PCSA
MS-Windows Enhancements

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About This Manual

The Personal Computing Systems Architecture (PCSA) is an extension of DIGITAL systems and networking architecture that merges VMS and MS-DOS environments. The PCSA network can include VAX or MicroVAX servers running VAX/VMS Services for MS-DOS. It also includes the DECnet/PCSA Client software that runs on PC workstations, and on VAXmate workstations. Other PCSA products include ThinWire Ethernet products, and other peripherals, such as the LN03 Plus and LA75 Companion printers.

The DIGITAL PCSA network fully integrates all the elements of personal and corporate computing required for direct information access and sharing. Thus, it has computing and communication capabilities substantially better than those of conventional PC local area networks (LANs).

Manual Objectives

The objective of this manual is to explain:

- The requirements and features of Microsoft Windows in the PCSA environment
- How to use the PCSA Version 2.1 control utility (DCONTROL.EXE)
- How to use the on-line Information System
- How to use the VT220 terminal emulator

Intended Reader

This manual is intended for new or experienced users of MS-Windows.

You should read this manual in conjunction with the *Microsoft Windows User's Guide*.

Manual Organization

This manual consists of the following chapters:

Chapter 1	Contains requirements for and features of Windows in the PCSA environment.
Chapter 2	Contains information about the Setup Utility.
Chapter 3	Contains information about the PCSA Control Panel utility.
Chapter 4	Contains information about the Information System.
Chapter 5	Contains information about starting the VT220 terminal emulation application and the Windows features it uses. It also describes how to leave the VT220 emulator application.
Chapter 6	Contains information about using a keyboard with the VT220 terminal emulation application.
Chapter 7	Contains information about using the VT220 terminal emulation application Set-Up utility and the VT220 Set-Up screens and selections.
Chapter 8	Contains information about using VT220 configuration files, saving and recalling VT220 Set-Up selections, autotyping characters to a host, and receiving characters from a host through session logging.
Chapter 9	Contains information about the VT220 script processor for advanced VT220 users. You should read Chapters 3, 4, 5, and 6 before using the VT220 script processor. You should also be familiar with script processors.

Conventions Used

MS-Windows allows you to use either the keyboard or the mouse to select menus and commands. However, this manual uses mouse techniques exclusively to select MS-Windows menus and commands.

Follow these conventions while using this manual:

Convention	Meaning
red type	In examples, what you type is printed in red.
black type	In examples, what the computer shows on the screen is printed in black.
case	You can type commands and parameters in uppercase or lowercase letters, or in a combination of both.
enter	Type all text, spaces, and punctuation marks exactly as they are printed. Then press the Return key.
Return	Press the Return key.
Ctrl/C	Hold down the Ctrl key while you press the C key.
/	A forward slash (/) indicates a command qualifier.
[ ]	Square brackets in a command line indicate the optional command qualifiers. Do not type the brackets when specifying information enclosed in the brackets.
|	A vertical bar (|) in a command line indicates that you have a choice between two or more entries. You must select one entry unless the entries are optional.
default directory	The directory you are currently in.
default drive	The drive you are currently in.
workstation	A term used to include any personal or desktop computer used to communicate over a network and use the services available on that network. The term may include the VAXmate and other PC computers.

1

MS-Windows in the PCSA Environment

Microsoft Windows (MS-Windows) works essentially the same in the PCSA environment as it does in other environments. However, there are differences. There are specific requirements that your system must meet. Additionally, when reading the *Microsoft Windows User's Guide*, there are considerations you must take into account before using MS-Windows. Finally, MS-Windows in the PCSA environment has several additional features that are described in this manual. These are:

- The Setup utility (SETUP.EXE)
- The PCSA Control Panel utility (DCONTROL.EXE)
- The on-line Information System
- The VT220 terminal emulator

The requirements and considerations are discussed in this chapter; the Setup utility in Chapter 2; the PCSA Control Panel utility in Chapter 3; the on-line Information System in Chapter 4; and the VT220 terminal emulator in Chapters 5 through 9.

Requirements

To run MS-Windows 2.0 in the PCSA environment, you must have:

- 640 Kbytes of random access memory (RAM)
- Temporary files existing on a read/write drive. They cannot exist on a system drive. For the best performance, use a "fast" device such as a:
  - — hard disk
  - — *virtual disk*, which is space the disk server program sets aside on a VAX/VMS disk that users can connect to using MS-DOS
  - — memory drive

Considerations

Some features of the PCSA environment require you to alter the way you use MS-Windows. When reading your *Microsoft Windows User's Guide*, please consider the following:

- You can press the Alt/F17 keys to change the LK250 keyboard from industry standard mode to DIGITAL mode. The Special (Industry-Standard/DIGITAL) light emitting diode (LED) is always OFF while running applications designed explicitly for MS-Windows. The LED is ON when a standard application is receiving the input from the keyboard.

  You cannot move the keyboard in and out of Industry-Standard/DIGITAL keyboard mode (the Alt/F17 key sequence) while MS-Windows is running. To change the keyboard mode, exit MS-Windows and press the Alt/F17 key sequence from MS-DOS.

- When used with MS-Windows, the term "hard disk" can mean a hard disk, virtual disk, or file server.

- In the MS-DOS Executive window, drive icons can represent drives on the network (virtual disk or file server) or open file dialog boxes.

- You can use remote printers, but you should connect to a remote printer using the NET USE command before you run MS-Windows.

  If you are already running MS-Windows, and want to connect to a remote printer, do the following:

  a. Select the **Run** command in the File menu.

  b. When the dialog box is displayed, enter:

     ```
     USE
     ```

     Click on the OK command button.

  c. When the Parameter dialog box is displayed, enter the appropriate parameters and click on the OK command button.

  LPT1:, LPT2:, and LPT3: can be remote printers.

- Before you can format a removable media device, such as a diskette or a virtual disk, you must:

  — Be in the MS-DOS Executive window

  — Have read/write access to the device (in the case of a virtual disk).

  You can format only four removable media devices from MS-Windows. For example, if you have drive A (diskette), and drives D, E, F, and G (virtual disks), you can format drives A, D, E, and F from MS-Windows. You have to format the other drives from DOS.

- The MS-Windows DELETE command (from the MS-DOS Executive window) can delete system files, unlike the MS-DOS DELETE command, which cannot delete read-only or system files.

- You can display alternate characters. An alternate character is one of the following:

  — The third or fourth character on a keycap, such as a £

  — A character not displayed on a keycap, such as a ç

  For more information about displaying alternate characters, see the *International Features Guide*.

2

The MS-Windows Setup Utility

This chapter discusses:

- Nonstandard hardware options
- MS-Windows Setup utility
- Configuring MS-Windows to a network drive
- Installing device drivers for MS-Windows

Nonstandard Hardware Options

By default, the workstation software installed on a server allows you to use MS-Windows with the VAXmate workstation hardware. The standard workstation hardware for a VAXmate includes:

- DIGITAL graphics display
- DIGITAL mouse
- DIGITAL United States keyboard

To use MS-Windows with nonstandard hardware options, (for example, a French keyboard, a Logitech mouse, or a PC workstation with an LK250 keyboard), you must use Setup to create a version of MS-Windows for each nonstandard hardware configuration.

The MS-Windows Setup Utility

The MS-Windows Setup utility creates a version of MS-Windows for the hardware configuration you specify. You select a specific hardware option for:

- A graphic display adapter
- A pointing device, such as a mouse
- A country keyboard

NOTE
You must use Setup and create the new version of MS-Windows before you configure the nonstandard workstation.

To use Setup:

1. At your workstation, insert the system administrator's key diskette into drive A and turn on (or reset) the workstation.
2. Exit MS-Windows. Never run Setup from MS-Windows.
3. Change to the \WIN\DRV directory on the system source drive (drive L by default), by entering:

   ```
   A:\> L:  Return
   L:\> CD \WIN\DRV  Return
   ```

   Be sure the system source drive contains the correct software for the workstation you are configuring. For example, to configure a PC workstation when your default system source drive contains VAXmate workstation software, connect another drive to the PC workstation software and change to the \WIN\DRV directory on this drive. For example, to connect drive E to the PC workstation software in ISSYS, enter:

   ```
   A:\> USE E: ISSYS /V  Return
   A:\> E:  Return
   E:\> CD \WIN\DRV  Return
   ```

4. To start Setup, enter:

   ```
   L:\WIN\DRV> SETUP  Return
   ```

   Setup displays its main screen.

5. Press the Return key to continue.

   Setup displays a list of devices.

6. Select the device where you want Setup to install MS-Windows. The choices are:

   - One high capacity disk (1.2 Mbytes)
   - Two 5.25 inch disks (360 Kbytes)
   - Two 3.50 inch disks (720 Kbytes)
   - A hard disk

   IMPORTANT
   If you are configuring MS-Windows to a network drive, select the hard disk option. Then specify the drive and directory where you want MS-Windows to be set up.

   After you select a device, Setup displays a screen and waits for you to specify a directory to contain MS-Windows.

7. Specify the directory to contain the nonstandard version of MS-Windows for the specified hardware configuration.

   It is recommended that you specify a subdirectory of the \WIN directory, and that you specify a name that reflects the hardware configuration you are using with the new version of MS-Windows. If the directory you specify does not exist, Setup creates it.

   NOTE
   Copy all files in the .DRV directories to the directory you create; otherwise, Setup may not allow you to continue.

   It is recommended that you name the directory in the form **aabbcc**.

   Where:

   aa — Is the abbreviation for the graphics display adapter. Table 2-1 lists the abbreviations, the adapter names, and the workstation for which the adapter is available.

   bb — Is the abbreviation for the pointing device. Table 2-2 lists the abbreviations, the device names, and the workstation for which the device is available.

   cc — Is the abbreviation for the country of the keyboard. Table 2-3 lists the abbreviations and the keyboard for both the VAXmate workstations and the PC workstations.

Table 2–1 Graphics Display Adapters

Abbrev.	Graphics Adapter
DM	DIGITAL graphics driver
CG	IBM color graphics adapter
HE	Hercules card with monochrome display
EM	EGA with monochrome personal computer display
EW	EGA with enhanced color display (black and white only)
EC	EGA with enhanced color display or IBM color display
EX	EGA (more than 64K) with enhanced color display
AT	AT&T display enhancement board
AP	AT&T PC 6300 or PC 6300 PLUS display adapter

Table 2–2 Pointing Devices

Abbrev.	Device Name
DM	DIGITAL mouse
MS	Microsoft mouse
LT	Logitech mouse
NO	No mouse
M1	Mouse systems or VisiOn mouse (COM1:)
M2	Mouse systems or VisiOn mouse (COM2:)
JM	Kraft joystick mouse
FD	FTG Data Systems Light Pen and Single Pixel Board
LP	Lite-Pen Company Light Pen
AM	AT&T Mouse 6300

Table 2–3 Industry Standard Keyboards

Abbrev.	Keyboard
US	United States
UK	United Kingdom
FR	French
DE	German
IT	Italian
ES	Spanish
SF	Swiss French
SD	Swiss German
CA	Canadian
DK	Danish
FI	Finnish
NO	Norwegian
SE	Swedish
AT	AT&T 6300 or 6300 PLUS
BE	Belgian
LA	Latin American
PO	Portuguese

Enter the name of the directory and press the Return key. For example, if a PC workstation has an IBM color graphics adapter, a Logitech mouse, and a DIGITAL United States keyboard, create a directory called CGLTUS.

After you enter a directory, Setup displays a list of workstations.

NOTE
In the following steps, use the up and down arrows to highlight the appropriate selection, then press the Return key.

8. Select the appropriate workstation and press the Return key.

   After you select a workstation, Setup displays a list of display adapters.

9. Select the appropriate display adapter and press the Return key.

   After you select a display adapter, Setup displays a list of keyboards.

10. Select the appropriate keyboard and press the Return key.

    If you choose the "Other" option, Setup prompts you to insert a diskette containing the keyboard driver into drive A.

    After you select a keyboard, Setup displays a list of pointing devices, such as a mouse or a light pen.

11. Select the appropriate pointing device and press the Return key.

    After you select a pointing device, Setup displays the choices you made.

12. If you want to change a selection, use the arrow keys to select the appropriate choice and press the Return key. Setup displays the list for the device you selected. For example, if you select the graphics adapter, Setup displays again the list of graphics adapters. After you make another selection, press the Return key.

    Again Setup displays your choices.

    After you press the Return key, Setup builds MS-Windows with the hardware device drivers and copies it to the directory you specified.

After Setup builds MS-Windows, you can select an output device, or choose not to select an output device. For example, to select a printer:

1. Press the I key.

   Setup displays a list of output devices.

2. Select the appropriate printer or plotter and press the Return key.

To choose not to select an output device:

1. Press the C key.

   Setup displays a list of countries.

2. Select the appropriate country name and press the Return key.

After you select the country name, a message is displayed, indicating that MS-Windows is installed.

Configuring MS-Windows to a Network Drive

If you are a system administrator who wants to configure MS-Windows to run from a virtual disk, use the following procedure:

1. Contact users who are currently connected to the virtual disk to inform them that you are going to dismount the virtual disk service.
2. Dismount the virtual disk using the NET DISMOUNT command. For example, to disconnect drive D and dismount the service MAP on node ROAD, enter:

   ```
   C:\>NET DISMOUNT D: \\ROAD\MAP Return
   ```

   For more information on the NET DISMOUNT command, see *Using Networks from Your Workstation.*
3. Mount the virtual disk with read/write privileges, using the NET MOUNT command. For example, to mount the service MAP on node ROAD with read/write privileges, and connect to it using drive D, enter:

   ```
   C:\>NET MOUNT D: \\ROAD\MAP /RW Return
   ```

   For more information on the NET MOUNT command, see *Using Networks from Your Workstation.*
4. Run Setup by entering:

   ```
   L:\WIN\DRV>SETUP Return
   ```

   Setup displays a list of devices.
5. Select the hard disk option by pressing the H key.

