# IBM PC Network SNA 3270 Emulation Program

**Communications Family**

**Personal Computer Software**

6480736

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# About This Book

## How to Use This Book

This book is a reference for using the IBM Personal Computer Network Systems Network Architecture 3270 Emulation (IBM PC Network 3270) program. It contains the following chapters:

- Introduction

  This chapter informs you about IBM PC Network 3270 general features and tells you how to initiate 3270 sessions and use the *Learning IBM PC Network 3270* diskette.

- Quick Paths

  This chapter has instructions for performing IBM PC Network 3270 procedures without extended explanations.

- Messages

  This chapter provides problem determination procedures, lists IBM PC Network 3270 messages alphabetically, and describes the Operator Information Line and the Message Line.

- Programming Considerations

  This chapter provides programming information for the host computer personnel configuring for using IBM PC Network 3270.

- Keyboard Remapping

  This chapter shows the user how to change the values of the keys while using IBM PC Network 3270.

# IBM PC Network 3270 Responsibilities

You should read Chapter 1 and then use the *Learning IBM PC Network 3270* diskette to learn how to use IBM PC Network 3270.

If you need to personalize your IBM PC Network 3270 diskette, your host personnel must provide completed Personalization Worksheets with the personalization options for each menu listed on it.

In this book, "IBM PC Network coordinator" refers to the person who oversees the installation of the IBM PC Network or SDLC Adapter in your machine and setting up the IBM PC Network. "Host personnel" means the people at the host computer site who oversee installation of the IBM PC Network into the host computer network.

# Contents

# Chapter 1. Introduction

**Notes:**

# Your Training Reference Materials

This book is your reference for the IBM PC Network SNA 3270 Emulation Program (IBM PC Network 3270) package.

Begin your training by reading this introduction. In it, you can learn how to initiate a 3270 session.

Then, you should use the *Learning IBM PC Network 3270* diskette to complete your training.

You can use *Learning IBM PC Network 3270* to learn about IBM PC Network 3270, and then it can be an on-line reference tool about IBM PC Network 3270.

# The IBM PC Network 3270 Package

The IBM PC Network 3270 package consists of:

- The IBM PC Network 3270 Program Diskette
- The *Learning IBM PC Network 3270* Diskette
- The IBM PC Network 3270 Reference
- The IBM PC Network 3270 Keyboard Aids.

# IBM PC Network Capabilities

Your IBM PC Network Adapter lets you share resources such as printing.

It lets you use other machines' files when they are turned on.

It lets several people work on the same file at different times.

You can use your IBM PC Network to send files and messages among its users.

But the IBM PC Network 3270 program lets you use your IBM PC Network another way. You can use your IBM PC Network in your host computer's network, thereby allowing your IBM Personal Computer (IBM PC) to act like, or **emulate**:

- IBM 3278, Model 2 or 3279 Display Unit, Model S2A
- IBM 3274 Control Unit, Model 51C
- IBM 3287 Printer, Model 1.

IBM PC Network 3270 is supported on the IBM PC, IBM PC XT, IBM PC AT, and the IBM Portable PC. The IBM Portable PC can only be a Standalone or Network Station. IBM PC Network 3270 does not support single density disk drive configurations. IBM PC Network 3270 also does not support treating a single physical drive as two logical drives.

The Standalone, Gateway, and Gateway with Network Station configurations require an SDLC Adapter. If you already have SDLC Adapter P/N 1502090, you may use it for line speeds up to 4.8K bps. You should use SDLC Adapter P/N 1501205 (which replaced P/N 1502090) for line speeds up to 9.6K bps. Use P/N 1501205 (not P/N 1502090) for the IBM PC AT. The Gateway, Gateway with Network Station, and Network Station configurations require an IBM PC Network Adapter.

When you use IBM PC Network 3270, your IBM Personal Computer can communicate or use Communication Profile Tasks.

When you communicate, your IBM Personal Computer establishes a 3270 session. This means it emulates an IBM 3270 terminal to a host computer.

When it is emulating, your IBM Personal Computer can do what an IBM 3270 terminal does:

- Log on
- Request file access
- Put changes in files
- Store changed files
- Send files and messages
- Log off.

When in the 3270 Frame on a color display, the Message Line and the Operator Information Line (Line 25) display as white. The rest of the display uses the same colors as an IBM 3279 Model S2A Display does:

- Protected Field
  - High-Intensity - white
  - Low-Intensity - blue
- Unprotected Field
  - High-Intensity - red
  - Low-Intensity - green

When you use Communication Profile Tasks, you can change how your IBM Personal Computer acts like an IBM 3270 terminal. This is called **personalization**.

Approximate memory requirements in K bytes for IBM PC Network 3270 tasks are listed below:

- Communicate:
  - Network Station - 156K
  - Standalone - 163K
  - Gateway for 8 sessions - 193K
  - Gateway with Network Station for 8 sessions - 222K
- Support for each additional 8 sessions on Gateway configuration - 30K
- DDM File Transfer - 15K
- Dir key function - 5.5K

  **Note:** The Dir key function is loaded conditionally if enough memory is available after all selected options have been loaded for IBM PC Network 3270.
- Print support - 11K
- Alternate Tasks support - 7K

  **Notes:**
  1. To use Alternate Tasks, you need more memory than just that required for Alternate Tasks support. You also need enough memory to load the DOS Command Processor of the version of DOS you are using.
  2. If Alternate Tasks is set to Yes in the Communication Profile Tasks menu (see Chapter 4 of *Learning IBM PC Network 3270*), the amount of memory available after IBM PC Network 3270 is loaded is allocated to the alternate program.

# Getting Started

## Setup Considerations and Procedures

Before initiating an IBM PC Network 3270 session, you should consider your storage and compatibility needs and how best to provide for these. Some of these considerations, along with related procedures, are presented in this section of your reference.

### Introduction to Using DOS With the IBM PC Network 3270

This section of your reference guide provides an introductory overview of how the IBM Personal Computer Disk Operating System (DOS) interacts with the IBM PC Network 3270 program. If you are are already familiar with the functions of DOS, you may want to procede to the section of this chapter titled, "For The Experienced DOS User."

IBM PC DOS is a group of programs that control your system and enable you to do work with your computer. Before you can do anything with the IBM PC Network 3270 program, you must first load DOS 2.1 or above.

Before you begin to work with the IBM PC Network 3270 program, it should be copied onto another diskette or onto the fixed disk using the setup program. In addition, because the IBM PC Network 3270 program uses several DOS files, these files must be copied onto the diskette, or they must reside on your fixed disk.

The setup program provided on your IBM PC Network 3270 diskette guides you through the steps to copy the IBM PC Network 3270 and necessary DOS files.

In order to safeguard the original diskette, always use the backup diskette or the copy of the programs on your fixed disk for your

work. Keep the original IBM PC Network 3270 program diskette in a safe place.

**Note:** The DOS programs may be used both with diskettes and fixed disks. Throughout this book, the term disk is used to refer to either a diskette or a fixed disk. Where diskette is used, it applies only to the flexible disk (diskette) media. Also, while DOS commands in this manual are shown in uppercase, both uppercase or lowercase work.

Depending on your system type and preferred load procedure, use one of the two following procedures to prepare your IBM PC Network 3270 program diskette for use.

*Backing Up and Preparing the IBM PC Network 3270 Program Diskette for a Two-drive System:* With two-drive systems, you should have a blank work diskette available. This procedure automatically prepares backup disks for program use.

1. Insert your DOS diskette in Drive A and your IBM PC Network 3270 program diskette in Drive B.

2. Turn on your IBM PC.

3. Type the date and time when prompted.

4. Use the DOS COPY command to copy COMMAND.COM to your IBM PC Network 3270 program diskette. At the DOS prompt, type

   ```
   COPY COMMAND.COM B:
   ```

   and press the Enter key.

5. At the DOS Command Screen, type:

   ```
   B:SETUP
   ```

   and press the Enter key.

6. Follow the prompts on the display to run the setup procedure.

   **Note:** Be sure to insert the correct diskette in the specified drive throughout the setup procedure.

*Backing Up and Preparing the IBM PC Network 3270 for a Fixed Disk System:* This procedure automatically moves your IBM PC Network 3270 to your fixed disk for program use. It is assumed that DOS is loaded from your fixed disk. If you do not have DOS loaded from your fixed disk, load the DOS diskette before you begin this procedure.

1. Turn on your IBM PC.

2. Type the date and time when prompted.

3. Use the DOS COPY command to copy COMMAND.COM to your IBM PC Network program diskette. Type

   ```
   COPY COMMAND.COM B:
   ```

   and press the Enter key.

4. Remove the DOS diskette if you loaded it.

5. At the DOS Command Screen, insert the IBM PC Network 3270 program diskette in Drive A and type:

   ```
   A:SETUP
   ```

   and press the Enter key.

6. Follow the prompts on the display to run the setup procedure.

This setup procedure copies your IBM PC Network 3270 to the DOS partition on your fixed disk, and this becomes the copy you use for IBM PC Network 3270 program operations.

## For The Experienced DOS User

If the IBM PC Network 3270 is not your primary application, it is possible that you would not want it resident on your fixed disk for space reasons. If this is the case, refer to your DOS manual and use the FORMAT, DIR, COPY, and ERASE commands to move the programs to a backup diskette and erase them from the fixed disk. One way to do this is to:

1. Format a blank diskette and name it IBM PC Network 3270 Backup.
2. Get a directory of your original IBM PC Network 3270 program diskette and write down all the file names except the SETUP.COM file.
3. Use COPY to copy all the files you recorded in step two from your fixed disk to your IBM PC Network 3270 Backup diskette.
4. Use ERASE to erase all the files recorded in step two from your fixed disk.
5. Use COPY to copy the DOS COMMAND.COM and MODE.COM files from your fixed disk to your IBM PC Network 3270 Backup diskette.

Then you will be able to load DOS from the fixed disk, set your default drive to **A:**, and then load the IBM PC Network 3270 program from the IBM PC Network 3270 Backup diskette.

## Using the IBM Personal Computer AT

This addendum provides specific information necessary to run the IBM PC Network 3270 program using the IBM PC AT.

You need the following:

- The IBM DOS Version 3.0 program
- A 256KB memory size
- Either:

  – A diskette-based IBM Personal Computer AT

  OR

  – A fixed-disk IBM Personal Computer AT with DOS in the root directory.

**Warning:** You may not be able to use diskettes created or updated on a high capacity drive (1.2MB) on other IBM Personal Computer diskette drives. Also, diskettes formatted on other than the IBM PC AT cannot be used with the IBM PC AT. This is a DOS restriction.

. . . . . .

**Note:** Documents created on a double-sided diskette drive (360KB) can be used on other IBM Personal Computer diskette drives.

The IBM PC Network 3270 program supports three basic IBM Personal Computer AT configurations. Follow the instructions that match your system's configuration.

- IBM PC AT with Fixed Disk

  – Use the IBM PC Network 3270 setup program to copy the **original** program diskette onto your fixed disk by

following the steps in "Chapter 1. Getting Started" in your *IBM PC Network* manual.

- IBM PC AT with two High Capacity Diskette Drives (1.2MB)

  – Use the IBM PC Network 3270 setup program to copy the **original** program diskettes by following the steps in "Chapter 1. Getting Started" in your *IBM PC Network* manual. The setup program copies the **original** diskettes onto a single IBM 5.25 2HC diskette (1.2MB).

    The setup program also formats a diskette for you to use for your documents. You may use the setup program to copy the original program diskette onto a 360KB diskette, and to format a 360KB diskette to use for your documents.

- IBM PC AT with one High Capacity Diskette Drive (1.2MB) and one double-sided Diskette Drive (360KB)

  – You may use the setup program to copy the original program diskette onto a 360KB diskette, and to format a 360KB diskette to use for your documents.

  – **DO NOT** use the setup program to copy the original program diskette onto an IBM 5.25 2HC diskette (1.2MB) or to format an IBM 5.25 2HC diskette (1.2MB) to use for documents.

  – Follow the steps beginning on the following page to copy the **original** programs onto an IBM 5.25 2HC diskette (1.2MB) and to format a 360KB diskette to be used for your documents.

***Setting Up IBM PC Network 3270:*** This setup procedure is for use on a PC AT with one high capacity diskette drive (1.2MB) and one double-sided diskette drive (360KB).

You will need:

- A double-sided (360KB) DOS 3.0 program diskette
- One double-sided (360KB) blank diskette
- One IBM 5.25 2HC (1.2MB) blank diskette.

Use the following steps:

1. Label your 1.2MB diskette, "IBM PC Network 3270 Programs." Label your 360KB diskette, "Documents."

2. Format your **Documents** diskette in the double-sided (360KB) diskette drive.

3. Format your IBM PC Network 3270 program diskette in the high capacity (1.2MB) diskette drive and copy the DOS system files onto it.

4. Copy the DOS MODE.COM file onto your IBM PC Network 3270 program diskette.

5. Copy all the files on the **original** IBM PC Network 3270 program diskette onto your IBM PC Network 3270 program diskette.

6. Use EDLIN to create a batch file for use with IBM PC Network 3270. Create the IBM PC Network 3270 PSC.BAT file on your IBM PC Network 3270 program diskette.

   The characters ****, shown below, identify the mode that you should use to run IBM PC Network 3270. The characters **** should be one of the following:

   MONO To use a monochrome display
   CO80 To use an 80-column color display

CO40 To use a 40-column color display
BW80 To use an 80-column composite-video monitor
BW40 To use a 40-column composite-video monitor

The IBM PC Network 3270 PSC.BAT file should contain the following:

```
ECHO OFF
REM THIS IS RELEASE 1.0
MODE LPT1:
MODE ****
B:
A:PSCPG A:
A:
```

7. Type

```
PSC
```

and press the Enter key to run IBM PC Network 3270.

**Note:** The Gateway Station does not use a printer.

## Using the Learning IBM PC Network 3270 Diskette

Now, you should take out your *Learning IBM PC Network 3270* diskette.

Follow these steps to load it:

1. Insert the *Learning IBM PC Network 3270* diskette in your diskette drive.
2. On the DOS command line, type

   ```
   PCOL
   ```

   and press the Enter key. The IBM Logo displays, and your training begins.
3. When you have finished your training, remove the *Learning IBM PC Network 3270* diskette and store it in its protective sleeve.

**Note:** If you want to load "Learning IBM PC Network 3270" on a fixed disk, follow the procedures in your DOS manual.

## Initiating an IBM PC Network 3270 Session

When you are ready to initiate an IBM PC Network 3270 session (3270 session), follow these steps:

1. Load the IBM PC Network 3270 program diskette in your diskette drive.
2. Type

   ```
   PSC
   ```

   on your IBM Personal Computer command line.
3. Press the Enter key.
4. The IBM PC Network 3270 Title Page displays.
5. Press any key to load the program.
6. The IBM PC Network 3270 Task Selection menu displays.

# Using IBM PC Network 3270

When you are using IBM PC Network 3270, you need a set of instructions called a "Run Book." Your host computer personnel should provide a Run Book for your 3270 sessions. If you do not already have one for your 3270 sessions, contact your host personnel.

# IBM PC Network Program Compatibility

## Compatible IBM DOS Applications Programs

The following IBM DOS applications programs were tested with the suspend and resume functions of the IBM PC Network 3270 Program operating under IBM PC DOS 2.1 or 3.0. Other personal computer programs may run with IBM PC Network 3270, but only those listed below have been tested by IBM for compatibility.

The IBM PC products found to be compatible are:

| Program Name | Part Number | Notes |
|---|---|---|
| *Assistant Series* | | |
| Filing Assistant | 6024145 | |
| Graphing Assistant | 6024147 | |
| Reporting Assistant | 6024146 | |
| Writing Assistant | 6024144 | |
| Accounting Solutions | 6024152 | |
| Executive Solutions | 6024151 | |

| Program Name | Part Number | Notes |
|---|---|---|
| Home Solutions | 6024150 | |
| *Business Management Series* | | |
| Accounts Payable Edition | 6410951 | |
| Accounts Receivable Edition | 6410952 | |
| General Ledger Edition | 6410950 | |
| Inventory Accounting Edition | 6410955 | |
| Payroll Edition | 6410953 | |
| DisplayWrite 1 | 6024188 | 1 |
| DisplayWrite 2 | 6024198 | 1, 2, 3 |
| DisplayWrite 3 | 6024177 | 1, 2, 3 |
| DisplayWrite Legal Dictionary Support | 6024190 | |
| DisplayWrite Medical Dictionary Support | 6024197 | |
| Office Correspondence Retrieval System | 6824160 | |
| *Personal Decision Series* | | |
| Data Edition | 6410936 | |

**Notes:**

1. The DisplayWrite programs use a DWx.BAT file, which must be modified to remove KQE.COM.
2. If DisplayWrite programs exist in a subdirectory, Displaywrite 3 DW3.BAT must be edited to include a PATH command.
3. Requires the DOS Background Print program(PRINT.COM) to be in memory before loading IBM PC Network 3270.

Other IBM PC programs and vendor programs may run with the IBM PC Network 3270 program if they meet the following limitations and requirements:

- DOS 2.1, 3.0, or 3.1
- Relocatable
- Cannot alter certain software/hardware interrupts: 8, 9, A, B, C, 10, 16, or 21
- Use SETINT to alter the other interrupts
- Restore altered interrupts before termination
- Use published DOS and BIOS interrupt function call interfaces.

Loading incompatible programs on your IBM PC while running IBM PC Network 3270 may cause unpredictable results.

# IBM PC Network Program

If you are planning to use the IBM PC Network 3270 program with the IBM PC network program, refer to your *IBM PC Network Program User's Guide* for information on using IBM PC Network functions.

## Redirector Function

When an IBM PC is using IBM PC Network 3270 with the IBM PC Network program, the network station may be used with the IBM PC Network redirector function to access IBM PC Network disks, printers, and servers.

**Note:** Do not use the IBM PC Network program on an IBM PC configured as anything other than an IBM PC Network 3270 Network Station.

To use IBM PC Network 3270 with the IBM PC Network program redirector function, use the following procedure:

1. Load the IBM PC Network program.
2. Set up the IBM PC Network program to be used *only* as a redirector.
3. Exit the IBM PC Network program and return to DOS.
4. Load your IBM PC Network 3270 program.

**Note:** When you are using the IBM PC Network redirector function while IBM PC Network 3270 is loaded, you should not use the full screen interface or IBM PC Network commands. Unpredictable results may occur if you attempt to do so.

# Chapter 2. Quick Reference Steps

**Notes:**

This chapter lists quick reference steps for the following IBM PC Network 3270 operations:

- Loading *Learning IBM PC Network 3270*
- Loading IBM PC Network 3270
- Communicating (Starting a 3270 Session)
- Personalizing
  - Communication Profile Tasks
  - Communication Setup
  - 3270 Printer Setup
  - Modem and Line Description
  - Gateway Setup (Gateway configuration only)
  - List of Network Stations (Gateway configuration only)
- Using 3270 Request Tasks
  - Naming a File for 3270 Screen Save
  - Naming a File for 3270 Print to Disk
  - Using 3270 Printer Requests
  - Uploading Files
  - Downloading Files
  - Displaying Status of Network Stations (Gateway configuration only)
  - Revising List of Network Stations (Gateway configuration only)
  - Performing Data Trace
- 3270 Screen Save
- 3270 Screen Print
- Using Alternate Tasks
- Using Host Print.

Use your *Learning IBM PC Network 3270* for more detail concerning these operations.

# Loading Learning IBM PC Network 3270

Follow the procedure in your DOS manual if you want to load the *Learning IBM PC Network 3270* on a hard file.

1. Insert the *Learning IBM PC Network 3270* in a diskette drive.
2. Type **PCOL** on the DOS command line and press the Return key.
3. The IBM logo and *Learning PC Network 3270* Title Page display.
4. If you want to go to a specific chapter, hold the Alt key down and press the PgDn key. The Chapter Selection Menu displays. Use the Cursor Up or Cursor Down key to select the chapter and press the Enter key.
5. If you want to go to a specific topic in a chapter, when the chapter title page displays, hold the Alt key down and press the PgUp key. The Topic Selection Menu displays. Use the Cursor Up or Cursor Down key to select the topic and press the Enter key.

# Loading IBM PC Network 3270

Follow the procedure in Chapter 1 if you want to load the IBM PC Network 3270 program from a hard file.

