FORVUS

QUALITY DATA COMMUNICATIONS

FORVUS Emulator

DOS Version

Fourth Edition (January 1996)

Statement of Limited Warranty

This limited warranty gives you specific legal rights; you may also have other rights which vary from state to state.

This limited warranty is extended only to the original purchaser of the Forvus Emulator and is valid only with respect to purchasers within the United States of America. Subject to the following conditions, should this product prove defective by reason of improper workmanship or material:

- During a period of (90) ninety days from the date of original purchase, Forvus Research, Inc. will repair or, at its option, replace the product without charge for parts or labor.

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Forvus Research, Inc. reserves the right to discontinue products and to change specifications at any time without incurring any obligation to incorporate new features in products previously sold.

Contents

Operation   41

Status row messages   55

Keyboard Configuration   63

Problem Determination 79

File transfer 83

Error messages 99

Communication Driver 105

Keyboard layouts 107

Introduction

Thank you for purchasing the FORVUS Emulator!

The FORVUS Emulator provides an excellent emulation of the 3472 display terminal including application defined screen formats, host addressable print, and extended vital product data. The FORVUS Emulator is also downward compatible with the older 3192, 3180, and 3278/79 terminals.

Some of the advanced features of the FORVUS Emulator include:

- Supports attachment to Novell Netware for SAA Version 1.2 or higher.
- Supports DFT and CUT Coaxial interfaces.
- Supports synchronous modem connection with IBM SDLC compatible communication adapter.
- Supports attachment with 802.2 and TN3270 interface.
- Online screen setup - makes it possible to change display characteristics without exiting the program.
- Supports 3472 Partitions - allows more than 7600 characters to reside inside the display in a single session, and allows application programs to change screen formats as needed.
- Host Addressable Print - allows host to send messages to a locally attached printer without operator intervention.
- Print Trim - allows operator to print a selected portion of the screen to a locally attached printer, saves time and paper.
- Record/Playback - Easily save often used keystroke sequences for later playback.
- Selector Pen emulation - Use an attached Mouse to point and select data quickly - without the use of your keyboard.
- File Transfer - allows transfer of files to and from the host application using IND$FILE and PCXFER.
- Pop-Up Keypad - Activate keystrokes with a single mouse click, including Program Function keys.

System requirements

The FORVUS Emulator is designed to work with the following communications interfaces:

- Novell NetWare for SAA Version 1.2 or higher.
- IBM SDLC Communications Adapter
- Forvus Research Coax Adapter
- IBM or IRMA Compatible Coax Adapter
- 802.2 Network Interface
- TCP/IP Interface

In addition to the Communications interfaces, your PC must be equipped with the following features:

- Monochrome, CGA, EGA or VGA (recommended)
- One floppy disk drive
- One Hard drive
- Either PC-DOS or MS-DOS operating system, Version 3.3 or higher.

Manual organization

The following sections of this manual will provide you with the information you will need to install and operate the FORVUS Emulator.

- Installation
- Configuration
- Setup
- Operation
- Status Row Information
- Problem Determination
- File Transfer
- Technical Information
- Keyboard Templates

Should your Diskettes contain the file README.DOC, it contains important information that was not available when this manual went to press. Please review this file before beginning the installation process.

Product support

If you have a question that isn't answered in this manual, our Product Support Department can help. Free telephone support is provided for 90 days to you as a new user when you return the enclosed registration card. Many questions can be answered in this manual. However, if you've checked your manual and still need assistance, please have your computer powered on and the following information available:

- your name and address
- your FORVUS Emulator software serial number
- your computer make and model, the amount of RAM installed, the type and capacity of your hard disk and floppy drives, the display adapter and monitor type, printer name and model number
- Version number of Novell NetWare for SAA (if applicable)
- Type of coaxial adapter installed (if applicable)
- 802.2 interface adapter manufacturer (if applicable)
- TCP/IP vendor stack (if applicable)
- DOS version number (if applicable)
- contents of your CONFIG.SYS and AUTOEXEC.BAT files
- a clear description of your problem

Call Product Support at (919) 954-8380 between 9 a.m. and 5 p.m. EST (excluding US holidays). We will be happy to assist you.

Notes:

Installation

This section will guide you through the steps necessary to install the FORVUS Emulator and to set up the many available options. Please take a moment to read these steps before you begin your product installation.

Before You Begin . . .

Forvus Research, Inc. is confident you will find that this software will increase your productivity. So that we can continue to provide you with technical support, and keep you informed about new software developments, please return the enclosed product registration card supplied with this package.

Network Considerations

The FORVUS Emulator can be installed on a file server and accessed by multiple users from their independent workstations. Please refer to your Software License Agreement to determine if this product is a network capable version.

☞ Before installation on a file server, you must log onto the server as the system administrator to ensure that full read/write and file attribute changing rights are available for the drive on which the FORVUS Emulator is to be installed.

Emulator Installation

The FORVUS Emulator is provided with an installation program that will install all the necessary files on your hard disk.

To invoke the installation program, follow the steps below:

1. Insert Emulator Disk into the appropriate floppy drive.

2. Switch to the drive that contains the emulator disk.

3. At the DOS prompt, type:

dossetup

Press the **Enter** key to start the install program.

4. Follow the setup instructions on the screen.

Configuring the FORVUS Emulator

Before you will be able to start communication with the host, you must customize the FORVUS Emulator for use with your particular application. The Configuration program is used to assign such features as the type of keyboard you wish to emulate, screen size, menu language, communications interface, etc. At the DOS prompt, type CONFIG and press the Enter key

☞   If you are installing the program for the first time, the configuration program will begin, and the **Configure Communications . . .** option will be selected. Refer to page 12 to complete the communications configuration. This option <u>must</u> be configured before host communication can begin.

```
══════════════════════════════════Configuration══════════════════════════════
  Language Setup  Options  Help  Exit




                        FORVUS Emulator Configuration


                    (C) Copyright 1991-1996, Forvus Research Inc.
                             All Rights Reserved.




                  Press and then Release ALT key to activate menu.
                      Use Arrow keys to highlight a menu item.
                 Press the Enter key to perform the highlighted function.
```
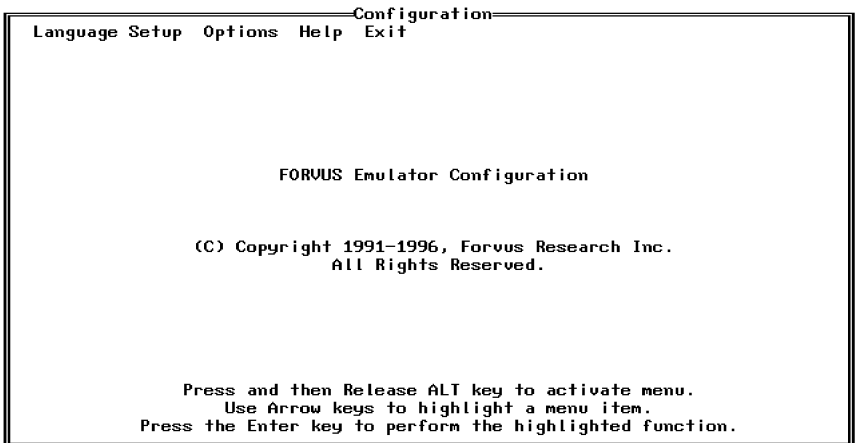
Figure 2-1. Configuration Sign-on panel.

To set the various configuration options, move the mouse cursor to the menu item desired and click the left mouse button. A drop-down menu will appear and allow you to set various options described in the sections that follow.

Configuring the Language Setup

To setup the language for the various messages the FORVUS Emulator provides (message boxes, setup panels, etc) follow the steps below:

- Select **Language Setup**.
- Select the desired language below the language setup option (as shown in Figure 2-2 below).

Figure 2-2. Options menu.

Configuring the 3270 Session

To customize the session parameters, follow the steps below:

- Choose **Options** from the main menu.
- Select **Session Configuration . . .**

You will be prompted to select the configuration file you wish to modify as shown below:
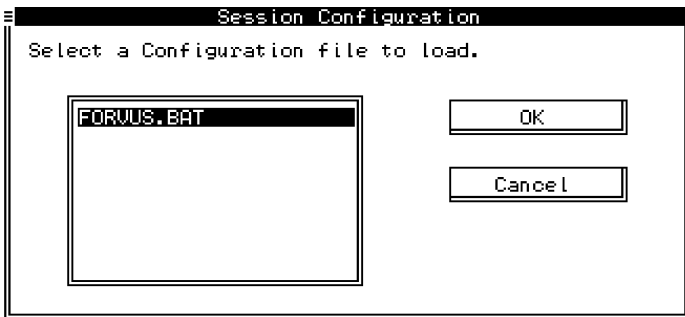
Figure 2-3. Load Configuration dialog box.

After making your selection, the following dialog box will appear:

```
╔══════════════════════════════════════════════════════╗
║                 Session Configuration                 ║
║  [•] Non-Resident              [ ] Use Expanded Memory ║
║  ( ) Resident, Return to DOS   [ ] Underline Support   ║
║  ( ) Resident, Remain in Emulator  [ ] Pcxfer         ║
║                                                        ║
║  Video Board / Machine Type    [Auto Detect         ]↓ ║
║                                                        ║
║  Keyboard Size                 [101 or 102 key      ]↓ ║
║                                                        ║
║  Keyboard Translate Table      [US1.KBF             ]↓ ║
║                                                        ║
║  PC Code Page                  [437                 ]↓ ║
║                                                        ║
║  Host Code Page                [US (037)            ]↓ ║
║                                                        ║
║  Light Pen Emulation           [None                ]↓ ║
║                                                        ║
║          ┌──────────┐          ┌──────────┐            ║
║          │    OK    │          │  Cancel  │            ║
║          └──────────┘          └──────────┘            ║
║                                                        ║
╚══════════════════════════════════════════════════════╝
```
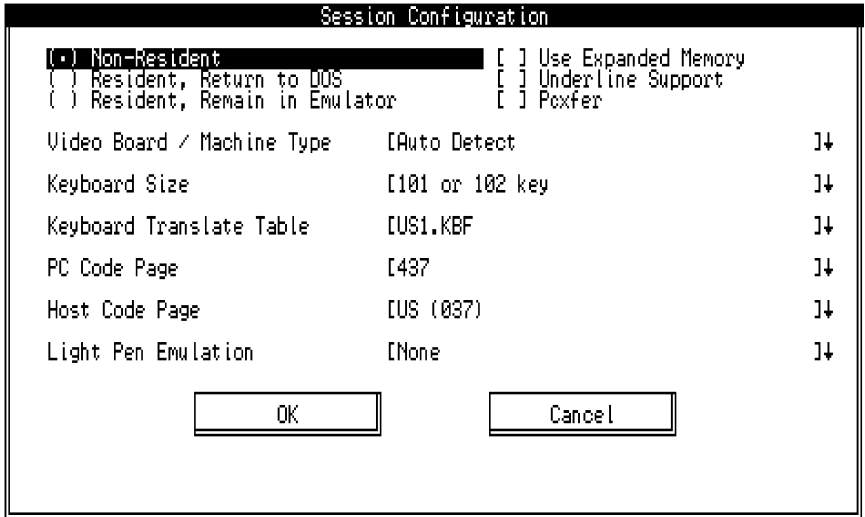
Figure 2-4. Session Configuration dialog box.

Resident Mode

Choose from the three (3) selections shown on the session configuration dialog box:

- **Non-Resident** - This selection does not install the emulator in the resident mode of operation. Each time the emulator is exited, you will have to re-start the emulator from the DOS prompt (using the FORVUS.BAT command).

- **Resident, Return to DOS** - This selection installs the emulator in resident mode and returns to DOS after installed. Pressing the Hot-Key sequence will then return you to the emulator.

- **Resident, Remain in Emulator** - This selection installs the emulator in resident mode and does not return to DOS until the Hot-Key sequence is pressed. After returning to DOS you may re-enter the emulator by pressing the Hot-Key sequence again.

Use Expanded Memory

This option commands the emulator to use expanded memory when executed. This will reduce the amount of conventional memory used by the emulator.

This option is enabled when the **[X]** indication is shown .

Underline Support

This option will enable the emulator to display an underline when the Extended Attribute Underline field is received from your host application.

☞   If your host application does not support the extended attribute function (e.g.. Reverse, Blinking, Underline) of your control unit, this selection will be ignored.

This option is enabled when the **[X]** indication is shown .

PCXFER File Transfer

This option will enable the PCXFER file transfer program. This option is enabled when the **[X]** indication is shown .

☞   If PCXFER is enabled, then the Partition/CECP option should not be enabled.

Video Board/Machine Type

This selection informs the emulator of the type of video board installed in your system unit (or machine type if an integrated video adapter is used).

Selecting the **Auto Detect** option will enable the emulator to attempt to detect the type of video adapter installed. Occasionally, the emulator cannot determine the manufacturer of the installed Video Adapter. Should this occur, you may specify the TYPE video adapter installed using this option.

Keyboard Size

This selection informs the emulator of the TYPE keyboard the system unit has attached. (84 key, 101/102 key, etc)

Keyboard Translate Table

This selection is used to inform the emulator of the language and layout of your keyboard. These files map your PC keyboard scan codes to 3270 type scan codes. Refer to Appendix , "Keyboard Layouts" to reference the layout you desire.

If you desire to make modifications to a particular file, refer to Chapter 6, "Keyboard Configuration" for more information.

PC Code Page

This selection is only used if you are using a CGA video adapter. Select the code page of the CGA adapter you are using if applicable.

Host Code Page

This selection is used to inform the emulator of the Host Code Page your application will be using when performing a **File Transfer** operation.

Light Pen Emulation

This selection informs the emulator of the type of Light Pen Emulation you desire. Choose from the following:

- None - No light pen emulation desired.
- Mouse - If your system is equipped with a mouse, you may use it to select light pen detectable fields on the display. Refer to page 42 for more information on mouse-light pen emulation.
- Touch Screen - Supports the Elographics touch screen display.
- FTG Light Pen - Supports the FTG light pen. (See light pen calibration on page .)
- Warp Speed Light Pen - Supports the Warp Speed light pen. (See light pen calibration on page .)

After making these selections, press the OK pushbutton to save your new session configuration. A dialog box similar to the one on the next page will be displayed:
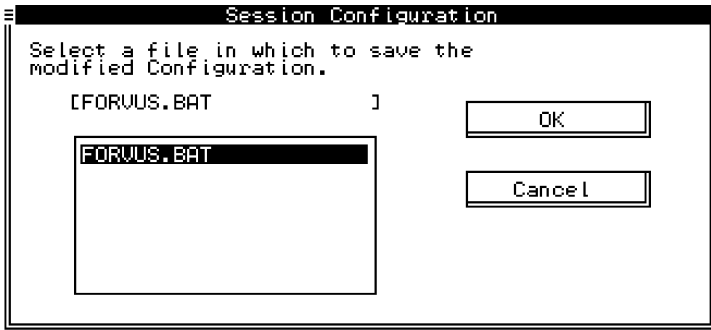
Figure 2-5. Saving a Session Configuration dialog box.

Press **OK** to save the new file, or entering a new name will allow you to have multiple configurations.

Communications Configuration

The Communications configuration option will allow you to customize the individual sessions you will be using when attached to the host.

*   Choose **Options** from the main menu.
*   Select **Configure Communications . . .**

A dialog box similar to the one shown below will appear:
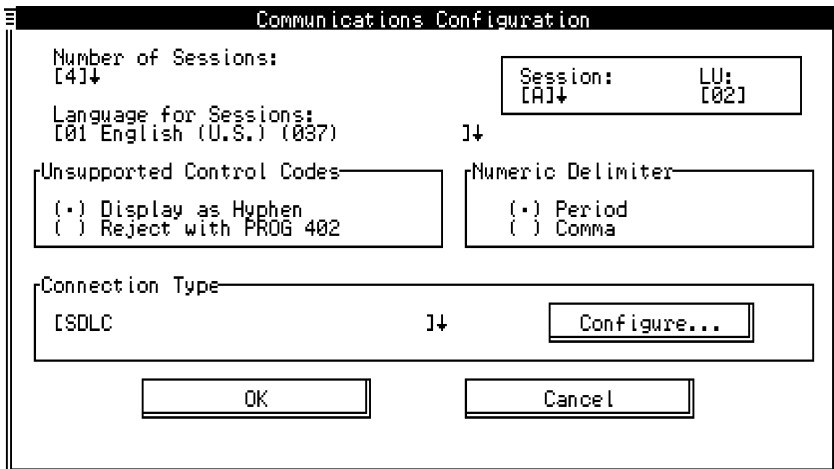
Figure 2-6. Communications Configuration dialog box.

Number of Sessions

(Not Used in CUT mode) Select the Number of Sessions that you will be using while attached to the host. The number you select (1-8) will determine how many individual sessions you will have to configure as explained below.

Language for Sessions

(Not Used in CUT mode) Select the language Code Page you will be using with the host from the drop-down selection box.

Unsupported Control Codes

(Not Used in CUT mode) This selection will determine how unsupported control codes will be handled.

Numeric Delimiter

(Not Used in CUT mode) Select either a period or a comma for a numeric delimiter used during sessions.

Connection Type

The communications options are dependent on the type of emulator you purchased. All of the following connections may not apply to your version.

CUT or DFT Connection

Select **CUT** or **DFT** from the Connection Type and press **Configure . . .**

A dialog box similar to the one below will appear:
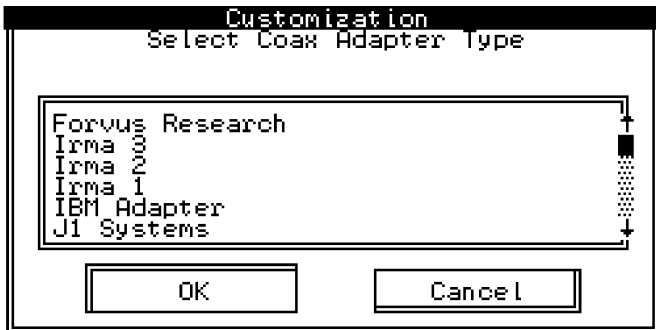
Figure 2-7. Adapter type dialog box.

When your coax adapter selection has been entered, press **OK** to return to the main configuration panel.

SAA Connection

Before you begin, you must obtain the following information from your system administrator:

- The number of sessions you will be using (up to 8)
- The Communications Server ID name
- The Service Profile
- Your User ID
- Your Password
- The LU type (Any, Public, Pooled, or Dedicated)
- LU Name (if required)

Select **SAA** from the Connection Type and press **Configure . . .**
The following dialog box will appear:

```
≡                    SAA Configuration
 ┌Individual Session────────────────────
 │                          [A]↓
 │
 │ Comm Server:              [                    ]
 │ Service Profile:          [                    ]
 │ User ID on Comm Server:   [                    ]
 │ Password on Comm Server:  [                    ]
 │
 │  ┌LU──────────────────────────────────
 │  │ (·) Any          ( ) Public
 │  │ ( ) Pooled       ( ) Dedicated
 │  │
 │  │ [                        ]
 │  └
 │
 │      ┌──────────────┐      ┌──────────────┐
 │      │     OK       │      │    Cancel    │
 │      └──────────────┘      └──────────────┘
```

Figure 2-8. SAA Configuration dialog box.

Depending on the Number of Sessions you selected above, you will be required to configure each session as described below:

Comm Server

Enter the name of your communication server you wish this session to attach to.

Service Profile

Enter the service profile you wish this session to obtain.

User ID on Comm Server

Enter your User ID for this session

Password on Comm Server

Enter your password for this session

LU

Select the LU type by selecting any one of the options (Any, Public, Pooled, or Dedicated). If you select Pooled or Dedicated, you will have to provide the LU Name in the Entry box.

When all selections have been entered, press **OK** to return to the main configuration panel.

SDLC Connection

Before you begin, you must obtain the following information from your system administrator:

- The Block ID
- The Physical Unit ID
- Physical Unit Address
- RU Size
- NRZ/NRZI
- Switched/Unswitched Line

Select **SDLC** from the Connection Type and press **Configure . .**

A dialog box will appear as shown on the following page:
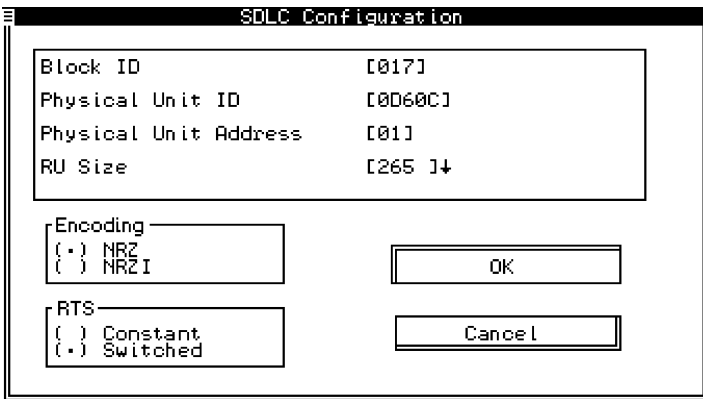
Figure 2-9. SDLC Configuration dialog box.

Block ID

The Block ID is used to inform the host of the type of SDLC connection. Enter the three (3) hex digits you received from your system administrator.

Physical Unit ID

The Physical Unit ID is used to inform the host of the unit ID of the SDLC connection. Enter the five (5) hex digits you received from your system administrator.