   After you press the H key, Setup displays a screen and waits for you to specify a directory to contain MS-Windows.
6. To accept the default (L:\WIN\STD), press the Return key. Otherwise, specify any valid drive letter and directory name from which MS-Windows is to run. For example, you could specify:

   ```
   F:\WINDOWS
   ```
7. Press Ctrl/X to exit Setup.
8. Dismount the virtual disk using the NET DISMOUNT command. For example, to disconnect drive D and dismount the service MAP on node ROAD, enter:

   ```
   C:\>NET DISMOUNT D: \\ROAD\MAP Return
   ```

9. Mount the virtual disk with read-only privileges, using the NET MOUNT command. For example, to mount the service MAP on node ROAD with read-only privileges, and connect to it using drive D, enter:

```
C:\>NET MOUNT D: \\ROAD\MAP /RO Return
```

Installing Device Drivers for MS-Windows

As a system administrator, you will probably need to install new or updated device drivers for MS-Windows. Use the following procedure to install these device drivers:

1. Contact users who are currently connected to the virtual disk to inform them that you are going to dismount the virtual disk service.
2. Dismount the virtual disk using the NET DISMOUNT command. For example, to disconnect drive D and dismount the service MAP on node ROAD, enter:

```
C:\>NET DISMOUNT D: \\ROAD\MAP Return
```

3. Mount the virtual disk with read/write privileges using the NET MOUNT command. For example, to mount the service MAP on node ROAD with read/write privileges, and connect to it using drive D, enter:

```
C:\>NET MOUNT D: \\ROAD\MAP /RW Return
```

4. Copy the driver files to the \WIN\DRV directory. For example, to add a new driver file to the \WIN\DRV directory on drive L, enter:

```
A:\>COPY filename.DRV L:\WIN\DRV
```

Where:

filename.DRV Is the name of the new driver file.

NOTE

If you are upgrading a specific driver, you may want to use the REPLACE command to replace the old driver with the updated driver. For more information on the REPLACE command, see the *MS-DOS Reference Manual*.

5. Edit the SETUP.INF file so that the new drivers are available when MS-Windows is running.

   NOTE
   Make a backup copy of the SETUP.INF file before you edit it.

   Go the appropriate section of the SETUP.INF file and add the new device drivers to the database.

   When you finish, you may want to run Setup to make sure a new device driver is present.

6. When you finish adding the device drivers, dismount the virtual disk using the NET DISMOUNT command. For example, to disconnect drive D and dismount the service MAP on node ROAD, enter:

   ```
   C:\> NET DISMOUNT D: \\ROAD\MAP Return
   ```

7. Mount the virtual disk with read-only privileges, using the NET MOUNT command. For example, to mount the service MAP on node ROAD with read-only privileges, and connect to it using drive D, enter:

   ```
   C:\> NET MOUNT D: \\ROAD\MAP /RO Return
   ```

3
The PCSA Control Utility

The PCSA Version 2.1 Control Utility (DCONTROL.EXE) enables you to customize your keyboard and network terminal services.

This chapter discusses:

- Starting DCONTROL
- Customizing your keyboard
- Using network terminal services

NOTE
MS-Windows allows you to use either the keyboard or the mouse to select menus and commands. However, this manual uses mouse techniques exclusively to select MS-Windows menus and commands.

Starting DCONTROL

To start DCONTROL from the MS-DOS Executive window:

1. Click on DCONTROL.EXE (in the PCAPP subdirectory).
2. Select the **Run** command in the File menu on the menu bar.
3. Click on the OK command button in the dialog box.

   The DCONTROL window is now on your screen.

   If you choose, you can shrink the MS-DOS Executive window to an icon. For more information, see the *Microsoft Windows User's Guide*.

Customizing Your Keyboard

Once DCONTROL is running, you can customize your keyboard by selecting the Keyboard Settings option in the Setup menu. You can change any of the following settings from the Keyboard Settings dialog box:

- Auto Repeat, which allows you to repeat a key sequence as long as you hold down a key. See Table 3-1.
- Lock Selection, which allows you to choose Caps Lock mode or Shift Lock mode. See Table 3-2.
- Keyclick Volume, which allows you to choose the volume of the tone when you press a key. See Table 3-3.

Options that are displayed in a lighter color are unsupported for a specific workstation and keyboard, and are unavailable.

Table 3–1 Auto Repeat Options

Option	What It Means
Disabled	Only one keystroke is generated, even though you hold down a key.
Enabled	Keystrokes are generated as long as you hold down a key. This option is the default.

Table 3–2 Lock Selection Options

Option	What It Means
Caps	When you press the Lock key, the uppercase alphabetic keys are enabled. This option is the default.
Shift	When you press the Lock key, the uppercase alphabetic keys and the uppercase numeric keys are enabled.

Table 3–3 Keyclick Volume Options

Option	What It Means
No sound	No tone is generated when you press a key.
Soft	A soft tone is generated when you press a key.
Intermediate	An intermediate tone is generated when you press a key. This option is the default.
Loud	A loud tone is generated when you press a key.

After you make the desired changes, click on one of the three buttons displayed at the bottom of the Keyboard Settings window (see Figure 3–1).

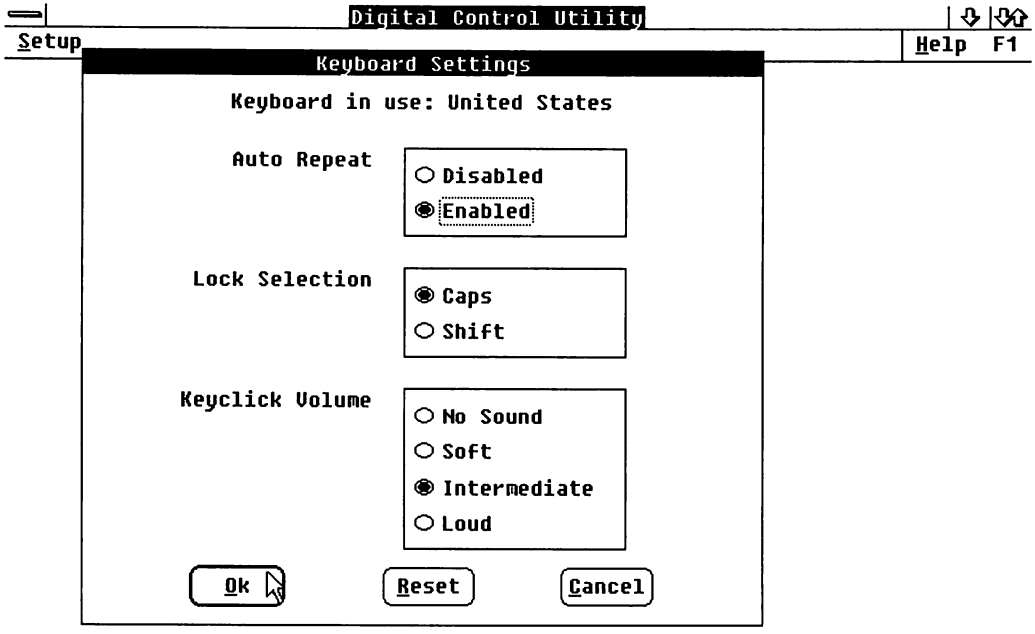

Figure 3–1 Keyboard Settings Dialog Box

Table 3-4 lists the result of selecting a specific button.

Table 3–4 Saving Keyboard Settings

Button selected	Result
Ok	All changes are saved in the WIN.INI file, and the dialog box is closed. The DCONTROL window is displayed.
Reset	All changes are discarded, and the settings are restored to what they were before you selected the Keyboard Settings option.
Cancel	All changes are discarded, and the dialog box is closed. The DCONTROL window is displayed.

Using Network Terminal Services

Using the Network Terminal Services option in the Setup menu, you can choose a service for your workstation's communications ports (COM1: or COM2:). In other words, you can connect your workstation to a server that offers terminal emulation services to client workstations.

To select a server from which you can use terminal emulation services:

1. Select the **Network Terminal Services** command from the Setup menu.

   MS-Windows displays a Network Terminal Services dialog box (see Figure 3–2).

   NOTE
   The system default is 10 services. A warning box is displayed if the service table is full.

   To add more services, you must change the table size in the Network Terminal Services driver. For more information about changing the table size, see the NET START LAT command in *Using Networks from Your Workstation*.

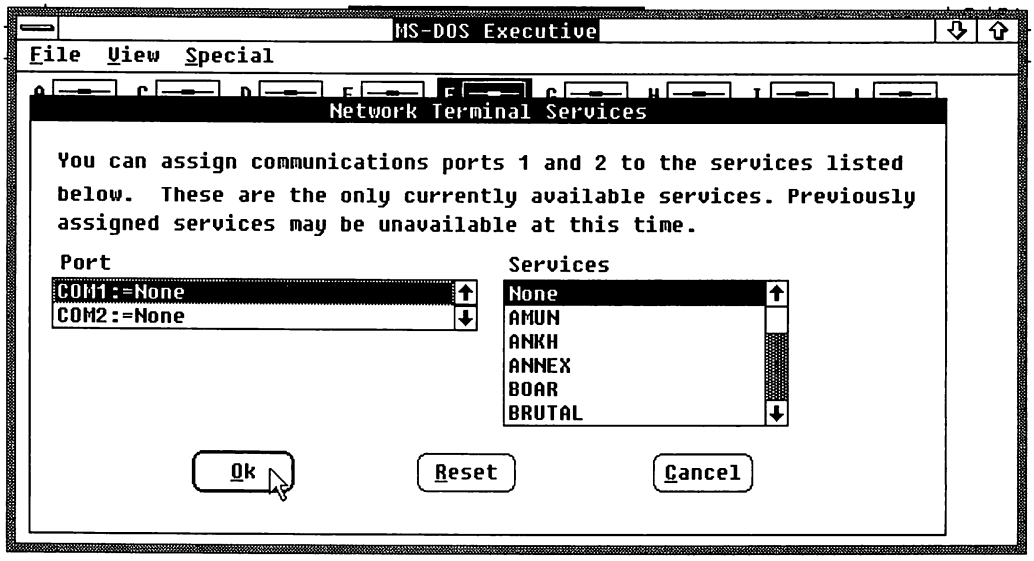

Figure 3–2 Network Terminal Service Dialog Box

2. From the Port list box, select COM1: or COM2:.

   The Port list box indicates whether the communications port is connected. If COM1: is already connected to a service, click on COM2:.

3. From the Services list box, select a server from which you can run terminal emulation services.

4. Click on the OK command button.

Now, when you run the VT220 terminal emulator, it runs from the server you connected to COM1:.

4

The Information System

The PCSA client software features the Information System, which is an electronic reference tool. The Information System, an MS-Windows application, is readily available whenever you are using your workstation—even when you are running other applications.

You can select from several topics on the Information System Main Menu to learn about MS-Windows, the PCSA network, and other subjects. Topics of special interest to new users are listed first; you can work your way down the list as you become proficient. Help is available to you when you need it.

Some Information Systems offer topics of their own. A triangular marker means there is additional information for you to select or topics for you to explore. Each level brings you greater detail.

Hands-On Exercise with the Information System

Using the Information System is like using any MS-Windows application.

- If the Information System is already in a window, skip the next step and proceed with this exercise.
- If the Information System is an icon, double-click on the icon that resembles a small letter "i" in a box.

The Information System is now in a window, and your workstation screen resembles the one shown in Figure 4–1:

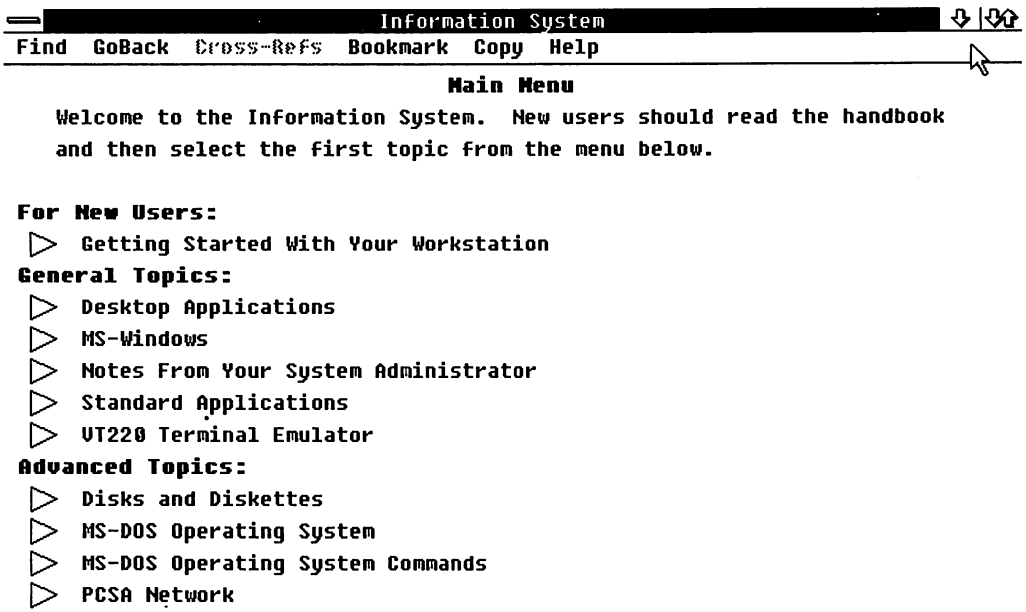

Figure 4–1 Information System Main Menu

1. Click on the "Getting Started with Your Workstation" topic. You now see information on this topic.
2. Click on one of the topics in the list. Information about the topic is displayed.
3. When you finish the topic, use the Main command from the GoBack menu to return to the Main Menu of the Information System.

Maneuvering Through the Information System

Table 4–1 contains information that can help you maneuver through the Information System.

Table 4–1 Basic Techniques for the Information System

To	Do This
Select a topic	Click on the line containing that topic.
Return to the Main Menu	Select the **Main** command from the GoBack menu.
Return to the previous menu	Select the **Previous** command from the GoBack menu.

Now that you have sampled the Information System, feel free to explore it on your own.

5

Using the VT220 Terminal Emulator

A *terminal emulator* is an application that lets you use your workstation as if it were a terminal connected to VAX/VMS host computer. When you use a terminal emulator, your workstation keyboard and screen behave like a DIGITAL terminal.

The VT220 terminal emulator application behaves like VT52, VT100, or VT200 7- and 8-bit control terminals that support both DEC and ISO Latin-1 character sets.

The VT220 terminal emulator application has a printer interface that supports the same DIGITAL printers used by the VT220 terminal.

The VT220 terminal emulator is an MS-Windows application that offers many Set-Up parameters or selections you can change or set depending on your needs. You save these selections in a file that the emulator reads when it starts.

In the following instructions, "VT220 emulator" means the VT220 terminal emulator for the workstation.

The VT220 emulator lets you:

- Put the VT220 emulator application on temporary hold while you switch to another application
- Receive or send information to or from a host using files
- Save and recall Set-Up selection settings using Set-Up configuration files
- Use MS-Windows Clipboard commands
- Use script processing

This chapter covers:

- Starting the VT220 emulator
- Using the VT220 emulator window
- Leaving the VT220 emulator

Starting the VT220 Emulator

Start the VT220 emulator by one of the following methods:

- Expand the VT220 emulator icon (a small terminal) in the icon area into the work area.
- Use the Run command from the File menu in the MS-DOS Executive window.

  1. Select the **Run** command.
  2. Type VT220 in the dialog box.
  3. Click on the Ok command button.

  Your workstation now emulates a VT220 terminal, and your host login information is displayed.