1. DOS 2.1 or above is loaded. IBM PC-AT requires DOS 3.0.
2. Insert the IBM PC Network 3270 diskette in a diskette drive.
3. Type **PSC** on the DOS command line. (If you are loading from your fixed disk, you need to have the c: prompt displaying before typing the PSC command.)
4. Press the Return key.
5. The IBM PC Network 3270 Title Page displays.
6. Press any key to load the program.
7. The 3270 Task Selection menu displays.
8. Choose a Task:
   - a (Communicate) for a 3270 Session
   - b (Communication Profile Tasks) for personalization

- z (Return to DOS).

## Communicating (Starting a 3270 Session)

1. Load the IBM PC Network 3270 program.
2. In the 3270 Task Selection menu, type **a** (Communicate) and press the Enter key.
3. The 3270 Frame displays.
4. Follow the procedures outlined in your Run Book for your 3270 session.

## Personalizing the IBM PC Network 3270 Program

You may change items in six menus to personalize your IBM PC Network 3270 diskette:

- Communication Profile Tasks
- Communication Setup
- 3270 Printer Setup
- Modem and Line Description
- Gateway Setup
- List of Network Stations.

This section only tells you the steps for personalization. For more detail about the menu items, see Chapter 5 of *Learning IBM PC Network 3270*. Also, to personalize, you must have completed personalization worksheets. Copies of the Personalization Worksheets are in Appendix A. See your IBM PC Network coordinator for completed personalization worksheets.

## Communication Profile Tasks

1. In the 3270 Task Selection menu, type **b** (Communication Profile Tasks) and press the Enter key.
2. The Communication Profile Tasks menu displays.
3. Type **a** (Configuration), a space, and your choice from one of the following:
   - 1 (Standalone Station)
   - 2 (Network Station)
   - 3 (Gateway)
   - 4 (Gateway with Network Station)
4. Press the Enter key.
5. Type **b** (Alternate Tasks), a space, and your choice and press the Enter key.
6. Type **c** (3270 Keyboard), a space, and your choice and press the Enter key. See Appendix B for the list of possible 3270 keyboards.

## Communication Setup

This is not available on the Gateway configuration.

1. In the Communication Profile Tasks menu, type **d** (Create or Revise Communication Setup) and press the Enter key.
2. The Communication Setup menu displays.
3. Type **a** (3270 Numeric Lock), a space, and your choice and press the Enter key.
4. Type **b** (3270 Printer Use), a space, and your choice and press the Enter key.
5. Type **c** (File Transfer), a space, and your choice and press the Enter key. You are prompted for your host command. Type in the host command from your Run Book and press the Enter key. For more information about your Run Book, see Chapter 4 or your IBM PC Network 3270 coordinator.
6. For Network Stations, Type **d** (Station Name), a space, and your choice and press the Enter key. The Station Name you

choose must be unique on the PC Network and in valid PC Network syntax.

**Note:** ID d will not appear on non-Network Station, but is required for Network Station.

7. Press the Enter key when finished with the Communication Setup menu.
8. If 3270 Printer Use is not set to none, the 3270 Printer Setup menu displays. If 3270 Printer Use is set to none, the Communication Profile Tasks menu displays.

## 3270 Printer Setup

This is not available on the Gateway configuration. Also, this menu only displays if 3270 Printer Use is not set to none in the Communication Setup menu.

1. In the 3270 Printer Setup menu, type **a** (3270 Print Destination), a space, and your choice and press the Enter key.
2. Type **b** (Lines Per Inch), a space, and your choice and press the Enter key.
3. Type **c** (Line Spacing), a space, and your choice and press the Enter key.
4. Type **d** (Maximum Page Length), a space, and your choice and press the Enter key.
5. Type **e** (Maximum Print Position), a space, and your choice and press the Enter key.
6. Type **f** (Compress Line Spacing) and your choice and press the Enter key.
7. Type **g** (Form Feed in Any Position), a space, and your choice and press the Enter key.
8. Type **h** (Override Formatted Print), a space, and your choice and press the Enter key.
9. Type **i** (Add Form Feed), a space, and your choice and press the Enter key.

10. Type **j** (Printer Device Name), a space, and your choice and press the Enter key.
11. Press the Enter key when finished with the 3270 Printer Setup menu.
12. The Communication Profile Tasks menu displays.

## Modem and Line Description

This is not available on the Network Station configuration.

1. In the Communication Profile Tasks menu, type **e** (Create or Revise Modem and Line Description) and press the Enter key.
2. The Modem and Line Description menu displays.
3. Type **a** (Physical Unit ID), a space, and your choice and press the Enter key.
4. Type **b** (Network Facility), a space, and your choice and press the Enter key.
5. Type **c** (SDLC Link Address), a space, and the SDLC Link Address provided in your personalization worksheets, and press the Enter key.
6. Type **d** (Continuous Carrier), a space, and your choice and press the Enter key.
7. Type **e** (Half Speed), a space, and your choice and press the Enter key.
8. Type **f** (NRZI Encoding), a space, and your choice and press the Enter key.
9. Type **g** (Answer-Tone Generation), a space, and your choice and press the Enter key.
10. Type **h** (End With REQDISCONT), a space, and your choice and press the Enter key.
11. Press the Enter key when finished with the Modem and Line Description menu.
12. The Communication Profile Tasks menu displays.

## Gateway Setup

This is available only on Gateway and Gateway with Network Station configurations.

1. In the Communication Profile Tasks menu, type **f** (Create or Revise Gateway Setup) and press the Enter key.
2. The Gateway Setup menu displays.
3. Type **a** (Gateway Name), a space, and your choice and press the Enter key. This option is required and must be a unique PC Network name and have valid PC Network syntax.
4. Type **b** (Maximum Number of Sessions), a space, and your choice and press the Enter key. The number of sessions affects the amount of memory you must have.
5. When finished with the Gateway Setup menu, press the Enter key.
6. The List of Network Stations menu displays.

## List of Network Stations

This menu is available only on the Gateway and Gateway with Network Station configurations.

1. IDs a-h are used for up to 32 Network Station Names. Press the Cursor Down key or the Cursor Up key to scroll through the four List of Network Stations menus, and type the ID letter (a-h) which corresponds to the Network Station Name you want to create or revise.

   **Notes:**

   a. The Gateway operator should make sure that the Network Station Names specified correspond to the names of the Network Stations.

   b. The total items listed on the display and printer lines cannot be greater than 8 on each menu.

c. If a Network Station is listed as a display or printer, the Network Station Name must be specified for that item. For each station specified to have a printer session, the corresponding Network Station must set 3270 Printer Use to something other than none in the Communication Setup menu.

d. If a Network Station Name is specified, then the Network Station must be listed as a display or printer.

e. A Network Station Name cannot be listed twice for the same session type. In other words, 2 displays cannot have the same Network Station Name.

f. A Network Station Name cannot be specified as the same session type on two List of Network Station menus. For Network Station Names, leading blanks are significant, and trailing blanks are not.

2. ID i lists the numbers of active Display Sessions. Its numbers change as you scroll through the four List of Network Stations menus using the Cursor Down key or the Cursor Up key. ID j lists the numbers of active Printer Sessions. Its numbers change as you scroll through the four List of Network Stations menus using the Cursor Down key or the Cursor Up key.
3. When finished with the List of Network Stations menu, press the Enter key.
4. The Communication Profile Tasks menu displays. Type **z** and press the Enter key.
5. The 3270 Task Selection menu displays.

# 3270 Request Tasks

In the 3270 Frame, press the Rqst key. The 3270 Request Tasks menu displays. In 3270 Request Tasks, you have the following choices:

- Name File for 3270 Screen Save

- Name file for 3270 Print to Disk
- 3270 Printer Requests
- 3270-PC File Transfer
- Display Status of Network Stations
- Revise List of Network Stations
- Data Trace

**Note:** You should not specify a DOS reserved device name for 3270 Screen Save, 3270 Print to Disk, File Transfer, or Data Trace. However, IBM PC Network 3270 does not prevent you from choosing such names. Some examples include CON, LPT1, LPT2, LPT3, PRN, or COM1.

## Naming a File for 3270 Screen Save

This is available on all configurations.

1. In the 3270 Request Tasks menu, type **a** (Name File for 3270 Screen Save) and press the Enter key.
2. When you are prompted to **Type file name; press ENTER**, type the name of the file in which you want to save 3270 screens and press the Enter key.
3. The 3270 Frame displays.

## Naming a File for 3270 Print to Disk

This is available on all configurations, but may not be available on the Gateway or Gateway with Network Station configuration if 3270 Printer Use is set to None in the Communication Setup menu.

1. In the 3270 Request Tasks menu, type **b** (Name File for 3270 Print to Disk) and press the Enter key.
2. When you are prompted to **Type file name; press ENTER**, type the name of the file in which you want to save 2370 screens and press the Enter key.
3. The 3270 Printer Requests menu displays.

The following section describes how to use 3270 Printer Requests options.

## Using 3270 Printer Requests

This is available on all configurations, but may not be available on the Gateway or Gateway with Network Station configuration if 3270 Printer Use is set to None in the Communication Setup menu.

1. In the 3270 Request Tasks menu, type **c** (3270 Printer Requests) and press the Enter key.
2. The 3270 Printer Requests menu displays.
3. In the 3270 Printer Requests menu, you may change the following options for printing
   - 3270 Printer Destination
   - Lines Per Inch
   - Line Spacing
   - Maximum Page Length
   - Maximum Print Position
   - Compress Line Spacing

   You can also choose the following options:
   - Form Feed (only valid when 3270 Print Destination is Printer)
   - Reprint Buffer
   - PA1 (only available if LU1 print session is active)
   - PA2 (only available if LU1 print session is active)
   - Cancel Print (only available if LU1 print session is active).
4. When you are finished with 3270 Printer Requests, press the Enter key to return to the 3270 Frame.

For more information about the items on the 3270 Printer Requests menu, see Chapter 7 of *Learning IBM PC Network 3270.*

## Uploading Files to the Host

This is not available on the Gateway configuration, but is available on other configurations that have set File Transfer to 3270-PC File Transfer in the Communication Setup menu.

1. In the 3270 Frame, press the Rqst key.
2. The 3270 Request Tasks menu displays.
3. Type **d** (3270-PC File Transfer) and press the Enter key.
4. When you are prompted to **Type Command; press ENTER:**, type

   ```
   SEND filespec filename filetype
   filemode (options
   ```

   for the VM/CMS format, and for the TSO format, type

   ```
   SEND filespec datasetname
   <(membername)/password> options
   ```

   and press the Enter key. See your Run Book or Chapter 4 of this book for more information about the SEND command.
5. The 3270 Frame displays.

   Repeat as often as necessary to upload your files. You must wait for the preceding one to finish before starting another.

Valid keys during 3270-PC File Transfer are the Reqst, Dev Cncl, Msg, Alt Task, and Dir keys.

## Downloading Files from the Host

This is not available on the Gateway configuration, but is available on other configurations that have set File Transfer to 3270-PC File Transfer in the Communication Setup menu.

1. In the 3270 Frame, press the Rqst key.
2. The 3270 Request Tasks menu displays.
3. Type **d** (3270-PC File Transfer) and press the Enter key.

4. When you are prompted to **Type Command; press ENTER:**, type

   ```
   RECEIVE filespec filename filetype
   filemode (options
   ```

   for the VM/CMS format, and for the TSO format, type

   ```
   RECEIVE filespec datasetname
   <(membername)/password> options
   ```

   and press the Enter key. See your Run Book or Chapter 4 of this book for more information about the RECEIVE command.
5. The 3270 Frame displays.

   Repeat as often as necessary to download your files. You must wait for the preceding one to finish before starting another.

Valid keys during 3270-PC File Transfer are the Reqst, Dev Cncl, Msg, Alt Task, and Dir keys.

## Displaying Status of Network Stations

This is available only on the Gateway or Gateway with Network Station configuration.

1. In the 3270 Request Tasks menu, type **e** (Display Status of Network Stations) and press the Enter key.
2. The first of up to four Status of Network Stations menus displays.
3. Press the Cursor Up or Cursor Down keys to view the status of the Network Stations in your network. The menu displaying the status of the Network Stations is updated only when you press the Enter key to exit the menu or when you cursor up or down to the other Display Status of Network Stations menus.
4. Press Enter to return to the 3270 Frame.

## Revising List of Network Stations

This is available only on the Gateway or Gateway with Network Station configuration.

1. In the 3270 Request Tasks menu, type **f** (Revise List of Network Stations) and press the Enter key.
2. The first of up to four List of Network Stations menus displays.
3. Press the Cursor Up or Cursor Down keys to view the List of the Network Stations in your network.
4. Select the ID letter of the Network Station session you want to change and press the Enter key. Add or delete the from the display or printer sessions list.
5. When you are prompted to **Type YOUR CHOICE; press ENTER**, type the Network Station name you want to add or revise and press the Enter key. The Network Station Name can be to 15 alphanumeric characters. A null Enter will delete the Station Name. The menu is updated with the change only when you press the Enter key to exit the menu or when you cursor up or down to another List of Network Stations menu.
6. Press Enter to return to the 3270 Frame.

## Performing Data Trace

This is available on all configurations.

1. In the 3270 Request Tasks menu, type **g** (Data Trace) and press the Enter key.
2. When you are prompted to **Type YOUR CHOICE; press ENTER**, type **1** (Start) and press the Enter key. When you are prompted for the Data Trace file name, type the Data Trace file name and press the Enter key.
3. Perform the Data Trace procedures specified in your Run Book.
4. When you finish the Data Trace procedures, type **g** (Data Trace), a space, 2 (Stop), and press the Enter key.

5. When finished with Data Trace, press the Enter key again to return to the 3270 Frame.

**Notes:**

1. Data Trace slows the performance of the system.

2. The Alternate Task function should not be used during the trace.

3. A save to disk, print to disk, or print to printer should not be activated unless the problem being traced involves one of these functions.

4. The data trace should reside on a fixed disk rather than a diskette, or it should reside on an otherwise blank, formatted diskette if you do not have a fixed disk.

## 3270 Screen Save

When your IBM Personal Computer is displaying a screen in the 3270 Frame you want to save on your work disk, press the Save key. Each screen will be saved as one page. You must have named a file for 3270 Screen Save in the 3270 Request Tasks menu before the screen can be saved, however.

## 3270 Screen Print

When your IBM Personal Computer is displaying a screen in the 3270 Frame you want as a paper copy, press the Print key. This is available if 3270 Printer Use is not set to None in the Communication Setup menu and you are not on a Gateway configuration.

# Using Alternate Tasks

This is available if Alternate Tasks is set to Yes in the Communication Profile Tasks menu.

1. Hold the Alt key down and press the Esc key.
2. When the DOS prompt displays, perform the procedures for loading your Alternate Task.
3. To return to IBM PC Network 3270, hold the Alt key down and press the Esc key again.
4. IBM PC Network 3270 returns to the screen you left.

**Note:** Any program using Alternate Tasks must run on DOS and not alter the keyboard BIOS, the keyboard ISR, the timer ISR, or the software or hardware interrupt vectors used by IBM PC Network 3270. The program must also be relocatable (not require loading at a specific memory address).

# Using Host Print

Follow the procedure in your Run Book for using Host Print or Host-Initiated Screen Print.

# Chapter 3. Messages, Prompts, and Problem Determination

**Notes:**

You may occasionally experience a problem when using the IBM PC Network 3270 program. Some problems will result in a prompt or message that will appear on your IBM PC display unit. These messages may refer specifically to a problem or may be for information only. In some instances, a problem can occur for which you will not receive a prompt or message to help you find the problem. This chapter provides information to help resolve both problems with messages and those that do not result in a prompt or message.

**CAUTION**
**If you experience a problem, DO NOT TURN OFF YOUR IBM PERSONAL COMPUTER AND DO NOT PRESS END TASK. Your IBM Personal Computer should be ON for Problem Determination Procedures.**

If you experience a problem that cannot be resolved after using this chapter, call the host computer location to check for problems there.

# Preliminary Check

You should make a preliminary check to determine that your IBM Personal Computer is set up correctly.

Check that:

- DOS version 2.1 or above is loaded (DOS 3.0 for IBM PC-AT).
- The IBM PC Network 3270 diskette is loaded.
- The IBM Personal Computer cables are plugged in and secure.
- There are no unresolved prompts or messages on the display.
- The modem is ready for communication. Refer to the documentation supplied by the modem manufacturer, if necessary.

- The IBM PC Network 3270 program diskette is personalized correctly.

# Problems That Do Not Result in a Prompt or Message

Occassionally you will experience a problem that will not be defined on your display unit. If you experience a problem that does not result in a prompt or message, check the following list for assistance. Problems that do result in a prompt or message are discussed later in this chapter.

---

**Problem:** No Answer from the Host Computer

*Cause:* The host computer may not respond for the following reasons:

- On host systems where the SNA NOTIFY commands are not supported, Network Stations may not be dynamically added.
- For the Network Stations that are specified in the Gateway List or Network Stations, the Network Station may not have loaded IBM PC Network 3270 before bringing up the Gateway.
- You reached a wrong number.
- There is a loose plug or cable hookup either with your IBM PC or with the host computer.
- Your host computer's automatic answering capability has not been activated.
- There is a compatibility and/or an options problem in the Modem and Line Description menu.

**Action:** Check each of the items above individually. If the problem is one of the above, you should be able to correct it yourself. If you can not or if the problem

is in the host system or in the IBM PC Network, contact your local IBM PC Network coordinator.

---

**Problem:** Incorrect Characters Displayed

*Cause:* During personalization, you may have incorrectly changed the 3270 Keyboard. It should be the same as the one on your 3270 Personalization Worksheet.

```
XXX - Y
|     |
|     Keyboard Arrangement
|
Keyboard ID
```

**Action:** Check for the correct 3270 Keyboard.

---

**Problem:** Line Busy

*Cause:* The line may simply be busy, the phone may be off the hook at the other end, or you may have reached a wrong number.

**Action:** Wait a few minutes, double check the phone number, then try dialing again. If the problem persists after several trys, check to be sure the problem is not mechanical (see: **PROBLEM:** No Answer From Host Computer.) If the problem is not mechanical and it persists, contact your IBM PC Network coordinator.

---

**Problem:** Communication Established and Drops Immediately

*Cause:* A power failure or unplugged modem at

either location, or incompatible IBM Personal Computer and host computer modems.

**Action:** Check for electrical power to your IBM PC or modem. Contact your local IBM PC Network coordinator to determine whether the modems at your locations are compatible.

---

**Problem:** Communication Established and Drops after Some Use

*Cause:* This problem could result if:

- You pressed the END TASK key.
- You had a power failure.
- A modem became unplugged at either location.
- You received any prompts or messages on the display.
- Your telephone line is down.
- Your host system is down.

**Action:** If you pressed the END TASK key, you must re-establish communications. Check for electrical power at your PC or modem. Check the next section of this chapter for the appropriate action for a message or prompt. Check your telephone line to see if it is operating correctly. Otherwise, report the problem to your IBM PC Network coordinator.

# Problems That Do Result in a Prompt or Message

Certain problems result in a prompt or message.

The Message Line (Line 25) indicates that you have a message when it is displaying a blinking video-reversed blank or a blinking

greater than sign (>). If a video-reversed blank is displayed, press the Msg key to receive these messages.

You also receive the following on Line 25 when it is used as the Operator Information Line:

- Columns 1-2 display an underscored 4 followed by a capital B.
- Column 3 displays one of the following:
  - Video-reversed blank. The display is connected to your application program.
  - Yen Sign. The display is connected to the system operator (control program).
  - Question Mark (?). Communication has been established with the host computer, but the display is not connected to any host program.
  - Blank. The display has not been connected to the host computer.
- Columns 9-62 may display an Input Inhibited symbol or message.
- The message NUM in columns 65-67 indicates the Num Lock key has been pressed.
- An arrow in column 73 indicates Insert mode.
- Finally, printer status messages appear in columns 76-80.

Prompts or messages that can appear on your display unit are printed below in **bold** type following the word *Message:*.

The characters (...) indicate that your host computer or IBM PC supplies a character or number field in those spaces. Problem messages beginning with (...) are presented first and are alphabetized by the first letter following (...). For example, the first problem message presented here is : (...) already exists.

All other messages, including those with (...) within the message, are presented alphabetically by the first letter of the message's initial word. These messages appear following those that begin with (...).

