert the FTTERM program diskette.

18. Copy the FILECONV program from the program diskette to the FILECONV working diskette by entering:

```
COPY FILECONV.EXE B:
```

You will see:

```
1 File(s) copied.
```

19. Do one of the following:

- If you are using a standard (United States English) keyboard, you can now store the FTTERM program diskette in a safe place and proceed to “Preparing and Selecting a Default Configuration File” on page 2-17.
- If you are using a national language keyboard, proceed to “Selecting a Character Translation Table” on page 2-15.

Note: If you have received a preconfigured version of FTTERM, you may not have to select a character translation table (national language keyboard users only) or a default configuration file. Ask the person who provided the FTTERM program diskette whether you must do these procedures.

Procedure for Fixed Disk Systems

Follow these steps if the PC has a fixed disk. You will need the following:

- The FTTERM program diskette
- Approximately 300K bytes of space on the fixed disk.

Note: The COPY command in this procedure copies the FTTERM files into the root directory of the fixed disk (C:\). You can substitute a path to an existing subdirectory, if preferred.

1. Turn on the PC and load DOS in the normal way. (If you need help with this step, refer to the *IBM PC Guide to Operations*.) The DOS system prompt appears on the display:

```
C>
```

2. Insert the FTTERM program diskette into drive A.
3. Copy the FTTERM files from the program diskette to the fixed disk by entering:

```
A:COPYFILS
```

When the copying is finished, C > appears.

4. Copy the FILECONV program from the program diskette to the fixed disk by entering:

```
COPY A:FILECONV.EXE
```

5. Enter DIR /W to verify that the fixed disk includes the following files:

```
COMMAND.COM  
FTTERM.EXE  
FTSETUP.EXE  
FTTERM.HLP  
FTSETUP.HLP
```

IBM3708.SET
DOWJONES.SET
SOURCE.SET
SEND.COM
RECEIVE.COM
DEFAULT.TBL
DEFAULT.SET
FILECONV.EXE

Note: The order of the files can vary.

See “FTTERM Files” on page 2-14 for a description of each file.

6. Do one of the following:

- If you are using a standard (United States English) keyboard, you can now store the FTTERM program diskette in a safe place and proceed to “Preparing and Selecting a Default Configuration File” on page 2-17.
- If you are using a national language keyboard, proceed to “Selecting a Character Translation Table” on page 2-15.

Note: If you have received a preconfigured version of FTTERM, you may not have to select a character translation table (national language keyboard users only) or a default configuration file. Ask the person who provided the FTTERM program diskette whether you must do these procedures.

FTTERM Files

- FTTERM.EXE** The main FTTERM program file. You must be logged on to the PC disk and directory that contains this file when you run FTTERM.
- FTTERM.HLP**
FTSETUP.HLP The FTTERM and FTSETUP help message files. Do not edit or erase these files.
- FTSETUP.EXE** The program file that creates and changes configuration files, and that selects one file as the default configuration.

Sample configuration files:

- IBM3708.SET** (IBM 3708 using protocol conversion)
DOWJONES.SET (Dow Jones News Service)
SOURCE.SET (The Source)
- DEFAULT.SET** The file that contains the default configuration. It is created by the FTSETUP program when you select a default configuration file. You do not change this file directly.
- SEND.COM**
RECEIVE.COM Program files that let you (or a PC program) enter a file transfer command in the PC DOS session.
- FILECONV.EXE** The program file that converts files between binary and alphanumeric formats for transfer using the native emulation method.

Character translation tables for national language keyboards (present on program disk only):

- CFTRAN.TBL** (Canadian French)
FRTRAN.TBL (French)
GRTRAN.TBL (German)
ITTRAN.TBL (Italian)
SPTRAN.TBL (Spanish)
UKTRAN.TBL (United Kingdom)
USTRAN.TBL (United States)

DEFAULT.TBL	The default character translation table. It initially contains US English characters. You can copy a character translation table for a national language into DEFAULT.TBL as part of making the FTTERM working diskette.
COPYFILS.BAT	The batch file for creating an FTTERM working diskette.

Selecting a Character Translation Table

Note: This section is only for users who have national language keyboards. If you have a national language keyboard, but you are using a preconfigured version of FTTERM, you may be able to skip this section. Ask the person who provided the FTTERM program diskette whether you must select a character translation table.

FTTERM's character translation tables are contained on the FTTERM program diskette. The relevant files are:

- CFTRAN.TBL (Canadian French)
- FRTRAN.TBL (French)
- GRTRAN.TBL (German)
- ITTRAN.TBL (Italian)
- SPTRAN.TBL (Spanish)
- UKTRAN.TBL (United Kingdom English)
- USTRAN.TBL (United States English).

The character translation tables support the special characters associated with the languages shown. They ensure that when a file is sent to the host, it contains the same special characters as the PC file.

Appendix G, "National Language Considerations," explains how the character translation tables work. It also lists the contents of the character translation tables used by the host. Those tables are listed for advanced users who want to modify the FTTERM translation tables.

Follow these steps to select a character translation table:

1. *Diskette systems:*

- a. Verify that the DOS prompt (A >) is displayed.
- b. Insert the FTTERM program diskette in drive A.
- c. Insert the FTTERM working diskette in drive B (users of one-drive PCs will do this step later when instructed to do so online).

Fixed disk systems:

- a. Verify that the DOS prompt (C >) is displayed.
 - b. Insert the FTTERM program diskette in drive A.
2. Select the appropriate character translation table and copy that file from the program diskette to the working disk by entering:

```
COPY A:xxTRAN.TBL DEFAULT.TBL
```

where *xx* represents the first two letters of the appropriate character translation table file. The copy you make on the working disk has the name DEFAULT.TBL.

For example, if you are using a French character keyboard, your command would be:

```
COPY A:FRTRAN.TBL DEFAULT.TBL
```

3. Store the FTTERM program diskette in a safe place.
4. Proceed to “Preparing and Selecting a Default Configuration File.”

Preparing and Selecting a Default Configuration File

Note: If you are using a preconfigured version of FTTERM, you may be able to skip this section. Ask the person who provided the FTTERM program diskette whether you must select a default configuration file.

FTTERM uses configuration files to determine how it works with different hosts. See “Configuration File Overview” on page C-4 for an introduction to configuration files.

FTTERM needs information from a configuration file to start successfully. Since many configuration files may be on the FTTERM working disk, you must select one as the startup or *default* configuration file.

Before you can select a default configuration file, you must make these preparations:

1. Identify the host you will use most often. It is recommended that the default configuration file be set up for the primary host; however, it can actually be set up for any host.

2. Gather the information needed to create a configuration file for the host or to modify one of the sample configuration files that came with FTTERM.

See "Using the Configuration Worksheet" on page C-13 for a list of the information needed to create or modify a configuration file.

See Appendix D, "Sample Configuration Files" for a list of the information contained in the sample configuration files.

3. Create or modify the configuration file.

See "Creating a Configuration File" on page C-8, or "Modifying an Existing Configuration File" on page C-12, for detailed procedures.

4. Select the new configuration file as the default configuration file.

See "Selecting a Default Configuration File" on page C-41 for the detailed procedure.

Chapter 3. Using FTTERM

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Notes:

About this Chapter

This chapter describes the following procedures:

- Starting FTTERM
- Starting a host session
- Switching between FTTERM functions (the host session, PC DOS session, file transfer functions, and host messages screen)
- Selecting concurrent or nonconcurrent mode
- Loading a configuration file
- Disconnecting from the host
- Displaying FTTERM's help windows
- Editing FTTERM commands
- Exiting from FTTERM
- Starting FTTERM from an AUTOEXEC.BAT file
- Using FTTERM in nonresident mode
- Using FTTERM with other resident programs
- Using FTTERM reserved words correctly.

This chapter also introduces the FTTERM file transfer menus. For step-by-step file transfer procedures, see Chapter 4, "Transferring Files Using the Protocol Conversion Method," and Chapter 5, "Transferring Files Using the Native Emulation Method."

Starting FTTERM

Follow these steps to start FTTERM:

1. Load DOS in the normal way. (You can load DOS from the FTTERM working diskette, if you like.) One of the following prompts appears on the display:

Diskette users: A >
Fixed disk users: C >

Note: If the DOS system disk includes an AUTOEXEC.BAT file that automatically runs an application program after DOS is loaded, exit from that program to the DOS system prompt before proceeding. See also "Using an AUTOEXEC.BAT File" on page 3-23.

2. *Diskette users:* If you did not load DOS from the FTTERM working diskette, insert the FTTERM working diskette into drive A.

Fixed disk users: If you copied the FTTERM files into a fixed disk subdirectory, use the CD command to change to that subdirectory.

3. Enter:

FTTERM

FTTERM displays a trademark and copyright screen.

4. Press any key to proceed. FTTERM displays one of these menus:
 - The File Transfer Main Menu (for the protocol conversion method) (Figure 3-1 on page 3-5)
 - The File Transfer Main Menu – Native Emulation (Figure 3-2 on page 3-6).

FTTERM decides which menu to display based on the default configuration file you selected, as described in "Preparing and Selecting a Default Configuration File" on page 2-17.

FILE TRANSFER MAIN MENU

MODE: CONCURRENT

<u>ID</u>	<u>Command</u>	<u>Description</u>
1	SEND	Send data from PC
2	RECEIVE	Receive data to PC
3	BATCH	Send/Receive multiple files
4	LOAD	Load a configuration file
5	MODE	Toggle nonconcurrent and concurrent

Type an ID number or Command and press ENTER.

===>

Alt-F1=HELP Alt-F2=RETURN Alt-F4=RETRIEVE Alt-F5=COLOR
Alt-F6=DISC Alt-F7=MSGs Alt-F8=FTTERM Alt-F9=PC DOS Alt-F10=HOST

Figure 3-1. The File Transfer Main Menu (for Protocol Conversion). Appendix B, "FTTERM Menus," defines each item on the File Transfer Main Menu. Chapter 4, "Transferring Files Using the Protocol Conversion Method," describes using the menu to perform file transfers.

FILE TRANSFER MAIN MENU – NATIVE EMULATION

MODE: CONCURRENT

<u>ID</u>	<u>Command</u>	<u>Description</u>
1	TRANSMIT	Send data from PC
2	SAVE	Receive data to PC
3	COPY	Copy host screen to file or printer
4	LOAD	Load a configuration file
5	MODE	Toggle nonconcurrent and concurrent

Type an ID number or Command and press ENTER.

===>

Alt-F1=HELP Alt-F2=RETURN Alt-F4=RETRIEVE Alt-F5=COLOR
Alt-F6=DISC Alt-F8=FTTERM Alt-F9=PC DOS Alt-F10=HOST

Figure 3-2. The File Transfer Main Menu – Native Emulation. Appendix B, “FTTERM Menus,” defines each item on the File Transfer Main Menu – Native Emulation. Chapter 5, “Transferring Files Using the Native Emulation Method,” describes using the menu to perform file transfers.

Starting a Host Session

To start a host session from the File Transfer Main Menu or File Transfer Main Menu – Native Emulation, follow these steps:

1. FTTERM will attempt to establish a host connection based on the information in the default configuration file. If the default configuration is not appropriate for the host you want to contact, select item 4 (Load a configuration file) and specify the file to be used. If necessary, see “Loading a Configuration File” on page 3-18 for more information.

2. Press the key sequence for switching to the host session (default is Alt-F10). The key sequence is displayed next to HOST at the bottom of the menu.

When you switch to the host session, one of the following occurs:

- A blank screen appears. Press the Enter key several times and a message from the 3708, 3710 8-PA, or host will appear.
- A host logon message or system banner appears. Follow the normal procedure for logging on to the host. Proceed to “Switching Between FTTERM Functions” on page 3-11.
- The Auto-Dial Directory appears. See “Special Instructions for Modem Users” on page 3-8.
- The following message appears:

```
*** Establish connection if necessary ***
```

If you are using a modem, see “Special Instructions for Modem Users” on page 3-8. If you are not using a modem, the message means that FTTERM is not able to activate the communications link. Possible causes include:

- A loose, defective, or incorrectly wired cable
- A defective or incorrectly installed Asynchronous Communications Adapter
- A problem with the ASCII host, 3708, or 3710 8-PA.

If the problem continues, seek qualified technical assistance.

- A message from a 3708 or 3710 8-PA appears. See “Special Instructions for 3708 and 3710 8-PA Users” on page 3-9.

Special Instructions for Modem Users

If the PC is communicating through a modem, make the following preparations. Refer to the modem's documentation if necessary.

- The modem must *not* have both Data Set Ready (DSR) and Receive Line Signal Detector (RLSD) (*carrier detect*) strapped high.
- If the modem has an originate/answer switch, set it to ORIGINATE.
- When using the protocol conversion method of communicating with SNA hosts: If the modem has a full duplex/half duplex switch, set it to FULL DUPLEX.

Recommended switch settings for two widely-used modems are:

	S1	S2	S3	S4	S5	S6	S7	S8
IBM 5841	ON	ON	ON	ON	ON	ON	ON	OFF
HAYES 1200	UP	UP	DN	UP	DN	UP	UP	DN

When you switch to the host session (default is Alt-F10), FTTERM displays the following message if you have not added any auto-dial definitions in the configuration file:

```
*** Establish connection if necessary ***
```

Type the modem's dial command and the host's telephone number as described in the modem's documentation, and press the Enter key. If you have added at least one auto-dial definition in the configuration file, FTTERM displays the Auto-Dial Directory, which is a list of identifiers for the auto-dial definitions. You can make a selection from the directory or type a modem command directly by first pressing the Enter key.

AUTO-DIAL DIRECTORY

ID Name

- 1 VM host
- 2 IBM Information Network
- 3 The Source
- 4 Dow Jones
- 5 Compuserve

Type an ID number and press ENTER or
press ENTER to enter modem command
===>

ALT-F8=FTTERM ALT-F9=PCDOS

When you have selected a host from the Auto-Dial Directory or entered a modem command directly, the modem makes the call. If the call goes through, you will see either:

- A blank screen. Press the Enter key several times.
- A host system banner or logon message. Follow the normal procedure for logging on to the host.

Special Instructions for 3708 and 3710 8-PA Users

You may be required to log on to the 3708 or 3710 8-PA before you can log on to the host. The steps for logging on to the 3708 or 3710 8-PA depend on the way the system administrator has set it up. The procedure could include any combination of these steps:

1. Entering a port password.
2. Selecting a terminal type from a list.
3. Selecting a host system.

It is also possible that the 3708 or 3710 8-PA will not require any logon steps. Consult the system administrator for the correct procedure.

When you have made all the required entries for logging on to the 3708 or 3710 8-PA, you will see either:

- A blank screen. Press the Enter key several times.
- A host system banner or logon message. Follow the normal procedure for logging on to the host.

After Starting a Host Session

When you have established the host session, you can do any of the following:

- Run host programs.
- Return to the file transfer menu (default is Alt-F8) for transferring files.

See Chapter 4, “Transferring Files Using the Protocol Conversion Method,” and Chapter 5, “Transferring Files Using the Native Emulation Method,” for step-by-step instructions on performing file transfers.

- Switch to the PC DOS session (default is Alt-F9) for running PC programs.

See “Switching Between FTTERM Functions” on page 3-11 for more information on switching between FTTERM functions.

- Disconnect from the host (Alt-F6).

See “Disconnecting from the Host” on page 3-20 for more information.

Switching Between FTTERM Functions

You can select any of four functions when using FTTERM:

- PC DOS session
- Host session
- File Transfer Main Menu
- Host messages screen.

You use special key sequences to switch between the FTTERM functions. The key sequences appear at the bottom of the File Transfer Main Menu, using these abbreviations:

PC DOS Switches to the PC DOS session. The default sequence is Alt-F9. (When you run FTTERM in nonresident mode, this sequence appears as **EXIT**.)

HOST Switches to the host session. The default sequence is Alt-F10.

FTTERM Switches to the File Transfer Main Menu. The default sequence is Alt-F8.

The FTTERM key sequence does not perform any function, but appears on the File Transfer Main Menu as a reminder. If you press it at the menu, the only effect is a beep.

Note: The key sequences appear on the File Transfer Main Menu only. Therefore, it is recommended that you make a note of the key sequences. This helps you remember how to switch out of functions that do not display the key sequences.

The key sequences are defined in the configuration file you are using. If you change the key sequences with FTSETUP, and/or load a new configuration file where the keys have been redefined, FTTERM displays the new sequences. See "Extended Code for Switch to *xxxx*?" on page C-22 for more information.

Figure 3-3 shows the relationships between the FTTERM functions, including the key sequences for switching from one function to a different function.

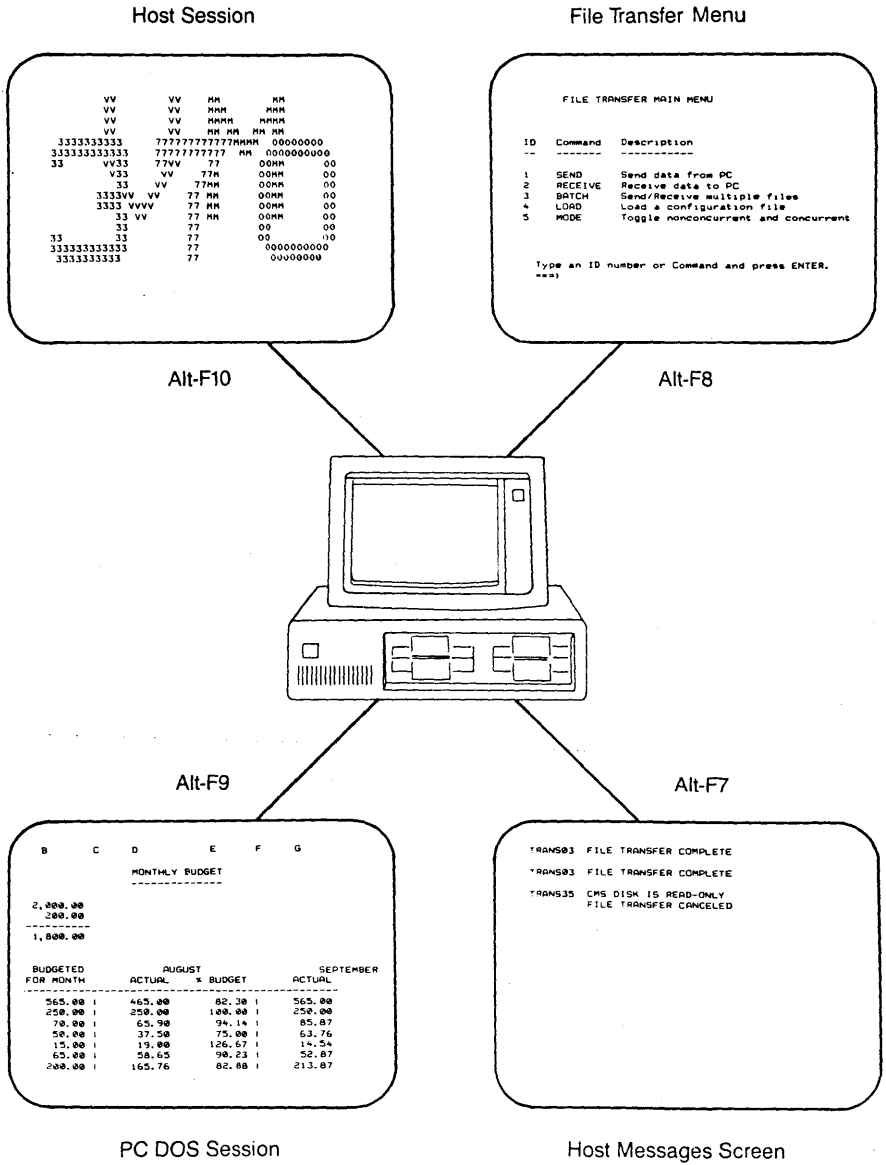


Figure 3-3. FTTERM Functions and Default Key Sequences

The PC DOS Session

The PC DOS session lets you perform normal PC operations. For example, you can:

- Enter DOS commands like DIR and COPY
- Run application programs like word processors and spreadsheets.

You can switch to the PC DOS session while a host session is in progress.

In concurrent mode, you can switch to the PC DOS session after starting a file transfer (exceptions are transfers from the PC screen to a file or printer). The file transfer continues while you run programs in the PC DOS session.

Note these restrictions on switching into and out of the PC DOS session:

- In nonconcurrent mode, you cannot switch to the PC DOS session during any file transfers. See "Selecting Concurrent or Nonconcurrent Mode" on page 3-17 for more information.
- FTTERM does not let you switch out of the PC DOS session if the PC program is using the display in graphics mode. This would be the case for PCs using the Color/Graphics Adapter only. You must exit from the program (or exit from the graphics functions of the program) before you can switch out of the PC DOS session.
- FTTERM does not let you switch out of the PC DOS session when you are creating a file with the COPY CON *filename* command. Exit from the command with Ctrl-Z or Ctrl-C before switching to another function.
- Switching out of the PC DOS session may be delayed if you are displaying text with the TYPE *filename* command or COPY *filename* CON command.

The Host Session

In the host session, you can run any program or transaction that you can run from a terminal connected directly to the host. For example, you can edit a CMS file, compile a program under TSO, or run a CICS transaction. However, you cannot be running a host program while transferring files using the protocol conversion method.

Note: You cannot switch to the host session during file transfers using the protocol conversion method, because the host session is being used by the transfer program.

File Transfer Main Menus

FTTERM has two file transfer menus with the following titles:

- File Transfer Main Menu. This menu offers transfers using protocol conversion. See Figure 3-1 on page 3-5.
- File Transfer Main Menu – Native Emulation. This menu offers transfers using native emulation. See Figure 3-2 on page 3-6.

The menu that FTTERM displays depends on the configuration file you are using.

Note: This manual refers to both of these menus as “the file transfer menu” except when it is important to specify a particular menu.

The file transfer menu is the first screen you see when you run FTTERM. It contains selections for transferring files, loading a new configuration file, and changing between concurrent and nonconcurrent mode. It also identifies the key sequences that you use for switching between functions, accessing the help windows, retrieving a previous command, changing the screen colors, and disconnecting from a host.

The file transfer menu uses *windows* to help you enter a file transfer command and to report the progress of a transfer.

The Host Messages Screen

The Host Messages screen shows the most recent 24 lines of messages that are received from the host during a file transfer using a batch transfer request file.

The messages on the Host Messages screen can be from the host system operator, such as "System coming down at 12:00." They can also describe the status of transfers when you are using a batch transfer request file. See "Using a Batch File to Transfer Multiple Files" on page 4-35 for instructions on using batch transfer request files. See Appendix A, "File Transfer Messages," for a list of the messages.

When you enter file transfer commands individually, the status messages appear in a window on the file transfer menu.

Note: Although FTTERM routes messages that are received during a file transfer to the Host Messages screen or the file transfer menu, certain unexpected system operator messages can disrupt the file transfer. Therefore, you should use the command that prevents host messages from being sent to the terminal. Consult the host system administrator.

If a host message disrupts a file transfer, follow these steps:

1. Press the key sequence for the host session (default is Alt-F10).
2. Press the PF2 key sequence (default is Alt-F2) several times to terminate the host file transfer program and return the host to the command ready state.
3. Press the FTTERM key sequence (default is Alt-F8).
4. Start the file transfer again.

Selecting Concurrent or Nonconcurrent Mode

FTTERM normally runs in concurrent mode. In concurrent mode, you can start a file transfer, switch to the PC DOS session, and run a PC program during the transfer.¹ However, if you switch to a host session or the file transfer menu, FTTERM suspends the processing of the PC program until you return to the PC DOS session.

¹ Technical note: FTTERM operates concurrently with any PC program that conforms to the following design standards:

- It uses standard PC DOS interfaces.
- It passes on interrupts that it intercepts.
- It does not trap the session switching keystrokes. (These can be redefined in the configuration file.)
- It does not write directly to the video buffer from an I/O interrupt.
- It does not disable interrupts longer than it takes to receive a character.
- It does not cause a one-character time delay in servicing communication interrupts.

Note: When you are in the PC DOS session, do not edit or erase a PC file currently being transferred.

You lose some performance in the file transfer and the PC program when you run both of them concurrently. If performance becomes a problem, you can switch to nonconcurrent mode. In nonconcurrent mode, you cannot switch to the PC DOS session during a file transfer.

Nonconcurrent mode provides faster file transfers. It is useful when you want to transfer large amounts of data and concurrent PC operation is not required.

To switch between concurrent and nonconcurrent modes enter a 5 on the file transfer menu. You can also enter **MODE** or **M**.

The file transfer menu shows **CONCURRENT** or **NONCONCURRENT** in the upper left corner to indicate which mode **FTTERM** is using.

Loading a Configuration File

Loading a configuration file causes it to take effect as a temporary alternative to the default configuration file.² This is useful, for example, when the default configuration is not correct for a host or 3708/3710 8-PA port that you contact only occasionally.

The configuration file takes effect as soon as it is loaded. It stays in effect until you load another configuration file, or until you reset or turn off the PC.

² See "Configuration File Overview" on page C-4 for a brief introduction to configuration files.

To load a configuration file, do either of the following:

- At the file transfer menu, enter a 4 for the **LOAD** command. **FTTERM** displays the correct format for entering the configuration filename. Enter the name of the desired configuration file.
- Enter **LOAD** and the configuration filename as a single step, instead of making a selection from the menu. For example:

```
=== >LOAD TSO.SET
```

It is not necessary to reset or turn off the PC to return to the default configuration. You can use the preceding procedure to reload the default configuration file **DEFAULT.SET**.

See Appendix C, “Creating and Modifying Configuration Files,” for instructions on using **FTSETUP** to create and modify configuration files.

Displaying the Current Configuration File

You can display the configuration file that is currently in effect by using a question mark (?) instead of a filename with the **LOAD** command:

```
=== >LOAD ?
```

FTTERM displays:

```
Configuration file currently loaded:
```

```
A:TSO.SET
```

If you are using the default configuration file, **FTTERM** displays **DEFAULT.SET**. It does not report which file has been selected as the default.

Disconnecting from the Host

When you finish a host session, follow these steps to disconnect from the host:

1. Log off from the host system using the normal procedure for the host. (This step is optional. There may be times when you want to temporarily disconnect without logging off.)
2. Press the FTTERM key sequence (default is Alt-F8) to return to the file transfer menu.
3. Press Alt-F6 to disconnect from the host. This step causes the communication line with the host, 3708, or 3710 8-PA to be dropped (DSR goes low).

This procedure has the same effect on the communication link as turning the PC off and back on. When you return to the host session, you must repeat the procedures under "Starting a Host Session" on page 3-6.

Displaying FTTERM's Help Windows

FTTERM and FTSETUP provide help windows when you press Alt-F1.

You can display a help window when Alt-F1 = HELP appears at the bottom of the display.

FTTERM provides help menus for the File Transfer Main Menu, the File Transfer Main Menu – Native Emulation, the FTSETUP Function Selection Menu, the Auto-Dial Definition Menu, and the Key Definition Menu.

Figure 3-4 on page 3-21 shows the Help Main Menu for the File Transfer Main Menu (for protocol conversion).

You are encouraged to use the help windows as a primary source of information about FTTERM.

FILE TRANSFER MAIN MENU

MODE: CONCURRENT

HELP: Main Menu

Use the cursor control keys or the tab keys to move the cursor to the topic for which you want help. Then press Enter. You must RETURN from help before issuing a command. Only the keys shown at the bottom of the window are valid while in help.

Commands	General Topics	
SEND	Switch to HOST/PC DOS	Help on HELP
RECEIVE	Connect to Host	Entering Commands
BATCH	DISconnect from Host	Command Parameters
LOAD	Messages (MSGs)	SEND Options
MODE	RETRIEVE/COLOR	RECEIVE Options

Alt-F1=HELP ON HELP ALT-F2=RETURN PgDn=FORWARD PgUp=BACK

===>

Alt-F1=HELP Alt-F2=RETURN Alt-F4=RETRIEVE Alt-F5=COLOR
Alt-F6=DISC Alt-F7=MSGs Alt-F8=FTTERM Alt-F9=PC DOS Alt-F10=HOST

Figure 3-4. The Help Main Menu (for Protocol Conversion)

Use the following procedures to find the information you need and to return to the function you were doing:

- To select a topic from a help menu, move the cursor to the topic and press the Enter key.
- To proceed through a topic, press the PgUp and PgDn keys.
- To return from a topic to the help menu, press Alt-F3.
- To return from a topic or the help menu to FTTERM or FTSETUP, press Alt-F2.

Editing FTTERM Commands

You can use the keys listed in Figure 3-5 to change and retrieve commands that you are entering on a file transfer menu.


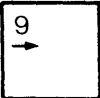



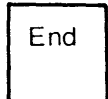



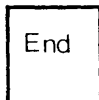
Key	Function
	Moves the cursor left without erasing.
	Moves the cursor right without erasing.
	Turns insert mode on and off.
	Deletes the character under the cursor.
	Moves the cursor to the beginning of the command.
	Moves the cursor to the end of the command.
 	Erases the entire command line and returns to the beginning of the command line.
 	Erases the command line starting at the cursor position.

Figure 3-5 (Part 1 of 2). FTTERM Command Editing Keys

Key		Function
Alt	F4	Retrieves the previous command. Pressed repeatedly, retrieves up to the last five commands. Not valid while making a menu selection.

Figure 3-5 (Part 2 of 2). FTTERM Command Editing Keys

Using an AUTOEXEC.BAT File

You can use an AUTOEXEC.BAT file to automatically start FTTERM when DOS is loaded. The file must reside on the FTTERM working diskette or in the root directory if you have a fixed disk system.

You can create an AUTOEXEC.BAT file using any text editor. The file must contain the following lines:

```
DATE
TIME
FTTERM
```

If you are already using an AUTOEXEC.BAT file that performs other functions, you can try adding the preceding lines to the beginning of the existing file. When other *resident* programs are being used, you may have to experiment with the order. See “Using FTTERM with Other Resident Programs” on page 3-26.

Refer to the IBM PC *DOS Reference* for more details on creating batch files like AUTOEXEC.BAT.

Entering Commands from the DOS Prompt

FTTERM lets you enter the SEND and RECEIVE file transfer commands from the DOS system prompt (A>, B>, C>). See Chapter 4, “Transferring Files Using the Protocol Conversion Method” for a description of the SEND and RECEIVE commands.

Exiting from FTTERM

Normally, you can use other PC programs while FTTERM is loaded in memory. However, if you need the memory space, you can exit from FTTERM, clearing it from memory, in either of two ways:

- Reset the PC with the Ctrl-Alt-Del key sequence. After loading DOS, do not load FTTERM. If FTTERM is loaded with an AUTOEXEC.BAT file, you can interrupt the loading with Ctrl-C.
- Load FTTERM in nonresident mode. When you are finished with it, press the EXIT key sequence (default is Alt-F9). Then load the other PC program. See "Using FTTERM in Nonresident Mode" for more information.

Using FTTERM in Nonresident Mode

In the normal *resident* mode, FTTERM is loaded as a resident extension to DOS. FTTERM stays in memory when you load another PC program, allowing simultaneous FTTERM and PC DOS sessions. However, FTTERM is occupying memory space that would otherwise be available to the PC program. This is true regardless of whether you are using FTTERM in concurrent or nonconcurrent mode.

In *nonresident* mode, FTTERM is not loaded as a resident extension to DOS, so you cannot have simultaneous FTTERM and PC DOS sessions. Instead, DOS loads FTTERM as a typical PC program.

You can use nonresident mode in the following situations:

- You are using a PC program that is too large to fit in the PC's memory simultaneously with FTTERM.
- You are using a PC program that runs faster or handles more data when it has more memory available.
- You are using another resident PC program that cannot coexist with FTTERM.

To load FTTERM in nonresident mode, include the N option on the command line:

FTTERM N

Note: In nonresident mode, the file transfer menu lists an EXIT key sequence (default is Alt-F9) instead of the PC DOS key sequence.

When you press EXIT, FTTERM is cleared from memory and control returns to DOS. However, the link with the host is not dropped unless you used the DISConnect key sequence (Alt-F6). You can exit from the PC program and start FTTERM again to continue the host session.

Keep in mind the following requirements when using FTTERM in nonresident mode:

- You cannot switch between concurrent and nonconcurrent mode. Nonresident implies nonconcurrent.
- If a PC program needs access to the same asynchronous port used by FTTERM, disconnect from the host (Alt-F6) before exiting from FTTERM.
- You cannot copy a PC screen to a PC file or printer in nonresident mode.
- Do not exit to DOS during a file transfer. Terminate the transfer first.

- Some hosts automatically drop the connection if you do not reconnect within a certain time limit.

Using FTTERM with Other Resident Programs

When you load FTTERM in the normal resident mode, there is a potential conflict between FTTERM and other resident programs (such as print spoolers, desktop managers, network programs, and other terminal emulators).

If a conflict occurs, try loading the programs in a different order. In particular, try loading FTTERM last. You can use FTTERM in nonresident mode if necessary. See "Using FTTERM in Nonresident Mode" on page 3-24 for more information.

FTTERM is compatible with all terminate and stay resident programs supplied with PC DOS.

FTTERM Reserved Words

FTTERM and PC DOS use the following words to represent sources and destinations other than files (such as the PC printer) for file transfers. They are reserved in both uppercase and lowercase. Avoid using these as filenames at the host or PC, because FTTERM will interpret them differently from the way you intend.

AUX	HOSCREEN	NUL
COM1	LPT1	PCS
COM2	LPT2	PCSCREEN
CON	LPT3	PRN
HOS		

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About this Chapter

This chapter describes transferring files using the protocol conversion method. This is the preferred file transfer method for a SNA host that has one of the host file transfer programs commonly referred to as IND\$FILE or Intelligent Workstation Support (IWS). See “Required Software” on page 1-14 for specific program numbers.

For transferring files with ASCII or SNA hosts using the native emulation method, see Chapter 5, “Transferring Files Using the Native Emulation Method.”

This chapter also describes the following procedures:

- Selecting the appropriate command options for the type of data you are transferring and the type of host you are using
- Transferring multiple files using a batch file
- Entering file transfer commands in the PC DOS session.