Physical Unit Address

The Physical Unit Address is the SDLC address that FORVUS Emulator for DOS uses on the line connection.

RU Size

The RU size is the maximum size that FORVUS Emulator for DOS can receive from the host.

Encoding

Select between NRZ or NRZI type line connection.

RTS

Select either Unswitched or Switched RTS (Request-to-Send).

Press **OK** to return to the main configuration panel.

802.2 Connection

Before you begin, you must obtain the following information from your system administrator:

- The Block ID
- The Physical Unit ID
- Node Address
- SAP
- RU Size
- Primary/Secondary Adapter

Select **802.2** from the Connection Type and press **Configure . .**
The following dialog box will appear:

```
≡          Token Ring (802.2) Configuration
┌──────────────────────────────────────────────────────┐
│ ┌──────────────────────────────────────────────────┐ │
│ │ Block ID              [000]                        │ │
│ │ Physical Unit ID      [00000]                      │ │
│ │ Node Address          [000000000000]               │ │
│ │ SAP                   [04]                         │ │
│ │ RU Size               [265 ]↓                      │ │
│ └──────────────────────────────────────────────────┘ │
│                                                        │
│ ┌Adapter──────────────┐    ┌──────────────────────┐   │
│ │  (·) Primary         │    │          OK          │   │
│ │  ( ) Secondary       │    ├──────────────────────┤   │
│ └──────────────────────┘    │        Cancel        │   │
│                             └──────────────────────┘   │
└──────────────────────────────────────────────────────┘
```

Figure 2-10. 802.2 Connection dialog box.

Block ID

The Block ID is used to inform the host of the type of SDLC connection. Enter the three (3) hex digits you received from your system administrator.

Physical Unit ID

The Physical Unit ID is used to inform the host of the unit ID of the SDLC connection. Enter the five (5) hex digits you received from your system administrator.

Node Address

The Node Address is the address of the Gateway that FORVUS Emulator for DOS will be using on the network.

SAP

The SAP (Service Access Point) for 802.2 is normally 04.

RU Size

The RU size is the maximum size that FORVUS Emulator for DOS can receive from the host.

Primary/Secondary Adapter

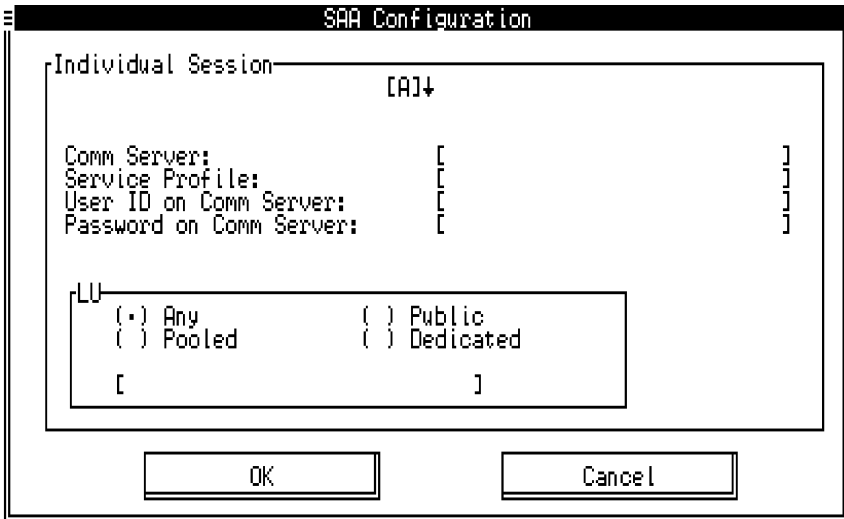Select between either a primary or secondary network adapter connection.

When all selections have been entered, press **OK** to return to the main configuration panel.

TN3270 Connection

Before you begin, you must obtain the following information from your system administrator:

- TCP/IP Stack
- Destination Host
- Telnet Port

Select **TN3270** from the Connection Type list and press the **Configure . . .** pushbutton.

The following dialog box will appear:

```
                    TN3270 Configuration
   TCP/IP Stack:
   [FTP Inc.                                ]↓


   ┌Individual Session────────────────────────────────────┐
   │                     [A]↓                               │
   │                                                        │
   │   Destination Host:                                    │
   │   [1.1.1.3                              ]              │
   │   ┌Telnet Port────────────────────────────┐           │
   │   │  (•) Default                            │          │
   │   │                                         │          │
   │   │  ( ) User Defined       [    ]          │          │
   │   └─────────────────────────────────────────┘         │
   └────────────────────────────────────────────────────────┘
        ┌───────────────┐        ┌───────────────┐
        │      OK       │        │    Cancel     │
        └───────────────┘        └───────────────┘
```
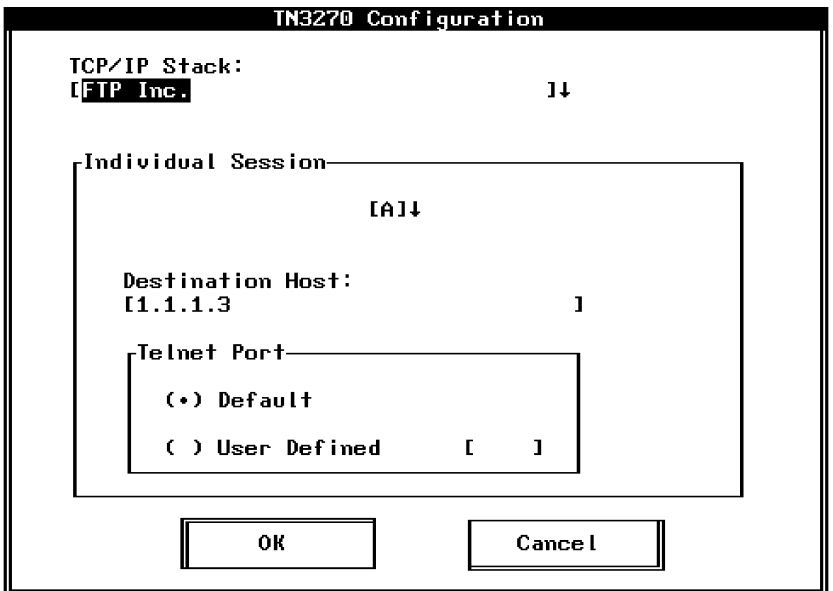
Figure 2-11. TN3270 Configuration dialog box.

TCP/IP Stack

The TCP/IP Stack selection is used to inform the emulator of the Internet Protocol stack you wish to attach to. Select the third party stack you have installed on your system unit.

Destination Host

Enter the name or address of the Host you would like this session to attach to.

Example: 143.238.693.021

Telnet Port

Select the Telnet port address by selecting one of the options (Default or User Defined). If you select User Defined, you will have to enter the four decimal digits for the Telnet port address.

Example: 0023 (Default Telnet Port)

Repeat this step for each session you will be using on the TN3270 connection. (Session A, B, etc.)

When all selections have been entered, press **OK** to return to the main configuration panel.

Exiting the Configuration Program

After you have completed the Configuration program, Select Exit from the menu bar to exit to the DOS prompt.

☞   Some selections require that you re-boot your system unit (e.g.. changing a communication driver). You will be notified should this condition occur.

Your emulator is now installed on your system unit. Refer to Chapter 3, "Setup" for more information on how to customize the emulator for personal preferences.

Installing a workstation for use with a Network

In order for workstations to start the FORVUS Emulator installed on a file server, the following steps must be completed for each workstation.

Follow the steps below to complete the workstation installation:

- Create an environment variable that determines where the user's configuration is stored. The environment variable that FORVUS Emulator for DOS uses is **3270USER**. 3270USER should be set to a directory where the user has read/write access on the network. This variable could be initialized in the users Login Script, AUTOEXEC.BAT file or anywhere desired, but it **must** be initialized before COMMDVR or the FORVUS Emulator is loaded.

  Network login script example: (Preferred Method)
  ```
  SET 3270USER = "F:\USER\%Login_name\SAA"
  ```

  AUTOEXEC.BAT example:
  ```
  SET 3270USER=F:\USER\NAME\SAA
  ```

  The 3270USER variable must be set to a valid (already created) directory.
- After initializing the 3270USER variable, execute CONFIG.EXE. (found in the emulator subdirectory). Make all configuration selections for the User and save them. This User configuration file will be saved in the directory specified by the 3270USER environment variable.
- Execute COMMDVR.EXE located in the emulator subdirectory. COMMDVR will load the Communications Driver program.
- You are now ready to load the emulator.

  From the directory specified by the 3270USER variable, load the User's session configuration batch file to start the emulator.

☞   If an asterisk (*) is seen beside a session configuration file (.BAT), it indicates the the file is located in the FORVUS Emulator directory on the file server.

         When installing an update/upgrade, all users must exit the FORVUS Emulator and unload the communications driver (COMMDVR.EXE) if loaded.

Setup

This chapter informs you how to select setup options for the FORVUS Emulator.

Offline Setup Mode

The FORVUS Emulator displays the Offline Setup mode upon initial installation and configuration.

To invoke the emulator if the AUTOEXEC.BAT file was not updated, change to the drive and directory where the installation program was installed and type

FORVUS   /S and press <Enter>

The /S switch places the emulator in Offline Setup mode and the Offline Test menu is displayed as shown below:

```
                        Offline Test Menu

        Select One of the Following:

                  User Menus
                  System Manager Menus
                  User Defined Data
                  Go OnLine
```
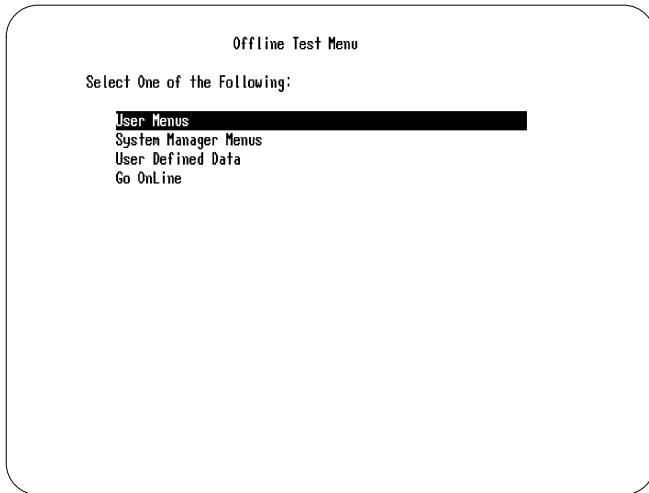
Figure 3-1. Offline Test Menu.

Press the arrow keys until the highlighted section moves to **User Menus**, then press the space bar to select.

Screen Setup


```
                        Offline Menu Screen


   Screen    Cursor    Keyboard    Printer    Miscellaneous   Color

   MONOCASE/DualCase              DualCase
   Mark Unprotected               No
   MUP Character                  .
   Row/Column                     On
   Screen Size                    27 X 132 (Mod 5)
   Partition/CECP                 On
   Character Font Style           3270 Bold








   Use Arrow Keys to choose item
   Use ENTER Key to change item
   ESC Key Exits
```
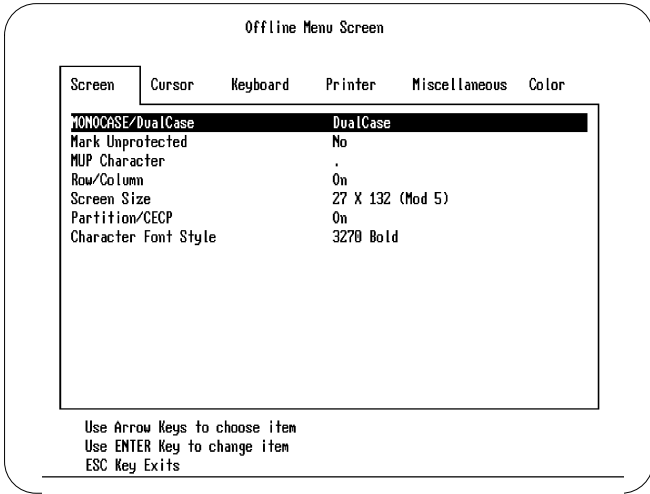
Figure 3-2. Offline Screen menu.

Press the Enter key to choose your selection. When all selections have been made, press the Escape key to exit and go online.

MONOCASE/DualCase

When **MONOCASE** is selected, all characters are displayed on the screen in uppercase. When **DualCase** is selected, characters are displayed in both uppercase and lowercase.

Mark Unprotected

When selected, the Mark Unprotected indicator displays a selectable symbol in each unprotected field on the display. Select **Yes** or **No**.

MUP Character

When Mark Unprotected is selected above, this character is displayed where keystrokes can be entered. Press the Enter key to select one of the following symbols: one dot , two dots , underline, overscore , or box.

Row/Column

When enabled, the emulator displays the current row and column position of the cursor on the operator status row.

Screen Size

This selection sets the number of row and columns the screen displays while online.

Partition/CECP

The partitioning function is completely controlled by the host application. This feature enables the scrolling function of the keyboard, and allows the Country Extended Code Page (CECP) to be used by the host application.

PCXFER Users Note: This function is not compatible with the PCXFER File Transfer method.

Character Font Style

This function determines the style font displayed on the emulator when communicating with the host.

Cursor Setup

```
                      Offline Menu Screen


    Screen    Cursor    Keyboard    Printer    Miscellaneous    Color

     Cursor Size                    Block
     Rule Style                     Cross (+)
     Stationary Rule                Moves
     Rule Color                     C7












     Use Arrow Keys to choose item
     Use ENTER Key to change item
     ESC Key Exits
```
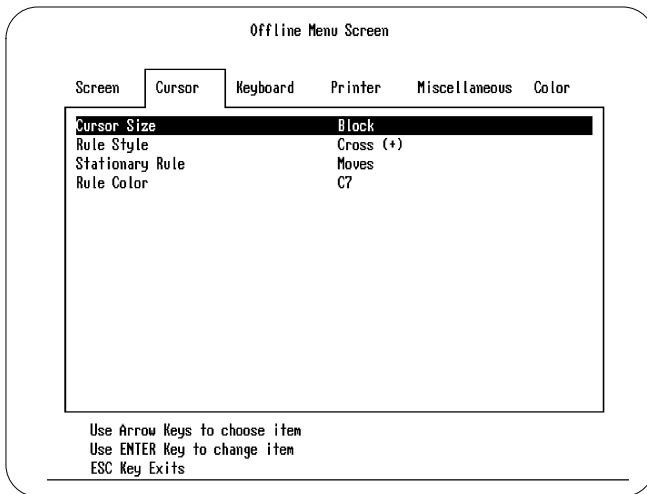
Figure 3-3. Offline Cursor menu

Cursor Size

This selection enables you to choose an Underline cursor or a Block cursor.

Rule Style

This function will allow the rule style to be either a Line, a Bar, or a Cross.

☞   Due to limitations of the PC hardware, the rule cursor does not appear the same as it does on a 3270 terminal.

Stationary Rule

The rule cursor can function as a horizontal or vertical ruler. To use the rule cursor as a ruler, position the rule and set this function to Stationary.. The rule remains as an alignment aid for columns or rows.

Rule Color

The rule can be set to any of the selectable colors(for color displays only). To change the rule color, highlight this function and cycle through the color options by pressing the Enter key.

The options are:

- C1   (blue)
- C2   (red)
- C3   (pink)
- C4   (green)
- C5   (turquoise)
- C6   (yellow)
- C7   (white)

Keyboard Setup

```
                    Offline Menu Screen


    Screen    Cursor    Keyboard    Printer    Miscellaneous    Color

    Alarm Volume               3
    Alarm Tone                 4
    Alarm Duration             Medium
    Click Enable               Yes
    Click Volume               3
    Cursor Speed               20
    Repeat Delay               Short
    Keyboard Type              Emulate 88 Key KBD
    Numeric Lock               Off




    Use Arrow Keys to choose item
    Use ENTER Key to change item
    ESC Key Exits
```
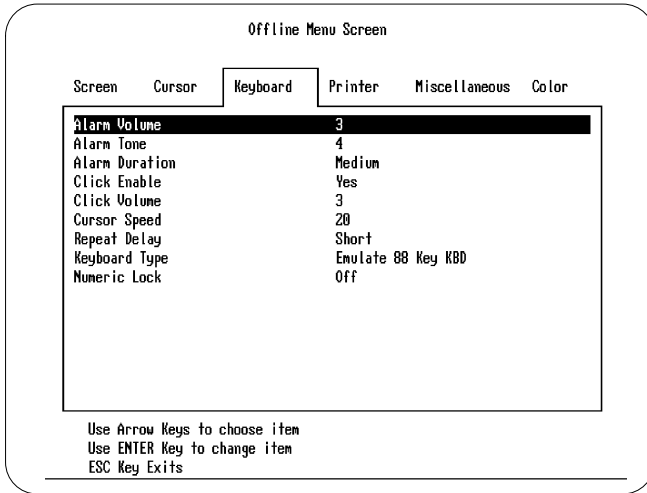
Figure 3-4. Offline Keyboard menu

Alarm Volume

To adjust the Alarm volume, press the Enter key to cycle through the choices from **1** to **10** and back to **Off**. The alarm sounds each time you press the key (except for **Off**) so you can check the level for each setting. The alarm sounds when a character is entered in the next-to-last character position of the screen (if the last character position is unprotected) or when the host system signals the display to sound the alarm.

Alarm Tone

This selection enables you to modify the tone of the audible alarm. Press the Enter key to cycle through the choices from **1** to **10**.

Alarm Duration

This selection enables you to select a **Short**, **Medium**, or **Long** alarm duration. Press the Enter key to cycle through the selections.

Click Enable

This selection enables or disables the click function of the keyboard.

Click Volume

If the click function is enabled, setting this function enables you to modify the volume of the key clicker.

Cursor Speed

To change the horizontal cursor speed from **10**, to **20**, and to **30** characters per second, highlight this function. Press the Enter key to toggle through the selections.

Repeat Delay

To change the time interval of starting the continuous display of characters on auto repeat keys, change the repeat delay selection from **Short**, to **Medium**, to **Long**.

Keyboard Type

Use this setting to select a keyboard type configuration. The following keyboard types are available:

- **Emulate 88 Key KBD** - Emulates an IBM 3278 88-key keyboard.
- **Native Typewriter** - Select Native Typewriter unless you are on a system that does not support Native mode.
- **User Define 01** - Typewriter (Controller-based keyboard definition required)
- **User Define 02** - Typewriter (Controller-based keyboard definition required)
- **User Define 03** - Typewriter (Controller-based keyboard definition required)
- **User Define 04** - Typewriter (Controller-based keyboard definition required)

Numeric Lock

The numeric lock restricts the characters that can be keyed into a designated numeric field. To enable the numeric lock, press the Enter key to toggle the feature to **On** or **Off**.

Printer Setup

```
                        Offline Menu Screen


   Screen    Cursor    Keyboard    Printer    Miscellaneous  Color

  Printer                                    ProPrinter
  Print Destination                          LPT1
  Host Addressable Print                     Yes
  Suppress automatic line feed when:
     CR at maximum print position + 1        No
     FF at print end                         No
     NL at maximum print position + 1        No
  FF ignored when not in first print position  No
  FF takes position if followed by data      Yes
  FF at end of print                          No
  Transparent Mode                           COAX




    Use Arrow Keys to choose item
    Use ENTER Key to change item
    ESC Key Exits
```

Figure 3-5. Offline Printer menu

Printer

Press the Enter key to cycle through the available selections.

☞   Use of any printer other than those listed could produce
      unpredictable results and is not recommended or supported.

Print Destination

This selection is used to inform the emulator the device to direct the printer output. Select the appropriate output I/O port.

Host Addressable Print

When this function is enabled, the host can send print requests to the host-attached printer. When Yes is selected the following functions will be enabled:

Suppress automatic line feed when:

- **CR at maximum print position + 1** - Specify **No** to activate any carriage return in the last print position + 1 in addition to the automatic line feed. Specify **Yes** to permit the action of the carriage return only.

- **FF at print end** - Specify **No** to activate any form feed included at the end of the print job in addition to the automatic line feed. Specify **Yes** to permit the action of the form feed only.

- **NL at maximum print position + 1** - Specify **No** to active a new line command included in the last print position + 1 in addition to the automatic line feed. Specify **Yes** to permit the action of the new line command only.

Form Feed Ignored when not in First Print Position

Select **Yes** if you want any form feed command to be ignored unless it appears in the first print position of any line. Select **No** if you want all form feed commands to be executed.

Form Feed Takes Position if Followed By Data

Specify **Yes** if you want form feed commands not located at the end of the print job to cause a form feed to be executed and to insert a blank character in the first position of the next page. Specify **No** if you want printing to begin in the first position of the next page after the form feed.

Form Feed at End of Print

Select **Yes** if you want the printer to eject the last printed page. This positions the next print job on the next page. Choose **No** if you do not want to eject the last printed page.

Transparent Mode

This option determines how the 3287 Transparent Data Command is handled. Selecting **COAX** (default) allows data to be handled like a 3287. Selecting **ASCII** sends data directly to the printer.