Messages that occur when the host computer detects a problem in the data it received are called **program checks**. Program check messages appear as follows: XX RESET - program check (number). The XX means that input is inhibited until you press the Reset key.

A **communication check** message occurs when the IBM PC Network 3270 detects a problem with the telephone communication equipment. A communication check will appear in one of the following three forms:

**Communication check 521**
**RESET - Communication check 521**
**Wait - Communication Check 521**

When RESET appears in the message, you should press the RESET key.

A list of the prompts and messages that may occur while using the IBM PC Network 3270, the probable cause of the problem, and the action you should take to correct it follows.

---

**Problem:** *Message:* **(...) already exists**

*Cause:* When the system requested the file name, you gave it a name that is already on a disk,

**or**

A file with the same *file name* and with an .RES extension exists on your disk,

**or**

You chose a file name for an output file, or a default output file name was used by the system, but the file name already exists.

**Action:** Use a different file name,

**or**

Delete or rename the file with the .RES extension.

---

**Problem:** *Message:* **(...) error on PC network**

*Cause:* There is an IBM Personal Computer Network Adapter or network condition that is preventing the Gateway or Network Station from communicating on the Network.

**Action:** Contact your PC Network Coordinator and describe the problem,

**or**

Refer to your IBM PC Network Guide to Operations.

---

**Problem:** *Message:* **(...) is damaged. Use another copy**

*Cause:* The disk containing your program is unusable.

**Action:** Use another copy of the program.

---

**Problem:** *Message:* **(...) is invalid program**

*Cause:* A file exists on the disk which is not a program but which has the correct program name.

**Action:** Use another copy of the program.

---

**Problem:** *Message:* **(...) is unsupported type**

*Cause:* You specified a file for the Screen Save, Data Trace, File Transfer, or Deferred Print that is a DisplayWrite2 text document or Revisable-Form document

**Action:** Restart the task using a file that is not a DisplayWrite2 text or Revisable-Form document.

**Problem:** *Message:* **(...) not found**

*Cause:* The file name that you entered does not exist as typed,

**or**

The correct disk is not inserted.

**Action:** First, try the following steps:

1. Display the directory.
2. Check the spelling and capitalization of the file name.
3. Choose the item again, and type it exactly as it appears in the directory, or choose the file from the directory.
4. Press the Enter key;

**or**

Insert the correct disk and try again;

**or**

Press Esc to cancel the task.

---

**Problem:** *Message:* **Alternate Tasks program will stop. Press ENTER to return to DOS or press ESC**

*Cause:* You selected z (Return to DOS) on the 3270 Task Selection menu, and the alternate program is active.

**Action:** Press the Enter key to end the alternate program and return to DOS, or press the Esc key to remain in the 3270 Task Selection menu.

**Problem:** *Message:* **An SDLC Link Address must be specified**

*Cause:* You tried to exit the Modem and Line Description menu without specifying an SDLC Link Address.

**Action:** Choose the ID **c** and specify the SDLC Link Address.

---

**Problem:** *Message:* **Buffer not available for reprint**

*Cause:* The last buffer stored in the printer has been partly replaced by another buffer received from the host computer,

**or**

The first buffer has not been received from the host computer.

**Action:** No action is possible unless the host computer sends the buffer again.

**Problem:** *Message:* **Cannot activate all requested Network Stations**

*Cause:* Some other application is using IBM PC Network sessions, leaving too few for the IBM PC Network 3270 application.

**Action:** End the other sessions.

**or**

Only allow the available number of sessions to be used by IBM PC Network 3270.

**Problem:** *Message:* **Cannot activate any more Network Stations**

*Cause:* Some other application is using IBM PC Network sessions, leaving too few for the IBM PC Network 3270 application.

**Action:** Continue to use IBM PC Network 3270 using no more 3270 sessions,

**or**

End the other application's sessions.

---

**Problem:** *Message:* **Cannot choose active session**

*Cause:* You selected an active Printer or Display Session to be changed or deleted in the List of Network Stations menu.

**Action:** Wait until the session is inactive or select another session.

**or**

Press the ESC key to cancel the menu.

---

**Problem:** *Message:* **Cannot END TASK during file transfer, use DEV CNCL to cancel**

*Cause:* You pressed the End Task key during a file transfer. The End Task key is disabled during file transfer.

**Action:** Press DEV CNCL to cancel the file transfer. Then press END TASK to end your 3270 session.

**Problem:** *Message:* **Cannot open file. Maximum number of files open**

*Cause:* You cannot use the task you chose because it would require more files to be open than your system has available to it.

**Action:** Choose another task,

**or**

Change the configuration of your system by including a FILES command in a CONFIG.SYS DOS file. For more information, see "Configuring Your System" in the *IBM Personal Computer Disk Operating System*, 2.1 or above.

---

**Problem:** *Message:* **Cannot select file transfer while file transfer in progress**

*Cause:* You selected another File Transfer while you were already uploading or downloading a file.

**Action:** Wait until File Transfer is completed.

**Problem:** *Message:* **Communication check 501**

*Cause:* The Data Set Ready (DSR) from your modem is off.

**Action:** Check your modem before you try to proceed.

---

**Problem:** *Message:* **Communication check 504**

*Cause:* Your IBM Personal Computer has been disconnected from the host computer, and you tried to proceed,

**or**

Initial connection was not made.

**Action:** Re-establish communication before you try to proceed.

---

**Problem:** *Message:* **Communication check 505**

*Cause:* The communication line is not active,

**or**

Disconnect was received.

**Action:** Call the host computer location and ask that the communication line be activated. If the line remains inactive, call your local IBM PC Network coordinator.

Tell your local IBM PC Network coordinator about the problem you encountered and the Communication check number.

**Problem:** *Message:* **Communication check 510**

*Cause:* The communication line is active, but the host computer is not sending information because 3274 emulation at the host is not active.

**Action:** Call local IBM PC Network coordinator before you try to proceed. Tell your local IBM PC Network coordinator about the problem you encountered and the Communication check number.

---

**Problem:** *Message:* **Communication check 518**

*Cause:* Data reception problem.

**Action:** Call local IBM PC Network coordinator before you try to proceed. Tell your local IBM PC Network coordinator about the problem you encountered and the Communication check number.

---

**Problem:** *Message:* **Communication check 521**

*Cause:* Too much time before data was received.

**Action:** Retry the operation. If Communication Check 521 occurs frequently and you have to reload the program to clear the error, contact your IBM PC Network coordinator.

**Problem:** *Message:* **Communication check 530**

*Cause:* Transmit failure timeout.

**Action:** Check your modem. If there is no modem failure, call your local IBM PC Network coordinator.

Tell your local IBM PC Network coordinator about the problem you encountered and the communication check number.

---

**Problem:** *Message:* **Communication error. Unable to disconnect**

*Cause:* You have a wrong line configuration, and the modem cannot drop its signal.

**Action:** Check to be sure that you have the right configuration.

---

**Problem:** *Message:* **Directory error for (...)**

*Cause:* The directory specified for the Screen Save, Data Trace, File Transfer, or Deferred Print does not exist,

**or**

The directory specified is the root, and it is full.

**Action:** Specify another directory and retry the command.

---

**Problem:** *Message:* **Disk error accessing program (...)**

*Cause:* A disk error occurred while the system was trying to load a program.

**Action:** Try to load the program again,

**or**

If you have another copy of the program, try to load it.

---

**Problem:** *Message:* **Disk error on drive (...)**

*Cause:* The diskette you loaded in the specified disk drive has an error,

**or**

The diskette is not mounted in the specified drive.

**Action:** Make sure the diskette is in the right drive, or refer to the *IBM Personal Computer Guide to Operations* for recovery.

---

**Problem:** *Message:* **Diskette on drive (...) is unsupported type**

*Cause:* You are using a diskette that is an unsupported type.

**Action:** Restart the task using a diskette that is a supported type.

**Problem:** *Message:* **Diskette on drive (...) is write protected**

*Cause:* The disk on which the screen, print, File Transfer, or Data Trace data is to be saved is write protected.

**Action:** Restart the task using a disk without write protection.

---

**Problem:** *Message:* **Disk full on drive (...). Restart task using another disk**

*Cause:* The disk on which the screen, print, File Transfer, or Data Trace data is to be saved is full.

**Action:** Restart the task using a disk with available space.

---

**Problem:** *Message:* **Disk or file error. ESC or retry with new disk or file**

*Cause:* There is a disk or file error in the file you named for Data Trace when the file was opened.

**Action:** Use ESC to cancel the menu. The Data Trace will not be started,

**or**

Retry with a new disk or file.

**Problem:** *Message:* **ERROR KEY NOT REMAPPED: (...)**

*Cause:* An error was detected in the command you specified for remapping a key.

**Action:** Correct the error in your command.

---

**Problem:** *Message:* **File already exists. Name a new file for Data Trace**

*Cause:* You specified a Data Trace file name that already exists. Trace data cannot be appended to an existing file.

**Action:** Choose a unique file name and retry.

**Problem:** *Message:* **File for 3270 print to disk not named. Use Request Tasks**

*Cause:* You have not named the 3270 Print to Disk file.

**Action:** Name the 3270 Print to Disk file in the 3270 Request Tasks menu.

---

**Problem:** *Message:* **File transfer cancelled at operator request**

*Cause:* You pressed the DEV CNCL key during a file transfer. The transfer process has been terminated.

**Action:** Proceed with task.

---

**Problem:** *Message:* **Function is not available on Gateway**

*Cause:* You pressed an invalid non-EBCDIC key.

**Action:** Valid keys for Gateway are ALT TASKS, MSG, REQST, RESET, END TASK, and DIR.

---

**Problem:** *Message:* **Gateway Name not in List of Network Stations. Use Profile Tasks**

*Cause:* In the Gateway with Network Stations configuration, your Gateway name is not specified as a Network Station in the List of Network Stations menu.

**Action:** Return to the Communication Profile Tasks menu and add the Gateway name to the List of Network Stations menu.

---

**Problem:** *Message:* **INPUT FILE NOT FOUND**

*Cause:* No such file exists where you specified; you entered incorrect or insufficient file search request information.

**Action:** Check your entry request for spelling errors. If your entry was correct, chaeck to see if your file needs a path.

---

**Problem:** *Message:* **Invalid choice**

*Cause:* In the List of Network Stations menu, there are duplicate items or more than eight items for the display sessions and printer sessions

**or**

In the Communication Setup menu, you specified an invalid host command for the 3270-PC File Transfer and then attempted to cancel this option.

**Action:** Correct the problem or press the Esc key to cancel the menu.

---

**Problem:** *Message:* **Invalid choices. Change choices marked with ****

*Cause:* You did not specify the Network Station Name or Gateway Station Name before exiting the menu,

**or**

The Network Station Name specified is invalid.

**Action:** Wait for the "Type YOUR CHOICE; press ENTER: -" prompt, or refer to the "Learning IBM PC Network 3270" diskette for name requirements.

---

**Problem:** *Message:* **Invalid drive specifier**

*Cause:* The drive specifier you typed is not valid for your system.

**Action:** Select a valid drive specifier and try again.

---

**Problem:** *Message:* **Invalid choice. File name cannot exceed 44 characters**

*Cause:* You specified a file name greater than 44 characters.

**Action:** Specify a file name of 44 characters or less or press the Esc key to cancel the operation.

---

**Problem:** *Message:* **Invalid host command**

*Cause:* You specified an invalid host command for 3270-PC File Transfer in the Communication Setup menu.

**Action:** Specify a valid host command. It must be 8 characters or less without any single-byte EBCDIC controls.

---

**Problem:** *Message:* **Invalid ID letter**

*Cause:* You specified an invalid ID letter on a menu.

**Action:** Specify a valid ID letter, one of those displayed on the menu.

---

**Problem:** *Message:* **Invalid Key**

*Cause:* You pressed a key which is invalid for your 3270 Keyboard.

**or**

You pressed the Reqst key while the directory is displayed on the screen.

**Action:** Select a valid key. Your choices are REQST, RESET, END, and DIR.

**Note:** When the Directory is displayed on the screen, REQST is disabled, and an "Invalid key" message is displayed on the Message Line.

**Problem:** *Message:* **Invalid name**

*Cause:* You specified an invalid name for a file. The name can contain any combination of letters (A-Z), numbers (0-9), or both.

**Action:** Press the Esc key and retype the name using valid characters.

**or**

Display the directory contents and note exactly how the file name is typed.

---

**Problem:** *Message:* **Invalid 3270 Keyboard selected**

*Cause:* You did not specify a 3270 Keyboard,

**or**

The keyboard specified is invalid.

**Action:** Refer to the Appendix for information on 3270 keyboard supported and retry the operation.

---

**Problem:** *Message:* **KEYS ARE REMAPPED**

*Cause:* Your Keyboard Remapping has completed successfully.

**Action:** None. This is a successful completion.

---

**Problem:** *Message:* **KEYS ARE REMAPPED TO ORIGINAL DEFINITIONS**

*Cause:* No input file was specified when REMAPKEY was executed; successful completion.

**Action:** None.

---

**Problem:** *Message:* **Key is not available on Gateway**

*Cause:* You pressed an EBCDIC key that cannot be used on the Gateway Station.

**Action:** Choose one of the valid keys for the Gateway: DIR, REQST, END TASK, RESET, ALT TASKS, and MSG.

---

**Problem:** *Message:* **Message (Buffer Reprint) sent to host**

*Cause:* You selected Buffer Reprint in the 3270 Printer Requests menu.

**Action:** No action is necessary.

---

**Problem:** *Message:* **Message (PA1) sent to host**

*Cause:* You selected PA1 in the 3270 Printer Requests menu.

**Action:** Proceed with your task.

---

**Problem:** *Message:* **Message (PA2) sent to host**

*Cause:* You selected PA2 in the 3270 Printer Requests menu.

**Action:** Proceed with your task.

---

**Problem:** *Message:* **Name (...) already in use. Use Profile Tasks**

*Cause:* You tried to give your station a name that already exists on the IBM Personal Computer Network.

**Action:** Select another name in the Communication Profile Tasks menu or in the Gateway Setup menu.

---

**Problem:** *Message:* **Name not specified**

*Cause:* When the system requested a file name, you pressed the Enter key without typing the file name first.

**Action:** Type the file name and press the Enter key.

---

**Problem:** *Message:* **No files found for (...)**

*Cause:* The directory you chose for the Display Directory function was not found or has no files in it.

**Action:** Choose a different directory.

---

**Problem:** *Message:* **NO KEYS REMAPPED**

*Cause:* The input file contained no valid remapping commands.

**Action:** Correct any errors displayed on your screen.

---

**Problem:** *Message:* **Not enough memory. Display Directory program can be loaded in Task Selection**

*Cause:* You pressed the DIR, key and there was not enough memory to load the DIR function at initialization time.

**Action:** Return to the 3270 Task Selection menu and press the DIR key there.

**Note:** If there is an outstanding prompt for a file name when the DIR key is pressed, the item selected in the Display Directory menu will be used to answer the prompt. However, if there is not file name prompt outstanding when the DIR key is pressed, the item selected in the Display Directory menu will be ignored.

---

**Problem:** *Message:* **Not enough memory for Alternate Tasks**

*Cause:* You pressed the Alternate Tasks key combination, and there was not enough memory available to support the two partitions.

**Action:** Install enough memory in your IBM PC, PC XT, PC AT, or Portable PC,

**or**

Perform your operation without using Alternate Tasks.

---

**Problem:** *Message:* **Print cancelled**

*Cause:* You selected Cancel Print in the 3270 Printer Requests menu.

**Action:** Proceed with your task.

---

**Problem:** *Message:* **Please type YOUR CHOICE again; press ENTER**

*Cause:* When you typed the choice you wanted from the menu, the system did not recognize it.

**Action:** Check the menu for possible choices, type the choice you want, and press the Enter key.

---

**Problem:** *Message:* **Printer Alarm received from host**

*Cause:* The host computer has sent a printer alarm.

**Action:** Perform the predetermined actions from your Run Book.

---

**Problem:** *Message:* **Printer error. (...) cancelled**

*Cause:* An error was encountered by your system while it was trying to access the printer during a print job,

**or**

The printer ran out of paper,

**or**

The printer ribbon needs to be changed,

**or**

Paper may be jammed in the printer,

**or**

Your system has an unrecoverable hardware error,

**or**

The printer power is off,

**or**

The printer is not ready - Stop or Offline was pressed.

**or**

The printer disconnected,

**or**

DOS background print or another print job is active, and the printer is consequently unavailable.

**Action:** Check for any printer system problems and then try again,

**or**

Load paper into the printer and start your print job again,

**or**

Change the printer ribbon and start your print job again,

**or**

Clear the paper jam and start your print job again,

**or**

Determine the cause of the hardware error. After correcting it, start your print job again,

**or**

Check your power source and be sure the printer is turned on,

**or**

Reset the printer for printing,

**or**

Reconnect the printer,

**or**

Wait for the current print job to finish and then try again,

**or**

Cancel any other print jobs and start your print job.

---

**Problem:** *Message:* **Printer not ready. Check printer**

*Cause:* There is a printer error such as Paper Jam, Printer Not Ready, Printer Not Attached, or Printer Power Off.

**Action:** Check your printer for any of the error conditions listed. Fix the problem and wait a minute for printing to continue.

**Note:** A ten-minute timer is set. Keystrokes may not be accepted at times while the printer error is unresolved. If the timer expires before a successful print, the error condition may be reported to the host. If the printer error condition is cleared before the timer expires, printing will continue after a delay of approximately one minute.

---

**Problem:** *Message:* **Program (...) not found**

*Cause:* You tried to use a program that does not exist on your disk.

**Action:** Use a different program,

**or**

Use a disk with the program you want on it.

---

**Problem:** *Message:* **READ/WRITE ERROR TERMINATES REMAPPING**

*Cause:* A read from the input file was unsuccessful.

**Action:** Try rerunning REMAPKEY. If the problem continues, you may have a damaged diskette.

---

**Problem:** *Message:* **REMAP BUFFER FULL - FIRST COMMAND NOT PROCESSED**

*Cause:* The Remapping Command Buffer in RMPKB.SYS is full.

**Action:** Remap fewer keys or use shorter key assignments.

**Problem:** *Message:* **REMAPPING COMMAND IS TOO LONG**

*Cause:* The remapping command or comment exceeds 80 characters.

**Action:** Shorten the command or comment to 80 characters or less.

---

**Problem:** *Message:* **Specified file(s) invalid for this task**

*Cause:* You have specified a file which cannot be used for the task you have selected.

**Action:** Use a different file name and retry the operation.

---

**Problem:** *Message:* **Station not configured for Alternate Tasks**

*Cause:* Your Communication Profile Tasks menu does not specify Yes (1) for Alternate Tasks (b).

**Action:** If you want to use Alternate Tasks, press the End Task key to end the Communicate task, go to the Communication Profile Tasks menu, and specify Yes for Alternate Tasks.

**Problem:** *Message:* **Task not available for selected configuration**

*Cause:* In the Communication Profile Tasks menu, one of the following is true:

- Your configuration is Gateway, and you selected Create or Revise Comminication Setup.
- Your configuration is Network Station, and you selected Create or Revise Modem and Line Description.
- Your configuration is Standalone Station or Network Station, and you selected Create or Revise Gateway Setup.

**or**

You chose an Item in the 3270 Request Tasks menu that is not valid for your configuration. The following are not valid for the Gateway configuration:

- Name File for 3270 Screen Save
- Name File for 3270 Print to Disk
- 3270 Printer Requests
- 3270-PC File Transfer

Display Status of Network Stations and Revise List of Network Stations are valid for the Gateway and Gateway with Network Station. Data Trace is valid for all configurations.

**Action:** Select a task that is valid for your configuration.

**Problem:** *Message:* **Task unavailable - no display session active**

*Cause:* You selected the 3270-PC File Transfer option in 3270 Request Tasks, but IBM PC Network 3270 is not in an LU.2 session.

**Action:** Make some other choice in the 3270 Request Tasks menu,

**or**

Establish an LU.2 session.

---

**Problem:** *Message:* **Too many sessions on PC network**

*Cause:* The maximum number of sessions on the PC Network is already established,

**or**

Some other application is using IBM PC Network sessions, leaving too few for the IBM PC Network 3270 application.

**Action:** Wait until a session is available,

**or**

End the other application and reload IBM PC Network 3270.