  NOTE
  If your login information is not displayed, see your system administrator.

Using Multiple VT220 Emulators

You can run more than one VT220 emulator. You might want to do this if you are:

- Editing a file in one VT220 emulator and want to access or monitor your mail using another VT220 emulator
- Compiling a program in one VT220 emulator and want to edit a memo using another VT220 emulator

When you start another VT220 emulator, the title bar displays square brackets next to the VT220 emulator title. A number is displayed in these brackets to indicate the emulator session you are running. These brackets are displayed only if you are running more than one VT220 emulator application.

You can change the VT220 emulator Window Title in the Display Set-Up screen to any 30-character string.

If there is more than one copy of the VT220 icon in the icon area, a unique number is displayed in each icon. You can change the way each icon looks by defining any device-independent .ICO file in the VT220 Display Set-Up screen.

Scrolling in the Emulator Window

If you need to view more information than can be displayed in an emulator window, use these keys:

Ctrl/Find	To scroll to the left
Ctrl/Select	To scroll to the right
Ctrl/Prev	To scroll up
Ctrl/Next	To scroll down

Using the VT220 Emulator System Menu Commands

The VT220 emulator adds the following commands to the standard system menu commands:

- Set-Up
- Mark
- Copy
- Paste
- Script
- About

The Set-Up Command

You can start or exit from the VT220 emulator Set-Up utility by selecting the **Set-Up** command. Chapter 6 discusses the Set-Up utility.

The Mark, Copy, and Paste Commands

The VT220 emulator lets you transfer information between itself and the MS-Windows Clipboard application. You copy the information from the emulator to the Clipboard or paste information from the Clipboard to the emulator as if you typed it. When you send information to the Clipboard, the characters are interpreted as ISO Latin-1 characters.

To copy text to the Clipboard:

1. Select Mark from the VT220 System menu, or click the left mouse button.

   The word "Mark" is displayed in parentheses next to the VT220 emulator title in the title bar. A special vertical bar, the insertion point, is also displayed in the window.

2. Drag the insertion point across the text you want to copy.

3. Select Copy or click the right mouse button to move the marked text to the Clipboard.

   NOTE
   Marking is disabled whenever a key is typed, or when Mark is selected a second time.

You can paste from the Clipboard at any time by selecting the **Paste** command from the System menu or by clicking the middle mouse button. The pasted text is sent to the host computer. Text is not displayed in the window unless the host echoes it, or Local Echo is enabled in Set-Up.

The Script Command

The Script command lets you automatically run script commands contained in script files as if you were in an interactive computing session.

The About Command

The About command displays the version number of the VT220 emulator application.

Leaving the VT220 Emulator

To leave the VT220 emulator, select one of the following commands from the VT220 System menu:

- The Icon command.

  Selecting the **Icon** command shrinks the VT220 emulator to an icon without exiting from the emulator application.

- The Close command.

  Selecting the **Close** command closes the VT220 emulator. Before using this command, you should log off the host system.

6

Using the VT220 Emulator Keyboard

This chapter:

- Shows a diagram of the workstation keyboard.
- Describes the differences between the workstation keyboard for the VT220 terminal emulator and an actual VT220 terminal keyboard.

The VT220 Emulator Keyboard

The layout of the VT220 emulator keys on a workstation keyboard is identical to the emulated terminal except for:

- Labels for some keys
- Location of the ‘ , ~, <, and >, and Compose key

The labels referred to are those on the standard United States legend strip. Other countries are supplied with individual emulator legend strips. Be sure to use the appropriate strip with the VT220 emulator.

Labels

Some labels for the workstation top-row function keys differ from those on a VT220 terminal keyboard. These labels are indicated in Figure 6-1.

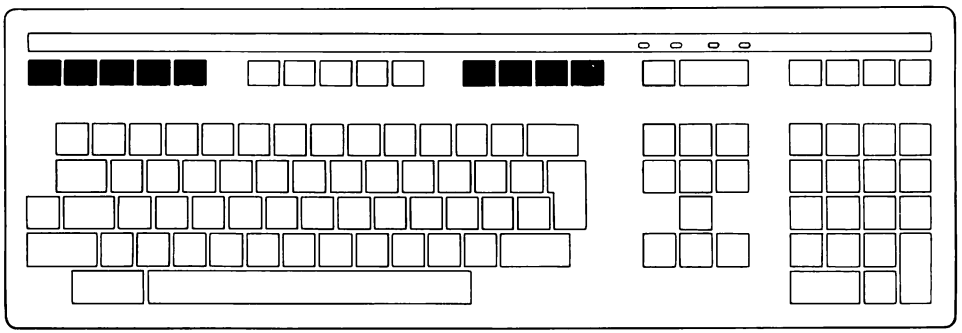

Figure 6–1 Workstation Keyboard

The VT220 emulator keys function exactly as they do for the VT220 terminal. In addition, the VAXmate workstation keyboard has an Alt key.

Top-Row Function Keys

Most of the top-row function keys have functions assigned to them by your application software. Refer to your application software documentation for their use.

This section describes keys with fixed meanings for the VT220 emulator. The labels in parentheses refer to the labels on the standard United States legend strip.

F1 (Hold)	Pressing the F1 (Hold) key freezes the screen display and stops any new characters from being displayed. Pressing the F1 (Hold) key again returns the emulator to normal operation. If the F1 key is pressed, the word "Hold" is displayed next to the title in the title bar.
F2 (Print Screen)	Pressing the F2 (Print Screen) key sends the screen text to the DIGITAL compatible printer. **Note:** If you print to a non-DIGITAL printer the results are unpredictable. Pressing Ctrl/F2 (Print Screen) sets or resets Auto Print Mode.
F3 (Set-Up)	Pressing the F3 (Set-Up) key allows you to enter and exit Set-Up.

F4 (Data/Talk)	Used when the optional integral modem is installed or if an external modem is used. For more information, refer to the *VAXmate Modem User's Guide*.
	Note: The integral modem may not be available for your country.
F5 (Break)	Pressing the F5 (Break) key transmits a break if you enabled Break in Set-Up. You may use it with other key combinations when the optional integral modem is installed. For more information, refer to the *VAXmate Modem User's Guide*.
	Pressing the Shift/F5 keys initiates a communications line disconnect.
	Pressing the Ctrl/F5 keys sends an answerback message as defined in Set-Up.
	Note: The integral modem may not be available for your country.
F11 (ESC)	Pressing F11 (ESC) generates an escape character when in VT52 and VT100 modes. In VT200 modes, F11 is a function key.
F12 (BS)	Pressing F12 (BS) generates a backspace character when in VT52 and VT100 modes. In VT200 modes, F12 is a function key.
F13 (LF)	Pressing F13 (LF) generates a line feed character when in VT52 and VT100 modes. In VT200 modes, F13 is a function key.

Using Special Keyboard Mappings with the VT220 Emulator

When using the VT220 emulator with an IBM or IBM compatible keyboard, a number of keys perform functions that are different from their labels.

To create VT220 application function keys not available on the IBM keyboards, special keyboard mappings and, in some cases, key combinations, are used to take advantage of those VT220 keys.

For example, to use the function supplied by the VT220 F11 key while using the IBM Enhanced keyboard, you would press:

Alt F1

Tables 6–1 through 6–3 list the labels for the VT220 emulator and their IBM counterparts.

Table 6–1 IBM Enhanced Keyboard Keys

VT220 Function Key	IBM Alt Key Sequence
F11	Alt/F1
F12	Alt/F2
F13	Alt/F3
F14	Alt/F4
F15	Alt/F5
F16	Alt/F6
F17	Alt/F7
F18	Alt/F8
F19	Alt/F9
F20	Alt/F10

VT220 Edit Keypad Key	IBM Edit Keypad Key
Home	Insert
Ins	Home
Del	End
End	Pg Up
Pg Up	Delete
Pg Dn	Next

VT220 Numeric Keypad Key	IBM Numeric Keypad Key
Compose	Escape
Add	Alt/-

Table 6–2 IBM Personal Computer AT Keyboard Keys

VT220 Function Key	IBM Alt Key Sequence
F11	Alt/F1
F12	Alt/F2
F13	Alt/F3
F14	Alt/F4
F15	Alt/F5
F16	Alt/F6
F17	Alt/F7
F18	Alt/F8
F19	Alt/F9
F20	Alt/F10

VT220 Numeric Keypad Key	IBM Numeric Keypad Key
Compose	Alt/PF1
Home	Alt/7
up arrow	Alt/8
Pg Up	Alt/9
left arrow	Alt/4
right arrow	Alt/6
End	Alt/1
down arrow	Alt/2
Pg Dn	Alt/3
Ins	Alt/0
Del	Alt/.

Table 6–3 IBM-PC/XT Keyboard Keys

VT220 Function Key	IBM Alt Key Sequence
F11	Alt/F1
F12	Alt/F2
F13	Alt/F3
F14	Alt/F4
F15	Alt/F5
F16	Alt/F6
F17	Alt/F7
F18	Alt/F8
F19	Alt/F9
F20	Alt/F10

VT220 Numeric Keypad Key	IBM Numeric Keypad Key
Num Lock	Alt/PF2
Scroll	Alt/PF4
End	Alt/1
Down arrow	Alt/2
Next	Alt/3
Left arrow	Alt/4
Right arrow	Alt/6
Home	Alt/7
Up arrow	Alt/8
Pg Up	Alt/9
Ins	Alt/0
Del	Alt/.
Add	Alt/Enter

7

Using Set-Up with the VT220 Emulator

This chapter describes:

- How to enter and exit Set-Up
- How to make or change Set-Up settings
- Each Set-Up screen and all the settings

Entering Set-Up

The VT220 emulator offers several Set-Up selections that affect such settings as tab stops, screen background, or column width.

To enter Set-Up either:

- Press the F3 (Set-Up) key
- Select the **Set-Up** command from the Set-Up System menu

Understanding the VT220 Set-Up Screens

After you enter Set-Up the VT220 emulator displays Figure 7–1, the Actions Screen, the first of eight Set-Up screens. For this discussion the Actions Screen is being treated as a general example of all eight screens.

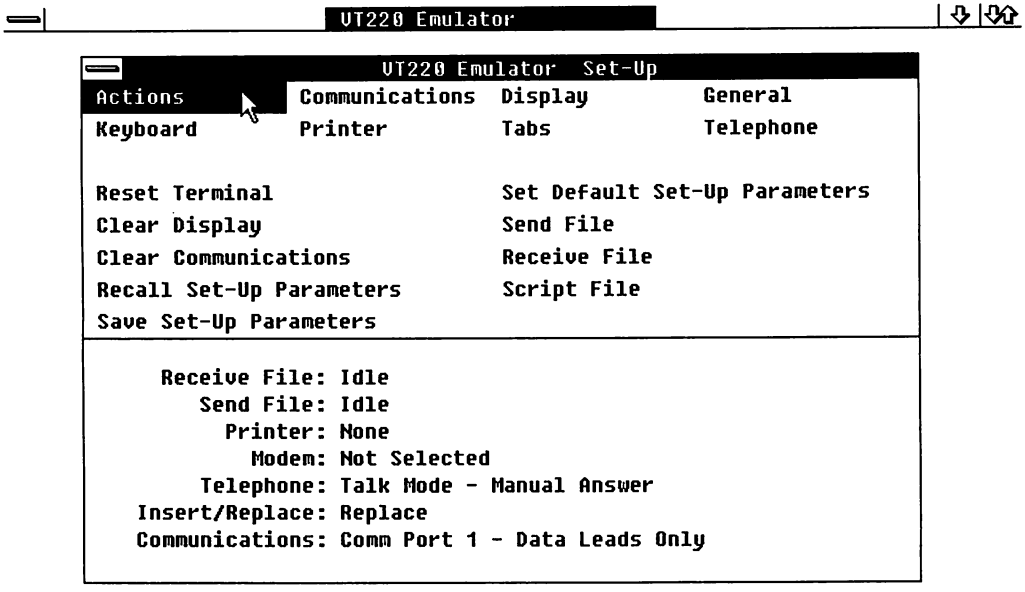

Figure 7–1 VT220 Set-Up

Each Set-Up screen displays:

- A title bar with a Set-Up System menu in the first line.
- A menu bar in the next two lines of the screen, with the name of the currently selected screen highlighted. You select a screen by clicking on its name.
- The current selections and settings in the mid-section of the screen. Some selections are actions that can be taken, while others represent settings with different values. These selections vary, depending on the selected screen.
- A status section in the bottom half of the screen.

Table 7–1 describes each of the Set-Up screens.

Table 7–1 VT220 Set-Up Screens

Set-Up Screen	Description
Actions	Contains selections for clearing the screen and resetting the emulator, saving and recalling Set-Up settings, and sending or receiving files.
Communications	Contains selections for defining the communications environment, such as speed, parity, and disconnect.
Display	Contains selections for defining screen display, such as columns, cursor style, background, and color.
General	Contains commonly used general operating selections, such as local echo, character sets, and terminal ID.
Keyboard	Contains selections for defining keyboard operating characteristics, such as margin bell, break, and answerback.
Printer	Contains selections for defining printer operations, such as print size or type of printer.
Tabs	Contains selections for defining the tab settings.
Telephone	Lets you determine how telephone answering is done. You can also enter the telephone numbers you want to use with the modem.

From each Set-Up screen you can:

- View the current selections and settings
- Change the current settings to suit your needs
- Access any of the other Set-Up screens from the menu

All settings can be saved in or recalled from Set-Up files. You can also recall the factory default settings.

The VT220 Status Section

The status section displays information on the state of operations you initiate through various Set-Up selections.

All screens for the VT220 emulator have a bottom section displaying the current status for:

- Receiving or sending a file
  - — Idle or In Progress
- Printer
  - — Printer type and mode
- Modem usage (valid only if the optional integral modem is installed, and you selected Modem Control)
  - — Selected or Not Selected
- Telephone modes (valid only if the optional integral modem is installed, and you selected Modem Control)
  - — Manual or Automatic Answer
- Insert/Replace mode
- Communications
  - — Comm Port 1, Comm Port 2, or Network Terminal Service

NOTE
The VT220 status area is a reporting area only.

Changing Settings in VT220 Set-Up

You can use either the mouse or the keyboard in VT220 Set-Up. This section describes only how to use the mouse.

Using the Mouse in Set-Up

To select a Set-Up screen and change a setting:

1. Select the desired screen from the menu area.
2. After the desired Set-Up screen is displayed, click on the selection you want to view or change.

   If a drop-down menu is displayed, go to the next step; otherwise release the mouse button.
3. Drag the pointer to the desired setting and release the mouse button.

NOTE
Some settings take effect immediately; others take effect when you exit Set-Up.