Miscellaneous Setup

```
                    Offline Menu Screen


    Screen    Cursor    Keyboard    Printer   Miscellaneous   Color

   Setup Language              English
   Dim Timer                   20 minutes
   Dim Style                   Status Row Only
   Light Pen Click             Off
   Activity Indicator          On
   Go OnLine







     Use Arrow Keys to choose item
     Use ENTER Key to change item
     ESC Key Exits
```
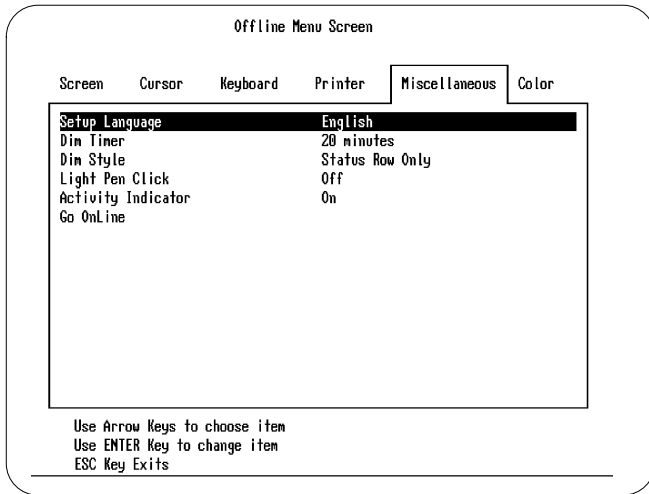
Figure 3-6. Offline Miscellaneous menu

Setup Language

You can choose between **English**, **Français**, **Deutch**, **Italiano**, and **Español** to display in the screen menus. To change the current setting, highlight **Setup Language**, then press the Enter key to cycle through the available settings. As each choice is selected, the menu changes to that language and all menus continue to be displayed in that language until the selection is changed again.

Dim Timer

The **Dim Timer** controls the Auto Screen Cutoff function. When this function is enabled, the screen blanks in a specified number of minutes if the emulator does not receive data from the keyboard or the host system. Press the Enter key to select the number of minutes to elapse before the screen dims.

Dim Style

The **Dim Style** option lets you select the manner in which the screen dims. Options are **Blank** which causes a completely blank screen and **Status Row Only** which dims everything but the operator status row and the cursor. The ¤ is displayed on the operator status row.

Light Pen Click

This function enables an audible click when a light pen operation is performed. Set this function to **On** to enable the click.

Activity Indicator (CUT Mode)

When this feature is enabled, a filled circle (●) is displayed on the operator status row to indicate an active system interface while online. An open circle (o) indicates no system activity and a blinking circle indicates a very slow poll cycle indicative of a system interface being disconnected then reconnected. If the emulator displays a blinking circle, have the system operator restart the interface to re-establish communication. This displayed symbol overrides other status row information because it is normally used as a diagnostic feature.

Go Online

Use this selection to exit the Offline display menu and place the emulator in the online state.

Color Setup

```
                    Offline Menu Screen


   Screen    Cursor    Keyboard    Printer    Miscellaneous   Color

   Color                         4 Color
   Unprotected Normal            C4
   Unprotected Highlighted       C2
   Protected Normal              C1
   Protected Highlighted         C7
   Background Color              0
    C1 Blue                      27
    C2 Red                       11
    C3 Pink                      40
    C4 Green                     21
    C5 Turquoise                 26
    C6 Yellow                    16
    C7 White                     63
   Reset to Default Colors


     Use Arrow Keys to choose item
     Use ENTER Key to change item
     ESC Key Exits
```

Figure 3-7. Offline Color menu

Color

To change the display color selections, highlight Color and press the Enter key to cycle through the following selections:

- **2 Color** - Unprotected Normal and Protected Normal fields are **C4** (green); Unprotected Highlighted and Protected Highlighted fields are **C7** (white). You can modify the colors assigned to the fields (described below), but you cannot change the color numbers (**C4** and **C7**) assigned to the fields.
- **4 Color** - Unprotected Normal is **C4** (green); Protected Normal is **C1** (blue); Unprotected Highlighted is **C2** (red); and Protected Highlighted is **C7** (white). You can modify the colors assigned to the fields (described below), but you cannot change the color numbers (**C1**, **C2**, **C4** and **C7**) assigned to the fields.
- **4 Color Programmable** - Unprotected Normal is **C4** (green); Protected Normal is **C1** (blue); Unprotected Highlighted is **C2** (red); and Protected Highlighted is **C7** (white). You can also change the color numbers (**C1**, **C2**, **C4** and **C7**) assigned to the fields.

Field Color Assignments

To change the color number assigned to a field, highlight the desired field, then press the Enter key to scroll through the color numbers (**C1 - C7**).

Changing Color Settings

Highlight the desired color to change; press the Enter key to modify the color for the field.

Background Color

This selection enables you to modify the background color of the display while it is attached to the host session. Highlight the **Background Color** selection and cycle through the field colors until the desired color is reached.

Reset to Default Colors

To return the color settings to the factory defaults, highlight the **Reset to Default Colors** selection and press Enter. You will be prompted to approve or abort this sequence.

System Manager Menus

To utilize the **System Manager Menus**, highlight System Manager Menus on the Offline Test main menu panel. The following panels can then be displayed:

Mod Size Test

To start this test, highlight **Mod Size Test** on the System Manager menu and press the Enter key. This test displays a test screen for each of the selectable screen sizes. The test screen changes from Mod 2, to Mod 3, to Mod 4, to Mod 5 each time you press the Enter key. To exit from this test and return to the System Manager menu, press the Escape key.

The following screen is an example of a Mod 2 screen.

```
........1.........2.........3.........4.........5.........6.........7.........8
.
.
.
.
.
.
1
.
.
.
.
.
.
.
2
.
.
.
                     ( 24 X 80 )  ( 32 X 80 )  ( 43 X 80 )  ( 27 X 132 )
```
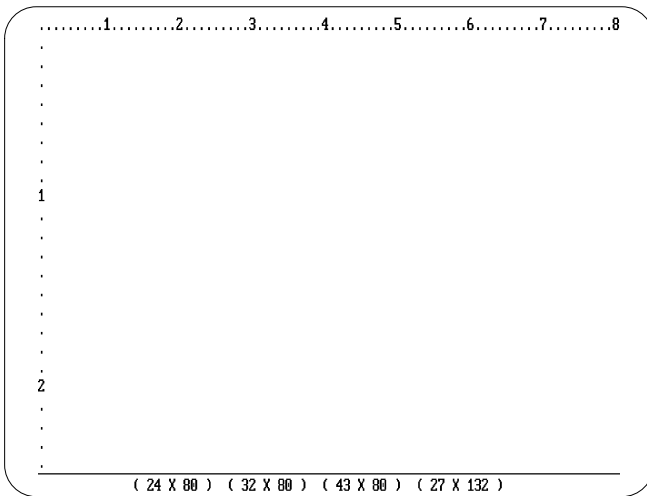
Figure 3-8. Mod 2 Screen

☞   Depending on the type of video adapter your system has installed, some Mod screens may have to be scrolled using the View Display keys. Refer to Page , "Displaying Screen Contents" for more information about scrolling keys

Light Pen Calibration

To calibrate the light pen, select **Light Pen Calibration** from the System Manager menu and press the Enter key. Calibration instructions are displayed.

The light pen will be calibrated for Mod 2, Mod 3, Mod 4, and Mod 5 screens, even if you have not configured your display station for all sizes.

Enter Serial Number

Enter the emulators serial number by highlighting **Enter Serial #** on the System Manager menu and press the Enter key. Enter any uppercase characters from **A** through **Z** or any numbers from **0** through **9** in the field and press the Enter key to complete the serial number entry process.

☞   Check with the system operator before changing this value.

User Defined Data (CUT emulator only)

To display the **User Defined Data** highlight this selection on the offline menu and press the Enter key. This selection only displays data that cannot be changed by the operator.

The following is an example of a User Defined Data display:

```
        Label                        Data

 1 NAME                       JESSICA SMITH
 2 ADDRESS                    700 OAK STREET
 3 CITY                       ANYTOWN
 4 STATE                      ANYSTATE
 5 USER ID                    JS
 6 TERM LOC                   BLDG 4
 7 PHONE                      555-1212
 8 PASSWORD                   ????????
```

Figure 3-9. User Defined Data Screen

Magnetic Stripe Badge Reader Installation

The emulator supports the magnetic stripe reader attachment in both secure and non-secure modes of operation. This will enable the operator to input data such as logon procedures or password protection to the host application.

The reader is installed "between" the keyboard and system unit and shares the system input via the keyboard port. All data transferred between the reader and system unit is transparent to the operator.

Please refer to the magnetic stripe badge reader USER'S GUIDE for information on setup and configuration of the device.

Mouse Installation

If you will be using a mouse for the light pen emulation, you will need to insure the "drivers" are installed before the emulator is attached to the host. The emulator requires the use of a Microsoft® compatible mouse driver for correct operation of the light-pen emulation.

The mouse drivers are installed either one of two ways:

- MOUSE.COM- This driver is usually installed inside an AUTOEXEC.BAT file, to be loaded at the system initialization.

- MOUSE.SYS - This driver is usually installed inside the CONFIG.SYS file, to be loaded at the system initialization.

Consult your user's guide for your mouse for more information on the installation of your device.

Online Setup Mode

One of the important features of the FORVUS Emulator is the ability to customize the display and printer while maintaining attachment to the host. Most of the online setup panels are the same as the offline setup panels. In this section, only the online setup panels that are different from the offline panels are described.

☞   There are some restrictions as to what can be changed while online. Therefore only the changes that can be made while ONLINE will be displayed in the online menu panels.

Entering Online Setup

To enter Online Setup mode, press the Setup key function. (See Page "Keyboard Help" for instructions about key sequences). The following will describe in detail the Online setup menus.

Online Printer Setup

```
                    OnLine Menu Screen


     Screen    Cursor    Keyboard    Printer    Miscellaneous   Color

     Quality                         Draft
     Chars/Inch                      10
     Wide Paper                      Yes
     Lines/Inch                      6
     Lines/Page                      000
     Default to 17 CPI               No
     Print with attributes           No
     Suppress Null Lines             No
     Trimmed Print Corners           20/5  23/79
     Auto Skip                       000
     Trim Borders                    C5




        Use Arrow Keys to choose item
        Use ENTER Key to change item
        ESC Key Exits
```

Figure 3-10. Online Printer Setup

Print Quality

If the attached printer supports NLQ (Near Letter Quality), you can select either **NLQ** or **Draft**. Highlight Quality and press the Enter key to make your selection.

Characters Per Inch

You can select from three different CPI settings when performing a local screen print. Press the Enter key to toggle between **10**, **12**, and **17** characters per inch.

Wide Paper

If the attached printer supports a wide carriage, this selection enables the printer to utilize the full length of the paper. Press the Enter key to select either **Yes** or **No**.

Lines Per Inch

This function allows you to select **3**, **4**, **6**, or **8** lines per inch on the attached printer.

Lines Per Page

This function allows you to select **0**, **51**, **66**, **68**, **72**, **88**, or **96** lines per page on the attached printer. Selecting **0** to use the attached printer's default settings.

Default to 17 CPI

This selection enables you to set the local screen printer to switch automatically to 17 CPI when a Mod 5 screen is printed. Press the Enter key to select **Yes** or **No**.

Print with Attributes

This setting enables you to print the screen with bold and underline attributes or to increase print speed by printing the screen with no attributes. Press the Enter key to select **Yes** or **No**

Suppress Null Lines

This setting enables you to print more data on the page by suppressing the printing of null (blank) lines. Press the Enter key to select **Yes** or **No**.

Trimmed Print Corners

When using the local screen print function, you can specify a portion of the screen to be printed. This field is an information area only and can be changed as described on Page 45.

Auto Skip

You can configure the local printer to advance a selected number of lines after it performs a print function. Use the number keys to enter a value from **000** to **199**. The number entered is the number of lines you want the local printer to advance after performing a local print. Press the Enter key to save the new value and return to normal menu functions.

Trim Borders

When using the trim print feature, you can specify the color of the screen's trim area border. Press the Enter key to cycle through the colors **C1 - C7**.

Operation

This chapter describes the basic operation of the FORVUS Emulator. Before getting started make sure that:

- The FORVUS Emulator has been configured for the type of operation required.

- All connections both inside and outside the system unit are securely attached.

- The Security Key lock (if equipped) is Unlocked.

- Necessary network drivers are loaded in memory. For example, IPX/SPX must be loaded for use with SAA.

Starting the FORVUS Emulator

At the DOS prompt, change to the directory that contains the FORVUS Emulator files and type the following command:

> **FORVUS**   and press <Enter>

You will then see the startup screen:
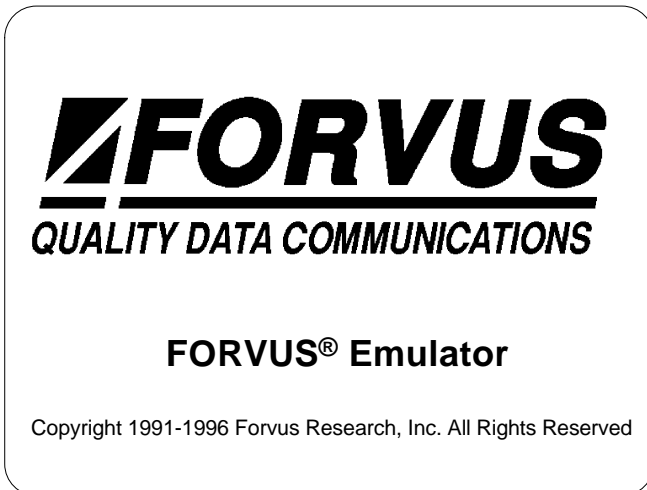
Figure 4-1. Emulator Sign On screen.

At this time the FORVUS Emulator is loading files and performing diagnostics on the Hardware Adapter. After initialization, the emulator display will clear and will attempt to attach to the control unit.

Should the diagnostics "Fail", Refer to Chapter 7, "Problem Determination", to assist you with solving the problem.

After the emulator attaches to the host, you will see your host application sign-on screen. This may vary from system to system and may request a Logon or Password procedure. In any case, the bottom line on the screen will display your current system status. This row is referred to as the "OPERATOR STATUS ROW". This is an information only display area and cannot be modified by the operator. Refer to Chapter 5. "Status Row Messages" for a more detailed description of this area of the display.

Keyboard Operations

The FORVUS Emulator uses a subset of the IBM 3472 keyboard. In some cases, the emulator must use a different key location than may be found on other types of display stations. Refer to "Keyboard Help" on Page to locate the key functions for your keyboard layout.

Mouse - Light Pen Emulation

If your system unit is equipped with a mouse, you may use it to select light pen detectable fields on the emulator display. Light pen fields are used to select "designator" characters which may signal to your application program the fields you have chosen for data input.

The light pen "designator" characters are defined as follows:

- ? - Light pen field NOT CURRENTLY selected for input.
- > - Light pen field CURRENTLY selected for input.
- & - Light pen field responsible for ENTER operation.

Selecting Fields with the Mouse

To select a field while using the mouse, refer to the following steps:

- Press the LEFT mouse key to display the Select cursor. This block cursor will have a "light pen" indicator displayed under it.
  For EGA and VGA displays it will appear as

  For MONOCHROME and CGA displays as

- Move the Select cursor on TOP of the "designator" character you wish to select.

- Press the RIGHT mouse key to "push" (select) the field for input.

- Release BOTH mouse buttons to enable the mouse for another "light pen" operation.

Hot Key Operation

The "Hot Key" operation is a very valuable feature of the FORVUS Emulator. This is the key sequence that returns you to DOS. This sequence is a "toggle" function that switches you to and from the FORVUS Emulator if it is installed in the RESIDENT mode.

The DEFAULT key sequence that is shipped from the factory for the **US1.KBF** file is:
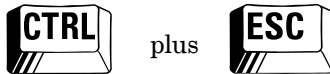
Figure 4-2. Hot Key example.

The "Hot-Key" sequence may be changed by executing the keyboard customization program supplied with the emulator. Refer to Chapter 6, "Keyboard Configuration" for further information.

Terminate Communications Link?

This prompt will appear if you have installed the emulator in the non-resident mode of operation.

Respond **Y** if you want to **disconnect** from the host and return to the DOS prompt.

Respond **N** if you want to remain **connected** to your host application.

Extended Select Operation

Extended Select is used to re-define the function keys for use with other control unit functions. When Extended Select mode is entered, the only valid keys are defined as follows:

> F4   Direct Call
> F5   Dial Call
> F6   Local
> F7   Communication
> F8   APL On/Off
> F9   Disconnect
> F13 Document On/Off
> F14 Word Wrap
> F15 Change Format
> F19 Response Time Monitor

While in this mode, pressing any other key other than the ones listed above will remove the ▶ symbol, and exit EXTENDED SELECT.

Print Function

The emulator is capable of sending a print request to the host printer or the local screen printer attached to the system unit. To perform a print function, press the Print key. The operator status row will then display a print menu as shown below:

```
 PRINT COAX ENTER=PRINT F3=EXIT F9=Select Print F8=Control
```
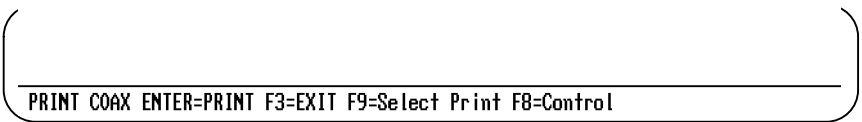
Figure 4-3. Print Function example.

Print Type

- COAX - Performing a print with COAX enabled directs the print operation to the host printer specified on the operator status row. This may or may not be the printer attached to your system unit depending on the setup of your system.

- SCREEN - Performing a print with SCREEN enabled prints the entire display to the attached system printer.

- TRIM - When TRIM is enabled, only the portion of the display contents defined within the trim box is printed.

- CAPT SCRN - This selection will print the entire screen to the disk file SCR_CAPT.PRN.

- CAPT TRIM - This selection will print the portion of the display contents defined within the trim box to the disk file SCR_CAPT.PRN.

Press the F9 key to select between these five options above.

If you selected PRINT TRIM on the printer menu, the screen is displayed with a BOX around the area to be printed.


```
┌──────────────────────────────────────────────────────────────────┐
│ ┌───────────────────────┐                                          │
│ │This area of the display│      This area of the display will NOT be│
│ │will be printed to the  │        printed to the system unit printer│
│ │ system unit printer    │                                          │
│ └───────────────────────┘                                          │
│ PRINT TRIM ENTER=PRINT F3=EXIT F9=Select Print F8=Control  ←↑↓→,F10=Adjust│
└──────────────────────────────────────────────────────────────────┘
```
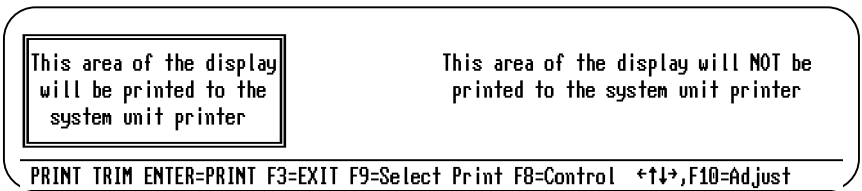
Figure 4-4. Print Trim example.

The ACTIVE keys to modify the "trim" window are:

- F10 KEY - Pressing the F10 key will select the OPPOSITE corner of the "trim" window.

- ARROW keys - Pressing the arrow keys will move the "trim" window around the data to select for a print function.

Starting a Print

Press the ENTER key to begin a print operation.

Controlling the Host Addressable Printer
The Paper Control and Session Control menus enable you to send paper and control commands to the host addressable printer.

Setting Paper Control Options

You can send a line feed command or a form feed command to the host addressable printer from the Paper Control menu. To display the Paper Control menu (shown below), press the F8 key.


```
                    Printer/Session  Menu Screen

 Paper Control          Capture Options          Session Control

   Line Feed
   Form Feed




      Use Arrow Keys to select
      Use ENTER Key to execute
      ESC Key Exits
```
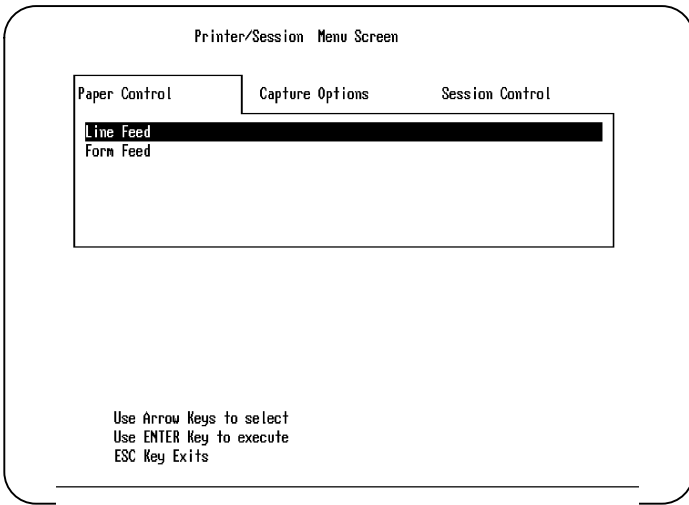
Figure 4-5. Paper Control menu.

To send a paper control command to the host addressable printer, highlight **Line Feed** or **Form Feed** and press the Enter key.