---

**Problem:** *Message:* **Trace stopped. Use REQST to restart trace**

*Cause:* Your Data Trace has stopped because a problem was encountered with the disk.

**Action:** Use REQST to restart the trace. Following are valid options for each configuration:

- Standalone:
  - Name File for 3270 Screen Save
  - Name File for 3270 Print to Disk (if 3270 Printer Use is supported in the Communication Setup menu)
  - 3270 Printer Requests (if 3270 Printer Use is supported in the Communication Setup menu)
  - 3270-PC File Transfer (if 3270-PC File Transfer is supported in the Communication Setup menu)
  - Data Trace
- Network Station
  - Name File for 3270 Screen Save
  - Name File for 3270 Print to Disk (if 3270 Printer Use is supported in the Communication Setup menu)
  - 3270 Printer Requests (if 3270 Printer Use is supported in the Communication Setup menu)
  - 3270 Printer Requests (if 3270 Printer Use is supported in the Communication Setup menu)
  - 3270-PC File Transfer (if 3270-PC File Transfer is supported in the Communication Setup menu)
  - Data Trace
- Gateway
  - Display Status of Network Stations
  - Revise List of Network Stations
- Gateway with Network Station
  - Name File for 3270 Screen Save

- Name File for 3270 Print to Disk (if 3270 Printer Use is supported in the Communication Setup menu)
- 3270 Printer Requests (if 3270 Printer Use is supported in the Communication Setup menu)
- 3270-PC File Transfer (if 3270-PC File Transfer is supported in the Communication Setup menu)
- Display Status of Network Stations
- Revise List of Network Stations
- Data Trace

---

**Problem:** *Message:* **TRANS03 File Transfer complete**

*Cause:* The file transfer operation has been successfully completed.

**Action:** Proceed with task.

---

**Problem:** *Message:* **TRANS04 File Transfer complete with records segmented**

*Cause:* The file transfer operation has been completed, and any record greater than the logical record length (LRECL) of the file being appended will divide and become multiple records.

**Action:** Proceed with task.

---

**Problem:** *Message:* **TRANS05 Personal computer filespec incorrect: file transfer cancelled**

*Cause:* You made an error in the Personal Computer DOS filespec, for example, file name or extension.

**Action:** Compare the IBM PC DOS filespec in the file transfer command with the "Learning IBM PC Network 3270" diskette to make sure it conforms to the DOS requirements for a filespec.

---

**Problem:** *Message:* **TRANS06 Command incomplete: file transfer cancelled**

*Cause:* You did not enter the required parameters after SEND or RECEIVE.

**Action:** Read the "Learning IBM PC Network 3270" diskette on requirements for the SEND and RECEIVE commands and retry.

**or**

Read the File Transfer section of Chapter 4 of this Reference.

---

**Problem:** *Message:* **TRANS07 Cannot link to host: file transfer cancelled**

*Cause:* There is a host connection problem.

**Action:** File transfer may not be working properly. Verify that the host is operating.

---

**Problem:** *Message:* **TRANS08 Command transmit error: file transfer cancelled**

*Cause:* There is a program error,

**or**

You pressed a key that produced an invalid code, for example, one that cannot be transmitted to the host,

**or**

Input was inhibited when File Transfer was initiated.

**Action:** Consult your "Learning IBM PC Network 3270" diskette on file transfer and retry. Verify that the host is operating.

**Problem:** *Message:* **TRANS09 Error reading file from damaged local disk: file transfer cancelled**

*Cause:* The IBM PC disk or diskette is damaged.

**Action:** Retry the operation with a backup copy of the file being transfered. If the failure still occurs, the problem may be in the diskette drive or fixed disk.

---

**Problem:** *Message:* **TRANS11 Lost contact with host: file transfer cancelled**

*Cause:* The host is inactive.

**Action:** Try to re-establish communication with the host

**or**

Contact your host personnel and describe the problem to them.

---

**Problem:** *Message:* **TRANS12 Error writing to damaged or full local disk: file transfer cancelled**

*Cause:* The IBM PC disk or diskette has become full during a RECEIVE operation,

**or**

The disk or diskette is damaged.

**or**

The disk or diskette is write-protected.

**Action:** Retry the operation with a different IBM PC diskette,

**or**

Insert the Problem Determination diskette and begin your problem determination procedures.

---

**Problem:** *Message:* **TRANS13 Error writing file to host: file transfer cancelled**

*Cause:* The host program has detected an error in the file data during a RECEIVE operation.

**Action:** Retry file transfer. If unsuccessful, contact your host personnel and describe the problem to them.

---

**Problem:** *Message:* **TRANS14 Error reading file from host: file transfer cancelled**

*Cause:* The host program has detected an error in the file data during a RECEIVE operation.

**Action:** Retry file transfer. If unsuccessful, contact your host personnel and describe the problem to them.

---

**Problem:** *Message:* **TRANS15 Required host storage unavailable; file transfer cancelled**

*Cause:* You need 30K of main storage, not disk space, for the file tranfer, in addition to the host requirement.

**Action:** Contact your host personnel.

**Problem:** *Message:* **TRANS16 Incorrect request code: file transfer cancelled**

*Cause:* An invalid parameter has been sent by the SEND or RECEIVE application.

**Action:** Verify that current versions of SEND, RECEIVE, and IND$FILE MODULE are correctly installed. If they are, contact your host personnel.

---

**Problem:** *Message:* **TRANS17 (TSO Version) Missing or incorrect TSO data set name: file transfer cancelled**

*Cause:* You did not specify the TSO data set name,

**or**

The specified TSO data set name is not a sequential or partitioned data set.

**Action:** Correct the TSO data set name in the command and retry.

---

**Problem:** *Message:* **TRANS17 (CMS Version) Missing or incorrect CMS data set name: file transfer cancelled**

*Cause:* You did not specify the CMS data set name,

**or**

The specified CMS data set name is incorrect.

**Action:** Correct the CMS data set name in the command and retry.

---

**Problem:** *Message:* **TRANS18 Incorrect option specified: file transfer cancelled**

*Cause:* You specified an option that is not acceptable.

**Action:** Specify an acceptable option and retry.

---

**Problem:** *Message:* **TRANS19 Error while reading or writing to the host disk: file transfer cancelled**

*Cause:* There is not enough space available for data on the host.

**Action:** Look at the IBM PC Network 3270 session frame for host indications and correct the problem.

---

**Problem:** *Message:* **TRANS27 Communication sequence with host disrupted: file transfer cancelled**

*Cause:* There is a program error.

**Action:** Contact your host personnel.

---

**Problem:** *Message:* **TRANS28 Invalid option (...): file transfer cancelled**

*Cause:* You selected an option that is either not recognized, is specified as a positional keyword, or has an associated value that is incorrect.

**Action:** Correct the option in the command and retry.

**Problem:** *Message:* **TRANS29 Invalid option (...) with RECEIVE: file transfer cancelled**

*Cause:* You selected an option that is not valid with RECEIVE, but may be used with SEND.

**Action:** Remove the option from the command and retry.

---

**Problem:** *Message:* **TRANS30 Invalid option (...) with APPEND: file transfer cancelled**

*Cause:* You selected an option that is not valid with APPEND, but otherwise may be used.

**Action:** Remove the option from the command and retry.

---

**Problem:** *Message:* **TRANS31 Invalid option (...) without SPACE: file transfer cancelled**

*Cause:* You selected an option that can only be used if SPACE is also specified.

**Action:** Remove the option from the command and retry.

---

**Problem:** *Message:* **TRANS32 Invalid option (...) with PDS: file transfer cancelled**

*Cause:* You selected an option that is invalid with a host partitioned data set.

**Action:** Remove the option from the command and retry.

**Problem:** *Message:* **TRANS33 Only one of TRACKS, CYLINDERS, AVBLOCK allowed: file transfer cancelled**

*Cause:* You selected more than one SPACE option.

**Action:** Remove the unwanted option from the command and retry.

---

**Problem:** *Message:* **TRANS34 CMS file not found: file transfer cancelled**

*Cause:* You did not specify an existing CMS file for RECEIVE.

**Action:** Correct the CMS file specification in the command and retry.

---

**Problem:** *Message:* **TRANS35 CMS disk is Read-Only: file transfer cancelled**

*Cause:* You specified a CMS file mode for the End Task key that does not allow write access.

**Action:** Correct the CMS file specification in the command and retry.

---

**Problem:** *Message:* **TRANS36 CMS disk is not accessed: file transfer cancelled**

*Cause:* You specified a CMS file mode that is not in the CMS search order.

**Action:** Access the required disk in CMS or correct the CMS file specification; retry the command.

**Problem:** *Message:* **TRANS37 CMS disk is full: file transfer cancelled**

*Cause:* The CMS disk is full,

**or**

The maximum number of files on the minidisk (3400) has been reached,

**or**

The maximum number of data blocks per file (16060) has been reached.

**Action:** Use another disk with enough space or remove unwanted files from the specified disk; retry the command.

---

**Problem:** *Message:* **TRANS99 Host program error code (...): file transfer cancelled**

*Cause:* There is a program error.

**Action:** Contact your host personnel.

---

**Problem:** *Message:* **Type command; press ENTER:**

*Cause:* You selected the File Transfer option in 3270 Request Tasks.

**Action:** Type your File Transfer command and press Enter.

**Problem:** *Message:* **Type file name; press ENTER:**

*Cause:* You have selected "Name File for 3270 Screen Save" or "Name File for 3270 Print to Diskette" in the 3270 Request Tasks Menu.

**or**

You selected Data Trace to start in the 3270 Request Tasks menu.

**Action:** Enter the name of existing file to which information from the host computer will be added or the name of a new file in which information from the host computer will be saved, and press ENTER.

---

**Problem:** *Message:* **Type file specification; press Enter**

*Cause:* You pressed the Dir key.

**Action:** Type in the file specification,

**or**

Press the Enter key to get the default drive and directory for the DIR command,

**or**

Press the Esc key to cancel the operation.

**Problem:** *Message:* **Type host command; press ENTER:**

*Cause:* You set the File Transfer option to 3270-PC File Transfer in the Communication Setup menu.

**Action:** Type the host command and press the ENTER key,

**or**

Use the default host command by pressing the ENTER key.

---

**Problem:** *Message:* **Type ID letter to choose file; press Enter**

*Cause:* You are displaying a directory. The system was prompting you for a file name when you pressed the Dir key.

**Action:** Type the ID letter of the file you want and press the Enter key.

**or**

Press the Enter or Esc key to leave the Display Directory menu.

**Problem:** *Message:* **Type ID letter to choose ITEM; press ENTER**

*Cause:* A menu has been displayed.

**Action:** Type an ID letter,

**or**

Press the Esc key to exit the menu.

---

**Problem:** *Message:* **Type ID letter to choose new default file name; press Enter**

*Cause:* You pressed the Dir key while not being prompted for a file name.

**Action:** Type an ID letter to choose a new default file name,

**or**

Press the Enter or Esc key to exit the Dir menu

**Problem:** *Message:* **Type YOUR CHOICE; press Enter**

*Cause:* You have specified an ID letter on a menu.

**Action:** Specify your choice for the Item

**or**

Press the Esc key to cancel the operation.

---

**Problem:** *Message:* **Too many characters. BACKSPACE or ESC**

*Cause:* You specified a value for an item which is longer than allowed for that item.

**Action:** Backspace to remove the extra characters,

**or**

Press the Esc key to cancel the prompt.

---

**Problem:** *Message:* **UNABLE TO CLOSE INPUT FILE - FILE MAY NEED RECOVERY**

*Cause:* An error or condition has occurred that makes closing the input file impossible.

**Action:** If necessary, recover the input file.

---

**Problem:** *Message:* **Unable to load program; change PC network adapter to level 2**

*Cause:* Your PC Network Adapter is set to run on interrupt level 3 on the Gateway.

**Action:** Set your PC Network Adapter to run on interrupt level 2.

---

**Problem:** *Message:* **Unable to load program; communication hardware unavailable**

*Cause:* Your System Unit may not have the communication adapters installed,

**or**

The System Unit may not be working properly,

**or**

The appropriate adapter cards may not be installed.

**Action:** Contact your local IBM PC Network coordinator.

---

**Problem:** *Message:* **Unable to load program; not enough memory**

*Cause:* You IBM PC does not have enough memory to load the program you are trying to use.

**Action:** Contact your local IBM PC Network coordinator.

---

**Problem:** *Message:* **UNABLE TO OPEN INPUT FILE**

*Cause:* Input file cannot be opened.

**Action:** Investigate to determine if there is a problem with the input file.

---

**Problem:** *Message:* **UNABLE TO OPEN INPUT FILE - ACCESS DENIED**

*Cause:* Input file cannot be opened.

**Action:** See the DOS operating guide. Use the DOS CHKDSK (check disk) command to determine if there is a file error condition.

**Problem:** *Message:* **UNABLE TO OPEN INPUT FILE - INVALID PATH**

*Cause:* You specified an invalid path with your input file.

**Action:** Correct the path.

---

**Problem:** *Message:* **UNABLE TO OPEN INPUT FILE - TOO MANY OPEN FILES**

*Cause:* You exceeded the limit for the number of open files.

**Action:** Close an open file. If you need more open files to complete your task, reconfigure your programmed maximum number of available open files.

---

**Problem:** *Message:* **Unknown DOS critical error detected**

*Cause:* DOS, which was loaded before PC Network 3270, has been terminated by an error.

**Action:** Try to start over, using a backup copy of DOS before you load IBM PC Network 3270.

**Problem:** *Message:* **Use Profile Tasks to create a modem and line description**

*Cause:* You have not specified an SDLC Link Address in the Modem and Line Description menu.

**Action:** Contact your local IBM PC Network coordinator and obtain the 3270 Personalization Worksheets. Go to the Communication Setup menu and specify an SDLC Link Address.

---

**Problem:** *Message:* **Use Profile Tasks to specify a Gateway Name**

*Cause:* In the Gateway or Gateway with Network Station configuration, you did not specify a Gateway Name in the Gateway Setup menu.

**Action:** Use Communication Profile Tasks to specify a Gateway name in the Gateway Setup menu.

---

**Problem:** *Message:* **Use Profile Tasks to specify a Station Name**

*Cause:* In the Network Station configuration, you did not specify a Network Station name in the Communication Setup menu.

**Action:** Use Communication Profile Tasks to specify a Network Station name in the Communication Setup.

---

**Problem:** *Message:* **Use Request Tasks to name a new file for 3270 print to disk**

*Cause:* The print data cannot be written to your diskette.

**Action:** Press the Rqst key, type b, Name File for 3270 Print to Disk, and press ENTER. When prompted, type a new Print file name.

---

**Problem:** *Message:* **Use Request Tasks to send PA1 or PA2 printer message to host**

*Cause:* The host computer has requested PA1 or PA2 (application program dependent).

**Action:** Choose PA1 or PA2 according to your Run Book.

---

**Problem:** *Message:* **When finished with Profile Tasks, return to DOS and re-load 3270**

*Cause:* You changed Alternate Tasks, Configuration, Printer Use, File Transfer, or Maximum Number of Sessions, and that caused your memory requirements to change.

**Action:** Select return to DOS (option Z on the Task Selection menu) and reload IBM PC Network 3270.

**Problem:** *Message:* **XX DEV CNCL - printer not working**

*Cause:* The printer needs operator intervention,

**or**

The printer is not working correctly.

**Action:** Press the MESSAGE key to receive the operator intervention message and try to solve the printer problem,

**or**

Hold down the ALT key and press DEV CNCL.

---

**Problem:** *Message:* **XX REQST or DEV CNCL - file for screen save not named**

*Cause:* You have not named the file that will be created or added to when the display is saved on diskette.

**Action:** Use REQST key to name file,

**or**

Hold the ALT key and press the DEV CNCL key to end the save operation.

---

**Problem:** *Message:* **XX RESET - action not valid in that field**

*Cause:* You attempted to change data in a protected field,

**or**

You attempted to use CURSR SEL in a protected field.

**Action:** Press the RESET key and move the cursor to the correct field.

---

**Problem:** *Message:* **XX RESET - field full**

*Cause:* Too many characters are in a field.

**Action:** Press RESET and use a shorter entry for this field.

---

**Problem:** *Message:* **XX RESET - function not available**

*Cause:* The function you are trying to use is not currently available.

**Action:** Press RESET and try another.

**Problem:** *Message:* **XX RESET - function not selected in setup**

*Cause:* You tried to Screen Print, but you had not chosen the Screen Print option under "3270 Printer Use" in the Communication Setup menu.

**Action:** Go to the Communication Setup menu and choose 1 (Screen Print) or 3 (Screen Print and Host) under "3270 Printer Use."

---

**Problem:** *Message:* **XX RESET - host message received and rejected**

*Cause:* A control program message was received while your IBM Personal Computer was communicating with an application program.

**Action:** Press RESET. If the message reappears, call your local IBM PC Network coordinator.

---

**Problem:** *Message:* **XX RESET - invalid character combination**

*Cause:* The character you attempted to construct (for example, constructed from e and ) is not valid.

**Action:** Press RESET and try another combination.

**Problem:** *Message:* **XX RESET - numeric field only**

*Cause:* You tried to enter a letter in a number-only field.

**Action:** Press RESET and use only numbers, minus, decimal point, or the DUP key in this field.

---

**Problem:** *Message:* **XX RESET or END TASK - all sessions will be cancelled**

*Cause:* You pressed the End Task key on the Gateway or Gateway with Network Station.

**Action:** There is no way to end only the Network Station session on a Gateway with Network Station. If you have not logged off, press RESET and then perform the logoff procedure from your Run Book. Check that all people on your IBM PC Network are ready to end. If you have logged off and all Network Stations are ready to end, press the End Task key again.

---

**Problem:** *Message:* **XX RESET or END TASK-display & printer sessions active**

*Cause:* You pressed the End Task key while the display and printer applications were still active.

**Action:** If you have not logged off, press RESET, then perform the logoff procedure from your Run Book. If you have logged off, press the End Task key again.

**Problem:** *Message:* **XX RESET or END TASK - display session active**

*Cause:* You pressed the End Task key while the display application was still active.

**Action:** If you have not logged off, press RESET, then perform the logoff procedure from your Run Book. If you have logged off, press the End Task key again.

---

**Problem:** *Message:* **XX RESET or END TASK - printer session active**

*Cause:* You pressed the End Task key while the printer application was still active.

**Action:** If you have not logged off, press RESET, then perform the logoff procedure from your Run Book. If you have logged off, press the End Task key again.

---

**Problem:** *Message:* **XX RESET - program check 401**

*Cause:* The host computer received an invalid command.

**Action:** Check your modem. Press the Reset key to reset the program check indicator and retry the operation. Call your host personnel if the problem persists since it is probably a data stream error (Set sense indicator 1003).

**Problem:** *Message:* **XX RESET - program check 402**

*Cause:* The host computer received an invalid (out of range) address following a buffer address order.

**Action:** Check your modem. Press the Reset key to reset the program check indicator and retry the operation. Call your host personnel if the problem persists since it is probably a data stream error (Set sense indicator 1005).

---

**Problem:** *Message:* **XX RESET - program check 403**

*Cause:* The host computer received a data stream containing data following a Read or Erase command.

**Action:** Check your modem. Press the Reset key to reset the program check indicator and retry the operation. Call your host personnel if the problem persists since it is probably a data stream error (Set sense indicator 1003).

**Problem:** *Message:* **XX RESET - program check 404**

*Cause:* The data stream to your host computer ended before all required bytes were received.

**Action:** Check your modem. Press the Reset key to reset the program check indicator and retry the operation. Call your host personnel if the problem persists since it is probably a data stream error (Set sense indicator 1005).

---

**Problem:** *Message:* **XX RESET - program check 413**

*Cause:* The function you attempted to use is not supported.

**Action:** Press the Reset key to reset the program check indicator and retry the operation. Call your host personnel if the problem persists since it is probably a data stream error (Set sense indicator 1003).

---

**Problem:** *Message:* **XX RESET - program check 420**

*Cause:* The host computer received an exception response when BIND specified definite response.

**Action:** Press the Reset key to reset the program check indicator and retry the operation. Call your host personnel if the problem persists since it is probably a data stream error (Set sense indicator 4006).

**Problem:** *Message:* **XX RESET - program check 421**

*Cause:* The host computer received a definite response when BIND specified an exception resonse.