Exiting Set-Up

To exit Set-Up, do one of the following:

- Press the F3 (Set-Up) key again
- Select the **Close** command from the Set-Up System menu

Using Set-Up Table Information

The following sections describe the Set-Up screens and the settings you can change.

The information for each Set-Up screen is organized as follows:

- A description of the Set-Up screen
- The VT220 screen
- A table containing:
  - — Selection definitions
  - — Setting descriptions for each selection
  - — Default settings

Actions Screen

Whenever you enter VT220 Set-Up, the Actions Set-Up screen is displayed (see Figure 7–2).

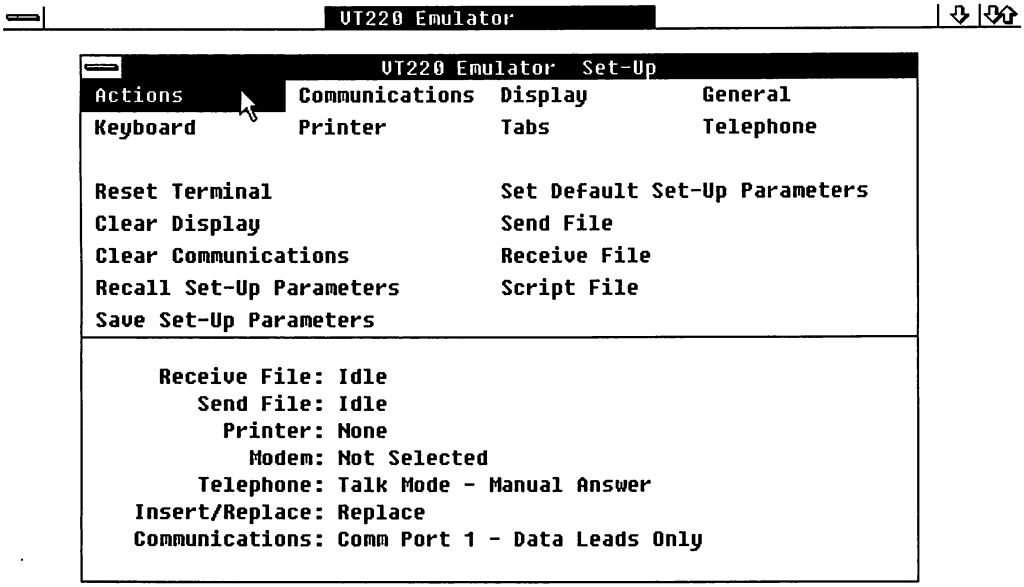

Figure 7–2 VT220 Actions

Table 7–2 defines the Actions Set-Up selections.

Table 7–2 VT220 Actions Set-Up

Selection	Function
Reset Terminal	Resets many terminal operating settings to the power-up default state. Does not affect NRC (National Replacement Characters), multinational modes, user-defined keys, or communications. It takes effect immediately.
Clear Display	Clears the display and sends the cursor to the upper-left corner of the screen.

Table 7–2 (Cont.) VT220 Actions Set-Up

Selection	Function
Clear Communications	Clears communication lines immediately and stops any print operation in progress. It also exits printer controller mode.
	Does not affect LAT communications.
Recall Set-Up Parameters	Replaces all existing settings with values you saved in a default file called DEFAULT.220 or in a file you created.
	Clears the dialog box from the Actions Set-Up screen and returns the cursor to the upper-left corner of the Actions Set-Up screen.
Save Set-Up Parameters	Saves the Set-Up settings in a default file called DEFAULT.220 or in a file you can specify.
	Clears the dialog box from the Actions Set-Up screen and returns the cursor to the upper-left corner of the Actions Set-Up screen.
Set Default Set-Up Parameters	Replaces all current Set-Up settings with factory default settings.
	Clears the dialog box from the Actions Set-Up screen and returns the cursor to the upper-left corner of the Actions Set-Up screen.
Send File	Allows you to send characters to a host from an MS-DOS text file as though you entered them from a keyboard.
Open File	Displays a dialog box and asks you to enter a file name. When you open a file from the dialog box, sending begins after you select Ok and exit Set-Up. When the file is opened this setting is displayed in a lighter shade until the file is closed.
Close File	Displayed in a lighter shade until you open a file. Closes and saves the file.

Table 7–2 (Cont.) VT220 Actions Set-Up

Selection	Function
Receive File	Controls the receiving of characters from a host into a specified file.
Open File	Displays a dialog box and asks you to enter the name of the file that is to receive the characters. If a file of the same name already exists, it is replaced.
Open File and Append	This is identical to Open File except that text is appended to a file of the same name if it exists. If not, a new file is created.
Close File	File logging is ended and the file is closed.
On	File logging resumes.
Off	File logging is suspended but the file remains open.
Script File	Displays a dialog box and asks you to enter a script filename. When Set-Up is exited, the file is opened and transmission begins.

Communications Screen

The Communications Set-Up screen lets you define the communications environment between the terminal and the host (see Figure 7-3).

Normally a terminal can only connect to a host using a serial port. Your workstation VT220 emulator allows you to connect to a host using one of the following:

- A serial port
- Network Terminal Services (the ThinWire Ethernet port)

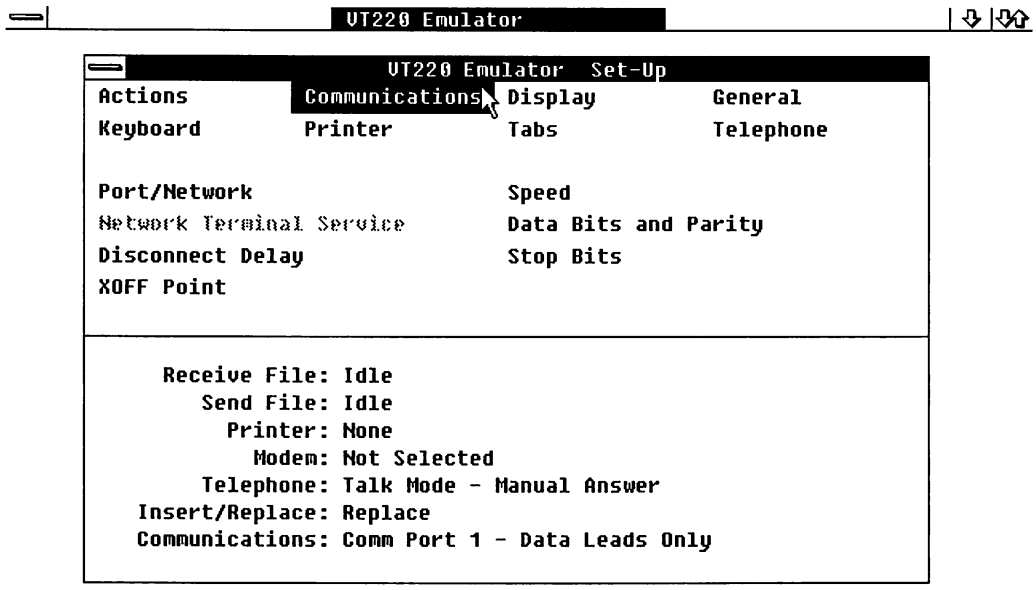

Figure 7–3 VT220 Communications

Table 7–3 defines the Communications Set-Up selections and, where applicable, the settings.

Table 7–3 VT220 Communications Set-Up

Selection	Function
Port/Network	Indicates the type of port used for communication with a host, either serial or Network Terminal Services communications. If you select serial communications, Network Terminal Service is displayed in a lighter shade on your screen.
Comm Prt 1: Data Leads Only (default)	Select this port when you connect to the host using serial communications.
Comm Port 1: Full Modem Control	Select this port if your workstation is connected to the host through the communications port and an external modem requiring modem control is used.
Comm Port 2: Data Leads Only	Select this port when you connect to the host using serial communications.
Comm Port 2: Full Modem Control	Select this port if your workstation is connected to the host through the communications port and an external modem requiring modem control is used. **Note:** The VT220 emulator may not function correctly with certain external modems due to timing inconsistencies under MS-Windows. To avoid problems using external modems, use the SETHOST emulator.
Comm Port 2: Integral Modem	Select this port if the optional integral modem is installed, and the workstation uses it to communicate with the host. **Note:** The integral modem may not be available for your country.

Table 7–3 (Cont.) VT220 Communications Set-Up

Selection	Function
Network Communication Port	Selects the connection to Network Terminal Services. You must be connected to the Ethernet to access these services.
	If you have not selected a Network Terminal Service, a dialog box is displayed, listing the available workstation services. For more information on defining the table size for these services in the MSNET.INI or in the AUTOEXEC.BAT, see the *VAXmate Services for MS-DOS Administration Guide*.
	Click on the service you want to access; then click on the Ok command button.
Network Terminal Services	If displayed in a lighter shade, you are using serial communications.
	If you set the Network selection under Port/Network, all items related to serial communications are displayed in a lighter shade, and you are connected to services available under Network Terminal Services.
Disconnect Delay	If the carrier detect is lost, Disconnect Delay selects (when modem control is used) the amount of time that passes before the workstation disconnects from the communications line.
2 second delay (default)	Most countries, except the United Kingdom, use the two-second delay.
60 Millisecond delay	The 60-millisecond delay is for use in the United Kingdom.
XOFF Point	Selects the XOFF point or disables the automatic XON/XOFF flow control.
	For most applications you should set XOFF at 64 or 256. If you set XOFF greater than 256 and have a buffer overflow problem, set XOFF to the next lower value.
XOFF at 64 (default)	The choices for XOFF are: 64 (default), 256, 512, and 1024.
Disabled	Characters are received continuously from the host. Some characters may be lost.

Table 7–3 (Cont.) VT220 Communications Set-Up

Selection	Function
Speed	Selects the rate at which characters are received or transmitted. The default is 9600.
Data Bits and Parity	Selects the character format used for communication with the host. The default is 8 bits - No Parity.
Stop Bits	Selects the number of stop bits (1 or 2) required for use by the host port. The default is 1 stop bit.

Display Screen

The Display Set-up screen lets you define screen display characteristics (see Figure 7–4).

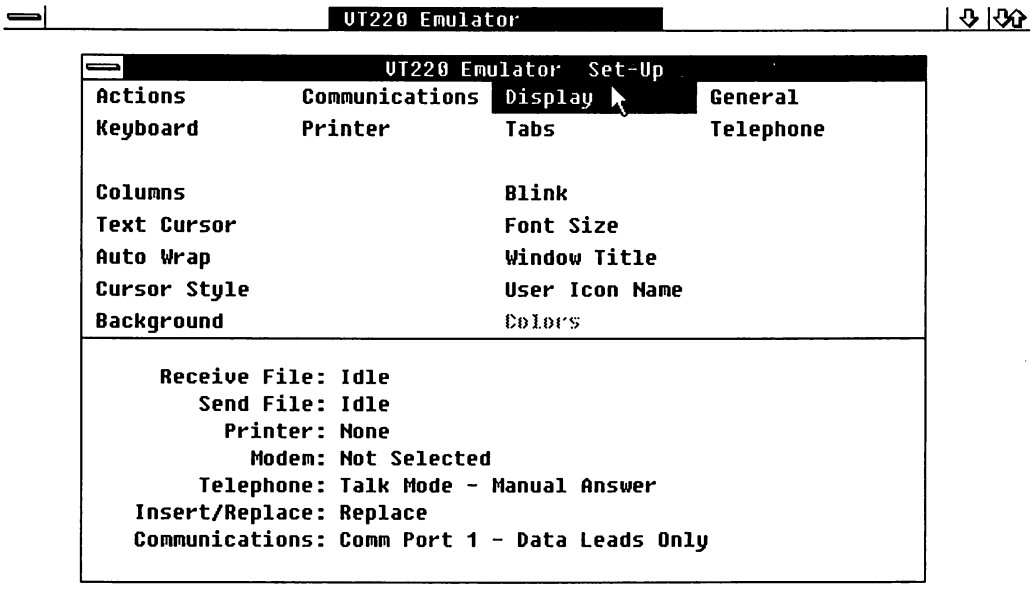

Figure 7–4 VT220 Display

Table 7–4 defines the Display Set-Up selections and, where applicable, the settings.

Table 7–4 VT220 Display Set-Up

Selection	Function
Columns	Selects an 80- or 132-column screen for text.
80 Columns (default)	Selects an 80-column screen.
132 Columns	Selects a 132-column screen.

Table 7–4 (Cont.) VT220 Display Set-Up

Selection	Function
Text Cursor	Selects whether to display a text cursor.
Visible (default)	Displays the cursor.
Invisible	Does not display the cursor.
Auto Wrap	Selects whether text automatically wraps on the screen.
On	Causes characters that reach the right margin to be displayed automatically in the first character position of the next line.
Off (default)	Causes characters that go beyond the right margin to overwrite the last character position of the current line.
Cursor Style	Selects the text cursor style.
Block (default)	Displays block cursor.
Underline	Displays underline cursor.
Background	Selects the screen display type.
Light (default)	Selects reverse video screen display (dark text on a light background).
Dark	Selects a dark screen display (light text on a dark background).
Blink	Blinking display is not implemented for the VT220 emulator.
	To indicate characters with blinking attributes, you have a choice of displaying these characters as either normal video (default), reverse video, or underscored.
Font Size	Changes the font size of characters displayed on the screen. The settings are: Normal (default), Small, or Automatic.
	Automatic switches between the two font sizes according to whether a whole line fits in the current window width.
Window Title	Displays a dialog box asking you to enter a title. The maximum number of characters you can use is 30. When you press the Enter key, the title bar changes to reflect your entry. This parameter is saved in the Recall Set-Up file.

Table 7–4 (Cont.) VT220 Display Set-Up

Selection	Function
User Icon Name	Displays a dialog box and asks you to select either the standard VT220 icon or a special icon. The icon file format uses a .ICO default extension. When you press the Enter key, the icon changes to reflect the defined icon. The icon name is saved in the Recall Set-Up file.
Colors	Displays a dialog box with the following display attributes: Background, Foreground, Bold, Reverse, and Underline. Click on the display attribute, then click on the color.

General Screen

The General Set-Up screen lets you define a group of commonly used general operating settings (see Figure 7–5).