Setting Session Control Options

You can cancel a print job or send a PA1 or PA2 session control command to the host addressable printer from the Session Control menu. To display the Session Control menu, press the right arrow key to highlight the Session Control menu screen. The Session Control menu is displayed (shown below).

```
                    Printer/Session  Menu Screen


    Paper Control          Capture Options       Session Control

    Cancel Print
    PA1
    PA2




        Use Arrow Keys to select
        Use ENTER Key to execute
        ESC Key Exits
```
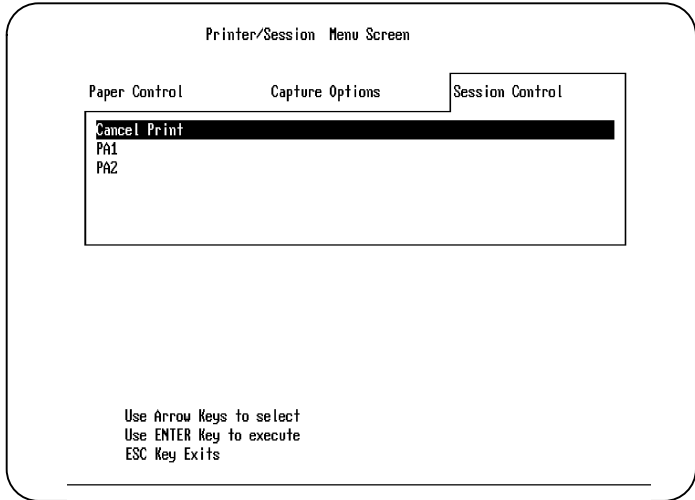
Figure 4-6. Session Control menu.

To send a session control command to the host addressable printer, highlight your selection and press the Enter key.

Setting the Screen Capture Options

This selection enables you to capture a screen, but instead of sending the file to a printer, you write the file to your computer's hard drive. The file is written to the directory that contains the FORVUS Emulator files.

To display the Capture Options menu, press the right arrow key to highlight the Capture Options menu screen. The menu is displayed as shown on the next page:

```
                    Printer/Session  Menu Screen


    Paper Control          Capture Options      Session Control
   ┌─────────────────────────────────────────────────────┐
   │ Screen Capture File        SCR_CAPT.PRN              │
   │ Screen Capture Mode        Append                    │
   │                                                      │
   │                                                      │
   │                                                      │
   └─────────────────────────────────────────────────────┘



       Use Arrow Keys to select
       Use ENTER Key to execute
       ESC Key Exits
```
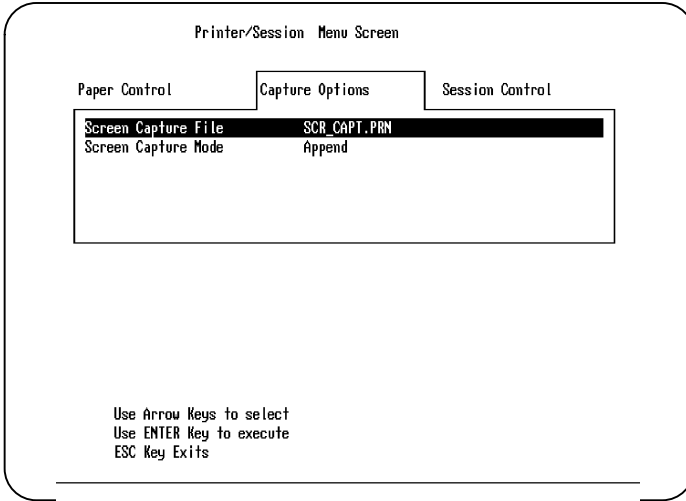
Figure 4-7. Capture Options menu.

To name the file that will contain the captured screen (or screens), highlight Screen Capture File on the menu. The first time you display the menu, the default file name SCR_CAPT.PRN is displayed for the name of the file. You can leave this name as it is or substitute a name of your choice. The file name can have from one to eight characters with an extension of up to three characters. If you change the file name, that name will then be used in all future operations.

There are two screen capture modes, Append and Capture. In append mode, multiple screens may be captured and "appended" to each other. In capture mode each print capture "overwrites" the last operation performed.

Leaving the Online Print menu

Press the F3 key to exit the Online Print menu and return to normal print operations.

Keyboard Help

The FORVUS Emulator contains a keyboard help panel available to the user at any time it is needed. This panel is summoned by pressing the ALT + H key (with a US1.KBF configuration). The following panel will then be displayed:


```
                    Keyboard Help Panel
   Emulator Function   PC Key Sequence   Emulator Function   PC Key Sequence

   Hot Key             Ctrl Esc          Setup               Shift Esc

   Record              Alt F4            Play                Alt F5

   Pause               Shift Pause       View Mode           Ctrl V

   Keyboard Help       Alt H             Print               Print Screen
                                                             Alt F7

   Quit                Alt Left Control  Toggle Rule         Kpad 5

   Attention           Alt Page Up       Sys Request         Alt Pause
                       Esc                                   Sys Req

   Clear               Pause             Cursor Sel          Alt F9



   Exit Help Panel = F3      Forward = F8           Backward = F7
```

Figure 4-8. Sample Keyboard Help

☞ The key sequence used to display the keyboard help panel is shown on the status row when first loading the emulator.

The key function is displayed in BOLD outline while its corresponding key(s) are shown to its immediate right. To display more of the Keyboard Help, Press the F7 key to scroll BACKWARD, and press the F8 key to scroll FORWARD. Pressing the F3 key will EXIT the Keyboard Help panel.

Record/Play Operation

The FORVUS Emulator is capable of storing keystrokes to individual keys and recalled as the operator desires. This makes sign-on and log-on procedures both quick and simple for the operator. These keystrokes are saved to disk for future recall.

Record Function

The RECORD function is invoked by pressing the RECORD key.   The FORVUS Emulator display will then prompt the user for the key to assign the keystrokes to. A panel similar to the one below will be displayed:

```
Message label      Press this key   Message label      Press this key

password               1            attach                 2
logoff                 A












The above keys have been defined.
Press the key (A-Z,0-9) you want to define.                F3=Quit
                              R3979
```
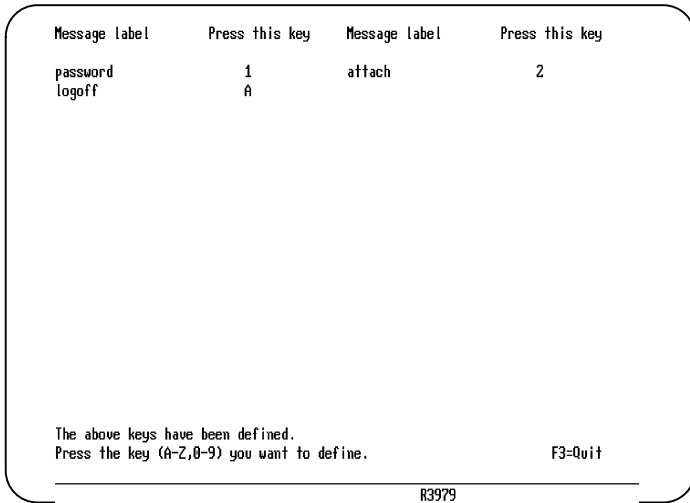
Figure 4-9. Defining a Record Key

The emulator is now ready to accept the key that you would like to RECORD a sequence for.

☞   Only Alpha-numeric keys may be "defined" as record and playback keys.

In the example below, the S key was pressed. The display will now appear as the following:

```
Message label      Press this key    Message label     Press this key

password               1             attach                 2
logoff                 A




Type a label to be associated with the S key
                                                        F3=Quit

                                R3979
```
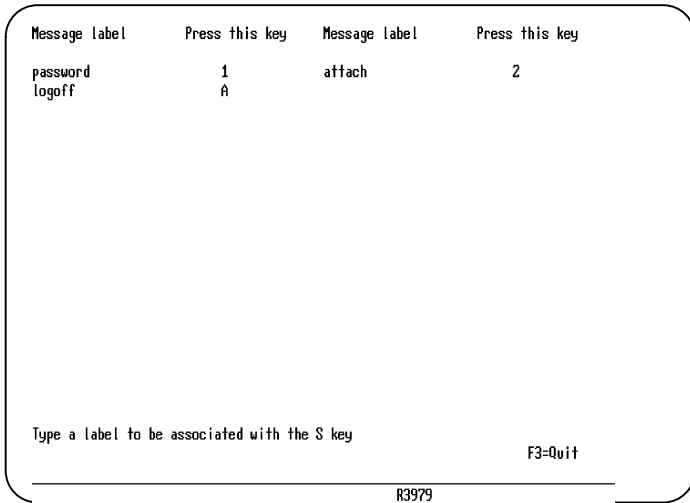
Figure 4-10. Assigning a Record Function

The emulator has prompted us to enter a label field for the S key record sequence. The label "LOGON" was entered and the ENTER key was pressed. This now begins the RECORDING sequence. All keys will be saved and can be recalled later for playback.
While you are recording keystrokes, the number to the right of the RECORD indicator designates the number of keystrokes that remain in the RECORD buffer area. This number will decrease as the number of keystrokes "fill" the buffer.

While you are in the process of recording keystrokes, you may press the PAUSE key on the keyboard. The indicator "R ⚐ ⌃" will appear, informing you that the emulator has entered the PAUSE state. Pressing the PAUSE key again will remove this symbol and resume the recording process. If you press the QUIT key at this time, the recording process will be canceled and no keystrokes will be recorded. To end the RECORD process for this key, press the RECORD key again and the process will be terminated for this key.

Playback Function

To playback the sequence we have recorded above we will have to invoke the PLAY function on the keyboard. This is done by pressing the PLAY key. The screen will appear as the following:

```
Message label        Press this key    Message label        Press this key

password                  1            attach                    2
logoff                    A            logon                     S













Press one of the above keys to play the recorded keystrokes    F3=Quit
```
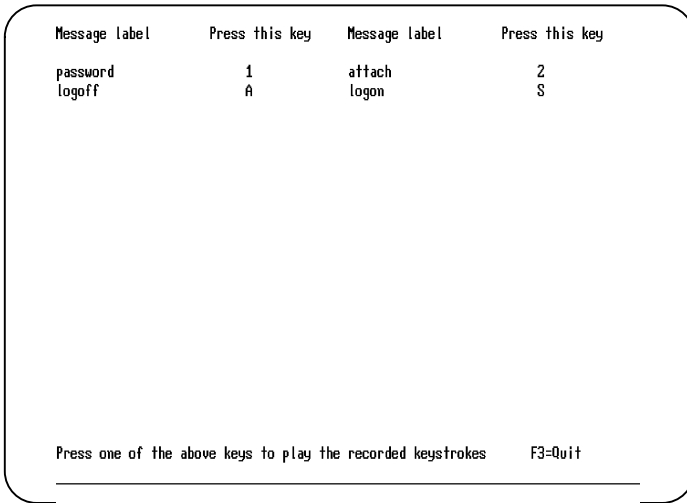
Figure 4-11. Playback Function example

At this point, there are four key sequences that have been recorded. The label field "logon" shows that the S key has a valid key sequence recorded. To PLAY this sequence, press the S key and the playback will begin immediately.

If you press the QUIT key while you are playing back keystrokes, the FORVUS Emulator will exit PLAY and return to normal mode.

If you are replaying keystrokes and the "P ♀▲ " indicator appears, this means that while you recorded this sequence of keys, you pressed the PAUSE key. At this time you may use other functions of your keyboard and press the PLAY key to resume the playback of this key sequence. Pressing the QUIT key at this time will exit the PLAY function and return to normal operation.

☞ Playing sequences back which contain host communication keystrokes, (ENTER, CLEAR, etc.) may cause a loss of other keystrokes due to the delay of the host transaction. Use these keys with caution when recording and playing back keystrokes.

Rule Cursor

The FORVUS Emulator is capable of displaying a RULE cursor on the display screen while inputting data. This feature provides the ability to quickly locate data that is aligned in both horizontal and vertical tables. When the RULE cursor is configured as MOVABLE in the setup panel, it will "track" with the current cursor location on the display. However, if the RULE cursor is configured as STATIONARY, the RULE cursor may be placed on the display in a fixed position. This may aid the operator in highlighting an input area that is commonly used for system input.

On color displays, the RULE cursor may be changed to any one of seven colors the operator may desire by entering the "Color Setup" mode. Refer to Chapter 3, "Setup" to perform this function.

Displaying Screen Contents

When the FORVUS Emulator is using a display adapter that is not capable of displaying all the characters that the current application is using, the operator may view hidden areas of the screen by using the keystrokes defined below. To enter VIEW DISPLAY MODE, press the ALT + F3 key sequence.

The Numeric Pad keys will now perform the following functions:
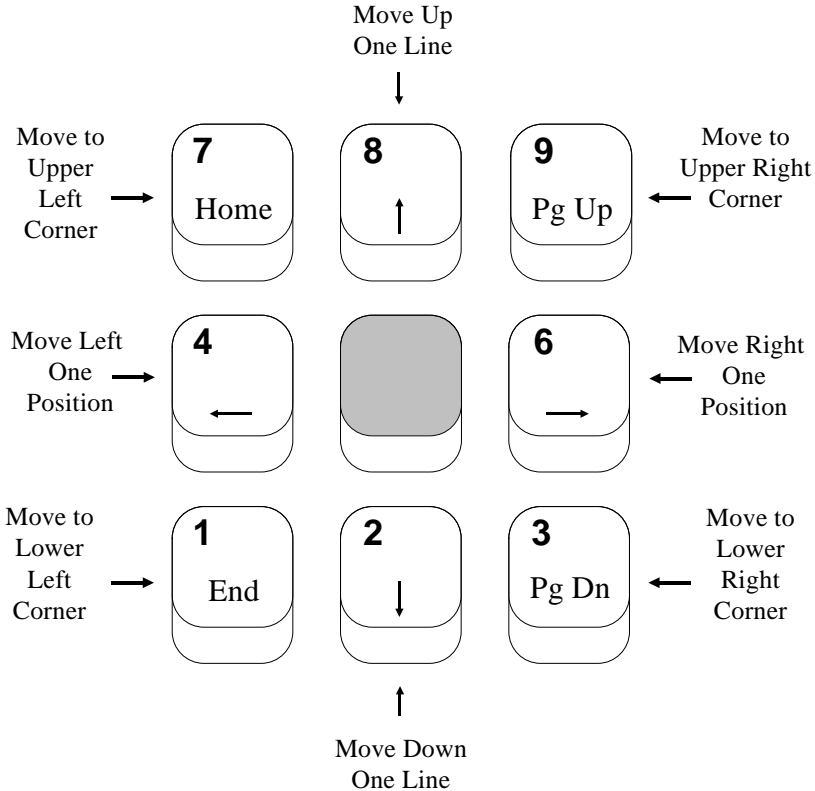
To EXIT view mode, press the ESC key.

Status Row Messages

This chapter describes the messages that appear on the status row of the FORVUS Emulator display window. Also, the action to be taken when a particular indicator appears is described in this section. The operator status row is the displayed row below the separator line and the data area above. System messages are grouped into distinct areas of the status row, these being System Status, Do-Not-Enter, Communication Reminders, Shift and Mode Status, Printer Status, and Row/Column. These functions will be described in the sections that follow.

- **System Status** - Displays current attachment and ready status of the FORVUS Emulator program. (Columns 1-8)
- **Do-Not-Enter**   - Displays keyboard locked condition and explanation for this condition. (Columns 9-20)
- **Reminders**   - Display Communication Reminders, both permanent and temporary communication link errors. (Columns 21-28)
- **Shift Status** - Displays current Shift status of the FORVUS Emulator. (Columns 38-40)
- **Mode Status**   - Displays current Mode status such as Insert, Ex. Sel. etc (Columns 41-44).
- **Printer Status** - Displays current Printer status that is attached to the FORVUS Emulator. (Columns 60-65)
- **Record/Play** -Displays current Record/Play indicators.
- **Row/Column** - Displays current Cursor position relative to the position of the Display Buffer. (Columns 73-80)

System Status

⬜ **3274 Ready**

The FORVUS Emulator is connected to a 3274 type control unit.

⬜ **3276 Ready**

The FORVUS Emulator is connected to a 3276 type control unit.

S **3174 Ready**

The FORVUS Emulator is connected to a 3174 type control unit.

I **43XX Processor Ready**

The FORVUS Emulator is connected to a 43XX Processor.

<u>A</u> **Online A**

The communication access method between the controller and host system is using a method other than SNA.

<u>B</u> **Online B**

The communication access method between the controller and host system is using SNA.

█ **My Job**

The FORVUS Emulator is currently connected to an application type program.

⬜ **System Operator**

The FORVUS Emulator is connected to the host and is communicating with the system operator.

TEST   **Test**

The control unit is in Test mode.

⬜ **Unowned**

The FORVUS Emulator is connected to the host but is not connected to an application program or to the system operator.

Do-Not-Enter

The Do-Not-Enter symbol indicates to the operator that input to the FORVUS Emulator display is inhibited. The condition indicated must be cleared before further input will be accepted. More information is displayed to the right of the locked condition defining the cause of the Do-Not-Enter condition.

The following examples explain how to clear the Do-Not-Enter function and restore the keyboard to an unlocked condition.

✗ ⟶ʐ 5nn Communications Check

There is a problem with the communications link between FORVUS Emulator and the host. When you activated an AID key, there was a Communications Reminder informing you that there was a problem with the link between the host and your Display. Press RESET to restore the keyboard to an unlocked condition.

✗ ⌤ nnn Machine Check

There is a machine detected check with the control unit or with the FORVUS Emulator. Pressing the RESET key may or may not restore the keyboard to an unlocked state.

✗ PROG nnn Program Check

An error in the data stream from the host has caused the control unit to inhibit operation of the FORVUS Emulator keyboard. This may be caused by a program 'bug' in an application program (eg. a Mod 5 program writing to a Mod 2 display.) Contact the system operator if this situation arises.

✗ ♯✗ Operator Unauthorized

This symbol is displayed when the operator attempts to print to a device which has not been assigned to the control unit. Re-check the printer assignment and retry the operation. Pressing the RESET key will restore the keyboard to an unlocked condition.

✗ ⌛ Time

The previous command is taking more time to respond to your request than is normally needed. Should this symbol be displayed more than a few minutes, contact your system operator.

✘ -f Minus Function

The function that you requested was an unavailable keyboard function. Pressing the RESET key will restore the keyboard.

✘ ♁> More Than

While inserting characters using the INSERT function, the field had no more space for the data you were entering. Pressing the RESET key will unlock the keyboard and remove this symbol. *Note:* pressing RESET will remove the emulator from insert mode, press the INSERT key to re-enter that mode.

✘ ←♁→ Go Elsewhere

This symbol is displayed when you tried to change the screen input but the cursor was not inside an input field. This symbol is also displayed when the Cursor Select key is pressed and the cursor was not in a light-pen type field.

✘ SYSTEM System Lock

This symbol is displayed when the application program has locked the keyboard. Pressing the RESET key will restore the keyboard for data input.

✘ ♁NUM Numeric Input Only

You tried to enter non-numeric data in a field that is specified as numeric data only. Only the characters 0-9, the DUP key, period and comma are the only valid entries for this field. Pressing the RESET key will unlock the keyboard and remove this symbol.

✘ ♁#? What Number

The control unit did not accept the last input. It is caused by:

- While in TEST mode to the control unit, you entered a test number that was invalid.
- You entered an incorrect printer ID number.

✘ ?+ What?

The emulator keyboard is locked because the input was incorrect or was not recognized. No input data will be accepted. Press RESET to restore keyboard to an unlocked state.

✘ ▢←圀 Message Received

The emulator received and rejected a message from the system operator or control program. Press RESET to restore the keyboard to an unlocked state.

✘ -S **Minus Symbol**

While inputting data, you pressed an unsupported key. Press RESET to restore the keyboard to an unlocked state.

✘ □—▷ **Printer Not Working**

There is a problem with the printer that is assigned to the emulator. Attempt to locate the problem with the printer, (Paper Out, Not Selected) before continuing. Press the QUIT key to unlock the keyboard.

✘ □—□ ⁛ **Printer Busy**

The emulator encountered a busy printer while attempting to start a print request. You may elect to wait for the current print operation to complete or press the QUIT key to unlock the keyboard.

✘ □—□ ⁛ ⁛ **Printer Very Busy**

The emulator is unable to print because the host has started a print to the selected printer. Time is needed to complete the print to the device. Press QUIT to unlock the keyboard.

Communication Reminders

Communication reminders are provided to the status row to inform the operator of the current state of the communication link between the FORVUS Emulator display and the host system. Messages may vary, depending on the type of control unit attachment to your host system. Not all messages are error messages, some are provided as information only. Refer to Appendix A, "Error Messages" for a more detailed explanation.

✘ ⟿ 5nn **Communication Check**

The control unit has detected a problem in the communications link with the host system. The following types of errors are reported:

- A permanent error has occurred with the communication link, causing all terminals on the control unit to report the error.

- A temporary line error occurred causing the control unit to retry the failing operation again to the host. If the retry is successful, the communication reminder will be reset and the condition cleared.

- In SAA communications, an incorrect server name, password, or incorrect session parameters will result in a 505-XX error.

Shift and Mode Status

↑ Upshift
This symbol is displayed when the keyboard is in Upshift mode. All alpha-numeric characters will be displayed in uppercase.

NUM Numeric
This symbol is displayed when the cursor is located in a numeric field, *and* the Numeric Lock function is enabled. Only characters 0-9, minus sign, period or a comma may be entered in this field.

∧ Insert
This symbol is displayed when the keyboard is in Insert mode. Characters entered will be inserted to the right of the cursor. Pressing RESET will exit Insert mode.

▶ Extended Select
This symbol is displayed when the keyboard is in Extended Select mode. Entering this mode will redefine the Program Function keys. Pressing any key other than a PF key will exit this mode.