**Action:** Press the Reset key to reset the program check indicator and retry the operation. Call your host personnel if the problem persists since it is probably a data stream error (Set sense indicator 4007).

---

**Problem:** *Message:* **XX RESET - program check 422**

*Cause:* The host computer does not allow no response.

**Action:** Press the Reset key to reset the program check indicator and retry the operation. Call your host personnel if the problem persists since it is probably a data stream error (Set sense indicator 400A).

---

**Problem:** *Message:* **XX RESET - program check 423**

*Cause:* The format indicator (FI) bit is not allowed.

**Action:** Press the Reset key to reset the program check indicator and retry the operation. Call your host personnel if the problem persists since it is probably a data stream error (Set sense indicator 400A).

**Problem:** *Message:* **XX RESET - program check 430**

*Cause:* The host computer detected a sequence number error.

**Action:** Press the Reset key to reset the program check indicator and retry the operation. Call your host personnel if the problem persists since it is probably a data stream error (Set sense indicator 400F).

---

**Problem:** *Message:* **XX RESET - program check 431**

*Cause:* The host computer detected a chaining error.

**Action:** Press the Reset key to reset the program check indicator and retry the operation. Call your host personnel if the problem persists since it is probably a data stream error (Set sense indicator 2002).

---

**Problem:** *Message:* **XX RESET - program check 432**

*Cause:* The host computer detected a bracket error.

**Action:** Press the Reset key to reset the program check indicator and retry the operation. Call your host personnel if the problem persists since it is probably a data stream error (Set sense indicator 2002).

**Problem:** *Message:* **XX RESET - program check 433**

*Cause:* The host computer detected a Data Traffic Reset.

**Action:** Press the Reset key to reset the program check indicator and retry the operation. Call your host personnel if the problem persists since it is probably a data stream error (Set sense indicator 2005).

---

**Problem:** *Message:* **XX RESET - program check 434**

*Cause:* The host computer detected a direction error.

**Action:** Press the Reset key to reset the program check indicator and retry the operation. Call your host personnel if the problem persists since it is probably a data stream error (Set sense indicator 2004).

---

**Problem:** *Message:* **XX RESET - program check 443**

*Cause:* A Change Direction is required.

**Action:** Press the Reset key to reset the program check indicator and retry the operation. Call your host personnel if the problem persists since it is probably a data stream error (Set sense indicator 0829).

**Problem:** *Message:* **XX RESET - program check 445**

*Cause:* An Activate LU (ACTLU) is not equal to Initial (COLD) or Error Recovery (ERP).

**Action:** Press the Reset key to reset the program check indicator and retry the operation. Call your host personnel if the problem persists since it is probably a data stream error (Set sense indicator 0821).

---

**Problem:** *Message:* **XX RESET - program check 450**

*Cause:* The host computer detected a Profile error and returned a Bind Reject because the Bind Parameters do not match.

**Action:** Press the Reset key to reset the program check indicator and retry the operation. Call your host personnel if the problem persists since it is probably a data stream error (Set sense indicator 0821).

---

**Problem:** *Message:* **XX RESET - program check 451**

*Cause:* The host computer detected a Primary Protocol error and returned a Bind Reject because the Bind Parameters do not match.

**Action:** Press the Reset key to reset the program check indicator and retry the operation. Call your host personnel if the problem persists since it is probably a data stream error (Set sense indicator 0821).

**Problem:** *Message:* **XX RESET - program check 452**

*Cause:* The host computer detected a Secondary Protocol error and returned a Bind Reject because the Bind Parameters do not match.

**Action:** Press the Reset key to reset the program check indicator and retry the operation. Call your host personnel if the problem persists since it is probably a data stream error (Set sense indicator 0821).

---

**Problem:** *Message:* **XX RESET - program check 453**

*Cause:* The host computer detected a Common Protocol error and returned a Bind Reject because the Bind Parameters do not match.

**Action:** Press the Reset key to reset the program check indicator and retry the operation. Call your host personnel if the problem persists since it is probably a data stream error (Set sense indicator 0821).

---

**Problem:** *Message:* **XX RESET - program check 454**

*Cause:* The host computer detected a Screen Size Specification error and returned a Bind Reject because the Bind Parameters do not match.

**Action:** Press the Reset key to reset the program check indicator and retry the operation. Call your host personnel if the problem persists since it is probably a data stream error (Set sense indicator 0821).

**Problem:** *Message:* **XX RESET - program check 455**

*Cause:* The host computer detected a LU profile error and returned a Bind Reject because the Bind Parameters do not match.

**Action:** Press the Reset key to reset the program check indicator and retry the operation. Call your host personnel if the problem persists since it is probably a data stream error (Set sense indicator 0821).

---

**Problem:** *Message:* **XX RESET - program check 456**

*Cause:* The host computer detected a LU Type 1 error and returned a Bind Reject because the Bind Parameters do not match.

**Action:** Press the Reset key to reset the program check indicator and retry the operation. Call your host personnel if the problem persists since it is probably a data stream error (Set sense indicator 0821).

---

**Problem:** *Message:* **XX RESET - program check 457**

*Cause:* The host computer detected a bind specification for crypto when it was not present and returned a Bind Reject because the Bind Parameters do not match.

**Action:** Press the Reset key to reset the program check indicator and retry the operation. Call your host personnel if the problem persists since it is probably a data stream error (Set sense indicator 0821).

**Problem:** *Message:* **XX RESET - program check 470**

*Cause:* You received an invalid character on your display.

**Action:** Press RESET key and retry the operation. If the problem persists, call your local IBM PC Network coordinator.

---

**Problem:** *Message:* **XX RESET - program check 471**

*Cause:*You do not have the the right host system configuration for File Transfer,

**or**

The host computer may be trying to send your IBM PC something it does not support.

**Action:** Press RESET key and retry the operation. If the problem persists, call your local IBM PC Network coordinator.

---

**Problem:** *Message:* **XX RESET - program check 498**

*Cause:* A negative response was received.

**Action:** Press the Reset key to reset the program check indicator and retry the operation. Call your host personnel if the problem persists since it is probably a data stream error (Set sense indicator 0821).

---

**Problem:** *Message:* **XX RESET - program check 499**

*Cause:* An exception request was received.

**Action:** Press the Reset key to reset the program check indicator and retry the operation. Call your host personnel if the problem persists since it is probably a data stream error (Set sense indicator 0821).

---

**Problem:** *Message:* **XX RESET - try again**

*Cause:* The task or function you tried did not work.

**Action:** Press the RESET key and try again.

---

**Problem:** *Message:* **XX SAVE, REQST, or DEV CNCL - file for save named**

*Cause:* REQUEST task to name save file is complete. A Save file has been previously named.

**Action:** Use SAVE key to save file,

**or**

Use DEV CNCL key to end Save operation,

**or**

Use REQST key to rename another Save file.

**Problem:** *Message:* **XX SAVE, REQST, or DEV CNCL - save failed**

*Cause:* Your attempt to save the screen on diskette has failed.

**Note:** This message is preceded by a message explaining why the save failed. Note the message and refer to your reference files for appropriate actions.

**Action:** Use SAVE key to try again,

**or**

Use REQST key to rename a Save file,

**or**

Use DEV CNCL key to end the save operation.

---

**Problem:** *Message:* **XX Wait**

*Cause:* You sent information to the host computer. The host computer has not yet responded or is in the process of responding,

**or**

The host computer is sending information to the IBM Personal Computer, and the IBM PC Network 3270 has not finished processing the information sent by the host computer.

**Action:** Wait one minute, then retry your operation. If the problem persists, contact your local IBM PC Network coordinator or host personnel. Otherwise, refer to your IBM PC Network Guide to Operations.

---

**Problem:** *Message:* **XX Wait - (...) error on PC network**

*Cause:* An IBM Personal Computer Network adapter or network condition is preventing the Network Station from communicating on the network.

**Action:** Wait 5 to 10 minutes, then retry your operation. If the problem persists, contact your local IBM PC Network coordinator or host personnel.

---

**Problem:** *Message:* **XX Wait - end requested**

*Cause:* The host computer is ending communication.

**Action:** Wait one minute, then retry your operation. If the problem persists, contact your local IBM PC Network coordinator or host personnel.

---

**Problem:** *Message:* **XX Wait - Gateway has not activated Network Station**

*Cause:* You have loaded the Network Station with IBM PC Network 3270, and the Gateway has not been loaded.

**Action:** Make sure the Gateway is loaded. Wait one minute, then retry your operation. If the problem persists, contact your local IBM PC Network coordinator or host personnel,

**or**

Add the Network Station Name to the Gateway's List of Network Stations.

**Problem:** *Message:* **XX Wait - saving to (...)**

*Cause:* The display screen is being put on a disk.

**Action:** Wait 5 to 10 minutes, then retry your operation. If the problem persists, contact your local IBM PC Network coordinator or host personnel.

---

**Problem:** *Message:* **XX Wait - too many sessions on PC network**

*Cause:* The maximum number of sessions with Network Stations is already established,

**or**

Some other application is using IBM PC Network sessions.

**Action:** Wait until a session is available,

**or**

End the other application and reload IBM PC Network 3270.

---

**Problem:** *Message:* **XX Wait or DEV CNCL - File Transfer in progress**

*Cause:* You selected 3270 File Transfer in the 3270 Request Tasks menu, and the system is processing your request.

**Action:** Wait for File Transfer to complete,

**or**

Press the Dev Cncl key to cancel File Transfer

---

**Problem:** *Message:* **XX Wait or DEV CNCL - printer busy**

*Cause:* You tried to Screen Print while another screen was being printed.

**Action:** Wait until the first screen has printed,

**or**

Hold down the ALT key and press DEV CNCL.

---

**Problem:** *Message:* **XX Wait or DEV CNCL - printer not working**

*Cause:* The printer needs operator intervention,

**or**

The printer is not working correctly.

**Action:** Press the MESSAGE key to receive the operator intervention message and try to solve the printer problem,

**or**

Hold down the ALT key and press DEV CNCL.

---

**Problem:** *Message:* **XX Wait or DEV CNCL - printer very busy**

*Cause:* You tried to Screen Print while the printer was printing a long file.

**Action:** Wait until the file has printed,

**or**

Hold down the ALT key and press DEV CNCL.

---

**Problem:** *Message:* **XX Wait or DEV CNCL - TRANS01 File Transfer command being processed**

*Cause:* You entered the file transfer command, and the system is processing your request.

**Action:** Wait for the TRANS03 or TRANS04 message.

**Problem:** *Message:* **XX Wait or RESET - system**

*Cause:* The host computer has locked your keyboard.

**Action:** Check the Application Area for messages. Press RESET, then continue.

# Status Lines

IBM PC Network 3270 menus also have two status lines at the top which can display the following:

- First Status Line:
  - Context Field:
    - Blank (3270 Task Selection menu)
    - Chg Profile (Communication Profile Tasks)
    - 3270 (Communicate task)
  - Gateway/Network Station Name Field:
    - Standalone configuration:
      - Blank
    - Gateway or Gateway with Network Station configuration:
      - Gateway Name (Communicate task or in List of Network Station)
      - Blank
    - Network Station configuration
      - Network Station Name (Communicate task)
      - Blank
- Second Status Line
  - Communication Status
    - Standalone configuration
      - READY - Data Terminal Ready (DTR on)
      - CONNECTED - Data Set Ready (DSR on)
      - ON-LINE - SDLC Link active
      - SESSION - SNA LU-LU Session active
    - Gateway or Gateway with Network Station configuration
      - READY - Data Terminal Ready (DTR on)
      - CONNECTED - Data Set Ready (DSR on)
      - ON-LINE - SDLC Link active
      - SESSION - SNA LU-LU Session active (not on Gateway only)
    - Network Station configuration
      - INACTIVE - IBM PC Network connection to Gateway not active

    - READY - Data Terminal Ready (DTR on)
    - CONNECTED - Data Set Ready (DSR on)
    - ON-LINE - SDLC Link active
    - SESSION - SNA LU-LU Session active
- Keyboard Extension - Active Keyboard Extension.

# Chapter 4. Host Programming Considerations

This chapter lists requirements for host personnel for attaching IBM PC, IBM PC XT, IBM PC AT, or IBM Portable PC to a host computer.

Host programming personnel need to provide IBM PC Network 3270 users with a Run Book (Terminal User's Guide) for their 3270 sessions. Host programming personnel also need to provide completed Personalization Worksheets for IBM PC Network 3270 users to use in Communication Profile Tasks. Because of these requirements, host personnel should familiarize themselves with the information presented on the "Learning IBM PC Network 3270" diskette before continuing in this chapter.

Finally, host programming personnel need to configure their systems for use by IBM PC Network 3270 users. Host programming considerations for ACF/VTAM, ACF/VTAM E, and ACF/TCAM are also listed in this chapter. (Use of ACF is important because of its NOTIFY support because IBM PC Network 3270 will send a NOTIFY of power off to the host computer when a Network Station powers off. A NOTIFY of power on is sent to the host computer when a Network Station powers on.) These include sets of macro table and configuration examples.

**Notes:**

1. In this chapter, page size meant that many single program lines have been spread over several lines, but no continuation character is shown in column 72. Normally, an X or some other continuation character must be in column 72 if a program line is more than one line long.
2. In order to use IBM PC Network 3270 on a host system running ACF/VTAM, VTAM has to be at maintenance level 8301 or higher to insure that it includes PTF number UZ90213.
3. For ACF/VTAM (MVS), version 2 release 1 of VTAM, APAR number OZ69591 needs PTF number UZ73742.
4. For ACF/VTAM (MVS), version 1 release 3 of VTAM, APAR number OZ76005 needs PTF number UZ76406.
5. For ACF/VTAM (MVS), version 2 release 2 of VTAM, a fix is needed for APAR number OZ79227.
6. For ACF/VTAM (DOS/VSE), a fix is needed for APAR number DY32323.

7. In order to use IBM PC Network 3270 on a host system running ACF/TCAM, TCAM has to be at maintenance level 8307 or higher to insure that it includes the fix for APAR number OZ69872.
8. IBM PC Network 3270 uses Interrupt Levels 3 and 4 for SDLC and either Levels 2 or 3 for the IBM PC Network. If any other hardware uses these interrupts, there can be interrupt conflicts, and results can be unpredictable. Because of this restriction, on configurations that require the SDLC adapter, only one IBM PC Network adapter can be present, and it must be jumpered to use Interrupt Level 2.
9. IBM PC Network 3270 is supported on the IBM PC, IBM PC XT,and IBM PC AT in all configurations, and IBM Portable PC (if it is not a Gateway). The display can be monochrome or color. Printers supported are IBM Matrix Printer, IBM Graphics Printer, and NEC 3550 Printer; however, printers which use the Async port cannot be used on the Gateway with Network Station and Standalone configurations. Also, these printers cannot be used on the Network Station if the IBM PC Network is jumpered to Interrupt Level 3. If two IBM PC Network Adapters are present, IBM PC Network 3270 will always use the first. Sheet feed mechanisms are not supported. All printers are assumed to have continuous feed paper.
10. All LU1 control codes (SNA Character Stream) are supported, with the following exceptions:
    - CR (Carriage Return) and BS (Backspace) are not supported on the IBM Matrix Printer because of hardware restrictions.
    - For the printers on which backspace is supported, up to 15 nonconsecutive backspaces are allowed in one line. Backspaces after the maximum are ignored.
11. All 3270 characters and graphics that do not map to ASCII will be converted to an ASCII underscore character (X'5F').

12. There can be multiple Gateways on an IBM PC Network as long as each Network Station interacts with only one Gateway.
13. IBM PC Network 3270 supports a Line Speed of up to 19.2K baud.
14. Full duplex is not supported.
15. In the Standalone configuration, the support for LU.T2 must always be attached to logical device address 2 (DAF = 02). The support for LU.T1 and LU.T3 must always be attached to logical device 3 (DAF = 03). In the Gateway configuration, the support for LU types 1, 2, and 3 may be attached to logical device numbers 2 through 33 as defined in the List of Network Stations.

# Run Book (Terminal User's Guide) Considerations

In order to compile a run book for the IBM PC Network 3270 user, host personnel need to be familiar with:

- Personalization procedures for IBM PC Network 3270, including:
  - Communication Profile Tasks
  - Communication Setup
  - 3270 Printer Setup
  - Modem and Line Description
  - Gateway Setup
  - List of Network Stations
- Names and telephone numbers of host staff responsible for problem determination.

Next, the host personnel need to complete installation configuration for all IBM Personal Computers to be added as Standalone terminals or as part of an IBM PC Network.

After configuring for the IBM Personal Computers, the host personnel need to complete Personalization Worksheets for the IBM Personal Computers using IBM PC Network 3270. These

worksheets should then be given to IBM PC Network 3270 users for their personalization.

At the same time the host personnel hands out completed worksheets, they need to supply a Run Book. The run book should include:

- Log-on and log-off procedures
- Personalization requirements
- 3270 session procedures necessary for its use
- 3270-PC File Transfer commands
- Data Trace procedures
- Any special considerations for 3270 users on their system.

**Note:** Host personnel should be aware that the IBM PC Network 3270 program package only provides procedures to let the IBM Personal Computer emulate a 3270 terminal. The *IBM PC Network 3270 Reference* and "Learning IBM PC Network 3270" diskette do not provide information for the user when the 3270 session is established.

## Personalization Worksheets

Copies of the Personalization Worksheets are provided in the Appendix. You should complete them for each user of IBM PC Network 3270.

## 3270-PC File Transfer

The 3270-PC File Transfer program of IBM PC Network 3270 allows an IBM PC, PC XT, PC AT, or Portable PC to send PC files to and receive them from a host computer using the 3270 LU.2 link and data stream. The files are transferred byte by byte and without conversion unless the ASCII option is specified. In that case, files sent to the host computer are translated from ASCII to EBCDIC, and files sent from the host computer are translated from EBCDIC to ASCII. Since no other conversions are performed, 3270-PC File Transfer can transfer any type of data stream in either direction.

File Transfer is accomplished by interaction between the IBM PC Network 3270 application and a VM/CMS or TSO command processor. The protocol used in the transfer is the one supported by the IBM 3270-PC in DFT mode.

The 3270-PC File Transfer application performs no LOGON sequence. The user is responsible for ensuring that the host session is in CMS or TSO command mode when file transfer is invoked.

IBM PC Network 3270 supports the write structured field command for 3270 File Transfer. This type of write command does not update the display buffer, but acts as an introducer to the subsequent structured fields. Inbound structured field transmissions are introduced with a X'88'. The structured fields received are Read Partition (Query), 3270 Outbound Data Stream (write command with "WCC=Keyboard restore" is accepted, but not processed), and File Transfer data. The structured fields sent are Usable Area Query Reply, Implicit Partition Query Reply, File Transfer Query Reply, and File Transfer Data.

Following are the supported outbound structured fields for 3270-PC File Transfer. A Write Structured Field command (X'F3' in RU byte 0) introduces these structured fields.

- Read Partition Query: X'000501FF02'
- Outbound 3270 Data Stream (only write with WCC Keyboard restore accepted): X'00064000F1C2'
- File Transfer Data: X'LLLLD0 . . .'

Following are the supported inbound structured fields for 3270-PC File Transfer. An aid key (X'88' in RU byte 0) introduces these structured fields.

- Usable Area Query Reply:
  X'0017818101000050001801000100030064 00C4090E0780'
- Implicit Partition Query Reply:
  X'001181A600000B01000050001800500018'

- File Transfer Support Query Reply:
  X'000C81950000080008000101'
- File Transfer Data: X'LLLLD0 . . .'.

Operator instructions for 3270-PC File Transfer are in Chapter 8 of the "Learning IBM PC Network 3270" diskette, but host personnel must supply the download and upload commands for 3270-PC File Transfer and the host command to be specified in the Communication Setup menu (default: IND$FILE). These commands should be in the following formats:

- VM/CMS Format

  SEND/RECEIVE filespec filename filetype filemode (options

SEND The command to transfer a file from the IBM PC to the host computer. It is transformed to the format expected by the host: IND$FILE PUT.

RECEIVE
The command to transfer a file from the host to the 3270-emulating terminal. It is transformed to the format expected by the host: IND$FILE GET.

filespec The PC file name, including up to 32 characters for the path and 12 characters for the DOS file name and extension. The PC disk to be used (A: or B:) and any file extension are optional.

filename The VM file name (required positional parameter).

filetype The VM file type (Required positional parameter for SEND; optional positional parameter for RECEIVE; if omitted, the default is '*').

filemode The VM file mode (Optional positional parameter; if omitted, the default for SEND is A, and the default for RECEIVE is '*').