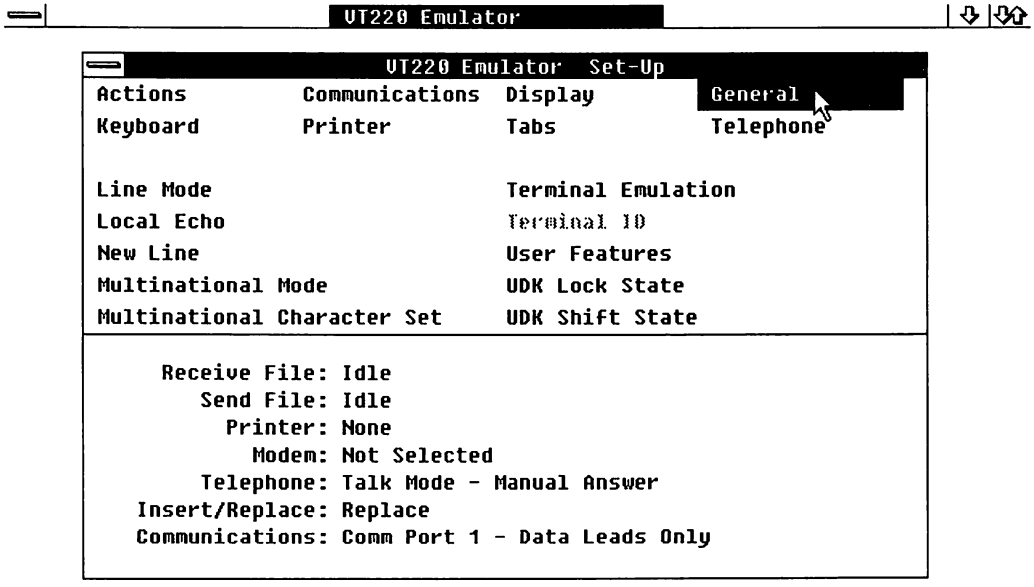

Figure 7–5 VT220 General

Table 7–5 defines the General Set-Up selections and, where applicable, the settings.

Table 7–5 VT220 General Set-Up

Selection	Function
Line Mode	Lets you select the mode of operation.
On Line (default)	Lets the workstation communicate with a host.
Off Line	Puts a host on hold. Data entered at the keyboard goes directly to the workstation screen.
Local Echo	Enables or disables the local echo selection.
On	Directs characters from the keyboard to the screen as well as to the host. It is used when the host does not send the characters back to the screen.
Off (default)	Directs characters from the keyboard to the host only. The host in turn may or may not send the characters back to the screen.
New Line	Selects whether the Return key generates a carriage return only or a carriage return and a line feed.
Enabled (Return = CR/LF)	Generates a carriage return and a line feed. Received carriage returns cause a new line operation. When autotyping, any line feeds in an autotyped file are sent. When using Clipboard, any pasted lines are separated by carriage returns and line feeds.
Disabled (Return = CR) (default)	Generates a carriage return only. Received carriage returns do not cause a new line operation. When autotyped or Clipboard pasted lines are separated by carriage returns, line feeds are not sent.
	Note: When the VT220 emulator is in numeric keypad mode, this setting affects the Enter key in the same way it does the Return key.
Multinational Mode	Determines character set mappings for the terminal.
NRC	Selects the 7-bit NRC (National Replacement Character) mode. The NRC set depends on the country keyboard which is determined during MS-Windows configuration Set-up.
Multinational (default)	Selects the 8-bit MCS (Multinational Character Set), including the 7-bit ASCII character set.
	Note: This selection is disabled when you select NRC mode.

Table 7–5 (Cont.) VT220 General Set-Up

Selection	Function
Multinational Character Set	Allows you to choose either the ISO Latin-1 or the DEC Multinational character set.
ISO Latin-1	Selects the 8-bit ISO Latin-1 character set.
DEC Multinational (default)	Selects the 8-bit DEC Multinational character set.
Terminal Emulation	Determines how the VT220 emulator acts. It can act like a VT52, VT100, VT200 with 7-bit controls (default), or VT200 terminal with 8-bit controls.
Terminal ID	Identifies your terminal as a VT220 (default), VT102, VT101, or VT100 terminal. Terminal ID can only be selected when emulation is set for VT100 mode. It is displayed in a lighter shade (not selectable) if you are in VT52 or VT200 mode.
User Features	Selects whether a host can change certain user features.
Locked	Prevents a host from changing certain user features.
Unlocked (default)	Lets a host change certain user features. The user features are: Light/Dark Screen, Tab Stops, and Keyboard Lock. **Note:** Some applications expect to control these user settings. If this applies to your application, select Unlocked.
UDK Lock State	Determines whether a host can change user-defined key (UDK) definitions. UDKs can be saved in the Set-Up file.
Locked	Prevents UDKs from being changed.
Unlocked (default)	Allows UDKs to be changed.
UDK Shifted State	Allows you to choose unshifted User Defined Keys (UDKs). Your selection is saved in the Set-Up file and is recalled when you start the VT220 emulator.
Shifted	Allows UDKs to be invoked from a shifted state.
Unshifted (default)	Allows UDKs to be invoked from an unshifted state.

To program the 15 programmable function keys, you have 256 available bytes. Space is defined on a first-come, first-serve basis. After the 256 bytes are used, you cannot define additional keys or redefine existing keys until the entire buffer is cleared.

Keys are loaded sequentially, so once the limit is reached, you cannot load another key definition. The VT220 emulator does not inform you when the limit is reached.

In addition, because the keys are saved in the Set-Up file, the 256-byte limit carries over from one session to the next until you clear the buffer.

Keyboard Screen

The Keyboard Set-Up screen lets you define keyboard operating features (see Figure 7–6).

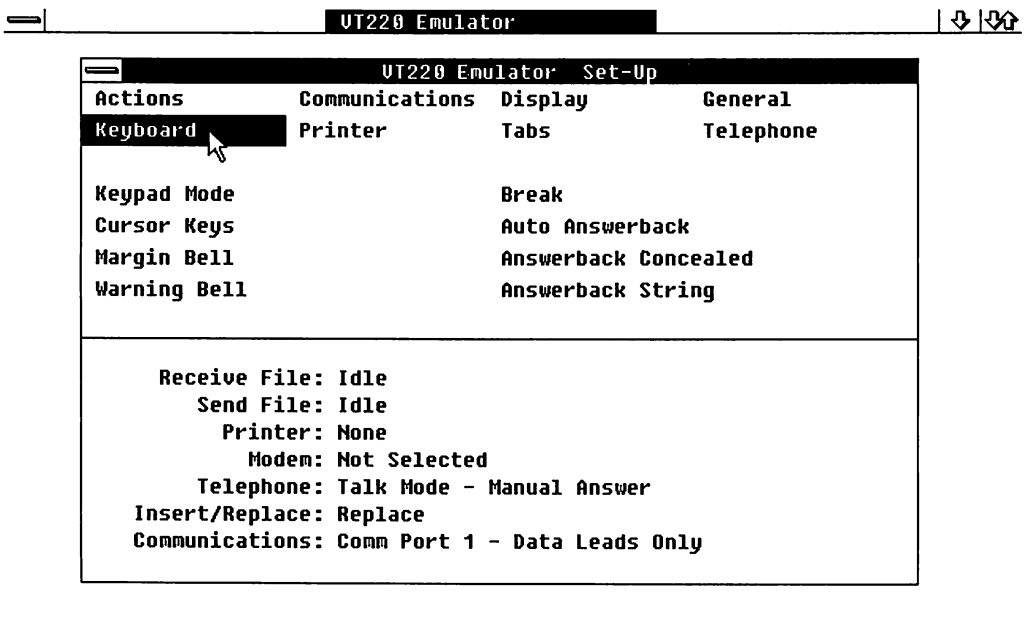

Figure 7–6 VT220 Keyboard

Table 7–6 defines the Keyboard Set-Up selections and, where applicable, the settings.

Table 7–6 VT220 Keyboard Set-Up

Selection	Function
Keypad Mode	Sets the terminal keypad for generating either numbers or control codes.
Numeric (default)	Sends numbers from the numeric keypad.
Application	Sends escape sequences from the numeric keypad.
Cursor Keys	Select the kind of control codes sent by the cursor keys. They are disabled if the terminal is in VT52 mode.
Normal Control (default)	Sends ANSI cursor control sequences for cursor keys (up, down, left, and right).
Application Control	Sends application program control functions for cursor keys.
Margin Bell	Determines whether the terminal sounds a bell tone when the text cursor approaches the right margin.
Enabled (default)	Turns on the margin bell setting.
Disabled	Turns off the margin bell setting.
Warning Bell	Determines whether the terminal generates a bell tone, such as for operating errors, mail messages, or system messages.
Enabled (default)	Turns on the warning bell setting.
Disabled	Turns off the warning bell setting.
Break	Enables or disables the Break key function.
Enabled (default)	Turns on the Break key function.
Disabled	Turns off the Break key function.

Table 7–6 (Cont.) VT220 Keyboard Set-Up

Selection	Function
Auto Answerback	Selects whether the answerback message is automatically sent to a host after a communication line connection.
Enabled (default)	Turns on the answerback message.
Disabled	Turns off the answerback message.
Answerback Concealed	Selects whether your answerback message entry is displayed on the screen.
Concealed	Your answerback message is not displayed on the screen. You can only reset this setting to Not Concealed by entering a new answerback message.
Not Concealed (default)	Displays the answerback message as entered.
Answerback String	Lets you enter an answerback message. A dialog box is displayed that asks for the answerback string. The emulator sends an answerback message when it receives an ENQ (enquiry control character) or if you or the host send a Ctrl/Break. In the case of ENQ, the message you enter is sent to a host without affecting screen data or requiring further operator action. You can enter any keyboard character, up to a 30 character limit. To enter a control sequence , enter a caret (^) followed by the control letter. For example, a control C would be entered as ^C.

Printer Screen

The Printer Set-Up screen lets you select printer (or auxiliary device) operations for the emulators (see Figure 7–7).

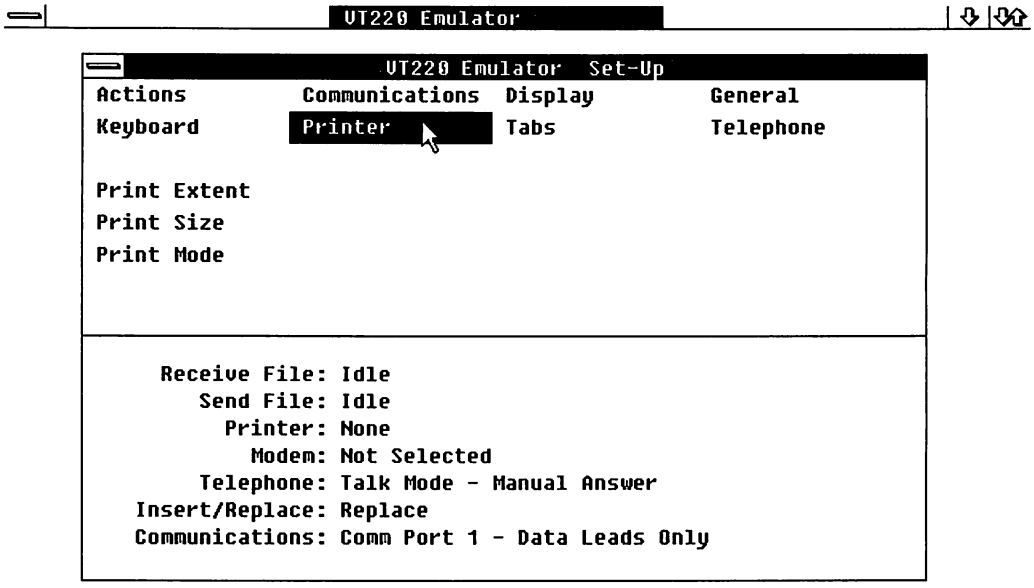

Figure 7–7 VT220 Printer

Table 7–7 defines the Printer Set-Up selections and, where applicable, the settings.

Table 7–7 Printer Set-Up

Selection	Function
Print Extent	Determines how much of the screen is printed during a text print operation.
Full Page (default)	Prints the full screen.
Scroll Region	Prints only the scrolling region.
Print Size	Determines the size of the printed characters.

Table 7–7 (Cont.) Printer Set-Up

Selection	Function
Normal (default)	Prints 80 characters on a line.
Compressed	Prints 132 characters on a line.
Print Mode	Selects the operating mode for the printer.
Normal (default)	Only sends information to the printer when you invoke print functions from the keyboard.
Auto	Prints the current text line when the terminal receives a line feed, form feed, or vertical tab code from a host.
Controller	Treats the device connected to the printer port as a terminal, while the VT220 emulator monitors traffic. (The printer and host transfer data without displaying the data on the screen.)

Tabs Screen

The Tabs Set-Up screen lets you set the terminal tab stop interval settings (see Figure 7–8).

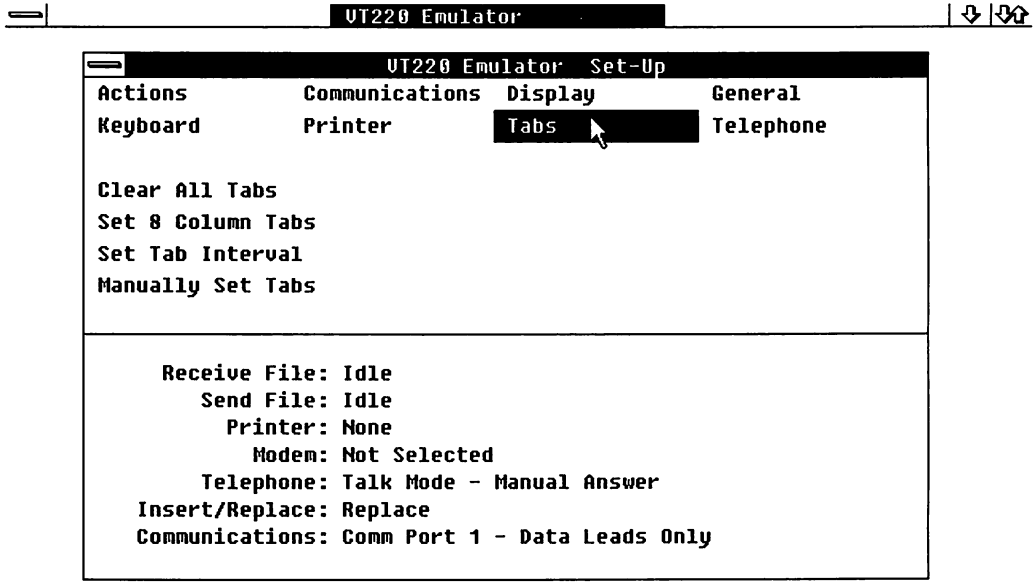

Figure 7–8 VT220 Tabs

Table 7–8 defines the Tab Set-Up selections and, where applicable, the settings.

Table 7–8 VT220 Tab Set-Up

Selection	Function
Clear All Tabs	Clears all tab settings.
Set 8 Column Tabs	Sets tabs every 8 columns, starting with column 9.
Set Tab Interval	Displays a dialog box containing the current tab stop setting. You enter a new interval in the dialog box by typing the desired number.
Manually Set Tabs	Allows you to change individual tab stops. The tab intervals are updated in a displayed ruler.