¤ Dim Screen
This symbol is displayed if you selected Status Line Only mode for the Dim Style option in Setup.

The symbol is displayed when the keyboard has not received input for the period of time specified in Setup mode. The data display above the separator line becomes blank and the Dim symbol is displayed. Any screen update from the host or keyboard restores the display contents to the screen.

Printer Status

▭━◼ nn Printer Printing
The printer that is identified by "nn" is currently busy printing.

▭━◤ nn Printer Failure
The printer that is identified by "nn" has stopped printing due to a failing condition. Check the printer and correct the condition before attempting to start a new print.

▭━▭ nn Printer Assignment
The FORVUS Emulator is currently assigned to the printer with the ID "nn".

These ID's are as follows:

- 1-31: Control Unit printer port numbers
- 70-85: Printer Class number
- 99: Local Printer attached to FORVUS Emulator

□━□ ?? **What Printer?**

The previous printer assignment has been changed. Press the printer IDENT key to display the new printer ID assignment.

□━□ – – **Assign Printer**

This symbol is displayed to inform the operator that a new printer ID may be assigned. Entering a new ID will replace the "- -" on the status row.

Error Status

2%% **Invalid Keyboard Attached**

This message is displayed when the keyboard ID and the control unit ID do not match. This may occur when the keyboard is configured for a 3472 keyboard and the control unit is customized to expect a 3278 keyboard. Re-check the keyboard selected in the SETUP panels or contact your system operator.

♀ > **Record Buffer Full**

This indicator is displayed when the contents of the RECORD buffer is full. You must remove keystrokes from the buffer before additional keystrokes may be added.

Entry Assist Indicators

DOC **Document**

This indicator is displayed when the keyboard is in DOCUMENT mode. Refer to your control unit user's guide for more information on "Entry Assist".

⬇ **Word Wrap**

This indicator is displayed when the WORD WRAP function is enabled. Refer to your control unit user's guide for more information on "Entry Assist".

Record/Play Status

R   **Record Mode**

This indicator informs the operator that the emulator is currently in RECORD mode. The number displayed to the right of the indicator shows the number of keystrokes that remain in the RECORD memory area. Pressing the QUIT key while in this mode will cancel this recording session and return to normal mode.

P   **Play Mode**

This indicator informs the operator that the emulator is currently in PLAY mode. Pressing the QUIT key will stop the PLAY operation and return to normal mode.

R ⚥∧   **Recording Paused**

This indicator informs the operator that the PAUSE key has temporarily stopped the RECORD operation. One of three steps may be taken at this point:

- Pressing the QUIT key will cancel the RECORD operation.
- Pressing the PAUSE key will resume the recording process for this key.
- Pressing the RECORD key will end the recording process and save the keystrokes.

P ⚥∧   **Playback Paused**

This indicator informs the operator that the playback of the current operation has been temporarily stopped. You may:

- Press the QUIT key to end the PLAY operation.
- Press the PLAY key to resume the playback operation.

Keyboard Configuration

The FORVUS Emulator is capable of utilizing many different types and layouts of system unit keyboards. This is accomplished by use of the keyboard configuration file with the format name.KBF. This is the file that the command line option / K= will use to load for use with the emulator. If the /K option is NOT specified, the file US1.KBF will be used as the configuration file.

Beginning Configuration

To begin the customization program enter: **KBDCNFG**
and press <Enter>. The display will appear as below.

```
                  Keyboard Configuration Program

         No Keyboard File is currently loaded.
         The current Keyboard Language ID is 00.


               LOAD New Keyboard File

               EDIT PC Key to Host Function Translates

               EDIT PC Key Names

               EDIT Host Function Names

               SAVE Current Keyboard File

               EXIT Keyboard Configuration




         Use Arrow Keys to Highlight an Entry    Use Enter Key to Select
```
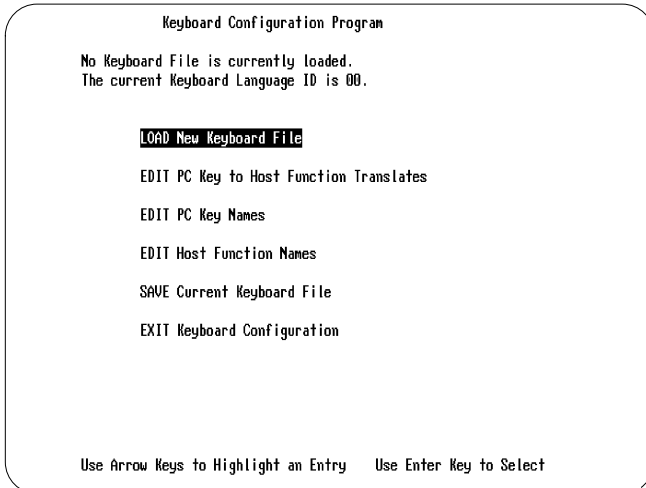
Figure 6-1. Keyboard Configuration Program.

This is the MAIN menu panel. Note at the top of this panel that there is NO file loaded to modify. In this example, we will be modifying the file US1.KBF. This is the DEFAULT file that the emulator will load during the INSTALL program. To proceed with loading and modifying the file US1.KBF, follow the steps shown on the following page:

Loading a Configuration File

To load the file US1.KBF move the cursor to LOAD a new configuration file and press the Enter key . The panel will now appear similar to the one shown below:

```
  The existing KBF files in directory C:\FORVUS are listed below

   US1.KBF          BELG1.KBF          BELG2.KBF          CAN_FR1.KBF
   CAN_FR2.KBF      CSA_1988.KBF       CSA_1992.KBF       DANISH1.KBF
   DANISH2.KBF      FINNISH1.KBF       FINNISH2.KBF       FRENCH1.KBF
   FRENCH2.KBF      GERMAN1.KBF        GERMAN2.KBF        INTR1.KBF
   INTR2.KBF        ITALIAN.KBF        ITALIAN1.KBF       ITALIAN2.KBF
   NETH1.KBF        NETH2.KBF          NEWBELG1.KBF       NEWBELG2.KBF
   NORWEG1.KBF      NORWEG2.KBF        PC3270_1.KBF       PC3270_2.KBF
   PORTUG_N.KBF     PORTUG_O.KBF       PORTUG1.KBF        PORTUG2.KBF
   SPAN_SP1.KBF     SPAN_SP2.KBF       SPANISH1.KBF       SPANISH2.KBF
   SPNEW103.KBF     SPSP_103.KBF       SWEDISH1.KBF       SWEDISH2.KBF
   SWISS_F1.KBF     SWISS_F2.KBF       SWISS_G1.KBF       SWISS_G2.KBF
   UK1.KBF          UK2.KBF            US1472V.KBF        US1472VA.KBF
   US2.KBF          US3.KBF            US3_102.KBF        US4.KBF




  Use arrow keys to highlight, Enter to read in the highlighted file
  Press F9 to change directory, F10 to type in a file name, and ESC to abort
```

Figure 6-2. Loading a .KBD file.

This screen will allow you to select the file you would like to modify. Should you desire to change to another directory, press the **F9** key. If you would like to enter a file name not shown, press the **F10** key. In this example we will be modifying the US1.KBF configuration file. Press the ENTER key to load the selected file.

The display will now appear as below. Note that the file selected previously is displayed on the second line.

```
                    Keyboard Configuration Program

      The Keyboard File US1.KBF is currently loaded.
      The current Keyboard Language ID is 1F.

              LOAD New Keyboard File

              EDIT PC Key to Host Function Translates

              EDIT PC Key Names

              EDIT Host Function Names

              SAVE Current Keyboard File

              EXIT Keyboard Configuration




      Use Arrow Keys to Highlight an Entry    Use Enter Key to Select
```
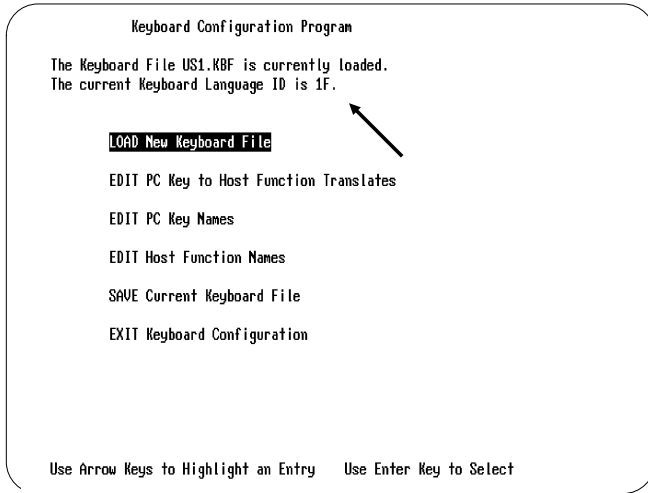
Figure 6-3. US1.KBF File loaded example.

Also note at the arrow above that the **Keyboard Language ID** is displayed (1F Hex shown above). This is the keyboard identifier that is sent to the control unit to specify what type 3270 keyboard is being emulated.

Modifying a Configuration File

When modifying a keyboard configuration file, it is possible to change three different types of information about the file. These options are explained in further detail below:

- **EDIT PC Key to Host Function Translates** - This function is used to modify the actual key translates from PC keyboard to the emulated 3270 host functions. For example:

  PC key **F2** $\longrightarrow$ translates to $\longrightarrow$ 3270 key **CLEAR**

- **EDIT PC Key Names** - This function is used to modify the names of the PC functions used in various help panels. (ie. Ctrl, Num Lock, Prt Sc, Pg Dn, etc.)

- **EDIT Host Function Names** - This function is used to modify the names of the 3270 host functions used in various help panels. (ie. Clear, PF 1, Ident, Erase EOF, etc.)

Each of these sections will be explained in separate sections on the following pages. Each individual Edit function may be accessed from the menu shown on the previous page.

Editing PC to Host Function Translates

```
                    Keyboard Configuration Program

        The Keyboard File US1.KBF is currently loaded.
        The current Keyboard Language ID is 1F.

                LOAD New Keyboard File

                EDIT PC Key to Host Function Translates

                EDIT PC Key Names

                EDIT Host Function Names

                SAVE Current Keyboard File

                EXIT Keyboard Configuration



        Use Arrow Keys to Highlight an Entry    Use Enter Key to Select
```
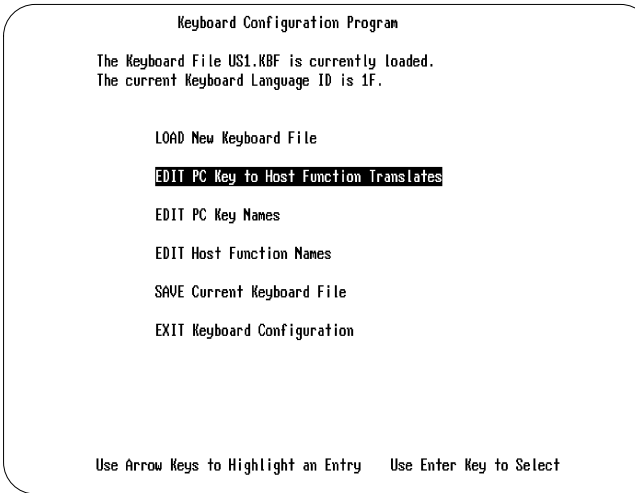
Figure 6-4. Editing Scan Code Translates.

This section will describe the procedure to modify a PC key scan code translate to a 3270 key scan code.

Move the cursor to **EDIT PC Key to Host Function Translate** as shown above. Press the **Enter** key to Select.

You will now see the screen as shown on the following page:

```
                    Keyboard Configuration Program

     The Keyboard File US1.KBF is currently loaded.
     The current Keyboard Language ID is 1F.


          EDIT PC to Host translates for 84 Key PC keyboards

          EDIT PC to Host translates for 101 Key PC keyboards

          EDIT PC to Host translates for 122-4100 PC keyboards

          EDIT PC to Host translates for 122-4300 PC keyboards

          EDIT PC to Host translates for Host Connect keyboards

          RETURN To Main Menu




     Use Arrow Keys to Highlight an Entry    Use Enter Key to Select
```

Figure 6-5. Editing an 84-key translate table.

In this example, we will be modifying the translate for an 84-key keyboard. If you have one of the other type keyboards listed, move the cursor to the choice you desire and press the **Enter** key to proceed.

After selecting the 84-key selection above, a screen will appear similar to the one found on the next page.

In this example we will be changing the SETUP coax function from the PC Key sequence **Alt Esc** to the **F3** key. Move the cursor to the ALT F5 as shown on the screen below and press the Enter key.

```
              PC to Host translates for 84 KEY PC Keyboards
    Host Function      PC Keys          Host Function      PC Keys

    Hot Key            Ctrl Esc         Setup              Alt Esc

    Record             Alt R            Play               Alt P

    Pause              Ctrl S           View Mode          Ctrl V

    Keyboard Help      Alt H            Print              Shift Kpad *
                                                           Alt F7

    Quit               Alt F4           Toggle Rule        Kpad 5
                       Ctrl F10

    Attention          Alt F1           Sys Request        Sys Req
                                                           Alt Kpad *
                                                           Ctrl F1



    Use Arrow keys to highlight, Enter to change an entry
    Use Insert to add an entry, Delete to remove an entry, and ESC to exit
```

Figure 6-6. Changing the SETUP function example.

After pressing the Enter key the following screen will appear:

```
    Select one of the PC Keys below to perform the Setup function.

      '    B    T         F1          Kpad 6
      ,    C    U         F2          Kpad +
      -    D    V         F3          Kpad 1
      .    E    W         F4          Kpad 2
      /    F    X         F5          Kpad 3
      0    G    Y         F6          Kpad 0
      1    H    Z         F7          Kpad .
      2    I    [         F8          Sys Req
      3    J    \         F9          Shift
      4    K    ]         F10         Ctrl
      5    L    `         Num Lock    Alt
      6    M    Esc       Scroll Lock
      7    N    Backspace Kpad 7
      8    O    Tab       Kpad 8
      9    P    Enter <┘  Kpad 9
      ;    Q    Kpad *    Kpad -
      =    R    Space     Kpad 4
      A    S    Caps Lock Kpad 5


    Use Arrow Keys to Highlight, Enter Key to select, ESC for previous menu
```

Figure 6-7. Assigning the F3 key example.

We are now prompted to select a key to perform the **SETUP** function. Move the cursor to the **F3** selection and press the Enter key.

```
 Select one of the PC Key sequences below to perform the Setup function.


    PC Key Combination                    Current Function
    ------------------                    ----------------------
    F3                                    PF3

    Shift F3                              PF13

    Ctrl F3

    Alt F3                                Cursor Sel

    Alt/Ctrl F3                           PF23





 Use Arrow keys to highlight, Enter to select, and ESC to exit this menu
```
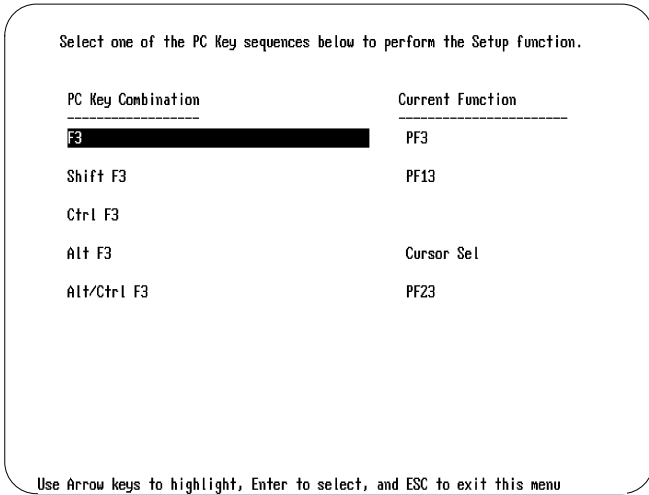
Figure 6-8. Selecting the PC Key sequence.

We are now prompted to enter the key sequence to assign the SETUP function. Examining the screen above, most of the control key sequences are capable of accepting the new SETUP sequence.

Move the cursor to the F3 selection, and press the Enter key.

The SETUP function is now assigned to the PC key sequence **F3**.

Press the ESC key to return to the previous panel as shown on the following page:

```
                  PC to Coax translates for 84 KEY PC Keyboards
     Coax Function      PC Keys          Coax Function       PC Keys

     Hot Key            Alt Esc          Setup               F3

     Record             Alt F6           Play                F8

     Pause              F4               View Mode           Alt F3

     Keyboard Help      Alt F9           Print               F7

     Quit               Alt F10          Toggle Rule         Kpad5

     Attention          F1               Sys Request         Alt F1

     Clear              F2               Cursor Sel          Alt F2

     Erase Input        Alt F4           Ex Sel              F5




     Use Arrow keys to highlight, Enter to change an entry
     Use Insert to add an entry, Delete to remove an entry, and ESC to exit
```
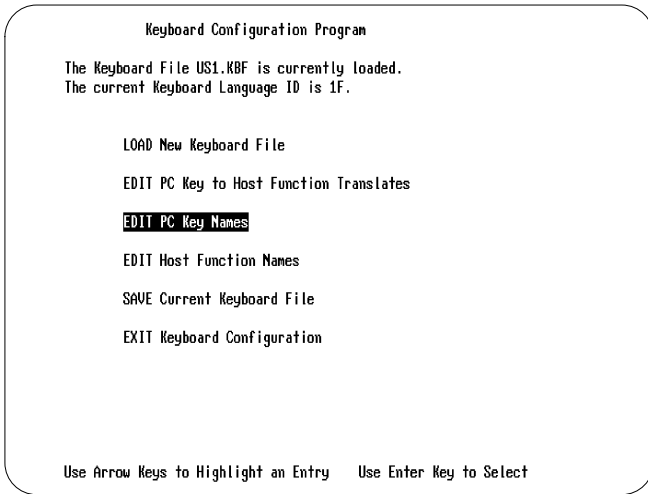
Figure 6-9. Confirming the F3 assignment.

Note in the above screen the SETUP sequence has been assigned the PC key sequence **F3**.

Press the ESC key to return to exit to the MAIN keyboard configuration menu or repeat the previous steps to continue modifying keyboard sequences.

To **SAVE** this configuration proceed to Page 77 in this chapter for more information.

Editing PC Key Names

```
                    Keyboard Configuration Program

        The Keyboard File US1.KBF is currently loaded.
        The current Keyboard Language ID is 1F.


                LOAD New Keyboard File

                EDIT PC Key to Host Function Translates

                EDIT PC Key Names

                EDIT Host Function Names

                SAVE Current Keyboard File

                EXIT Keyboard Configuration




        Use Arrow Keys to Highlight an Entry   Use Enter Key to Select
```

Figure 6-10. Editing a PC Key Name.

This section will describe the procedure to modify a PC key sequence name as they appear throughout the keyboard configuration program and also the FORVUS Emulator HELP panel that may be accessed with the **Keyboard Help** key.

Move the cursor to **EDIT PC Key Names** as shown above. Press the **Enter** key to Select.

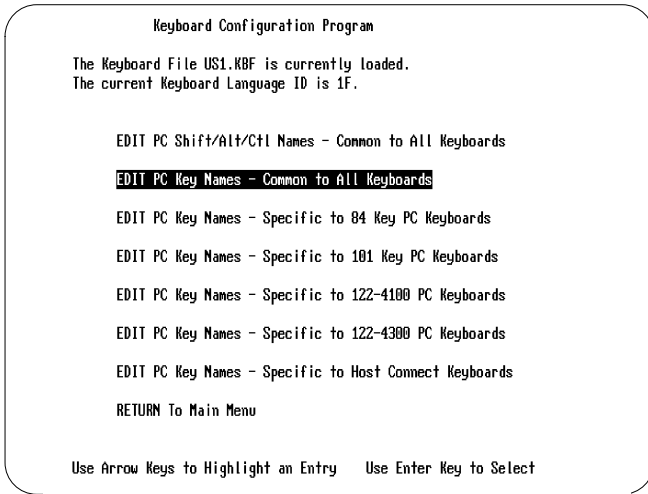You will now see the screen as shown on the following page:

```
              Keyboard Configuration Program

     The Keyboard File US1.KBF is currently loaded.
     The current Keyboard Language ID is 1F.


          EDIT PC Shift/Alt/Ctl Names - Common to All Keyboards

          EDIT PC Key Names - Common to All Keyboards

          EDIT PC Key Names - Specific to 84 Key PC Keyboards

          EDIT PC Key Names - Specific to 101 Key PC Keyboards

          EDIT PC Key Names - Specific to 122-4100 PC Keyboards

          EDIT PC Key Names - Specific to 122-4300 PC Keyboards

          EDIT PC Key Names - Specific to Host Connect Keyboards

          RETURN To Main Menu


  Use Arrow Keys to Highlight an Entry    Use Enter Key to Select
```

Figure 6-11. Editing a COMMON PC key name.

In this example, we will be modifying the name for the Backspace key. Since
this key is a COMMON key found on all keyboards, the selection shown
above is selected. Move the cursor to **EDIT PC Key Names- Common to
All Keyboards** and press the **Enter** key.

After entering the selection above, a screen will appear similar to the one
found on the next page.