Following are the optional keyword parameters. A left parenthesis separates the first keyword parameter from the last positional parameter.

ASCII With the SEND command, causes the host program to translate records from ASCII to EBCDIC before writing them to the file. With the RECEIVE command, causes the host program to translate file records from EBCDIC to ASCII before transmission to the user. The default is no translation.

CRLF With the SEND command, causes the host program to delete carriage return line feed characters from each record before writing it to the file. With the RECEIVE command, causes the host program to add carriage return line feed to the end of each file record before transmission to the user. The default is no translation.

APPEND

Causes the file being transferred to be added to the end of the target file. If APPEND is not specified and the target file already exists, the target file is replaced. The APPEND parameter overrides any other values specified in LRECL and RECFM. The default is no APPEND.

LRECL n

(SEND only) Provides the logical record length of the host file records. In the case of RECFM V, this is the maximum size record expected. If the existing host file is being replaced, its record length is being used as the record length of the new version of the replaced file unless LRECL is provided in the parameter list. When LRECL is specified for a file being replaced, the specified values supercede the former record length of the file. If the APPEND option is specified, the current record length of the file is used, and the LRECL value specified is ignored. The default length is 80 characters.

RECFM F/V

(SEND only) Specifies the recording mode to use for the host file. F is fixed length, and V is variable length. The default is F, unless the CRLF option is also specified, in which case, the default is V.

- TSO Format:

SEND/RECEIVE filespec dataset name<(member name)/password> options

SEND Same as CMS

RECEIVE
Same as CMS

filespec Same as CMS

dataset name
The TSO dataset name which can be up to 44 characters in length, including periods. The data set can be either a physical sequential data set or a partitioned data set. For a full description of TSO data set naming conventions, see the *OS/VS2 TSO Terminal User's Guide.*

(member name)
Required positional parameter for partitioned data sets. The partitioned data set must already exist before the SEND command is used.

/password
Allows access to password protected physical sequential or partitioned data sets (Optional positional parameter).

Following are the optional keyword parameters and are valid for both SEND and RECEIVE.

ASCII Same as CMS

CRLF Same as CMS

APPEND

Same as CMS, except that APPEND is not supported for members of a partitioned data set.

Following are optional keyword parameters which are only valid when the command is SEND with physical sequential data sets. If specified for a partitioned data set or with the RECEIVE command, an error condition occurs.

LRECL(n)

(SEND only) Provides the logical record length of the host file records. In the case of RECFM V or U, this is the maximum size record expected. If a file is being replaced, LRECL must not be specified. In this case, the old record length is used. If the APPEND option is specified, LRECL must not be specified. In this case, the old record length is used. The variable n is the desired logical record length. For variable length records, the value specified must include the maximum data length (up to 32,752) plus four bytes for the record descriptor word (RDW). The default is 80 for files with RECFM (F/U) and 84 for RECFM (V) except under the replace and APPEND conditions mentions above.

BLKSIZE(n)

(SEND only) Specifies the desired block size of the host file. The variable n is the desired length. It cannot exceed the capacity of a single track. The default is no blocking when BLKSIZE is omitted.

RECFM F/V/U

(SEND only) Specifies the recording mode to use for the host file. F is fixed length, V is variable length, and U is undefined record type. The default is F unless CRLF option is also specified, in which case V is the default.

SPACE(q<,i>)

(SEND only) Specifies the amount of space to be allocated for a new TSO data set. The variable i specifies the number of units (increment) of space to

specifies the number of units (increment) of space to be allocated initially for a data set. It is required if the SPACE parameter is specified. The variable q specifies the number of units (quantity) of space to be added to the data set each time the previously allocated space has been filled. The default is SPACE(10,50).

AVBLOCK(n)
(SEND only) Only valid if SPACE is also specified. It specifies the average block length of the records that will be written to the data set. The variable n specifies the desired average block length in bytes.

TRACKS
(SEND only) Only valid if SPACE is also specified. It specifies that the unit of space is to be a track.

CYLINDERS
(SEND only) Only valid if SPACE is also specified. It specifies that the unit of space is to be a cylinder.

**Note:** The parameters AVBLOCK, TRACKS, and CYLINDERS are mutually exclusive. The host rejects the command if more than one is present in it. If none of the three is specified, the value specified for BLKSIZE is used as the unit of space for the SPACE parameter. If BLKSIZE is not specified, the default BLKSIZE value (80) will be used as the unit of space for the SPACE paramter.

# Data Trace

The IBM PC Network 3270 program diskette contains a data trace function for host problem determination. The Data Trace is initially off when IBM PC Network 3270 is loaded. When it is started, it will slow performance of the system. Therefore, data trace should not be started unless a problem is suspected.

The Data Trace Analyzer function is found in the TRACE.BAS file of the IBM PC Network program diskette. The first screen of the Trace Analyzer explains its format and function. It can be run using a BASIC compiler or interpreter.

If a Data Trace is necessary, the following precautions should be taken to prevent the loss of trace data (which can happen if performance is too slow):

- The Alternate Task function should not be used during the trace.
- A save to disk, print to disk, or print to printer should not be activated unless the problem being traced involves one of those functions.
- The Data Trace file should reside on a fixed disk rather than a diskette or on a blank diskette if the operator has no fixed disk.

Pressing the End Task key causes the Data Trace file to be closed and the trace to be stopped.

# Configuration of Access Methods

An ACF/NCP, ACF/VTAM, ACF/VTAM E or ACF/TCAM configuration must correlate to the Communication Profile Tasks for the Communication Setup, Modem and Line Description, the Getway Setup, and the List of Network Stations menus.

The access methods interface between the network and the applications, and they must be tailored to describe and/or translate application requests to a form that will deliver the properly formatted data to the proper destination.

### Default Extensions

Default extensions are appended to the following files:

- .TRC - Data Trace files (ASCII)
- .SAV - Screen Save files (ASCII)
- .DFP - Deferred Print files (ASCII)
- .RF - Received File Transfer files stored as L3DCA (DIA only)
- .FF - Received File Transfer files stored as L2DCA (DIA only)

- .PS - Received File Transfer files with document type of PS and the system code for DISOSS-PS (DIA only)
- .HST - Received File Transfer files that are not identified as any of of the above (DIA and DDM).

Although various files can be received, no transforms are performed. No files sent to the host computer are validated.

Files sent to the host using 3270-PC File Transfer will use the exact file name entered by the operator. No extension is appended. The complete file specification for files being sent must be 44 characters or less.

Files sent to the operator using 3270-PC File Transfer will have the above default extensions appended to the file name entered by the operator if the file name is not specified with an extension. The same file specification applies.

# Configuration Examples

This chapter includes examples that may be useful for configuring ACF/VTAM, ACF/VTAM E and ACF/TCAM access methods. Although these examples are taken from systems using the IBM Personal Computer in IBM PC Network 3270 Mode, they are simply examples and may not work with the particular system being configured.

**Note:** LU Type 1 sessions require outbound pacing. The pacing value will vary depending upon the outbound RUSIZE. Maximum RUSIZE for IBM PC Network 3270 is 1024 bytes (1K), and the buffer size is 3440 bytes.

# Configuring ACF/VTAM

Device Logon/Logoff, menu presentation, and application selection may be user-application controlled, or they may be handled by the access method. In ACF/VTAM and ACF/NCP, this is accomplished by USS Tables and Logmode Tables. Combined with GROUP, LINE, PU and LU descriptions, these provide the proper interface for the IBM PC Network 3270 session from beginning to end.

## ACF/VTAM and ACF/NCP Network Configuration Macro Statements

Note that in all the following macros, the keywords and operands are only the ones that require particular entries. Other keywords, not shown, are network dependent.

## Nonswitched Macro Statements ACF/NCP--(Read by ACF/VTAM)

ACF/VTAM and ACF/NCP GROUP, LINE and SERVICE macros have no differences to normal 3274/3278/3287 statements for nonswitched SNA Networks.

| | *STATEMENTS* | | *OPERANDS* | *See Note* |
|---|---|---|---|---|
| PU | ADDR | = | XX, | 1 |
| | PUTYPE | = | 2, | 2 |
| | MAXDATA | = | 265, | 3 |
| LU | LOCADDR | = | 2 to 33 | 4 |

**Notes:**

1. Normal SDLC Station Address (Match Personalization Modem and Line Description, SDLC Link Address).
2. Required by IBM PC Network 3270 (PU.T2).
3. Required by IBM PC Network 3270 (FID Type 2). Maximum Data IBM PC Network 3270 can receive in one PIU, including Transmission Header (TH) and Request/Response Header (RH).
4. Required by IBM PC Network 3270 for each display or printer.

## Switched Macro Statements--ACF/NCP

ACF/VTAM and ACF/NCP GROUP and LINE Macros have no differences to normal 3274/3278/3287 statements for switched networks.

| | *STATEMENTS* | | *OPERANDS* | *See Note* |
|---|---|---|---|---|
| PU | PUTYPE | = | 2, | 1 |
| | MAXLU | = | 32 | 2 |

**Notes:**

1. Required by IBM PC Network 3270 (PU.T2)
2. MAXLU = 32 is recommended for IBM PC Network 3270 support to allow a maximally configured network to use the line.

## ACF/VTAM Switched Major Node (VBUILD TYPE=SWNET)

| | *STATEMENTS* | | *OPERANDS* | *See Note* |
|---|---|---|---|---|
| PU | ADDR | = | XX, | 1 |
| | IDBLK | = | 017, | 2 |
| | IDNUM | = | XXXXX, | 3 |
| | MAXDATA | = | 265, | 4 |
| | PUTYPE | = | 2 | 5 |
| LU | LOCADDR | = | 2 to 33 | 6 |

**Notes:**

1. Normal SDLC Station Address (Match Personalization Modem and Line Description-SDLC Link Address).
2. Normal 3274 ID Number (IBM PC Network 3270 requires this value).
3. As assigned by network planners--5 Hex Character, 20 Bit ID, which is transmitted by IBM PC Network 3270 when operating on a Switched Network. (Match personalization SETUP-PUID.)
4. Required by IBM PC Network 3270 (FID Type 2). Maximum Data IBM PC Network 3270 can receive in one PIU, including Transmission Header (TH) and Request/Response Header (RH).
5. Required by IBM PC Network 3270 (PU.T2)
6. Required by IBM PC Network 3270 for each display and printer.

Refer to the *Advanced Communications Function for VTAM Planning and Installation* guide for more information.

# Configuration Example 1. ACF/VTAM

The following configuration example depicts macro instructions describing the ACF/VTAM and ACF/NCP network with PU and LU statements for point-to-point and switched network.

## Nonswitched ACF/NCP and ACF/VTAM Line Definitions

```
NSGRP    GROUP      DIAL=NO,
                    LNCTL=SDLC,
                    TYPE=NCP,
                    REPLYTO=3,
                    CLOCKING=EXT,
                    NEWSYNC=NO,
                    RETRIES=(7,9,5),
                    TRANSFER=5


A60B8    LINE       ADDRESS=0B8,
                    DUPLEX=FULL,
                    SPEED=2400,
                    INTPRI=1,
                    SERVLIM=4,
                    PAUSE=2,
                    DISCNT=NO,
                    ISTATUS=ACTIVE,
                    NRZI=YES


         SERVICE    ORDER=(A60B8A)
```

```
A60B8A    PU          ADDR=C2,
                      PUTYPE=2,
                      PASSLIM=7,
                      MAXDATA=265,
                      MAXOUT=7,
                      MODETAB=MOD3274,
                      USSTAB=USS2TAB2,
                      ISTATUS=ACTIVE,
                      SSCPFM=USSSCS
```

Choose one of the following:

* (3278 Model 2 or 3279 Model S2A)

```
A60B8A0   LU          LOCADDR=2,
                      DLOGMOD=T3270PC,
                      ISTATUS=ACTIVE
```

* (3287 LU Type 1)

```
A60B8A1   LU          LOCADDR=3,
                      DLOGMOD=SCS3287,
                      ISTATUS=ACTIVE,
                      USSTAB=USSSTD,
                      PACING=1
```

* (3287 LU Type 3)

```
A60B8A1  LU          LOCADDR=3,
                     DLOGMOD=NOSCS,
                     ISTATUS=ACTIVE,
                     USSTAB=USSSTD
```

IBM PC Network can have up to 32 LUs in some combination of printers and displays. Each personal computer that is attached to the IBM PC Network will have one display LU and optionally one printer LU.

## Switched Network ACF/NCP Line Definitions

```
SWGRP    GROUP     DIAL=YES,
                   LNCTL=SDLC,
                   TYPE=NCP,
                   REPLYTO=3,
                   RETRIES=(7,9,5)

A60B6    LINE      ADDRESS=0B6,
                   SPEED=4800,
                   ANSTONE=NO,
                   TRANSFER=5,
                   CLOCKING=EXT,
                   DUPLEX=HALF,
                   INTPRI=1,
                   MAXPU=1,
                   NEWSYNC=NO,
                   NRZI=YES,
                   ANSWER=ON,
                   CALL=IN,
                   DISCNT=NO,
                   ISTATUS=ACTIVE

A60B6P   PU        MAXLU=32,
                   PUTYPE=2,
                   SSCPFM=USSSCS
```

**Note:** Choose MAXLU=32 to allow maximally configured system.

## Switched ACF/VTAM Major Node Definitions

```
ABSWNET   VBUILD   TYPE=SWNET

A6PU201   PU       ADDR=01,
                   IDBLK=017,
                   IDNUM=00201,
                   DISCNT=NO,
                   IRETRY=NO,
                   ISTATUS=ACTIVE,
                   MAXDATA=265,
                   MAXOUT=7,
                   MAXPATH=0,
                   MODETAB=MOD3274,
                   PASSLIM=7,
                   PUTYPE=2,
                   SSCPFM=USSSCS
```

Choose one of the following:

* (3278 Model 2 or 3279 Model S2A)

```
A6L201A   LU       LOCADDR=2,
                   BATCH=NO,
                   USSTAB=USS2TAB2,
                   DLOGMOD=T3270PC,
                   ISTATUS=ACTIVE
```

* (3287 LU Type 1)

```
A6L201B  LU      LOCADDR=3,
                 BATCH=NO,
                 PACING=1,
                 DLOGMOD=SCS3287,
                 ISTATUS=ACTIVE
```

* (3287 LU Type 3)

```
A6L201B  LU      LOCADDR=3,
                 BATCH=NO,
                 DLOGMOD=NOSCS,
                 ISTATUS=ACTIVE
```

VTAM LOGON mode table example. Source is assembled and linked into the VTAM Library.

MOD3274 MODETAB

* Modeent Table--3278 Model 2 or 3279 Model S2A

```
MODEENT     LOGMODE=T3270PC,
            FMPROF=X'03',
            TSPROF=X'03',
            PRIPROT=X'B1',
            SECPROT=X'90',
            COMPROT=X'3080',
            PSERVIC=X'028000000000185018507F00',
            RUSIZES=X'87C7'
```

* MODEENT TABLE--3287 LU Type 1

```
MODEENT     LOGMODE=SCS3287,
            FMPROF=X'03',
            TSPROF=X'03',
            PRIPROT=X'B1',
            SECPROT=X'90',
            COMPROT=X'3080',
            RUSIZES=X'87C6',
            PSNDPAC=X'01',
            SRCVPAC=X'01',
            SSNDPAC=X'00'.
            PSERVIC=X'01000000E100000000000000'
```

* MODEENT TABLE--3287 LU Type 3

```
MODEENT     LOGMODE=NOSCS,
            FMPROF=X'03',
            TSPROF=X'03',
            PRIPROT=X'B1',
            SECPROT=X'90',
            COMPROT='3080',
            RUSIZES=X'8787',
            PSERVIC=X'03000000000018502B507F00'
```

**Note:** PSERVIC = X'NN0000000000XXXXXXXXXX00' (except for LU.T1):

| | |
|---|---|
| BYTE 1 | NN-SNA LUTYPE |
| BYTE 2 | 00-NO EXTENDED DATA STREAM<br>80-HAS EXTENDED DATA STREAM |
| BYTE 3-6 | 00-RESERVED |
| BYTE 7-11 | VARY DEPENDING ON SCREEN AND BUFFER SIZE |

BYTE 12 00-RESERVED

Example 1. 3270 PC -- PSERVIC =
X'028000000000185018507F00'
Example 2. 3287 LU.T1 -- PSERVIC =
X'01000000E100000000000000'
Example 3. 3287 LU.T3 -- PSERVIC =
X'03000000000018502B507F00'

**Note:** An IBM PC Network 3270 display LU in a network must have PSERVIC BYTE 2 = 80 to denote query is supported. Normally this would apply to an IBM 3279 but not an IBM 3278. In this case, it is required for PC File Transfer even though host color selection is not supported by the IBM PC.

## Configuring ACF/VTAM E

Device Logon/Logoff, menu presentation, and application selection may be user-application controlled, or they may be handled by the access method. In ACF/VTAM E this is accomplished by USS Tables and Logmode Tables. These, combined with GROUP, LINE, PU, and LU descriptions, provide the proper interface for the IBM PC Network 3270 session from establishment to termination.

### ACF/VTAM E Network Configuration Macro Statements

Note that in all the following macros, the keywords and operands are only the ones that require particular entries. Other keywords, not shown, are network dependent.

## Nonswitched Macro Statements -- Communications Adapter Major Node

(VBUILD TYPE=CA)

ACF/VTAM E VBUILD, GROUP and LINE macros have no differences to normal 3274/3278/3287 statements for nonswitched SNA Networks. With VTAM E the communications adapter (CA) and VTAM E must be described as an SNA major node by the VBUILD macro.

| | *STATEMENTS* | | *OPERANDS* | *See Note* |
|---|---|---|---|---|
| PU | ADDR | = | XX, | 1 |
| | PUTYPE | = | 2, | 2 |
| | MAXDATA | = | 265, | 3 |
| LU | LOCADDR | = | 2 TO 33 | 4 |

**Notes:**

1. Normal SDLC Station Address (Match Personalization Modem and Line Description - SDLC Link Address).
2. Required by IBM PC Network 3270 (PU.T2)
3. Required by IBM PC Network 3270 (FID Type 2). Maximum Data IBM PC Network 3270 can receive in one PIU, including Transmission Header (TH) and Request/Response Header (RH)
4. Required by IBM PC Network 3270 for each display or printer.

## Switched Macro Statements for (CA) (Major Node VBUILD TYPE=CA)

ACF/VTAM E VBUILD, GROUP and LINE Macros have no differences to normal 3274/3278/3287 statements for switched networks.

```
PU        MAXLU          =    32
```

**Note:** MAXLU = 32 is recommended for the IBM PC Network 3270 to support a maximally configured network on this line.

## ACF/VTAM E Switched Major Node (VBUILD TYPE=SWNET)

| | *STATEMENTS* | | *OPERANDS* | *See Note* |
|---|---|---|---|---|
| PU | ADDR | = | XX, | 1 |
| | IDBLK | = | 017, | 2 |
| | IDNUM | = | XXXXX, | 3 |
| | MAXDATA | = | 265, | 4 |
| | PUTYPE | = | 2 | 5 |
| LU | LOCADDR | = | 2 TO 33 | 6 |

**Notes:**

1. Normal SDLC Station Address (Match Personalization Modem and Line Description - SDLC Link Address).
2. Normal 3274 ID Number (IBM PC Network 3270 requires this value).
3. As assigned by network planners--5 Hex Character, 20 Bit ID, which is transmitted by IBM PC Network 3270 when operating on a Switched Network. (Match personalization SETUP-PUID.)
4. Required by IBM PC Network 3270 (FID Type 2). Maximum Data IBM PC Network 3270 can receive in one PIU including Transmission Header (TH) and Request/Response Header (RH).
5. Required by IBM PC Network 3270 (PU.T2)
6. Required by IBM PC Network 3270 for each display and printer.

Refer to the *Advanced Communications Fuction for VTAM Entry Installation* guide for more information.

## Configuration Example 2. ACF/VTAM E

Depicts macro instructions describing the ACF/VTAM E network.

**Note:** GROUP and LINE macro statements are the same for IBM PC Network 3270 as for normal GROUP and LINE macros in 3270 networks.