Before Starting a File Transfer

Before you start a file transfer, be sure that:

- You made and configured a working copy of FTTERM as described in Chapter 2, “Preparing to Use FTTERM.”
- You have used FTSETUP to create an appropriate configuration file for FTTERM to communicate with your host. See Appendix C, “Creating and Modifying Configuration Files.”

- You started FTTERM and established a host session as described in Chapter 3, “Using FTTERM.”
- You are not currently running a host program (the host must be in the *command ready* state). See “Host Considerations” on page 4-40 for details on verifying that the host is in the command ready state.
- If receiving a file, you have enough disk space at the PC to contain the file.
- If sending a file, you have enough space allocated to you at the host to contain the file.

The File Transfer Main Menu

The File Transfer Main Menu (Figure 4-1) is the starting point for all file transfers using the protocol conversion method.

FILE TRANSFER MAIN MENU

MODE: CONCURRENT

<u>ID</u>	<u>Command</u>	<u>Description</u>
1	SEND	Send data from PC
2	RECEIVE	Receive data to PC
3	BATCH	Send/Receive multiple files
4	LOAD	Load a configuration file
5	MODE	Toggle nonconcurrent and concurrent

Type an ID number or Command and press ENTER.

== =>

Alt-F1=HELP Alt-F2=RETURN

Alt-F4=RETRIEVE Alt-F5=COLOR

Alt-F6=DISC Alt-F7=MSGs Alt-F8=FTTERM Alt-F9=PC DOS Alt-F10=HOST

Figure 4-1. The File Transfer Main Menu (Protocol Conversion)

The following sections cover only the file transfer commands SEND, RECEIVE, and BATCH.

See Appendix B, "FTTERM Menus," for a description of each item on the File Transfer Main Menu.

See Chapter 3, "Using FTTERM," for instructions on displaying the File Transfer Main Menu and switching between FTTERM functions.

For specific information on the LOAD and MODE commands, see:

- "Loading a Configuration File" on page 3-18
- "Selecting Concurrent or Nonconcurrent Mode" on page 3-17.

Sending a File

This section describes how to transfer:

- From a PC file to:
 - Host file
 - PC printer.
- From a display screen generated in the PC DOS session to:
 - PC printer
 - Host file.
- From a display screen generated in the host session to a host file.

Entering a SEND Command

You can enter a SEND command in several ways:

- Display the SEND command formats by entering a 1 at the arrow (===>) prompt. (You can also enter SEND or S.)

The procedures in this section use this method.

- If you already know the SEND command formats, you can save time by entering a complete SEND command at the arrow prompt as a single step. Begin the command with SEND, S, or 1. The following examples produce the same result:

```
===> SEND B:TEXT.DOC TEXT SCRIPT (ASCII CRLF
```

```
===> S B:TEXT.DOC TEXT SCRIPT (ASCII CRLF
```

```
===> 1 B:TEXT.DOC TEXT SCRIPT (ASCII CRLF
```

Note: You can press Alt-F4 to retrieve previous commands. See Figure 3-5 on page 3-22 for additional keys that are useful when entering a command.

- You can also enter a SEND command in the PC DOS session. See “Entering SEND and RECEIVE Commands in the PC DOS Session” on page 4-39.

The procedure for entering a SEND command consists of these steps:

1. Enter a 1 at the arrow prompt on the File Transfer Main Menu. The Send Command Format window (Figure 4-2 on page 4-8) appears.
2. Finish typing the SEND command by supplying the source, destination, and options for the file transfer. The following sections provide detailed procedures for entering specific SEND commands.

Note: If you want to quit without sending any files, press the RETURN key sequence (Alt-F2) to return to the File Transfer Main Menu. (You also get the same result by pressing the Enter key without typing a command.)

3. Press the Enter key.

FILE TRANSFER MAIN MENU

MODE: CONCURRENT

SEND COMMAND FORMAT

- Send PC DOS file to Host file
Use this FORMAT: [d:][\path\]filename[.ext] *fn ft fm* (options)
- Send PC DOS file to PC Printer
Use this FORMAT: [d:][\path\]filename[.ext] PRN
- Send PC DOS Screen to PC Printer
Use this FORMAT: PCSCREEN PRN
- Send Host Screen to Host file
Use this FORMAT: HOSCREEN *fn ft fm*
- Send PC DOS Screen to Host file
Use this FORMAT: PCSCREEN *fn ft fm* (options)

Type Format and press ENTER.

====>

Alt-F1=HELP Alt-F2=RETURN
Alt-F7=MSG\$ Alt-F8=FTTERM Alt-F9=PC DOS Alt-F10=HOST

Figure 4-2. The Send Command Format Window. The host filename format shown (*fn ft fm*) is for VM/CMS hosts. When you transfer a file with a different host, the filename format for that host appears instead. FTTERM determines which type of host you are using from the configuration file.

Sending a PC DOS File to a Host File

This option lets you send a PC file to a host file. The file you send can be an alphanumeric file, such as a document or source code, or a binary file, such as a COM or EXE file.

To send a PC DOS file to a host file, do the following:

1. Starting at the File Transfer Main Menu, display the Send Command Format window (Figure 4-2 on page 4-8) by entering a 1.
2. Type the identifiers for the PC DOS file and the host file, plus any options you want to specify, as described in the Send Command Format window. (FTTERM supplies the *SEND* part of the command.)

If the command is longer than one line, it automatically wraps to the next line, allowing a maximum of 149 characters per command.

The SEND command formats are:

- VM/CMS:

```
SEND [d:][\path]filename.ext fn ft fm (options)
```

- MVS/TSO:

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

- CICS and IWS:

```
SEND [d:] [\path]filename.ext fn (options)  
[comments]
```

Figure 4-3 lists the available SEND command options.

Note: See “SEND and RECEIVE Command Options” on page 4-48 for an explanation of each SEND command option.

3. Press the Enter key.

Host Type	SEND Options Highlight = Default option Bar () = Select one of the choices
VM/CMS	APPEND ASCII CRLF LRECL <i>n</i> RECFM V F Binary is the default data type. ASCII and CRLF are commonly used for alphanumeric (text) files.
MVS/TSO	APPEND ASCII BLKSIZE(<i>n</i>) CRLF LRECL(<i>n</i>) RECFM(F V U) SPACE(<i>n1,n2</i>) AVBLOCK(<i>n</i>) SPACE(<i>n1,n2</i>) CYLINDERS SPACE(<i>n1,n2</i>) TRACKS Binary is the default data type. ASCII and CRLF are commonly used for alphanumeric (text) files. ASCII and CRLF are the only valid options for members of a partitioned data set. 80 characters is the default length for fixed length records.

Figure 4-3 (Part 1 of 2). SEND Command Options

Host Type	SEND Options Highlight = Default option Bar () = Select one of the choices
CICS	ASCII BINARY CRLF NOCRLF
IWS	ASCII BINARY BLANK CRLF NOCRLF NOREPLACE REPLACE FILE = HTF FILE = TS If FILE = HTF: FOR = <i>userid1,...,userid8</i> PRIVATE PUBLIC TYPE = EDIT TYPE = PRINT If FILE = TS: QNAME = CFTRxxxx PROGRAM = CFTRxxxx Depending on the level of VSE/SP, not all options may be available. See the VSE/SP documentation listed under "Related Manuals" on page viii for the options that apply to a specific environment.

Figure 4-3 (Part 2 of 2). SEND Command Options

When the file transfer starts, the Transfer Status window (Figure 4-4 on page 4-12) appears. This window informs you about the progress of the transfer.

FILE TRANSFER MAIN MENU

MODE: CONCURRENT

Currently moving data

From : PCDOS.FIL
To : HOSTFILE TYPE A1

Bytes moved: 662 of 18228

Type T to terminate the file transfer.

===> SEND PCDOS.FIL HOSTFILE TYPE A1 (ASCII CRLF)

Alt-F1=HELP

Alt-F7=MSGs Alt-F8=FTTERM Alt-F9=PC DOS Alt-F10=HOST

Figure 4-4. The Transfer Status Window

When the file transfer is finished, one of the following messages appears in the Transfer Status window:

TRANS03 File transfer complete. Type any key to return to main menu.

OR

INW0001I File transfer complete. Type any key to return to main menu.

Press any key to return to the File Transfer Main Menu. If another message appears, the file transfer may not have finished successfully. See Appendix A, "File Transfer Messages," for an explanation and response.

Running a PC Program During a File Transfer

In concurrent mode, you can press the PC DOS session key sequence (default is Alt-F9) to run a PC program while the file is being transferred.

You can return to the Transfer Status window from the PC DOS session by pressing the FTTERM key sequence (default is Alt-F8). The PC program is suspended until you return to the PC DOS session.

Examples of Sending a PC File to a Host File

- VM/CMS:

```
SEND B:SALES.DOC SALES SCRIPT A1 (ASCII CRLF  
APPEND
```

This command appends PC text file SALES.DOC located on drive B to file SALES SCRIPT on your CMS A disk. The ASCII and CRLF options are commonly used with text files.

```
SEND C:\RECFILS\COBOL.DAT INPUT COB A1 (ASCII CRLF  
LRECL 132 RECFM F
```

This command sends alphanumeric PC data file COBOL.DAT located in path \RECFILS\ on drive C. It creates a new file INPUT COB on your CMS A disk with a fixed record length of 132 characters.

- MVS/TSO:

```
SEND C:\SCHEDS\PROJECT1 'SCHEDS.SCRIPT(PROJ1)  
(ASCII CRLF
```

This command sends PC text file PROJECT1 located in path \SCHEDS\ on drive C to TSO member PROGRAM, belonging to data set SOURCE.FORT. The ASCII and CRLF options are commonly used with text files.

SEND C:\FORTRAN\ANALYZE.FTN 'SOURCE.FORT' (ASCII
CRLF LRECL(132) BLKSIZE(132) RECFM(V) SPACE (20,10)
TRACKS

This command sends Fortran source code (alphanumeric) PC file ANALYZE.FTN located in path \FORTRAN\ on drive C. It creates the sequential data set SOURCE.FORT. The records in the data set may vary in length up to 132 characters. The data blocks are the same length as the records. TSO allocates 20 tracks for the data set. If more tracks are needed, TSO allocates them in groups of 10.

- CICS:

```
SEND MEMO.BAT MEMO1
```

This command sends PC file MEMO.BAT on the default drive to the CICS temporary storage queue for printing and distribution by a user program.

- IWS:

```
SEND B:MYPROG.EXE BASPROG (BINARY FOR=FRED  
REPLACE
```

This command sends compiled BASIC (binary) file MYPROG.EXE from PC drive B to the IWS Host Transfer File for retrieval by the user whose CICS userID is FRED. If a file named BASPROG already exists at the host, it will be replaced.

Stopping a File Transfer

If you decide to stop a file transfer before it is complete:

1. Return to the Transfer Status window (if you have switched to another function) by pressing the FTTERM key sequence (default is Alt-F8).
2. Press T to stop the transfer. This message appears:

Are you sure that you wish to terminate? (Y or N):

3. Enter a **Y** to confirm. (If you decide not to terminate the transfer, enter an **N**.) When you enter a **Y**, these messages appear in sequence:

Waiting for host response to termination request.

Termination is complete. Type any key to return to main menu.

4. Press any key to return to the File Transfer Main Menu.

Any part of the file that was already sent to the host is present in the host file.

Sending a PC DOS File to the PC Printer

This option lets you print on the PC printer any file from a PC disk. If you are using FTTERM in concurrent mode, you can run another PC program while the file is printing.

The PC DOS file you print can be any file that is stored on a PC disk. You would normally print alphanumeric files, but some devices, such as certain plotters, print binary files.

Note: If you are using FTTERM in concurrent mode, do not perform any print operations from the PC DOS session while printing a PC DOS file. Also, do not edit or delete the file being printed.

To send a PC DOS file to the PC printer, do the following:

1. Be sure that the printer is turned on, is online, and has a supply of paper.

2. Starting at the File Transfer Main Menu, display the Send Command Format window (Figure 4-2 on page 4-8) by entering a 1.
3. Type the complete PC filename as described in the Send Command Format window. (FTTERM supplies the *SEND* part of the command.)

The format for sending a PC file to the printer is:

```
SEND [d:][\path\]filename.ext PRN
```

4. Press the Enter key.

When the printing starts, the Transfer Status window (Figure 4-4 on page 4-12) appears. This window informs you about the progress of the printing.

Running a PC Program During a Printout

In concurrent mode, you can press the PC DOS session key sequence (default is Alt-F9) to run a PC program while the file is being printed. Do not perform any print operations from the PC DOS session while the file is being printed.

You can return to the Transfer Status window from the PC DOS session by entering the FTTERM key sequence (default is Alt-F8).

Example of Sending a PC DOS File to the PC Printer

```
SEND C:\LETTERS\MEMO.DOC PRN
```

This command prints PC file MEMO.DOC in path \LETTERS\ on drive C.

Stopping a Printout

If you decide to stop the printout before it is complete, follow these steps:

1. Return to the Transfer Status window (if you have switched to another function) by pressing the FTTERM key sequence (default is Alt-F8).
2. Press **T** to stop the printing.
3. Press any key to return to the File Transfer Main Menu.

Sending a PC DOS Screen to the PC Printer

This option lets you print on the PC printer the contents of a display screen generated during a PC DOS session.

Note: This option is valid for text mode displays only. You cannot switch out of the PC DOS session if the display is in graphics mode. In addition, FTTERM must be running in the normal (resident) mode.

To send a PC DOS screen to the PC printer, do the following:

1. Be sure the printer is turned on, is online, and has a supply of paper.
2. In the PC DOS session, display the screen that you want to print.
3. Switch to the File Transfer Main Menu using the FTTERM key sequence (default is Alt-F8).
4. Display the Send Command Format window (Figure 4-2 on page 4-8) by entering a **1**.

5. Type the **SEND** command as described in the Send Command Format window. (FTTERM supplies the *SEND* part of the command.)

The format for printing a PC display screen is:

```
SEND PCSCREEN PRN
```

6. Press the Enter key to start printing. You cannot switch to another function while the printing is in progress.
7. When the printing is finished, press the PC DOS key sequence (default is Alt-F9) to return to the PC DOS session.

Sending a Host Screen to a Host File

This option lets you copy to a host file the contents of a display screen that was generated during a host session.

For example, you can use the **FILELIST** command and store the resulting screen of filelist data as a document file. Because the host must be in the command ready state when you create the file, the applications of this capability are limited.

To send a host screen to a host file, do the following:

1. In the host session, display the screen that you want to send.
2. Switch to the File Transfer Main Menu using the FTTERM key sequence (default is Alt-F8).
3. Display the Send Command Format window (Figure 4-2 on page 4-8) by entering a 1.
4. Type the **SEND** command as described in the Send Command Format window. (FTTERM supplies the *SEND* part of the command.)

The formats for sending a host screen to a host file are:

- VM/CMS:

```
SEND HOSCREEN fn ft fm [(APPEND)]
```

- MVS/TSO:

```
SEND HOSCREEN  
'data.set.name(member.name)'/password [(APPEND)]
```

- CICS and IWS:

```
SEND HOSCREEN fn
```

Note that APPEND is the only valid option for this type of transfer. Using APPEND causes the screen data to be added to the end of an existing file.

You cannot switch to another function while the transfer is in progress.

5. When the transfer is finished, press the host session key sequence (default is Alt-F10) to return to the host session.

Example of Sending a Host Screen to a Host File

```
SEND HOSCREEN SCREEN SCRIPT
```

This command saves the host screen in file SCREEN SCRIPT on the CMS A disk (by default).

Sending a PC DOS Screen to a Host File

This option lets you copy to a host file the contents of a display screen generated during a PC DOS session. For example, you can save a chart generated by a PC application program for later inclusion in a host-generated document.

Note: This option is valid for text mode displays only. You cannot switch out of the PC DOS session if the display is in graphics mode. In addition, FTTERM must be running in the normal (resident) mode.

To send a PC DOS screen to a host file, do the following:

1. In the PC DOS session, display the screen that you want to save.
2. Switch to the File Transfer Main Menu using the FTTERM key sequence (default is Alt-F8).
3. Display the Send Command Format window (Figure 4-2 on page 4-8) by entering a 1.
4. Type the SEND command as described in the SEND COMMAND FORMAT window. (FTTERM supplies the *SEND* part of the command.)

The formats for sending a PC DOS screen to a host file are:

- VM/CMS:

```
SEND PCSCREEN fn ft fm [(APPEND)]
```

- MVS/TSO:

```
SEND PCSCREEN  
'data.set.name(member.name)'|password [(APPEND)]
```


- CICS and IWS:

SEND PCSCREEN *fn*

Note that APPEND is the only valid option for this type of transfer. Using APPEND causes the screen data to be added to the end of an existing file.

You cannot switch to another function while the transfer is in progress.

5. When the transfer is finished, press the PC DOS key sequence (default is Alt-F9) to return to the PC DOS session.

Example of Sending a PC DOS Screen to a Host File

```
SEND PCSCREEN CICSSCRN
```

This command saves the PC DOS screen in file CICSSCRN in the CICS temporary storage queue.

Receiving a File

This section describes how to transfer:

- From a host file to:
 - PC DOS file
 - PC printer.
- From a display screen generated by a host program to:
 - PC file
 - PC printer.
- From a display screen generated by a PC DOS program to a PC DOS file.

Entering a RECEIVE Command

You can enter a RECEIVE command in several ways:

- Display the RECEIVE command formats by entering a 2 at the arrow (===>) prompt. (You can also enter RECEIVE or R.)

The procedures in this section use this method.

- If you already know the RECEIVE command formats, you can save time by entering a complete RECEIVE command at the arrow prompt as a single step. Begin the command with RECEIVE, R, or 2. The following examples produce the same result:

```
===> RECEIVE B:TEXT.DOC TEXT SCRIPT (ASCII CRLF
```

```
===> R B:TEXT.DOC TEXT SCRIPT (ASCII CRLF
```

```
===> 2 B:TEXT.DOC TEXT SCRIPT (ASCII CRLF
```

Note: You can press Alt-F4 to retrieve previous commands. See Figure 3-5 on page 3-22 for additional keys that are useful when entering a command.

- You can also enter a RECEIVE command in the PC DOS session. See “Entering SEND and RECEIVE Commands in the PC DOS Session” on page 4-39.

The procedure for entering a RECEIVE command consists of these steps:

1. Enter a 2 at the arrow prompt on the File Transfer Main Menu. The Receive Command Format window (Figure 4-5) appears.
2. Finish typing the RECEIVE command by supplying the source, destination, and options for the file transfer. The following sections provide detailed procedures for entering specific RECEIVE commands.

Note: If you want to quit without receiving any files, press the RETURN key sequence (Alt-F2) to return to the File Transfer Main Menu. (You also get the same result by pressing the Enter key without typing a command.)

3. Press the Enter key.

FILE TRANSFER MAIN MENU

MODE: CONCURRENT

RECEIVE COMMAND FORMAT

- Receive to PC DOS file from Host file
Use this FORMAT: [d:][\path\]filename[.ext] fn ft fm (options)

- Receive to PC DOS file from PC DOS screen
Use this FORMAT: PCSCREEN [d:][\path\]filename[.ext]

- Receive to PC printer from Host file
Use this FORMAT: PRN fn ft fm

- Receive to PC DOS file from Host screen
Use this FORMAT: [d:][\path\]filename[.ext] HOSCREEN

- Receive to PC printer from Host screen
Use this FORMAT: PRN HOSCREEN

Type Format and press ENTER.

===>

Alt-F1=HELP Alt-F2=RETURN
Alt-F7=MSGS Alt-F8=FTTERM Alt-F9=PC DOS Alt-F10=HOST

Figure 4-5. The Receive Command Format Window. The host filename format shown (*fn ft fm*) is for VM/CMS hosts. When you transfer a file with a different host, the filename format for that host appears instead. FTTERM determines which type of host you are using from the configuration file.

Receiving a PC DOS File from a Host File

This option lets you copy to a PC file any host file to which you have access. The file you receive can be an alphanumeric file, such as a document or source code, or it can be a binary file, such as a compiled program.

To receive a PC DOS file from a host file, do the following:

1. Starting at the File Transfer Main Menu, display the Receive Command Format window (Figure 4-5 on page 4-23) by entering a 2.
2. Type the identifiers for the PC DOS file and the host file, plus any options that you want to specify, as described in the Receive Command Format window. (FTTERM supplies the *RECEIVE* part of the command.)

If the command is longer than one line, it automatically wraps to the next line, allowing a maximum of 149 characters per command.

The RECEIVE command formats are:

- VM/CMS:

```
RECEIVE [d:]\path\filename.ext fn ft fm  
(options)
```

- MVS/TSO:

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

- CICS and IWS:

```
RECEIVE [d:]\path\filename.ext fn (options)
```

Figure 4-6 on page 4-25 lists the available RECEIVE command options.

Note: See “SEND and RECEIVE Command Options” on page 4-48 for an explanation of each RECEIVE command option.

3. Press the Enter key.

Host Type	RECEIVE Options Highlight = Default option Bar () = Select one of the choices
VM/CMS	APPEND ASCII CRLF Binary is the default data type. ASCII and CRLF are commonly used for alphanumeric (text) files.
MVS/TSO	APPEND ASCII CRLF Binary is the default data type. ASCII and CRLF are commonly used for alphanumeric (text) files.
CICS	APPEND ASCII BINARY CRLF NOCLRF

Figure 4-6 (Part 1 of 2). RECEIVE Command Options

Host Type	RECEIVE Options Highlight = Default option Bar () = Select one of the choices
IWS	ASCII BINARY BLANK CRLF NOCRLF REPLACE APPEND FILE = HTF FILE = TS If FILE = HTF: FROM = <i>usid</i> DELETE KEEP If FILE = TS: QNAME = CFTRxxxx PROGRAM = CFTRxxxx Depending on the level of VSE/SP, not all options may be available. See the VSE/SP documentation listed under "Related Manuals" on page viii for the options that apply to a specific environment.

Figure 4-6 (Part 2 of 2). RECEIVE Command Options

When the file transfer starts, the Transfer Status window (Figure 4-4 on page 4-12) appears. This window informs you about the progress of the transfer.

When the file transfer is finished, one of the following messages appears in the Transfer Status window:

TRANS03 File transfer complete. Type any key to return to main menu.

or

INW0001I File transfer complete. Type any key to return to main menu.

Press any key to return to the File Transfer Main Menu.

If another message appears, the file transfer may not have finished successfully. See Appendix A, "File Transfer Messages," for an explanation and response.

Running a PC Program During a File Transfer

In concurrent mode, you can press the PC DOS session key sequence (default is Alt-F9) to run a PC program while the file is being received from the host.

You can return to the Transfer Status window from the PC DOS session by entering the FTTERM key sequence (default is Alt-F8).

Examples of Receiving a PC DOS File from a Host File

- VM/CMS:

```
RECEIVE PROG.JCL PROGRAM JCL B1 (ASCII CRLF)
```

This command receives text file PROGRAM JCL from the CMS B disk into PC file PROG.JCL on the default drive. The ASCII and CRLF options are commonly used with text files.

```
RECEIVE A:\UTILITY\SCHEDULE.EXE SCHEDULE BIN M1
```

This command receives binary file SCHEDULE BIN from the CMS M disk into PC file SCHEDULE.EXE in path \UTILITY\ on drive A.

- MVS/TSO:

```
RECEIVE PCFILE.TXT 'TSODSET.SCRIPT(MEMBER)' (ASCII CRLF)
```

This command receives MEMBER in data set TSODSET.SCRIPT to PCFILE.TXT on the current PC drive. The ASCII and CRLF options are commonly used with text files.

RECEIVE A:\UTILS\MAP.EXE 'UTILS.BAS'/CANARY

This command receives binary TSO data set UTILS.BAS into PC file MAP.EXE in path \UTILS\ on drive A. The data set has the password CANARY.

- CICS:

RECEIVE MEMO.BAT MEMO1

This command receives alphanumeric PC file MEMO.BAT on the default drive from the CICS temporary storage queue.

- IWS:

RECEIVE B:MYLIST AUGPRICE (FROM=USR1 APPEND

This command appends AUGPRICE from the IWS Host Transfer File to PC alphanumeric file MYLIST on drive B. The file was sent earlier by USER1 with the PUBLIC option.

Stopping a File Transfer

If you decide to stop a file transfer before it is complete:

1. Return to the Transfer Status window (if you have switched to another function) by pressing the FTTERM key sequence (default is Alt-F8).
2. Press T to stop the transfer. This message appears:
Are you sure that you wish to terminate? (Y or N):
3. Enter a Y to confirm. (If you decide not to terminate the transfer, enter an N instead.) When you enter a Y, these messages appear in sequence:

Waiting for host response to termination request.

Termination is complete. Type any key to return to main menu.

4. Press any key to return to the File Transfer Main Menu.

Any part of the file that was already received at the PC is present in the PC file.

Receiving a PC DOS File from a PC DOS Screen

This option lets you copy the contents of a display screen that was generated during a PC DOS session into a PC file. You can use the DIR command and store the resulting directory as a document file, or you can store a spreadsheet display for later inclusion in a document.

Note: This option is valid for text mode displays only. You cannot switch out of the PC DOS session if the display is in graphics mode. In addition, FTTERM must be running in the normal (resident) mode.

To receive a PC DOS file from a PC DOS screen, do the following:

1. In the PC DOS session, display the screen that you want to receive.
2. Switch to the File Transfer Main Menu using the FTTERM key sequence (default is Alt-F8).
3. Access the Receive Command Format window (Figure 4-5 on page 4-23) by entering a 2.
4. Type the RECEIVE command as described in the Receive Command Format window. (FTTERM supplies the *RECEIVE* part of the command.)

The format for receiving a PC file from a PC screen is:

```
RECEIVE [d:]/\path\filename.ext PCSCREEN  
[(APPEND)]
```

Note that APPEND is the only valid option for this type of transfer. Using APPEND causes the screen data to be added to the end of an existing file.

5. Press the Enter key to create the file. You cannot switch to another function while the transfer is in progress.
6. When the transfer is finished, press the PC DOS key sequence (default is Alt-F9) to return to the PC DOS session.

Example of Receiving a PC DOS File from a PC DOS Screen

```
RECEIVE A:SCREEN.TXT PCSCREEN
```

This command saves the PC display screen in PC file SCREEN.TXT on drive A.

Receiving a Host File to the PC Printer

This option lets you print on the PC printer any host file to which you have access. You normally print alphanumeric host files, such as those you can view and edit during a host session. However, some devices (such as certain plotters) print binary files.

To receive a host file to the PC printer, do the following:

1. Be sure the printer is turned on, is online, and has a supply of paper.
2. Starting at the File Transfer Main Menu, display the Receive Command Format window (Figure 4-5 on page 4-23) by entering a 2.
3. Type the complete host filename as described in the Receive Command Format window. (FTTERM supplies the *RECEIVE* part of the command.)

The formats for receiving a host file to the PC printer are:

- VM/CMS:

RECEIVE PRN *fn ft fm (options)*

- MVS/TSO:

RECEIVE PRN '*data.set.name[(member.name)]*'
[*/password*] (*options*)

- CICS and IWS:

RECEIVE PRN *fn (options)*

See Figure 4-6 on page 4-25 for a list of available command options.

4. Press the Enter key.
5. When the printing starts, the Transfer Status window (Figure 4-4 on page 4-12) appears. This window informs you about the progress of the printing.

Running a PC Program During a Printout

In concurrent mode, you can press the PC DOS session key sequence (default is Alt-F9) to run a PC program while the file is being transferred.

Note: If you are using FTTERM in concurrent mode, do not perform any print operations from the PC DOS session while printing a host file.

You can return to the Transfer Status window from the PC DOS session by entering the FTTERM key sequence (default is Alt-F8).

Example of Receiving a Host File to the PC Printer

RECEIVE PRN 'TSODSET.SCRIPT'/PWD (ASCII CRLF)

This command prints TSO data set TSODSET.SCRIPT that is protected by password PWD. The ASCII and CRLF options are commonly used with text files.

Stopping a Printout

If you decide to stop the printout before it is complete, follow these steps:

1. Return to the Transfer Status window (if you have switched to another function) by pressing the FTTERM key sequence (default is Alt-F8).
2. Press **T** to stop the printout. These messages appear in sequence:

Waiting for host response to termination request.

or

Termination is complete. Type any key to return to main menu.

3. Press any key to return to the File Transfer Main Menu.

Receiving a PC DOS File from a Host Screen

This option lets you copy to a PC file the contents of a display screen that was generated during a host session. For example, you can use the FILELIST command and store the resulting screen of filelist data as a document file, or you can store a screen generated by a host application for later inclusion in a document.

To receive a PC DOS file from a host screen, do the following:

1. In the host session, display the screen that you want to receive.
2. Switch to the File Transfer Main Menu using the FTTERM key sequence (default is Alt-F8).
3. Display the Receive Command Format window (Figure 4-5 on page 4-23) by entering a 2.
4. Type the RECEIVE command as described in the Receive Command Format window. (FTTERM supplies the *RECEIVE* part of the command.)

The format for receiving a PC file from a host screen is:

```
RECEIVE [d:][\path\]filename.ext HOSCREEN  
[(APPEND)]
```

Note that APPEND is the only valid option for this type of transfer. Using APPEND causes the screen data to be added to the end of an existing file.

5. Press the Enter key to create the file. You cannot switch to another function while the transfer is in progress.
6. When the transfer is finished, press the host key sequence (default is Alt-F10) to return to the host session.

Example of Receiving a PC DOS file from a Host Screen

```
RECEIVE B:\SCREENS\HOST.TXT HOSCREEN
```

This command saves the host screen in PC file HOST.TXT in path \SCREENS\ on drive B.

Receiving a Host Screen to the PC Printer

This option lets you print on the PC printer the contents of a display screen generated during a host session.

To receive a host screen to the PC printer, do the following:

1. Be sure the printer is turned on, is online, and has a supply of paper.
2. In the host session, display the screen that you want to print.
3. Switch to the File Transfer Main Menu using the FTTERM key sequence (default is Alt-F8).
4. Display the Receive Command Format window (Figure 4-5 on page 4-23) by entering a 2.
5. Type the RECEIVE command as described in the Receive Command Format window. (FTTERM supplies the *RECEIVE* part of the command.)

The format for printing a host screen is:

RECEIVE PRN HOSCREEN

6. Press the Enter key to start printing. You cannot switch to another function while the transfer is in progress.
7. When the transfer is finished, press the host key sequence (default is Alt-F10) to return to the host session.

Using a Batch File to Transfer Multiple Files

This section describes how to use a *batch file* to perform multiple file transfers with a single FTTERM command.

You can store up to 20 SEND and RECEIVE commands in a batch file for sequential processing. You can include any combination of SEND and RECEIVE commands, in any order. Keep in mind the following requirements:

- Only protocol conversion transfers to the same SNA host are permitted.
- Only file-to-file transfer commands are permitted. Transfer commands involving the screen or printer are not permitted.
- All of the PC files being sent must be available on the diskettes being used by the PC when you start the transfer. You cannot switch diskettes during the batch file processing.
- You must have space available for all of the files being sent or received.

Creating the Batch File

You can use most text editing or word processing programs to create the batch file. Follow these guidelines:

- Do not let a command wrap around to the next line.
- Keep each command on a single line (255 characters maximum, including spaces).
- End each line by pressing the Enter key.

You can use **S** or **1** instead of **SEND**, and you can use **R** or **2** instead of **RECEIVE**.

Figure 4-7 shows how FTTERM commands in a batch file can be formatted.

```
SEND CHAP1.DOC CHAPTER1 SCRIPT A1 (ASCII CRLF)
RECEIVE CHAP2.DOC CHAPTER2 SCRIPT A1 (ASCII CRLF)
R B:CHAP3.DOC CHAPTER3 SCRIPT A1 (ASCII CRLF)
2 B:CHAP4.DOC CHAPTER4 SCRIPT A1 (ASCII CRLF)
S A:APPENDA.DOC APPENDA SCRIPT A1 (ASCII CRLF)
1 A:APPENDB.DOC APPENDB SCRIPT A1 (ASCII CRLF)
SEND A:ADVENTUR.COM ADVENT BASIC A1
```

Figure 4-7. Sample FTTERM Command Batch File

Processing the Batch File

After you create the batch file, you can tell FTTERM to process it as follows:

1. Verify that the host is in the command ready state.
2. Switch to the File Transfer Main Menu (default is Alt-F8).
3. Enter a **3**. FTTERM prompts you for the name of the batch file. (You can also enter **BATCH** or **B** instead of **3**. In addition, you can enter a complete command as a single step by entering **3**, **BATCH**, or **B** followed by the name of the batch file.)
4. Enter the complete filename of the batch file, including the drive letter, path, and extension, if appropriate.

When FTTERM begins to process the batch file, it displays the Status of Batch Transfer Requests screen (Figure 4-8).

STATUS OF BATCH TRANSFER REQUESTS		
Completed	A:CHAP1.DOC	CHAPTER1 SCRIPT A1
Completed	A:CHAP2.DOC	CHAPTER2 SCRIPT A1
Active	A:CHAP3.DOC	CHAPTER3 SCRIPT A1
Waiting	A:CHAP4.DOC	CHAPTER4 SCRIPT A1
Waiting	A:APPENDA.DOC	APPENDA SCRIPT A1
Waiting	A:APPENDB.DOC	APPENDB SCRIPT A1
Waiting	A:ADVENTUR.COM	ADVENT BASIC A1

TYPE T to Terminate data transfer.
 Alt-F7 = MSGS Alt-F8 = FTTERM Alt-F9 = PC DOS

Figure 4-8. The Status of Batch Transfer Requests Screen

Batch Transfer Status Messages

The following list defines the status messages that can appear on the left side of the Status of Batch Transfer Requests screen:

Active

The transfer is currently in progress.

Bad command

The command did not begin with **SEND**, **RECEIVE**, **S**, **R**, **1**, or **2**, followed by a space.

Bad dest

You specified an invalid destination for the transfer. **PRN** is not permitted.

Bad source

You specified an invalid source for the transfer. **HOSCREEN** and **PCSCREEN** are not permitted.