As shown below, the Key Name for the backspace function is called **Back-space**. In this example, we will modify this name to **Back**.

```
          Edit PC Keys common to all PC keyboard types

      Key Name          Scan Code   E0/E1    Internal Code   Caps Lock/Num Lock
    ----------------       --        --          --             ----

      Esc               01                     01
      1                 02                     02
      2                 03                     03
      3                 04                     04
      4                 05                     05
      5                 06                     06
      6                 07                     07
      7                 08                     08
      8                 09                     09
      9                 0A                     0A
      0                 0B                     0B
      -                 0C                     0C
      =                 0D                     0D
      Backspace         0E                     0E
      Tab               0F                     0F
      Q                 10                     10               CAPS
      W                 11                     11               CAPS

    Use Arrow keys to highlight, Enter to select, and ESC to exit this menu
```

Figure 6-12. Editing the BACKSPACE key name.

Move the cursor to the selection shown above and press the Enter key.At the prompt enter the word **Back** and press Enter.

```
          Edit PC Keys common to all PC keyboard types

      Key Name          Scan Code   E0/E1    Internal Code   Caps Lock/Num Lock
    ----------------       --        --          --             ----

      Esc               01                     01
      1                 02                     02
      2                 03                     03
      3                 04                     04
      4                 05                     05
      5                 06                     06
      6                 07                     07
      7                 08                     08
      8                 09                     09
      9                 0A                     0A
      0                 0B                     0B
      -                 0C                     0C
      =                 0D                     0D
      Back              0E                     0E
      Tab               0F                     0F
      Q                 10                     10               CAPS
      W                 11                     11               CAPS

    Use Arrow keys to highlight, Enter to select, and ESC to exit this menu
```
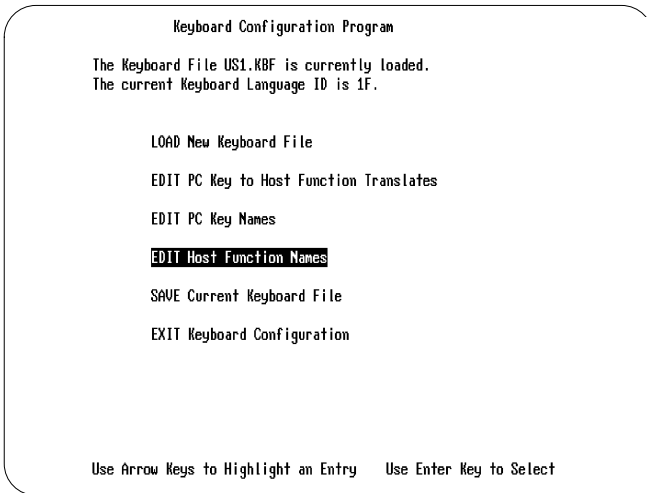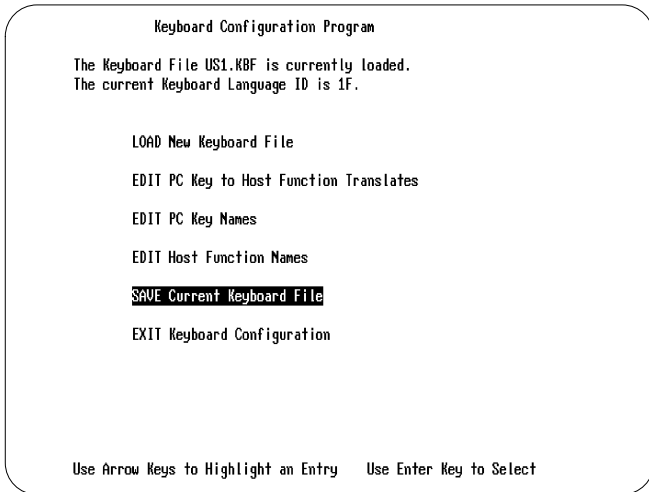
Figure 6-13. Entering the new BACK name

Any future references to the backspace function will now show the name **Back**. Using the arrow keys will allow the operator to modify any other names that may be desired to be modified.

Press the ESC key to return to the previous panels to modify other key sequences.

To **SAVE** this configuration, proceed to Page 77 in this chapter for more information.

Editing Host Function Names

```
                     Keyboard Configuration Program

         The Keyboard File US1.KBF is currently loaded.
         The current Keyboard Language ID is 1F.


                  LOAD New Keyboard File

                  EDIT PC Key to Host Function Translates

                  EDIT PC Key Names

                  EDIT Host Function Names

                  SAVE Current Keyboard File

                  EXIT Keyboard Configuration




         Use Arrow Keys to Highlight an Entry    Use Enter Key to Select
```

Figure 6-14. Editing a Host Function name.

This section will describe the procedure to modify a Host Function key sequence name as they appear throughout the keyboard configuration program and also the FORVUS Emulator HELP panel that may be accessed with the **Keyboard Help** key.

Move the cursor to **EDIT Host Function Names** as shown above. Press the **Enter** key to Select. You will now see the screen as shown on the following page:

In the example below, we will be changing the name of the host function **Cursor Sel**. Using the arrow keys, place the cursor on the Cursor Sel entry.

```
   ┌─────────────────────────────────────────────────────────────────┐
   │  Host               Native Mode              Emulation Mode       │
   │  Function Name    Sft/Alt/Loc  Scan Code    Sft/Alt/Loc   Scan Code│
   │  ────────────       ──           ──            ──            ──    │
   │                                                                   │
   │    Hot Key          LOCAL       69            LOCAL         69     │
   │    Setup            LOCAL       01            LOCAL         01     │
   │    Record           LOCAL       02            LOCAL         02     │
   │    Play             LOCAL       03            LOCAL         03     │
   │    Pause            LOCAL       04            LOCAL         04     │
   │    View Mode        LOCAL       08            LOCAL         08     │
   │    Keyboard Help    LOCAL       09            LOCAL         09     │
   │    Print            LOCAL       06            LOCAL         06     │
   │    Quit             LOCAL       05            LOCAL         05     │
   │    Toggle Rule      LOCAL       07            LOCAL         07     │
   │    Attention                    05                          50     │
   │    Sys Request      ALT         05            ALT           50     │
   │    Clear                        06            ALT           51     │
   │   ▐Cursor Sel▌                  04                          51     │
   │    Erase Input      ALT         0C            ALT           53     │
   │    Ex Sel                       03            ALT           55     │
   │                                                                   │
   │                                                                   │
   │  Use Arrow keys to highlight, Enter to select, and ESC to exit this menu│
   └─────────────────────────────────────────────────────────────────┘
```

Figure 6-15. Editing the CURSOR SEL function name.

To change the name of Cursor Sel, press the **Enter** key to modify the highlighted selection. The current text can now be modified from the keyboard.

Type the name **Cr Sel** and press the **Enter** key. The panel will now look similar to the screen shown on the next page.

```
  Host                  Native Mode            Emulation Mode
  Function Name     Sft/Alt/Loc  Scan Code   Sft/Alt/Loc   Scan Code
  _____         ___         __            __            __

    Hot Key           LOCAL        69           LOCAL         69
    Setup             LOCAL        01           LOCAL         01
    Record            LOCAL        02           LOCAL         02
    Play              LOCAL        03           LOCAL         03
    Pause             LOCAL        04           LOCAL         04
    View Mode         LOCAL        08           LOCAL         08
    Keyboard Help     LOCAL        09           LOCAL         09
    Print             LOCAL        06           LOCAL         06
    Quit              LOCAL        05           LOCAL         05
    Toggle Rule       LOCAL        07           LOCAL         07
    Attention                      05                         50
    Sys Request       ALT          05           ALT           50
    Clear                          06           ALT           51
    Cr Sel                         04                         51
    Erase Input       ALT          0C           ALT           53
    Ex Sel                         03           ALT           55


  Use Arrow keys to highlight, Enter to select, and ESC to exit this menu
```

Figure 6-16. Confirming the CR SEL change.

Any future references to the Cursor Select function will now show the name **Cr Sel**. Using the arrow keys will allow the operator to modify any other names that may be desired to be modified.

Press the ESC key to return to the previous panels to modify other key sequences.

To **SAVE** this configuration, proceed to the next page for more information.

Saving a Modified Keyboard Configuration

```
                     Keyboard Configuration Program

        The Keyboard File US1.KBF is currently loaded.
        The current Keyboard Language ID is 1F.


                LOAD New Keyboard File

                EDIT PC Key to Host Function Translates

                EDIT PC Key Names

                EDIT Host Function Names

                SAVE Current Keyboard File

                EXIT Keyboard Configuration




        Use Arrow Keys to Highlight an Entry    Use Enter Key to Select
```

Figure 6-17. Saving a Modified configuration file.

To **SAVE** a modified keyboard configuration file, use the arrow keys to move the cursor to the selection shown above and press the **Enter** key.

A screen similar to the one on the next page will be shown.

```
The existing KBF files in directory C:\FORVUS are listed below

US1.KBF        BELG1.KBF       BELG2.KBF       CAN_FR1.KBF
CAN_FR2.KBF    CSA_1988.KBF    CSA_1992.KBF    DANISH1.KBF
DANISH2.KBF    FINNISH1.KBF    FINNISH2.KBF    FRENCH1.KBF
FRENCH2.KBF    GERMAN1.KBF     GERMAN2.KBF     INTR1.KBF
INTR2.KBF      ITALIAN.KBF     ITALIAN1.KBF    ITALIAN2.KBF
NETH1.KBF      NETH2.KBF       NEWBELG1.KBF    NEWBELG2.KBF
NORWEG1.KBF    NORWEG2.KBF     PC3270_1.KBF    PC3270_2.KBF
PORTUG_N.KBF   PORTUG_O.KBF    PORTUG1.KBF     PORTUG2.KBF
SPAN_SP1.KBF   SPAN_SP2.KBF    SPANISH1.KBF    SPANISH2.KBF
SPNEW103.KBF   SPSP_103.KBF    SWEDISH1.KBF    SWEDISH2.KBF
SWISS_F1.KBF   SWISS_F2.KBF    SWISS_G1.KBF    SWISS_G2.KBF
UK1.KBF        UK2.KBF         US1472V.KBF     US1472VA.KBF
US2.KBF        US3.KBF         US3_102.KBF     US4.KBF




Use arrow keys to highlight, Enter to write to the highlighted file
Press F9 to change directory, F10 to type in a file name, and ESC to abort
```

Figure 6-18. Writing the configuration file to disk.

To **WRITE** the new file to the file we have edited in the previous example (US1.KBF), move the cursor as shown above.

Press the **Enter** key to write the new file. If you would like to save the new configuration to a file with a different name, press the F10 key and follow the prompts to enter another keyboard configuration filename.

Press the ESC key to return to the MAIN menu to exit.

Configuration Warning

If the FORVUS Emulator is configured to use both a re-configured keyboard layout AND a USER 01, 02, 03 or 04 type keyboard that has been modified using the control unit customization program, keystrokes that have been re-assigned may not appear in their correct locations when the **Keyboard Help** panel is displayed.

Use caution when using the Control Unit supplied customization program as results may be unpredictable. Contact your system supervisor before selecting the USER type keyboards.

Problem Determination

This section of the manual is provided to assist you with problems you may have while using the FORVUS Emulator. Messages that might appear on the Operator Status Row may indicate an error condition while some may be for information only. If you see indicators on the Status Row, refer to Chapter 5, "Status Row Messages" on page 55.

If the emulator should indicate a problem, refer to Appendix A, " Error Messages" for a more detailed description.

If you are having problems other than communicating with your host, follow the steps below to further assist you with solving the problem.

Initial Checks

1. If your system unit does not power up as it normally does, check that power is available to both your monitor and system unit. If power is available to both units proceed to step 2.

2. Check all connections to the system unit (keyboard,monitor, and any other connections).

3. Check the contrast and brightness controls on the monitor. Should the screen appear, re-adjust to a comfortable level.

4. If your system is equipped with diagnostics (power on diagnostics, memory test, alarm "beeps") make sure these tests pass normally. If these diagnostics "fail", refer to your system unit user's manual to further identify the system problem.

☞   **Expanded memory Users:** Make sure your expanded memory manager does not interfere with the memory address space of your communications adapter (coax adapter, token ring adapter, etc.) by excluding the required memory area per the hardware manufacturer's specifications.

FORVUS Emulator Does Not Load

1. Perform Initial Checks (See Page 79) and verify Configuration selections.

2. Is the communications adapter card installed correctly in the system unit? Make sure the Adapter card is firmly seated in the system unit's Main board.

3. If required, has a network driver (for example, IPX/SPX,LLC) been loaded into memory before the Emulator communications driver is started.

☞   IPX/SPX is required for SAA connection.

LLC is required for 802.2 and LANSYS connection.

TCP/IP stack is required for TN3270 connection.

4. The FORVUS Emulator displays an error message while trying to load - Refer to Appendix A, "Error Messages" for further information.

FORVUS Emulator loads. . .
but does not communicate with the Host

1. Perform Initial Checks (see Page 79) and verify Configuration selections.

2. Make sure the communication cable is properly attached to the Communication Adapter. (loose wires, frayed cable, etc.)

3. Are other devices communicating with the same gateway controller? If not, the gateway controller may be malfunctioning. Check with your system operator.

4. If possible, have your system operator restart the line that you are communicating. If the host is operational and other devices are functioning normally, power your system off and back on to retry the operation.

5. LANSYS Connection only - Run the CHKLNK program described in Appendix D.

6. SAA connection only - 505-xx errors (no host connection) - When the FORVUS Emulator is loaded, a 505-xx error will occur if there is no communication with the host. The 2-digit number following the 505 may help you identify the cause. See Appendix A "Status Row Messages" for more information.

☞   A blank screen with no status line usually occurs if IPX/SPX has not been loaded.

Viewing Connection Information (SAA only)

To view the SAA Connection Information screen, follow these steps:

1. Press the Test key from any online screen to enter Test mode. Refer to Keyboard Help to locate the Test key function.

2. Press the 3 key from the Main Test menu. The SAA Connection Information screen is displayed.

3. To leave the SAA Connection Information screen, press the Test key. You will return to the screen from which you entered Test mode.

Product support

If you have a question that isn't answered in this manual, our Product Support Department can help. Free telephone support is provided for 90 days to you as a new user when you return the enclosed registration card. Many questions can be answered in this manual. However, if you've checked your manual and still need assistance, please have your computer powered on and the following information available:

- your name and address
- your FORVUS Emulator software serial number
- your computer make and model, the amount of RAM installed, the type and capacity of your hard disk and floppy drives, the display adapter and monitor type, printer name and model number
- Version number of Novell NetWare for SAA (if applicable)
- Type of coaxial adapter installed (if applicable)
- Type of network adapter installed (if applicable)
- TCP/IP vendor stack (if applicable)
- DOS version number
- contents of your CONFIG.SYS and AUTOEXEC.BAT files
- a clear description of your problem

Call Product Support at (919) 954-8380 between 9 a.m. and 5 p.m. EST (excluding US holidays). We will be happy to assist you.

Defective items

If you have registered your software and find a defect in your diskettes or manual within 90 days of the date of purchase, you may return the defective item for a replacement. Proof of purchase is required.

File Transfer

The FORVUS Emulator is capable of sending and receiving files from a host mainframe that uses the VM/CMS, TSO or CICS environment. This enables the operator to transfer files to and from other users via the host application.

Two types of file transfer tasks supported by the emulator are IBM's IND$FILE and PCXFER. IND$FILE is initiated from the PC while PCXFER is initiated from the host.

Requirements for File Transfer

Before you attempt to transfer files between the system unit and the host, make sure the following steps have been taken:

- The host file transfer programs have been installed. Check with your system operator should you need assistance with the host application.

- Make sure the host will not send any unsolicited messages while the file transfer is in progress. Enter the host command to "set messages off" before starting the file transfer.

- Log on to the host application you will be transferring the FORVUS Emulator for DOS files to/from.

☞ **When the file transfer is in progress, both the DOS session and the host session will be dedicated to the task. Neither session may be used until the file transfer is complete.**
Any attempt to enter data from the keyboard may disrupt the file transfer between the host and the DOS session. Data may only be entered in response to messages received from the file transfer program.

Mainframe System Requirements

Subject to the host system you use, one of the following supported file transfer programs must be installed at your host site:

- OS/VS2 TSO-IBM 3270-PC File Transfer Program Rel 1 (5665-311)

- VM/CMS-IBM 3270-PC File Transfer Program Rel 1 (5664-281)

- PCXFER

The installation and support of the IBM host supported file transfer program is outside the scope of this document. See your system administrator for additional help.

OS/VS2 TSO Environment

The following text will describe the steps necessary to send and receive files in the TSO operating environment with the host. Refer to the IBM document, *OS/VS2 TSO Terminal User's Guide* for more information.

TSO Receive

To RECEIVE a file from the host, refer to the command below:

```
RECEIVE [d:path] file.ext [h:]dset.ext /Flags
```

Options:
```
(member)/pword
ASCII
CRLF
APPEND
```

Where:

RECEIVE	This is the receive command.
d:	This is the drive indicator that will contain the destination file (file.ext). Optional
path	The subdirectory where the destination file will be placed. Optional
file.ext	This is the name of the destination file that will be placed on your system unit. If you use a name that does not currently exist, a new one will be created. If you specify a name that currently exists, the file being received will replace the current file, or if the APPEND option is specified, added to the end of the of the current file
h:	This is the name of the TSO host window that you wish to retrieve the host file.
dset.ext	This is the name of the data set you wish to retrieve from the host.

Options

The options that may be specified must be separated with a space character, following the previous command line parameters.

(member)	The member name of a partitioned data set that will be retrieved from the host.

`/pword`	The password of the data set to be retrieved from the host.
ASCII	Specifies that the file transfer will translate the EBCDIC code from the host to ASCII code for the system unit. Not used for BINARY file transfers.
CRLF	Specifies that carriage returns and line feeds will be added to the retrieved file from the host. Not used for BINARY file transfers.
APPEND	This informs the file transfer program to add the file being retrieved from the host to an existing file that resides on the system unit. Not used when a file is being overwritten on the system unit.
/Flags	/H=nnn - Host timeout value (nnn=timeout value in seconds). Sets how long the Receive program waits for a host response before timing out.
	/Q - Quiet mode. Suppresses message display during file transfer.
	/S - Display statistics. Displays statistics for a file transfer, including the number of bytes transferred, and the host timeout value. It is recommended that you use the /S flag to determine these values before using the /H flag to change them.
	/W - Display warning messages. Warning messages are not sent unless this flag is specified.
	/? - Help. Displays a menu of these flags.

TSO Send

To SEND a file to the host, refer to the command below:

```
SEND [d:path] file.ext [h:]dset.ext /Flags
```

Options:
```
(member)/pword
ASCII
CRLF
APPEND
LRECL(l)
BLKSIZE(s)
RECFM(l)
SPACE(s1,s2)type
```

SEND	This is the send command.
d:	This is the drive indicator that will contain the source file (file.ext). Optional
path	The subdirectory where the source file will be sent from. Optional
file.ext	This is the name of the source file that will be sent to the host.
h:	This is the name of the TSO host window that you wish to send the system unit file.
dset.ext	This is the name of the destination file that will be placed on the host. If you use a name that does not currently exist, a new one will be created. If you specify a name that currently exists, the file being received will replace the current file, or if the APPEND option is specified, added to the end of the of the current file on the host.

Options

The options that may be specified must be separated with a space character, following the previous command line parameters.

(member)	The member name of a partitioned data set that will be sent to the host.
/pword	The password of the data set to be sent to the host.
ASCII	Specifies that the file transfer will translate the ASCII code from the system unit to EBCDIC code for the host. Not used for BINARY file transfers.

CRLF	Specifies that carriage returns and line feeds will be added to the source file that is being sent to the host. Not used for BINARY file transfers.
APPEND	This informs the TSO host to add the file being retrieved from the system unit to an existing file that resides on the host.
LRECL(l)	This informs the host of the logical record length to use when creating a new data set. Replace (l) with the length of the new data set.
BLKSIZE(s)	This informs the host of the size of the data blocks to use when creating a new data set.
SPACE	
(s1,s2)type	This informs the host of the amount of space to allocate for the new data set to be created. Replace ''type'' with the type space desired; CYLINDERS, TRACKS, or AVBLOCKS. Replace ''s1'' with the amount of space needed, and ''s2'' with the amount of space needed for overflow space.
RECFM V	This option forces the host to copy the file exactly as it is, without adding any spaces at the end to make it equal a full host record. Use this option with size sensitive files, such as .ZIP and .EXE files.
/Flags	/H=nnn - Host timeout value (nnn=timeout value in seconds). Sets how long the Receive program waits for a host response before timing out.
	/Q - Quiet mode. Suppresses message display during file transfer.
	/S - Display statistics. Displays statistics for a file transfer, including the number of bytes transferred, and the host timeout value. It is recommended that you use the /S flag to determine these values before using the /H flag to change them.
	/W - Display warning messages. Warning messages are not sent unless this flag is specified.
	/? - Help. Displays a menu of these flags.

VM/CMS or CICS Environment

The following text will describe the steps necessary to send and receive files in the CMS or CICS operating environment with the host. Refer to the IBM document, *Virtual Machine Facility/370 CMS User's Guide* for more information.

CMS or CICS Receive

To RECEIVEa file from the host, refer to the command below:

```
RECEIVE [d:path] file.ext [h:]name type mode /Flags
```

Options:
```
ASCII
CRLF
APPEND
```

Where:

RECEIVE	This is the receive command.
d:	This is the drive indicator that will contain the destination file (file.ext). Optional
path	The subdirectory where the destination file will be placed. Optional
file.ext	This is the name of the destination file that will be placed on your system unit. If you use a name that does not currently exist, a new one will be created. If you specify a name that currently exists, the file being received will replace the current file, or if the APPEND option is specified, added to the end of the of the current file
h:	This is the name of the session that you wish to retrieve the host file.
name	This is the name of the file you wish to retrieve from the host.
type	This is the type of file you wish to retrieve from the host. Ex. SCRIPT
mode	This is the mode of the file you wish to retrieve from the host.