Setting VT220 Tabs Manually

To set tabs manually for the VT220 emulator:

1. Click on the Manually Set Tabs selection.

   A tabs ruler and blinking cursor are displayed below the Tabs Set-Up screen where the Icon area was located. Figure 7–9 shows the current tab settings.

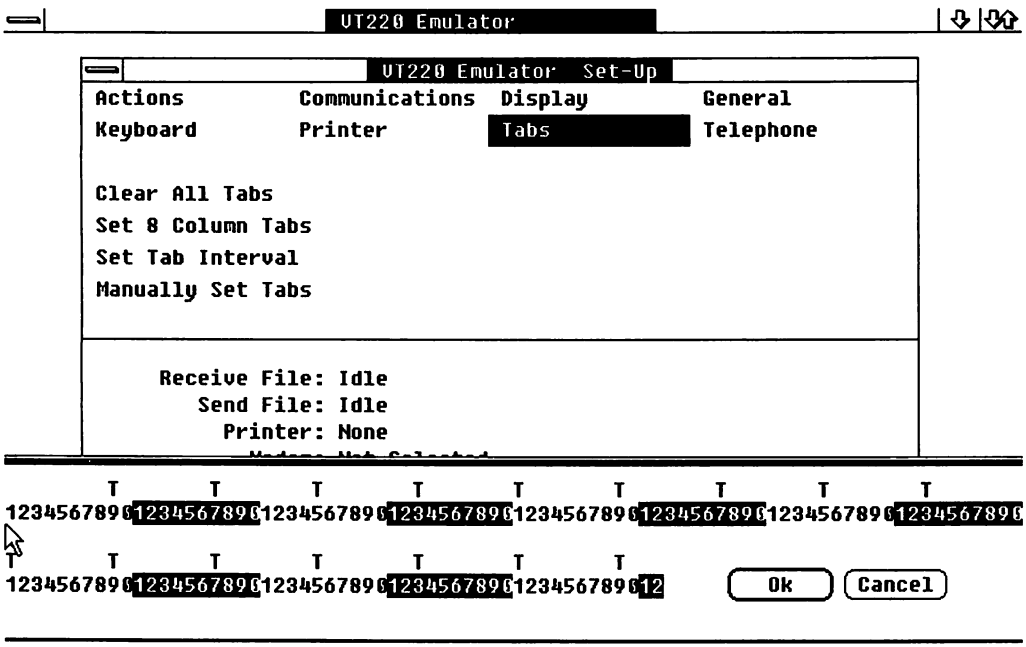

Figure 7–9 Manually Setting VT220 Tabs

2. To move the blinking cursor to the desired tab setting, use the mouse pointer.
3. Click on the desired tab setting.

   A "T" is displayed where you clicked.

   To erase a tab stop, click on the "T."

4. Repeat steps two and three until you have marked all desired tab stops.

   NOTE
   To cancel the tab settings you made and leave the tab settings unchanged, click on the Cancel command button.

5. To exit the tabs ruler and save the tab settings, click on the Ok command button.

   You are returned to the Tabs Set-Up selections.

Telephone Screen

The telephone Set-Up screen lets you store and display telephone numbers for automatic dialing (see Figure 7–10).

To use the Telephone selections, you should have:

- Installed the integral modem option (This is not available for all countries.)
- Selected and saved from the Communications screen:
  - — The Integral Modem selection
  - — The appropriate transmit and receive speeds

For more information on telephone settings, refer to the *VAXmate Modem User's Guide*.

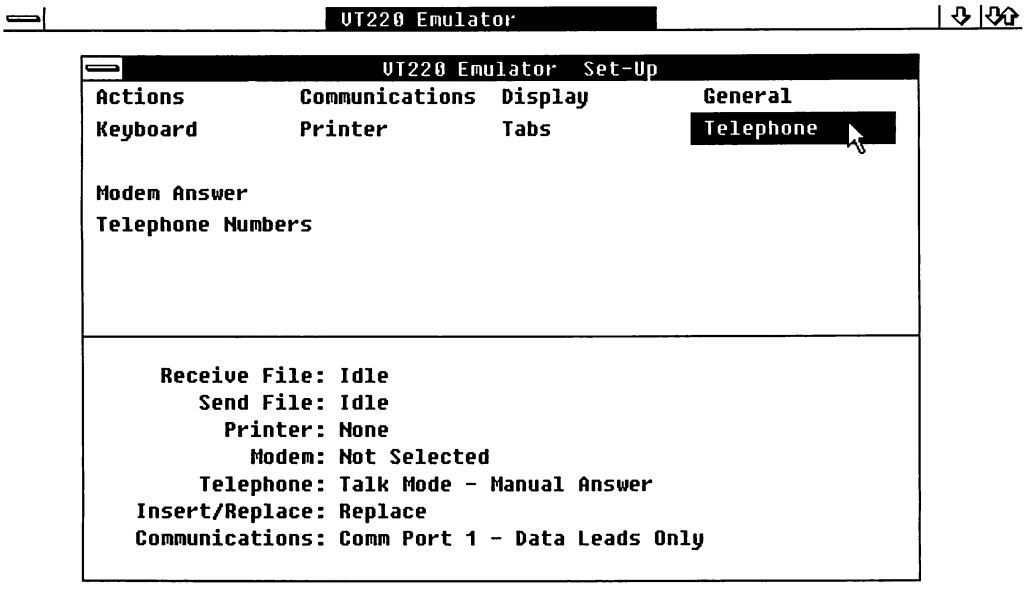

Figure 7–10 Telephone

Table 7–9 defines the Telephone Set-Up selections and, where applicable, the settings.

Table 7–9 VT220 Telephone Set-Up

Selection	Function
Modem Answer	Selects automatic telephone answering by the terminal or manual telephone answering by the user.
Manual (default)	Leaves the integral modem in talk mode after disconnecting from the host and allows you to answer the incoming call. Manual answer is required for normal telephone operation.
Automatic	Leaves the integral modem in data mode after disconnecting from the host and allows the terminal to automatically answer the incoming call.

Table 7–9 (Cont.) VT220 Telephone Set-Up

Selection	Function
Telephone Numbers	Displays a dialog box requesting you to enter phone numbers. Any previously entered phone numbers (A–J) are remembered and displayed. To enter phone numbers, click to the right of the desired letter. An insertion point is displayed indicating where to type in the phone number. Type in a phone number or type over an existing phone number. Repeat the process until you have entered or changed all the desired phone numbers. After you type the phone number(s), click on the Ok command button. You save these settings by using the Save Parameters selection before exiting Set-Up.

8

Using VT220 Special Features

This chapter tells you how to:

- Use configuration files
- Save and recall Set-Up selections
- Receive and autotype characters using files

Using Configuration Files

The VT220 terminal emulator allows you to save Set-Up settings in a Set-Up configuration file. You can have several of these files, each specifying different settings.

What the VT220 Emulator Does

When you start the VT220 emulator, it looks for the default Set-Up configuration file named DEFAULT.220. When found, this file configures your VT220 emulator with the initial values of all Set-Up selections.

If the VT220 emulator does not find the DEFAULT.220 file, it configures your VT220 emulator with the factory default settings instead.

What You Can Do

When starting the VT220 emulator, you can direct it to run a Set-Up configuration file other than DEFAULT.220.

You can also run configuration files after you start the VT220 emulator. To do this, use the Recall Set-Up Parameters as described in this chapter.

These Set-Up configuration files need not reside in the current directory. You can precede configuration file names with a directory path. For more information about appropriate file naming, see the *MS-DOS Reference Guide*.

Specifying Set-Up Configuration Files on Startup

To specify a Set-Up configuration file when you start the VT220 emulator, do one of the following:

- Select the **Run** command.

  A dialog box requests the name of the application you want to run.

  Type VT220 followed by a space and the name of the desired configuration file. The .220 is the default extension if none is given.

  Click on the Ok command button.

- The standard WIN.INI file distributed with your system associates the file extension .220 with the VT220 emulator. This lets you run Set-Up configuration files with a .220 extension as if they were the VT220 emulator.

  You click on the Set-Up configuration file in the MS-DOS Executive window and start the emulator with the settings contained in that Set-Up configuration file.

You can also save or start Set-Up configuration files after you start the VT220 emulator. To do this, use either the Save Set-Up Parameters or the Recall Set-Up Parameters selection from the Action screen.

Saving and Recalling Set-Up Files

After you select the desired Set-Up settings, you can save and recall them from the default file, DEFAULT.220, or a file you specify.

When you start the VT220 emulator, it looks for one of these files and initializes the emulator to the values contained in that file.

Saving VT220 Selection Settings

To save your VT220 Set-Up selections:

1. Select the Actions screen.
2. Click on the Save Set-Up Parameters.

   A dialog box asking for a file name is displayed. The dialog box either displays the default file name or the last file name you entered. You may edit this file name or replace it.

NOTE

If you select a currently displayed file, any settings you made replace any existing settings in that file.

3. To save your settings in the new or selected file, click on the Ok command button.

Recalling VT220 Selection Settings

To recall VT220 selection settings under Set-Up:

1. Select the Actions screen.
2. Click on the Recall Set-Up Parameters

   A dialog box is displayed asking for a file name. It will also either display the default file name or the last file name you entered. You may edit this file name or replace it.

3. To recall saved settings from the selected file, click on the Ok command button.

Receiving Characters from the Host Into a File

The status portion of your screen indicates whether session logging is active or idle during this process.

To receive or log characters from a host into a file using session logging:

1. Select the Actions screen.
2. Click on the Receive File selection.

   A drop-down menu displays the Receive File options.

3. Select the Open File or the Open and Append File option.

   A dialog box asks for the name of the file you want to receive the characters.

4. Type in the file name.
5. To begin receiving characters into the file, click on the Ok command button.
6. To stop receiving and close the file, select Close File from the Receive File menu.

   To suspend reception of characters without closing the file, you can alternately select On and Off from the Receive File menu.

Autotyping Characters to the Host

The status portion of your screen indicates whether autotyping is active or idle during this process.

When a file is autotyped to VMS, you must enable HOSTSYNC under VMS by entering:

```
$ SET TERMINAL/HOSTSYNC [Return]
```

This prevents data overruns on a VAX/VMS host.

To autotype characters to the host from a file as if you entered them from the keyboard:

1. Select the Actions screen.
2. Select Send File.
3. Select the Open File option.

   A dialog box is displayed asking for the name of the file you want to autotype.
4. Type in the file name.
5. To begin autotyping the specified file to the host, click on the Ok command button.

   File autotyping stops when the end of the file is reached.

   You can also stop autotyping the file by selecting Close File from the Send File menu.

9

Scripting for Advanced VT220 Users

A *script* is a text file containing sets of commands to perform a function automatically, such as:

- Logging into a host computer
- Running an automated billing procedure
- Dialing into a remote computer to retrieve information

This chapter describes:

- Writing a script
- Script file examples
- Running a script file
- Troubleshooting a script
- Script commands

To use the script processor, you should be familiar with a VT220 terminal emulator and the VT220 Set-Up features described in Chapters 6 and 7. You should also be familiar with using script processors.

Writing a Script

When you write a script, use these guidelines:

1. Manually perform the task you want to automate, and as you do each step, write down the keystrokes and any response times.
2. Determine the basic structure of the script. Scripts usually consist of:
   - An introductory part containing commands like BAUD RATE: and PARITY: to set up the communications line.
   - A main part containing a dialog between your workstation and the remote computer.

- Sections for error handling.
- An exit or end of script section.

3. Debug the script.

   Use the DEBUG and ECHO commands to check for problems with scripts.

   - DEBUG displays each command on the workstation screen as it is performed.
   - ECHO displays everything that comes through the communications line to the workstation.

4. Check the timing.

   Using the system response times you write down, you can add the TIMER and PAUSE commands to your script. You can increase some of the TIMER and PAUSE values in your script to allow for times when the remote computer is unusually slow.

   NOTE
   When using the ECHO or DEBUG commands, take into account the time it takes to display characters on the screen when you specify timer values. ECHO and DEBUG can display enough extra characters to cause timeouts that would not occur otherwise.

5. Handle flow control.

   Use the ON ERROR, SKIP ON, and RETRY commands to handle problems that might occur. For example, when you autodial a modem to connect to a remote computer, retry that portion of the script 10 times if the remote computer does not answer.

6. Give the script an file name with a .SCR extension.

7. Test the script.

   Make sure your script runs in the environment for which it is intended.

   Scripts that are called using CHAIN or SCRIPT can work differently when run from the main script than when run by themselves.

   Remove all DEBUG commands and leave ECHO commands only where you need to see what messages your workstation is receiving.

Scripting Examples

This section contains two examples of scripts.

NOTE

Each example contains a sequence of characters that must be typed to send codes used by the script processor to generate a carriage return. The sequence is:

```
<CR>
```

Logging In to a VAX/VMS Account

The following script example is used to:

- Log in to a VAX/VMS account
- Place all new mail in a file
- Print the file on the VAX printer

```
COMMENT:  This is a sample script showing some of the features
COMMENT:  that are part of the script processor.

LOAD: I:\VT220\SCRIPT\VIKING.220
TIMER: 60

COMMENT: The LOAD: command sets up the user's VT220 emulator
COMMENT: with appropriate communications parameters.  Also
COMMENT: notice the MS-DOS pathname.  The TIMER: command is
COMMENT: set to allow enough time for any system notices or
COMMENT: banners to display after prompting the user for a
COMMENT: name and password.  The TIMER: command also allows
COMMENT: for enough time if large amounts of mail messages
COMMENT: are extracted later in the script.

RETRY: 4

COMMENT: RETRY: allows the user four chances to log in to the
COMMENT: system.  These retries allow for the possibility of
COMMENT: a timeout occurring while the emulator waits for the
COMMENT: Username and Password prompt.

SEND: <CR><CR>
WAIT FOR:Username:
SEND:MCCARRON<CR>
WAIT FOR:Password:
TYPE UNTIL:<CR>

COMMENT: These commands automatically enter the username,
COMMENT: but require the user to type the password.
COMMENT: Interactively typing the password prevents someone
COMMENT: else from reading the password in a file.
```

```
WAIT FOR:$
SEND: MAIL <CR>
RETRY:0

COMMENT: When the user is logged in, these commands invoke
COMMENT: the MAIL utility.

ON ERROR:
   GOTO: $NO_NEW_MAIL
END ON ERROR:

WAIT FOR:new message

COMMENT: If the user has new mail, the MAIL utility displays
COMMENT: ''You have n new messages''.  The ''n''
COMMENT: is the number of mail messages you have.

COMMENT: If there is no new mail, a timeout occurs while
COMMENT: waiting for the new message.  Because there is an
COMMENT: ON ERROR: command in the script file, control
COMMENT: passes to the $NO_NEW_MAIL label.

WAIT FOR:MAIL>
SEND: <CR>
WAIT FOR:MAIL>
SEND: EXTR/ALL NEWMAIL.TXT <CR>
WAIT FOR:MAIL>
SEND: EXIT <CR>
WAIT FOR:$

COMMENT: If there is new mail, these commands store the mail
COMMENT: in a file, exit the  MAIL Utility, and return the
COMMENT: user to the command level prompt.

SEND: PRINT NEWMAIL.TXT <CR>
WAIT FOR:$
SEND:LOGOUT <CR>
EXIT:

COMMENT: These commands print the file containing the new
COMMENT: mail and log out the user.

COMMENT:  ERROR ROUTINE.

$NO_NEW_MAIL:
DISPLAY:  NO NEW MAIL. <CR><LF>
SEND: EXIT <CR>
WAIT FOR:$
SEND:LOGOUT <CR>
EXIT:

COMMENT: If there was no new mail, inform the user
COMMENT: and then logout.
```

Processing a Weekly Progress Report

The following script example is used to automate a manager's weekly task of receiving progress reports from his staff.