Canceled

Either an unrecoverable file transfer error occurred, or you interrupted the batch transfer by typing **T** at the Status of Batch Transfer Requests screen.

Completed

The transfer was completed successfully.

Host error

The host file transfer program reported an error during file transfer. FTTERM cancels this transfer and begins processing the next command.

Press the key sequence for the Host Messages screen (default is Alt-F7) to see a specific error message. See Appendix A, "File Transfer Messages," for an explanation and response.

Line drop

The link to the host was lost during the transfer. FTTERM lists all subsequent requests in the batch file as **Canceled**.

Re-establish the host session. You can either start the complete batch transfer again or modify the batch file to delete the commands that were successfully processed.

Long name

The PC or host file specification exceeded the maximum length of 78 characters. FTTERM skips processing this command and begins processing the next command.

Use a shorter name or path in the file specification that is too long.

PC error

PC DOS reported an error during the file transfer. FTTERM cancels this command and begins processing the next command.

Enter the command by itself at the file transfer menu to obtain a more detailed error message.

Waiting

The command is waiting to be processed by FTTERM.

Under some error conditions, you must terminate the host file transfer program. You can do this by twice pressing the PC key equivalent to PF2 in the host session (default is F2). The host returns to the command ready state.

Stopping the Batch File Processing

You can use the following procedure to stop the batch file processing before it finishes:

1. Type a **T** at the batch transfer status display.

FTTERM asks whether you want to stop batch file processing completely.

2. Do one of the following:

- Enter a **Y** to stop the batch file processing completely.
- Enter an **N** to stop only the active transfer. FTTERM begins the next transfer in the batch file.

Entering SEND and RECEIVE Commands in the PC DOS Session

FTTERM, with its SEND.COM and RECEIVE.COM programs, can accept a SEND or RECEIVE file transfer command in the PC DOS session. This is useful when you are using PC programs that can be configured to issue DOS commands.

For example, you can configure such a program to automatically send a PC file to a host when you finish working on the PC file.

With a fixed disk system, the command to send document file MYFILE.TXT on drive A to the CMS A disk would be as follows:

```
C:SEND MYFILE.TXT MYFILE SCRIPT (ASCII CRLF
```

Messages that report the status of the transfer appear in the PC DOS session. For example:

```
TRANS02  Number of bytes transferred so far: ==> 2560
```

Keep in mind the following requirements when issuing a SEND or RECEIVE command in the PC DOS session:

- FTTERM must already be loaded in the normal (resident) mode.
- The configuration file that you are using must specify the protocol conversion method for file transfers.
- You cannot run another PC program while a file transfer is in progress.
- You can interrupt the transfer by pressing the Ctrl-Break key sequence.
- You cannot start a file transfer from the DOS prompt while another transfer is being processed through the file transfer menu.

Host Considerations

This section includes the following information about specific SNA hosts:

- Verifying that the host system is ready to perform file transfers
- Interpreting the general command formats
- Using the command options.

VM/CMS Hosts

This section provides information about VM/CMS hosts.

Preparing for File Transfer

Follow these steps to prepare the VM/CMS host for file transfer:

1. After you log on to the VM/CMS host or exit from a host program, make sure that the CMS ready message is the last thing on the screen:

```
R; (other data)
```

Note: It is not necessary to exit from a host program to print the host screen or save it in a PC file.

If the screen is blank, press the Enter key until **RUNNING** appears in the lower right corner:

```
RUNNING
```

If **HOLDING** appears instead of **RUNNING**, press the PC equivalent to the **CLEAR** key (default is Home) until **RUNNING** appears.

2. Press the key sequence for the File Transfer Main Menu (default is Alt-F8).

The VM/CMS host is now ready for file transfers.

Command Formats

The file transfer command formats for VM/CMS hosts are:

- File-to-file transfers:

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

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

- Screen-to-file transfers:

SEND HOSCREEN fn ft fm [(APPEND]

SEND PCSCREEN fn ft fm [(APPEND]

RECEIVE [d:][\path\]filename.ext PCSCREEN
[(APPEND]

RECEIVE [d:][\path\]filename.ext HOSCREEN
[(APPEND]

- File-to-printer transfers:

SEND [d:][\path\]filename.ext PRN

RECEIVE PRN fn ft fm (options

- Screen-to-printer transfers:

SEND PCSCREEN PRN

RECEIVE PRN HOSCREEN

The following list describes the user-specified parts of the command formats:

- d: The PC disk or diskette drive letter, specified when the PC file is on a drive other than the default drive (the one with FTTERM).

- \path* The path, specified when the PC file is in a directory other than the current directory (used mainly with fixed disks).
- filename* The PC filename. This item is required.
- .ext* The optional PC file extension, such as .DOC and .EXE.
- fn* The CMS filename (8 characters maximum).
- ft* The CMS filetype (8 characters maximum).
- fm* The CMS filemode (2 characters maximum, default is a1).
- options* See “SEND and RECEIVE Command Options” on page 4-48.

Note: Examples of file transfer commands for VM/CMS hosts appear on pages 4-13, 4-19, and 4-27.

MVS/TSO Hosts

This section provides information about MVS/TSO hosts.

Preparing for File Transfer

Follow these steps to prepare the MVS/TSO host for file transfer:

1. After you log on to the MVS/TSO host or exit from a host program, make sure that the TSO ready message is the last thing on the screen:

```
READY
```

Note: You cannot create a new member in a partitioned data set that is currently being used by someone else.

2. Press the key sequence for the File Transfer Main Menu (default is Alt-F8).

The MVS/TSO host is now ready for file transfers.

Command Formats

The file transfer command formats for MVS/TSO hosts are:

- File-to-file transfers:

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

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

- Screen-to-file transfers:

```
SEND HOSCREEN "data.set.name[(member.name)] '  
[/[password] [(APPEND]
```

```
SEND PCSCREEN 'data.set.name[(member.name)] '  
[/[password] [(APPEND]
```

```
RECEIVE [d:][\path\]filename.ext PCSCREEN  
[(APPEND]
```

```
RECEIVE [d:][\path\]filename.ext HOSCREEN  
[(APPEND]
```

- File-to-printer transfers:

```
SEND [d:][\path\]filename.ext PRN
```

```
RECEIVE PRN 'data.set.name[(member.name)] '  
[/[password] (options
```


- Screen-to-printer transfers:

SEND PCSCREEN PRN

RECEIVE PRN HOSCREEN

The following list defines the user-specified parts of the command formats:

<i>d:</i>	The PC disk or diskette drive letter, specified when the PC file is on a drive other than the default drive (the one with FTTERM).
<i>\path\</i>	The path, specified when the PC file is in a directory other than the current directory (used mainly with fixed disks).
<i>filename</i>	The PC filename. This item is required.
<i>.ext</i>	The optional PC file extension, such as .DOC and .EXE.
<i>data.set.name</i>	The TSO data set name, consisting of up to 44 characters. The single quotes may not be required at a specific TSO installation.
<i>(member.name)</i>	The TSO member name, enclosed in parentheses, which is valid for partitioned data sets only.
<i>/password</i>	The optional password. Do not use a space before the slash.
<i>options</i>	See "SEND and RECEIVE Command Options" on page 4-48.

Note: Examples of file transfer commands for MVS/TSO hosts appear on pages 4-13, 4-27, and 4-32.

CICS and IWS Hosts

This section provides information about CICS and IWS hosts. It is *not* a complete reference for file transfers with IWS hosts. For complete information about the use of command options with IWS hosts, refer to the VSE/SP documentation listed under “Related Manuals” on page viii.

Preparing for File Transfer

After you log on to the CICS or IWS host or finish with a host transaction, clear the screen by pressing the PC equivalent to the CLEAR key (default is Home). The CICS or IWS host is now ready for file transfers.

Command Formats

The file transfer command formats for CICS and IWS hosts are:

- File-to-file transfers:

```
SEND [d:][\path\]filename.ext fn (options) [comments]
```

```
RECEIVE [d:][\path\]filename.ext fn (options)
```

- Screen-to-file transfers:

```
SEND HOSCREEN fn (options)
```

```
SEND PCSCREEN fn (options)
```

```
RECEIVE [d:][\path\]filename.ext PCSCREEN
```

```
RECEIVE [d:][\path\]filename.ext HOSCREEN
```

- File-to-printer transfers:

```
SEND [d:][\path\]filename.ext PRN
```

RECEIVE PRN *fn* (*options*)

- Screen-to-printer transfers:

SEND PCSCREEN PRN

RECEIVE PRN HOSCREEN

The following list defines the user-specified parts of the command formats:

- d:* The PC disk or diskette drive letter, specified when the PC file is on a drive other than the default drive (the one with FTTERM).
- \path* The path, specified when the PC file is in a directory other than the current directory (used mainly with fixed disks).
- filename* The PC filename. This item is required.
- .ext* The optional PC file extension, such as .DOC and .EXE.
- fn* The name of the CICS file (8 characters maximum; the first character must be a letter.
- IWS only:* When receiving a file to the PC from the host temporary storage queue, you can substitute an asterisk (*) for the host file name. This allows FTTERM to receive the file regardless of the contents of the file header record. Note, however, that the header record is discarded during the transfer.
- options* See "SEND and RECEIVE Command Options" on page 4-48.
- comments* Any optional comments or control information; valid when sending to temporary storage queue only. If you do not specify any options, you must still enter both parentheses before entering comments.

Note: Examples of file transfer commands for CICS hosts appear on pages 4-14, 4-21, and 4-28.

Examples of file transfer commands for IWS hosts appear on pages 4-14 and 4-28.

SEND and RECEIVE Command Options

This section defines the options available for FTTERM file transfers using the protocol conversion method. The basic options are described first, followed by a complete list of all options.

Basic Options for VM/CMS and MVS/TSO Hosts

The basic options for SEND and RECEIVE commands when transferring *alphanumeric* files with VM/CMS and MVS/TSO hosts are:

- ASCII
- CRLF
- LRECL.

ASCII and CRLF are usually used together, in either order.

The LRECL option is more specialized than ASCII and CRLF. It lets you specify a logical length for host records when a PC file contains lines that are longer than 80 characters. Doing so prevents a single PC file line from being segmented into multiple host records on a SEND command. The value you specify should be equal to or greater than the length of the longest line in the PC file.

For *binary* files, it is common to specify no options. FTTERM assumes that you are transferring binary data when you do not specify any options.

Figure 4-9 lists the basic options for VM/CMS and MVS/TSO hosts. The “Resulting Data Type and Format” column describes what happens to the file data during the transfer.

Options	Filetype	Resulting Data Type and Format
ASCII CRLF	Alphanumeric (text) files	Converted between ASCII and EBCDIC. Each line in the PC file (ending in CR-LF) equals one host logical record.
none	Binary files	No conversion. The PC file is segmented into fixed length host logical records.
ASCII	Special	Converted between ASCII and EBCDIC. The PC file is segmented into fixed length host logical records.
CRLF	Special	No conversion. Each line in the PC file (ending in CR-LF) equals one host logical record.

Figure 4-9. Basic Options for VM/CMS and MVS/TSO Hosts

See Figure 4-3 on page 4-10 and Figure 4-6 on page 4-25 for complete tables of available options for SEND and RECEIVE commands. See “Option Definitions” on page 4-51 for a definition of each option.

Basic Options for CICS and IWS Hosts

When transferring *alphanumeric* files with CICS and IWS hosts, it is common to specify no options on the SEND or RECEIVE command. FTTERM assumes that you are transferring alphanumeric data when you do not specify any options.

The basic option to use when transferring *binary* files is either of the following (they are equivalent):

- BINARY
- NOCRLF.

Figure 4-10 lists the most common options for CICS and IWS hosts. The “Resulting Data Type and Format” column describes what happens to the file data during the transfer.

Options	Filetype	Resulting Data Type and Format
none	Alphanumeric (text) files	Converted between ASCII and EBCDIC. Each line in the PC file (ending in CR-LF) equals one host logical record.
BINARY	Binary files	No conversion. The PC file is segmented into fixed length host logical records.
ASCII	Same as none	
CRLF	Same as none	

Figure 4-10 (Part 1 of 2). Basic Options for CICS and IWS Hosts

Options	Filetype	Resulting Data Type and Format
ASCII CRLF	Same as none	
NO CRLF	Same as BINARY	
BINARY NO CRLF	Same as BINARY	
BINARY NO CRLF	Same as BINARY	
ASCII NO CRLF	Special	Converted between ASCII and EBCDIC. The PC file is segmented into fixed length host logical records.
BINARY CRLF	Special	No conversion. Each line in the PC file (ending in CR-LF) equals one host logical record.

Figure 4-10 (Part 2 of 2). Basic Options for CICS and IWS Hosts

See Figure 4-3 on page 4-10 and Figure 4-6 on page 4-25 for complete tables of available options for SEND and RECEIVE commands. See "Option Definitions" for a definition of each option.

Option Definitions

This section defines each of the command options available for SEND and RECEIVE commands. They are arranged alphabetically.

APPEND

Commonly used.

This option causes FTTERM to attach the file being transferred to the end of an existing destination file.

If the destination file does not exist, it will be created. If you do not specify the APPEND option, the destination file will be replaced.

CICS and IWS users only: APPEND is not available as a SEND command option. For IWS, see NOREPLACE. When appending binary files with a RECEIVE command, use the BINARY option. *Do not* use the NOCRLF option.

ASCII

Commonly used.

This option specifies that the file data is alphanumeric (displayable) data, such as documents and source code. The data is converted from ASCII to EBCDIC characters on a SEND command and from EBCDIC to ASCII characters on a RECEIVE command. The ASCII option is commonly used in combination with the CRLF option.

CICS and IWS users only: ASCII is a default option. Using ASCII implies that you want the CRLF option, unless you also specify the NOCRLF option.

BINARY

Commonly used; for CICS and IWS only.

This option specifies that the file data is binary, such as encrypted data, compiled programs, or other data that cannot be displayed and read online. The data is not converted during the transfer.

The BINARY option is valid for CICS and IWS only. Binary data is assumed by other hosts when you do not specify the ASCII option. Using the BINARY option implies that you want the NOCRLF option, unless you also specify the CRLF option.

BLANK

Commonly used; for RECEIVE on IWS only.

This option prevents the host file transfer program from deleting trailing blanks before carriage return/line feed characters. Deleting the trailing blanks is the default. The BLANK option is valid for alphanumeric files only.

BLKSIZE(n)

Not commonly used; for SEND on MVS/TSO only.

This option determines the block size for a new sequential data set on the TSO volume. If you omit this option when creating a new data set, its block size will equal its record length.

CRLF

Commonly used.

This option is commonly used in combination with the ASCII option for alphanumeric files. It has the following results:

- **SEND** command. CRLF causes carriage return/line feed characters to be regarded as the ends of logical records at the host. The carriage return/line feed characters are not written into the host file.
- **RECEIVE** command. CRLF causes carriage return/line feed characters to be inserted at the ends of logical records. Trailing blanks are removed from the records unless you use the BLANK option (IWS only).

CICS and IWS users only: CRLF is a default option. Using CRLF implies that you want the ASCII option, unless you also specify the BINARY option.

DELETE

Default option; for RECEIVE on IWS only.

When you receive a file from your own userID, the host file is deleted by default (thus DELETE is a default option). If you do not want the host file to be deleted, use the KEEP option. Files that other users have shared with you using the PUBLIC or FOR option are not deleted when you receive them.

FILE

Commonly used; for IWS only.

Available options are:

- **FILE = HTF** The file is to be transferred to or from the CICS Host Transfer File. This is the default option.
- **FILE = TS** The file is to be transferred to or from the CICS temporary storage queue.

FOR

For SEND on IWS only.

This option lets you share a file with up to eight users, specified in this format:

FOR = *userid1,...userid8*

The *useridn* represents the userID by which a user is currently logged on to CICS. It can be up to 8 characters and must be separated from a preceding *useridn* by commas with no embedded blanks.

If you want to share the file with more than eight users, you can use the SHARE function of the DOS/VSE Move Utilities.

In the host session, CICS notifies the specified users that a file has been stored for them in the Host Transfer File. The FOR option, together with the PUBLIC option, makes a file available to all users, with notification to selected users.

You can update the shared file by performing another SEND command for the same file using the REPLACE option. The FOR option need not be used again. The previously specified users will be notified of the arrival of the updated file.

FROM

For RECEIVE on IWS only.

This option lets you receive a file that was sent either as a public file or as a shared file using the FOR option. You specify the owner of the file in this format:

FROM = *userid*

The *userid* represents the CICS userID of the owner of the file. When you receive the file using the FROM option, the file owner receives notification of the transfer in his host session.

You can use the DISPLAY function of the DOS/VSE Move Utilities to see whether there are any shared or public files available to you.

KEEP

For RECEIVE on IWS only.

This option prevents the host file transfer program from deleting a file you are receiving from your own userID. See the DELETE option.

LRECL

Not commonly used;

for SEND on VM/CMS and MVS/TSO only.

This option lets you specify either:

- A maximum length for variable-length records
- A length other than 80 characters for fixed-length records.

(See the RECFM option.) If you send a record that is longer than the specified length, the host file transfer program segments it into multiple records.

The formats for the logical record length options are:

- VM/CMS: **LRECL *n***

where *n* can be from 1 to 256.

- MVS/TSO: **LRECL(*n*)**

where *n* can be from 1 to 132. LRECL is not valid for MVS/TSO partitioned data sets.

NOCRLF

Not commonly used; for CICS and IWS only.

This option overrides the automatic conversion of carriage return/line feed characters in the PC file to logical record boundaries in the CICS Host Transfer File or the temporary storage queue. The file is regarded as a single continuous record. (See the CRLF option.)

Using the NOCRLF option implies that you want the BINARY option unless you also specify the ASCII option.

NOREPLACE

Default option, for SEND on IWS only.

If a host queue or file already exists with the same name as the file being sent, this option causes a message to be sent to the host session, and the transfer is canceled. Note that NOREPLACE is a default option. (See the REPLACE option.)

PRIVATE

Default option; for SEND on IWS only.

This option indicates that the file being sent to the Host Transfer File can only be accessed by the sender. (See the PUBLIC option.)

PROGRAM

*For SEND on IWS only;
command must include FILE = TS.*

This option does the following:

- SEND command. PROGRAM specifies a CICS user program to be activated after the PC file has been stored in the temporary storage queue.
- RECEIVE command. PROGRAM specifies a CICS user program to load into the temporary storage queue before the RECEIVE operation is started.

You specify the user program name in this format:

PROGRAM = CFTR*name*

The *name* can be from 2 to 4 characters long. It must not contain the character \$.

PUBLIC

For SEND on IWS only.

This option indicates that the file being sent to the Host Transfer File is to be available to everyone on the system. (See the PRIVATE option.)

QNAME

*For SEND on IWS only;
command must include FILE = TS.*

This option does the following:

- SEND command. QNAME specifies the CICS temporary storage queue that will contain the PC file being sent.
- RECEIVE command. QNAME specifies the temporary storage queue that contains the host data to be received.

You specify the queue name in this format:

QNAME = CFTR*name*

The *name* can be from 2 to 4 characters long. It must not contain the character \$.

A queue name can also be supplied by a user program named in a PROGRAM option.

If you do not use this option, the host file transfer program uses a default queue name in which *name* is the terminal ID. For example, if the terminal ID is D080, the default queue name is CFTRD080.

RECFM

Not commonly used;

for SEND on VM/CMS and MVS/TSO only.

The available record format options are:

- VM/CMS: **RECFM F**
 MVS/TSO: **RECFM(F)**

The host file will contain fixed length records. The length is set to 80 bytes by default, but you can set another record length with the LRECL option. This is the default record format for MVS/TSO.

- VM/CMS: **RECFM V**
 MVS/TSO: **RECFM(V)**

The host file will contain variable length records. Host record boundaries are set to coincide with carriage return/line feed characters in the PC file (valid only when the CRLF option is used). This is the default record format for VM/CMS.

- MVS/TSO: **RECFM(U)**

The record format is undefined. The host data set will contain one continuous record. This option is valid for MVS/TSO only.

REPLACE

Commonly used; for IWS only.

This option does the following:

- SEND command. REPLACE causes the PC file being sent to replace an existing host queue or file that has the same name. (See the NOREPLACE option.)
- RECEIVE command. REPLACE causes the host file or queue being received to replace an existing PC file that has the same name. REPLACE is a default option for RECEIVE commands on IWS. (See the APPEND option.)

SPACE

Not commonly used; for SEND on MVS/TSO only.

Allocates space for a new sequential data set on the TSO volume. You specify the space parameters in this format:

SPACE(*n1,n2*) *units*

The *n1* represents the number of units of space to be allocated. You also can specify a value for *n2*, which is an extra allocation if the data set exceeds the space allowed by *n1*.

The *units* can be one of the following:

- TRACKS
- CYLINDERS
- AVBLOCKS(*value*).

If you omit the SPACE option, TSO allocates one block. The size of the block is determined by the BLKSIZE or LRECL option.

TYPE

For IWS only.

This option supports the VSE/SP Document Management package. It lets users identify files sent from the PC as either EDIT or PRINT files. It is valid for transfers to the Host Transfer File only (as opposed to transfers to the temporary storage queue).

The filetype is kept as internal information in the directory entry of the Host Transfer File; it is not displayed on the DOS/VSE Move Utilities filelist. There cannot be an EDIT file and a PRINT file with the same file name.

Available options are:

TYPE = EDIT

TYPE = PRINT

Chapter 5. Transferring Files Using the Native Emulation Method

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Notes:

About this Chapter

This chapter explains how to transfer files using the native emulation method. This is the file transfer method you use with all ASCII hosts.

You can also use the native emulation method with SNA hosts. (The protocol conversion method is preferred for SNA hosts that have the appropriate program listed under "Required Software" on page 1-14. See Chapter 4, "Transferring Files Using the Protocol Conversion Method," for more information.)

For you to transmit PC files to the host, the host must have a line-oriented data entry program, such as a text editor. Consult the host system administrator or the host documentation for the program to use.

This chapter also explains how to use the FILECONV program to prepare binary files for file transfer using native emulation.

How Native Emulation Transfer Works

To transmit a file to a host using native emulation, you start a host data entry or text editor program, switch to FTTERM, and start the file transfer. FTTERM sends the data as if you were typing it on the keyboard.

When the file transfer is finished, you close the host file using the normal procedures for the host program.

Saving a file from the host is a similar process. The host sends text to the PC display, but FTTERM intercepts the data and sends it to a PC file or printer as well.

Before Starting a File Transfer

Before you start a file transfer, be sure that:

- You made and configured a working copy of FTTERM as described in Chapter 2, “Preparing to Use FTTERM.”
- You started FTTERM and established a host session as described in Chapter 3, “Using FTTERM.”
- If receiving a file, you have enough disk space at the PC to contain the file.
- If sending a file, you have enough space allocated to you at the host to contain the file.

Selecting a Terminal Type

Some ASCII hosts ask you to select a terminal type from a list when you log on. Select IBM 3101 if it is in the list. If IBM 3101 is not in the list, consult the host documentation or system administrator to determine the correct terminal type.

Using Full-Screen Host Programs

If you save the data displayed during a host session while using a *full-screen* host program rather than a line-oriented program, the resulting PC file may be partly or completely unusable.

You can determine whether a host program is full-screen by the cursor movement. With a full-screen program, the cursor can move directly to different locations on the screen. With other programs, the cursor always starts in the upper left corner and moves down, or it stays on the bottom line while text scrolls upward.

There are two ways to avoid problems while using a full-screen host program:

- If the host offers a list of terminals, do not select IBM 3101. Select a terminal that does not support full-screen operation. Consult the host documentation or system administrator, if necessary.
- Use the COPY command (selection 3 on the File Transfer Main Menu – Native Emulation) to save individual screens. See “Copying a Host Screen to a PC File or Printer” on page 5-14.

The File Transfer Main Menu – Native Emulation

The File Transfer Main Menu – Native Emulation (Figure 5-1) is the starting point for all PC/host file transfers using native emulation.

FILE TRANSFER MAIN MENU – NATIVE EMULATION

MODE: CONCURRENT

<u>ID</u>	<u>Command</u>	<u>Description</u>
1	SAVE	Receive data to PC
2	TRANSMIT	Send data from PC
3	COPY	Copy host screen to file or printer
4	LOAD	Load a configuration file
5	MODE	Toggle nonconcurrent and concurrent

Type an ID number or Command and press ENTER.

===>

Alt-F1=HELP Alt-F2=RETURN

Alt-F4=RETRIEVE Alt-F5=COLOR

Alt-F6=DISC

Alt-F8=FTTERM

Alt-F9=PC DOS

Alt-F10=HOST

Figure 5-1. The File Transfer Main Menu – Native Emulation

The following sections cover only the file transfer commands SAVE, TRANSMIT, and COPY.

See Appendix B, “FTTERM Menus,” for a description of each item on the File Transfer Main Menu.

See Chapter 3, “Using FTTERM,” for instructions on accessing the File Transfer Main Menu and switching between FTTERM functions.

For specific information on the LOAD and MODE commands, see:

- “Loading a Configuration File” on page 3-18
- “Selecting Concurrent or Nonconcurrent Mode” on page 3-17.

Saving Host Data at the PC

This section describes how to save a host file or the data displayed during an interactive host session (including the keystrokes). You can save the host data at these destinations:

- PC file
- PC printer.

To save a single screen of data from the host session, see “Copying a Host Screen to a PC File or Printer” on page 5-14.

Notes:

1. When you are saving host data in a PC file, you must stop the save operation when you are finished. If you reset or turn off the PC before stopping the save operation, FTTERM does not create the PC file. None of the received data is saved. To stop the save operation, see “Stopping the Save Operation” on page 5-10.
2. In unusual situations, you may encounter a host that does not support XON/XOFF pacing (using the ASCII characters DC1 and DC3) during data transfers. The host documentation or system administrator should provide this information. With hosts that do not support XON/XOFF pacing, be aware of these limitations to the line speed in the configuration file:
 - When saving host data at a printer, the data must not be received faster than the printer can print it. As a rule, the line speed should not exceed 10 times the printer’s speed in characters per second. Your own experience may reveal that you can use higher line speeds without losing data.

- When saving a large host file in a PC file, the line speed should not exceed 1200 baud. Again, your own experience may reveal that you can use higher line speeds without losing data.

Follow these steps to save host data at the PC:

1. Start a session with the host as described in Chapter 3, "Using FTTERM."
2. Switch to the File Transfer Main Menu – Native Emulation by entering the FTTERM key sequence (default is Alt-F8).
3. Enter 1 for the SAVE command. (You can also enter S or SAVE. In addition, if you are familiar with the format of the SAVE command, you can enter the whole command as a single step.)

FTTERM displays:

FORMAT: [d:][\path\]filename[.ext]

Type filename or PRN for printer and press ENTER

4. Do one of the following:

- Type the complete specification for the PC file in which you want to save the host data. You can specify a new file or an existing file. Include the drive letter, path, and extension, if appropriate.

If you specify the name of an existing PC file, FTTERM displays:

```
The file already exists.  
Do you wish to Append, Cancel,  
or Replace (A, C, or R)?
```

Do one of the following:

- Enter **A** to attach the data to the end of the existing file.
 - Enter **C** to cancel the SAVE command. This lets you use a different filename or disk drive.
 - Enter **R** to replace the existing file with a new file.
- Type **PRN** to print the host data. Be sure that the printer is turned on, is online, and has a supply of paper.

5. Press the Enter key. FTTERM displays:

```
Text is being saved.  
Type 'E' to stop saving text and close file.
```

6. Return to the host session (default key sequence is Alt-F10).

7. Do one of the following:

- Save a *host file* by entering the command that displays a host file on the screen. Everything that appears on the PC screen after you return to the host session is saved in a file or printed.

If the display output is continuous, you can switch to the PC DOS session and run PC programs during the transfer (concurrent mode only). If the display output waits for you to press a certain key between screens of data, you may prefer to stay in the host session during the transfer.

- Save an *interactive host session* by proceeding with the host session in the normal manner. Everything that appears on the PC screen after you return to the host session is saved in a file or printed.

When you save host data in a PC file, the disk drive may not start writing the data immediately. FTTERM waits until a buffer fills up before writing the data on the disk.

Stopping the Save Operation

You can stop the save operation and close the PC file at any time during or after the data transfer by following these steps:

1. Return to the File Transfer Main Menu – Native Emulation by pressing the FTTERM key sequence (default is Alt-F8).
2. Type **E**. FTTERM displays:

```
*** Saving Text ended ***
```

You can now return to the host or PC DOS session.

You can stop and restart the save operation any number of times during a single host session. To restart the save operation, return to step 2 under "Saving Host Data at the PC" on page 5-7.

Examples of Saving Host Data at the PC

```
SAVE C:SESSION.HST
```

This command saves the host session in file SESSION.HST on drive C.

```
SAVE PRN
```

This command prints the host session.

Transmitting a PC File to a Host

This section describes how to transmit a PC file to a host using the native emulation method.

Note: This procedure works for alphanumeric files only. You must convert binary files such as COM or EXE files to a temporary alphanumeric format before transmitting them to the host. See "Using FILECONV When Transferring Binary Files" on page 5-16 for instructions.

Follow these steps to transmit a PC file to a host:

1. In the host session, start the data entry or text processing program that you normally use for entering keyboard data into a host file. Place the program into its input state. (You can also open an existing host file and insert or append the PC file. Be sure the host program is in the appropriate state.)
2. Return to the File Transfer Main Menu – Native Emulation by pressing the FTTERM key sequence (default is Alt-F8).
3. Enter 2 for the TRANSMIT command. (You can also enter T or TRANSMIT. In addition, if you are familiar with the format of the TRANSMIT command, you can enter the whole command as a single step.)

FTTERM displays:

```
FORMAT: [d:][\path\]filename[.ext]
```

Type filename and press ENTER

4. Type the complete specification for the PC file that you want to transmit to the host. Include the drive letter, path, and extension, if appropriate.
5. Press the Enter key. FTTERM displays:

```
*** Bytes transmitted: nnnn of nnnn ***
```

```
*** Type T to terminate ***
```

FTTERM does not let you switch to the host session during the transfer. You can, however, switch to the PC DOS session (default is Alt-F9).

When the transmit operation is finished, FTTERM displays this message on the File Transfer Main Menu – Native Emulation:

```
*** File transfer complete ***
```

You can now return to the host session (default is Alt-F10) and edit or close the new host file.

Stopping the Transmit Operation

You can stop the transmit operation at any time during the file transfer by following these steps:

1. Return to the File Transfer Main Menu – Native Emulation (if you have switched to another function) using the FTTERM key sequence (default is Alt-F8).

2. Type T. FTTERM displays:

```
*** File transmit canceled ***
```

3. Return to the host session (default is Alt-F10) to close or abandon the new host file. The host file contains any text that was sent before you stopped the transmit operation.

Example of Transmitting a PC File to a Host

```
TRANSMIT \123\PROPOSAL.WKS
```

This command transmits PC file PROPOSAL.WKS in path \123\ on the current drive.

Copying a Host Screen to a PC File or Printer

This section describes the steps for saving a single screen of data displayed during a host session. You can save the host screen at these destinations:

- PC file
- PC printer.

To save more than a single screen of data from the host session, see “Saving Host Data at the PC” on page 5-7.

Follow these steps to copy a host screen to a PC file or the PC printer:

1. In the host session, display the screen of text that you want to copy. Use the host program’s Pause-Display command if necessary. (Ctrl-S is common when XON/XOFF is supported.)
2. Switch to the File Transfer Main Menu – Native Emulation (default is Alt-F8).
3. Enter 3 to select the COPY command. FTTERM displays:

```
FORMAT: {d:|[\path\}filename[.ext]
```

```
Type filename or PRN for printer and press ENTER
```


4. Do one of the following:

- Type the complete specification for the PC file to which you want the host screen to be copied. Include the drive letter, path, and extension, if appropriate.
- Type **PRN** to print the host screen. Be sure your printer is turned on, is online, and has a supply of paper. You cannot switch to another session while the printing is in progress.

5. Press the Enter key. FTTERM displays:

```
*** Copying screen. Type 'T' to terminate ***
```

When the copy is finished, FTTERM displays this message on the File Transfer Main Menu – Native Emulation:

```
*** Copy screen complete ***
```

Stopping the Copy Operation

You can stop the copy operation at any time by typing **T**. FTTERM displays:

```
*** Copy screen canceled ***
```

This is particularly useful if the printer has a problem while printing the host screen data.

Examples of Copying Host Screen Data

`COPY SCREEN.HST`

This command saves the host screen data in PC file `SCREEN.HST` on the current drive.

`COPY PRN`

This command prints the host screen data.

Using FILECONV When Transferring Binary Files

This section describes how to prepare binary files for transmission to a host using the native emulation method.

With native emulation, `FTTERM` transmits PC files as if you were typing characters on the keyboard. Therefore, the file must consist of ASCII (alphanumeric) data. Binary files such as `COM` and `EXE` files do not consist of ASCII data.

You must use `FTTERM`'s `FILECONV` program to convert binary files to an ASCII format before you can transmit the file using native emulation. (This does not apply to sending files using protocol conversion. It does apply, however, to sending files to SNA hosts using native emulation.) `FILECONV` creates a separate ASCII file; the original binary file is not affected.

When you or another `FTTERM` user saves the file back to a PC, you must use `FILECONV` a second time to convert it to its original binary format. The ASCII version of the file is meaningful only to `FILECONV`.

Identifying ASCII and ...

The FILECONV program recognizes the following types of files as binary files:

- Files that have been assembled or compiled. Files with the extension COM or EXE are in this category.
- BASIC program files that are stored in "protected" format.
- Text files that contain graphics or special characters, null records, or records whose length is greater than the host can accept.

Many text files produced by PC word processing programs contain special characters, thus qualifying them as binary files. This is a problem if you want to edit the text file on the host or insert it into another host file. If you process the file with FILECONV, all you can do is *store* it at the host; you cannot edit or display it. There are several things to try in this case:

1. Transmit the file without converting it and see what happens. You can often see special characters in the host file and erase them with the host text editor.
2. If the results are not satisfactory, use the PC word processing program to convert all soft carriage returns (wrap lines) to hard carriage returns. It may also be necessary to delete formatting commands like bold print and underlining.
3. If the preceding suggestions do not solve the problem, obtain a PC file conversion program that inserts carriage return/line feed characters at the end of each line of text. You should be able to transmit the file after converting it with this type of program. Contact your software dealer.