Options

The options that may be specified must be surrounded with parenthesis, separated with a space character following the previous command line

parameters.

ASCII	Specifies that the file transfer will translate the EBCDIC code from the host to ASCII code for the system unit. Not used for BINARY file transfers.
CRLF	Specifies that carriage returns and line feeds will be added to the retrieved file from the host. Not used for BINARY file transfers.
APPEND	This informs the file transfer program to add the file being retrieved from the host to an existing file that resides on the system unit. Not used when a file is being overwritten on the system unit.
RECFM V	This option forces the host to copy the file exactly as it is, without adding any spaces at the end to make it equal a full host record. Use this option with size sensitive files, such as .ZIP and .EXE files.
/Flags	/H=nnn - Host timeout value (nnn=timeout value in seconds). Sets how long the Receive program waits for a host response before timing out.
	/Q - Quiet mode. Suppresses message display during file transfer.
	/S - Display statistics. Displays statistics for a file transfer, including the number of bytes transferred, and the host timeout value. It is recommended that you use the /S flag to determine these values before using the /H flag to change them.
	/W - Display warning messages. Warning messages are not sent unless this flag is specified.
	/? - Help. Displays a menu of these flags.

VM/CMS or CICS Send

To SEND a file to the host, refer to the command below:

```
SEND [d:path] file.ext [h:] name type mode
```

Options:
```
ASCII
CRLF
APPEND
LRECL(l)
RECFM(l)
```

SEND	This is the send command.
d:	This is the drive indicator that will contain the source file (file.ext). Optional
path	The subdirectory where the source file will be sent from. Optional
file.ext	This is the name of the source file that will be sent to the host.
h:	This is the name of the session that you wish to send the system unit file. Optional
name	
type	
mode	This is the name of the destination file that will be placed on the host. If you use a name that does not currently exist, a new one will be created. If you specify a name that currently exists, the file being received will replace the current file, or if the APPEND option is specified, added to the end of the of the current file on the host.
LRECL(l)	This informs the host of the logical record length to use when creating a new file. Replace (l) with the length of the new data set.
ASCII	Specifies that the file transfer will translate the EBCDIC code from the host to ASCII code for the system unit. Not used for BINARY file transfers.
CRLF	Specifies that carriage returns and line feeds will be added to the retrieved file from the host. Not used for BINARY file transfers.
APPEND	This informs the file transfer program to add the file being retrieved from the host to an existing file that resides on the system unit. Not used when a file is being overwritten on the

	system unit.
RECFM V	This option forces the host to copy the file exactly as it is, without adding any spaces at the end to make it equal a full host record. Use this option with size sensitive files, such as .ZIP and .EXE files.
/Flags	/H=nnn - Host timeout value (nnn=timeout value in seconds). Sets how long the Receive program waits for a host response before timing out.
	/Q - Quiet mode. Suppresses message display during file transfer.
	/S - Display statistics. Displays statistics for a file transfer, including the number of bytes transferred, and the host timeout value. It is recommended that you use the /S flag to determine these values before using the /H flag to change them.
	/W - Display warning messages. Warning messages are not sent unless this flag is specified.
	/? - Help. Displays a menu of these flags.

File Transfer Messages

The following messages are provided to inform the operator of the current status of the file transfer application. Some of these messages are for information only, while other messages may report an error situation.

TRANS01   File transfer command being processed.

This message is displayed when the file transfer command has been accepted and communication between the host system and the system unit has begun.

TRANS02   Number of bytes of file transferred so far: ==> XXXXX

This message informs the operator of the number of bytes that have been transferred between the host system and the system unit.

TRANS03   File transfer complete.

This message is displayed when the file transfer has completed without errors.

TRANS05   PC filespec incorrect: file transfer canceled.

This message informs the operator that the DOS filespec was either not found or incorrect. Verify the drive, path, filename and extension entered

matches the file you wish to use.

TRANS06   Command incomplete: file transfer canceled.

The parameters entered for the SEND or RECEIVE command were invalid or not found. Verify the parameters entered and retry the operation.

TRANS10   Host has not responded within timeout period.

This message is displayed when the host fails to respond within 5 minutes. Contact your system operator or retry the operation.

TRANS12   Error writing to damaged or full PC Disk: File transfer cancelled.

This message is displayed when DOS reports a problem while writing to the destination disk. The disk may be full or the media may be damaged.

TRANS25   Keyboard inhibited: file transfer canceled.

While the file transfer was in progress, the host session locked the keyboard. 'Hot-Key' to the host session to find the cause of the inhibited keyboard.

TRANS27   Out of sequence host: file transfer canceled.

This message is displayed when the host communication sequence did not correspond with the expected sequence. This may be due to either a program or system error.

TRANS41   Host file replaced by new file.

This message is issued to inform the operator that the SEND command has replaced an existing file with a new file.

TRANS42   Disk file replaced by new file.

This message is issued to inform the operator that the RECEIVE command has replaced an existing DOS file with a new file.

TRANS43   Break in progress.. please wait.

You pressed the Ctrl+Break key sequence to terminate the file transfer operation. The transfer program is now in progress of informing the host to terminate the file transfer.

TRANS44   Transfer statistics: Total number of chars transferred = XXXXX

This message is displayed to inform the operator of the total number of characters that were transferred between the host and the system unit.

TRANS45   ...actual number of data bytes=XXXXXXXX , overhead = XX %

This message informs the operator of the number of DATA bytes actually contained in the file while the overhead percentage taken to transfer the file is contained in **XX**.

TRANS48   File transfer terminated.

This message is displayed when the file transfer is terminated either by a program or system error or initiated with the Cntl+Break sequence from the system unit keyboard.

TRANS49   Hardware malfunction, command timeout.

This message is displayed when the file transfer program has detected an error with the Hardware Adapter. Retry the operation or contact your system operator.

TRANS50   Host is not processing keys.

This message informs the operator that the host control unit is not accepting keystrokes from the system unit. The control unit may have logged an excessive amount of communication errors or the system may be down.

TRANS53   Emulation Program not resident.

This message informs the operator that a RECEIVE or SEND operation was attempted while FORVUS Emulator for DOS was not resident. Install FORVUS Emulator for DOS in resident mode and retry the operation.

TRANS54   Cursor in protected field.

While the file transfer was in progress, the cursor was found in a protected field. Retry the operation or contact your system operator.

TRANS55   Host input area too small.

While the file transfer was in progress, the cursor was found in an unprotected field that was not large enough to accept the data to be sent. Retry the operation or contact your system operator.

Host Initiated File Transfers (PCXFER)

Transferring Files to the Host

Use the PCXFER command to transfer files to the host. The syntax for transferring a file to the host from the PC is:

```
PCXFER host-filename host-filetype host-file-mode from
PC (d:file.ext) [(Options)]
```

Transferring Files from the Host

Use the PCXFER command to transfer files from the host. The syntax for transferring a file from the host from the PC is:

```
PCXFER host-filename host-filetype host-file-mode to
PC (d:file.ext) [(Options)]
```

PCXFER Syntax

PCXFER	This is the file transfer command name.
to	Tells the host to transfer the file to the host from the PC.
from	Tells the host to transfer the file from the host to the PC.
PC	Tells the host the DOS path and filename.

Options

ASIS	Transfer the file as it is without adding spaces to equal an even host record size.
TEXT	Transfer ASCII files with carriage return and line feeds. The host can add spaces to make an even record size.
	Note: Do not transfer binary files, such as .ZIP or .EXE using the TEXT option or the files may be corrupted.
REPLACE	Transfer the file and replace an existing file of the same name with this file.
APPEND	Transfer the file and append it to an existing file of the same name

File Translation

When files are transferred between the host system and the system unit, if the ASCII option is specified, a translation between ASCII and EBCDIC will take place. This occurs because the PC utilizes the ASCII alphanumeric character set and the host system utilizes the EBCDIC alphanumeric character set.

The following observation should be noted while using the ASCII option:

- There are 3 character differences between the ASCII and EBCDIC character sets. These are:

ASCII Symbol	^	[	]
EBCDIC Symbol	¬	¢	|

Although these characters are displayed differently from host system to PC system, their character codes remain the same.

Refer to the following pages for the translation tables.

ASCII to EBCDIC Translate Table

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	00	01	02	03	37	2D	2E	2F	16	05	25	0B	0C	0D	0E	0F
1	10	11	12	13	3C	3D	32	26	18	19	3F	27	1C	1D	1E	1F
2	40	5A	7F	7B	5B	6C	50	7D	4D	5D	5C	4E	6B	60	4B	61
3	F0	F1	F2	F3	F4	F5	F6	F7	F8	F9	7A	5E	4C	7E	6E	6F
4	7C	C1	C2	C3	C4	C5	C6	C7	C8	C9	D1	D2	D3	D4	D5	D6
5	D7	D8	D9	E2	E3	E4	E5	E6	E7	E8	E9	4A	E0	4F	5F	6D
6	79	81	82	83	84	85	86	87	88	89	91	92	93	94	95	96
7	97	98	99	A2	A3	A4	A5	A6	A7	A8	A9	C0	6A	D0	A1	07
8	20	21	22	23	24	15	06	17	28	29	2A	2B	2C	09	0A	1B
9	30	31	1A	33	34	35	36	08	38	39	3A	3B	04	14	3E	E1
A	41	42	43	44	45	46	47	48	49	51	52	53	54	55	56	57
B	58	59	62	63	64	65	66	67	68	69	70	71	72	73	74	75
C	76	77	78	80	8A	8B	8C	8D	8E	8F	90	9A	9B	9C	9D	9E
D	9F	A0	AA	AB	AC	AD	AE	AF	B0	B1	B2	B3	B4	B5	B6	B7
E	B8	B9	BA	BB	BC	BD	BE	BF	CA	CB	CC	CD	CE	CF	DA	DB
F	DC	DD	DE	DF	EA	EB	EC	ED	EE	EF	FA	FB	FC	FD	FE	FF

EBCDIC to ASCII Translate Table

	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	00	01	02	03	9C	09	86	7F	97	8D	8E	0B	0C	0D	0E	0F
1	10	11	12	13	9D	85	08	87	18	19	92	8F	1C	1D	1E	1F
2	80	81	82	83	84	0A	17	1B	88	89	8A	8B	8C	05	06	07
3	90	91	16	93	94	95	96	04	98	99	9A	9B	14	15	9E	1A
4	20	A0	A1	A2	A3	A4	A5	A6	A7	A8	5B	2E	3C	28	2B	5D
5	26	A9	AA	AB	AC	AD	AE	AF	B0	B1	21	24	2A	29	3B	5E
6	2D	2F	B2	B3	B4	B5	B6	B7	B8	B9	7C	2C	25	5F	3E	3F
7	BA	BB	BC	BD	BE	BF	C0	C1	C2	60	3A	23	40	27	3D	22
8	C3	61	62	63	64	65	66	67	68	69	C4	C5	C6	C7	C8	C9
9	CA	6A	6B	6C	6D	6E	6F	70	71	72	CB	CC	CD	CE	CF	D0
A	D1	7E	73	74	75	76	77	78	79	7A	D2	D3	D4	D5	D6	D7
B	D8	D9	DA	DB	DC	DD	DE	DF	E0	E1	E2	E3	E4	E5	E6	E7
C	7B	41	42	43	44	45	46	47	48	49	E8	E9	EA	EB	EC	ED
D	7D	4A	4B	4C	4D	4E	4F	50	51	52	EE	EF	F0	F1	F2	F3
E	5C	9F	53	54	55	56	57	58	59	5A	F4	F5	F6	F7	F8	F9
F	30	31	32	33	34	35	36	37	38	39	FA	FB	FC	FD	FE	FF

Notes:

Error Messages

Install Error Messages

The following error messages are provided to assist the user with installing the FORVUS Emulator on the system unit.

No Drive Letter Specified in Destination Path

This message is displayed when FORVUS Emulator could not find a Drive letter in the destination path that was specified. Make sure the drive is specified in the destination path.

No Drive Letter Specified in Source Path

This message is displayed when FORVUS Emulator could not find a Drive letter in the source path that was specified. Make sure the drive is specified in the source path.

Source and Destination paths cannot be the same

This message is displayed when FORVUS Emulator detected that both the source and destination installation paths are the same. Change the paths before continuing.

Make Directory Error

This message is displayed when FORVUS Emulator could not successfully create the directory specified. Check to make sure the drive specified contains enough space for a new directory.

Error Copying Files

While copying the FORVUS Emulator program files, an error was reported. There may not be enough room on the destination disk or a verify error may have occurred while writing the files.

Error Modifying AUTOEXEC.BAT file

This message is displayed when FORVUS Emulator could not successfully modify the file AUTOEXEC.BAT. Check to make sure the drive specified contains enough space for a new file.

Error reading FILELIST file

This message is displayed when FORVUS Emulator could not successfully read the file FILELIST. This file is used to verify the contents of the files to be installed on the system unit.

No Keyboard Files Found

This message is displayed when FORVUS Emulator could not locate the .KBF files. Verify the disk contains the keyboard translate files on the disk and path specified.

No Language Files Found

This message is displayed when FORVUS Emulator could not locate the .MSG files. Verify that the disk contains the language message files on the source disk and path specified.

Insufficient Disk Space to install FORVUS Emulator

This message is displayed when the install program detected that the destination drive does not contain enough space to place the FORVUS Emulator program files. Verify that the destination drive contains enough free space to install the program files.

Insufficient Disk Space in "Windows" directory

This message is displayed when the install program detected that the drive that contains the Windows directory does not contain enough space to place required FORVUS Emulator program files. Verify that the Windows drive contains enough free space to install the program files.

Invalid Characters in Directory Path

This message is displayed when the FORVUS Emulator installation program detected invalid characters in a directory path. Re-check the path and continue.

Error reading PROGMAN.INI

While attempting to read the Windows Program Manager setup file, an error was detected. Retry the previous operation again.

Not Enough DOS memory to run install

This message is displayed when the install program detected insufficient DOS memory to execute. This may be due to too many active programs running under Windows. Terminate any unneeded programs and retry the operation.

Startup Error Messages

The device driver is not loaded.

This message is displayed when FORVUS Emulator has detected that the device driver is not executing. Check the AUTOEXEC.BAT file and make sure the "DEVICE=COMMDVR.EXE" statement is included.

The device driver is downlevel. Make sure you have re-booted since installing the Emulator.

This message is displayed when FORVUS Emulator has detected that the device driver that is currently executing is downlevel. Re-boot the system to load and execute the new driver.

The Host Addressable Print setup for the new session is different from the setup that is currently loaded and running. Do you want to replace the existing HAP setup?

You have attempted to load a session that has different HAP parameters from the setup that is currently running.

The setup parameters for the new session conflict with parameters that are currently loaded and running. If you select 'YES' all active sessions will be reset. Do you want to load the new setup?

You have attempted to load session parameters that are different from the parameters that are currently running. The new parameters require you to reset all sessions currently active in order to use the new setup.

Information Messages

Changes have been made which require the Communications Driver to be reloaded. These changes may not take effect until you exit Windows and reboot.

You have made changes which require the Communications Driver to be reloaded. Since the Communications Driver is loaded from the AUTO-EXEC.BAT file, your system must be re-booted for the new changes to take effect.

Communication Reminders

Communication reminders are messages that are displayed on the operator status row to inform the operator of the status of the communication link. Listed below are explanations for common messages found on the emulator's operator status row.

This list is not all inclusive. For other communication reminders not listed, refer to the *IBM 3270 Information Display System: Reference Summary*.

⎯⌁⎯ **501**   Data Set Ready has dropped from the modem.

⎯⌁⎯ **504**   There is no line connection with the host.

⎯⌁⎯ **505**   Initial state at startup, awaiting response from the host.

⎯⌁⎯ **505-05**   (SAA) No Communication Servers Found
No SAA servers responded to a Nearest Server Query broadcast or could not connect to the nearest server.

⎯⌁⎯ **505-08**   (SAA) Could not find the specified SAA server.
The specified SAA server could not be found. Make sure that you have specified a valid "COMM SERVER" name.

⎯⌁⎯ **505-12**   (SAA) Error connecting to the specified SAA server. An error occurred while trying to connect to the specified SAA server.

⎯⌁⎯ **505-15**   (SAA) Error attaching to the specified SAA server. An error occurred while performing an attach. The common cause for this error is an incorrect "USER ID" or "PASSWORD".

⎯⌁⎯ **505-18**   (SAA) Could not find the service mapping agent. The service mapping agent on the comm server could not be found.

⎯⌁⎯ **505-22**   (SAA) Could not find the specified service (LU) The specified "LU" name or "LU POOL" could not be found or was not available from from the specified "SERVICE PROFILE". Make sure you have specified a valid "LU" or "LU POOL" name and they are available under the specified "SERVICE PROFILE". If the "LU" name is correct, the specified LU is in use.

⎯⌁⎯ **505-25**   (SAA) Error opening route to the specified service (LU). Refer to comm reminder 505-22.

⎯⌁⎯ **505-28**   (SAA) Error opening route to the specified service (LU). Refer to comm reminder 505-22

⎯⌁⎯ **505-30**   (SAA) Connected to SAA Server- No Host Communications. The emulator is connected to the specified SAA server and service. The specified SAA server is not connected to the Host or the specified LU is not active.

⎯⌁⎯ **505-32**   (SAA) Connection to the SAA Server has been interrupted. The connection to the SAA Server was active but has since been interrupted.

⎯⌁⎯ **510**   The PU is not active.

⎯⌁⎯ **519**   A message was received that was larger than the RU size.

⎯⌁⎯ **532**   Approximately 20 seconds have elapsed without communication from the host.

⎯⌁⎯ **588**   (802.2) Could not initalize Token Ring adapter.

⎯⌁⎯ **589-01**   (802.2) Token Ring does not contain enough SAP's.

⎯⌁⎯ **589-02**   (802.2) Token Ring does not contain enough stations.

589-03   (802.2) Emulator could not open a Token Ring SAP.

590   (802.2) Emulator could not open the Token Ring adapter.

Communications Driver

If you elected not to have the installation program install the communications driver , then you must install the driver to interface with your hardware adapter. The communications driver should be installed in the AUTO-EXEC.BAT or equivalent file.

☞   It is important that the FORVUS Emulator communications driver is installed **after** the network driver (IPX/SPX, LLC or TCP/IP Stack) is installed

Add to your AUTOEXEC.BAT file the following command statement: f:\subdirectory\COMMDVR.EXE

Where f:\subdirectory\ is replaced with the drive and subdirectory where FORVUS Emulator is installed.

Removing the Communications Driver

To remove the communications driver from memory, follow the steps below:

- Switch to the drive and subdirectory where the emulator is installed. (Usually C:\FORVUS)
- Type COMMDVR /X and press the **Enter** key.
- You will be notified of the removal of the communications driver.

☞   The driver cannot be removed without first removing other resident programs that may have been loaded after the communications driver was loaded.

Reducing DOS memory requirements

The communications driver is able to load into the Upper Memory Area maintained by DOS. This reduces the amount of required DOS conventional memory (space below 640K). This feature is available with DOS Version 5 or greater.

When using DOS Version 6, it is recommended that the user run the DOS MemMaker program after installing the emulator. MemMaker will find the best memory location for loading the communications driver in high memory.

If you do not have enough Upper Memory available to load the entire driver, the communications driver will load smaller data areas into your Upper Memory to maximize the use of your system unit's memory.

Manual installation

To install the driver in Upper Memory, follow the steps below:

- Switch to the drive and subdirectory where the emulator is installed. (Usually C:\FORVUS)
- Type COMMDVR /U and press the **Enter** key.
- You will be notified of the installation of the communications driver.

Automatic installation

To install the driver in Upper Memory using the AUTOEXEC.BAT method, follow the steps below:

- Switch to the drive and subdirectory where the AUTOEXEC.BAT file is located.
- Using an ASCII text editor, open the AUTOEXEC.BAT file.
- Modify the line that contains f:\path\COMMDVR and add the /U command.
- Close the AUTOEXEC.BAT file and reboot your system.
- The communications driver will now be installed in the Upper Memory area.

Keyboard Layouts

This appendix describes US keyboard layouts supported by the emulation program. These keyboards layouts may be referred to during installation or customization procedures. Refer to page 63, "Keyboard Configuration" to modify these layouts for your personal preference.