### Nonswitched CA and VTAM E Node Definitions

```
NSGRP    VBUILD  TYPE=CA

LEASED   GROUP       LNCTL=SDLC,
                     DIAL=NO,
                     RETRIES=(7,9,5),
                     REPLYTO=3

LINE033  LINE        ADDRESS=033,
                     INBFRS=(1,7),
                     PAUSE=0.5,
                     NRZI=YES

PU3274   PU          ADDR=05,
                     PUTYPE=2,
                     MAXDATA=265,
                     MAXOUT=7,
                     MODETAB=MOD3274,
                     PASSLIM=2
```

```
* (3278 Model 2 or 3279 Model S2A)

LU3274A  LU      LOCADDR=2,
                 DLOGMOD=T3270PC,
                 ISTATUS=ACTIVE

* (3287)

LU3274B  LU      LOCADDR=3,
                 DLOGMOD=SCS3287,
                 ISTATUS=ACTIVE
```

## Switched CA and VTAM E Major Node Definitions

```
*Communications adapter major node

ICASW    VBUILD  TYPE=CA

SDLC     GROUP   LNCTL=SDLC,
                 DIAL=YES,
                 REPLYTO=3,
                 RETRIES=(7,9,5)

LINE030  LINE    ADDRESS=030,
                 PAUSE=0.1,
                 NRZI=YES,
                 INBFRS=(5,10),
                 SERVLIM=4

         PU      MAXLU=32
```

**Note:** MAXLU=32 to support maximally configured network.

```
*VTAM E switched major node (LINE030)

SWW030   VBUILD   TYPE=SWNET

SWPU1    PU       ADDR=01,
                  IDBLK=017,
                  IDNUM-00201,
                  ISTATUS=ACTIVE,
                  MODETAB=MOD3274,
                  MAXDATA=265,
                  MAXOUT=7,
                  PUTYPE=2

*(3278 Model 2 or 3279 Model S2A)

SWLU1    LU       LOCADDR=2,
                  DLOGMOD=T3270PC,
                  ISTATUS=ACTIVE

*(3287)

SWLU2    LU       LOCADDR=3,
                  DLOGMOD=SCS3287,
                  ISTATUS=ACTIVE
```

Information regarding LOGMODE tables and BINDs is the same as in example 1.

## Configuring ACF/TCAM

Most of the information discussed in ACF/VTAM and ACF/VTAM E configuration is used for ACF/TCAM configuration. ACF/TCAM macros for configuration have more detailed additional operand parameters for terminal and controller description. A description of ACF/TCAM and ACF/NCP macros and parameters follows.

# ACF/TCAM and ACF/NCP Network Configuration Macro Statements

In all of the following macros, the keywords and operands are only the ones that require particular entries. Other keywords, not shown, are network dependent.

## Nonswitched Macro Statements

ACF/TCAM and ACF/NCP GROUP, LINE and SERVICE Macros have no differences from normal 3274/3278/3287 statements for nonswitched SNA networks.

## ACF/NCP -- For ACF/TCAM

| | *STATEMENTS* | | *OPERANDS* | *See Note* |
|---|---|---|---|---|
| PU | PUTYPE | = | 2 | 1 |
| | ADDR | = | XX, | 2 |
| | MAXDATA | = | 265, | 3 |
| LU | LOCADDR | = | 2 TO 33 | 4 |

**Notes:**

1. Required by IBM PC Network 3270 (PU.T2)
2. Normal SDLC Station Address (Match Personalization Modem and Line Description-SDLC Link Address).
3. Required by IBM PC Network 3270 (FID Type 2). Maximum Data IBM PC Network 3270 can receive in one PIU, including Transmission Header (TH) and Request/Response Header (RH)
4. Required by IBM PC Network 3270 for each display and printer.

## ACF/TCAM (MCP) TERMINAL MACRO (PU)

| *STATEMENTS* | | *OPERANDS* |
|---|---|---|
| TERM | = | PUNT, |

**Note:** Specifies a Physical Unit Description.

## TERMINAL MACRO (Display LU)

| *STATEMENTS* | | *OPERANDS* | *See Note* |
|---|---|---|---|
| TERM | = | LUNT, | 1 |
| SCRSIZE | = | (24,80) | 2 |

**Notes:**

1. Specifies a Logical Unit Description
2. Screen Size (Display)

## TERMINAL MACRO (Print LU)

| *STATEMENTS* | | *OPERANDS* | *See Note* |
|---|---|---|---|
| TERM | = | LUNT, | 1 |
| BUFSIZE | = | 3440 | 2 |

**Notes:**

1. Specifies a Logical Unit Description.
2. Maximum print buffer for IBM PC Network 3270.

## Switched Macro Statements

ACF/TCAM and ACF/NCP GROUP and LINE Macros have no differences to normal 3274/3278/3287 statements for switched SNA networks.

## ACF/NCP -- Switched Statements

| | *STATEMENTS* | | *OPERANDS* | *See Note* |
|---|---|---|---|---|
| PU | PUTYPE | = | 2, | 1 |
| | MAXLU | = | 32 | 2 |

**Notes:**

1. Required by IBM PC Network 3270 (PU.T2).
2. MAXLU = 32 is recommended to support maximally configured network.

## ACF/TCAM (MCP) TERMINAL MACRO (PU)

| *STATEMENTS* | | *OPERANDS* |
|---|---|---|
| TERM | = | PUNT, |

**Note:** Specifies a Physical Unit Description.

### TERMINAL MACRO (Display LU)

| *STATEMENTS* | | *OPERANDS* | *See Note* |
|---|---|---|---|
| TERM | = | LUNT, | 1 |
| SCRSIZE | = | (24,80) | 2 |

**Notes:**

1. Specifies a Logical Unit Description
2. Screen Size (Display)

### TERMINAL MACRO (Print LU)

| *STATEMENTS* | | *OPERANDS* | *See Note* |
|---|---|---|---|
| TERM | = | LUNT, | 1 |
| BUFSIZE | = | 3440 | 2 |

**Notes:**

1. Specifies a Logical Unit Description.
2. Maximum print buffer for IBM PC Network 3270.

Refer to the *ACF TCAM Installation Guide* for more information

## Configuration Example 3. ACF/TCAM

This example depicts macro instructions describing the ACF/TCAM network.

**Note:** GROUP, LINE, SERVICE and INVLIST macro statements remain the same for IBM PC Network 3270 as for normal GROUP, LINE, SERVICE and INVLIST macros in 3270 networks.

## Nonswitched ACF/NCP Line Definitions

```
NSGRP    VBUILD      DIAL=NO,
                     LNCTL=SDLC,
                     TYPE=NCP,
                     REPLYTO=3,
                     CLOCKING=EXT,
                     NEWSYNC=NO,
                     RETRIES=(7,9,5),
                     TRANSFER=5

A60C3    LINE        ADDRESS=0C3,
                     DUPLEX=FULL,
                     SPEED=2400,
                     INTPRI=1,
                     SERVLIM=4,
                     PAUSE=2,
                     ISTATUS=INACTIVE,
                     NRZI=YES

         SERVICE     ORDER=(A60C3A)

A60C3A   PU          ADDR=C2,
                     PUTYPE=2,
                     PASSLIM=7,
                     MAXDATA=265,
                     MAXOUT=7
```

### Display

```
A60C3A0  LU          LOCADDR=2
```

### Printer

```
A60C3A1  LU          LOCADDR=3
```

**Notes:**

```
NSGRP    GROUP      MH=TSOMH,
                    BUFOUT=2,
                    BUFMAX=4,
                    BUFSIZE=256,
                    OPACING=3,
                    PCI=(,A),
                    TRANS=EBCF

A60C3    TERMINAL   TERM=LINE,RLN=1,
                    GROUP=NSGRP,
                    ACTIVE=YES

A60C3A   TERMINAL   TERM=PUNT,
                    ACTIVE=YES
```

*(3278 Model 2 or 3279 Model S2A)

```
A60C3A0  TERMINAL   TERM=LUNT,
                    GROUP=NSGRP,
                    RLN=1,
                    QBY=T,
                    ACTIVE=(YES,NO),
                    BUFSIZE=256,
                    QUEUES=TS,
                    TCMSESN=LUTERM,
                    SCRSIZE=(24,80),
                    FEATURE=(NOBREAK,NOATTN)
```

*(3287)

```
A60C3A1  TERMINAL   TERM=LUNT,
                    GROUP=NSGRP,
                    RLN=1,
                    QBY=T,
                    ACTIVE=(YES,NO),
                    BUFSIZE=256,
                    QUEUES=TS,
                    TCMSESN=LUTERM,
                    FEATURE=(NOBREAK,NOATTN)
```

## Switched ACF/NCP Line Definitions

```
SWGRP    GROUP      DIAL=YES,
                    LNCTL=SDLC,
                    TYPE=NCP,
                    REPLYTO=3,
                    RETRIES=(7,9,5)

A60C4    LINE       ADDRESS=0C4,
                    DUPLEX=HALF,
                    SPEED=2400,
                    INTPRI=1,
                    SERVLIM=4,
                    PAUSE=2,
                    NRZI=YES

A60C4P   PU         ADDR=C2,
                    PUTYPE=2,
                    MAXLU=32
                    PACING=1
```

## Switched MCP (TCAM) Line Definitions

```
SWGRP    GROUP      MH=TSOMH,
                    BUFOUT=2,
                    BUFMAX=4,
                    BUFSIZE=256,
                    OPACING=3,
                    PCI=(A,),
                    TRANS=EBCF,
                    INVLIST=INVI

A60C4    TERMINAL   TERM=LINE,
                    RLN=1,
                    GROUP=SWGRP,
                    ACTIVE=YES,
                    CALL=IN

A6PU201  TERMINAL   TERM=PUNT,
                    ACTIVE=YES,
                    PASSLIM=7,
                    MAXDATA=265,
                    MAXOUT=7
```

*Dummy LU -- Reserves LOCADDR=1

```
A6L201D  TERMINAL   TERM=LUNT,
                    ACTIVE=(NO,NO),
                    RLN=1,
                    GROUP=SWGRP,
                    QBY=T,
                    QUEUES=TS,
                    USS=SCS
```

*This LU Becomes LOCADDR=2 (3278 Model 2 or 3279 Model S2A)

```
A6L201A  TERMINAL   TERM=LUNT,
                    GROUP=SWGRP,
                    RLN=1,
                    QBY=T,
                    ACTIVE=(YES,NO),
                    BUFSIZE=256,
                    QUEUES=TS,
                    TCMSESN=LUTERM,
                    SCRSIZE=(24,80,24,80),
                    FEATURE=(NOBREAK,NOATTN),
                    USS=SCS
```

*LOCADDR=3(3287)

```
A6L201B  TERMINAL   TERM=LUNT,
                    GROUP=SWGRP,
                    RLN=1,
                    QBY=T,
                    ACTIVE=(YES,NO),
                    BUFSIZE=256,
                    QUEUES=TS,
                    TCMSESN=LUTERM,
                    FEATURE=(NOBREAK,NOATTN),
                    USS=SCS
```

```
INVI     INVLIST  ORDER=(A6PU201+017NNNNN)
```

**Note:** INVLIST Order NNNNN = PUID 5 digit HEX number.

## ACF/TCAM IEDBENT Macro Definitions

**Note:** Add the following statements to TCAM Log Mode Table. Assemble and Link Edit as Module IEDBITN. This module is then included in the MCP(TCAM) Load Module.

Bind Image Table--3270 PC Display (3278 Model 2 or 3279 Model S2A)

```
IEDBENT     COMPROT=XL2'3080,
            CRPTOPT=X'00',
            FMPROF=X'03',
            FMTYPE=X'01',
            LOGON=C'LOGON',
            LUPROF=X'02',
            TSUSAGE=XL6'000088850000',
            PRESERC=XL11'80000000000185018507F00',
            PRIPROT=X'B1',
            SECPROT=X'B0',
            TSPROF=X'03'
```

Bind Image Table--3278 LU Type 1

```
IEDBENT     COMPROT=XL2'3080,
            CRPTOPT=X'00',
            FMPROF=X'03',
            FMTYPE=X'01',
            LOGON=C'LOGON',
            LUPROF=X'01',
            TSUSAGE=XL6'000088850000',
            PRESERC=XL11'00000000000185018507F00',
            PRIPROT=X'B1',
            SECPROT=X'B0',
            TSPROF=X'03'
```

Bind Image Table--3278 LU Type 3

```
IEDBENT     COMPROT=XL2'3080,
            CRPTOPT=X'00',
            FMPROF=X'03',
            FMTYPE=X'01',
            LOGON=C'LOGON',
            LUPROF=X'03',
            TSUSAGE=XL6'000088850000',
            PRESERC=XL11'00000000000185018507F00',
            PRIPROT=X'B1',
            SECPROT=X'B0',
            TSPROF=X'03'
```

# CICS, IMS/VS, TSO Examples

## CICS Terminal Control Table Examples

*(3278 Model 2)

```
E001        DFHTCT      TYPE=TERMINAL,
                        TRMIDNT=E001,
                        TRMTYPE=LUTYPE2,
                        TRMSTAT=TRANSCEIVE,
                        CHNASSY=YES,
                        GMMSG=YES,
                        TIOAL=3000,
                        FEATURE=(DCKYBD, EXTDS,
                        UCTRAN),
                        PGESTAT=AUTOPAGE,
                        PGESIZE=(24,80),
                        ACCMETH=VTAM,
                        NETNAME=A60B8A0,
                        RELREQ=(NO,YES),
                        LOGMODE=T3270PC
```

**Note:** FEATURE=EXTDS is required to ensure that 3270-PC File Transfer functions correctly. However, 3270 Extended Data Stream is not supported except for the 3270-PC File Transfer function.

*(3278 LU Type 1)

```
E003        DFHTCT      TYPE=TERMINAL,
                        TRMIDNT=E003,
                        TRMTYPE=LUTYPE1,
                        TRMSTAT=TRANSCEIVE,
                        CHNASSY=YES,
                        TIOAL=2000,
                        BRACKET=YES,
                        ACCMETH=VTAM,
                        NETNAME=E0020A1,
                        RELREQ=(NO,YES),
                        LOGMODE=SCS3287
```

*(3278 LU Type 3)

```
E003        DFHTCT      TYPE=TERMINAL,
                        TRMIDNT=E003,
                        TRMTYPE=LUTYPE1,
                        TRMSTAT=TRANSCEIVE,
                        TIOAL=3000,
                        BRACKET=YES,
                        ACCMETH=VTAM,
                        NETNAME=E002A1,
                        RELREQ=(NO,YES),
                        LOGMODE=NOSCS
```

## IMS/VS Terminal Statements Examples for 3278/3287

*3278 Model 2 or 3279 Model S2A

```
TYPE UNITYPE=SLUTYPE2

        TERMINAL    NAME=A60C3A,
                    TYPE=3270-A02,
                    SIZE=(24,80),
                    FEAT=(PFK,NOCD,NOPEN),
                    OPTIONS=(NOCOPY),
                    OUTBUF=2000
```

*3287 LU Type 1

```
TYPE UNITYPE=SLUTYPE1

        TERMINAL    NAME=A60C3B,
                    COMPT1=(PRINTER1,MFS=SCS1),
                    OPTIONS=(OPNDST,SHARE,RELRQ,DISCON),
                    OUTBUF=3440
```

**Note:** IMS/VS does not support LU Type 3.

## TSO and VCNA

TSO does not use Terminal Control Tables or Terminal Statements to identify the terminals in the network. TSO and VCNA obtain this information from the Access Method Description.

# IMS/VS, CICS/VS, TSO, and VM/VCNA Considerations

Support for Secondary Logical Unit (LU) Types 1, 2, and 3 is functionally equivalent to that provided for other 3270 device attachments for both device and message format. Existing application programs and definitions for 3270 are unchanged, except that the "query" or "extended data stream" feature must be specified to make 3270-PC File Tranfer function correctly.

# Resetting the IBM PC Network Adapter

IBM PC Network 3270 does not reset the IBM PC Network Adapter when the configuration used is the Network Station. This configuration only uses 2 network sessions and 4 NCB (Network Control Block) commands on the adapter.

For the Gateway or Gateway with Network Station configuration, IBM PC Network 3270 only resets the adapter when no other IBM PC Network application exists, for example, when there are no network names on the adapter and no network sessions pending or otherwise active. The adapter is reset to the following values depending on the maximum number of Network Stations selected:

> Number of sessions on reset = Maximum number of Network Stations
>
> Number of NCB commands on reset = Maximum number of Network Stations + 1 (but not more than 32)

The actual number of sessions and commands used is dependent on the number of Network Station names added to the list of Network Stations. The following formula can be used to determine these values:

> Number of sessions used = Number of Network Stations in list
>
> Number of NCB commands used = Number of Network Stations in the list + 1 (but not more than 32)

This is the only way IBM PC Network 3270 provides for the operator to specify more sessions or NCB commands than are actually used. If any other IBM PC Network application is to coexist with IBM PC Network 3270, it must either be loaded first and provide enough unused sessions to meet the above requirements for IBM PC Network 3270, or it must be loaded last

and the appropriate maximum number of Network Stations must be selected to provide enough unused sessions and NCB commands for the non-IBM PC Network 3270 application.

When the IBM PC Network 3270 task is terminated as a result of the End Task key, it cancels all outstanding commands, hangs up all active sessions, and deletes the IBM PC Network application's name from the IBM PC Network. With the Gateway or Gateway with Network Station configuration, IBM PC Network 3270 also determines whether any other IBM PC Network application exists using the method described above. If no application is determined to exist, IBM PC Network 3270 resets the adapter to the IBM PC Network default values.

## Summary

Application programming suitable to run with a similarly configured IBM 3274-51C need not be changed. By using existing documentation coupled with normal SNA/SDLC rules, the host staff can configure access methods to include the IBM Personal Computer in an existing network.

# Chapter 5. Keyboard Remapping

**Notes:**

# Defining IBM PC Network 3270 Keyboard Remapping

Keyboard Remapping is an IBM PC Network 3270 program you can use to change the values assigned to your keys in DOS.

Each time DOS is started, DOS searches the root directory of the drive from which it was started for a special configuration file named CONFIG.SYS. If DOS finds CONFIG.SYS, it reads the file and interprets the text commands within it.

To use keyboard remapping, a loadable device driver called RMPKB.SYS must be included in the CONFIG.SYS. This driver changes the console control software, which are the programs in DOS that interpret the codes sent from the keyboard.

The keyboard remapping commands are put into an input file to be used by the program REMAPKEY.COM. REMAPKEY.COM file uses the input file to tell RMPKB.SYS how to remap the keys. REMAPKEY.COM turns the input file into escape sequences to RMPKB.SYS. When REMAPKEY.COM file is finished processing, the remappings in the input file are active.

Any errors detected in the input file are put on the screen during processing of the input file. Commands containing errors are ignored; associated messages are discussed in the "Remapping Program Messages" section of this chapter. When in DOS, typing REMAPKEY.COM on the prompt line and pressing the Enter key undoes any previous key remappings.

When REMAPKEY.COM is run with an input file specified, the keys are remapped back to their original meanings and then remapped to the specifications in the input file. This prevents cumulative remappings.

An example file (REMAPKEY.EXM) is provided to the user to aid in building their input file. It includes examples of the types of commands that REMAPKEY.COM handles.

# IBM PC Network 3270 Keyboard Remapping Process

## Step 1: Loading RMPKB.SYS

To load RMPKB.SYS, place the command:

```
DEVICE=RMPKB.SYS
```

in the CONFIG.SYS file and then reload DOS. If you need to edit the CONFIG.SYS file, see "Eiting the CONFIG.SYS File." If you need to create a CONFIG.SYS file, see "Creating a CONFIG.SYS File."

### Editing a CONFIG.SYS File

If a CONFIG.SYS file is already available for your use, you can use the Line Editor (EDLIN) to create, change and display source files or text files. The DOS Quick Reference lists EDLIN commands. If you use EDLIN, place

```
DEVICE=RMPKB.SYS
```

in the CONFIG.SYS file.

### Creating a CONFIG.SYS File

If you need to create the CONFIG.SYS file, here is an easy method:

1. On the DOS prompt line, type

   ```
   COPY CON: CONFIG.SYS
   ```

2. Press the Enter key.

3. The blinking cursor moves down one line. On that line, type

```
DEVICE=RMPKB.SYS
```

4. Press the Enter key.

5. Press the F6 key.

6. Press the Enter key.

Reload DOS, and RMPKB.SYS will also be loaded. The size of DOS in memory will be increased by the size of the RMPKB.SYS program.