The script covers:

- Sending out Monday reminders to the staff
- Collecting the mailed reports on Tuesday

The script assumes the workstation is connected to a DECserver 100 by means of a serial port.

```
COMMENT:              Progress Report Script

COMMENT: This script facilitates the process of organizing
COMMENT: the weekly progress reports a manager receives from
COMMENT: his employees.

TIMER: 60
RETRY: 4

COMMENT: Resets the timer from the default of 15 seconds to
COMMENT: 60 seconds in case more time is needed for logging
COMMENT: onto the host computer.  If the host does not respond
COMMENT: in 60 seconds retry 4 times before quitting.

PORT:       DATA-1
BAUD RATE:  9600
DISCONNECT: 2
DATA BITS:  8
PARITY:     NONE

COMMENT: Sets communications parameters.

BREAK:

COMMENT: Send a break signal to return to the DECserver
COMMENT: 100's local mode.

WAIT FOR: Local>
SEND: Connect VAX <CR>

COMMENT: Establish a connection to a valid terminal service.

WAIT FOR: Username:
SEND: MCCARRON<CR>
WAIT FOR: Password:
DISPLAY: Password:
TYPE UNTIL: <CR>

COMMENT: These commands automatically enter the username,
COMMENT: but require the user to type the password.
COMMENT: Interactively typing the password prevents
COMMENT: someone else from reading the password in a file.
```

```
DISPLAY:  <CR><LF> Logging into VAX... <CR><LF>
WAIT FOR: $

COMMENT: Let the user know if the login is successful,
COMMENT: then wait for the system prompt.

$MAIN:
 TIMER: 15
 RETRY: 0
 ECHO:
 DISPLAY: Weekly Progress Report Script. <CR><CR><CR><LF>
 DISPLAY: Day - (M)onday, (T)uesday, (0)Exit:  <CR><LF>

COMMENT: Set the timer back to the default and end any
COMMENT: retries, then turn on local echo allowing host and
COMMENT: user input to display.  Display the title of the
COMMENT: script and indicate the choices available
COMMENT: to the user for the day of the week.

$GET_DAY:
 DISPLAY: <CR><LF> Choose day:
 READ: DAY_OF_WEEK

COMMENT: The label ''$GET_DAY'' is defined before the day
COMMENT: of the week is entered.  This allows control to
COMMENT: return to this label if an invalid date is entered.
COMMENT: Prompt the user for the day and store the value
COMMENT: in DAY_OF_WEEK.

 CASE: DAY_OF_WEEK
    "M"       SCRIPT: M:\VT220\TEST\MONDAY.SCR
    "m"       SCRIPT: M:\VT220\TEST\MONDAY.SCR
    "T"       SCRIPT: M:\VT220\TEST\TUESDAY.SCR
    "t"       SCRIPT: M:\VT220\TEST\TUESDAY.SCR
    "0"       GOTO: $EXIT
    DEFAULT:  GOTO: $ERROR
 CASE END:

COMMENT: Use the CASE: command to process the day of the week.
COMMENT: If a valid choice is entered, process the matching
COMMENT: script.  MONDAY.SCR sends the reminder mail message.
COMMENT: TUESDAY.SCR reads all the new mail and puts it
COMMENT: in a file.

COMMENT: If an invalid choice is entered, begin error
COMMENT: processing.

 GOTO: $EXIT:

COMMENT: Perform the exit routine after the CASE: command is
COMMENT: finished.

COMMENT:  ERROR ROUTINE.
```

```
$ERROR:
 DISPLAY: Illegal day. Please enter correct day code.<CR><LF>
 GOTO: $GET_DAY

COMMENT: If there are no matches for the day entered by
COMMENT: the user, display a message indicating the problem
COMMENT: and request the user to try again.

COMMENT:  EXIT ROUTINE.

$EXIT:
 DISPLAY: Finished. Return to (A) VT220 or (B) MS-DOS Executive.
 READ: EXIT_CHOICE

COMMENT: Tell the user the script is done.  Ask how the user
COMMENT: wants to leave the script by offering two choices.

 CASE: EXIT_CHOICE
    "A"      EXIT:
    "a"      EXIT:
    "B"      EXIT EMULATOR:
    "b"      EXIT EMULATOR:
    DEFAULT: EXIT:
 CASE END:

COMMENT: When the script is finished, allow the user two
COMMENT: return options.  These options are to return to
COMMENT: the VT220 emulator application or to the MS-DOS
COMMENT: Executive.
```

Running a Script

This section describes how to run a script, using any of the following:

- The Script command: The VT220 emulator system menu box that lets you specify a script file.
- A field in the VT220 Actions Set-Up screen: Lets you specify a script file to run when you exit VT220 Set-Up.
- A script file: Included on the command line when running the emulator. The procedure is similar to specifying a default Set-Up file.

This section also describes how script processing ends.

Starting a Script from the System Menu Box

To start a script from the System Menu box:

1. Click on the System Menu box.
2. Click on the **Script** command.
3. Type the name of your script file in the dialog box.
4. Press the Return key.

Starting a Script from Actions Set-Up

To start a script from the Actions Set-Up screen:

1. Access the VT220 Actions Set-Up.
2. Click on the **Script** command.
3. Type the name of your script file in the dialog box.
4. Press the Return key.
5. Exit Set-Up.

Starting a Script from the MS-DOS Prompt

To start a script from the MS-DOS system prompt when starting the VT220 emulator, enter:

```
C:\> WIN VT220 filename.scr [Return]
```

If this method is used, you must include the .SCR extension.

Ending a Script Process

A script process ends when one of the following occurs:

- The script processor reaches the last line in a script.
- The processor reaches a timeout condition without an ON ERROR: command to process.
- The processor reaches the EXIT, EXIT ON, EXIT EMULATOR, or EXIT EMULATOR ON commands.
- You type the Ctrl/C sequence at the keyboard. The Ctrl/C sequence is ignored while a TYPE UNTIL command is in effect.

Troubleshooting Your Scripts

After each script command is processed, it returns a status which records a code in the variables **Error_Number** and **Error_Message** (see Table 9-1 for the messages associated with these variables). These variables are accessed like any other variable in a script (see the SET: and READ: commands in this chapter).

The Error_Number contains the returned status code, while the Error_Message contains a descriptive comment related to the Error_Number. If a command processes successfully, the Error_Number is 0, and the Error_Message is "Command successfully completed."

Using these variables, you can create error handling routines to:

- Stop the script on a specific error
- Make some changes and continue processing

When a script encounters an error, the screen displays:

```
%SCR - Error.  Check ERROR.LOG for explanation.
```

The script continues processing, and an ERROR.LOG file is created and stored in the current directory. The file is in the following format:

```
COMMAND LINE:
ERROR_MESSAGE: -- [string] -- n
```

Where:

command line:	Is the text of the line that caused the script to fail.
Error_Message:	Is the message associated with the error.
[string]	Is any text, such as an actual command, associated with the message.
n	Is the number of the script line causing the script to fail.

For example:

```
DISCONCT: 60
Illegal Command -- DISCONCT -- Line #23
```

Table 9–1 File Logging Messages

Error Number	Error Message
0	Command Successfully Completed
1	Illegal Command
2	Timeout
3	Non-numeric Parameter
4	Invalid Parameter
5	Incompatible Settings
6	Not implemented in VT220
7	Service not available
8	Cannot find
9	END ON ERROR not found
10	ON ERROR not found
11	CASE END not found
12	MS-DOS command failed - Not enough memory.
13	Print Error
14	Label not found
15	Logfile already open
16	No logfile open
17	File Transfer Error
18	Variable not found
19	Comm Port not available
20	Nested ON ERROR routines not allowed
21	Error in Error routine
22	Error in CASE routine

Script Commands

Use the following syntax for script commands:

```
COMMAND: [parameter]
```

Where:

[]	Indicates optional items in the syntax.
. . .	A vertical series of periods, or an ellipsis, indicates that not all the data that the system would display is shown or that not all the data you would enter is shown.
COMMAND:	Is one of the script commands listed in this chapter. The colon must follow the last letter in the command to separate the command from its parameter, and each command must be on a separate line. You can type the characters in either upper or lowercase. Leading spaces are ignored.
parameter	Specifies what the script command acts upon. The script command definitions describe the parameter values for the appropriate commands. Command parameters include file specifications (filename), numeric values (n), strings (string), or variables (var). File specifications are in MS-DOS format. If you do not specify a path, the script processor searches the current directory and then the MS-DOS path. If you omit the file name, the script processor uses the default file name (if one exists). Strings and assigned variable strings consist of a series of ASCII characters.

Comments

The total length of the command and its parameter must not exceed 80 characters. Valid characters include all displayable and nondisplayable characters. Nondisplayable characters count as one character out of the 80 allowed characters.

Without the colon, the command is not recognized as a command, and a message is displayed indicating there is no command on the line.

BAUD RATE

Sets the rate at which characters are transmitted or received.

Format

BAUD RATE: *n*

Parameters

n
Is any of the following BAUD rates: 50, 75, 110, 134, 150, 300, 600, 1200, 1800, 2000, 2400, 3600, 4800, or 9600.

Description

When Network is selected, you cannot use BAUD RATE, DATA BITS, DISCONNECT, PARITY, STOP BITS, and XON/XOFF commands. These fields are automatically set and cannot be changed.

Example

```
BAUD RATE: 4800
```

Sets the rate to 4800 baud for character transmission or reception.

BREAK

Sends a break signal (as if you had pressed the Break key) over the communication line for tenths of a second.

Format

BREAK: *n*

Parameters

n
Indicates tenths of a second. You can also use the logical names SHORT (0.24 sec) or LONG (3.5 sec). The network connection has a fixed break of .274 seconds. The default is SHORT.

Example 1

```
BREAK: 5
```

Specifies a half second break.

Example 2

```
BREAK: SHORT
```

Specifies a SHORT break.

CASE or CASE END

Uses a variable already declared and assigned through the SET or the READ command to select options in a script. Following the variable is a series of lines. Each line contains a string, surrounded by quotes, and followed by a script command. When processing a CASE command, each string is examined, and the command associated with the first string matching the variable is processed. All other strings are ignored. Strings are also case sensitive.

Format

CASE: *[var]*
"stringn" commandn
DEFAULT: command
CASE END:

Parameters

var
Is the variable defined using the SET or READ commands.

stringn
Is any number (n) of strings one of which matches the previously defined variable. Each string must be surrounded by quotes and associated with a script command.

commandn
Is any number (n) of script commands to be run when an associated string matches a previously defined variable.

command
Is the DEFAULT command to run during script processing if no matches are found in the CASE construct.

Description

You can use a DEFAULT command to process a command if there are no matches. The DEFAULT command is only used within a CASE command construct. If neither a DEFAULT command nor a match is found, the whole CASE construct is ignored. The CASE construct must be ended by a CASE END command.

Example

```
SET: LOANS CARS
CASE: LOANS
          "CARS" GOTO: $CARS
          "HOMES" GOTO: $HOMES
          "BUSINESS" GOTO: $BUSINESS
          DEFAULT: GOTO: $END
CASE END:
```

Defines a variable using the SET command, then the CASE command lists a series of strings with a corresponding script command to process.

CHAIN

Calls another script file that, when completed, ends all script processing and returns you to either the VT220 emulator or the MS-DOS operating system. This command is similar to the GOTO command, except the destination is a script file and not a string.

Format

CHAIN: *[filename]*

Parameters

filename
Is the name of the script file.

Example

```
CHAIN: TEST1.SCR
```

Calls in a script called TEST1.SCR.

CLEAR LINE

Clears all data from the communications-line-received queue.

Format

CLEAR LINE:

Example

```
CLEAR LINE:
```

COMMENT

Lets you include comments within the script. The line is ignored and processing continues on the next line.

Format

COMMENT: *[string]*

Parameters

string
Is ASCII text used to describe the purpose of script command or a series of script commands or simply to make notes in the script itself. Each line of the text must begin with the COMMENT command. The text is ignored by the script processor.

Example

```
COMMENT: This line calls in a script to run the tax percentages
COMMENT: for the monthly payroll.
```

DATA BITS

Sets the number of data bits transmitted and received.

Format

DATA BITS: *n*

Parameters

n
Is 7 or 8 bits.

Description

When Network is selected, you cannot use the BAUD RATE, DATA BITS, DISCONNECT, PARITY, STOP BITS, and XON/XOFF commands. These fields are automatically set and cannot be changed.

Example

```
DATA BITS: 8
```

Sets the number of data bits to 8 bits a second.

DEBUG or NO DEBUG

Displays each line of the script file as it is processed. The default is NO DEBUG, which turns off DEBUG.

Format

DEBUG:
NO DEBUG:

Example

```
DEBUG:
SEND: DIR <CR>
WAIT FOR: $
SEND: COPY A.TXT B.TXT <CR>
NO DEBUG:
```

Checks each line of the script file as it processes for any errors.

DIAL

Works like the Shift/F4 key to simplify the process of dialing a phone number using a modem.

Format

DIAL: *[string]*

Parameters

string

Is either a telephone number or a letter between A and J. The letters (A-J) correspond to phone numbers stored in the VT220 Telephone Set-Up screen.

Example 1

```
DIAL: E
```

Automatically dials a number assigned to the letter "E."

Example 2

```
DIAL: 6171300
```

Automatically dials the number 617-1300.

DISCONNECT

Determines the length of time between the lost carrier signal and loss of the modem line. Use this command with a modem.