US1.KBF   83/84 key - IBM Layout
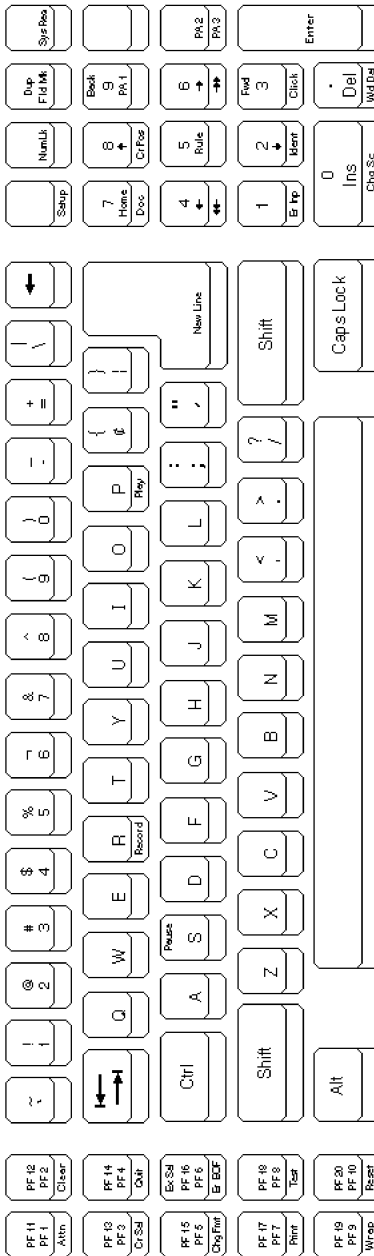
US1.KBF   101 key - IBM Layout
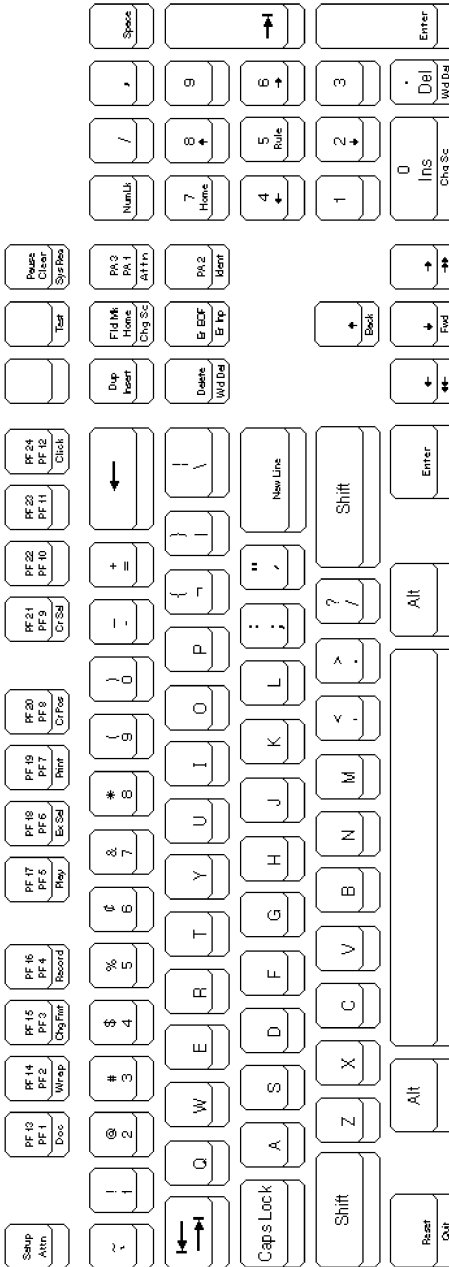
US2.KBF   83/84 key - Attachmate Layout
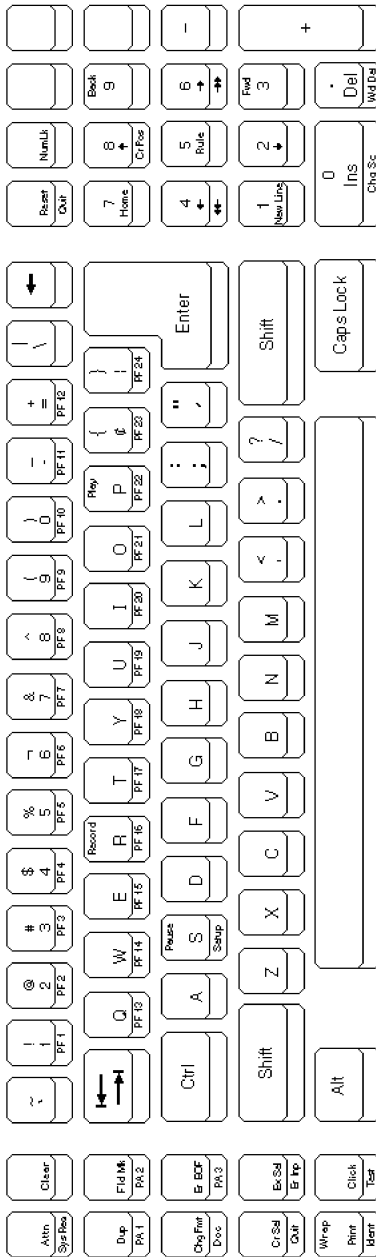
US2.KBF   101 key - Attachmate Layout
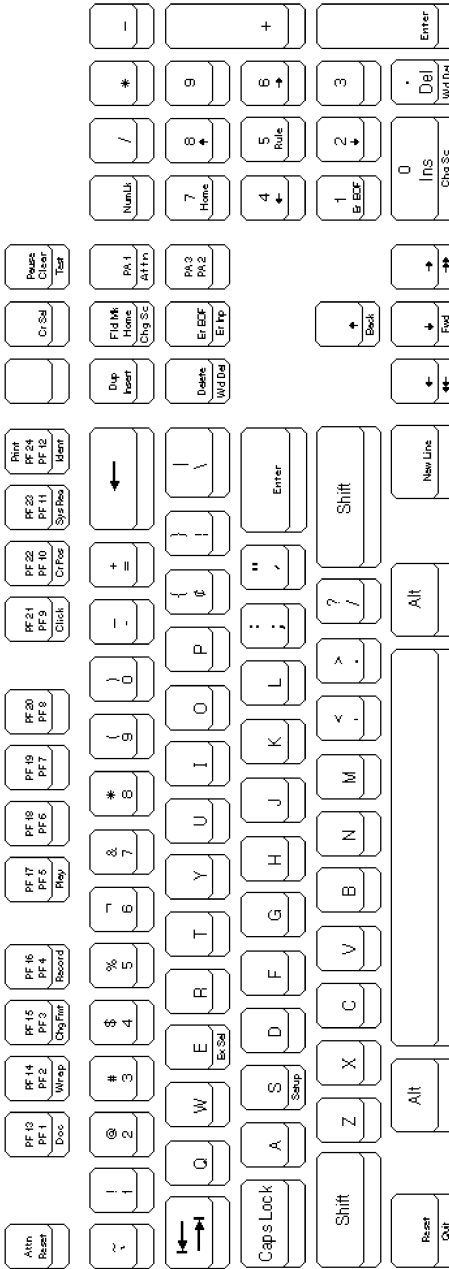
US3.KBF   83/84 key - IRMA E78 Layout

US3.KBF   101 key - IRMA E78 Layout
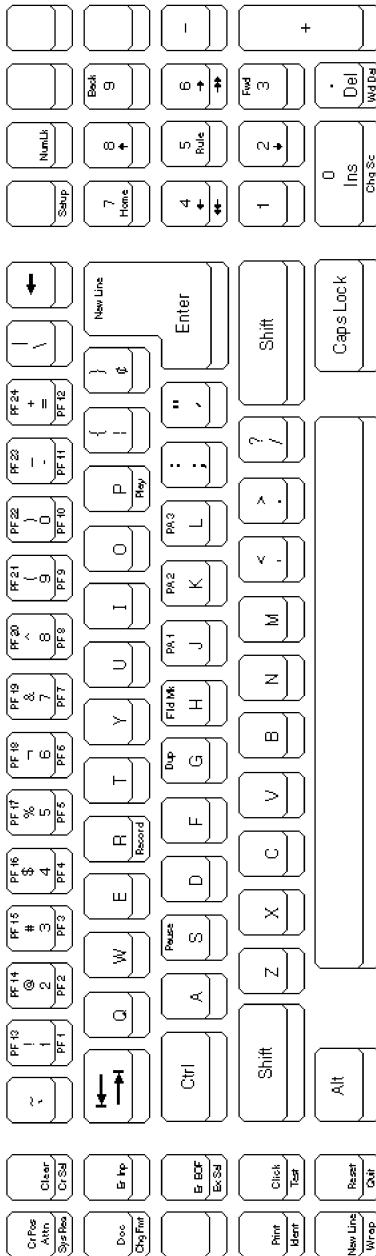
Notes:

CHKLNK

CHKLNK is a problem isolation program that can be used with the FORVUS Emulator to test the LANSYS connection.

The FORVUS Emulator may fail to establish or may lose the link with the Memorex Telex 1174 controller. If the line activity indicator does not function, or if the system status symbol is not displayed on the status line shortly after you enter the DOS command to execute the program, it is likely that a problem exists in the LAN, the PC LAN interface, or in the controller. To isolate the problem, run the CHKLNK program that is supplied on the FORVUS Emulator diskette. CHKLNK tests the resident LAN SUPPORT PROGRAM and uses it to find and test the path to the 1174 controller.

To run CHKLNK, type CHKLNK at the DOS prompt.

If CHKLNK is successful in communication the following is displayed:

> **PC=xxxxxxxxxxxx   (the PC's node address on the LAN)**
> **1174=xxxxxxxxxxxx   (the 1174's node address on the LAN)**
> **CHKLNK OK!**

The FORVUS Emulator requires the IBM LAN SUPPORT PROGRAM (LSP) or its equivalent to be resident. This is installed through DEVICE= commands in the CONFIG.SYS file. It provides an IEEE 802.2 LLC interface for the FORVUS Emulator. Commands to control communications through the LAN are given to this resident program, and the results are returned to the emulator through a hexadecimal return code. These codes are defined in the IBM PC LAN Technical Reference. If CHKLNK is not successful, a message describing the failure is displayed. Possible error messages from CHKLNK are:

NO LAN SUPPORT PROGRAM
The IBM LAN SUPPORT PROGRAM or its equivalent is not installed. This must be installed through DEVICE= command in CONFIG.SYS.

NO SAP AVAILABLE
There was no Service Access Point (SAP) available for the FORVUS Emulator to use. The number of SAP's must be increased, or NETBIOS must be instructed to reserve an extra SAP. This is done with parameters on the LSP command lines in CONFIG.SYS. See the documentation provided with the

LAN SUPPORT PROGRAM or your network adapter.

NO STATION AVAILABLE.
There was no station available for the FORVUS Emulator to use. The number of stations must be increased, or NETBIOS must be instructed to reserve an extra station. This is done with parameters on the LSP command lines in CONFIG.SYS. See the documentation provided with the LAN SUPPORT PROGRAM or your network adapter.

OPEN ADAPTER FAILED. LSP RETURN CODE=xxxx.
The LAN adapter was not open, and the LSP command to open it failed. This is usually cased by a hardware problem or a conflicting node address on the LAN. All nodes on the LAN must have a unique address. If a node tries to enter the LAN with an address already in use, it automatically removes itself. The following is a list of some hardware problems:

- No adapter cable attached to the PC.
- Device drivers for the LAN adapter not installed.
- Hardware interrupt conflicts within the PC.
- Hardware addressing conflicts within the PC.

OPEN SAP FAILED. LSP RETURN CODE=xxxx.
The usual reasons for OPEN SAP to fail are if there are no SAP's available or if SAP 98 is already in use. (xxxx-0043)

RECEIVE COMMAND TO THE SAP FAILED. LSP RETURN CODE-xxxx.
This should never fail. Make a note of the return code, and contact your support personnel.

NO 1174 RESPONDED TO THIS STATION.
Either there is no 1174 that can be reached through the LAN, or there is an 1174 on the LAN supporting LAN terminals, but it is not configured to accept communications from this node. Compare the node address (displayed by CHKLNK) with the addresses configured in the 1174 for LAN TERMINALS.

INCOMPATIBLE REVISIONS LEVELS.
The microcode in the 1174 is not compatible with this level of the FORVUS Emulator.

TRANSMIT XID FRAME FAILED. LSP RETURN CODE=xxxx.
This should never fail. Make a note of the return code, and contact your support personnel.

HLLAPI

Introduction

High-Level Language Application Program Interface (HLLAPI) works with the FORVUS Emulator and provides a programmatic interface between a host computer and a PC application program. The emulator establishes communications between your PC and the host and allows your PC to appear to both you and the host to be a 3270 display station. HLLAPI then provides the interface between the emulator and the application.

The application communicates with HLLAPI, making the application independent of the PC hardware and communications protocol used. This also frees the programmer from the need to understand the operational details of the hardware and protocol. The application access via function calls to routines and information is passed through the function call parameters.

IBM HLLAPI Compatibility

The FORVUS EHLLAPI is compatible with IBM's High Level Language Application Program Interface (EHLLAPI Version 2.0). Applications written for standard IBM EHLLAPI Version 2.0 (not modified be the user to support extended functions) should run under EHLLAPI with no modifications or relink required.

Running EHLLAPI

To run EHLLAPI, first start the emulator and communicate with the host. Hot-key out of the emulator to DOS. The emulator will continue operating in background mode.

Type the following command and press the Enter key to start EHLLAPI:

EHLLAPI

The only way to remove EHLLAPI from memory is to restart DOS. This means you will not need to restart EHLLAPI unless you restart DOS.

Now execute you application. It will communicate with the host using the interface established by the emulator and EHLLAPI.

The above steps for starting EHLLAPI can be included in a batch file or AUTOEXEC.BAT file, eliminating the need for operator intervention.

Notes:

Command Line Options

The following options can be entered on the command line when starting the FORVUS Emulator. These options should not be necessary if the emulator is installed using the INSTALL program provided on the program diskette.

Keyboard Layout Option   (/K=name.KBF)

This command line option will allow the operator to use a keyboard that has been customized with the keyboard configuration program. The format of this option is as follows:

FORVUS /K=KBD001.KBF

If this option is not specified, the file DEFAULT.KBF will be loaded from the disk.

☞   Exercise caution when customizing the keyboard using the configuration program, as unpredictable results may occur if multiple keys are assigned to a single key or keys are not assigned to any key present on the keyboard.

Video Option   (/V=adapter type)

The emulator attempts to determine the type of video adapter installed in
the system unit. Should the operator wish to force operation with different
types of video adapters, this option may be used. The format of this command
line switch is as follows:

```
FORVUS  /V=VGA
```

The video options are:
- /V=MONO   Monochrome Adapter (MDA)
- /V=CGA   Color Graphics Adapter (CGA)
- /V=EGA   Enhanced Graphics Adapter (EGA)
- /V=VGA   Video Graphics Adapter (VGA)
- /V=AHEAD   EGA-Ahead 2001, 2001+
- /V=WIZARD   EGA-Ahead Wizard, Tseng
- /V=7045_INT   MT 7045 Internal-VGA
- /V=VGA_MULTI   Standard VGA-Multisync
- /V=7045_IMULTI   7045 Internal-Multisync
- /V=PS2_30   PS/2 Model 25 or 30
- /V=MICROPAQ_VGA   MicroPAQ VGA Adapter
- /V=CHIPS_452   Chips 452 Based VGA
- /V=WDC_90C00   Western Digital WDC90C00
                          Based VGA
- /V=TL_ET4000   Tseng Labs ET4000 Based
                          VGA Card, BOCA Research
                          Super VGA
- /V=MT_7022   Memorex Telex 7022/7025/7035
- /V=7270   Memorex Telex 7270/7255/7290
- /V=STB_PG   STB PowerGraph VGA
- /V=MT_ATI   Memorex Telex-ATI Chipset
- /V=MT_HED   Memorex Telex-Headland Chipset
- /V=7045D1   Memorex Telex-7045D1 Chipset
- /V=VESA   VESA Standard VGA Card

The table below describes the functions the emulator will support using the following video adapter/monitor configurations.

Adapter	Monitor	24 x 80	32 x 80	43 x 80	27 x 132
Monochrome	Mono	Full	Scroll	Scroll	Scroll
CGA	CGA	Full	Scroll	Scroll	Scroll
EGA	EGA	Full	Full	Full	Scroll
VGA	VGA	Full	Full	Full	Scroll
Ahead 2001, 2001+	EGA	Full	Full	Full	Full
Ahead Wizard	EGA	Full	Full	Full	Full
MT 7045 Internal	VGA	Full	Full	Full	Full
MT 7045 Internal	Multisync	Full	Full	Full	Full
Tseng	EGA	Full	Full	Full	Full
VGA	Multisync	Full	Full	Full	Full
PS/2 Model 25/30	IBM	Full	Scroll	Scroll	Scroll
MicroPAQ	VGA	Full	Full	Full	Full
Chips 452 Based	VGA	Full	Full	Full	Full
WDC 90C00 Based	VGA	Full	Full	Full	Full
TL ET4000 Based	VGA	Full	Full	Full	Full
BOCA Super VGA	VGA	Full	Full	Full	Full
STB PowerGraph	VGA	Full	Full	Full	Full
MT ATI	VGA	Full	Full	Full	Full
MT Headland	VGA	Full	Full	Full	Full
MT 7045D1	VGA	Full	Full	Full	Full
VESA	VGA	Full	Full	Full	Full
MT 7022/7025	VGA	Full	Full	Full	Full
MT 7270	VGA	Full	Full	Full	Full

Resident Mode   (/ R) or (/ T)

While the FORVUS emulator may be loaded normally from the DOS prompt line, it may also be loaded and remain in your system unit memory until it is powered off. This will allow the user to switch from the emulator back to DOS at will, without beginning a new session with the host system. The /**R** command will load the emulator and exit back to DOS while the /**T** command will not exit back to DOS until the 'Hot-Key' sequence. For example:

FORVUS /R

will load the FORVUS Emulator in RESIDENT mode and return the user to DOS with the following message:

Press 'Key Sequence' to Switch to the Emulator.

Where 'Key Sequence' is the current Hot Key of your selected keyboard configuration file. (.KBF)

If the emulator is already RESIDENT, and the command is again entered, the program will respond with the following message:

```
<Startup Error.   The Emulator is already installed in  >
<                 resident mode. Use the /X command   >
<                 line option to remove it from memory >
```

Force Offline Setup   (/S)

This switch is used to force the emulator to enter SETUP mode after loading the program. This enables the operator to modify the offline setup parameters BEFORE going online.

Removing Resident Mode From Memory   (/X)

When the FORVUS Emulator is installed RESIDENT into memory, it allocates address space inside the system unit. This space is then reserved until the machine is rebooted or powered off. Also, the Interrupt Level 2 is shared with other programs that may also be RESIDENT concurrently with the emulator.

In order to REMOVE the emulator from memory and free the space that was previously held, the following actions must be observed:

- If other programs are loaded in RESIDENT mode BEFORE the emulator, the interrupt vectors that the emulator uses may be shared with the program that was previously loaded. If the previous program is removed from memory, it may modify the emulator interrupt structure, making it impossible to remove the emulator from memory. If this occurs, it may be possible to correct this situation by loading the emulator in RESIDENT mode before other programs are loaded.

- If other programs are loaded AFTER the emulator, they must observe the rules of modifying Interrupt vectors and communicating with DOS. If they do not, unpredictable results may occur when the FORVUS Emulator is removed from memory.

To REMOVE the FORVUS Emulator from memory execute the following command:

FORVUS   /X

The FORVUS Emulator will insure that it will not REMOVE itself from memory if other RESIDENT programs have modified the program's internal interrupt structure. If this occurs, the emulator will inform the operator with the following message:

<Startup Error. Another Background program has been >
<   loaded after the Emulator. This   >
<   other program must be removed before>
<   the Emulator can be removed.   >

Command Line Help (/?)

Should the operator need help with the command line options while using DOS, the following option will display a menu of commands the emulator will accept.

Type the command:

```
FORVUS /?
```

The FORVUS Emulator will respond with the following menu:

```
Emulator Command Line Options
/R Install Emulator in RESIDENT MODE and return to
DOS.
/T Install Emulator in MEMORY MODE and stay in Emula-
tor.
/S Force Emulator to start up in OFF LINE SETUP MODE.
/N Force Emulator into NON-RESIDENT MODE.
/X Remove Emulator from memory.
/K=NAME.KBF  Specify a keyboard translate table.
/KT=NBD TYPE Specify a keyboard type. (/KT=84)
/V=VIDEO TYPE  SPECIFY A VIDEO BOARD TYPE
/C=CONFIG FILE Specify an alternate configuration
file.
/? Display this help panel.
```

Force Non-Resident Mode   (/N)

When the emulator is started using the file the SETUP program generated, (**FORVUS.BAT**), it may be desired to override the RESIDENT mode settings (if installed). This may be accomplished by the use of the /**N** command line switch. This option will force the emulator to load and NOT remain resident.

For example:

When the FORVUS Emulator SETUP program was executed, the file **FORVUS.BAT** was created with the following options:

- /R=Resident Mode
- /V=VGA

- /K=US1.KBF

These options will be loaded when the command

FORVUS

is executed.

IF the command line switch /N is added, the resident mode switch installed in the **FORVUS.BAT** file will be ignored, and the system will start WITH-OUT remaining in resident mode.

When the command:

FORVUS /N

is entered, the FORVUS Emulator will ignore the RESIDENT mode switch and execute in NON-Resident mode.

Keyboard Type   (/KT=type)

This command line switch is created by the FORVUS Emulator SETUP program. This switch informs the FORVUS Emulator of the TYPE of keyboard that is attached to the system unit.

Valid choices are:

- /KT=84   84 key standard
- /KT=101   101 key enhanced

Configuration File   (/C=filename)

This switch is used by the install program to specify which SAVED installa-tion file to use. Since multiple configurations may be implemented, SETUP will prompt the operator for the name of the file to save the install to. This switch is then placed in the batch file to recall the configuration file (default FORVUS.BIN) when the emulator is started.

PC Code Page   (/P=code page)

This switch is used to inform the emulator what code page the display adapter is using for the CGA mode. Select between 437, 850, 860, 863 or 865.

Index