## Step 2: Building Your Input File

### Background Information and Definitions

In order to build your input file of remapping commands, you need some background information and definitions.

### Editor

You should use an available editor to create your input file. (DOS provides the EDLIN line editor.) The input file must be in ASCII. Use an editor that creates a carrier return and line feed as the line ending. The filename can be any valid DOS filename.

**Remapping commands** are composed of keys, keywords, qualifiers, strings, and spaces. Each of these items is defined and illustrated below.

Commands are typed in lowercase except when uppercase is a command requirement or inside a string. **Comments** can be put in the file. They begin with double asterisks. Neither remapping commands or comments can exceed 80 characters in length.

**Keys** that are case sensitive are listed below. Also if a key is defined more than once in a file, the last definition is the one that will be active. If a lowercase "a" is typed, for instance, the lowercase "a" will be the active key used in the remapping, and vice versa if the typed letter is uppercase. When using the Alt and Ctrl qualifiers, always use lowercase (example: alt k).

```
A-Z
a-z
0-9
all characters generated
      from your keyboard
```

**Keywords** are equivalent to keys in the remapping command syntax. Type keywords in lowercase as illustrated here:

```
null
f1-f10
tab
home
up          (CURSOR UP)
down        (CURSOR DOWN)
left        (CURSOR LEFT)
right       (CURSOR RIGHT)
pgup        (PAGE UP)
pgdn        (PAGE DOWN)
end
enter       (CARRIER RETURN)
ins         (INSERT)
del         (DELETE)
prtsc       (PRINT SCREEN)
            ****only ctrl prtsc
            is remappable
```

**Qualifiers** that can be used to modify the meaning of keys or keywords include:

```
shft   (shifted function keys)
alt    (alternate function keys)
ctrl   (control function keys)
```

A single space must be placed between a qualifier and its key or keyword, as shown in the list below:

```
shft tab                ctrl a-z
shft f1-f10             ctrl prtsc
                        ctrl end
                        crtl pgdn
atl a-z                 crtl home
alt f1-f10              crtl left
alt 0-9                 crtl right
alt =                   ctrl f1-f10
alt -                   ctrl pgup
```

**Spaces,**depending upon how they are entered, can be used for two different purposes. If you wish to signal to your remapping program that you want to move onto another remapping entry item, you simply press the spacebar. This action will seperate input entered before the spacing from input entered after pressing the spacebar.

If however your keyboard remapping assignment requires a space to be placed after a key or keyword, you must use a **string.** Strings are any string of ASCII characters bounded by quotation marks. For example, b = "xyz". Strings can contain uppercase and lowercase characters.

To place *quotation marks within a string command*, you must break the string into two strings and use double quotation marks as a key (example: f10 = "string" "" "string").

Remember, spaces, unless specified by a string bounded by quotation marks, serve as delimiters. A space on either side of the equal sign must seperate the key from its assignment.

**Blank lines** are not allowed in the keyboard remapping input file. They are considered a command with a syntax error.

The **command syntax** is:

- key (original) = key (reassignment)

  Press Enter, and the original key is assigned a new value.

- key (original) = "string"

  Press Enter, and the original key is assigned a string of characters.

- key (original) = any number of keys or strings in any combination

  Press Enter, and the original key is assigned a set of keys and/or strings of characters, for example,

```
F10  =  ''dir a:''  enter
This causes the F10 key to execute a dir command.
```

## Creating the Input File

This part of "Step 2: Building Your Input File," provides specific steps for a method of creating the input file for the REMAPKEY.COM file. If keys have already been remapped, it may be necessary to run REMAPKEY.COM to get back to the PC keyboard definitions before creating a file. See NOTE.

1. On the DOS prompt line, type:

   ```
   COPY CON: ALTKEYS.REM
   ```

2. Press the Enter key.

3. Type

   ```
   f10  =  ''dir  a:''  enter
   ```

4. Press the Enter key.

   The F10 key will list a drive directory.

5. Press the F6 key..

6. Press the Enter key.

Now there is an ALTKEYS.REM file that can be used as input to REMAPKEY.COM.

**Note:** After creating the remapping input file, execute REMAPKEY.COM with the input file to see if the expected remappings occur. Use caution when remapping keys. For example, if A and a have been remapped to Q and q, there is no longer an A or a on the keyboard. To put keys back to original PC definitions, you must type

```
REMAPKEY
```

on the DOS prompt line and press the Enter key. If you no longer have A or a, that is impossible. Restarting DOS will undo

remappings unless the AUTOEXEC.BAT contains the REMAPKEY filename that caused the lose of the a's. If that is the case, restart DOS from a diskette that does not contain the AUTOBAT.EXEC. Then the keyboard remapping input file can be edited or erased.

### Displaying the Input File

To display the input file, type on the DOS prompt line:

```
TYPE filename
```

and press the Enter key.

### Printing the Input File

To print the input file, type on the DOS prompt line:

```
PRINT filename
```

and press the Enter key.

## Step 3: Running Your Keyboard Remapping Program

The REMAPKEY.COM file can be executed by typing on the DOS prompt line:

```
REMAPKEY
```

and pressing the Enter key. The keys return to their original meaning.

**or**

On the DOS prompt line, type

```
REMAPKEY filename
```

and press the Enter key, and the keys are remapped to their new meaning.

The REMAPKEY.COM file can be put in the AUTOEXEC.BAT file. When you start or restart DOS, the command processor searches for the AUTOEXEC.BAT file. If this file is present in the root directory of the drive DOS was started from, DOS automatically executes the file whenever you start DOS.

Run REMAPKEY on input file before adding it to the AUTOEXEC.BAT file. Correct any errors in the remapping. Then add the REMAPKEY.COM file to AUTOEXEC.BAT.

The AUTOEXEC.BAT can be created, changed and displayed using the Line Editor (EDLIN). An easy way to create AUTOEXEC.BAT is:

1. On the DOS prompt line, type

   ```
   COPY CON: AUTOEXEC.BAT
   ```

2. Press the Enter key.

3. Type

```
REMAPKEY filename
```

4. Press the Enter key.

5. Press the F6 key.

6. Press the Enter key.

If the filename is not in current directory, specify the path for DOS to find it. Reload DOS, and the REMAPKEY.COM file is executed.

## Step 4: Responding To Keyboard Remapping Messages

Any errors detected in the input file are put on the screen during processing of the input file. Commands with errors are ignored. The Keyboard Remapping messages are listed alphabetically in Chapter 3 with the other messages.

# Appendix A. Personalization Worksheets

Use the Personalization Worksheets in this appendix to prepare for personalizing for IBM PC Network 3270.

# Communication Profile Tasks

a

b

c

IDs d-f are not used for personalization.

# Communication Setup

a

b

c

d

# 3270 Printer Setup

a

b

c

d

e

f

g

h

i

# Modem and Line Description

a

b

c

d

e

f

g

h

# Gateway Setup

a

b

# List of Network Stations

a

b

c

d

e

f

g

h

i

j

# List of Network Stations

a

b

c

d

e

f

g

h

i

j

# List of Network Stations

a

b

c

d

e

f

g

h

i

j

# List of Network Stations

a

b

c

d

e

f

g

h

i

j

# Appendix B. 3270 Keyboard Extensions

The IBM PC Network 3270 program supports the following 3270 keyboard extensions:

- 101 (US)
- 244 (Canadian Bilingual)
- 245 (Swiss-French)
- 245-1 (Swiss-German)
- 265 (Austria/Germany)
- 269 (Belgium/Netherlands)
- 277 (Canada/France)
- 281 (Denmark)
- 281-1 (Norway)
- 285 (Sweden)
- 289 (France)
- 293 (Italy)
- 305 (Spain)
- 309 (Spanish-Speaking Latin American)
- 313 (UK)

Before you can use the 3270 keyboards listed here, you must enter the 3270 keyboard ID in the Communication Profile Tasks menu.

To type the extended character, press and hold the Alt key and then press the base key.

The following characters are generated and sent to the host computer correctly, but display incorrectly because of hardware restrictions:

- Diaresis, umlaut accent displays as a video-reversed blank.
- Overbar displays as an underscore.
- Cedilla displays as a video-reversed blank.
- Capital o slash displays as a capital o.
- Lower case o slash displays as a lower case o.

# Extension 101 (US)

| Base Key | Meaning |
|---|---|
| c | less than sign |
| e | vertical bar |
| i | cent sign |
| j | apostrophe |
| k | open brace |
| l | close brace |
| o | broken vertical bar |
| p | reverse slash |
| q | tilde |
| r | at sign |
| t | number sign |
| w | grave accent |
| x | greater than sign |
| y | logical not sign |

# Extension 244 (Canadian Bilingual)

| Base Key | Meaning |
|---|---|
| a | acute accent |
| c | less than sign |
| d | circumflex ** |
| e | at sign |
| f | diaresis ** |
| g | cedilla ** |
| i | cent sign |
| j | apostrophe |
| k | close brace |
| l | open brace |
| o | broken vertical bar |
| p | reverse slash |
| q | tilde |
| r | number sign |
| s | grave accent |
| t | logical not sign |
| v | grave accent ** |
| w | vertical bar |
| x | greater than sign |

** These function as dead keys, meaning that they must be combined with another key to complete the character.

## Extension 245 (Swiss-French)

| Base Key | Meaning |
|---|---|
| a | tilde |
| b | right bracket |
| c | less than sign |
| d | right brace |
| e | number sign |
| g | o diaresis, lower case |
| h | e acute accent, lower case |
| i | u diaresis, lower case |
| j | a grave accent, lower case |
| k | a diaresis, lower case |
| l | pound sign - lire |
| o | e grave accent, lower case |
| p | diaresis, umlaut accent ** |
| q | c cedilla, lower case |
| r | broken vertical bar |
| s | left brace |
| t | apostrophe |
| u | circumflex ** |
| v | left bracket |
| w | at sign |
| x | greater than sign |
| y | grave accent ** |
| z | backslash |

** These function as dead keys, meaning that they must be combined with another key to complete the character.

## Extension 245-1 (Swiss-German)

| Base Key | Meaning |
|---|---|
| a | tilde |
| b | right bracket |
| c | less than sign |
| d | right brace |
| e | number sign |
| g | e acute accent, lower case |
| h | o diaresis, lower case |
| i | e grave accent, lower case |
| j | a grave accent, lower case |
| k | a diaresis, lower case |
| l | pound sign - lire |
| o | u diaresis, lower case |
| p | diaresis, umlaut accent ** |
| q | c cedilla, lower case |
| r | broken vertical bar |
| s | left brace |
| t | apostrophe |
| u | circumflex ** |
| v | left bracket |
| w | at sign |
| x | greater than sign |
| y | grave accent |
| z | backslash |

** These function as dead keys, meaning that they must be combined with another key to complete the character.

## Extension 265 (Austria/Germany)

| Base Key | Meaning |
|---|---|
| c | less than sign |
| f | o diaresis, capital |
| g | o diaresis, lower case |
| h | a diaresis, capital |
| i | apostrophe |
| j | a diaresis, lower case |
| k | circumflex |
| l | number sign |
| o | u diaresis, capital |
| p | u diaresis, lower case |
| q | section symbol |
| u | grave accent |
| x | greater than sign |
| y | beta - sharp s, lower case |

## Extension 269 (Belgium/Netherlands)

| Base Key | Meaning |
|---|---|
| a | number sign |
| c | less than sign |
| f | c cedilla, lower case |
| g | e acute accent, lower case |
| h | u grave accent, lower case |
| i | open bracket |
| j | a grave accent, lower case |
| k | close bracket |
| l | grave accent |
| o | e grave accent, lower case |
| p | apostrophe |
| u | circumflex |
| x | greater than sign |
| y | diaresis, umlaut accent |

## Extension 277 (Canada/France)

| Base Key | Meaning |
|---|---|
| c | less than sign |
| e | diaresis, umlaut accent ** |
| i | e grave accent, lower case |
| j | acute accent ** |
| k | cedilla accent ** |
| l | grave accent ** |
| m | e acute accent, lower case |
| n | apostrophe |
| o | a grave accent, lower case |
| p | circumflex ** |
| q | at sign |
| u | u grave accent, lower case |
| w | number sign |
| x | greater than sign |

** These function as dead keys, meaning that they must be combined with another key to complete the character.

# Extension 281 (Denmark)

| Base Key | Meaning |
|---|---|
| c | less than sign |
| g | ae diphthong, capital |
| h | ae diphthong, lower case |
| i | a overcircle, lower case |
| j | o slash, capital |
| k | o slash, lower case |
| l | apostrophe |
| o | circumflex |
| p | u umlaut, lower case |
| q | number sign |
| t | grave accent |
| u | a overcircle, capital |
| w | international monetary symbol |
| x | greater than sign |
| y | reverse slash |

## Extension 281-1 (Norway)

| Base Key | Meaning |
|---|---|
| c | less than sign |
| g | apostrophe |
| h | ae diphthong, capital |
| i | a overcircle, lower case |
| j | ae diphthong, lower case |
| k | o slash, capital |
| l | o slash, lower case |
| o | circumflex |
| p | u umlaut, lower case |
| q | number sign |
| t | grave accent |
| u | a overcircle, capital |
| w | international monetary sign |
| x | greater than sign |
| y | reverse slash |

## Extension 285 (Sweden)

| Base Key | Meaning |
|---|---|
| c | less than sign |
| g | o diaresis, capital |
| h | o diaresis, lower case |
| i | a overcircle, lower case |
| j | a diaresis, capital |
| k | a diaresis, lower case |
| l | apostrophe |
| o | circumflex |
| p | u diaresis, lower case |
| q | section symbol |
| t | e acute accent, capital |
| u | a overcircle, capital |
| w | international monetary symbol |
| x | greater than sign |
| y | e acute, lower case |

## Extension 289 (France)

| Base Key | Meaning |
|---|---|
| c | less than sign |
| f | e grave accent, lower case |
| g | e acute accent, lower case |
| h | degree |
| i | circumflex |
| j | u grave accent, lower case |
| k | pound sign - lire |
| l | grave accent |
| o | c cedilla, lower case |
| p | a grave accent, lower case |
| u | diaresis, umlaut accent |
| w | section symbol |
| x | greater than sign |
| y | apostrophe |

# Extension 293 (Italy)

| Base Key | Meaning |
|---|---|
| c | less than sign |
| f | c cedilla, lower case |
| g | o grave accent, lower case |
| h | degree |
| i | i grave accent, lower case |
| j | a grave accent, lower case |
| k | section symbol |
| l | u grave accent, lower case |
| o | e acute accent, lower case |
| p | e grave accent, lower case |
| q | pound sign - lire |
| u | circumflex |
| x | greater than sign |
| y | apostrophe |

## Extension 305 (Spain)

| Base Key | Meaning |
|---|---|
| c | less than sign |
| d | n tilde, capital |
| e | peseta |
| f | n tilde, lower case |
| g | open bracket |
| h | cent sign |
| i | logical not sign |
| j | open brace |
| k | close bracket |
| l | close brace |
| o | grave accent |
| p | reverse slash |
| q | vertical bar |
| u | diaresis, umlaut accent |
| w | at sign |
| x | greater than sign |
| y | apostrophe |

# Extension 309 (Spanish-Speaking Latin American)

| Base Key | Meaning |
|---|---|
| c | less than sign |
| f | n tilde, capital |
| g | n tilde, lower case |
| h | open bracket |
| i | logical not sign |
| j | close bracket |
| k | open brace |
| l | close brace |
| o | grave accent |
| p | reverse slash |
| q | vertical bar |
| u | diaresis, umlaut accent |
| w | at sign |
| x | greater than sign |
| y | apostrophe |

## Extension 313 (UK)

| Base Key | Meaning |
|---|---|
| c | broken vertical bar |
| e | pound sign - lire |
| i | grave accent |
| m | greater than sign |
| n | less than sign |
| o | at sign |
| p | open brace |
| q | vertical bar |
| t | apostrophe |
| u | logical not sign |
| w | reverse slash |
| x | over bar |
| y | number sign |

# Glossary

The following terms are defined as they are used in this guide. If you do not find the term you are looking for, refer to the *IBM Data Processing Glossary*, GC20-1699. All terms marked with an asterisk (*) are from the *American National Directory for Information Processing*.

IBM is grateful to the American National Standards Institute (ANSI) for permission to reprint its definitions from the *American National Directory for Information Processing* (Copyright (c) 1975 by the American National Standards Institute, INC.), which was prepared by Subcommittee X3K5 on Terminology and Glossary of American National Standards Committee X3.

**answer tone.** A tone generated on a switched line as soon as an incoming call is established.

**application.** The program that is being used in the host computer.

**application area.** The portion of the IBM Personal Computer screen that is controlled by the host computer program when the IBM Personal Computer is using IBM PC Network 3270.

**bit clocking.** The synchronization timing pulses necessary for communications.

**buffer.** A data storage area in a business machine.

**computer-controlled keys.** The IBM Personal Computer keyboard keys whose function is determined by the computer program when the IBM Personal Computer is using IBM PC Network 3270.

**data stream.** All the data transmitted over a communication facility during a single operation.

**DSR.** An acronym that stands for data set ready. An indication that the modem is ready to receive.

**DTR.** An acronym that stands for data terminal ready. An indication that the terminal, or your IBM Personal Computer, is ready to receive.

**fixed function keys.** The IBM Personal Computer keyboard keys whose function is not affected by the computer program when the IBM Personal Computer is using IBM PC Network 3270.

**half speed.** Half of the speed of communications.

**host.** The primary or controlling computer is a data communication system.

**host application.** See application.

**line.** A physical link, such as a wire or a telephone circuit.

**logoff.** The procedure for ending a session with the computer.

**logon.** The procedure for beginning a session with the computer.

**mode indicator.** Symbols or abbreviations that indicate the operating mode of an IBM Personal Computer using IBM PC Network 3270.

*** modem.** Modulator-demodulator. A device that modulates and demodulates signals transmitted over data communication facilities.

**modem clock.** The clock in the modem providing clocking for data transmission.

**network facility.** An option that determines whether the modem connected to the IBM Personal Computer is using a switched communication line or nonswitched communication line.

**nonswitched line.** A communication line that is permanently connected between two locations.

**NRZI.** An acronym for non-return-to-zero-inverted, a method of assuring correct synchronization of

information in the data stream.

**numeric lock.** A keyboard condition in which the IBM Personal Computer locks the keyboard if a key other than a number, a decimal, a minus, or DUP is pressed.

**physical unit.** A location or device, such as IBM Personal Computer, that can have an address making it a part of a network. The host computer in such a network identifies the location or device by the address.

**port.** The location or device, such as a IBM Personal Computer Electronics Module, through which data can enter or leave the network.

**operator information line.** A line on the IBM Personal Computer screen used to display status information and operator information when the IBM Personal Computer is using IBM PC Network 3270.

**readiness indicator.** Symbols that indicate the readiness or status of communications between a IBM Personal Computer in IBM PC Network 3270 and the host computer.

**Run Book.** The guide for all IBM 3270 emulation performed at your IBM Personal Computer. See also Terminal User's Guide.

**SDLC.** An acronym for Synchronous Data Link Control, a set of rules for managing the transfer of information over communication lines.

**switched line.** A communication line that can be connected or disconnected as needed, usually by dialing.

**Terminal User's Guide.** The book prepared by your host computer operator or IBM PC Network 3270 coordinator for emulating IBM 3270 functions.

## A



## B



## C



## D

The Personal Computer
Communication Family

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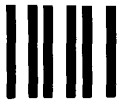

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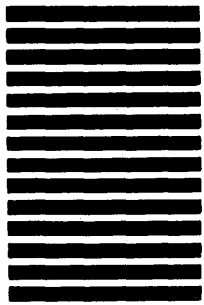

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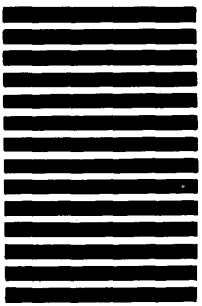

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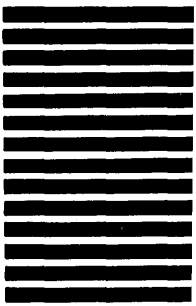

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