Starting FILECONV

Note: Diskette users please note that the FILECONV program file is *not* on the FTTERM working diskette. It is on the FILECONV working diskette you created in the procedures under "Making a Working Copy of FTTERM" on page 2-4.

To run FILECONV, follow these steps:

1. Load DOS or exit from a PC application program in the normal way. The A> or C> prompt appears.
2. *Diskette systems only.* Insert the FILECONV working diskette in drive A. Insert the diskette with the file to be converted in drive B.
3. Enter:

FILECONV

The FILECONV Function Selection Menu (Figure 5-2) appears.

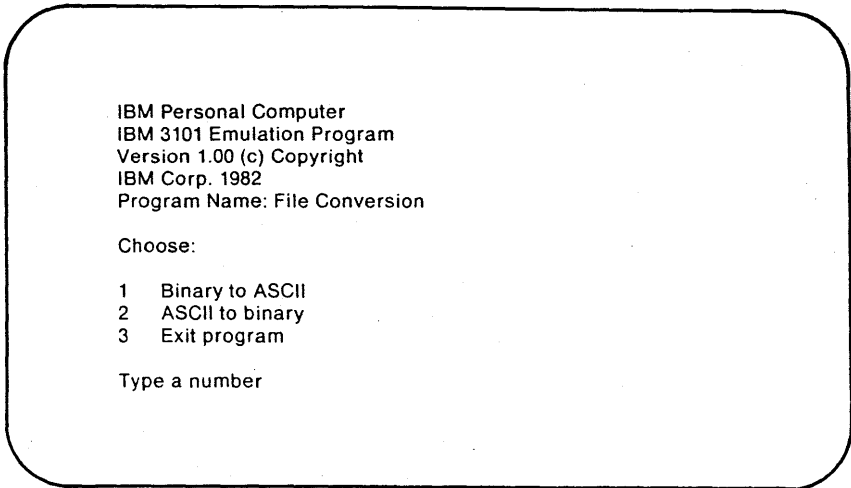


Figure 5-2. The FILECONV Function Selection Menu

Converting Binary Files to ASCII

Follow these steps to create an ASCII version of a binary file that you can transmit to a host:

Note: The ASCII file that FILECONV creates may be larger than the original binary file. On average, the ASCII file requires one and a half times the disk space taken by the binary file.

1. Access the FILECONV menu as described under "Starting FILECONV" on page 5-18.

2. Enter 1. FILECONV displays:

Enter binary filename

3. Type the complete specification for the binary file, including the drive letter, path, and extension, if appropriate. Press the Enter key. FILECONV displays:

Enter ASCII filename

4. Type the complete specification for the ASCII file, including the drive letter, path, and extension, if appropriate. It must be different from the binary file. You can use the extension ASC to identify converted files. Press the Enter key.

FILECONV reads the first file and writes the converted version into the second file, leaving the original file unchanged. When finished, FILECONV displays:

File conversion complete.

You can now use the TRANSMIT selection from the File Transfer Main Menu – Native Emulation to send the ASCII file to a host.

When you or another FTTERM user saves the ASCII file back to a PC, you must use FILECONV again to convert the ASCII file to binary format. The next section describes this procedure.

If an error message appears while you are using FILECONV, see "FILECONV Messages" on page 5-21 for an explanation and recommended response.

Converting ASCII Files to Binary

This procedure only applies to ASCII files that were created by FILECONV.

Follow these steps after you use the SAVE command to receive an ASCII file that was created by FILECONV. This procedure creates a binary file that is a duplicate of the original binary file. The ASCII file is not affected.

1. Access the FILECONV menu as described in "Starting FILECONV" on page 5-18.

2. Enter 2. FILECONV displays:

Enter ASCII filename

3. Type the complete specification for the ASCII file, including the drive letter, path, and extension, if appropriate. Press the Enter key. FILECONV displays:

Enter binary filename

4. Type the complete specification for the binary file, including the drive letter, path, and extension, if appropriate. It must be different from the ASCII file. Press the Enter key.

FILECONV reads the first file and writes the converted version into the second file, leaving the original file unchanged. When finished, FILECONV displays:

File conversion complete.

If an error message appears while you are using FILECONV, see "FILECONV Messages" for an explanation and recommended response.

Exiting From FILECONV

When you are finished using the FILECONV program, enter 3 on the FILECONV menu. The DOS system prompt appears.

FILECONV Messages

The following list contains the messages that can appear when you are running FILECONV. Each message includes an explanation and recommended response.

Cannot read the file *filename*

The FILECONV program encountered an error when reading the specified file. The file or disk may be damaged.

Check the condition of the file. If necessary, try the conversion again with a backup copy of the file.

Cannot use *filename* for both input and output

You have specified the same filename for both the input and output of the FILECONV program.

Specify a different name for the output file, or rename the input file.

Cannot write to *filename*

FILECONV cannot open the output file. You may have specified an invalid drive, path, or filename. It is also possible that the disk directory is full.

Check the typing and try the conversion again. Refer to the IBM PC *DOS User's Guide* for rules on naming files. If the disk contains a large number of files, use a different disk or erase unneeded files from the disk.

Cannot write to *filename*. Diskette is full.

FILECONV cannot write to the output file after having opened it successfully. The disk is full.

Repeat the conversion after erasing unneeded files from the disk, or use a different disk for the output file.

File conversion failed

This message appears after any error that FILECONV encounters when reading its input file or writing its output file. See the specific error message in this list for the recommended action.

Incorrect line count at *nnnn*
Incomplete CRC sequence at line *nnnn*
Incorrect CRC sequence at line *nnnn*
Invalid character in input file "*x*"

The FILECONV program displays these messages when converting ASCII files received from a host back to their original binary format. Generally these messages indicate that an error occurred when transferring the ASCII version of the file between the PC and the host.

The *nnnn* represents the line number in the ASCII version of the file, which is not the same as the line number in the binary version.

It may be necessary for the owner of the binary file to repeat the steps of converting it to ASCII and transmitting it to the host before other users can save it to their PCs.

Input file was not prepared by FILECONV

The FILECONV program cannot find the header information that it puts in the ASCII files it generates. This message indicates that you are trying to convert a file back to its original binary format, but the ASCII version of the file was not created by FILECONV.

No response is needed.

Part 2. PC/HOST File Transfer and Terminal Emulator Program (FTTERM) Reference

Appendix A. File Transfer Messages

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General FTTERM File Transfer Messages	A-3
IWS Host Messages (INW00nnI)	A-21
VM/CMS, MVS/TSO, and CICS Host Messages (TRANSnn)	A-35

Notes:

About this Appendix

This appendix describes the messages that can appear on any of these screens during a file transfer:

- File transfer menu
- Host messages screen
- PC DOS session screen, when entering SEND and RECEIVE commands from PC DOS.

For messages produced while running FTSETUP, see “FTSETUP Messages” on page C-43.

For messages produced while running FILECONV, see “FILECONV Messages” on page 5-21.

General FTTERM File Transfer Messages

All batch requests processed. Press any key to continue.

FTTERM has processed all commands in the batch transfer request file.

Press any key to return to the file transfer menu.

Batch termination complete. Press any key to continue.

At your request, FTTERM terminated the processing of the batch file. Press any key to return to the file transfer menu.

Bytes transmitted: *nnnn* of *nnnn*. Type T to terminate.

FTTERM is reporting the status of a TRANSMIT operation. No response is needed. If necessary, type a **T** to terminate the transfer.

Cannot read file

FTTERM encountered an error when reading the file that you want to send to the host. The file or disk may be damaged.

Check the data in alphanumeric files with the **TYPE** command or a text editor. If the problem persists, try the transfer with a backup copy of the file.

Configuration file not found or empty

When starting, FTTERM could not find the file that contains its default configuration (DEFAULT.SET), or the file is empty.

Use FTSETUP to select a default configuration file. See "Selecting a Default Configuration File" on page C-41.

Configuration file not successfully loaded. Please inspect configuration file.

The configuration file that you are trying to load could not be found or contains invalid data.

Be sure you entered the correct filename, path, and drive designation. If so, the data may be damaged, or you may have made an invalid response when using FTSETUP to create or modify the file.

Use a backup copy of the file or, if necessary, use FTSETUP to create a new configuration file as described in Appendix C, "Creating and Modifying Configuration Files."

Configuration file successfully loaded

FTTERM successfully loaded the specified configuration file. No response is needed.

Copy canceled

You canceled a COPY command by responding C to the message "The file already exists. Do you wish to Append, Cancel, or Replace?"

No response is needed.

Copy screen being terminated

At your request, FTTERM is terminating a copy screen operation. No response is needed.

Copy screen complete

A copy screen operation completed successfully. No response is needed.

Copy screen termination complete

You terminated a copy screen operation by pressing T. No response is needed.

Copying screen. Type T to terminate.

You started a copy screen operation to a file or printer. You can terminate the operation by pressing T. No response is needed.

**Destination or source filename is too long.
Maximum is 78.**

The total length of a PC file specification, including the drive letter, path, and filename, cannot exceed 78 characters.

Destination or source name is missing

A SEND or RECEIVE command contained only one file specification.

Check the command for the correct format and try again.

Error writing data. Data capture terminated.

FTTERM was unable to write host data to the specified file. The disk drive is not ready, the disk is full or damaged, or there is a hardware problem.

Try the operation using a different disk.

**Errors were detected in the following
batch requests: < *command list with errors* >
Do you wish to have the valid requests
processed? (Y or N)**

After reading and analyzing the batch file, FTTERM lists the transfer commands that contain errors of various types. The errors are defined in "Batch Transfer Status Messages" on page 4-37.

If you want to proceed with processing the remaining commands, enter a Y. If you want to quit and correct the batch file before proceeding, enter an N.

Establish connection if necessary

The PC is in 3101 emulation mode and is ready to communicate with the host system.

If you have a modem, make the telephone connection following the procedures in the modem's documentation. You can enter the dialing sequence by typing it in the window with this message and pressing the Enter key.

If you are connected directly to an ASCII host, 3708, or 3710 8-PA, this message indicates that FTTERM cannot detect active communication. Check all the cables and connections. If necessary, seek technical assistance.

File transfer terminated due to the following PC DOS detected error: xxxxxxxx. Press any key to continue.

FTTERM is reporting an error that was detected by PC DOS. The xxxxxxxx can be one of the following:

Diskette is write protected

Verify that you are using the correct diskette. If so, remove its write-protect tab, re-insert it, and press any key to proceed.

DOS error: code xx

PC DOS encountered an error when reading from or writing to the PC disk. If sending, check the PC file for damaged data. If receiving, repeat the transfer with a different disk. If the problem continues, the PC may have hardware problems.

You can obtain specific information about the error by locating the error code in the *DOS Technical Reference*.

Drive not ready

The drive door is not shut, there is no diskette in the drive, or the PC has hardware problems.

File access denied. Filename incorrect or diskette is full.

The PC disk does not have enough space to save the file. Use a different disk or erase unneeded files and try the transfer again.

File not found or invalid file specification

The PC file specified in a TRANSMIT command does not exist, or the drive letter, path, or filename in a TRANSMIT or SAVE command is incorrect. Check the entries and try the transfer again.

Invalid drive specified

You specified a drive designation that is not defined in the PC configuration. Normally, drives A and B are allowed for diskette systems; drives A, B, and C are allowed for unpartitioned fixed disk systems. Refer to the *IBM PC DOS User's Guide* for more information.

No more files

The PC disk directory contains the maximum number of entries. Erase unneeded files or use a different disk and try the transfer again.

Path not found

You specified a directory or subdirectory that does not exist on the designated drive. Check the drive designation and the spelling of the path.

Read fault

FTTERM encountered an error when trying to read data from a PC disk. Usually this indicates a defective disk; occasionally it can indicate hardware problems. Try the operation with a different disk.

Too many open files

When running in concurrent mode, the number of files opened by the PC DOS and FTTERM sessions exceeds the allowed maximum. Switch to the PC DOS session and close files or exit from the PC application program. Then try the transfer again.

If this problem occurs frequently, you can create or modify a CONFIG.SYS file to include a FILES line with a value greater than 8. Refer to the *DOS Reference* for more information.

Write fault

FTTERM encountered an error when trying to write data to a PC disk. Usually this indicates a defective disk; occasionally it can indicate hardware problems. Try the operation with a different disk.

File transfer terminated due to following Host detected error: xxxxxxxx Press any key to continue.

The host file transfer program encountered an error that prevented further processing of the file transfer.

Locate the specific host error xxxxxxxx in this appendix.

File transmit canceled

You canceled a TRANSMIT command by pressing T. No response is needed.

File transmit complete

The file was successfully sent to the host. Switch to the host session, save the file, and exit from the editor in the usual way. You can log off and disconnect from the host, if desired.

Framing error. (Check baud rate, modem connection.)

The Asynchronous Communications Adapter detected a framing error in the data received from the host.

Check the configuration file to verify that the line speed matches the port configuration at the ASCII host, 3708, or 3710 8-PA. Also check the cable connections. If you are using a modem, be sure it is compatible with the host. (If you are communicating through a 3708 or 3710 8-PA, the modem must be compatible with Bell 203, Bell 212-A, or CCITT Recommendation V.22bis.)

A framing error may also occur when:

- You log off from a host session and do not return to the file transfer menu and press the Disconnect key. (Default is Alt-F6.)
- Someone has restarted the 3708 or 3710 8-PA.

Whatever the cause, a framing error can result in the host session screen being filled with random characters.

Key not defined

The key or combination of keys that you pressed has no definition in the configuration file you are using.

Invalid options specified. Copy canceled.

The only valid option for a COPY screen to file command is APPEND. There are no valid options for a COPY screen to printer command.

Check the entries and try the transfer again.

Line break

A line break consists of a continuous stream of spaces (low bits), typically lasting a quarter of a second. It can be caused by any of the following:

- The host computer has sent a line break to the PC. Some hosts send a line break when you log off. Your response to a line break during a host session depends on the requirements of the host system.
- A 3708 or 3710 8-PA has sent a line break to the PC as a result of being restarted. Repeat the steps for logging on to the 3708 or 3710 8-PA.
- A line break may also occur unintentionally if the communication line is poor or the cable connections are not secure. Check these items.

Loading configuration file

FTTERM is loading the configuration file specified in a LOAD command. No response is needed.

Mode cannot be changed. Program is not resident.

When you load FTTERM in nonresident mode, it is implied that it is also in nonconcurrent mode. See "Using FTTERM in Nonresident Mode" on page 3-24.

Mode changed from concurrent to nonconcurrent

FTTERM changed its operating mode to nonconcurrent in response to a MODE command. No response is needed.

Mode changed from nonconcurrent to concurrent

FTTERM changed its operating mode to concurrent in response to a MODE command. No response is needed.

No communications card

The PC does not contain an Asynchronous Communications Adapter (or equivalent), or the adapter is defective or is not correctly installed. If the Asynchronous Communications Adapter is defective, you should receive an error code on the display when you load DOS.

Verify that the adapter is set up and installed correctly. Seek technical assistance if necessary.

No valid requests found. Press any key to continue.

The batch transfer request file was empty, or every command in it contained at least one error.

Be sure that you entered the correct filename. If so, correct its contents and try the operation again.

Options field too long. Maximum is 80.

The options field of the SEND or RECEIVE command contains more than 80 characters, including spaces.

Try the command again with fewer options.

Please establish your host session before transferring files.

FTTERM cannot detect an active link with the host after you entered a transfer command or batch transfer command.

Switch to the host session and check the status of the host link. If it is not active, follow the procedures in "Starting a Host Session" on page 3-6. If the problem continues, notify the system administrator.

Please ready printer or type T to terminate

The printer is not online, or there is a problem with the cable or connections.

Verify that the printer is turned on, is online, and has a supply of paper. Check the cable connections. If you cannot solve the problem, type a **T** to terminate the transfer. If necessary, seek technical assistance.

Printer not ready

The printer is not online, or there is a problem with the cable or connections.

Verify that the printer is turned on, is online, and has a supply of paper. Check the cable connections. If necessary, seek technical assistance.

Printer not ready. Correct or press T to terminate data capture.

The printer is not online, or there is a problem with the cable or connections.

Verify that the printer is turned on, is online, and has a supply of paper. Check the cable connections. If you cannot solve the problem, type a **T** to terminate the transfer. If necessary, seek technical assistance.

Processing batch file

FTTERM is reading the specified batch file and checking the format of each transfer command. No response is needed.

Receive buffer overflow

Data is arriving too fast to be stored in a file or printed.

If the host supports XON/XOFF pacing, you should enable this feature in the configuration file. This lets the PC send the XOFF character (ASCII DC3) to suspend transmission from the host when the receive buffer is nearly full. When the receive buffer becomes almost empty, the PC sends the XON character (ASCII DC1) to start the transmission again.

See also the notes on page 5-7.

Retransmission count is *nn*

FTTERM or the host file transfer program detected an error in the data transfer. The block of data is sent repeatedly until it is transferred without errors. The *nn* represents the number of times the transfer is repeated.

If this message continues, it usually indicates noise on the communication line. It can also indicate loose cable connections. Check these items. If using a dial-up line, try placing the call again.

Save canceled

You canceled a SAVE command by responding **C** to the message "The file already exists. Do you wish to Append, Cancel, or Replace?"

No response is needed.

Saving text ended

You stopped a SAVE operation by typing **E**. FTTERM closes the PC file. No response is needed.

Screen copy available in resident mode only

You loaded FTTERM in nonresident mode. The COPY command is valid for resident mode only. See "Using FTTERM in Nonresident Mode" on page 3-24.

Termination in progress

At your request, FTTERM is terminating a file transfer operation. No response is needed.

Termination is complete. Type any key to return to main menu.

The termination of a transfer was completed as requested. Type any key to return to the file transfer menu.

Text is being saved. Type E to stop saving text and close file.

FTTERM successfully opened the PC file for saving text. When you have saved all required text, type **E** to close the PC file. The PC file is created only if it is successfully closed in this way.

**The configuration file does not have enough records.
Please inspect the configuration file.**

FTTERM detected an error in the format of a configuration file. At startup, this indicates a problem with the DEFAULT.SET file (and probably the file you selected as the default configuration file as well). This message can also appear when you use the LOAD command.

If the message appears at startup, you can use FTSETUP to either:

- Select the same default configuration file again. If the problem recurs, there is an error in the file you are selecting. See the following paragraph.
- Select a different default configuration file. See "Selecting a Default Configuration File" on page C-41 for more information.

If the message appears after you enter a LOAD command, there is a problem in the file you are loading. Use the CREATE option of FTSETUP to create a new version of the configuration file, or restore it from a backup copy.

Note that you should always use FTSETUP to create, modify, and select configuration files. Do not edit them directly.

The following error was found accessing your batch file: xxxxxxxx

FTTERM is reporting an error that was detected by PC DOS. The possible values for xxxxxxxx are listed under the message "File transfer terminated due to the following PC DOS detected error: . . ."

The file already exists. Do you wish to Append, Cancel, or Replace? (A, C, or R)

You named a file as the destination in a SAVE command that is already present on the PC disk.

Do one of the following:

- Enter **A** to attach the data to the end of the existing file.
- Enter **C** to cancel the SAVE command. This lets you enter a different filename or disk drive.
- Enter **R** to replace the existing file with a new file.

The help file is in error or not found.

FTSETUP.HLP – Press any key to escape help.

When you pressed Alt-F1 for help, FTSETUP could not find the help message file FTSETUP.HLP, or detected errors in the file.

Be sure that FTSETUP.HLP is in the same directory with FTSETUP.EXE. If so, it may be damaged. Copy FTSETUP.HLP from the FTTERM program diskette into the directory with FTSETUP.EXE.

The help file is in error or not found.

FTTERM.HLP – Press any key to escape help.

When you pressed Alt-F1 for help, FTTERM could not find the help message file FTTERM.HLP or detected errors in the file.

Be sure that FTTERM.HLP is in the same directory with FTTERM.EXE. If so, it may be damaged. Copy FTTERM.HLP from the FTTERM program diskette into the directory with FTTERM.EXE.

The host link has been disconnected

You pressed the key sequence to disconnect from the host session (Alt-F6). No response is needed.

The host link is in use by the printer session. Please try later.

The host is sending a file to the PC printer. You cannot conduct a host session during the print operation.

You can wait until the print operation is finished or terminate the transfer.

The translate file, DEFAULT.TBL, was not found. Please reload.

When starting, FTTERM could not find the file that contains its character set translation table (DEFAULT.TBL).

See "Selecting a Character Translation Table" on page 2-15 for the procedure that creates the DEFAULT.TBL file.

There are more than 20 batch entries. The following batch requests will not be processed:

The batch transfer request file that you specified has more than 20 transfer commands. The additional commands are listed under the message.

No response is needed. However, to have the commands processed, you must modify the batch file, create a new batch file, or enter the commands individually.

**There was an error loading the configuration file.
The error was detected on line *nn*.**

FTTERM detected an error in the data contained in a configuration file. Usually this indicates that an invalid response was entered when creating or modifying the configuration file. This message can appear when you start FTTERM and when you use the LOAD command.

If the message appears at startup, you can use FTSETUP to either:

- Select the same default configuration file again. If the problem recurs, there is an error in the file you are selecting. See the following paragraph.
- Select a different default configuration file. See “Selecting a Default Configuration File” on page C-41 for more information.

If the message appears after you enter a LOAD command, there is a problem in the file you are loading. Use the CREATE option of FTSETUP to create a new version of the configuration file. Figure C-2 on page C-14 shows the valid responses to each prompt. If you think the file has been damaged, restore it from a backup copy.

Note that you should always use FTSETUP to create, modify, and select configuration files. Do not edit them directly.

Transmit buffer full

The transmit buffer (255 characters) is almost full or is already full. You may have defined a key that produces a sequence of characters that is too long. There may also be a problem that is preventing the Asynchronous Communications Adapter from sending characters.

Waiting. Press Alt-F10 to cancel.

You pressed a key whose definition includes the wait function. FTTERM is waiting for a specified character from the host. You can cancel the wait function (and the remainder of the key definition) by pressing Alt-F10.

See "Using the Wait Function in Key Definitions" on page C-37 for an explanation of the wait function.

Waiting for host response to termination request

At your request, FTTERM is terminating a file transfer operation. No response is needed.

IWS Host Messages (INW00nnI)

Note: The text of messages identified by numbers in the format INW00nnI can be changed by the system administrator. Therefore, the text of these messages may not be exactly as shown in this appendix. The meaning of the message and your response, however, are the same.

If you receive a message that is not listed or one that you do not understand, consult the system administrator.

INW0001I File transfer complete

The file transfer completed successfully. No response is needed.

INW0002I Transmission error. Module = xxxxxxxx RC = nnnn

An error was detected in the data transfer between the host and the PC. This may be an error in the data being transferred or an unidentified system error. The *xxxxxxx* is the name of the module that detected the error. The *nnnn* is the hexadecimal return code that more identifies the error. The file transfer is terminated.

Try the file transfer again. If the problem continues, examine the file being transferred for incorrect format or data. If necessary, notify the system administrator to analyze the error and to check the status of the host connection and all the components involved.

INW0003I Host main storage unavailable. File transfer terminated.

The host system issued a GETMAIN request to obtain dynamic storage but the request could not be satisfied. This can happen when many tasks use system resources simultaneously. The file transfer is terminated.

Try the transfer again after waiting for a few minutes. If the problem continues, notify the host system administrator to increase the size of the CICS partition.

INW0004I Invalid request code. File transfer terminated.

The transfer command issued by FTTERM did not specify GET or PUT for the transfer operation. The file transfer is terminated.

Check the typing on the command line and try the transfer again.

It is also possible that the host file transfer program IND\$FILE is not installed correctly or an incorrect version of the program is being used. If the command format is correct, notify the host system administrator of the error.

INW0005I Host file missing or invalid.

The transfer command did not include a host filename, it was longer than eight characters, or it did not start with a letter. The file transfer is terminated.

Check the host filename in the command line and try the transfer again.

On a RECEIVE command from temporary storage (FILE = TS option is specified), you can use an asterisk (*) to represent the host filename as it appears in the temporary storage queue header record.

INW0006I Invalid or conflicting option 'xxxxxxx'.

Two conflicting options were specified (such as ASCII and BINARY), an option was misspelled, or userIDs in a FOR option were not correctly separated by commas with no spaces. The file transfer is terminated.

Check the typing of the command and try the transfer again.

INW0007I Error in Host Transfer File. File transfer terminated.

The Host Transfer File INWFILE could not be accessed because it is not correctly defined to VSAM or CICS or because it is disabled in the CICS environment. The file transfer is terminated.

Notify the host system administrator.

INW0008I File transfer complete with records truncated.

The file transfer was completed, but at least one of the records was truncated because it exceeded the maximum length of 32K bytes or because enough host storage could not be obtained.

Check the contents of the file at the host. Try the transfer again if necessary.

INW0009I Invalid userID 'nnnn'.

The command specified an invalid userID in a FOR or FROM option. The file transfer is terminated.

Check the entries and try the command again. UserIDs must be from one to four characters and must be defined to CICS.

INW0010I File xxxxxxxx already exists. Specify the REPLACE option.

A host file already exists with the name specified in a SEND command. The file transfer is terminated.

To avoid deleting the existing file, rename the existing host file or use a different host filename in the SEND command. To replace the existing host file, use the REPLACE option.

INW0011I No more space in Host Transfer File. Transfer terminated.

No more space is available in the Host Transfer File INWFILE. The file transfer is terminated.

Switch to the host session and use the DOS/VSE Move Utilities to delete unneeded files, or use a RECEIVE command (without the KEEP option) to store files at the PC while deleting them at the host. If neither of these is practical, notify the system administrator that the size of INWFILE must be increased.

INW0012I File xxxxxxxx not found.

The host file specified in a RECEIVE command is not present in the Host Transfer File. For a shared file (one sent with the FOR option), you may be using the wrong userID with the FROM option of the RECEIVE command. The file transfer is terminated.

Use the DISPLAY function of the DOS/VSE Move Utilities for a list of files and valid userIDs in the Host Transfer File. Try the command again with the correct filename and options.

**INW0013I You are not authorized to access file
xxxxxxx.**

You entered a RECEIVE command with a FROM option, but the specified host file was not shared with your userID with a FOR or PUBLIC option.

Use the DISPLAY function of the DOS/VSE Move Utilities for a list of public and shared files available to you. Try the command again with the correct filename and options.

**INW0014I Internal system error. Module = xxxxxxxx
RC = nnnn**

An unexpected return code was received from the host file transfer manager while reading from or writing to the Host Transfer File. A system error probably occurred before the read or write operation was completed. The xxxxxxxx is the name of the module that detected the error. The nnnn is the hexadecimal return code that identifies the error. The file transfer is terminated.

Use the DISPLAY function of the DOS/VSE Move Utilities to check the status of the host file. If the problem continues, notify the host system administrator.

INW0015I File transfer complete but share not successful.

A SEND command was completed successfully, but the sharing specified in the FOR option could not be completed. Either the Host Transfer File INWFILE is full or an unidentified system error occurred.

If possible, free some space in the Host Transfer File and try the command again. If necessary, notify the host system administrator to increase the size of INWFILE.

INW0016I File transfer complete but erase not successful.

A RECEIVE command was completed successfully, but the host file could not be erased because of a system problem.

Use the ERASE function of the DOS/VSE Move Utilities to erase the file.

INW0017I File transfer complete with binary option forced.

You issued a RECEIVE command with the ASCII option specified either explicitly or by default, but the file was previously sent to the host with the BINARY option in effect. Since the file would be unusable at the PC if the ASCII option were actually used on the receive, the host file transfer program used the BINARY option instead.

If this is a text file and you want it to be in EBCDIC format at the host, it must be sent to the host without the BINARY option.

INW0018I Error writing to damaged or full diskette.

The file could not be received successfully because the PC diskette or fixed disk is full or damaged.

Free some space on the disk or use a different disk. Try the transfer again.

INW0019I No data stored in Host Transfer File. PC file empty or binary.

An empty PC file was sent, or a binary file was sent with the ASCII option specified either explicitly or by default. The file is identified by a question mark in the Host Transfer File.

Check the PC file. Specify the BINARY option if it is a binary file.

INW0020I Input command too long.

The length of the transfer command produced by FTTERM exceeds the maximum command length for CICS (80 characters). This can result from using too many userIDs in a FOR option of a SEND command. The file transfer is terminated.

Shorten the command as necessary and try the transfer again.

INW0021I TS queue *qname* not found.

The temporary storage queue name specified in the QNAME option of a RECEIVE command (or the default queue name) could not be found. The file transfer is terminated.

Use the CEBR transaction to check whether the queue exists and whether it contains any data. If necessary, create the required queue with a SEND command or a user transaction.

INW0022I File stored in TS queue *qname*.

The PC file was successfully stored in the indicated temporary storage queue. No response is needed.

INW0024I File stored in TS queue *qname*. Control given to program *progrname*.

The PC file was successfully stored in the indicated temporary storage queue. Communication between the host and PC sessions is terminated. Control is given to the user program specified in the PROGRAM option of the SEND command.

No response is needed.

INW0025I File received from TS queue *qname*.

The PC file was successfully received from the indicated temporary storage queue. No response is needed.

INW0026I Record size exceeds 32767 bytes. File transfer terminated.

The maximum size of records in a SEND transfer is 32,767 bytes. You are probably sending a large binary file with the default ASCII and CRLF options. The file transfer is terminated.

Try the transfer again with the BINARY or NOCRLF option.

**INW0027I File transfer terminated by program
programe. RC = *nnnn***

A non-zero return code was received from the indicated program. The *nnnn* represents the hexadecimal return code. The file transfer is terminated.

Notify the system administrator to analyze the error.

**INW0028I Invalid queue name or program name
name.**

A transfer command contained an invalid name in a QNAME or PROGRAM option. Temporary storage queue names and user program names must start with CFTR and must be at least six characters long. The file transfer is terminated.

Check the entries in the SEND or RECEIVE command and try the transfer again.

**INW0029I TS queue *qname* already exists. Specify
REPLACE option.**

The temporary storage queue specified in the QNAME option of a SEND command (or the default temporary storage queue) already exists. The NOREPLACE option is in effect either by default or by inclusion in the SEND command. The file transfer is terminated.

If the existing queue is to be deleted, try the transfer using the REPLACE option.

INW0030I Temporary storage exhausted.

There is not enough temporary storage to allocate a new queue for file transfer. The file transfer is terminated.

Notify the host system administrator to free some space or allocate additional space.

INW0031I Error reading TS queue *qname*. EIBRCODE = *nnnn* Module = INWP*xxxx*

An unexpected error occurred while trying to read the indicated temporary storage queue. The *nnnn* represents the first 2 bytes of the hexadecimal EIBRCODE returned by CICS. The file transfer is terminated.

Notify the host system administrator to analyze the error.

INW0032I Failure to link to program *progrname*.

The indicated program could not be linked to because it does not exist, it is not defined in the CICS processing program table, or it is disabled.

When the FILE = HTF option is specified explicitly or by default, one of the following occurs:

- If *progrname* is INWFMGR, the file transfer is terminated since the Host Transfer File cannot be accessed.
- If *progrname* is INWNTFY, the file transfer is completed, but a notification message could not be sent.

When the FILE=TS option is specified, one of the following occurs:

- On SEND, the file is stored in the temporary storage queue, but the invocation of a user program specified with PROGRAM failed.
- On RECEIVE, the file transfer is terminated.

Use the CEMT transaction to check and correct the status of the program. Then try the transfer again.

**INW0033I Error writing TS queue *qname*.
EIBRCODE=*nnnn* MODULE=INWP*xxxx***

An unexpected error occurred while trying to write to the indicated temporary storage queue. The *nnnn* represents the first 2 bytes of the hexadecimal EIBRCODE returned by CICS. The file transfer is terminated.

Notify the host system administrator to analyze the error.

**INW0034I Error deleting TS queue *qname*.
EIBRCODE=*nnnn* MODULE=INWP*xxxx***

An unexpected error occurred while trying to delete the indicated temporary storage queue. The *nnnn* represents the first 2 bytes of the hexadecimal EIBRCODE returned by CICS. The file transfer is terminated.

Notify the host system administrator to analyze the error.

INW0035I File transfer complete. Notify failed.
RC = xxxx

The file was successfully transferred, but a notification message could not be sent to a user specified with FOR or FROM. The return code xxxx is one of the following:

- 0002 = The online message file IESTRFL could not be accessed.
- 0004 = The message routine file IESROUT could not be accessed.
- 0008 = The VSE/SP control file IESCNTL could not be accessed.

Notify the system administrator to analyze the message.

INW0036I Security violation: Failure to access a protected resource.

The file transfer transaction (IND\$) performs resource security level checking. Either the user program specified in the PROGRAM option or a resource accessed by the program does not have the correct resource level in its PPT or FCT entry.

If the system uses resource security level checking for the temporary storage queues CFTRxxxx, your userID is not authorized to access these queues. The file transfer is terminated.

A panel similar to the following appears in the host session:

IESPRBDC1 ONLINE PROBLEM DETERMINATION DATA COLLECTION

The transaction you were executing ended abnormally.

Information about this incident has been stored for later problem determination.

Specifics about this incident are given below:

Transaction ID:	IND\$	Abend Code:	AEY7
Task ID:	2835	Abend Date:	7/19
Program ID:	INWPCCOM	Abend Time:	13:31:20

Another panel is displayed when you press Enter. It is the panel you were working on when the error occurred. Examine it carefully, and note any information which may be useful in finding the error.

PRESS ENTER WHEN YOU HAVE COPIED ALL THE HIGHLIGHTED INFORMATION.

Notify the system administrator to analyze the error. If you are familiar with the VSE/SP system, use the Online Problem Determination (OLPD) facility to determine which protected resource you were trying to access.

INW0037I Abnormal end in host session. File transfer terminated.