Format

DISCONNECT: *[n]*

Parameters

n
Is either 2 seconds or 60 milliseconds.

Description

When Network is selected, you cannot use BAUD RATE, DATA BITS, DISCONNECT, PARITY, STOP BITS, and XON/XOFF commands. These fields are automatically set and cannot be changed.

Example

```
DISCONNECT: 60
```

Drops the connection between the modem and the communications line after 60 milliseconds.

DISPLAY

Displays a character string on the terminal screen. The string is displayed on the next line.

Format

DISPLAY: *[string]*

Parameters

string
Is a series of ASCII characters you enter at the terminal.

Example

```
DISPLAY: START NOW
```

Displays the line "START NOW" on the workstation screen.

DTR

Clears the Data Terminal Ready (DTR) signal.

Format

DTR CLEAR:

Example

```
DTR CLEAR:
```

DTR SET

Sets the Data Terminal Ready (DTR) signal.

Format

DTR SET:

Example

```
DTR SET:
```

ECHO or NO ECHO

Displays all the characters transmitted or received on the communication line. The default is NO ECHO, which turns off ECHO and stops the script processor from displaying characters sent from the host. Use ECHO to resume the display of characters.

Format

ECHO:
NO ECHO:

Example

```
WAIT FOR:Password:
SEND:mypassword<CR>
WAIT FOR:$
DISPLAY:Connected and logged in<CR>
ECHO:
```

Allows the user to enter a password when the default (NO ECHO) is set. Displays a message to indicate that the password was accepted and then sets ECHO to continue screen display.

EXIT

Ends processing of the current script. If the current script was run using the SCRIPT command, control returns to the calling script; otherwise, control returns to the VT220 emulation application.

Format

EXIT:

Example

```
EXIT:
```

EXIT EMULATOR

Ends processing of the current script and any calling scripts. The VT220 emulator application is closed, and you are returned to MS-Windows.

Format

EXIT EMULATOR:

Example

```
EXIT EMULATOR:
```

EXIT EMULATOR ON

Ends the processing of the script and any calling scripts when a string sent from the host computer. When the string is received, the VT220 emulator application is closed, and you are returned to MS-Windows.

If a timeout occurs before the matching string is sent, processing continues on the next line of the script.

Format

EXIT EMULATOR ON: *[string]*

Parameters

string
Is a series of ASCII characters.

Example

```
EXIT EMULATOR ON: DEBITS
COMMENT: If no debits, continue processing
GOTO: $CREDITS
```

Ends script processing when the string DEBITS is received from the host computer.

EXIT ON

Ends the processing of the current script when a string is sent from the remote computer. If the current script was run using the SCRIPT command, control returns to the calling script; otherwise, control returns to the VT220 emulator application.

If a timeout occurs before the matching string is sent, processing continues on the next line of the script.

Format

EXIT ON: *[string]*

Parameters

string
Is a series of ASCII characters.

Example

```
EXIT ON: DEBITS
COMMENT: If no debits, continue processing
GOTO: $CREDITS
```

Ends script processing when the string DEBITS is received from the host computer.

FPRINT

Prints the specified file on the printer to which your workstation is connected.

Format

FPRINT: *[filename]*

Parameters

filename

Is the name of the script file. If you omit the file name, the script processor uses the default file DEFAULT.TXT (if one exits).

Example

```
FPRINT:A:\>TEST.TXT
```

Searches the specified MS-DOS path and prints the file TEST.TXT.

GOTO

Goes to the line in the script containing a string and continues processing from that point in the script.

Format

GOTO: *$[string]*

Parameters

string
Is a series of ASCII characters beginning with a $ that indicates a destination for the GOTO command.

Example

```
GOTO: $ACCOUNTS
```

Causes the script processor to search for a line containing the string $ACCOUNTS and to continue processing at that point in the script.

HANG UP

Clears the DTR signal.

Format

HANG UP:

Example

```
SEND: LOGOUT<CR>
HANG UP:
DIAL: E
```

Specifies the end of one modem session and the beginning of a new one.

KEYBOARD ON or KEYBOARD OFF

Prevents data from the keyboard from being used as input during script processing. The default is KEYBOARD ON, which allows data from the keyboard as input during script processing.

Format

KEYBOARD ON:
KEYBOARD OFF:

Example

```
KEYBOARD OFF:
SEND FROM: TEST2.TXT
KEYBOARD ON:
```

Disables any keyboard input while the contents of a file is sent. When the file has been sent, keyboard input is enabled.

LOAD

Replaces all existing VT220 settings with values you saved in a VT220 Set-Up file. The default file is DEFAULT.220.

Format

LOAD: *[filename]*

Parameters

filename

Is a VT220 Set-Up file containing new Set-Up values. For more information on VT220 Set-Up files, see Chapter 6.

Example

```
LOAD: NETWORK.220
```

Replaces any existing VT220 Set-Up vales with a new set of values contained in the VT220 Set-Up file NETWORK.220.

NTS

If Network is selected with the PORT command, you must select a Network Terminal Service (NTS) in VT220 Set-Up.

Format

NTS: *[string]*

Parameters

string
Is a selection from a list of available Network Terminal Services.

Example

```
NTS: LATCOM
```

ON ERROR or END ON ERROR

Marks the beginning of a segment of script code that is to be processed when an error condition is discovered. The END ON ERROR command marks the end of the segment. The intervening code is ignored during normal processing and is processed only after an error code is returned. If, when the error routine is processed, the END ON ERROR command is reached, processing continues on the line following the command that caused the error.

You cannot use nested ON ERROR/END ON ERROR commands. If both the ON ERROR and RETRY commands are in the file, the retries are processed until the retries run out, then the ON ERROR command is processed. If there is no RETRY command, just the ON ERROR command is processed.

Format

ON ERROR:
END ON ERROR:

Example

```
ON ERROR:
GOTO: $CLEANUP
END ON ERROR:
```

If an error occurs, go to the $CLEANUP label and perform cleanups, then exit.

OPEN or CLOSE

Opens a log file to capture all text sent on the communications line. Only one log file at a time can be opened during any one script session. If any other log file exists, it is overwritten unless you save it by renaming the file. You must use the CLOSE command to close a session log file opened by the OPEN command.

Format

OPEN: *[filename]*
CLOSE: *[filename]*

Parameters

filename

Is the name of the log file containing text received on the communications line. The default file is SESSION.LOG.

Example

```
OPEN: JOHN.LOG
PRINT SCREEN:
CLOSE: JOHN.LOG
```

Opens the file JOHN.LOG and types a file onto the screen and into the log file. After the file is displayed, it is closed.

PARITY

Sets the parity.

Format

PARITY: *[string]*

Parameters

string
Is any of the following selections: None, Even, Even No Check, Odd, Odd No Check, Mark, or Space.

Description

When Network is selected, you cannot use BAUD RATE, DATA BITS, DISCONNECT, PARITY, STOP BITS, and XON/XOFF commands. These fields are automatically set and cannot be changed.

Example

```
PARITY: NONE
```

Indicates to the processor that there will be no parity checking on the communications line.

PAUSE

Suspends processing for a specified length of time.

Format

PAUSE: *n*

Parameters

n
Is the time in hours, minutes, and seconds (HH:MM:SS). You can omit any of the fields (HH:MM:SS) but must include the colons. If a field is omitted, the script processor uses the default value of 0.

Example 1

```
PAUSE: 0:0:30
```

Specifies a 30 second pause.

Example 2

```
PAUSE: 0:5
```

Specifies a 5 minute pause.

Example 3

```
PAUSE: 2
```

Specifies a 2 hour pause.

PORT

Selects the type of port.

Format

PORT: *[string]*

Parameters

string
Is any of the following: Data-1 (Port 1, data leads only), Modem-1 (Port 1, full modem support), Data-2 (port 2, data leads only), Modem-2 (Port 2, full modem support), Integral-2 (Port 2, integral modem), or Network.

Description

When Network is selected, you cannot use the BAUD RATE, DATA BITS, DISCONNECT, PARITY, STOP BITS, and XON/XOFF commands. These fields are automatically set and cannot be changed.

Example

```
PORT: DATA-1
```

Sets port 1 to data leads only.

PRINTER ON or PRINTER OFF

Determines whether the VT220 Auto Print Mode is set. The default is PRINTER OFF, which disables Auto Print Mode.

Format

PRINTER ON:
PRINTER OFF:

Example

```
PRINTER OFF:
```

PRINT SCREEN

Prints the current screen text on the printer.

Format

PRINT SCREEN:

Example

```
PRINT SCREEN:
```

PURGE TYPE

Clears all data from the keyboard type-ahead buffer.

Format

PURGE TYPE:

Example

```
PURGE TYPE:
```

READ

Assigns a variable name to a string you enter from the keyboard.

Format

READ: *[var]*

Parameters

var
Assigns a variable name to string. You must enter the string and end it with a carriage return to tell the script processor to continue processing. Any previously assigned variable name is overwritten by this command.

Example

```
READ: LOAN [Return]
```

Causes script processing to suspend until the user types a value for the variable LOAN. Processing continues when a carriage return is entered.

RETRY

Indicates the number of times a script command is run after a timeout. When a timeout occurs, control passes to the line following the RETRY command and script processing continues from that point.

Format

RETRY: *n*

Parameters

n
Is the number of times a command is processed after a timeout. The default is 0.

Example

```
RETRY: 3
SEND: <CR>
WAIT FOR: Username
```

Make three attempts to connect to a host computer.

SCRIPT

Opens a new script file, processes all its commands and returns control to the next line in the calling script.

Format

SCRIPT: *[filename]*

Parameters

filename
Is the name of a script file.

Example

```
SCRIPT: RUNTHIS.SCR
```

Processes all the commands in the script file RUNTHIS.SCR.

SEND

Sends a character string to the remote computer.

Format

SEND: *[string]*

Parameters

string
Is a series of ASCII characters.

Example

```
SEND: GOODBYE <CR>
```

Sends the string GOODBYE to the host computer.

SEND FROM

Sends the contents of a file to the remote computer without translating special or nondisplayable characters.

Format

SEND FROM: *[filename]*

Parameters

filename
Is the name of a file.

Example

```
SEND FROM: TEST2.TXT
```

Sends the characters contained in the file TEST2.TXT to the host computer.

SET

Assigns a string to a variable. Variable and string must be separated by one or more spaces.

Format

SET: *[var]*
[string]

Parameters

var
Is the variable name assigned to a string you specify.

string
Is a series of ASCII characters.

Example

```
SET: LOANS CARS
```

Assigns the string CARS to the variable LOANS.

SKIP

Skips over one or more lines in a script.

Format

SKIP: *n*

Parameters

n
Is the number of lines to be skipped in a script. The default is one.

Example

```
SKIP: 3
```

Skips over three lines of a script file.

SKIP ON or NO SKIP ON

Skips over the next line in a script if the string in the command arrives before the remote computer sends a timeout. If a timeout occurs, the next line in the script is processed.

If NO SKIP ON is used, the next line in the script is processed if the string arrives before the timeout period ends.

Format

SKIP ON: *[string]*
NO SKIP ON: *[string]*

Parameters

string
Is a series of ASCII characters.

Example

```
SKIP ON: OWES MONEY
```

If the host computer sends the string OWES MONEY, the script processor skips to the next line in the file.

STOP BITS

Sets the number of stop bits.

Format

STOP BITS: *n*

Parameters

n
Is either 1 or 2.

Description

When Network is selected, you cannot use the BAUD RATE, DATA BITS, DISCONNECT, PARITY, STOP BITS, and XON/XOFF commands. These fields are automatically set and cannot be changed.

Example

```
STOP BITS: 2
```

Sets the stop bits to two.

SYSTEM

Processes the MS-DOS operating system command specified in the string.

Format

SYSTEM: *[string]*

Parameters

string
Is an MS-DOS operating system command.

Description

When you use the SYSTEM command in a script, MS-Windows creates a window that runs COMMAND.COM which in turn runs the DOS command and then ends. However, the window is still open on exiting, and script processing is suspended until the window is closed.

To close the window, do one of the following:

- From within the MS-Windows COMMAND window, use the System menu CLOSE command.
- Use PIFEDIT to create a .PIF that automatically closes COMMAND upon exiting.

  The COMMAND.PIF you create should contain the following:

Program Name	COMMAND
Memory Requirements	32
Program Switch	Text
Screen Exchange	Text
Close Window on Exit	Yes

  You must also delete the following line in the WIN.INI file under the [PIF] heading:

```
COMMAND.COM=32
```

Example

```
SYSTEM: RESTORE
```

Tells the script processor to run RESTORE, an MS-DOS operating system command.

TIMEOUT

Forces an unconditional timeout. The timeout causes the script to run any existing error routines or to end script processing.

Format

TIMEOUT:

Example

```
TIMEOUT:
```

TIMER or TIMER OFF

Sets the time in seconds that the system waits for a correct response from the host computer. TIMER OFF turns off the timeout period set by the TIMER command, which disables timeouts.

Format

TIMER: *n*
TIMER OFF:

Parameters

n
Is the time in seconds. The default is 15 seconds.

Example

```
TIMER: 10
WAIT FOR: Hello
```

Indicates that the system is to wait 10 seconds for the string "Hello" to be sent from the host computer.

TYPE UNTIL

Sends a string of any length from the keyboard through the communication line until the terminating string specified in the command is typed. Script processing then begins on the next line of the script.

Format

TYPE UNTIL: *[string]*

Parameters

string
Is a series of ASCII characters.

Description

If you type the Ctrl/C sequence at the keyboard, the sequence is ignored if a TYPE UNTIL command is in effect.

Example

```
TYPE UNTIL: DONE
```

Puts the VT220 into terminal emulation mode until the user types DONE.

WAIT FOR

Suspends processing until the remote computer sends a string specified in the command or until a timeout occurs. All data sent before the string is found is ignored.

Format

WAIT FOR: *[string]*

Parameters

string
Is a series of ASCII characters.

Example

```
WAIT FOR: RESUME SENDING DATA
```

Puts script processing on hold until the string RESUME SENDING DATA is sent by the host computer or until a timeout occurs.

XON/XOFF or NO XON/XOFF

Responds to XON/XOFF in script processing. NO XON/XOFF ignores XON/XOFF in script processing.

Format

XON/XOFF: *n*
NO XON/XOFF

Parameters

n
Is the rate at which characters are received from the host. The rates are: 64, 256, 512, or 1024.

Description

When Network is selected, you cannot use the BAUD RATE, DATA BITS, DISCONNECT, PARITY, STOP BITS, and XON/XOFF commands. These fields are automatically set and cannot be changed.

Example

```
XON/XOFF: 64
```

Sets the XOFF point to 64 bits.

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READER'S COMMENTS

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For which tasks did you use this manual? (Circle your responses.)

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