A program running in the host session ended abnormally. The file transfer is terminated. A panel similar to the one shown in message INW0036I appears.

Notify the system administrator to analyze the error. If you are familiar with the VSE/SP system, use the Online Problem Determination (OLPD) facility to determine which protected resource you were trying to access.

**INW0098I Load error for message module
INWPMSxx.**

The indicated message module, which contains the file transfer messages displayed at the PC, could not be loaded because it does not exist, it is not defined in the CICS processing program table, or it is disabled. The file transfer is completed, and the correct message is displayed in the host session.

Use the CEMT transaction to check and correct the status of the program. Then try the transfer again.

**INW0099I Error accessing message file for message
INWnnnnI.**

The host message file (IESTRFL) could not be accessed because it is damaged, closed, or disabled, or the indicated message was not found in the message file.

Notify the system administrator to check the status of the message file.

VM/CMS, MVS/TSO, and CICS Host Messages (TRANSnn)

TRANS00 Error in file transfer: File transfer canceled

The CICS file transfer transaction detected an error during the file transfer. The error may have been in the data being transferred or an unidentified system error. It is also possible that the host file transfer program (IND\$FILE) is not installed correctly.

Examine the source file for incorrect format or data. If you find no problems, advise the host system administrator to verify the installation and setup of IND\$FILE. For example, if the TST parameter in CICS is configured ON, this message will appear once for every two file transfers.

TRANS01 File transfer command being processed

FTTERM is processing the file transfer command. This message appears only when you enter a file transfer command in the PC DOS session.

TRANS02 Number of bytes transferred so far: == >

This message reports the status of a transfer when you enter a file transfer command in the PC DOS session.

TRANS03 File transfer complete

The file transfer was completed successfully. No response is needed. This message appears for transfers initiated by a SEND or RECEIVE command entered in the PC DOS session.

TRANS04 File transfer complete with records segmented

This message means one of the following:

- *CICS*. The file transfer was completed successfully. At least one of the records sent exceeded the maximum logical length of 32,767 bytes. The record was segmented into separate items in the temporary storage queue.

This message may appear when you use the CRLF option with a file that does not contain carriage return/line feed characters. You should use the BINARY option instead with such files.

- *VM/CMS and MVS/TSO*. The file transfer was completed successfully. Any PC records that exceeded the host file's logical record length have been segmented into multiple records at the host.

TRANS05 Personal computer filespec incorrect: File transfer canceled

There is an error in the PC DOS file specification. Either the disk drive, path, filename, or extension is in error. When sending a PC file, this message can also indicate that the file could not be found. This message appears after you enter a SEND or RECEIVE command from the DOS system prompt.

Check your typing. If necessary, refer to the *IBM PC DOS User's Guide* for details on entering file specifications. Use the DIR command to verify that a PC file to be sent exists on the drive and path specified.

TRANS06 Command incomplete: File transfer canceled

All of the required parts of a SEND or RECEIVE command are not entered. This message appears after you enter a SEND or RECEIVE command from the DOS system prompt.

Note the format for the command as displayed on the SEND REQUEST FORMAT or RECEIVE REQUEST FORMAT window. Enter the command with all the required parts. If you are preparing a batch transfer request file, you can see Figure 4-2 on page 4-8 and Figure 4-5 on page 4-23 for the correct formats.

TRANS07 Cannot link to host: File transfer canceled

FTTERM cannot detect a host session in progress when you enter a SEND or RECEIVE command.

Switch to the host session and verify that the host is operational. If so, switch back to the File Transfer Main Menu and try the transfer again. If the problem continues, notify the host system administrator.

TRANS08 FTTERM not loaded: File transfer canceled

You entered a SEND or RECEIVE command in the PC DOS session, but FTTERM has not been loaded.

Load FTTERM in the normal way (resident mode) as described in Chapter 3, "Using FTTERM" on page 3-1.

TRANS09 Error reading file from disk: File transfer canceled

FTTERM encountered an error reading the PC file. This message appears only when you enter a SEND or RECEIVE command at the DOS system prompt.

Send the same command from the file transfer menu to receive a more specific error message. Then locate that message in this appendix.

TRANS10 Host has not responded within timeout period: File transfer canceled

The host did not respond to FTTERM in the period specified for the inactivity timeout in the configuration file.

Switch to the host session. If the host is not responding to commands, it may indicate that the host has a problem. You can wait for the condition to clear (it may be necessary to repeat the host logon sequence when the condition clears), or cancel the transfer without waiting by pressing the PF2 key sequence several times (default is F2) while in the host session. This should return the host session to the command ready state.

If the problem continues, increase the value for the inactivity timeout in the configuration file.

A timeout error can also occur when certain DOS operations are performed concurrently with the file transfer. Specifically, the following DOS commands can cause this error:

- TYPE *filename*
- COPY *filename* CON
- COPY CON *filename*.

TRANS11 Lost contact with host: File transfer canceled

The communication between the PC and host was lost during a file transfer (DSR went low).

Re-establish the connection and start the transfer again.

TRANS12 Error writing file to disk: File transfer canceled

FTTERM encountered an error when writing data to the PC disk. This message appears only when you enter a SEND or RECEIVE command at the DOS system prompt.

Send the same command from the file transfer menu to receive a more specific error message. Then locate that message in this appendix.

TRANS13 Error writing file to host: File transfer canceled

An error occurred at the host when you tried to send a file. The host canceled the file transfer.

Switch to the host session. If the host is not in the command ready state, press the CLEAR key sequence (default is the Home key) several times. If the host does not return to the command ready state, press the PF2 key sequence (default is F2) until the host becomes ready. When the host returns to the command ready state, switch to the File Transfer Main Menu and try the transfer again.

If the problem continues, contact the host system administrator.

TRANS14 Error reading file from host: File transfer canceled

An error occurred at the host when you tried to receive a file.

See message TRANS13.

TRANS15 Required host storage unavailable: File transfer canceled

This message means one of the following:

- *CICS*. The CICS file transfer transaction could not obtain enough host storage for its own control blocks, I/O buffers, and save areas. Request additional storage from the system administrator.
- *VM/CMS and MVS/TSO*. You do not have enough main storage allocated to you at the host. Typically, you need at least 30K bytes of main storage for file transfer in addition to that required by the the host session. This storage should not be confused with disk storage. Contact the host system administrator.

TRANS16 Incorrect request code: File transfer canceled

The host received an invalid transfer request. FTTERM did not send the expected values for the first part of the command.

Notify the system administrator. It is possible that the host does not have the correct version of the host file transfer program.

TRANS17 Invalid filename: File transfer canceled

CICS. The CICS filename was not valid for the CICS host. Correct names must consist of one to eight letters and digits.

Correct the filename and try the transfer again.

TRANS17 Missing or incorrect TSO data set name: File transfer canceled

TSO. The TSO data set name is missing from the command or is not in the correct format. With a RECEIVE command, it is possible that the data set could not be found at the host.

Correct the TSO data set name in the command and try the transfer again.

TRANS18 Incorrect option specified: File transfer canceled

Your command included an unrecognized option.

See "Host Considerations" on page 4-40 for information on the options you can use with SEND and RECEIVE commands for the different hosts.

TRANS19 Error handling host file: File transfer canceled

CICS. An error occurred in one of the user exits when handling the file. On a GET operation this can be because the filename did not match the name of the current terminal file or because an error occurred while constructing or reading the file. On a PUT operation this can occur because the file could not be stored in temporary storage for the current file or because an error occurred while reading the file.

Check the contents of the current file for this terminal. If user programming provided the data for the file, check the user program for program errors and resource constraints.

TRANS19 Error while reading or writing to host disk: File transfer canceled

VM/CMS and MVS/TSO. There is not enough disk space allocated to you at the host system. This is a general message for an unsuccessful return code from a file transfer operation. It usually results from sending a file to a TSO host when the file is larger than the default allocation or the allocation specified with the SPACE option.

Switch to the host session and examine messages that identify the failure. Either increase the value of the SPACE option or contact the host system administrator.

TRANS27 Termination request complete

You interrupted a file transfer with Ctrl-Break that was initiated by entering a SEND or RECEIVE command in the PC DOS session.

No response is needed.

TRANS28 Invalid option xxxxxxxx: File transfer canceled

The option you specified was not recognized, has an incorrect value, or was positioned incorrectly in the command line. The *xxxxxxx* represents the invalid option.

Try the command again with the corrected option. See "Host Considerations" on page 4-40 for the options you can use when issuing SEND and RECEIVE commands to the different hosts.

TRANS29 Invalid option xxxxxxxx with receive: File transfer canceled

The option you specified in a RECEIVE command is valid for SEND commands only. The *xxxxxxx* represents the invalid option.

Try the command again without the option. See "Host Considerations" on page 4-40 for the options you can use when issuing SEND and RECEIVE commands to the different hosts.

TRANS30 Invalid option xxxxxxxx with append: File transfer canceled

The option you specified cannot be used with the APPEND option. The *xxxxxxx* represents the invalid option.

Try the command without APPEND, or without the invalid option. See "Host Considerations" on page 4-40 for the options you can use when issuing SEND and RECEIVE commands to the different hosts.

TRANS34 CMS file not found: File transfer canceled

The specified CMS file in a RECEIVE command could not be found at the host.

Check your typing and try the command again. Switch to the host session and review your filelist, if necessary.

TRANS35 CMS disk is read-only: File transfer canceled

You must have permission to write in the CMS disk to which you are sending.

Check the filemode that you entered for the CMS file. If it is correct, you must change the permissions for the CMS disk to read/write before you can send files to it. Then try the transfer again. If necessary, consult the host system administrator.

TRANS36 CMS disk is not accessed: File transfer canceled

You have not accessed the CMS disk to which you are sending.

Check the filemode you entered for the CMS file. If it is correct, use the CMS ACCESS command to access the required disk. Then try the transfer again.

TRANS37 CMS disk is full: File transfer canceled

One of the following has occurred:

- The CMS disk has become full.
- The CMS disk has reached its maximum number of files (3400).
- The file has exceeded the maximum number of data blocks (16060).

Remove unwanted files from the disk or try the transfer using another disk with more available space. If the problem is the result of an excessively large PC file (greater than 1M byte), divide it into smaller files. Then try the transfer again.

TRANS96 Not running in protocol conversion: File transfer canceled

You entered a SEND or RECEIVE command but the configuration file is not set up for protocol conversion transfers.

Verify which method of file transfer is appropriate for the host being used. Use SAVE or TRANSMIT if native emulation is appropriate (these cannot be entered in the PC DOS session).

If protocol conversion is appropriate, load the correct configuration file and try again. See "Loading a Configuration File" on page 3-18. It may be necessary to modify a configuration to provide for protocol conversion. See "Modifying an Existing Configuration File" on page C-12.

TRANS97 Host link busy with printer data: File transfer canceled

The host is addressing the PC printer as a separate logical unit. You cannot conduct a host session during the print operation.

This capability is available when a system administrator for the 3708 or 3710 8-PA has created a user defined terminal that supports multiple logical units. See Appendix E, "IBM 3708 and 3710 8-PA Considerations" on page E-1 for more information.

You can wait until the print operation is finished, or you can send a Suspend Printer command. Send a Resume Printer command when ready. Consult the system administrator for the correct commands.

TRANS98 File transfer facility busy: File transfer canceled

You tried to issue a file transfer command from DOS while another command was being processed through the file transfer menu.

Wait until the current transfer is complete before doing the second transfer.

TRANS99 Host program error xxxxxxxx: File transfer canceled

A host program error occurred.

Record the error message represented by xxxxxxxx. Try to resolve the problem by comparing the host documentation for the error with the options used in the transfer command. If necessary, consult the host system administrator.

Appendix B. FTTERM Menus

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The File Transfer Main Menu – Native Emulation	B-9

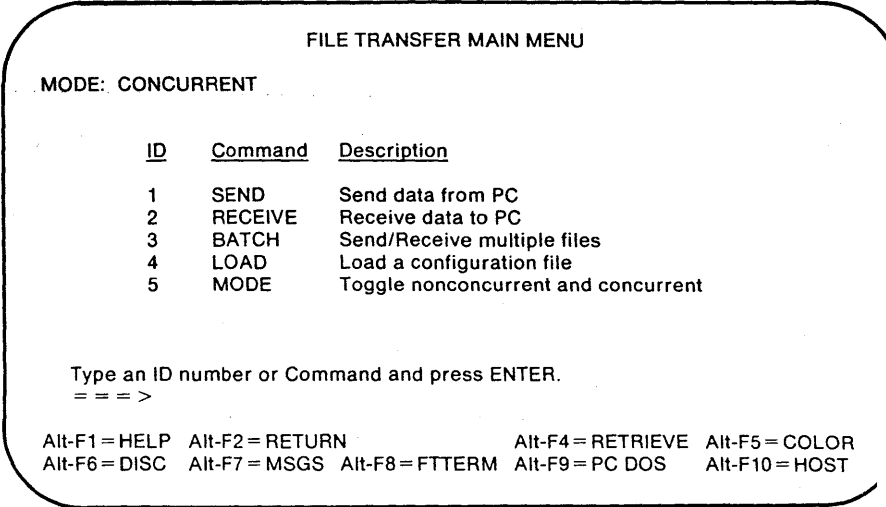
Notes:

About this Appendix

This appendix is a detailed reference of the items that appear on the File Transfer Main Menu and the File Transfer Main Menu – Native Emulation.

The File Transfer Main Menu

The File Transfer Main Menu (Figure B-1) is the central menu for transferring files with SNA hosts using the protocol conversion method. Chapter 3, “Using FTTERM,” describes accessing the File Transfer Main Menu. Chapter 4, “Transferring Files Using the Protocol Conversion Method,” describes using it to transfer files.



FILE TRANSFER MAIN MENU

MODE: CONCURRENT

<u>ID</u>	<u>Command</u>	<u>Description</u>
1	SEND	Send data from PC
2	RECEIVE	Receive data to PC
3	BATCH	Send/Receive multiple files
4	LOAD	Load a configuration file
5	MODE	Toggle nonconcurrent and concurrent

Type an ID number or Command and press ENTER.
===>

Alt-F1 = HELP Alt-F2 = RETURN Alt-F4 = RETRIEVE Alt-F5 = COLOR
Alt-F6 = DISC Alt-F7 = MSGS Alt-F8 = FTTERM Alt-F9 = PC DOS Alt-F10 = HOST

Figure B-1. The File Transfer Main Menu

The following list describes each of the items in the File Transfer Main Menu:

MODE: (upper-left corner)

This item identifies whether FTTERM is operating in CONCURRENT or NONCONCURRENT mode.

In concurrent mode, you can press the key sequence to switch to the PC DOS session (default is Alt-F9) and perform DOS commands like DIR and FORMAT. You can also run PC DOS programs like a word processor or spreadsheet.

In nonconcurrent mode, you cannot switch to a PC DOS session during a file transfer, but file transfers are performed more efficiently.

See also the MODE selection and Alt-F9.

SEND—Send data from PC

When you select this option, your next steps will be to identify:

- What you want to send (a PC disk file or screen data generated during a PC DOS session or a host session)
- Where you want to send it (to a host file or the PC printer).

RECEIVE—Receive data to PC

When you select this option, your next steps will be to identify:

- What you want to receive (a host file or screen data generated during a PC DOS session or a host session)
- Where you want to receive it (in a PC file or at the PC printer).

BATCH—Send/Receive multiple files

This option lets you specify the name of a batch file containing up to 20 SEND and RECEIVE commands, which you created earlier. See “Using a Batch File to Transfer Multiple Files” on page 4-35 for more information.

LOAD—Load a configuration file

This option lets you load a configuration file. See “Loading a Configuration File” on page 3-18 for more information.

MODE—Toggle nonconcurrent and concurrent

This option lets you change FTTERM’s operating mode between concurrent and nonconcurrent.

FTTERM normally operates in concurrent mode. You can switch to nonconcurrent mode before performing extensive file transfers. See “Selecting Concurrent or Nonconcurrent Mode” on page 3-17, “Using FTTERM in Nonresident Mode” on page 3-24, and “Using FTTERM with Other Resident Programs” on page 3-26 for more information.

Type an ID number or Command and press ENTER.

This line is where you do either of the following:

- Select an option by entering its ID number (such as 1), its name (such as SEND), or the first letter of its name (such as S). You are then prompted to type the source, destination, and options for the transfer.
- Type the entire command as a single step.

When you finish typing the command, press the Enter key to proceed. See “Entering a SEND Command” on page 4-6 and “Entering a RECEIVE Command” on page 4-22 for more information.

Alt-F1 = HELP

Press the Alt-F1 key sequence to display FTTERM's help windows. The help windows provide information about command formats and options for file transfers, and information about the other menu selections. See "Displaying FTTERM's Help Windows" on page 3-20 for more information.

Alt-F2 = RETURN

Press the Alt-F2 key sequence to refresh the menu display. This cancels any commands you have typed but not yet entered, and clears any messages that FTTERM has displayed over the menu.

Alt-F4 = RETRIEVE

Press the Alt-F4 key sequence to retrieve your most recent FTTERM command. Press Alt-F4 again to retrieve the second most recent command. FTTERM stores the five most recent commands. If you make a menu selection, the retrieve function does not work until you finish the operation or press the RETURN key sequence (Alt-F2).

Alt-F5 = COLOR

Press the Alt-F5 key sequence to toggle the colors used with FTTERM menus and screens. There are eight predefined color combinations.

Note: This key sequence appears only when the PC uses a Color/Graphics Adapter or equivalent.

This is a separate function from color in a SNA host session, as defined in a 3708 or 3710 8-PA user defined terminal. (See Appendix E, "IBM 3708 and 3710 8-PA Considerations.")

Alt-F6 = DISC

Press the Alt-F6 key sequence to disconnect from a host session. Usually you press this after logging off from the host.

If you are using a modem and a switched line, pressing the DISC keys drops the telephone line (hangs up). When you switch to the host session, one of the following appears:

- Auto-Dial Directory (if you have defined auto-dial sequences)
- A message advising you to enter a modem command manually.

Alt-F7 = MSGS

Press the Alt-F7 key sequence to display to the Host Messages screen. The Host Messages screen lists messages that are received from the host during a batch file transfer.

You can change the key sequence for the Host Messages screen using FTSETUP. See Appendix C, "Creating and Modifying Configuration Files," for more information.

Alt-F8 = FTTERM

Press the Alt-F8 key sequence to return to the File Transfer Main Menu from a host session, PC DOS session, or Host Messages screen. Pressing these keys has no effect while you are using the File Transfer Main Menu. Therefore the message appears there as a reminder.

You can change the key sequence for returning to the File Transfer Main Menu using FTSETUP. See Appendix C, "Creating and Modifying Configuration Files," for more information.

Alt-F9 = PC DOS or Alt-F9 = EXIT

Press the Alt-F9 key sequence to switch to a PC DOS session (concurrent mode) or to exit from FTTERM to PC DOS (nonconcurrent mode). You can switch to PC DOS directly from a host session without going through the File Transfer Main Menu.

You can change the key sequence for PC DOS or EXIT using FTSETUP. See Appendix C, "Creating and Modifying Configuration Files," for more information.

Alt-F10 = HOST

Press the Alt-F10 key sequence to switch to a host session. You can switch to a host session directly from a PC DOS session (concurrent mode only) without going through the File Transfer Main Menu.

You can change the key sequence for the host session using FTSETUP. See Appendix C, "Creating and Modifying Configuration Files," for more information.

The File Transfer Main Menu – Native Emulation

The File Transfer Main Menu – Native Emulation (Figure B-2) is the central menu for transferring files to SNA or ASCII hosts using the native emulation method. Chapter 3, “Using FTTERM,” describes accessing the File Transfer Main Menu. Chapter 5, “Transferring Files Using the Native Emulation Method,” describes using it to transfer files.

FILE TRANSFER MAIN MENU – NATIVE EMULATION		
MODE: CONCURRENT		
<u>ID</u>	<u>Command</u>	<u>Description</u>
1	SAVE	Receive data to PC
2	TRANSMIT	Send data from PC
3	COPY	Copy host screen to file or printer
4	LOAD	Load a configuration file
5	MODE	Toggle nonconcurrent and concurrent

Type an ID number or Command and press ENTER.
===>

Alt-F1 = HELP Alt-F2 = RETURN Alt-F4 = RETRIEVE Alt-F5 = COLOR
Alt-F6 = DISC Alt-F8 = FTTERM Alt-F9 = PC DOS Alt-F10 = HOST

Figure B-2. The File Transfer Main Menu – Native Emulation

The following list describes each of the items in the File Transfer Main Menu – Native Emulation:

MODE: (upper-left corner)

This item identifies whether FTTERM is operating in CONCURRENT or NONCONCURRENT mode.

In concurrent mode, you can press the key sequence to switch to the PC DOS session (default is Alt-F9) and perform DOS commands like DIR and FORMAT. You can also run PC DOS programs like a word processor or spreadsheet.

In nonconcurrent mode, you cannot switch to a PC DOS session during a file transfer, but file transfers are performed more efficiently.

See also the MODE selection and Alt-F9.

SAVE—Receive data to PC

This option lets you direct data that a host program is sending to the PC screen into:

- A PC file
- A PC printer.

TRANSMIT—Send data from PC

This option lets you send a PC file into a host program (such as a line-oriented text editor) as if you were typing it on a 3101 keyboard.

LOAD—Load a configuration file

This option lets you load a configuration file. See “Loading a Configuration File” on page 3-18, “Using FTTERM in Nonresident Mode” on page 3-24, and “Using FTTERM with Other Resident Programs” on page 3-26 for more information.

MODE—Toggle nonconcurrent and concurrent

This option lets you change FTTERM's operating mode between concurrent and nonconcurrent.

FTTERM normally operates in concurrent mode. You can switch to nonconcurrent mode before performing extensive file transfers. See "Selecting Concurrent or Nonconcurrent Mode" on page 3-17 for more information.

Type an ID number or Command and press ENTER.

This line is where you do either of the following:

- Select an option by entering its ID number (such as 2), its name (such as TRANSMIT), or the first letter of its name (such as T). You are then prompted to type the source or destination for the transfer.
- Type the entire command as a single step.

When you finish typing the command, press the Enter key to proceed. See "Saving Host Data at the PC" on page 5-7 and "Transmitting a PC File to a Host" on page 5-11 for more information.

Alt-F1 = HELP

Press the Alt-F1 key sequence to display FTTERM's help windows. The help windows provide information about command formats and options for file transfers, and information about the other menu selections. See "Displaying FTTERM's Help Windows" on page 3-20 for more information.

Alt-F2 = RETURN

Press the Alt-F2 key sequence to refresh the menu display. This cancels any commands you have typed but not yet entered, and clears any messages that FTTERM has displayed over the menu.

Alt-F4 = RETRIEVE

Press the Alt-F4 key sequence to retrieve your most recent FTTERM command. Press Alt-F4 again to retrieve the second most recent command. FTTERM stores the five most recent commands. If you make a menu selection, the retrieve function does not work until you finish the operation or press the RETURN key sequence (Alt-F2).

Alt-F5 = COLOR

Press the Alt-F5 key sequence to toggle the colors used with FTTERM menus and screens. There are eight predefined color combinations.

Note: This key sequence appears only when the PC uses a Color/Graphics Adapter or equivalent.

This is a separate function from color in a SNA host session, as defined in a 3708 or 3710 8-PA terminal definition. (See Appendix E, "IBM 3708 and 3710 8-PA Considerations.")

Alt-F6 = DISC

Press the Alt-F6 key sequence to disconnect from a host session. Usually you press this after logging off from the host.

If you are using a modem and a dial-up line, pressing the DISC keys drops the telephone line (hangs up). When you switch to the host session, one of the following appears:

- Auto-Dial Directory (if you have defined auto-dial sequences)
- A message advising you to enter a modem command manually.

Alt-F8 = FTTERM

Press the Alt-F8 key sequence to return to the File Transfer Main Menu – Native Emulation from a host session or PC DOS session. Pressing these keys has no effect while you are using the File Transfer Main Menu – Native Emulation. Therefore it appears there as a reminder.

You can change the key sequence for returning to the File Transfer Main Menu – Native Emulation with FTSETUP. See Appendix C, “Creating and Modifying Configuration Files,” for more information.

Alt-F9 = PC DOS or Alt-F9 = EXIT

Press the Alt-F9 key sequence to switch to a PC DOS session (concurrent mode) or to exit from FTTERM to PC DOS (nonconcurrent mode). You can switch to PC DOS directly from a host session without going through the File Transfer Main Menu – Native Emulation.

You can change the key sequence for PC DOS or EXIT with FTSETUP. See Appendix C, “Creating and Modifying Configuration Files,” for more information.

Alt-F10 = HOST

Press the Alt-F10 key sequence to switch to a host session. You can switch to a host session directly from a PC DOS session (concurrent mode only) without going through the File Transfer Main Menu – Native Emulation.

You can change the key sequence for the host session with FTSETUP. See Appendix C, “Creating and Modifying Configuration Files,” for more information.

Appendix C. Creating and Modifying Configuration Files

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About this Appendix

This appendix explains how to use FTSETUP to do the following:

- Create a new configuration file
- Modify an existing configuration file
- Select a default configuration file.

This appendix includes a configuration worksheet to help you collect the information you need to create or modify a configuration file.

Configuration File Overview

A configuration file contains the following information:

- File transfer method (protocol conversion or native emulation)
- Type of SNA host, if you select protocol conversion
- Communication line characteristics
- Cursor action during a host session
- Communication port at the PC (COM1 or COM2)
- Key sequences for switching between FTTERM functions
- Names and telephone numbers of modem contacts (auto definitions)
- Emulation of the 3101 keyboard (keyboard definition).

This appendix provides details about each item in a configuration file. It also includes step-by-step procedures for creating and modifying configuration files using the FTSETUP program that comes with FTTERM.

A configuration file is a text file, but it is subject to certain restrictions. Therefore, do not edit a configuration file with an editor. Use FTSETUP to create or modify it.

Creating a Configuration File

You can create a configuration file in either of two ways:

- By modifying an existing file. You can modify one of the sample files supplied with FTTERM or another previously created file. The modified file can replace the existing file or be saved as a new file. See Appendix D, "Sample Configuration Files," for descriptions of the sample configuration files. See "Modifying an Existing Configuration File" on page C-12 for the procedure.
- By defining an entirely new file. You can do this if an existing file is close enough to your needs to be easily modified. You can also do this if the only copy of a configuration file has been damaged or erased. See "Creating a Configuration File" on page C-8 for the procedure.

Placing a Configuration File into Effect

You can place a configuration file into effect in either of two ways:

- **SELECT** it as the default configuration file. The configuration file takes effect the next time you load PC DOS and start FTTERM. It stays in effect until you load another configuration file from FTTERM. You must select a default configuration file as part of creating a working copy of FTTERM. See "Selecting a Default Configuration File" on page C-41 for the procedure.
- Use the **LOAD** selection on the file transfer menu. The configuration file takes effect immediately. It stays in effect until you load another configuration file or until you load PC DOS and start FTTERM, in which case the default configuration file takes effect. See "Loading a Configuration File" on page 3-18 for the procedure.

Displaying the Configuration File Currently in Effect

You can display the configuration file that is currently in effect by entering **LOAD ?** at the file transfer menu. If the default configuration file is in effect, FTTERM displays DEFAULT.SET.

Viewing the Values in a Configuration File

You can view the current values in a configuration file in either of two ways:

- Display or print the configuration file with the **TYPE** command provided by DOS. See "Understanding the Sample Configuration Files" on page D-4 for an explanation of the file format.
- Follow the procedure for modifying the configuration file without actually modifying anything. See "Modifying an Existing Configuration File" on page C-12 for the procedure.

Using the FTSETUP Screens

This section provides information about using the FTSETUP screens.

Displaying the FTSETUP Function Selection Menu

FTSETUP's Function Selection Menu (Figure C-1 on page C-7) contains the following selections:

- Select a default configuration file
- Modify an existing configuration file
- Create a new configuration file
- Exit to PC DOS.

Follow these steps to display the Function Selection Menu:

1. Do one of the following:

- *Diskette systems:* Start at the DOS system prompt (A >). Insert the FTTERM working diskette into drive A.
- *Fixed disk systems:* Start at the DOS system prompt (C >). If you copied the FTTERM files into a subdirectory, use the CD command to change to that subdirectory.

2. Enter:

FTSETUP

FTSETUP displays a trademark and copyright screen and tells you to press any key to continue.

3. Press any key. FTSETUP displays the Function Selection Menu:

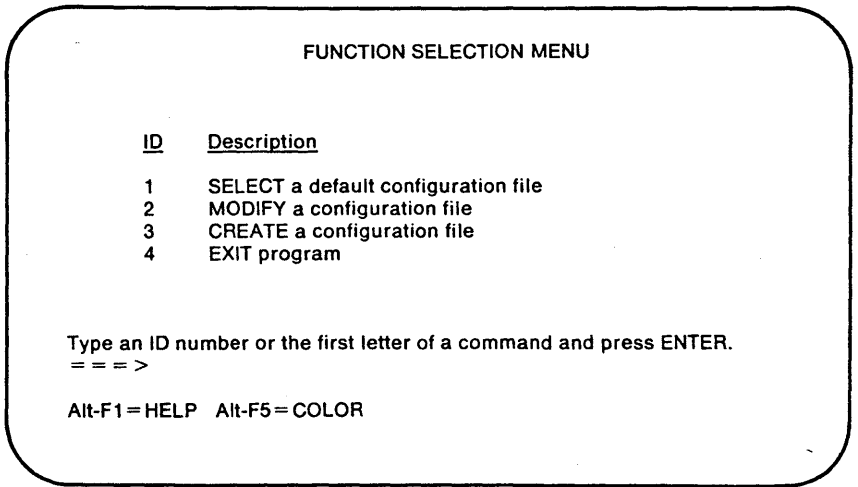


Figure C-1. The FTSETUP Function Selection Menu

Displaying FTSETUP's Help Windows

When using FTSETUP, you can get help with the items currently on the screen by pressing Alt-F1.

The help windows provide information on these topics:

- Using the functions on the Function Selection Menu
- Responding to each prompt that appears when creating or modifying a configuration file
- Using the selections on the Auto-Dial Definition Menu
- Using the selections on the Key Definition Menu
- Changing screen colors when using FTSETUP.

You are encouraged to use the Help windows as a primary source of information about FTSETUP. Use these procedures:

- To select a topic from a help menu, move the cursor to the topic and press the Enter key.
- To proceed through a topic, press the PgUp and PgDn keys.
- To return from a topic to the help menu, press Alt-F3.
- To return from a topic or the help menu to FTSETUP, press Alt-F2.

Selecting Screen Colors when Using FTSETUP

If you are using a color monitor, you can select from eight predefined color combinations for FTSETUP screens by pressing Alt-F5.

Creating a Configuration File

Follow these steps to create a new configuration file:

1. Complete the configuration worksheet. See “Using the Configuration Worksheet” on page C-13. Consult the host documentation or the system administrator for the host, 3708, or 3710 8-PA if you need assistance.
2. Access the FTSETUP Function Selection Menu as described in “Displaying the FTSETUP Function Selection Menu” on page C-6.

3. Enter a **3** or a **C**. FTSETUP displays:

Creating a configuration file.
Answer each question or press
Enter to accept the default.

4. The prompts on the configuration worksheet appear, one at a time.

Note: Some of the prompts will be skipped, depending on the response to a previous prompt.

Type your response to each prompt based on the completed configuration worksheet. You can use uppercase or lowercase letters. The prompts are explained in “Using the Configuration Worksheet” on page C-13. You can also get online help with each prompt by pressing Alt-F1 when the prompt appears.

If you enter an incorrect response, press the Enter key to skip through the rest of the prompts until the message in step 5 appears. Then enter a **Y**. The prompts begin again.

You can save time if the default response (in brackets []) is correct. Press the Enter key to accept the default response.

5. Check your entries when FTSETUP displays:

Would you like to change any of the
above entries? [N]:

Do one of the following:

- If you entered all the responses correctly, enter an **N** or press the Enter key to proceed with creating the configuration file.
- If you made a mistake, enter a **Y**. FTSETUP repeats the entire set of prompts.

6. After you enter an N or press the Enter key, FTSETUP displays:

Would you like to define any auto-dial sequences? [N]:

Do one of the following:

- If you are not using a modem or you do not want to define any auto-dial sequences, enter an N or press the Enter key to proceed with creating the configuration file.
 - If you are using a modem and you want to define auto-dial sequences, enter a Y. See “Defining Auto-Dial Sequences” on page C-24 for more information.
7. After you enter an N or press the Enter key, or after you finish defining auto-dial sequences, FTSETUP displays:

Do you wish to modify any key definitions? [N]:

Do one of the following:

- If you want to use the default keyboard definition, which is shown in Figure C-5 on page C-32, enter an N or press the Enter key to proceed with creating the configuration file.
- If you want to change the default keyboard definition, enter a Y. See “Defining the Keyboard” on page C-30 for more information.

When you enter an N or press the Enter key, or when you finish modifying the keyboard definition, FTSETUP displays:

To save configuration values enter filename (or press Enter to return to Function Selection Menu):

If you decide not to create the configuration file, press the Enter key at the filename prompt without typing a file name. FTSETUP displays:

Okay to lose changes? (Y=Yes N=No) [N]

Enter a **Y** to abandon your responses. FTSETUP does not create the file. It displays the Function Selection Menu.

8. Type the name that you want to use for the configuration file and press the Enter key.

Note: The extension **SET** is recommended but not required for configuration filenames.

If there is already a file with the name you enter, FTSETUP displays:

An old file by that name exists.
Erase the old file? (Y=Yes N=No) [N]

Do one of the following:

- If you do not want to erase the old file, enter an **N** or press the Enter key. FTSETUP repeats the filename prompt.
- If you want to replace the old file with the new file, enter a **Y**. FTSETUP creates the new file and displays the Function Selection Menu.

After FTSETUP creates the configuration file, it returns to the Function Selection Menu.

9. Exit from FTSETUP by entering a **4** on the Function Selection Menu. The DOS system prompt appears.

If you have not selected a default configuration file as instructed in “Preparing and Selecting a Default Configuration File” on page 2-17, you can perform that procedure next. See “Selecting a Default Configuration File” on page C-41 for specific instructions.

You can also load the new configuration file, as described in “Loading a Configuration File” on page 3-18.

If an error message appears when you try to select or load the configuration file. See Appendix A, “File Transfer Messages,” for an explanation of the message.

Modifying an Existing Configuration File

Follow these steps to modify an existing configuration file.

Note: The modified file can replace the existing file (by keeping the same filename), or it can be saved as a new file leaving the original file unchanged (by using a new filename).

1. Access the FTSETUP Function Selection Menu as described in “Displaying the FTSETUP Function Selection Menu” on page C-6.
2. Enter a **2** or an **M**. FTSETUP displays:

Enter filename (or press Enter to return to Function Selection Menu):
3. Type the name of the file to be modified and press the Enter key.

4. Beginning at this step, modifying a configuration file is identical to creating a configuration file, with the following exceptions:
 - The default values for the prompts are obtained from the file being modified.
 - In addition to prompts that are skipped because of a previous response, some prompts may be skipped if they have been *suppressed*. This is true for the sample configuration files that came with FTTERM and may be true for files created for you by a system administrator. See “Suppressing Selected Prompts” on page C-43.

See “Creating a Configuration File” on page C-8 for the additional steps.

If you want to save the modifications as a new configuration file without changing or deleting the old file, enter a new filename at the prompt:

To save configuration values enter filename

Using the Configuration Worksheet

The configuration worksheet (Figure C-2) lists the prompts for creating or modifying a configuration file.

The Default column shows the default value for the prompt when you create a new configuration file. When you modify a configuration file, the default value is the current value in the file being modified.

See the sections that follow the configuration worksheet for more information about each prompt.

Prompt	Options	Default	Response
Running in protocol conversion mode?	Y, N	Y	
Protocol converter?	1 (3708 or 3710 8-PA) 2 Reserved	1	
Line speed (baud rate) to be used?	110, 150, 300, 600, 1200, 2400, 4800, 9600	1200	
Half duplex?	Y, N	N	
Parity?	1 (Odd) 2 (Even) 3 (Mark) 4 (Space)	1	
Stop bits?	1, 2	1	
Automatic new line?	Y, N	N	
Automatic line feed?	Y, N	N	
Carriage return?	Y (CR) N (CR-LF)	Y	
Character sent at end of message?	1 (ETX) 2 (CR) 3 (EOT) 4 (XOFF)	2	
Scrolling?	Y, N	Y	
Prompt character from host?	See text	0	
START/STOP (XON/XOFF) enabled?	Y, N	N	

Figure C-2 (Part 1 of 3). Configuration Worksheet

Prompt	Options	Default	Response
Communication port?	1, 2	1	
25 line terminal definition in 3708 or 3710 8-PA?	Y, N	Y	
Host system?	1 (MVS/TSO) 2 (VM/CMS) 3 (CICS) 4 (IWS)	2	
Inactivity timeout in minutes?	1-9	3	
Extended code for switch to PC-DOS session?	See text	112	
Extended code for switch to host session?	See text	113	
Extended code for switch to file transfer menu?	See text	111	
Extended code for switch to messages screen?	See text	110	

Figure C-2 (Part 2 of 3). Configuration Worksheet

Prompt	Options	Default	Response
Name of host file transfer command?	See text	IND\$FILE	
Would you like to change any of the above entries?	Y, N	N	See text
Would you like to define any auto-dial sequences?	Y, N	N	See text
Do you wish to modify any key definitions?	Y, N	N	See text

Figure C-2 (Part 3 of 3). Configuration Worksheet

Running in Protocol Conversion Mode?

This item determines whether FTTERM performs file transfers using the protocol conversion method or the native emulation method.

Enter a **Y** to perform file transfers with an SNA host through a 3708 or 3710 8-PA operating in protocol conversion mode. FTTERM will display the File Transfer Main Menu for protocol conversion (Figure B-1 on page B-3).

Enter an **N** if you are communicating with an ASCII host or with a SNA host that does not have the required host file transfer program. You can also respond **N** with any host if you only want basic 3101 emulation functions and the relatively limited file transfer capabilities of the native emulation method. FTTERM will display the File Transfer Main Menu – Native Emulation (Figure B-2 on page B-9).

Protocol Converter?

This item identifies the type of protocol conversion device to which the PC is connected. The prompt appears only when you respond Y to "Running in Protocol Conversion Mode?"

Enter a 1 for a 3708 or 3710 8-PA. 2 is reserved for future use.

Line Speed (Baud Rate) to be Used?

This item determines the line speed (baud rate) for the communication line. The valid line speeds are:

- 110
- 150
- 300
- 600
- 1200
- 2400
- 4800
- 9600.

The line speed you select must match the line speed configured for the port at the host, 3708, or 3710 8-PA.

The maximum line speed supported by FTTERM is 9600. This is the preferred line speed when you are directly connected to the host, 3708, or 3710 8-PA. If you are using a modem, the line speed will probably be 2400 or less.

Note: The maximum line speed for the 3270 PC, 3270 PC AT, and the PC Convertible is 4800.

Half Duplex?

FTTERM supports both full duplex and half duplex modes of operation.

In full duplex mode, both devices can communicate simultaneously. Characters that you type during a host session are sent back to the PC display. If you are using a 3708 or 3710-8PA in protocol conversion mode, select full duplex by entering an N.

If each character that you type appears twice, change this to Y for half duplex mode.

When you are using a modem, the modem must be configured for full duplex operation regardless of the selection in the configuration file.

Parity?

Parity provides a means of checking the accuracy of transmitted data. The parity options are:

- 1 (Odd)
- 2 (Even)
- 3 (Mark, parity bit held to 1)
- 4 (Space, parity bit held to 0).

The default value is 1 (odd parity). Your selection must match the parity setting for the ASCII host, 3708, or 3710 8-PA.

Stop Bits?

Stop bits signify the end of a transmitted character. Select one or two stop bits. One stop bit is normal for line speeds higher than 110.

Automatic New Line?

This prompt appears only when you respond N to "Running in Protocol Conversion Mode?"

Enter a **Y** to let the PC cursor move to the next line when text from the host passes column 80. Enter an **N** to make the cursor overwrite the same line.

Automatic Line Feed?

Enter a **Y** to let the PC cursor move to column 1 of the next line when you press the Enter key during a host session. Enter an **N** to make the cursor move to column 1 of the same line.

Carriage Return?

This item determines what character(s) the PC sends to the host when you press the Enter key. Enter a **Y** to send a carriage return character (CR). Enter an **N** to send a carriage return and a line feed character (CR LF).

Consult your system administrator at the host if you do not know how to respond. When in doubt, enter an **N**.

Character Sent at End of Message?

This item identifies the character that FTTERM sends to the host at the end of each line during a TRANSMIT operation (native emulation only). Valid responses are:

- 1 (ETX)
- 2 (CR)
- 3 (EOT)
- 4 (XOFF).

Scrolling?

Enter a **Y** to make the displayed text move up one line when a line feed occurs with the cursor on the bottom line. The top line of text scrolls off the screen. Enter an **N** to make the cursor move to the upper-right corner and overwrite the current text display.

Prompt Character From Host?

Some hosts send a prompt character to the PC when they are ready to process the next line of input. This is a method of pacing the input.

If the character is a non-numeric displayable character, enter that character.

If the prompt character is numeric or non-displayable, enter the ASCII code for that character in decimal. For example, enter **49** if the prompt character is *I*.

If the host does not send a prompt character, enter **0**.

Start/Stop (XON/XOFF) Enabled?

Enter a **Y** if the ASCII Host, 3708 Protocol Converter, or 3710 Protocol Converter uses the XON/XOFF method of stopping and restarting transmission (using the ASCII codes DC1 and DC3). If the host uses XON/XOFF, the PC can send the XOFF character when the host is sending more data than the PC can process at the time, preventing the loss of data.

Enter an **N** if the host does not use the XON/XOFF method.

Communications Port?

Enter a **1** if the communication line is connected to the PC's primary Asynchronous Communications Adapter (COM1). Enter a **2** if the line is connected to a secondary Asynchronous Communications Adapter (COM2).

25 Line Terminal Definition in 3708 or 3710 8-PA?

This prompt appears only when you respond Y to "Running in Protocol Conversion Mode?"

Enter a Y if the 3708 or 3710 8-PA offers a terminal selection (such as IBM PC/FTTERM COLOR or IBM PC/FTTERM MONO) that provides a host status line on the PC display's bottom line. Enter an N if such a terminal selection is not available.

Host System?

This prompt appears only when you respond Y to "Running in Protocol Conversion Mode?"

Enter a number from the following list that identifies the type of SNA host that you intend to contact when using this configuration file:

- 1 (MVS/TSO)
- 2 (VM/CMS)
- 3 (CICS)
- 4 (IWS).

Inactivity Timeout (in Minutes)?

This prompt appears only when you respond Y to "Running in Protocol Conversion Mode?"

Enter the number of minutes that FTTERM should wait for a response from the host before terminating a file transfer using the protocol conversion method.

Three minutes is considered reasonable. Use a higher number if you get frequent error messages with the identifier TRANS10. Valid responses are the digits 1 through 9.

Extended Code for Switch to xxxx?

These four items determine the key sequences for switching between these FTTERM functions:

- PC-DOS session (Default is 112 = Alt-F9)
- Host session (Default is 113 = Alt-F10)
- File transfer menu (Default is 111 = Alt-F8)
- Host messages screen (Default is 110 = Alt-F7).

You can change the session switching keys if they conflict with keys defined by a PC program running concurrently with FTTERM. Figure C-3 lists the scan codes you can enter in response to this prompt.

Scan Code	Key
84 - 93	Shift F1 through Shift F10
94 - 103	Ctrl F1 through Ctrl F10
106	Alt F3
110 - 113	Alt F7 through Alt F10
114	Ctrl PrtSc
115	Ctrl Cursor left
116	Ctrl Cursor right
117	Ctrl End
118	Ctrl PgDn
119	Ctrl Home
120-131	Alt 1 through Alt 0, Alt -, Alt =
132	Ctrl PgUp

Figure C-3. Extended Codes Available as Key Sequences for Session Switching

You can change any of the default values. For example, if you want Shift-F9 to be the key sequence for switching to a host session, enter **92** at the appropriate prompt.

Notes:

1. You can assign the same value to the PC DOS session switch and the host session switch. Doing so lets you toggle between the sessions with the same key sequence. This is the only pair of functions that you can assign this way.
2. The prompt "Extended Code for Switch to Messages Screen?" appears only when you respond Y to "Running in Protocol Conversion Mode?"
3. The values you select for the session switches will be in effect during a concurrent PC DOS session. Be aware that if a PC program uses the same keys for its own functions, FTTERM will override the PC functions.

Name of Host File Transfer Command?

This prompt appears only when you respond Y to "Running in Protocol Conversion Mode?"

Enter the name of the host file transfer program that FTTERM uses when transferring files with the protocol conversion method. The default name is IND\$FILE. If the host system administrator has assigned a name other than IND\$FILE to the host file transfer program, enter that name at this prompt.

Would You Like to Change any of the Above Entries?

Enter a Y if you have made a mistake in any previous response. FTSETUP displays the prompts again. Enter an N when the responses are correct and you are ready to proceed.

Would You Like to Define any Auto-Dial Sequences?

Enter an **N** if you are not using a modem or you do not want to define any auto-dial sequences. Enter a **Y** if you are using a modem and you want to define auto-dial sequences. See “Defining Auto-Dial Sequences” for more information.

Would You Like to Modify any Key Definitions?

Enter an **N** if you want to use the default or previously defined keyboard definition. Enter a **Y** to modify the keyboard definition. See “Defining the Keyboard” on page C-30 for more information.

Defining Auto-Dial Sequences

This section describes how to define auto-dial sequences for your modem. FTSETUP lets you define up to nine auto-dial sequences, along with the names of the contacts, in each configuration file.

FTTERM displays the list of contact names (or other descriptions you choose to use) in the Auto-Dial Directory (see page 3-9). The Auto-Dial Directory appears when you press the key sequence for the host session (default is Alt-F10) and there is currently no contact with a host. FTTERM displays the directory only if you have defined auto-dial sequences in the configuration file that is currently in effect.

Displaying the Auto-Dial Definition Menu

When you create or modify a configuration file, this prompt appears:

Would you like to define any auto-dial sequences? [N]:

Enter a **Y** to display the Auto-Dial Definition Menu:

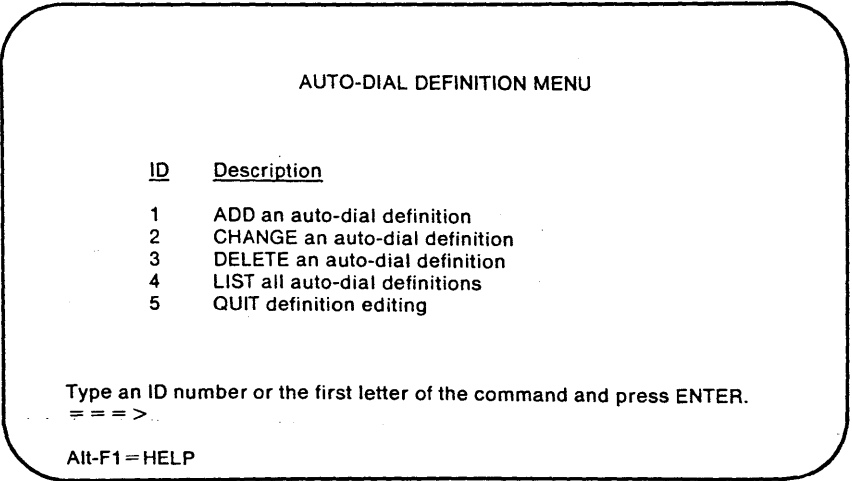


Figure C-4. The Auto-Dial Definition Menu

Adding an Auto-Dial Definition

This section uses an example to show how to add an auto-dial definition. The following procedure adds an auto-dial definition for the host "IBM Information Network":

1. Enter a 1 or an A on the Auto-Dial Definition Menu. FTSETUP displays:

```

                                                    AUTO-DIAL DIRECTORY
ID  NAME                                                    AUTO-DIAL SEQUENCE
--  ----                                                    -
1   TSO HOST                                                ATDT3333
```

Type name (maximum 25 chars) or press Enter to return.
===>

To return to the Auto-Dial Definition Menu without adding an auto-dial definition, press the Enter key without typing a contact name.

2. Type the contact name. In this example, you type **IBM INFORMATION NETWORK**. Then press the Enter key. FTSETUP displays:

Type modem command followed by telephone number (maximum 35 chars) then press '+' ON RIGHT OF KEYBOARD. Use '-' ON RIGHT OF KEYBOARD to correct errors.
===>

3. Type a maximum of 35 characters for the dialing sequence. In this example, you type **ATDT9,1,2345678**

-	7 Home	8 ↑	9 PgUp	-
←	4 ←	5	6 →	+
PrtSc •	1 End	2 ↓	3 PgDn	
0 Ins	Del			

If you make a typing error, press the Minus key (-) at the far right of the keyboard to backspace. When you are finished typing the entry, press the Plus key (+) at the far right of the keyboard. FTSETUP uses the Plus and Minus keys this way to let you include the Backspace and Enter keys within the dialing sequence.

When you press the Plus key, FTSETUP displays:

		AUTO-DIAL DIRECTORY
ID	NAME	AUTO-DIAL SEQUENCE
---	----	-----
1	TSO HOST	ATDT3333
2	IBM INFORMATION NETWORK	ATDT9,1,2345678

Type name (maximum 25 chars) or press ENTER to return.
 ==>

In this example, the first two auto-dial definitions were previously added to the configuration file.

4. Press the Enter key to return to the Auto-Dial Definition Menu. The definition is added to the configuration file.

Changing an Auto-Dial Definition

This section uses an example to show how to change the name or dialing sequence associated with an ID number on the Auto-Dial Directory. The following procedure changes the dialing sequence for the TSO host:

1. Enter a 2 or a C on the Auto-Dial Definition Menu. FTSETUP displays:

```
AUTO-DIAL DIRECTORY
ID  NAME                                AUTO-DIAL SEQUENCE
--  ----                                -
1   TSO HOST                            ATDT3333
2   IBM INFORMATION NETWORK            ATDT9,1,2345678
```

Change definition for which ID?
(press Enter to return):

To return to the Auto-Dial Definition Menu without changing an auto-dial definition, press the Enter key without typing an ID number.

2. Enter a 1 to change the auto-dial definition for the TSO host. FTSETUP displays:

To keep current entry press Enter, or use cursor left key to delete current definition, then type new definition and press Enter.

```
===> TSO HOST
```

3. In this example, you press the Enter key to leave the name as it is. FTSETUP displays:

Type modem command followed by telephone number (maximum 35 chars) then press '+' ON RIGHT OF KEYBOARD. Use '-' ON RIGHT OF KEYBOARD to correct errors.

```
===> ATDT3333
```

4. Use the Minus key to delete all or part of the current dialing sequence. Then type the new dialing sequence, for example, ATDT4444. Then press the Plus key. FTSETUP displays the modified Auto-Dial Directory.
5. Press the Enter key to return to the Auto-Dial Definition Menu.

Deleting an Auto-Dial Definition

This section uses an example to show how to delete an auto-dial definition from a configuration file. The following procedure deletes the auto-dial definition for the VM host:

1. Enter a **3** or a **D** on the Auto-Dial Definition Menu. FTSETUP displays:

```

                                AUTO-DIAL DIRECTORY
                                AUTO-DIAL SEQUENCE
ID   NAME                                -----
--   ----
  1   VM HOST                                ATDT9,5554321
  2   IBM INFORMATION NETWORK              ATDT9,1,2345678

```

Delete definition for which ID?
(press Enter to return):

To return to the Auto-Dial Definition Menu without deleting an auto-dial definition, press the Enter key without typing an ID number.

2. Enter a **1** to delete the auto-dial definition for the VM host. FTSETUP displays:

```

VM HOST
Are you sure you want to delete? (Y=Yes N=No) [N]:

```

If you decide not to delete the auto-dial definition, enter an **N** or press the Enter key to redisplay the unchanged Auto-Dial Directory.

3. Enter a **Y** to confirm the deletion. FTSETUP displays the updated Auto-Dial Directory.
4. Press the Enter key again to return to the Auto-Dial Definition Menu.

Listing the Auto-Dial Definitions

Enter a **4** or an **L** on the Auto-Dial Definition Menu to list the auto-dial definitions that are currently defined in a configuration file. The listing function does not let you add, change, or delete any auto-dial definitions.

Press the Enter key to return to the Auto-Dial Definition Menu.

Quitting the Auto-Dial Definition Procedure

Enter a **5** or a **Q** on the Auto-Dial Definition Menu to quit defining auto-dial definitions and to continue creating or modifying the configuration file. You return to the configuration file prompts. FTSETUP displays:

```
Do you wish to modify any key definitions? [N]:
```

Defining the Keyboard

This section describes how FTTERM defines PC keys as substitutes for 3101 and 3270 keys that are not on the PC keyboard. It also describes how to use FTSETUP to modify a default keyboard definition to suit your needs.

Default Keyboard Definitions

The sample configuration files that came with FTTERM contain two different keyboard definitions:

- A 3101-like keyboard definition, which is shown in Figure C-5 on page C-32. It provides 3101 keyboard functions for communicating with ASCII hosts. The 3101-like keyboard definition is contained in these sample files:
 - DOWJONES.SET
 - SOURCE.SET.

The 3101-like keyboard also results when you respond N to the prompt “Do you wish to modify any key definitions?” when creating a new configuration file.

- A 3270-like keyboard definition is shown in Figure C-6 on page C-33. It provides additional 3270 keyboard functions for communicating with SNA hosts through a 3708 or 3710 8-PA. It also contains key definitions that control 3708 and 3710 8-PA functions. The 3270-like keyboard definition is contained in this sample file:
 - IBM3708.SET.

3101 Key	PC Key
Backspace	Backspace
BREAK	PgUp
CLEAR	Home
Down Cursor	Cursor Down
DEL	Del
ERASE EOL/EOF	End
ERASE EOS	PgDn
ERASE INPUT	Ctrl Home
ESC	Esc
HOME	Ctrl PgUp
(Alt Backtab)	
Left Cursor	Cursor Left
LINE FEED	Ctrl Enter
New Line	Enter
PF1 through PF10	F1 through F10
PRINT	Shift PrtSc
Right Cursor	Cursor Right
Tab	Tab
Up Cursor	Cursor Up

Figure C-5. 3101 and PC Key Definition Chart (Default Definition)

See Appendix D, "Sample Configuration Files" for additional information on the keyboard definition for DOWJONES.SET and SOURCE.SET.

3270 Key	PC Key	3270 Key	PC Key
ATTN	Ctrl a	PF11	Shift F1 or Esc -
Backtab	Backtab or Esc Tab	PF12	Shift F2 or Esc =
CLEAR	Home or Ctrl c	PF13	Shift F3 or Esc !
CURSR SEL	Esc k	PF14	Shift F4 or Esc @
Delete	Del	PF15	Shift F5 or Esc #
DEV CNCL	Ctrl x	PF16	Shift F6 or Esc \$
Down Cursor	Down Cursor	PF17	Shift F7 or Esc %
DUP	Ctrl d	PF18	Shift F8 or Esc ^
Enter	Enter	PF19	Shift F9 or Esc &
ERASE EOF	End	PF20	Shift F10 or Esc *
ERASE INPUT	Ctrl Home	PF21	Alt F1 or Esc (
FIELD MARK	Ctrl f	PF22	Alt F2 or Esc)
HOME	Ctrl PgUp or Esc h	PF23	Alt F3 or Esc _
IDENT	Esc z	PF24	Alt F4 or Esc +
Insert mode	Ins or Esc Del	Alt-F7	switch to Msgs
Left Cursor	Left Cursor	Alt-F8	Switch to FTTERM
New line	Ctrl Enter or Ctrl j	Alt-F9	Switch to PC DOS
Null/Blank	Esc n	Alt-F10	Switch to Host
PA1	Ctrl F1 or Esc ,	Print	Ctrl p
PA2	Ctrl F2 or Esc .	Refresh	Esc r
PA3	Ctrl F3 or Esc /	RESET	Ctrl r
PF1	F1 or Esc 1	Resume	Ctrl y
PF2	F2 or Esc 2	Display	Display
PF3	F3 or Esc 3	Resume	Esc p
PF4	F4 or Esc 4	Printer	Printer
PF5	F5 or Esc 5	Right Cursor	Right Cursor
PF6	F6 or Esc 6	Status On/Off	Ctrl w
PF7	F7 or Esc 7	Suspend	Ctrl t
PF8	F8 or Esc 8	Display	Display
PF9	F9 or Esc 9	Suspend	Esc o
PF10	F10 or Esc 0	Printer	Printer
		SYS REQ	Esc s
		Tab	Tab
		Type Ahead	Esc t
		Up Cursor	Up Cursor

Figure C-6. 3270 and PC Key Definition Chart (IBM3708.SET)

See Appendix D, "Sample Configuration Files" for additional information on the keyboard definition for IBM3708.SET.

Displaying the Key Definition Menu

When you create or modify a configuration file, this prompt appears:

Do you wish to modify any key definitions? [N]:

Enter a **Y** to display the Key Definition Menu (Figure C-7):

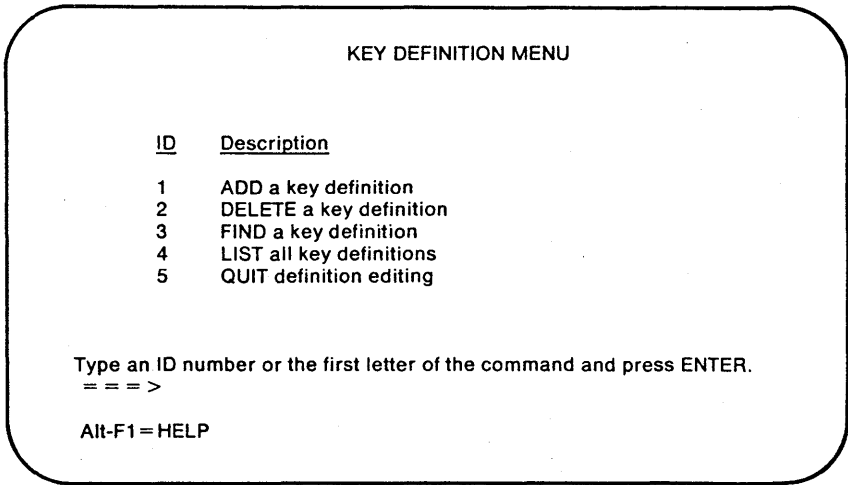


Figure C-7. The Key Definition Menu

Note: To *modify* a key definition, you use the ADD option.

Redefinable Keys

Figure C-8 lists the PC keys and key sequences that you can define using the Key Definition Menu.

F1 through F12	Right Cursor
Alt F1 through Alt F10	Ctrl Right Cursor
Ctrl F1 through Ctrl F10	Tab
Shift F1 through Shift F10	Reverse Tab
Alt a through Alt z	End
Ctrl a through Ctrl z	Ctrl End
Alt 0 through Alt 9	Home
Ctrl 0 through Ctrl 9	Ctrl Home
Backspace	PgUp
Ctrl Backspace	Ctrl PgUp
Enter	PgDn
Ctrl Enter	Ctrl PgDn
Ins	Ctrl ^
PrtSc	Ctrl [
Del	Ctrl]
Esc	Ctrl \
Up Cursor	Ctrl _
Down Cursor	Ctrl @
Left Cursor	+ on numeric keypad
Ctrl Left Cursor	

Figure C-8. Redefinable PC Keys

Note: You cannot change the definition of a standard letter or number key. You must use it in a combination with Alt or Ctrl.

Adding or Modifying a Key Definition

This section uses an example to show how to add or modify a key definition. The following procedure defines the F6 key as a host logon function:

1. At the Key Definition Menu, enter a 1 or an A. FTSETUP displays:

```
Add definition for which key?
(prompt 'C' to cancel):
```

To quit without adding a definition, press C.

2. Press the F6 key. FTSETUP displays:

<F6>

Type definition sequence then press

'+' ON RIGHT OF KEYBOARD. Use

'-' ON RIGHT OF KEYBOARD to correct errors.

3. Enter the logon sequence, for example, **LOGON
USERID**

You can include the Enter keystroke as part of the definition.

	7 Home	8 ↑	9 PgUp	-
↓	4 ←	5	6 →	
PrtSc	1 End	2 ↓	3 PgDn	+
0 Ins	.			Del

If you make a typing error, press the Minus key (-) at the far right of the keyboard to backspace. When you are finished typing the entry, press the Plus key (+) at the far right of the keyboard. FTSETUP uses the Plus and Minus keys this way to let you include the Backspace and Enter keys within the key definition.

When you press the Plus key, FTSETUP displays:

<F6> produces: LOGON USERID

Add definition for which key?

(press 'C' to cancel):

4. You can continue adding key definitions or press **C** to return to the Key Definition Menu.

Notes:

1. You cannot add a definition to a standard letter or number key. Figure C-8 on page C-35 lists the redefinable keys.
2. Key definitions cannot be nested.

Using the Wait Function in Key Definitions

The wait function causes FTTERM to wait until a specified character is received from the host.

For example, you can define a string that makes FTTERM wait until the host sends a `<BEL>` character (ASCII Ctrl-G) before it sends the rest of the string.

The procedure for this example is:

1. When adding the key definition, at the point where the Wait should occur, press Alt-W.
2. Type the character that you want FTTERM to wait for. It can be any single character, or a Ctrl-character combination. In this example, press Ctrl-G.
3. Continue typing the remainder of the key definition.

When you use this key during a host session, FTTERM transmits the first part of the definition and pauses. While it is waiting, FTTERM displays:

```
*** Waiting. Press Alt-F10 to cancel. ***
```

When the host sends Ctrl-G, FTTERM sends the rest of the key definition and returns to normal operation.

You can cancel the Wait function by pressing Alt-F10.

Deleting a Key Definition

This section uses an example to show how to delete a key definition. Do this when you want to return the key to its standard definition or if you run out of space in FTTERM's key definition table.

The following procedure deletes the logon sequence definition for the F6 key:

1. Enter a **2** or a **D** at the Key Definition Menu. FTSETUP displays:

```
Delete definition for which key
(press 'C' to cancel)?
```

To quit without deleting a key definition, type a **C**.

2. Press the F6 key. FTSETUP displays:

```
<F6> produces: LOGON USERID
Are you sure you want to delete? (Y=Yes N=No):
```

If you change your mind about deleting the definition, enter an **N**. FTSETUP displays:

```
<F6> produces: LOGON
Delete definition for which key
(press 'C' to cancel)?
```

Press **C** to return to the Key Definition Menu.

3. Enter a **Y** to confirm the deletion. FTSETUP displays:

```
<F6> produces its standard definition: <PF6>
Delete definition for which key
(press 'C' to cancel)?
```

4. You can continue to delete definitions or press **C** to return to the Key Definition Menu. **F6** returns to its standard definition of **PF6**. Figure C-5 on page C-32 shows the standard definitions for selected keys; the remainder of the redefinable keys have **NO-OP** (for no operation) as their standard definitions.

Note: You cannot delete the definition of a standard letter or number key.

Finding a Key Definition

This section uses an example to show how to find the current definition of a key. The following procedure finds the definition of **Alt-F10**:

1. Enter a **3** or an **F** on the Key Definition Menu. **FTSETUP** displays:

```
Find definition for which key
(Press that key, or press 'C' to cancel)?
```

To quit without finding any key definitions, type a **C**.

2. Press and hold the **Alt** key and press the **F10** key. **FTSETUP** displays:

```
<Alt-F10> produces its standard definition:
<Switch to HOST>
```

```
Find definition for which key
(Press that key, or press 'C' to cancel)?
```

3. You can continue finding key definitions or press **C** to return to the Key Definition Menu.

Listing the Key Definitions

The following section describes how to display a list of the current definitions for all the currently defined keys.

1. Enter a 4 or an L on the Key Definition Menu. FTSETUP lists all of the key definitions in the configuration file. It lists the default definitions plus any user defined definitions that have been added to the configuration file.

Any key definition that differs from the standard definition shown in Figure C-5 on page C-32 appears with (U) preceding it.

2. If all of the key definitions do not fit on one screen, press the Enter key to see more of the definitions.

At the end of the key definition list, FTSETUP displays:

Press Enter to return:

3. Press the Enter Key to return to the Key Definition Menu.

Quitting the Key Definition Procedure

Enter a 5 on the Key Definition Menu to continue creating or modifying the configuration file. FTSETUP displays:

To save configuration values enter filename (or press Enter to return to Function Selection Menu):

You return to the configuration file prompts.

Selecting a Default Configuration File

You can select the configuration file that you use most often to be the default configuration file. You *must* select a default configuration file before you can use FTTERM, unless you have been provided with a preconfigured FTTERM program diskette.

The default configuration file automatically takes effect the next time you load PC DOS and start FTTERM. It stays in effect until you load a different configuration file as described in "Loading a Configuration File" on page 3-18. You can select a different default configuration file as often as you want.

Follow these steps to select a default configuration file:

1. Access the FTSETUP Function Selection Menu as described in "Displaying the FTSETUP Function Selection Menu" on page C-6.

2. Enter a **1** or an **S**. FTSETUP displays:

Enter filename (or press Enter to return
to Function Selection Menu):

To quit without selecting a new default file, press the Enter key.

3. Type the name of the configuration file you want to select, including the drive letter and path, if appropriate.

4. Press the Enter key. FTSETUP displays:

Selection of configuration options complete.

FTSETUP automatically exits to PC DOS.

Note: If FTTERM is already started when you do this procedure, the new default configuration does not take effect until the next time you start FTTERM.

If you want the configuration file to take effect immediately, you can use the LOAD option on the file transfer menu. See "Loading a Configuration File" on page 3-18. Load the file named DEFAULT.SET.

When you modify a file that has been selected as the default configuration, you must select it again after modifying it. This is *not* the case if you modify DEFAULT.SET directly.

FTSETUP copies the configuration file you select into a special file named DEFAULT.SET. At startup, FTTERM accesses the DEFAULT.SET file, not the configuration file. Therefore, it is not essential that the configuration file is always present when you start FTTERM. It *is* essential, however, that DEFAULT.SET is present in the same disk and directory with the FTTERM program file (FTTERM.EXE).

Suppressing Selected Prompts

This information is for advanced users and system administrators who are creating configuration files for FTTERM users.

You can edit a configuration file so that FTSETUP displays only selected prompts when users modify the file. This avoids the possibility of unintended changes to the file. It also reduces the number of steps when modifying the file.

Using a text editor or debugging program, change the semicolon (;) that appears in a prompt line to an asterisk (*). For example, to suppress the “Character Sent at End of Message?” prompt, change the line from:

```
2 ; Character Sent at End of Message
```

to

```
2 * Character Sent at End of Message
```

FTSETUP Messages

This section describes the messages that can appear while you are running FTSETUP. Each message includes an explanation and a recommended response.

Cannot delete standard definition of <keyname>

You tried to delete the standard definition of a special key such as Tab or PgUp. You can add a new definition to these keys and delete the new definition, but you cannot delete the standard definition.

Cannot delete standard definition of an ordinary character, such as 'x'

You tried to delete the definition of a standard letter, number, or punctuation character. These definitions cannot be deleted or changed.

Check your entry and try the procedure again.

Data not in correct format in file

You tried to select a default configuration file that contains invalid data.

Create the file again or restore it from a backup copy.

Definition table full

You defined as many keys as the definition table can hold. The total characters in all key definitions cannot exceed 512.

You must delete or shorten the definitions of currently defined keys before you can add new definitions.

Diskette full

The disk to which you are saving a new configuration file is full. It is also possible that the disk is damaged.

Delete unneeded files or repeat the operation with a different diskette.

File not found

FTSETUP could not find the configuration file you want to modify or delete. Check your entries and try again.

Not a valid filename

You made an error while entering a PC filename. Check your typing. The restrictions on filenames appear in the *IBM PC DOS Reference* manual.

Please type a modem command and telephone number.

You have selected to change an auto-dial definition and have not entered any data at the prompt before pressing carriage return.

Enter your new auto-dial definition.

Please type a name.

You have selected to change an auto-dial definition and have not entered any data at the prompt before pressing carriage return.

Enter your new auto-dial definition.

The auto-dial directory is empty. Change (Delete) canceled.

You tried to change, delete, or list an entry in the auto-dial directory, but there are currently no entries in the directory for this configuration file. No response is needed.

The auto-dial directory is full. Add canceled.

You tried to add an entry to the auto-dial directory, but there are already nine entries in the directory.

Delete unneeded auto-dial definitions or create a new configuration file.

'x' is an ordinary character. Only special keys (Ctrl-, Alt-, F1-F12, CURSOR keys, etc.) can be given new meanings.

The key that you specified can be defined only when used with Alt or Ctrl. See Figure C-8 on page C-35 for a list of redefinable keys.

Appendix D. Sample Configuration Files

About this Appendix	D-3
Understanding the Sample Configuration Files .	D-4
IBM3708.SET	D-5
DOWJONES.SET (Dow Jones News Service) ...	D-10
SOURCE.SET (The Source)	D-12

Notes:

About this Appendix

This appendix describes the sample configuration files that come with FTTERM. If you have received a preconfigured FTTERM working diskette (from a system administrator, for example), the selection and contents of configuration files may be different.

The following sample configuration files are supplied with FTTERM:

- IBM3708.SET for all SNA hosts using a 3708 or 3710 8-PA
- DOWJONES.SET for the Dow Jones News Service¹
- SOURCE.SET for The Source² online information service.

The usefulness of the sample files depends on the requirements of the host. See the section on the particular file for a list of the items most likely to need modification.

To modify a sample file, see Appendix C, "Creating and Modifying Configuration Files."

¹ Dow Jones News Service is a Registered trademark of Dow Jones & Company, Inc.

² THE SOURCE is a service mark of Source Telecomputing Corporation, a subsidiary of The Reader's Digest Association, Inc.

Understanding the Sample Configuration Files

Each section of this appendix includes two parts:

- A listing of the configuration as it exists on the FTTERM program disk. The format of a line in a configuration file is as follows:

*Current value ; or * prompt*

A semicolon (;) indicates that the prompt should be displayed when a user modifies the file with FTSETUP. An asterisk (*) indicates that the prompt should be suppressed. (Suppressing a prompt simplifies the modification procedure and reduces the risk of unintended changes to the file. See “Suppressing Selected Prompts” on page C-43.)

- A table of key definitions. If the basic set of key definitions has been added to, the additional key definitions appear as a numeric table in the configuration file. The only sample file with additional key definitions is IBM3708.SET.

Note: You should not modify a configuration file with a text editor except to suppress prompts. Do not modify the prompts. Use FTSETUP to modify the configuration values.

IBM3708.SET

The IBM3708.SET file is for use with SNA hosts connected to the PC by way of a 3708 or 3710 8-PA.

It provides for file transfers in protocol conversion mode. It contains additional key definitions to support 3270 keyboard functions.

The items in IBM3708.SET that are most likely to need modification are:

- Line speed
- Full or half duplex
- Parity
- Stop bits
- Host system.

This information can be obtained from the system administrator for the 3708 or 3710 8-PA.

Figure D-1 on page D-6 shows the standard configuration for IBM3708.SET. Figure D-2 on page D-7 lists the special 3270 key definitions. Figure D-3 on page D-9 highlights the special keys.

Y;Running in protocol conversion mode? (Y=Yes N=No)
 1*Protocol converter? (1=3708 or 3710 8-PA 2=Reserved)
 1200;Line speed (baud rate) to be used?
 N;Half duplex? (Y=Half duplex N=Full Duplex)
 1;Parity? (1=Odd 2=Even 3=Mark 4=Space)
 1;Stop bits? (1 or 2)
 N;Automatic new line? (Y=Yes N=No)
 N;Automatic line feed? (Y=Yes N=No)
 Y;Carriage return? (Y=CR N=CR-LF)
 2;Character sent at end of message? (1=ETX 2=CR 3=EOT 4=XOFF)
 Y;Scrolling? (Y=Yes N=No)
 0;Prompt character from host? (0=none)
 Y;START/STOP (XON/XOFF) enabled? (Y=Yes N=No)
 1;Communications port? (1 or 2)
 N;25 line terminal definition in 3708 or 3710 8-PA? (Y=Yes N=No)
 2;Host system? (1=MVS/TSO 2=VM/CMS 3=CICS 4=IWS)
 3;Inactivity timeout in minutes? (1 - 9)
 112;Extended code for switch to PC-DOS session? (84 - 132)
 113;Extended code for switch to host session? (84 - 132)
 111;Extended code for switch to file transfer menu? (84 - 132)
 110;Extended code for switch to messages screen? (84 - 132)
 IND\$FILE;Name of host file transfer command?

Figure D-1. IBM3708.SET Standard Configuration

3270 Key	PC Key	3270 Key	PC Key
ATTN	Ctrl a	PF11	Shift F1 or Esc -
Backtab	Backtab or Esc Tab	PF12	Shift F2 or Esc =
CLEAR	Home or Ctrl c	PF13	Shift F3 or Esc !
CURSRL SEL	Esc k	PF14	Shift F4 or Esc @
Delete	Del	PF15	Shift F5 or Esc #
DEV CNCL	Ctrl x	PF16	Shift F6 or Esc \$
Down Cursor	Down Cursor	PF17	Shift F7 or Esc %
DUP	Ctrl d	PF18	Shift F8 or Esc ^
Enter	Enter	PF19	Shift F9 or Esc &
ERASE EOF	End	PF20	Shift F10 or Esc *
ERASE INPUT	Ctrl Home	PF21	Alt F1 or Esc (
FIELD MARK	Ctrl f	PF22	Alt F2 or Esc)
HOME	Ctrl PgUp or Esc h	PF23	Alt F3 or Esc _
IDENT	Esc z	PF24	Alt F4 or Esc +
Insert mode	Ins or Esc Del	Alt-F7	Switch to Msgs
Left Cursor	Left Cursor	Alt-F8	Switch to FTTERM
New line	Ctrl Enter or Ctrl j	Alt-F9	Switch to PC DOS
Null/Blank	Esc n	Alt-F10	Switch to Host
PA1	Ctrl F1 or Esc ,	Print	Ctrl p
PA2	Ctrl F2 or Esc .	Refresh	Esc r
PA3	Ctrl F3 or Esc /	RESET	Ctrl r
PF1	F1 or Esc 1	Resume	Ctrl y
PF2	F2 or Esc 2	Resume Display	Display
PF3	F3 or Esc 3	Resume Printer	Esc p
PF4	F4 or Esc 4	Right Cursor	Right Cursor
PF5	F5 or Esc 5	Status On/Off	Ctrl w
PF6	F6 or Esc 6	Suspend	Ctrl t
PF7	F7 or Esc 7	Suspend Display	Display
PF8	F8 or Esc 8	Suspend Printer	Esc o
PF9	F9 or Esc 9	SYS REQ	Esc s
PF10	F10 or Esc 0	Tab	Tab
		Type Ahead	Esc t
		Up Cursor	Up Cursor

Figure D-2. 3270 and PC Key Definition Chart (IBM3708.SET)

Notes:

1. For keys that begin with Shift, press and hold Shift and then press the other key. For keys that begin with Ctrl, press and hold Ctrl and then press the other key. For keys that begin with Alt, press and hold Alt and then press the other key.

2. For keys that begin with Esc, press and release Esc and then press the other key.
3. Do not use Shift or Caps Lock when pressing a Ctrl, Alt, or Esc combination.
4. The following keys in the 3270 column are not 3270 functions as such. They are functions of the 3708 or 3710 8-PA:
 - Null/Blank
 - Refresh
 - Resume Display
 - Resume Printer
 - Status On/Off
 - Suspend Display
 - Suspend Printer
 - Type Ahead.

The system administrator for the 3708 or 3710 8-PA can provide information on these functions.

F1	F2	Esc	1	2	3	4	5	6	7	8	9	0	-	=	←	Num Lock	Scroll Lock	
F3	F4	←	Q	W	E	R	T	Y	U	I	O	P	[]	↵	7 Home	8 ↑	9 PgUp
F5	F6	Ctrl	A	S	D	F	G	H	J	K	L	;	'	~	↵	4 ←	5 →	6 →
F7	F8	↑	;	Z	X	C	V	B	N	M	<	>	/	0	Prnt Scr	1 End	2 ↓	3 PgDn
F9	F10	Alt												Caps Lock	0 Ins	Del		

Figure D-3. IBM3708.SET Special Keys

DOWJONES.SET (Dow Jones News Service)

The DOWJONES.SET file is for use with the Dow Jones News Service. It provides for file transfers in native emulation mode and contains standard 3101 keyboard functions.

The item in DOWJONES.SET most likely to need modification is the line speed. Set the line speed to match the modem.

Figure D-4 shows the standard configuration for DOWJONES.SET. Figure D-5 lists the key definitions.

```
N*Running in protocol conversion mode? (Y=Yes N=No)
1*Protocol converter? (1=3708 or 3710 8-PA 2=Reserved)
1200;Line speed (baud rate) to be used?
N*Half duplex? (Y=Half duplex N=Full Duplex)
2*Parity? (1=Odd 2=Even 3=Mark 4=Space)
1*Stop bits? (1 or 2)
Y*Automatic new line? (Y=Yes N=No)
N*Automatic line feed? (Y=Yes N=No)
Y*Carriage return? (Y=CR N=CR-LF)
2*Character sent at end of message? (1=ETX 2=CR 3=EOT 4=XOFF)
Y*Scrolling? (Y=Yes N=No)
0*Prompt character from host? (0=none)
N*START/STOP (XON/XOFF) enabled? (Y=Yes N=No)
1;Communications port? (1 or 2)
N*25 line terminal definition in 3708 or 3710 8-PA? (Y=Yes N=No)
1*Host system? (1=MVS/TSO 2=VM/CMS 3=CICS 4=IWS)
2*Inactivity timeout in minutes? (1 - 9)
112;Extended code for switch to PC-DOS session? (84 - 132)
113;Extended code for switch to host session? (84 - 132)
111;Extended code for switch to file transfer menu? (84 - 132)
110*Extended code for switch to messages screen? (84 - 132)
NUL*Name of host file transfer command?
```

Figure D-4. DOWJONES.SET Standard Configuration

3101 Key	PC Key
Backspace	Backspace
BREAK	PgUp
CLEAR	Home
Down Cursor	Cursor Down
DEL	Del
ERASE EOL/EOF	End
ERASE EOS	PgDn
ERASE INPUT	Ctrl Home
ESC	Esc
HOME	Ctrl PgUp
(Alt Backtab)	
Left Cursor	Cursor Left
LINE FEED	Ctrl Enter
New Line	Enter
PF1 through PF8	F1 through F8
PRINT	Shift PrtSc
Right Cursor	Cursor Right
Tab	Tab
Up Cursor	Cursor Up
	F9 through F12

Figure D-5. 3101 and PC Key Definition Chart (DOWJONES.SET)

Notes:

1. For keys that begin with Shift, press and hold Shift and then press the other key. For keys that begin with Ctrl, press and hold Ctrl and then press the other key.
2. The 3101 RESET key does not have a PC equivalent. When you make an input error, the PC keyboard does not lock. Instead, the PC beeps and allows you to continue typing.
3. Block mode 3101 keys, such as INS CHAR, are not defined because FTTERM emulates a 3101 operating in character mode only.

SOURCE.SET (The Source)

The SOURCE.SET file is for use with The Source information service. It provides for file transfers in native emulation mode and contains standard 3101 keyboard functions.

The items in SOURCE.SET most likely to need modification are:

- Line speed
- Full or half duplex.

Consult the configuration information provided by The Source.

Figure D-6 shows the standard configuration for SOURCE.SET. Figure D-7 lists the key definitions.

```
N*Running in protocol conversion mode? (Y = Yes N = No)
1*Protocol converter? (1 = 3708 or 3710 8-PA 2 = Reserved)
300;Line speed (baud rate) to be used?
N;Half duplex? (Y = Half duplex N = Full Duplex)
2*Parity? (1 = Odd 2 = Even 3 = Mark 4 = Space)
1*Stop bits? (1 or 2)
Y*Automatic new line? (Y = Yes N = No)
N*Automatic line feed? (Y = Yes N = No)
Y*Carriage return? (Y = CR N = CR-LF)
2*Character sent at end of message? (1 = ETX 2 = CR 3 = EOT 4 = XOFF)
Y*Scrolling? (Y = Yes N = No)
10*Prompt character from host? (0 = none)
Y*START/STOP (XON/XOFF) enabled? (Y = Yes N = No)
1;Communications port? (1 or 2)
N*25 line terminal definition in 3708 or 3710 8-PA? (Y = Yes N = No)
1*Host system? (1 = MVS/TSO 2 = VM/CMS 3 = CICS 4 = IWS)
2*Inactivity timeout in minutes? (1 - 9)
112;Extended code for switch to PC-DOS session? (84 - 132)
113;Extended code for switch to host session? (84 - 132)
111;Extended code for switch to file transfer menu? (84 - 132)
110*Extended code for switch to messages screen? (84 - 132)
NUL*Name of host file transfer command?
```

Figure D-6. SOURCE.SET Standard Configuration

3101 Key	PC Key
Backspace	Backspace
BREAK	PgUp
CLEAR	Home
Down Cursor	Cursor Down
DEL	Del
ERASE EOL/EOF	End
ERASE EOS	PgDn
ERASE INPUT	Ctrl Home
ESC	Esc
HOME	Ctrl PgUp
(Alt Backtab)	
Left Cursor	Cursor Left
LINE FEED	Ctrl Enter
New Line	Enter
PF1 through PF8	F1 through F8
PRINT	Shift PrtSc
Right Cursor	Cursor Right
Tab	Tab
Up Cursor	Cursor Up
	F9 through F12

Figure D-7. 3101 and PC Key Definition Chart (SOURCE.SET)

Notes:

1. For keys that begin with Shift, press and hold Shift and then press the other key. For keys that begin with Ctrl, press and hold Ctrl and then press the other key.
2. The 3101 RESET key does not have a PC equivalent. When you make an input error, the PC keyboard does not lock. Instead, the PC beeps and allows you to continue typing.
3. Block mode 3101 keys, such as INS CHAR, are not defined because FTTERM emulates a 3101 operating in character mode only.

Appendix E. IBM 3708 and 3710 8-PA Considerations

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Notes:

About this Appendix

This appendix describes the predefined terminal selections for FTTERM provided with the 3708. It describes those items in the terminal definition that a system administrator can modify. System administrators for a 3710 8-PA can use this information when creating a user defined terminal (UDT) for FTTERM.

Note:

- *System administrators for 3708:* You do not need to perform any of the procedures in this appendix unless you want to customize the implementation of color or highlighting in the predefined terminal selections. When configuring a port on the 3708 for one of the predefined terminals, select the small (80-byte) receive queue size.
- *System administrators for 3710 8-PA:* This appendix provides information to help you define a UDT that supports:
 - Color or highlighting
 - Status line on the PC's 25th line
 - Multiple logical units (MLU) on a single asynchronous port.

The UDT can contain any combination of these features; however, both color and highlighting cannot be supported by the same UDT. When configuring a port on the 3710 8-PA for an FTTERM UDT, select the standard (320-byte) receive queue size.

Predefined Terminal Selections for 3708

The predefined terminal selections for the 3708 that support FTTERM are as follows:

- **IBM PC/FTTERM COLOR**

This terminal definition supports the following features for FTTERM users who have a color monitor:

- Four colors to distinguish field attributes
- 3270 status line on the PC display's 25th line
- Multiple logical unit (MLU) support.

- **IBM PC/FTTERM MONO**

This terminal definition supports the following features for FTTERM users who have a monochrome monitor:

- Highlighting to distinguish field attributes
- 3270 status line on the PC display's 25th line
- Multiple logical unit (MLU) support.

Changing the Color Selections

Note: For complete instructions on modifying terminal definitions and creating UDTs, see the 3708 or 3710 8-PA documentation listed under "Related Manuals" on page viii.

The IBM PC/FTTERM COLOR terminal definition includes four default escape sequences for controlling PC

display colors. Each escape sequence defines the foreground or background color of a displayed field.

The 3708 determines which escape sequence to send based on the protection and display bits of field attribute bytes sent from the host. See the following table:

Field Attribute	Attribute Bit				Color
	2	3	4	5	
Unprotected, normal intensity	0	x	0	x	Color 1
Unprotected, intensified	0	x	1	0	Color 2
Protected, normal intensity	1	x	0	x	Color 3
Protected, intensified	1	x	1	0	Color 4

The format of the color-change escape sequences is:

ESC [*n1 n2 m*

where *n1* and *n2* specify a pair of digits from Figure E-1. Notice that a single escape sequence defines only a foreground *or* a background color. Therefore, a change in a display field's attribute bits can cause a change in only the current foreground or background color on the PC display, but not both simultaneously.

The *n1 n2* pairs 2,0 through 3,7 specify a foreground color (as indicated by an *x* in the FG column). The *n1 n2* pairs 4,0 through 4,7 specify a background color (as indicated by an *x* in the BG column).

n1	n2	FG	BG	Color
2	0	x		Black
2	1	x		Red
2	2	x		Green
2	3	x		Brown (yellow)
2	4	x		Blue
2	5	x		Magenta
2	6	x		Cyan
2	7	x		Light grey
3	0	x		Dark grey
3	1	x		Light red
3	2	x		Light green
3	3	x		Yellow
3	4	x		Light blue
3	5	x		Light magenta
3	6	x		Light cyan
3	7	x		White
4	0		x	Black
4	1		x	Red
4	2		x	Green
4	3		x	Yellow
4	4		x	Blue
4	5		x	Magenta
4	6		x	Cyan
4	7		x	White

Figure E-1. Color Selection Values

Note: The pairs 5,0 to 5,7 are the same as 2,0 to 2,7 except that blinking is turned on. The pairs 6,0 to 6,7 are the same as 3,0 to 3,7 except that blinking is turned on.

The default color selections for the IBM PC/FTTERM COLOR terminal definition are shown in the following table. The ASCII Decimal column shows the decimal representation of the escape sequence in ASCII.

Color	Description	Escape Seq	ASCII Decimal
1	3,2 (Light green FG)	ESC [3 2 m	1B 5B 33 32 6D
2	2,4 (Blue FG)	ESC [2 4 m	1B 5B 32 34 6D
3	2,1 (Red FG)	ESC [2 1 m	1B 5B 32 31 6D
4	3,7 (White FG)	ESC [3 7 m	1B 5B 33 37 6D

Examples of Color Escape Sequences

To define color 1 as a yellow foreground, the escape sequence is:

```
ESC [ 3 3 m
```

In decimal ASCII, the escape sequence is:

```
1B 5B 33 33 6D
```

To define color 3 as a red background, the escape sequence is:

```
ESC [ 4 1 m
```

In decimal ASCII, the escape sequence is:

```
1B 5B 34 31 6D
```

FTTERM resets the color values only when the user issues the correct ESC sequence locally or when FTTERM is reloaded. This implies that, if a user is disconnected and reconnected, the host session may contain color from a previous session.

Changing Highlight Selections

Note: For complete instructions on modifying terminal definitions or creating UDTs, see the 3708 or 3710 8-PA documentation listed under "Related Manuals" on page viii.

The IBM PC/FTTERM MONO terminal definition includes two escape sequences for controlling highlighting on monochrome monitors. One escape sequence turns highlighting on and the other turns highlighting off. The default display attribute is no highlighting.

The 3708 determines when to turn highlighting on and off based on the protection and display bits of field attribute bytes. See the following table:

Field Attribute	Attribute Bit				Highlight
	2	3	4	5	
Unprotected, normal intensity	0	x	0	x	Off
Unprotected, intensified	0	x	1	0	On
Protected, normal intensity	1	x	0	x	Off
Protected, intensified	1	x	1	0	On

To change the use of highlighting in the IBM PC/FTTERM MONO terminal definition, or to implement highlighting in a UDT, use the escape sequences in the following table. The ASCII Decimal column shows the decimal representation of the escape sequence in ASCII.

Highlighting	Escape Seq	ASCII Decimal
On	ESC [1 m	1B 5B 31 6D
Off	ESC [0 m	1B 5B 30 6D

FTTERM resets the highlighting values only when the user issues the correct ESC sequence locally or when FTTERM is reloaded. This implies that, if a user is disconnected and reconnected, the host session may contain highlighting from a previous session.

Status Line Support

Both of the 3708 terminal definitions for FTTERM are configured to display a simulated 3270 status line on the 25th (bottom) line of the PC display. (This is an alternative to the method used by the IBM 3101 terminal definition, which causes positioning the status line on the 24th line. The user then toggles it on and off with Ctrl W.)

The system administrator for a 3710 8-PA can define a UDT that provides for a status line on the 25th line by following this procedure:

1. Define a UDT that uses the 3101 terminal table as a base.
2. Define byte 1 of the UDT as X'40', based on the following information:
 - FTTERM is not an ANSI X3.64 compatible terminal.
 - FTTERM does not require the suppression of scrolling.
 - FTTERM does have an addressable 25th line.

Multiple LU Support

Both of the 3708 terminal definitions for FTTERM are configured to support the display and printer as separate LUs. Printers attached to the PC are available for local or system prints just as if they were separately attached to the 3708.

System administrators for a 3710 8-PA can take advantage of this capability by creating a UDT that defines the following MLU commands:

- Start Printer (must be defined as DLE DC2)
- Stop Printer (must be defined as DLE DC4)
- Suspend Printer (must be defined as Esc o)
- Resume Printer (must be defined as Esc p)
- Suspend Display (user defined)
- Resume Display (user defined).

When the 3708 or 3710 8-PA has output for the printer, it sends the Start Printer command and continues until the user enters data or the printing is finished. It then sends a Stop Printer command and resumes normal display operations.

If the printing is interrupting the user too much, the user can enter the Suspend Printer and Resume Printer commands. To speed the printing, the user can enter the Suspend Display and Resume Display commands.

Reserved Key Sequences

The following key sequences are used by FTTERM and must not be redefined in a UDT:

ESC <	File Transfer Disable
ESC >	File Transfer Enable
ESC p	Resume Printer
ESC o	Suspend Printer
DLE DC2	Start Printer
DLE DC4	Stop Printer
ESC t	Type Ahead
Ctrl c	CLEAR
ESC 2	PF2
ESC 1	PF 1
Ctrl w	Status On/Off

Appendix F. 3101 Emulation Comparison

Notes:

This appendix compares FTTERM's 3101 emulation program and an actual IBM 3101 Display Terminal. It matches the order and section numbering of Chapters 2 and 3 of the *3101 Display Terminal Description*.

Chapter 2

2.1 Modes

Only character transfer mode is supported, not block mode.

Only the communication mode is supported, not local mode.

Only the normal operational mode is supported.

2.1.1 Data Transfer Modes

Only character mode is supported.

Only normal mode is supported, so Figure 2-1 does not apply.

Figure 2-2 does not apply.

2.1.2 Telecommunication Modes

Local mode is not supported.

2.1.3 Operational Modes

2.1.3.1 Normal Mode

Supported.

2.1.3.2 Transparent Mode

Not supported.

2.1.3.3 Program Mode

Not supported.

2.2 Display

The display handling is essentially as described except that users cannot enter display attributes from the keyboard.

2.2.1 Display Fields

Display fields are essentially as described.

2.2.2 Field Attributes

Field attributes are supported as described in Appendix E, "IBM 3708 and 3710 8-PA Considerations."

2.2.3 Display Screen Buffer Address and Cursor Address

Supported as described.

2.3 Data Stream

2.3.1 Data Stream Format

Supported, except under "Notes" as follows:

1. Error Symbol and Send Mark are never stored in buffers, so conversation rules do not apply.
2. Katakana characters are not supported.
3. Canadian French is not supported.

2.3.2 Data Stream to Printer

Printers attached to a PC running FTTERM can be defined as a separate logical unit to the 3708 or 3710 8-PA. See the 3708 and 3710 8-PA documentation listed under "Related Manuals" on page viii.

2.4 Data Flow

Not applicable. Differences are covered elsewhere.

2.5 Telecommunication Operations, States, and Facilities

Duplex and half duplex terminal operations are supported.

2.5.1 Telecommunication Operating States

2.5.1.1 Duplex Operating State - Character Mode

Supported as described.

2.5.1.2 Half Duplex Operating State - Character Mode

Only duplex telecommunication facilities are supported by the Asynchronous Communications Adapter. Thus no receive or transmit states are needed or supported.

2.5.1.3 Half Duplex - Block Mode

Not supported.

2.5.2 Telecommunication Facilities

Only duplex telecommunication facilities are supported by the Asynchronous Communications Adapter.

2.5.2.1 Duplex Telecommunication Facility

When FTTERM is started, DTR and RTS are turned on. These signals remain on upon exit from the program and until the system is reset or power is turned off. When a user presses the DISC (disconnect) key, DTR is dropped.

2.5.2.2 Half Duplex without Reverse Channel

Not supported.

2.5.2.3 Half Duplex with Reverse Channel

Not supported.

2.6 Modems

See "Required Hardware" on page 1-12 for a list of compatible modem types.

2.7 Commands

The commands (escape sequences) operate as in Figure 2-12, except as follows:

ESC-2 (Back Tab) is not supported.

ESC-3 (Start Field) is not supported.

ESC-6 (Read Status) operates as described, except that the following bits are permanently set as indicated:

Status 0 (Byte 2)

Bit 7 (Inverse of 6) = 1

Bit 6 (Communication buffer overflow) = 0

Bit 5 (Line parity detected) = 0

Bit 2 (Keyboard locked) = 0

Status 1 (Byte 3)

Bit 2 (Program mode) = 0

Bit 1 (Local mode) = 0

ESC-7 (Read Setup Switch) operates as described, except that the following bits are permanently set as indicated:

CSU 0 (Byte 2)

Bit 4 (Permanent RTS) = 1

Bit 3 (Reverse channel) = 0

CSU 1 (Byte 3)

Bit 6 (Dual case) = 1

ESC-8 (Read Buffer) is not supported.

ESC-9 (Set Control) operates as described, except that bits 1 and 4 of the control byte are ignored by FTTERM.

ESC-E (Write Send Mark) is not supported because SEND MSG is not supported.

ESC-N (Insert Line) is not supported.

ESC-O (Delete Line) is not supported.

ESC-P (Insert Character) is not supported.

ESC-Q (Delete Character) is not supported.

ESC-S (Cancel) is not supported.

ESC-U (Print Line) is not supported.

ESC-V (Print Message) is not supported.

ESC-: (Lock Keyboard) prevents typing in character mode.

The address codes in Figure 2-13 are described with the US special graphic symbols. The set control bytes are as described in Figure 2-14.

2.8 Auxiliary Device Operations

The auxiliary device connection is supported as a separate logical unit by the 3708 or 3710 8-PA. See the documentation for the 3708 or 3710 8-PA listed under "Related Manuals" on page viii. In addition, most of the functions described in this section are supported through FTTERM operations for receiving/saving files and screens.

2.9 System and Status Messages

System and status messages are supported essentially as described except that verbal descriptions are used instead of numeric codes. Messages regarding file transfer status appear on the file transfer menu or Host Messages Screen. If you enter a SEND or RECEIVE command at the DOS prompt, the messages appear in the PC DOS session.

Chapter 3

3.1 Logic Element

The PC does not have the lights or the NORMAL/TEST switch described.

3.1.6 Audible Alarm

The PC does not have a volume control for the audible alarm.

The audible alarm sounds as described except for the following:

The NORMAL/TEST switch does not exist.

No logical keyboard lock occurs. However, when an invalid key is pressed, the alarm sounds while a message describes why the key is invalid.

3.2 Video Element - Brightness and Contrast Control Knobs

On the IBM Monochrome Display, equivalent brightness and contrast controls are provided. Monitors attached to the Color/Graphics Adapter may not provide equivalent controls.

3.3 Keyboard Element

3.3.1 Setup Switches

The functions in this list are supported by items in the configuration file.

3.3.1.1 BLOCK/CHAR Switch

Only character mode is supported.

3.3.1.2 HDX/FDX Switch

Half and full duplex are supported for screen display.

3.3.1.3 Interface Switch

EIA 232-C is the only supported interface.

3.3.1.4 PRTS/CRTS Switch

Only PRTS is supported.

3.3.1.5 REVERSE CH Switch

Not supported.

3.3.1.6 Turnaround Character Switches

Supported in the configuration file.

3.3.1.7 DUAL/MONO Switch

Not supported as such. The PC CAPS LOCK key permits alphabetic keys to be converted to uppercase. Received characters are displayed as received.

3.3.1.8 STOP 1/STOP 2 Switch

Supported in the configuration file.

3.3.1.9 Parity Bit Selection Switches

Supported in the configuration file.

3.3.1.10 Send Line Option Switch

Not supported.

3.3.1.11 NULL SUPP Switch

Not supported.

3.3.1.12 TIME-FILL Switches

Not supported.

3.3.1.13 AUTO NL Switch

Supported in the configuration file.

3.3.1.14 AUTO LF Switch

Supported in the configuration file.

3.3.1.15 CR/CR-LF Switch

Supported in the configuration file.

3.3.1.16 SCROLL Switch

Supported in the configuration file.

3.3.1.17 REVERSE VIDEO Switch

Not supported.

3.3.1.18 BLINK CURSOR Switch

Not supported.

3.3.1.19 LINE SPEED Switches

Supported in the configuration file.

3.3.1.20 LINE SPEED Switches for Auxiliary Interface

Not supported.

3.3.2 Keyboard Key Functions

The keyboard layout on the PC is discussed in "Defining the Keyboard" on page C-30 and Appendix D, "Sample Configuration Files," in this manual.

12-Key Numeric Keypad: The PC numeric keypad is put into effect with the Num Lock key. The default substitutes for the 3101 PF1 through PF8 keys are the F1 through F8 keys.

Graphic Character Keys: Only US ASCII codes are supported.

The typematic rate is the standard rate for the PC and is not dependent on line speed. The PC keyboard buffer can hold 15 characters.

3.3.2.1 and 3.3.2.2 PRGM MODE Key and ATTR Key

Not supported.

3.3.2.3 ESC (Escape) Key

Partially supported. See Section 2.7.

3.3.2.4 PRINT MSG Key

Not supported.

3.3.2.5 PRINT LINE Key

Not supported.

3.3.2.6 PRINT Key

Supported by the FTTERM COPY option.

3.3.2.7 AUX Key

Supported by the FTTERM RECEIVE or SAVE option.

3.3.2.8 ERASE EOL/EOF Key

Supported.

3.3.2.9 ERASE INPUT Key

Supported.

3.3.2.10 ERASE EOS Key

Supported.

3.3.2.11 CLEAR Key

Supported.

3.3.2.12 SEND MSG Key

Not supported.

3.3.2.13 SEND LINE Key

Not supported.

3.3.2.14 Click Key

Not supported.

3.3.2.15 LOCAL Key

Not supported.

3.3.2.16 TAB Key

Supported. Default tab stops are in every eighth column.

3.3.2.17 Shift Lock Key

Partially supported by the CAPS LOCK key. However, numeric and punctuation keys are not shifted by CAPS LOCK. Cancel CAPS LOCK by pressing the CAPS LOCK key again.

3.3.2.18 Shift Key

Supported.

3.3.2.19 RESET Key

Not supported.

3.3.2.20 CANCEL Key

Not supported.

3.3.2.21 Backspace Key

Supported.

3.3.2.22 Back-Tab Key

Supported.

3.3.2.23 New Line Key

Supported by Enter key.

3.3.2.24 ALT Key

The PC Ctrl key functions in the same way as the 3101 ALT key for transmitting control characters.

Looking at Figure 3-5, the following differences should be noted:

1. Transparent mode is not supported.
2. The following functions of control characters are not supported by FTTERM:

NUL. Received NULs do not cause keyboard lockup.

DLE STX and DLE ETX. These do not control entry to and exit from transparent mode, because it is not supported.

CR. A CR is typed locally by the Enter key.

SO and SI. ISO 7-bit characters for Bi-Lingual English/Canadian French are not supported.

DC1. No keyboard lock occurs with DC1.

DC2. No send symbol is displayed, because SEND MSG is not supported.

DC3. No keyboard lock occurs with DC3.

SUB. No error symbol is displayed, because parity errors are not supported.

3.3.2.25 SEND Key

Not supported.

3.3.2.26 DEL Key

Supported.

3.3.2.27 BREAK Key

Supported. Only full duplex communication is supported. Ignore references to half duplex communication in this section.

3.3.2.28 HOME Key

Supported.

3.3.2.29 INS CHAR Key

Not supported.

3.3.2.30 INS LINE Key

Not supported.

3.3.2.31 DEL CHAR Key

Supported by DEL key.

3.3.2.32 DEL LINE Key

Not supported.

3.3.2.33 Move-Cursor Keys

Supported.

3.3.2.34 Program Function (PF) Keys

Supported.

3.3.2.35 Inoperative Keys

Block mode keys are not supported.

3.3.2.36 Dead Keys

Not supported.

Appendix G. National Language Considerations

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Why You Select a Character Translation Table .	G-3
VM/CMS and MVS/TSO Hosts	G-4
CICS and IWS Hosts	G-7

Notes:

About this Appendix

This appendix explains the purpose of the national language character translation tables that are present as files on the FTTERM program diskette. It explains why users of national language keyboards must select a character translation table as part of creating a working copy of FTTERM.

This appendix also lists the character translation tables used by the host file transfer programs. The tables are intended for advanced users and system administrators who want to modify the FTTERM character translation tables.

Why You Select a Character Translation Table

In the procedure under “Selecting a Character Translation Table” on page 2-15, you copied one of the following files to the FTTERM working disk, while naming the copy DEFAULT.TBL:

- CFTRAN.TBL (Canadian French)
- FRTRAN.TBL (French)
- GRTRAN.TBL (German)
- ITTRAN.TBL (Italian)
- SPTRAN.TBL (Spanish)
- UKTRAN.TBL (United Kingdom English).

(Users of standard US English keyboards should have skipped that procedure. The USTRAN.TBL file on the FTTERM program diskette is used only when you want to configure FTTERM for the standard US English keyboard after having configured it for another national language keyboard.)

These tables are only used for file transfer in protocol conversion mode.

When you send an alphanumeric file to an SNA host, the host translates the characters in the file from the ASCII codes used by the PC to the EBCDIC codes used by the host. The host searches one of the tables in this appendix to decide which EBCDIC code corresponds to each ASCII code. The opposite process occurs at the host when you receive an alphanumeric file.

The host ASCII-to-EBCDIC tables were not designed to support national language keyboards. For example, if a file contains a pound sterling symbol generated by a UK English keyboard, the host translates it to a pound sign (#). FTTERM includes the previously-listed character translation tables to compensate for this.

Note: This manual lists the host character translation tables, but not the FTTERM tables. You can print the FTTERM tables from the FTTERM program diskette and edit them if desired. Comments within the files explain their format.

VM/CMS and MVS/TSO Hosts

The VM/CMS and MVS/TSO versions of the host file transfer program IND\$FILE use the following translation tables. The EBCDIC to ASCII table (Figure G-1 on page G-5) is activated when a user specifies the ASCII option in a RECEIVE command. The ASCII to EBCDIC table (Figure G-2 on page G-6) is activated when a user specifies the ASCII option in a SEND command.

EBCDIC (Hex)	ASCII (Hex)							
00 - 07	00	01	02	03	9C	09	86	7F
08 - 1F	97	8D	8E	0B	0C	0D	0E	0F
10 - 17	10	11	12	13	9D	85	08	87
18 - 1F	18	19	92	8F	1C	1D	1E	1F
20 - 27	80	81	82	83	84	0A	17	1B
28 - 2F	88	89	8A	8B	8C	05	06	07
30 - 37	90	91	16	93	94	95	96	04
38 - 3F	98	99	9A	9B	14	15	9E	1A
40 - 47	20	A0	A1	A2	A3	A4	A5	A6
48 - 4F	A7	A8	5B	2E	3C	28	2B	5D
50 - 57	26	A9	AA	AB	AC	AD	AE	AF
58 - 5F	B0	B1	21	24	2A	29	3B	5E
60 - 67	2D	2F	B2	B3	B4	B5	B6	B7
68 - 6F	B8	B9	7C	2C	25	5F	3E	3F
70 - 77	BA	BB	BC	BD	BE	BF	C0	C1
78 - 7F	C2	60	3A	23	40	27	3D	22
80 - 87	C3	61	62	63	64	65	66	67
88 - 8F	68	69	C4	C5	C6	C7	C8	C9
90 - 97	CA	6A	6B	6C	6D	6E	6F	70
98 - 9F	71	72	CB	CC	CD	CE	CF	D0
A0 - A7	D1	7E	73	74	75	76	77	78
A8 - AF	79	7A	D2	D3	D4	D5	D6	D7
B0 - B7	D8	D9	DA	DB	DC	DD	DE	DF
B8 - BF	E0	E1	E2	E3	E4	E5	E6	E7
C0 - C7	7B	41	42	43	44	45	46	47
C8 - CF	48	49	E8	E9	EA	EB	EC	ED
D0 - D7	7D	4A	4B	4C	4D	4E	4F	50
D8 - DF	51	52	EE	EF	F0	F1	F2	F3
E0 - E7	5C	9F	53	54	55	56	57	58
E8 - EF	59	5A	F4	F5	F6	F7	F8	F9
F0 - F7	30	31	32	33	34	35	36	37
F8 - FF	38	39	FA	FB	FC	FD	FE	FF

Figure G-1. EBCDIC to ASCII Translation Table for VM/CMS and MVS/TSO Hosts

ASCII	EBCDIC							
00 - 07	00	01	02	03	37	2D	2E	2F
08 - 1F	16	05	25	0B	0C	0D	0E	0F
10 - 17	10	11	12	13	3C	3D	32	26
18 - 1F	18	19	3F	27	1C	1D	1E	1F
20 - 27	40	5A	7F	7B	5B	6C	50	7D
28 - 2F	4D	5D	5C	4E	6B	60	4B	61
30 - 37	F0	F1	F2	F3	F4	F5	F6	F7
38 - 3F	F8	F9	7A	5E	4C	7E	6E	6F
40 - 47	7C	C1	C2	C3	C4	C5	C6	C7
48 - 4F	C8	C9	D1	D2	D3	D4	D5	D6
50 - 57	D7	D8	D9	E2	E3	E4	E5	E6
58 - 5F	E7	E8	E9	4A	E0	4F	5F	6D
60 - 67	79	81	82	83	84	85	86	87
68 - 6F	88	89	91	92	93	94	95	96
70 - 77	97	98	99	A2	A3	A4	A5	A6
78 - 7F	A7	A8	A9	C0	6A	D0	A1	07
80 - 87	20	21	22	23	24	15	06	17
88 - 8F	28	29	2A	2B	2C	09	0A	1B
90 - 97	30	31	1A	33	34	35	36	08
98 - 9F	38	39	3A	3B	04	14	3E	E1
A0 - A7	41	42	43	44	45	46	47	48
A8 - AF	49	51	52	53	54	55	56	57
B0 - B7	58	59	62	63	64	65	66	67
B8 - BF	68	69	70	71	72	73	74	75
C0 - C7	76	77	78	80	8A	8B	8C	8D
C8 - CF	8E	8F	90	9A	9B	9C	9D	9E
D0 - D7	9F	A0	AA	AB	AC	AD	AE	AF
D8 - DF	B0	B1	B2	B3	B4	B5	B6	B7
E0 - E7	B8	B9	BA	BB	BC	BD	BE	BF
E8 - EF	CA	CB	CC	CD	CE	CF	DA	DB
F0 - F7	DC	DD	DE	DF	EA	EB	EC	ED
F8 - FF	EE	EF	FA	FB	FC	FD	FE	FF

Figure G-2. ASCII to EBCDIC Translation Table for VM/CMS and MVS/TSO Hosts

CICS and IWS Hosts

The CICS version of the host file transfer program IND\$FILE and IWS use the following default translation tables. The EBCDIC to ASCII table (Figure G-3 on page G-8) is activated when a user specifies the ASCII option in a RECEIVE command. The ASCII to EBCDIC table (Figure G-4 on page G-9) is activated when a user specifies the ASCII option in a SEND command.

Note: In the CICS and IWS environments, the system administrator has the option of modifying the default translation tables. Therefore, users may not need to use the FTTERM translation table for their national language. The system administrator should advise users when this is the case.

EBCDIC	ASCII							
00 - 07	00	01	02	03	9C	09	86	7F
08 - 1F	97	8D	8E	0B	0C	0D	0E	0F
10 - 17	10	11	12	13	9D	85	08	87
18 - 1F	18	19	92	8F	1C	1D	1E	1F
20 - 27	80	81	82	83	84	0A	17	1B
28 - 2F	88	89	8A	8B	8C	05	06	07
30 - 37	90	91	16	93	94	95	96	04
38 - 3F	98	99	9A	9B	14	15	9E	1A
40 - 47	20	A0	A1	A2	A3	A4	A5	A6
48 - 4F	A7	A8	D5	2E	3C	28	2B	7C
50 - 57	26	A9	AA	AB	AC	AD	AE	AF
58 - 5F	B0	B1	21	24	2A	29	3B	5E
60 - 67	2D	2F	B2	B3	B4	B5	B6	B7
68 - 6F	B8	B9	E5	2C	25	5F	3E	3F
70 - 77	BA	BB	BC	BD	BE	BF	C0	C1
78 - 7F	C2	60	3A	23	40	27	3D	22
80 - 87	C3	61	62	63	64	65	66	67
88 - 8F	68	69	C4	C5	C6	C7	C8	C9
90 - 97	CA	6A	6B	6C	6D	6E	6F	70
98 - 9F	71	72	CB	CC	CD	CE	CF	D0
A0 - A7	D1	7E	73	74	75	76	77	78
A8 - AF	79	7A	D2	D3	D4	5B	D6	D7
B0 - B7	D8	D9	DA	DB	DC	DD	DE	DF
B8 - BF	E0	E1	E2	E3	E4	5D	E6	E7
C0 - C7	7B	41	42	43	44	45	46	47
C8 - CF	48	49	E8	E9	EA	EB	EC	ED
D0 - D7	7D	4A	4B	4C	4D	4E	4F	50
D8 - DF	51	52	EE	EF	F0	F1	F2	F3
E0 - E7	5C	9F	53	54	55	56	57	58
E8 - EF	59	5A	F4	F5	F6	F7	F8	F9
F0 - F7	30	31	32	33	34	35	36	37
F8 - FF	38	39	FA	FB	FC	FD	FE	FF

Figure G-3. EBCDIC to ASCII Translation Table for CICS and IWS Hosts

ASCII	EBCDIC							
00 - 07	00	01	02	03	37	2D	2E	2F
08 - 1F	16	05	25	0B	0C	0D	0E	0F
10 - 17	10	11	12	13	3C	3D	32	26
18 - 1F	18	19	3F	27	1C	1D	1E	1F
20 - 27	40	5A	7F	7B	5B	6C	50	7D
28 - 2F	4D	5D	5C	4E	6B	60	4B	61
30 - 37	F0	F1	F2	F3	F4	F5	F6	F7
38 - 3F	F8	F9	7A	5E	4C	7E	6E	6F
40 - 47	7C	C1	C2	C3	C4	C5	C6	C7
48 - 4F	C8	C9	D1	D2	D3	D4	D5	D6
50 - 57	D7	D8	D9	E2	E3	E4	E5	E6
58 - 5F	E7	E8	E9	AD	E0	BD	5F	6D
60 - 67	79	81	82	83	84	85	86	87
68 - 6F	88	89	91	92	93	94	95	96
70 - 77	97	98	99	A2	A3	A4	A5	A6
78 - 7F	A7	A8	A9	C0	4F	D0	A1	07
80 - 87	20	21	22	23	24	15	06	17
88 - 8F	28	29	2A	2B	2C	09	0A	1B
90 - 97	30	31	1A	33	34	35	36	08
98 - 9F	38	39	3A	3B	04	14	3E	E1
A0 - A7	41	42	43	44	45	46	47	48
A8 - AF	49	51	52	53	54	55	56	57
B0 - B7	58	59	62	63	64	65	66	67
B8 - BF	68	69	70	71	72	73	74	75
C0 - C7	76	77	78	80	8A	8B	8C	8D
C8 - CF	8E	8F	90	9A	9B	9C	9D	9E
D0 - D7	9F	A0	AA	AB	AC	4A	AE	AF
D8 - DF	B0	B1	B2	B3	B4	B5	B6	B7
E0 - E7	B8	B9	BA	BB	BC	6A	BE	BF
E8 - EF	CA	CB	CC	CD	CE	CF	DA	DB
F0 - F7	DC	DD	DE	DF	EA	EB	EC	ED
F8 - FF	EE	EF	FA	FB	FC	FD	FE	FF

Figure G-4. ASCII to EBCDIC Translation Table for CICS and IWS Hosts

Appendix H. Using FTTERM with ROLM Data Communications Equipment

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- Configuring ROLM Equipment H-3
 - ROLM Integrated Personal Computer Interface (IPCI) Card H-3
 - ROLMphone Data Communications Module (DCM) H-3
 - ROLM Data Terminal Interface (DTI) H-4
 - ROLM Juniper II Feature H-4
- Using FTTERM with ROLM Equipment H-5
 - ROLM IPCI Card, ROLMphone DCM, and ROLM DTI H-5
 - ROLM Juniper II Feature H-6

Notes:

About this Appendix

This appendix describes procedures for configuring ROLM data communications equipment for use with FTTERM and the ROLM Computerized Branch Exchange II (ROLM CBX II).

Configuring ROLM Equipment

ROLM Integrated Personal Computer Interface (IPCI) Card

Follow these steps to configure the ROLM IPCI card. Refer to the IPCI card documentation for assistance if necessary.

1. Set the switch on the IPCI card to the correct communication port.
2. Install the IPCI card and connect it to a DLI line.
3. Use FTSETUP to create a configuration file as described in Appendix C, "Creating and Modifying Configuration Files." The line speed and parity must match the IPCI dataline configuration. A line speed of 9600 is the highest supported by FTTERM.

ROLMphone Data Communications Module (DCM)

Follow these steps to configure the ROLMphone DCM. Refer to the ROLMphone documentation for assistance if necessary.

1. Configure the ROLMphone dataline for *multispeeds originate terminal* with *autobaud on*.

2. Connect the ROLMphone to the PC's asynchronous communications adapter.
3. Use FTSETUP to create a configuration file as described in Appendix C, "Creating and Modifying Configuration Files." A line speed of 9600 is the highest supported by FTTERM. The parity must match the ROLMphone dataline configuration.

ROLM Data Terminal Interface (DTI)

Follow these steps to configure the ROLM DTI. Refer to the DTI documentation for assistance if necessary.

1. Configure the DTI dataline as *originate terminal*. Select a line speed and parity. A line speed of 9600 is the highest supported by FTTERM.
2. Connect the DTI to the PC's asynchronous communications adapter.
3. Use FTSETUP to create a configuration file as described in Appendix C, "Creating and Modifying Configuration Files." The line speed and parity must match the DTI dataline configuration.

ROLM Juniper II Feature

Follow these steps to configure the ROLM Juniper II feature. Refer to the Juniper II documentation for assistance if necessary.

1. Set the switch on the Juniper II adapter card to the correct communication port.
2. Install the Juniper II adapter card and connect it to a Juniper Phone.
3. Use FTSETUP to create a configuration file as described in Appendix C, "Creating and Modifying Configuration Files." Select a line speed and parity to match the ASCII host, or port on the 3708 or 3710 8-PA.

A line speed of 9600 is the highest supported by FTTERM.

Also in this configuration file, you can add auto-dial definitions. A comma (,) is the dialing command for the Juniper II. For example, the sequence ,1234 contacts dataline 1234.

Note: As part of the PC startup routine, after you load DOS, load the Juniper II software BEFORE you load FTTERM.

Using FTTERM with ROLM Equipment

These sections describe how to use FTTERM with any of the ROLM equipment discussed in the previous sections.

ROLM IPCI Card, ROLMphone DCM, and ROLM DTI

Follow these steps to use FTTERM with the ROLM IPCI Card, ROLMphone DCM, and ROLM DTI:

1. Start FTTERM as described in Chapter 2, "Preparing to Use FTTERM."
2. Load the configuration file you created in the previous sections, as described under "Loading a Configuration File" on page 3-18.
3. Press the host session key sequence (Alt F10).
4. The ROLM CBX II prompts with the message:

CALL, DISPLAY OR MODIFY?

5. Enter **CALL xxxx**

where *xxxx* is the number of the dataline that you want to access.

6. After the ROLM CBX II displays *Call Complete*, you may have to press the Enter key to get the 3708 or 3710 8-PA logon screen, if the 3708 or 3710 8-PA is set for autobaud detect.
7. After establishing the host session, you can return to the file transfer menu (default is Alt-F8) and perform file transfers or disconnect from the host (Alt-F6) as described in this manual.

ROLM Juniper II Feature

Follow these steps to use FTTERM with the ROLM Juniper II feature:

1. Load the Juniper II software.
2. Start FTTERM as described in Chapter 2, "Preparing to Use FTTERM."
3. Load the configuration file you created for the Juniper II feature, as described under "Loading a Configuration File" on page 3-18.
4. Press the host session key sequence (Alt F10). If you added any auto-dial definitions, FTTERM displays the Auto-Dial Directory. Select the ID number for the host you want to call.

If you have not added auto-dial sequences, press the Enter key and then enter a dialing sequence. For example, enter **,4010** to contact a host on dataline 4010. The comma (,) is the Juniper II dial command.

The Juniper II displays:

CONNECTING, PLEASE WAIT

When the Juniper II makes contact with the called number, the display is cleared.

5. You may have to press the Enter key to get the 3708 or 3710 8-PA logon screen, if the 3708 or 3710 8-PA is set for autobaud detect.
6. After establishing the host session, you can return to the file transfer menu (default is Alt-F8) and perform file transfers or disconnect from the host (Alt-F6) as described in this manual.

Appendix I. Service Registration

PC/HOST File Transfer and Terminal Emulator Program (FTTERM)

Registration Card

The original of this registration card acts as proof of license of FTTERM. The purpose of this registration card is to assist IBM in providing you with news and information about FTTERM should IBM deem it be necessary.

To register FTTERM, complete the requested information on the original of this certificate and mail the certificate using the address and prepaid postage on the reverse side.

IBM extends this offer only to licensees of FTTERM residing in the United States.

Fold here

(Please Print)

Licensee (Individual or Organization Name)

Attn:

(Address)

(City, County State Zip)

(Telephone Number)

(Dealer Name)

(Address)

(City, County State Zip)

(Date of Purchase

(Check One Box)

Send news and information to my dealer in my name

Send news and information to me

Diskette Identification Number

(see reverse side for instructions)

6476052

I-

The FTTERM Diskette Identification Number is a seven (7) digit number that appears on the FTTERM logo screen.

Fold here



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES



BUSINESS REPLY MAIL

FIRST CLASS PERMIT NO. 40 ARMONK, N.Y.

POSTAGE WILL BE PAID BY ADDRESSEE

IBM Corporation
Internal Zip G38
P.O. Box 12195
Research Triangle Park, N.C. 27709

Glossary

alphanumeric file. A file that contains letters, digits, and other characters, such as punctuation marks.

application program. Used in this manual to refer to any program designed to run on the PC.

ASCII. American National Standard Code for Information Interchange. The standard code, consisting of a character set using 7-bit coded characters (8 bits including parity check). It is used for exchanging information among data processing systems and associated equipment.

asynchronous. Without regular time relationship; unpredictable with respect to a program's execution. The PC uses an Asynchronous Communication Adapter, which can send and receive data asynchronously.

attribute, display. A property that is assigned to all or part of a display (for example, high intensity,

green color, or input not allowed).

auto-dial definition. A sequence of characters that FTTERM users can include in a configuration file for sending a dialing sequence to a modem. The autodial definition usually consists of the modem dial command and a telephone number.

AUTOEXEC.BAT file. A batch file that is automatically processed after DOS is loaded.

batch file. A text file that contains several commands to be performed in sequence. PC DOS processes batch files containing commands such as the startup commands for application programs. FTTERM processes batch files containing file transfer commands.

baud rate. See line speed.

binary file. A file that contains a sequence of zeros and ones that are not meaningful as human-readable characters.

Most binary files are program files that are meaningful only to the central processing unit.

buffer. Temporary holding area for data that compensates for timing differences between devices that are exchanging data. FTTERM uses buffers for data being sent and received during file transfers.

carrier detect. See Receive Line Signal Detect.

command ready state. A state wherein the host is not currently running a user program. The command ready state is indicated by a message such as READY on some hosts; on others, it is indicated by a blank screen.

concurrent mode. The mode in which FTTERM can operate simultaneously with other PC application programs.

configuration. The specific way in which FTTERM operates, as defined in a configuration file.

configuration file. A file created by the FTTERM

user to define the characteristics of the communication line, keyboard layout, file transfer mode, and other details. The FTSETUP program is used to create and modify configuration files.

cursor. A movable marker that indicates a current input position on a display screen.

data set. A collection of data, generally interchangeable with file. See also partitioned data set and sequential data set.

default. A value that is used by a program when the user does not make an explicit choice. For example, FTTERM includes a default keyboard definition for its 3101 emulation program.

disk. A magnetic medium used for storing large amounts of data. Disk is used in this manual to refer to 5-1/4 inch diskettes, 3-1/2 inch diskettes, and fixed disks.

DOS. Disk Operating System, interchangeable with PC DOS. DOS provides the basic functionality of the PC.

emulation. The imitation of one computer system by another. In FTTERM, the PC emulates an IBM 3101 Display Terminal for the purpose of communicating with host computers.

extension. The optional ending to a PC filename, consisting of up to three characters. The extension must be preceded by a period.

file transfer. The exchanging of files between computers over communication lines. With FTTERM, file transfer is interpreted more broadly to include the exchanging of display screens and host session data.

full duplex. Pertaining to the simultaneous two-way communication between the PC and the host system. Contrast with half duplex.

full screen programs. Host programs that directly control the movement of the cursor. Files created with the SAVE option while running such programs contain cursor control codes within the text.

graphics mode. One of two general display modes

used by the Color/Graphics Adapter, also called all-points-addressable mode. Some programs use this display mode for drawing pictures on the display. FTTERM does not let you switch to a host session from a DOS application program that is running the display in graphics mode. Contrast with text mode.

half duplex. Pertaining to data transmission that can occur in only one direction at a time.

host computer. In this manual, refers to any computer with which the PC communicates while running FTTERM. The host computer is usually thought of as a large multi-user system, but another PC can also function as a host computer. Also referred to as *host*.

keyboard definition. The way in which FTTERM emulates the 3101 keyboard on the PC. The keyboard definition is part of the configuration file.

library. A collection of related files.

line speed. The number of bits per second (baud)

transmitted over a communication line.

load. To copy a program or data from disk into the PC memory.

member. A partition of a partitioned data set.

modem.
(modulator-demodulator)
A device that converts computer data into audible signals for transmission over communication lines.

native emulation mode.
The mode in which FTTERM transfers data one line at a time, used with ASCII hosts and certain SNA hosts

nonconcurrent mode.
The mode in which FTTERM does not allow you to switch to a PC DOS session for running PC programs during a file transfer.

nonresident mode. The mode in which FTTERM is loaded into the same area of memory as other PC application programs; used in certain cases where PC memory is limited.

parity. A method of testing the accuracy of data transmission.

partitioned data set. A data set in direct access storage that is divided into partitions, called members, each of which can contain a program, part of a program, or data.
Synonymous with program library.

passthru. An operation mode of a 3708 or 3710 8-PA wherein ASCII data is exchanged through it without any modification.

path. In this manual, refers to the designations for directory and subdirectory names when specifying a PC filename.

port. An access point for data entry or exit.

prompt. A request for input from the user, often in the form of a displayed question.

protocol conversion mode. The mode in which FTTERM transfers data as if it were sets of IBM 3270 Display screens. Also refers to the operating mode of the 3708 or 3710 8-PA wherein the device converts SNA data streams to ASCII data streams.

protocol enveloping. An operating mode of the 3708

and 3710 8-PA wherein SNA headers are added to data sent from an ASCII device and ASCII-to-EBCDIC conversion is performed; SNA headers are removed on data sent to the ASCII device and EBCDIC-to-ASCII conversion is performed.

Receive Line Signal

Detect. A modem signal to the DTE indicating that the modem is receiving a carrier signal from the telephone line.

resident mode. The mode in which FTTERM is loaded as an extension of DOS instead of as an application program. Resident mode is normal for FTTERM.

sequential data set. A data set whose records are organized on the basis of their successive physical positions, such as on magnetic tape.

session. In this manual, refers to the two exclusive functions of running a PC application program or PC DOS utilities (the PC DOS session) or communicating with a host (the host session).

SNA. Systems Network Architecture. A set of data

formats and rules that enable reliable data transfer and control of network resources.

stop bits. One or two bits that identify the end of a transmitted ASCII character.

system administrator.

A person responsible for the correct utilization of a host, 3708, or 3710 8-PA.

temporary storage queue. A set of data maintained by CICS in main memory.

terminal. In this manual, refers to a device consisting of a keyboard and a display screen that is used for communication with a host computer.

text mode. One of two general display modes used by the Color/Graphics Adapter. (The Monochrome Display Adapter always uses text mode.) Programs use text mode to display text and to draw limited types of pictures. Contrast with graphics mode.

user defined terminal.

A set of parameters used by the 3708 or 3710 8-PA to communicate with a type of

terminal that is not among its standard selection of terminals. The system administrator creates user defined terminals to take advantage of FTTERM capabilities that are not part of standard 3101 emulation.

window. The temporary display of information on a screen that overlays a section of another display.

XON/XOFF. A pair of characters that are used in some communication methods to stop the flow of information (XOFF) and restart it (XON). A device sends the XOFF character when it is temporarily unable to accept any more data; it then sends the XON character when the condition clears. FTTERM supports the ASCII characters DC1 and DC3 for XON and XOFF.

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Software needed:

DOS 2.00 or higher

Software included:



Two diskettes
• 5 1/4"
• 3 1/2" (IBM Personal
Computer Convertible)

System requirements:



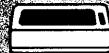
IBM 80-column
Display



256KB of memory
One double-sided,
double-density diskette
drive



Asynchronous
Communications
Adapter



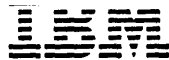
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May 15, 1987

To: Owners of the IBM PC/HOST File Transfer and Terminal Emulator Program (FTTERM)

From: IBM FTTERM Product Development

Subj: Notification of an FTTERM Engineering Change (EC)
No. 6476152 to IBM PN 6476052

This package contains:

- A 10 page letter
 - One 3.5 inch diskette
 - One 5.25 inch diskette.
-

Dear FTTERM Owner:

Enclosed is a new diskette for your copy of the IBM PC/HOST File Transfer and Terminal Emulator Program (FTTERM). This diskette contains changes that will significantly improve performance. It also contains other functional enhancements and problem resolutions. Many of the enhancements involve FTSETUP questions; however, ***reconfiguration is not required.*** If you do not perform any setup changes, FTTERM should operate as it has in the past.

Please read these pages before using the new diskette. They tell you about the changes and installation procedure. When you finish using this letter, store it in your *IBM PC/HOST File Transfer and Terminal Emulator Program User's Guide and Reference* binder.

This letter covers three major topics:

- FTTERM Function Additions
- FTTERM Code Fixes
- Installation Procedures.

FTTERM Function Additions

The FTTERM code has been *enhanced* to provide the following:

- Improved Performance
- New IBM PC Support
- New ROLM Support
- 19.2 Kbps Support
- Additional Startup Options
- Expanded Auto-dial Support.

Improved Performance

Significant changes have been made to improve IBM 3708/FTTERM performance. For maximum performance improvements, the 3708 needs to be at microcode level A58787. Improvements include:

- Faster Screen Painting
- Faster File Transfers
- Reduced Chance of PC Buffer Overrun.

New IBM PC Support

FTTERM now supports the following IBM PCs:

- IBM Personal System/2 Model 30
- IBM Personal System/2 Model 50
- IBM Personal System/2 Model 60.

Two setup questions have been expanded in FTSETUP to support the capabilities of the new PCs:

- **LINE SPEED**

FTSETUP now accepts a line speed of 19200 bps to take advantage of the faster ASYNC speed available in the IBM Personal System/2 Models 50 and 60.

- **Communication Port**

FTSETUP now accepts values of 3 and 4 to take advantage of the four communication ports available in the IBM Personal System/2 Models 50 and 60.

New ROLM Support

FTTERM supports connection to a ROLMphone 244PC Feature when communicating through a ROLM Computerized Branch Exchange (CBX) II.

Configuring the ROLMphone 244PC Feature

Follow these steps to configure the ROLMphone 244PC Feature. Refer to the ROLMphone 244PC User's Guide for assistance, if necessary.

1. Connect the ROLMphone 244PC to the PC's ASYNC communication port.
2. Use FTSETUP to create a configuration file (see Appendix C of the *IBM PC/HOST File Transfer and Terminal Emulator Program User's Guide and Reference*). Select a line speed and parity to match the ASCII host or 3708 port you are using. Maximum speed supported is 19.2 Kbps.

Auto-dial definitions can also be set up through the configuration file. These definitions are the same as those when using an Attention Command Set modem.

3. Configure the ROLM dataline as you would for a ROLM Cypress terminal.

Feature

Follow these steps to use FTTERM with the ROLMphone 244PC Feature:

1. Start FTTERM.

Note: The ROLMphone 244PC Utility Program can not be run while FTTERM is resident in memory.

2. Load the FTTERM configuration file that you have defined for the ROLMphone 244PC connection.
3. Press the host session key sequence (Alt-F10). If you have auto-dial sequences defined, FTTERM will display the Auto-Dial Directory. Select the ID number for the host you want to call.

If you have not added auto-dial sequences, press the Enter key and then enter a dialing sequence. For example, enter ATDT 4010 to contact the host on dataline 4010.

The ROLMphone 244PC displays a CONNECT message when it makes contact with the called number.

4. If connected to a 3708 port defined for autobaud, press the Enter key to connect to the 3708.
5. After establishing the host session, you can return to FTTERM (Alt-F8) and perform file transfers.

19.2 Kbps Support

FTTERM supports 19200 bps communication on the following devices:

- IBM Personal System/2 Model 50
- IBM Personal System/2 Model 60
- ROLMphone 244PC.

Additional Startup Options

Three new startup options are supported by FTTERM. These options allow you to bypass some of the FTTERM screens that require manual input. The new options are:

- FTTERM F or FTTERM f – causes FTTERM to bypass the IBM logo screen and go directly to the FTTERM main menu.
- FTTERM H or FTTERM h – causes FTTERM to bypass the IBM logo screen and go directly to the host session.
- FTTERM D or FTTERM d – causes FTTERM to bypass the IBM logo screen and go directly to the PC DOS session.

The new startup options can be specified when FTTERM is loaded in resident or non-resident mode. For example, 'FTTERM h' will load FTTERM as a resident extension of DOS, bypass both the IBM logo screen and the FTTERM main menu, and take you to the host session. 'FTTERM n h' will load FTTERM in non-resident mode and take you directly to the host session.

Expanded Auto-dial Support

Auto-dial support has been enhanced to support:

- A WAIT function
- A PAUSE function
- Increased auto-dial lengths.

WAIT Function

The WAIT function causes FTTERM to wait until a specified character is received from the host or modem. For example, the following sequence will issue a dial command to a programmable modem and wait for the 'T' in the 'CONNECT' response:

```
ATDT5557378 < NEWLINE > < WAIT > T
```

The WAIT function is specified in the auto-dial definition by pressing ALT-W or ALT-w.

PAUSE Function

The PAUSE function causes FTTERM to delay one second before transmitting the rest of the auto-dial sequence. This function is especially useful when systems, such as the Dow Jones News Service¹, require two ENTER keys to be pressed consecutively. Often a delay needs to be inserted between the two ENTERs. For example,

< NEW LINE > < PAUSE > < NEW LINE >

PAUSE commands can be concatenated to obtain longer delay periods. For example, < PAUSE > < PAUSE > < PAUSE > will delay for three seconds.

PAUSE is specified by pressing ALT-P or ALT-p. The PAUSE function is also supported in key definitions.

Auto-dial Lengths

FTTERM can now support auto-dial lengths of up to 100 characters. The previous length maximum was 35.

FTTERM Code Fixes

The FTTERM code has been *fixed* to solve the following problems:

- Receive Buffer Overrun During Native Mode Downloads

FTTERM now transmits an XOFF during native mode downloads before its receive buffer is overrun.

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

Previously, if no host prompt character was defined, FTTERM could experience a receive buffer overrun when downloading files in native mode at high speeds.

- **Batch Only File Transfers in TSO**

FTTERM now transmits requests for file transfers to TSO correctly. Previously, if the 25th line was defined, FTTERM could delete the options specified on a file transfer request to TSO.

- **Receive Buffer Overrun During MLU Operations**

FTTERM now handles Form Feeds transmitted to a MLU printer. Previously, a Form Feed transmitted to a MLU printer could cause an overrun of the PC's receive buffer.

- **Timeouts on CICS Batch File Transfers**

FTTERM now handles batch file transfers to CICS. Previously, when using a PC DOS batch file to perform file transfers to CICS, FTTERM would experience host timeouts.

Installation Procedures

The following files were changed by this EC:

- FTTERM.EXE
- FTTERM.HLP
- FTSETUP.EXE
- FTSETUP.HLP
- SEND.COM
- RECEIVE.COM
- README2.DOC
- COPYFILS.BAT

In addition to these files, a new configuration file, IBMIN.SET, is provided for those users of the IBM Information Network.

To install this EC level of code, turn on the PC in the normal manner using your current FTTERM working diskette or fixed disk file. Then, follow the procedure listed below for the type of system you are using:

- One – Drive Systems
- Two – Drive Systems
- Fixed Disk Systems.

Procedure for One – Drive Systems

1. Place the FTTERM EC (PN 6476152) diskette in drive A of your PC.
2. Change the current drive from A: to B: by entering:

B:

You will see:

```
A>B:
Insert diskette for drive B: and
strike any key when ready
```

3. Prepare to copy the FTTERM EC files from the EC diskette to your working FTTERM diskette by entering:

```
A: COPYFILS
```

You will see:

```
B>A: COPYFILS
Insert diskette for Drive A: and
strike any key when ready
```

As the FTTERM EC files are copied from the FTTERM EC diskette to your working diskette, you will be prompted to exchange diskettes several times. Remember:

- The diskette for drive A: is the FTTERM EC diskette
- The diskette for drive B: is your copy of the FTTERM working diskette.

When copying is finished, the B > prompt appears.

4. Your FTTERM working diskette now contains the EC level of code.

Procedure for Two – Drive Systems

1. Place the FTTERM EC (PN 6476152) diskette in drive A of your PC.
2. Place your copy of the FTTERM working diskette in drive B.
3. Change the current drive from A: to B: by entering:

B:

You will see:

B>

4. Copy the FTTERM EC files from the EC diskette to your working FTTERM diskette by entering:

A: COPYFILS

When copying is finished, the B > prompt appears.

5. Your FTTERM working diskette now contains the EC level of code.

Procedure for Fixed Disk Systems

1. Place the FTTERM EC (PN 6476152) diskette in drive A of your PC.
2. Copy the FTTERM EC files from the EC diskette to your fixed disk by entering:

A: COPYFILS

When copying is finished, the C > prompt appears.

Note: COPYFILS will copy the FTTERM files into the root directory of the fixed disk (C:\). You may substitute a path to an existing subdirectory by editing the COPY commands used in the COPYFILS.BAT file.

3. Your fixed disk now contains the EC level of code.

International Business Machines Corporation
Department G38
P.O. Box 12195
Research Triangle Park, NC 27709

SX27-3819-0
PN 6476152